SR 826/PALMETTO EXPRESSWAY
SYSTEMS INTERCHANGE MODIFICATION REPORT
APPENDICES

VOLUME 2 OF 3

FDOT Financial Project Identification Number: 432639-1-22-02
Efficient Transportation and Decision Making (ETDM) Number: 14308

Project Study Limits:
From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
Miami-Dade County, Florida

FDOT DISTRICT SIX
1000 NW 111TH AVENUE
MIAMI, FLORIDA 33172

DRAFT

August 2019

SR 826/Palmetto Expressway Express Lanes
Project Development and Environment (PD&E) Study

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APPENDIX A

Methodology Letter of Understanding

Florida Department of Transportation Interchange Access Request

Methodology Letter of Understanding (MLOU)

Type of Request ☐ IJR ☒ SIMR ☐ IOAR

Type of Process ☒ Programmatic ☐ Non-Programmatic

SR 826 (Palmetto Expressway) from US 1/SR 5 to SR 836 (Dolphin Expressway) Systems Interchange Modification Report (SIMR)

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	Maria Perdomo, PE *FDOT District Six Project Manager*	*Date*
Requestor	Mayra Diaz *MDX Project Manager*	*Date*
Interchange Review Coordinator	Dat Huynh, PE *Planning and Environmental Manager*	*Date*
State Interchange Review Coordinator (if applicable)	Maria Overton, PE *Systems Planning Office – Central Office*	*Date*

1.0 Project Description

A Systems Interchange Modification Report (SIMR) is being conducted in support of the SR 826 (Palmetto Expressway) Project Development and Environment (PD&E) Study from US 1/SR 5 to SR 836 (Dolphin Expressway), a distance of approximately seven miles (see ***Figure 1.1***). The PD&E Study is proposing corridor improvements that will add highway and interchange capacity with the implementation of an express lanes system and interchange improvements. The project is located in Miami-Dade County, Florida and is contained within unincorporated Miami-Dade County.

SR 826 is one of the most traveled transportation corridors in Miami-Dade County. This multilane expressway extends north-south from US 1 to the Golden Glades Interchange for a distance of approximately 25 miles. SR 826 connects southern Miami-Dade County to northern Miami-Dade County and serves as a feeder route to the County's busiest east-west corridor, SR 836. SR 826 also provides system-level connections to I-75, SR 924 (Gratigny Parkway), SR 874 (Don Shula Expressway), and I-95. SR 826 is part of the Strategic Intermodal System (SIS) and National Highway System (NHS). SR 826 is listed as a local evacuation route in Miami-Dade County.

SR 826, between US 1 and SR 874, consists primarily of six travel lanes (three lanes in each direction). Between SR 874 and SR 836 the corridor consists primarily of ten travel lanes (five lanes in each direction) and two undesignated High Occupancy Vehicle (HOV) lanes (one in each direction). This segment of SR 826 is functionally classified as an Urban Other Freeway/Expressway and has a posted speed limit of 55 miles per hour. The access management classification for this corridor is Class 1.2, Freeway in an existing urbanized area with limited access.

According to the 2015 FDOT Florida Traffic Online data, the highest existing Annual Average Daily Traffic (AADT) volume recorded within the project limits was 194,500 vehicles per day (vpd). According to the SR 826 Planning Feasibility Study, dated September 2016, the projected year 2040 AADT volume was as high as 349,000 vpd within the project limits.

There are ten existing interchanges within the project limits. Eight of the ten interchanges provide connection to arterial/collector facilities. Two major system-to-system interchanges within the project limits are SR 826 with SR 874 and SR 826 with SR 836. These system-to-system interchanges provide a connection between major expressways, which services and distributes traffic originating from or destined to the north, south, east, and west portions of Miami-Dade County.

This project will evaluate the following potential types of improvements:

- Implementation of dynamically priced express lanes.
- Access and ramp connections to and from the express lanes (ingress and egress access points).
- Interchange improvements – Modification of existing entrance and exit ramps serving the interchanges within the project limits.
- Intersection improvements – Widening and turn lane modifications along the cross streets to facilitate the ramp modifications and improve the access and operation of the corridors upstream and downstream from the interchanges.



Figure 1.1 – Project Location Map

A. Purpose and Need Statement

The overall goals and objectives of the PD&E Study and SIMR are described below:

- Evaluate the implementation of an express lanes system that will improve safety, capacity, operations, regional express lane network connectivity, expressway/interchange access, mobility and emergency evacuation.
- Identify the appropriate express lanes typical section that, combined with strategic ingress and egress locations, will service the users of the area and achieve the Purpose and Need.
- Provide relief from existing and projected traffic congestion.
- Improve the safety of the SR 826 mainline corridor by addressing speed differentials and lane weaving deficiencies between interchanges.
- Support the optimal operations of the existing roadway network.
- Maintain consistency with the current SR 826 Express Lanes Project, from SR 836 to I-75, and local projects.
- Once a conceptual alternative is selected, the improvements will be prioritized based on the area needs (short-term vs. long-term), logical segmentation and funding.

The need for this project is to add capacity to the SR 826 corridor to meet future transportation demand, improve travel time reliability and to provide long-term mobility options. Other considerations for the Purpose and Need of this project include safety, system linkage, freight movement and emergency evacuation. The primary and secondary needs for the project are discussed in further detail below.

<u>Capacity</u>

The project traverses four of the six transportation planning areas (Central, Northwest, South, and West) as identified within the Miami-Dade Transportation Planning Organization (TPO) 2040 Long Range Transportation Plan. The greatest population and employment growth between the years 2010 and 2040 within Miami-Dade County is expected to occur within the South transportation planning area. Population within this area is projected to increase by 49.6% while employment is projected to increase by 64.5%. The other three transportation planning areas are also anticipated to grow modestly between this same period. Population within Central is projected to increase by 27.9% and employment by 32.5%. Population within Northwest is projected to increase by 20% and employment by 41.9%. Population within West is projected to increase by 12.5% and employment by 42.5%. The projected growth in the area will result in a significant increase in travel demand and further deteriorate the conditions of the already congested SR 826 corridor.

<u>Safety</u>

According to the FDOT Crash Analysis Reporting System there were a total of 2,531 crashes along the corridor within the project limits between the years 2011 and 2013, of which 1,522 (60.1%) were rear-end crashes and 259 (10.2%) were fixed object crashes. These types of crashes can be attributed to the heavy levels of congestion and operational weaving conditions within the project area. The majority (547) of the total crashes occurred between milepost 5.7 and 6.8 (between SW 24th Street and north of Flagler Street), resulting in 811 injuries and one fatality.

Safety along the corridor will be enhanced with the construction of the express lanes. Implementing express lanes will improve mobility, reduce congestion and provide additional travel options along the corridor. Diverting some of the future traffic volumes off the general purpose lanes to the express lanes, will help increase gaps along the general purpose lanes

providing more space for vehicles entering SR 826. The express lanes will also help reduce tailgating and improve traffic flow while at the same time separating long distance trips from local trips. Separating these trips will reduce weaving and sideswipe crashes. The express lanes will also create added capacity helping the corridor to operate more efficiently during emergency evacuation events.

System Linkage

SR 826 connects southern Miami-Dade County to northern Miami-Dade County and serves as a feeder route to the County's busiest east-west transportation corridor, SR 836. The corridor provides system-level connections to I-75, Florida's Turnpike, SR 874, and I-95. In addition, SR 826 is designated as an SIS facility. The section of SR 826 from US 1 to SR 836 serves the major western Miami-Dade County growth areas along SW 8th Street, SW 40th Street and the Dadeland South area. The corridor also provides access to the Miami International Airport north and east of SR 836 and to the Dadeland Mall at SW 88th Street. The SR 826 southern segment from US 1 to SR 836 is the final segment of a larger express lanes project for the SR 826 corridor. The northern segment, which extends from SR 836 to I-75, is already under construction. When complete, this regional system will greatly improve capacity, safety, connectivity and peak-hour travel times.

Freight

SR 826 is an integral component of the regional freight network carrying over 10,000 trucks a day according to the 2014 Miami-Dade County Freight Plan Update. The plan identifies the construction of a separate barriered truck lane with manageable entry and exit points along SR 826 as a freight priority highway need of Miami-Dade County. The addition of express lanes along SR 826 would create a more efficient roadway network, improving traffic flow in the general purpose lanes. While trucks are not allowed in express lanes, the enhanced traffic conditions along SR 826 would aid in the movement and delivery of freight.

Emergency Evacuation

In accordance with the Miami-Dade's Comprehensive Development Master Plan, SR 826 is listed as a local evacuation route in Miami-Dade County. This corridor is critical in facilitating traffic movement during emergency evacuation periods as it connects to other major arterials and highways of the state evacuation route network.

B. Project Location

The project is located in western Miami-Dade County and is approximately 7 miles in length. The project limits extend along SR 826 from US 1 to SR 836 (see ***Figure 1.1***).

C. Area of Influence

The area of influence along SR 826 extends from US 1 to south of NW 25th Street. ***Figure 1.2*** depicts the area of influence along SR 826 and cross streets.

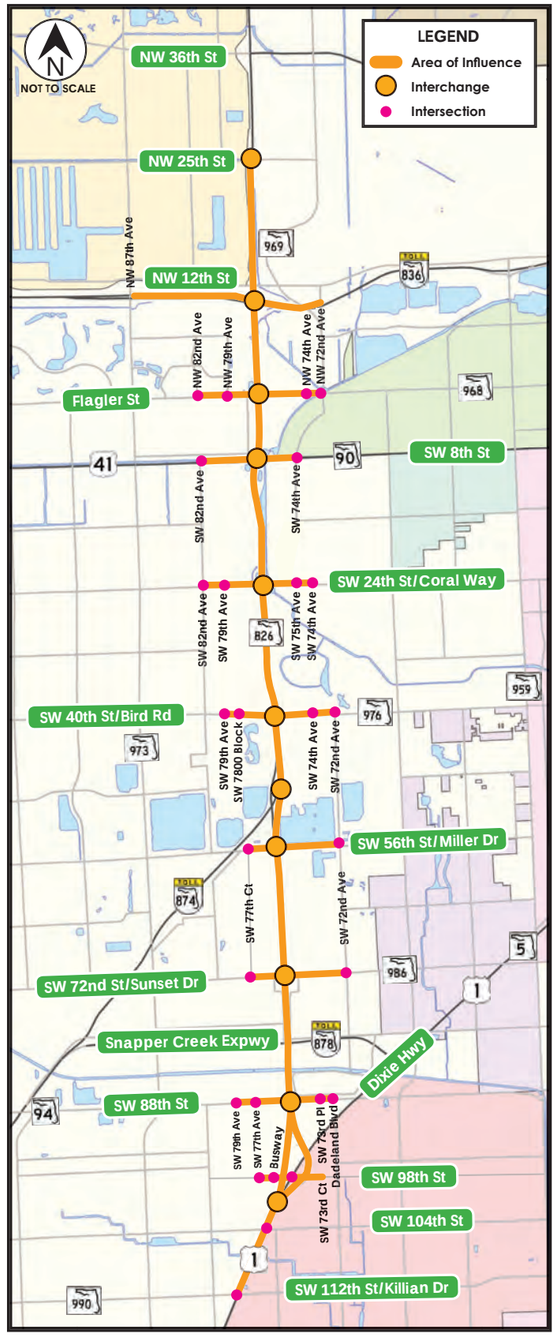


Figure 1.2 – Area of Influence Map

There are ten interchanges under consideration within the area of influence along SR 826. These interchanges are listed below.

1. US 1
2. SW 88th Street (Kendall Drive)
3. SW 72nd Street (Sunset Drive)
4. SW 56th Street (Miller Drive)
5. SR 874
6. SW 40th Street (Bird Rd)
7. SW 24th Street (Coral Way)
8. SW 8th Street (Tamiami Trail)
9. Flagler Street
10. SR 836

There are 43 intersections under consideration within the area of influence along the arterials (27 arterial intersections and 16 terminal ramp intersections). These intersections are listed below.

1. US 1/Killian Drive
2. US 1/SW 104th Street
3. SW 98th Street/SW 77th Avenue
4. SW 98th Street/Busway
5. SW 98th Street/US 1
6. SW 88th Street/SW 79th Avenue
7. SW 88th Street/SW 77th Avenue
8. SW 88th Street/Southbound Ramp Terminal
9. SW 88th Street/Northbound Ramp Terminal
10. SW 88th Street/SW 73rd Place
11. SW 88th Street/Dadeland Boulevard
12. SW 72nd Street/SW 77th Court
13. SW 72nd Street/Southbound Ramp Terminal
14. SW 72nd Street/Northbound Ramp Terminal
15. SW 72nd Street/SW 72nd Avenue
16. SW 56th Street/SW 77th Court
17. SW 56th Street/Southbound Ramp Terminal
18. SW 56th Street/Northbound Ramp Terminal
19. SW 56th Street/SW 72nd Avenue
20. SW 40th Street/SW 79th Avenue
21. SW 40th Street/SW 7800 Block
22. SW 40th Street/Southbound Ramp Terminal
23. SW 40th Street/Northbound Ramp Terminal
24. SW 40th Street/SW 72nd Avenue
25. SW 40th Street/SW 74th Avenue
26. SW 24th Street/SW 82nd Avenue
27. SW 24th Street/SW 79th Avenue
28. SW 24th Street/Southbound Ramp Terminal
29. SW 24th Street/Northbound Ramp Terminal
30. SW 24th Street/SW 74th Avenue
31. SW 24th Street/SW 75th Avenue
32. SW 8th Street/SW 82nd Avenue
33. SW 8th Street/Southbound Ramp Terminal

34. SW 8th Street/Northbound Ramp Terminal
35. SW 8th Street/SW 74th Avenue
36. Flagler Street/NW 82nd Avenue
37. Flagler Street/NW 79th Avenue
38. Flagler Street/Southbound Ramp Terminal
39. Flagler Street/Northbound Ramp Terminal
40. Flagler Street/NW 74th Avenue
41. Flagler Street/NW 72nd Avenue
42. NW 25th Street/Southbound Ramp Terminal
43. NW 25th Street/Northbound Ramp Terminal

D. Project Schedule

The PD&E Study for the SR 826 corridor improvements is currently underway. The expected completion date for the Systems Interchange Modification Report (SIMR) is Summer 2019. Location Design Concept Acceptance (LDCA) is schedule for Summer 2019. Funding for the PD&E Study is in the Fiscal Year 2017-2021 under FPID # 432639-1.

2.0 Analysis Years

A. Traffic Forecasting

The forecasting years proposed for the project are as follows:

- Base year: 2010
- Horizon year: 2040

B. Traffic Operational Analysis

The 2010 and 2040 base and horizon years will be used to produce opening year and design year traffic. The design year for this project is 2045, which will be completed by extrapolation. The analysis years proposed for this project are as follows:

- Existing year: 2017
- Opening year: 2025
- Design year: 2045

In the event a failing level of service (LOS) is obtained in the design year for the recommended alternative, the traffic operational analysis will evaluate the following:

- Identify the year of failure between the opening and design years.
- Determine the life in years of the recommended alternative.
- Compare the improvements of the recommended alternative against the No-Build Alternative.
- Document the benefits associated with the recommended alternative when compared against the No-Build Alternative.

3.0 Alternatives

The PD&E Study and SIMR are planning to evaluate the following alternatives:

- No-Build Alternative – The No-Build (no construction) Alternative will include currently planned and programmed improvements.
- Build Alternatives – The three recommended alternatives from the SR 826 Planning Feasibility Study will be evaluated during the PD&E Study.
    - Alternative 1 proposes one express lane in each direction between SW 56th Street and SR 874 and two express lanes in each direction between SR 874 and SR 836.
    - Alternative 2 proposes one express lane in each direction between US 1 and SR 874 and two express lanes between SR 874 and SR 836.
    - Alternative 3 proposes one express lane in each direction between US 1 and SR 836 and two elevated reversible express lanes between SR 874 and SR 836.

The PD&E Study will identify other types of reasonable corridor and interchange improvements to support the optimal operations of the express lanes system. Transportation Systems Management and Operations (TSM&O) strategies will be integrated in the recommended alternative.

4.0 Data Collection

A. Transportation System Data

Traffic data intersection turning movement counts and 72-hour continuous approach counts will be collected for typical weekday AM and PM peak periods (6-9 AM, 3-7 PM) in 15-minute increments as part of the PD&E Study work efforts. The traffic data will be collected during regular weekdays starting the week of September 25, 2017. The traffic data collection efforts are anticipated to be completed in approximately six weeks. In addition to the 3-hour AM and 4-hour PM turning movement vehicles counts, the intersection traffic counts will include pedestrian, bicyclist, and truck volumes. A peak-hour volume summary will be calculated by approach.

The 72-hr continuous approach counts will be collected at all the ramps, US 1 mainline corridor and SR 826 mainline corridor. The 72-hr mainline approach counts along the cross streets will be supplemented by information from the FDOT count stations, FTI CD, travel demand model, turning movement counts (converting these to AADTs) and other studies. A map depicting the traffic data collection locations is attached as ***Appendix A***.

The PD&E Study intents to use traffic data from recent/ongoing projects/studies within the project limits. Traffic data will be gathered from the SW 40th Street Planning Study, Kendall Drive Transit Premium Corridor Project Development Study and the SR 836/SR 826 Interchange Project (Section Five). As a result, adjustment factors will be applied to account for the traffic growth between the collection year and existing year of this project.

The following data will also be collected as part of the traffic data collection effort:

- Video of traffic counts will be recorded to capture the data collection (volumes and classifications) and to use for the microsimulation calibration.

- Field observations will be summarized to document the existing traffic conditions and to use for the microsimulation calibration.
- Freeway speed data and travel time data will be gathered for the calibration of the traffic microsimulation models. The data will be gathered in coordination with FDOT using the existing Intelligent Transportation System (ITS) facilities installed along the corridor and Bluetooth Survey Data. Data will be gathered for multiple weekdays during the AM and PM peak periods.
- Queue data will be collected at the ramp terminals and other critical intersections for the calibration of the microsimulation models. Field reviews will be conducted to record the typical intersection queue lengths during the AM and PM peak periods on typical weekdays.
- An Origin and Destination 3-day Bluetooth Survey Data will be performed during regular weekdays to assist with the travel demand forecasting validation, origin/destination matrix development and corridor average trip lengths determination. The survey data will also help determine the traffic distribution between cross streets. Thirteen Bluetooth stations have been strategically located along the SR 826 mainline corridor (see ***Appendix A*** depicting the traffic data collection locations).

Other sources of information to be collected shall include, but not be limited to:

- Straight Line Diagrams (SLDs)
- Roadway Characteristic Inventory (RCI) Data
- Florida Geographic Data Library (FGDL) Geographic Information System (GIS) Data
- FDOT Design Standards
- FDOT Florida Traffic Online

Crash Data

Crash data will be collected from the FDOT Crash Analysis Reporting System (CARS), Signal 4 Analytics and local agencies for the five most recent years on the mainline, interchanges, and cross streets within the area of influence. The data collected will include the number, type and location of crashes, high crash locations, number of fatalities and injuries, and estimates of property damage and economic loss.

The SIMR will document how the actual rates compare to statewide averages for similar corridors and/or interchanges.

B. Existing and Historical Traffic Data

Field visits will be conducted to collect information on existing geometry, storage lengths, queuing lengths, traffic signal heads, and to determine/verify signal phasing information, such as protected/permitted left-turn operations, right-turn-on-red restrictions and phase overlaps. The signal timing plans for the signalized intersections will be obtained from the Miami-Dade County Department of Transportation and Public Works. In addition, historic data will be gathered from various sources including FDOT District Six, Miami-Dade County and prior studies within the study area.

C. Planned and Programmed Projects

The PD&E Study and SIMR will consider all the programmed and planned roadway improvements in the area and will be consistent with all regional transportation plans including, but not limited to, the following:

- FDOT Five-Year Work Program
- FDOT SIS Plans
- FDOT State Transportation Improvement Program (STIP)
- Committed improvements from local and private sources
- Miami-Dade TPO Fiscal Year TIP
- Miami-Dade TPO Adopted LRTP
- Miami-Dade County Comprehensive Plan
- Developments of Regional Impact (DRIs) within the area
- PD&E studies and master plans within the area

5.0 Travel Demand Forecasting

A. *Selected Travel Demand Model(s)*

The Southeast Florida Regional Planning Model (SERPM) Version 7.071 will be used for this study. SERPM 7.071 is the official model for the FDOT District Six region, with a 2010 base year and 2040 horizon year. The 2040 scenario in this model has the TPO-approved 2040 Cost Feasible LRTP network and the population and employment forecasts. The SERPM 7.071 model is an activity based time of day model that is capable of forecasting traffic into future years for various highway and transit scenarios. The model has a 5-time period assignment:

1. Early AM Period (10:00 PM – 5:59 AM)
2. AM-Peak Period (6:00 AM – 8:59 AM)
3. Midday Period (9:00 AM – 2:59 PM)
4. PM-Peak Period (3:00 PM – 6:59 PM)
5. Evening Period (7:00 PM – 9:59 PM)

The results of the time of day assignments are combined to forecast the daily traffic. The SERPM model has been validated with 2010 Annual Average Daily Traffic (AADT) volumes. Therefore, no adjustment factors are necessary to forecast the AADT volumes. However, adjustments may be needed to ensure subarea model volumes match the AADT counts closely.

B. Project Traffic Forecast Development Methodology

The future year traffic volumes will be developed using the time of day assignments. Since this is an express lanes study, time of day information is critical. Research has shown that peak-to-daily ratios of express lanes are different from general purpose freeway lanes. Most of the express lanes utilization is expected to happen during the peak periods. Therefore, the project team will use the three-hour AM peak period and four-hour PM peak period volumes to forecast the one-hour AM and one-hour PM peak-hour directional volumes. This peak-hour volume set with the highest demand within the peak period will be selected for the design traffic development. Separate peak-hour volumes for general purpose and express lanes will be developed. Origin-

destination matrices will be developed for the three-hour AM peak period and the four-hour PM peak period. These will be sliced to develop an AM peak-hour matrix and a PM peak-hour matrix. The AADT volumes will be forecasted from the summation of all the time periods. The model horizon year is 2040. Therefore, for the design year forecast development, the 2040 forecasts will be extrapolated to forecast the 2045 design year volumes.

2040 SERPM No-Build and Build scenarios will be developed as part of the future forecasts development process. The 2040 No-Build scenario will be first developed by using the 2040 Cost Feasible LRTP network as baseline. Any LRTP improvements within the project corridor that are Priority II or Priority III will be deleted from the No-Build scenario. The No-Build scenario development will be closely coordinated with FDOT to only include the existing and committed projects on the SR 826 corridor. The list of projects that will be removed will be closely coordinated with the Department and will be documented in the Design Traffic Technical Memorandum. The AADT volume forecasts will be compared against the independently developed historical trend line forecasts and the compound growth rates-based forecasts. The population and employment forecasts of the 2-mile corridor subarea will be used to develop the compound growth rates after conducting a desktop review of the corridor 2-mile subarea socioeconomic data.

The AM and PM peak-hour volumes will be determined by using diurnal factors. Diurnal factors convert the 3-hour AM period volumes to 1-hour AM peak-hour volumes and the 4-hour PM period volumes to the 1-hour PM peak-hour volumes. The diurnal factors will be developed from existing traffic patterns by reviewing the time of day profiles of the mainline and cross streets of SR 826. Since the traffic volumes of the cross streets near SR 826 are mainly driven by SR 826 mainline volumes, major emphasis will be given to the SR 826 traffic profile. The cross street diurnal factors will be used to identify any outliers from the SR 826 mainline diurnal factors, and necessary adjustments will be made.

The forecasting approach will require extensive subarea validation to match the AM and PM volumes to the traffic counts. A 2017 model scenario will be developed for this effort. The detailed 2017 subarea validation approach is described in ***Section C*** below. The approach primarily will focus on post-processing the 2017 model origin-destination matrix to improve the model assigned volumes. The CUBE Analyst origin-destination matrix estimation software will be used for this effort. The average trip length and the trip length frequency distribution of the estimated 2017 subarea origin-destination will be verified against the Bluetooth origin-destination survey. The subarea matrix will consist of internal-internal flows of all traffic analysis zones within the subarea plus the external-internal, internal-external and external-external flows. This matrix will be developed using the CUBE Subarea extraction process, which automatically will renumber the matrix zones and will extract the flows from the regional SERPM origin-destination into the subarea SERPM origin destination. Any trips that cross the subarea boundary only once will be tabulated into external-internal or internal-external flows. Any trips that cross the subarea boundary twice will be tabulated into external-external flows.

Once satisfactory validation results are achieved at the subarea level, the 2017 subarea origin-destination will be used as a starting point for the future year forecasting efforts. The growth matrix between the 2017 SERPM origin-destination and the 2040 SERPM origin-destination will be developed by subtraction. The growth will be added to the 2017 CUBE Analyst origin-destination at the subarea level.

The model subarea validation will ensure reasonable origin-destination flows and sufficient agreement between the volumes and counts. The future year total demand on the corridor will be verified against historical and socioeconomic growth trends. Once sufficient confidence is achieved, the split between general purpose lane and express lane loads will be verified. Since there are no express lanes in the base year, a comparison of base year volumes to counts cannot be performed. However, the future year express lane volumes in highly congested corridors like SR 826 are expected to be at capacity. The future loads will be verified against the expected peak period and daily volumes. Express lane volumes close to or more than 1,650 vehicles per lane per hour are anticipated throughout the corridor.

The 2045 design traffic volumes will be developed by extrapolating between 2017 balanced traffic counts and 2040 balanced volumes. Opening year will be developed by interpolation between the years 2017 and 2045.

C. Validation Methodology

Several modifications to the travel demand model will be performed to refine the subarea forecasts of the SR 826 corridor. A 2-mile radius subarea will be generally defined as part of this task. The subarea development process will ensure major competing roadways are included in the analysis. To this effect, the subarea will be extended up to the Homestead Extension of Florida Turnpike (HEFT) to the west and Red Road/SW 57th Avenue to the east. The northern limits of the SR 826 subarea will be extended up to the I-75/SR 826/SR 924 Interchange. North of NW 36th Street, only the SR 826, SR 924 and I-75 mainlines will be included in the subarea to balance the subarea size. The validation will only include the SR 826, SR 924 and I-75 mainlines north of NW 36th Street. The SR 826, SR 924 and I-75 mainline segments are included in the subarea to ensure the major movements of mainline and express lane volumes coming from the north are captured. A 2017 SERPM model scenario will be developed using 2017 networks and socioeconomic data. The 2017 socioeconomic data will be developed by interpolating between the 2010 and 2040 socioeconomic data sets. The data will be cross-checked against the 2015 SERPM 8 data that has been under development by the Miami Dade TPO. The 2017 networks will be developed by desktop review of the 2010 network and updating it to 2017 conditions. Prior to this PD&E Study, the Department conducted a planning study on this corridor, in which a 2015 base scenario was modeled. The network changes adopted in the 2015 planning study networks will be transferred to the 2017 SERPM network development. As part of the planning study, a subarea extraction process and CUBE Analyst origin-destination estimation process were also implemented. However, this setup is based on the earlier version of the SERPM 7 model. The subarea application will be transferred to the latest version of the SERPM 7 model as part of this study.

Time of day traffic counts will be coded into the 2017 network for the 2-mile radius study area. Within the corridor limits, the PD&E Study's 2017 traffic count data will be coded into the network. Outside the corridor, but within the 2-mile radius limits, the traffic counts from 2016 will be obtained and coded into the network. A SR 826 corridor growth rate will be developed between the 2016 and 2017 traffic counts. The growth rate will be applied to the 2016 subarea traffic counts to develop the 2017 traffic counts for the subarea validation.

Various model network attributes, within the subarea, will be reviewed and corrected (if necessary). These may include facility types, number of lanes, area types, posted speed, tolls for tolled lanes, geometric connections, turn penalties, centroid location and connections. All the subarea network changes will be propagated to the future years.

An iterative validation using the CUBE Analyst origin-destination estimation process will be conducted as part of this task. The process needs the SERPM 2017 subarea origin-destination matrix and the time of day traffic counts. The origin-destination estimation process will be conducted separately for each of the 5-time periods. The resulting origin-destination matrix will be assigned back to the highway network to verify a satisfactory output of results. Root Mean Square Error (RMSE) and Volume-to-count ratio targets will be used to evaluate the model validation outputs in accordance with the FSUTMS CUBE Framework Phase 2. In addition to the subarea RMSE and Volume to count ratio measures, the Screenline/Cutline measures will be used in evaluating the model validation. The average trip lengths and trip length frequency distributions of the origin-destination matrix will be compared against the Bluetooth Survey to ensure a reasonable match.

D. Adjustment Procedures

The model results will be post-processed using the FDOT 2014 Project Traffic Forecasting Handbook and NCHRP 765 recommendations. The project team will develop a corridor prototype spreadsheet with separate workbooks for AM peak-hour, PM peak-hour and AADT volumes. The volumes and traffic counts for 2017 conditions will be verified. If the differences between volumes and counts are more than a threshold percentage, the link volumes will be post-processed to account for the differences. A 10% threshold percentage for freeways and a 15% threshold percentage for all other facility types will be used. If negative growths are observed at any location, the subarea compound growth rates developed from the population and employment forecasts will be applied at those locations. The volumes will be balanced and smoothed as needed. The growth rates of the forecasted volumes will be compared against the growth trends. Any outlier links will be post-processed.

The turning movement forecast will be developed from the subarea origin-destination assignments. This way, the subarea origin-destination matrices and the turning movements are ensured to be consistent. The future year turns will be forecasted to ensure sufficient growth between base and future year turns from the subarea traffic assignment model. If by any chance any negative/unreasonable turns are forecasted in the model at select locations, adjustments will be performed to the turning movement forecasts to comply with the subarea growth rates.

E. Traffic Factors

The corridor design traffic will be based on diurnal factors, as opposed to using the traditional K and D factors. The diurnal factors are the peak period to peak-hour conversion factors and will be determined based on the traffic data collected. The diurnal factors will be compared against the values used in the previous planning study. The corridor traffic count profile by hour will be examined within the peak periods as well as the diurnal factors for the various SR 826 mainline stations by direction. An average of the factors will be considered in the development of the design traffic. Typically, the variation in diurnal factors in an urban area is not significant from one station to the other. However, the factors for SR 836, SR 874 and SR 836 will be separately examined.

The project team will conduct the development of unbalanced forecasts using the K and D factors to compare against the diurnal factors approach. If significant (more than 10%) differences are observed along the SR 826 mainline segments, additional reasons for the differences will be examined. The process also includes the possibility of revising the diurnal factors as appropriate.

The traffic factor tables from the FDOT Project Traffic Forecasting Handbook provide a summary of K_{std} and acceptable ranges for D_{30}. The K_{std} factor is the proportion of AADT volumes occurring during the peak-hour of the design year, depending upon the area type and facility type. The D_{30} factor is the proportion of traffic in the 30th highest hour of the year traveling in the peak period direction. ***Table 5.1*** and ***Table 5.2*** show the FDOT K_{std} and D_{30} target thresholds.

Table 5.1. FDOT Standard K Factors[1]

Area Type	Facility Type	K_{std}
Large Urban Areas with Core Freeways	Freeways	8.0-9.0
	Arterials	9.0
Other Urbanized Areas	Freeways	9.0
	Arterials	9.0

[1]Adopted from the 2014 FDOT Project Traffic Forecasting Handbook, Figure 2.4 - FDOT Standard K Factors.

Table 5.2. FDOT Recommended D_{30} Factor Ranges[1]

Road Type	Low D_{30}	Medium D_{30}	High D_{30}	Standard Deviation
Urban Freeways	50.4	55.8	61.2	4.11
Urban Arterials	50.8	57.9	67.1	4.60

[1]Adopted from the 2014 FDOT Project Traffic Forecasting Handbook, Figure 2.9 - Recommended D-Factors (D) for Traffic Forecasting.

The T_{24} factor is the adjusted annual 24-hour percentage of truck traffic. The T_{24} factor will be obtained from the classification counts and compared to the factors obtained from the FDOT permanent count stations to assess reasonableness of the data. The Design Hour Truck (DHT) factor is the percentage of truck traffic during the peak-hour in the design year and can be estimated as half of the T_{24} factor. DHT at the ramp terminals and intersections will be determined from the turning movement counts. The Peak Hour Factor (PHF) for existing year will be based on field collected traffic counts (turning movement counts and mechanical counts) and from the FDOT count stations. PHF for future years will be set at 0.95. The PHF is applied to the traffic counts to convert hourly flow to peak 15-minute flow rate for capacity analysis.

The K and D factors will be calculated based on the collected traffic data and forecasted traffic volumes from the PD&E Study and will be compared to the ranges specified in the FDOT Project Traffic Forecasting Handbook. The traffic factor development process will be documented in detail in the SIMR report.

6.0 Traffic Operational Analysis

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	7/ 6th Edition	☒	☒	☒	☒	☐	☐
Synchro	10	☐	☐	☐	☐	☒	☒
SimTraffic		☐	☐	☐	☐	☐	☐
CORSIM	6.3	☒	☒	☒	☒	☒	☒
VISSIM		☐	☐	☐	☐	☐	☐
Other		☐	☐	☐	☐	☐	☐

Detailed operational analyses will be performed for all analysis years for both AM and PM peak hours. The following operational analyses will be conducted utilizing the design traffic forecasts:

- Freeway Analysis
- Freeway Weaving Analysis
- Ramp Merge and Diverge Analysis
- Queuing Analysis
- Intersection Analysis
- Express Lanes Analysis

The HCM 6th Edition Module in Synchro 10 will be used for intersection level of service and queue length analyses. The reasonableness of the Synchro results will be verified and documented in accordance with the calibration methodology described below in ***Section C***. In addition, Synchro results will be compared with CORSIM results at locations where both models are applied. CORSIM models will be developed for the 2017 existing year for model calibration and for the 2045 design year to compare the No-Build Alternative against the Recommended Alternative. All other operational analyses (existing year, opening year, year of failure and design year) will be performed based on the HCM 6th Edition procedures using HCS7 and/or Synchro 10.

C. Calibration Methodology

<u>Synchro:</u>
Synchro models will be calibrated in accordance with the guidelines provided in the FDOT's Traffic Analysis Handbook, March 2014. The calibration process will also include the following steps:

- 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 1,000 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 including typical queue lengths, delays, operating speeds, right turns on red, signal timings and pedestrian/bicycle activity.

CORSIM:

The simulation calibration will incorporate guidance and criteria from the 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 CORSIM models. CORSIM models will be developed for the 2017 existing year for model calibration and for the 2045 design year to compare the No-Build Alternative against the Recommended 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's 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.
- Sum of all link flows within 5% of sum of all link counts.

The target of the GEH statistic will be less than five for more than 85% of the links. In addition, the GEH statistics for sum of all link flows will be less than four for sum of all link counts. Travel time targets will be within 15% (or 1 minute if higher) of the field 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 (4 hours AM and 4 hours PM) that allows congestion to build and dissipate and minimize the potential for unmet demand. The 4th

hour of the AM peak period will be developed based on traffic flow profiles from the continuous machine counts. Volume inputs will be in 15-minute increments, which will be estimated based on traffic flow profiles from continuous machine counts. To determine the minimum required number of simulation runs, statistical tests will be performed using a 95% confidence level and an allowable error of 10%. 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 2017 existing year model.

D. Selection of Measures of Effectiveness (MOE)

Both qualitative and quantitative measures of performance or effectiveness (MOEs) will be used to differentiate between the alternatives. MOEs will be assessed from CORSIM models for the AM and PM peak period, (4 hours each period) as well as the AM and PM peak hours. The CORSIM MOEs will include the following:

- Freeway: Simulated Volume vs. Demand Volume, Throughput, Operating Speed and Density
- Interchange Terminal Intersections: Simulated Volume vs. Demand Volume on the approach links, and queue lengths on the off-ramps.
- Network-wide: Total travel time, Total delay time, Vehicle-miles of travel, Average speed and Latent demand

The CORSIM analysis will compare MOEs for the No-Build Alternative and Recommended Build Alternative. CORSIM MOEs will be assessed for a simulation period covering a total of 4 hours in the AM period and 4 hours in the PM period for each alternative scenario. The simulation periods will include the following:

- AM Period: model initialization period + highest 4-hour AM peak period (in 15-minute intervals based on forecasted AM peak-hour and existing traffic flow profiles)
- PM Period: model initialization period + highest 4-hour PM peak period (in 15-minute intervals based on forecasted PM peak-hour and existing traffic flow profiles)

The MOEs that will be assessed from the HCS and Synchro analyses will include the following:

- Freeway Analysis (HCS): Speed, Density, and LOS
- Intersection Analysis (Synchro): Total Delay, LOS, volume over capacity ratio, and 95th Percentile queue length.

The Synchro reported intersection delay, 95th percentile queue length and volume over capacity ratio will be reported for every movement at every intersection.

FDOT recommends a target LOS D for roadways in urban areas. Therefore, LOS D will be applied for all roadways within the project limits.

7.0 Safety Analysis

The SIMR will be mainly focused on the SR 826 corridor and interchange areas. Interchanges will be evaluated to determine if the traffic operations will impact the operations of the express lanes (especially interchanges upstream and downstream from the express lanes access points). Cross street

improvements are not the priority of this project. Therefore, the safety analysis will focus on the SR 826 corridor and interchange areas including the cross-street ramp terminal intersections.

The safety conditions will be assessed using the Historical Crash Analysis Method (traditional method). This task includes the tabulation of crash data, the determination of high accident sections, and the safety analysis of the existing facility and alternatives. Crash data will be obtained from the FDOT CARS database, Signal 4 Analytics and local agencies for the five most recent years. A safety analysis will be performed for the study intersections and roadway segments. The safety analysis will document vehicle types, crash rate, crash patterns, crash types, and their contributing causes for existing conditions and display information graphically. The limits of the safety analysis will be selected based on the conditions that influence the operation of the interchanges. Additional emphasis will be placed on identifying existing safety issues at the interchange entry and exit points. The potential safety impact (positive or negative) of the proposed improvements for the design year will be qualitatively identified. When negative impacts to safety are identified, an evaluation of design mitigation measures will occur. The safety analysis will also document the crash severity and how the rates compare to statewide averages for similar corridors and/or interchanges.

8.0 Consistency with Other Plans/Projects

This SIMR will maintain consistency with the following plans and projects:

- SR 826/SR 836 Interchange Improvements (Section Five) Project
- SR 826 Express Lanes Project (from SR 836 to I-75)
- SR 836/NW 87th Avenue Interchange Improvements Project (by Miami-Dade Expressway Authority)
- SR 874/Sunset Drive Interchange PD&E Study (by Miami-Dade Expressway Authority)
- Strategic Miami Area Rapid Transit (SMART) Plan (by Miami-Dade Department of Transportation and Public Works)
- All Bus Rapid Transit Projects within the area of influence (by Miami-Dade Department of Transportation and Public Works)
- Miami-Dade TPO Adopted LRTP
- Miami-Dade County Comprehensive Plan
- Any approved DRIs within the area of influence

Where the request is inconsistent with any plan, steps to bring the plan into consistency will be developed.

9.0 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 approval (final approval of NEPA document).
☒	☐	Request will document the funding and phasing.

**Explain if No or Not Applicable (N/A) is checked*:

10.0 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:*

- Lane Width
- Shoulder Width
- Border Width

11.0 Conceptual Signing Plan

A conceptual signing plan shall be prepared for the recommended Build Alternative. The conceptual signing plan will provide major guide sign placement and messages. The conceptual signing plan will be prepared in accordance with all applicable FDOT, FHWA, and Manual on Uniform Traffic Control Devices (MUTCD) guidelines. The CORSIM microsimulation model will reflect driver behavior (lane changing decisions) based on conceptual guide sign placement.

12.0 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:*

13.0 FHWA Policy Points

The following two FHWA Policy Criteria (also known as 2 FHWA criteria, Document E9-20679, dated May 22, 2017) will be specifically addressed within the SIMR:

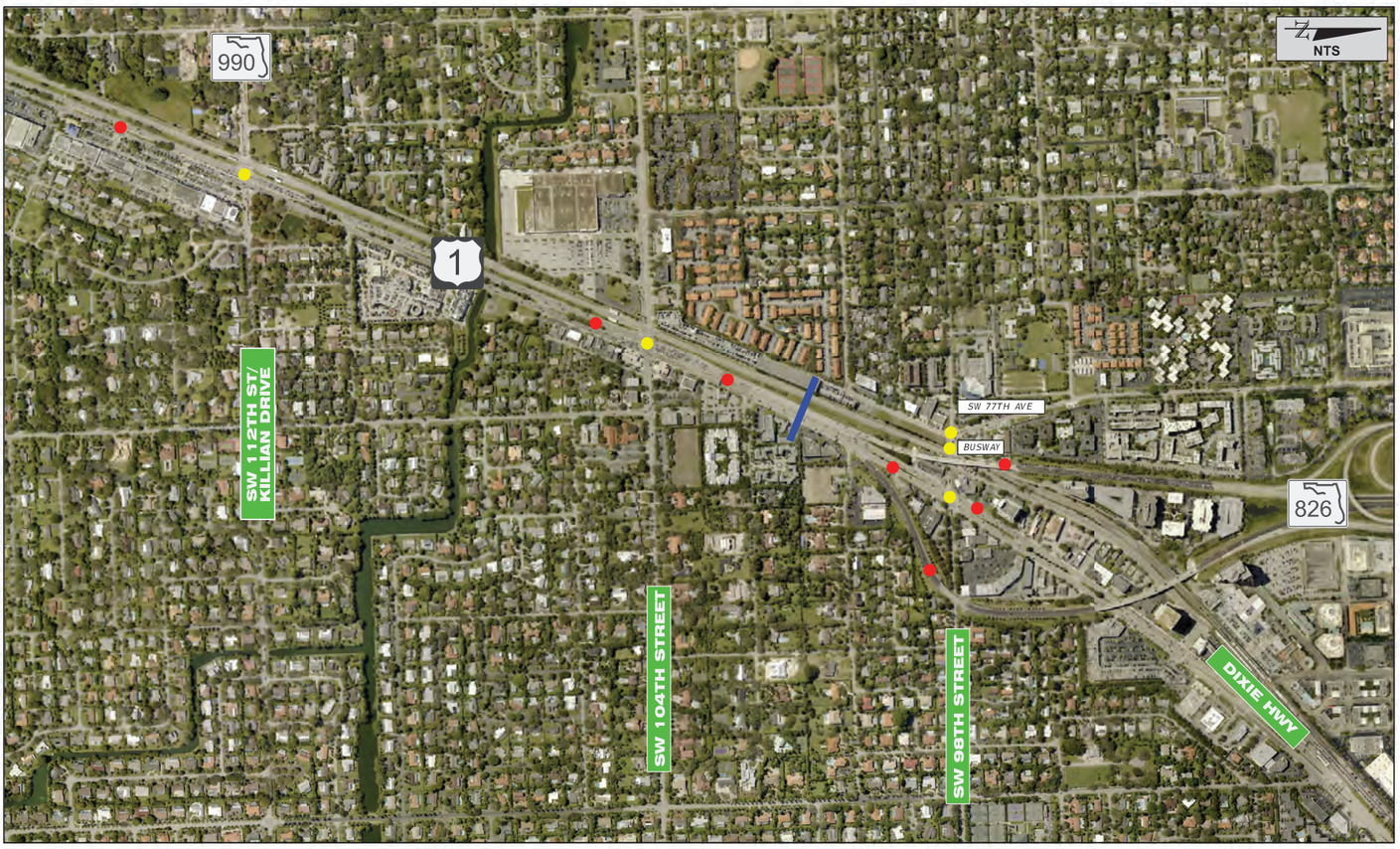
- **Policy Point 1:** An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, 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, should 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 should 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 should 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)).

- **Policy Point 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, such as 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)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.

APPENDIX A

Traffic Data Collection Locations



LEGEND

- TURNING MOVEMENT COUNT LOCATION
- TURNING MOVEMENT COUNT LOCATION FROM OTHER STUDIES
- APPROACH COUNT LOCATION
- ORIGIN/DESTINATION STATION LOCATION

PALMETTO EXPRESS

SEPTEMBER 2017

826

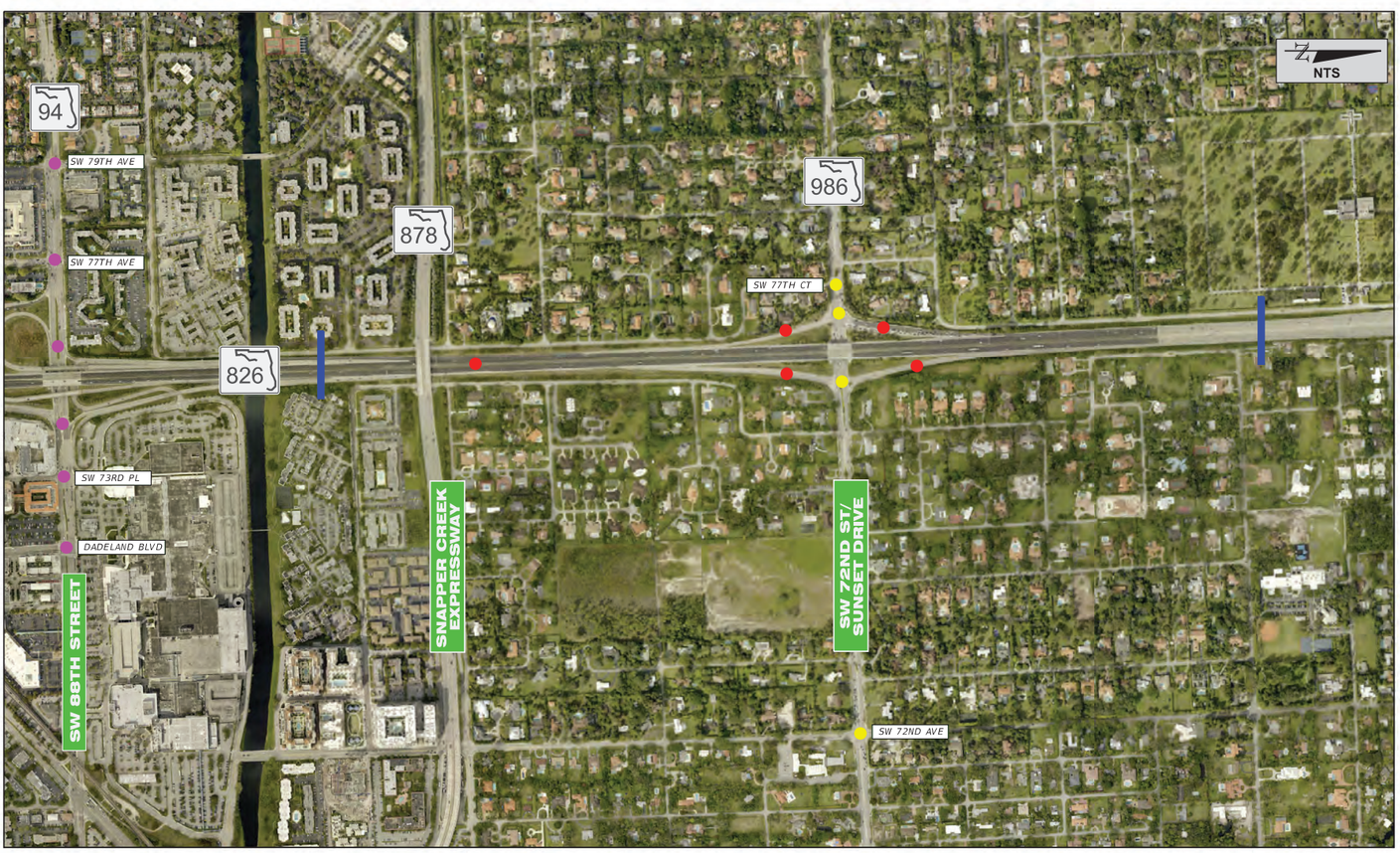
SR 826 EXPRESS LANES PD&E STUDY
FROM US 1 TO SR 836 (DOLPHIN EXPRESSWAY)

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
826	MIAMI-DADE	432639-1-22-02

TRAFFIC DATA COLLECTION LOCATIONS

SHEET NO. 1



LEGEND

- TURNING MOVEMENT COUNT LOCATION
- TURNING MOVEMENT COUNT LOCATION FROM OTHER STUDIES
- APPROACH COUNT LOCATION
- ORIGIN/DESTINATION STATION LOCATION

PALMETTO EXPRESS

SEPTEMBER 2017

826

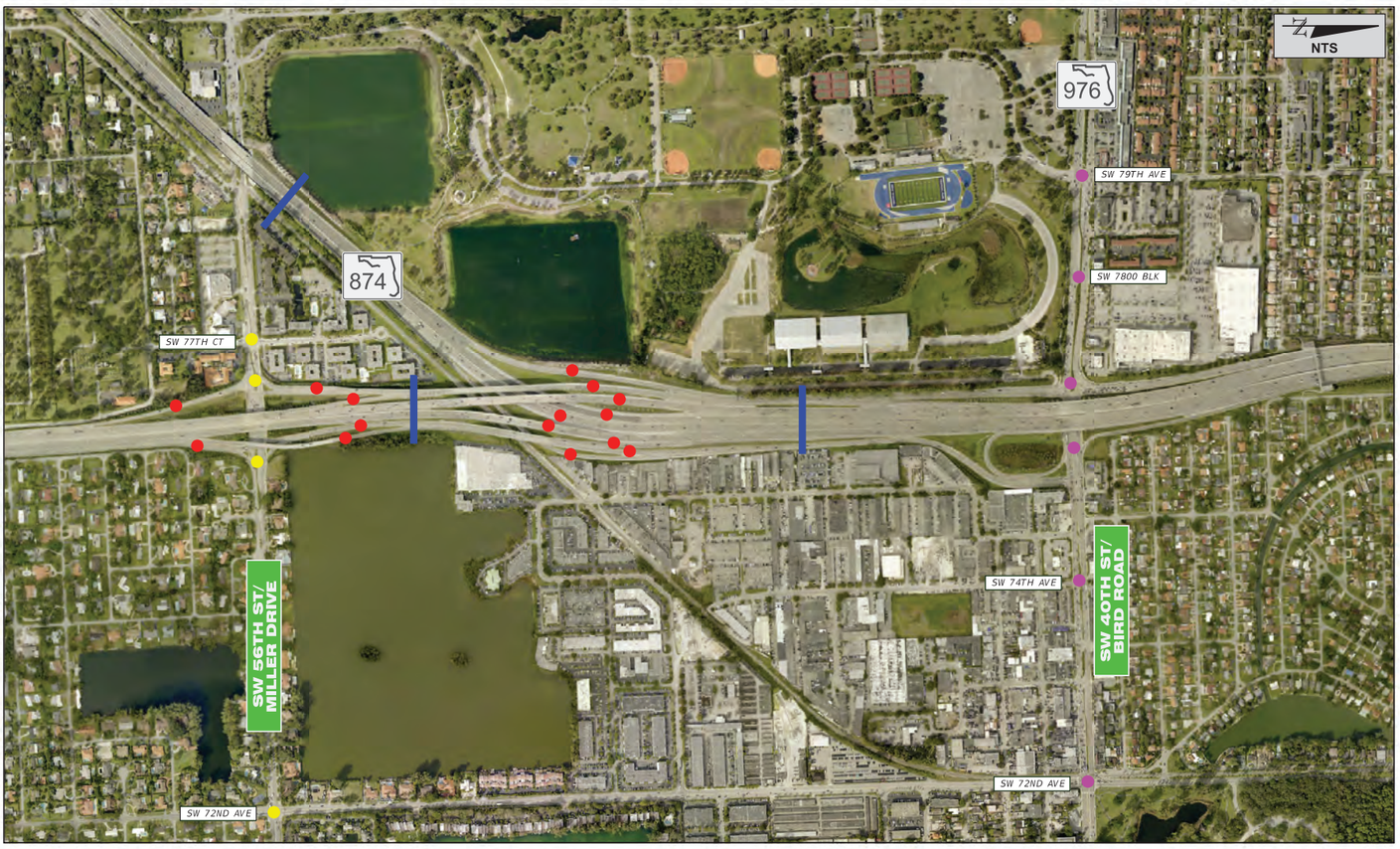
SR 826 EXPRESS LANES PD&E STUDY
FROM US 1 TO SR 836 (DOLPHIN EXPRESSWAY)

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
826	MIAMI-DADE	432639-1-22-02

TRAFFIC DATA COLLECTION LOCATIONS

SHEET NO. 2



LEGEND

- TURNING MOVEMENT COUNT LOCATION
- TURNING MOVEMENT COUNT LOCATION FROM OTHER STUDIES
- APPROACH COUNT LOCATION
- ORIGIN/DESTINATION STATION LOCATION

PALMETTO EXPRESS

SEPTEMBER 2017

826

SR 826 EXPRESS LANES PD&E STUDY
FROM US 1 TO SR 836 (DOLPHIN EXPRESSWAY)

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
826	MIAMI-DADE	432639-1-22-02

TRAFFIC DATA
COLLECTION LOCATIONS

SHEET NO. 3



LEGEND

- TURNING MOVEMENT COUNT LOCATION
- TURNING MOVEMENT COUNT LOCATION FROM OTHER STUDIES
- APPROACH COUNT LOCATION
- ORIGIN/DESTINATION STATION LOCATION

PALMETTO EXPRESS

SEPTEMBER 2017

826

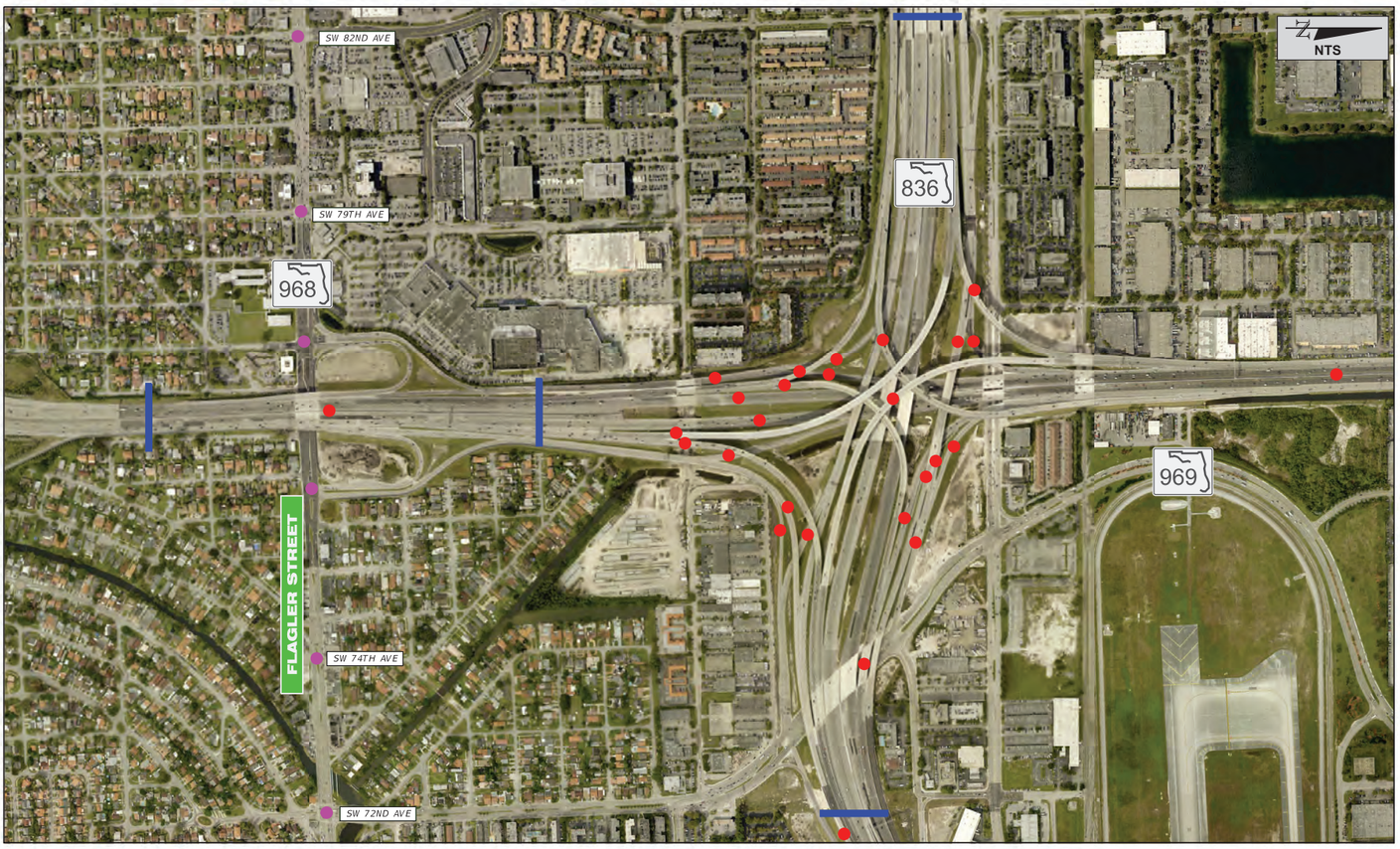
SR 826 EXPRESS LANES PD&E STUDY
FROM US 1 TO SR 836 (DOLPHIN EXPRESSWAY)

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
826	MIAMI-DADE	432639-1-22-02

TRAFFIC DATA
COLLECTION LOCATIONS

SHEET NO. 4



LEGEND

- TURNING MOVEMENT COUNT LOCATION
- TURNING MOVEMENT COUNT LOCATION FROM OTHER STUDIES
- APPROACH COUNT LOCATION
- ORIGIN/DESTINATION STATION LOCATION

PALMETTO EXPRESS

SEPTEMBER 2017

826

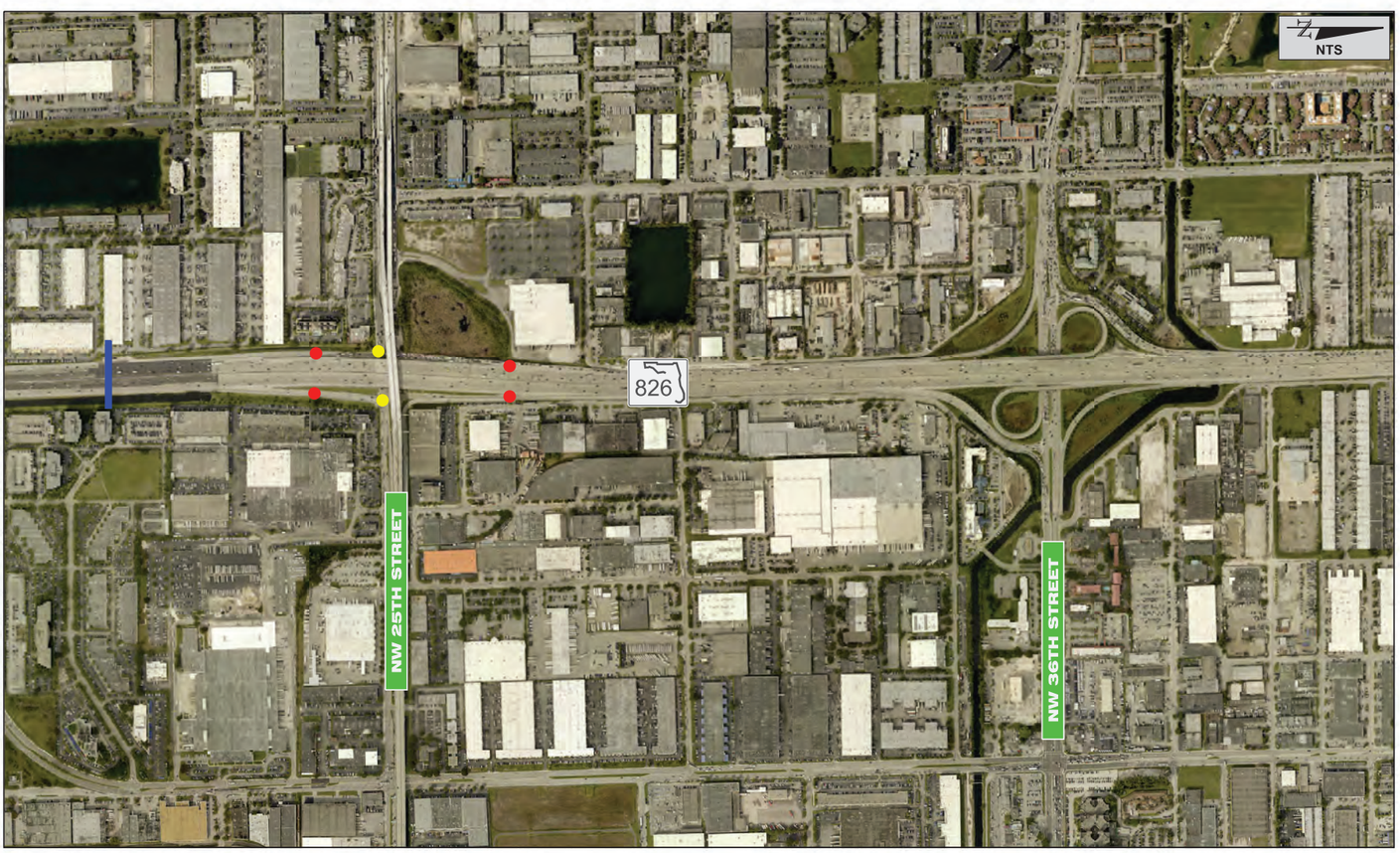
SR 826 EXPRESS LANES PD&E STUDY
FROM US 1 TO SR 836 (DOLPHIN EXPRESSWAY)

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
826	MIAMI-DADE	432639-1-22-02

TRAFFIC DATA
COLLECTION LOCATIONS

SHEET NO. 5



LEGEND

- TURNING MOVEMENT COUNT LOCATION
- TURNING MOVEMENT COUNT LOCATION FROM OTHER STUDIES
- APPROACH COUNT LOCATION
- ORIGIN/DESTINATION STATION LOCATION

PALMETTO EXPRESS

SEPTEMBER 2017

826

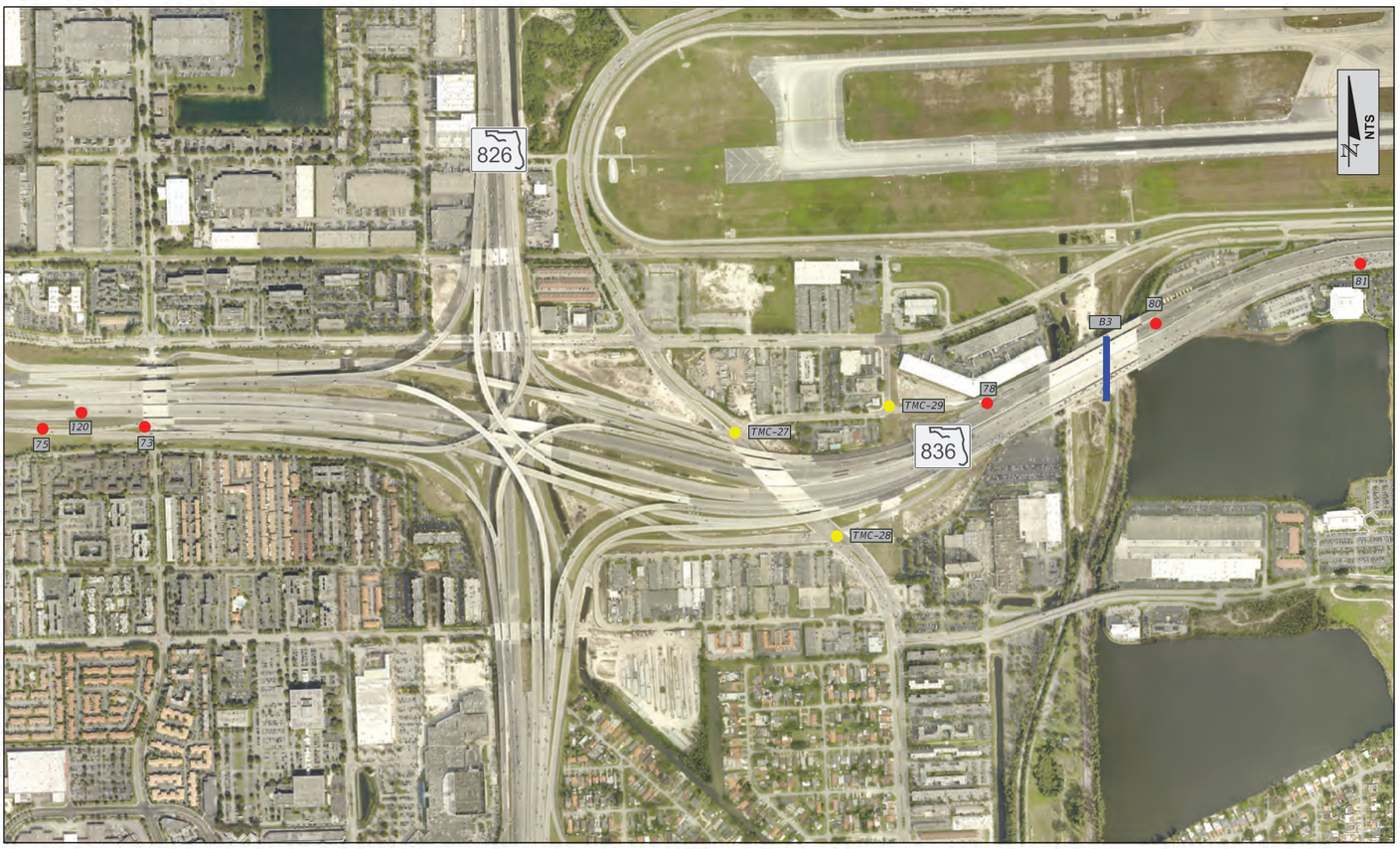
SR 826 EXPRESS LANES PD&E STUDY
FROM US 1 TO SR 836 (DOLPHIN EXPRESSWAY)

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
826	MIAMI-DADE	432639-1-22-02

TRAFFIC DATA
COLLECTION LOCATIONS

SHEET NO. 6



LEGEND

- TURNING MOVEMENT COUNT LOCATION
- TURNING MOVEMENT COUNT LOCATION FROM OTHER STUDIES
- APPROACH COUNT LOCATION
- ORIGIN/DESTINATION STATION LOCATION

PALMETTO EXPRESS

SEPTEMBER 2017

826

SR 826 EXPRESS LANES PD&E STUDY
FROM US 1 TO SR 836 (DOLPHIN EXPRESSWAY)

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
826	MIAMI-DADE	432639-1-22-02

TRAFFIC DATA COLLECTION LOCATIONS

SHEET NO. 7

APPENDIX B

2017 Existing Output HCS Reports (SR 826)

HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #2		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	2882	99
Peak Hour Factor (PHF)	0.96	0.91
Total Trucks, %	4.40	1.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.985
Flow Rate (v_i), pc/h	3134	110
Capacity (c), pc/h	4600	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.373
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3134	Ramp Junction Speed (S), mi/h	53.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	29.4
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	22/10/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #2		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	2097	107
Peak Hour Factor (PHF)	0.95	0.90
Total Trucks, %	4.40	1.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.985
Flow Rate (v_i), pc/h	2304	121
Capacity (c), pc/h	4600	2000
Volume-to-Capacity Ratio (v/c)	0.50	0.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.374
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2304	Ramp Junction Speed (S), mi/h	53.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.6
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #3		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2783	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1513
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.8
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #3		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1990	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1094
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.8
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #4-8		

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Freeway
Short Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2511	1258	136	272
Peak Hour Factor (PHF)	0.95	0.93	0.93	0.93
Total Trucks, %	4.40	2.30	2.30	1.90
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.978	0.978	0.981
Flow Rate (v_i), pc/h	2759	1383	150	298

Weaving Flow Rate (v_w), pc/h	1681	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	2909	Density-Based Capacity (c_{IWL}), pc/h/ln	1933
Total Flow Rate (v), pc/h	4590	Demand Flow-Based Capacity (c_{IW}), pc/h	6557
Volume Ratio (VR)	0.366	Weaving Segment Capacity (c_W), veh/h	5555
Minimum Lane Change Rate (LC_{MIN}), lc/h	298	Adjusted Weaving Area Capacity, pc/h	5750
Maximum Weaving Length (L_{MAX}), ft	6303	Volume-to-Capacity Ratio (v/c)	0.80

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	145	Average Weaving Speed (S_W), mi/h	52.5
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	834	Average Non-Weaving Speed (S_{NW}), mi/h	50.5
Weaving Lane Change Rate (LC_W), lc/h	451	Average Speed (S), mi/h	51.2
Total Lane Change Rate (LC_{All}), lc/h	1285	Density (D), pc/mi/ln	29.9
Weaving Intensity Factor (W)	0.200	Level of Service (LOS)	D

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #4-8		

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Freeway
Short Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1855	1814	131	135
Peak Hour Factor (PHF)	0.95	0.93	0.93	0.92
Total Trucks, %	4.40	2.30	2.30	1.90
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.978	0.978	0.981
Flow Rate (v_i), pc/h	2038	1994	144	150

Weaving Flow Rate (v_w), pc/h	2144	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	2182	Density-Based Capacity (c_{IWL}), pc/h/ln	1820
Total Flow Rate (v), pc/h	4326	Demand Flow-Based Capacity (c_{IW}), pc/h	4839
Volume Ratio (VR)	0.496	Weaving Segment Capacity (c_W), veh/h	4635
Minimum Lane Change Rate (LC_{MIN}), lc/h	150	Adjusted Weaving Area Capacity, pc/h	4785
Maximum Weaving Length (L_{MAX}), ft	7780	Volume-to-Capacity Ratio (v/c)	0.90

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	109	Average Weaving Speed (S_W), mi/h	53.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	685	Average Non-Weaving Speed (S_{NW}), mi/h	52.0
Weaving Lane Change Rate (LC_W), lc/h	303	Average Speed (S), mi/h	52.8
Total Lane Change Rate (LC_{All}), lc/h	988	Density (D), pc/mi/ln	27.3
Weaving Intensity Factor (W)	0.163	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #9		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3770	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1344
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.8
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #9		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3670	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.89	Flow Rate (V_p), pc/h/ln	1397
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.8
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #10-12		

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L_S), ft	2100	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3263	797	124	507
Peak Hour Factor (PHF)	0.95	0.90	0.90	0.91
Total Trucks, %	1.60	1.60	1.60	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.984	0.984	0.980
Flow Rate (v_i), pc/h	3491	900	140	569

Weaving Flow Rate (v_w), pc/h	1469	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3631	Density-Based Capacity (c_{IWL}), pc/h/ln	2043
Total Flow Rate (v), pc/h	5100	Demand Flow-Based Capacity (c_{IW}), pc/h	8333
Volume Ratio (VR)	0.288	Weaving Segment Capacity (c_W), veh/h	8041
Minimum Lane Change Rate (LC_{MIN}), lc/h	569	Adjusted Weaving Area Capacity, pc/h	8177
Maximum Weaving Length (L_{MAX}), ft	5456	Volume-to-Capacity Ratio (v/c)	0.62

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	610	Average Weaving Speed (S_W), mi/h	51.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1116	Average Non-Weaving Speed (S_{NW}), mi/h	49.8
Weaving Lane Change Rate (LC_W), lc/h	993	Average Speed (S), mi/h	50.3
Total Lane Change Rate (LC_{All}), lc/h	2109	Density (D), pc/mi/ln	25.3
Weaving Intensity Factor (W)	0.227	Level of Service (LOS)	C

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #10-12		

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L_S), ft	2100	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3319	1095	116	351
Peak Hour Factor (PHF)	0.89	0.94	0.94	0.96
Total Trucks, %	1.60	1.60	1.60	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.984	0.984	0.980
Flow Rate (v_i), pc/h	3790	1184	125	373

Weaving Flow Rate (v_w), pc/h	1557	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3915	Density-Based Capacity (c_{IWL}), pc/h/ln	2046
Total Flow Rate (v), pc/h	5472	Demand Flow-Based Capacity (c_{IW}), pc/h	8421
Volume Ratio (VR)	0.285	Weaving Segment Capacity (c_W), veh/h	8053
Minimum Lane Change Rate (LC_{MIN}), lc/h	373	Adjusted Weaving Area Capacity, pc/h	8186
Maximum Weaving Length (L_{MAX}), ft	5424	Volume-to-Capacity Ratio (v/c)	0.67

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	658	Average Weaving Speed (S_W), mi/h	52.0
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1174	Average Non-Weaving Speed (S_{NW}), mi/h	50.7
Weaving Lane Change Rate (LC_W), lc/h	797	Average Speed (S), mi/h	51.1
Total Lane Change Rate (LC_{All}), lc/h	1971	Density (D), pc/mi/ln	26.8
Weaving Intensity Factor (W)	0.215	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #13		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4062	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1096
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #13		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4415	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.89	Flow Rate (V_p), pc/h/ln	1272
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Diverge:
SR826 Off Ramp to Bird Rd EB #14

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4062	60	4	2.6%	0.95	1.5	0.987	1.00	4332	9200	No	0.47
Diverging	476	45	1	1.6%	0.89	1.5	0.992	1.00	540	2100	No	0.26
Downstream	3586	60	3	2.6%	0.92	1.5	0.987	1.00	3949	6900	No	0.57

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4415	60	4	2.6%	0.89	1.5	0.987	1.00	5026	9200	No	0.55
Diverging	520	45	1	1.6%	0.90	1.5	0.992	1.00	583	2100	No	0.28
Downstream	3895	60	3	2.6%	0.94	1.5	0.987	1.00	4198	6900	No	0.61

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	18.95	B
PM Peak	21.99	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:
SR826 Off Ramp to Bird Rd EB #12

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4062	60	4	2.6%	0.95	1.5	0.987	1.00	4332	9200	No	0.47
Diverging	476	45	1	1.6%	0.89	1.5	0.992	1.00	540	2100	No	0.26
Downstream	3586	60	3	2.6%	0.92	1.5	0.987	1.00	3949	6900	No	0.57

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4415	60	4	2.6%	0.89	1.5	0.987	1.00	5026	9200	No	0.55
Diverging	520	45	1	1.6%	0.90	1.5	0.992	1.00	583	2100	No	0.28
Downstream	3895	60	3	2.6%	0.94	1.5	0.987	1.00	4198	6900	No	0.61

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	18.95	B
PM Peak	21.99	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #15		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3586	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1333
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #15		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3895	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1417
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Merge:

On ramp from Miller Dr WB #16

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3586	60	3	2.6%	0.92	1.5	0.987	1.00	3949	6900	No	0.57
Merging	646	40	1	1.5%	0.90	1.5	0.993	1.00	724	2100	No	0.34
Downstream	4232	60	4	2.6%	0.92	1.5	0.987	1.00	4660	9200	No	0.51

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3895	60	3	2.6%	0.94	1.5	0.987	1.00	4198	6900	No	0.61
Diverging	712	40	1	1.5%	0.93	1.5	0.993	1.00	772	2100	No	0.37
Downstream	4607	60	4	2.6%	0.94	1.5	0.987	1.00	4965	9200	No	0.54

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

Capacity Check for Major Merge:

On ramp from Miller Dr WB #16

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3586	60	3	2.6%	0.92	1.5	0.987	1.00	3949	6900	No	0.57
Merging	646	40	1	1.5%	0.90	1.5	0.993	1.00	724	2100	No	0.34
Downstream	4232	60	4	2.6%	0.92	1.5	0.987	1.00	4660	9200	No	0.51

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3895	60	3	2.6%	0.94	1.5	0.987	1.00	4198	6900	No	0.61
Diverging	712	40	1	1.5%	0.93	1.5	0.993	1.00	772	2100	No	0.37
Downstream	4607	60	4	2.6%	0.94	1.5	0.987	1.00	4965	9200	No	0.54

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/27/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #17		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4232	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1180
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #17		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4607	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1257
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.9
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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Capacity Check for Major Merge: On ramp from SR874 NB (toll road) #18

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4232	60	3	2.6%	0.92	1.5	0.987	1.00	4660	6900	No	0.68
Merging	2769	65	3	2.7%	0.92	1.5	0.987	1.00	3051	6600	No	0.46
Downstream	7001	60	6	2.6%	0.92	1.5	0.987	1.00	7709	13800	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	4607	60	3	2.6%	0.94	1.5	0.987	1.00	4965	6900	No	0.72
Diverging	1707	65	3	2.7%	0.94	1.5	0.987	1.00	1841	6600	No	0.28
Downstream	6314	60	6	2.6%	0.94	1.5	0.987	1.00	6805	13800	No	0.49

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)
*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

Capacity Check for Major Merge:

On ramp from SR874 NB (toll road) #18

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4232	60	3	2.6%	0.92	1.5	0.987	1.00	4660	6900	No	0.68
Merging	2769	65	3	2.7%	0.92	1.5	0.987	1.00	3051	6600	No	0.46
Downstream	7001	60	6	2.6%	0.92	1.5	0.987	1.00	7709	13800	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	4607	60	3	2.6%	0.94	1.5	0.987	1.00	4965	6900	No	0.72
Diverging	1707	65	3	2.7%	0.94	1.5	0.987	1.00	1841	6600	No	0.28
Downstream	6314	60	6	2.6%	0.94	1.5	0.987	1.00	6805	13800	No	0.49

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)
*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #19		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7001	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1301
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.1
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #19		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6314	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1148
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.1
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #20		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	7001	645
Peak Hour Factor (PHF)	0.92	0.89
Total Trucks, %	2.60	1.30
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.987
Flow Rate (v_i), pc/h	7805	734
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.62	0.39

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.351
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1756
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.126	Outer Lanes Freeway Speed (S_O), mi/h	55.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2342	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3076	Average Density (D), pc/mi/ln	26.1
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #20		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	6314	361
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	2.60	1.30
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.987
Flow Rate (v_i), pc/h	6889	420
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.53	0.22

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.313
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1550
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.165	Outer Lanes Freeway Speed (S_O), mi/h	56.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	2067	Ramp Junction Speed (S), mi/h	55.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2487	Average Density (D), pc/mi/ln	22.0
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing # 21		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7646	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1421
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #21		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6675	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1214
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #22		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	7646	738
Peak Hour Factor (PHF)	0.92	0.87
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976
Flow Rate (v_i), pc/h	8524	869
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.43

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.415
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1918
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	52.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.109	Outer Lanes Freeway Speed (S_O), mi/h	54.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2557	Ramp Junction Speed (S), mi/h	53.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3426	Average Density (D), pc/mi/ln	29.2
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #22		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	6675	642
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976
Flow Rate (v_i), pc/h	7283	774
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.58	0.39

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.370
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1639
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.121	Outer Lanes Freeway Speed (S_O), mi/h	55.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2185	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2959	Average Density (D), pc/mi/ln	24.6
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #23		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8384	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1462
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #23		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7317	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1290
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #24		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	8384	816
Peak Hour Factor (PHF)	0.98	0.83
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976
Flow Rate (v_i), pc/h	8774	1007
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.64	0.53

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.584
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1572
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	49.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	63.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3437	Ramp Junction Speed (S), mi/h	55.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	26.4
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #24		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	7317	859
Peak Hour Factor (PHF)	0.97	0.88
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976
Flow Rate (v_i), pc/h	7737	1000
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.56	0.53

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.583
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1354
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	49.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	64.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3094	Ramp Junction Speed (S), mi/h	55.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	23.2
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #25		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7568	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1320
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #25		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6458	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1138
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #26		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	7568	852
Peak Hour Factor (PHF)	0.98	0.90
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.975
Flow Rate (v_i), pc/h	7920	971
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.64	0.51

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.366
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1782
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.096	Outer Lanes Freeway Speed (S_O), mi/h	55.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2376	Ramp Junction Speed (S), mi/h	54.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3347	Average Density (D), pc/mi/ln	27.2
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #26		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	6458	721
Peak Hour Factor (PHF)	0.97	0.84
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.975
Flow Rate (v_i), pc/h	6828	880
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.56	0.46

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.328
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1537
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.108	Outer Lanes Freeway Speed (S_O), mi/h	56.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2048	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2928	Average Density (D), pc/mi/ln	23.3
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #27		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8420	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1469
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #27		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7179	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1252
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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Capacity Check for Major Diverge:
SR826 Off Ramp to SW 8th St EB #28

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	8420	60	6	2.6%	0.98	1.5	0.987	1.00	8704	13800	No	0.63
Diverging	888	45	2	1.4%	0.85	1.5	0.993	1.00	1053	4200	No	0.25
Downstream	7532	60	5	2.6%	0.98	1.5	0.987	1.00	7786	11500	No	0.68

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	7179	60	6	2.6%	0.98	1.5	0.987	1.00	7421	13800	No	0.54
Diverging	1262	45	2	1.4%	0.94	1.5	0.993	1.00	1352	4200	No	0.32
Downstream	5917	60	5	2.6%	0.98	1.5	0.987	1.00	6117	11500	No	0.53

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	25.39	C
PM Peak	21.64	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:
SR826 Off Ramp to SW 8th St EB #28

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	8420	60	6	2.6%	0.98	1.5	0.987	1.00	8704	13800	No	0.63
Diverging	888	45	2	1.4%	0.85	1.5	0.993	1.00	1053	4200	No	0.25
Downstream	7532	60	5	2.6%	0.98	1.5	0.987	1.00	7786	11500	No	0.68

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	7179	60	6	2.6%	0.98	1.5	0.987	1.00	7421	13800	No	0.54
Diverging	1262	45	2	1.4%	0.94	1.5	0.993	1.00	1352	4200	No	0.32
Downstream	5917	60	5	2.6%	0.98	1.5	0.987	1.00	6117	11500	No	0.53

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	25.39	C
PM Peak	21.64	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #29		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7532	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1577
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.1
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #29		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5917	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1239
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.6
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/15/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #30-33		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6107	1190	277	1425
Peak Hour Factor (PHF)	0.98	0.91	0.91	0.87
Total Trucks, %	2.60	2.00	2.00	1.30
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.980	0.980	0.987
Flow Rate (v_i), pc/h	6391	1334	311	1660

Weaving Flow Rate (v_w), pc/h	2994	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	6702	Density-Based Capacity (c_{IWL}), pc/h/ln	2092
Total Flow Rate (v), pc/h	9696	Demand Flow-Based Capacity (c_{IW}), pc/h	11327
Volume Ratio (VR)	0.309	Weaving Segment Capacity (c_W), veh/h	11044
Minimum Lane Change Rate (LC_{MIN}), lc/h	1660	Adjusted Weaving Area Capacity, pc/h	11294
Maximum Weaving Length (L_{MAX}), ft	4115	Volume-to-Capacity Ratio (v/c)	0.86

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	938	Average Weaving Speed (S_W), mi/h	45.6
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	791	Average Non-Weaving Speed (S_{NW}), mi/h	41.4
Weaving Lane Change Rate (LC_W), lc/h	2764	Average Speed (S), mi/h	42.6
Total Lane Change Rate (LC_{All}), lc/h	3555	Density (D), pc/mi/ln	32.5
Weaving Intensity Factor (W)	0.471	Level of Service (LOS)	D

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 #30-33		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4674	648	172	1243
Peak Hour Factor (PHF)	0.98	0.92	0.92	0.96
Total Trucks, %	2.60	2.00	2.00	1.30
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.980	0.980	0.987
Flow Rate (v_i), pc/h	4892	719	191	1312

Weaving Flow Rate (v_w), pc/h	2031	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	5083	Density-Based Capacity (c_{IWL}), pc/h/ln	2112
Total Flow Rate (v), pc/h	7114	Demand Flow-Based Capacity (c_{IW}), pc/h	12281
Volume Ratio (VR)	0.285	Weaving Segment Capacity (c_W), veh/h	11974
Minimum Lane Change Rate (LC_{MIN}), lc/h	1312	Adjusted Weaving Area Capacity, pc/h	12247
Maximum Weaving Length (L_{MAX}), ft	3858	Volume-to-Capacity Ratio (v/c)	0.58

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	712	Average Weaving Speed (S_W), mi/h	47.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	458	Average Non-Weaving Speed (S_{NW}), mi/h	45.7
Weaving Lane Change Rate (LC_W), lc/h	2416	Average Speed (S), mi/h	46.1
Total Lane Change Rate (LC_{All}), lc/h	2874	Density (D), pc/mi/ln	22.0
Weaving Intensity Factor (W)	0.399	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	6/18/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #34		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7298	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1273
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.3
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #34		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5323	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.99	Flow Rate (V_p), pc/h/ln	919
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.5
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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Capacity Check for Major Diverge:
SR826 Off Ramp to SR836 #35

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	7298	60	6	2.6%	0.98	1.5	0.987	1.00	7544	13800	No	0.55
Diverging	2128	45	3	3.2%	0.96	1.5	0.984	1.00	2253	5700	No	0.40
Downstream	5170	60	4	2.6%	0.98	1.5	0.987	1.00	5345	9200	No	0.58

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5323	60	6	2.6%	0.99	1.5	0.987	1.00	5447	13800	No	0.39
Diverging	2442	45	3	3.2%	0.96	1.5	0.984	1.00	2585	5700	No	0.45
Downstream	2881	60	4	2.6%	0.99	1.5	0.987	1.00	2948	9200	No	0.32

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	22.00	C
PM Peak	15.89	B

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:
SR826 Off Ramp to SR836 #35

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	7298	60	6	2.6%	0.98	1.5	0.987	1.00	7544	13800	No	0.55
Diverging	2128	45	3	3.2%	0.96	1.5	0.984	1.00	2253	5700	No	0.40
Downstream	5170	60	4	2.6%	0.98	1.5	0.987	1.00	5345	9200	No	0.58

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5323	60	6	2.6%	0.99	1.5	0.987	1.00	5447	13800	No	0.39
Diverging	2442	45	3	3.2%	0.96	1.5	0.984	1.00	2585	5700	No	0.45
Downstream	2881	60	4	2.6%	0.99	1.5	0.987	1.00	2948	9200	No	0.32

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	22.00	C
PM Peak	15.89	B

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #36		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5170	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1367
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.0
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #36		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2881	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	762
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.5
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	6/18/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #37		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	5170	848
Peak Hour Factor (PHF)	0.97	0.82
Total Trucks, %	2.60	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.977
Flow Rate (v_i), pc/h	5467	1058
Capacity (c), pc/h	9200	2100
Volume-to-Capacity Ratio (v/c)	0.71	0.50

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.385
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1640
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.086	Outer Lanes Freeway Speed (S_O), mi/h	55.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2187	Ramp Junction Speed (S), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3245	Average Density (D), pc/mi/ln	29.9
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #37		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	2881	515
Peak Hour Factor (PHF)	0.97	0.88
Total Trucks, %	2.60	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.977
Flow Rate (v_i), pc/h	3046	599
Capacity (c), pc/h	9200	2100
Volume-to-Capacity Ratio (v/c)	0.40	0.29

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	16.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.309
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	914
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.242	Outer Lanes Freeway Speed (S_O), mi/h	58.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1218	Ramp Junction Speed (S), mi/h	56.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1817	Average Density (D), pc/mi/ln	16.2
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	6/18/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #38		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.60
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6018	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1591
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2228
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.1
Total Ramp Density Adjustment	7.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #38		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.60
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3396	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	898
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2228
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.0
Total Ramp Density Adjustment	7.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.8		

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Capacity Check for Major Merge:

On ramp from SR874 NB (toll road) #39

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6018	60	4	2.6%	0.97	1.5	0.987	1.00	6285	9200	No	0.68
Merging	1893	50	2	3.5%	0.95	1.5	0.983	1.00	2028	4400	No	0.46
Downstream	7911	60	6	4.4%	0.97	1.5	0.978	1.00	8336	13800	No	0.60

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3396	60	4	2.6%	0.97	1.5	0.987	1.00	3547	9200	No	0.39
Diverging	1520	50	2	3.5%	0.86	1.5	0.983	1.00	1799	4400	No	0.41
Downstream	4916	60	6	4.4%	0.97	1.5	0.978	1.00	5180	13800	No	0.38

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

Capacity Check for Major Merge:

On ramp from SR874 NB (toll road) #39

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6018	60	4	2.6%	0.97	1.5	0.987	1.00	6285	9200	No	0.68
Merging	1893	50	2	3.5%	0.95	1.5	0.983	1.00	2028	4400	No	0.46
Downstream	7911	60	6	4.4%	0.97	1.5	0.978	1.00	8336	13800	No	0.60

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3396	60	4	2.6%	0.97	1.5	0.987	1.00	3547	9200	No	0.39
Diverging	1520	50	2	3.5%	0.86	1.5	0.983	1.00	1799	4400	No	0.41
Downstream	4916	60	6	4.4%	0.97	1.5	0.978	1.00	5180	13800	No	0.38

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	6/20/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #40		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7911	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1419
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #40		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4916	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	882
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.5
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #40-43		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6268	1653	433	1643
Peak Hour Factor (PHF)	0.98	0.96	0.96	0.95
Total Trucks, %	4.40	3.30	3.30	3.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.968	0.968	0.967
Flow Rate (v_i), pc/h	6676	1779	466	1788

Weaving Flow Rate (v_w), pc/h	3567	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	7142	Density-Based Capacity (c_{IWL}), pc/h/ln	2141
Total Flow Rate (v), pc/h	10709	Demand Flow-Based Capacity (c_{IW}), pc/h	10511
Volume Ratio (VR)	0.333	Weaving Segment Capacity (c_W), veh/h	10069
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h	10471
Maximum Weaving Length (L_{MAX}), ft	4375	Volume-to-Capacity Ratio (v/c)	1.02

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #40-43		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4130	1094	208	786
Peak Hour Factor (PHF)	0.95	0.89	0.89	0.97
Total Trucks, %	4.40	3.30	3.30	3.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.968	0.968	0.967
Flow Rate (v_i), pc/h	4538	1270	241	838

Weaving Flow Rate (v_w), pc/h	2108	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	4779	Density-Based Capacity (c_{IWL}), pc/h/ln	2164
Total Flow Rate (v), pc/h	6887	Demand Flow-Based Capacity (c_{IW}), pc/h	11438
Volume Ratio (VR)	0.306	Weaving Segment Capacity (c_W), veh/h	10958
Minimum Lane Change Rate (LC_{MIN}), lc/h	1270	Adjusted Weaving Area Capacity, pc/h	11399
Maximum Weaving Length (L_{MAX}), ft	4082	Volume-to-Capacity Ratio (v/c)	0.60

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1099	Average Weaving Speed (S_W), mi/h	49.0
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	883	Average Non-Weaving Speed (S_{NW}), mi/h	46.1
Weaving Lane Change Rate (LC_W), lc/h	2758	Average Speed (S), mi/h	47.0
Total Lane Change Rate (LC_{All}), lc/h	3641	Density (D), pc/mi/ln	20.9
Weaving Intensity Factor (W)	0.325	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	6/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #44		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7922	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1688
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #44		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5225	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1148
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

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Capacity Check for Major Merge:

Loop On ramp from SW88th St EB #45

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	7922	60	5	4.4%	0.98	1.5	0.978	1.00	8262	11500	No	0.72
Merging	554	30	1	6.8%	0.92	1.5	0.967	1.00	623	2000	No	0.31
Downstream	8476	60	6	4.4%	0.98	1.5	0.978	1.00	8840	13800	No	0.64

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5225	60	5	4.4%	0.95	1.5	0.978	1.00	5621	11500	No	0.49
Diverging	660	30	1	6.8%	0.89	1.5	0.967	1.00	767	2000	No	0.38
Downstream	5885	60	6	4.4%	0.95	1.5	0.978	1.00	6332	13800	No	0.46

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

Capacity Check for Major Merge:

Loop On ramp from SW88th St EB #45

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	7922	60	5	4.4%	0.98	1.5	0.978	1.00	8262	11500	No	0.72
Merging	554	30	1	6.8%	0.92	1.5	0.967	1.00	623	2000	No	0.31
Downstream	8476	60	6	4.4%	0.98	1.5	0.978	1.00	8840	13800	No	0.64

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5225	60	5	4.4%	0.95	1.5	0.978	1.00	5621	11500	No	0.49
Diverging	660	30	1	6.8%	0.89	1.5	0.967	1.00	767	2000	No	0.38
Downstream	5885	60	6	4.4%	0.95	1.5	0.978	1.00	6332	13800	No	0.46

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 Existing #46		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8476	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1505
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 Existing #46		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5885	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1078
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #1		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9572	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1735
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.0
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #1		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6892	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1224
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.3
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #2		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	9572	1553
Peak Hour Factor (PHF)	0.96	0.88
Total Trucks, %	4.40	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.935
Flow Rate (v_i), pc/h	10408	1887
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.75	0.94

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	40.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.533
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1669
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	50.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	63.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	4468	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	31.4
Level of Service (LOS)	E		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #2		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	6892	340
Peak Hour Factor (PHF)	0.98	0.77
Total Trucks, %	2.60	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.935
Flow Rate (v_i), pc/h	7213	472
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.52	0.24

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.405
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1392
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	64.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2625	Ramp Junction Speed (S), mi/h	58.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.7
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #3		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8019	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1453
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.6
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #3		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6552	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1163
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.1
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #4-6		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	2
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5456	335	158	2563
Peak Hour Factor (PHF)	0.96	0.96	0.96	0.93
Total Trucks, %	4.40	2.70	2.70	3.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974	0.974	0.963
Flow Rate (v_i), pc/h	5932	358	169	2862

Weaving Flow Rate (v_w), pc/h	3220	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	6101	Density-Based Capacity (c_{IWL}), pc/h/ln	2131
Total Flow Rate (v), pc/h	9321	Demand Flow-Based Capacity (c_{IW}), pc/h	10145
Volume Ratio (VR)	0.345	Weaving Segment Capacity (c_W), veh/h	9719
Minimum Lane Change Rate (LC_{MIN}), lc/h	716	Adjusted Weaving Area Capacity, pc/h	10119
Maximum Weaving Length (L_{MAX}), ft	4506	Volume-to-Capacity Ratio (v/c)	0.92

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	468	Average Weaving Speed (S_W), mi/h	50.3
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1155	Average Non-Weaving Speed (S_{NW}), mi/h	48.5
Weaving Lane Change Rate (LC_W), lc/h	1792	Average Speed (S), mi/h	49.1
Total Lane Change Rate (LC_{All}), lc/h	2947	Density (D), pc/mi/ln	27.1
Weaving Intensity Factor (W)	0.275	Level of Service (LOS)	C

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #4-6		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	2
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5254	1517	374	1298
Peak Hour Factor (PHF)	0.98	0.95	0.95	0.94
Total Trucks, %	4.40	2.70	2.70	3.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974	0.974	0.963
Flow Rate (v_i), pc/h	5596	1639	404	1434

Weaving Flow Rate (v_w), pc/h	3073	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	6000	Density-Based Capacity (c_{IWL}), pc/h/ln	2136
Total Flow Rate (v), pc/h	9073	Demand Flow-Based Capacity (c_{IW}), pc/h	10324
Volume Ratio (VR)	0.339	Weaving Segment Capacity (c_W), veh/h	9891
Minimum Lane Change Rate (LC_{MIN}), lc/h	3278	Adjusted Weaving Area Capacity, pc/h	10277
Maximum Weaving Length (L_{MAX}), ft	4440	Volume-to-Capacity Ratio (v/c)	0.88

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	460	Average Weaving Speed (S_W), mi/h	46.1
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1134	Average Non-Weaving Speed (S_{NW}), mi/h	30.2
Weaving Lane Change Rate (LC_W), lc/h	4354	Average Speed (S), mi/h	34.2
Total Lane Change Rate (LC_{All}), lc/h	5488	Density (D), pc/mi/ln	37.9
Weaving Intensity Factor (W)	0.449	Level of Service (LOS)	E

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #7		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5792	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1260
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.0
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #7		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6772	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1443
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #8		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	5	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	5792	481
Peak Hour Factor (PHF)	0.96	0.96
Total Trucks, %	4.40	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974
Flow Rate (v_i), pc/h	6298	514
Capacity (c), pc/h	11500	1900
Volume-to-Capacity Ratio (v/c)	0.55	0.27

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.539
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1365
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	50.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	64.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2624	Ramp Junction Speed (S), mi/h	56.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	22.3
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #8		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	5	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	6772	90
Peak Hour Factor (PHF)	0.98	0.84
Total Trucks, %	4.40	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974
Flow Rate (v_i), pc/h	7213	110
Capacity (c), pc/h	11500	1900
Volume-to-Capacity Ratio (v/c)	0.63	0.06

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.503
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1596
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	50.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	63.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2578	Ramp Junction Speed (S), mi/h	57.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	25.2
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #9		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5311	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1135
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.2
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #9		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6682	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1399
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.1
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Diverge:
SR826 Off Ramp to Flagler St WB #10

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5311	60	5	2.6%	0.96	1.5	0.987	1.00	5605	11500	No	0.49
Diverging	1752	40	2	1.7%	0.86	1.5	0.992	1.00	2055	4200	No	0.49
Downstream	3559	60	4	2.6%	0.96	1.5	0.987	1.00	3756	9200	No	0.41

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6682	60	5	2.6%	0.98	1.5	0.987	1.00	6908	11500	No	0.60
Diverging	1103	40	2	1.7%	0.60	1.5	0.992	1.00	1854	4200	No	0.44
Downstream	5579	60	4	2.6%	0.98	1.5	0.987	1.00	5767	9200	No	0.63

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	19.62	B
PM Peak	24.18	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:
SR826 Off Ramp to Flagler St WB #10

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5311	60	5	2.6%	0.96	1.5	0.987	1.00	5605	11500	No	0.49
Diverging	1752	40	2	1.7%	0.86	1.5	0.992	1.00	2055	4200	No	0.49
Downstream	3559	60	4	2.6%	0.96	1.5	0.987	1.00	3756	9200	No	0.41

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6682	60	5	2.6%	0.98	1.5	0.987	1.00	6908	11500	No	0.60
Diverging	1103	40	2	1.7%	0.60	1.5	0.992	1.00	1854	4200	No	0.44
Downstream	5579	60	4	2.6%	0.98	1.5	0.987	1.00	5767	9200	No	0.63

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	19.62	B
PM Peak	24.18	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #11		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3559	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	950
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #11		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5579	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1490
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.9
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Merge:

On ramp from SR836 EB #12

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3559	60	4	2.6%	0.96	1.5	0.987	1.00	3756	9200	No	0.41
Merging	2306	40	2	2.7%	0.99	1.5	0.987	1.00	2361	4200	No	0.56
Downstream	5865	60	5	2.6%	0.96	1.5	0.987	1.00	6189	11500	No	0.54

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5579	60	4	2.6%	0.96	1.5	0.987	1.00	5888	9200	No	0.64
Diverging	1832	40	2	2.7%	0.92	1.5	0.987	1.00	2019	4200	No	0.48
Downstream	7411	60	5	2.6%	0.96	1.5	0.987	1.00	7821	11500	No	0.68

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

Capacity Check for Major Merge:

On ramp from SR836 EB #12

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3559	60	4	2.6%	0.96	1.5	0.987	1.00	3756	9200	No	0.41
Merging	2306	40	2	2.7%	0.99	1.5	0.987	1.00	2361	4200	No	0.56
Downstream	5865	60	5	2.6%	0.96	1.5	0.987	1.00	6189	11500	No	0.54

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5579	60	4	2.6%	0.96	1.5	0.987	1.00	5888	9200	No	0.64
Diverging	1832	40	2	2.7%	0.92	1.5	0.987	1.00	2019	4200	No	0.48
Downstream	7411	60	5	2.6%	0.96	1.5	0.987	1.00	7821	11500	No	0.68

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #13		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5865	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1228
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #13		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7411	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1567
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.3
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #14		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	5	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	5865	1096
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	2.60	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.971
Flow Rate (v_i), pc/h	6138	1188
Capacity (c), pc/h	11500	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.54

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.261
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1399
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.3
Prop. Freeway Vehicles in Lane 3 and 4 (P_{FM})	0.069	Outer Lanes Freeway Speed (S_O), mi/h	56.8
Flow in Lanes 3 and 4 (v_{34}), pc/h	1866	Ramp Junction Speed (S), mi/h	56.0
Flow Entering Ramp-Infl. Area (v_{R34}), pc/h	3054	Average Density (D), pc/mi/ln	26.2
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #14		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	5	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	7411	1055
Peak Hour Factor (PHF)	0.97	0.95
Total Trucks, %	2.60	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.971
Flow Rate (v_i), pc/h	7836	1144
Capacity (c), pc/h	11500	2200
Volume-to-Capacity Ratio (v/c)	0.78	0.52

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	23.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.293
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1681
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 3 and 4 (P_{FM})	0.075	Outer Lanes Freeway Speed (S_O), mi/h	55.7
Flow in Lanes 3 and 4 (v_{34}), pc/h	2241	Ramp Junction Speed (S), mi/h	55.2
Flow Entering Ramp-Infl. Area (v_{R34}), pc/h	3385	Average Density (D), pc/mi/ln	32.5
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #15		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6961	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1457
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.2
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #15		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8466	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1790
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.5
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #16-18		

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6059	560	83	902
Peak Hour Factor (PHF)	0.98	0.95	0.95	0.85
Total Trucks, %	2.60	2.10	2.10	2.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.979	0.979	0.977
Flow Rate (v_i), pc/h	6341	602	89	1086

Weaving Flow Rate (v_w), pc/h	1688	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	6430	Density-Based Capacity (c_{IWL}), pc/h/ln	2123
Total Flow Rate (v), pc/h	8118	Demand Flow-Based Capacity (c_{IW}), pc/h	11538
Volume Ratio (VR)	0.208	Weaving Segment Capacity (c_W), veh/h	11250
Minimum Lane Change Rate (LC_{MIN}), lc/h	1086	Adjusted Weaving Area Capacity, pc/h	11530
Maximum Weaving Length (L_{MAX}), ft	4618	Volume-to-Capacity Ratio (v/c)	0.70

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	493	Average Weaving Speed (S_W), mi/h	49.6
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1416	Average Non-Weaving Speed (S_{NW}), mi/h	45.7
Weaving Lane Change Rate (LC_W), lc/h	1876	Average Speed (S), mi/h	46.5
Total Lane Change Rate (LC_{All}), lc/h	3292	Density (D), pc/mi/ln	29.1
Weaving Intensity Factor (W)	0.300	Level of Service (LOS)	D

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	10/22/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #16-18		

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7158	950	173	1308
Peak Hour Factor (PHF)	0.97	0.93	0.93	0.97
Total Trucks, %	2.60	2.10	2.10	2.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.979	0.979	0.977
Flow Rate (v_i), pc/h	7569	1043	190	1380

Weaving Flow Rate (v_w), pc/h	2423	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	7759	Density-Based Capacity (c_{IWL}), pc/h/ln	2099
Total Flow Rate (v), pc/h	10182	Demand Flow-Based Capacity (c_{IW}), pc/h	10084
Volume Ratio (VR)	0.238	Weaving Segment Capacity (c_W), veh/h	9832
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h	10076
Maximum Weaving Length (L_{MAX}), ft	4928	Volume-to-Capacity Ratio (v/c)	1.01

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction		Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #19		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6620	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1155
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.3
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction		Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #19		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8108	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1444
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #20		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	6620	599
Peak Hour Factor (PHF)	0.98	0.98
Total Trucks, %	2.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.974
Flow Rate (v_i), pc/h	6928	628
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.55	0.33

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.339
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1559
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.139	Outer Lanes Freeway Speed (S_O), mi/h	56.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	2078	Ramp Junction Speed (S), mi/h	55.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2706	Average Density (D), pc/mi/ln	22.9
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #20		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	8108	828
Peak Hour Factor (PHF)	0.96	0.96
Total Trucks, %	2.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.974
Flow Rate (v_i), pc/h	8662	886
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.69	0.47

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.408
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1949
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	52.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.107	Outer Lanes Freeway Speed (S_O), mi/h	54.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2599	Ramp Junction Speed (S), mi/h	53.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3485	Average Density (D), pc/mi/ln	29.6
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #21		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7219	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1259
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #21		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8936	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1591
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction		Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #22		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	2
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	7219	1351	
Peak Hour Factor (PHF)	0.98	0.94	
Total Trucks, %	2.60	3.40	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.967	
Flow Rate (v_i), pc/h	7555	1486	
Capacity (c), pc/h	13800	4200	
Volume-to-Capacity Ratio (v/c)	0.55	0.35	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	12.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.367
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1547
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.260	Outer Lanes Freeway Speed (S_O), mi/h	63.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2573	Ramp Junction Speed (S), mi/h	58.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	B		

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction		Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #22		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	2
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	8936	1446	
Peak Hour Factor (PHF)	0.96	0.89	
Total Trucks, %	2.60	3.40	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.967	
Flow Rate (v_i), pc/h	9547	1680	
Capacity (c), pc/h	13800	4200	
Volume-to-Capacity Ratio (v/c)	0.69	0.40	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.384
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2028
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.260	Outer Lanes Freeway Speed (S_O), mi/h	61.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	3105	Ramp Junction Speed (S), mi/h	57.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.6
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #23		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5868	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1034
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.3
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #23		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7490	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1334
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #24		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	380
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity	Freeway	Ramp
Demand Volume (V_i), veh/h	5868	703
Peak Hour Factor (PHF)	0.97	0.85
Total Trucks, %	2.60	1.80
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.982
Flow Rate (v_i), pc/h	6205	842
Capacity (c), pc/h	13800	2100
Volume-to-Capacity Ratio (v/c)	0.45	0.40

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.309
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1075
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	65.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2504	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	17.5
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #24		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	380
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity	Freeway	Ramp
Demand Volume (V_i), veh/h	7490	1010
Peak Hour Factor (PHF)	0.96	0.96
Total Trucks, %	2.60	1.80
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.982
Flow Rate (v_i), pc/h	8002	1071
Capacity (c), pc/h	13800	2100
Volume-to-Capacity Ratio (v/c)	0.58	0.51

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	28.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.329
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1390
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	64.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3221	Ramp Junction Speed (S), mi/h	58.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	22.8
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #25		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5165	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	910
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #25		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6480	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.96	Flow Rate (V_p), pc/h/ln	1154
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Diverge:
SR826 Off Ramp to SR874 WB #26

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5165	60	6	2.6%	0.97	1.5	0.987	1.00	5394	13800	No	0.39
Diverging	1407	65	3	2.7%	0.95	1.5	0.987	1.00	1502	6600	No	0.23
Downstream	3758	60	3	2.6%	0.99	1.5	0.987	1.00	3846	6900	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6480	60	6	2.6%	0.96	1.5	0.987	1.00	6838	13800	No	0.50
Diverging	2469	65	3	2.7%	0.94	1.5	0.987	1.00	2663	6600	No	0.40
Downstream	4011	60	3	2.6%	0.97	1.5	0.987	1.00	4189	6900	No	0.61

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	15.73	B
PM Peak	19.94	B

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:
SR826 Off Ramp to SR874 WB #26

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5165	60	6	2.6%	0.97	1.5	0.987	1.00	5394	13800	No	0.39
Diverging	1407	65	3	2.7%	0.95	1.5	0.987	1.00	1502	6600	No	0.23
Downstream	3758	60	3	2.6%	0.99	1.5	0.987	1.00	3846	6900	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6480	60	6	2.6%	0.96	1.5	0.987	1.00	6838	13800	No	0.50
Diverging	2469	65	3	2.7%	0.94	1.5	0.987	1.00	2663	6600	No	0.40
Downstream	4011	60	3	2.6%	0.97	1.5	0.987	1.00	4189	6900	No	0.61

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	15.73	B
PM Peak	19.94	B

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/16/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #27		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3758	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.99	Flow Rate (V_p), pc/h/ln	1298
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #27		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4011	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1414
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #28-32		

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L_S), ft	2600	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.20	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2814	530	177	944
Peak Hour Factor (PHF)	0.99	0.94	0.94	0.92
Total Trucks, %	2.60	1.60	1.60	1.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.984	0.984	0.982
Flow Rate (v_i), pc/h	2915	573	191	1045

Weaving Flow Rate (v_w), pc/h	1618	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3106	Density-Based Capacity (c_{IWL}), pc/h/ln	2156
Total Flow Rate (v), pc/h	4724	Demand Flow-Based Capacity (c_{IW}), pc/h	10204
Volume Ratio (VR)	0.343	Weaving Segment Capacity (c_W), veh/h	8408
Minimum Lane Change Rate (LC_{MIN}), lc/h	573	Adjusted Weaving Area Capacity, pc/h	8596
Maximum Weaving Length (L_{MAX}), ft	4484	Volume-to-Capacity Ratio (v/c)	0.55

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	969	Average Weaving Speed (S_W), mi/h	52.1
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1279	Average Non-Weaving Speed (S_{NW}), mi/h	50.2
Weaving Lane Change Rate (LC_W), lc/h	1135	Average Speed (S), mi/h	50.8
Total Lane Change Rate (LC_{All}), lc/h	2414	Density (D), pc/mi/ln	23.2
Weaving Intensity Factor (W)	0.213	Level of Service (LOS)	C

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #28-32		

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L_S), ft	2600	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.20	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3146	748	205	865
Peak Hour Factor (PHF)	0.97	0.94	0.94	0.95
Total Trucks, %	2.60	1.60	1.60	1.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.984	0.984	0.982
Flow Rate (v_i), pc/h	3326	809	222	927

Weaving Flow Rate (v_w), pc/h	1736	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3548	Density-Based Capacity (c_{IWL}), pc/h/ln	2168
Total Flow Rate (v), pc/h	5284	Demand Flow-Based Capacity (c_{IW}), pc/h	10638
Volume Ratio (VR)	0.329	Weaving Segment Capacity (c_W), veh/h	8455
Minimum Lane Change Rate (LC_{MIN}), lc/h	809	Adjusted Weaving Area Capacity, pc/h	8645
Maximum Weaving Length (L_{MAX}), ft	4331	Volume-to-Capacity Ratio (v/c)	0.61

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1107	Average Weaving Speed (S_W), mi/h	51.4
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1370	Average Non-Weaving Speed (S_{NW}), mi/h	47.8
Weaving Lane Change Rate (LC_W), lc/h	1371	Average Speed (S), mi/h	48.9
Total Lane Change Rate (LC_{All}), lc/h	2741	Density (D), pc/mi/ln	27.0
Weaving Intensity Factor (W)	0.236	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/17/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #33		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3345	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.99	Flow Rate (V_p), pc/h/ln	1145
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #33		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3895	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1360
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/17/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #34		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	3345	290
Peak Hour Factor (PHF)	0.99	0.85
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.975
Flow Rate (v_i), pc/h	3434	350
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.55	0.18

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	21.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.331
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1411
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.589	Outer Lanes Freeway Speed (S_O), mi/h	56.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2023	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2373	Average Density (D), pc/mi/ln	22.9
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #34		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	3895	313
Peak Hour Factor (PHF)	0.97	0.91
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.975
Flow Rate (v_i), pc/h	4081	353
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.64	0.18

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.350
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1677
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.589	Outer Lanes Freeway Speed (S_O), mi/h	55.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2404	Ramp Junction Speed (S), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2757	Average Density (D), pc/mi/ln	27.1
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/17/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #35		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.10
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3635	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1256
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2240
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2240
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.3
Total Ramp Density Adjustment	6.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #35		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.10
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4208	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.99	Flow Rate (V_p), pc/h/ln	1440
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2240
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2240
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.7
Total Ramp Density Adjustment	6.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.0		

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Capacity Check for Major Diverge:

SR826 Off Ramp to Sunset Dr WB #36

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3635	60	3	1.6%	0.98	1.5	0.992	1.00	3739	6900	No	0.54
Diverging	1568	40	2	2.4%	0.84	1.5	0.988	1.00	1890	4200	No	0.45
Downstream	2067	60	2	1.6%	0.98	1.5	0.992	1.00	2127	4600	No	0.46

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4208	60	3	1.6%	0.99	1.5	0.992	1.00	4285	6900	No	0.62
Diverging	1638	40	2	2.4%	0.97	1.5	0.988	1.00	1709	4200	No	0.41
Downstream	2570	60	2	1.6%	0.99	1.5	0.992	1.00	2617	4600	No	0.57

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	21.81	C
PM Peak	25.00	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:

SR826 Off Ramp to Sunset Dr WB #36

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3635	60	3	1.6%	0.98	1.5	0.992	1.00	3739	6900	No	0.54
Diverging	1568	40	2	2.4%	0.84	1.5	0.988	1.00	1890	4200	No	0.45
Downstream	2067	60	2	1.6%	0.98	1.5	0.992	1.00	2127	4600	No	0.46

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4208	60	3	1.6%	0.99	1.5	0.992	1.00	4285	6900	No	0.62
Diverging	1638	40	2	2.4%	0.97	1.5	0.988	1.00	1709	4200	No	0.41
Downstream	2570	60	2	1.6%	0.99	1.5	0.992	1.00	2617	4600	No	0.57

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	21.81	C
PM Peak	25.00	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/17/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #37		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2067	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1072
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #37		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2570	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.99	Flow Rate (V_p), pc/h/ln	1319
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/17/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #38		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	2067	69
Peak Hour Factor (PHF)	0.98	0.92
Total Trucks, %	1.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.974
Flow Rate (v_i), pc/h	2143	77
Capacity (c), pc/h	4600	1900
Volume-to-Capacity Ratio (v/c)	0.48	0.04

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.339
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2143	Ramp Junction Speed (S), mi/h	53.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2220	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #38		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	2570	109
Peak Hour Factor (PHF)	0.99	0.94
Total Trucks, %	1.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.974
Flow Rate (v_i), pc/h	2638	119
Capacity (c), pc/h	4600	1900
Volume-to-Capacity Ratio (v/c)	0.60	0.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.364
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2638	Ramp Junction Speed (S), mi/h	53.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2757	Average Density (D), pc/mi/ln	25.8
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/17/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 Existing #39		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2136	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.99	Flow Rate (V_p), pc/h/ln	1126
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.8
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	10/23/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 Existing #39		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2679	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	1427
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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APPENDIX C

2017 Existing Output HCS Reports (SR 874 and SR 836)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4297	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1549
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.3
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5166	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.85	Flow Rate (V_p), pc/h/ln	2059
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.7
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 836		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	4297	1597	
Peak Hour Factor (PHF)	0.94	0.97	
Total Trucks, %	1.60	7.00	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.935	
Flow Rate (v_i), pc/h	4646	1761	
Capacity (c), pc/h	6900	2000	
Volume-to-Capacity Ratio (v/c)	0.67	0.88	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	31.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.521
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1261
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	50.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.563	Outer Lanes Freeway Speed (S_O), mi/h	64.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	3385	Ramp Junction Speed (S), mi/h	53.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	28.8
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 836		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	5166	1811	
Peak Hour Factor (PHF)	0.85	0.94	
Total Trucks, %	1.60	7.00	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.935	
Flow Rate (v_i), pc/h	6176	2061	
Capacity (c), pc/h	6900	2000	
Volume-to-Capacity Ratio (v/c)	0.90	1.03	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	38.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2012
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	50.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.511	Outer Lanes Freeway Speed (S_O), mi/h	61.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	4164	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2700	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	973
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3355	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.85	Flow Rate (V_p), pc/h/ln	1337
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.4
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 836		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	2700	529	
Peak Hour Factor (PHF)	0.94	0.92	
Total Trucks, %	1.60	4.00	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.962	
Flow Rate (v_i), pc/h	2919	598	
Capacity (c), pc/h	6900	2000	
Volume-to-Capacity Ratio (v/c)	0.42	0.30	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	20.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.417
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	789
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.660	Outer Lanes Freeway Speed (S_O), mi/h	65.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2130	Ramp Junction Speed (S), mi/h	55.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	17.5
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 836		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3355	589	
Peak Hour Factor (PHF)	0.85	0.97	
Total Trucks, %	1.60	4.00	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.962	
Flow Rate (v_i), pc/h	4011	631	
Capacity (c), pc/h	6900	2000	
Volume-to-Capacity Ratio (v/c)	0.58	0.32	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.420
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1247
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.631	Outer Lanes Freeway Speed (S_O), mi/h	64.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2764	Ramp Junction Speed (S), mi/h	55.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.0
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2171	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	782
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2766	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.85	Flow Rate (V_p), pc/h/ln	1102
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.0
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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Capacity Check for Major Merge:

On ramp from SR826

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	2766	60	3	1.6%	0.85	1.5	0.992	1.00	3281	6900	No	0.48
Merging	2942	50	3	3.7%	0.97	1.5	0.982	1.00	3090	6000	No	0.52
Downstream	5708	60	6	1.6%	0.78	1.5	0.992	1.00	7377	13800	No	0.53

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	2171	60	3	1.6%	0.94	1.5	0.992	1.00	2329	6900	No	0.34
Diverging	2814	50	3	3.7%	0.93	1.5	0.982	1.00	3082	6000	No	0.51
Downstream	4985	60	6	1.6%	0.94	1.5	0.992	1.00	5346	13800	No	0.39

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

Capacity Check for Major Merge:

On ramp from SR826

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	2766	60	3	1.6%	0.85	1.5	0.992	1.00	3281	6900	No	0.48
Merging	2942	50	3	3.7%	0.97	1.5	0.982	1.00	3090	6000	No	0.52
Downstream	5708	60	6	1.6%	0.78	1.5	0.992	1.00	7377	13800	No	0.53

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	2171	60	3	1.6%	0.94	1.5	0.992	1.00	2329	6900	No	0.34
Diverging	2814	50	3	3.7%	0.93	1.5	0.982	1.00	3082	6000	No	0.51
Downstream	4985	60	6	1.6%	0.94	1.5	0.992	1.00	5346	13800	No	0.39

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4985	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	898
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.3
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5708	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.78	Flow Rate (V_p), pc/h/ln	1240
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5663	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1187
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.4
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4568	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	947
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.1
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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Capacity Check for Major Diverge:

SR836 Off Ramp to SR826

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4568	60	5	1.6%	0.98	1.5	0.992	1.00	4699	11500	No	0.41
Diverging	3286	45	3	4.3%	0.98	1.5	0.979	1.00	3426	5700	No	0.60
Downstream	1282	60	4	1.6%	0.98	1.5	0.992	1.00	1319	9200	No	0.14

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5663	60	5	1.6%	0.97	1.5	0.992	1.00	5885	11500	No	0.51
Diverging	1630	45	3	4.3%	0.90	1.5	0.979	1.00	1851	4200	No	0.44
Downstream	4033	60	4	1.6%	0.97	1.5	0.992	1.00	4191	9200	No	0.46

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	16.45	B
PM Peak	20.60	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:

SR836 Off Ramp to SR826

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4568	60	5	1.6%	0.98	1.5	0.992	1.00	4699	11500	No	0.41
Diverging	3286	45	3	4.3%	0.98	1.5	0.979	1.00	3426	5700	No	0.60
Downstream	1282	60	4	1.6%	0.98	1.5	0.992	1.00	1319	9200	No	0.14

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5663	60	5	1.6%	0.97	1.5	0.992	1.00	5885	11500	No	0.51
Diverging	1630	45	3	4.3%	0.90	1.5	0.979	1.00	1851	4200	No	0.44
Downstream	4033	60	4	1.6%	0.97	1.5	0.992	1.00	4191	9200	No	0.46

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	16.45	B
PM Peak	20.60	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4033	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1408
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.4
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1282	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	443
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.20
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.0
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	700
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	4033	620
Peak Hour Factor (PHF)	0.97	0.93
Total Trucks, %	1.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.976
Flow Rate (v_i), pc/h	4225	683
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.71	0.33

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.354
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1703
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.597	Outer Lanes Freeway Speed (S_O), mi/h	55.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2522	Ramp Junction Speed (S), mi/h	54.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3205	Average Density (D), pc/mi/ln	30.1
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	12/04/2018
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Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	700
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	1282	1305
Peak Hour Factor (PHF)	0.98	0.95
Total Trucks, %	1.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.976
Flow Rate (v_i), pc/h	1329	1407
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.40	0.67

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.293
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	536
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.597	Outer Lanes Freeway Speed (S_O), mi/h	59.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	793	Ramp Junction Speed (S), mi/h	55.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2200	Average Density (D), pc/mi/ln	16.4
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4653	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.97	Flow Rate (V_p), pc/h/ln	1625
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2587	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.98	Flow Rate (V_p), pc/h/ln	894
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2469	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	899
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK NB
Project Description	SR 874		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1407	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	523
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	65.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity	Freeway	Ramp
Demand Volume (V_i), veh/h	2469	578
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	2.70	1.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.984
Flow Rate (v_i), pc/h	2697	653
Capacity (c), pc/h	7050	2100
Volume-to-Capacity Ratio (v/c)	0.48	0.31

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	19.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.313
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1100
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.592	Outer Lanes Freeway Speed (S_O), mi/h	62.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	1597	Ramp Junction Speed (S), mi/h	59.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2250	Average Density (D), pc/mi/ln	18.8
Level of Service (LOS)	B		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 874		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	65.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity	Freeway	Ramp
Demand Volume (V_i), veh/h	1407	422
Peak Hour Factor (PHF)	0.92	0.88
Total Trucks, %	2.70	1.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.984
Flow Rate (v_i), pc/h	1570	487
Capacity (c), pc/h	7050	2100
Volume-to-Capacity Ratio (v/c)	0.29	0.23

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	13.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.292
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	641
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.592	Outer Lanes Freeway Speed (S_O), mi/h	64.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	929	Ramp Junction Speed (S), mi/h	60.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1416	Average Density (D), pc/mi/ln	11.4
Level of Service (LOS)	B		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3260	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1187
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK NB
Project Description	SR 874		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1829	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	680
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2177	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	793
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3289	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1185
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity	Freeway	Ramp
Demand Volume (V_i), veh/h	2177	470
Peak Hour Factor (PHF)	0.94	0.97
Total Trucks, %	2.70	2.20
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.978
Flow Rate (v_i), pc/h	2378	495
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.34	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	17.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.278
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	606
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.678	Outer Lanes Freeway Speed (S_O), mi/h	65.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	1772	Ramp Junction Speed (S), mi/h	57.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	13.8
Level of Service (LOS)	B		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity	Freeway	Ramp
Demand Volume (V_i), veh/h	3289	749
Peak Hour Factor (PHF)	0.95	0.88
Total Trucks, %	2.70	2.20
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.978
Flow Rate (v_i), pc/h	3555	870
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.52	0.41

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.311
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	991
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.631	Outer Lanes Freeway Speed (S_O), mi/h	65.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2564	Ramp Junction Speed (S), mi/h	57.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.7
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1707	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	621
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.27
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/21/2018
Agency		Analysis Year	2017
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2769	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	998
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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APPENDIX D

2017 Existing Output Synchro Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	112	139	44	39	110	73	130	2635	118	2334	156
v/c Ratio	0.66	0.78	0.16	0.30	0.80	0.31	0.78	0.81	1.39	0.77	0.16
Control Delay	104.5	115.3	1.2	94.9	123.5	3.3	117.7	29.4	265.3	76.9	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.5	115.3	1.2	94.9	123.5	3.3	117.7	29.4	265.3	76.9	25.8
Queue Length 50th (ft)	151	190	0	49	145	0	170	917	~223	1182	99
Queue Length 95th (ft)	229	277	0	99	#293	0	251	961	m#363	1220	183
Internal Link Dist (ft)		935			1608			1322		2289	
Turn Bay Length (ft)	60		25	320		320	460		250		360
Base Capacity (vph)	204	214	307	131	138	239	205	3250	85	3026	995
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.65	0.14	0.30	0.80	0.31	0.63	0.81	1.39	0.77	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	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	126	44	39	109	72	129	2554	54	117	2311	154
Future Volume (vph)	123	126	44	39	109	72	129	2554	54	117	2311	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.8
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1770	1863	1583	1770	5069		1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1770	1863	1583	1770	5069		1770	5085	1583
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)	124	127	44	39	110	73	130	2580	55	118	2334	156
RTOR Reduction (vph)	0	0	40	0	0	68	0	1	0	0	0	53
Lane Group Flow (vph)	112	139	4	39	110	5	130	2634	0	118	2334	103
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3			4						2
Actuated Green, G (s)	20.2	20.2	20.2	14.9	14.9	14.9	18.9	128.2		9.7	119.0	119.0
Effective Green, g (s)	20.2	20.2	20.2	14.9	14.9	14.9	18.9	128.2		9.7	119.0	119.0
Actuated g/C Ratio	0.10	0.10	0.10	0.07	0.07	0.07	0.09	0.64		0.05	0.60	0.60
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.5	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	169	177	159	131	138	117	167	3249		85	3025	941
v/s Ratio Prot	0.07	c0.08		0.02	c0.06		0.07	c0.52		c0.07	0.46	
v/s Ratio Perm			0.00			0.00						0.07
v/c Ratio	0.66	0.79	0.03	0.30	0.80	0.05	0.78	0.81		1.39	0.77	0.11
Uniform Delay, d1	86.6	87.8	81.0	87.6	91.1	86.0	88.5	26.8		95.2	30.3	17.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.75	2.40	5.99
Incremental Delay, d2	9.4	20.1	0.1	1.3	26.5	0.2	19.4	2.3		218.9	1.5	0.2
Delay (s)	96.0	107.9	81.1	88.9	117.5	86.1	107.9	29.1		289.8	74.4	105.3
Level of Service	F	F	F	F	F	F	F	C		F	E	F
Approach Delay (s)		99.4			102.2			32.8			86.0	
Approach LOS		F			F			C			F	

Intersection Summary

HCM 2000 Control Delay	62.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	92.1%	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 (vph)	452	173	54	36	136	327	78	2909	9	169	2627	188
Future Volume (vph)	452	173	54	36	136	327	78	2909	9	169	2627	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8		6.8	6.8	6.8
Lane Util. Factor	0.91	0.91	1.00	1.00	0.91	0.91	0.97	0.91		0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	0.92	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1610	3297	1583	1770	3113	1441	3433	5083		3433	6408	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1610	3297	1583	1770	3113	1441	3433	5083		3433	6408	1583
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)	461	177	55	37	139	334	80	2968	9	172	2681	192
RTOR Reduction (vph)	0	0	47	0	74	87	0	0	0	0	0	60
Lane Group Flow (vph)	230	408	8	37	232	80	80	2977	0	172	2681	132
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3			4						2
Actuated Green, G (s)	28.5	28.5	28.5	13.0	13.0	13.0	9.7	120.2		11.2	121.7	121.7
Effective Green, g (s)	28.5	28.5	28.5	13.0	13.0	13.0	9.7	120.2		11.2	121.7	121.7
Actuated g/C Ratio	0.14	0.14	0.14	0.06	0.06	0.06	0.05	0.60		0.06	0.61	0.61
Clearance Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8		6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	229	469	225	115	202	93	166	3054		192	3899	963
v/s Ratio Prot	c0.14	0.12		0.02	c0.07		0.02	c0.59		c0.05	0.42	
v/s Ratio Perm			0.00			0.06						0.08
v/c Ratio	1.00	0.97dl	0.03	0.32	1.15	0.86	0.48	0.97		0.90	0.69	0.14
Uniform Delay, d1	85.8	83.9	73.9	89.3	93.5	92.6	92.7	38.4		93.8	26.4	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.29	0.47		1.00	1.00	1.00
Incremental Delay, d2	60.6	15.7	0.1	1.6	109.3	51.1	1.5	8.8		37.1	1.0	0.3
Delay (s)	146.3	99.6	74.0	90.9	202.8	143.7	121.3	26.9		130.9	27.4	17.0
Level of Service	F	F	E	F	F	F	F	C		F	C	B
Approach Delay (s)		113.1			175.3			29.4			32.6	
Approach LOS		F			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	48.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	103.6%	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	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	123	126	44	39	109	72	129	2554	117	2311	154
Future Volume (vph)	123	126	44	39	109	72	129	2554	117	2311	154
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	3	3		4	4		1	6	5	2	
Permitted Phases			3			4					2
Detector Phase	3	3	3	4	4	4	1	6	5	2	2
Switch Phase											
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	5.0	9.0	9.0
Minimum Split (s)	30.7	30.7	30.7	13.7	13.7	13.7	11.8	44.8	11.8	44.8	44.8
Total Split (s)	31.0	31.0	31.0	19.0	19.0	19.0	30.0	135.0	15.0	120.0	120.0
Total Split (%)	15.5%	15.5%	15.5%	9.5%	9.5%	9.5%	15.0%	67.5%	7.5%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.8
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8	6.8	6.8	6.8
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	20.2	20.2	20.2	14.9	14.9	14.9	18.9	128.2	9.7	119.0	119.0
Actuated g/C Ratio	0.10	0.10	0.10	0.07	0.07	0.07	0.09	0.64	0.05	0.60	0.60
v/c Ratio	0.66	0.78	0.16	0.30	0.80	0.31	0.78	0.81	1.39	0.77	0.16
Control Delay	104.5	115.3	1.2	94.9	123.5	3.3	117.7	29.4	265.3	76.9	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.5	115.3	1.2	94.9	123.5	3.3	117.7	29.4	265.3	76.9	25.8
LOS	F	F	A	F	F	A	F	C	F	E	C
Approach Delay		94.2			79.0			33.6		82.4	
Approach LOS		F			E			C		F	

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 83 (42%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.39
Intersection Signal Delay: 59.9 — Intersection LOS: E
Intersection Capacity Utilization 92.1% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 51: US 1 & Killian Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	452	173	54	36	136	327	78	2909	169	2627	188
Future Volume (vph)	452	173	54	36	136	327	78	2909	169	2627	188
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	3	3		4	4		1	6	5	2	
Permitted Phases			3			4					2
Detector Phase	3	3	3	4	4	4	1	6	5	2	2
Switch Phase											
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	5.0	9.0	9.0
Minimum Split (s)	35.0	35.0	35.0	14.0	14.0	14.0	11.8	44.8	11.8	44.8	44.8
Total Split (s)	35.0	35.0	35.0	20.0	20.0	20.0	18.0	127.0	18.0	127.0	127.0
Total Split (%)	17.5%	17.5%	17.5%	10.0%	10.0%	10.0%	9.0%	63.5%	9.0%	63.5%	63.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.8
All-Red Time (s)	2.5	2.5	2.5	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	6.8	6.8	6.8
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	28.5	28.5	28.5	13.0	13.0	13.0	9.7	120.2	11.2	121.7	121.7
Actuated g/C Ratio	0.14	0.14	0.14	0.06	0.06	0.06	0.05	0.60	0.06	0.61	0.61
v/c Ratio	1.00	0.97dl	0.18	0.32	1.11	0.93	0.48	0.97	0.90	0.69	0.19
Control Delay	142.3	102.7	1.3	97.2	144.4	88.6	126.2	27.2	133.7	27.6	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	142.3	102.7	1.3	97.2	144.4	88.6	126.2	27.2	133.7	27.6	4.5
LOS	F	F	A	F	F	F	F	C	F	C	A
Approach Delay		107.8			122.7			29.8		32.2	
Approach LOS		F			F			C		C	

Intersection Summary			
Cycle Length: 200			
Actuated Cycle Length: 200			
Offset: 139 (70%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 44.7		Intersection LOS: D	
Intersection Capacity Utilization 103.6%		ICU Level of Service G	
Analysis Period (min) 15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 11: US 1 & SW 104 St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	230	408	55	37	306	167	80	2977	172	2681	192
v/c Ratio	1.00	0.97dl	0.18	0.32	1.11	0.93	0.48	0.97	0.90	0.69	0.19
Control Delay	142.3	102.7	1.3	97.2	144.4	88.6	126.2	27.2	133.7	27.6	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	142.3	102.7	1.3	97.2	144.4	88.6	126.2	27.2	133.7	27.6	4.5
Queue Length 50th (ft)	~339	293	0	48	~195	110	57	1363	118	675	20
Queue Length 95th (ft)	#560	#387	0	93	#314	#290	m73	1413	#198	712	59
Internal Link Dist (ft)		943			618			468		720	
Turn Bay Length (ft)	195		25	95		300	150		265		320
Base Capacity (vph)	229	469	307	115	276	180	192	3056	192	3899	1023
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.87	0.18	0.32	1.11	0.93	0.42	0.97	0.90	0.69	0.19

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	112	144	53	34	143	75	139	1876	165	3071	416
v/c Ratio	0.64	0.79	0.21	0.21	0.82	0.32	0.87	0.65	1.03	1.06	0.41
Control Delay	98.0	110.7	1.9	82.2	116.9	8.5	123.7	29.2	140.9	46.4	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.0	110.7	1.9	82.2	116.9	8.5	123.7	29.2	140.9	46.4	3.0
Queue Length 50th (ft)	143	187	0	39	176	0	~197	573	~268	~1516	33
Queue Length 95th (ft)	221	275	0	81	#301	28	#361	619	m#303	#1565	m70
Internal Link Dist (ft)		935			1608			1322		2289	
Turn Bay Length (ft)	60		25	320		320	460		250		360
Base Capacity (vph)	206	216	280	174	183	245	159	2883	160	2897	1009
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.67	0.19	0.20	0.78	0.31	0.87	0.65	1.03	1.06	0.41

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)	120	126	51	33	137	72	133	1744	57	158	2948	399
Future Volume (vph)	120	126	51	33	137	72	133	1744	57	158	2948	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.8
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1770	1863	1583	1770	5061		1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1770	1863	1583	1770	5061		1770	5085	1583
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)	125	131	53	34	143	75	139	1817	59	165	3071	416
RTOR Reduction (vph)	0	0	47	0	0	68	0	2	0	0	0	108
Lane Group Flow (vph)	112	144	6	34	143	7	139	1874	0	165	3071	308
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3			4						2
Actuated Green, G (s)	19.8	19.8	19.8	17.8	17.8	17.8	17.2	108.2		17.2	108.2	108.2
Effective Green, g (s)	19.8	19.8	19.8	17.8	17.8	17.8	17.2	108.2		17.2	108.2	108.2
Actuated g/C Ratio	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.57		0.09	0.57	0.57
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.5	1.0		2.5	1.0	1.0
Lane Grp Cap (vph)	175	183	164	165	174	148	160	2882		160	2895	901
v/s Ratio Prot	0.07	c0.08		0.02	c0.08		0.08	0.37		c0.09	c0.60	
v/s Ratio Perm			0.00			0.00						0.19
v/c Ratio	0.64	0.79	0.03	0.21	0.82	0.05	0.87	0.65		1.03	1.06	0.34
Uniform Delay, d1	81.7	83.0	76.5	79.6	84.5	78.4	85.3	28.0		86.4	40.9	21.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.22	0.33	0.31
Incremental Delay, d2	7.7	19.7	0.1	0.6	25.7	0.1	35.7	1.2		52.2	31.0	0.4
Delay (s)	89.4	102.7	76.6	80.2	110.3	78.5	120.9	29.1		157.4	44.7	7.1
Level of Service	F	F	E	F	F	E	F	C		F	D	A
Approach Delay (s)		93.4			96.8			35.5			45.5	
Approach LOS		F			F			D			D	

Intersection Summary

HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	100.7%	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 (vph)	280	185	95	26	173	279	152	1874	21	400	3488	642
Future Volume (vph)	280	185	95	26	173	279	152	1874	21	400	3488	642
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8		6.8	6.8	6.8
Lane Util. Factor	0.91	0.91	1.00	1.00	0.91	0.91	0.97	0.91		0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	0.93	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1610	3322	1583	1770	3165	1441	3433	5077		3433	6408	1583
Flt Permitted	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1610	3322	1583	1770	3165	1441	3433	5077		3433	6408	1583
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)	292	193	99	27	180	291	158	1952	22	417	3633	669
RTOR Reduction (vph)	0	0	87	0	76	135	0	0	0	0	0	165
Lane Group Flow (vph)	158	327	12	27	247	13	158	1974	0	417	3633	504
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3			4						2
Actuated Green, G (s)	22.5	22.5	22.5	16.8	16.8	16.8	9.1	95.5		28.1	114.5	114.5
Effective Green, g (s)	22.5	22.5	22.5	16.8	16.8	16.8	9.1	95.5		28.1	114.5	114.5
Actuated g/C Ratio	0.12	0.12	0.12	0.09	0.09	0.09	0.05	0.50		0.15	0.60	0.60
Clearance Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8		6.8	6.8	6.8
Vehicle Extension (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	1.0		3.5	1.0	1.0
Lane Grp Cap (vph)	190	393	187	156	279	127	164	2551		507	3861	953
v/s Ratio Prot	0.10	c0.10		0.02	c0.08		0.05	0.39		c0.12	c0.57	
v/s Ratio Perm			0.01			0.01						0.32
v/c Ratio	0.83	0.83	0.06	0.17	0.89	0.10	0.96	0.77		0.82	0.94	0.53
Uniform Delay, d1	81.9	81.9	74.4	80.2	85.7	79.7	90.3	38.5		78.5	34.6	22.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.76	1.99		1.00	1.00	1.00
Incremental Delay, d2	26.0	14.3	0.2	0.6	27.2	0.4	52.3	1.9		10.6	6.1	2.1
Delay (s)	107.9	96.2	74.6	80.8	112.9	80.1	120.9	78.6		89.2	40.7	24.1
Level of Service	F	F	E	F	F	F	F	E		F	D	C
Approach Delay (s)		95.7			101.4			81.7			42.6	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	60.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	120	126	51	33	137	72	133	1744	158	2948	399
Future Volume (vph)	120	126	51	33	137	72	133	1744	158	2948	399
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	3	3		4	4		1	6	5	2	
Permitted Phases			3			4					2
Detector Phase	3	3	3	4	4	4	1	6	5	2	2
Switch Phase											
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	5.0	9.0	9.0
Minimum Split (s)	29.7	29.7	29.7	13.7	13.7	13.7	11.8	44.8	11.8	44.8	44.8
Total Split (s)	30.0	30.0	30.0	25.0	25.0	25.0	20.0	115.0	20.0	115.0	115.0
Total Split (%)	15.8%	15.8%	15.8%	13.2%	13.2%	13.2%	10.5%	60.5%	10.5%	60.5%	60.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.8
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8	6.8	6.8	6.8
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	19.8	19.8	19.8	17.8	17.8	17.8	17.2	108.2	17.2	108.3	108.3
Actuated g/C Ratio	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.57	0.09	0.57	0.57
v/c Ratio	0.64	0.79	0.21	0.21	0.82	0.32	0.87	0.65	1.03	1.06	0.41
Control Delay	98.0	110.7	1.9	82.2	116.9	8.5	123.7	29.2	140.9	46.4	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.0	110.7	1.9	82.2	116.9	8.5	123.7	29.2	140.9	46.4	3.0
LOS	F	F	A	F	F	A	F	C	F	D	A
Approach Delay		87.4			79.9			35.8		45.7	
Approach LOS		F			E			D		D	

Intersection Summary
Cycle Length: 190
Actuated Cycle Length: 190
Offset: 158 (83%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 46.0 — Intersection LOS: D
Intersection Capacity Utilization 100.7% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 51: US 1 & Killian Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	280	185	95	26	173	279	152	1874	400	3488	642
Future Volume (vph)	280	185	95	26	173	279	152	1874	400	3488	642
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	3	3		4	4		1	6	5	2	
Permitted Phases			3			4					2
Detector Phase	3	3	3	4	4	4	1	6	5	2	2
Switch Phase											
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	5.0	9.0	9.0
Minimum Split (s)	30.0	30.0	30.0	14.0	14.0	14.0	11.8	44.8	11.8	44.8	44.8
Total Split (s)	30.0	30.0	30.0	24.0	24.0	24.0	14.8	97.0	39.0	121.0	121.0
Total Split (%)	15.8%	15.8%	15.8%	12.6%	12.6%	12.6%	7.8%	51.1%	20.5%	63.7%	63.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.8
All-Red Time (s)	2.5	2.5	2.5	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	6.8	6.8	6.8
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	22.5	22.5	22.5	16.8	16.8	16.8	9.1	95.4	28.1	114.4	114.4
Actuated g/C Ratio	0.12	0.12	0.12	0.09	0.09	0.09	0.05	0.50	0.15	0.60	0.60
v/c Ratio	0.83	0.83	0.32	0.17	0.91	0.56	0.96	0.77	0.82	0.94	0.60
Control Delay	113.2	99.9	4.9	82.9	91.8	19.2	120.2	80.7	92.1	41.0	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.2	99.9	4.9	82.9	91.8	19.2	120.2	80.7	92.1	41.0	10.0
LOS	F	F	A	F	F	B	F	F	F	D	B
Approach Delay		87.4			69.7			83.6		41.1	
Approach LOS		F			E			F		D	

Intersection Summary			
Cycle Length: 190			
Actuated Cycle Length: 190			
Offset: 113 (59%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 57.7		Intersection LOS: E	
Intersection Capacity Utilization 94.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 11: US 1 & SW 104 St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	158	327	99	27	323	148	158	1974	417	3633	669
v/c Ratio	0.83	0.83	0.32	0.17	0.91	0.56	0.96	0.77	0.82	0.94	0.60
Control Delay	113.2	99.9	4.9	82.9	91.8	19.2	120.2	80.7	92.1	41.0	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.2	99.9	4.9	82.9	91.8	19.2	120.2	80.7	92.1	41.0	10.0
Queue Length 50th (ft)	214	221	0	32	168	0	~114	940	263	1179	182
Queue Length 95th (ft)	#350	286	15	70	#269	87	#201	988	323	1199	298
Internal Link Dist (ft)		943			618			468		720	
Turn Bay Length (ft)	195		25	95		300	150		265		320
Base Capacity (vph)	199	410	318	159	359	263	165	2548	581	3858	1118
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.80	0.31	0.17	0.90	0.56	0.96	0.77	0.72	0.94	0.60

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.

Lane Group	EBL	EBT	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	297	129	132	105	200	180	63
v/c Ratio	0.09	0.37	0.16	0.13	0.21	0.35	0.78	0.25
Control Delay	19.5	22.6	3.8	0.2	32.4	6.2	69.8	32.6
Queue Delay	0.0	0.0	1.0	0.9	0.0	0.3	0.0	0.0
Total Delay	19.5	22.6	4.7	1.1	32.4	6.5	69.8	32.6
Queue Length 50th (ft)	20	139	9	0	57	0	124	26
Queue Length 95th (ft)	44	209	13	0	103	55	#227	67
Internal Link Dist (ft)		705	21		679			679
Turn Bay Length (ft)	50					105	75	
Base Capacity (vph)	550	812	806	1044	466	549	241	259
Starvation Cap Reductn	0	0	481	694	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	74	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.37	0.40	0.38	0.23	0.42	0.75	0.24

Intersection Summary

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)	44	265	8	5	114	121	13	84	184	166	37	21
Future Volume (vph)	44	265	8	5	114	121	13	84	184	166	37	21
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	6.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00			1.00	0.85		1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00			1.00	1.00		0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1854			1859	1583		1850	1583	1770	1761	
Flt Permitted	0.67	1.00			0.99	1.00		0.99	1.00	0.95	1.00	
Satd. Flow (perm)	1256	1854			1841	1583		1850	1583	1770	1761	
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)	48	288	9	5	124	132	14	91	200	180	40	23
RTOR Reduction (vph)	0	1	0	0	0	50	0	0	146	0	19	0
Lane Group Flow (vph)	48	296	0	0	129	82	0	105	54	180	44	0
Turn Type	Perm	NA		Perm	NA	pt+ov	custom	NA	Prot	Split	NA	
Protected Phases		2			6	6 3	8 4	8 4	8 4	3	3	
Permitted Phases	2			6			8					
Actuated Green, G (s)	48.2	48.2			48.2	68.5		29.5	29.5	14.3	14.3	
Effective Green, g (s)	48.2	48.2			48.2	68.5		29.5	29.5	14.3	14.3	
Actuated g/C Ratio	0.44	0.44			0.44	0.62		0.27	0.27	0.13	0.13	
Clearance Time (s)	6.0	6.0			6.0					6.0	6.0	
Vehicle Extension (s)	1.0	1.0			1.0					2.5	2.5	
Lane Grp Cap (vph)	550	812			806	985		496	424	230	228	
v/s Ratio Prot		c0.16				0.05		c0.06	0.03	c0.10	0.02	
v/s Ratio Perm	0.04				0.07							
v/c Ratio	0.09	0.36			0.16	0.08		0.21	0.13	0.78	0.19	
Uniform Delay, d1	18.1	20.7			18.7	8.3		31.2	30.5	46.3	42.7	
Progression Factor	1.00	1.00			0.18	0.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	1.3			0.4	0.0		0.2	0.1	15.3	0.3	
Delay (s)	18.4	21.9			3.7	0.0		31.4	30.6	61.6	43.0	
Level of Service	B	C			A	A		C	C	E	D	
Approach Delay (s)		21.4			1.8			30.9			56.8	
Approach LOS		C			A			C			E	

Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	615	219	23	1	21
Future Volume (Veh/h)	0	615	219	23	1	21
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	0	621	221	23	1	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		101	59			
pX, platoon unblocked					0.90	
vC, conflicting volume	244				854	122
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	244				778	122
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1319				298	906

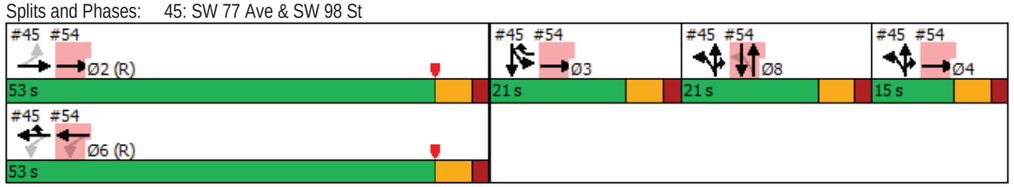
Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	621	147	97	22
Volume Left	0	0	0	1
Volume Right	0	0	23	21
cSH	1700	1700	1700	829
Volume to Capacity	0.37	0.09	0.06	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	9.5
Lane LOS				A
Approach Delay (s)	0.0	0.0		9.5
Approach LOS				A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	Ø4	Ø8
Lane Configurations											
Traffic Volume (vph)	44	265	5	114	121	84	184	166	37		
Future Volume (vph)	44	265	5	114	121	84	184	166	37		
Turn Type	Perm	NA	Perm	NA	pt+ov	NA	Prot	Split	NA		
Protected Phases		2		6	6 3	8 4	8 4	3	3	4	8
Permitted Phases	2		6								
Detector Phase	2	2	6	6	6 3	8 4	8 4	3	3		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0				7.0	7.0	9.0	7.0
Minimum Split (s)	21.0	21.0	21.0	21.0				13.0	13.0	15.0	21.0
Total Split (s)	53.0	53.0	53.0	53.0				21.0	21.0	15.0	21.0
Total Split (%)	48.2%	48.2%	48.2%	48.2%				19.1%	19.1%	14%	19%
Yellow Time (s)	4.0	4.0	4.0	4.0				4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0				2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0				0.0	0.0		
Total Lost Time (s)	6.0	6.0		6.0				6.0	6.0		
Lead/Lag								Lead	Lead		Lag
Lead-Lag Optimize?								Yes	Yes		Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max				None	None	None	None
Act Effct Green (s)	48.2	48.2		48.2	68.5	29.5	29.5	14.3	14.3		
Actuated g/C Ratio	0.44	0.44		0.44	0.62	0.27	0.27	0.13	0.13		
v/c Ratio	0.09	0.37		0.16	0.13	0.21	0.35	0.78	0.25		
Control Delay	19.5	22.6		3.8	0.2	32.4	6.2	69.8	32.6		
Queue Delay	0.0	0.0		1.0	0.9	0.0	0.3	0.0	0.0		
Total Delay	19.5	22.6		4.7	1.1	32.4	6.5	69.8	32.6		
LOS	B	C		A	A	C	A	E	C		
Approach Delay		22.1		2.9		15.4			60.2		
Approach LOS		C		A		B			E		

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 14 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 24.0		Intersection LOS: C	
Intersection Capacity Utilization 50.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 45: SW 77 Ave & SW 98 St



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	670	263	31	15
v/c Ratio	0.45	0.41	0.18	0.09
Control Delay	3.3	28.1	47.0	44.9
Queue Delay	0.7	3.1	0.0	0.0
Total Delay	4.0	31.2	47.0	44.9
Queue Length 50th (ft)	35	224	21	10
Queue Length 95th (ft)	139	m255	49	29
Internal Link Dist (ft)	1	1	545	650
Turn Bay Length (ft)				
Base Capacity (vph)	1498	639	251	254
Starvation Cap Reductn	478	274	0	0
Spillback Cap Reductn	355	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.66	0.72	0.12	0.06

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	616	0	1	241	0	1	28	0	0	14	0
Future Volume (vph)	0	616	0	1	241	0	1	28	0	0	14	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		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1862			1860			1863	
Flt Permitted		1.00			0.78			0.99			1.00	
Satd. Flow (perm)		1863			1461			1847			1863	
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	670	0	1	262	0	1	30	0	0	15	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	670	0	0	263	0	0	31	0	0	15	0
Turn Type		NA		Perm	NA		Perm	NA			NA	
Protected Phases		2 3 4			6			8			8	
Permitted Phases				6			8					
Actuated Green, G (s)		87.8			48.2			10.2			10.2	
Effective Green, g (s)		87.8			48.2			10.2			10.2	
Actuated g/C Ratio		0.80			0.44			0.09			0.09	
Clearance Time (s)					6.0			6.0			6.0	
Vehicle Extension (s)					1.0			2.5			2.5	
Lane Grp Cap (vph)	1487			640			171				172	
v/s Ratio Prot	c0.36										0.01	
v/s Ratio Perm					0.18			c0.02				
v/c Ratio	0.45				0.41			0.18			0.09	
Uniform Delay, d1	3.5				21.2			46.0			45.6	
Progression Factor	0.61				1.22			1.00			1.00	
Incremental Delay, d2	0.1				1.5			0.4			0.2	
Delay (s)	2.3				27.4			46.4			45.8	
Level of Service	A				C			D			D	
Approach Delay (s)	2.3				27.4			46.4			45.8	
Approach LOS	A				C			D			D	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	48.3%	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 (vph)	113	174	44	11	122	138	144	1386	23	57	793	109
Future Volume (vph)	113	174	44	11	122	138	144	1386	23	57	793	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91		1.00	0.91	
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected		0.98	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1827	1583		1855	1583	1770	5073		1770	4993	
Flt Permitted		0.71	1.00		0.82	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1313	1583		1534	1583	1770	5073		1770	4993	
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)	119	183	46	12	128	145	152	1459	24	60	835	115
RTOR Reduction (vph)	0	0	35	0	0	40	0	1	0	0	8	0
Lane Group Flow (vph)	0	302	11	0	140	105	152	1482	0	60	942	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						
Actuated Green, G (s)		53.1	53.1		53.1	53.1	15.9	135.8		10.3	130.2	
Effective Green, g (s)		53.1	53.1		53.1	53.1	15.9	135.8		10.3	130.2	
Actuated g/C Ratio		0.24	0.24		0.24	0.24	0.07	0.62		0.05	0.59	
Clearance Time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		316	382		370	382	127	3131		82	2954	
v/s Ratio Prot							c0.09	c0.29		0.03	0.19	
v/s Ratio Perm		c0.23	0.01		0.09	0.07						
v/c Ratio		0.96	0.03		0.38	0.27	1.20	0.47		0.73	0.32	
Uniform Delay, d1		82.3	63.8		69.7	67.8	102.0	22.8		103.5	22.6	
Progression Factor		0.99	1.29		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		36.6	0.0		0.6	0.4	142.2	0.5		28.2	0.3	
Delay (s)		118.4	82.1		70.3	68.2	244.3	23.3		131.7	22.9	
Level of Service		F	F		E	E	F	C		F	C	
Approach Delay (s)		113.6			69.2			43.8			29.3	
Approach LOS		F			E			D			C	

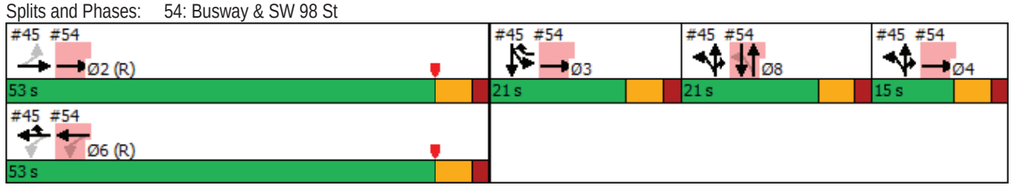
Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBT	SBT	Ø2	Ø3	Ø4
Lane Configurations									
Traffic Volume (vph)	616	1	241	1	28	14			
Future Volume (vph)	616	1	241	1	28	14			
Turn Type	NA	Perm	NA	Perm	NA	NA			
Protected Phases	2 3 4		6		8	8	2	3	4
Permitted Phases		6		8					
Detector Phase	2 3 4	6	6	8	8	8			
Switch Phase									
Minimum Initial (s)		15.0	15.0	7.0	7.0	7.0	15.0	7.0	9.0
Minimum Split (s)		21.0	21.0	21.0	21.0	21.0	21.0	13.0	15.0
Total Split (s)		53.0	53.0	21.0	21.0	21.0	53.0	21.0	15.0
Total Split (%)		48.2%	48.2%	19.1%	19.1%	19.1%	48%	19%	14%
Yellow Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0		0.0	0.0			
Total Lost Time (s)			6.0		6.0	6.0			
Lead/Lag				Lag	Lag	Lag		Lead	
Lead-Lag Optimize?				Yes	Yes	Yes		Yes	
Recall Mode		C-Max	C-Max	None	None	None	C-Max	None	None
Act Effct Green (s)	87.8		48.2		10.2	10.2			
Actuated g/C Ratio	0.80		0.44		0.09	0.09			
v/c Ratio	0.45		0.41		0.18	0.09			
Control Delay	3.3		28.1		47.0	44.9			
Queue Delay	0.7		3.1		0.0	0.0			
Total Delay	4.0		31.2		47.0	44.9			
LOS	A		C		D	D			
Approach Delay	4.0		31.2		47.0	44.9			
Approach LOS	A		C		D	D			

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 14 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 48.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 54: Busway & SW 98 St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	113	174	44	11	122	138	144	1386	57	793
Future Volume (vph)	113	174	44	11	122	138	144	1386	57	793
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		8			4		1	6	5	2
Permitted Phases	8		8	4		4				
Detector Phase	8	8	8	4	4	4	1	6	5	2
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	31.2	31.2	31.2	35.2	35.2	35.2	11.8	25.8	11.8	25.8
Total Split (s)	66.2	66.2	66.2	66.2	66.2	66.2	16.8	139.0	14.8	137.0
Total Split (%)	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	7.6%	63.2%	6.7%	62.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8
All-Red Time (s)	3.2	3.2	3.2	3.2	3.2	3.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.2	7.2		7.2	7.2	6.8	6.8	6.8	6.8
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		53.1	53.1		53.1	53.1	15.9	135.8	10.3	130.2
Actuated g/C Ratio		0.24	0.24		0.24	0.24	0.07	0.62	0.05	0.59
v/c Ratio		0.95	0.11		0.38	0.34	1.19	0.47	0.72	0.32
Control Delay		118.1	12.2		71.7	44.1	211.6	23.8	139.1	22.4
Queue Delay		53.4	0.0		0.0	0.0	0.7	0.0	0.0	0.0
Total Delay		171.5	12.2		71.7	44.1	212.3	23.8	139.1	22.5
LOS		F	B		E	D	F	C	F	C
Approach Delay		150.5			57.6			41.3		29.4
Approach LOS		F			E			D		C

Intersection Summary			
Cycle Length: 220			
Actuated Cycle Length: 220			
Offset: 177 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 50.6		Intersection LOS: D	
Intersection Capacity Utilization 77.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 46: US 1 & SW 98 St



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	302	46	140	145	152	1483	60	950
v/c Ratio	0.95	0.11	0.38	0.34	1.19	0.47	0.72	0.32
Control Delay	118.1	12.2	71.7	44.1	211.6	23.8	139.1	22.4
Queue Delay	53.4	0.0	0.0	0.0	0.7	0.0	0.0	0.0
Total Delay	171.5	12.2	71.7	44.1	212.3	23.8	139.1	22.5
Queue Length 50th (ft)	441	3	169	109	~297	435	88	244
Queue Length 95th (ft)	#605	24	243	183	#512	470	#207	273
Internal Link Dist (ft)	114		541			308		851
Turn Bay Length (ft)				25	90		100	
Base Capacity (vph)	352	463	411	463	128	3132	83	2963
Starvation Cap Reductn	91	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	4	0	0	276
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.10	0.34	0.31	1.23	0.47	0.72	0.35

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.

Lane Group	EBL	EBT	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	114	665	381	81	54	127	116
v/c Ratio	0.08	0.12	0.71	0.31	0.23	0.15	0.64	0.52
Control Delay	16.2	13.6	11.6	0.6	37.9	3.2	61.0	42.1
Queue Delay	0.0	0.0	2.7	1.5	0.0	0.0	0.0	0.0
Total Delay	16.2	13.6	14.2	2.0	37.9	3.2	61.0	42.1
Queue Length 50th (ft)	7	38	112	0	47	0	86	57
Queue Length 95th (ft)	22	71	178	0	90	12	149	115
Internal Link Dist (ft)		705	21		679			679
Turn Bay Length (ft)	50					105	75	
Base Capacity (vph)	237	984	941	1245	324	349	225	247
Starvation Cap Reductn	0	0	168	655	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.12	0.86	0.65	0.25	0.15	0.56	0.47

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	94	15	82	557	366	4	74	52	122	61	50
Future Volume (vph)	19	94	15	82	557	366	4	74	52	122	61	50
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	6.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	0.98			1.00	0.85		1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00			0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1824			1851	1583		1858	1583	1770	1737	
Flt Permitted	0.24	1.00			0.94	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	443	1824			1753	1583		1858	1583	1770	1737	
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)	20	98	16	85	580	381	4	77	54	127	64	52
RTOR Reduction (vph)	0	5	0	0	0	117	0	0	43	0	27	0
Lane Group Flow (vph)	20	109	0	0	665	264	0	81	11	127	89	0
Turn Type	Perm	NA		Perm	NA	pt+ov	custom	NA	Prot	Split	NA	
Protected Phases		2			6	6 3	8 4	8 4	8 4	3	3	
Permitted Phases	2			6			8					
Actuated Green, G (s)	57.9	57.9			57.9	76.3		21.7	21.7	12.4	12.4	
Effective Green, g (s)	57.9	57.9			57.9	76.3		21.7	21.7	12.4	12.4	
Actuated g/C Ratio	0.53	0.53			0.53	0.69		0.20	0.20	0.11	0.11	
Clearance Time (s)	6.0	6.0			6.0					6.0	6.0	
Vehicle Extension (s)	1.0	1.0			1.0					2.5	2.5	
Lane Grp Cap (vph)	233	960			922	1098		366	312	199	195	
v/s Ratio Prot		0.06				0.17		c0.04	0.01	c0.07	0.05	
v/s Ratio Perm	0.05				c0.38							
v/c Ratio	0.09	0.11			0.72	0.24		0.22	0.03	0.64	0.46	
Uniform Delay, d1	12.9	13.1			19.9	6.2		37.1	35.7	46.7	45.7	
Progression Factor	1.00	1.00			0.36	0.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.2			4.4	0.1		0.2	0.0	5.8	1.2	
Delay (s)	13.6	13.4			11.6	0.1		37.3	35.7	52.4	46.9	
Level of Service	B	B			B	A		D	D	D	D	
Approach Delay (s)		13.4			7.4			36.7			49.8	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	268	677	0	2	328
Future Volume (Veh/h)	0	268	677	0	2	328
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	0	271	684	0	2	331
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		101	59			
pX, platoon unblocked					0.97	
vC, conflicting volume	684				955	342
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	684				941	342
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	49
cM capacity (veh/h)	905				255	654

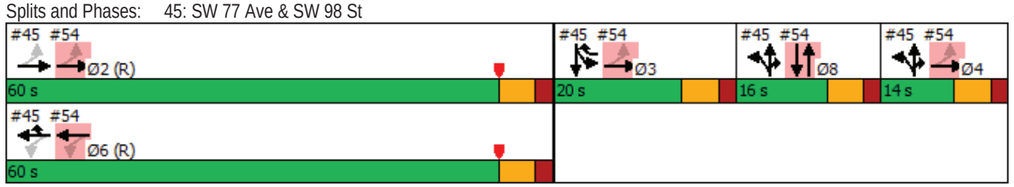
Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	271	456	228	333
Volume Left	0	0	0	2
Volume Right	0	0	0	331
cSH	905	1700	1700	648
Volume to Capacity	0.00	0.27	0.13	0.51
Queue Length 95th (ft)	0	0	0	74
Control Delay (s)	0.0	0.0	0.0	16.3
Lane LOS				C
Approach Delay (s)	0.0	0.0		16.3
Approach LOS				C

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	Ø4	Ø8
Lane Configurations											
Traffic Volume (vph)	19	94	82	557	366	74	52	122	61		
Future Volume (vph)	19	94	82	557	366	74	52	122	61		
Turn Type	Perm	NA	Perm	NA	pt+ov	NA	Prot	Split	NA		
Protected Phases		2		6	6 3	8 4	8 4	3	3	4	8
Permitted Phases	2		6								
Detector Phase	2	2	6	6	6 3	8 4	8 4	3	3		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0				7.0	7.0	8.0	7.0
Minimum Split (s)	21.0	21.0	21.0	21.0				13.0	13.0	14.0	16.0
Total Split (s)	60.0	60.0	60.0	60.0				20.0	20.0	14.0	16.0
Total Split (%)	54.5%	54.5%	54.5%	54.5%				18.2%	18.2%	13%	15%
Yellow Time (s)	4.0	4.0	4.0	4.0				4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0				2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0				0.0	0.0		
Total Lost Time (s)	6.0	6.0		6.0				6.0	6.0		
Lead/Lag								Lead	Lead		Lag
Lead-Lag Optimize?								Yes	Yes		Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max				None	None	None	None
Act Effct Green (s)	59.1	59.1		59.1	77.5	20.5	20.5	12.4	12.4		
Actuated g/C Ratio	0.54	0.54		0.54	0.70	0.19	0.19	0.11	0.11		
v/c Ratio	0.08	0.12		0.71	0.31	0.23	0.15	0.64	0.52		
Control Delay	16.2	13.6		11.6	0.6	37.9	3.2	61.0	42.1		
Queue Delay	0.0	0.0		2.7	1.5	0.0	0.0	0.0	0.0		
Total Delay	16.2	13.6		14.2	2.0	37.9	3.2	61.0	42.1		
LOS	B	B		B	A	D	A	E	D		
Approach Delay		14.0		9.8		24.1			51.9		
Approach LOS		B		A		C			D		

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 99 (90%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 18.0		Intersection LOS: B	
Intersection Capacity Utilization 63.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 45: SW 77 Ave & SW 98 St



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	287	722	17	28
v/c Ratio	0.18	0.72	0.12	0.19
Control Delay	1.6	29.2	48.2	49.9
Queue Delay	0.9	18.0	0.0	0.0
Total Delay	2.6	47.1	48.2	49.9
Queue Length 50th (ft)	11	639	11	19
Queue Length 95th (ft)	47	755	34	48
Internal Link Dist (ft)	1	1	545	650
Turn Bay Length (ft)				
Base Capacity (vph)	1573	996	169	169
Starvation Cap Reductn	1010	277	0	0
Spillback Cap Reductn	276	21	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	1.00	0.10	0.17

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	264	3	2	677	0	0	16	0	0	26	0
Future Volume (vph)	3	264	3	2	677	0	0	16	0	0	26	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		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1859			1862			1863			1863	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1852			1856			1863			1863	
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)	3	281	3	2	720	0	0	17	0	0	28	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	287	0	0	722	0	0	17	0	0	28	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		2 3 4			6			8			8	
Permitted Phases	2 3 4			6								
Actuated Green, G (s)		90.7			57.9			7.3			7.3	
Effective Green, g (s)		90.7			57.9			7.3			7.3	
Actuated g/C Ratio		0.82			0.53			0.07			0.07	
Clearance Time (s)					6.0			6.0			6.0	
Vehicle Extension (s)					1.0			2.5			2.5	
Lane Grp Cap (vph)	1527			976			123			123		
v/s Ratio Prot							0.01			c0.02		
v/s Ratio Perm	c0.15			c0.39								
v/c Ratio	0.19			0.74			0.14			0.23		
Uniform Delay, d1	2.0			20.2			48.4			48.7		
Progression Factor	0.62			1.21			1.00			1.00		
Incremental Delay, d2	0.0			3.8			0.4			0.7		
Delay (s)	1.3			28.3			48.8			49.4		
Level of Service	A			C			D			D		
Approach Delay (s)	1.3			28.3			48.8			49.4		
Approach LOS	A			C			D			D		

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	52.7%	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 (vph)	73	124	57	18	106	66	61	1032	25	188	1776	521
Future Volume (vph)	73	124	57	18	106	66	61	1032	25	188	1776	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91		1.00	0.91	
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	0.97	
Flt Protected		0.98	1.00		0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1829	1583		1849	1583	1770	5067		1770	4912	
Flt Permitted		0.68	1.00		0.72	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1261	1583		1340	1583	1770	5067		1770	4912	
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)	75	128	59	19	109	68	63	1064	26	194	1831	537
RTOR Reduction (vph)	0	0	49	0	0	44	0	1	0	0	24	0
Lane Group Flow (vph)	0	203	10	0	128	24	63	1089	0	194	2344	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						
Actuated Green, G (s)		37.7	37.7		37.7	37.7	8.9	150.2		11.3	152.6	
Effective Green, g (s)		37.7	37.7		37.7	37.7	8.9	150.2		11.3	152.6	
Actuated g/C Ratio		0.17	0.17		0.17	0.17	0.04	0.68		0.05	0.69	
Clearance Time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Vehicle Extension (s)		4.5	4.5		4.5	4.5	2.5	1.0		2.5	1.0	
Lane Grp Cap (vph)		216	271		229	271	71	3459		90	3407	
v/s Ratio Prot							0.04	0.21		c0.11	c0.48	
v/s Ratio Perm		c0.16	0.01		0.10	0.02						
v/c Ratio		0.94	0.04		0.56	0.09	0.89	0.31		2.16	0.69	
Uniform Delay, d1		90.0	76.0		83.5	76.7	105.1	14.1		104.3	19.7	
Progression Factor		1.08	1.59		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		44.6	0.1		4.3	0.2	68.4	0.2		555.0	1.2	
Delay (s)		141.5	121.1		87.8	76.9	173.4	14.3		659.3	20.9	
Level of Service		F	F		F	E	F	B		F	C	
Approach Delay (s)		136.9			84.0			23.0			69.2	
Approach LOS		F			F			C			E	

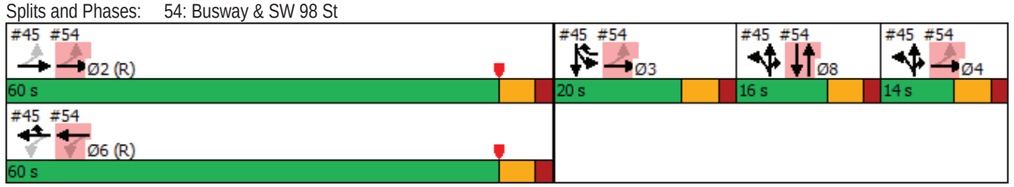
Intersection Summary			
HCM 2000 Control Delay	61.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	Ø2	Ø3	Ø4
Lane Configurations									
Traffic Volume (vph)	3	264	2	677	16	26			
Future Volume (vph)	3	264	2	677	16	26			
Turn Type	Perm	NA	Perm	NA	NA	NA			
Protected Phases		2 3 4		6	8	8	2	3	4
Permitted Phases	2 3 4		6						
Detector Phase	2 3 4	2 3 4	6	6	8	8			
Switch Phase									
Minimum Initial (s)			15.0	15.0	7.0	7.0	15.0	7.0	8.0
Minimum Split (s)			21.0	21.0	16.0	16.0	21.0	13.0	14.0
Total Split (s)			60.0	60.0	16.0	16.0	60.0	20.0	14.0
Total Split (%)			54.5%	54.5%	14.5%	14.5%	55%	18%	13%
Yellow Time (s)			4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)				0.0	0.0	0.0			
Total Lost Time (s)				6.0	6.0	6.0			
Lead/Lag					Lag	Lag		Lead	
Lead-Lag Optimize?					Yes	Yes		Yes	
Recall Mode			C-Max	C-Max	None	None	C-Max	None	None
Act Effct Green (s)		93.1		59.1	8.7	8.7			
Actuated g/C Ratio		0.85		0.54	0.08	0.08			
v/c Ratio		0.18		0.72	0.12	0.19			
Control Delay		1.6		29.2	48.2	49.9			
Queue Delay		0.9		18.0	0.0	0.0			
Total Delay		2.6		47.1	48.2	49.9			
LOS		A		D	D	D			
Approach Delay		2.6		47.1	48.2	49.9			
Approach LOS		A		D	D	D			

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 99 (90%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 35.1		Intersection LOS: D	
Intersection Capacity Utilization 52.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 54: Busway & SW 98 St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	73	124	57	18	106	66	61	1032	188	1776
Future Volume (vph)	73	124	57	18	106	66	61	1032	188	1776
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		8			4		1	6	5	2
Permitted Phases	8		8	4		4				
Detector Phase	8	8	8	4	4	4	1	6	5	2
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	31.2	31.2	31.2	35.2	35.2	35.2	11.8	25.8	11.8	25.8
Total Split (s)	46.2	46.2	46.2	46.2	46.2	46.2	14.8	156.8	16.8	159.0
Total Split (%)	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	6.7%	71.3%	7.6%	72.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8
All-Red Time (s)	3.2	3.2	3.2	3.2	3.2	3.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.2	7.2		7.2	7.2	6.8	6.8	6.8	6.8
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		37.7	37.7		37.7	37.7	8.9	150.2	11.3	152.7
Actuated g/C Ratio		0.17	0.17		0.17	0.17	0.04	0.68	0.05	0.69
v/c Ratio		0.94	0.18		0.56	0.22	0.89	0.32	2.13	0.69
Control Delay		141.4	24.2		93.4	25.5	176.3	14.3	583.8	20.3
Queue Delay		52.0	1.4		0.0	0.0	0.0	0.0	0.0	0.4
Total Delay		193.4	25.6		93.4	25.5	176.3	14.3	583.8	20.7
LOS		F	C		F	C	F	B	F	C
Approach Delay		155.6			69.8			23.2		63.3
Approach LOS		F			E			C		E

Intersection Summary			
Cycle Length: 220			
Actuated Cycle Length: 220			
Offset: 157 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.13			
Intersection Signal Delay: 58.3		Intersection LOS: E	
Intersection Capacity Utilization 88.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 46: US 1 & SW 98 St



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	203	59	128	68	63	1090	194	2368
v/c Ratio	0.94	0.18	0.56	0.22	0.89	0.32	2.13	0.69
Control Delay	141.4	24.2	93.4	25.5	176.3	14.3	583.8	20.3
Queue Delay	52.0	1.4	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	193.4	25.6	93.4	25.5	176.3	14.3	583.8	20.7
Queue Length 50th (ft)	303	4	172	18	94	224	~461	693
Queue Length 95th (ft)	#474	42	258	74	#216	248	#653	725
Internal Link Dist (ft)	114		541			308		851
Turn Bay Length (ft)				25	90		100	
Base Capacity (vph)	223	329	237	324	71	3459	91	3432
Starvation Cap Reductn	64	160	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	476
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.28	0.35	0.54	0.21	0.89	0.32	2.13	0.80

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.

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	101	2117	28	1247	55	16	246	242
v/c Ratio	0.38	0.70	0.22	0.45	0.55	0.07	0.95	0.92
Control Delay	13.3	21.1	13.7	11.9	80.3	0.6	98.5	89.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	21.1	13.7	11.9	80.3	0.6	98.5	89.8
Queue Length 50th (ft)	31	496	4	273	46	0	218	205
Queue Length 95th (ft)	54	558	14	291	#98	0	#393	#373
Internal Link Dist (ft)		622		570	551			449
Turn Bay Length (ft)	170		150				210	
Base Capacity (vph)	273	3040	129	2764	101	226	261	265
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	22	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.70	0.22	0.45	0.54	0.07	0.94	0.91

Intersection Summary

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)	99	2027	48	27	1069	153	27	26	16	395	28	55
Future Volume (vph)	99	2027	48	27	1069	153	27	26	16	395	28	55
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			6.7	6.7	6.8	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	0.97	
Satd. Flow (prot)	1770	5068		1770	4990			1817	1583	1681	1655	
Flt Permitted	0.16	1.00		0.06	1.00			0.98	1.00	0.95	0.97	
Satd. Flow (perm)	304	5068		106	4990			1817	1583	1681	1655	
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)	101	2068	49	28	1091	156	28	27	16	403	29	56
RTOR Reduction (vph)	0	2	0	0	14	0	0	0	15	0	8	0
Lane Group Flow (vph)	101	2115	0	28	1233	0	0	55	1	246	234	0
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2					4			
Actuated Green, G (s)	80.5	73.9		73.5	70.4			5.8	5.8	20.1	20.1	
Effective Green, g (s)	80.5	73.9		73.5	70.4			5.8	5.8	20.1	20.1	
Actuated g/C Ratio	0.62	0.57		0.57	0.54			0.04	0.04	0.15	0.15	
Clearance Time (s)	6.8	6.8		6.8	6.8			6.7	6.7	6.8	6.8	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	262	2880		99	2702			81	70	259	255	
v/s Ratio Prot	c0.02	c0.42		0.01	0.25			c0.03		c0.15	0.14	
v/s Ratio Perm	0.22			0.15					0.00			
v/c Ratio	0.39	0.73		0.28	0.46			0.68	0.01	0.95	0.92	
Uniform Delay, d1	11.5	20.8		17.1	18.1			61.2	59.4	54.5	54.1	
Progression Factor	1.00	1.00		1.05	0.64			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	1.7		0.5	0.5			18.6	0.0	41.7	34.4	
Delay (s)	11.8	22.5		18.4	12.2			79.8	59.4	96.2	88.6	
Level of Service	B	C		B	B			E	E	F	F	
Approach Delay (s)		22.0			12.3			75.2			92.4	
Approach LOS		C			B			E			F	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	81.4%	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	2362	96	173	1214	3	87	1	434	31	8	12
Future Volume (veh/h)	0	2362	96	173	1214	3	87	1	434	31	8	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2486	101	182	1278	3	92	1	457	33	8	13
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	55	3084	124	222	3771	9	261	1	284	45	13	4
Arrive On Green	0.00	1.00	1.00	0.05	0.72	0.72	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	432	5035	203	1781	5260	12	1391	3	1582	0	74	24
Grp Volume(v), veh/h	0	1674	913	182	827	454	92	0	458	54	0	0
Grp Sat Flow(s),veh/h/ln	432	1702	1834	1781	1702	1868	1391	0	1586	98	0	0
Q Serve(g_s), s	0.0	0.0	0.0	4.7	11.8	11.8	0.0	0.0	23.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.7	11.8	11.8	9.3	0.0	23.3	23.3	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.01	1.00		1.00	0.61		0.24
Lane Grp Cap(c), veh/h	55	2085	1123	222	2440	1339	261	0	284	62	0	0
V/C Ratio(X)	0.00	0.80	0.81	0.82	0.34	0.34	0.35	0.00	1.61	0.87	0.00	0.00
Avail Cap(c_a), veh/h	55	2085	1123	241	2440	1339	261	0	284	62	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.62	0.62	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	16.9	6.9	6.9	47.6	0.0	53.4	57.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.1	4.1	17.8	0.4	0.7	0.6	0.0	291.0	68.9	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(50%),veh/ln	0.0	0.6	1.3	3.9	4.1	4.7	2.7	0.0	32.2	3.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.1	4.1	34.7	7.3	7.6	48.2	0.0	344.4	126.5	0.0	0.0
LnGrp LOS	A	A	A	C	A	A	D	A	F	F	A	A
Approach Vol, veh/h		2587			1463			550			54	
Approach Delay, s/veh		2.8			10.8			294.8			126.5	
Approach LOS		A			B			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		100.0		30.0	13.6	86.4		30.0				
Change Period (Y+Rc), s		6.8		* 6.7	6.8	6.8		* 6.7				
Max Green Setting (Gmax), s		93.2		* 23	8.2	78.2		* 23				
Max Q Clear Time (g_c+I1), s		13.8		25.3	6.7	2.0		25.3				
Green Ext Time (p_c), s		3.6		0.0	0.1	12.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			41.3									
HCM 6th LOS			D									

Notes

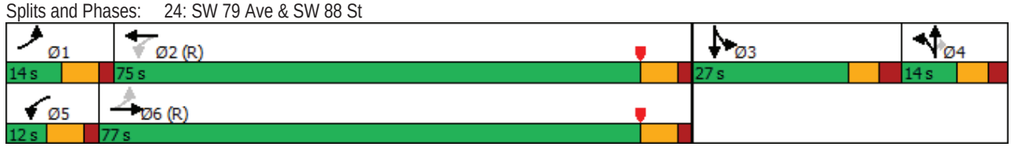
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	99	2027	27	1069	26	16	395	28
Future Volume (vph)	99	2027	27	1069	26	16	395	28
Turn Type	pm+pt	NA	pm+pt	NA	NA	Perm	Split	NA
Protected Phases	1	6	5	2	4		3	3
Permitted Phases	6		2			4		
Detector Phase	1	6	5	2	4	4	3	3
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	23.8	11.8	23.8	13.7	13.7	26.8	26.8
Total Split (s)	14.0	77.0	12.0	75.0	14.0	14.0	27.0	27.0
Total Split (%)	10.8%	59.2%	9.2%	57.7%	10.8%	10.8%	20.8%	20.8%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.7	2.7	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.8	6.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 82 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 24: SW 79 Ave & SW 88 St

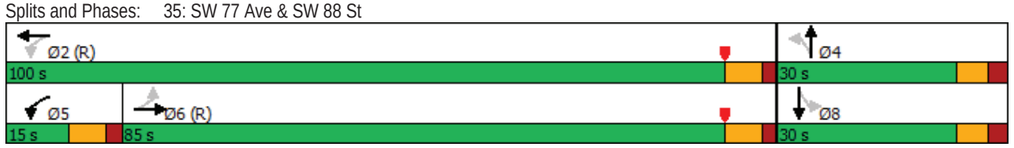


Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	2362	173	1214	87	1	31	8
Future Volume (vph)	2362	173	1214	87	1	31	8
Turn Type	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	6	5	2		4		8
Permitted Phases		2		4		8	
Detector Phase	6	5	2	4	4	8	8
Switch Phase							
Minimum Initial (s)	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	23.8	11.8	23.8	29.7	29.7	29.7	29.7
Total Split (s)	85.0	15.0	100.0	30.0	30.0	30.0	30.0
Total Split (%)	65.4%	11.5%	76.9%	23.1%	23.1%	23.1%	23.1%
Yellow Time (s)	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.8	6.8	6.8	6.7	6.7		6.7
Lead/Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes					
Recall Mode	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 90 (69%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 35: SW 77 Ave & SW 88 St



Lane Group	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2587	182	1281	92	458	54
v/c Ratio	0.85	1.08	0.35	0.38	1.23	1.02
Control Delay	14.3	119.8	11.6	52.4	160.9	173.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	119.8	11.6	52.4	160.9	173.4
Queue Length 50th (ft)	186	~119	202	69	~400	~38
Queue Length 95th (ft)	196	#277	236	125	#615	#132
Internal Link Dist (ft)	570		101		608	199
Turn Bay Length (ft)				120		
Base Capacity (vph)	3040	169	3645	241	371	53
Starvation Cap Reductn	2	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	0.85	1.08	0.35	0.38	1.23	1.02

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.

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	2623	634	443	37	65
v/c Ratio	0.57	0.14	0.28	0.20	0.05
Control Delay	1.1	0.8	1.9	61.1	0.5
Queue Delay	0.1	0.0	0.0	0.0	0.0
Total Delay	1.3	0.8	1.9	61.1	0.5
Queue Length 50th (ft)	59	23	19	15	0
Queue Length 95th (ft)	m63	21	75	34	6
Internal Link Dist (ft)	324	370			
Turn Bay Length (ft)				750	490
Base Capacity (vph)	4601	4601	1583	462	1438
Starvation Cap Reductn	742	0	0	0	0
Spillback Cap Reductn	678	0	0	0	211
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.68	0.14	0.28	0.08	0.05

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 (veh/h)	0	2544	0	0	615	430	36	0	63	0	0	0
Future Volume (veh/h)	0	2544	0	0	615	430	36	0	63	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	2623	0	0	634	0	37	0	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	0	2			
Cap, veh/h	0	4381	0	0	4381		137	0				
Arrive On Green	0.00	0.86	0.00	0.00	1.00	0.00	0.04	0.00	0.00			
Sat Flow, veh/h	0	5443	0	0	5274	1585	3456	0	1585			
Grp Volume(v), veh/h	0	2623	0	0	634	0	37	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	0	0	1702	1585	1728	0	1585			
Q Serve(g_s), s	0.0	19.5	0.0	0.0	0.0	0.0	1.4	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	19.5	0.0	0.0	0.0	0.0	1.4	0.0	0.0			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	4381	0	0	4381		137	0				
V/C Ratio(X)	0.00	0.60	0.00	0.00	0.14		0.27	0.00				
Avail Cap(c_a), veh/h	0	4381	0	0	4381		465	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.96	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	2.7	0.0	0.0	0.0	0.0	60.6	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.1	0.0	0.8	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	0.0	4.3	0.0	0.0	0.0	0.0	0.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.3	0.0	0.0	0.1	0.0	61.4	0.0	0.0			
LnGrp LOS	A	A	A	A	A		E	A				
Approach Vol, veh/h		2623			634	A		37	A			
Approach Delay, s/veh		3.3			0.1			61.4				
Approach LOS		A			A			E				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	118.3	11.7	118.3
Change Period (Y+Rc), s	6.8	6.5	6.8
Max Green Setting (Gmax), s	99.2	17.5	99.2
Max Q Clear Time (g_c+I1), s	2.0	3.4	21.5
Green Ext Time (p_c), s	1.9	0.0	16.3

Intersection Summary

HCM 6th Ctrl Delay	3.3
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	1784	566	48	867	11	138	15	26	53	41	40
Future Volume (vph)	257	1784	566	48	867	11	138	15	26	53	41	40
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		7.1	7.1		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.91		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (prot)	1770	4902		1770	6395		1770	1687		1681	1757	1583
Flt Permitted	0.26	1.00		0.05	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (perm)	486	4902		100	6395		1770	1687		1681	1757	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)	271	1878	596	51	913	12	145	16	27	56	43	42
RTOR Reduction (vph)	0	41	0	0	1	0	0	24	0	0	0	16
Lane Group Flow (vph)	271	2433	0	51	924	0	145	19	0	49	50	26
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	83.9	76.8		79.1	74.4		14.5	14.5		6.2	6.2	80.6
Effective Green, g (s)	83.9	76.8		79.1	74.4		14.5	14.5		6.2	6.2	80.6
Actuated g/C Ratio	0.65	0.59		0.61	0.57		0.11	0.11		0.05	0.05	0.62
Clearance Time (s)	6.8	6.8		6.8	6.8		7.1	7.1		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		2.5	2.5	2.5
Lane Grp Cap (vph)	383	2895		121	3659		197	188		80	83	981
v/s Ratio Prot	c0.04	c0.50		0.02	0.14		c0.08	0.01		c0.03	0.03	0.00
v/s Ratio Perm	0.42			0.24								0.02
v/c Ratio	0.71	0.84		0.42	0.25		0.74	0.10		0.61	0.60	0.03
Uniform Delay, d1	10.6	21.6		19.9	13.9		55.9	51.9		60.7	60.7	9.5
Progression Factor	0.55	0.72		2.39	0.85		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.0	2.7		0.9	0.2		13.7	0.3		11.3	10.0	0.0
Delay (s)	10.8	18.2		48.5	11.9		69.6	52.2		72.0	70.7	9.6
Level of Service	B	B		D	B		E	D		E	E	A
Approach Delay (s)		17.5			13.9			65.6			52.9	
Approach LOS		B			B			E			D	

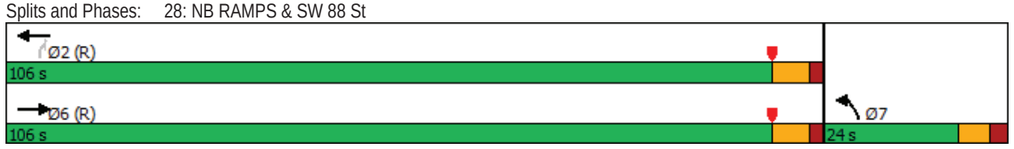
Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	2544	615	430	36	63
Future Volume (vph)	2544	615	430	36	63
Turn Type	NA	NA	Free	Prot	Perm
Protected Phases	6	2		7	
Permitted Phases			Free		2
Detector Phase	6	2		7	2
Switch Phase					
Minimum Initial (s)	16.0	16.0		7.0	16.0
Minimum Split (s)	22.8	22.8		24.0	22.8
Total Split (s)	106.0	106.0		24.0	106.0
Total Split (%)	81.5%	81.5%		18.5%	81.5%
Yellow Time (s)	4.8	4.8		4.0	4.8
All-Red Time (s)	2.0	2.0		2.5	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.8	6.8		6.5	6.8
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max		None	C-Max

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 7 (5%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 28: NB RAMPS & SW 88 St

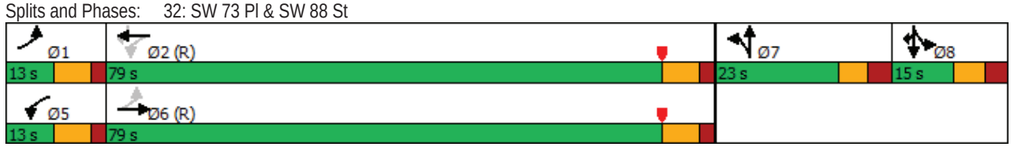


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	257	1784	48	867	138	15	53	41	40
Future Volume (vph)	257	1784	48	867	138	15	53	41	40
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	16.0	5.0	16.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	22.8	11.8	22.8	23.0	23.0	14.1	14.1	14.1
Total Split (s)	13.0	79.0	13.0	79.0	23.0	23.0	15.0	15.0	15.0
Total Split (%)	10.0%	60.8%	10.0%	60.8%	17.7%	17.7%	11.5%	11.5%	11.5%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.1	7.1	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 128 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 32: SW 73 Pl & SW 88 St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	271	2474	51	925	145	43	49	50	42
v/c Ratio	0.70	0.81	0.38	0.25	0.74	0.20	0.50	0.49	0.04
Control Delay	16.3	17.5	32.4	11.9	77.4	28.3	77.1	75.8	0.1
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	17.6	32.4	11.9	77.4	28.3	77.1	75.8	0.1
Queue Length 50th (ft)	36	700	14	72	119	12	43	44	0
Queue Length 95th (ft)	#77	719	57	84	#203	49	89	89	0
Internal Link Dist (ft)		370		405		253		159	
Turn Bay Length (ft)	240		120						
Base Capacity (vph)	388	3040	143	3731	216	230	102	106	1048
Starvation Cap Reductn	0	51	0	0	0	0	0	0	0
Spillback Cap Reductn	0	18	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.83	0.36	0.25	0.67	0.19	0.48	0.47	0.04

Intersection Summary

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

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	33	1907	82	750	103	200	8	41	13
v/c Ratio	0.07	0.67	0.52	0.19	0.58	0.53	0.07	0.33	0.01
Control Delay	4.2	5.0	27.0	13.3	67.4	50.7	56.2	64.0	0.0
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	5.2	27.0	13.3	67.4	50.7	56.2	64.0	0.0
Queue Length 50th (ft)	1	33	23	87	92	75	6	35	0
Queue Length 95th (ft)	m6	180	73	128	152	112	24	73	0
Internal Link Dist (ft)		405		721		1079		178	
Turn Bay Length (ft)	120		130		420				
Base Capacity (vph)	464	2841	168	3941	294	606	126	133	1098
Starvation Cap Reductn	0	312	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	0.07	0.75	0.49	0.19	0.35	0.33	0.06	0.31	0.01

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)	32	1225	606	79	715	5	199	42	50	9	38	12
Future Volume (vph)	32	1225	606	79	715	5	199	42	50	9	38	12
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		7.2	7.2		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		0.91	0.91		0.95	0.95	1.00
Frt	1.00	0.95		1.00	1.00		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (prot)	1770	4833		1770	6401		1610	3175		1681	1767	1583
Flt Permitted	0.34	1.00		0.06	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (perm)	633	4833		115	6401		1610	3175		1681	1767	1583
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)	33	1276	631	82	745	5	207	44	52	9	40	12
RTOR Reduction (vph)	0	57	0	0	0	0	0	27	0	0	0	5
Lane Group Flow (vph)	33	1850	0	82	750	0	103	173	0	8	41	8
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	77.7	73.6		82.5	76.0		14.3	14.3		7.7	7.7	83.7
Effective Green, g (s)	77.7	73.6		82.5	76.0		14.3	14.3		7.7	7.7	83.7
Actuated g/C Ratio	0.60	0.57		0.63	0.58		0.11	0.11		0.06	0.06	0.64
Clearance Time (s)	6.8	6.8		6.8	6.8		7.2	7.2		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		3.5	3.5	3.5
Lane Grp Cap (vph)	414	2736		155	3742		177	349		99	104	1019
v/s Ratio Prot	0.00	c0.38		c0.03	0.12		c0.06	0.05		0.00	c0.02	0.00
v/s Ratio Perm	0.05			0.31								0.00
v/c Ratio	0.08	0.68		0.53	0.20		0.58	0.50		0.08	0.39	0.01
Uniform Delay, d1	10.7	19.8		15.6	12.7		55.0	54.5		57.8	58.9	8.3
Progression Factor	0.42	0.22		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	0.8		1.5	0.1		5.1	1.3		0.4	2.9	0.0
Delay (s)	4.5	5.1		17.1	12.8		60.1	55.8		58.2	61.8	8.3
Level of Service	A	A		B	B		E	E		E	E	A
Approach Delay (s)		5.1			13.2			57.3			50.1	
Approach LOS		A			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.9
Intersection Capacity Utilization	71.1%	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 (vph)	66	1500	38	115	1815	341	68	25	41	225	13	78
Future Volume (vph)	66	1500	38	115	1815	341	68	25	41	225	13	78
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			6.7	6.7	6.8	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	0.98	
Satd. Flow (prot)	1770	5067		1770	4965			1797	1583	1681	1603	
Flt Permitted	0.06	1.00		0.10	1.00			0.96	1.00	0.95	0.98	
Satd. Flow (perm)	103	5067		179	4965			1797	1583	1681	1603	
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)	70	1596	40	122	1931	363	72	27	44	239	14	83
RTOR Reduction (vph)	0	2	0	0	20	0	0	0	41	0	29	0
Lane Group Flow (vph)	70	1634	0	122	2274	0	0	99	3	172	135	0
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2					4			
Actuated Green, G (s)	76.4	72.2		78.8	73.4			8.9	8.9	16.4	16.4	
Effective Green, g (s)	76.4	72.2		78.8	73.4			8.9	8.9	16.4	16.4	
Actuated g/C Ratio	0.59	0.56		0.61	0.56			0.07	0.07	0.13	0.13	
Clearance Time (s)	6.8	6.8		6.8	6.8			6.7	6.7	6.8	6.8	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	114	2814		174	2803			123	108	212	202	
v/s Ratio Prot	0.02	0.32		c0.03	c0.46			c0.06		c0.10	0.08	
v/s Ratio Perm	0.34			0.40					0.00			
v/c Ratio	0.61	0.58		0.70	0.81			0.80	0.03	0.81	0.67	
Uniform Delay, d1	20.8	19.0		14.7	22.7			59.7	56.5	55.3	54.2	
Progression Factor	1.00	1.00		2.09	0.59			1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.7	0.9		8.7	2.3			29.8	0.1	20.0	7.3	
Delay (s)	27.6	19.8		39.4	15.7			89.5	56.6	75.3	61.6	
Level of Service	C	B		D	B			F	E	E	E	
Approach Delay (s)		20.2			16.9			79.3			68.6	
Approach LOS		C			B			E			E	

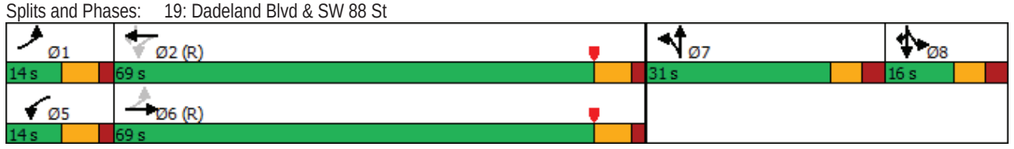
Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	32	1225	79	715	199	42	9	38	12
Future Volume (vph)	32	1225	79	715	199	42	9	38	12
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	24.8	11.8	24.8	31.0	31.0	14.1	14.1	14.1
Total Split (s)	14.0	69.0	14.0	69.0	31.0	31.0	16.0	16.0	16.0
Total Split (%)	10.8%	53.1%	10.8%	53.1%	23.8%	23.8%	12.3%	12.3%	12.3%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.2	3.2	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.2	7.2	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 1 (1%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 19: Dadeland Blvd & SW 88 St

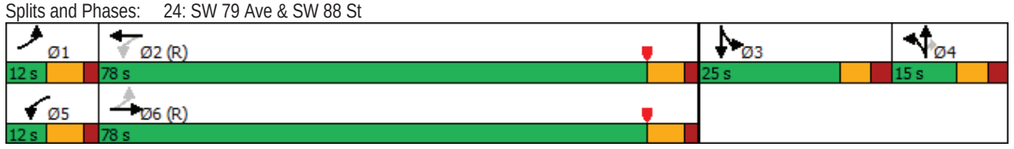


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	66	1500	115	1815	25	41	225	13
Future Volume (vph)	66	1500	115	1815	25	41	225	13
Turn Type	pm+pt	NA	pm+pt	NA	NA	Perm	Split	NA
Protected Phases	1	6	5	2	4		3	3
Permitted Phases	6		2			4		
Detector Phase	1	6	5	2	4	4	3	3
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	23.8	11.8	23.8	13.7	13.7	25.0	25.0
Total Split (s)	12.0	78.0	12.0	78.0	15.0	15.0	25.0	25.0
Total Split (%)	9.2%	60.0%	9.2%	60.0%	11.5%	11.5%	19.2%	19.2%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.7	2.7	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.8	6.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 58 (45%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 24: SW 79 Ave & SW 88 St



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	70	1636	122	2294	99	44	172	164
v/c Ratio	0.56	0.58	0.70	0.80	0.80	0.18	0.81	0.71
Control Delay	31.5	20.2	42.1	15.3	101.4	1.6	82.6	60.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	20.2	42.1	15.3	101.4	1.6	82.6	60.2
Queue Length 50th (ft)	21	323	23	649	84	0	148	111
Queue Length 95th (ft)	#61	369	#112	715	#192	0	#256	194
Internal Link Dist (ft)		622		570	551			449
Turn Bay Length (ft)	170		150				210	
Base Capacity (vph)	127	2812	174	2873	123	244	235	252
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.58	0.70	0.80	0.80	0.18	0.73	0.65

Intersection Summary

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

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	13	1793	304	2081	136	477	27
v/c Ratio	0.15	0.68	0.97	0.57	0.55	0.99	0.31
Control Delay	12.2	12.5	83.8	8.3	58.2	65.6	50.5
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	12.2	12.5	83.8	8.4	58.2	65.6	50.5
Queue Length 50th (ft)	2	115	172	250	106	223	16
Queue Length 95th (ft)	m4	125	#377	283	176	#453	49
Internal Link Dist (ft)		570		101		608	199
Turn Bay Length (ft)	190				120		
Base Capacity (vph)	84	2646	314	3645	246	481	87
Starvation Cap Reductn	0	46	0	0	0	0	0
Spillback Cap Reductn	0	0	0	414	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.69	0.97	0.64	0.55	0.99	0.31

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 (veh/h)	13	1644	95	295	2018	1	132	2	461	16	6	5
Future Volume (veh/h)	13	1644	95	295	2018	1	132	2	461	16	6	5
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	1695	98	304	2080	1	136	2	475	16	6	5
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	161	2864	165	359	3779	2	255	1	283	44	16	4
Arrive On Green	1.00	1.00	1.00	0.08	0.72	0.72	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	199	4938	285	1781	5271	3	1404	7	1579	0	87	20
Grp Volume(v), veh/h	13	1168	625	304	1343	738	136	0	477	27	0	0
Grp Sat Flow(s),veh/h/ln	199	1702	1819	1781	1702	1870	1404	0	1586	107	0	0
Q Serve(g_s), s	0.8	0.0	0.0	8.6	24.0	24.0	0.0	0.0	23.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.0	0.0	0.0	8.6	24.0	24.0	14.9	0.0	23.3	23.3	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.00	1.00		1.00	0.59		0.19
Lane Grp Cap(c), veh/h	161	1975	1055	359	2440	1341	255	0	284	63	0	0
V/C Ratio(X)	0.08	0.59	0.59	0.85	0.55	0.55	0.53	0.00	1.68	0.43	0.00	0.00
Avail Cap(c_a), veh/h	161	1975	1055	458	2440	1341	255	0	284	63	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.3	0.0	0.0	12.1	8.6	8.6	49.9	0.0	53.4	49.0	0.0	0.0
Incr Delay (d2), s/veh	0.8	1.0	1.9	10.5	0.9	1.6	1.7	0.0	320.0	3.4	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.6	4.2	8.5	9.6	4.3	0.0	34.5	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.0	1.0	1.9	22.6	9.5	10.2	51.6	0.0	373.4	52.3	0.0	0.0
LnGrp LOS	A	A	A	C	A	B	D	A	F	D	A	A
Approach Vol, veh/h		1806			2385			613			27	
Approach Delay, s/veh		1.3			11.4			302.0			52.3	
Approach LOS		A			B			F			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		100.0		30.0	17.8	82.2		30.0				
Change Period (Y+Rc), s		6.8		* 6.7	6.8	6.8		* 6.7				
Max Green Setting (Gmax), s		93.2		* 23	18.2	68.2		* 23				
Max Q Clear Time (g_c+I1), s		26.0		25.3	10.6	9.0		25.3				
Green Ext Time (p_c), s		7.8		0.0	0.4	6.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			44.7									
HCM 6th LOS			D									

Notes

* HCM 6th 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	1815	0	0	1495	935	59	0	48	0	0	0
Future Volume (veh/h)	0	1815	0	0	1495	935	59	0	48	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	1891	0	0	1557	0	61	0	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	2	0	0	2	2	2	0	2			
Cap, veh/h	0	4339	0	0	4339		166	0				
Arrive On Green	0.00	0.85	0.00	0.00	1.00	0.00	0.05	0.00	0.00			
Sat Flow, veh/h	0	5443	0	0	5274	1585	3456	0	1585			
Grp Volume(v), veh/h	0	1891	0	0	1557	0	61	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	0	0	1702	1585	1728	0	1585			
Q Serve(g_s), s	0.0	11.5	0.0	0.0	0.0	0.0	2.2	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	11.5	0.0	0.0	0.0	0.0	2.2	0.0	0.0			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	4339	0	0	4339		166	0				
V/C Ratio(X)	0.00	0.44	0.00	0.00	0.36		0.37	0.00				
Avail Cap(c_a), veh/h	0	4339	0	0	4339		253	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.66	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	2.3	0.0	0.0	0.0	0.0	60.0	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.2	0.0	1.0	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	0.0	2.7	0.0	0.0	0.1	0.0	1.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.6	0.0	0.0	0.2	0.0	61.0	0.0	0.0			
LnGrp LOS	A	A	A	A	A		E	A				
Approach Vol, veh/h		1891			1557	A		61	A			
Approach Delay, s/veh		2.6			0.2			61.0				
Approach LOS		A			A			E				

Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		117.3		12.7		117.3			
Change Period (Y+Rc), s		6.8		6.5		6.8			
Max Green Setting (Gmax), s		107.2		9.5		107.2			
Max Q Clear Time (g_c+I1), s		2.0		4.2		13.5			
Green Ext Time (p_c), s		5.7		0.0		7.9			

Intersection Summary									
HCM 6th Ctrl Delay			2.6						
HCM 6th LOS			A						

Notes

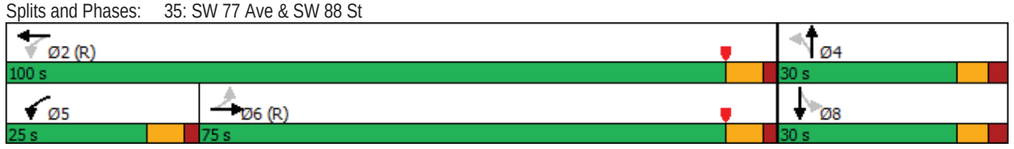
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	13	1644	295	2018	132	2	16	6
Future Volume (vph)	13	1644	295	2018	132	2	16	6
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		6	5	2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	6	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	23.8	23.8	11.8	23.8	29.7	29.7	29.7	29.7
Total Split (s)	75.0	75.0	25.0	100.0	30.0	30.0	30.0	30.0
Total Split (%)	57.7%	57.7%	19.2%	76.9%	23.1%	23.1%	23.1%	23.1%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7		6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 64 (49%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 35: SW 77 Ave & SW 88 St

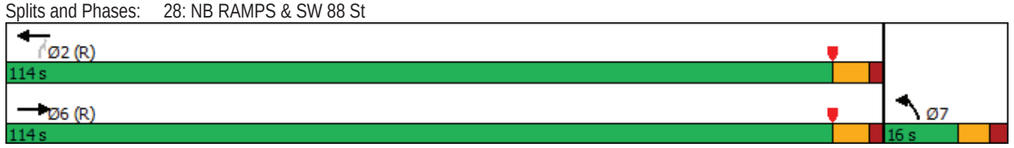


Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1815	1495	935	59	48
Future Volume (vph)	1815	1495	935	59	48
Turn Type	NA	NA	Free	Prot	Perm
Protected Phases	6	2		7	
Permitted Phases			Free		2
Detector Phase	6	2		7	2
Switch Phase					
Minimum Initial (s)	16.0	16.0		7.0	16.0
Minimum Split (s)	22.8	22.8		16.0	22.8
Total Split (s)	114.0	114.0		16.0	114.0
Total Split (%)	87.7%	87.7%		12.3%	87.7%
Yellow Time (s)	4.8	4.8		4.0	4.8
All-Red Time (s)	2.0	2.0		2.5	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.8	6.8		6.5	6.8
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max		None	C-Max

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 21 (16%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 45
Control Type: Actuated-Coordinated

Splits and Phases: 28: NB RAMPS & SW 88 St



Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1891	1557	974	61	50
v/c Ratio	0.43	0.35	0.62	0.30	0.04
Control Delay	7.6	1.6	11.0	62.3	0.6
Queue Delay	0.1	0.1	0.0	0.0	0.0
Total Delay	7.7	1.7	11.0	62.3	0.6
Queue Length 50th (ft)	338	63	333	25	0
Queue Length 95th (ft)	m390	m66	m819	49	6
Internal Link Dist (ft)	324	370			
Turn Bay Length (ft)				750	490
Base Capacity (vph)	4423	4423	1583	250	1383
Starvation Cap Reductn	0	1087	0	0	0
Spillback Cap Reductn	654	0	0	0	203
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.50	0.47	0.62	0.24	0.04

Intersection Summary

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

Queues
32: SW 73 Pl & SW 88 St

Existing PM
02/12/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	236	1665	51	1911	352	53	52	54	223
v/c Ratio	1.11	0.67	0.33	0.68	1.04	0.15	0.47	0.47	0.25
Control Delay	133.2	19.1	22.0	23.4	109.9	22.2	72.0	71.3	1.7
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.2	19.3	22.0	23.4	109.9	22.2	72.0	71.3	1.7
Queue Length 50th (ft)	~170	443	14	317	~319	14	45	47	0
Queue Length 95th (ft)	#357	502	m37	174	#514	51	91	93	23
Internal Link Dist (ft)		370		405		253		159	
Turn Bay Length (ft)	240		120						
Base Capacity (vph)	212	2494	250	2817	339	350	128	133	921
Starvation Cap Reductn	0	242	0	10	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	1.11	0.74	0.20	0.68	1.04	0.15	0.41	0.41	0.24

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
32: SW 73 Pl & SW 88 St

Existing PM
02/12/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	1380	252	50	1866	7	345	20	32	59	45	219
Future Volume (vph)	231	1380	252	50	1866	7	345	20	32	59	45	219
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		7.1	7.1		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	0.91		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (prot)	1770	4968		1770	6404		1770	1689		1681	1757	1583
Flt Permitted	0.06	1.00		0.09	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (perm)	117	4968		160	6404		1770	1689		1681	1757	1583
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)	236	1408	257	51	1904	7	352	20	33	60	46	223
RTOR Reduction (vph)	0	18	0	0	1	0	0	27	0	0	0	110
Lane Group Flow (vph)	236	1647	0	51	1910	0	352	26	0	52	54	113
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	75.0	63.5		62.4	57.2		24.9	24.9		8.6	8.6	65.8
Effective Green, g (s)	75.0	63.5		62.4	57.2		24.9	24.9		8.6	8.6	65.8
Actuated g/C Ratio	0.58	0.49		0.48	0.44		0.19	0.19		0.07	0.07	0.51
Clearance Time (s)	6.8	6.8		6.8	6.8		7.1	7.1		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		2.5	2.5	2.5
Lane Grp Cap (vph)	213	2426		141	2817		339	323		111	116	801
v/s Ratio Prot	c0.10	c0.33		0.01	0.30		c0.20	0.02		c0.03	0.03	0.01
v/s Ratio Perm	c0.54			0.16								0.06
v/c Ratio	1.11	0.68		0.36	0.68		1.04	0.08		0.47	0.47	0.14
Uniform Delay, d1	38.6	25.4		20.2	29.1		52.5	43.2		58.5	58.5	17.1
Progression Factor	1.26	0.71		1.30	0.76		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	91.3	1.4		0.5	1.2		59.2	0.1		2.3	2.1	0.1
Delay (s)	140.1	19.5		26.8	23.3		111.7	43.3		60.8	60.6	17.1
Level of Service	F	B		C	C		F	D		E	E	B
Approach Delay (s)		34.5			23.4			102.8			31.2	
Approach LOS		C			C			F			C	

Intersection Summary

HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
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 (vph)	93	1198	180	63	1280	27	552	136	94	45	43	91
Future Volume (vph)	93	1198	180	63	1280	27	552	136	94	45	43	91
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		7.2	7.2		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		0.91	0.91		0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97		0.95	0.99	1.00
Satd. Flow (prot)	1770	4985		1770	6388		1610	3208		1681	1761	1583
Flt Permitted	0.13	1.00		0.12	1.00		0.95	0.97		0.95	0.99	1.00
Satd. Flow (perm)	236	4985		216	6388		1610	3208		1681	1761	1583
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)	95	1222	184	64	1306	28	563	139	96	46	44	93
RTOR Reduction (vph)	0	13	0	0	2	0	0	15	0	0	0	48
Lane Group Flow (vph)	95	1393	0	64	1332	0	281	502	0	41	49	45
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	66.5	57.8		60.9	55.0		30.1	30.1		8.3	8.3	63.3
Effective Green, g (s)	66.5	57.8		60.9	55.0		30.1	30.1		8.3	8.3	63.3
Actuated g/C Ratio	0.51	0.44		0.47	0.42		0.23	0.23		0.06	0.06	0.49
Clearance Time (s)	6.8	6.8		6.8	6.8		7.2	7.2		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		3.5	3.5	3.5
Lane Grp Cap (vph)	223	2216		171	2702		372	742		107	112	770
v/s Ratio Prot	c0.03	c0.28		0.02	0.21		c0.17	0.16		0.02	c0.03	0.00
v/s Ratio Perm	0.19			0.16								0.02
v/c Ratio	0.43	0.63		0.37	0.49		0.76	0.68		0.38	0.44	0.06
Uniform Delay, d1	17.9	27.8		20.8	27.3		46.5	45.5		58.4	58.6	17.6
Progression Factor	1.40	0.36		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	1.0		0.5	0.6		8.7	2.5		2.7	3.2	0.0
Delay (s)	26.0	10.9		21.3	28.0		55.2	48.1		61.1	61.8	17.7
Level of Service	C	B		C	C		E	D		E	E	B
Approach Delay (s)		11.9			27.7			50.6			39.2	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.9
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	231	1380	50	1866	345	20	59	45	219
Future Volume (vph)	231	1380	50	1866	345	20	59	45	219
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	16.0	5.0	16.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	22.8	11.8	22.8	32.0	32.0	14.1	14.1	14.1
Total Split (s)	17.0	61.0	20.0	64.0	32.0	32.0	17.0	17.0	17.0
Total Split (%)	13.1%	46.9%	15.4%	49.2%	24.6%	24.6%	13.1%	13.1%	13.1%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.1	7.1	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 128 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 32: SW 73 Pl & SW 88 St

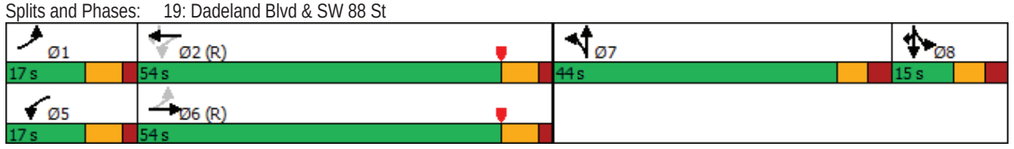


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	93	1198	63	1280	552	136	45	43	91
Future Volume (vph)	93	1198	63	1280	552	136	45	43	91
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	24.8	11.8	24.8	34.2	34.2	14.1	14.1	14.1
Total Split (s)	17.0	54.0	17.0	54.0	44.0	44.0	15.0	15.0	15.0
Total Split (%)	13.1%	41.5%	13.1%	41.5%	33.8%	33.8%	11.5%	11.5%	11.5%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.2	3.2	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.2	7.2	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 119 (92%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 85
Control Type: Actuated-Coordinated

Splits and Phases: 19: Dadeland Blvd & SW 88 St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	95	1406	64	1334	281	517	41	49	93
v/c Ratio	0.43	0.62	0.35	0.49	0.76	0.68	0.38	0.44	0.11
Control Delay	27.4	11.1	21.7	29.2	59.1	48.0	69.0	71.1	2.8
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.4	11.2	21.7	29.2	59.1	48.0	69.0	71.1	2.8
Queue Length 50th (ft)	13	77	26	241	241	210	34	42	0
Queue Length 95th (ft)	m64	130	53	299	334	258	76	89	21
Internal Link Dist (ft)		405		721		1079		178	
Turn Bay Length (ft)	120		130		420				
Base Capacity (vph)	243	2281	230	2707	455	921	109	114	817
Starvation Cap Reductn	0	142	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	24	0	0	0	0	6
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.66	0.28	0.50	0.62	0.56	0.38	0.43	0.11

Intersection Summary

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

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1350	32	1206	293
v/c Ratio	0.53	0.12	0.44	0.89
Control Delay	14.1	7.1	8.5	80.1
Queue Delay	0.0	0.0	11.2	0.0
Total Delay	14.1	7.1	19.7	80.1
Queue Length 50th (ft)	384	8	245	256
Queue Length 95th (ft)	513	21	336	363
Internal Link Dist (ft)	446		202	570
Turn Bay Length (ft)		180		
Base Capacity (vph)	2528	338	2718	402
Starvation Cap Reductn	0	0	1496	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.53	0.09	0.99	0.73

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1332	5	32	1194	69	221
Future Volume (veh/h)	1332	5	32	1194	69	221
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	1345	5	32	1206	70	223
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2468	9	278	2620	74	236
Arrive On Green	0.68	0.68	0.02	0.74	0.19	0.19
Sat Flow, veh/h	3725	13	1781	3647	388	1235
Grp Volume(v), veh/h	658	692	32	1206	294	0
Grp Sat Flow(s),veh/h/ln	1777	1868	1781	1777	1629	0
Q Serve(g_s), s	33.9	33.9	0.9	24.3	32.1	0.0
Cycle Q Clear(g_c), s	33.9	33.9	0.9	24.3	32.1	0.0
Prop In Lane		0.01	1.00		0.24	0.76
Lane Grp Cap(c), veh/h	1208	1270	278	2620	311	0
V/C Ratio(X)	0.54	0.55	0.12	0.46	0.95	0.00
Avail Cap(c_a), veh/h	1208	1270	387	2620	335	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.87	0.87	1.00	0.00
Uniform Delay (d), s/veh	14.7	14.7	11.4	9.4	71.9	0.0
Incr Delay (d2), s/veh	1.8	1.7	0.1	0.5	34.0	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	13.8	14.5	0.4	9.1	16.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.4	16.4	11.5	9.9	105.9	0.0
LnGrp LOS	B	B	B	A	F	A
Approach Vol, veh/h	1350			1238	294	
Approach Delay, s/veh	16.4			9.9	105.9	
Approach LOS	B			A	F	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	139.1		40.9	10.4	128.7
Change Period (Y+Rc), s	6.4		6.5	6.4	6.4
Max Green Setting (Gmax), s	130.4		37.0	15.0	109.0
Max Q Clear Time (g_c+I1), s	26.3		34.1	2.9	35.9
Green Ext Time (p_c), s	3.3		0.3	0.0	2.9

Intersection Summary	
HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1346	207	83	682	0	0	0	0	576	0	544
Future Volume (veh/h)	0	1346	207	83	682	0	0	0	0	576	0	544
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1388	0	86	703	0				594	0	561
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	2	2	2	0				2	0	2
Cap, veh/h	0	4282		312	2588	0				687	0	555
Arrive On Green	0.00	0.67	0.00	0.03	0.73	0.00				0.20	0.00	0.20
Sat Flow, veh/h	0	6958	0	1781	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1388	0	86	703	0				594	0	561
Grp Sat Flow(s),veh/h/ln	0	1609	0	1781	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	16.7	0.0	2.7	12.1	0.0				30.1	0.0	36.0
Cycle Q Clear(g_c), s	0.0	16.7	0.0	2.7	12.1	0.0				30.1	0.0	36.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4282		312	2588	0				687	0	555
V/C Ratio(X)	0.00	0.32		0.28	0.27	0.00				0.86	0.00	1.01
Avail Cap(c_a), veh/h	0	4282		431	2588	0				687	0	555
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	0.83	0.00	0.94	0.94	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.9	0.0	9.6	8.3	0.0				70.1	0.0	72.5
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.7	0.2	0.0				11.3	0.0	41.0
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	0.0	6.0	0.0	1.1	4.6	0.0				14.5	0.0	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.1	0.0	10.3	8.6	0.0				81.4	0.0	113.5
LnGrp LOS	A	B		B	A	A				F	A	F
Approach Vol, veh/h		1388	A		789						1155	
Approach Delay, s/veh		13.1			8.8						97.0	
Approach LOS		B			A						F	

Timer - Assigned Phs	2		5	6	8
Phs Duration (G+Y+Rc), s	138.2		11.3	126.9	42.8
Change Period (Y+Rc), s	6.4		6.4	6.4	6.8
Max Green Setting (Gmax), s	131.0		17.0	108.0	36.0
Max Q Clear Time (g_c+I1), s	14.1		4.7	18.7	38.0
Green Ext Time (p_c), s	1.7		0.2	4.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

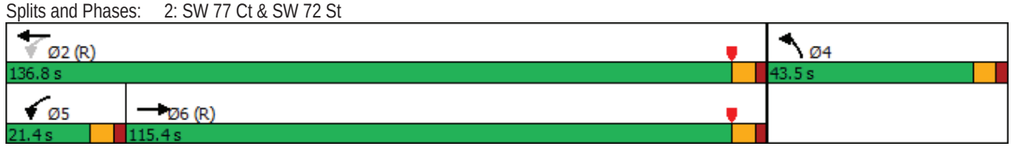
Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	1332	32	1194	69
Future Volume (vph)	1332	32	1194	69
Turn Type	NA	pm+pt	NA	Prot
Protected Phases	6	5	2	4
Permitted Phases		2		
Detector Phase	6	5	2	4
Switch Phase				
Minimum Initial (s)	20.0	5.0	20.0	7.0
Minimum Split (s)	26.4	11.4	26.8	13.5
Total Split (s)	115.4	21.4	136.8	43.5
Total Split (%)	64.0%	11.9%	75.9%	24.1%
Yellow Time (s)	4.4	4.4	4.4	4.0
All-Red Time (s)	2.0	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.5
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	C-Max	None	C-Max	None

Intersection Summary
Cycle Length: 180.3
Actuated Cycle Length: 180.3
Offset: 134 (74%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 2: SW 77 Ct & SW 72 St

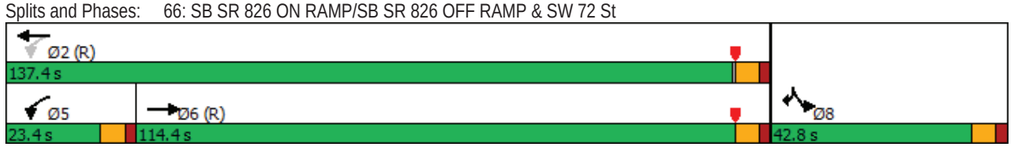


Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	1346	83	682	576	544
Future Volume (vph)	1346	83	682	576	544
Turn Type	NA	pm+pt	NA	Prot	Prot
Protected Phases	6	5	2	8	8
Permitted Phases		2			
Detector Phase	6	5	2	8	8
Switch Phase					
Minimum Initial (s)	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.4	11.4	24.4	13.8	13.8
Total Split (s)	114.4	23.4	137.4	42.8	42.8
Total Split (%)	63.3%	13.0%	76.1%	23.7%	23.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.8	6.8
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None

Intersection Summary

Cycle Length: 180.6
Actuated Cycle Length: 180.6
Offset: 131 (73%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 66: SB SR 826 ON RAMP/SB SR 826 OFF RAMP & SW 72 St



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1601	86	703	594	561
v/c Ratio	0.39	0.38	0.27	0.89	0.75
Control Delay	15.3	11.8	8.5	86.7	44.1
Queue Delay	13.0	0.0	2.4	0.0	0.0
Total Delay	28.3	11.8	10.8	86.7	44.1
Queue Length 50th (ft)	248	27	138	356	205
Queue Length 95th (ft)	279	45	165	#447	286
Internal Link Dist (ft)	202		251		
Turn Bay Length (ft)				465	300
Base Capacity (vph)	4065	294	2590	684	756
Starvation Cap Reductn	2469	0	1714	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.00	0.29	0.80	0.87	0.74

Intersection Summary

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

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	521	1502	1046	148	280
v/c Ratio	0.79	0.52	0.36	0.41	1.10
Control Delay	78.3	5.7	16.7	78.8	131.1
Queue Delay	53.4	10.4	0.0	0.0	0.0
Total Delay	131.7	16.0	16.7	78.8	131.1
Queue Length 50th (ft)	301	248	200	85	~266
Queue Length 95th (ft)	370	280	233	126	#470
Internal Link Dist (ft)		251	2404		
Turn Bay Length (ft)				295	504
Base Capacity (vph)	707	2908	2903	363	254
Starvation Cap Reductn	250	1391	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.14	0.99	0.36	0.41	1.10

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 (veh/h)	495	1427	0	0	624	370	141	0	266	0	0	0
Future Volume (veh/h)	495	1427	0	0	624	370	141	0	266	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	521	1502	0	0	657	0	148	0	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, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	606	3102	0	0	3374		190	0				
Arrive On Green	0.18	0.87	0.00	0.00	0.66	0.00	0.05	0.00	0.00			
Sat Flow, veh/h	3456	3647	0	0	5443	0	3456	0	1585			
Grp Volume(v), veh/h	521	1502	0	0	657	0	148	0	0			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1702	0	1728	0	1585			
Q Serve(g_s), s	26.4	16.8	0.0	0.0	9.0	0.0	7.6	0.0	0.0			
Cycle Q Clear(g_c), s	26.4	16.8	0.0	0.0	9.0	0.0	7.6	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	606	3102	0	0	3374		190	0				
V/C Ratio(X)	0.86	0.48	0.00	0.00	0.19		0.78	0.00				
Avail Cap(c_a), veh/h	710	3102	0	0	3374		365	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)	0.82	0.82	0.00	0.00	0.86	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	72.1	2.5	0.0	0.0	11.9	0.0	84.0	0.0	0.0			
Incr Delay (d2), s/veh	11.2	0.4	0.0	0.0	0.1	0.0	6.8	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	12.7	4.7	0.0	0.0	3.6	0.0	3.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.3	3.0	0.0	0.0	12.0	0.0	90.8	0.0	0.0			
LnGrp LOS	F	A	A	A	B		F	A				
Approach Vol, veh/h		2023			657	A		148	A			
Approach Delay, s/veh		23.7			12.0			90.8				
Approach LOS		C			B			F				

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	38.2	125.3		16.5		163.5						
Change Period (Y+Rc), s	* 6.6	6.4		* 6.6		6.4						
Max Green Setting (Gmax), s	* 37	104.0		* 19		147.6						
Max Q Clear Time (g_c+I1), s	28.4	11.0		9.6		18.8						
Green Ext Time (p_c), s	3.2	1.9		0.3		5.6						

Intersection Summary

HCM 6th Ctrl Delay			24.5									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	384	1171	76	64	750	23	91	335	181	29	138	64
Future Volume (veh/h)	384	1171	76	64	750	23	91	335	181	29	138	64
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	404	1233	80	67	789	24	96	353	191	31	145	67
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	434	2053	133	246	2072	63	254	387	370	98	345	362
Arrive On Green	0.04	0.61	0.61	0.03	0.59	0.59	0.04	0.21	0.21	0.02	0.18	0.18
Sat Flow, veh/h	1781	3388	220	1781	3521	107	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	404	646	667	67	398	415	96	353	191	31	145	67
Grp Sat Flow(s),veh/h/ln	1781	1777	1831	1781	1777	1851	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	8.0	40.7	40.9	2.7	21.5	21.5	8.0	33.4	19.0	2.5	12.4	6.2
Cycle Q Clear(g_c), s	8.0	40.7	40.9	2.7	21.5	21.5	8.0	33.4	19.0	2.5	12.4	6.2
Prop In Lane	1.00		0.12	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	434	1077	1110	246	1046	1089	254	387	370	98	345	362
V/C Ratio(X)	0.93	0.60	0.60	0.27	0.38	0.38	0.38	0.91	0.52	0.32	0.42	0.18
Avail Cap(c_a), veh/h	434	1077	1110	278	1046	1089	254	444	419	138	444	447
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)	0.76	0.76	0.76	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	22.1	22.1	18.6	19.7	19.7	57.3	70.2	60.5	60.5	65.3	56.2
Incr Delay (d2), s/veh	22.2	1.9	1.8	0.6	1.1	1.0	0.9	21.8	1.3	1.8	1.0	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(50%),veh/ln	16.9	17.7	18.3	1.2	9.4	9.8	3.7	18.4	7.9	1.2	6.1	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	23.9	23.9	19.2	20.8	20.8	58.3	92.0	61.8	62.3	66.2	56.5
LnGrp LOS	E	C	C	B	C	C	E	F	E	E	E	E
Approach Vol, veh/h		1717			880			640			243	
Approach Delay, s/veh		31.9			20.7			77.9			63.1	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	112.9	9.9	43.7	11.2	116.1	14.0	39.7
Change Period (Y+Rc), s	6.4	6.4	6.0	* 6.3	6.4	6.4	6.0	* 6.3
Max Green Setting (Gmax), s	8.0	97.0	8.0	* 43	8.0	97.0	8.0	* 43
Max Q Clear Time (g_c+I1), s	10.0	23.5	4.5	35.4	4.7	42.9	10.0	14.4
Green Ext Time (p_c), s	0.0	1.8	0.0	2.0	0.0	3.5	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	39.7
HCM 6th LOS	D

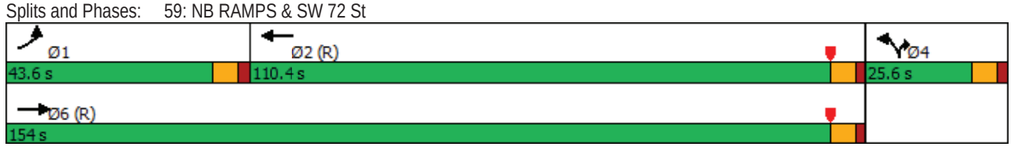
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	495	1427	624	141	266
Future Volume (vph)	495	1427	624	141	266
Turn Type	Prot	NA	NA	Prot	Prot
Protected Phases	1	6	2	4	4
Permitted Phases					
Detector Phase	1	6	2	4	4
Switch Phase					
Minimum Initial (s)	7.0	18.0	18.0	7.0	7.0
Minimum Split (s)	13.6	24.4	24.4	13.6	13.6
Total Split (s)	43.6	154.0	110.4	25.6	25.6
Total Split (%)	24.3%	85.7%	61.5%	14.3%	14.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.2	2.0	2.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.6
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None

Intersection Summary
Cycle Length: 179.6
Actuated Cycle Length: 179.6
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 59: NB RAMPS & SW 72 St



Timings
62: SW 72 Ave & SW 72 St

Existing AM
12/07/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	384	1171	64	750	91	335	181	29	138	64
Future Volume (vph)	384	1171	64	750	91	335	181	29	138	64
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	5	3	8	1
Permitted Phases	6		2		4		4	8		8
Detector Phase	1	6	5	2	7	4	5	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	14.4	103.4	14.4	103.4	14.0	49.3	14.4	14.0	49.3	14.4
Total Split (s)	14.4	103.4	14.4	103.4	14.0	49.3	14.4	14.0	49.3	14.4
Total Split (%)	8.0%	57.1%	8.0%	57.1%	7.7%	27.2%	8.0%	7.7%	27.2%	8.0%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.3	2.0	2.0	2.3	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.0	6.3	6.4	6.0	6.3	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 181.1
Actuated Cycle Length: 181.1
Offset: 79 (44%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 185
Control Type: Actuated-Coordinated

Splits and Phases: 62: SW 72 Ave & SW 72 St



Queues
62: SW 72 Ave & SW 72 St

Existing AM
12/07/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	404	1313	67	813	96	353	191	31	145	67
v/c Ratio	0.97	0.64	0.32	0.43	0.35	0.89	0.37	0.25	0.40	0.12
Control Delay	65.0	28.7	17.5	26.2	52.5	93.6	29.7	49.3	64.9	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.0	28.7	17.5	26.2	52.5	93.6	29.7	49.3	64.9	9.0
Queue Length 50th (ft)	~270	573	29	300	85	408	100	27	148	0
Queue Length 95th (ft)	#566	679	54	354	135	532	173	55	217	40
Internal Link Dist (ft)		2404		929		1266			1240	
Turn Bay Length (ft)	350		280		105		105	100		100
Base Capacity (vph)	415	2039	213	1889	277	442	519	133	442	546
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	0.97	0.64	0.31	0.43	0.35	0.80	0.37	0.23	0.33	0.12

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.

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1136	206	1621	84
v/c Ratio	0.41	0.50	0.53	0.56
Control Delay	6.6	6.1	3.5	37.2
Queue Delay	0.0	1.9	7.5	0.0
Total Delay	6.6	8.0	11.0	37.2
Queue Length 50th (ft)	168	23	155	20
Queue Length 95th (ft)	255	47	248	78
Internal Link Dist (ft)	446		202	570
Turn Bay Length (ft)		180		
Base Capacity (vph)	2745	451	3060	252
Starvation Cap Reductn	0	129	1399	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.41	0.64	0.98	0.33

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1086	27	202	1589	19	64
Future Volume (veh/h)	1086	27	202	1589	19	64
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	1108	28	206	1621	19	65
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2763	70	446	3042	23	79
Arrive On Green	0.78	0.78	0.04	0.86	0.06	0.06
Sat Flow, veh/h	3635	89	1781	3647	364	1245
Grp Volume(v), veh/h	556	580	206	1621	85	0
Grp Sat Flow(s),veh/h/ln	1777	1854	1781	1777	1628	0
Q Serve(g_s), s	16.0	16.0	3.6	19.3	8.3	0.0
Cycle Q Clear(g_c), s	16.0	16.0	3.6	19.3	8.3	0.0
Prop In Lane		0.05	1.00		0.22	0.76
Lane Grp Cap(c), veh/h	1386	1447	446	3042	103	0
V/C Ratio(X)	0.40	0.40	0.46	0.53	0.82	0.00
Avail Cap(c_a), veh/h	1386	1447	516	3042	193	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.70	0.70	1.00	0.00
Uniform Delay (d), s/veh	5.6	5.6	4.4	3.0	74.1	0.0
Incr Delay (d2), s/veh	0.9	0.8	0.2	0.5	14.9	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	5.5	5.7	1.0	4.8	3.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.5	6.5	4.6	3.5	89.0	0.0
LnGrp LOS	A	A	A	A	F	A
Approach Vol, veh/h	1136			1827	85	
Approach Delay, s/veh	6.5			3.6	89.0	
Approach LOS	A			A	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		143.4		16.6	12.1	131.2
Change Period (Y+Rc), s		6.4		6.5	6.4	6.4
Max Green Setting (Gmax), s		128.4		19.0	12.0	110.0
Max Q Clear Time (g_c+I1), s		21.3		10.3	5.6	18.0
Green Ext Time (p_c), s		5.2		0.1	0.1	2.3

Intersection Summary	
HCM 6th Ctrl Delay	7.1
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
66: SB SR 826 ON RAMP/SB SR 826 OFF RAMP & SW 72 St

Existing_PM
12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1011	139	174	1234	0	0	0	0	512	0	557
Future Volume (veh/h)	0	1011	139	174	1234	0	0	0	0	512	0	557
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1076	0	185	1313	0				545	0	593
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	0	2
Cap, veh/h	0	4114		436	2600	0				644	0	520
Arrive On Green	0.00	0.64	0.00	0.05	0.73	0.00				0.19	0.00	0.19
Sat Flow, veh/h	0	6958	0	1781	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1076	0	185	1313	0				545	0	593
Grp Sat Flow(s),veh/h/ln	0	1609	0	1781	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	11.7	0.0	5.5	25.3	0.0				24.5	0.0	30.0
Cycle Q Clear(g_c), s	0.0	11.7	0.0	5.5	25.3	0.0				24.5	0.0	30.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4114		436	2600	0				644	0	520
V/C Ratio(X)	0.00	0.26		0.42	0.50	0.00				0.85	0.00	1.14
Avail Cap(c_a), veh/h	0	4114		718	2600	0				644	0	520
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	0.91	0.00	0.68	0.68	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.6	0.0	8.7	9.2	0.0				63.3	0.0	65.5
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.7	0.5	0.0				10.4	0.0	84.4
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	0.0	4.2	0.0	2.1	9.2	0.0				11.8	0.0	16.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.7	0.0	9.5	9.7	0.0				73.7	0.0	149.9
LnGrp LOS	A	B		A	A	A				E	A	F
Approach Vol, veh/h		1076	A		1498						1138	
Approach Delay, s/veh		12.7			9.6						113.4	
Approach LOS		B			A						F	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		124.2			14.9	109.3		36.8				
Change Period (Y+Rc), s		6.4			6.4	6.4		6.8				
Max Green Setting (Gmax), s		117.4			34.0	77.0		30.0				
Max Q Clear Time (g_c+I1), s		27.3			7.5	13.7		32.0				
Green Ext Time (p_c), s		3.7			0.9	2.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		42.3
HCM 6th LOS		D

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Timings
2: SW 77 Ct & SW 72 St

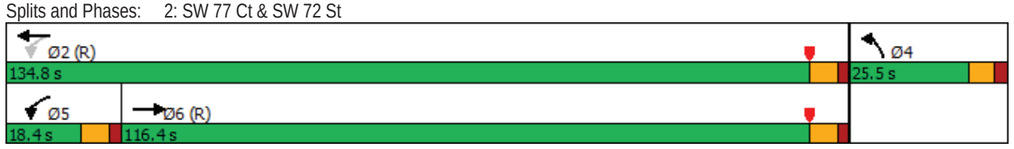
Existing_PM
12/11/2018

Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	1086	202	1589	19
Future Volume (vph)	1086	202	1589	19
Turn Type	NA	pm+pt	NA	Prot
Protected Phases	6	5	2	4
Permitted Phases		2		
Detector Phase	6	5	2	4
Switch Phase				
Minimum Initial (s)	20.0	5.0	20.0	7.0
Minimum Split (s)	26.4	11.4	26.4	13.5
Total Split (s)	116.4	18.4	134.8	25.5
Total Split (%)	72.6%	11.5%	84.1%	15.9%
Yellow Time (s)	4.4	4.4	4.4	4.0
All-Red Time (s)	2.0	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.5
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	C-Max	None	C-Max	None

Intersection Summary

Cycle Length: 160.3
Actuated Cycle Length: 160.3
Offset: 33 (21%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 2: SW 77 Ct & SW 72 St

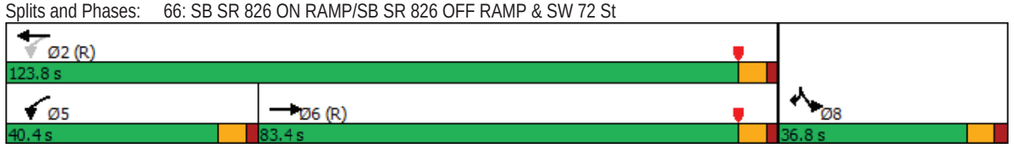


Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	1011	174	1234	512	557
Future Volume (vph)	1011	174	1234	512	557
Turn Type	NA	pm+pt	NA	Prot	Prot
Protected Phases	6	5	2	8	8
Permitted Phases		2			
Detector Phase	6	5	2	8	8
Switch Phase					
Minimum Initial (s)	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.4	11.4	24.4	13.8	13.8
Total Split (s)	83.4	40.4	123.8	36.8	36.8
Total Split (%)	51.9%	25.2%	77.1%	22.9%	22.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.8	6.8
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None

Intersection Summary

Cycle Length: 160.6
Actuated Cycle Length: 160.6
Offset: 34 (21%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 66: SB SR 826 ON RAMP/SB SR 826 OFF RAMP & SW 72 St



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1224	185	1313	545	593
v/c Ratio	0.31	0.54	0.51	0.85	1.00
Control Delay	14.6	12.7	10.1	76.5	91.6
Queue Delay	2.4	0.2	19.2	0.0	0.0
Total Delay	17.0	12.9	29.2	76.5	91.6
Queue Length 50th (ft)	165	53	283	289	~312
Queue Length 95th (ft)	195	80	328	#373	#460
Internal Link Dist (ft)	202		251		
Turn Bay Length (ft)				465	300
Base Capacity (vph)	3896	540	2587	641	592
Starvation Cap Reductn	2490	65	1301	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.87	0.39	1.02	0.85	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.

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	509	1061	2003	188	86
v/c Ratio	0.76	0.36	0.67	0.71	0.43
Control Delay	68.8	3.3	20.9	86.9	19.3
Queue Delay	15.5	2.1	0.0	0.0	0.0
Total Delay	84.2	5.3	20.9	86.9	19.3
Queue Length 50th (ft)	259	111	468	100	0
Queue Length 95th (ft)	322	130	535	145	57
Internal Link Dist (ft)		251	2404		
Turn Bay Length (ft)				295	504
Base Capacity (vph)	731	2977	2973	279	207
Starvation Cap Reductn	211	1712	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.98	0.84	0.67	0.67	0.42

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	494	1029	0	0	1226	717	182	0	83	0	0	0
Future Volume (veh/h)	494	1029	0	0	1226	717	182	0	83	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	509	1061	0	0	1264	0	188	0	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	0	0	2	2	2	0	2			
Cap, veh/h	606	3027	0	0	3242		232	0				
Arrive On Green	0.18	0.85	0.00	0.00	0.64	0.00	0.07	0.00	0.00			
Sat Flow, veh/h	3456	3647	0	0	5443	0	3456	0	1585			
Grp Volume(v), veh/h	509	1061	0	0	1264	0	188	0	0			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1702	0	1728	0	1585			
Q Serve(g_s), s	22.8	10.1	0.0	0.0	19.2	0.0	8.6	0.0	0.0			
Cycle Q Clear(g_c), s	22.8	10.1	0.0	0.0	19.2	0.0	8.6	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	606	3027	0	0	3242		232	0				
V/C Ratio(X)	0.84	0.35	0.00	0.00	0.39		0.81	0.00				
Avail Cap(c_a), veh/h	734	3027	0	0	3242		281	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)	0.85	0.85	0.00	0.00	0.31	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	63.8	2.5	0.0	0.0	14.2	0.0	73.6	0.0	0.0			
Incr Delay (d2), s/veh	10.1	0.3	0.0	0.0	0.1	0.0	13.9	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	10.9	2.9	0.0	0.0	7.5	0.0	4.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.8	2.8	0.0	0.0	14.3	0.0	87.5	0.0	0.0			
LnGrp LOS	E	A	A	A	B		F	A				
Approach Vol, veh/h		1570			1264	A		188	A			
Approach Delay, s/veh		25.8			14.3			87.5				
Approach LOS		C			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	34.7	108.0		17.3		142.7			
Change Period (Y+Rc), s	* 6.6	6.4		* 6.6		6.4			
Max Green Setting (Gmax), s	* 34	93.0		* 13		133.6			
Max Q Clear Time (g_c+I1), s	24.8	21.2		10.6		12.1			
Green Ext Time (p_c), s	3.3	4.2		0.1		3.3			

Intersection Summary	
HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	776	149	215	1592	23	157	194	37	28	330	103
Future Volume (veh/h)	110	776	149	215	1592	23	157	194	37	28	330	103
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	792	152	219	1624	23	160	198	38	29	337	105
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	1620	311	359	1988	28	160	425	439	240	363	371
Arrive On Green	0.04	0.54	0.54	0.05	0.55	0.55	0.06	0.23	0.23	0.02	0.19	0.19
Sat Flow, veh/h	1781	2974	571	1781	3587	51	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	112	473	471	219	803	844	160	198	38	29	337	105
Grp Sat Flow(s),veh/h/ln	1781	1777	1768	1781	1777	1861	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.5	26.6	26.6	8.0	59.2	59.5	9.0	14.7	2.9	2.1	28.5	8.7
Cycle Q Clear(g_c), s	4.5	26.6	26.6	8.0	59.2	59.5	9.0	14.7	2.9	2.1	28.5	8.7
Prop In Lane	1.00		0.32	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	172	968	963	359	985	1031	160	425	439	240	363	371
V/C Ratio(X)	0.65	0.49	0.49	0.61	0.82	0.82	1.00	0.47	0.09	0.12	0.93	0.28
Avail Cap(c_a), veh/h	189	968	963	359	985	1031	160	425	439	300	383	389
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)	0.94	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	22.7	22.7	20.8	29.2	29.3	57.3	53.8	43.1	50.5	63.8	50.6
Incr Delay (d2), s/veh	6.3	1.7	1.7	3.0	7.4	7.2	71.0	1.0	0.1	0.2	28.4	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(50%),veh/ln	2.6	11.7	11.7	4.1	27.0	28.4	5.4	7.1	1.2	1.0	16.5	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	24.4	24.4	23.9	36.7	36.5	128.3	54.7	43.2	50.7	92.2	51.1
LnGrp LOS	D	C	C	C	D	D	F	D	D	D	F	D
Approach Vol, veh/h		1056			1866			396			471	
Approach Delay, s/veh		25.8			35.1			83.3			80.5	
Approach LOS		C			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	95.6	9.6	42.9	14.4	94.1	15.0	37.5
Change Period (Y+Rc), s	6.4	6.4	6.0	* 6.3	6.4	6.4	6.0	* 6.3
Max Green Setting (Gmax), s	8.0	86.0	9.0	* 33	8.0	86.0	9.0	* 33
Max Q Clear Time (g_c+I1), s	6.5	61.5	4.1	16.7	10.0	28.6	11.0	30.5
Green Ext Time (p_c), s	0.0	4.8	0.0	1.3	0.0	2.3	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D

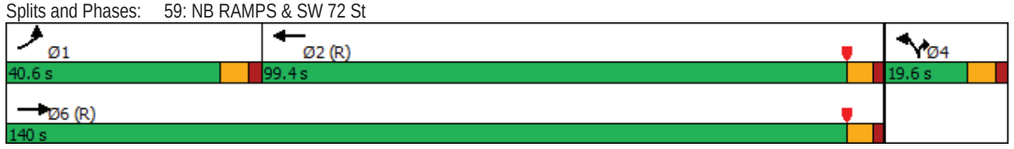
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	494	1029	1226	182	83
Future Volume (vph)	494	1029	1226	182	83
Turn Type	Prot	NA	NA	Prot	Prot
Protected Phases	1	6	2	4	4
Permitted Phases					
Detector Phase	1	6	2	4	4
Switch Phase					
Minimum Initial (s)	7.0	18.0	18.0	7.0	7.0
Minimum Split (s)	13.6	24.4	24.4	13.6	13.6
Total Split (s)	40.6	140.0	99.4	19.6	19.6
Total Split (%)	25.4%	87.7%	62.3%	12.3%	12.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.2	2.0	2.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.6
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None

Intersection Summary
Cycle Length: 159.6
Actuated Cycle Length: 159.6
Offset: 26 (16%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 59: NB RAMPS & SW 72 St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	110	776	215	1592	157	194	37	28	330	103
Future Volume (vph)	110	776	215	1592	157	194	37	28	330	103
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	5	3	8	1
Permitted Phases	6		2		4		4	8		8
Detector Phase	1	6	5	2	7	4	5	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.0	28.3	11.4	11.0	28.3	11.4
Total Split (s)	14.4	92.4	14.4	92.4	15.0	39.3	14.4	15.0	39.3	14.4
Total Split (%)	8.9%	57.4%	8.9%	57.4%	9.3%	24.4%	8.9%	9.3%	24.4%	8.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.3	2.0	2.0	2.3	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.0	6.3	6.4	6.0	6.3	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 161.1
Actuated Cycle Length: 161.1
Offset: 128 (79%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 62: SW 72 Ave & SW 72 St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	112	944	219	1647	160	198	38	29	337	105
v/c Ratio	0.82	0.50	0.70	0.86	0.97	0.45	0.07	0.10	0.92	0.21
Control Delay	73.4	24.2	28.3	38.1	111.0	57.6	2.6	41.4	93.2	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	24.2	28.3	38.1	111.0	57.6	2.6	41.4	93.2	19.2
Queue Length 50th (ft)	66	320	95	779	131	185	0	22	349	32
Queue Length 95th (ft)	#183	380	138	893	#259	275	10	49	#526	83
Internal Link Dist (ft)		2404		929		1266			1240	
Turn Bay Length (ft)	350		280		105		105	100		100
Base Capacity (vph)	136	1870	314	1909	165	442	563	300	381	499
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	0.82	0.50	0.70	0.86	0.97	0.45	0.07	0.10	0.88	0.21

Intersection Summary

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

Queues
73: SW 77 Ct & SW 56 St

Existing AM
12/03/2018

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	4	1250	29	1009	193	115
v/c Ratio	0.01	0.49	0.11	0.39	0.66	0.87
Control Delay	4.0	6.2	5.2	5.3	28.2	82.0
Queue Delay	0.0	0.0	0.0	0.9	0.0	0.0
Total Delay	4.0	6.2	5.2	6.2	28.2	82.0
Queue Length 50th (ft)	1	141	4	101	45	51
Queue Length 95th (ft)	3	181	14	132	115	#145
Internal Link Dist (ft)		2920		252	920	920
Turn Bay Length (ft)	110		115			
Base Capacity (vph)	361	2571	266	2559	318	146
Starvation Cap Reductn	0	0	0	1169	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.49	0.11	0.73	0.61	0.79

Intersection Summary

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

HCM 6th Signalized Intersection Summary
73: SW 77 Ct & SW 56 St

Existing AM
12/03/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1195	5	28	922	47	17	3	165	73	1	36
Future Volume (veh/h)	4	1195	5	28	922	47	17	3	165	73	1	36
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	1245	5	29	960	49	18	3	172	76	1	38
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	423	2621	11	336	2484	127	56	12	200	152	15	50
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.72	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	559	3630	15	445	3440	176	93	90	1501	643	109	371
Grp Volume(v), veh/h	4	609	641	29	496	513	193	0	0	115	0	0
Grp Sat Flow(s),veh/h/ln	559	1777	1868	445	1777	1839	1685	0	0	1124	0	0
Q Serve(g_s), s	0.3	13.1	13.1	2.7	9.7	9.7	0.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	9.9	13.1	13.1	15.7	9.7	9.7	9.9	0.0	0.0	9.2	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.10	0.09		0.89	0.66		0.33
Lane Grp Cap(c), veh/h	423	1283	1349	336	1283	1328	269	0	0	216	0	0
V/C Ratio(X)	0.01	0.47	0.48	0.09	0.39	0.39	0.72	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	423	1283	1349	336	1283	1328	286	0	0	231	0	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	1.00	0.93	0.93	0.93	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.7	5.3	5.3	8.6	4.8	4.8	38.2	0.0	0.0	37.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	1.2	0.5	0.8	0.8	7.4	0.0	0.0	1.5	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(50%),veh/ln	0.0	3.8	4.0	0.3	2.8	2.9	4.6	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.8	6.6	6.5	9.1	5.6	5.6	45.6	0.0	0.0	39.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	A	D	A	A
Approach Vol, veh/h		1254			1038			193			115	
Approach Delay, s/veh		6.5			5.7			45.6			39.0	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		71.4		18.6		71.4		18.6				
Change Period (Y+Rc), s		6.4		6.6		6.4		6.6				
Max Green Setting (Gmax), s		64.0		13.0		64.0		13.0				
Max Q Clear Time (g_c+I1), s		17.7		11.9		15.1		11.2				
Green Ext Time (p_c), s		2.2		0.1		2.6		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			10.5									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1316	117	114	594	0	0	0	0	258	0	403
Future Volume (vph)	0	1316	117	114	594	0	0	0	0	258	0	403
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0					7.5		7.0
Lane Util. Factor		0.86		0.97	0.95					0.97		0.88
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		6329		3433	3539					3433		2787
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		6329		3433	3539					3433		2787
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	1385	123	120	625	0	0	0	0	272	0	424
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	0	167
Lane Group Flow (vph)	0	1500	0	120	625	0	0	0	0	272	0	257
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		2		1 3	6 3					7		5 7
Permitted Phases												
Actuated Green, G (s)		91.0		37.0	113.2					24.0		38.8
Effective Green, g (s)		91.0		37.0	113.2					24.0		38.8
Actuated g/C Ratio		0.50		0.20	0.63					0.13		0.21
Clearance Time (s)		7.0								7.5		
Vehicle Extension (s)		1.0								4.0		
Lane Grp Cap (vph)		3181		701	2213					455		597
v/s Ratio Prot		c0.24		0.03	c0.18					c0.08		0.09
v/s Ratio Perm												
v/c Ratio	0.47		0.17	0.28						0.60		0.43
Uniform Delay, d1	29.3		59.4	15.4						74.0		61.5
Progression Factor	1.00		1.01	0.20						1.00		1.00
Incremental Delay, d2	0.5		0.1	0.1						2.5		0.7
Delay (s)	29.8		59.9	3.2						76.4		62.2
Level of Service	C		E	A						E		E
Approach Delay (s)	29.8			12.3		0.0				67.8		
Approach LOS	C			B		A				E		

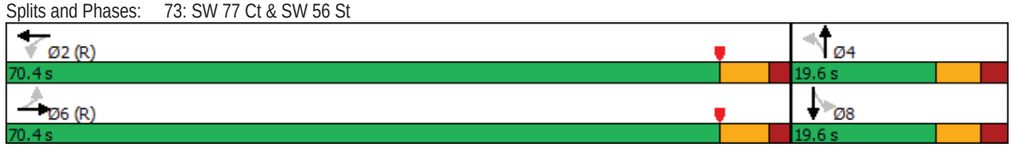
Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	181.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	1195	28	922	17	3	73	1
Future Volume (vph)	4	1195	28	922	17	3	73	1
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	6	6	2	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	16.0	16.0	16.0	16.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.4	22.4	22.4	22.4	13.6	13.6	19.6	19.6
Total Split (s)	70.4	70.4	70.4	70.4	19.6	19.6	19.6	19.6
Total Split (%)	78.2%	78.2%	78.2%	78.2%	21.8%	21.8%	21.8%	21.8%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 85 (94%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 73: SW 77 Ct & SW 56 St

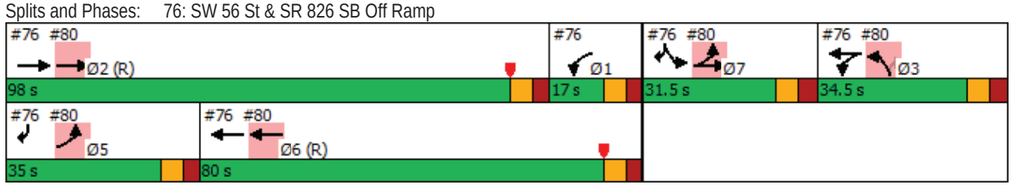


Lane Group	EBT	WBL	WBT	SBL	SBR	Ø1	Ø3	Ø5	Ø6
Lane Configurations									
Traffic Volume (vph)	1316	114	594	258	403				
Future Volume (vph)	1316	114	594	258	403				
Turn Type	NA	Prot	NA	Prot	custom				
Protected Phases	2	1 3	6 3	7	5 7	1	3	5	6
Permitted Phases									
Detector Phase	2	1 3	6 3	7	5 7				
Switch Phase									
Minimum Initial (s)	7.0			5.0		5.0	5.0	5.0	7.0
Minimum Split (s)	34.0			12.5		12.0	12.5	12.0	34.0
Total Split (s)	98.0			31.5		17.0	34.5	35.0	80.0
Total Split (%)	54.1%			17.4%		9%	19%	19%	44%
Yellow Time (s)	4.0			4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	3.0			3.5		3.0	3.5	3.0	3.0
Lost Time Adjust (s)	0.0			0.0					
Total Lost Time (s)	7.0			7.5					
Lead/Lag	Lead			Lead		Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes			Yes		Yes	Yes	Yes	Yes
Recall Mode	C-Max			None		None	None	None	C-Max

Intersection Summary

Cycle Length: 181
Actuated Cycle Length: 181
Offset: 49 (27%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 76: SW 56 St & SR 826 SB Off Ramp



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1508	120	625	272	424
v/c Ratio	0.47	0.17	0.28	0.60	0.55
Control Delay	29.6	36.7	1.9	80.0	20.5
Queue Delay	39.9	0.0	0.1	0.0	0.0
Total Delay	69.5	36.7	2.0	80.0	20.5
Queue Length 50th (ft)	331	50	15	159	87
Queue Length 95th (ft)	363	77	17	213	128
Internal Link Dist (ft)	252		299		
Turn Bay Length (ft)				440	440
Base Capacity (vph)	3190	711	2222	455	958
Starvation Cap Reductn	1792	0	589	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.08	0.17	0.38	0.60	0.44

Intersection Summary

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	431	1299	894	200	491
v/c Ratio	0.58	0.58	0.30	0.39	1.32
Control Delay	56.5	4.2	26.3	72.1	199.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	4.3	26.3	72.1	199.4
Queue Length 50th (ft)	201	96	166	112	~584
Queue Length 95th (ft)	232	79	202	157	#828
Internal Link Dist (ft)		299	2411		
Turn Bay Length (ft)				350	350
Base Capacity (vph)	995	2258	2936	512	371
Starvation Cap Reductn	20	12	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.58	0.30	0.39	1.32

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	392	1182	0	0	526	288	182	0	447	0	0	0
Future Volume (vph)	392	1182	0	0	526	288	182	0	447	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0		7.5		7.5			
Lane Util. Factor	0.97	0.95			0.86		0.97		1.00			
Frt	1.00	1.00			0.95		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3433	3539			6068		3433		1583			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	3433	3539			6068		3433		1583			
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)	431	1299	0	0	578	316	200	0	491	0	0	0
RTOR Reduction (vph)	0	0	0	0	48	0	0	0	135	0	0	0
Lane Group Flow (vph)	431	1299	0	0	846	0	200	0	356	0	0	0
Turn Type	Prot	NA			NA		Prot		Perm			
Protected Phases	5 7	2 7			6		3					
Permitted Phases									3			
Actuated Green, G (s)	38.8	115.0			86.2		27.0		27.0			
Effective Green, g (s)	38.8	115.0			86.2		27.0		27.0			
Actuated g/C Ratio	0.21	0.64			0.48		0.15		0.15			
Clearance Time (s)					7.0		7.5		7.5			
Vehicle Extension (s)					1.0		3.0		3.0			
Lane Grp Cap (vph)	735	2248			2889		512		236			
v/s Ratio Prot	c0.13	c0.37			c0.14		0.06					
v/s Ratio Perm									c0.22			
v/c Ratio	0.59	0.58			0.29		0.39		1.51			
Uniform Delay, d1	63.9	19.0			28.8		69.6		77.0			
Progression Factor	1.45	0.32			1.00		1.00		1.00			
Incremental Delay, d2	1.3	0.4			0.3		0.5		249.0			
Delay (s)	93.6	6.6			29.1		70.1		326.0			
Level of Service	F	A			C		E		F			
Approach Delay (s)		28.2			29.1			252.0			0.0	
Approach LOS		C			C			F			A	

Intersection Summary			
HCM 2000 Control Delay	75.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	181.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	72.4%	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)	428	1081	94	74	595	191	74	327	39	83	133	98
Future Volume (veh/h)	428	1081	94	74	595	191	74	327	39	83	133	98
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	451	1138	99	78	626	201	78	344	41	87	140	103
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	553	2319	201	269	1676	537	139	248	29	139	166	114
Arrive On Green	0.03	0.23	0.23	0.03	0.63	0.63	0.05	0.08	0.08	0.06	0.08	0.08
Sat Flow, veh/h	1781	3308	287	1781	2646	849	1781	3200	379	1781	2014	1384
Grp Volume(v), veh/h	451	611	626	78	420	407	78	190	195	87	122	121
Grp Sat Flow(s),veh/h/ln	1781	1777	1819	1781	1777	1718	1781	1777	1802	1781	1777	1621
Q Serve(g_s), s	14.0	53.9	54.1	2.8	20.5	20.6	7.2	14.0	14.0	8.1	12.3	13.4
Cycle Q Clear(g_c), s	14.0	53.9	54.1	2.8	20.5	20.6	7.2	14.0	14.0	8.1	12.3	13.4
Prop In Lane	1.00		0.16	1.00		0.49	1.00		0.21	1.00		0.85
Lane Grp Cap(c), veh/h	553	1245	1275	269	1126	1088	139	137	139	139	146	133
V/C Ratio(X)	0.82	0.49	0.49	0.29	0.37	0.37	0.56	1.38	1.40	0.63	0.84	0.90
Avail Cap(c_a), veh/h	660	1245	1275	280	1126	1088	276	137	139	266	146	133
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.53	0.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	41.5	41.6	16.8	15.9	15.9	72.5	83.5	83.5	72.1	81.8	82.3
Incr Delay (d2), s/veh	3.7	0.7	0.7	0.6	0.9	1.0	2.6	210.3	217.4	3.4	33.0	50.4
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(50%),veh/ln	6.9	26.1	26.8	1.2	8.6	8.3	3.4	14.5	15.0	3.9	7.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	42.3	42.3	17.3	16.9	16.9	75.1	293.8	300.9	75.5	114.8	132.7
LnGrp LOS	B	D	D	B	B	B	E	F	F	E	F	F
Approach Vol, veh/h		1688			905			463			330	
Approach Delay, s/veh		35.7			16.9			260.0			111.0	
Approach LOS		D			B			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.5	121.1	16.2	20.2	11.3	133.3	15.3	21.1
Change Period (Y+Rc), s	6.4	6.4	* 6.2	* 6.2	6.4	6.4	* 6.2	* 6.2
Max Green Setting (Gmax), s	28.0	91.0	* 23	* 14	6.0	113.0	* 23	* 14
Max Q Clear Time (g_c+I1), s	16.0	22.6	10.1	16.0	4.8	56.1	9.2	15.4
Green Ext Time (p_c), s	1.1	1.6	0.1	0.0	0.0	2.6	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	68.7
HCM 6th LOS	E

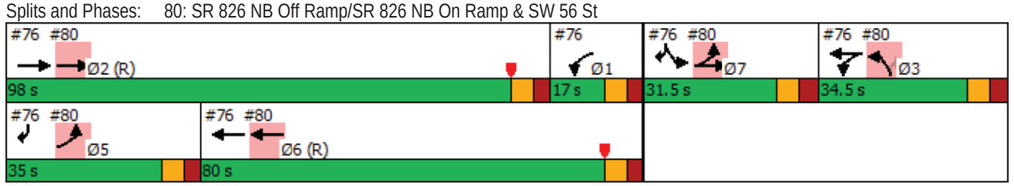
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBT	NBL	NBR	Ø1	Ø2	Ø5	Ø7
Lane Configurations									
Traffic Volume (vph)	392	1182	526	182	447				
Future Volume (vph)	392	1182	526	182	447				
Turn Type	Prot	NA	NA	Prot	Perm				
Protected Phases	5 7	2 7	6	3		1	2	5	7
Permitted Phases					3				
Detector Phase	5 7	2 7	6	3	3				
Switch Phase									
Minimum Initial (s)			7.0	5.0	5.0	5.0	7.0	5.0	5.0
Minimum Split (s)			34.0	12.5	12.5	12.0	34.0	12.0	12.5
Total Split (s)			80.0	34.5	34.5	17.0	98.0	35.0	31.5
Total Split (%)			44.2%	19.1%	19.1%	9%	54%	19%	17%
Yellow Time (s)			4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)			3.0	3.5	3.5	3.0	3.0	3.0	3.5
Lost Time Adjust (s)			0.0	0.0	0.0				
Total Lost Time (s)			7.0	7.5	7.5				
Lead/Lag			Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode			C-Max	None	None	None	C-Max	None	None

Intersection Summary
Cycle Length: 181
Actuated Cycle Length: 181
Offset: 49 (27%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 80: SR 826 NB Off Ramp/SR 826 NB On Ramp & SW 56 St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	428	1081	74	595	74	327	83	133
Future Volume (vph)	428	1081	74	595	74	327	83	133
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.4	25.4	11.4	25.4	11.2	20.0	11.2	20.0
Total Split (s)	34.4	119.4	12.4	97.4	29.2	20.2	29.2	20.2
Total Split (%)	19.0%	65.9%	6.8%	53.8%	16.1%	11.1%	16.1%	11.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 181.2
Actuated Cycle Length: 181.2
Offset: 29 (16%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: SW 72 Ave & SW 56 St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	451	1237	78	827	78	385	87	243
v/c Ratio	0.90	0.57	0.32	0.47	0.33	0.80	0.49	0.45
Control Delay	38.2	20.9	15.2	28.0	59.4	87.1	65.1	51.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	20.9	15.2	28.0	59.4	87.1	65.1	51.3
Queue Length 50th (ft)	209	431	28	317	75	234	84	94
Queue Length 95th (ft)	#318	493	48	380	128	#360	139	148
Internal Link Dist (ft)		2411		1058		197		324
Turn Bay Length (ft)	180		180		135		305	
Base Capacity (vph)	518	2184	245	1778	324	481	272	536
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.57	0.32	0.47	0.24	0.80	0.32	0.45

Intersection Summary

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

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	30	1022	43	2463	51	51
v/c Ratio	0.40	0.32	0.09	0.78	0.46	0.54
Control Delay	19.7	2.1	1.7	6.6	50.3	72.5
Queue Delay	0.0	0.0	0.0	1.1	0.0	0.0
Total Delay	19.7	2.1	1.7	7.7	50.3	72.5
Queue Length 50th (ft)	5	82	5	392	22	35
Queue Length 95th (ft)	36	126	m6	m407	72	86
Internal Link Dist (ft)		2920		252	920	920
Turn Bay Length (ft)	110		115			
Base Capacity (vph)	75	3170	461	3163	315	283
Starvation Cap Reductn	0	0	0	419	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.32	0.09	0.90	0.16	0.18

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 (veh/h)	29	986	16	42	2343	71	15	4	31	28	0	22
Future Volume (veh/h)	29	986	16	42	2343	71	15	4	31	28	0	22
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	1006	16	43	2391	72	15	4	32	29	0	22
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	3171	50	504	3120	93	43	10	45	67	3	29
Arrive On Green	0.89	0.89	0.89	1.00	1.00	1.00	0.04	0.04	0.04	0.04	0.00	0.04
Sat Flow, veh/h	136	3580	57	552	3523	106	396	246	1080	843	72	694
Grp Volume(v), veh/h	30	499	523	43	1200	1263	51	0	0	51	0	0
Grp Sat Flow(s),veh/h/ln	136	1777	1860	552	1777	1851	1721	0	0	1609	0	0
Q Serve(g_s), s	5.8	8.0	8.0	0.8	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	5.8	8.0	8.0	8.8	0.0	0.0	5.1	0.0	0.0	5.4	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.06	0.29		0.63	0.57		0.43
Lane Grp Cap(c), veh/h	161	1574	1648	504	1574	1640	98	0	0	99	0	0
V/C Ratio(X)	0.19	0.32	0.32	0.09	0.76	0.77	0.52	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	161	1574	1648	504	1574	1640	324	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.16	0.16	0.16	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.5	1.6	1.6	0.2	0.0	0.0	85.1	0.0	0.0	85.2	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.5	0.5	0.1	0.6	0.6	3.1	0.0	0.0	3.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.9	1.9	0.0	0.3	0.3	2.4	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.1	2.2	2.1	0.3	0.6	0.6	88.2	0.0	0.0	88.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	F	A	A	F	A	A
Approach Vol, veh/h		1052			2506			51			51	
Approach Delay, s/veh		2.2			0.6			88.2			88.2	
Approach LOS		A			A			F			F	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		165.8		14.2		165.8		14.2				
Change Period (Y+Rc), s		6.4		6.6		6.4		6.6				
Max Green Setting (Gmax), s		133.0		34.0		133.0		34.0				
Max Q Clear Time (g_c+I1), s		10.8		7.1		10.0		7.4				
Green Ext Time (p_c), s		10.8		0.2		3.3		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			3.5									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	858	187	188	1688	0	0	0	0	289	0	768
Future Volume (vph)	0	858	187	188	1688	0	0	0	0	289	0	768
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0					7.5		7.0
Lane Util. Factor		0.86		0.97	0.95					0.97		0.88
Frt		0.97		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		6236		3433	3539					3433		2787
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		6236		3433	3539					3433		2787
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	876	191	192	1722	0	0	0	0	295	0	784
RTOR Reduction (vph)	0	22	0	0	0	0	0	0	0	0	0	47
Lane Group Flow (vph)	0	1045	0	192	1722	0	0	0	0	295	0	737
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		2		1 3	6 3					7		5 7
Permitted Phases												
Actuated Green, G (s)		107.0		28.0	121.0					16.0		30.0
Effective Green, g (s)		107.0		28.0	121.0					16.0		30.0
Actuated g/C Ratio		0.59		0.16	0.67					0.09		0.17
Clearance Time (s)		7.0								7.5		
Vehicle Extension (s)		1.0								4.0		
Lane Grp Cap (vph)		3706		534	2378					305		464
v/s Ratio Prot		0.17		0.06	c0.49					0.09		c0.26
v/s Ratio Perm												
v/c Ratio	0.28	0.36	0.72							0.97		1.59
Uniform Delay, d1	17.8	68.0	18.8							81.7		75.0
Progression Factor	0.91	1.13	0.36							1.00		1.00
Incremental Delay, d2	0.2	0.3	0.9							42.4		275.2
Delay (s)	16.3	77.3	7.7							124.2		350.2
Level of Service	B	E	A							F		F
Approach Delay (s)	16.3		14.7		0.0			288.4				
Approach LOS	B		B		A			F				

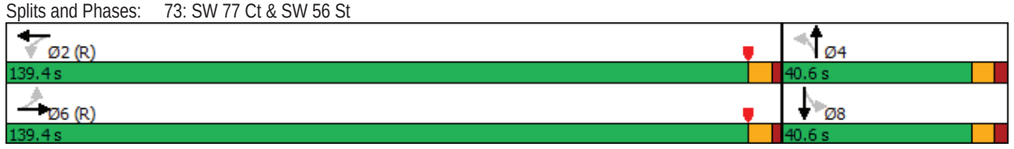
Intersection Summary			
HCM 2000 Control Delay	87.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	29	986	42	2343	15	4	28	0
Future Volume (vph)	29	986	42	2343	15	4	28	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	6	6	2	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	16.0	16.0	16.0	16.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.4	22.4	22.4	22.4	13.6	13.6	13.6	13.6
Total Split (s)	139.4	139.4	139.4	139.4	40.6	40.6	40.6	40.6
Total Split (%)	77.4%	77.4%	77.4%	77.4%	22.6%	22.6%	22.6%	22.6%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 82 (46%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 73: SW 77 Ct & SW 56 St

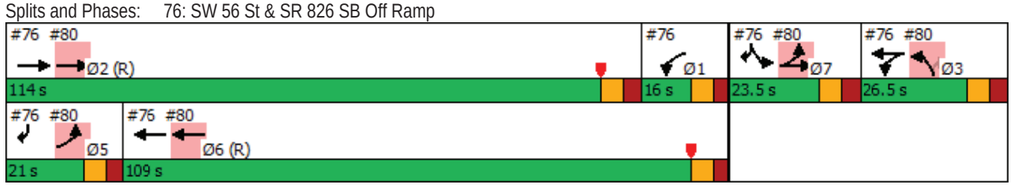


Lane Group	EBT	WBL	WBT	SBL	SBR	Ø1	Ø3	Ø5	Ø6
Lane Configurations									
Traffic Volume (vph)	858	188	1688	289	768				
Future Volume (vph)	858	188	1688	289	768				
Turn Type	NA	Prot	NA	Prot	custom				
Protected Phases	2	1 3	6 3	7	5 7	1	3	5	6
Permitted Phases									
Detector Phase	2	1 3	6 3	7	5 7				
Switch Phase									
Minimum Initial (s)	7.0			5.0		5.0	5.0	5.0	7.0
Minimum Split (s)	34.0			12.5		12.0	12.5	12.0	34.0
Total Split (s)	114.0			23.5		16.0	26.5	21.0	109.0
Total Split (%)	63.3%			13.1%		9%	15%	12%	61%
Yellow Time (s)	4.0			4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	3.0			3.5		3.0	3.5	3.0	3.0
Lost Time Adjust (s)	0.0			0.0					
Total Lost Time (s)	7.0			7.5					
Lead/Lag	Lead			Lead		Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes			Yes		Yes	Yes	Yes	Yes
Recall Mode	C-Max			None		None	None	None	C-Max

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 29 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 76: SW 56 St & SR 826 SB Off Ramp



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1067	192	1722	295	784
v/c Ratio	0.29	0.35	0.72	0.97	1.51
Control Delay	15.5	54.5	6.1	123.4	276.4
Queue Delay	0.3	0.0	0.0	0.0	2.7
Total Delay	15.8	54.5	6.1	123.4	279.1
Queue Length 50th (ft)	127	99	130	182	~546
Queue Length 95th (ft)	144	m137	96	#285	#696
Internal Link Dist (ft)	252		299		
Turn Bay Length (ft)				440	440
Base Capacity (vph)	3728	543	2388	305	518
Starvation Cap Reductn	1818	0	0	0	0
Spillback Cap Reductn	0	0	3	0	135
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.56	0.35	0.72	0.97	2.05

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

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	403	792	2054	328	157
v/c Ratio	0.69	0.33	0.58	0.91	0.51
Control Delay	57.3	3.5	25.1	107.1	15.6
Queue Delay	0.0	0.2	0.0	0.0	0.0
Total Delay	57.3	3.6	25.1	107.1	15.6
Queue Length 50th (ft)	144	50	432	201	0
Queue Length 95th (ft)	m198	m58	462	#294	76
Internal Link Dist (ft)		299	2411		
Turn Bay Length (ft)				350	350
Base Capacity (vph)	581	2428	3544	362	307
Starvation Cap Reductn	0	735	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.47	0.58	0.91	0.51

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)	387	760	0	0	1561	411	315	0	151	0	0	0
Future Volume (vph)	387	760	0	0	1561	411	315	0	151	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0		7.5		7.5			
Lane Util. Factor	0.97	0.95			0.86		0.97		1.00			
Frt	1.00	1.00			0.97		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3433	3539			6208		3433		1583			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	3433	3539			6208		3433		1583			
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)	403	792	0	0	1626	428	328	0	157	0	0	0
RTOR Reduction (vph)	0	0	0	0	26	0	0	0	140	0	0	0
Lane Group Flow (vph)	403	792	0	0	2028	0	328	0	17	0	0	0
Turn Type	Prot	NA			NA		Prot		Perm			
Protected Phases	5 7	2 7			6		3					
Permitted Phases									3			
Actuated Green, G (s)	30.0	123.0			102.0		19.0		19.0			
Effective Green, g (s)	30.0	123.0			102.0		19.0		19.0			
Actuated g/C Ratio	0.17	0.68			0.57		0.11		0.11			
Clearance Time (s)					7.0		7.5		7.5			
Vehicle Extension (s)					1.0		3.0		3.0			
Lane Grp Cap (vph)	572	2418			3517		362		167			
v/s Ratio Prot	c0.12	0.22			c0.33		c0.10					
v/s Ratio Perm									0.01			
v/c Ratio	0.70	0.33			0.58		0.91		0.10			
Uniform Delay, d1	70.8	11.6			25.1		79.6		72.8			
Progression Factor	1.07	0.53			1.00		1.00		1.00			
Incremental Delay, d2	3.8	0.1			0.7		25.2		0.3			
Delay (s)	79.8	6.3			25.8		104.8		73.0			
Level of Service	E	A			C		F		E			
Approach Delay (s)		31.1			25.8			94.5			0.0	
Approach LOS		C			C			F			A	

Intersection Summary			
HCM 2000 Control Delay	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
5: SW 72 Ave & SW 56 St

Existing PM
12/03/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	726	69	58	1288	96	151	175	63	122	300	467
Future Volume (veh/h)	105	726	69	58	1288	96	151	175	63	122	300	467
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	106	733	70	59	1301	97	153	177	64	123	303	472
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	194	1758	168	359	1755	131	148	614	214	352	422	377
Arrive On Green	0.04	0.54	0.54	0.03	0.52	0.52	0.06	0.24	0.24	0.06	0.24	0.24
Sat Flow, veh/h	1781	3278	313	1781	3353	249	1781	2583	902	1781	1777	1585
Grp Volume(v), veh/h	106	397	406	59	688	710	153	120	121	123	303	472
Grp Sat Flow(s),veh/h/ln	1781	1777	1814	1781	1777	1825	1781	1777	1708	1781	1777	1585
Q Serve(g_s), s	5.0	24.2	24.2	2.8	54.5	54.9	11.0	10.0	10.5	9.4	28.4	43.0
Cycle Q Clear(g_c), s	5.0	24.2	24.2	2.8	54.5	54.9	11.0	10.0	10.5	9.4	28.4	43.0
Prop In Lane	1.00		0.17	1.00		0.14	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	194	953	973	359	930	956	148	422	406	352	422	377
V/C Ratio(X)	0.55	0.42	0.42	0.16	0.74	0.74	1.03	0.28	0.30	0.35	0.72	1.25
Avail Cap(c_a), veh/h	223	953	973	411	930	956	148	422	406	352	422	377
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)	0.94	0.94	0.94	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	25.1	25.1	20.4	33.5	33.6	55.0	56.4	56.6	48.2	63.4	69.0
Incr Delay (d2), s/veh	2.2	1.3	1.2	0.2	5.3	5.2	83.1	0.4	0.5	0.4	6.0	134.2
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(50%),veh/ln	2.2	10.6	10.8	1.2	24.5	25.3	8.6	4.6	4.7	4.3	13.7	31.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	26.3	26.3	20.6	38.8	38.8	138.2	56.9	57.1	48.6	69.5	203.2
LnGrp LOS	C	C	C	C	D	D	F	E	E	D	E	F
Approach Vol, veh/h		909			1457			394			898	
Approach Delay, s/veh		27.0			38.1			88.5			136.9	
Approach LOS		C			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	101.2	17.2	49.2	11.1	103.5	17.2	49.2
Change Period (Y+Rc), s	6.4	6.4	* 6.2	* 6.2	6.4	6.4	* 6.2	* 6.2
Max Green Setting (Gmax), s	10.0	92.0	* 11	* 43	10.0	92.0	* 11	* 43
Max Q Clear Time (g_c+I1), s	7.0	56.9	11.4	12.5	4.8	26.2	13.0	45.0
Green Ext Time (p_c), s	0.1	3.1	0.0	1.8	0.0	1.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	65.0
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

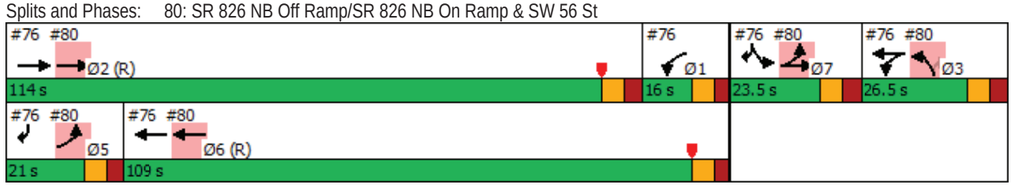
Timings
80: SR 826 NB Off Ramp/SR 826 NB On Ramp & SW 56 St

Existing PM
12/03/2018

Lane Group	EBL	EBT	WBT	NBL	NBR	Ø1	Ø2	Ø5	Ø7
Lane Configurations									
Traffic Volume (vph)	387	760	1561	315	151				
Future Volume (vph)	387	760	1561	315	151				
Turn Type	Prot	NA	NA	Prot	Perm				
Protected Phases	5 7	2 7	6	3		1	2	5	7
Permitted Phases					3				
Detector Phase	5 7	2 7	6	3	3				
Switch Phase									
Minimum Initial (s)			7.0	5.0	5.0	5.0	7.0	5.0	5.0
Minimum Split (s)			34.0	12.5	12.5	12.0	34.0	12.0	12.5
Total Split (s)			109.0	26.5	26.5	16.0	114.0	21.0	23.5
Total Split (%)			60.6%	14.7%	14.7%	9%	63%	12%	13%
Yellow Time (s)			4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)			3.0	3.5	3.5	3.0	3.0	3.0	3.5
Lost Time Adjust (s)			0.0	0.0	0.0				
Total Lost Time (s)			7.0	7.5	7.5				
Lead/Lag			Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode			C-Max	None	None	None	C-Max	None	None

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 29 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 80: SR 826 NB Off Ramp/SR 826 NB On Ramp & SW 56 St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	105	726	58	1288	151	175	122	300
Future Volume (vph)	105	726	58	1288	151	175	122	300
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.4	25.4	11.4	25.4	11.2	25.2	11.2	25.2
Total Split (s)	16.4	98.4	16.4	98.4	17.2	49.2	17.2	49.2
Total Split (%)	9.1%	54.3%	9.1%	54.3%	9.5%	27.2%	9.5%	27.2%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 181.2
Actuated Cycle Length: 181.2
Offset: 79 (44%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: SW 72 Ave & SW 56 St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	106	803	59	1398	153	241	123	775
v/c Ratio	0.62	0.44	0.17	0.77	1.03	0.30	0.36	1.01dr
Control Delay	35.4	27.4	16.3	38.6	129.0	51.9	47.9	72.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	27.4	16.3	38.6	129.0	51.9	47.9	72.5
Queue Length 50th (ft)	52	306	28	704	~140	111	106	404
Queue Length 95th (ft)	100	370	51	799	#307	156	164	#513
Internal Link Dist (ft)		2411		1058		197		324
Turn Bay Length (ft)	180		180		135		305	
Base Capacity (vph)	177	1841	367	1822	148	826	340	865
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.44	0.16	0.77	1.03	0.29	0.36	0.90

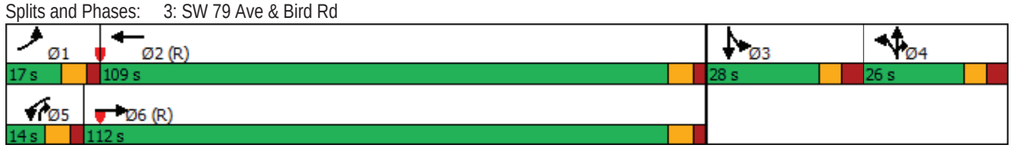
Intersection Summary

~ 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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4	4 5	3	3	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.0	25.0		12.0	25.0		26.0	26.0		26.0	26.0	
Total Split (s)	17.0	112.0		14.0	109.0		26.0	26.0		28.0	28.0	
Total Split (%)	9.4%	62.2%		7.8%	60.6%		14.4%	14.4%		15.6%	15.6%	
Maximum Green (s)	10.0	105.0		7.0	102.0		18.0	18.0		20.0	20.0	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.9	120.8		7.7	118.7		7.1	7.1	19.2	20.0	20.0	
Actuated g/C Ratio	0.06	0.67		0.04	0.66		0.04	0.04	0.11	0.11	0.11	
v/c Ratio	0.45	0.43		0.29	0.35		0.07	0.05	0.14	1.03	0.99	
Control Delay	96.4	15.1		87.5	12.8		85.6	85.0	1.3	147.8	136.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	96.4	15.1		87.5	12.8		85.6	85.0	1.3	147.8	136.7	
LOS	F	B		F	B		F	F	A	F	F	
Approach Delay		17.0			14.9			19.3			142.3	
Approach LOS		B			B			B			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 140 (78%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 28.6	Intersection LOS: C
Intersection Capacity Utilization 63.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: SW 79 Ave & Bird Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1727	4	40	1266	115	5	4	31	299	14	42
Future Volume (vph)	41	1727	4	40	1266	115	5	4	31	299	14	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	360		0	265		0	0		0	150		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	100			100			25			75		
Lane Util. Factor	1.00	0.86	0.86	0.97	0.86	0.86	1.00	1.00	1.00	0.95	0.95	1.00
Frt					0.988				0.850		0.964	
Flt Protected	0.950			0.950			0.950			0.950	0.967	
Satd. Flow (prot)	1770	6408	0	3433	6331	0	1770	1863	1583	1681	1650	0
Flt Permitted	0.950			0.950			0.950			0.950	0.967	
Satd. Flow (perm)	1770	6408	0	3433	6331	0	1770	1863	1583	1681	1650	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					18				73		7	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		360			687			986			1012	
Travel Time (s)		6.1			11.7			22.4			23.0	
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
Adj. Flow (vph)	44	1837	4	43	1347	122	5	4	33	318	15	45
Shared Lane Traffic (%)										40%		
Lane Group Flow (vph)	44	1841	0	43	1469	0	5	4	33	191	187	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												

HCM 2010 Signalized Intersection Summary
3: SW 79 Ave & Bird Rd

10/22/2018

HCM 2010 analysis expects strict NEMA phasing.

HCM 6th Signalized Intersection Summary
3: SW 79 Ave & Bird Rd

10/22/2018

HCM 6th Edition methodology expects strict NEMA phasing.

Queues
3: SW 79 Ave & Bird Rd

10/22/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	44	1841	43	1469	5	4	33	191	187
v/c Ratio	0.45	0.43	0.29	0.35	0.07	0.05	0.14	1.03	0.99
Control Delay	96.4	15.1	87.5	12.8	85.6	85.0	1.3	147.8	136.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.4	15.1	87.5	12.8	85.6	85.0	1.3	147.8	136.7
Queue Length 50th (ft)	51	306	27	171	6	5	0	~251	228
Queue Length 95th (ft)	98	342	51	178	22	20	0	#438	#416
Internal Link Dist (ft)		280		607		906			932
Turn Bay Length (ft)	360		265					150	
Base Capacity (vph)	108	4301	151	4180	177	186	252	186	189
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	0.41	0.43	0.28	0.35	0.03	0.02	0.13	1.03	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.

HCM Signalized Intersection Capacity Analysis
3: SW 79 Ave & Bird Rd

10/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1727	4	40	1266	115	5	4	31	299	14	42
Future Volume (vph)	41	1727	4	40	1266	115	5	4	31	299	14	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		8.0	8.0	8.0	8.0	8.0	
Lane Util. Factor	1.00	0.86		0.97	0.86		1.00	1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.97	
Satd. Flow (prot)	1770	6406		3433	6328		1770	1863	1583	1681	1650	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.97	
Satd. Flow (perm)	1770	6406		3433	6328		1770	1863	1583	1681	1650	
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)	44	1837	4	43	1347	122	5	4	33	318	15	45
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	29	0	6	0
Lane Group Flow (vph)	44	1841	0	43	1463	0	5	4	4	191	181	0
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												
Actuated Green, G (s)	8.7	117.8		6.5	115.6		5.7	5.7	20.2	20.0	20.0	
Effective Green, g (s)	8.7	117.8		6.5	115.6		5.7	5.7	20.2	20.0	20.0	
Actuated g/C Ratio	0.05	0.65		0.04	0.64		0.03	0.03	0.11	0.11	0.11	
Clearance Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	85	4192		123	4063		56	58	177	186	183	
v/s Ratio Prot	c0.02	c0.29		0.01	0.23		c0.00	0.00	0.00	c0.11	0.11	
v/s Ratio Perm												
v/c Ratio	0.52	0.44		0.35	0.36		0.09	0.07	0.02	1.03	0.99	
Uniform Delay, d1	83.6	15.1		84.7	15.0		84.6	84.6	71.1	80.0	79.9	
Progression Factor	1.00	1.00		0.99	0.86		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.2	0.3		1.7	0.2		0.7	0.5	0.0	73.2	62.4	
Delay (s)	88.8	15.4		85.8	13.1		85.3	85.1	71.1	153.2	142.3	
Level of Service	F	B		F	B		F	F	E	F	F	
Approach Delay (s)		17.1			15.2			74.2			147.8	
Approach LOS		B			B			E			F	

Intersection Summary

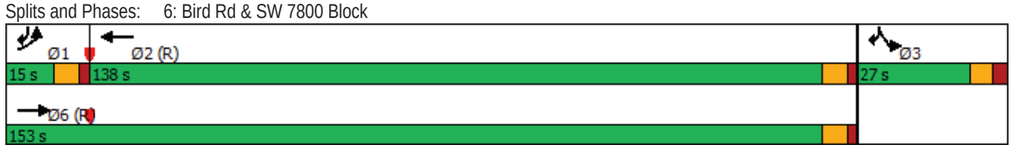
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2		3	3 1
Switch Phase						
Minimum Initial (s)	5.0	7.0	7.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		25.0	
Total Split (s)	15.0	153.0	138.0		27.0	
Total Split (%)	8.3%	85.0%	76.7%		15.0%	
Maximum Green (s)	8.6	146.6	131.6		20.0	
Yellow Time (s)	4.4	4.4	4.4		4.0	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		7.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	6.6	146.6	136.0		20.0	33.0
Actuated g/C Ratio	0.04	0.81	0.76		0.11	0.18
v/c Ratio	0.16	0.42	0.33		0.93	0.09
Control Delay	115.4	1.8	6.2		110.1	30.1
Queue Delay	0.0	0.1	0.0		0.0	0.0
Total Delay	115.4	1.9	6.2		110.1	30.1
LOS	F	A	A		F	C
Approach Delay		2.9	6.2		104.7	
Approach LOS		A	A		F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 152 (84%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 13.5	Intersection LOS: B
Intersection Capacity Utilization 50.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Bird Rd & SW 7800 Block



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	2038	1399	106	335	24
Future Volume (vph)	19	2038	1399	106	335	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230			0	0	100
Storage Lanes	2			0	2	1
Taper Length (ft)	100				25	
Lane Util. Factor	0.97	0.86	0.86	0.86	0.97	1.00
Frt			0.989			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	6408	6337	0	3433	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	6408	6337	0	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			24			18
Link Speed (mph)		40	40		30	
Link Distance (ft)		687	783		1033	
Travel Time (s)		11.7	13.3		23.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	20	2168	1488	113	356	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	2168	1601	0	356	26
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		3	3 1
Permitted Phases						

Queues
6: Bird Rd & SW 7800 Block

10/22/2018

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	20	2168	1601	356	26
v/c Ratio	0.16	0.42	0.33	0.93	0.09
Control Delay	115.4	1.8	6.2	110.1	30.1
Queue Delay	0.0	0.1	0.0	0.0	0.0
Total Delay	115.4	1.9	6.2	110.1	30.1
Queue Length 50th (ft)	11	2	297	219	8
Queue Length 95th (ft)	m26	m2	324	#321	40
Internal Link Dist (ft)		607	703	953	
Turn Bay Length (ft)	230				100
Base Capacity (vph)	164	5218	4794	381	322
Starvation Cap Reductn	0	1013	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	0.52	0.33	0.93	0.08

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 6th Signalized Intersection Summary
6: Bird Rd & SW 7800 Block

10/22/2018

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	2038	1399	106	335	24
Future Volume (veh/h)	19	2038	1399	106	335	24
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	2168	1488	113	356	26
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	61	5240	4679	355	384	204
Arrive On Green	0.04	1.00	1.00	1.00	0.11	0.11
Sat Flow, veh/h	3456	6696	6408	466	3456	1585
Grp Volume(v), veh/h	20	2168	1168	433	356	26
Grp Sat Flow(s),veh/h/ln	1728	1609	1609	1786	1728	1585
Q Serve(g_s), s	1.0	0.0	0.0	0.0	18.4	2.6
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.0	18.4	2.6
Prop In Lane	1.00			0.26	1.00	1.00
Lane Grp Cap(c), veh/h	61	5240	3674	1360	384	204
V/C Ratio(X)	0.33	0.41	0.32	0.32	0.93	0.13
Avail Cap(c_a), veh/h	165	5240	3674	1360	384	204
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	85.8	0.0	0.0	0.0	79.3	69.5
Incr Delay (d2), s/veh	2.7	0.2	0.2	0.6	28.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	0.1	0.2	9.8	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	88.5	0.2	0.2	0.6	107.6	69.7
LnGrp LOS	F	A	A	A	F	E
Approach Vol, veh/h		2188	1601		382	
Approach Delay, s/veh		1.0	0.3		105.0	
Approach LOS		A	A		F	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.6	143.4			153.0	27.0
Change Period (Y+Rc), s	6.4	6.4			6.4	7.0
Max Green Setting (Gmax), s	8.6	131.6			146.6	20.0
Max Q Clear Time (g_c+I1), s	3.0	2.0			2.0	20.4
Green Ext Time (p_c), s	0.0	16.9			39.8	0.0

Intersection Summary		
HCM 6th Ctrl Delay	10.3	
HCM 6th LOS	B	

Lane Group	Ø5	Ø8	Ø9
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Detector 2 Position(ft)			
Detector 2 Size(ft)			
Detector 2 Type			
Detector 2 Channel			
Detector 2 Extend (s)			
Turn Type			
Protected Phases	5	8	9
Permitted Phases			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2073	300	556	1162	0	0	0	0	1036	0	315
Future Volume (vph)	0	2073	300	556	1162	0	0	0	0	1036	0	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	350		650
Storage Lanes	0		0	3		0	0		0	2		1
Taper Length (ft)	25			25			25			100		
Lane Util. Factor	1.00	0.86	0.86	0.94	0.91	1.00	1.00	1.00	1.00	0.94	1.00	0.76
Frt		0.981										0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	6286	0	4990	5085	0	0	0	0	4990	0	3610
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	6286	0	4990	5085	0	0	0	0	4990	0	3610
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		32										
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		783			531			602			1309	
Travel Time (s)		13.3			9.1			13.7			29.8	
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
Adj. Flow (vph)	0	2205	319	591	1236	0	0	0	0	1102	0	335
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2524	0	591	1236	0	0	0	0	1102	0	335
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1		1
Detector Template		Thru		Left	Thru					Left		Right
Leading Detector (ft)		100		20	100					20		20
Trailing Detector (ft)		0		0	0					0		0
Detector 1 Position(ft)		0		0	0					0		0
Detector 1 Size(ft)		6		20	6					20		20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		6		5 9	2					3		8 9
Permitted Phases												

Lane Group	Ø5	Ø8	Ø9
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	7.0	7.0
Minimum Split (s)	12.0	24.9	13.9
Total Split (s)	20.0	36.0	19.0
Total Split (%)	11%	20%	11%
Maximum Green (s)	13.0	29.1	12.1
Yellow Time (s)	4.4	4.0	4.0
All-Red Time (s)	2.6	2.9	2.9
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead		
Lead-Lag Optimize?	Yes		
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

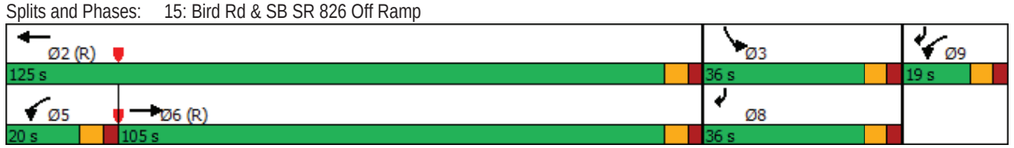
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		6		5 9	2					3		8 9
Switch Phase												
Minimum Initial (s)		7.0			7.0					7.0		
Minimum Split (s)		25.0			25.0					13.9		
Total Split (s)		105.0			125.0					36.0		
Total Split (%)		58.3%			69.4%					20.0%		
Maximum Green (s)		98.0			118.0					29.1		
Yellow Time (s)		4.4			4.4					4.0		
All-Red Time (s)		2.6			2.6					2.9		
Lost Time Adjust (s)		0.0			0.0					0.0		
Total Lost Time (s)		7.0			7.0					6.9		
Lead/Lag		Lag										
Lead-Lag Optimize?		Yes										
Vehicle Extension (s)		3.0			3.0					3.0		
Recall Mode		C-Max			C-Max					None		
Act Effct Green (s)		98.8		31.2	118.0					29.1		48.1
Actuated g/C Ratio		0.55		0.17	0.66					0.16		0.27
v/c Ratio		0.73		0.68	0.37					1.37		0.35
Control Delay		26.9		65.6	26.9					225.3		54.5
Queue Delay		3.9		0.0	0.4					0.0		0.0
Total Delay		30.9		65.6	27.3					225.3		54.5
LOS		C		E	C					F		D
Approach Delay		30.9			39.7						185.5	
Approach LOS		C			D						F	

Intersection Summary

Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 143 (79%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.37	
Intersection Signal Delay: 72.1	Intersection LOS: E
Intersection Capacity Utilization 80.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 15: Bird Rd & SB SR 826 Off Ramp



HCM 2010 Signalized Intersection Summary
15: Bird Rd & SB SR 826 Off Ramp 10/22/2018

HCM 2010 analysis does not support non-NEMA phasing.

HCM 6th Signalized Intersection Summary
15: Bird Rd & SB SR 826 Off Ramp 10/22/2018

HCM 6th Edition methodology does not support non-NEMA phasing.

Queues
15: Bird Rd & SB SR 826 Off Ramp

10/22/2018

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	2524	591	1236	1102	335
v/c Ratio	0.73	0.68	0.37	1.37	0.35
Control Delay	26.9	65.6	26.9	225.3	54.5
Queue Delay	3.9	0.0	0.4	0.0	0.0
Total Delay	30.9	65.6	27.3	225.3	54.5
Queue Length 50th (ft)	647	254	334	~605	141
Queue Length 95th (ft)	282	303	372	#700	183
Internal Link Dist (ft)	703		451		
Turn Bay Length (ft)				350	650
Base Capacity (vph)	3465	887	3333	806	964
Starvation Cap Reductn	184	0	1384	0	0
Spillback Cap Reductn	847	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.96	0.67	0.63	1.37	0.35

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.

HCM Signalized Intersection Capacity Analysis
15: Bird Rd & SB SR 826 Off Ramp

10/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2073	300	556	1162	0	0	0	0	1036	0	315
Future Volume (vph)	0	2073	300	556	1162	0	0	0	0	1036	0	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0					6.9		6.9
Lane Util. Factor		0.86		0.94	0.91					0.94		0.76
Frt		0.98		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		6286		4990	5085					4990		3610
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		6286		4990	5085					4990		3610
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)	0	2205	319	591	1236	0	0	0	0	1102	0	335
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2510	0	591	1236	0	0	0	0	1102	0	335
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		6		5 9	2					3		8 9
Permitted Phases												
Actuated Green, G (s)		98.8		31.2	118.0					29.1		48.1
Effective Green, g (s)		98.8		24.3	118.0					29.1		48.1
Actuated g/C Ratio		0.55		0.14	0.66					0.16		0.27
Clearance Time (s)		7.0			7.0					6.9		
Vehicle Extension (s)		3.0			3.0					3.0		
Lane Grp Cap (vph)		3450		673	3333					806		964
v/s Ratio Prot		c0.40		c0.12	0.24					c0.22		0.09
v/s Ratio Perm												
v/c Ratio		0.73		0.88	0.37					1.37		0.35
Uniform Delay, d1		30.5		76.4	14.1					75.5		53.3
Progression Factor		0.85		0.88	1.88					1.00		1.00
Incremental Delay, d2		1.2		11.2	0.3					173.2		0.2
Delay (s)		27.0		78.7	26.8					248.6		53.5
Level of Service		C		E	C					F		D
Approach Delay (s)		27.0			43.6		0.0			203.1		
Approach LOS		C			D		A			F		

Intersection Summary

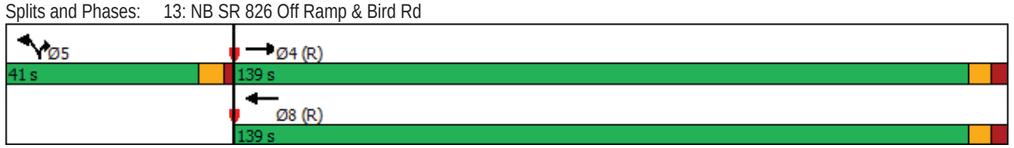
HCM 2000 Control Delay	76.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Detector Phase		4			8		5		5		
Switch Phase											
Minimum Initial (s)		7.0			7.0		7.0		7.0		
Minimum Split (s)		138.6			138.6		13.4		13.4		
Total Split (s)		139.0			139.0		41.0		41.0		
Total Split (%)		77.2%			77.2%		22.8%		22.8%		
Maximum Green (s)		131.7			131.7		34.6		34.6		
Yellow Time (s)		4.0			4.0		4.4		4.4		
All-Red Time (s)		3.3			3.3		2.0		2.0		
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		
Total Lost Time (s)		7.3			7.3		6.4		6.4		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)		3.0			3.0		3.0		3.0		
Recall Mode		C-Max			C-Max		None		None		
Act Effct Green (s)		131.7	180.0		131.7		34.6		34.6		
Actuated g/C Ratio		0.73	1.00		0.73		0.19		0.19		
v/c Ratio		0.70	0.43		0.51		0.45		1.44		
Control Delay		23.5	0.4		25.2		66.8		254.0		
Queue Delay		47.3	0.0		0.2		0.0		0.0		
Total Delay		70.8	0.4		25.4		66.8		254.0		
LOS		E	A		C		E		F		
Approach Delay		56.2			25.4			212.4			
Approach LOS		E			C			F			

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 38 (21%), Referenced to phase 4:EBT and 8:WBT, Start of Green		
Natural Cycle: 155		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.44		
Intersection Signal Delay: 76.0	Intersection LOS: E	
Intersection Capacity Utilization 81.9%	ICU Level of Service D	
Analysis Period (min) 15		

Splits and Phases: 13: NB SR 826 Off Ramp & Bird Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	2464	645	0	1438	738	280	0	979	0	0
Future Volume (vph)	0	2464	645	0	1438	738	280	0	979	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		300	300	0	0
Storage Lanes	0		1	0		0		1	1	0	0
Taper Length (ft)	25			25				25		25	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.86	0.86	0.97	1.00	0.76	1.00	1.00
Frt			0.850		0.949				0.850		
Flt Protected							0.950				
Satd. Flow (prot)	0	5085	1583	0	6081	0	3433	0	3610	0	0
Flt Permitted							0.950				
Satd. Flow (perm)	0	5085	1583	0	6081	0	3433	0	3610	0	0
Right Turn on Red			Yes			No			Yes		
Satd. Flow (RTOR)			157						26		
Link Speed (mph)		40			40			30		30	
Link Distance (ft)		531			722			1284		1049	
Travel Time (s)		9.1			12.3			29.2		23.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95
Adj. Flow (vph)	0	2594	679	0	1514	777	295	0	1031	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	2594	679	0	2291	0	295	0	1031	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(ft)		0			24			24		0	
Link Offset(ft)		0			0			0		0	
Crosswalk Width(ft)		16			16			16		16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	15	9	15	9
Number of Detectors		2	1		2		1		1		
Detector Template		Thru	Right		Thru		Left		Right		
Leading Detector (ft)		100	20		100		20		20		
Trailing Detector (ft)		0	0		0		0		0		
Detector 1 Position(ft)		0	0		0		0		0		
Detector 1 Size(ft)		6	20		6		20		20		
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)		0.0	0.0		0.0		0.0		0.0		
Detector 1 Queue (s)		0.0	0.0		0.0		0.0		0.0		
Detector 1 Delay (s)		0.0	0.0		0.0		0.0		0.0		
Detector 2 Position(ft)		94			94						
Detector 2 Size(ft)		6			6						
Detector 2 Type		Cl+Ex			Cl+Ex						
Detector 2 Channel											
Detector 2 Extend (s)		0.0			0.0						
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		4			8		5		5		
Permitted Phases			Free								

Queues
13: NB SR 826 Off Ramp & Bird Rd

10/22/2018

Lane Group	EBT	EBR	WBT	NBL2	NBR
Lane Group Flow (vph)	2594	679	2291	295	1031
v/c Ratio	0.70	0.43	0.51	0.45	1.44
Control Delay	23.5	0.4	25.2	66.8	254.0
Queue Delay	47.3	0.0	0.2	0.0	0.0
Total Delay	70.8	0.4	25.4	66.8	254.0
Queue Length 50th (ft)	993	0	595	160	~714
Queue Length 95th (ft)	m572	m0	633	212	#832
Internal Link Dist (ft)	451		642		
Turn Bay Length (ft)				300	300
Base Capacity (vph)	3720	1583	4449	659	714
Starvation Cap Reductn	1589	0	1067	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.22	0.43	0.68	0.45	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.

HCM 6th Signalized Intersection Summary
13: NB SR 826 Off Ramp & Bird Rd

10/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (veh/h)	0	2464	645	0	1438	738	280	0	979	0	0
Future Volume (veh/h)	0	2464	645	0	1438	738	280	0	979	0	0
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	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach		No			No			No			
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870		
Adj Flow Rate, veh/h	0	2594	0	0	1514	777	295	295	1031		
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	2	0	2	2	2	2	2		
Cap, veh/h	0	3736		0	3531	1160	664	664	695		
Arrive On Green	0.00	0.97	0.00	0.00	1.00	1.00	0.19	0.19	0.19		
Sat Flow, veh/h	0	5274	1585	0	5087	1585	3456	3456	3614		
Grp Volume(v), veh/h	0	2594	0	0	1514	777	295	295	1031		
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1585	1728	1728	1205		
Q Serve(g_s), s	0.0	7.6	0.0	0.0	0.0	0.0	13.6	13.6	34.6		
Cycle Q Clear(g_c), s	0.0	7.6	0.0	0.0	0.0	0.0	13.6	13.6	34.6		
Prop In Lane	0.00		1.00	0.00		1.00	1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	3736		0	3531	1160	664	664	695		
V/C Ratio(X)	0.00	0.69		0.00	0.43	0.67	0.44	0.44	1.48		
Avail Cap(c_a), veh/h	0	3736		0	3531	1160	664	664	695		
HCM Platoon Ratio	1.00	1.33	1.33	1.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.27	0.00	0.00	0.88	0.88	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.8	0.0	0.0	0.0	0.0	64.2	64.2	72.7		
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.3	2.7	0.5	0.5	225.5		
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	0.0	1.0	0.0	0.0	0.1	0.9	6.1	6.1	25.3		
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh	0.0	1.0	0.0	0.0	0.3	2.7	64.7	64.7	298.2		
LnGrp LOS	A	A		A	A	A	E	E	F		
Approach Vol, veh/h		2594	A		2291		1326	1326			
Approach Delay, s/veh		1.0			1.1		246.3	246.3			
Approach LOS		A			A		F	F			

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	41.0	139.0	139.0
Change Period (Y+Rc), s	6.4	* 7.3	* 7.3
Max Green Setting (Gmax), s	34.6	* 1.3E2	* 1.3E2
Max Q Clear Time (g_c+I1), s	36.6	9.6	2.0
Green Ext Time (p_c), s	0.0	62.0	41.3

Intersection Summary

HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	25.2			25.2	24.8	
Total Split (s)	150.0			150.0	30.0	
Total Split (%)	83.3%			83.3%	16.7%	
Maximum Green (s)	143.6			143.6	23.2	
Yellow Time (s)	4.4			4.4	4.0	
All-Red Time (s)	2.0			2.0	2.8	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.4			6.4	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	4			4	7	
Act Effct Green (s)	149.3			149.3	17.5	
Actuated g/C Ratio	0.83			0.83	0.10	
v/c Ratio	0.80			0.45	0.70	
Control Delay	5.6			0.6	89.0	
Queue Delay	1.4			0.0	0.0	
Total Delay	7.0			0.6	89.0	
LOS	A			A	F	
Approach Delay	7.0			0.6	89.0	
Approach LOS	A			A	F	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 144 (80%), Referenced to phase 2:EBWB, Start of Green		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.80		
Intersection Signal Delay: 8.3	Intersection LOS: A	
Intersection Capacity Utilization 81.2%	ICU Level of Service D	
Analysis Period (min) 15		

Splits and Phases: 11: SW 74 Ave & Bird Rd



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	3294	0	0	1847	182	44
Future Volume (vph)	3294	0	0	1847	182	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.95
Frt					0.971	
Flt Protected					0.961	
Satd. Flow (prot)	5085	0	0	5085	3372	0
Flt Permitted					0.961	
Satd. Flow (perm)	5085	0	0	5085	3372	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					3	
Link Speed (mph)	40			40	30	
Link Distance (ft)	722			1360	1004	
Travel Time (s)	12.3			23.2	22.8	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3361	0	0	1885	186	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3361	0	0	1885	231	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Right	Left	Right
Median Width(ft)	12			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (ft)	100			100	20	
Trailing Detector (ft)	0			0	0	
Detector 1 Position(ft)	0			0	0	
Detector 1 Size(ft)	6			6	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Detector Phase	2			2	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	

HCM 2010 Signalized Intersection Summary
11: SW 74 Ave & Bird Rd

10/22/2018

HCM 2010 Research does not support Non-NEMA phasing.

HCM 6th Signalized Intersection Summary
11: SW 74 Ave & Bird Rd

10/22/2018

HCM 6th Edition methodology does not support Non-NEMA phasing.

Queues
11: SW 74 Ave & Bird Rd

10/22/2018

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	3361	1885	231
v/c Ratio	0.80	0.45	0.70
Control Delay	5.6	0.6	89.0
Queue Delay	1.4	0.0	0.0
Total Delay	7.0	0.6	89.0
Queue Length 50th (ft)	237	9	137
Queue Length 95th (ft)	m301	22	182
Internal Link Dist (ft)	642	1280	924
Turn Bay Length (ft)			
Base Capacity (vph)	4218	4218	437
Starvation Cap Reductn	607	0	0
Spillback Cap Reductn	139	38	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.93	0.45	0.53

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

HCM Signalized Intersection Capacity Analysis
11: SW 74 Ave & Bird Rd

10/22/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	3294	0	0	1847	182	44
Future Volume (vph)	3294	0	0	1847	182	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4			6.4	6.8	
Lane Util. Factor	0.91			0.91	0.97	
Frt	1.00			1.00	0.97	
Flt Protected	1.00			1.00	0.96	
Satd. Flow (prot)	5085			5085	3372	
Flt Permitted	1.00			1.00	0.96	
Satd. Flow (perm)	5085			5085	3372	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3361	0	0	1885	186	45
RTOR Reduction (vph)	0	0	0	0	3	0
Lane Group Flow (vph)	3361	0	0	1885	228	0
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Actuated Green, G (s)	149.3			149.3	17.5	
Effective Green, g (s)	149.3			149.3	17.5	
Actuated g/C Ratio	0.83			0.83	0.10	
Clearance Time (s)	6.4			6.4	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	4217			4217	327	
v/s Ratio Prot	c0.66			0.37	c0.07	
v/s Ratio Perm						
v/c Ratio	0.80			0.45	0.70	
Uniform Delay, d1	7.7			4.2	78.7	
Progression Factor	0.59			0.08	1.00	
Incremental Delay, d2	0.7			0.3	6.4	
Delay (s)	5.2			0.6	85.1	
Level of Service	A			A	F	
Approach Delay (s)	5.2			0.6	85.1	
Approach LOS	A			A	F	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	7.0
Minimum Split (s)	11.4	24.4		11.4	24.4		11.7	30.7		11.7	13.7	13.7
Total Split (s)	26.0	132.0		12.0	118.0		16.0	21.0		15.0	20.0	20.0
Total Split (%)	14.4%	73.3%		6.7%	65.6%		8.9%	11.7%		8.3%	11.1%	11.1%
Maximum Green (s)	19.6	125.6		5.6	111.6		9.3	14.3		8.3	13.3	13.3
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	2.7
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)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			5.0				
Flash Dont Walk (s)		11.0			11.0			19.0				
Pedestrian Calls (#/hr)		4			0			6				
Act Effct Green (s)	137.4	125.6		119.5	113.9		23.6	14.3		21.6	13.3	13.3
Actuated g/C Ratio	0.76	0.70		0.66	0.63		0.13	0.08		0.12	0.07	0.07
v/c Ratio	0.87	1.01		1.08	0.61		0.70	1.03		0.79	0.94	0.36
Control Delay	55.4	40.3		156.2	21.1		92.9	123.0		107.0	142.5	4.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	55.4	40.3		156.2	21.1		92.9	123.0		107.0	142.5	4.8
LOS	E	D		F	C		F	F		F	F	A
Approach Delay		41.2			27.9			116.0			92.7	
Approach LOS		D			C			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 132 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 44.3		Intersection LOS: D	
Intersection Capacity Utilization 109.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 8: SW 72 Ave & Bird Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	207	3177	253	101	1874	36	95	180	137	94	125	86
Future Volume (vph)	207	3177	253	101	1874	36	95	180	137	94	125	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	360		0	330		0	300		0	220		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	50			50			50			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.989			0.997			0.935				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5029	0	1770	5070	0	1770	3309	0	1770	1863	1583
Flt Permitted	0.062			0.035			0.336			0.301		
Satd. Flow (perm)	115	5029	0	65	5070	0	626	3309	0	561	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			3			58				139
Link Speed (mph)		40			40			30			35	
Link Distance (ft)		1360			1017			1024			1018	
Travel Time (s)		23.2			17.3			23.3			19.8	
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
Adj. Flow (vph)	213	3275	261	104	1932	37	98	186	141	97	129	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	213	3536	0	104	1969	0	98	327	0	97	129	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8

Queues
8: SW 72 Ave & Bird Rd

10/22/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	213	3536	104	1969	98	327	97	129	89
v/c Ratio	0.87	1.01	1.08	0.61	0.70	1.03	0.79	0.94	0.36
Control Delay	55.4	40.3	156.2	21.1	92.9	123.0	107.0	142.5	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	40.3	156.2	21.1	92.9	123.0	107.0	142.5	4.8
Queue Length 50th (ft)	157	~1238	~88	510	104	~182	103	155	0
Queue Length 95th (ft)	m#240	#1615	#229	552	#186	#295	#170	#301	3
Internal Link Dist (ft)		1280		937		944		938	
Turn Bay Length (ft)	360		330		300		220		250
Base Capacity (vph)	268	3514	96	3210	141	316	123	137	245
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	0.79	1.01	1.08	0.61	0.70	1.03	0.79	0.94	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 6th Signalized Intersection Summary
8: SW 72 Ave & Bird Rd

10/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	3177	253	101	1874	36	95	180	137	94	125	86
Future Volume (veh/h)	207	3177	253	101	1874	36	95	180	137	94	125	86
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	3275	261	104	1932	37	98	186	141	97	129	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	242	3380	263	123	3483	67	139	157	113	122	138	
Arrive On Green	0.11	1.00	1.00	0.03	0.68	0.68	0.05	0.08	0.08	0.05	0.07	0.00
Sat Flow, veh/h	1781	4832	375	1781	5158	99	1781	1976	1417	1781	1870	1585
Grp Volume(v), veh/h	213	2282	1254	104	1275	694	98	166	161	97	129	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1803	1781	1702	1853	1781	1777	1615	1781	1870	1585
Q Serve(g_s), s	7.2	0.0	0.0	3.3	35.0	35.0	9.2	14.3	14.3	8.3	12.3	0.0
Cycle Q Clear(g_c), s	7.2	0.0	0.0	3.3	35.0	35.0	9.2	14.3	14.3	8.3	12.3	0.0
Prop In Lane	1.00		0.21	1.00		0.05	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	242	2381	1261	123	2299	1251	139	141	128	122	138	
V/C Ratio(X)	0.88	0.96	0.99	0.84	0.55	0.56	0.71	1.18	1.25	0.79	0.93	
Avail Cap(c_a), veh/h	341	2381	1261	126	2299	1251	139	141	128	122	138	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.50	0.50	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.2	0.0	0.0	31.3	15.2	15.2	73.3	82.8	82.9	75.2	82.9	0.0
Incr Delay (d2), s/veh	9.5	6.5	16.6	37.4	1.0	1.8	15.1	131.3	162.5	29.3	56.6	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(50%),veh/ln	6.8	2.1	5.8	4.2	13.5	15.0	4.8	11.8	11.8	1.4	8.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.8	6.5	16.6	68.7	16.1	17.0	88.4	214.2	245.3	104.5	139.5	0.0
LnGrp LOS	C	A	B	E	B	B	F	F	F	F	F	
Approach Vol, veh/h		3749			2073			425			226	A
Approach Delay, s/veh		11.4			19.0			197.0			124.5	
Approach LOS		B			B			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	128.0	15.0	21.0	11.7	132.3	16.0	20.0
Change Period (Y+Rc), s	6.4	6.4	* 6.7	* 6.7	6.4	6.4	* 6.7	* 6.7
Max Green Setting (Gmax), s	19.6	111.6	* 8.3	* 14	5.6	125.6	* 9.3	* 13
Max Q Clear Time (g_c+I1), s	9.2	37.0	10.3	16.3	5.3	2.0	11.2	14.3
Green Ext Time (p_c), s	0.4	25.3	0.0	0.0	0.0	105.4	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4	4 5	3	3	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.0	30.0		12.0	30.0		26.0	26.0		26.0	26.0	
Total Split (s)	15.0	83.0		37.0	105.0		30.0	30.0		30.0	30.0	
Total Split (%)	8.3%	46.1%		20.6%	58.3%		16.7%	16.7%		16.7%	16.7%	
Maximum Green (s)	8.0	76.0		30.0	98.0		22.0	22.0		22.0	22.0	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		18.0			18.0		13.0	13.0		10.0	10.0	
Pedestrian Calls (#/hr)		0			0		3	3		8	8	
Act Effct Green (s)	19.7	110.2		12.1	102.5		9.4	9.4	28.5	18.4	18.4	
Actuated g/C Ratio	0.11	0.61		0.07	0.57		0.05	0.05	0.16	0.10	0.10	
v/c Ratio	0.53	0.37		0.56	0.71		0.16	0.11	0.21	0.76	0.68	
Control Delay	85.3	18.8		78.0	26.9		83.2	81.3	10.2	105.0	81.2	
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0	0.0	0.0	0.0	
Total Delay	85.3	18.8		78.0	27.1		83.2	81.3	10.2	105.0	81.2	
LOS	F	B		E	C		F	F	B	F	F	
Approach Delay		23.1			29.5			30.8			93.3	
Approach LOS		C			C			C			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 157 (87%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 30.9		Intersection LOS: C	
Intersection Capacity Utilization 74.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: SW 79 Ave & Bird Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1397	19	125	2275	223	15	11	64	156	33	62
Future Volume (vph)	100	1397	19	125	2275	223	15	11	64	156	33	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325		0	265		0	0		0	150		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	100			100			25			75		
Lane Util. Factor	1.00	0.86	0.86	0.97	0.86	0.86	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.998			0.987				0.850		0.925	
Flt Protected	0.950			0.950			0.950			0.950	0.989	
Satd. Flow (prot)	1770	6395	0	3433	6325	0	1770	1863	1583	1681	1619	0
Flt Permitted	0.950			0.950			0.950			0.950	0.989	
Satd. Flow (perm)	1770	6395	0	3433	6325	0	1770	1863	1583	1681	1619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			20				73		23	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		363			687			1051			1028	
Travel Time (s)		6.2			11.7			23.9			23.4	
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
Adj. Flow (vph)	102	1426	19	128	2321	228	15	11	65	159	34	63
Shared Lane Traffic (%)										18%		
Lane Group Flow (vph)	102	1445	0	128	2549	0	15	11	65	130	126	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												

HCM 2010 Signalized Intersection Summary
3: SW 79 Ave & Bird Rd

10/22/2018

HCM 2010 analysis expects strict NEMA phasing.

HCM 6th Signalized Intersection Summary
3: SW 79 Ave & Bird Rd

10/22/2018

HCM 6th Edition methodology expects strict NEMA phasing.

Queues
3: SW 79 Ave & Bird Rd

10/22/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	102	1445	128	2549	15	11	65	130	126
v/c Ratio	0.53	0.37	0.56	0.71	0.16	0.11	0.21	0.76	0.68
Control Delay	85.3	18.8	78.0	26.9	83.2	81.3	10.2	105.0	81.2
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	85.3	18.8	78.0	27.1	83.2	81.3	10.2	105.0	81.2
Queue Length 50th (ft)	116	234	75	451	18	13	0	160	125
Queue Length 95th (ft)	#242	328	0	488	43	35	37	242	206
Internal Link Dist (ft)		283		607		971			948
Turn Bay Length (ft)	325		265					150	
Base Capacity (vph)	194	3914	572	3610	216	227	455	205	218
Starvation Cap Reductn	0	0	0	251	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	0.53	0.37	0.22	0.76	0.07	0.05	0.14	0.63	0.58

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
3: SW 79 Ave & Bird Rd

10/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1397	19	125	2275	223	15	11	64	156	33	62
Future Volume (vph)	100	1397	19	125	2275	223	15	11	64	156	33	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		8.0	8.0	8.0	8.0	8.0	
Lane Util. Factor	1.00	0.86		0.97	0.86		1.00	1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.99	
Satd. Flow (prot)	1770	6395		3433	6322		1770	1863	1583	1681	1618	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.99	
Satd. Flow (perm)	1770	6395		3433	6322		1770	1863	1583	1681	1618	
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)	102	1426	19	128	2321	228	15	11	65	159	34	63
RTOR Reduction (vph)	0	1	0	0	9	0	0	0	54	0	21	0
Lane Group Flow (vph)	102	1444	0	128	2540	0	15	11	11	130	105	0
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												
Actuated Green, G (s)	19.7	110.1		12.1	102.5		9.4	9.4	29.5	18.4	18.4	
Effective Green, g (s)	19.7	110.1		12.1	102.5		9.4	9.4	29.5	18.4	18.4	
Actuated g/C Ratio	0.11	0.61		0.07	0.57		0.05	0.05	0.16	0.10	0.10	
Clearance Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	193	3911		230	3600		92	97	259	171	165	
v/s Ratio Prot	c0.06	c0.23		0.04	c0.40		c0.01	0.01	0.01	c0.08	0.07	
v/s Ratio Perm												
v/c Ratio	0.53	0.37		0.56	0.71		0.16	0.11	0.04	0.76	0.64	
Uniform Delay, d1	75.8	17.5		81.4	27.9		81.5	81.3	63.3	78.7	77.6	
Progression Factor	1.00	1.00		0.87	0.92		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.6	0.3		2.3	1.0		0.8	0.5	0.1	17.9	7.9	
Delay (s)	78.4	17.8		73.1	26.7		82.4	81.8	63.4	96.5	85.5	
Level of Service	E	B		E	C		F	F	E	F	F	
Approach Delay (s)		21.8			28.9			68.8			91.1	
Approach LOS		C			C			E			F	

Intersection Summary

HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

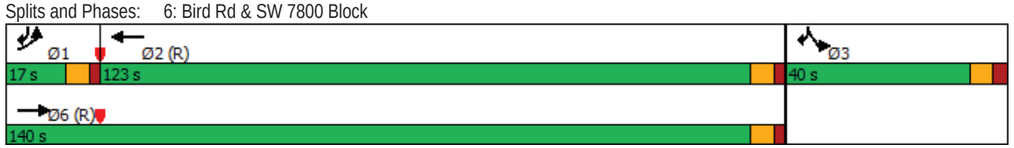
c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	71	1546	2483	305	182	106
Future Volume (vph)	71	1546	2483	305	182	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230			0	0	100
Storage Lanes	2			0	2	1
Taper Length (ft)	100				25	
Lane Util. Factor	0.97	0.86	0.86	0.86	0.97	1.00
Frt			0.984			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	6408	6305	0	3433	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	6408	6305	0	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			34			4
Link Speed (mph)		40	40		30	
Link Distance (ft)		687	783		1012	
Travel Time (s)		11.7	13.3		23.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	73	1594	2560	314	188	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	1594	2874	0	188	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		3	3 1
Permitted Phases						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2		3	3 1
Switch Phase						
Minimum Initial (s)	5.0	7.0	7.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		25.0	
Total Split (s)	17.0	140.0	123.0		40.0	
Total Split (%)	9.4%	77.8%	68.3%		22.2%	
Maximum Green (s)	10.6	133.6	116.6		33.0	
Yellow Time (s)	4.4	4.4	4.4		4.0	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		7.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	9.2	150.3	134.7		16.3	31.9
Actuated g/C Ratio	0.05	0.84	0.75		0.09	0.18
v/c Ratio	0.42	0.30	0.61		0.61	0.39
Control Delay	80.5	8.2	18.1		86.7	65.7
Queue Delay	0.0	0.0	0.5		0.0	0.0
Total Delay	80.5	8.2	18.7		86.7	65.7
LOS	F	A	B		F	E
Approach Delay		11.4	18.7		79.0	
Approach LOS		B	B		E	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 6 (3%), Referenced to phase 2:WBT and 6:EBT, Start of Green		
Natural Cycle: 80		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.61		
Intersection Signal Delay: 19.9	Intersection LOS: B	
Intersection Capacity Utilization 58.8%	ICU Level of Service B	
Analysis Period (min) 15		

Splits and Phases: 6: Bird Rd & SW 7800 Block



Queues
6: Bird Rd & SW 7800 Block

10/22/2018

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	73	1594	2874	188	109
v/c Ratio	0.42	0.30	0.61	0.61	0.39
Control Delay	80.5	8.2	18.1	86.7	65.7
Queue Delay	0.0	0.0	0.5	0.0	0.0
Total Delay	80.5	8.2	18.7	86.7	65.7
Queue Length 50th (ft)	41	294	497	112	111
Queue Length 95th (ft)	m59	211	m542	153	169
Internal Link Dist (ft)		607	703	932	
Turn Bay Length (ft)	230				100
Base Capacity (vph)	206	5351	4728	629	310
Starvation Cap Reductn	0	0	1227	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.30	0.82	0.30	0.35

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

HCM 6th Signalized Intersection Summary
6: Bird Rd & SW 7800 Block

10/22/2018

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	71	1546	2483	305	182	106
Future Volume (veh/h)	71	1546	2483	305	182	106
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	1594	2560	314	188	109
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	108	5429	4552	551	283	179
Arrive On Green	0.06	1.00	0.78	0.78	0.08	0.08
Sat Flow, veh/h	3456	6696	6121	709	3456	1585
Grp Volume(v), veh/h	73	1594	2103	771	188	109
Grp Sat Flow(s),veh/h/ln	1728	1609	1609	1743	1728	1585
Q Serve(g_s), s	3.7	0.0	31.0	31.9	9.5	11.8
Cycle Q Clear(g_c), s	3.7	0.0	31.0	31.9	9.5	11.8
Prop In Lane	1.00			0.41	1.00	1.00
Lane Grp Cap(c), veh/h	108	5429	3749	1354	283	179
V/C Ratio(X)	0.68	0.29	0.56	0.57	0.67	0.61
Avail Cap(c_a), veh/h	204	5429	3749	1354	634	340
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.62	0.62	1.00	1.00
Uniform Delay (d), s/veh	83.5	0.0	7.9	8.0	80.2	76.0
Incr Delay (d2), s/veh	6.7	0.1	0.4	1.1	2.7	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	9.8	11.2	4.4	5.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	90.1	0.1	8.3	9.1	82.9	79.3
LnGrp LOS	F	A	A	A	F	E
Approach Vol, veh/h		1667	2874		297	
Approach Delay, s/veh		4.1	8.5		81.6	
Approach LOS		A	A		F	

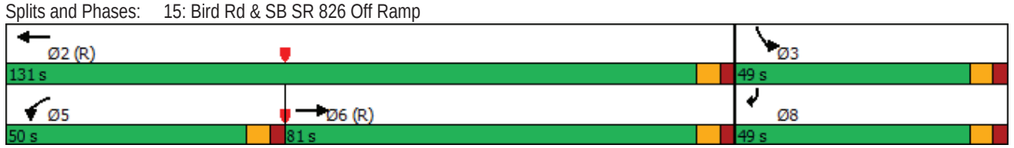
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.0	146.2			158.3	21.7
Change Period (Y+Rc), s	6.4	6.4			6.4	7.0
Max Green Setting (Gmax), s	10.6	116.6			133.6	33.0
Max Q Clear Time (g_c+I1), s	5.7	33.9			2.0	13.8
Green Ext Time (p_c), s	0.1	53.7			18.7	0.9

Intersection Summary		
HCM 6th Ctrl Delay	11.5	
HCM 6th LOS	B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		6		5	2					3		8
Switch Phase												
Minimum Initial (s)		7.0		5.0	7.0					7.0		7.0
Minimum Split (s)		25.0		12.0	25.0					13.9		24.9
Total Split (s)		81.0		50.0	131.0					49.0		49.0
Total Split (%)		45.0%		27.8%	72.8%					27.2%		27.2%
Maximum Green (s)		74.0		43.0	124.0					42.1		42.1
Yellow Time (s)		4.4		4.4	4.4					4.0		4.0
All-Red Time (s)		2.6		2.6	2.6					2.9		2.9
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		7.0		7.0	7.0					6.9		6.9
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Act Effct Green (s)		79.7		37.3	124.0					42.1		42.1
Actuated g/C Ratio		0.44		0.21	0.69					0.23		0.23
v/c Ratio		0.61		0.85	0.57					0.52		1.05
Control Delay		20.7		69.6	23.1					61.9		109.8
Queue Delay		0.4		0.1	2.4					0.0		0.0
Total Delay		21.0		69.8	25.5					61.9		109.8
LOS		C		E	C					E		F
Approach Delay		21.0			39.0						90.5	
Approach LOS		C			D						F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 157 (87%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 46.6		Intersection LOS: D	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 15: Bird Rd & SB SR 826 Off Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1439	218	849	1940	0	0	0	0	585	0	861
Future Volume (vph)	0	1439	218	849	1940	0	0	0	0	585	0	861
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	350		650
Storage Lanes	0		0	3		0	0		0	2		1
Taper Length (ft)	25			25			25			100		
Lane Util. Factor	1.00	0.86	0.86	0.94	0.91	1.00	1.00	1.00	1.00	0.94	1.00	0.76
Frt		0.980										0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	6280	0	4990	5085	0	0	0	0	4990	0	3610
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	6280	0	4990	5085	0	0	0	0	4990	0	3610
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		26										
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		783			531			599			1309	
Travel Time (s)		13.3			9.1			13.6			29.8	
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
Adj. Flow (vph)	0	1484	225	875	2000	0	0	0	0	603	0	888
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1709	0	875	2000	0	0	0	0	603	0	888
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1		1
Detector Template		Thru		Left	Thru					Left		Right
Leading Detector (ft)		100		20	100					20		20
Trailing Detector (ft)		0		0	0					0		0
Detector 1 Position(ft)		0		0	0					0		0
Detector 1 Size(ft)		6		20	6					20		20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Prot	NA					Prot		Prot
Protected Phases		6		5	2					3		8
Permitted Phases												

Queues
15: Bird Rd & SB SR 826 Off Ramp

10/22/2018

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1709	875	2000	603	888
v/c Ratio	0.61	0.85	0.57	0.52	1.05
Control Delay	20.7	69.6	23.1	61.9	109.8
Queue Delay	0.4	0.1	2.4	0.0	0.0
Total Delay	21.0	69.8	25.5	61.9	109.8
Queue Length 50th (ft)	196	375	532	222	~499
Queue Length 95th (ft)	212	411	592	267	#615
Internal Link Dist (ft)	703		451		
Turn Bay Length (ft)				350	650
Base Capacity (vph)	2795	1192	3503	1167	844
Starvation Cap Reductn	0	25	1328	0	0
Spillback Cap Reductn	485	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.75	0.92	0.52	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 6th Signalized Intersection Summary
15: Bird Rd & SB SR 826 Off Ramp

10/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1439	218	849	1940	0	0	0	0	585	0	861
Future Volume (veh/h)	0	1439	218	849	1940	0	0	0	0	585	0	861
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1484	0	875	2000	0				603	0	888
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	2	2	2	0				2	0	2
Cap, veh/h	0	2907		996	3518	0				1175	0	845
Arrive On Green	0.00	0.60	0.00	0.07	0.23	0.00				0.23	0.00	0.23
Sat Flow, veh/h	0	6958	0	5023	5274	0				5023	0	3614
Grp Volume(v), veh/h	0	1484	0	875	2000	0				603	0	888
Grp Sat Flow(s),veh/h/ln	0	1609	0	1674	1702	0				1674	0	1205
Q Serve(g_s), s	0.0	23.9	0.0	31.1	62.6	0.0				18.8	0.0	42.1
Cycle Q Clear(g_c), s	0.0	23.9	0.0	31.1	62.6	0.0				18.8	0.0	42.1
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2907		996	3518	0				1175	0	845
V/C Ratio(X)	0.00	0.51		0.88	0.57	0.00				0.51	0.00	1.05
Avail Cap(c_a), veh/h	0	2907		1200	3518	0				1175	0	845
HCM Platoon Ratio	1.00	1.33	1.33	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.95	0.00	0.62	0.62	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	24.5	0.0	82.0	45.8	0.0				60.0	0.0	68.9
Incr Delay (d2), s/veh	0.0	0.6	0.0	4.3	0.4	0.0				0.4	0.0	45.1
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	0.0	8.4	0.0	14.5	28.8	0.0				8.1	0.0	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.1	0.0	86.3	46.2	0.0				60.4	0.0	114.0
LnGrp LOS	A	C		F	D	A				E	A	F
Approach Vol, veh/h		1484	A		2875						1491	
Approach Delay, s/veh		25.1			58.4						92.3	
Approach LOS		C			E						F	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		131.0			42.7	88.3		49.0				
Change Period (Y+Rc), s		7.0			7.0	7.0		6.9				
Max Green Setting (Gmax), s		124.0			43.0	74.0		42.1				
Max Q Clear Time (g_c+I1), s		64.6			33.1	25.9		44.1				
Green Ext Time (p_c), s		26.5			2.6	14.8		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			58.6									
HCM 6th LOS			E									

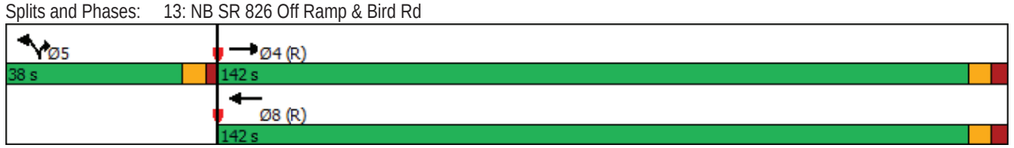
Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Detector Phase		4			8		5		5		
Switch Phase											
Minimum Initial (s)		7.0			7.0		7.0		7.0		
Minimum Split (s)		138.6			138.6		13.4		13.4		
Total Split (s)		142.0			142.0		38.0		38.0		
Total Split (%)		78.9%			78.9%		21.1%		21.1%		
Maximum Green (s)		134.7			134.7		31.6		31.6		
Yellow Time (s)		4.0			4.0		4.4		4.4		
All-Red Time (s)		3.3			3.3		2.0		2.0		
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		
Total Lost Time (s)		7.3			7.3		6.4		6.4		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)		3.0			3.0		3.0		3.0		
Recall Mode		C-Max			C-Max		None		None		
Act Effct Green (s)		136.2	180.0		136.2		30.1		30.1		
Actuated g/C Ratio		0.76	1.00		0.76		0.17		0.17		
v/c Ratio		0.44	0.23		0.70		0.82		0.89		
Control Delay		20.0	0.3		9.6		84.8		74.8		
Queue Delay		0.7	0.0		0.6		0.0		0.0		
Total Delay		20.7	0.3		10.2		84.8		74.8		
LOS		C	A		B		F		E		
Approach Delay		17.1			10.2			79.1			
Approach LOS		B			B			E			

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 16 (9%), Referenced to phase 4:EBT and 8:WBT, Start of Green		
Natural Cycle: 155		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.89		
Intersection Signal Delay: 24.1	Intersection LOS: C	
Intersection Capacity Utilization 71.1%	ICU Level of Service C	
Analysis Period (min) 15		

Splits and Phases: 13: NB SR 826 Off Ramp & Bird Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	1663	361	0	2605	642	462	0	614	0	0
Future Volume (vph)	0	1663	361	0	2605	642	462	0	614	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		300	300	0	0
Storage Lanes	0		1	0		0		1	1	0	0
Taper Length (ft)	25			25				25		25	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.86	0.86	0.97	1.00	0.76	1.00	1.00
Frt			0.850		0.970				0.850		
Flt Protected							0.950				
Satd. Flow (prot)	0	5085	1583	0	6216	0	3433	0	3610	0	0
Flt Permitted							0.950				
Satd. Flow (perm)	0	5085	1583	0	6216	0	3433	0	3610	0	0
Right Turn on Red			Yes			No			Yes		
Satd. Flow (RTOR)			130						119		
Link Speed (mph)		40			40			30		30	
Link Distance (ft)		531			722			1285		1123	
Travel Time (s)		9.1			12.3			29.2		25.5	
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
Adj. Flow (vph)	0	1697	368	0	2658	655	471	0	627	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	1697	368	0	3313	0	471	0	627	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(ft)		0			24			24		0	
Link Offset(ft)		0			0			0		0	
Crosswalk Width(ft)		16			16			16		16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	15	9	15	9
Number of Detectors		2	1		2		1		1		
Detector Template		Thru	Right		Thru		Left		Right		
Leading Detector (ft)		100	20		100		20		20		
Trailing Detector (ft)		0	0		0		0		0		
Detector 1 Position(ft)		0	0		0		0		0		
Detector 1 Size(ft)		6	20		6		20		20		
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)		0.0	0.0		0.0		0.0		0.0		
Detector 1 Queue (s)		0.0	0.0		0.0		0.0		0.0		
Detector 1 Delay (s)		0.0	0.0		0.0		0.0		0.0		
Detector 2 Position(ft)		94			94						
Detector 2 Size(ft)		6			6						
Detector 2 Type		Cl+Ex			Cl+Ex						
Detector 2 Channel											
Detector 2 Extend (s)		0.0			0.0						
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		4			8		5		5		
Permitted Phases			Free								

Queues
13: NB SR 826 Off Ramp & Bird Rd

10/22/2018

Lane Group	EBT	EBR	WBT	NBL2	NBR
Lane Group Flow (vph)	1697	368	3313	471	627
v/c Ratio	0.44	0.23	0.70	0.82	0.89
Control Delay	20.0	0.3	9.6	84.8	74.8
Queue Delay	0.7	0.0	0.6	0.0	0.0
Total Delay	20.7	0.3	10.2	84.8	74.8
Queue Length 50th (ft)	524	0	472	278	264
Queue Length 95th (ft)	565	0	429	346	329
Internal Link Dist (ft)	451		642		
Turn Bay Length (ft)				300	300
Base Capacity (vph)	3846	1583	4701	602	731
Starvation Cap Reductn	1647	0	872	0	0
Spillback Cap Reductn	41	0	404	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.23	0.87	0.78	0.86

Intersection Summary

HCM 6th Signalized Intersection Summary
13: NB SR 826 Off Ramp & Bird Rd

10/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (veh/h)	0	1663	361	0	2605	642	462	0	614	0	0
Future Volume (veh/h)	0	1663	361	0	2605	642	462	0	614	0	0
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	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach		No			No			No			
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870		
Adj Flow Rate, veh/h	0	1697	0	0	2658	655	471	471	627		
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	0	2	2	2	2	2		
Cap, veh/h	0	3821		0	3929	917	607	607	634		
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.18	0.18	0.18		
Sat Flow, veh/h	0	5274	1585	0	5513	1225	3456	3456	3614		
Grp Volume(v), veh/h	0	1697	0	0	2431	882	471	471	627		
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1650	1728	1728	1205		
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	23.4	23.4	31.2		
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	23.4	23.4	31.2		
Prop In Lane	0.00		1.00	0.00		0.74	1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	3821		0	3611	1235	607	607	634		
V/C Ratio(X)	0.00	0.44		0.00	0.67	0.71	0.78	0.78	0.99		
Avail Cap(c_a), veh/h	0	3821		0	3611	1235	607	607	634		
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.78	0.00	0.00	0.39	0.39	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	70.8	70.8	74.0		
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.4	1.4	6.3	6.3	32.7		
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(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.5	11.0	11.0	11.6		
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh	0.0	0.3	0.0	0.0	0.4	1.4	77.1	77.1	106.7		
LnGrp LOS	A	A		A	A	A	E	E	F		
Approach Vol, veh/h		1697	A		3313		1098	1098			
Approach Delay, s/veh		0.3			0.7		94.0	94.0			
Approach LOS		A			A		F	F			

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	38.0	142.0	142.0
Change Period (Y+Rc), s	6.4	* 7.3	* 7.3
Max Green Setting (Gmax), s	31.6	* 1.3E2	* 1.3E2
Max Q Clear Time (g_c+I1), s	33.2	2.0	2.0
Green Ext Time (p_c), s	0.0	21.4	94.5

Intersection Summary	
HCM 6th Ctrl Delay	17.3
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	25.2			25.2	24.8	
Total Split (s)	125.0			125.0	55.0	
Total Split (%)	69.4%			69.4%	30.6%	
Maximum Green (s)	118.6			118.6	48.2	
Yellow Time (s)	4.4			4.4	4.0	
All-Red Time (s)	2.0			2.0	2.8	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.4			6.4	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	3			3	3	
Act Effct Green (s)	120.4			120.4	46.4	
Actuated g/C Ratio	0.67			0.67	0.26	
v/c Ratio	0.65			0.84	0.93	
Control Delay	5.7			33.2	82.4	
Queue Delay	0.1			0.4	0.0	
Total Delay	5.8			33.6	82.4	
LOS	A			C	F	
Approach Delay	5.8			33.6	82.4	
Approach LOS	A			C	F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 11 (6%), Referenced to phase 2:EBWB, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 30.0		Intersection LOS: C	
Intersection Capacity Utilization 86.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 11: SW 74 Ave & Bird Rd



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2101	0	0	2719	748	35
Future Volume (vph)	2101	0	0	2719	748	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.95
Frt					0.993	
Flt Protected					0.954	
Satd. Flow (prot)	5085	0	0	5085	3423	0
Flt Permitted					0.954	
Satd. Flow (perm)	5085	0	0	5085	3423	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					3	
Link Speed (mph)	40			40	30	
Link Distance (ft)	722			1360	1047	
Travel Time (s)	12.3			23.2	23.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2212	0	0	2862	787	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2212	0	0	2862	824	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Right	Left	Right
Median Width(ft)	12			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (ft)	100			100	20	
Trailing Detector (ft)	0			0	0	
Detector 1 Position(ft)	0			0	0	
Detector 1 Size(ft)	6			6	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Detector Phase	2			2	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	

HCM 2010 Signalized Intersection Summary
11: SW 74 Ave & Bird Rd 10/22/2018

HCM 2010 Research does not support Non-NEMA phasing.

HCM 6th Signalized Intersection Summary
11: SW 74 Ave & Bird Rd 10/22/2018

HCM 6th Edition methodology does not support Non-NEMA phasing.

Queues
11: SW 74 Ave & Bird Rd

10/22/2018

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	2212	2862	824
v/c Ratio	0.65	0.84	0.93
Control Delay	5.7	33.2	82.4
Queue Delay	0.1	0.4	0.0
Total Delay	5.8	33.6	82.4
Queue Length 50th (ft)	244	1118	487
Queue Length 95th (ft)	259	m1097	#594
Internal Link Dist (ft)	642	1280	967
Turn Bay Length (ft)			
Base Capacity (vph)	3402	3402	918
Starvation Cap Reductn	247	168	0
Spillback Cap Reductn	0	13	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.70	0.88	0.90

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
11: SW 74 Ave & Bird Rd

10/22/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2101	0	0	2719	748	35
Future Volume (vph)	2101	0	0	2719	748	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4			6.4	6.8	
Lane Util. Factor	0.91			0.91	0.97	
Frt	1.00			1.00	0.99	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	5085			5085	3426	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	5085			5085	3426	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2212	0	0	2862	787	37
RTOR Reduction (vph)	0	0	0	0	2	0
Lane Group Flow (vph)	2212	0	0	2862	822	0
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Actuated Green, G (s)	120.4			120.4	46.4	
Effective Green, g (s)	120.4			120.4	46.4	
Actuated g/C Ratio	0.67			0.67	0.26	
Clearance Time (s)	6.4			6.4	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3401			3401	883	
v/s Ratio Prot	0.43			c0.56	c0.24	
v/s Ratio Perm						
v/c Ratio	0.65			0.84	0.93	
Uniform Delay, d1	17.5			22.6	65.2	
Progression Factor	0.27			1.35	1.00	
Incremental Delay, d2	0.8			1.7	16.0	
Delay (s)	5.6			32.3	81.3	
Level of Service	A			C	F	
Approach Delay (s)	5.6			32.3	81.3	
Approach LOS	A			C	F	

Intersection Summary

HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	7.0
Minimum Split (s)	11.4	24.4		11.4	24.4		11.7	30.7		11.7	24.7	24.7
Total Split (s)	12.0	102.0		26.0	116.0		27.0	30.0		22.0	25.0	25.0
Total Split (%)	6.7%	56.7%		14.4%	64.4%		15.0%	16.7%		12.2%	13.9%	13.9%
Maximum Green (s)	5.6	95.6		19.6	109.6		20.3	23.3		15.3	18.3	18.3
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	2.7
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)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			5.0				
Flash Dont Walk (s)		11.0			11.0			19.0				
Pedestrian Calls (#/hr)		5			5			0				
Act Effct Green (s)	111.2	105.6		118.8	109.6		45.0	27.0		29.9	18.3	18.3
Actuated g/C Ratio	0.62	0.59		0.66	0.61		0.25	0.15		0.17	0.10	0.10
v/c Ratio	1.09	0.70		0.54	0.70		0.87	0.68		0.42	0.81	1.32
Control Delay	148.0	47.0		33.8	25.6		88.2	58.6		60.7	108.4	200.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	148.0	47.0		33.8	25.6		88.2	58.6		60.7	108.4	200.8
LOS	F	D		C	C		F	E		E	F	F
Approach Delay		52.3			25.9			69.5			159.3	
Approach LOS		D			C			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 142 (79%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.32			
Intersection Signal Delay: 55.2		Intersection LOS: E	
Intersection Capacity Utilization 93.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 8: SW 72 Ave & Bird Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	1929	112	79	2079	68	229	201	191	78	151	372
Future Volume (vph)	112	1929	112	79	2079	68	229	201	191	78	151	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	360		0	330		0	300		0	220		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	50			50			50			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.992			0.995			0.927				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5045	0	1770	5060	0	1770	3281	0	1770	1863	1583
Flt Permitted	0.045			0.047			0.263			0.387		
Satd. Flow (perm)	84	5045	0	88	5060	0	490	3281	0	721	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			5			111				139
Link Speed (mph)		40			40			30			35	
Link Distance (ft)		1360			1024			1071			1022	
Travel Time (s)		23.2			17.5			24.3			19.9	
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
Adj. Flow (vph)	113	1948	113	80	2100	69	231	203	193	79	153	376
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	2061	0	80	2169	0	231	396	0	79	153	376
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8

Queues
8: SW 72 Ave & Bird Rd

10/22/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	113	2061	80	2169	231	396	79	153	376
v/c Ratio	1.09	0.70	0.54	0.70	0.87	0.68	0.42	0.81	1.32
Control Delay	148.0	47.0	33.8	25.6	88.2	58.6	60.7	108.4	200.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	148.0	47.0	33.8	25.6	88.2	58.6	60.7	108.4	200.8
Queue Length 50th (ft)	~129	655	30	620	238	171	74	180	~416
Queue Length 95th (ft)	m#234	720	86	668	#355	241	125	#306	#641
Internal Link Dist (ft)		1280		944		991		942	
Turn Bay Length (ft)	360		330		300		220		250
Base Capacity (vph)	104	2963	242	3082	266	586	223	189	285
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	1.09	0.70	0.33	0.70	0.87	0.68	0.35	0.81	1.32

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.

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

HCM 6th Signalized Intersection Summary
8: SW 72 Ave & Bird Rd

10/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	1929	112	79	2079	68	229	201	191	78	151	372
Future Volume (veh/h)	112	1929	112	79	2079	68	229	201	191	78	151	372
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	1948	113	80	2100	69	231	203	193	79	153	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	159	3067	177	152	3138	103	255	276	246	167	173	
Arrive On Green	0.02	0.42	0.42	0.03	0.62	0.62	0.11	0.16	0.16	0.05	0.09	0.00
Sat Flow, veh/h	1781	4938	285	1781	5078	166	1781	1777	1585	1781	1870	1585
Grp Volume(v), veh/h	113	1341	720	80	1406	763	231	203	193	79	153	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1819	1781	1702	1840	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	4.2	56.2	56.6	3.0	48.4	48.7	20.3	19.6	21.1	7.2	14.6	0.0
Cycle Q Clear(g_c), s	4.2	56.2	56.6	3.0	48.4	48.7	20.3	19.6	21.1	7.2	14.6	0.0
Prop In Lane	1.00		0.16	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	159	2114	1130	152	2104	1137	255	276	246	167	173	
V/C Ratio(X)	0.71	0.63	0.64	0.53	0.67	0.67	0.90	0.74	0.79	0.47	0.88	
Avail Cap(c_a), veh/h	159	2114	1130	296	2104	1137	255	276	246	229	190	
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.2	36.3	36.4	26.2	22.4	22.4	64.9	72.5	73.2	69.5	80.7	0.0
Incr Delay (d2), s/veh	10.1	1.0	2.0	2.8	1.7	3.2	32.4	9.9	15.3	2.1	33.4	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(50%),veh/ln	3.6	24.9	27.0	1.7	19.4	21.5	11.9	9.8	9.7	3.4	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	37.4	38.4	29.0	24.1	25.6	97.3	82.5	88.5	71.6	114.2	0.0
LnGrp LOS	D	D	D	C	C	C	F	F	F	E	F	
Approach Vol, veh/h		2174			2249			627			232	A
Approach Delay, s/veh		37.8			24.8			89.8			99.7	
Approach LOS		D			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	117.6	15.8	34.6	11.4	118.2	27.0	23.4
Change Period (Y+Rc), s	6.4	6.4	* 6.7	* 6.7	6.4	6.4	* 6.7	* 6.7
Max Green Setting (Gmax), s	5.6	109.6	* 15	* 23	19.6	95.6	* 20	* 18
Max Q Clear Time (g_c+I1), s	6.2	50.7	9.2	23.1	5.0	58.6	22.3	16.6
Green Ext Time (p_c), s	0.0	28.5	0.1	0.1	0.1	20.9	0.0	0.1

Intersection Summary

HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.6	33.6		11.6	33.6		11.1	31.1	11.6	11.1	31.1	11.6
Total Split (s)	16.0	119.0		14.0	117.0		12.0	35.0	14.0	12.0	35.0	16.0
Total Split (%)	8.9%	66.1%		7.8%	65.0%		6.7%	19.4%	7.8%	6.7%	19.4%	8.9%
Maximum Green (s)	9.4	112.4		7.4	110.4		5.9	28.9	7.4	5.9	28.9	9.4
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.2	2.2		2.2	2.2		2.1	2.1	2.2	2.1	2.1	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6		6.6	6.6		6.1	6.1	6.6	6.1	6.1	6.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Walk Time (s)		7.0			7.0			5.0			5.0	
Flash Dont Walk (s)		20.0			20.0			20.0			20.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	10.3	115.2		9.5	114.4		5.9	24.0	39.6	5.9	24.0	40.4
Actuated g/C Ratio	0.06	0.64		0.05	0.64		0.03	0.13	0.22	0.03	0.13	0.22
v/c Ratio	0.66	0.33		0.66	0.43		1.03	0.81	0.27	1.57	0.62	0.24
Control Delay	111.5	15.3		117.2	12.2		206.2	100.1	15.6	372.0	84.0	24.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.5	15.3		117.2	12.2		206.2	100.1	15.6	372.0	84.0	24.6
LOS	F	B		F	B		F	F	B	F	F	C
Approach Delay		20.9			16.6			91.4			144.0	
Approach LOS		C			B			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 28 (16%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.57	
Intersection Signal Delay: 39.7	Intersection LOS: D
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: SW 82nd Ave & SW 24th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	938	57	57	1215	82	56	188	106	85	142	90
Future Volume (vph)	62	938	57	57	1215	82	56	188	106	85	142	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265		0	280		0	135		135	110		40
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.991				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5040	0	1770	5040	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5040	0	1770	5040	0	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			11				94			59
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1042			1312			1017			1087	
Travel Time (s)		17.8			22.4			19.8			21.2	
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
Adj. Flow (vph)	67	1009	61	61	1306	88	60	202	114	91	153	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	1070	0	61	1394	0	60	202	114	91	153	97
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4	5	3	8	1
Permitted Phases									4			8

Queues
1: SW 82nd Ave & SW 24th Street

10/23/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	67	1070	61	1394	60	202	114	91	153	97
v/c Ratio	0.66	0.33	0.66	0.43	1.03	0.81	0.27	1.57	0.62	0.24
Control Delay	111.5	15.3	117.2	12.2	206.2	100.1	15.6	372.0	84.0	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.5	15.3	117.2	12.2	206.2	100.1	15.6	372.0	84.0	24.6
Queue Length 50th (ft)	78	210	66	284	~76	235	19	~152	173	35
Queue Length 95th (ft)	#166	239	#174	329	#186	327	78	#284	251	90
Internal Link Dist (ft)		962		1232		937			1007	
Turn Bay Length (ft)	265		280		135		135	110		40
Base Capacity (vph)	103	3229	93	3207	58	299	421	58	299	403
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	0.65	0.33	0.66	0.43	1.03	0.68	0.27	1.57	0.51	0.24

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 6th Signalized Intersection Summary
1: SW 82nd Ave & SW 24th Street

10/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	938	57	57	1215	82	56	188	106	85	142	90
Future Volume (veh/h)	62	938	57	57	1215	82	56	188	106	85	142	90
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	1009	61	61	1306	88	60	202	114	91	153	97
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	83	3263	197	73	3211	216	58	229	259	58	229	268
Arrive On Green	0.05	0.66	0.66	0.01	0.22	0.22	0.03	0.12	0.12	0.03	0.12	0.12
Sat Flow, veh/h	1781	4924	297	1781	4886	329	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	67	697	373	61	910	484	60	202	114	91	153	97
Grp Sat Flow(s),veh/h/ln	1781	1702	1817	1781	1702	1811	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.7	15.6	15.7	6.1	41.3	41.3	5.9	19.1	11.7	5.9	14.1	9.8
Cycle Q Clear(g_c), s	6.7	15.6	15.7	6.1	41.3	41.3	5.9	19.1	11.7	5.9	14.1	9.8
Prop In Lane	1.00		0.16	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	2256	1204	73	2237	1190	58	229	259	58	229	268
V/C Ratio(X)	0.81	0.31	0.31	0.83	0.41	0.41	1.03	0.88	0.44	1.56	0.67	0.36
Avail Cap(c_a), veh/h	93	2256	1204	73	2237	1190	58	300	320	58	300	329
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
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	85.0	12.9	12.9	88.2	40.3	40.3	87.1	77.7	67.9	87.1	75.5	66.2
Incr Delay (d2), s/veh	35.7	0.4	0.7	50.8	0.5	1.0	125.8	20.8	1.2	319.1	3.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	6.0	6.6	3.9	19.2	20.6	4.8	10.6	4.8	7.9	7.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	120.7	13.2	13.5	138.9	40.9	41.3	212.8	98.6	69.1	406.2	79.1	67.0
LnGrp LOS	F	B	B	F	D	D	F	F	E	F	E	E
Approach Vol, veh/h		1137			1455			376			341	
Approach Delay, s/veh		19.7			45.1			107.8			163.0	
Approach LOS		B			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	124.9	12.0	28.1	14.0	125.9	12.0	28.1
Change Period (Y+Rc), s	* 6.6	* 6.6	6.1	6.1	* 6.6	* 6.6	6.1	6.1
Max Green Setting (Gmax), s	* 9.4	* 1.1E2	5.9	28.9	* 7.4	* 1.1E2	5.9	28.9
Max Q Clear Time (g_c+I1), s	8.7	43.3	7.9	21.1	8.1	17.7	7.9	16.1
Green Ext Time (p_c), s	0.0	12.9	0.0	0.9	0.0	8.5	0.0	0.9

Intersection Summary

HCM 6th Ctrl Delay	55.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	6	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	32.3	32.3		32.3	32.3		27.5	27.5		27.5	27.5	27.5
Total Split (s)	145.0	145.0		145.0	145.0		35.0	35.0		35.0	35.0	35.0
Total Split (%)	80.6%	80.6%		80.6%	80.6%		19.4%	19.4%		19.4%	19.4%	19.4%
Maximum Green (s)	139.7	139.7		139.7	139.7		29.5	29.5		29.5	29.5	29.5
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.5	1.5		1.5	1.5	1.5
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)	5.3	5.3		5.3	5.3		5.5	5.5		5.5	5.5	5.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	4	4		1	1		0	0		2	2	2
Act Effct Green (s)	139.7	139.7		139.7	139.7		29.5	29.5		29.5	29.5	29.5
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.16	0.16		0.16	0.16	0.16
v/c Ratio	0.04	0.34		0.42	0.37		0.11	0.56		1.69	0.07	0.04
Control Delay	4.9	5.6		11.3	6.3		65.8	35.6		387.9	64.5	22.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	4.9	5.6		11.3	6.3		65.8	35.6		387.9	64.5	22.7
LOS	A	A		B	A		E	D		F	E	C
Approach Delay		5.6			6.6			39.1			336.4	
Approach LOS		A			A			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 151 (84%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.69			
Intersection Signal Delay: 29.3		Intersection LOS: C	
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: SW 79th Ave & SW 24th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1246	3	102	1319	40	24	2	185	168	19	11
Future Volume (vph)	8	1246	3	102	1319	40	24	2	185	168	19	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		0	265		0	130		0	0		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.996			0.852				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	0	1770	5065	0	1770	1587	0	1770	1863	1583
Flt Permitted	0.158			0.181			0.744			0.349		
Satd. Flow (perm)	294	5085	0	337	5065	0	1386	1587	0	650	1863	1583
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		1						114				14
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1312			826			1079			110	
Travel Time (s)		22.4			14.1			24.5			2.5	
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
Adj. Flow (vph)	9	1326	3	109	1403	43	26	2	197	179	20	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	1329	0	109	1446	0	26	199	0	179	20	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8

Queues
3: SW 79th Ave & SW 24th Street

10/23/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	9	1329	109	1446	26	199	179	20	12
v/c Ratio	0.04	0.34	0.42	0.37	0.11	0.56	1.69	0.07	0.04
Control Delay	4.9	5.6	11.3	6.3	65.8	35.6	387.9	64.5	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.9	5.6	11.3	6.3	65.8	35.6	387.9	64.5	22.7
Queue Length 50th (ft)	2	140	26	125	27	92	~307	20	0
Queue Length 95th (ft)	m6	m144	44	141	61	187	#479	49	19
Internal Link Dist (ft)		1232		746		999		30	
Turn Bay Length (ft)	255		265		130				
Base Capacity (vph)	228	3946	261	3931	227	355	106	305	271
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	0.04	0.34	0.42	0.37	0.11	0.56	1.69	0.07	0.04

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.

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

HCM 6th Signalized Intersection Summary
3: SW 79th Ave & SW 24th Street

10/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1246	3	102	1319	40	24	2	185	168	19	11
Future Volume (veh/h)	8	1246	3	102	1319	40	24	2	185	168	19	11
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	1326	3	109	1403	43	26	2	197	179	20	12
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	326	4083	9	360	3951	121	253	3	258	92	307	260
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	369	5260	12	412	5090	156	1377	16	1572	1183	1870	1585
Grp Volume(v), veh/h	9	858	471	109	938	508	26	0	199	179	20	12
Grp Sat Flow(s),veh/h/ln	369	1702	1868	412	1702	1842	1377	0	1587	1183	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	21.6	7.9	1.6	1.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	21.6	29.5	1.6	1.1
Prop In Lane	1.00		0.01	1.00		0.08	1.00		0.99	1.00		1.00
Lane Grp Cap(c), veh/h	326	2642	1450	360	2642	1430	253	0	260	92	307	260
V/C Ratio(X)	0.03	0.32	0.32	0.30	0.36	0.36	0.10	0.00	0.76	1.94	0.07	0.05
Avail Cap(c_a), veh/h	326	2642	1450	360	2642	1430	253	0	260	92	307	260
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.93	0.93	0.93	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	65.5	0.0	71.9	87.8	63.6	63.4
Incr Delay (d2), s/veh	0.1	0.3	0.5	2.0	0.3	0.6	0.2	0.0	12.7	461.2	0.1	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(50%),veh/ln	0.0	0.1	0.2	0.2	0.1	0.3	1.1	0.0	9.8	16.1	0.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.1	0.3	0.5	2.0	0.3	0.6	65.7	0.0	84.6	549.0	63.7	63.5
LnGrp LOS	A	A	A	A	A	A	E	A	F	F	E	E
Approach Vol, veh/h		1338			1555			225			211	
Approach Delay, s/veh		0.4			0.6			82.4			475.4	
Approach LOS		A			A			F			F	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		145.0		35.0		145.0		35.0				
Change Period (Y+Rc), s		* 5.3		5.5		* 5.3		5.5				
Max Green Setting (Gmax), s		* 1.4E2		29.5		* 1.4E2		29.5				
Max Q Clear Time (g_c+I1), s		2.0		23.6		2.0		31.5				
Green Ext Time (p_c), s		18.6		0.6		12.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay			36.1									
HCM 6th LOS			D									

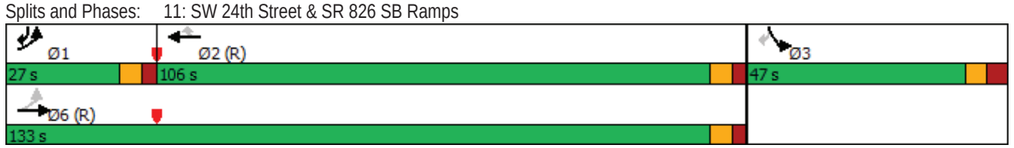
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2	2	3	1
Switch Phase						
Minimum Initial (s)	5.0	16.0	16.0	16.0	7.0	5.0
Minimum Split (s)	12.9	22.6	22.6	22.6	20.0	12.9
Total Split (s)	27.0	133.0	106.0	106.0	47.0	27.0
Total Split (%)	15.0%	73.9%	58.9%	58.9%	26.1%	15.0%
Maximum Green (s)	20.4	126.4	99.4	99.4	39.1	20.4
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	2.6	3.9	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	7.9	6.6
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	131.1	131.1	112.8	112.8	34.4	54.0
Actuated g/C Ratio	0.73	0.73	0.63	0.63	0.19	0.30
v/c Ratio	0.50	0.45	0.35	0.38	0.87	0.48
Control Delay	19.6	17.7	9.2	0.9	84.9	36.4
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	19.6	17.8	9.2	0.9	84.9	36.4
LOS	B	B	A	A	F	D
Approach Delay		18.0	6.9		63.6	
Approach LOS		B	A		E	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 168 (93%), Referenced to phase 2:WBT and 6:EBTL, Start of Green		
Natural Cycle: 60		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.87		
Intersection Signal Delay: 24.6	Intersection LOS: C	
Intersection Capacity Utilization 64.1%	ICU Level of Service C	
Analysis Period (min) 15		

Splits and Phases: 11: SW 24th Street & SR 826 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	178	1617	1081	421	552	432
Future Volume (vph)	178	1617	1081	421	552	432
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320			270	400	400
Storage Lanes	1			1	1	2
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.88
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	5085	5085	1583	3433	2787
Flt Permitted	0.203				0.950	
Satd. Flow (perm)	378	5085	5085	1583	3433	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				434		131
Link Speed (mph)		15	15		25	
Link Distance (ft)		826	894		1070	
Travel Time (s)		37.5	40.6		29.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	184	1667	1114	434	569	445
Shared Lane Traffic (%)						
Lane Group Flow (vph)	184	1667	1114	434	569	445
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6			2		3

HCM 2010 analysis supports speed limit in the range of 25 and 55 mph

HCM 6th Edition methodology supports speed limit in the range of 25 to 55 mph.

Queues
11: SW 24th Street & SR 826 SB Ramps

10/23/2018

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	184	1667	1114	434	569	445
v/c Ratio	0.50	0.45	0.35	0.38	0.87	0.48
Control Delay	19.6	17.7	9.2	0.9	84.9	36.4
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	19.6	17.8	9.2	0.9	84.9	36.4
Queue Length 50th (ft)	96	407	94	1	339	173
Queue Length 95th (ft)	m134	m430	m131	m0	402	218
Internal Link Dist (ft)		746	814		990	
Turn Bay Length (ft)	320			270	400	400
Base Capacity (vph)	433	3704	3186	1153	745	1055
Starvation Cap Reductn	0	670	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	0.42	0.55	0.35	0.38	0.76	0.42

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
11: SW 24th Street & SR 826 SB Ramps

10/23/2018

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	178	1617	1081	421	552	432
Future Volume (vph)	178	1617	1081	421	552	432
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6	6.6	7.9	6.6
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.88
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)	1770	5085	5085	1583	3433	2787
Flt Permitted	0.20	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	379	5085	5085	1583	3433	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	184	1667	1114	434	569	445
RTOR Reduction (vph)	0	0	0	162	0	97
Lane Group Flow (vph)	184	1667	1114	272	569	348
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6			2		3
Actuated Green, G (s)	131.1	131.1	112.8	112.8	34.4	46.1
Effective Green, g (s)	131.1	131.1	112.8	112.8	34.4	46.1
Actuated g/C Ratio	0.73	0.73	0.63	0.63	0.19	0.26
Clearance Time (s)	6.6	6.6	6.6	6.6	7.9	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	366	3703	3186	992	656	713
v/s Ratio Prot	0.03	c0.33	0.22		c0.17	0.03
v/s Ratio Perm	c0.33			0.17		0.09
v/c Ratio	0.50	0.45	0.35	0.27	0.87	0.49
Uniform Delay, d1	9.2	9.9	16.1	15.1	70.6	56.9
Progression Factor	1.91	1.70	0.53	0.03	1.00	1.00
Incremental Delay, d2	1.0	0.4	0.3	0.6	11.7	0.5
Delay (s)	18.6	17.1	8.8	1.1	82.2	57.4
Level of Service	B	B	A	A	F	E
Approach Delay (s)		17.3	6.6		71.4	
Approach LOS		B	A		E	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	6	5	2	7	7
Switch Phase						
Minimum Initial (s)	18.0	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.5	24.5	11.2	24.5	20.0	20.0
Total Split (s)	132.0	132.0	15.0	147.0	33.0	33.0
Total Split (%)	73.3%	73.3%	8.3%	81.7%	18.3%	18.3%
Maximum Green (s)	125.5	125.5	8.8	140.5	25.2	25.2
Yellow Time (s)	4.0	4.0	3.7	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	125.5	125.5	140.8	140.5	25.2	25.2
Actuated g/C Ratio	0.70	0.70	0.78	0.78	0.14	0.14
v/c Ratio	0.47	0.50	0.98	0.34	1.48dr	1.62
Control Delay	13.2	3.3	82.5	5.3	154.9	345.1
Queue Delay	0.1	0.1	19.3	0.2	0.2	0.8
Total Delay	13.3	3.4	101.8	5.6	155.1	345.9
LOS	B	A	F	A	F	F
Approach Delay	10.5			19.3	229.0	
Approach LOS	B			B	F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 169 (94%), Referenced to phase 2:WBTL and 6:EBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.62	
Intersection Signal Delay: 52.1	Intersection LOS: D
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 13: SR 826 NB Ramps & SW 24th Street



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1630	633	219	1319	183	633
Future Volume (vph)	1630	633	219	1319	183	633
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		435	155		260	260
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt		0.850			0.905	0.850
Flt Protected			0.950		0.982	
Satd. Flow (prot)	5085	1583	1770	5085	3212	1441
Flt Permitted			0.105		0.982	
Satd. Flow (perm)	5085	1583	196	5085	3212	1441
Right Turn on Red		Yes				No
Satd. Flow (RTOR)		653				
Link Speed (mph)	15			15	25	
Link Distance (ft)	894			399	1075	
Travel Time (s)	40.6			18.1	29.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1680	653	226	1360	189	653
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1680	653	226	1360	516	326
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	36	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7

HCM 2010 analysis supports speed limit in the range of 25 and 55 mph

HCM 6th Edition methodology supports speed limit in the range of 25 to 55 mph.

Queues
13: SR 826 NB Ramps & SW 24th Street

10/23/2018

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1680	653	226	1360	516	326
v/c Ratio	0.47	0.50	0.98	0.34	1.48dr	1.62
Control Delay	13.2	3.3	82.5	5.3	154.9	345.1
Queue Delay	0.1	0.1	19.3	0.2	0.2	0.8
Total Delay	13.3	3.4	101.8	5.6	155.1	345.9
Queue Length 50th (ft)	319	68	53	316	~367	~605
Queue Length 95th (ft)	233	67	m#304	21	#491	#838
Internal Link Dist (ft)	814			319	995	
Turn Bay Length (ft)		435	155		260	260
Base Capacity (vph)	3545	1301	230	3969	449	201
Starvation Cap Reductn	531	87	15	1528	0	0
Spillback Cap Reductn	59	0	0	0	11	10
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.54	1.05	0.56	1.18	1.71

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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

HCM Signalized Intersection Capacity Analysis
13: SR 826 NB Ramps & SW 24th Street

10/23/2018

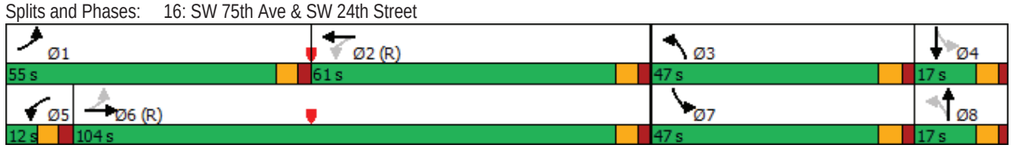
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1630	633	219	1319	183	633
Future Volume (vph)	1630	633	219	1319	183	633
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt	1.00	0.85	1.00	1.00	0.90	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.98	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3211	1441
Flt Permitted	1.00	1.00	0.11	1.00	0.98	1.00
Satd. Flow (perm)	5085	1583	196	5085	3211	1441
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1680	653	226	1360	189	653
RTOR Reduction (vph)	0	198	0	0	0	0
Lane Group Flow (vph)	1680	455	226	1360	516	326
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7
Actuated Green, G (s)	125.5	125.5	140.5	140.5	25.2	25.2
Effective Green, g (s)	125.5	125.5	140.5	140.5	25.2	25.2
Actuated g/C Ratio	0.70	0.70	0.78	0.78	0.14	0.14
Clearance Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3545	1103	229	3969	449	201
v/s Ratio Prot	0.33		c0.05	0.27	0.16	
v/s Ratio Perm		0.29	c0.72			c0.23
v/c Ratio	0.47	0.41	0.99	0.34	1.48dr	1.62
Uniform Delay, d1	12.3	11.6	24.7	5.9	77.4	77.4
Progression Factor	1.03	3.38	2.19	0.86	1.00	1.00
Incremental Delay, d2	0.4	1.0	51.6	0.2	90.1	301.5
Delay (s)	13.1	40.2	105.6	5.3	167.5	378.9
Level of Service	B	D	F	A	F	F
Approach Delay (s)	20.7			19.6	249.4	
Approach LOS	C			B	F	

Intersection Summary			
HCM 2000 Control Delay	60.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	72.6%	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	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	11.5	13.5		11.5	13.5		11.4	13.0		11.4	13.0	
Total Split (s)	55.0	104.0		12.0	61.0		47.0	17.0		47.0	17.0	
Total Split (%)	30.6%	57.8%		6.7%	33.9%		26.1%	9.4%		26.1%	9.4%	
Maximum Green (s)	48.5	97.5		5.5	54.5		40.6	11.0		40.6	11.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.0		4.4	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	131.2	120.8		104.1	97.8		31.5	17.9		27.6	16.0	
Actuated g/C Ratio	0.73	0.67		0.58	0.54		0.18	0.10		0.15	0.09	
v/c Ratio	0.64	0.61		0.20	0.46		0.56	0.59		0.36	0.77	
Control Delay	37.3	12.6		15.8	27.3		71.8	82.5		63.4	21.0	
Queue Delay	0.4	3.7		0.0	1.0		0.0	0.0		0.0	0.1	
Total Delay	37.7	16.3		15.8	28.3		71.8	82.5		63.4	21.1	
LOS	D	B		B	C		E	F		E	C	
Approach Delay		18.8			28.1			77.4			29.0	
Approach LOS		B			C			E			C	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 170 (94%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green		
Natural Cycle: 80		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.77		
Intersection Signal Delay: 25.4	Intersection LOS: C	
Intersection Capacity Utilization 88.9%	ICU Level of Service E	
Analysis Period (min) 15		

Splits and Phases: 16: SW 75th Ave & SW 24th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	1902	97	26	1106	97	95	72	33	73	12	304
Future Volume (vph)	264	1902	97	26	1106	97	95	72	33	73	12	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	230		0	30		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.988			0.953			0.856	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5050	0	1770	5024	0	1770	1775	0	1770	1595	0
Flt Permitted	0.154			0.072			0.223			0.577		
Satd. Flow (perm)	287	5050	0	134	5024	0	415	1775	0	1075	1595	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			8			10			317	
Link Speed (mph)		15			15			30			30	
Link Distance (ft)		399			526			351			1038	
Travel Time (s)		18.1			23.9			8.0			23.6	
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
Adj. Flow (vph)	275	1981	101	27	1152	101	99	75	34	76	13	317
Shared Lane Traffic (%)												
Lane Group Flow (vph)	275	2082	0	27	1253	0	99	109	0	76	330	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		

HCM 2010 analysis supports speed limit in the range of 25 and 55 mph

HCM 6th Edition methodology supports speed limit in the range of 25 to 55 mph.

Queues
16: SW 75th Ave & SW 24th Street

10/23/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	275	2082	27	1253	99	109	76	330
v/c Ratio	0.64	0.61	0.20	0.46	0.56	0.59	0.36	0.77
Control Delay	37.3	12.6	15.8	27.3	71.8	82.5	63.4	21.0
Queue Delay	0.4	3.7	0.0	1.0	0.0	0.0	0.0	0.1
Total Delay	37.7	16.3	15.8	28.3	71.8	82.5	63.4	21.1
Queue Length 50th (ft)	163	243	8	320	101	114	76	14
Queue Length 95th (ft)	m214	m296	22	454	151	180	121	127
Internal Link Dist (ft)		319		446		271		958
Turn Bay Length (ft)	225		230		30		100	
Base Capacity (vph)	608	3390	134	2734	401	185	405	430
Starvation Cap Reductn	87	1198	0	1130	0	0	0	0
Spillback Cap Reductn	0	0	0	53	0	0	0	3
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.95	0.20	0.78	0.25	0.59	0.19	0.77

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
16: SW 75th Ave & SW 24th Street

10/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	1902	97	26	1106	97	95	72	33	73	12	304
Future Volume (vph)	264	1902	97	26	1106	97	95	72	33	73	12	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5048		1770	5024		1770	1776		1770	1594	
Flt Permitted	0.15	1.00		0.07	1.00		0.22	1.00		0.58	1.00	
Satd. Flow (perm)	287	5048		134	5024		416	1776		1075	1594	
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)	275	1981	101	27	1152	101	99	75	34	76	12	317
RTOR Reduction (vph)	0	2	0	0	4	0	0	9	0	0	289	0
Lane Group Flow (vph)	275	2080	0	27	1249	0	99	100	0	76	41	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	131.2	119.5		103.1	97.9		31.8	17.9		28.0	16.0	
Effective Green, g (s)	131.2	119.5		103.1	97.9		31.8	17.9		28.0	16.0	
Actuated g/C Ratio	0.73	0.66		0.57	0.54		0.18	0.10		0.16	0.09	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	429	3351		124	2732		178	176		213	141	
v/s Ratio Prot	c0.10	c0.41		0.01	0.25		c0.04	c0.06		0.02	0.03	
v/s Ratio Perm	c0.37			0.12			0.06			0.03		
v/c Ratio	0.64	0.62		0.22	0.46		0.56	0.57		0.36	0.29	
Uniform Delay, d1	15.2	17.3		17.6	24.9		65.2	77.4		67.1	76.7	
Progression Factor	2.45	0.67		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.6		0.9	0.6		3.7	4.2		1.0	1.2	
Delay (s)	39.4	12.1		18.5	25.5		68.9	81.5		68.1	77.9	
Level of Service	D	B		B	C		E	F		E	E	
Approach Delay (s)		15.3			25.3			75.5			76.0	
Approach LOS		B			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	1817	111	8	1238	24	45	0	6	3	0	2
Future Volume (vph)	34	1817	111	8	1238	24	45	0	6	3	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	120		0	95		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.997			0.850			0.946	
Flt Protected	0.950			0.950			0.950				0.971	
Satd. Flow (prot)	1770	5040	0	1770	3529	0	1770	1583	0	0	1711	0
Flt Permitted	0.193			0.075			0.754				0.869	
Satd. Flow (perm)	360	5040	0	140	3529	0	1405	1583	0	0	1531	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			5			106			34	
Link Speed (mph)		15			40			30			30	
Link Distance (ft)		526			1011			1008			1005	
Travel Time (s)		23.9			17.2			22.9			22.8	
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
Adj. Flow (vph)	37	1954	119	9	1331	26	48	0	6	3	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	2073	0	9	1357	0	48	6	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	A	A		A	A		E	A			A	
Approach Delay		4.8			3.2			61.6			0.4	
Approach LOS		A			A			E			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 79 (56%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 5.0		Intersection LOS: A	
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: SW 74th Ave/Driveways & SW 24th Street



HCM 2010 analysis supports speed limit in the range of 25 and 55 mph

HCM 6th Edition methodology supports speed limit in the range of 25 to 55 mph.

Queues
2: SW 74th Ave/Driveways & SW 24th Street

10/23/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	37	2073	9	1357	48	6	5
v/c Ratio	0.12	0.48	0.03	0.44	0.41	0.03	0.03
Control Delay	4.6	4.3	2.2	3.2	69.3	0.2	0.4
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Total Delay	4.6	4.8	2.2	3.2	69.3	0.2	0.4
Queue Length 50th (ft)	4	121	1	110	43	0	0
Queue Length 95th (ft)	22	311	4	193	83	0	0
Internal Link Dist (ft)		446		931		928	925
Turn Bay Length (ft)	120		120		95		
Base Capacity (vph)	307	4311	268	3073	168	283	213
Starvation Cap Reductn	0	1606	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	0.12	0.77	0.03	0.44	0.29	0.02	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: SW 74th Ave/Driveways & SW 24th Street

10/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	1817	111	8	1238	24	45	0	6	3	0	2
Future Volume (vph)	34	1817	111	8	1238	24	45	0	6	3	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85			0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1770	5042		1770	3529		1770	1583			1711	
Flt Permitted	0.19	1.00		0.08	1.00		0.75	1.00			0.87	
Satd. Flow (perm)	360	5042		140	3529		1405	1583			1531	
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)	37	1954	119	9	1331	26	48	0	6	3	0	2
RTOR Reduction (vph)	0	3	0	0	1	0	0	6	0	0	5	0
Lane Group Flow (vph)	37	2070	0	9	1356	0	48	0	0	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	115.4	115.4		120.0	120.0		10.4	10.4			10.4	
Effective Green, g (s)	115.4	115.4		120.0	120.0		10.4	10.4			10.4	
Actuated g/C Ratio	0.82	0.82		0.86	0.86		0.07	0.07			0.07	
Clearance Time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	296	4156		138	3024		104	117			113	
v/s Ratio Prot		c0.41		0.00	c0.38			0.00				
v/s Ratio Perm	0.10			0.05			c0.03				0.00	
v/c Ratio	0.12	0.50		0.07	0.45		0.46	0.00			0.00	
Uniform Delay, d1	2.4	3.7		2.5	2.3		62.1	60.0			60.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.9	0.4		0.2	0.5		3.2	0.0			0.0	
Delay (s)	3.3	4.1		2.7	2.8		65.3	60.0			60.0	
Level of Service	A	A		A	A		E	E			E	
Approach Delay (s)		4.1			2.8			64.7			60.0	
Approach LOS		A			A			E			E	

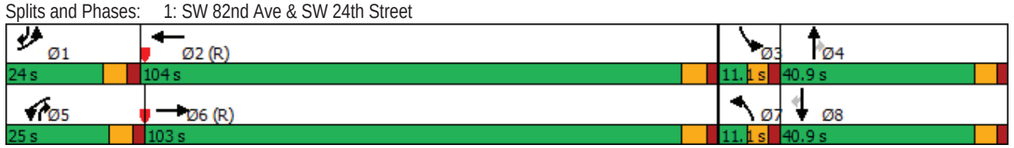
Intersection Summary			
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.6	20.0		11.6	20.0		11.1	20.0	11.6	11.1	20.0	11.6
Total Split (s)	24.0	103.0		25.0	104.0		11.1	40.9	25.0	11.1	40.9	24.0
Total Split (%)	13.3%	57.2%		13.9%	57.8%		6.2%	22.7%	13.9%	6.2%	22.7%	13.3%
Maximum Green (s)	17.4	96.4		18.4	97.4		5.0	34.8	18.4	5.0	34.8	17.4
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.2	2.2		2.2	2.2		2.1	2.1	2.2	2.1	2.1	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6		6.6	6.6		6.1	6.1	6.6	6.1	6.1	6.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	15.3	96.4		29.2	110.3		5.0	24.0	59.3	5.0	24.0	45.4
Actuated g/C Ratio	0.08	0.54		0.16	0.61		0.03	0.13	0.33	0.03	0.13	0.25
v/c Ratio	0.66	0.53		0.93	0.61		1.39	0.62	0.20	2.41	0.78	0.21
Control Delay	99.6	27.8		118.8	9.5		317.8	84.1	21.3	720.9	96.0	20.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.6	27.8		118.8	9.5		317.8	84.1	21.3	720.9	96.0	20.7
LOS	F	C		F	A		F	F	C	F	F	C
Approach Delay		32.4			23.0			111.1			260.2	
Approach LOS		C			C			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 12 (7%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.41	
Intersection Signal Delay: 54.7	Intersection LOS: D
Intersection Capacity Utilization 76.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: SW 82nd Ave & SW 24th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	1268	51	257	1680	145	66	150	107	114	188	91
Future Volume (vph)	96	1268	51	257	1680	145	66	150	107	114	188	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265		0	280		0	135		135	110		40
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.988				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5019	0	1770	5024	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5019	0	1770	5024	0	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			12				59			59
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1042			1312			1017			1087	
Travel Time (s)		17.8			22.4			19.8			21.2	
Peak Hour Factor	0.97	0.97	0.40	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	99	1307	128	265	1732	149	68	155	110	118	194	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	1435	0	265	1881	0	68	155	110	118	194	94
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4	5	3	8	1
Permitted Phases									4			8

Queues
1: SW 82nd Ave & SW 24th Street

10/23/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	99	1435	265	1881	68	155	110	118	194	94
v/c Ratio	0.66	0.53	0.93	0.61	1.39	0.62	0.20	2.41	0.78	0.21
Control Delay	99.6	27.8	118.8	9.5	317.8	84.1	21.3	720.9	96.0	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.6	27.8	118.8	9.5	317.8	84.1	21.3	720.9	96.0	20.7
Queue Length 50th (ft)	116	392	331	167	~106	176	42	~228	226	32
Queue Length 95th (ft)	181	435	#601	190	#224	249	94	#375	307	77
Internal Link Dist (ft)		962		1232		937			1007	
Turn Bay Length (ft)	265		280		135		135	110		40
Base Capacity (vph)	178	2694	286	3082	49	360	561	49	360	467
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	0.56	0.53	0.93	0.61	1.39	0.43	0.20	2.41	0.54	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 6th Signalized Intersection Summary
1: SW 82nd Ave & SW 24th Street

10/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	1268	51	257	1680	145	66	150	107	114	188	91
Future Volume (veh/h)	96	1268	51	257	1680	145	66	150	107	114	188	91
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	99	1307	128	265	1732	149	68	155	110	118	194	94
Peak Hour Factor	0.97	0.97	0.40	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	118	2882	282	182	3093	265	49	223	351	49	223	294
Arrive On Green	0.07	0.61	0.61	0.20	1.00	1.00	0.03	0.12	0.12	0.03	0.12	0.12
Sat Flow, veh/h	1781	4728	463	1781	4789	411	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	99	941	494	265	1230	651	68	155	110	118	194	94
Grp Sat Flow(s),veh/h/ln	1781	1702	1787	1781	1702	1796	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	9.9	26.8	26.8	18.4	0.0	0.0	5.0	14.3	10.5	5.0	18.3	9.2
Cycle Q Clear(g_c), s	9.9	26.8	26.8	18.4	0.0	0.0	5.0	14.3	10.5	5.0	18.3	9.2
Prop In Lane	1.00		0.26	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	118	2075	1089	182	2198	1160	49	223	351	49	223	294
V/C Ratio(X)	0.84	0.45	0.45	1.46	0.56	0.56	1.37	0.69	0.31	2.38	0.87	0.32
Avail Cap(c_a), veh/h	172	2075	1089	182	2198	1160	49	362	468	49	362	411
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	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	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	83.1	19.0	19.0	71.6	0.0	0.0	87.5	76.1	58.6	87.5	77.9	63.5
Incr Delay (d2), s/veh	20.9	0.7	1.4	227.9	0.8	1.6	256.2	3.9	0.5	680.5	12.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	10.7	11.4	19.1	0.3	0.5	5.8	7.2	4.3	11.7	9.6	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.0	19.7	20.3	299.5	0.8	1.6	343.7	80.0	59.1	768.0	90.1	64.1
LnGrp LOS	F	B	C	F	A	A	F	E	E	F	F	E
Approach Vol, veh/h		1534			2146			333			406	
Approach Delay, s/veh		25.3			38.0			127.0			281.1	
Approach LOS		C			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	122.8	11.1	27.6	25.0	116.3	11.1	27.6
Change Period (Y+Rc), s	* 6.6	* 6.6	6.1	6.1	* 6.6	* 6.6	6.1	6.1
Max Green Setting (Gmax), s	* 17	* 97	5.0	34.8	* 18	* 96	5.0	34.8
Max Q Clear Time (g_c+I1), s	11.9	2.0	7.0	16.3	20.4	28.8	7.0	20.3
Green Ext Time (p_c), s	0.1	24.2	0.0	1.1	0.0	13.7	0.0	1.1

Intersection Summary

HCM 6th Ctrl Delay	62.6
HCM 6th LOS	E

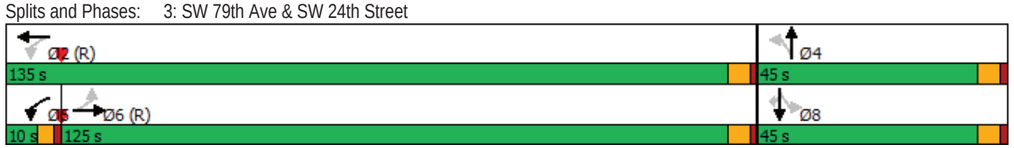
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	6	6		5	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	125.0	125.0		10.0	135.0		45.0	45.0		45.0	45.0	45.0
Total Split (%)	69.4%	69.4%		5.6%	75.0%		25.0%	25.0%		25.0%	25.0%	25.0%
Maximum Green (s)	119.7	119.7		5.7	129.7		39.5	39.5		39.5	39.5	39.5
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.5	1.5		1.5	1.5	1.5
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)	5.3	5.3		4.3	5.3		5.5	5.5		5.5	5.5	5.5
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	None
Act Effct Green (s)	119.7	119.7		154.5	153.5		15.7	15.7		15.7	15.7	15.7
Actuated g/C Ratio	0.66	0.66		0.86	0.85		0.09	0.09		0.09	0.09	0.09
v/c Ratio	0.14	0.46		0.81	0.56		0.17	0.53		1.00	0.18	0.07
Control Delay	5.3	2.3		58.1	4.0		76.2	27.3		193.3	75.9	0.8
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	0.0
Total Delay	5.3	2.3		58.1	4.1		76.2	27.3		193.3	75.9	0.8
LOS	A	A		E	A		E	C		F	E	A
Approach Delay		2.3			11.2			34.1			138.9	
Approach LOS		A			B			C			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 26 (14%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 11.9	Intersection LOS: B
Intersection Capacity Utilization 82.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: SW 79th Ave & SW 24th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1468	38	355	2058	278	20	22	99	63	28	12
Future Volume (vph)	11	1468	38	355	2058	278	20	22	99	63	28	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		0	265		0	130		0	0		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.982			0.877				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5065	0	1770	4994	0	1770	1634	0	1770	1863	1583
Flt Permitted	0.062			0.123			0.738			0.395		
Satd. Flow (perm)	115	5065	0	229	4994	0	1375	1634	0	736	1863	1583
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		4						100				40
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1312			826			1079			110	
Travel Time (s)		22.4			14.1			24.5			2.5	
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
Adj. Flow (vph)	11	1498	39	362	2100	284	20	22	101	64	29	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	1537	0	362	2384	0	20	123	0	64	29	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		8

Queues
3: SW 79th Ave & SW 24th Street

10/23/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	11	1537	362	2384	20	123	64	29	12
v/c Ratio	0.14	0.46	0.81	0.56	0.17	0.53	1.00	0.18	0.07
Control Delay	5.3	2.3	58.1	4.0	76.2	27.3	193.3	75.9	0.8
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	5.3	2.3	58.1	4.1	76.2	27.3	193.3	75.9	0.8
Queue Length 50th (ft)	1	34	250	218	22	26	77	32	0
Queue Length 95th (ft)	m1	m41	m#448	264	52	96	#155	67	0
Internal Link Dist (ft)		1232		746		999		30	
Turn Bay Length (ft)	255		265		130				
Base Capacity (vph)	76	3369	448	4257	301	436	161	408	378
Starvation Cap Reductn	0	0	0	647	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	0.14	0.46	0.81	0.66	0.07	0.28	0.40	0.07	0.03

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 6th Signalized Intersection Summary
3: SW 79th Ave & SW 24th Street

10/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	1468	38	355	2058	278	20	22	99	63	28	12
Future Volume (veh/h)	11	1468	38	355	2058	278	20	22	99	63	28	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	1498	39	362	2100	284	20	22	101	64	29	12
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	3844	100	350	3678	489	203	39	178	119	249	211
Arrive On Green	1.00	1.00	1.00	0.01	0.27	0.27	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	147	5117	133	1781	4560	606	1366	291	1338	1268	1870	1585
Grp Volume(v), veh/h	11	996	541	362	1558	826	20	0	123	64	29	12
Grp Sat Flow(s),veh/h/ln	147	1702	1846	1781	1702	1761	1366	0	1630	1268	1870	1585
Q Serve(g_s), s	7.0	0.0	0.0	5.7	71.2	73.2	2.4	0.0	12.7	9.0	2.5	1.2
Cycle Q Clear(g_c), s	70.2	0.0	0.0	5.7	71.2	73.2	4.8	0.0	12.7	21.7	2.5	1.2
Prop In Lane	1.00		0.07	1.00		0.34	1.00		0.82	1.00		1.00
Lane Grp Cap(c), veh/h	99	2557	1387	350	2746	1421	203	0	217	119	249	211
V/C Ratio(X)	0.11	0.39	0.39	1.03	0.57	0.58	0.10	0.00	0.57	0.54	0.12	0.06
Avail Cap(c_a), veh/h	99	2557	1387	350	2746	1421	321	0	358	229	410	348
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.72	0.72	0.72	0.61	0.61	0.61	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	0.0	0.0	17.3	38.9	39.6	70.8	0.0	73.1	83.3	68.7	68.1
Incr Delay (d2), s/veh	1.6	0.3	0.6	46.6	0.5	1.1	0.2	0.0	2.3	3.7	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.2	18.0	32.9	35.2	0.8	0.0	5.5	3.1	1.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	0.3	0.6	64.0	39.4	40.7	71.0	0.0	75.5	87.0	68.9	68.2
LnGrp LOS	B	A	A	F	D	D	E	A	E	F	E	E
Approach Vol, veh/h		1548			2746			143			105	
Approach Delay, s/veh		0.5			43.0			74.8			79.9	
Approach LOS		A			D			E			E	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		150.5		29.5	10.0	140.5		29.5				
Change Period (Y+Rc), s		* 5.3		5.5	* 4.3	* 5.3		5.5				
Max Green Setting (Gmax), s		* 1.3E2		39.5	* 5.7	* 1.2E2		39.5				
Max Q Clear Time (g_c+I1), s		75.2		14.7	7.7	72.2		23.7				
Green Ext Time (p_c), s		32.7		0.7	0.0	15.5		0.3				

Intersection Summary

HCM 6th Ctrl Delay	30.4
HCM 6th LOS	C

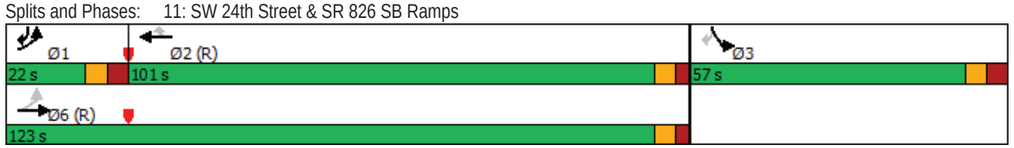
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	234	1461	1785	594	573	908
Future Volume (vph)	234	1461	1785	594	573	908
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320			270	400	400
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.88
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	5085	5085	1583	3433	2787
Flt Permitted	0.059				0.950	
Satd. Flow (perm)	110	5085	5085	1583	3433	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				451		17
Link Speed (mph)		40	40		25	
Link Distance (ft)		826	894		1070	
Travel Time (s)		14.1	15.2		29.2	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	236	1476	1803	600	579	917
Shared Lane Traffic (%)						
Lane Group Flow (vph)	236	1476	1803	600	579	917
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6			2		3

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 12 (7%), Referenced to phase 2:WBT and 6:EBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 30.1		Intersection LOS: C	
Intersection Capacity Utilization 82.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 11: SW 24th Street & SR 826 SB Ramps



Queues
11: SW 24th Street & SR 826 SB Ramps

10/23/2018

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	236	1476	1803	600	579	917
v/c Ratio	0.72	0.40	0.68	0.57	0.84	0.83
Control Delay	69.4	8.4	22.2	3.1	81.0	55.5
Queue Delay	0.0	0.0	0.2	0.2	0.0	0.0
Total Delay	69.4	8.4	22.3	3.2	81.0	55.5
Queue Length 50th (ft)	231	177	634	36	344	544
Queue Length 95th (ft)	#390	217	m586	m53	395	647
Internal Link Dist (ft)		746	814		990	
Turn Bay Length (ft)	320			270	400	400
Base Capacity (vph)	329	3659	2666	1044	936	1111
Starvation Cap Reductn	0	422	190	67	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.46	0.73	0.61	0.62	0.83

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 6th Signalized Intersection Summary
11: SW 24th Street & SR 826 SB Ramps

10/23/2018

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	234	1461	1785	594	573	908
Future Volume (veh/h)	234	1461	1785	594	573	908
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	236	1476	1803	0	579	917
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	312	3302	2693		943	971
Arrive On Green	0.15	1.00	1.00	0.00	0.27	0.27
Sat Flow, veh/h	1781	5274	5274	1585	3456	2790
Grp Volume(v), veh/h	236	1476	1803	0	579	917
Grp Sat Flow(s),veh/h/ln	1781	1702	1702	1585	1728	1395
Q Serve(g_s), s	11.5	0.0	0.0	0.0	26.3	49.1
Cycle Q Clear(g_c), s	11.5	0.0	0.0	0.0	26.3	49.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	312	3302	2693		943	971
V/C Ratio(X)	0.76	0.45	0.67		0.61	0.94
Avail Cap(c_a), veh/h	317	3302	2693		943	971
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.70	0.00	1.00	1.00
Uniform Delay (d), s/veh	14.4	0.0	0.0	0.0	57.2	57.0
Incr Delay (d2), s/veh	8.7	0.4	0.9	0.0	1.2	17.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.1	0.2	0.0	11.9	22.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.1	0.4	0.9	0.0	58.4	74.1
LnGrp LOS	C	A	A		E	E
Approach Vol, veh/h		1712	1803	A	1496	
Approach Delay, s/veh		3.5	0.9		68.0	
Approach LOS		A	A		E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.5	101.5			123.0	57.0
Change Period (Y+Rc), s	7.9	6.6			6.6	7.9
Max Green Setting (Gmax), s	14.1	94.4			116.4	49.1
Max Q Clear Time (g_c+I1), s	13.5	2.0			2.0	51.1
Green Ext Time (p_c), s	0.0	23.9			16.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	6	5	2	7	7
Switch Phase						
Minimum Initial (s)	18.0	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.5	24.5	11.2	24.5	20.0	20.0
Total Split (s)	108.0	108.0	36.0	144.0	36.0	36.0
Total Split (%)	60.0%	60.0%	20.0%	80.0%	20.0%	20.0%
Maximum Green (s)	101.5	101.5	29.8	137.5	28.2	28.2
Yellow Time (s)	4.0	4.0	3.7	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	109.0	109.0	137.8	137.5	28.2	28.2
Actuated g/C Ratio	0.61	0.61	0.77	0.76	0.16	0.16
v/c Ratio	0.54	0.40	0.85	0.52	1.15	1.24
Control Delay	25.4	5.9	52.1	7.9	150.1	196.4
Queue Delay	0.2	0.0	0.9	0.2	0.0	0.0
Total Delay	25.6	5.9	53.1	8.1	150.1	196.4
LOS	C	A	D	A	F	F
Approach Delay	21.4			13.6	164.8	
Approach LOS	C			B	F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 34 (19%), Referenced to phase 2:WBTL and 6:EBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 41.8	Intersection LOS: D
Intersection Capacity Utilization 80.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 13: SR 826 NB Ramps & SW 24th Street



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1623	444	277	1974	405	454
Future Volume (vph)	1623	444	277	1974	405	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		435	155		260	260
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt		0.850			0.954	0.850
Flt Protected			0.950		0.967	
Satd. Flow (prot)	5085	1583	1770	5085	3334	1441
Flt Permitted			0.095		0.967	
Satd. Flow (perm)	5085	1583	177	5085	3334	1441
Right Turn on Red		Yes				No
Satd. Flow (RTOR)		453				
Link Speed (mph)	40			40	25	
Link Distance (ft)	894			399	1075	
Travel Time (s)	15.2			6.8	29.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1656	453	283	2014	413	463
Shared Lane Traffic (%)						40%
Lane Group Flow (vph)	1656	453	283	2014	598	278
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	36	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7

HCM 2010 Computation does not support turning movement with Shared and Exclusive lanes.

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Queues
13: SR 826 NB Ramps & SW 24th Street

10/23/2018

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1656	453	283	2014	598	278
v/c Ratio	0.54	0.40	0.85	0.52	1.15	1.24
Control Delay	25.4	5.9	52.1	7.9	150.1	196.4
Queue Delay	0.2	0.0	0.9	0.2	0.0	0.0
Total Delay	25.6	5.9	53.1	8.1	150.1	196.4
Queue Length 50th (ft)	344	77	138	239	~424	~443
Queue Length 95th (ft)	410	116	m178	m170	#553	#667
Internal Link Dist (ft)	814			319	995	
Turn Bay Length (ft)		435	155		260	260
Base Capacity (vph)	3078	1137	399	3884	522	225
Starvation Cap Reductn	519	0	22	907	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.40	0.75	0.68	1.15	1.24

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
13: SR 826 NB Ramps & SW 24th Street

10/23/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1623	444	277	1974	405	454
Future Volume (vph)	1623	444	277	1974	405	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt	1.00	0.85	1.00	1.00	0.95	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.97	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3331	1441
Flt Permitted	1.00	1.00	0.09	1.00	0.97	1.00
Satd. Flow (perm)	5085	1583	176	5085	3331	1441
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1656	453	283	2014	413	463
RTOR Reduction (vph)	0	179	0	0	0	0
Lane Group Flow (vph)	1656	274	283	2014	598	278
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7
Actuated Green, G (s)	109.0	109.0	137.5	137.5	28.2	28.2
Effective Green, g (s)	109.0	109.0	137.5	137.5	28.2	28.2
Actuated g/C Ratio	0.61	0.61	0.76	0.76	0.16	0.16
Clearance Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3079	958	331	3884	521	225
v/s Ratio Prot	0.33		c0.11	0.40	0.18	
v/s Ratio Perm		0.17	c0.54			c0.19
v/c Ratio	0.54	0.29	0.85	0.52	1.15	1.24
Uniform Delay, d1	20.8	16.9	40.2	8.3	75.9	75.9
Progression Factor	1.15	3.55	1.15	0.90	1.00	1.00
Incremental Delay, d2	0.6	0.7	12.3	0.3	87.0	138.2
Delay (s)	24.5	60.8	58.4	7.8	162.9	214.1
Level of Service	C	E	E	A	F	F
Approach Delay (s)	32.3			14.0	179.2	
Approach LOS	C			B	F	

Intersection Summary			
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	11.5	20.0		11.5	20.0		11.4	38.0		11.4	20.0	
Total Split (s)	13.5	108.5		20.5	115.5		11.4	39.6		11.4	39.6	
Total Split (%)	7.5%	60.3%		11.4%	64.2%		6.3%	22.0%		6.3%	22.0%	
Maximum Green (s)	7.0	102.0		14.0	109.0		5.0	33.6		5.0	33.6	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.0		4.4	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)								7.0				
Flash Dont Walk (s)								25.0				
Pedestrian Calls (#/hr)								11				
Act Effct Green (s)	117.5	111.9		115.5	109.0		39.5	35.9		38.2	33.6	
Actuated g/C Ratio	0.65	0.62		0.64	0.61		0.22	0.20		0.21	0.19	
v/c Ratio	1.06	0.63		0.22	0.56		1.36	0.25		0.13	1.40	
Control Delay	112.1	13.1		12.6	19.3		261.2	52.1		53.8	237.2	
Queue Delay	0.0	0.3		0.0	0.4		0.0	0.0		0.0	0.1	
Total Delay	112.1	13.4		12.6	19.7		261.2	52.1		53.8	237.3	
LOS	F	B		B	B		F	D		D	F	
Approach Delay		21.7			19.6			172.1			224.8	
Approach LOS		C			B			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 4 (2%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.40			
Intersection Signal Delay: 52.1		Intersection LOS: D	
Intersection Capacity Utilization 100.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 16: SW 75th Ave & SW 24th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	1696	206	29	1612	51	116	50	36	37	18	488
Future Volume (vph)	175	1696	206	29	1612	51	116	50	36	37	18	488
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	230		0	30		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.995			0.938			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5004	0	1770	5060	0	1770	1747	0	1770	1593	0
Flt Permitted	0.089			0.063			0.111			0.689		
Satd. Flow (perm)	166	5004	0	117	5060	0	207	1747	0	1283	1593	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			5			17			92	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		399			526			351			1038	
Travel Time (s)		6.8			9.0			8.0			23.6	
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
Adj. Flow (vph)	180	1748	212	30	1662	53	120	52	37	38	19	503
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	1960	0	30	1715	0	120	89	0	38	522	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		

Queues
16: SW 75th Ave & SW 24th Street

10/23/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	180	1960	30	1715	120	89	38	522
v/c Ratio	1.06	0.63	0.22	0.56	1.36	0.25	0.13	1.40
Control Delay	112.1	13.1	12.6	19.3	261.2	52.1	53.8	237.2
Queue Delay	0.0	0.3	0.0	0.4	0.0	0.0	0.0	0.1
Total Delay	112.1	13.4	12.6	19.7	261.2	52.1	53.8	237.3
Queue Length 50th (ft)	~141	297	11	344	~139	73	35	~732
Queue Length 95th (ft)	m#160	m308	m19	360	#287	132	70	#977
Internal Link Dist (ft)		319		446		271		958
Turn Bay Length (ft)	225		230		30		100	
Base Capacity (vph)	170	3119	208	3066	88	361	285	372
Starvation Cap Reductn	0	510	0	692	0	0	0	0
Spillback Cap Reductn	0	25	0	154	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.75	0.14	0.72	1.36	0.25	0.13	1.41

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 6th Signalized Intersection Summary
16: SW 75th Ave & SW 24th Street

10/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	1696	206	29	1612	51	116	50	36	37	18	488
Future Volume (veh/h)	175	1696	206	29	1612	51	116	50	36	37	18	488
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	180	1748	212	30	1662	53	120	52	37	38	19	503
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	227	2876	347	188	3078	98	89	194	138	275	11	287
Arrive On Green	0.05	0.83	0.83	0.02	0.61	0.61	0.03	0.19	0.19	0.02	0.19	0.19
Sat Flow, veh/h	1781	4617	557	1781	5083	162	1781	1017	723	1781	58	1536
Grp Volume(v), veh/h	180	1287	673	30	1113	602	120	0	89	38	0	522
Grp Sat Flow(s),veh/h/ln	1781	1702	1770	1781	1702	1841	1781	0	1740	1781	0	1594
Q Serve(g_s), s	7.0	23.5	23.8	1.1	34.5	34.5	5.0	0.0	7.9	3.1	0.0	33.6
Cycle Q Clear(g_c), s	7.0	23.5	23.8	1.1	34.5	34.5	5.0	0.0	7.9	3.1	0.0	33.6
Prop In Lane	1.00		0.31	1.00		0.09	1.00		0.42	1.00		0.96
Lane Grp Cap(c), veh/h	227	2120	1102	188	2061	1115	89	0	331	275	0	298
V/C Ratio(X)	0.79	0.61	0.61	0.16	0.54	0.54	1.34	0.00	0.27	0.14	0.00	1.75
Avail Cap(c_a), veh/h	227	2120	1102	288	2061	1115	89	0	331	281	0	298
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.9	7.8	7.9	14.1	20.8	20.8	70.0	0.0	62.2	57.4	0.0	73.2
Incr Delay (d2), s/veh	13.2	1.0	1.9	0.3	0.8	1.5	211.0	0.0	0.4	0.2	0.0	353.0
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(50%),veh/ln	4.2	5.8	6.3	0.5	13.8	15.1	7.0	0.0	3.6	1.4	0.0	43.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	8.8	9.7	14.4	21.6	22.3	281.1	0.0	62.6	57.7	0.0	426.2
LnGrp LOS	D	A	A	B	C	C	F	A	E	E	A	F
Approach Vol, veh/h		2140			1745			209			560	
Approach Delay, s/veh		11.4			21.7			188.0			401.2	
Approach LOS		B			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	115.5	11.4	39.6	10.4	118.6	10.7	40.3
Change Period (Y+Rc), s	6.5	6.5	6.4	6.0	6.5	6.5	6.4	6.0
Max Green Setting (Gmax), s	7.0	109.0	5.0	33.6	14.0	102.0	5.0	33.6
Max Q Clear Time (g_c+I1), s	9.0	36.5	7.0	35.6	3.1	25.8	5.1	9.9
Green Ext Time (p_c), s	0.0	19.0	0.0	0.0	0.0	25.6	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	70.1
HCM 6th LOS	E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1740	58	2	1688	12	76	2	15	2	0	0
Future Volume (vph)	14	1740	58	2	1688	12	76	2	15	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	120		0	95		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.999			0.868				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	5060	0	1770	3536	0	1770	1617	0	0	1770	0
Flt Permitted	0.121			0.102			0.757				0.746	
Satd. Flow (perm)	225	5060	0	190	3536	0	1410	1617	0	0	1390	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			1			15				
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		526			1011			1008			1005	
Travel Time (s)		9.0			17.2			22.9			22.8	
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
Adj. Flow (vph)	14	1776	59	2	1722	12	78	2	15	2	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1835	0	2	1734	0	78	17	0	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	6	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	16.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.4	20.4		8.4	20.4		20.0	20.0		20.0	20.0	
Total Split (s)	119.0	119.0		10.0	129.0		51.0	51.0		51.0	51.0	
Total Split (%)	66.1%	66.1%		5.6%	71.7%		28.3%	28.3%		28.3%	28.3%	
Maximum Green (s)	114.6	114.6		7.0	124.6		45.8	45.8		45.8	45.8	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.4	0.4		0.0	0.4		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	153.3	153.3		156.4	155.0		15.4	15.4			15.4	
Actuated g/C Ratio	0.85	0.85		0.87	0.86		0.09	0.09			0.09	
v/c Ratio	0.07	0.43		0.01	0.57		0.65	0.11			0.02	
Control Delay	3.7	5.0		2.5	4.6		103.0	32.6			72.0	
Queue Delay	0.0	0.3		0.0	0.0		0.0	0.0			0.0	
Total Delay	3.7	5.4		2.5	4.6		103.0	32.6			72.0	
LOS	A	A		A	A		F	C			E	
Approach Delay		5.3			4.6			90.4			72.0	
Approach LOS		A			A			F			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 57 (32%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 60.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: SW 74th Ave/Driveways & SW 24th Street



Queues
2: SW 74th Ave/Driveways & SW 24th Street

10/23/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	14	1835	2	1734	78	17	2
v/c Ratio	0.07	0.43	0.01	0.57	0.65	0.11	0.02
Control Delay	3.7	5.0	2.5	4.6	103.0	32.6	72.0
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	3.7	5.4	2.5	4.6	103.0	32.6	72.0
Queue Length 50th (ft)	1	271	0	235	91	2	2
Queue Length 95th (ft)	m9	278	2	356	150	29	12
Internal Link Dist (ft)		446		931		928	925
Turn Bay Length (ft)	120		120		95		
Base Capacity (vph)	191	4310	226	3045	358	422	353
Starvation Cap Reductn	0	1637	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	0.07	0.69	0.01	0.57	0.22	0.04	0.01

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

HCM 6th Signalized Intersection Summary
2: SW 74th Ave/Driveways & SW 24th Street

10/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	1740	58	2	1688	12	76	2	15	2	0	0
Future Volume (veh/h)	14	1740	58	2	1688	12	76	2	15	2	0	0
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	1776	59	2	1722	12	78	2	15	2	0	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	4384	146	263	3194	22	134	12	91	115	0	0
Arrive On Green	1.00	1.00	1.00	0.00	0.88	0.88	0.06	0.06	0.06	0.06	0.00	0.00
Sat Flow, veh/h	279	5076	168	1781	3617	25	1418	190	1424	1177	0	0
Grp Volume(v), veh/h	14	1191	644	2	845	889	78	0	17	2	0	0
Grp Sat Flow(s),veh/h/ln	279	1702	1840	1781	1777	1866	1418	0	1614	1177	0	0
Q Serve(g_s), s	1.0	0.0	0.0	0.0	19.1	19.2	7.2	0.0	1.8	0.2	0.0	0.0
Cycle Q Clear(g_c), s	16.6	0.0	0.0	0.0	19.1	19.2	9.3	0.0	1.8	2.0	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.01	1.00		0.88	1.00		0.00
Lane Grp Cap(c), veh/h	257	2940	1589	263	1569	1648	134	0	103	115	0	0
V/C Ratio(X)	0.05	0.40	0.41	0.01	0.54	0.54	0.58	0.00	0.17	0.02	0.00	0.00
Avail Cap(c_a), veh/h	257	2940	1589	328	1569	1648	405	0	411	381	0	0
HCM Platoon Ratio	1.33	1.33	1.33	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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.8	0.0	0.0	1.4	2.3	2.4	83.1	0.0	79.7	80.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.6	0.0	1.3	1.3	3.9	0.0	0.7	0.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.3	0.0	4.6	4.8	3.8	0.0	0.8	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.1	0.3	0.6	1.4	3.7	3.6	87.0	0.0	80.5	80.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	F	A	F	F	A	A
Approach Vol, veh/h		1849			1736			95			2	
Approach Delay, s/veh		0.4			3.6			85.8			80.8	
Approach LOS		A			A			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		163.3		16.7	3.5	159.9		16.7				
Change Period (Y+Rc), s		* 4.4		* 5.2	3.0	* 4.4		* 5.2				
Max Green Setting (Gmax), s		* 1.2E2		* 46	7.0	* 1.1E2		* 46				
Max Q Clear Time (g_c+I1), s		21.2		11.3	2.0	18.6		4.0				
Green Ext Time (p_c), s		22.5		0.3	0.0	23.8		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	4.2
HCM 6th LOS	A

Notes
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	3 1
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	24.4		11.4	24.4		20.0	20.0		30.6	30.6	
Total Split (s)	14.4	111.4		14.4	111.4		22.6	22.6		31.6	31.6	
Total Split (%)	8.0%	61.9%		8.0%	61.9%		12.6%	12.6%		17.6%	17.6%	
Maximum Green (s)	8.0	105.0		8.0	105.0		16.0	16.0		25.0	25.0	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)										5.0	5.0	
Flash Dont Walk (s)										19.0	19.0	
Pedestrian Calls (#/hr)										4	4	
Act Effct Green (s)	121.7	114.8		117.3	110.7		11.9	11.9		23.1	23.1	31.2
Actuated g/C Ratio	0.68	0.64		0.65	0.62		0.07	0.07		0.13	0.13	0.17
v/c Ratio	0.35	0.59		0.24	0.39		0.41	0.60		0.81	0.52	0.27
Control Delay	13.0	21.2		17.7	25.5		90.2	91.7		91.0	81.0	8.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	13.0	21.2		17.7	25.5		90.2	91.7		91.0	81.0	8.8
LOS	B	C		B	C		F	F		F	F	A
Approach Delay		20.8			25.3			91.1			75.1	
Approach LOS		C			C			F			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 75 (42%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 32.3	Intersection LOS: C
Intersection Capacity Utilization 72.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: NW 82nd Ave & Flagler Str/Flagler St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1800	26	33	1055	89	46	52	19	338	118	91
Future Volume (vph)	100	1800	26	33	1055	89	46	52	19	338	118	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	150		120	200		0
Storage Lanes	1		0	1		0	1		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.998			0.988			0.960				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5075	0	1770	5024	0	1770	1788	0	3433	1863	1583
Flt Permitted	0.185			0.072			0.950			0.950		
Satd. Flow (perm)	345	5075	0	134	5024	0	1770	1788	0	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			13			8				96
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1056			1218			1069			1038	
Travel Time (s)		16.0			18.5			24.3			23.6	
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
Adj. Flow (vph)	105	1895	27	35	1111	94	48	55	20	356	124	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	1922	0	35	1205	0	48	75	0	356	124	96
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								

HCM 2010 Signalized Intersection Summary
1: NW 82nd Ave & Flagler Str/Flagler St 11/05/2018

HCM 2010 analysis expects strict NEMA phasing.

HCM 6th Signalized Intersection Summary
1: NW 82nd Ave & Flagler Str/Flagler St 11/05/2018

HCM 6th Edition methodology expects strict NEMA phasing.

Queues
1: NW 82nd Ave & Flagler Str/Flagler St

11/05/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	105	1922	35	1205	48	75	356	124	96
v/c Ratio	0.35	0.59	0.24	0.39	0.41	0.60	0.81	0.52	0.27
Control Delay	13.0	21.2	17.7	25.5	90.2	91.7	91.0	81.0	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	21.2	17.7	25.5	90.2	91.7	91.0	81.0	8.8
Queue Length 50th (ft)	39	498	16	331	55	78	212	138	0
Queue Length 95th (ft)	68	588	47	461	103	138	273	212	44
Internal Link Dist (ft)		976		1138		989		958	
Turn Bay Length (ft)	200		200		150		200		
Base Capacity (vph)	301	3236	161	3094	157	166	476	258	371
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	0.35	0.59	0.22	0.39	0.31	0.45	0.75	0.48	0.26

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: NW 82nd Ave & Flagler Str/Flagler St

11/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1800	26	33	1055	89	46	52	19	338	118	91
Future Volume (vph)	100	1800	26	33	1055	89	46	52	19	338	118	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	6.6
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5075		1770	5026		1770	1788		3433	1863	1583
Flt Permitted	0.18	1.00		0.07	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	344	5075		134	5026		1770	1788		3433	1863	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)	105	1895	27	35	1111	94	48	55	20	356	124	96
RTOR Reduction (vph)	0	1	0	0	5	0	0	7	0	0	0	79
Lane Group Flow (vph)	105	1921	0	35	1200	0	48	68	0	356	124	17
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								
Actuated Green, G (s)	121.8	113.5		116.2	110.7		11.9	11.9		23.1	23.1	31.4
Effective Green, g (s)	121.8	113.5		116.2	110.7		11.9	11.9		23.1	23.1	31.4
Actuated g/C Ratio	0.68	0.63		0.65	0.62		0.07	0.07		0.13	0.13	0.17
Clearance Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	298	3200		136	3090		117	118		440	239	276
v/s Ratio Prot	c0.02	c0.38		0.01	0.24		0.03	c0.04		c0.10	0.07	0.01
v/s Ratio Perm	0.22			0.16								
v/c Ratio	0.35	0.60		0.26	0.39		0.41	0.57		0.81	0.52	0.06
Uniform Delay, d1	11.3	19.8		15.4	17.5		80.7	81.6		76.3	73.3	62.0
Progression Factor	1.00	1.00		1.41	1.40		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.7	0.8		0.9	0.3		2.3	6.6		10.5	1.9	0.1
Delay (s)	12.1	20.6		22.7	24.9		83.0	88.1		86.8	75.2	62.1
Level of Service	B	C		C	C		F	F		F	E	E
Approach Delay (s)		20.2			24.8			86.1			80.2	
Approach LOS		C			C			F			F	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2	2	4	4	5	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0	5.0	7.0	7.0	7.0
Minimum Split (s)	13.4	30.4		12.0	30.4	30.4	13.6	13.6	12.0	13.2	13.2	13.2
Total Split (s)	21.4	118.4		13.4	110.4	110.4	16.0	16.0	13.4	32.2	32.2	32.2
Total Split (%)	11.9%	65.8%		7.4%	61.3%	61.3%	8.9%	8.9%	7.4%	17.9%	17.9%	17.9%
Maximum Green (s)	15.0	112.0		6.4	104.0	104.0	9.4	9.4	6.4	26.0	26.0	26.0
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.6	2.0	2.0	2.6	2.6	2.6	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)	0.0	7.0			7.0	7.0	0.0	0.0		7.0	7.0	7.0
Flash Dont Walk (s)	0.0	17.0			17.0	17.0	0.0	0.0		21.0	21.0	21.0
Pedestrian Calls (#/hr)	0	15			0	0	9	9		23	23	23
Act Effct Green (s)	122.6	112.1		114.2	108.5	108.5	9.0	9.0	14.9	26.4	26.4	26.4
Actuated g/C Ratio	0.68	0.62		0.63	0.60	0.60	0.05	0.05	0.08	0.15	0.15	0.15
v/c Ratio	0.48	0.61		0.44	0.40	0.51	0.45	0.67	0.26	1.09	1.11	0.20
Control Delay	14.1	31.0		29.8	19.3	22.2	99.6	115.8	3.7	151.8	157.0	1.3
Queue Delay	0.0	0.1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	31.1		29.8	19.3	22.2	99.6	115.8	3.8	151.8	157.0	1.3
LOS	B	C		C	B	C	F	F	A	F	F	A
Approach Delay		29.9			20.5			71.1			136.7	
Approach LOS		C			C			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 146 (81%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 41.9		Intersection LOS: D	
Intersection Capacity Utilization 76.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: SW 79th Ave/NW 79th Ave & Flagler St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	1805	2	57	1138	450	37	58	54	501	5	66
Future Volume (vph)	139	1805	2	57	1138	450	37	58	54	501	5	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	180		0	120		120	0		220
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950	0.953	
Satd. Flow (prot)	1770	5085	0	1770	5085	1583	1770	1863	1583	1681	1686	1583
Flt Permitted	0.177			0.069			0.950			0.950	0.953	
Satd. Flow (perm)	330	5085	0	129	5085	1583	1770	1863	1583	1681	1686	1583
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									97			142
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1218			364			1050			1084	
Travel Time (s)		18.5			5.5			23.9			24.6	
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
Adj. Flow (vph)	149	1941	2	61	1224	484	40	62	58	539	5	71
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	149	1943	0	61	1224	484	40	62	58	269	275	71
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8

HCM 2010 Computation does not support turning movement with Shared and Exclusive lanes.

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Queues
2: SW 79th Ave/NW 79th Ave & Flagler St

11/05/2018

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	149	1943	61	1224	484	40	62	58	269	275	71
v/c Ratio	0.48	0.61	0.44	0.40	0.51	0.45	0.67	0.26	1.09	1.11	0.20
Control Delay	14.1	31.0	29.8	19.3	22.2	99.6	115.8	3.7	151.8	157.0	1.3
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	31.1	29.8	19.3	22.2	99.6	115.8	3.8	151.8	157.0	1.3
Queue Length 50th (ft)	87	694	28	187	205	47	73	0	~380	~394	0
Queue Length 95th (ft)	m95	747	68	258	313	93	#145	5	#590	#605	0
Internal Link Dist (ft)		1138		284			970			1004	
Turn Bay Length (ft)	240		180			120		120			220
Base Capacity (vph)	349	3166	140	3064	953	92	97	220	246	247	353
Starvation Cap Reductn	0	0	0	0	23	0	0	0	0	0	0
Spillback Cap Reductn	0	202	0	0	0	0	0	3	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.66	0.44	0.40	0.52	0.43	0.64	0.27	1.09	1.11	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.

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

HCM Signalized Intersection Capacity Analysis
2: SW 79th Ave/NW 79th Ave & Flagler St

11/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	1805	2	57	1138	450	37	58	54	501	5	66
Future Volume (vph)	139	1805	2	57	1138	450	37	58	54	501	5	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	5085		1770	5085	1583	1770	1863	1583	1681	1687	1583
Flt Permitted	0.18	1.00		0.07	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	329	5085		128	5085	1583	1770	1863	1583	1681	1687	1583
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)	149	1941	2	61	1224	484	40	62	58	539	5	71
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	53	0	0	61
Lane Group Flow (vph)	149	1943	0	61	1224	484	40	62	5	269	275	10
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8
Actuated Green, G (s)	122.6	112.1		114.8	108.5	108.5	9.0	9.0	15.3	26.4	26.4	26.4
Effective Green, g (s)	122.6	112.1		114.8	108.5	108.5	9.0	9.0	15.3	26.4	26.4	26.4
Actuated g/C Ratio	0.68	0.62		0.64	0.60	0.60	0.05	0.05	0.09	0.15	0.15	0.15
Clearance Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	308	3166		139	3065	954	88	93	134	246	247	232
v/s Ratio Prot	c0.03	c0.38		0.02	0.24		0.02	c0.03	0.00	0.16	c0.16	
v/s Ratio Perm	0.30			0.26		0.31			0.00			0.01
v/c Ratio	0.48	0.61		0.44	0.40	0.51	0.45	0.67	0.04	1.09	1.11	0.04
Uniform Delay, d1	11.9	20.7		17.1	18.7	20.5	83.1	84.0	75.6	76.8	76.8	66.0
Progression Factor	1.08	1.45		2.05	1.00	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.7		2.0	0.4	1.8	3.7	16.6	0.1	84.6	91.1	0.1
Delay (s)	13.8	30.8		37.0	19.1	21.5	86.8	100.6	75.7	161.4	167.9	66.1
Level of Service	B	C		D	B	C	F	F	E	F	F	E
Approach Delay (s)		29.6			20.4			88.1			153.3	
Approach LOS		C			C			F			F	

Intersection Summary

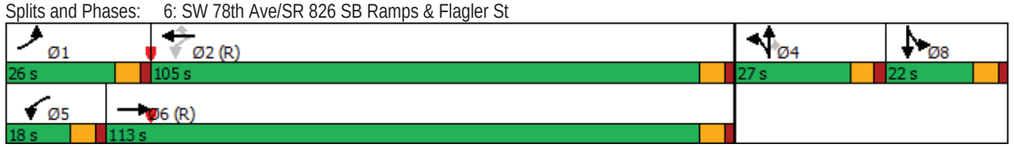
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	26.2
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.4	24.4		11.4	24.4	24.4	24.4	24.4	24.4	20.0	20.0	
Total Split (s)	26.0	113.0		18.0	105.0	105.0	27.0	27.0	27.0	22.0	22.0	
Total Split (%)	14.4%	62.8%		10.0%	58.3%	58.3%	15.0%	15.0%	15.0%	12.2%	12.2%	
Maximum Green (s)	19.6	106.6		11.6	98.6	98.6	20.6	20.6	20.6	15.6	15.6	
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
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)	6.4	6.4		6.4	6.4	6.4		6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		7.0			7.0	7.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		10.0			10.0	10.0	0.0	0.0	0.0	0.0	0.0	
Pedestrian Calls (#/hr)		9			5	5	0	0	0	0	0	
Act Effct Green (s)	19.3	120.8		113.3	106.2	106.2		14.7	14.7	14.2	14.2	
Actuated g/C Ratio	0.11	0.67		0.63	0.59	0.59		0.08	0.08	0.08	0.08	
v/c Ratio	0.78	0.63		0.35	0.52	0.35		0.64	0.68	0.65	0.10	
Control Delay	105.1	19.1		26.6	13.5	2.5		98.3	33.3	88.3	77.5	
Queue Delay	0.0	0.2		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	105.1	19.3		26.6	13.5	2.5		98.3	33.3	88.3	77.5	
LOS	F	B		C	B	A		F	C	F	E	
Approach Delay		33.3			11.7			56.5			87.7	
Approach LOS		C			B			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 172 (96%), Referenced to phase 2:WBTL and 6:EBT, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 29.0		Intersection LOS: C	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: SW 78th Ave/SR 826 SB Ramps & Flagler St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	389	1971	21	45	1439	349	15	74	161	236	13	0
Future Volume (vph)	389	1971	21	45	1439	349	15	74	161	236	13	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		0	150		0	220		80	250		0
Storage Lanes	3		0	1		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.94	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.94	1.00	1.00
Frt		0.998				0.850			0.850			
Flt Protected	0.950			0.950				0.992		0.950		
Satd. Flow (prot)	4990	5075	0	1770	5085	1583	0	1848	1583	4990	1863	0
Flt Permitted	0.950			0.060				0.992		0.950		
Satd. Flow (perm)	4990	5075	0	112	5085	1583	0	1848	1583	4990	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				322			137			
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		504			278			1048			354	
Travel Time (s)		7.6			4.2			23.8			8.0	
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
Adj. Flow (vph)	418	2119	23	48	1547	375	16	80	173	254	14	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	418	2142	0	48	1547	375	0	96	173	254	14	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases				2		2			4			

Queues
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

11/05/2018

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	418	2142	48	1547	375	96	173	254	14
v/c Ratio	0.78	0.63	0.35	0.52	0.35	0.64	0.68	0.65	0.10
Control Delay	105.1	19.1	26.6	13.5	2.5	98.3	33.3	88.3	77.5
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.1	19.3	26.6	13.5	2.5	98.3	33.3	88.3	77.5
Queue Length 50th (ft)	168	850	7	174	1	112	41	104	16
Queue Length 95th (ft)	m193	m905	54	236	6	176	127	139	43
Internal Link Dist (ft)		424		198		968			274
Turn Bay Length (ft)	220		150				80	250	
Base Capacity (vph)	560	3406	180	3000	1066	211	302	437	163
Starvation Cap Reductn	0	389	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	0.75	0.71	0.27	0.52	0.35	0.45	0.57	0.58	0.09

Intersection Summary

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

HCM 6th Signalized Intersection Summary
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

11/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	389	1971	21	45	1439	349	15	74	161	236	13	0
Future Volume (veh/h)	389	1971	21	45	1439	349	15	74	161	236	13	0
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	418	2119	23	48	1547	0	16	80	173	254	14	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	0
Cap, veh/h	481	3410	37	163	2984		35	177	181	318	118	
Arrive On Green	0.10	0.65	0.65	0.03	0.58	0.00	0.11	0.11	0.11	0.06	0.06	0.00
Sat Flow, veh/h	5023	5208	56	1781	5106	1585	309	1546	1585	5023	1870	0
Grp Volume(v), veh/h	418	1385	757	48	1547	0	96	0	173	254	14	0
Grp Sat Flow(s),veh/h/ln	1674	1702	1860	1781	1702	1585	1855	0	1585	1674	1870	0
Q Serve(g_s), s	14.8	42.6	42.7	1.9	32.5	0.0	8.7	0.0	19.5	9.0	1.3	0.0
Cycle Q Clear(g_c), s	14.8	42.6	42.7	1.9	32.5	0.0	8.7	0.0	19.5	9.0	1.3	0.0
Prop In Lane	1.00		0.03	1.00		1.00	0.17		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	481	2229	1218	163	2984		212	0	181	318	118	
V/C Ratio(X)	0.87	0.62	0.62	0.29	0.52		0.45	0.00	0.95	0.80	0.12	
Avail Cap(c_a), veh/h	547	2229	1218	233	2984		212	0	181	435	162	
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	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	80.3	18.1	18.1	17.5	22.3	0.0	74.4	0.0	79.2	83.2	79.6	0.0
Incr Delay (d2), s/veh	12.9	1.3	2.4	1.0	0.6	0.0	1.5	0.0	53.3	7.2	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(50%),veh/ln	6.9	16.4	18.3	0.8	12.9	0.0	4.3	0.0	10.7	4.1	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.1	19.4	20.5	18.5	23.0	0.0	75.9	0.0	132.5	90.4	80.0	0.0
LnGrp LOS	F	B	C	B	C		E	A	F	F	F	
Approach Vol, veh/h		2560			1595	A		269			268	A
Approach Delay, s/veh		31.8			22.8			112.3			89.9	
Approach LOS		C			C			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.6	111.6		27.0	10.9	124.3		17.8				
Change Period (Y+Rc), s	6.4	6.4		6.4	6.4	6.4		6.4				
Max Green Setting (Gmax), s	19.6	98.6		20.6	11.6	106.6		15.6				
Max Q Clear Time (g_c+I1), s	16.8	34.5		21.5	3.9	44.7		11.0				
Green Ext Time (p_c), s	0.5	16.0		0.0	0.0	27.0		0.4				

Intersection Summary

HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D

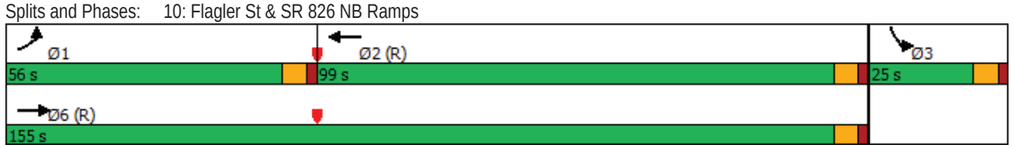
Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2		3	
Switch Phase						
Minimum Initial (s)	5.0	16.0	16.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		24.4	
Total Split (s)	56.0	155.0	99.0		25.0	
Total Split (%)	31.1%	86.1%	55.0%		13.9%	
Maximum Green (s)	49.6	148.6	92.6		18.6	
Yellow Time (s)	4.4	4.4	4.4		4.4	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		6.4	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	2.0	1.0	1.0		2.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	25.7	153.6	121.5	180.0	13.6	
Actuated g/C Ratio	0.14	0.85	0.68	1.00	0.08	
v/c Ratio	0.82	0.45	0.46	0.23	0.68	
Control Delay	94.4	2.4	28.9	0.3	90.3	
Queue Delay	0.0	0.1	0.0	0.0	0.0	
Total Delay	94.4	2.5	28.9	0.3	90.3	
LOS	F	A	C	A	F	
Approach Delay		23.7	23.5		90.3	
Approach LOS		C	C		F	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 45 (25%), Referenced to phase 2:WBT and 6:EBT, Start of Green		
Natural Cycle: 70		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.82		
Intersection Signal Delay: 27.3	Intersection LOS: C	
Intersection Capacity Utilization 60.3%	ICU Level of Service B	
Analysis Period (min) 15		

Splits and Phases: 10: Flagler St & SR 826 NB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	543	1808	1457	337	238	0
Future Volume (vph)	543	1808	1457	337	238	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	350
Storage Lanes	3			1	3	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.94	0.91	0.91	1.00	0.94	1.00
Frt				0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	4990	5085	5085	1583	4990	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	4990	5085	5085	1583	4990	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				63		
Link Speed (mph)		45	30		30	
Link Distance (ft)		377	874		483	
Travel Time (s)		5.7	19.9		11.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	584	1944	1567	362	256	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	584	1944	1567	362	256	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		36	36		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Free	Prot	
Protected Phases	1	6	2		3	
Permitted Phases				Free		

Queues
10: Flagler St & SR 826 NB Ramps

11/05/2018

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	584	1944	1567	362	256
v/c Ratio	0.82	0.45	0.46	0.23	0.68
Control Delay	94.4	2.4	28.9	0.3	90.3
Queue Delay	0.0	0.1	0.0	0.0	0.0
Total Delay	94.4	2.5	28.9	0.3	90.3
Queue Length 50th (ft)	218	54	433	0	106
Queue Length 95th (ft)	256	100	453	0	140
Internal Link Dist (ft)		297	794		403
Turn Bay Length (ft)				100	
Base Capacity (vph)	1375	4339	3432	1583	515
Starvation Cap Reductn	0	1013	0	0	0
Spillback Cap Reductn	0	720	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.42	0.58	0.46	0.23	0.50

Intersection Summary

HCM 6th Signalized Intersection Summary
10: Flagler St & SR 826 NB Ramps

11/05/2018

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	543	1808	1457	337	238	0
Future Volume (veh/h)	543	1808	1457	337	238	0
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	584	1944	1567	0	256	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	661	4925	4071		0	
Arrive On Green	0.13	0.96	1.00	0.00	0.00	0.00
Sat Flow, veh/h	5023	5274	5274	1585	0	0
Grp Volume(v), veh/h	584	1944	1567	0	0	0
Grp Sat Flow(s),veh/h/ln	1674	1702	1702	1585	0	0
Q Serve(g_s), s	20.6	3.9	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	20.6	3.9	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	661	4925	4071		0	
V/C Ratio(X)	0.88	0.39	0.38		0.00	
Avail Cap(c_a), veh/h	1384	4925	4071		0	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.92	0.00	0.00	0.00
Uniform Delay (d), s/veh	76.8	0.2	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.6	0.2	0.3	0.0	0.0	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	8.9	0.1	0.1	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	78.4	0.4	0.3	0.0	0.0	0.0
LnGrp LOS	E	A	A		A	
Approach Vol, veh/h		2528	1567	A	0	A
Approach Delay, s/veh		18.4	0.3		0.0	
Approach LOS		B	A			

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.1	149.9			180.0	0.0
Change Period (Y+Rc), s	6.4	6.4			6.4	6.4
Max Green Setting (Gmax), s	49.6	92.6			148.6	18.6
Max Q Clear Time (g_c+I1), s	22.6	2.0			5.9	0.0
Green Ext Time (p_c), s	1.1	5.8			6.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4	4 5	8	8	1
Switch Phase												
Minimum Initial (s)	5.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	11.4	31.4		11.4	31.4		31.6	31.6		31.6	31.6	11.4
Total Split (s)	15.4	113.4		15.4	113.4		21.6	21.6		29.6	29.6	15.4
Total Split (%)	8.6%	63.0%		8.6%	63.0%		12.0%	12.0%		16.4%	16.4%	8.6%
Maximum Green (s)	9.0	107.0		9.0	107.0		15.0	15.0		23.0	23.0	9.0
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	4.4
All-Red Time (s)	2.0	2.0		2.0	2.0		2.6	2.6		2.6	2.6	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4			6.6			6.6	6.4
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.5	1.0		3.5	1.0		3.5	3.5		3.5	3.5	3.5
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		18.0			18.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		1			0		5	5		1	1	
Act Effct Green (s)	136.6	131.3		138.0	133.9			13.4	22.3		10.7	18.3
Actuated g/C Ratio	0.76	0.73		0.77	0.74			0.07	0.12		0.06	0.10
v/c Ratio	0.06	0.63		0.15	0.41			0.68	0.16		0.18	0.05
Control Delay	7.1	26.5		17.7	7.4			106.0	4.8		81.2	0.4
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	7.1	26.6		17.7	7.4			106.0	4.8		81.2	0.4
LOS	A	C		B	A			F	A		F	A
Approach Delay		26.4			7.6			74.6			53.4	
Approach LOS		C			A			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 47 (26%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 20.9		Intersection LOS: C	
Intersection Capacity Utilization 69.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 14: Flagler St & SW 74th Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	2151	14	18	1421	6	81	2	37	18	0	9
Future Volume (vph)	15	2151	14	18	1421	6	81	2	37	18	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		85
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.999				0.850			0.850
Flt Protected	0.950			0.950				0.953			0.950	
Satd. Flow (prot)	1770	5080	0	1770	5080	0	0	1775	1583	0	1770	1583
Flt Permitted	0.137			0.044				0.953			0.950	
Satd. Flow (perm)	255	5080	0	82	5080	0	0	1775	1583	0	1770	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			1				61			61
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		874			246			109			996	
Travel Time (s)		19.9			5.6			2.5			22.6	
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
Adj. Flow (vph)	16	2313	15	19	1528	6	87	2	40	19	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	2328	0	19	1534	0	0	89	40	0	19	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	pt+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2		4	4	4 5	8	8	1
Permitted Phases	6			2								8

Queues
14: Flagler St & SW 74th Ave

11/05/2018

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	16	2328	19	1534	89	40	19	10
v/c Ratio	0.06	0.63	0.15	0.41	0.68	0.16	0.18	0.05
Control Delay	7.1	26.5	17.7	7.4	106.0	4.8	81.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	26.6	17.7	7.4	106.0	4.8	81.2	0.4
Queue Length 50th (ft)	5	1005	4	143	104	0	22	0
Queue Length 95th (ft)	m14	1056	m10	m195	170	14	50	0
Internal Link Dist (ft)		794		166	29		916	
Turn Bay Length (ft)	200							85
Base Capacity (vph)	272	3706	147	3778	147	262	226	237
Starvation Cap Reductn	0	117	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.65	0.13	0.41	0.61	0.15	0.08	0.04

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

HCM 6th Signalized Intersection Summary
14: Flagler St & SW 74th Ave

11/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	2151	14	18	1421	6	81	2	37	18	0	9
Future Volume (veh/h)	15	2151	14	18	1421	6	81	2	37	18	0	9
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	2313	15	19	1528	6	87	2	40	19	0	10
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	286	3912	25	187	3933	15	107	2	124	53	0	71
Arrive On Green	0.03	1.00	1.00	0.02	0.75	0.75	0.06	0.06	0.06	0.03	0.00	0.03
Sat Flow, veh/h	1781	5234	34	1781	5250	21	1743	40	1585	1781	0	1585
Grp Volume(v), veh/h	16	1504	824	19	991	543	89	0	40	19	0	10
Grp Sat Flow(s),veh/h/ln	1781	1702	1864	1781	1702	1867	1783	0	1585	1781	0	1585
Q Serve(g_s), s	0.4	0.0	0.0	0.5	18.5	18.5	8.9	0.0	4.3	1.9	0.0	1.1
Cycle Q Clear(g_c), s	0.4	0.0	0.0	0.5	18.5	18.5	8.9	0.0	4.3	1.9	0.0	1.1
Prop In Lane	1.00		0.02	1.00		0.01	0.98		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	286	2544	1393	187	2550	1398	110	0	124	53	0	71
V/C Ratio(X)	0.06	0.59	0.59	0.10	0.39	0.39	0.81	0.00	0.32	0.36	0.00	0.14
Avail Cap(c_a), veh/h	348	2544	1393	245	2550	1398	149	0	159	228	0	227
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	0.0	0.0	5.1	8.0	8.0	83.4	0.0	78.4	85.6	0.0	82.6
Incr Delay (d2), s/veh	0.1	0.9	1.6	0.3	0.4	0.8	22.8	0.0	1.8	4.9	0.0	1.1
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(50%),veh/ln	0.1	0.3	0.6	0.2	6.9	7.7	4.8	0.0	1.8	0.9	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.1	0.9	1.6	5.3	8.4	8.8	106.2	0.0	80.2	90.5	0.0	83.7
LnGrp LOS	A	A	A	A	A	A	F	A	F	F	A	F
Approach Vol, veh/h		2344			1553			129			29	
Approach Delay, s/veh		1.2			8.5			98.2			88.1	
Approach LOS		A			A			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	141.2		17.7	9.5	140.9		12.0				
Change Period (Y+Rc), s	6.4	6.4		6.6	6.4	6.4		6.6				
Max Green Setting (Gmax), s	9.0	107.0		15.0	9.0	107.0		23.0				
Max Q Clear Time (g_c+I1), s	2.4	20.5		10.9	2.5	2.0		3.9				
Green Ext Time (p_c), s	0.0	4.7		0.2	0.0	9.8		0.1				

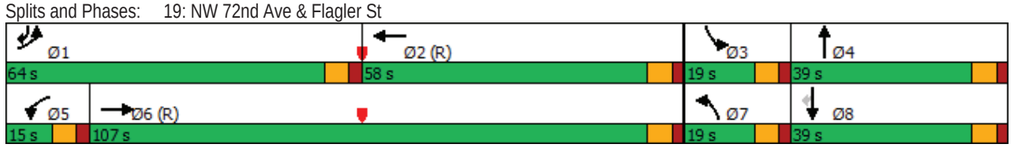
Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	5.0
Minimum Split (s)	11.7	36.7		11.7	36.7		11.6	35.6		11.6	35.6	11.7
Total Split (s)	64.0	107.0		15.0	58.0		19.0	39.0		19.0	39.0	64.0
Total Split (%)	35.6%	59.4%		8.3%	32.2%		10.6%	21.7%		10.6%	21.7%	35.6%
Maximum Green (s)	57.3	100.3		8.3	51.3		12.4	32.4		12.4	32.4	57.3
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	4.4
All-Red Time (s)	2.3	2.3		2.3	2.3		2.2	2.2		2.2	2.2	2.3
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)	6.7	6.7		6.7	6.7		6.6	6.6		6.6	6.6	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	5.0	1.0		2.0	1.0		2.0	4.0		2.0	3.0	5.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		23.0			23.0			22.0			22.0	
Pedestrian Calls (#/hr)		4			1			10			0	
Act Effct Green (s)	55.8	104.2		8.2	56.6		12.4	29.5		11.5	28.6	91.0
Actuated g/C Ratio	0.31	0.58		0.05	0.31		0.07	0.16		0.06	0.16	0.51
v/c Ratio	0.93	0.62		0.67	0.71		1.07	0.81		0.74	0.22	0.23
Control Delay	102.1	13.1		119.6	58.5		174.8	84.0		102.6	65.8	16.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	102.1	13.1		119.6	58.5		174.8	84.0		102.6	65.8	16.1
LOS	F	B		F	E		F	F		F	E	B
Approach Delay		32.7			61.3			103.6			58.3	
Approach LOS		C			E			F			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 82 (46%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 52.1	Intersection LOS: D
Intersection Capacity Utilization 85.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 19: NW 72nd Ave & Flagler St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	478	1509	184	51	1068	0	121	440	1	151	114	179
Future Volume (vph)	478	1509	184	51	1068	0	121	440	1	151	114	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	0		0	350		0	0		0
Storage Lanes	1		0	1		0	1		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	0.95	0.97	0.95	1.00
Frt		0.984										0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5004	0	1770	5085	0	1770	3539	0	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5004	0	1770	5085	0	1770	3539	0	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19										62
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1057			473			1114			119	
Travel Time (s)		24.0			10.8			25.3			2.7	
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
Adj. Flow (vph)	509	1605	196	54	1136	0	129	468	1	161	121	190
Shared Lane Traffic (%)												
Lane Group Flow (vph)	509	1801	0	54	1136	0	129	469	0	161	121	190
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases												8

Queues
19: NW 72nd Ave & Flagler St

11/05/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	509	1801	54	1136	129	469	161	121	190
v/c Ratio	0.93	0.62	0.67	0.71	1.07	0.81	0.74	0.22	0.23
Control Delay	102.1	13.1	119.6	58.5	174.8	84.0	102.6	65.8	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.1	13.1	119.6	58.5	174.8	84.0	102.6	65.8	16.1
Queue Length 50th (ft)	509	87	63	456	~166	283	97	65	76
Queue Length 95th (ft)	#813	324	#137	515	#320	347	141	99	126
Internal Link Dist (ft)		977		393		1034		39	
Turn Bay Length (ft)	500				350				
Base Capacity (vph)	566	2904	85	1599	121	637	236	637	846
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	0.90	0.62	0.64	0.71	1.07	0.74	0.68	0.19	0.22

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.

HCM 6th Signalized Intersection Summary
19: NW 72nd Ave & Flagler St

11/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	478	1509	184	51	1068	0	121	440	1	151	114	179
Future Volume (veh/h)	478	1509	184	51	1068	0	121	440	1	151	114	179
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	509	1605	196	54	1136	0	129	468	1	161	121	190
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	0	2	2	2	2	2	2
Cap, veh/h	535	2801	341	68	1764		123	542	1	199	489	694
Arrive On Green	0.30	0.61	0.61	0.04	0.35	0.00	0.07	0.15	0.15	0.06	0.14	0.14
Sat Flow, veh/h	1781	4611	562	1781	5274	0	1781	3638	8	3456	3554	1585
Grp Volume(v), veh/h	509	1184	617	54	1136	0	129	229	240	161	121	190
Grp Sat Flow(s),veh/h/ln	1781	1702	1769	1781	1702	0	1781	1777	1869	1728	1777	1585
Q Serve(g_s), s	50.4	37.7	37.9	5.4	33.7	0.0	12.4	22.6	22.6	8.3	5.5	13.8
Cycle Q Clear(g_c), s	50.4	37.7	37.9	5.4	33.7	0.0	12.4	22.6	22.6	8.3	5.5	13.8
Prop In Lane	1.00		0.32	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	535	2067	1074	68	1764		123	265	279	199	489	694
V/C Ratio(X)	0.95	0.57	0.57	0.79	0.64		1.05	0.86	0.86	0.81	0.25	0.27
Avail Cap(c_a), veh/h	567	2067	1074	82	1764		123	320	336	238	640	761
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	21.3	21.3	85.8	49.6	0.0	83.8	74.8	74.8	83.9	69.3	32.3
Incr Delay (d2), s/veh	26.6	1.2	2.2	28.1	1.8	0.0	95.6	19.7	18.9	13.6	0.3	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(50%),veh/ln	26.8	15.5	16.5	3.0	14.8	0.0	9.0	11.8	12.4	4.1	2.5	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.3	22.4	23.5	113.9	51.4	0.0	179.4	94.5	93.7	97.4	69.6	32.5
LnGrp LOS	F	C	C	F	D		F	F	F	F	E	C
Approach Vol, veh/h		2310			1190	A		598			472	
Approach Delay, s/veh		37.3			54.2			112.5			64.2	
Approach LOS		D			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	60.7	68.9	16.9	33.4	13.6	116.0	19.0	31.4
Change Period (Y+Rc), s	* 6.7	* 6.7	* 6.6	* 6.6	* 6.7	* 6.7	* 6.6	* 6.6
Max Green Setting (Gmax), s	* 57	* 51	* 12	* 32	* 8.3	* 1E2	* 12	* 32
Max Q Clear Time (g_c+I1), s	52.4	35.7	10.3	24.6	7.4	39.9	14.4	15.8
Green Ext Time (p_c), s	1.6	3.3	0.1	2.2	0.0	6.3	0.0	1.2

Intersection Summary

HCM 6th Ctrl Delay	54.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	3 1
Switch Phase												
Minimum Initial (s)	5.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.4	24.4		11.4	24.4		24.6	24.6		32.6	32.6	
Total Split (s)	14.4	98.4		14.4	98.4		24.6	24.6		32.6	32.6	
Total Split (%)	8.5%	57.9%		8.5%	57.9%		14.5%	14.5%		19.2%	19.2%	
Maximum Green (s)	8.0	92.0		8.0	92.0		18.0	18.0		26.0	26.0	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		0.0			0.0		0.0	0.0		5.0	5.0	
Flash Dont Walk (s)		0.0			0.0		0.0	0.0		19.0	19.0	
Pedestrian Calls (#/hr)		0			0		0	0		5	5	
Act Effct Green (s)	108.3	100.0		98.5	92.0		13.8	13.8		26.0	26.0	38.0
Actuated g/C Ratio	0.64	0.59		0.58	0.54		0.08	0.08		0.15	0.15	0.22
v/c Ratio	0.82	0.50		0.28	0.81		0.36	0.70		1.03	0.43	0.19
Control Delay	74.1	22.1		9.8	13.4		79.8	93.5		114.7	70.5	7.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	74.1	22.1		9.8	13.4		79.8	93.5		114.7	70.5	7.9
LOS	E	C		A	B		E	F		F	E	A
Approach Delay		26.4			13.3			89.0			96.3	
Approach LOS		C			B			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 170			
Actuated Cycle Length: 170			
Offset: 16 (9%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 135			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 33.1		Intersection LOS: C	
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: NW 82nd Ave & Flagler Str/Flagler St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1353	57	53	1840	229	49	78	22	507	114	72
Future Volume (vph)	130	1353	57	53	1840	229	49	78	22	507	114	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	150		120	200		0
Storage Lanes	1		0	1		0	1		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.994			0.983			0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5055	0	1770	4999	0	1770	1801	0	3433	1863	1583
Flt Permitted	0.041			0.130			0.950			0.950		
Satd. Flow (perm)	76	5055	0	242	4999	0	1770	1801	0	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			20			7				77
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1056			1218			1069			1038	
Travel Time (s)		16.0			18.5			24.3			23.6	
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
Adj. Flow (vph)	138	1439	61	56	1957	244	52	83	23	539	121	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	1500	0	56	2201	0	52	106	0	539	121	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								

HCM 2010 analysis expects strict NEMA phasing.

HCM 6th Edition methodology expects strict NEMA phasing.

Queues
1: NW 82nd Ave & Flagler Str/Flagler St

11/05/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	138	1500	56	2201	52	106	539	121	77
v/c Ratio	0.82	0.50	0.28	0.81	0.36	0.70	1.03	0.43	0.19
Control Delay	74.1	22.1	9.8	13.4	79.8	93.5	114.7	70.5	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.1	22.1	9.8	13.4	79.8	93.5	114.7	70.5	7.9
Queue Length 50th (ft)	102	360	10	146	56	109	~328	124	0
Queue Length 95th (ft)	#281	432	m14	153	103	177	#453	196	37
Internal Link Dist (ft)		976		1138		989		958	
Turn Bay Length (ft)	200		200		150		200		
Base Capacity (vph)	169	2975	214	2714	187	196	525	284	413
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	0.82	0.50	0.26	0.81	0.28	0.54	1.03	0.43	0.19

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
1: NW 82nd Ave & Flagler Str/Flagler St

11/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1353	57	53	1840	229	49	78	22	507	114	72
Future Volume (vph)	130	1353	57	53	1840	229	49	78	22	507	114	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	6.6
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		0.97	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5054		1770	5001		1770	1802		3433	1863	1583
Flt Permitted	0.04	1.00		0.13	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	76	5054		242	5001		1770	1802		3433	1863	1583
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)	138	1439	61	56	1957	244	52	83	23	539	121	77
RTOR Reduction (vph)	0	3	0	0	9	0	0	6	0	0	0	60
Lane Group Flow (vph)	138	1497	0	56	2192	0	52	100	0	539	121	17
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								
Actuated Green, G (s)	110.6	98.7		97.5	92.0		13.8	13.8		26.0	26.0	38.2
Effective Green, g (s)	110.6	98.7		97.5	92.0		13.8	13.8		26.0	26.0	38.2
Actuated g/C Ratio	0.65	0.58		0.57	0.54		0.08	0.08		0.15	0.15	0.22
Clearance Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	171	2934		188	2706		143	146		525	284	355
v/s Ratio Prot	c0.06	0.30		0.01	0.44		0.03	c0.06		c0.16	0.06	0.01
v/s Ratio Perm	c0.47			0.16								
v/c Ratio	0.81	0.51		0.30	0.81		0.36	0.68		1.03	0.43	0.05
Uniform Delay, d1	51.5	21.2		17.2	31.9		73.9	76.0		72.0	65.2	51.7
Progression Factor	1.00	1.00		0.62	0.36		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	22.4	0.6		0.2	1.9		1.1	11.4		46.2	0.8	0.0
Delay (s)	73.9	21.9		10.8	13.4		75.1	87.3		118.2	66.0	51.7
Level of Service	E	C		B	B		E	F		F	E	D
Approach Delay (s)		26.3			13.3			83.3			102.7	
Approach LOS		C			B			F			F	

Intersection Summary

HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2	2	4	4	5	8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	5.0	7.0	7.0	7.0
Minimum Split (s)	13.4	30.4		12.0	30.4	30.4	13.6	13.6	12.0	13.2	13.2	13.2
Total Split (s)	18.4	95.4		18.4	95.4	95.4	16.0	16.0	18.4	40.2	40.2	40.2
Total Split (%)	10.8%	56.1%		10.8%	56.1%	56.1%	9.4%	9.4%	10.8%	23.6%	23.6%	23.6%
Maximum Green (s)	12.0	89.0		11.4	89.0	89.0	9.4	9.4	11.4	34.0	34.0	34.0
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.6	2.0	2.0	2.6	2.6	2.6	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)	0.0	7.0			7.0	7.0	0.0	0.0		7.0	7.0	7.0
Flash Dont Walk (s)	0.0	17.0			17.0	17.0	0.0	0.0		21.0	21.0	21.0
Pedestrian Calls (#/hr)	0	20			0	0	0	0		21	21	21
Act Effct Green (s)	107.2	96.3		101.2	93.9	93.9	8.4	8.4	14.6	33.9	33.9	33.9
Actuated g/C Ratio	0.63	0.57		0.60	0.55	0.55	0.05	0.05	0.09	0.20	0.20	0.20
v/c Ratio	0.80	0.50		0.30	0.75	0.60	0.43	0.40	0.11	0.93	0.92	0.34
Control Delay	78.5	19.0		8.6	11.5	11.1	93.0	90.9	1.1	100.6	98.1	15.7
Queue Delay	0.0	0.0		0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.5	19.0		8.6	11.6	11.3	93.0	90.9	1.1	100.6	98.1	15.7
LOS	E	B		A	B	B	F	F	A	F	F	B
Approach Delay		23.8			11.5			71.9			84.1	
Approach LOS		C			B			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 170			
Actuated Cycle Length: 170			
Offset: 12 (7%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 27.2		Intersection LOS: C	
Intersection Capacity Utilization 83.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: SW 79th Ave/NW 79th Ave & Flagler St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	1355	10	63	1991	499	35	35	20	570	20	132
Future Volume (vph)	119	1355	10	63	1991	499	35	35	20	570	20	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	180		0	120		120	0		220
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.999				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950	0.955	
Satd. Flow (prot)	1770	5080	0	1770	5085	1583	1770	1863	1583	1681	1690	1583
Flt Permitted	0.042			0.132			0.950			0.950	0.955	
Satd. Flow (perm)	78	5080	0	246	5085	1583	1770	1863	1583	1681	1690	1583
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									62			117
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1218			364			1050			1084	
Travel Time (s)		18.5			5.5			23.9			24.6	
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
Adj. Flow (vph)	125	1426	11	66	2096	525	37	37	21	600	21	139
Shared Lane Traffic (%)										48%		
Lane Group Flow (vph)	125	1437	0	66	2096	525	37	37	21	312	309	139
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8

HCM 2010 Computation does not support turning movement with Shared and Exclusive lanes.

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Queues
2: SW 79th Ave/NW 79th Ave & Flagler St

11/05/2018

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	125	1437	66	2096	525	37	37	21	312	309	139
v/c Ratio	0.80	0.50	0.30	0.75	0.60	0.43	0.40	0.11	0.93	0.92	0.34
Control Delay	78.5	19.0	8.6	11.5	11.1	93.0	90.9	1.1	100.6	98.1	15.7
Queue Delay	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.5	19.0	8.6	11.6	11.3	93.0	90.9	1.1	100.6	98.1	15.7
Queue Length 50th (ft)	107	242	9	512	173	41	41	0	363	357	20
Queue Length 95th (ft)	m#169	m254	m13	140	109	84	84	0	#565	#555	86
Internal Link Dist (ft)		1138		284			970			1004	
Turn Bay Length (ft)	240		180			120		120			220
Base Capacity (vph)	169	2879	253	2809	874	97	103	224	341	342	414
Starvation Cap Reductn	0	0	0	96	49	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.50	0.26	0.77	0.64	0.38	0.36	0.09	0.91	0.90	0.34

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
2: SW 79th Ave/NW 79th Ave & Flagler St

11/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	1355	10	63	1991	499	35	35	20	570	20	132
Future Volume (vph)	119	1355	10	63	1991	499	35	35	20	570	20	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	5079		1770	5085	1583	1770	1863	1583	1681	1691	1583
Flt Permitted	0.04	1.00		0.13	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	78	5079		246	5085	1583	1770	1863	1583	1681	1691	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)	125	1426	11	66	2096	525	37	37	21	600	21	139
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	19	0	0	94
Lane Group Flow (vph)	125	1437	0	66	2096	525	37	37	2	312	309	45
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8
Actuated Green, G (s)	105.9	95.0		100.5	92.6	92.6	7.0	7.0	14.9	33.9	33.9	33.9
Effective Green, g (s)	105.9	95.0		100.5	92.6	92.6	7.0	7.0	14.9	33.9	33.9	33.9
Actuated g/C Ratio	0.62	0.56		0.59	0.54	0.54	0.04	0.04	0.09	0.20	0.20	0.20
Clearance Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	157	2838		216	2769	862	72	76	138	335	337	315
v/s Ratio Prot	c0.05	0.28		0.01	0.41		c0.02	0.02	0.00	c0.19	0.18	
v/s Ratio Perm	c0.44			0.17		0.33			0.00			0.03
v/c Ratio	0.80	0.51		0.31	0.76	0.61	0.51	0.49	0.01	0.93	0.92	0.14
Uniform Delay, d1	46.9	23.1		16.6	30.0	26.4	79.8	79.7	70.8	66.9	66.7	56.1
Progression Factor	1.33	0.80		0.46	0.33	0.31	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.8	0.5		0.6	1.6	2.6	6.1	4.8	0.0	31.9	28.6	0.2
Delay (s)	81.4	18.9		8.3	11.5	10.8	85.9	84.6	70.9	98.8	95.3	56.3
Level of Service	F	B		A	B	B	F	F	E	F	F	E
Approach Delay (s)		23.9			11.3			82.1			89.6	
Approach LOS		C			B			F			F	

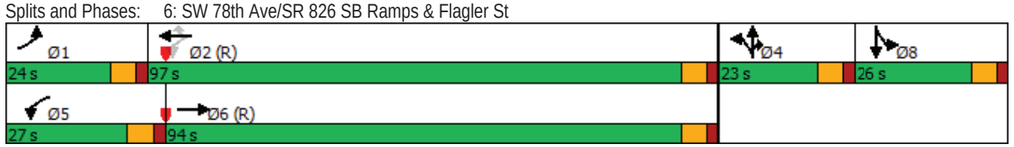
Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	26.2
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.4	24.4		11.4	24.4	24.4	13.4	13.4	13.4	20.0	20.0	
Total Split (s)	24.0	94.0		27.0	97.0	97.0	23.0	23.0	23.0	26.0	26.0	
Total Split (%)	14.1%	55.3%		15.9%	57.1%	57.1%	13.5%	13.5%	13.5%	15.3%	15.3%	
Maximum Green (s)	17.6	87.6		20.6	90.6	90.6	16.6	16.6	16.6	19.6	19.6	
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
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)	6.4	6.4		6.4	6.4	6.4		6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		7.0			7.0	7.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		10.0			10.0	10.0	0.0	0.0	0.0	0.0	0.0	
Pedestrian Calls (#/hr)		13			1	1	0	0	0	0	0	
Act Effct Green (s)	18.2	107.0		107.9	98.3	98.3		12.1	12.1	15.8	15.8	
Actuated g/C Ratio	0.11	0.63		0.63	0.58	0.58		0.07	0.07	0.09	0.09	
v/c Ratio	0.77	0.52		0.50	0.74	0.59		0.57	0.19	0.66	0.27	
Control Delay	83.9	10.5		21.2	25.8	10.5		92.2	2.0	81.4	74.7	
Queue Delay	0.0	0.0		0.0	0.1	0.1		0.0	0.0	0.0	0.0	
Total Delay	83.9	10.5		21.2	25.9	10.6		92.2	2.0	81.4	74.7	
LOS	F	B		C	C	B		F	A	F	E	
Approach Delay		25.0			22.4			60.3			80.6	
Approach LOS		C			C			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 170			
Actuated Cycle Length: 170			
Offset: 7 (4%), Referenced to phase 2:WBTL and 6:EBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 27.9		Intersection LOS: C	
Intersection Capacity Utilization 77.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 6: SW 78th Ave/SR 826 SB Ramps & Flagler St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	403	1598	36	107	2146	621	23	49	39	301	45	0
Future Volume (vph)	403	1598	36	107	2146	621	23	49	39	301	45	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		0	150		0	220		80	250		0
Storage Lanes	3		0	1		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.94	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.94	1.00	1.00
Frt		0.997				0.850			0.850			
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	4990	5070	0	1770	5085	1583	0	1833	1583	4990	1863	0
Flt Permitted	0.950			0.112				0.984		0.950		
Satd. Flow (perm)	4990	5070	0	209	5085	1583	0	1833	1583	4990	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				394			104			
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		504			280			1048			354	
Travel Time (s)		7.6			4.2			23.8			8.0	
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
Adj. Flow (vph)	411	1631	37	109	2190	634	23	50	40	307	46	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	411	1668	0	109	2190	634	0	73	40	307	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	Perm	Split	NA	Prot	Split	NA	
Protected Phases	1	6		5	2		4	4	4	8	8	
Permitted Phases				2		2						

Queues
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

11/05/2018

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	411	1668	109	2190	634	73	40	307	46
v/c Ratio	0.77	0.52	0.50	0.74	0.59	0.57	0.19	0.66	0.27
Control Delay	83.9	10.5	21.2	25.8	10.5	92.2	2.0	81.4	74.7
Queue Delay	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total Delay	83.9	10.5	21.2	25.9	10.6	92.2	2.0	81.4	74.7
Queue Length 50th (ft)	151	258	33	439	126	80	0	119	49
Queue Length 95th (ft)	m191	278	m95	518	229	136	0	152	92
Internal Link Dist (ft)		424		200		968			274
Turn Bay Length (ft)	220		150				80	250	
Base Capacity (vph)	546	3191	335	2941	1081	178	248	575	214
Starvation Cap Reductn	0	226	0	106	32	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	0.75	0.56	0.33	0.77	0.60	0.41	0.16	0.53	0.21

Intersection Summary

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

HCM 6th Signalized Intersection Summary
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

11/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	403	1598	36	107	2146	621	23	49	39	301	45	0
Future Volume (veh/h)	403	1598	36	107	2146	621	23	49	39	301	45	0
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	411	1631	37	109	2190	0	23	50	40	307	46	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, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	474	3523	80	265	3198		30	66	82	386	144	
Arrive On Green	0.09	0.69	0.69	0.03	0.63	0.00	0.05	0.05	0.05	0.08	0.08	0.00
Sat Flow, veh/h	5023	5137	117	1781	5106	1585	580	1261	1585	5023	1870	0
Grp Volume(v), veh/h	411	1081	587	109	2190	0	73	0	40	307	46	0
Grp Sat Flow(s),veh/h/ln	1674	1702	1849	1781	1702	1585	1841	0	1585	1674	1870	0
Q Serve(g_s), s	13.7	24.8	24.9	3.8	47.7	0.0	6.7	0.0	4.2	10.2	4.0	0.0
Cycle Q Clear(g_c), s	13.7	24.8	24.9	3.8	47.7	0.0	6.7	0.0	4.2	10.2	4.0	0.0
Prop In Lane	1.00		0.06	1.00		1.00	0.32		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	474	2334	1268	265	3198		96	0	82	386	144	
V/C Ratio(X)	0.87	0.46	0.46	0.41	0.68		0.76	0.00	0.49	0.80	0.32	
Avail Cap(c_a), veh/h	520	2334	1268	419	3198		180	0	155	579	216	
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	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	75.9	12.3	12.3	11.4	20.8	0.0	79.5	0.0	78.4	77.2	74.3	0.0
Incr Delay (d2), s/veh	13.6	0.7	1.2	1.0	1.2	0.0	11.7	0.0	4.4	4.6	1.3	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(50%),veh/ln	6.4	9.2	10.2	1.5	18.4	0.0	3.5	0.0	1.8	4.6	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.5	13.0	13.5	12.4	22.0	0.0	91.3	0.0	82.7	81.7	75.5	0.0
LnGrp LOS	F	B	B	B	C		F	A	F	F	E	
Approach Vol, veh/h		2079			2299	A		113			353	A
Approach Delay, s/veh		28.2			21.5			88.2			80.9	
Approach LOS		C			C			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.4	112.9		15.2	12.3	123.0		19.5				
Change Period (Y+Rc), s	6.4	6.4		6.4	6.4	6.4		6.4				
Max Green Setting (Gmax), s	17.6	90.6		16.6	20.6	87.6		19.6				
Max Q Clear Time (g_c+I1), s	15.7	49.7		8.7	5.8	26.9		12.2				
Green Ext Time (p_c), s	0.3	24.7		0.2	0.2	16.6		0.8				

Intersection Summary

HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	502	1415	2330	130	153	0
Future Volume (vph)	502	1415	2330	130	153	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	0
Storage Lanes	3			1	3	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.94	0.91	0.91	1.00	0.94	1.00
Frt				0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	4990	5085	5085	1583	4990	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	4990	5085	5085	1583	4990	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				16		
Link Speed (mph)		45	30		30	
Link Distance (ft)		368	874		483	
Travel Time (s)		5.6	19.9		11.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	512	1444	2378	133	156	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	512	1444	2378	133	156	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		36	36		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Free	Prot	
Protected Phases	1	6	2		3	
Permitted Phases				Free		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
LOS	F	A	B	A	F	
Approach Delay		22.2	15.9		85.1	
Approach LOS		C	B		F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 170			
Actuated Cycle Length: 170			
Offset: 33 (19%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 20.9		Intersection LOS: C	
Intersection Capacity Utilization 76.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 10: Flagler St & SR 826 NB Ramps



Queues
10: Flagler St & SR 826 NB Ramps

11/05/2018

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	512	1444	2378	133	156
v/c Ratio	0.78	0.33	0.67	0.08	0.55
Control Delay	82.1	1.0	15.8	0.1	85.1
Queue Delay	0.0	0.0	1.0	0.0	0.0
Total Delay	82.1	1.0	16.8	0.1	85.1
Queue Length 50th (ft)	188	5	516	0	61
Queue Length 95th (ft)	#258	16	556	0	88
Internal Link Dist (ft)		288	794		403
Turn Bay Length (ft)				100	
Base Capacity (vph)	660	4411	3547	1583	487
Starvation Cap Reductn	0	0	811	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.78	0.33	0.87	0.08	0.32

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

HCM 6th Signalized Intersection Summary
10: Flagler St & SR 826 NB Ramps

11/05/2018

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	502	1415	2330	130	153	0
Future Volume (veh/h)	502	1415	2330	130	153	0
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	512	1444	2378	0	156	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	461	4914	4253		0	0
Arrive On Green	0.09	0.96	0.83	0.00	0.00	0.00
Sat Flow, veh/h	5023	5274	5274	1585	0	0
Grp Volume(v), veh/h	512	1444	2378	0	0	0
Grp Sat Flow(s),veh/h/ln	1674	1702	1702	1585	0	0
Q Serve(g_s), s	15.6	2.5	24.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.6	2.5	24.8	0.0	0.0	0.0
Prop In Lane	1.00			1.00	0.00	0.00
Lane Grp Cap(c), veh/h	461	4914	4253		0	0
V/C Ratio(X)	1.11	0.29	0.56		0.00	0.00
Avail Cap(c_a), veh/h	461	4914	4253		0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.73	0.00	0.00	0.00
Uniform Delay (d), s/veh	77.2	0.2	4.4	0.0	0.0	0.0
Incr Delay (d2), s/veh	75.6	0.2	0.4	0.0	0.0	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	9.9	0.1	7.6	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	152.8	0.3	4.8	0.0	0.0	0.0
LnGrp LOS	F	A	A		A	A
Approach Vol, veh/h		1956	2378	A	0	
Approach Delay, s/veh		40.2	4.8		0.0	
Approach LOS		D	A			

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	22.0	148.0			170.0	0.0
Change Period (Y+Rc), s	6.4	6.4			6.4	6.4
Max Green Setting (Gmax), s	15.6	118.6			140.6	16.6
Max Q Clear Time (g_c+I1), s	17.6	26.8			4.5	0.0
Green Ext Time (p_c), s	0.0	12.8			3.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4	4 5	8	8	1
Switch Phase												
Minimum Initial (s)	5.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	11.4	31.4		9.5	31.4		13.6	13.6		13.6	13.6	11.4
Total Split (s)	14.4	114.4		18.4	118.4		22.6	22.6		24.6	24.6	14.4
Total Split (%)	8.0%	63.6%		10.2%	65.8%		12.6%	12.6%		13.7%	13.7%	8.0%
Maximum Green (s)	8.0	108.0		13.9	112.0		16.0	16.0		18.0	18.0	8.0
Yellow Time (s)	4.4	4.4		3.5	4.4		4.0	4.0		4.0	4.0	4.4
All-Red Time (s)	2.0	2.0		1.0	2.0		2.6	2.6		2.6	2.6	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.4	6.4		4.5	6.4			6.6			6.6	6.4
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.5	1.0		3.0	1.0		3.5	3.5		3.5	3.5	3.5
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		18.0			18.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		1			0		2	2		2	2	
Act Effct Green (s)	133.4	127.6		8.3	127.3			13.9	21.3		10.9	21.9
Actuated g/C Ratio	0.74	0.71		0.05	0.71			0.08	0.12		0.06	0.12
v/c Ratio	0.34	0.52		0.33	0.64			0.66	0.01		0.37	0.04
Control Delay	16.0	14.7		99.7	15.2			103.4	0.0		89.2	0.3
Queue Delay	0.0	0.3		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	16.0	15.0		99.7	15.2			103.4	0.0		89.2	0.3
LOS	B	B		F	B			F	A		F	A
Approach Delay		15.0			16.2			100.1			72.9	
Approach LOS		B			B			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 176 (98%), Referenced to phase 2:WBT and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 14: Flagler St & SW 74th Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	1779	12	26	2199	9	80	8	3	34	5	9
Future Volume (vph)	42	1779	12	26	2199	9	80	8	3	34	5	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		85
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.999				0.850			0.850
Flt Protected	0.950			0.950				0.956			0.958	
Satd. Flow (prot)	1770	5080	0	1770	5080	0	0	1781	1583	0	1785	1583
Flt Permitted	0.045			0.950				0.956			0.958	
Satd. Flow (perm)	84	5080	0	1770	5080	0	0	1781	1583	0	1785	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			1				61			61
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		874			246			109			996	
Travel Time (s)		19.9			5.6			2.5			22.6	
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
Adj. Flow (vph)	44	1853	13	27	2291	9	83	8	3	35	5	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1866	0	27	2300	0	0	91	3	0	40	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Prot	NA		Split	NA	pt+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2		4	4	4 5	8	8	1
Permitted Phases	6											8

Queues
14: Flagler St & SW 74th Ave

11/05/2018

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	44	1866	27	2300	91	3	40	9
v/c Ratio	0.34	0.52	0.33	0.64	0.66	0.01	0.37	0.04
Control Delay	16.0	14.7	99.7	15.2	103.4	0.0	89.2	0.3
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	15.0	99.7	15.2	103.4	0.0	89.2	0.3
Queue Length 50th (ft)	12	383	32	827	106	0	47	0
Queue Length 95th (ft)	34	516	m40	m801	173	0	88	0
Internal Link Dist (ft)		794		166	29		916	
Turn Bay Length (ft)	200							85
Base Capacity (vph)	137	3600	136	3593	158	296	178	253
Starvation Cap Reductn	0	923	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.70	0.20	0.64	0.58	0.01	0.22	0.04

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

HCM 6th Signalized Intersection Summary
14: Flagler St & SW 74th Ave

11/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	1779	12	26	2199	9	80	8	3	34	5	9
Future Volume (veh/h)	42	1779	12	26	2199	9	80	8	3	34	5	9
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	1853	12	27	2291	9	83	8	3	35	5	9
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	168	3917	25	37	3851	15	101	10	131	56	8	95
Arrive On Green	0.02	0.75	0.75	0.02	0.73	0.73	0.06	0.06	0.06	0.04	0.04	0.04
Sat Flow, veh/h	1781	5234	34	1781	5250	21	1632	157	1585	1568	224	1585
Grp Volume(v), veh/h	44	1205	660	27	1485	815	91	0	3	40	0	9
Grp Sat Flow(s),veh/h/ln	1781	1702	1864	1781	1702	1867	1789	0	1585	1792	0	1585
Q Serve(g_s), s	1.1	24.8	24.8	2.7	37.1	37.2	9.1	0.0	0.3	4.0	0.0	1.0
Cycle Q Clear(g_c), s	1.1	24.8	24.8	2.7	37.1	37.2	9.1	0.0	0.3	4.0	0.0	1.0
Prop In Lane	1.00		0.02	1.00		0.01	0.91		1.00	0.87		1.00
Lane Grp Cap(c), veh/h	168	2547	1395	37	2497	1369	110	0	131	64	0	95
V/C Ratio(X)	0.26	0.47	0.47	0.74	0.59	0.60	0.82	0.00	0.02	0.63	0.00	0.09
Avail Cap(c_a), veh/h	204	2547	1395	138	2497	1369	159	0	174	179	0	198
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)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.7	8.8	8.8	87.7	11.3	11.3	83.5	0.0	75.9	85.6	0.0	79.9
Incr Delay (d2), s/veh	0.9	0.6	1.1	24.6	1.1	1.9	21.9	0.0	0.1	11.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	9.3	10.3	1.5	14.1	15.8	4.9	0.0	0.1	2.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	9.4	9.9	112.2	12.4	13.3	105.4	0.0	76.0	97.3	0.0	80.4
LnGrp LOS	B	A	A	F	B	B	F	A	E	F	A	F
Approach Vol, veh/h		1909			2327			94			49	
Approach Delay, s/veh		9.7			13.8			104.5			94.2	
Approach LOS		A			B			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	138.4		17.7	8.2	141.1		13.0				
Change Period (Y+Rc), s	6.4	6.4		6.6	4.5	6.4		6.6				
Max Green Setting (Gmax), s	8.0	112.0		16.0	13.9	108.0		18.0				
Max Q Clear Time (g_c+I1), s	3.1	39.2		11.1	4.7	26.8		6.0				
Green Ext Time (p_c), s	0.0	9.6		0.2	0.0	6.4		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Notes
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	5.0
Minimum Split (s)	24.7	36.7		11.7	36.7		11.6	35.6		11.6	35.6	24.7
Total Split (s)	21.0	83.0		21.0	83.0		24.0	52.0		24.0	52.0	21.0
Total Split (%)	11.7%	46.1%		11.7%	46.1%		13.3%	28.9%		13.3%	28.9%	11.7%
Maximum Green (s)	14.3	76.3		14.3	76.3		17.4	45.4		17.4	45.4	14.3
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	4.4
All-Red Time (s)	2.3	2.3		2.3	2.3		2.2	2.2		2.2	2.2	2.3
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)	6.7	6.7		6.7	6.7		6.6	6.6		6.6	6.6	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	5.0	1.0		2.0	1.0		2.0	4.0		2.0	3.0	5.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		23.0			23.0			22.0			22.0	
Pedestrian Calls (#/hr)		4			1			9			0	
Act Effct Green (s)	21.0	85.7		11.6	76.3		17.4	39.1		16.9	38.7	66.3
Actuated g/C Ratio	0.12	0.48		0.06	0.42		0.10	0.22		0.09	0.22	0.37
v/c Ratio	1.02	0.71		0.68	0.61		0.99	0.34		0.89	0.84	1.33
Control Delay	136.7	38.1		109.9	41.7		145.3	60.1		108.0	77.9	200.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	136.7	38.1		109.9	41.7		145.3	60.1		108.0	77.9	200.0
LOS	F	D		F	D		F	E		F	E	F
Approach Delay		49.0			45.5			93.8			140.6	
Approach LOS		D			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 153 (85%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.33			
Intersection Signal Delay: 81.0		Intersection LOS: F	
Intersection Capacity Utilization 100.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 19: NW 72nd Ave & Flagler St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	1386	265	75	1279	0	167	255	0	280	623	811
Future Volume (vph)	206	1386	265	75	1279	0	167	255	0	280	623	811
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	0		0	350		0	0		0
Storage Lanes	1		0	1		0	1		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	0.95	0.97	0.95	1.00
Frt		0.976										0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4963	0	1770	5085	0	1770	3539	0	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4963	0	1770	5085	0	1770	3539	0	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27										62
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1057			473			1114			119	
Travel Time (s)		24.0			10.8			25.3			2.7	
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
Adj. Flow (vph)	210	1414	270	77	1305	0	170	260	0	286	636	828
Shared Lane Traffic (%)												
Lane Group Flow (vph)	210	1684	0	77	1305	0	170	260	0	286	636	828
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases												8

Queues
19: NW 72nd Ave & Flagler St

11/05/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	210	1684	77	1305	170	260	286	636	828
v/c Ratio	1.02	0.71	0.68	0.61	0.99	0.34	0.89	0.84	1.33
Control Delay	136.7	38.1	109.9	41.7	145.3	60.1	108.0	77.9	200.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	136.7	38.1	109.9	41.7	145.3	60.1	108.0	77.9	200.0
Queue Length 50th (ft)	~272	369	90	436	205	138	174	382	~1221
Queue Length 95th (ft)	#536	533	153	486	#375	177	#256	439	#1488
Internal Link Dist (ft)		977		393		1034		39	
Turn Bay Length (ft)	500				350				
Base Capacity (vph)	206	2376	140	2155	171	892	331	892	622
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	1.02	0.71	0.55	0.61	0.99	0.29	0.86	0.71	1.33

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 6th Signalized Intersection Summary
19: NW 72nd Ave & Flagler St

11/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	206	1386	265	75	1279	0	167	255	0	280	623	811
Future Volume (veh/h)	206	1386	265	75	1279	0	167	255	0	280	623	811
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	210	1414	270	77	1305	0	170	260	0	286	636	828
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, %	2	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	142	1939	370	94	2164		172	909	0	322	896	526
Arrive On Green	0.08	0.45	0.45	0.05	0.42	0.00	0.10	0.26	0.00	0.09	0.25	0.25
Sat Flow, veh/h	1781	4306	821	1781	5274	0	1781	3647	0	3456	3554	1585
Grp Volume(v), veh/h	210	1117	567	77	1305	0	170	260	0	286	636	828
Grp Sat Flow(s),veh/h/ln	1781	1702	1723	1781	1702	0	1781	1777	0	1728	1777	1585
Q Serve(g_s), s	14.3	48.3	48.5	7.7	35.6	0.0	17.2	10.6	0.0	14.7	29.3	45.4
Cycle Q Clear(g_c), s	14.3	48.3	48.5	7.7	35.6	0.0	17.2	10.6	0.0	14.7	29.3	45.4
Prop In Lane	1.00		0.48	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	142	1533	776	94	2164		172	909	0	322	896	526
V/C Ratio(X)	1.48	0.73	0.73	0.82	0.60		0.99	0.29	0.00	0.89	0.71	1.58
Avail Cap(c_a), veh/h	142	1533	776	142	2164		172	909	0	334	896	526
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.8	40.5	40.5	84.4	40.1	0.0	81.2	53.8	0.0	80.7	61.3	60.2
Incr Delay (d2), s/veh	251.5	3.1	6.0	12.0	1.3	0.0	64.5	0.2	0.0	22.5	2.6	267.8
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(50%),veh/ln	16.5	21.1	22.1	3.9	15.4	0.0	11.0	4.8	0.0	7.6	13.7	63.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	334.4	43.5	46.5	96.4	41.4	0.0	145.7	54.0	0.0	103.2	63.9	328.0
LnGrp LOS	F	D	D	F	D		F	D	A	F	E	F
Approach Vol, veh/h		1894			1382	A		430			1750	
Approach Delay, s/veh		76.7			44.4			90.3			195.3	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	83.0	23.4	52.6	16.2	87.8	24.0	52.0
Change Period (Y+Rc), s	* 6.7	* 6.7	* 6.6	* 6.6	* 6.7	* 6.7	* 6.6	* 6.6
Max Green Setting (Gmax), s	* 14	* 76	* 17	* 45	* 14	* 76	* 17	* 45
Max Q Clear Time (g_c+I1), s	16.3	37.6	16.7	12.6	9.7	50.5	19.2	47.4
Green Ext Time (p_c), s	0.0	4.4	0.0	2.5	0.0	5.4	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	107.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	1	6		5	2	4	4 5
Switch Phase							
Minimum Initial (s)	5.0	18.0		5.0	18.0	18.0	
Minimum Split (s)	11.8	24.8		24.8	24.8	26.5	
Total Split (s)	29.5	129.0		29.5	129.0	31.5	
Total Split (%)	15.5%	67.9%		15.5%	67.9%	16.6%	
Maximum Green (s)	22.7	122.2		22.7	122.2	25.0	
Yellow Time (s)	4.8	4.8		4.8	4.8	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	None	
Walk Time (s)		7.0					
Flash Dont Walk (s)		11.0					
Pedestrian Calls (#/hr)		5					
Act Effct Green (s)	6.8	131.1		151.7	145.8	25.0	45.6
Actuated g/C Ratio	0.04	0.69		0.80	0.77	0.13	0.24
v/c Ratio	0.17	0.58		0.73	0.46	1.20	0.71
Control Delay	94.4	16.5		42.8	10.3	183.9	72.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	94.4	16.5		42.8	10.3	183.9	72.1
LOS	F	B		D	B	F	E
Approach Delay		16.9			13.0	129.9	
Approach LOS		B			B	F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 190			
Actuated Cycle Length: 190			
Offset: 105 (55%), Referenced to phase 2:WBTL and 6:EBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 28.8		Intersection LOS: C	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 4: SW 82nd Ave & SW 8th St



Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	10	1771	29	141	1588	159	325
Future Volume (vph)	10	1771	29	141	1588	159	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		180	0
Storage Lanes	1		0	1		1	1
Taper Length (ft)	25			25		25	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.95
Frt		0.998				0.946	0.850
Flt Protected	0.950			0.950		0.969	
Satd. Flow (prot)	1770	5075	0	1770	5085	1708	1504
Flt Permitted	0.950			0.065		0.969	
Satd. Flow (perm)	1770	5075	0	121	5085	1708	1504
Right Turn on Red			Yes				Yes
Satd. Flow (RTOR)		2				12	16
Link Speed (mph)		45			45	35	
Link Distance (ft)		1040			1585	1007	
Travel Time (s)		15.8			24.0	19.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	11	1990	33	158	1784	179	365
Shared Lane Traffic (%)							28%
Lane Group Flow (vph)	11	2023	0	158	1784	281	263
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		12			12	12	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9		9	15		15	9
Number of Detectors	1	2		1	2	1	1
Detector Template	Left	Thru		Left	Thru	Left	Right
Leading Detector (ft)	20	100		20	100	20	20
Trailing Detector (ft)	0	0		0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94		
Detector 2 Size(ft)		6			6		
Detector 2 Type		Cl+Ex			Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)		0.0			0.0		
Turn Type	Prot	NA		pm+pt	NA	Prot	pt+ov
Protected Phases	1	6		5	2	4	4 5
Permitted Phases				2			

HCM 2010 Signalized Intersection Summary
4: SW 82nd Ave & SW 8th St

10/24/2018

HCM 2010 cannot analyze U-Turning movements.

HCM 6th Signalized Intersection Summary
4: SW 82nd Ave & SW 8th St

10/24/2018

HCM 6th Edition cannot analyze u-turn movements.

Queues
4: SW 82nd Ave & SW 8th St

10/24/2018

Lane Group	EBU	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	11	2023	158	1784	281	263
v/c Ratio	0.17	0.58	0.73	0.46	1.20	0.71
Control Delay	94.4	16.5	42.8	10.3	183.9	72.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.4	16.5	42.8	10.3	183.9	72.1
Queue Length 50th (ft)	14	445	69	328	~410	303
Queue Length 95th (ft)	38	557	148	419	#608	390
Internal Link Dist (ft)		960		1505	927	
Turn Bay Length (ft)	150		150		180	
Base Capacity (vph)	211	3501	293	3900	235	442
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	0.05	0.58	0.54	0.46	1.20	0.60

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
4: SW 82nd Ave & SW 8th St

10/24/2018

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	10	1771	29	141	1588	159	325
Future Volume (vph)	10	1771	29	141	1588	159	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8		6.8	6.8	6.5	6.5
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.95
Frt	1.00	1.00		1.00	1.00	0.95	0.85
Flt Protected	0.95	1.00		0.95	1.00	0.97	1.00
Satd. Flow (prot)	1770	5073		1770	5085	1707	1504
Flt Permitted	0.95	1.00		0.06	1.00	0.97	1.00
Satd. Flow (perm)	1770	5073		121	5085	1707	1504
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	11	1990	33	158	1784	179	365
RTOR Reduction (vph)	0	1	0	0	0	10	12
Lane Group Flow (vph)	11	2022	0	158	1784	271	251
Turn Type	Prot	NA		pm+pt	NA	Prot	pt+ov
Protected Phases	1	6		5	2	4	4 5
Permitted Phases				2			
Actuated Green, G (s)	3.2	131.1		151.7	141.7	25.0	45.3
Effective Green, g (s)	3.2	131.1		151.7	141.7	25.0	45.3
Actuated g/C Ratio	0.02	0.69		0.80	0.75	0.13	0.24
Clearance Time (s)	6.8	6.8		6.8	6.8	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	29	3500		216	3792	224	358
v/s Ratio Prot	0.01	0.40		c0.05	0.35	c0.16	c0.17
v/s Ratio Perm				c0.53			
v/c Ratio	0.38	0.58		0.73	0.47	1.21	0.70
Uniform Delay, d1	92.4	15.2		35.0	9.5	82.5	66.1
Progression Factor	1.00	1.00		0.90	1.17	1.00	1.00
Incremental Delay, d2	8.1	0.7		11.9	0.4	127.8	6.1
Delay (s)	100.5	15.9		43.2	11.5	210.3	72.2
Level of Service	F	B		D	B	F	E
Approach Delay (s)		16.3			14.0	143.5	
Approach LOS		B			B	F	

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	20.1
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6		5			
Switch Phase						
Minimum Initial (s)	69.0		5.0			
Minimum Split (s)	75.8		11.8			
Total Split (s)	76.0		19.0			
Total Split (%)	80.0%		20.0%			
Maximum Green (s)	69.2		12.2			
Yellow Time (s)	4.8		4.8			
All-Red Time (s)	2.0		2.0			
Lost Time Adjust (s)	0.0		0.0			
Total Lost Time (s)	6.8		6.8			
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0			
Recall Mode	C-Max		None			
Walk Time (s)	7.0					
Flash Dont Walk (s)	7.0					
Pedestrian Calls (#/hr)	4					
Act Effct Green (s)	69.3		12.1	95.0		
Actuated g/C Ratio	0.73		0.13	1.00		
v/c Ratio	0.70		0.82	0.27		
Control Delay	6.0		55.2	0.1		
Queue Delay	0.0		0.0	0.0		
Total Delay	6.0		55.2	0.1		
LOS	A		E	A		
Approach Delay	6.0			11.4		
Approach LOS	A			B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 14 (15%), Referenced to phase 6:EBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 8: SR826 SB on-ramp & SW 8th St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2040	315	328	1269	0	0
Future Volume (vph)	2040	315	328	1269	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	240		0	0
Storage Lanes		0	2		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	0.91	0.97	0.91	1.00	1.00
Frt	0.980					
Flt Protected			0.950			
Satd. Flow (prot)	4984	0	3433	5085	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	4984	0	3433	5085	0	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	25					
Link Speed (mph)	45			45	40	
Link Distance (ft)	1585			359	1026	
Travel Time (s)	24.0			5.4	17.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2217	342	357	1379	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2559	0	357	1379	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2		
Detector Template	Thru		Left	Thru		
Leading Detector (ft)	100		20	100		
Trailing Detector (ft)	0		0	0		
Detector 1 Position(ft)	0		0	0		
Detector 1 Size(ft)	6		20	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0		
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						

HCM 2010 analysis expects strict NEMA phasing.

HCM 6th Edition methodology expects strict NEMA phasing.

Queues
8: SR826 SB on-ramp & SW 8th St

10/24/2018

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	2559	357	1379
v/c Ratio	0.70	0.82	0.27
Control Delay	6.0	55.2	0.1
Queue Delay	0.0	0.0	0.0
Total Delay	6.0	55.2	0.1
Queue Length 50th (ft)	198	145	0
Queue Length 95th (ft)	m271	#158	0
Internal Link Dist (ft)	1505		279
Turn Bay Length (ft)		240	
Base Capacity (vph)	3644	440	5085
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.70	0.81	0.27

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
8: SR826 SB on-ramp & SW 8th St

10/24/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2040	315	328	1269	0	0
Future Volume (vph)	2040	315	328	1269	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8		6.8	4.0		
Lane Util. Factor	0.91		0.97	0.91		
Frt	0.98		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4983		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	4983		3433	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2217	342	357	1379	0	0
RTOR Reduction (vph)	7	0	0	0	0	0
Lane Group Flow (vph)	2552	0	357	1379	0	0
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						
Actuated Green, G (s)	69.3		12.1	95.0		
Effective Green, g (s)	69.3		12.1	95.0		
Actuated g/C Ratio	0.73		0.13	1.00		
Clearance Time (s)	6.8		6.8			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	3634		437	5085		
v/s Ratio Prot	c0.51		c0.10	0.27		
v/s Ratio Perm						
v/c Ratio	0.70		0.82	0.27		
Uniform Delay, d1	7.1		40.4	0.0		
Progression Factor	0.71		1.00	1.00		
Incremental Delay, d2	1.0		10.2	0.1		
Delay (s)	6.0		50.6	0.1		
Level of Service	A		D	A		
Approach Delay (s)	6.0			10.5	0.0	
Approach LOS	A			B	A	

Intersection Summary

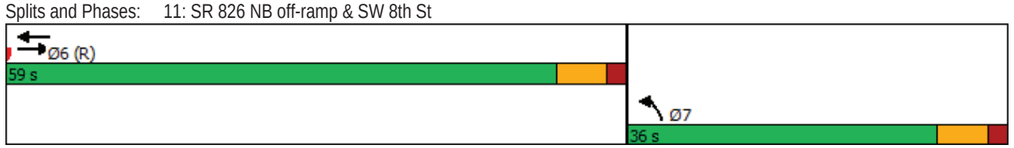
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	24.8			24.8	24.8	
Total Split (s)	59.0			59.0	36.0	
Total Split (%)	62.1%			62.1%	37.9%	
Maximum Green (s)	52.2			52.2	29.2	
Yellow Time (s)	4.8			4.8	4.8	
All-Red Time (s)	2.0			2.0	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.8			6.8	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	Max	
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	11.0			11.0		
Pedestrian Calls (#/hr)	4			4		
Act Effct Green (s)	52.2			52.2	29.2	
Actuated g/C Ratio	0.55			0.55	0.31	
v/c Ratio	0.99			0.73	0.29	
Control Delay	31.5			27.8	25.9	
Queue Delay	0.0			0.0	0.0	
Total Delay	31.5			27.8	25.9	
LOS	C			C	C	
Approach Delay	31.5			27.8	25.9	
Approach LOS	C			C	C	

Intersection Summary	
Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 14 (15%), Referenced to phase 6:EBWB, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 30.0	Intersection LOS: C
Intersection Capacity Utilization 70.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: SR 826 NB off-ramp & SW 8th St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1698	826	0	1314	283	0
Future Volume (vph)	1698	826	0	1314	283	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	1.00	0.95	0.97	1.00
Frt	0.951					
Flt Protected					0.950	
Satd. Flow (prot)	4836	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	4836	0	0	3539	3433	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	205					
Link Speed (mph)	45			45	25	
Link Distance (ft)	316			233	371	
Travel Time (s)	4.8			3.5	10.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1826	888	0	1413	304	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2714	0	0	1413	304	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (ft)	100			100	20	
Trailing Detector (ft)	0			0	0	
Detector 1 Position(ft)	0			0	0	
Detector 1 Size(ft)	6			6	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Detector Phase	6			6	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	

HCM 2010 Research does not support Non-NEMA phasing.

HCM 6th Edition methodology does not support Non-NEMA phasing.

Queues
11: SR 826 NB off-ramp & SW 8th St

10/24/2018

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	2714	1413	304
v/c Ratio	0.99	0.73	0.29
Control Delay	31.5	27.8	25.9
Queue Delay	0.0	0.0	0.0
Total Delay	31.5	27.8	25.9
Queue Length 50th (ft)	598	665	71
Queue Length 95th (ft)	#888	738	106
Internal Link Dist (ft)	236	153	291
Turn Bay Length (ft)			
Base Capacity (vph)	2749	1944	1055
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.99	0.73	0.29

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

HCM Signalized Intersection Capacity Analysis
11: SR 826 NB off-ramp & SW 8th St

10/24/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1698	826	0	1314	283	0
Future Volume (vph)	1698	826	0	1314	283	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8			6.8	6.8	
Lane Util. Factor	0.91			0.95	0.97	
Frt	0.95			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4836			3539	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4836			3539	3433	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1826	888	0	1413	304	0
RTOR Reduction (vph)	92	0	0	0	0	0
Lane Group Flow (vph)	2622	0	0	1413	304	0
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Actuated Green, G (s)	52.2			52.2	29.2	
Effective Green, g (s)	52.2			52.2	29.2	
Actuated g/C Ratio	0.55			0.55	0.31	
Clearance Time (s)	6.8			6.8	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	2657			1944	1055	
v/s Ratio Prot	c0.54			0.40	c0.09	
v/s Ratio Perm						
v/c Ratio	0.99			0.73	0.29	
Uniform Delay, d1	21.1			16.1	25.0	
Progression Factor	0.93			1.59	1.00	
Incremental Delay, d2	13.1			2.0	0.7	
Delay (s)	32.6			27.5	25.7	
Level of Service	C			C	C	
Approach Delay (s)	32.6			27.5	25.7	
Approach LOS	C			C	C	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	1823	48	26	1500	12	144	170	15	40	124	117
Future Volume (vph)	143	1823	48	26	1500	12	144	170	15	40	124	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	150		0	80		0	100		225
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.988				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3525	0	1770	3539	1583	1770	1840	0	1770	1863	1583
Flt Permitted	0.091			0.056			0.457			0.309		
Satd. Flow (perm)	170	3525	0	104	3539	1583	851	1840	0	576	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				158		2				52
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		838			352			1001			1025	
Travel Time (s)		12.7			5.3			19.5			20.0	
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
Adj. Flow (vph)	147	1879	49	27	1546	12	148	175	15	41	128	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	147	1928	0	27	1546	12	148	190	0	41	128	121
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6			2		Free	4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	B	B	C	A	F	F	E	F	C		
Approach Delay	18.5		24.4		109.9		64.6					
Approach LOS	B		C		F		E					

Intersection Summary	
Area Type:	Other
Cycle Length: 190	
Actuated Cycle Length: 190	
Offset: 184 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 31.0	Intersection LOS: C
Intersection Capacity Utilization 91.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: SW 74th Ave & SW 8th St



Queues
6: SW 74th Ave & SW 8th St

10/24/2018

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	147	1928	27	1546	12	148	190	41	128	121
v/c Ratio	0.58	0.78	0.22	0.68	0.01	0.89	0.81	0.32	0.61	0.30
Control Delay	24.4	17.9	12.2	24.8	0.0	117.0	104.3	70.0	91.8	34.1
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	18.0	12.2	24.8	0.0	117.0	104.3	70.0	91.8	34.1
Queue Length 50th (ft)	50	846	8	650	0	164	232	43	152	69
Queue Length 95th (ft)	m61	m876	18	813	0	#297	#360	83	231	129
Internal Link Dist (ft)		758		272			921		945	
Turn Bay Length (ft)	225		150			80		100		225
Base Capacity (vph)	591	2469	132	2274	1583	167	240	130	241	720
Starvation Cap Reductn	0	55	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	0.25	0.80	0.20	0.68	0.01	0.89	0.79	0.32	0.53	0.17

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 6th Signalized Intersection Summary
6: SW 74th Ave & SW 8th St

10/24/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	1823	48	26	1500	12	144	170	15	40	124	117
Future Volume (veh/h)	143	1823	48	26	1500	12	144	170	15	40	124	117
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	1879	49	27	1546	0	148	175	15	41	128	121
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	256	2512	65	161	2463		147	193	17	101	196	225
Arrive On Green	0.04	0.71	0.71	0.02	0.69	0.00	0.04	0.11	0.11	0.03	0.10	0.10
Sat Flow, veh/h	1781	3539	92	1781	3554	1585	1781	1699	146	1781	1870	1585
Grp Volume(v), veh/h	147	939	989	27	1546	0	148	0	190	41	128	121
Grp Sat Flow(s),veh/h/ln	1781	1777	1854	1781	1777	1585	1781	0	1844	1781	1870	1585
Q Serve(g_s), s	4.6	61.8	63.0	0.8	44.9	0.0	6.9	0.0	19.3	3.9	12.5	13.5
Cycle Q Clear(g_c), s	4.6	61.8	63.0	0.8	44.9	0.0	6.9	0.0	19.3	3.9	12.5	13.5
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	256	1261	1316	161	2463		147	0	210	101	196	225
V/C Ratio(X)	0.57	0.74	0.75	0.17	0.63		1.01	0.00	0.91	0.41	0.65	0.54
Avail Cap(c_a), veh/h	706	1261	1316	191	2463		147	0	239	117	242	264
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	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	17.0	17.1	18.6	15.9	0.0	83.6	0.0	83.2	74.1	81.7	75.8
Incr Delay (d2), s/veh	2.0	4.0	4.0	0.5	1.2	0.0	76.5	0.0	32.0	2.6	4.4	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(50%),veh/ln	2.5	24.9	26.4	0.4	17.7	0.0	7.0	0.0	11.1	1.9	6.3	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.0	21.0	21.1	19.1	17.1	0.0	160.1	0.0	115.2	76.7	86.1	77.8
LnGrp LOS	B	C	C	B	B		F	A	F	E	F	E
Approach Vol, veh/h		2075			1573	A		338			290	
Approach Delay, s/veh		20.9			17.1			134.8			81.3	
Approach LOS		C			B			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	137.7	11.3	28.0	9.8	140.9	13.0	26.3
Change Period (Y+Rc), s	6.0	6.0	* 6.1	6.4	6.0	6.0	* 6.1	6.4
Max Green Setting (Gmax), s	55.0	79.0	* 6.9	24.6	7.0	127.0	* 6.9	24.6
Max Q Clear Time (g_c+I1), s	6.6	46.9	5.9	21.3	2.8	65.0	8.9	15.5
Green Ext Time (p_c), s	0.4	14.1	0.0	0.3	0.0	25.3	0.0	0.7

Intersection Summary

HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	1	6		5	2	4	4 5
Switch Phase							
Minimum Initial (s)	5.0	18.0		5.0	18.0	18.0	
Minimum Split (s)	11.8	24.8		20.0	24.8	26.5	
Total Split (s)	30.7	124.8		30.7	124.8	34.5	
Total Split (%)	16.2%	65.7%		16.2%	65.7%	18.2%	
Maximum Green (s)	23.9	118.0		23.9	118.0	28.0	
Yellow Time (s)	4.8	4.8		4.8	4.8	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	None	
Walk Time (s)						7.0	
Flash Dont Walk (s)						11.0	
Pedestrian Calls (#/hr)						2	
Act Effct Green (s)	6.7	130.4		153.5	147.7	23.2	46.3
Actuated g/C Ratio	0.04	0.69		0.81	0.78	0.12	0.24
v/c Ratio	0.16	0.57		0.79	0.70	0.79	0.40
Control Delay	94.1	17.0		53.8	13.4	103.2	54.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	94.1	17.0		53.8	13.4	103.2	54.2
LOS	F	B		D	B	F	D
Approach Delay		17.4			16.1	80.0	
Approach LOS		B			B	E	

Intersection Summary	
Area Type:	Other
Cycle Length: 190	
Actuated Cycle Length: 190	
Offset: 159 (84%), Referenced to phase 2:WBTL and 6:EBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 87.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: SW 82nd Ave & SW 8th St



Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	10	1823	81	189	2673	141	173
Future Volume (vph)	10	1823	81	189	2673	141	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		180	0
Storage Lanes	1		0	1		1	1
Taper Length (ft)	25			25		25	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	0.95
Frt		0.994				0.978	0.850
Flt Protected	0.950			0.950		0.959	
Satd. Flow (prot)	1770	5055	0	1770	5085	1747	1504
Flt Permitted	0.950			0.070		0.959	
Satd. Flow (perm)	1770	5055	0	130	5085	1747	1504
Right Turn on Red			Yes				Yes
Satd. Flow (RTOR)		7				4	18
Link Speed (mph)		45			45	35	
Link Distance (ft)		1040			1585	1007	
Travel Time (s)		15.8			24.0	19.6	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	1879	84	195	2756	145	178
Shared Lane Traffic (%)							14%
Lane Group Flow (vph)	10	1963	0	195	2756	170	153
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		12			12	12	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9		9	15		15	9
Number of Detectors	1	2		1	2	1	1
Detector Template	Left	Thru		Left	Thru	Left	Right
Leading Detector (ft)	20	100		20	100	20	20
Trailing Detector (ft)	0	0		0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94		
Detector 2 Size(ft)		6			6		
Detector 2 Type		Cl+Ex			Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)		0.0			0.0		
Turn Type	Prot	NA		pm+pt	NA	Prot	pt+ov
Protected Phases	1	6		5	2	4	4 5
Permitted Phases				2			

HCM 2010 Signalized Intersection Summary
4: SW 82nd Ave & SW 8th St

10/24/2018

HCM 2010 cannot analyze U-Turning movements.

HCM 6th Signalized Intersection Summary
4: SW 82nd Ave & SW 8th St

10/24/2018

HCM 6th Edition cannot analyze u-turn movements.

Queues
4: SW 82nd Ave & SW 8th St

10/24/2018

Lane Group	EBU	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	10	1963	195	2756	170	153
v/c Ratio	0.16	0.57	0.79	0.70	0.79	0.40
Control Delay	94.1	17.0	53.8	13.4	103.2	54.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.1	17.0	53.8	13.4	103.2	54.2
Queue Length 50th (ft)	12	440	115	442	205	149
Queue Length 95th (ft)	37	578	224	864	292	213
Internal Link Dist (ft)		960		1505	927	
Turn Bay Length (ft)	150		150		180	
Base Capacity (vph)	222	3471	311	3952	260	428
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	0.05	0.57	0.63	0.70	0.65	0.36

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: SW 82nd Ave & SW 8th St

10/24/2018

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	10	1823	81	189	2673	141	173
Future Volume (vph)	10	1823	81	189	2673	141	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8		6.8	6.8	6.5	6.5
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.95
Frt	1.00	0.99		1.00	1.00	0.98	0.85
Flt Protected	0.95	1.00		0.95	1.00	0.96	1.00
Satd. Flow (prot)	1770	5053		1770	5085	1747	1504
Flt Permitted	0.95	1.00		0.07	1.00	0.96	1.00
Satd. Flow (perm)	1770	5053		131	5085	1747	1504
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	1879	84	195	2756	145	178
RTOR Reduction (vph)	0	2	0	0	0	4	14
Lane Group Flow (vph)	10	1961	0	195	2756	166	139
Turn Type	Prot	NA		pm+pt	NA	Prot	pt+ov
Protected Phases	1	6		5	2	4	4 5
Permitted Phases				2			
Actuated Green, G (s)	3.1	130.4		153.5	143.6	23.2	46.0
Effective Green, g (s)	3.1	130.4		153.5	143.6	23.2	46.0
Actuated g/C Ratio	0.02	0.69		0.81	0.76	0.12	0.24
Clearance Time (s)	6.8	6.8		6.8	6.8	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	28	3467		246	3843	213	364
v/s Ratio Prot	0.01	0.39		c0.07	c0.54	c0.10	0.09
v/s Ratio Perm				c0.57			
v/c Ratio	0.36	0.57		0.79	0.72	0.78	0.38
Uniform Delay, d1	92.5	15.3		40.3	12.4	80.9	60.1
Progression Factor	1.00	1.00		1.04	1.05	1.00	1.00
Incremental Delay, d2	7.7	0.7		14.7	1.1	16.8	0.7
Delay (s)	100.1	16.0		56.6	14.0	97.8	60.8
Level of Service	F	B		E	B	F	E
Approach Delay (s)		16.4			16.8	80.3	
Approach LOS		B			B	F	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	20.1
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1531	587	536	2491	0	0
Future Volume (vph)	1531	587	536	2491	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	240		0	0
Storage Lanes		0	2		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	0.91	0.97	0.91	1.00	1.00
Frt	0.958					
Flt Protected			0.950			
Satd. Flow (prot)	4872	0	3433	5085	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	4872	0	3433	5085	0	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	45					
Link Speed (mph)	45			45	40	
Link Distance (ft)	1585			359	1026	
Travel Time (s)	24.0			5.4	17.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1578	605	553	2568	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2183	0	553	2568	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2		
Detector Template	Thru		Left	Thru		
Leading Detector (ft)	100		20	100		
Trailing Detector (ft)	0		0	0		
Detector 1 Position(ft)	0		0	0		
Detector 1 Size(ft)	6		20	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0		
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6		5			
Switch Phase						
Minimum Initial (s)	18.0		5.0			
Minimum Split (s)	24.8		11.8			
Total Split (s)	66.0		29.0			
Total Split (%)	69.5%		30.5%			
Maximum Green (s)	59.2		22.2			
Yellow Time (s)	4.8		4.8			
All-Red Time (s)	2.0		2.0			
Lost Time Adjust (s)	0.0		0.0			
Total Lost Time (s)	6.8		6.8			
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0			
Recall Mode	C-Max		None			
Walk Time (s)	7.0					
Flash Dont Walk (s)	7.0					
Pedestrian Calls (#/hr)	4					
Act Effct Green (s)	61.7		19.7	95.0		
Actuated g/C Ratio	0.65		0.21	1.00		
v/c Ratio	0.69		0.78	0.51		
Control Delay	23.7		39.6	0.2		
Queue Delay	0.0		0.0	0.0		
Total Delay	23.7		39.6	0.2		
LOS	C		D	A		
Approach Delay	23.7			7.1		
Approach LOS	C			A		

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 20 (21%), Referenced to phase 6:EBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 69.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 8: SR826 SB on-ramp & SW 8th St



HCM 2010 analysis expects strict NEMA phasing.

HCM 6th Edition methodology expects strict NEMA phasing.

Queues
8: SR826 SB on-ramp & SW 8th St

10/24/2018

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	2183	553	2568
v/c Ratio	0.69	0.78	0.51
Control Delay	23.7	39.6	0.2
Queue Delay	0.0	0.0	0.0
Total Delay	23.7	39.6	0.2
Queue Length 50th (ft)	691	173	0
Queue Length 95th (ft)	821	m161	m0
Internal Link Dist (ft)	1505		279
Turn Bay Length (ft)		240	
Base Capacity (vph)	3179	802	5085
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.69	0.69	0.51

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

HCM Signalized Intersection Capacity Analysis
8: SR826 SB on-ramp & SW 8th St

10/24/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1531	587	536	2491	0	0
Future Volume (vph)	1531	587	536	2491	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8		6.8	4.0		
Lane Util. Factor	0.91		0.97	0.91		
Frt	0.96		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4874		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	4874		3433	5085		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1578	605	553	2568	0	0
RTOR Reduction (vph)	16	0	0	0	0	0
Lane Group Flow (vph)	2167	0	553	2568	0	0
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						
Actuated Green, G (s)	61.7		19.7	95.0		
Effective Green, g (s)	61.7		19.7	95.0		
Actuated g/C Ratio	0.65		0.21	1.00		
Clearance Time (s)	6.8		6.8			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	3165		711	5085		
v/s Ratio Prot	c0.44		c0.16	0.50		
v/s Ratio Perm						
v/c Ratio	0.68		0.78	0.51		
Uniform Delay, d1	10.5		35.6	0.0		
Progression Factor	2.13		1.02	1.00		
Incremental Delay, d2	1.1		2.3	0.2		
Delay (s)	23.4		38.5	0.2		
Level of Service	C		D	A		
Approach Delay (s)	23.4			7.0	0.0	
Approach LOS	C			A	A	

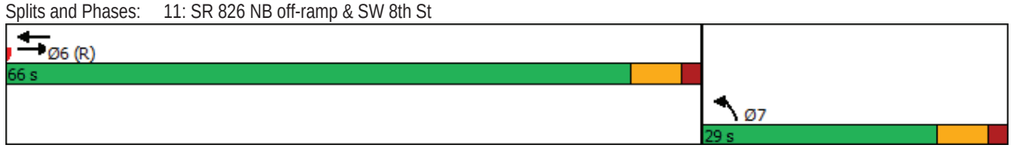
Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	24.8			24.8	24.8	
Total Split (s)	66.0			66.0	29.0	
Total Split (%)	69.5%			69.5%	30.5%	
Maximum Green (s)	59.2			59.2	22.2	
Yellow Time (s)	4.8			4.8	4.8	
All-Red Time (s)	2.0			2.0	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.8			6.8	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	Max	
Walk Time (s)	7.0			7.0	0.0	
Flash Dont Walk (s)	11.0			11.0	0.0	
Pedestrian Calls (#/hr)	1			1	0	
Act Effct Green (s)	59.2			59.2	22.2	
Actuated g/C Ratio	0.62			0.62	0.23	
v/c Ratio	0.58			1.10	1.02	
Control Delay	6.7			71.4	75.3	
Queue Delay	0.0			0.0	0.0	
Total Delay	6.7			71.4	75.3	
LOS	A			E	E	
Approach Delay	6.7			71.4	75.3	
Approach LOS	A			E	E	

Intersection Summary	
Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 20 (21%), Referenced to phase 6:EBWB, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 48.9	Intersection LOS: D
Intersection Capacity Utilization 95.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 11: SR 826 NB off-ramp & SW 8th St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1125	554	0	2263	764	0
Future Volume (vph)	1125	554	0	2263	764	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	1.00	0.95	0.97	1.00
Frt	0.950					
Flt Protected					0.950	
Satd. Flow (prot)	4831	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	4831	0	0	3539	3433	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	248					
Link Speed (mph)	45			45	25	
Link Distance (ft)	316			233	371	
Travel Time (s)	4.8			3.5	10.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1210	596	0	2433	822	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1806	0	0	2433	822	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (ft)	100			100	20	
Trailing Detector (ft)	0			0	0	
Detector 1 Position(ft)	0			0	0	
Detector 1 Size(ft)	6			6	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Detector Phase	6			6	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	

HCM 2010 Research does not support Non-NEMA phasing.

HCM 6th Edition methodology does not support Non-NEMA phasing.

Queues
11: SR 826 NB off-ramp & SW 8th St

10/24/2018

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	1806	2433	822
v/c Ratio	0.58	1.10	1.02
Control Delay	6.7	71.4	75.3
Queue Delay	0.0	0.0	0.0
Total Delay	6.7	71.4	75.3
Queue Length 50th (ft)	141	~1770	~274
Queue Length 95th (ft)	132	m#1835	#391
Internal Link Dist (ft)	236	153	291
Turn Bay Length (ft)			
Base Capacity (vph)	3103	2205	802
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.58	1.10	1.02

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
11: SR 826 NB off-ramp & SW 8th St

10/24/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1125	554	0	2263	764	0
Future Volume (vph)	1125	554	0	2263	764	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8			6.8	6.8	
Lane Util. Factor	0.91			0.95	0.97	
Frt	0.95			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4834			3539	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4834			3539	3433	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1210	596	0	2433	822	0
RTOR Reduction (vph)	93	0	0	0	0	0
Lane Group Flow (vph)	1713	0	0	2433	822	0
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Actuated Green, G (s)	59.2			59.2	22.2	
Effective Green, g (s)	59.2			59.2	22.2	
Actuated g/C Ratio	0.62			0.62	0.23	
Clearance Time (s)	6.8			6.8	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3012			2205	802	
v/s Ratio Prot	0.35			c0.69	c0.24	
v/s Ratio Perm						
v/c Ratio	0.57			1.10	1.02	
Uniform Delay, d1	10.4			17.9	36.4	
Progression Factor	0.68			1.10	1.00	
Incremental Delay, d2	0.6			50.1	38.3	
Delay (s)	7.8			69.8	74.7	
Level of Service	A			E	E	
Approach Delay (s)	7.8			69.8	74.7	
Approach LOS	A			E	E	

Intersection Summary			
HCM 2000 Control Delay	48.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.4	30.0		11.0	27.0		11.1	20.0		11.1	29.4	11.4
Total Split (s)	13.0	121.0		26.0	134.0		14.0	29.0		14.0	29.0	13.0
Total Split (%)	6.8%	63.7%		13.7%	70.5%		7.4%	15.3%		7.4%	15.3%	6.8%
Maximum Green (s)	7.0	115.0		20.0	128.0		7.9	22.6		7.9	22.6	7.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.7	4.0		3.7	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.4	2.4		2.4	2.4	2.0
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)	6.0	6.0		6.0	6.0		6.1	6.4		6.1	6.4	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		6.0			6.0			5.0			5.0	
Flash Dont Walk (s)		14.0			14.0			18.0			18.0	
Pedestrian Calls (#/hr)		1			4			0			0	
Act Effct Green (s)	147.1	140.8		134.0	128.0	190.0	23.8	15.6		23.5	15.5	36.0
Actuated g/C Ratio	0.77	0.74		0.71	0.67	1.00	0.13	0.08		0.12	0.08	0.19
v/c Ratio	0.75	0.54		0.08	0.99	0.01	0.61	0.67		0.39	0.55	0.04
Control Delay	66.9	16.1		6.4	46.5	0.0	88.5	102.3		76.7	96.5	0.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	66.9	16.1		6.4	46.5	0.0	88.5	102.3		76.7	96.5	0.2
LOS	E	B		A	D	A	F	F		E	F	A
Approach Delay		20.4			46.0			95.4			79.3	
Approach LOS		C			D			F			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 190	
Actuated Cycle Length: 190	
Offset: 109 (57%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 40.4	Intersection LOS: D
Intersection Capacity Utilization 96.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: SW 74th Ave & SW 8th St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1286	60	19	2268	9	98	84	13	58	80	15
Future Volume (vph)	122	1286	60	19	2268	9	98	84	13	58	80	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	150		0	80		0	100		225
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3514	0	1770	3539	1583	1770	1824	0	1770	1863	1583
Flt Permitted	0.030			0.162			0.603			0.519		
Satd. Flow (perm)	56	3514	0	302	3539	1583	1123	1824	0	967	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				158		3				87
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		838			352			1001			1025	
Travel Time (s)		12.7			5.3			19.5			20.0	
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
Adj. Flow (vph)	127	1340	63	20	2363	9	102	88	14	60	83	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	1403	0	20	2363	9	102	102	0	60	83	16
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6			2		Free	4			8		8

Queues
6: SW 74th Ave & SW 8th St

10/24/2018

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	127	1403	20	2363	9	102	102	60	83	16
v/c Ratio	0.75	0.54	0.08	0.99	0.01	0.61	0.67	0.39	0.55	0.04
Control Delay	66.9	16.1	6.4	46.5	0.0	88.5	102.3	76.7	96.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.9	16.1	6.4	46.5	0.0	88.5	102.3	76.7	96.5	0.2
Queue Length 50th (ft)	97	517	5	1456	0	116	123	67	102	0
Queue Length 95th (ft)	#283	483	14	#1697	0	177	190	114	162	0
Internal Link Dist (ft)		758		272			921		945	
Turn Bay Length (ft)	225		150			80		100		225
Base Capacity (vph)	170	2604	386	2384	1583	167	219	153	221	370
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	0.75	0.54	0.05	0.99	0.01	0.61	0.47	0.39	0.38	0.04

Intersection Summary

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

HCM 6th Signalized Intersection Summary
6: SW 74th Ave & SW 8th St

10/24/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	1286	60	19	2268	9	98	84	13	58	80	15
Future Volume (veh/h)	122	1286	60	19	2268	9	98	84	13	58	80	15
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	127	1340	62	20	2362	0	102	88	14	60	83	16
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	132	2583	119	294	2584		141	106	17	125	123	162
Arrive On Green	0.04	0.75	0.75	0.02	0.73	0.00	0.04	0.07	0.07	0.04	0.07	0.07
Sat Flow, veh/h	1781	3459	160	1781	3554	1585	1781	1575	251	1781	1870	1585
Grp Volume(v), veh/h	127	687	715	20	2362	0	102	0	102	60	83	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1842	1781	1777	1585	1781	0	1825	1781	1870	1585
Q Serve(g_s), s	6.5	30.4	30.5	0.6	102.8	0.0	7.9	0.0	10.5	5.9	8.2	1.7
Cycle Q Clear(g_c), s	6.5	30.4	30.5	0.6	102.8	0.0	7.9	0.0	10.5	5.9	8.2	1.7
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	132	1327	1375	294	2584		141	0	123	125	123	162
V/C Ratio(X)	0.97	0.52	0.52	0.07	0.91		0.73	0.00	0.83	0.48	0.68	0.10
Avail Cap(c_a), veh/h	132	1327	1375	451	2584		141	0	217	127	222	247
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	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	9.9	10.0	8.3	21.1	0.0	82.5	0.0	87.6	78.9	86.8	77.3
Incr Delay (d2), s/veh	67.6	1.4	1.4	0.1	6.4	0.0	16.9	0.0	13.3	2.9	6.4	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(50%),veh/ln	8.7	11.6	12.0	0.2	40.5	0.0	1.8	0.0	5.4	2.8	4.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	130.0	11.4	11.4	8.4	27.5	0.0	99.4	0.0	100.9	81.8	93.2	77.6
LnGrp LOS	F	B	B	A	C		F	A	F	F	F	E
Approach Vol, veh/h		1529			2382	A		204			159	
Approach Delay, s/veh		21.2			27.3			100.1			87.3	
Approach LOS		C			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	144.1	13.7	19.2	9.3	147.9	14.0	18.9
Change Period (Y+Rc), s	6.0	6.0	* 6.1	6.4	6.0	6.0	* 6.1	6.4
Max Green Setting (Gmax), s	7.0	128.0	* 7.9	22.6	20.0	115.0	* 7.9	22.6
Max Q Clear Time (g_c+I1), s	8.5	104.8	7.9	12.5	2.6	32.5	9.9	10.2
Green Ext Time (p_c), s	0.0	19.0	0.0	0.3	0.0	12.8	0.0	0.3

Intersection Summary

HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

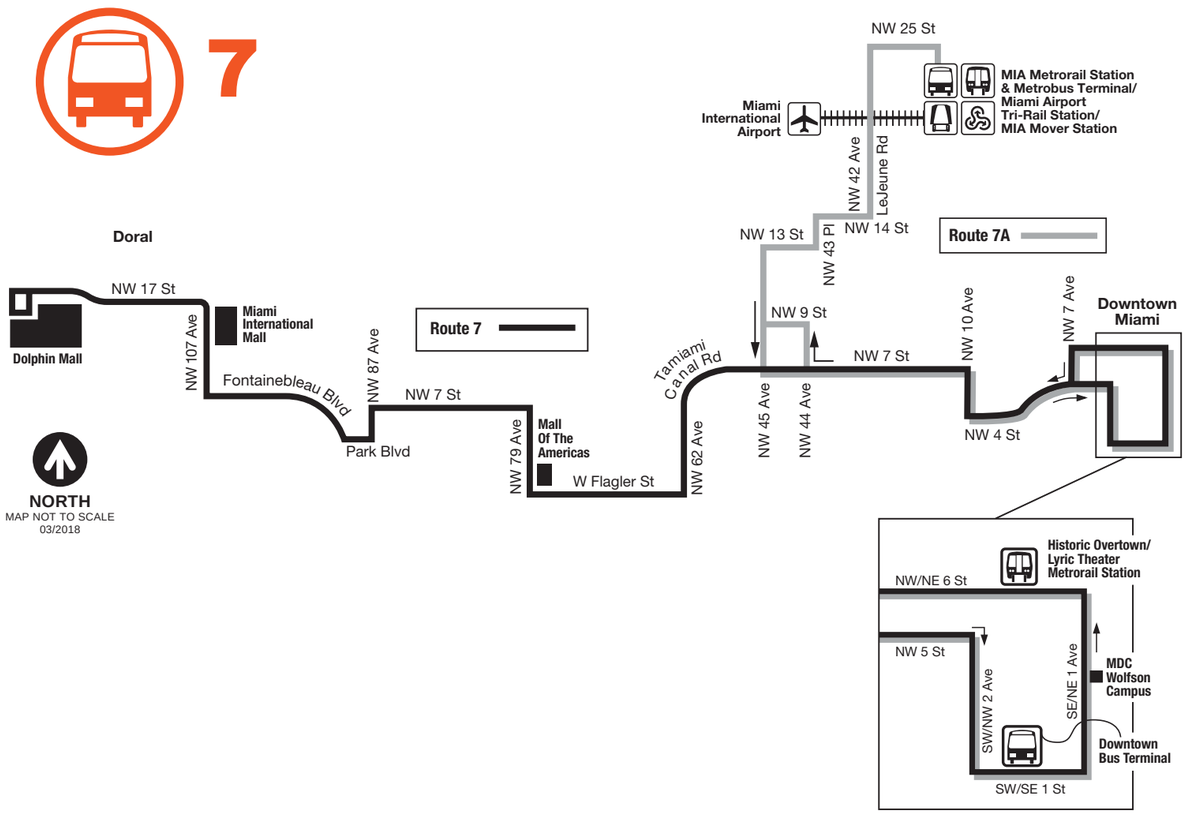
Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

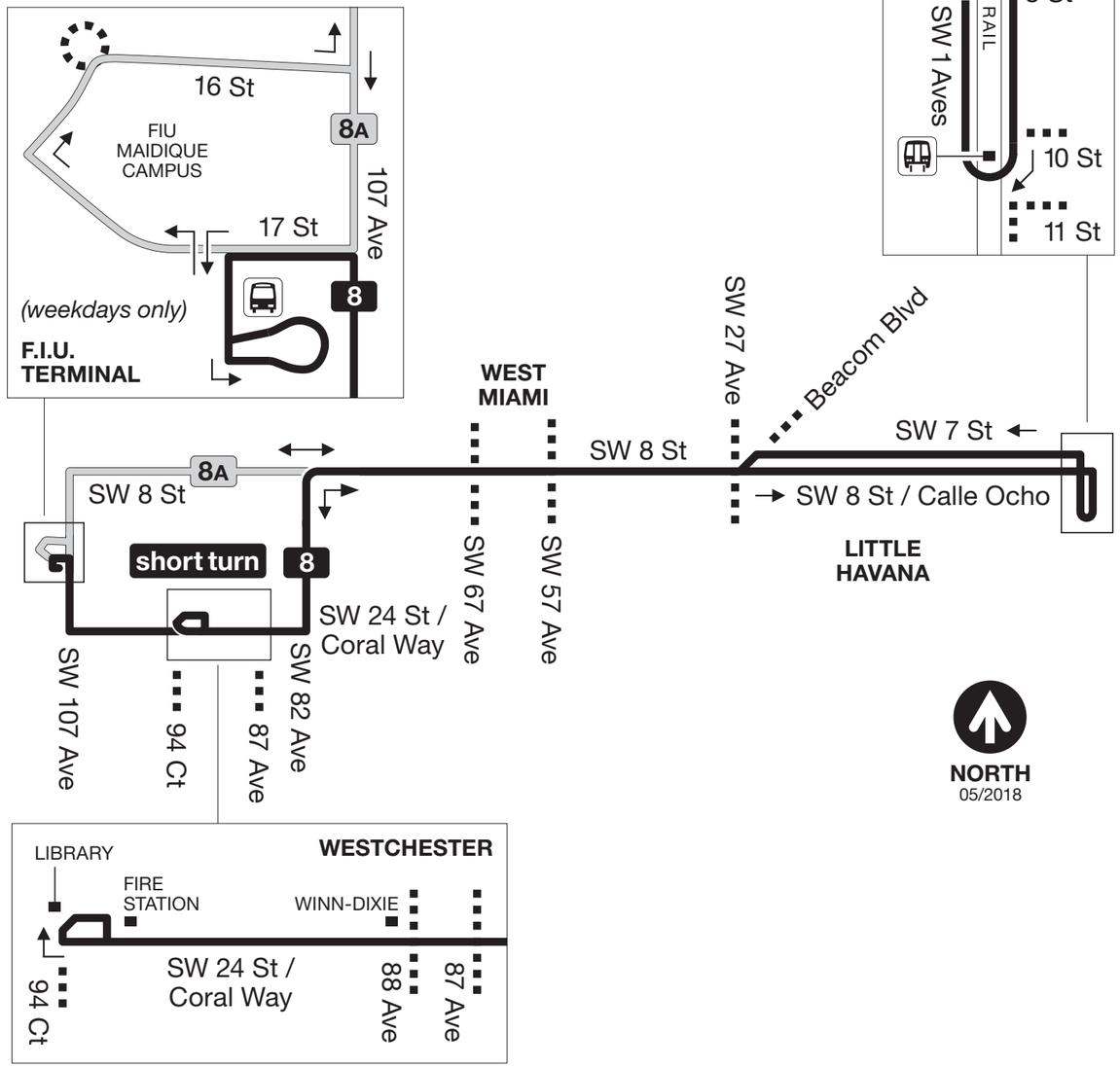
APPENDIX E

Transit Services

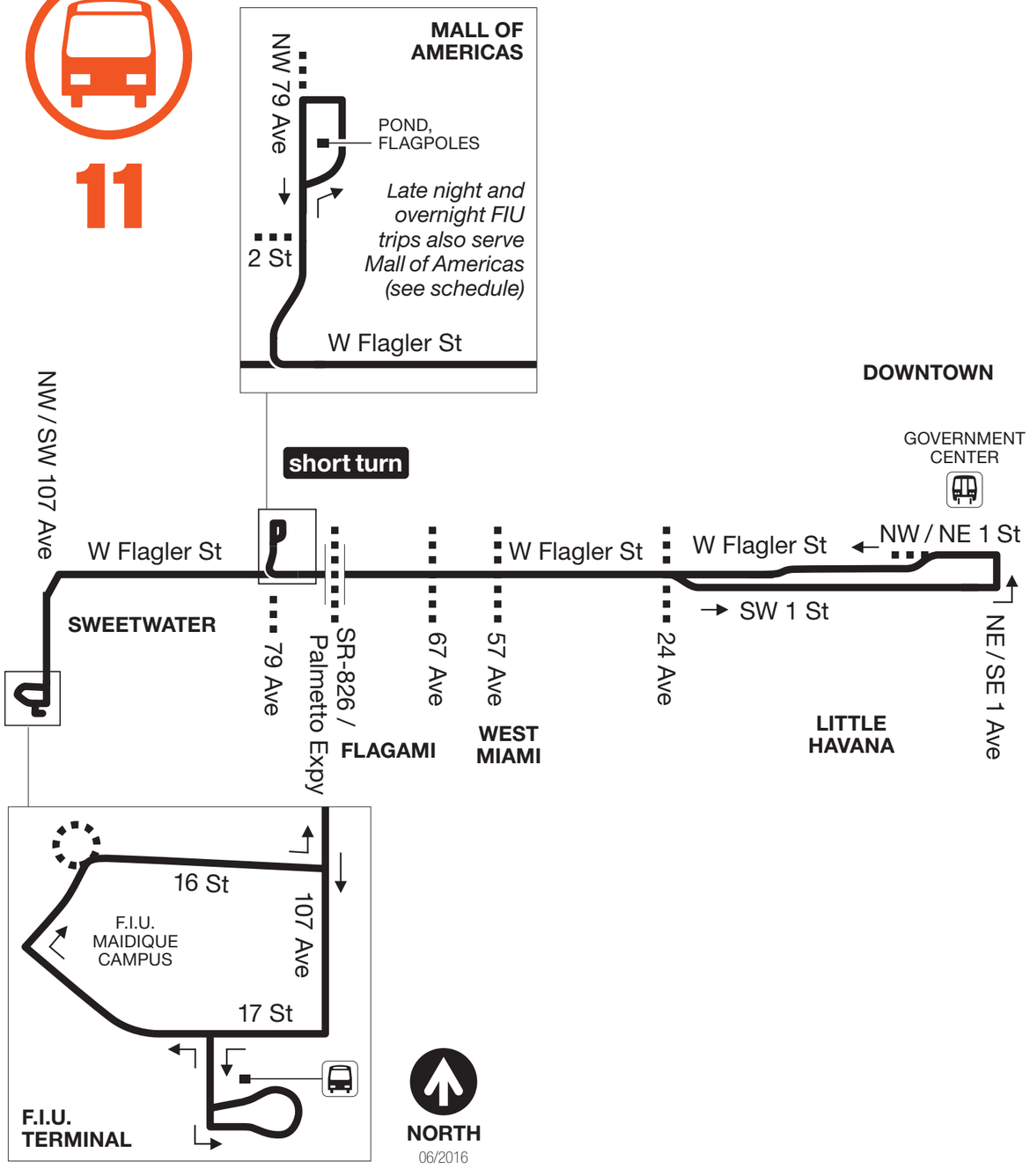
7


Doral
NW 17 St
Dolphin Mall
Miami International Mall
NW 107 Ave
Fontainebleau Blvd
NW 87 Ave
NW 7 St
Park Blvd
Route 7
NW 79 Ave
Mall Of The Americas
W Flagler St
NW 62 Ave
Tamiami Canal Rd
NW 45 Ave
NW 44 Ave
NW 9 St
NW 7 St
NW 10 Ave
NW 7 Ave
NW 4 St
Downtown Miami
NW 25 St
Miami International Airport
MIA Metrorail Station & Metrobus Terminal/ Miami Airport Tri-Rail Station/ MIA Mover Station
NW 42 Ave
LeJeune Rd
NW 13 St
NW 43 Pl
NW 14 St
Route 7A
Historic Overtown/ Lyric Theater Metrorail Station
NW/NE 6 St
NW 5 St
SW/NW 2 Ave
SE/NE 1 Ave
MDC Wolfson Campus
Downtown Bus Terminal
SW/SE 1 St
NORTH
MAP NOT TO SCALE
03/2018

8

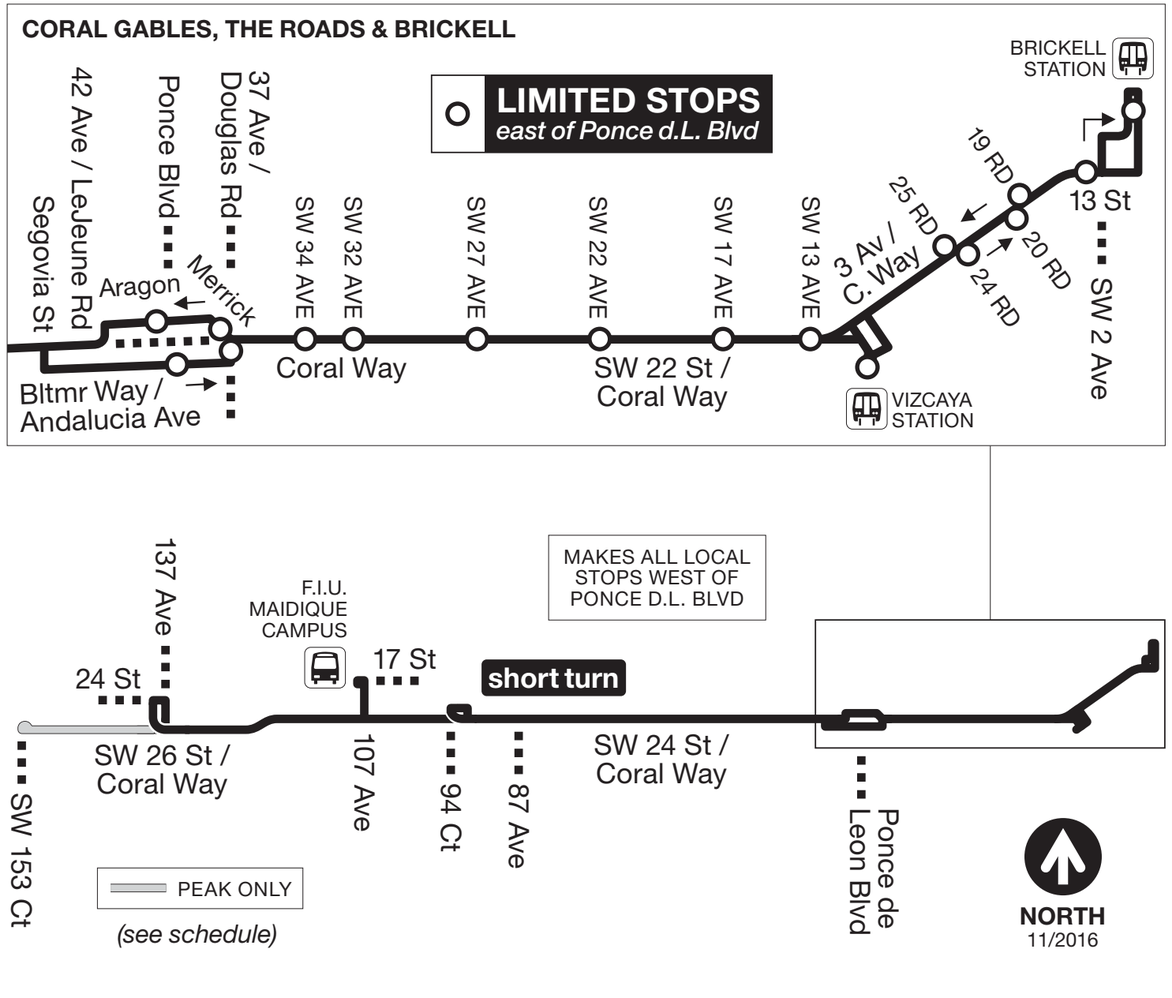

16 St
FIU MAIDIQUE CAMPUS
8A
107 Ave
17 St
8
(weekdays only)
F.I.U. TERMINAL
BRICKELL STATION
7 St
METRO RAIL
8 St
SW 1 Aves
10 St
11 St
WEST MIAMI
SW 8 St
8A
SW 8 St
short turn
8
SW 24 St / Coral Way
SW 27 Ave
Beacom Blvd
SW 7 St
SW 8 St / Calle Ocho
LITTLE HAVANA
SW 67 Ave
SW 57 Ave
SW 107 Ave
94 Ct
87 Ave
SW 82 Ave
LIBRARY
WESTCHESTER
FIRE STATION
WINN-DIXIE
SW 24 St / Coral Way
94 Ct
88 Ave
87 Ave
NORTH
05/2018

11

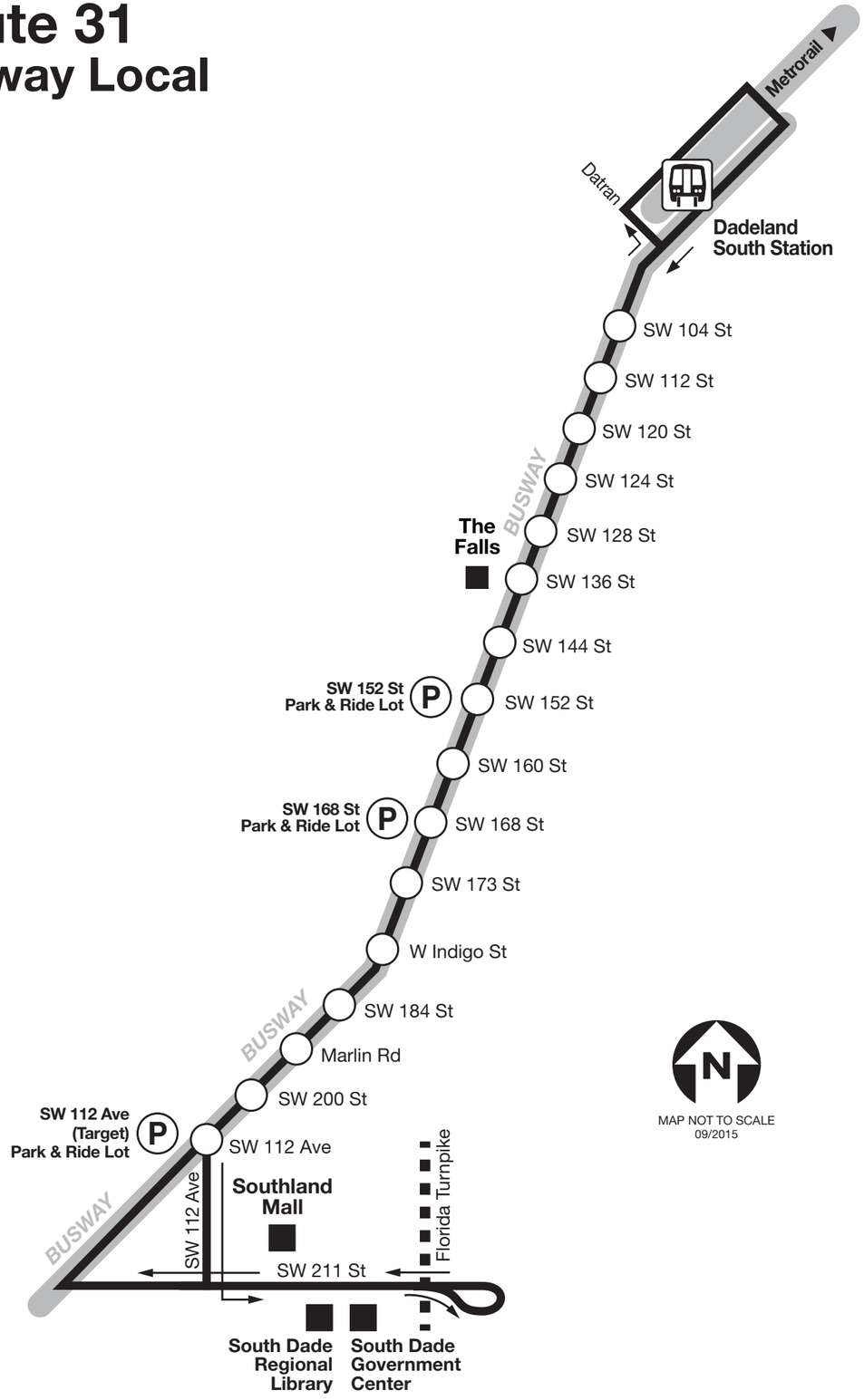


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CORAL WAY LIMITED



Route 31
Busway Local

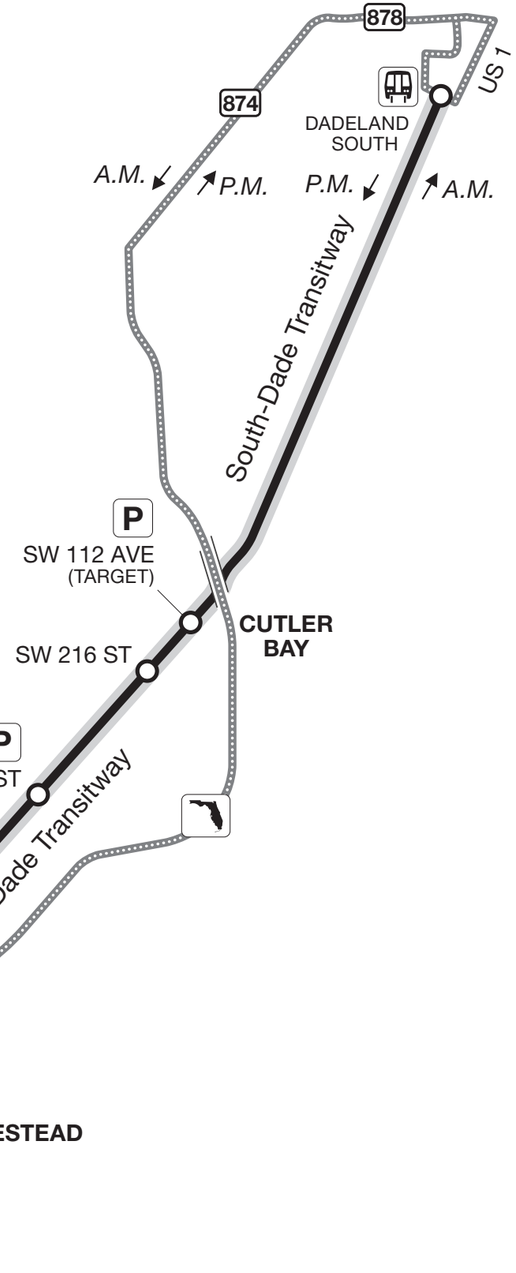


34 EXPRESS

LIMITED STOPS *entire route*

NONSTOP SERVICE

P PARK & RIDE LOT



NORTH
10/2018

www.miamidade.gov/transit **311** OR 305.468.5900 TTY/FLA RELAY: 711

@GoMiamiDade MDT TRACKER | EASY PAY MIAMI | MDT TRANSIT WATCH

MIAMI-DADE COUNTY

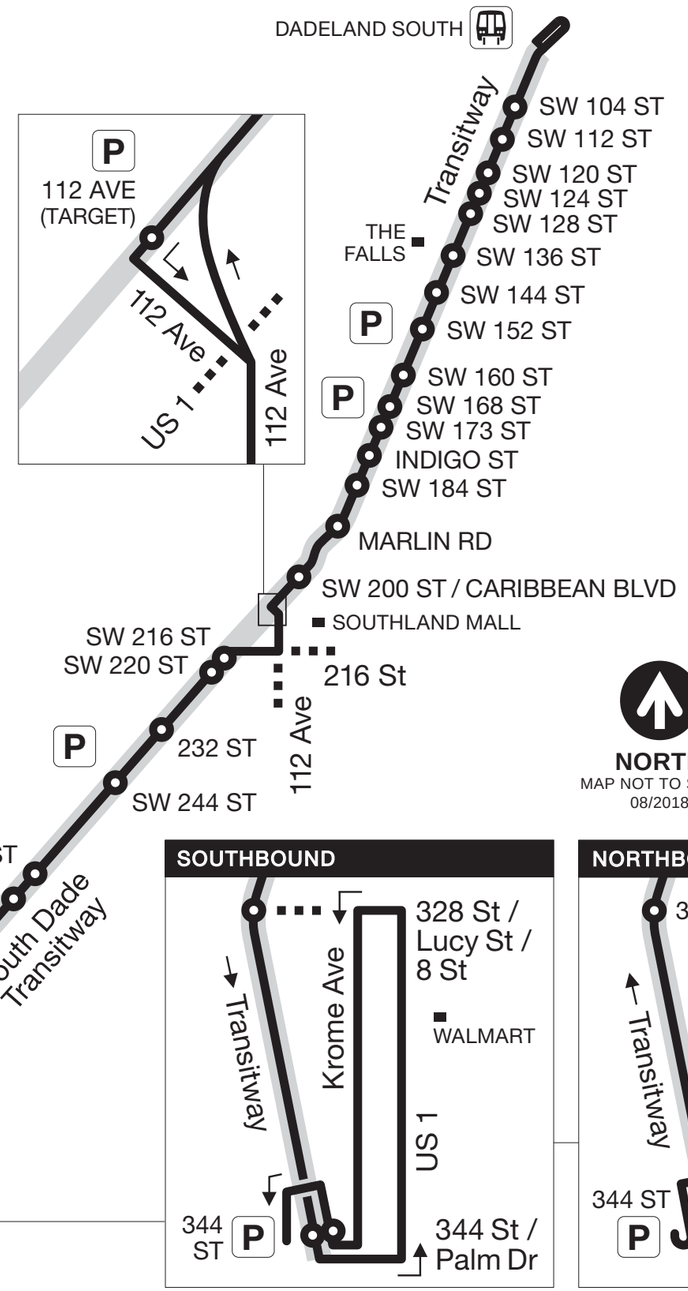
02.2019

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BUSWAY MAX

TRANSITWAY STATION

PARK & RIDE LOT



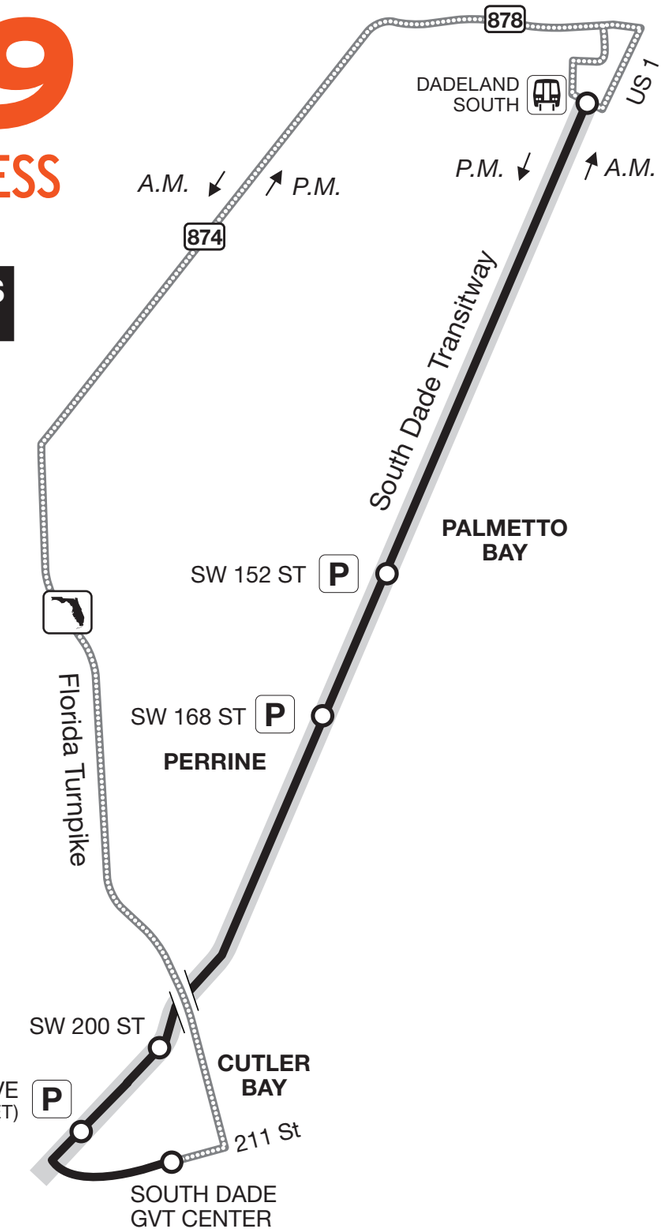
39

EXPRESS

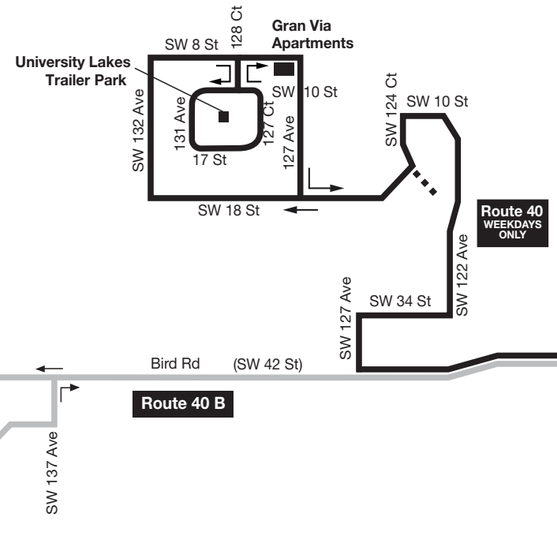
LIMITED STOPS
entire route

NONSTOP SERVICE

PARK & RIDE LOT



40



Legend

Route 40
SW 8 St & 132 Ave/
Douglas Road
Metrorail Station
WEEKDAYS ONLY

Route 40B
SW 152 Ave & 56 St/
Douglas Road
Metrorail Station

www.miamidade.gov/transit **311** (305.468.5900) TDD: 305.468.5402

MiamiDadeTransit @IRideMDT @IRideMDT MDT TRACKER / MDT TRANSIT WATCH

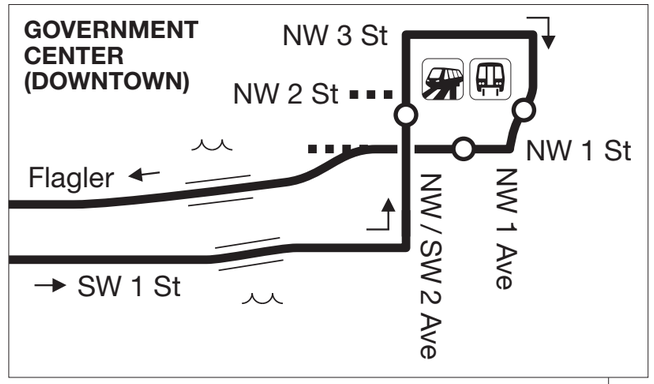
MIAMI-DADE COUNTY

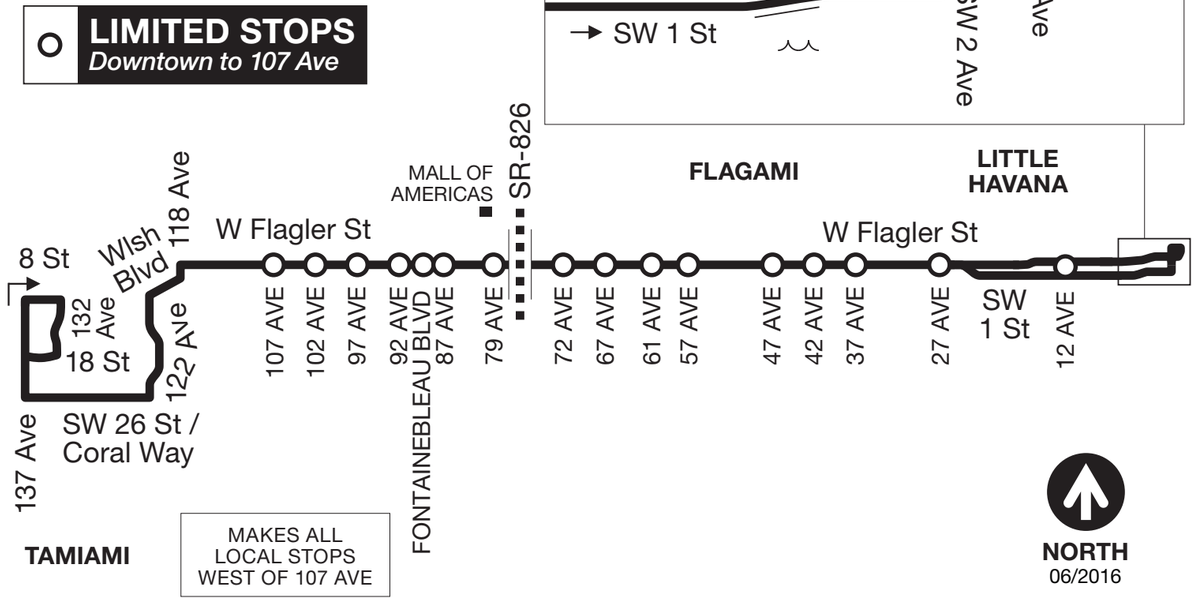
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

51

FLAGLER MAX

LIMITED STOPS
Downtown to 107 Ave





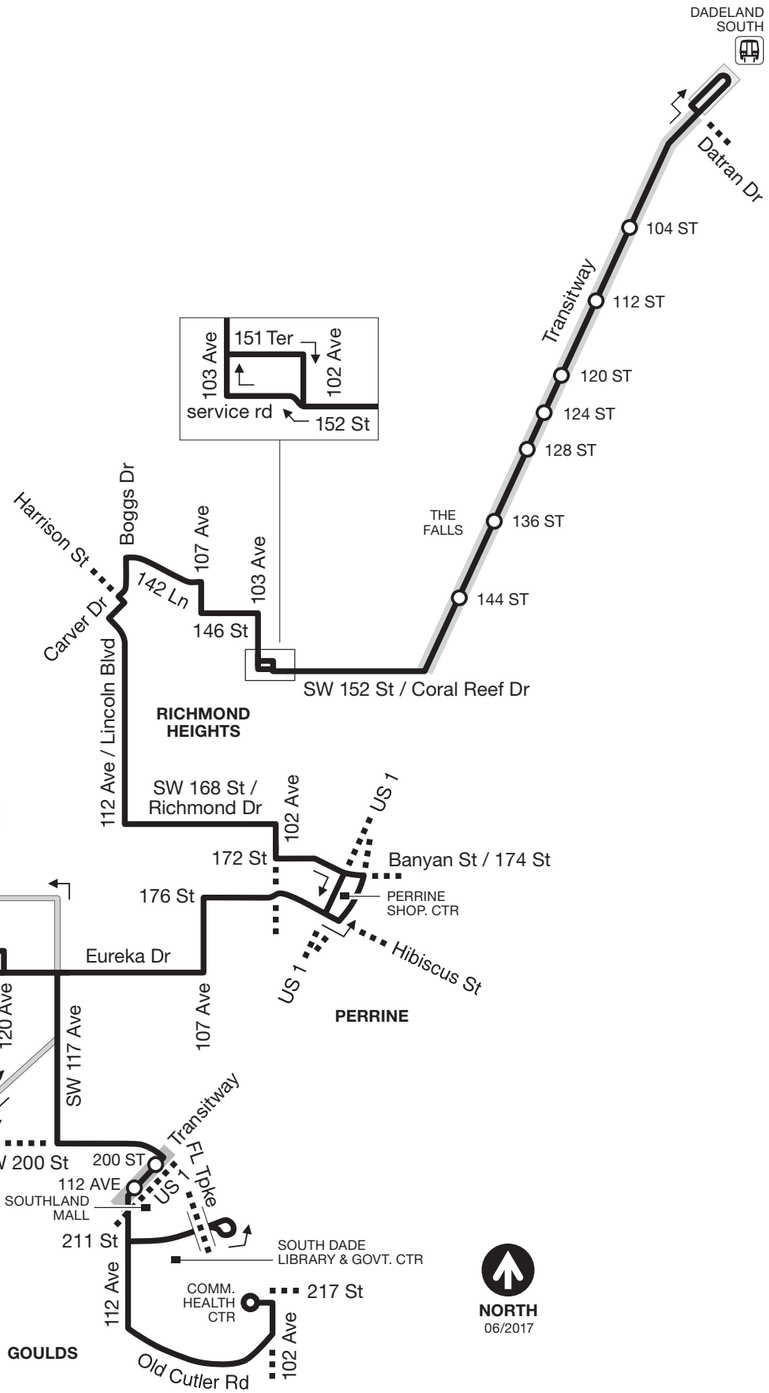
www.miamidade.gov/transit **311** (305.468.5900) TDD: 305.468.5402

MiamiDadeTransit @IRideMDT @IRideMDT MDT TRACKER / MDT TRANSIT WATCH

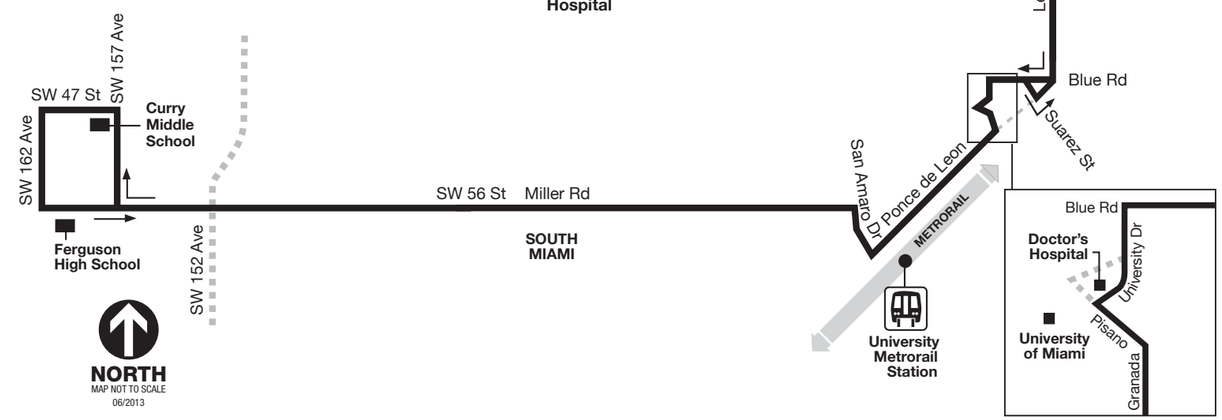
MIAMI-DADE COUNTY

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

52


DADELAND SOUTH
Datran Dr
Transitway
104 ST
112 ST
120 ST
124 ST
128 ST
136 ST
144 ST
THE FALLS
151 Ter
103 Ave
102 Ave
service rd
152 St
Harrison St
Carver Dr
Boggs Dr
142 Ln
107 Ave
103 Ave
146 St
SW 152 St / Coral Reef Dr
112 Ave / Lincoln Blvd
RICHMOND HEIGHTS
SW 168 St / Richmond Dr
102 Ave
US 1
172 St
Banyan St / 174 St
PERRINE SHOP. CTR
176 St
176 St
ROBERT MORGAN EDU. CTR
181 Ter
Eureka Dr
Hibiscus St
US 1
107 Ave
PERRINE
SOUTH MIAMI HEIGHTS
122 Ave
120 Ave
SW 117 Ave
DCF
Quail Roost Dr
SW 200 St
200 ST
Transitway
FL Tpke
US 1
112 AVE
SOUTHLAND MALL
211 St
SOUTH DADE LIBRARY & GOVT. CTR
COMM. HEALTH CTR
217 St
112 Ave
102 Ave
Old Cutler Rd
GOULDS
WEEKDAYS ONLY
NORTH
06/2017

Route 56


SW 47 St
SW 157 Ave
SW 162 Ave
Curry Middle School
Ferguson High School
SW 152 Ave
SW 56 St
Miller Rd
SOUTH MIAMI
Coral Way
SW 62 Ave
Red Rd
SW 57 Ave
Sevilla
Anastasia
Miami Children's Hospital
Biltmore Way
Segovia
CORAL GABLES
Aragon
Salzedo
Andalusia
LeJeune Rd
Blue Rd
Suarez St
San Amaro Dr
Ponce de Leon
METRORAIL
University Metrorail Station
Blue Rd
Doctor's Hospital
University Dr
Pisano
University of Miami
Granada
NORTH
MAP NOT TO SCALE
06/2013

Route 72

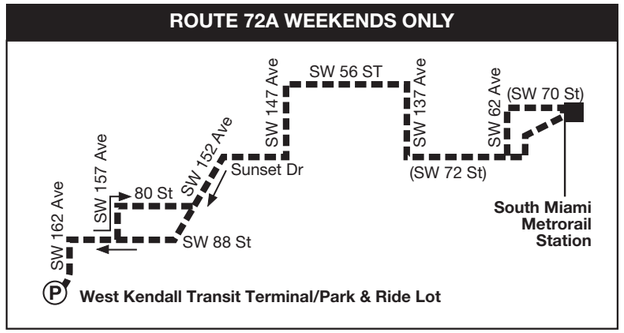
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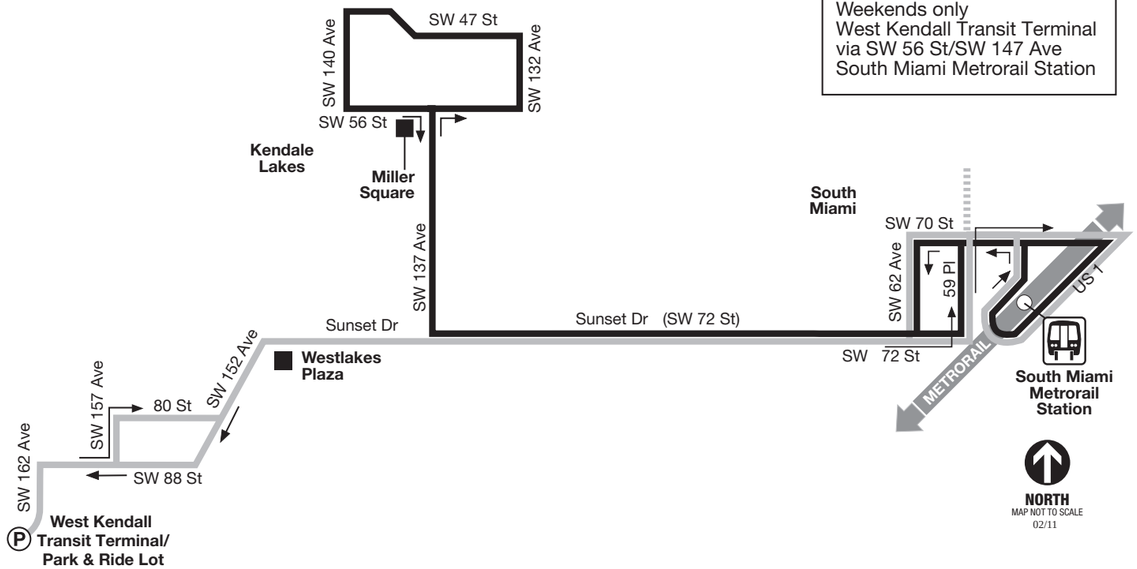
Park & Ride Lot Ⓟ

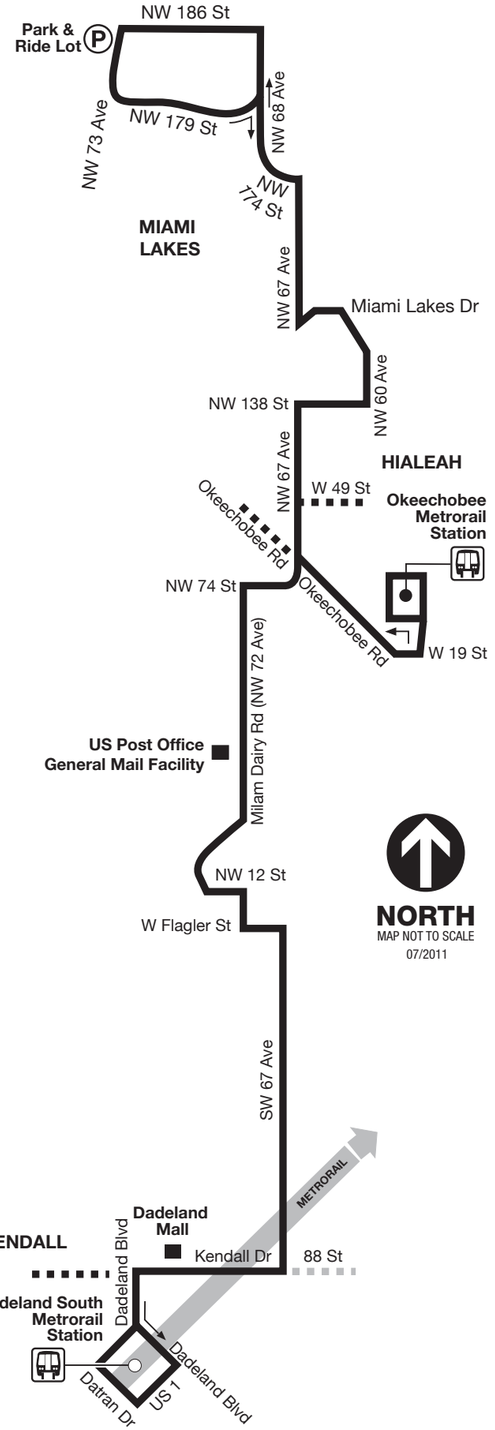
Route 72A
West Kendall Transit Terminal
South Miami Metrorail Station

Route 72
SW 56 St/SW 132 Ave
South Miami Metrorail Station

Route 72A
Weekends only
West Kendall Transit Terminal
via SW 56 St/SW 147 Ave
South Miami Metrorail Station



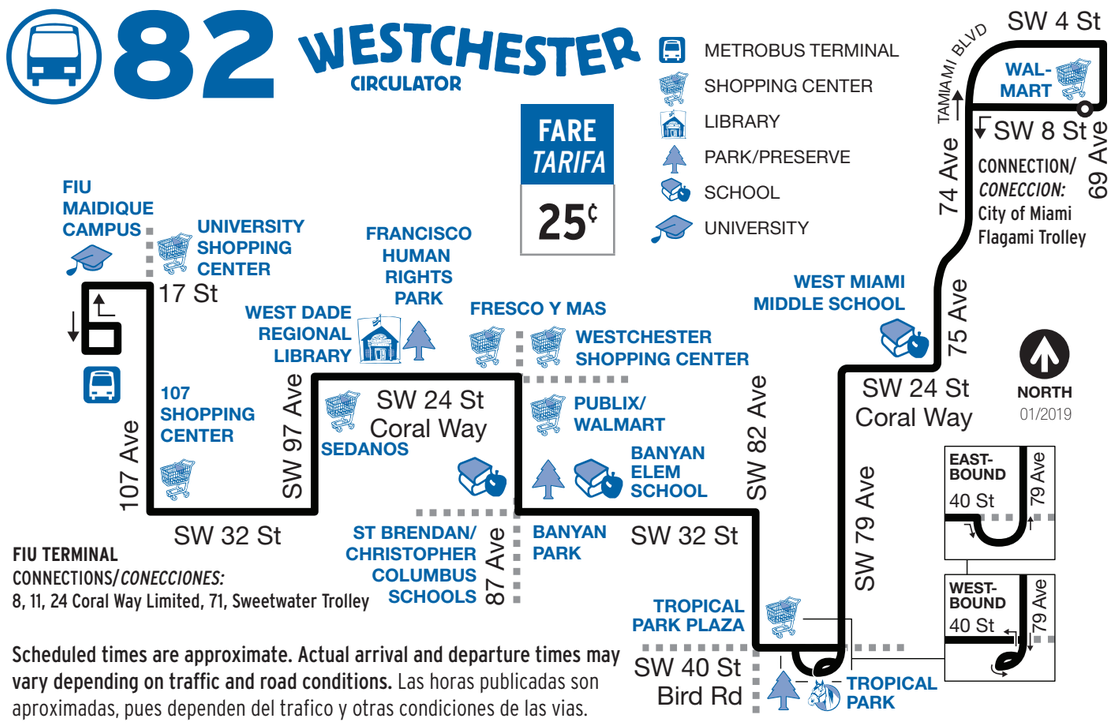




82 WESTCHESTER CIRCULATOR

FARE *TARIFA* 25¢

- METROBUS TERMINAL
- SHOPPING CENTER
- LIBRARY
- PARK/PRESERVE
- SCHOOL
- UNIVERSITY



FIU TERMINAL
CONNECTIONS/*CONECCIONES:*
8, 11, 24 Coral Way Limited, 71, Sweetwater Trolley

Scheduled times are approximate. Actual arrival and departure times may vary depending on traffic and road conditions. Las horas publicadas son aproximadas, pues dependen del trafico y otras condiciones de las vias.

MONDAY TO SATURDAY *LUNES A SÁBADO*												
EASTBOUND *RUMBO ESTE*	MORNING *MAÑANA*				a.m.	p.m.	AFTERNOON *TARDE*					
FIU TERMINAL	8:00	8:50	9:40	10:30	11:20	12:10	1:00	1:50	2:40	3:30	4:20	5:10
SW 24 ST & 94 CT	8:10	9:00	9:50	10:40	11:30	12:20	1:10	2:00	2:50	3:40	4:30	5:20
SW 32 ST & 87 AVE	8:17	9:07	9:57	10:47	11:37	12:27	1:17	2:07	2:57	3:47	4:37	5:27
SW 40 ST & 82 AVE	8:25	9:15	10:05	10:55	11:45	12:35	1:25	2:15	3:05	3:55	4:45	5:35
SW 79 AVE & 24 ST	8:31	9:21	10:11	11:01	11:51	12:41	1:31	2:21	3:11	4:01	4:51	5:41
SW 8 ST & 71 AVE	8:44	9:34	10:24	11:14	12:04	12:54	1:44	2:34	3:24	4:14	5:04	5:54
WESTBOUND *RUMBO OESTE*	MORNING *MAÑANA*				a.m.	p.m.	AFTERNOON *TARDE*					
SW 8 ST & 71 AVE	8:04	8:44	9:34	10:24	11:14	12:04	12:54	1:44	2:34	3:24	4:14	5:04
SW 79 AVE & 24 ST	8:13	8:53	9:43	10:33	11:23	12:13	1:03	1:53	2:43	3:33	4:23	5:13
SW 40 ST & 79 AVE	8:19	8:59	9:49	10:39	11:29	12:19	1:09	1:59	2:49	3:39	4:29	5:19
SW 87 AVE & 32 ST	8:26	9:06	9:56	10:46	11:36	12:26	1:16	2:06	2:56	3:46	4:36	5:26
SW 24 ST & 94 AVE	8:31	9:11	10:01	10:51	11:41	12:31	1:21	2:11	3:01	3:51	4:41	5:31
FIU TERMINAL	8:40	9:20	10:10	11:00	11:50	12:40	1:30	2:20	3:10	4:00	4:50	5:40

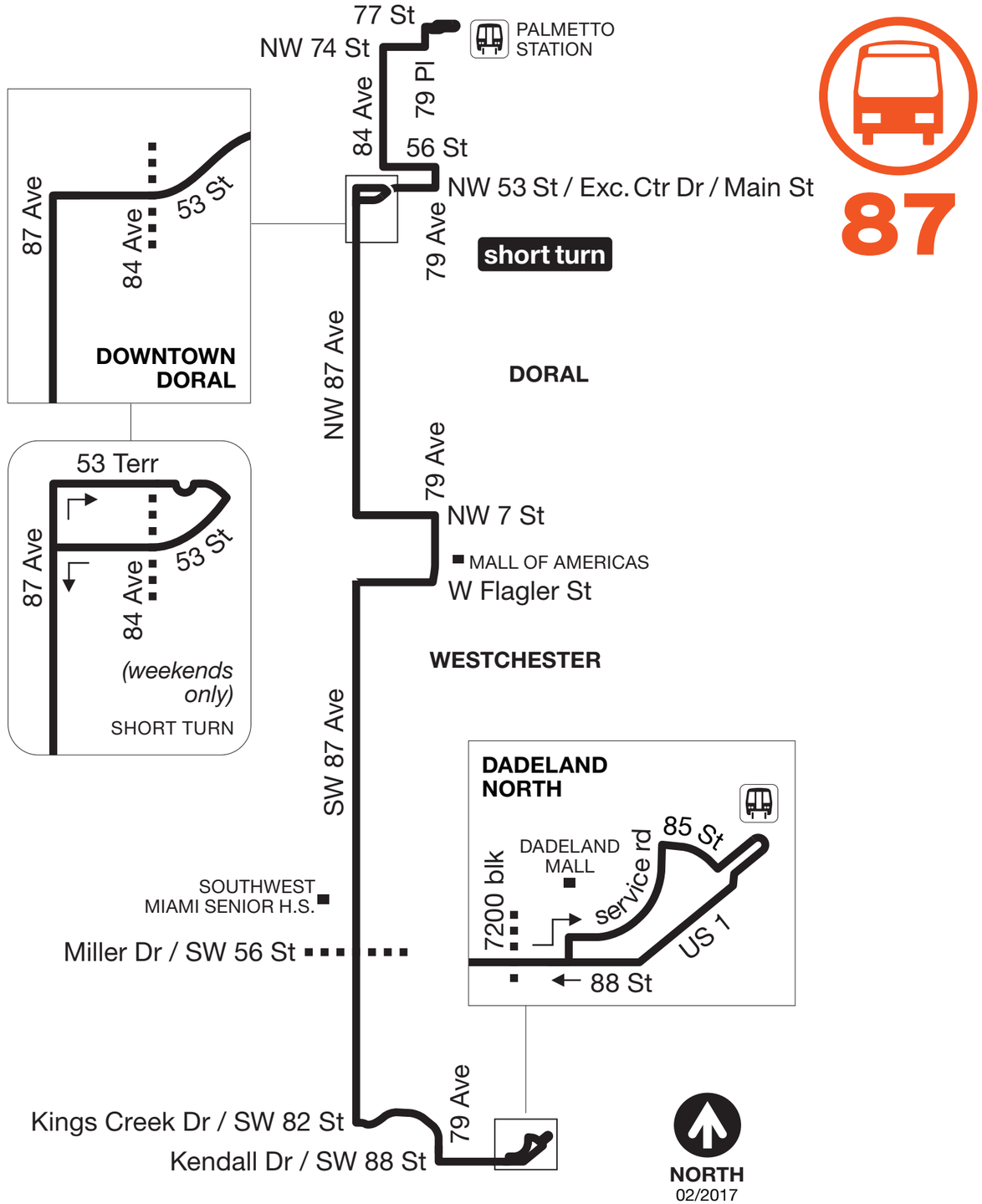
www.miamidade.gov/transit **311** OR 305.468.5900 TTY/FLA RELAY: 711

@GoMiamiDade MDT TRACKER | EASY PAY MIAMI | MDT TRANSIT WATCH

MIAMI-DADE COUNTY

01.2019

87



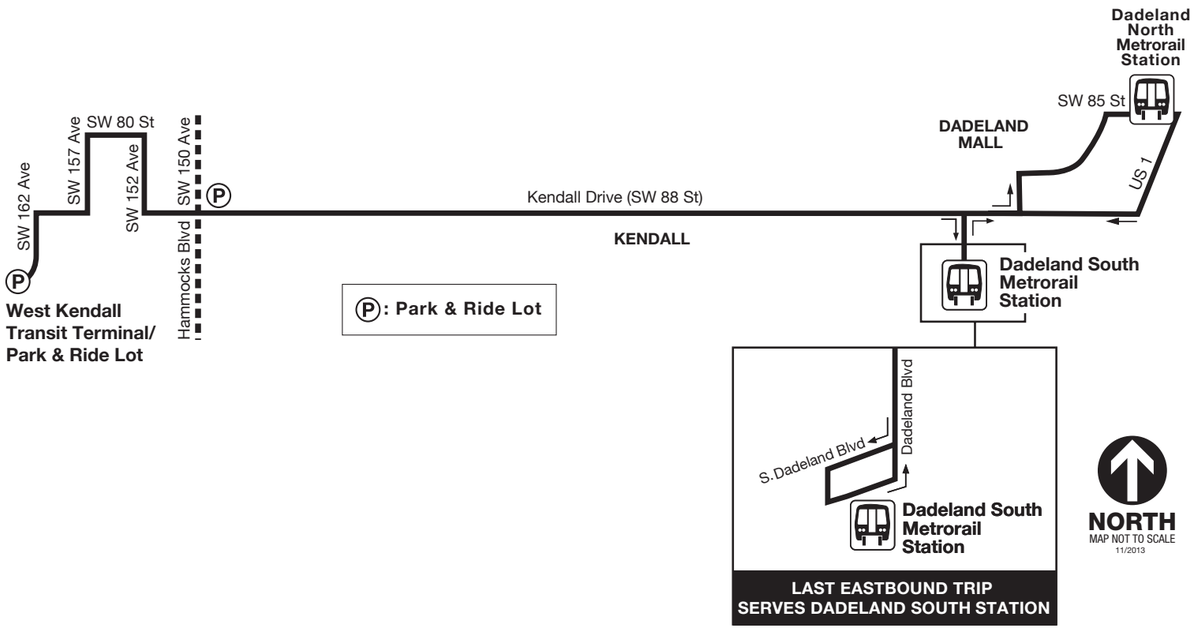
www.miamidade.gov/transit DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

@GoMiamiDade MDT TRACKER | EASY PAY MIAMI | MDT TRANSIT WATCH

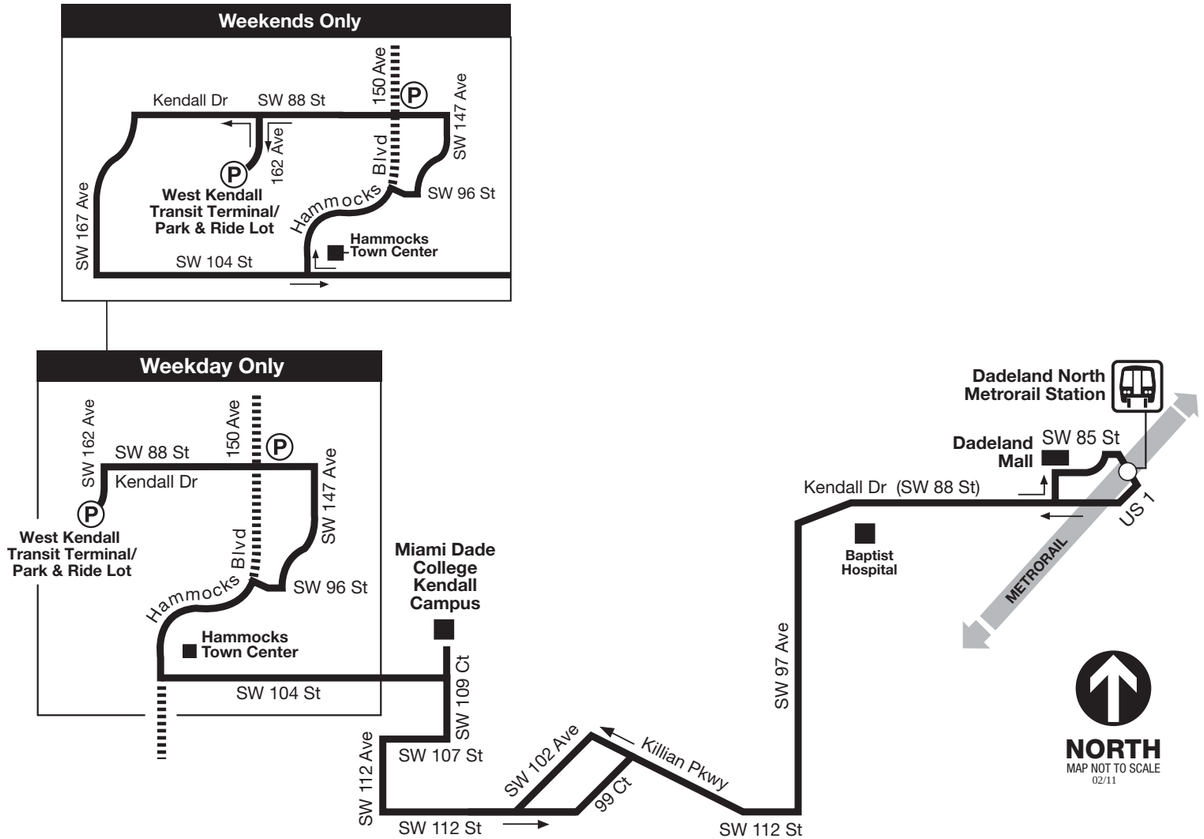
INFORMATION : INFORMACION : ENFOMASYON
311 (305.468.5900) TDD: 305.468.5402

MIAMI-DADE COUNTY

Route 88

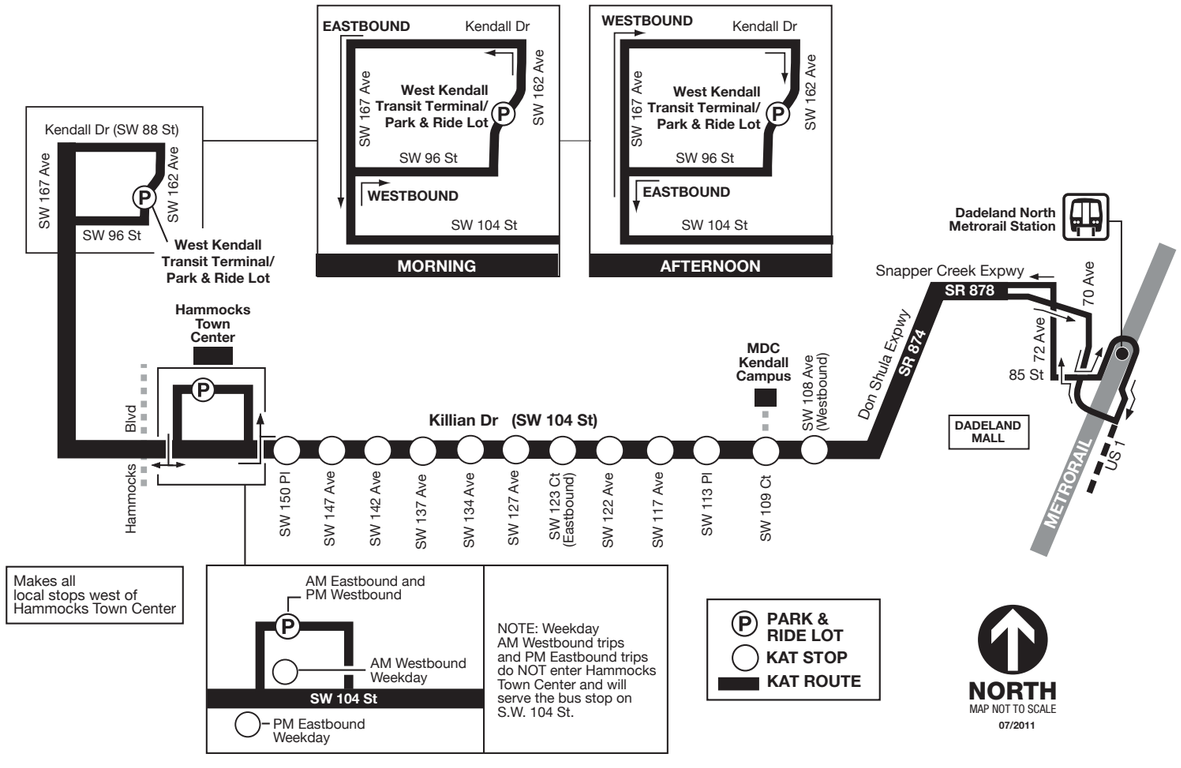


Route 104



204

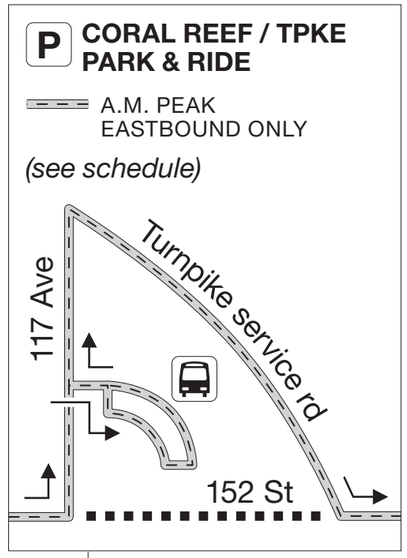
KILLIAN KAT

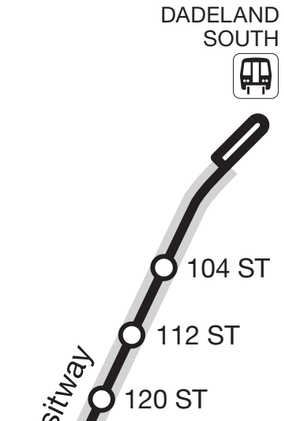


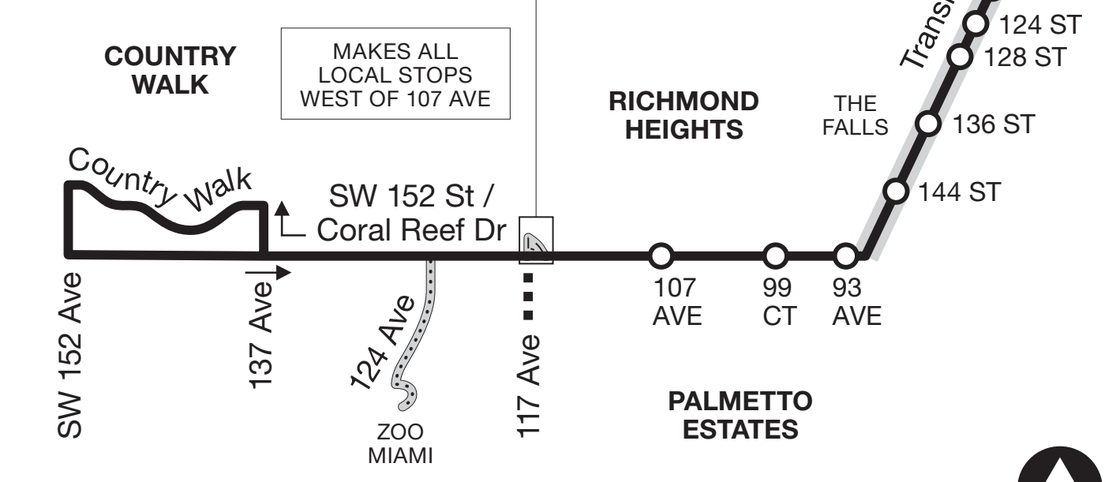
252

CORAL REEF MAX

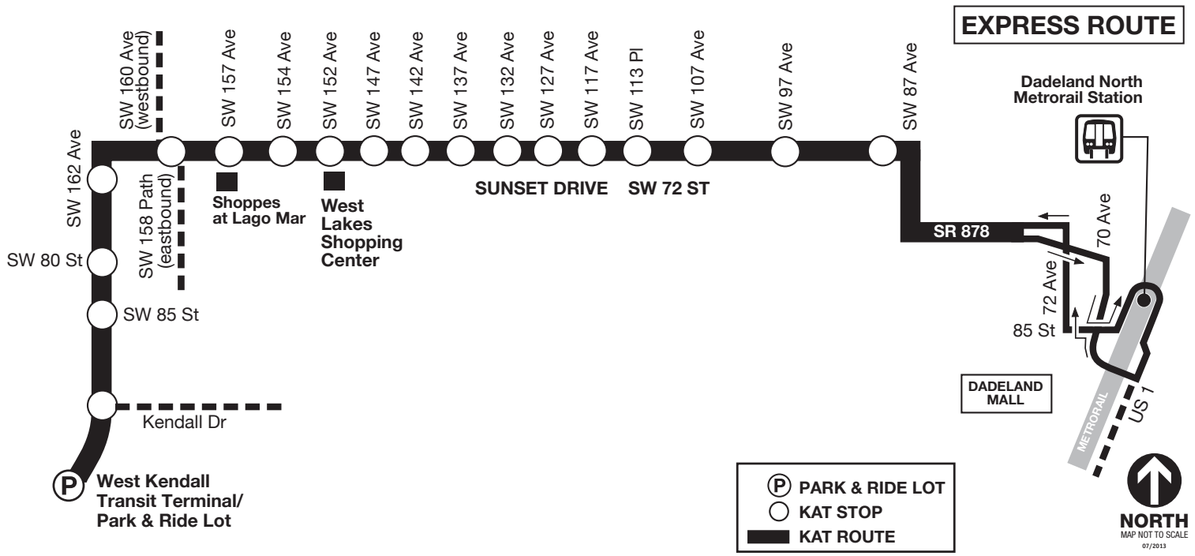
LIMITED STOPS
Dadeland S. to 107 Ave







272
SUNSET KAT

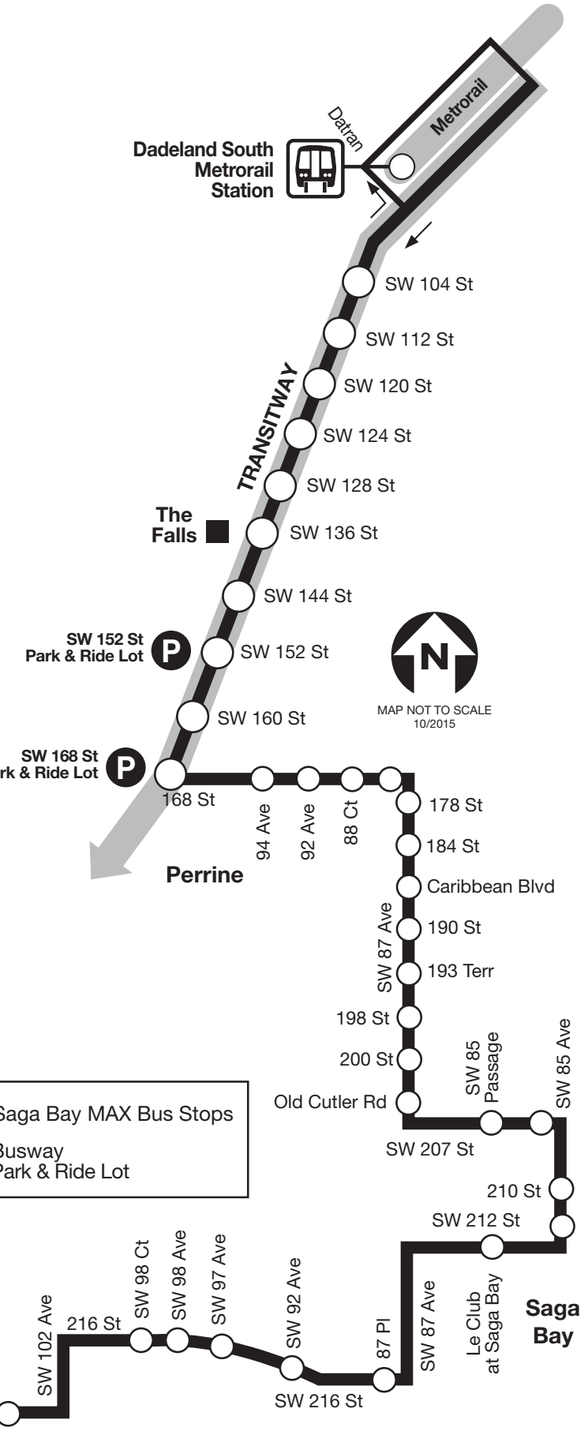


www.miamidade.gov/transit DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

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MIAMI-DADE COUNTY

287
SAGA BAY MAX



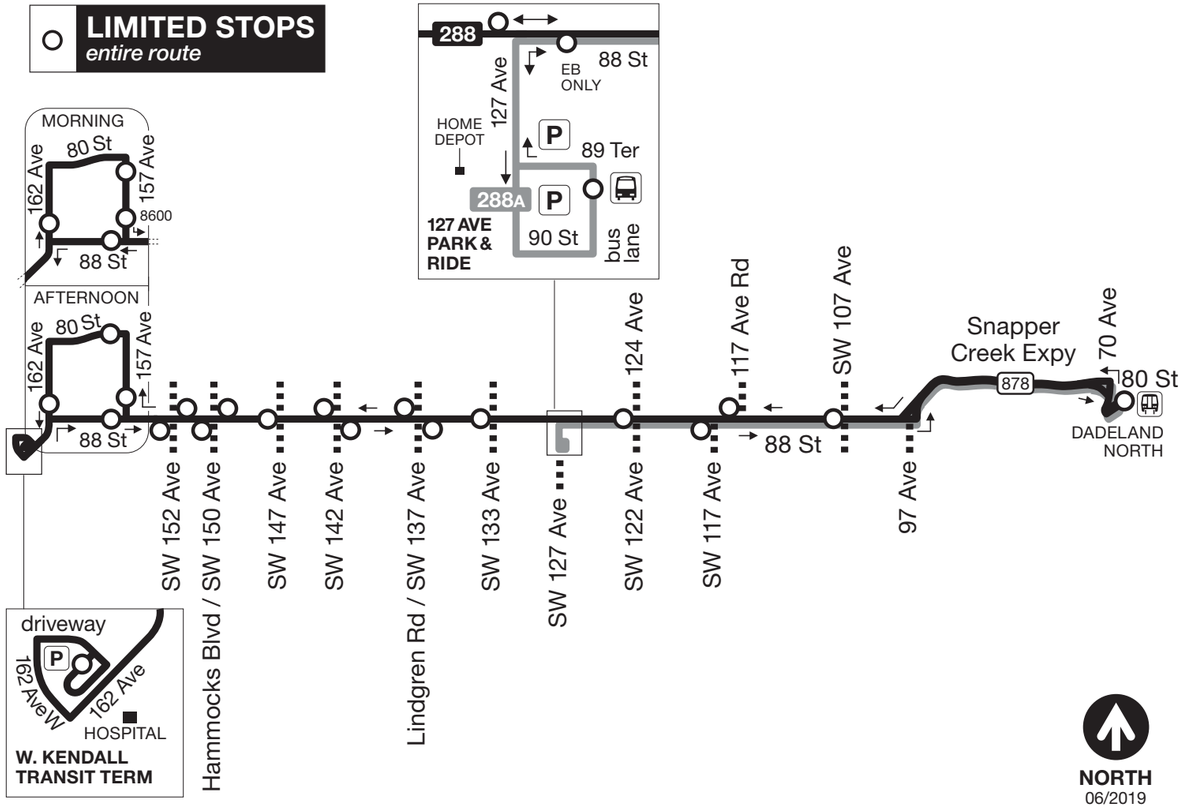
www.miamidade.gov/transit DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

@GoMiamiDade MDT TRACKER | EASY PAY MIAMI | MDT TRANSIT WATCH INFORMATION : INFORMACION : ENFOMASYON 311 OR 305.468.5900 (TDD: 305.468.5402)

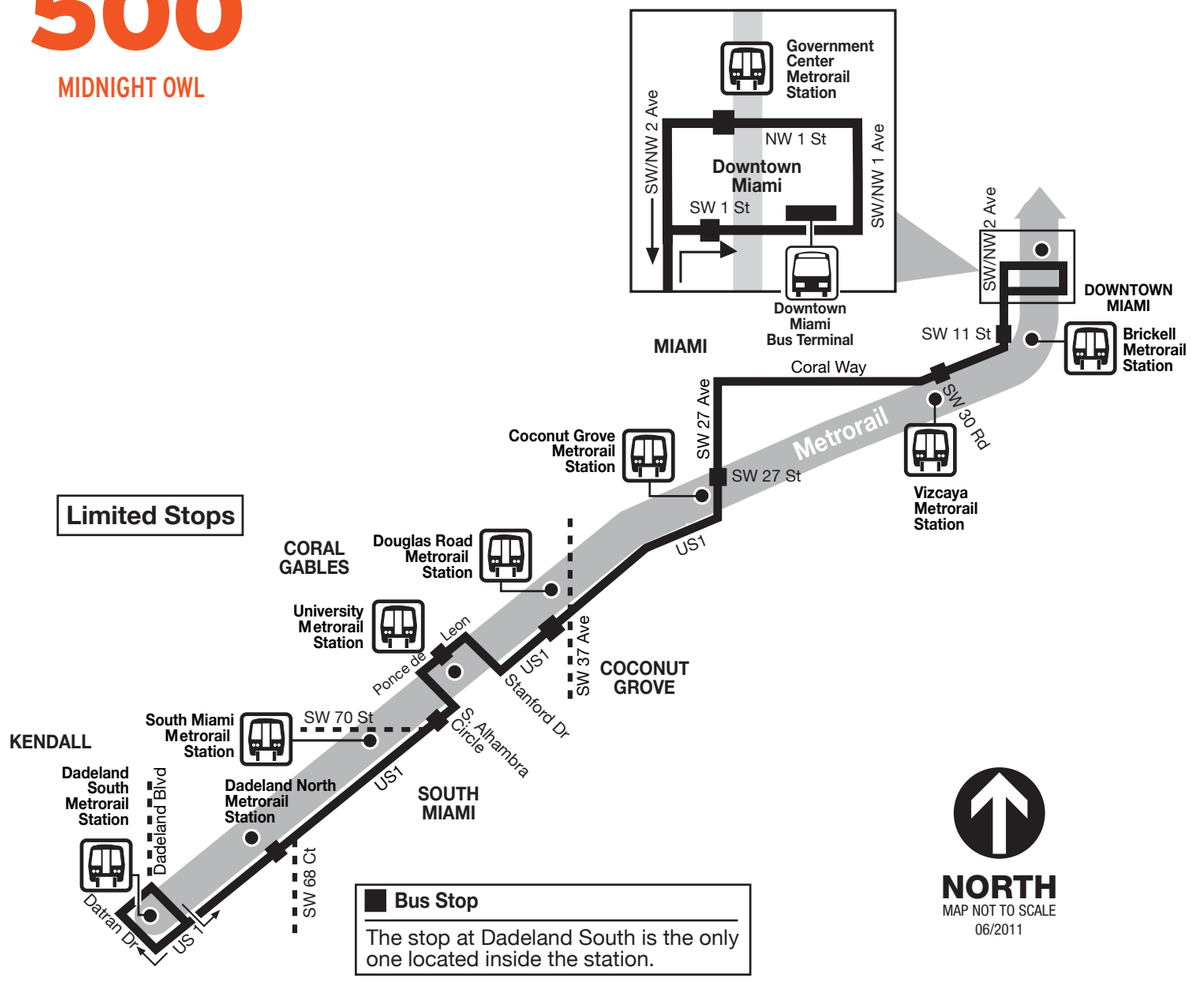
MIAMI-DADE COUNTY

288
KENDALL CRUISER

LIMITED STOPS
entire route



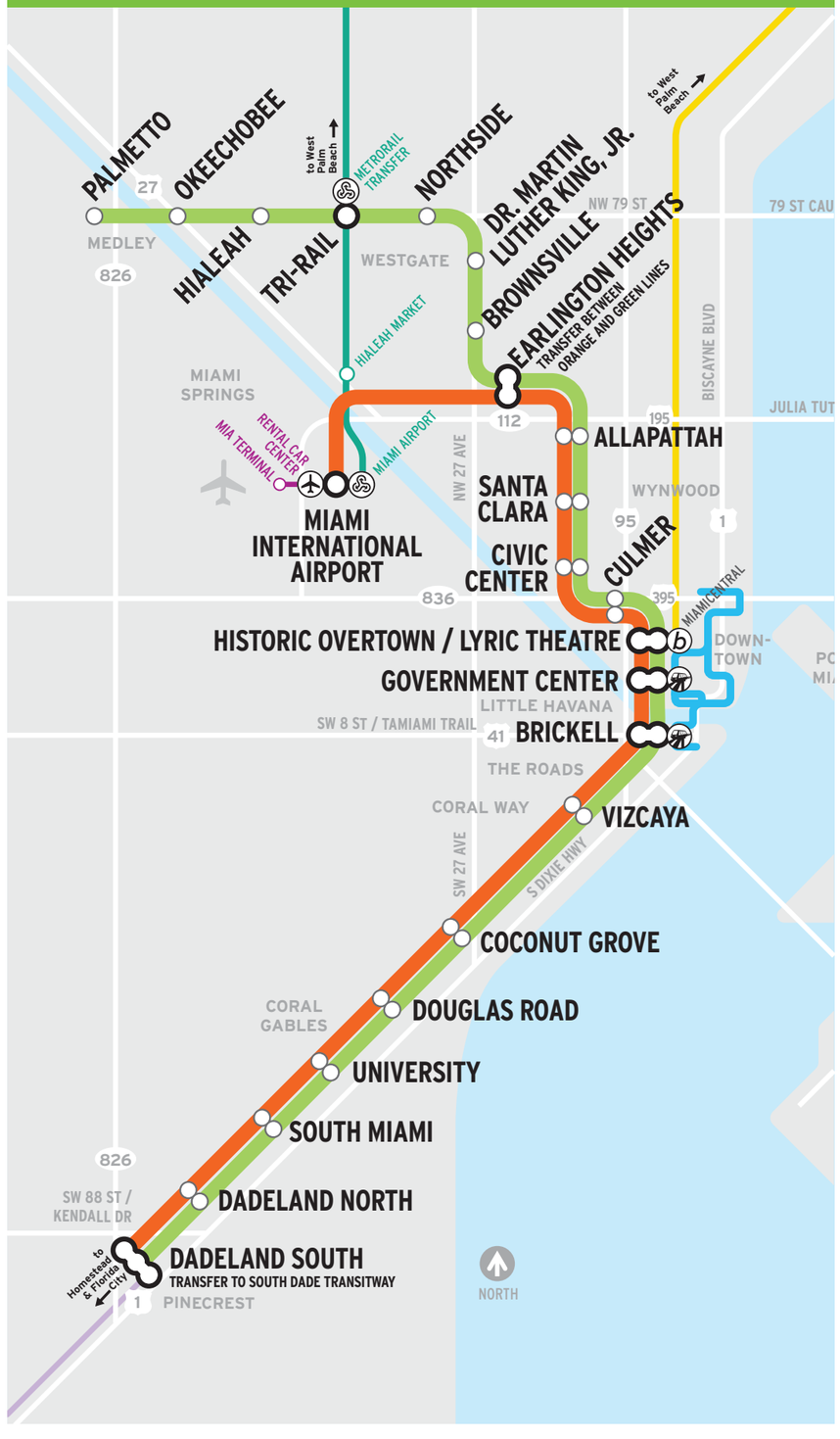
500
MIDNIGHT OWL



METRORAIL

NOVEMBER 2018

MIAMI-DADE COUNTY



METRORAIL

- Orange Line / Station
- Green Line / Station
- Station Serving Both Lines
- Recommended Transfer Station
- Station Connects with Metromover
- Station Connects with Tri-Rail
- Station Connects with Airport
- Station Connects with Brightline

CONNECTING SERVICES

- Metromover
- Tri-Rail (**tri-rail.com**)
- Brightline (**gobrightline.com**)
- MIA Mover (**miami-airport.com**)
- South Dade Transitway

www.miamidade.gov/transit

INFORMATION : INFORMACION : ENFOMASYON

311 OR 305.468.5900 TTY/FLA RELAY: 711

@GOMIAMIDADE

Download on the App Store

GET IT ON Google Play

MDT TRACKER • EASY PAY MIAMI

CONTACT US

- Department of Transportation and Public Works, 701 NW 1st Court, Suite 1200, Miami, FL 33136
- Customer Service Tel. (786) 469-5000, Fax (786) 469-5610
- Email: paratransit@miamidade.gov
- Reservations/Where's My Ride?/ Cancellations: (305) 871-1111
- To make reservations or to locate your ride online log on to stsconnect.miamidade.gov.
- Download the full STS Rider's Guide at www.miamidade.gov/transit/library/sts-riders-guide.pdf or call Customer Service at (786) 469-5000 to request a printed copy.
- Florida Relay Service TTY: 1 (800) 955-8771 or 711

LOST & FOUND

- Any article left in an STS vehicle will be turned in to the contractor by the driver.
- If you leave an article behind, please contact Transportation America at (305) 871-1111.

ANONYMOUS COMPLAINTS

- You may file an anonymous complaint to the Department of Transportation and Public Works by calling (786) 469-5000, Monday to Friday from 7:00 a.m.- 5:00 p.m. **Please be sure to provide specific details of the incident such as date, time and concerns.**

TRIP REMINDERS & NOTIFICATIONS

- You may receive a call reminder a day in advance of your trip or/and shortly before your vehicle arrives.
- You may also be contacted for other important STS announcements.

Language Assistance: Miami-Dade Transit (MDT) is committed to providing information about its transit services to passengers with limited English as part of its non-discrimination program. MDT publishes route information in Spanish and Haitian Creole and offers assistance in both languages at our Call Center at 3-1-1 or 305- 468-5900. For more information, call MDT's Office of Civil Rights & Labor Relations at 786-469-5486.
Miami-Dade County provides equal access and equal opportunity in employment and does not discriminate on the basis of disability in its programs or services. Auxiliary aids and services for communication are available with five days' advance notice. For material in alternate format (audiotape, Braille or computer disk), a sign language interpreter or other accommodations, please contact: Miami-Dade Transit, Office of Civil Rights and Labor Relations, 701 NW 1st Court, Suite 1700, Miami, FL 33136. Attention: Marcos Ortega. Telephone: 786-469-5225, Fax: 786-469-5589. E-mail: mo7225@miamidade.gov.

Español: El Departamento de Transporte Público de Miami-Dade (MDT, su sigla en inglés) está dedicado a proveer información sobre sus servicios a los pasajeros que no hablan inglés. MDT publica información sobre sus rutas de autobús en español y creole haitiano y ofrece asistencia en ambos idiomas en nuestro Centro de Llamadas en el 3-1-1 o 305-468-5900. Para más informacion, llame la Ofi cina de Derechos Humanos y Relaciones Laborales de MDT al 786-469-5486.
El Condado de Miami-Dade ofrece igualdad de acceso y de oportunidades en el empleo y no practica la discriminación por discapacidad, en sus programas o servicios. Los dispositivos y servicios de ayuda auditiva para la comunicación están disponibles previa solicitud, con cinco días de anticipación. Para obtener materiales en formato alternativo (cinta de audio, Braille o disco de computadora), para solicitar un intérprete del lenguaje de las señas u otros servicios similares sírvase llamar a: Transporte de Miami-Dade, Oficina de Derechos Civiles y Relaciones Laborales, 701 NW 1st Court, Suite 1700, Miami, FL 33136. Atención: Marcos Ortega. Teléfono: 786-469-5225, Fax: 786-469-5589. Correo electrónico: mo7225@miamidade.gov.

Kreyòl Ayisyen: Miami-Dade Transit (MDT) angaje li a bay pasaje ak konesans limite an Anglè yo tout enfòmasyon sou sèvis transpò piblik nan lang pa yo. MDT pibliye enfòmasyon sou trajè otobis yo an Espanyòl ak an Kreyòl Ayisyen epi li bay asistans nan toude lang yo nan Sant Repons nou an 3-1-1 oswa 305-468-5900. Pou plis enfòmasyon, rele Biwo Dwa Sivik ak Relasyon Travay MDT la nan 786-469-5486.
Konte Miami-Dade bay aksè ak opòtinite egal ego nan anplwa epi li pa fè diskriminasyon baze sou enfi mite nan pwogram li yo ak sèvis li yo. Aparèy ak sèvis kominikasyon pou moun ki pa tande/wè byen yo disponib ak yon preyavi senk jou. Pou jwenn dokiman nan lòt fòma (tep odyo, Bray oswa disk konpit), sèvis yo entèprèt ki pale lang siy oswa lòt akomodasyon, tanpri kontakte: Miami-Dade Transit, Biwo Dwa Civil ak Relasyon Travay, 701 NW 1st Court, Suite 1700, Miami, FL 33136. Atansyon: Marcos Ortega. Telefòn: 786-469-5225, Faks: 786-469-5589. Imel: mo7225@miamidade.gov

www.miamidade.gov/transit

INFORMATION : INFORMACION : ENFOMASYON
311 (305.468.5900) TTY: 305.468.5402

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MDT TRACKER • EASY PAY MIAMI

STS RIDER'S EASY GUIDE

SPECIAL TRANSPORTATION SERVICES (STS)

A shared-ride public transportation service of Miami-Dade County in compliance with the complimentary paratransit service provisions of the Americans with Disabilities Act (ADA) of 1990.

DRIVE LESS. LIVE MORE.

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

WHO IS ELIGIBLE FOR STS?

- Miami-Dade County residents whose physical or mental disability prevent their use of accessible public transportation.
- Miami-Dade County residents with temporary disabilities that are temporarily eligible for STS during the period of their disability.
- People with disabilities visiting from out-of-town that are presumed eligible under the ADA jurisdiction.

RESERVATION SERVICES

- Trip reservations can be made via phone by contacting the reservation line at (305) 871-1111, Monday - Sunday 8:00 a.m. - 5:00 p.m. *(including holidays)*
- Trip reservations can also be made online, 24 hours a day, seven days a week, at: stsconnect.miamidade.gov
- Trips can be scheduled up to seven (7) days in advance.
- Required information to make a reservation: Name, identification number, phone number, and address of the pick-up/ drop-off location of the rider.

SUBSCRIPTION SERVICE

- Call (305) 871-1111 to request subscription service.
- Subscription requests can be made if you make the same trip(s) at least once per week for more than one month.
- Once scheduled, subscription service is automatic. You DO NOT need to place a daily phone call to schedule a trip.
- Call only to cancel or make changes to the subscription service.

RIDERS' RESPONSIBILITIES

- Remain at the pick-up location for 30 minutes after negotiated pick-up time.
- Call in trip cancellations as soon as possible.
- Present your STS EASY Card to the driver.
- Eating, drinking, and smoking are not allowed inside STS vehicles.
- The use of abusive, threatening, and/ or obscene language – or any other inappropriate actions – are prohibited in STS vehicles.

SERVICE ANIMALS

- A service animal is any animal individually trained to provide assistance to an individual with a disability.
- Service animals are permitted by law on any STS vehicle.
- No additional fee or deposit will be charged to transport a service animal.

STS FARE

- STS fare is $3.50 each way. Companions pay the same fare, Personal Care Attendant (PCA) do not pay a fare, and PCA must be pre-certified by STS Certification Office.
- Riders must have the exact fare and must pay upon entering the vehicle.
- Drivers **DO NOT** provide change.
- Riders may contact service provider at (305) 871-1111 to purchase pre-paid vouchers. The pre-paid vouchers can be used in lieu of the cash and should be handed to the driver upon entering the vehicle.

STS AREAS OF SERVICE

- The STS program service areas match the DTPW transportation system (bus and rail) and includes most urbanized Miami-Dade County areas, but excludes certain locations such as: The Trail Glades Range, Miccosukee Indian Reservation and Fisher Island.

DRIVERS' RESPONSIBILITIES

- Provide assistance in and out of the vehicle.
- Provide minimum assistance for riders capable of transferring from a mobility aid.
- Provide safe, courteous, and reliable service.
- Provide door-to-door service.
- Report all accidents and incidents immediately.

DRIVERS ARE NOT RESPONSIBLE FOR:

- Carrying wheelchairs up/down stairs.
- Providing wheelchairs or PCA service.
- Entering buildings or residences to search for riders.
- Waiting with a rider at a drop-off location.

THE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS/STS RESERVES THE RIGHT TO SUSPEND OR CANCEL SERVICE FOR ANY INDIVIDUAL WHO:

- No longer meets the eligibility criteria, has moved outside of Miami-Dade County or is unwilling to cooperate with STS Program procedures.
- Lives in an area that is inaccessible.
- Behaves in a manner that is disruptive, abusive, threatening, or endangers the safety of staff and/or passengers.
- Abuses the program or has excessive no-shows and cancellations.

APPENDIX F

2025 No-Build Alternative Output HCS Reports (SR 826)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/9/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #1	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	43.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2297	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1262
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	43.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/8/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #1	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	43.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2776	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1525
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.1
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	43.5		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/9/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #2	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2297	119
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	1.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.985
Flow Rate (vi),pc/h	2524	127
Capacity (c), pc/h	4600	2000
Volume-to-Capacity Ratio (v/c)	0.55	0.06

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.374
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	65.8
Flow in Lanes 1 and 2 (v12), pc/h	2524	Ramp Junction Speed (S), mi/h	53.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.2

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/8/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #2	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2776	117
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	1.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.985
Flow Rate (vi),pc/h	3050	125
Capacity (c), pc/h	4600	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.06

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.374
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	65.8
Flow in Lanes 1 and 2 (v12), pc/h	3050	Ramp Junction Speed (S), mi/h	53.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.6
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.7

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/9/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #3	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2178	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1196
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.7
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/8/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #3	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2659	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1461
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/9/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #4-8	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2026	1883	141	152
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.30	2.30	1.90
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.978	0.978	0.981
Flow Rate (v_i), pc/h	2226	2027	152	163
Weaving Flow Rate (v_w), pc/h	2190	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	2378	Density-Based Capacity (c_{IWL}), pc/h/ln		1835
Total Flow Rate (v), pc/h	4568	Demand Flow-Based Capacity (c_{IW}), pc/h		5010
Volume Ratio (VR)	0.479	Weaving Segment Capacity (c_W), veh/h		4852
Minimum Lane Change Rate (LC_{MIN}), lc/h	163	Adjusted Weaving Area Capacity, pc/h		5011
Maximum Weaving Length (L_{MAX}), ft	7582	Volume-to-Capacity Ratio (v/c)		0.91

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	119	Average Weaving Speed (S_W), mi/h	53.5
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	725	Average Non-Weaving Speed (S_{NW}), mi/h	51.5
Weaving Lane Change Rate (LC_W), lc/h	316	Average Speed (S), mi/h	52.4
Weaving Lane Change Rate (LC_{All}), lc/h	1041	Density (D), pc/mi/ln	29.1
Weaving Intensity Factor (W)	0.169	Level of Service (LOS)	D

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/8/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #4-8	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2410	1746	180	249
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.30	2.30	1.90
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.978	0.978	0.981
Flow Rate (v_i), pc/h	2648	1879	194	267
Weaving Flow Rate (v_w), pc/h	2146	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	2842	Density-Based Capacity (c_{IWL}), pc/h/ln		1878
Total Flow Rate (v), pc/h	4988	Demand Flow-Based Capacity (c_{IW}), pc/h		5581
Volume Ratio (VR)	0.430	Weaving Segment Capacity (c_W), veh/h		5400
Minimum Lane Change Rate (LC_{MIN}), lc/h	267	Adjusted Weaving Area Capacity, pc/h		5581
Maximum Weaving Length (L_{MAX}), ft	7020	Volume-to-Capacity Ratio (v/c)		0.89

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	142	Average Weaving Speed (S_W), mi/h	52.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	821	Average Non-Weaving Speed (S_{NW}), mi/h	50.1
Weaving Lane Change Rate (LC_W), lc/h	420	Average Speed (S), mi/h	51.2
Weaving Lane Change Rate (LC_{All}), lc/h	1241	Density (D), pc/mi/ln	32.5
Weaving Intensity Factor (W)	0.195	Level of Service (LOS)	D

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/9/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #9	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3910	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1394
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.7
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/8/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #9	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4157	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1482
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.3
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #10-12	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	2100	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3531	1162	124	379
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	1.60	1.60	1.60	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.984	0.984	0.980
Flow Rate (v_i), pc/h	3777	1243	133	407
Weaving Flow Rate (v_w), pc/h	1650	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3910	Density-Based Capacity (c_{IWL}), pc/h/ln		2036
Total Flow Rate (v), pc/h	5560	Demand Flow-Based Capacity (c_{IW}), pc/h		8081
Volume Ratio (VR)	0.297	Weaving Segment Capacity (c_W), veh/h		7949
Minimum Lane Change Rate (LC_{MIN}), lc/h	407	Adjusted Weaving Area Capacity, pc/h		8081
Maximum Weaving Length (L_{MAX}), ft	5552	Volume-to-Capacity Ratio (v/c)		0.69

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	657	Average Weaving Speed (S_W), mi/h	51.9
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1173	Average Non-Weaving Speed (S_{NW}), mi/h	50.4
Weaving Lane Change Rate (LC_W), lc/h	831	Average Speed (S), mi/h	50.8
Weaving Lane Change Rate (LC_{All}), lc/h	2004	Density (D), pc/mi/ln	27.4
Weaving Intensity Factor (W)	0.218	Level of Service (LOS)	C

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #10-12	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	2100	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3641	920	130	516
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	1.60	1.60	1.60	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.984	0.984	0.980
Flow Rate (v_i), pc/h	3895	984	139	554
Weaving Flow Rate (v_w), pc/h	1538	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	4034	Density-Based Capacity (c_{IWL}), pc/h/ln		2053
Total Flow Rate (v), pc/h	5572	Demand Flow-Based Capacity (c_{IW}), pc/h		8696
Volume Ratio (VR)	0.276	Weaving Segment Capacity (c_W), veh/h		8077
Minimum Lane Change Rate (LC_{MIN}), lc/h	554	Adjusted Weaving Area Capacity, pc/h		8212
Maximum Weaving Length (L_{MAX}), ft	5328	Volume-to-Capacity Ratio (v/c)		0.68

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	678	Average Weaving Speed (S_W), mi/h	51.5
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1199	Average Non-Weaving Speed (S_{NW}), mi/h	49.3
Weaving Lane Change Rate (LC_W), lc/h	978	Average Speed (S), mi/h	49.9
Weaving Lane Change Rate (LC_{All}), lc/h	2177	Density (D), pc/mi/ln	27.9
Weaving Intensity Factor (W)	0.233	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #13	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4693	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1267
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #13	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4562	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1231
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #15	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4026	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1449
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.1
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Diverge:
SR826 Off Ramp to Bird Rd EB - No-Build #14

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

AM VOLUME

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	4562	60	4	2.6%	0.95	1.5	0.987	1.00	4865	9200	No	0.53
Diverging	536	45	1	1.6%	0.95	1.5	0.992	1.00	569	2100	No	0.27
Downstream	4026	60	3	2.6%	0.95	1.5	0.987	1.00	4293	6900	No	0.62

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4693	60	4	2.6%	0.95	1.5	0.987	1.00	5005	9200	No	0.54
Diverging	576	45	1	1.6%	0.95	1.5	0.992	1.00	612	2100	No	0.29
Downstream	4117	60	3	2.6%	0.95	1.5	0.987	1.00	4391	6900	No	0.64

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	21.28	C
PM Peak	21.90	C

HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #15	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	4117	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1482
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.7
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Merge:
On ramp from Miller Dr WB - No-Build #16

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4026	60	3	2.6%	0.95	1.5	0.987	1.00	4293	6900	No	0.62
Merging	826	40	1	1.5%	0.95	1.5	0.993	1.00	876	2100	No	0.42
Downstream	4852	60	4	2.6%	0.95	1.5	0.987	1.00	5174	9200	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	4117	60	3	2.6%	0.95	1.5	0.987	1.00	4391	6900	No	0.64
Diverging	844	40	1	1.5%	0.95	1.5	0.993	1.00	896	2100	No	0.43
Downstream	4961	60	4	2.6%	0.95	1.5	0.987	1.00	5290	9200	No	0.58

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #17	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4961	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1339
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.5
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #17	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4852	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1310
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #19	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7839	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1410
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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Capacity Check for Major Merge:
On ramp from SR874 NB (toll road) - No-Build #18

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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	

AM VOLUME

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	4852	60	4	2.6%	0.95	1.5	0.987	1.00	5174	9200	No	0.56
Merging	2987	65	3	2.7%	0.95	1.5	0.987	1.00	3187	6600	No	0.48
Downstream	7839	60	6	2.6%	0.95	1.5	0.987	1.00	8359	13800	No	0.61

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)
*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	4961	60	4	2.6%	0.95	1.5	0.987	1.00	5290	9200	No	0.58
Diverging	2144	65	3	2.7%	0.95	1.5	0.987	1.00	2288	6600	No	0.35
Downstream	7105	60	6	2.6%	0.95	1.5	0.987	1.00	7577	13800	No	0.55

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)
*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #20	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	7839	672
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	1.30
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.987
Flow Rate (vi),pc/h	8463	717
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.67	0.38

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.367
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1904
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	53.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.128	Outer Lanes Freeway Speed (SO), mi/h	54.9
Flow in Lanes 1 and 2 (v12), pc/h	2539	Ramp Junction Speed (S), mi/h	54.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	3256	Average Density (D), pc/mi/ln	28.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.7

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #19	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	7105	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1278
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	24.6
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #21	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	8511	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1532
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #20	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7105	393
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	1.30
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.987
Flow Rate (v_i),pc/h	7671	419
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.59	0.22

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.325
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1726
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.165	Outer Lanes Freeway Speed (S_O), mi/h	55.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2301	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2720	Average Density (D), pc/mi/ln	24.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.7

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #22	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	8511	837
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.976
Flow Rate (vi),pc/h	9189	903
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.45

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.446
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2067
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	52.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.105	Outer Lanes Freeway Speed (SO), mi/h	54.4
Flow in Lanes 1 and 2 (v12), pc/h	2757	Ramp Junction Speed (S), mi/h	53.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	3660	Average Density (D), pc/mi/ln	31.6
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.6

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #21	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	7498	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1349
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	26.0
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #23	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	9348	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1682
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #22	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7498	813
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976
Flow Rate (v_i),pc/h	8095	877
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.44

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.401
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1822
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	52.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.108	Outer Lanes Freeway Speed (S_O), mi/h	55.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	2428	Ramp Junction Speed (S), mi/h	54.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3305	Average Density (D), pc/mi/ln	27.7
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	28.9

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #24	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (LA),ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	9348	948
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.976
Flow Rate (vi),pc/h	10092	1022
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.73	0.54

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.585
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1847
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	49.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	62.5
Flow in Lanes 1 and 2 (v12), pc/h	3876	Ramp Junction Speed (S), mi/h	55.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	30.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	33.5

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #23	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	8311	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1496
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	28.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #25	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	8400	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1512
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.1
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #24	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	8311	920
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976
Flow Rate (v_i),pc/h	8973	992
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.65	0.52

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.582
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1618
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	49.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	63.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3494	Ramp Junction Speed (S), mi/h	55.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.0
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	30.3

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #26	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	8400	926
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.975
Flow Rate (vi),pc/h	9069	1000
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.73	0.53

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.416
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2040
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	52.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.093	Outer Lanes Freeway Speed (SO), mi/h	54.5
Flow in Lanes 1 and 2 (v12), pc/h	2721	Ramp Junction Speed (S), mi/h	53.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	3721	Average Density (D), pc/mi/ln	31.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.2

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #25	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	7391	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1330
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	25.6
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #27	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	9326	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1678
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #26	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7391	779
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.975
Flow Rate (v_i),pc/h	7979	841
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.64	0.44

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.354
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1795
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.113	Outer Lanes Freeway Speed (S_O), mi/h	55.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2394	Ramp Junction Speed (S), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3235	Average Density (D), pc/mi/ln	27.0
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.5

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #27	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8170	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1470
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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Capacity Check for Major Diverge:
SR826 Off Ramp to SW 8th St EB - No-Build #28

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	9326	60	6	2.6%	0.95	1.5	0.987	1.00	9945	13800	No	0.72
Diverging	1086	45	2	1.4%	0.95	1.5	0.993	1.00	1152	4200	No	0.27
Downstream	8240	60	5	2.6%	0.95	1.5	0.987	1.00	8787	11500	No	0.76

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	8170	60	6	2.6%	0.95	1.5	0.987	1.00	8712	13800	No	0.63
Diverging	1444	45	2	1.4%	0.95	1.5	0.993	1.00	1531	4200	No	0.36
Downstream	6726	60	5	2.6%	0.95	1.5	0.987	1.00	7173	11500	No	0.62

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	29.01	D
PM Peak	25.41	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pc/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #29	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6726	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1452
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.7
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #29	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8240	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1779
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.0
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR826 - No-Build #30	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6686	1241	288	1554
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.00	2.00	1.30
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.980	0.980	0.987
Flow Rate (v_i), pc/h	7218	1333	309	1657
Weaving Flow Rate (v_w), pc/h	2990	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	7527	Density-Based Capacity (c_{IWL}), pc/h/ln		2113
Total Flow Rate (v), pc/h	10517	Demand Flow-Based Capacity (c_{IW}), pc/h		12324
Volume Ratio (VR)	0.284	Weaving Segment Capacity (c_W), veh/h		12049
Minimum Lane Change Rate (LC_{MIN}), lc/h	1657	Adjusted Weaving Area Capacity, pc/h		12324
Maximum Weaving Length (L_{MAX}), ft	3847	Volume-to-Capacity Ratio (v/c)		0.85

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1054	Average Weaving Speed (S_W), mi/h	45.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	961	Average Non-Weaving Speed (S_{NW}), mi/h	40.9
Weaving Lane Change Rate (LC_W), lc/h	2761	Average Speed (S), mi/h	42.0
Weaving Lane Change Rate (LC_{All}), lc/h	3722	Density (D), pc/mi/ln	35.8
Weaving Intensity Factor (W)	0.489	Level of Service (LOS)	E

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR826 - No-Build #30	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	800	Number of Maneuver Lanes (N_{WL}), ln	0
Weaving Configuration	Two-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	6
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7558	1403	126	682
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.00	2.00	2.60
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.980	0.980	0.975
Flow Rate (v_i), pc/h	8160	1507	135	736
Weaving Flow Rate (v_w), pc/h	135	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	10403	Density-Based Capacity (c_{IWL}), pc/h/ln		1914
Total Flow Rate (v), pc/h	10538	Demand Flow-Based Capacity (c_{IW}), pc/h		-
Volume Ratio (VR)	0.013	Weaving Segment Capacity (c_W), veh/h		13073
Minimum Lane Change Rate (LC_{MIN}), lc/h	810	Adjusted Weaving Area Capacity, pc/h		13397
Maximum Weaving Length (L_{MAX}), ft	5848	Volume-to-Capacity Ratio (v/c)		0.79

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	832	Average Weaving Speed (S_W), mi/h	43.1
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1228	Average Non-Weaving Speed (S_{NW}), mi/h	46.9
Weaving Lane Change Rate (LC_W), lc/h	1554	Average Speed (S), mi/h	46.8
Weaving Lane Change Rate (LC_{All}), lc/h	2782	Density (D), pc/mi/ln	32.2
Weaving Intensity Factor (W)	0.604	Level of Service (LOS)	D

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR826 - No-Build #31-35	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5424	739	177	1302
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.00	2.00	1.30
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.980	0.980	0.987
Flow Rate (v_i), pc/h	5856	794	190	1389
Weaving Flow Rate (v_w), pc/h	2183	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	6046	Density-Based Capacity (c_{IWL}), pc/h/ln		2128
Total Flow Rate (v), pc/h	8229	Demand Flow-Based Capacity (c_{IW}), pc/h		13208
Volume Ratio (VR)	0.265	Weaving Segment Capacity (c_W), veh/h		12912
Minimum Lane Change Rate (LC_{MIN}), lc/h	1389	Adjusted Weaving Area Capacity, pc/h		13208
Maximum Weaving Length (L_{MAX}), ft	3645	Volume-to-Capacity Ratio (v/c)		0.62

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	846	Average Weaving Speed (S_W), mi/h	46.5
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	656	Average Non-Weaving Speed (S_{NW}), mi/h	44.4
Weaving Lane Change Rate (LC_W), lc/h	2493	Average Speed (S), mi/h	44.9
Weaving Lane Change Rate (LC_{All}), lc/h	3149	Density (D), pc/mi/ln	26.2
Weaving Intensity Factor (W)	0.428	Level of Service (LOS)	C

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR826 - No-Build #31-35	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	800	Number of Maneuver Lanes (N_{WL}), ln	0
Weaving Configuration	Two-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	6
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6219	847	69	507
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.00	2.00	2.60
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.980	0.980	0.975
Flow Rate (v_i), pc/h	6714	910	74	547
Weaving Flow Rate (v_w), pc/h	74	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	8171	Density-Based Capacity (c_{IWL}), pc/h/ln		1917
Total Flow Rate (v), pc/h	8245	Demand Flow-Based Capacity (c_{IW}), pc/h		-
Volume Ratio (VR)	0.009	Weaving Segment Capacity (c_W), veh/h		13092
Minimum Lane Change Rate (LC_{MIN}), lc/h	444	Adjusted Weaving Area Capacity, pc/h		13419
Maximum Weaving Length (L_{MAX}), ft	5811	Volume-to-Capacity Ratio (v/c)		0.61

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	654	Average Weaving Speed (S_W), mi/h	45.9
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	769	Average Non-Weaving Speed (S_{NW}), mi/h	51.1
Weaving Lane Change Rate (LC_W), lc/h	1188	Average Speed (S), mi/h	51.0
Weaving Lane Change Rate (LC_{All}), lc/h	1957	Density (D), pc/mi/ln	23.1
Weaving Intensity Factor (W)	0.458	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #36	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5588	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1006
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.2
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #36	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7120	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1281
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.4
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #38	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4915	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1326
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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Capacity Check for Major Diverge:
SR826 Off Ramp to SR836 - No-Build #37

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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	

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

AM VOLUME

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	7120	60	6	2.6%	0.95	1.5	0.987	1.00	7593	13800	No	0.55
Diverging	2205	45	3	3.2%	0.95	1.5	0.984	1.00	2359	5700	No	0.41
Downstream	4915	60	4	2.6%	0.95	1.5	0.987	1.00	5241	9200	No	0.57

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5588	60	6	2.6%	0.95	1.5	0.987	1.00	5959	13800	No	0.43
Diverging	2545	45	3	3.2%	0.95	1.5	0.984	1.00	2722	4200	No	0.65
Downstream	3043	60	4	2.6%	0.95	1.5	0.987	1.00	3245	9200	No	0.35

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	22.15	C
PM Peak	17.38	B

HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #39	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4915	987
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.977
Flow Rate (vi),pc/h	5306	1063
Capacity (c), pc/h	9200	2100
Volume-to-Capacity Ratio (v/c)	0.69	0.51

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.379
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1592
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.085	Outer Lanes Freeway Speed (SO), mi/h	56.1
Flow in Lanes 1 and 2 (v12), pc/h	2122	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3185	Average Density (D), pc/mi/ln	29.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.4

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #38	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	3043	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	821
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	15.6
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFSadj), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #40	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.60
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	5902	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1593
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2228
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.2
Total Ramp Density Adjustment	7.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #39	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	3043	747
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.977
Flow Rate (v_i),pc/h	3285	805
Capacity (c), pc/h	9200	2100
Volume-to-Capacity Ratio (v/c)	0.44	0.38

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.317
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	986
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.117	Outer Lanes Freeway Speed (S_O), mi/h	58.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	1314	Ramp Junction Speed (S), mi/h	56.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2119	Average Density (D), pc/mi/ln	18.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.2

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #40	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.60
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	3790	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1023
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2228
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.4
Total Ramp Density Adjustment	7.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.8		

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Capacity Check for Major Merge:
On ramp from SR 836 WB - No-Build #41

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5902	60	4	2.6%	0.95	1.5	0.987	1.00	6294	9200	No	0.68
Merging	2272	50	2	3.5%	0.95	1.5	0.983	1.00	2434	4400	No	0.55
Downstream	8174	60	6	4.4%	0.95	1.5	0.978	1.00	8794	13800	No	0.64

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3790	60	4	2.6%	0.95	1.5	0.987	1.00	4042	9200	No	0.44
Diverging	1785	50	2	3.5%	0.95	1.5	0.983	1.00	1912	4400	No	0.43
Downstream	5575	60	6	4.4%	0.95	1.5	0.978	1.00	5998	13800	No	0.43

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR826 - No-Build #42	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5575	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1021
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.1
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR826 - No-Build #42	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8174	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1497
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.0
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #43-45	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4638	1201	242	937
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	3.30	3.30	3.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.968	0.968	0.967
Flow Rate (v_i), pc/h	5096	1306	263	1020
Weaving Flow Rate (v_w), pc/h	2326	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	5359	Density-Based Capacity (c_{IWL}), pc/h/ln		2166
Total Flow Rate (v), pc/h	7685	Demand Flow-Based Capacity (c_{IW}), pc/h		11551
Volume Ratio (VR)	0.303	Weaving Segment Capacity (c_W), veh/h		11103
Minimum Lane Change Rate (LC_{MIN}), lc/h	1306	Adjusted Weaving Area Capacity, pc/h		11551
Maximum Weaving Length (L_{MAX}), ft	4050	Volume-to-Capacity Ratio (v/c)		0.67

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1233	Average Weaving Speed (S_W), mi/h	48.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1002	Average Non-Weaving Speed (S_{NW}), mi/h	45.3
Weaving Lane Change Rate (LC_W), lc/h	2794	Average Speed (S), mi/h	46.3
Weaving Lane Change Rate (LC_{All}), lc/h	3796	Density (D), pc/mi/ln	23.7
Weaving Intensity Factor (W)	0.336	Level of Service (LOS)	C

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #43-45	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6412	1674	460	1762
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	3.30	3.30	3.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.968	0.968	0.967
Flow Rate (v_i), pc/h	7045	1820	500	1918
Weaving Flow Rate (v_w), pc/h	3738	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	7545	Density-Based Capacity (c_{IWL}), pc/h/ln		2143
Total Flow Rate (v), pc/h	11283	Demand Flow-Based Capacity (c_{IW}), pc/h		10574
Volume Ratio (VR)	0.331	Weaving Segment Capacity (c_W), veh/h		10168
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		10574
Maximum Weaving Length (L_{MAX}), ft	4353	Volume-to-Capacity Ratio (v/c)		1.07

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #46	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5840	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1283
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #46	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8087	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1777
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #48	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8877	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1626
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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Capacity Check for Major Merge:
Loop On ramp from SW88th St EB - No-Build #47

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	8087	60	5	4.4%	0.95	1.5	0.978	1.00	8700	11500	No	0.76
Merging	790	30	1	6.8%	0.95	1.5	0.967	1.00	860	2000	No	0.43
Downstream	8877	60	6	4.4%	0.95	1.5	0.978	1.00	9550	13800	No	0.69

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5840	60	5	4.4%	0.95	1.5	0.978	1.00	6283	11500	No	0.55
Diverging	853	30	1	6.8%	0.95	1.5	0.967	1.00	929	2000	No	0.46
Downstream	6693	60	6	4.4%	0.95	1.5	0.978	1.00	7201	13800	No	0.52

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #1	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9921	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1817
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.5
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #48	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6693	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1226
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.6
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #2	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	9921	1686
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.935
Flow Rate (vi),pc/h	10901	1898
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.79	0.95

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.534
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1770
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	62.8
Flow in Lanes 1 and 2 (v12), pc/h	4635	Ramp Junction Speed (S), mi/h	55.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	33.0
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	41.9

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #1	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	7334	Heavy Vehicle Adjustment Factor (fHV)	0.958
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1343
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	25.5
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #3	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	8235	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1508
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.7
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #2	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7334	602
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.935
Flow Rate (v_i),pc/h	8058	678
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.58	0.34

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.424
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1513
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	63.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	3017	Ramp Junction Speed (S), mi/h	57.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	23.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.9

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #3	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	6732	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1233
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.4
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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Capacity Check for Major Merge:
On ramp from NW 25th St EB - No-Build #4

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	8235	60	6	4.4%	0.95	1.5	0.978	1.00	8860	13800	No	0.64
Merging	684	30	2	2.7%	0.95	1.5	0.987	1.00	730	4000	No	0.18
Downstream	8919	60	7	4.4%	0.95	1.5	0.978	1.00	9595	13800	No	0.70

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6732	60	6	4.4%	0.95	1.5	0.978	1.00	7243	13800	No	0.52
Diverging	2041	30	2	2.7%	0.95	1.5	0.987	1.00	2178	4000	No	0.54
Downstream	8773	60	7	4.4%	0.95	1.5	0.978	1.00	9438	13800	No	0.68

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #5	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	2
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5327	1615	426	1405
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.70	2.70	3.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974	0.974	0.963
Flow Rate (v_i), pc/h	5853	1745	460	1536
Weaving Flow Rate (v_w), pc/h	3281	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	6313	Density-Based Capacity (c_{IWL}), pc/h/ln		2134
Total Flow Rate (v), pc/h	9594	Demand Flow-Based Capacity (c_{IW}), pc/h		10234
Volume Ratio (VR)	0.342	Weaving Segment Capacity (c_W), veh/h		9850
Minimum Lane Change Rate (LC_{MIN}), lc/h	3490	Adjusted Weaving Area Capacity, pc/h		10234
Maximum Weaving Length (L_{MAX}), ft	4473	Volume-to-Capacity Ratio (v/c)		0.94

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	484	Average Weaving Speed (S_W), mi/h	45.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1199	Average Non-Weaving Speed (S_{NW}), mi/h	28.3
Weaving Lane Change Rate (LC_W), lc/h	4566	Average Speed (S), mi/h	32.5
Weaving Lane Change Rate (LC_{All}), lc/h	5765	Density (D), pc/mi/ln	42.2
Weaving Intensity Factor (W)	0.467	Level of Service (LOS)	E

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #5	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	2
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5576	463	221	2659
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.70	2.70	3.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974	0.974	0.963
Flow Rate (v_i), pc/h	6127	500	239	2906
Weaving Flow Rate (v_w), pc/h	3406	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	6366	Density-Based Capacity (c_{IWL}), pc/h/ln		2128
Total Flow Rate (v), pc/h	9772	Demand Flow-Based Capacity (c_{IW}), pc/h		10029
Volume Ratio (VR)	0.349	Weaving Segment Capacity (c_W), veh/h		9635
Minimum Lane Change Rate (LC_{MIN}), lc/h	1000	Adjusted Weaving Area Capacity, pc/h		10029
Maximum Weaving Length (L_{MAX}), ft	4549	Volume-to-Capacity Ratio (v/c)		0.97

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	488	Average Weaving Speed (S_W), mi/h	49.6
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1210	Average Non-Weaving Speed (S_{NW}), mi/h	46.1
Weaving Lane Change Rate (LC_W), lc/h	2076	Average Speed (S), mi/h	47.3
Weaving Lane Change Rate (LC_{All}), lc/h	3286	Density (D), pc/mi/ln	29.5
Weaving Intensity Factor (W)	0.299	Level of Service (LOS)	D

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #7	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6040	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1327
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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Capacity Check for Major Diverge:
SR826 Off Ramp to SR836 WB - No-Build #6

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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	

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

AM VOLUME

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	8919	60	7	4.4%	0.95	1.5	0.978	1.00	9595	13800	No	0.70
Diverging	2879	45	3	3.8%	0.95	1.5	0.981	1.00	3089	5700	No	0.54
Downstream	6040	60	5	4.4%	0.95	1.5	0.978	1.00	6498	11500	No	0.57

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	8773	60	7	4.4%	0.95	1.5	0.978	1.00	9438	13800	No	0.68
Diverging	1829	45	3	3.8%	0.95	1.5	0.981	1.00	1962	4200	No	0.47
Downstream	6944	60	5	4.4%	0.95	1.5	0.978	1.00	7471	11500	No	0.65

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

	Major Diverge	
	Density	LOS
AM Peak	23.99	C
PM Peak	23.60	C

HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #8	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6040	481
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.974
Flow Rate (vi),pc/h	6637	520
Capacity (c), pc/h	11500	1900
Volume-to-Capacity Ratio (v/c)	0.58	0.27

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.540
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1444
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	64.1
Flow in Lanes 1 and 2 (v12), pc/h	2753	Ramp Junction Speed (S), mi/h	56.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.7

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #7	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	6944	Heavy Vehicle Adjustment Factor (fHV)	0.958
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1526
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #9	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	5482	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1184
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.1
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #8	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6944	134
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974
Flow Rate (v_i),pc/h	7630	145
Capacity (c), pc/h	11500	1900
Volume-to-Capacity Ratio (v/c)	0.66	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.506
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1681
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	50.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	63.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	2743	Ramp Junction Speed (S), mi/h	57.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	26.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.6

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #9	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6810	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1470
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.5
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Diverge:
SR826 Off Ramp to Flagler St WB - No-Build #10

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

Segment Free-Flow Speed (mph)	Capacity (pc/h)			
	2-Lanes	3-Lanes	4-Lanes	5-Lanes
≥ 70	4800	7200	9600	12000
65	4700	7050	9400	11750
60	4600	6900	9200	11500
55	4500	6750	9000	11250

6-Lanes
14400
14100
13800
13500

AM VOLUME

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	5482	60	5	2.6%	0.95	1.5	0.987	1.00	5846	11500	No	0.51
Diverging	2001	40	2	1.7%	0.95	1.5	0.992	1.00	2125	4200	No	0.51
Downstream	3481	60	4	2.6%	0.95	1.5	0.987	1.00	3712	9200	No	0.40

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6810	60	5	2.6%	0.95	1.5	0.987	1.00	7262	11500	No	0.63
Diverging	1366	40	2	1.7%	0.95	1.5	0.992	1.00	1451	4200	No	0.35
Downstream	5444	60	4	2.6%	0.95	1.5	0.987	1.00	5806	9200	No	0.63

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

	Major Diverge	
	Density	LOS
AM Peak	20.46	C
PM Peak	25.42	C

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #11	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5444	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1469
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.5
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #11	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3481	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	940
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #13	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6141	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1326
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.8
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Merge:
On ramp from SR836 EB - No-Build #12

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3481	60	4	2.6%	0.95	1.5	0.987	1.00	3712	9200	No	0.40
Merging	2660	40	2	2.7%	0.95	1.5	0.987	1.00	2838	4200	No	0.68
Downstream	6141	60	5	2.6%	0.95	1.5	0.987	1.00	6549	11500	No	0.57

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5444	60	4	2.6%	0.95	1.5	0.987	1.00	5806	9200	No	0.63
Diverging	2045	40	2	2.7%	0.95	1.5	0.987	1.00	2182	4200	No	0.52
Downstream	7489	60	5	2.6%	0.95	1.5	0.987	1.00	7986	11500	No	0.69

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #14	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6141	692
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.975
Flow Rate (vi),pc/h	6630	747
Capacity (c), pc/h	11500	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.34

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.235
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1452
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	55.8
Prop. Freeway Vehicles in Lane 3 and 4 (PFM)	0.124	Outer Lanes Freeway Speed (SO), mi/h	56.6
Flow in Lanes 3 and 4 (v34), pc/h	1936	Ramp Junction Speed (S), mi/h	56.2
Flow Entering Ramp-Infl. Area (vR34), pc/h	2683	Average Density (D), pc/mi/ln	26.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.0

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #13	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	7489	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1617
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	30.2
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #15	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	6833	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1475
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.6
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #14	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	7489	776
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.975
Flow Rate (v_i),pc/h	8085	838
Capacity (c), pc/h	11500	2200
Volume-to-Capacity Ratio (v/c)	0.78	0.38

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.269
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1734
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.2
Prop. Freeway Vehicles in Lane 3 and 4 (P_{FM})	0.113	Outer Lanes Freeway Speed (S_O), mi/h	55.6
Flow in Lanes 3 and 4 (v_{34}), pc/h	2312	Ramp Junction Speed (S), mi/h	55.4
Flow Entering Ramp-Infl. Area (v_{R34}), pc/h	3150	Average Density (D), pc/mi/ln	32.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.6

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #16	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6833	1140
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.971
Flow Rate (vi),pc/h	7377	1236
Capacity (c), pc/h	11500	2100
Volume-to-Capacity Ratio (v/c)	0.75	0.59

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.401
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1616
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	52.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.063	Outer Lanes Freeway Speed (SO), mi/h	56.0
Flow in Lanes 1 and 2 (v12), pc/h	2154	Ramp Junction Speed (S), mi/h	54.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3390	Average Density (D), pc/mi/ln	31.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.9

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #15	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	8265	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1785
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	33.4
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #17	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7973	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1722
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #16	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i)	8265	1095
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.971
Flow Rate (v_i),pc/h	8923	1187
Capacity (c), pc/h	11500	2100
Volume-to-Capacity Ratio (v/c)	0.88	0.57

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.452
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1927
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	51.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.069	Outer Lanes Freeway Speed (S_O), mi/h	54.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2569	Ramp Junction Speed (S), mi/h	53.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3756	Average Density (D), pc/mi/ln	37.9
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	31.8

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #18-20	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7024	699	94	949
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.10	2.10	2.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.979	0.979	0.977
Flow Rate (v_i), pc/h	7583	752	101	1022
Weaving Flow Rate (v_W), pc/h	1774	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	7684	Density-Based Capacity (c_{IWL}), pc/h/ln		2138
Total Flow Rate (v), pc/h	9458	Demand Flow-Based Capacity (c_{IW}), pc/h		12766
Volume Ratio (VR)	0.188	Weaving Segment Capacity (c_W), veh/h		12454
Minimum Lane Change Rate (LC_{MIN}), lc/h	1022	Adjusted Weaving Area Capacity, pc/h		12766
Maximum Weaving Length (L_{MAX}), ft	4414	Volume-to-Capacity Ratio (v/c)		0.74

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	589	Average Weaving Speed (S_W), mi/h	49.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1674	Average Non-Weaving Speed (S_{NW}), mi/h	45.1
Weaving Lane Change Rate (LC_W), lc/h	1812	Average Speed (S), mi/h	45.8
Weaving Lane Change Rate (LC_{All}), lc/h	3486	Density (D), pc/mi/ln	34.4
Weaving Intensity Factor (W)	0.314	Level of Service (LOS)	D

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #17	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9360	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2021
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #21	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7724	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1390
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.6
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #18-20	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	8009	1072	181	1351
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.10	2.10	2.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.979	0.979	0.977
Flow Rate (v_i), pc/h	8647	1153	195	1456
Weaving Flow Rate (v_w), pc/h	2609	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	8842	Density-Based Capacity (c_{IWL}), pc/h/ln		2107
Total Flow Rate (v), pc/h	11451	Demand Flow-Based Capacity (c_{IW}), pc/h		10526
Volume Ratio (VR)	0.228	Weaving Segment Capacity (c_W), veh/h		10271
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		10527
Maximum Weaving Length (L_{MAX}), ft	4824	Volume-to-Capacity Ratio (v/c)		1.09

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #22	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	7724	667
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.974
Flow Rate (vi),pc/h	8339	721
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.66	0.38

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.379
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1876
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.128	Outer Lanes Freeway Speed (SO), mi/h	55.0
Flow in Lanes 1 and 2 (v12), pc/h	2502	Ramp Junction Speed (S), mi/h	54.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	3223	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.3

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #21	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	9083	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1634
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	30.1
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #23	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	8391	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1510
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #22	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	9083	886
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.974
Flow Rate (v_i),pc/h	9806	958
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.78	0.50

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.474
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2206
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	51.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.098	Outer Lanes Freeway Speed (S_O), mi/h	53.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2942	Ramp Junction Speed (S), mi/h	52.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3900	Average Density (D), pc/mi/ln	34.0
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	30.5

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #24	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	8391	1546
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	3.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.967
Flow Rate (vi),pc/h	9059	1683
Capacity (c), pc/h	13800	4200
Volume-to-Capacity Ratio (v/c)	0.66	0.40

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.384
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1891
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	3012	Ramp Junction Speed (S), mi/h	57.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	26.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.7

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #23	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	9969	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1794
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	33.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #25	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	6845	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1232
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #24	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	2
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	9969	1622
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	3.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.967
Flow Rate (v_i),pc/h	10763	1766
Capacity (c), pc/h	13800	4200
Volume-to-Capacity Ratio (v/c)	0.78	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.392
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2333
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.260	Outer Lanes Freeway Speed (S_O), mi/h	60.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3406	Ramp Junction Speed (S), mi/h	57.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	31.4
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	20.0

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #26	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	380
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6845	785
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	1.80
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.982
Flow Rate (vi),pc/h	7390	841
Capacity (c), pc/h	13800	2100
Volume-to-Capacity Ratio (v/c)	0.54	0.40

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.309
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1326
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	64.5
Flow in Lanes 1 and 2 (v12), pc/h	2891	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.7

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #25	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	8347	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1502
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	28.1
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #27	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	6060	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1090
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #26	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	380
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	8347	1238
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	1.80
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.982
Flow Rate (v_i),pc/h	9012	1327
Capacity (c), pc/h	13800	2100
Volume-to-Capacity Ratio (v/c)	0.65	0.63

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.352
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1532
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	63.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3695	Ramp Junction Speed (S), mi/h	57.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	26.0
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	32.6

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #27	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	7109	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1279
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Diverge:
SR826 Off Ramp to SR874 WB - No-Build #28

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6060	60	6	2.6%	0.95	1.5	0.987	1.00	6462	13800	No	0.47
Diverging	1956	65	3	2.7%	0.95	1.5	0.987	1.00	2087	6600	No	0.32
Downstream	4104	60	3	2.6%	0.95	1.5	0.987	1.00	4377	6900	No	0.63

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	7109	60	6	2.6%	0.95	1.5	0.987	1.00	7581	13800	No	0.55
Diverging	2765	65	3	2.7%	0.95	1.5	0.987	1.00	2950	6600	No	0.45
Downstream	4344	60	3	2.6%	0.95	1.5	0.987	1.00	4633	6900	No	0.67

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

	Major Diverge	
	Density	LOS
AM Peak	18.85	B
PM Peak	22.11	C

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #29	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4344	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1563
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #29	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4104	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1477
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/07/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #30-34	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	2600	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.20	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3384	867	246	960
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	1.60	1.60	1.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.984	0.984	0.982
Flow Rate (v_i), pc/h	3653	927	263	1029
Weaving Flow Rate (v_w), pc/h	1956	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3916	Density-Based Capacity (c_{IWL}), pc/h/ln		2164
Total Flow Rate (v), pc/h	5872	Demand Flow-Based Capacity (c_{IW}), pc/h		10511
Volume Ratio (VR)	0.333	Weaving Segment Capacity (c_W), veh/h		8466
Minimum Lane Change Rate (LC_{MIN}), lc/h	927	Adjusted Weaving Area Capacity, pc/h		8656
Maximum Weaving Length (L_{MAX}), ft	4375	Volume-to-Capacity Ratio (v/c)		0.68

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1222	Average Weaving Speed (S_W), mi/h	51.0
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1445	Average Non-Weaving Speed (S_{NW}), mi/h	46.3
Weaving Lane Change Rate (LC_W), lc/h	1489	Average Speed (S), mi/h	47.8
Weaving Lane Change Rate (LC_{All}), lc/h	2934	Density (D), pc/mi/ln	30.7
Weaving Intensity Factor (W)	0.249	Level of Service (LOS)	D

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/07/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #30-34	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	2600	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.20	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3101	610	197	1003
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	1.60	1.60	1.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.984	0.984	0.982
Flow Rate (v_i), pc/h	3348	653	211	1075
Weaving Flow Rate (v_w), pc/h	1728	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3559	Density-Based Capacity (c_{IWL}), pc/h/ln		2169
Total Flow Rate (v), pc/h	5287	Demand Flow-Based Capacity (c_{IW}), pc/h		10703
Volume Ratio (VR)	0.327	Weaving Segment Capacity (c_W), veh/h		8484
Minimum Lane Change Rate (LC_{MIN}), lc/h	653	Adjusted Weaving Area Capacity, pc/h		8676
Maximum Weaving Length (L_{MAX}), ft	4309	Volume-to-Capacity Ratio (v/c)		0.61

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1110	Average Weaving Speed (S_W), mi/h	51.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1372	Average Non-Weaving Speed (S_{NW}), mi/h	49.0
Weaving Lane Change Rate (LC_W), lc/h	1215	Average Speed (S), mi/h	49.9
Weaving Lane Change Rate (LC_{All}), lc/h	2587	Density (D), pc/mi/ln	26.5
Weaving Intensity Factor (W)	0.225	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #35	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4252	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1516
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #35	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3712	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1324
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #36	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4252	324
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.975
Flow Rate (vi),pc/h	4549	350
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.71	0.18

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.370
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1870
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	53.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.589	Outer Lanes Freeway Speed (SO), mi/h	55.1
Flow in Lanes 1 and 2 (v12), pc/h	2679	Ramp Junction Speed (S), mi/h	54.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	3029	Average Density (D), pc/mi/ln	30.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.5

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #36	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3712	302
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.975
Flow Rate (vi),pc/h	3971	326
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.62	0.16

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.345
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1632
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	53.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.589	Outer Lanes Freeway Speed (SO), mi/h	55.9
Flow in Lanes 1 and 2 (v12), pc/h	2339	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	2665	Average Density (D), pc/mi/ln	26.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.7

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #37	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.10
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4576	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1632
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2240
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2240
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.2
Total Ramp Density Adjustment	6.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #37	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.10
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4014	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1431
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2240
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2240
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	6.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #39	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2119	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1134
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

	Major Diverge	
	Density	LOS
AM Peak	24.85	C
PM Peak	28.33	D

Capacity Check for Major Diverge:
SR826 Off Ramp to Sunset Dr WB - No-Build #38

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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	

AM VOLUME

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	4014	60	3	1.6%	0.95	1.5	0.992	1.00	4260	6900	No	0.62
Diverging	1895	40	2	2.4%	0.95	1.5	0.988	1.00	2019	4200	No	0.48
Downstream	2119	60	2	1.6%	0.95	1.5	0.992	1.00	2249	4600	No	0.49

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4576	60	3	1.6%	0.95	1.5	0.992	1.00	4856	6900	No	0.70
Diverging	2038	40	2	2.4%	0.95	1.5	0.988	1.00	2172	4200	No	0.52
Downstream	2538	60	2	1.6%	0.95	1.5	0.992	1.00	2693	4600	No	0.59

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #40	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2119	77
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.974
Flow Rate (vi),pc/h	2267	83
Capacity (c), pc/h	4600	1900
Volume-to-Capacity Ratio (v/c)	0.51	0.04

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.344
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	53.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	60.0
Flow in Lanes 1 and 2 (v12), pc/h	2267	Ramp Junction Speed (S), mi/h	53.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	2350	Average Density (D), pc/mi/ln	21.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.0

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #39	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2538	Heavy Vehicle Adjustment Factor (fHV)	0.984
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1358
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #41	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	44.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2196	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1206
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.3
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	44.2		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #40	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	2538	191
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.974
Flow Rate (v_i),pc/h	2715	206
Capacity (c), pc/h	4600	1900
Volume-to-Capacity Ratio (v/c)	0.64	0.11

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.375
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	60.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2715	Ramp Junction Speed (S), mi/h	53.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2921	Average Density (D), pc/mi/ln	27.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.4

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #41	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	44.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2729	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1500
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.9
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	44.2		

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APPENDIX G

2025 No-Build Alternative Output HCS Reports (SR 874 and SR 836)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4479	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1198
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.9
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5455	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1459
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.7
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3222	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1149
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.0
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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Capacity Check for Major Diverge:
SR836 Off Ramp to SR826

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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	

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

AM VOLUME

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	5455	60	4	1.6%	0.95	1.5	0.992	1.00	5789	9200	No	0.63
Diverging	2233	40	2	7.0%	0.95	1.5	0.966	1.00	2433	4200	No	0.58
Downstream	3222	60	3	1.6%	0.95	1.5	0.992	1.00	3419	6900	No	0.50

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4479	60	4	1.6%	0.95	1.5	0.992	1.00	4753	9200	No	0.52
Diverging	1632	40	2	7.0%	0.95	1.5	0.966	1.00	1779	4200	No	0.42
Downstream	2847	60	3	1.6%	0.95	1.5	0.992	1.00	3021	6900	No	0.44

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

	Major Diverge	
	Density	LOS
AM Peak	25.33	C
PM Peak	20.79	C

HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3222	568
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.962
Flow Rate (vi),pc/h	3447	622
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.50	0.31

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.419
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1003
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	52.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.645	Outer Lanes Freeway Speed (SO), mi/h	65.8
Flow in Lanes 1 and 2 (v12), pc/h	2444	Ramp Junction Speed (S), mi/h	55.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.5

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2847	Heavy Vehicle Adjustment Factor (fHV)	0.984
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1015
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	18.6
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	54.7		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2654	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	946
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	2847	666
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.962
Flow Rate (v_i),pc/h	3046	729
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.44	0.36

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.429
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	811
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.650	Outer Lanes Freeway Speed (S_O), mi/h	65.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2235	Ramp Junction Speed (S), mi/h	55.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	18.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.7

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2181	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	778
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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Capacity Check for Major Merge:
On ramp from SR826

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	2654	60	3	1.6%	0.95	1.5	0.992	1.00	2817	6900	No	0.41
Merging	3102	50	3	3.7%	0.95	1.5	0.982	1.00	3326	6000	No	0.55
Downstream	5756	60	6	1.6%	0.95	1.5	0.992	1.00	6108	13800	No	0.44

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	2181	60	3	1.6%	0.95	1.5	0.992	1.00	2315	6900	No	0.34
Diverging	2986	50	3	3.7%	0.95	1.5	0.982	1.00	3202	6000	No	0.53
Downstream	5167	60	6	1.6%	0.95	1.5	0.992	1.00	5483	13800	No	0.40

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5167	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	921
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.7
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5756	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1026
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.7
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5725	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1225
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.1
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5234	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1120
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.2
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1323	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	472
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.5
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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FILE NAME: WB2 - Major Diverge to SR826.xlsx

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Capacity Check for Major Diverge:
SR836 Off Ramp to SR826

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

AM VOLUME

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	5234	60	5	1.6%	0.95	1.5	0.992	1.00	5554	11500	No	0.48
Diverging	3911	45	3	4.3%	0.95	1.5	0.979	1.00	4206	5700	No	0.74
Downstream	1323	60	4	1.6%	0.95	1.5	0.992	1.00	1404	9200	No	0.15

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5725	60	5	1.6%	0.95	1.5	0.992	1.00	6075	11500	No	0.53
Diverging	2010	45	3	4.3%	0.95	1.5	0.979	1.00	2162	4200	No	0.51
Downstream	3715	60	4	1.6%	0.95	1.5	0.992	1.00	3942	9200	No	0.43

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	19.44	B
PM Peak	21.26	C

HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	3715	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1325
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.9
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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Capacity Check for Major Merge:
On ramp from SR826

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	1323	60	3	1.6%	0.95	1.5	0.992	1.00	1404	6900	No	0.20
Merging	1708	45	2	2.5%	0.95	1.5	0.988	1.00	1821	4200	No	0.43
Downstream	3031	60	4	1.6%	0.95	1.5	0.992	1.00	3217	9200	No	0.35

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3715	60	3	1.6%	0.95	1.5	0.992	1.00	3942	6900	No	0.57
Diverging	1214	45	2	2.5%	0.95	1.5	0.988	1.00	1294	4200	No	0.31
Downstream	4929	60	4	1.6%	0.95	1.5	0.992	1.00	5230	9200	No	0.57

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4929	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1318
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.2
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3031	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	810
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2707	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	975
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK NB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3791	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1366
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2707	563
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	2.20
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.974	0.978
Flow Rate (vi),pc/h	2926	606
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.42	0.29

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.288
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	791
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.659	Outer Lanes Freeway Speed (SO), mi/h	65.8
Flow in Lanes 1 and 2 (v12), pc/h	2135	Ramp Junction Speed (S), mi/h	57.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.8

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3791	804
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	2.20
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.974	0.978
Flow Rate (vi),pc/h	4097	865
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.59	0.41

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.311
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1235
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.618	Outer Lanes Freeway Speed (SO), mi/h	64.9
Flow in Lanes 1 and 2 (v12), pc/h	2862	Ramp Junction Speed (S), mi/h	57.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.1

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2144	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	772
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK NB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2987	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1076
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2765	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	996
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1956	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	705
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.31
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	12.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2765	950
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	1.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.974	0.984
Flow Rate (vi),pc/h	2988	1016
Capacity (c), pc/h	7050	2100
Volume-to-Capacity Ratio (v/c)	0.57	0.48

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.339
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1219
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.592	Outer Lanes Freeway Speed (SO), mi/h	62.4
Flow in Lanes 1 and 2 (v12), pc/h	1769	Ramp Junction Speed (S), mi/h	58.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	2785	Average Density (D), pc/mi/ln	22.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.7

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	1956	575
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	1.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.974	0.984
Flow Rate (vi),pc/h	2114	615
Capacity (c), pc/h	7050	2100
Volume-to-Capacity Ratio (v/c)	0.39	0.29

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.301
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	863
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.592	Outer Lanes Freeway Speed (SO), mi/h	63.7
Flow in Lanes 1 and 2 (v12), pc/h	1251	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1866	Average Density (D), pc/mi/ln	15.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.7

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3715	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1338
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2531	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	912
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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APPENDIX H

2025 No-Build Alternative Output Synchro Reports

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	137	74	50	134	80	134	2637	104	122	2379	192
Future Volume (vph)	128	137	74	50	134	80	134	2637	104	122	2379	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.7
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1770	1863	1583	1770	5056		1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.04	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1770	1863	1583	1770	5056		67	5085	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)	135	144	78	53	141	84	141	2776	109	128	2504	202
RTOR Reduction (vph)	0	0	69	0	0	76	0	2	0	0	0	83
Lane Group Flow (vph)	121	158	9	53	141	8	141	2883	0	128	2504	119
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		pm+pt	NA	Over
Protected Phases	3	3		4	4		1	6		5	2	3
Permitted Phases			3			4				2		
Actuated Green, G (s)	23.6	23.6	23.6	18.8	18.8	18.8	18.7	117.4		125.1	111.9	23.6
Effective Green, g (s)	23.6	23.6	23.6	18.8	18.8	18.8	18.7	117.4		125.1	111.9	23.6
Actuated g/C Ratio	0.12	0.12	0.12	0.09	0.09	0.09	0.09	0.59		0.63	0.56	0.12
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.5	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	198	207	186	166	175	148	165	2967		154	2845	186
v/s Ratio Prot	0.07	c0.09		0.03	c0.08		c0.08	c0.57		0.05	0.49	0.08
v/s Ratio Perm			0.01			0.00				0.47		
v/c Ratio	0.61	0.76	0.05	0.32	0.81	0.05	0.85	0.97		0.83	0.88	0.64
Uniform Delay, d1	83.8	85.5	78.2	84.6	88.8	82.5	89.3	39.7		67.7	38.2	84.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.60	1.92	1.68
Incremental Delay, d2	5.5	15.3	0.1	1.1	23.0	0.2	32.2	11.1		19.6	2.6	4.4
Delay (s)	89.3	100.8	78.4	85.7	111.8	82.6	121.5	50.8		60.0	76.1	145.7
Level of Service	F	F	E	F	F	F	F	D		E	E	F
Approach Delay (s)		92.0			98.0			54.1			80.4	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	69.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	121	158	78	53	141	84	141	2885	128	2504	202
v/c Ratio	0.61	0.76	0.29	0.32	0.81	0.36	0.85	0.97	0.83	0.88	0.75
Control Delay	96.3	107.7	9.5	89.4	118.9	14.2	125.9	50.4	58.8	78.3	85.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.3	107.7	9.5	89.4	118.9	14.2	125.9	50.4	58.8	78.3	85.4
Queue Length 50th (ft)	162	215	0	66	183	0	183	~1469	107	1272	162
Queue Length 95th (ft)	238	303	37	121	#305	49	#338	#1545	m155	1305	m205
Internal Link Dist (ft)		935			1608			1322		2289	
Turn Bay Length (ft)	60		25	320		320	460		250		360
Base Capacity (vph)	252	264	317	177	186	243	168	2969	166	2844	317
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.60	0.25	0.30	0.76	0.35	0.84	0.97	0.77	0.88	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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	128	137	74	50	134	80	134	2637	122	2379	192
Future Volume (vph)	128	137	74	50	134	80	134	2637	122	2379	192
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+pt	NA	Over
Protected Phases	3	3		4	4		1	6	5	2	3
Permitted Phases			3			4			2		
Detector Phase	3	3	3	4	4	4	1	6	5	2	3
Switch Phase											
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	5.0	9.0	7.0
Minimum Split (s)	36.7	36.7	36.7	24.7	24.7	24.7	11.8	44.8	11.8	44.8	36.7
Total Split (s)	36.7	36.7	36.7	26.0	26.0	26.0	24.4	116.3	21.0	112.9	36.7
Total Split (%)	18.4%	18.4%	18.4%	13.0%	13.0%	13.0%	12.2%	58.2%	10.5%	56.5%	18.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.0
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8	6.8	6.8	6.7
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	23.6	23.6	23.6	18.8	18.8	18.8	18.7	117.4	125.1	111.9	23.6
Actuated g/C Ratio	0.12	0.12	0.12	0.09	0.09	0.09	0.09	0.59	0.63	0.56	0.12
v/c Ratio	0.61	0.76	0.29	0.32	0.81	0.36	0.85	0.97	0.83	0.88	0.75
Control Delay	96.3	107.7	9.5	89.4	118.9	14.2	125.9	50.4	58.8	78.3	85.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.3	107.7	9.5	89.4	118.9	14.2	125.9	50.4	58.8	78.3	85.4
LOS	F	F	A	F	F	B	F	D	E	E	F
Approach Delay		82.4			81.6			53.9		77.9	
Approach LOS		F			F			D		E	

Intersection Summary			
Cycle Length: 200			
Actuated Cycle Length: 200			
Offset: 83 (42%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 67.1		Intersection LOS: E	
Intersection Capacity Utilization 96.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 51: US 1 & Killian Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	508	180	57	37	142	428	81	2940	9	256	2690	227
Future Volume (vph)	508	180	57	37	142	428	81	2940	9	256	2690	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Lane Util. Factor	0.91	0.91	1.00	1.00	0.91	0.91	0.97	0.91	1.00	0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	0.91	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3294	1583	1770	3084	1441	3433	5085	1583	3433	6408	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3294	1583	1770	3084	1441	3433	5085	1583	3433	6408	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)	535	189	60	39	149	451	85	3095	9	269	2832	239
RTOR Reduction (vph)	0	0	49	0	101	118	0	0	4	0	0	33
Lane Group Flow (vph)	267	457	11	39	274	107	85	3095	5	269	2832	206
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3			4			6			2
Actuated Green, G (s)	35.6	35.6	35.6	18.8	18.8	18.8	9.3	98.9	117.7	19.6	109.2	144.8
Effective Green, g (s)	35.6	35.6	35.6	18.8	18.8	18.8	9.3	98.9	117.7	19.6	109.2	144.8
Actuated g/C Ratio	0.18	0.18	0.18	0.09	0.09	0.09	0.05	0.49	0.59	0.10	0.55	0.72
Clearance Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	286	586	281	166	289	135	159	2514	931	336	3498	1146
v/s Ratio Prot	c0.17	0.14		0.02	c0.09		0.02	c0.61	0.00	c0.08	c0.44	0.03
v/s Ratio Perm			0.01			0.07			0.00			0.10
v/c Ratio	0.93	0.90dl	0.04	0.23	0.95	0.79	0.53	1.23	0.01	0.80	0.81	0.18
Uniform Delay, d1	81.0	78.5	68.0	83.9	90.1	88.7	93.2	50.5	17.0	88.3	36.9	8.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.28	0.49	1.00	1.00	1.00	1.00
Incremental Delay, d2	35.8	6.5	0.1	0.7	39.0	26.6	1.6	105.7	0.0	12.8	2.1	0.1
Delay (s)	116.8	85.0	68.1	84.7	129.1	115.3	121.2	130.7	17.0	101.1	39.1	8.8
Level of Service	F	F	E	F	F	F	F	F	B	F	D	A
Approach Delay (s)		94.5			121.6			130.1			41.9	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	88.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	109.3%	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			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	267	457	60	39	375	225	85	3095	9	269	2832	239
v/c Ratio	0.93	0.90dl	0.15	0.23	0.96	0.89	0.53	1.23	0.01	0.80	0.81	0.19
Control Delay	117.8	88.5	0.8	88.5	97.4	70.2	125.4	131.5	0.0	106.3	39.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	117.8	88.5	0.8	88.5	97.4	70.2	125.4	131.5	0.0	106.3	39.5	3.6
Queue Length 50th (ft)	384	318	0	49	198	143	60	~1837	0	180	877	38
Queue Length 95th (ft)	#586	392	0	96	#327	#338	m67	#1879	m0	237	906	65
Internal Link Dist (ft)		943			618			468			720	
Turn Bay Length (ft)	195		25	95		300	150			265		320
Base Capacity (vph)	293	601	397	166	391	253	171	2513	968	363	3496	1234
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.76	0.15	0.23	0.96	0.89	0.50	1.23	0.01	0.74	0.81	0.19

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	508	180	57	37	142	428	81	2940	9	256	2690	227
Future Volume (vph)	508	180	57	37	142	428	81	2940	9	256	2690	227
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3			4			6			2
Detector Phase	3	3	3	4	4	4	1	6	4	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	7.0	5.0	9.0	7.0
Minimum Split (s)	41.5	41.5	41.5	14.0	14.0	14.0	11.8	44.8	14.0	11.8	44.8	41.5
Total Split (s)	43.0	43.0	43.0	25.0	25.0	25.0	16.8	104.0	25.0	28.0	115.2	43.0
Total Split (%)	21.5%	21.5%	21.5%	12.5%	12.5%	12.5%	8.4%	52.0%	12.5%	14.0%	57.6%	21.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.0	4.8	4.8	4.0
All-Red Time (s)	2.5	2.5	2.5	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	35.6	35.6	35.6	18.8	18.8	18.8	9.3	98.9	117.5	19.6	109.1	151.5
Actuated g/C Ratio	0.18	0.18	0.18	0.09	0.09	0.09	0.05	0.49	0.59	0.10	0.55	0.76
v/c Ratio	0.93	0.90dl	0.15	0.23	0.96	0.89	0.53	1.23	0.01	0.80	0.81	0.19
Control Delay	117.8	88.5	0.8	88.5	97.4	70.2	125.4	131.5	0.0	106.3	39.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	117.8	88.5	0.8	88.5	97.4	70.2	125.4	131.5	0.0	106.3	39.5	3.6
LOS	F	F	A	F	F	E	F	F	A	F	D	A
Approach Delay		91.8			87.3			131.0			42.3	
Approach LOS		F			F			F			D	

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 139 (70%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 86.4 Intersection LOS: F
Intersection Capacity Utilization 109.3% ICU Level of Service H
Analysis Period (min) 15

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 11: US 1 & SW 104 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	169	53	106	153	75	143	1785	82	165	3065	416
Future Volume (vph)	125	169	53	106	153	75	143	1785	82	165	3065	416
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.7
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1764	1583	1770	1863	1583	1770	5052		1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.04	1.00	1.00
Satd. Flow (perm)	1681	1764	1583	1770	1863	1583	1770	5052		79	5085	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)	132	178	56	112	161	79	151	1879	86	174	3226	438
RTOR Reduction (vph)	0	0	47	0	0	70	0	3	0	0	0	116
Lane Group Flow (vph)	119	191	9	112	161	9	151	1962	0	174	3226	322
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		pm+pt	NA	Over
Protected Phases	3	3		4	4		1	6		5	2	3
Permitted Phases			3			4				2		
Actuated Green, G (s)	30.0	30.0	30.0	20.9	20.9	20.9	17.6	93.9		112.7	94.5	30.0
Effective Green, g (s)	30.0	30.0	30.0	20.9	20.9	20.9	17.6	93.9		112.7	94.5	30.0
Actuated g/C Ratio	0.16	0.16	0.16	0.11	0.11	0.11	0.09	0.49		0.59	0.50	0.16
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.5	1.0		2.5	1.0	3.0
Lane Grp Cap (vph)	265	278	249	194	204	174	163	2496		208	2529	249
v/s Ratio Prot	0.07	0.11		0.06	c0.09		c0.09	0.39		0.08	c0.63	c0.20
v/s Ratio Perm			0.01			0.01				0.42		
v/c Ratio	0.45	0.69	0.04	0.58	0.79	0.05	0.93	0.79		0.84	1.28	1.29
Uniform Delay, d1	72.5	75.6	67.7	80.4	82.4	75.7	85.6	39.7		60.9	47.8	80.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.54	0.48	0.93
Incremental Delay, d2	1.2	6.9	0.1	4.1	18.1	0.1	48.9	2.6		2.7	124.3	134.4
Delay (s)	73.7	82.5	67.8	84.5	100.5	75.8	134.5	42.3		96.5	147.1	208.9
Level of Service	E	F	E	F	F	E	F	D		F	F	F
Approach Delay (s)		77.4			89.8			48.9			151.8	
Approach LOS		E			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	111.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	106.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	119	191	56	112	161	79	151	1965	174	3226	438
v/c Ratio	0.45	0.69	0.15	0.57	0.79	0.27	0.93	0.79	0.84	1.28	1.20
Control Delay	78.6	89.3	0.9	91.5	107.4	2.2	132.9	43.7	89.5	148.5	131.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.6	89.3	0.9	91.5	107.4	2.2	132.9	43.7	89.5	148.5	131.3
Queue Length 50th (ft)	144	241	0	135	199	0	192	749	186	~1835	~520
Queue Length 95th (ft)	223	345	0	206	285	0	#397	863	m164	m#1501	m#467
Internal Link Dist (ft)		935			1608			1322		2289	
Turn Bay Length (ft)	60		25	320		320	460		250		360
Base Capacity (vph)	265	278	366	235	248	330	163	2496	243	2529	366
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.69	0.15	0.48	0.65	0.24	0.93	0.79	0.72	1.28	1.20

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	125	169	53	106	153	75	143	1785	165	3065	416
Future Volume (vph)	125	169	53	106	153	75	143	1785	165	3065	416
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+pt	NA	Over
Protected Phases	3	3		4	4		1	6	5	2	3
Permitted Phases			3			4			2		
Detector Phase	3	3	3	4	4	4	1	6	5	2	3
Switch Phase											
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	5.0	9.0	7.0
Minimum Split (s)	36.7	36.7	36.7	24.7	24.7	24.7	11.8	44.8	11.8	44.8	36.7
Total Split (s)	36.7	36.7	36.7	32.0	32.0	32.0	20.0	92.5	28.8	101.3	36.7
Total Split (%)	19.3%	19.3%	19.3%	16.8%	16.8%	16.8%	10.5%	48.7%	15.2%	53.3%	19.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.0
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8	6.8	6.8	6.7
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	30.0	30.0	30.0	20.9	20.9	20.9	17.6	93.8	112.0	94.5	30.0
Actuated g/C Ratio	0.16	0.16	0.16	0.11	0.11	0.11	0.09	0.49	0.59	0.50	0.16
v/c Ratio	0.45	0.69	0.15	0.57	0.79	0.27	0.93	0.79	0.84	1.28	1.20
Control Delay	78.6	89.3	0.9	91.5	107.4	2.2	132.9	43.7	89.5	148.5	131.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.6	89.3	0.9	91.5	107.4	2.2	132.9	43.7	89.5	148.5	131.3
LOS	E	F	A	F	F	A	F	D	F	F	F
Approach Delay		72.3			78.7			50.1		143.8	
Approach LOS		E			E			D		F	

Intersection Summary			
Cycle Length: 190			
Actuated Cycle Length: 190			
Offset: 158 (83%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 106.8		Intersection LOS: F	
Intersection Capacity Utilization 106.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 51: US 1 & Killian Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	389	193	99	27	179	391	158	1953	22	507	3587	703
Future Volume (vph)	389	193	99	27	179	391	158	1953	22	507	3587	703
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Lane Util. Factor	0.91	0.91	1.00	1.00	0.91	0.91	0.97	0.91	1.00	0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	0.92	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3307	1583	1770	3124	1441	3433	5085	1583	3433	6408	1583
Flt Permitted	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3307	1583	1770	3124	1441	3433	5085	1583	3433	6408	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)	409	203	104	28	188	412	166	2056	23	534	3776	740
RTOR Reduction (vph)	0	0	85	0	105	186	0	0	12	0	0	18
Lane Group Flow (vph)	204	408	19	28	289	20	166	2056	12	534	3776	722
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3			4			6			2
Actuated Green, G (s)	34.6	34.6	34.6	18.9	18.9	18.9	10.2	76.1	95.0	33.3	99.2	133.8
Effective Green, g (s)	34.6	34.6	34.6	18.9	18.9	18.9	10.2	76.1	95.0	33.3	99.2	133.8
Actuated g/C Ratio	0.18	0.18	0.18	0.10	0.10	0.10	0.05	0.40	0.50	0.18	0.52	0.70
Clearance Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Vehicle Extension (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	1.0	3.5	3.5	1.0	3.5
Lane Grp Cap (vph)	293	602	288	176	310	143	184	2036	791	601	3345	1114
v/s Ratio Prot	c0.13	0.12		0.02	c0.09		0.05	0.40	0.00	c0.16	c0.59	0.12
v/s Ratio Perm			0.01			0.01			0.01			0.34
v/c Ratio	0.70	0.68	0.07	0.16	0.93	0.14	0.90	1.01	0.01	0.89	1.13	0.65
Uniform Delay, d1	72.8	72.5	64.3	78.3	84.9	78.2	89.4	57.0	23.9	76.5	45.4	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.74	1.54	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.3	3.2	0.1	0.5	33.8	0.5	31.5	19.3	0.0	15.2	62.4	1.4
Delay (s)	80.1	75.6	64.4	78.8	118.7	78.7	97.9	107.0	23.9	91.7	107.8	16.7
Level of Service	F	E	E	E	F	E	F	F	C	F	F	B
Approach Delay (s)		75.3			103.8			105.5			92.7	
Approach LOS		E			F			F			F	

Intersection Summary					
HCM 2000 Control Delay	95.4	HCM 2000 Level of Service	F		
HCM 2000 Volume to Capacity ratio	1.02				
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	27.1		
Intersection Capacity Utilization	99.3%	ICU Level of Service	F		
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	204	408	104	28	394	206	166	2056	23	534	3776	740
v/c Ratio	0.70	0.68	0.26	0.16	0.95	0.63	0.90	1.01	0.03	0.89	1.13	0.62
Control Delay	85.8	78.5	4.1	81.6	90.4	17.8	100.7	102.0	0.2	93.7	104.0	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.8	78.5	4.1	81.6	90.4	17.8	100.7	102.0	0.2	93.7	104.0	13.2
Queue Length 50th (ft)	262	262	0	33	197	0	105	~1038	0	337	~1579	363
Queue Length 95th (ft)	373	330	20	70	#323	101	m#172	#1122	m0	410	#1593	475
Internal Link Dist (ft)		943			618			468			720	
Turn Bay Length (ft)	195		25	95		300	150			265		320
Base Capacity (vph)	309	634	417	175	416	328	184	2036	838	636	3345	1202
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.64	0.25	0.16	0.95	0.63	0.90	1.01	0.03	0.84	1.13	0.62

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	389	193	99	27	179	391	158	1953	22	507	3587	703
Future Volume (vph)	389	193	99	27	179	391	158	1953	22	507	3587	703
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3			4			6			2
Detector Phase	3	3	3	4	4	4	1	6	4	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	7.0	5.0	9.0	7.0
Minimum Split (s)	41.5	41.5	41.5	14.0	14.0	14.0	11.8	44.8	14.0	11.8	44.8	41.5
Total Split (s)	43.0	43.0	43.0	25.0	25.0	25.0	16.0	80.0	25.0	42.0	106.0	43.0
Total Split (%)	22.6%	22.6%	22.6%	13.2%	13.2%	13.2%	8.4%	42.1%	13.2%	22.1%	55.8%	22.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.0	4.8	4.8	4.0
All-Red Time (s)	2.5	2.5	2.5	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	34.6	34.6	34.6	18.9	18.9	18.9	10.2	76.1	94.8	33.3	99.2	140.6
Actuated g/C Ratio	0.18	0.18	0.18	0.10	0.10	0.10	0.05	0.40	0.50	0.18	0.52	0.74
v/c Ratio	0.70	0.68	0.26	0.16	0.95	0.63	0.90	1.01	0.03	0.89	1.13	0.62
Control Delay	85.8	78.5	4.1	81.6	90.4	17.8	100.7	102.0	0.2	93.7	104.0	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.8	78.5	4.1	81.6	90.4	17.8	100.7	102.0	0.2	93.7	104.0	13.2
LOS	F	E	A	F	F	B	F	F	A	F	F	B
Approach Delay		69.8			66.2			100.8			89.6	
Approach LOS		E			E			F			F	

Intersection Summary

Cycle Length: 190
Actuated Cycle Length: 190
Offset: 113 (59%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 89.2 Intersection LOS: F
Intersection Capacity Utilization 99.3% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 11: US 1 & SW 104 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	276	8	5	118	126	14	88	192	173	39	22
Future Volume (vph)	46	276	8	5	118	126	14	88	192	173	39	22
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	6.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00			1.00	0.85		1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00			1.00	1.00		0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1855			1859	1583		1850	1583	1770	1762	
Flt Permitted	0.67	1.00			0.99	1.00		0.99	1.00	0.95	1.00	
Satd. Flow (perm)	1256	1855			1841	1583		1850	1583	1770	1762	
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)	48	291	8	5	124	133	15	93	202	182	41	23
RTOR Reduction (vph)	0	1	0	0	0	50	0	0	148	0	18	0
Lane Group Flow (vph)	48	298	0	0	129	83	0	108	54	182	46	0
Turn Type	Perm	NA		Perm	NA	pt+ov	custom	NA	Prot	Split	NA	
Protected Phases		2			6	6 3	8 4	8 4	8 4	3	3	
Permitted Phases	2			6			8					
Actuated Green, G (s)	48.2	48.2			48.2	68.5		29.5	29.5	14.3	14.3	
Effective Green, g (s)	48.2	48.2			48.2	68.5		29.5	29.5	14.3	14.3	
Actuated g/C Ratio	0.44	0.44			0.44	0.62		0.27	0.27	0.13	0.13	
Clearance Time (s)	6.0	6.0			6.0					6.0	6.0	
Vehicle Extension (s)	1.0	1.0			1.0					2.5	2.5	
Lane Grp Cap (vph)	550	812			806	985		496	424	230	229	
v/s Ratio Prot		c0.16				0.05		c0.06	0.03	c0.10	0.03	
v/s Ratio Perm	0.04				0.07							
v/c Ratio	0.09	0.37			0.16	0.08		0.22	0.13	0.79	0.20	
Uniform Delay, d1	18.1	20.7			18.7	8.3		31.3	30.5	46.4	42.7	
Progression Factor	1.00	1.00			0.18	0.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	1.3			0.4	0.0		0.2	0.1	16.3	0.3	
Delay (s)	18.4	22.0			3.7	0.0		31.4	30.6	62.7	43.1	
Level of Service	B	C			A	A		C	C	E	D	
Approach Delay (s)		21.5			1.8			30.9			57.6	
Approach LOS		C			A			C			E	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

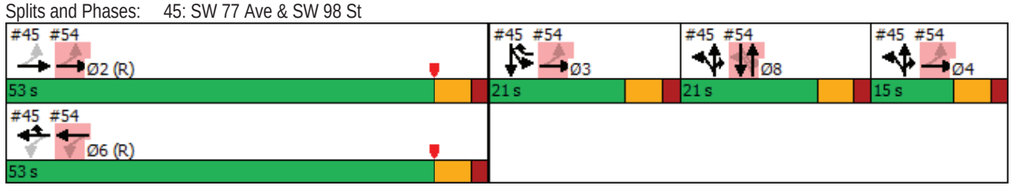
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	299	129	133	108	202	182	64
v/c Ratio	0.09	0.37	0.16	0.13	0.22	0.35	0.79	0.26
Control Delay	19.4	22.6	3.8	0.2	32.5	6.2	70.6	33.5
Queue Delay	0.0	0.0	0.9	0.8	0.0	0.3	0.0	0.0
Total Delay	19.4	22.6	4.7	1.0	32.5	6.5	70.6	33.5
Queue Length 50th (ft)	20	140	7	0	59	0	125	27
Queue Length 95th (ft)	44	211	13	0	106	55	#232	68
Internal Link Dist (ft)		705	21		679			679
Turn Bay Length (ft)	50					105	75	
Base Capacity (vph)	549	813	805	1044	466	549	241	258
Starvation Cap Reductn	0	0	467	682	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	75	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.37	0.38	0.37	0.23	0.43	0.76	0.25

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	Ø4	Ø8
Lane Configurations											
Traffic Volume (vph)	46	276	5	118	126	88	192	173	39		
Future Volume (vph)	46	276	5	118	126	88	192	173	39		
Turn Type	Perm	NA	Perm	NA	pt+ov	NA	Prot	Split	NA		
Protected Phases		2		6	6 3	8 4	8 4	3	3	4	8
Permitted Phases	2		6								
Detector Phase	2	2	6	6	6 3	8 4	8 4	3	3		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0				7.0	7.0	9.0	7.0
Minimum Split (s)	21.0	21.0	21.0	21.0				13.0	13.0	15.0	21.0
Total Split (s)	53.0	53.0	53.0	53.0				21.0	21.0	15.0	21.0
Total Split (%)	48.2%	48.2%	48.2%	48.2%				19.1%	19.1%	14%	19%
Yellow Time (s)	4.0	4.0	4.0	4.0				4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0				2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0				0.0	0.0		
Total Lost Time (s)	6.0	6.0		6.0				6.0	6.0		
Lead/Lag								Lead	Lead		Lag
Lead-Lag Optimize?								Yes	Yes		Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max				None	None	None	None
Act Effct Green (s)	48.2	48.2		48.2	68.5	29.5	29.5	14.3	14.3		
Actuated g/C Ratio	0.44	0.44		0.44	0.62	0.27	0.27	0.13	0.13		
v/c Ratio	0.09	0.37		0.16	0.13	0.22	0.35	0.79	0.26		
Control Delay	19.4	22.6		3.8	0.2	32.5	6.2	70.6	33.5		
Queue Delay	0.0	0.0		0.9	0.8	0.0	0.3	0.0	0.0		
Total Delay	19.4	22.6		4.7	1.0	32.5	6.5	70.6	33.5		
LOS	B	C		A	A	C	A	E	C		
Approach Delay		22.2		2.8		15.5			61.0		
Approach LOS		C		A		B			E		

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 14 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 24.3		Intersection LOS: C	
Intersection Capacity Utilization 51.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 45: SW 77 Ave & SW 98 St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	641	228	24	21	1
Future Volume (Veh/h)	0	641	228	24	21	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	675	240	25	22	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		101	59			
pX, platoon unblocked					0.89	
vC, conflicting volume	265				928	132
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	265				859	132
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				92	100
cM capacity (veh/h)	1296				264	892

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	675	160	105	23
Volume Left	0	0	0	22
Volume Right	0	0	25	1
cSH	1700	1700	1700	272
Volume to Capacity	0.40	0.09	0.06	0.08
Queue Length 95th (ft)	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	19.4
Lane LOS				C
Approach Delay (s)	0.0	0.0		19.4
Approach LOS				C

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	642	0	1	251	0	1	29	0	0	15	0
Future Volume (vph)	0	642	0	1	251	0	1	29	0	0	15	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		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1862			1860			1863	
Flt Permitted		1.00			0.78			0.99			1.00	
Satd. Flow (perm)		1863			1461			1847			1863	
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	676	0	1	264	0	1	31	0	0	16	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	676	0	0	265	0	0	32	0	0	16	0
Turn Type		NA		Perm	NA		Perm	NA			NA	
Protected Phases		2 3 4			6			8			8	
Permitted Phases	2 3 4			6			8			8		
Actuated Green, G (s)		87.7			48.2			10.3			10.3	
Effective Green, g (s)		87.7			48.2			10.3			10.3	
Actuated g/C Ratio		0.80			0.44			0.09			0.09	
Clearance Time (s)					6.0			6.0			6.0	
Vehicle Extension (s)					1.0			2.5			2.5	
Lane Grp Cap (vph)	1485			640			172			174		
v/s Ratio Prot	c0.36									0.01		
v/s Ratio Perm				0.18			c0.02					
v/c Ratio	0.46			0.41			0.19			0.09		
Uniform Delay, d1	3.5			21.2			46.0			45.6		
Progression Factor	0.62			1.00			1.00			1.00		
Incremental Delay, d2	0.1			2.0			0.4			0.2		
Delay (s)	2.3			23.2			46.4			45.7		
Level of Service	A			C			D			D		
Approach Delay (s)	2.3			23.2			46.4			45.7		
Approach LOS	A			C			D			D		

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

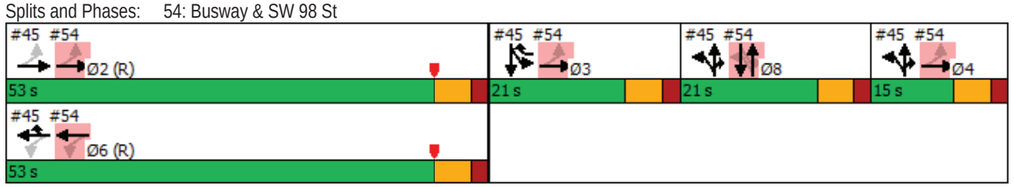
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	676	265	32	16
v/c Ratio	0.46	0.42	0.18	0.09
Control Delay	3.4	24.2	47.0	44.9
Queue Delay	0.7	6.1	0.0	0.0
Total Delay	4.0	30.3	47.0	44.9
Queue Length 50th (ft)	33	128	21	11
Queue Length 95th (ft)	138	200	50	31
Internal Link Dist (ft)	1	1	545	650
Turn Bay Length (ft)				
Base Capacity (vph)	1496	638	252	254
Starvation Cap Reductn	455	312	0	0
Spillback Cap Reductn	356	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.65	0.81	0.13	0.06

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBT	SBT	Ø2	Ø3	Ø4
Lane Configurations									
Traffic Volume (vph)	642	1	251	1	29	15			
Future Volume (vph)	642	1	251	1	29	15			
Turn Type	NA	Perm	NA	Perm	NA	NA			
Protected Phases	2 3 4		6		8	8	2	3	4
Permitted Phases		6		8					
Detector Phase	2 3 4	6	6	8	8	8			
Switch Phase									
Minimum Initial (s)		15.0	15.0	7.0	7.0	7.0	15.0	7.0	9.0
Minimum Split (s)		21.0	21.0	21.0	21.0	21.0	21.0	13.0	15.0
Total Split (s)		53.0	53.0	21.0	21.0	21.0	53.0	21.0	15.0
Total Split (%)		48.2%	48.2%	19.1%	19.1%	19.1%	48%	19%	14%
Yellow Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0		0.0	0.0			
Total Lost Time (s)			6.0		6.0	6.0			
Lead/Lag				Lag	Lag	Lag		Lead	
Lead-Lag Optimize?				Yes	Yes	Yes		Yes	
Recall Mode		C-Max	C-Max	None	None	None	C-Max	None	None
Act Effct Green (s)	87.7		48.2		10.3	10.3			
Actuated g/C Ratio	0.80		0.44		0.09	0.09			
v/c Ratio	0.46		0.42		0.18	0.09			
Control Delay	3.4		24.2		47.0	44.9			
Queue Delay	0.7		6.1		0.0	0.0			
Total Delay	4.0		30.3		47.0	44.9			
LOS	A		C		D	D			
Approach Delay	4.0		30.3		47.0	44.9			
Approach LOS	A		C		D	D			

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 14 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 13.1		Intersection LOS: B	
Intersection Capacity Utilization 49.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 54: Busway & SW 98 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	181	46	11	127	144	150	1445	24	60	869	114
Future Volume (vph)	118	181	46	11	127	144	150	1445	24	60	869	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		1.00	0.69	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	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected		0.98	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1827	1583		1855	1087	1770	5073		1770	4997	
Flt Permitted		0.70	1.00		0.82	1.00	0.23	1.00		0.12	1.00	
Satd. Flow (perm)		1304	1583		1537	1087	426	5073		225	4997	
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)	124	191	48	12	134	152	158	1521	25	63	915	120
RTOR Reduction (vph)	0	0	36	0	0	40	0	1	0	0	7	0
Lane Group Flow (vph)	0	315	12	0	146	112	158	1545	0	63	1028	0
Confl. Peds. (#/hr)						144						
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		
Actuated Green, G (s)	55.2	55.2		55.2	55.2		146.4	136.5		141.6	134.1	
Effective Green, g (s)	55.2	55.2		55.2	55.2		146.4	136.5		141.6	134.1	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.67	0.62		0.64	0.61	
Clearance Time (s)	7.2	7.2		7.2	7.2		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	327	397		385	272		343	3147		197	3045	
v/s Ratio Prot							c0.02	c0.30		0.01	0.21	
v/s Ratio Perm	c0.24	0.01		0.10	0.10		0.29			0.19		
v/c Ratio	0.96	0.03		0.38	0.41		0.46	0.49		0.32	0.34	
Uniform Delay, d1	81.4	62.2		68.2	68.9		14.7	22.8		17.0	21.1	
Progression Factor	1.00	1.24		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	37.5	0.0		0.6	1.0		1.0	0.6		0.9	0.3	
Delay (s)	118.8	77.2		68.8	69.9		15.6	23.3		17.9	21.4	
Level of Service	F	E		E	E		B	C		B	C	
Approach Delay (s)	113.3			69.4				22.6			21.2	
Approach LOS	F			E				C			C	

Intersection Summary					
HCM 2000 Control Delay		35.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio		0.63			
Actuated Cycle Length (s)		220.0	Sum of lost time (s)	20.8	
Intersection Capacity Utilization		95.2%	ICU Level of Service	F	
Analysis Period (min)		15			
c Critical Lane Group					

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	315	48	146	152	158	1546	63	1035
v/c Ratio	0.96	0.11	0.38	0.49	0.46	0.49	0.32	0.34
Control Delay	118.4	13.2	70.5	49.6	17.1	23.9	16.6	21.5
Queue Delay	50.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	168.5	13.2	70.5	49.6	17.1	23.9	16.6	21.5
Queue Length 50th (ft)	458	4	174	121	81	462	30	272
Queue Length 95th (ft)	#651	26	252	208	116	497	51	303
Internal Link Dist (ft)	114		541			308		851
Turn Bay Length (ft)				25	90		100	
Base Capacity (vph)	349	463	412	330	347	3148	201	3053
Starvation Cap Reductn	86	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.20	0.10	0.35	0.46	0.46	0.49	0.31	0.34

Intersection Summary

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	118	181	46	11	127	144	150	1445	60	869
Future Volume (vph)	118	181	46	11	127	144	150	1445	60	869
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		8			4		1	6	5	2
Permitted Phases	8		8	4		4	6		2	
Detector Phase	8	8	8	4	4	4	1	6	5	2
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	31.2	31.2	31.2	35.2	35.2	35.2	11.8	25.8	11.8	25.8
Total Split (s)	66.2	66.2	66.2	66.2	66.2	66.2	16.8	139.0	14.8	137.0
Total Split (%)	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	7.6%	63.2%	6.7%	62.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8
All-Red Time (s)	3.2	3.2	3.2	3.2	3.2	3.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.2	7.2		7.2	7.2	6.8	6.8	6.8	6.8
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		55.2	55.2		55.2	55.2	146.4	136.5	141.5	134.0
Actuated g/C Ratio		0.25	0.25		0.25	0.25	0.67	0.62	0.64	0.61
v/c Ratio		0.96	0.11		0.38	0.49	0.46	0.49	0.32	0.34
Control Delay		118.3	12.9		70.5	49.6	17.1	23.9	16.6	21.5
Queue Delay		50.3	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		168.6	12.9		70.5	49.6	17.1	23.9	16.6	21.5
LOS		F	B		E	D	B	C	B	C
Approach Delay		148.0			59.8			23.3		21.2
Approach LOS		F			E			C		C

Intersection Summary

Cycle Length: 220
Actuated Cycle Length: 220
Offset: 177 (80%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 38.8 Intersection LOS: D
Intersection Capacity Utilization 95.2% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 46: US 1 & SW 98 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	98	16	85	567	382	4	77	54	127	64	52
Future Volume (vph)	20	98	16	85	567	382	4	77	54	127	64	52
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	6.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	0.98			1.00	0.85		1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00			0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1823			1851	1583		1858	1583	1770	1737	
Flt Permitted	0.23	1.00			0.94	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	437	1823			1749	1583		1858	1583	1770	1737	
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)	21	103	17	89	597	402	4	81	57	134	67	55
RTOR Reduction (vph)	0	5	0	0	0	133	0	0	44	0	27	0
Lane Group Flow (vph)	21	115	0	0	686	269	0	85	13	134	95	0
Turn Type	Perm	NA		Perm	NA	pt+ov	custom	NA	Prot	Split	NA	
Protected Phases		2			6	6 3	8 4	8 4	8 4	3	3	
Permitted Phases	2			6			8					
Actuated Green, G (s)	59.6	59.6			59.6	73.6		24.4	24.4	8.0	8.0	
Effective Green, g (s)	59.6	59.6			59.6	73.6		24.4	24.4	8.0	8.0	
Actuated g/C Ratio	0.54	0.54			0.54	0.67		0.22	0.22	0.07	0.07	
Clearance Time (s)	6.0	6.0			6.0					6.0	6.0	
Vehicle Extension (s)	1.0	1.0			1.0					2.5	2.5	
Lane Grp Cap (vph)	236	987			947	1059		412	351	128	126	
v/s Ratio Prot		0.06				0.17		c0.05	0.01	c0.08	0.05	
v/s Ratio Perm	0.05				c0.39							
v/c Ratio	0.09	0.12			0.72	0.25		0.21	0.04	1.05	0.75	
Uniform Delay, d1	12.1	12.3			19.0	7.3		34.9	33.6	51.0	50.0	
Progression Factor	1.00	1.00			0.36	0.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.2			4.3	0.1		0.2	0.0	92.6	21.4	
Delay (s)	12.9	12.6			11.1	0.1		35.1	33.6	143.6	71.4	
Level of Service	B	B			B	A		D	C	F	E	
Approach Delay (s)		12.6			7.0			34.5			109.2	
Approach LOS		B			A			C			F	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

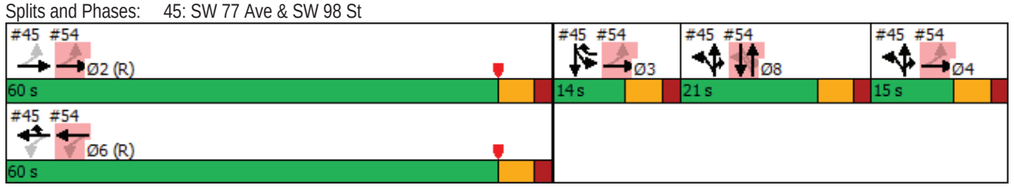
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	21	120	686	402	85	57	134	122
v/c Ratio	0.09	0.12	0.71	0.33	0.22	0.14	1.05	0.80
Control Delay	15.6	12.8	11.0	0.7	34.6	3.1	142.8	73.0
Queue Delay	0.0	0.0	2.3	1.5	0.0	0.1	14.3	0.0
Total Delay	15.6	12.8	13.3	2.1	34.6	3.3	157.1	73.0
Queue Length 50th (ft)	7	37	104	0	48	0	~103	66
Queue Length 95th (ft)	23	74	167	0	87	14	#228	#167
Internal Link Dist (ft)		705	21		679			679
Turn Bay Length (ft)	50					105	75	
Base Capacity (vph)	241	1013	966	1205	397	408	128	153
Starvation Cap Reductn	0	0	161	595	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	84	5	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.12	0.85	0.66	0.21	0.18	1.09	0.80

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.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	Ø4	Ø8
Lane Configurations											
Traffic Volume (vph)	20	98	85	567	382	77	54	127	64		
Future Volume (vph)	20	98	85	567	382	77	54	127	64		
Turn Type	Perm	NA	Perm	NA	pt+ov	NA	Prot	Split	NA		
Protected Phases		2		6	6 3	8 4	8 4	3	3	4	8
Permitted Phases	2		6								
Detector Phase	2	2	6	6	6 3	8 4	8 4	3	3		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0				7.0	7.0	9.0	7.0
Minimum Split (s)	21.0	21.0	21.0	21.0				13.0	13.0	15.0	21.0
Total Split (s)	60.0	60.0	60.0	60.0				14.0	14.0	15.0	21.0
Total Split (%)	54.5%	54.5%	54.5%	54.5%				12.7%	12.7%	14%	19%
Yellow Time (s)	4.0	4.0	4.0	4.0				4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0				2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0				0.0	0.0		
Total Lost Time (s)	6.0	6.0		6.0				6.0	6.0		
Lead/Lag								Lead	Lead		Lag
Lead-Lag Optimize?								Yes	Yes		Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max				None	None	None	None
Act Effct Green (s)	60.8	60.8		60.8	74.8	23.2	23.2	8.0	8.0		
Actuated g/C Ratio	0.55	0.55		0.55	0.68	0.21	0.21	0.07	0.07		
v/c Ratio	0.09	0.12		0.71	0.33	0.22	0.14	1.05	0.80		
Control Delay	15.6	12.8		11.0	0.7	34.6	3.1	142.8	73.0		
Queue Delay	0.0	0.0		2.3	1.5	0.0	0.1	14.3	0.0		
Total Delay	15.6	12.8		13.3	2.1	34.6	3.3	157.1	73.0		
LOS	B	B		B	A	C	A	F	E		
Approach Delay		13.2		9.2		22.0			117.0		
Approach LOS		B		A		C			F		

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 14 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 27.6		Intersection LOS: C	
Intersection Capacity Utilization 64.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 45: SW 77 Ave & SW 98 St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	279	706	0	2	328
Future Volume (Veh/h)	0	279	706	0	2	328
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	294	743	0	2	345
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		101	59			
pX, platoon unblocked					0.97	
vC, conflicting volume	743				1037	372
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	743				1024	372
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	45
cM capacity (veh/h)	860				225	626

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	294	495	248	347
Volume Left	0	0	0	2
Volume Right	0	0	0	345
cSH	1700	1700	1700	619
Volume to Capacity	0.17	0.29	0.15	0.56
Queue Length 95th (ft)	0	0	0	87
Control Delay (s)	0.0	0.0	0.0	18.0
Lane LOS				C
Approach Delay (s)	0.0	0.0		18.0
Approach LOS				C

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	275	3	2	706	0	0	17	0	0	27	0
Future Volume (vph)	3	275	3	2	706	0	0	17	0	0	27	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		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1859			1862			1863			1863	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1852			1856			1863			1863	
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)	3	289	3	2	743	0	0	18	0	0	28	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	295	0	0	745	0	0	18	0	0	28	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		2 3 4			6			8			8	
Permitted Phases	2 3 4			6			8			8		
Actuated Green, G (s)		90.2			59.6			7.8			7.8	
Effective Green, g (s)		90.2			59.6			7.8			7.8	
Actuated g/C Ratio		0.82			0.54			0.07			0.07	
Clearance Time (s)					6.0			6.0			6.0	
Vehicle Extension (s)					1.0			2.5			2.5	
Lane Grp Cap (vph)	1518			1005			132			132		
v/s Ratio Prot							0.01			c0.02		
v/s Ratio Perm	c0.16			c0.40								
v/c Ratio	0.19			0.74			0.14			0.21		
Uniform Delay, d1	2.1			19.3			47.9			48.2		
Progression Factor	2.44			1.35			1.00			1.00		
Incremental Delay, d2	0.0			3.5			0.3			0.6		
Delay (s)	5.2			29.6			48.3			48.8		
Level of Service	A			C			D			D		
Approach Delay (s)	5.2			29.6			48.3			48.8		
Approach LOS	A			C			D			D		

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

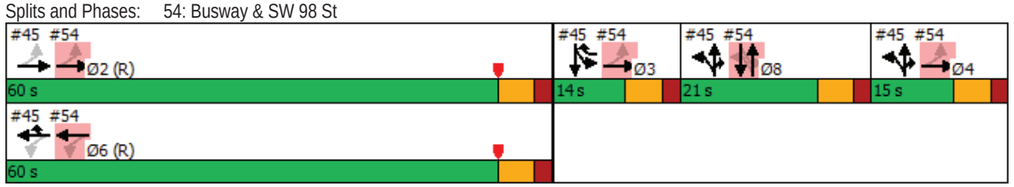
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	295	745	18	28
v/c Ratio	0.19	0.73	0.12	0.18
Control Delay	6.2	30.5	47.1	48.6
Queue Delay	1.7	37.1	0.0	0.0
Total Delay	7.8	67.6	47.1	48.6
Queue Length 50th (ft)	57	692	12	19
Queue Length 95th (ft)	m88	777	34	46
Internal Link Dist (ft)	1	1	545	650
Turn Bay Length (ft)				
Base Capacity (vph)	1558	1025	254	254
Starvation Cap Reductn	1075	325	0	0
Spillback Cap Reductn	262	21	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.61	1.06	0.07	0.11

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

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	Ø2	Ø3	Ø4
Lane Configurations									
Traffic Volume (vph)	3	275	2	706	17	27			
Future Volume (vph)	3	275	2	706	17	27			
Turn Type	Perm	NA	Perm	NA	NA	NA			
Protected Phases		2 3 4		6	8	8	2	3	4
Permitted Phases	2 3 4		6						
Detector Phase	2 3 4	2 3 4	6	6	8	8			
Switch Phase									
Minimum Initial (s)			15.0	15.0	7.0	7.0	15.0	7.0	9.0
Minimum Split (s)			21.0	21.0	21.0	21.0	21.0	13.0	15.0
Total Split (s)			60.0	60.0	21.0	21.0	60.0	14.0	15.0
Total Split (%)			54.5%	54.5%	19.1%	19.1%	55%	13%	14%
Yellow Time (s)			4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)				0.0	0.0	0.0			
Total Lost Time (s)				6.0	6.0	6.0			
Lead/Lag					Lag	Lag		Lead	
Lead-Lag Optimize?					Yes	Yes		Yes	
Recall Mode			C-Max	C-Max	None	None	C-Max	None	None
Act Effct Green (s)		92.6		60.8	9.2	9.2			
Actuated g/C Ratio		0.84		0.55	0.08	0.08			
v/c Ratio		0.19		0.73	0.12	0.18			
Control Delay		6.2		30.5	47.1	48.6			
Queue Delay		1.7		37.1	0.0	0.0			
Total Delay		7.8		67.6	47.1	48.6			
LOS		A		E	D	D			
Approach Delay		7.8		67.6	47.1	48.6			
Approach LOS		A		E	D	D			

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 14 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 50.6		Intersection LOS: D	
Intersection Capacity Utilization 54.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 54: Busway & SW 98 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	130	60	19	111	69	64	1075	26	196	1921	543
Future Volume (vph)	76	130	60	19	111	69	64	1075	26	196	1921	543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91		1.00	0.91	
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	0.97	
Flt Protected		0.98	1.00		0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1829	1583		1849	1583	1770	5068		1770	4917	
Flt Permitted		0.67	1.00		0.73	1.00	0.03	1.00		0.20	1.00	
Satd. Flow (perm)		1254	1583		1365	1583	51	5068		375	4917	
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)	80	137	63	20	117	73	67	1132	27	206	2022	572
RTOR Reduction (vph)	0	0	51	0	0	59	0	1	0	0	20	0
Lane Group Flow (vph)	0	217	12	0	137	14	67	1158	0	206	2574	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		
Actuated Green, G (s)		41.6	41.6		41.6	41.6	154.1	145.0		161.1	148.5	
Effective Green, g (s)		41.6	41.6		41.6	41.6	154.1	145.0		161.1	148.5	
Actuated g/C Ratio		0.19	0.19		0.19	0.19	0.70	0.66		0.73	0.68	
Clearance Time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Vehicle Extension (s)		4.5	4.5		4.5	4.5	2.5	1.0		2.5	1.0	
Lane Grp Cap (vph)		237	299		258	299	106	3340		354	3318	
v/s Ratio Prot							0.03	0.23		c0.03	c0.52	
v/s Ratio Perm	c0.17	0.01		0.10	0.01	0.41				0.39		
v/c Ratio	0.92	0.04		0.53	0.05	0.63	0.35			0.58	0.78	
Uniform Delay, d1	87.5	72.9		80.4	73.0	49.6	16.6			10.6	24.4	
Progression Factor	0.94	2.19		1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	36.9	0.1		3.2	0.1	10.3	0.3			2.0	1.8	
Delay (s)	118.9	159.6		83.6	73.1	59.9	16.9			12.6	26.2	
Level of Service	F	F		F	E	E	B			B	C	
Approach Delay (s)	128.0			80.0			19.2				25.2	
Approach LOS	F			E			B				C	

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	217	63	137	73	67	1159	206	2594
v/c Ratio	0.92	0.17	0.53	0.20	0.63	0.35	0.58	0.78
Control Delay	120.7	9.4	87.1	7.9	67.4	17.7	15.6	27.1
Queue Delay	57.5	0.8	8.6	0.0	0.9	0.0	0.0	0.7
Total Delay	178.2	10.3	95.7	7.9	68.3	17.7	15.6	27.8
Queue Length 50th (ft)	322	0	181	0	45	268	83	908
Queue Length 95th (ft)	#442	11	260	36	110	336	126	1083
Internal Link Dist (ft)	114		541			308		851
Turn Bay Length (ft)				25	90		100	
Base Capacity (vph)	277	416	301	416	140	3342	544	3338
Starvation Cap Reductn	79	202	0	0	0	0	0	0
Spillback Cap Reductn	0	0	126	0	11	0	0	372
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.29	0.78	0.18	0.52	0.35	0.38	0.87

Intersection Summary

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	76	130	60	19	111	69	64	1075	196	1921
Future Volume (vph)	76	130	60	19	111	69	64	1075	196	1921
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		8			4		1	6	5	2
Permitted Phases	8		8	4		4	6		2	
Detector Phase	8	8	8	4	4	4	1	6	5	2
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	31.2	31.2	31.2	35.2	35.2	35.2	11.8	25.8	11.8	25.8
Total Split (s)	55.8	55.8	55.8	55.8	55.8	55.8	20.0	115.6	48.6	144.2
Total Split (%)	25.4%	25.4%	25.4%	25.4%	25.4%	25.4%	9.1%	52.5%	22.1%	65.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8
All-Red Time (s)	3.2	3.2	3.2	3.2	3.2	3.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.2	7.2		7.2	7.2	6.8	6.8	6.8	6.8
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		41.6	41.6		41.6	41.6	154.1	145.0	161.0	148.5
Actuated g/C Ratio		0.19	0.19		0.19	0.19	0.70	0.66	0.73	0.68
v/c Ratio		0.92	0.17		0.53	0.20	0.63	0.35	0.58	0.78
Control Delay		120.7	9.4		87.1	7.9	67.4	17.7	15.6	27.1
Queue Delay		57.5	0.8		8.6	0.0	0.9	0.0	0.0	0.7
Total Delay	178.2	10.3		95.7	7.9	68.3	17.7	15.6	27.8	
LOS	F	B		F	A	E	B	B	C	
Approach Delay	140.4			65.2			20.5		26.9	
Approach LOS	F			E			C		C	

Intersection Summary

Cycle Length: 220
Actuated Cycle Length: 220
Offset: 157 (71%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 34.0 Intersection LOS: C
Intersection Capacity Utilization 92.7% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 46: US 1 & SW 98 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	2102	50	28	1367	160	28	27	17	412	29	58
Future Volume (vph)	103	2102	50	28	1367	160	28	27	17	412	29	58
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			6.7	6.7	6.8	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	0.97	
Satd. Flow (prot)	1770	5067		1770	5006			1817	1583	1681	1654	
Flt Permitted	0.09	1.00		0.06	1.00			0.98	1.00	0.95	0.97	
Satd. Flow (perm)	175	5067		106	5006			1817	1583	1681	1654	
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)	108	2213	53	29	1439	168	29	28	18	434	31	61
RTOR Reduction (vph)	0	2	0	0	11	0	0	0	17	0	8	0
Lane Group Flow (vph)	108	2264	0	29	1596	0	0	57	1	265	253	0
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2					4			
Actuated Green, G (s)	80.5	73.8		73.3	70.2			5.8	5.8	20.2	20.2	
Effective Green, g (s)	80.5	73.8		73.3	70.2			5.8	5.8	20.2	20.2	
Actuated g/C Ratio	0.62	0.57		0.56	0.54			0.04	0.04	0.16	0.16	
Clearance Time (s)	6.8	6.8		6.8	6.8			6.7	6.7	6.8	6.8	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	190	2876		99	2703			81	70	261	257	
v/s Ratio Prot	c0.03	c0.45		0.01	0.32			c0.03		c0.16	0.15	
v/s Ratio Perm	0.32			0.16					0.00			
v/c Ratio	0.57	0.79		0.29	0.59			0.70	0.01	1.02	0.98	
Uniform Delay, d1	14.3	22.0		18.8	20.2			61.3	59.4	54.9	54.7	
Progression Factor	1.00	1.00		0.97	0.58			1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.3	2.3		0.6	0.9			22.6	0.0	59.7	51.0	
Delay (s)	16.6	24.2		18.8	12.5			83.8	59.4	114.6	105.7	
Level of Service	B	C		B	B			F	E	F	F	
Approach Delay (s)		23.9			12.6			78.0			110.2	
Approach LOS		C			B			E			F	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	108	2266	29	1607	57	18	265	261
v/c Ratio	0.56	0.75	0.23	0.58	0.57	0.08	1.02	0.98
Control Delay	22.5	22.7	13.1	12.3	81.7	0.7	113.7	104.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	22.7	13.1	12.3	81.7	0.7	113.7	104.1
Queue Length 50th (ft)	33	560	4	87	48	0	~243	225
Queue Length 95th (ft)	66	628	m13	96	#103	0	#431	#415
Internal Link Dist (ft)		622		570	551			449
Turn Bay Length (ft)	170		150				210	
Base Capacity (vph)	198	3032	129	2762	101	226	261	265
Starvation Cap Reductn	0	0	0	128	0	0	0	0
Spillback Cap Reductn	0	12	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.75	0.22	0.61	0.56	0.08	1.02	0.98

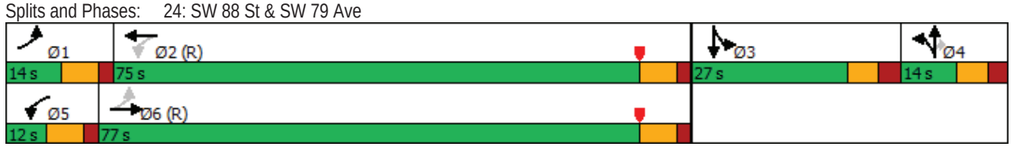
Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	103	2102	28	1367	27	17	412	29
Future Volume (vph)	103	2102	28	1367	27	17	412	29
Turn Type	pm+pt	NA	pm+pt	NA	NA	Perm	Split	NA
Protected Phases	1	6	5	2	4		3	3
Permitted Phases	6		2			4		
Detector Phase	1	6	5	2	4	4	3	3
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	23.8	11.8	23.8	13.7	13.7	26.8	26.8
Total Split (s)	14.0	77.0	12.0	75.0	14.0	14.0	27.0	27.0
Total Split (%)	10.8%	59.2%	9.2%	57.7%	10.8%	10.8%	20.8%	20.8%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.7	2.7	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.8	6.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 82 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 24: SW 88 St & SW 79 Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2447	100	180	1504	3	91	1	452	32	8	12
Future Volume (veh/h)	0	2447	100	180	1504	3	91	1	452	32	8	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2576	105	189	1583	3	96	1	476	34	8	13
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	55	3076	124	218	3773	7	263	1	284	45	13	4
Arrive On Green	0.00	1.00	1.00	0.05	0.72	0.72	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	322	5035	203	1781	5263	10	1391	3	1582	0	73	22
Grp Volume(v), veh/h	0	1734	947	189	1024	562	96	0	477	55	0	0
Grp Sat Flow(s),veh/h/ln	322	1702	1834	1781	1702	1869	1391	0	1586	95	0	0
Q Serve(g_s), s	0.0	0.0	0.0	4.9	15.8	15.8	0.0	0.0	23.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.9	15.8	15.8	9.6	0.0	23.3	23.3	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.01	1.00		1.00	0.62		0.24
Lane Grp Cap(c), veh/h	55	2080	1120	218	2440	1340	263	0	284	62	0	0
V/C Ratio(X)	0.00	0.83	0.85	0.87	0.42	0.42	0.36	0.00	1.68	0.89	0.00	0.00
Avail Cap(c_a), veh/h	55	2080	1120	235	2440	1340	263	0	284	62	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.55	0.55	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	18.9	7.4	7.4	47.7	0.0	53.4	58.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.3	4.5	25.5	0.5	1.0	0.6	0.0	320.3	75.5	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(50%),veh/ln	0.0	0.7	1.4	4.7	5.6	6.3	2.8	0.0	34.5	3.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.3	4.5	44.4	8.0	8.4	48.4	0.0	373.6	133.5	0.0	0.0
LnGrp LOS	A	A	A	D	A	A	D	A	F	F	A	A
Approach Vol, veh/h		2681			1775			573			55	
Approach Delay, s/veh		3.1			12.0			319.1			133.5	
Approach LOS		A			B			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		100.0		30.0	13.8	86.2		30.0				
Change Period (Y+Rc), s		6.8		* 6.7	6.8	6.8		* 6.7				
Max Green Setting (Gmax), s		93.2		* 23	8.2	78.2		* 23				
Max Q Clear Time (g_c+I1), s		17.8		25.3	6.9	2.0		25.3				
Green Ext Time (p_c), s		4.9		0.0	0.1	13.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	2447	180	1504	91	1	32	8
Future Volume (vph)	2447	180	1504	91	1	32	8
Turn Type	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	6	5	2		4		8
Permitted Phases		2		4		8	
Detector Phase	6	5	2	4	4	8	8
Switch Phase							
Minimum Initial (s)	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	23.8	11.8	23.8	29.7	29.7	29.7	29.7
Total Split (s)	85.0	15.0	100.0	30.0	30.0	30.0	30.0
Total Split (%)	65.4%	11.5%	76.9%	23.1%	23.1%	23.1%	23.1%
Yellow Time (s)	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.8	6.8	6.8	6.7	6.7		6.7
Lead/Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes					
Recall Mode	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 90 (69%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 35: SW 77 Ave & SW 88 St



Lane Group	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2681	189	1586	96	477	55
v/c Ratio	0.88	1.12	0.44	0.37	1.29	1.04
Control Delay	14.3	131.5	11.8	51.7	182.4	179.1
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	131.5	11.8	51.7	182.4	179.1
Queue Length 50th (ft)	186	~132	266	72	~435	~42
Queue Length 95th (ft)	m194	#288	305	128	#652	#135
Internal Link Dist (ft)	570		101		608	199
Turn Bay Length (ft)				120		
Base Capacity (vph)	3040	169	3645	258	370	53
Starvation Cap Reductn	20	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	0.89	1.12	0.44	0.37	1.29	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.
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 (veh/h)	0	2721	0	0	834	655	47	0	70	0	0	0
Future Volume (veh/h)	0	2721	0	0	834	655	47	0	70	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	2864	0	0	878	0	49	0	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	0	2			
Cap, veh/h	0	4356	0	0	4356		154	0				
Arrive On Green	0.00	0.85	0.00	0.00	1.00	0.00	0.04	0.00	0.00			
Sat Flow, veh/h	0	5443	0	0	5274	1585	3456	0	1585			
Grp Volume(v), veh/h	0	2864	0	0	878	0	49	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	0	0	1702	1585	1728	0	1585			
Q Serve(g_s), s	0.0	24.4	0.0	0.0	0.0	0.0	1.8	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	24.4	0.0	0.0	0.0	0.0	1.8	0.0	0.0			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	4356	0	0	4356		154	0				
V/C Ratio(X)	0.00	0.66	0.00	0.00	0.20		0.32	0.00				
Avail Cap(c_a), veh/h	0	4356	0	0	4356		465	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.89	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	3.2	0.0	0.0	0.0	0.0	60.2	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.0	0.1	0.0	0.9	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	0.0	5.6	0.0	0.0	0.0	0.0	0.8	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.0	0.0	0.0	0.1	0.0	61.0	0.0	0.0			
LnGrp LOS	A	A	A	A	A		E	A				
Approach Vol, veh/h		2864			878	A		49	A			
Approach Delay, s/veh		4.0			0.1			61.0				
Approach LOS		A			A			E				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	117.7	12.3	117.7
Change Period (Y+Rc), s	6.8	6.5	6.8
Max Green Setting (Gmax), s	99.2	17.5	99.2
Max Q Clear Time (g_c+I1), s	2.0	3.8	26.4
Green Ext Time (p_c), s	2.7	0.1	20.6

Intersection Summary	
HCM 6th Ctrl Delay	3.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	2864	878	689	49	74
v/c Ratio	0.65	0.20	0.44	0.25	0.05
Control Delay	2.2	0.3	7.7	61.7	0.5
Queue Delay	0.4	0.0	0.0	0.0	0.0
Total Delay	2.6	0.3	7.7	61.7	0.5
Queue Length 50th (ft)	100	4	234	20	0
Queue Length 95th (ft)	m112	5	606	42	7
Internal Link Dist (ft)	324	370			
Turn Bay Length (ft)				750	490
Base Capacity (vph)	4434	4434	1583	462	1389
Starvation Cap Reductn	649	0	0	0	0
Spillback Cap Reductn	827	0	0	0	257
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.79	0.20	0.44	0.11	0.07

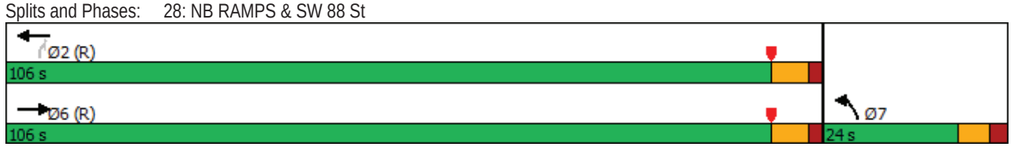
Intersection Summary

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

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	2721	834	655	47	70
Future Volume (vph)	2721	834	655	47	70
Turn Type	NA	NA	Free	Prot	Perm
Protected Phases	6	2		7	
Permitted Phases			Free		2
Detector Phase	6	2		7	2
Switch Phase					
Minimum Initial (s)	16.0	16.0		7.0	16.0
Minimum Split (s)	22.8	22.8		24.0	22.8
Total Split (s)	106.0	106.0		24.0	106.0
Total Split (%)	81.5%	81.5%		18.5%	81.5%
Yellow Time (s)	4.8	4.8		4.0	4.8
All-Red Time (s)	2.0	2.0		2.5	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.8	6.8		6.5	6.8
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max		None	C-Max

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 7 (5%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 28: NB RAMPS & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	323	1878	590	50	1230	11	144	16	27	55	43	115
Future Volume (vph)	323	1878	590	50	1230	11	144	16	27	55	43	115
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		7.1	7.1		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.91		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (prot)	1770	4903		1770	6399		1770	1689		1681	1756	1583
Flt Permitted	0.13	1.00		0.07	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (perm)	247	4903		124	6399		1770	1689		1681	1756	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)	340	1977	621	53	1295	12	152	17	28	58	45	121
RTOR Reduction (vph)	0	41	0	0	1	0	0	25	0	0	0	58
Lane Group Flow (vph)	340	2557	0	53	1306	0	152	20	0	50	53	63
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	86.7	75.2		65.0	60.3		14.7	14.7		7.6	7.6	67.9
Effective Green, g (s)	86.7	75.2		65.0	60.3		14.7	14.7		7.6	7.6	67.9
Actuated g/C Ratio	0.67	0.58		0.50	0.46		0.11	0.11		0.06	0.06	0.52
Clearance Time (s)	6.8	6.8		6.8	6.8		7.1	7.1		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		2.5	2.5	2.5
Lane Grp Cap (vph)	394	2836		121	2968		200	190		98	102	826
v/s Ratio Prot	c0.13	c0.52		0.02	0.20		c0.09	0.01		0.03	c0.03	0.00
v/s Ratio Perm	0.45			0.20								0.04
v/c Ratio	0.86	0.90		0.44	0.44		0.76	0.11		0.51	0.52	0.08
Uniform Delay, d1	25.0	24.1		23.9	23.5		55.9	51.8		59.4	59.4	15.4
Progression Factor	1.13	0.75		1.41	0.70		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.1	4.1		0.9	0.5		16.0	0.3		3.3	3.3	0.0
Delay (s)	42.3	22.1		34.6	16.8		71.9	52.0		62.7	62.7	15.5
Level of Service	D	C		C	B		E	D		E	E	B
Approach Delay (s)		24.4			17.5			67.4			37.2	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	340	2598	53	1307	152	45	50	53	121
v/c Ratio	0.86	0.89	0.40	0.44	0.76	0.21	0.51	0.52	0.12
Control Delay	42.1	21.3	30.8	17.4	79.4	28.5	77.7	77.6	1.4
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	21.9	30.8	17.4	79.4	28.5	77.7	77.6	1.4
Queue Length 50th (ft)	145	746	12	244	125	13	44	46	0
Queue Length 95th (ft)	#294	788	51	96	#218	51	90	93	17
Internal Link Dist (ft)		370		405		253		159	
Turn Bay Length (ft)	240		120						
Base Capacity (vph)	437	2926	141	2967	216	231	102	106	975
Starvation Cap Reductn	0	98	0	0	0	0	0	0	0
Spillback Cap Reductn	0	45	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.92	0.38	0.44	0.70	0.19	0.49	0.50	0.12

Intersection Summary

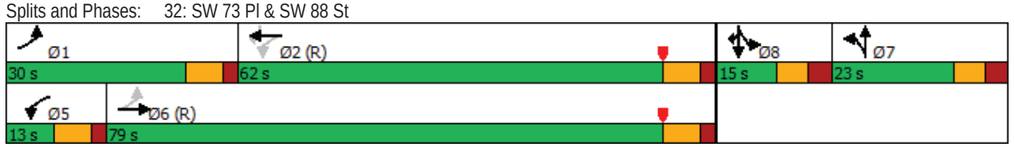
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	323	1878	50	1230	144	16	55	43	115
Future Volume (vph)	323	1878	50	1230	144	16	55	43	115
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	16.0	5.0	16.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	22.8	11.8	22.8	23.0	23.0	14.1	14.1	14.1
Total Split (s)	30.0	79.0	13.0	62.0	23.0	23.0	15.0	15.0	15.0
Total Split (%)	23.1%	60.8%	10.0%	47.7%	17.7%	17.7%	11.5%	11.5%	11.5%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.1	7.1	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 128 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 32: SW 73 Pl & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1273	632	114	1072	5	207	69	75	9	40	12
Future Volume (vph)	33	1273	632	114	1072	5	207	69	75	9	40	12
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		7.2	7.2		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		0.91	0.91		0.95	0.95	1.00
Frt	1.00	0.95		1.00	1.00		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (prot)	1770	4832		1770	6404		1610	3166		1681	1768	1583
Flt Permitted	0.22	1.00		0.05	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (perm)	406	4832		100	6404		1610	3166		1681	1768	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)	35	1340	665	120	1128	5	218	73	79	9	42	13
RTOR Reduction (vph)	0	60	0	0	0	0	0	42	0	0	0	5
Lane Group Flow (vph)	35	1945	0	120	1133	0	124	204	0	8	43	8
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	74.6	70.5		82.6	74.5		16.1	16.1		7.4	7.4	81.9
Effective Green, g (s)	74.6	70.5		82.6	74.5		16.1	16.1		7.4	7.4	81.9
Actuated g/C Ratio	0.57	0.54		0.64	0.57		0.12	0.12		0.06	0.06	0.63
Clearance Time (s)	6.8	6.8		6.8	6.8		7.2	7.2		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		3.5	3.5	3.5
Lane Grp Cap (vph)	276	2620		167	3669		199	392		95	100	997
v/s Ratio Prot	0.00	c0.40		c0.04	0.18		c0.08	0.06		0.00	c0.02	0.00
v/s Ratio Perm	0.07			c0.41								0.00
v/c Ratio	0.13	0.74		0.72	0.31		0.62	0.52		0.08	0.43	0.01
Uniform Delay, d1	12.1	22.8		26.8	14.4		54.1	53.3		58.1	59.3	8.9
Progression Factor	0.52	0.28		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.9		11.6	0.2		6.2	1.4		0.5	3.5	0.0
Delay (s)	6.3	7.4		38.4	14.6		60.3	54.8		58.5	62.7	8.9
Level of Service	A	A		D	B		E	D		E	E	A
Approach Delay (s)		7.4			16.9			56.6			51.3	
Approach LOS		A			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.9
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

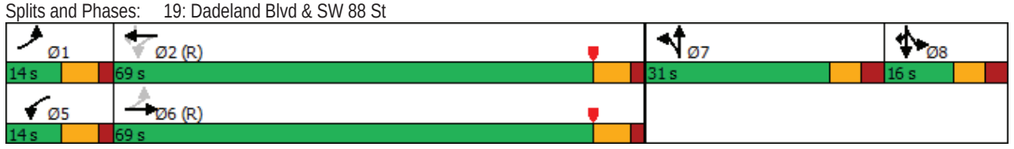
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	35	2005	120	1133	124	246	8	43	13
v/c Ratio	0.11	0.73	0.71	0.29	0.62	0.57	0.07	0.36	0.01
Control Delay	5.7	7.2	47.3	15.0	67.0	47.4	57.2	65.9	0.0
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	7.7	47.3	15.0	67.0	47.4	57.2	65.9	0.0
Queue Length 50th (ft)	3	41	49	147	110	87	6	36	0
Queue Length 95th (ft)	m5	219	#169	199	174	127	24	78	0
Internal Link Dist (ft)		405		721		1079		178	
Turn Bay Length (ft)	120		130		420				
Base Capacity (vph)	322	2730	172	3870	294	618	122	128	1077
Starvation Cap Reductn	0	285	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	0.11	0.82	0.70	0.29	0.42	0.40	0.07	0.34	0.01

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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	33	1273	114	1072	207	69	9	40	12
Future Volume (vph)	33	1273	114	1072	207	69	9	40	12
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	24.8	11.8	24.8	31.0	31.0	14.1	14.1	14.1
Total Split (s)	14.0	69.0	14.0	69.0	31.0	31.0	16.0	16.0	16.0
Total Split (%)	10.8%	53.1%	10.8%	53.1%	23.8%	23.8%	12.3%	12.3%	12.3%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.2	3.2	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.2	7.2	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 1 (1%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 19: Dadeland Blvd & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	1553	40	120	2050	355	71	26	43	234	14	81
Future Volume (vph)	69	1553	40	120	2050	355	71	26	43	234	14	81
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			6.7	6.7	6.8	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	0.98	
Satd. Flow (prot)	1770	5066		1770	4973			1797	1583	1681	1603	
Flt Permitted	0.06	1.00		0.09	1.00			0.96	1.00	0.95	0.98	
Satd. Flow (perm)	104	5066		166	4973			1797	1583	1681	1603	
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)	73	1635	42	126	2158	374	75	27	45	246	15	85
RTOR Reduction (vph)	0	2	0	0	18	0	0	0	42	0	29	0
Lane Group Flow (vph)	73	1675	0	126	2514	0	0	102	3	177	140	0
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2					4			
Actuated Green, G (s)	76.1	71.9		78.7	73.2			8.9	8.9	16.6	16.6	
Effective Green, g (s)	76.1	71.9		78.7	73.2			8.9	8.9	16.6	16.6	
Actuated g/C Ratio	0.59	0.55		0.61	0.56			0.07	0.07	0.13	0.13	
Clearance Time (s)	6.8	6.8		6.8	6.8			6.7	6.7	6.8	6.8	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	114	2801		168	2800			123	108	214	204	
v/s Ratio Prot	0.02	0.33		c0.03	c0.51			c0.06		c0.11	0.09	
v/s Ratio Perm	0.35			0.42					0.00			
v/c Ratio	0.64	0.60		0.75	0.90			0.83	0.03	0.83	0.69	
Uniform Delay, d1	24.7	19.4		15.6	25.1			59.8	56.5	55.3	54.2	
Progression Factor	1.00	1.00		1.87	0.69			1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.8	1.0		11.9	3.9			34.2	0.1	21.9	8.5	
Delay (s)	33.5	20.4		41.0	21.3			94.0	56.6	77.2	62.7	
Level of Service	C	C		D	C			F	E	E	E	
Approach Delay (s)		20.9			22.2			82.6			70.1	
Approach LOS		C			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	73	1677	126	2532	102	45	177	169
v/c Ratio	0.57	0.60	0.75	0.88	0.83	0.18	0.83	0.73
Control Delay	33.2	20.6	45.0	20.7	104.7	1.7	84.3	61.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	20.6	45.0	20.8	104.7	1.7	84.3	61.6
Queue Length 50th (ft)	22	335	31	697	87	0	152	115
Queue Length 95th (ft)	#68	383	m#113	775	#197	0	#267	#203
Internal Link Dist (ft)		622		570	551			449
Turn Bay Length (ft)	170		150				210	
Base Capacity (vph)	128	2802	167	2869	123	244	235	252
Starvation Cap Reductn	0	0	0	11	0	0	0	0
Spillback Cap Reductn	0	54	0	0	0	1	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.61	0.75	0.89	0.83	0.19	0.75	0.67

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.

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	69	1553	120	2050	26	43	234	14
Future Volume (vph)	69	1553	120	2050	26	43	234	14
Turn Type	pm+pt	NA	pm+pt	NA	NA	Perm	Split	NA
Protected Phases	1	6	5	2	4		3	3
Permitted Phases	6		2			4		
Detector Phase	1	6	5	2	4	4	3	3
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	23.8	11.8	23.8	13.7	13.7	25.0	25.0
Total Split (s)	12.0	78.0	12.0	78.0	15.0	15.0	25.0	25.0
Total Split (%)	9.2%	60.0%	9.2%	60.0%	11.5%	11.5%	19.2%	19.2%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.7	2.7	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.8	6.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effct Green (s)	77.0	71.9	78.7	74.6	8.9	8.9	16.6	16.6
Actuated g/C Ratio	0.59	0.55	0.61	0.57	0.07	0.07	0.13	0.13
v/c Ratio	0.57	0.60	0.75	0.88	0.83	0.18	0.83	0.73
Control Delay	33.2	20.6	45.0	20.7	104.7	1.7	84.3	61.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	20.6	45.0	20.8	104.7	1.7	84.3	61.6
LOS	C	C	D	C	F	A	F	E
Approach Delay		21.2		21.9	73.2			73.2
Approach LOS		C		C	E			E

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 58 (45%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 26.8 Intersection LOS: C
Intersection Capacity Utilization 84.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 24: SW 88 St & SW 79 Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	1716	99	308	2322	1	137	2	482	17	6	5
Future Volume (veh/h)	14	1716	99	308	2322	1	137	2	482	17	6	5
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	1806	104	324	2444	1	144	2	507	18	6	5
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	121	2837	163	351	3780	2	264	1	283	45	14	3
Arrive On Green	1.00	1.00	1.00	0.09	0.72	0.72	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	139	4939	284	1781	5272	2	1404	6	1580	0	79	16
Grp Volume(v), veh/h	15	1244	666	324	1578	867	144	0	509	29	0	0
Grp Sat Flow(s),veh/h/ln	139	1702	1819	1781	1702	1870	1404	0	1586	95	0	0
Q Serve(g_s), s	3.1	0.0	0.0	9.3	31.8	31.8	0.0	0.0	23.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	16.3	0.0	0.0	9.3	31.8	31.8	15.1	0.0	23.3	23.3	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.00	1.00		1.00	0.62		0.17
Lane Grp Cap(c), veh/h	121	1955	1045	351	2440	1341	264	0	284	62	0	0
V/C Ratio(X)	0.12	0.64	0.64	0.92	0.65	0.65	0.55	0.00	1.79	0.47	0.00	0.00
Avail Cap(c_a), veh/h	121	1955	1045	440	2440	1341	264	0	284	62	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.5	0.0	0.0	15.3	9.7	9.7	50.0	0.0	53.4	51.7	0.0	0.0
Incr Delay (d2), s/veh	1.6	1.2	2.3	21.1	1.3	2.4	1.9	0.0	369.6	4.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.7	6.0	11.3	12.8	4.5	0.0	38.4	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.0	1.2	2.3	36.4	11.0	12.1	51.9	0.0	422.9	55.7	0.0	0.0
LnGrp LOS	A	A	A	D	B	B	D	A	F	E	A	A
Approach Vol, veh/h		1925			2769			653			29	
Approach Delay, s/veh		1.6			14.4			341.1			55.7	
Approach LOS		A			B			F			E	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		100.0		30.0	18.5	81.5		30.0				
Change Period (Y+Rc), s		6.8		* 6.7	6.8	6.8		* 6.7				
Max Green Setting (Gmax), s		93.2		* 23	18.2	68.2		* 23				
Max Q Clear Time (g_c+I1), s		33.8		25.3	11.3	18.3		25.3				
Green Ext Time (p_c), s		10.8		0.0	0.4	7.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		49.7
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	15	1910	324	2445	144	509	29
v/c Ratio	0.26	0.72	1.07	0.67	0.59	1.06	0.37
Control Delay	18.3	13.4	108.9	11.2	59.6	86.7	55.2
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0	0.0
Total Delay	18.3	13.4	108.9	11.6	59.6	86.7	55.2
Queue Length 50th (ft)	2	123	~249	369	112	~297	18
Queue Length 95th (ft)	m5	133	#441	412	186	#520	52
Internal Link Dist (ft)		570		101		608	199
Turn Bay Length (ft)	190				120		
Base Capacity (vph)	57	2646	304	3645	246	478	79
Starvation Cap Reductn	0	16	0	0	0	0	0
Spillback Cap Reductn	0	0	0	571	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.73	1.07	0.80	0.59	1.06	0.37

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

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	14	1716	308	2322	137	2	17	6
Future Volume (vph)	14	1716	308	2322	137	2	17	6
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		6	5	2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	6	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	23.8	23.8	11.8	23.8	29.7	29.7	29.7	29.7
Total Split (s)	75.0	75.0	25.0	100.0	30.0	30.0	30.0	30.0
Total Split (%)	57.7%	57.7%	19.2%	76.9%	23.1%	23.1%	23.1%	23.1%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7		6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Act Effct Green (s)	68.2	68.2	93.2	93.2	23.3	23.3		23.3
Actuated g/C Ratio	0.52	0.52	0.72	0.72	0.18	0.18		0.18
v/c Ratio	0.26	0.72	1.07	0.67	0.59	1.06		0.37
Control Delay	18.3	13.4	108.9	11.2	59.6	86.7		55.2
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0		0.0
Total Delay	18.3	13.4	108.9	11.6	59.6	86.7		55.2
LOS	B	B	F	B	E	F		E
Approach Delay		13.4		22.9		80.7		55.2
Approach LOS		B		C		F		E

Intersection Summary			
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 64 (49%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 26.7		Intersection LOS: C	
Intersection Capacity Utilization 99.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 35: SW 77 Ave & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2064	0	0	1735	1022	64	0	55	0	0	0
Future Volume (veh/h)	0	2064	0	0	1735	1022	64	0	55	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	2173	0	0	1826	0	67	0	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	0	2			
Cap, veh/h	0	4333	0	0	4333		170	0				
Arrive On Green	0.00	0.85	0.00	0.00	1.00	0.00	0.05	0.00	0.00			
Sat Flow, veh/h	0	5443	0	0	5274	1585	3456	0	1585			
Grp Volume(v), veh/h	0	2173	0	0	1826	0	67	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	0	0	1702	1585	1728	0	1585			
Q Serve(g_s), s	0.0	14.6	0.0	0.0	0.0	0.0	2.4	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	14.6	0.0	0.0	0.0	0.0	2.4	0.0	0.0			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	4333	0	0	4333		170	0				
V/C Ratio(X)	0.00	0.50	0.00	0.00	0.42		0.40	0.00				
Avail Cap(c_a), veh/h	0	4333	0	0	4333		253	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.51	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	2.6	0.0	0.0	0.0	0.0	59.9	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.2	0.0	1.1	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(50%),veh/ln	0.0	3.4	0.0	0.0	0.1	0.0	1.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.0	0.0	0.0	0.2	0.0	61.0	0.0	0.0			
LnGrp LOS	A	A	A	A	A		E	A				
Approach Vol, veh/h		2173			1826	A		67	A			
Approach Delay, s/veh		3.0			0.2			61.0				
Approach LOS		A			A			E				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	117.1	12.9	117.1
Change Period (Y+Rc), s	6.8	6.5	6.8
Max Green Setting (Gmax), s	107.2	9.5	107.2
Max Q Clear Time (g_c+I1), s	2.0	4.4	16.6
Green Ext Time (p_c), s	7.5	0.0	10.4

Intersection Summary		
HCM 6th Ctrl Delay	2.7	
HCM 6th LOS	A	

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	2173	1826	1076	67	58
v/c Ratio	0.49	0.41	0.68	0.33	0.04
Control Delay	3.1	1.6	13.1	62.5	0.5
Queue Delay	0.1	0.1	0.0	0.0	0.0
Total Delay	3.2	1.7	13.1	62.5	0.6
Queue Length 50th (ft)	142	68	373	28	0
Queue Length 95th (ft)	182	m71	m1014	52	7
Internal Link Dist (ft)	324	370			
Turn Bay Length (ft)				750	490
Base Capacity (vph)	4417	4417	1583	250	1382
Starvation Cap Reductn	0	1003	0	0	0
Spillback Cap Reductn	881	0	0	0	274
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	0.53	0.68	0.27	0.05

Intersection Summary

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

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	2064	1735	1022	64	55
Future Volume (vph)	2064	1735	1022	64	55
Turn Type	NA	NA	Free	Prot	Perm
Protected Phases	6	2		7	
Permitted Phases			Free		2
Detector Phase	6	2		7	2
Switch Phase					
Minimum Initial (s)	16.0	16.0		7.0	16.0
Minimum Split (s)	22.8	22.8		16.0	22.8
Total Split (s)	114.0	114.0		16.0	114.0
Total Split (%)	87.7%	87.7%		12.3%	87.7%
Yellow Time (s)	4.8	4.8		4.0	4.8
All-Red Time (s)	2.0	2.0		2.5	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.8	6.8		6.5	6.8
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max		None	C-Max
Act Effct Green (s)	112.9	112.9	130.0	7.8	112.9
Actuated g/C Ratio	0.87	0.87	1.00	0.06	0.87
v/c Ratio	0.49	0.41	0.68	0.33	0.04
Control Delay	3.1	1.6	13.1	62.5	0.5
Queue Delay	0.1	0.1	0.0	0.0	0.0
Total Delay	3.2	1.7	13.1	62.5	0.6
LOS	A	A	B	E	A
Approach Delay	3.2	5.9			
Approach LOS	A	A			

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 21 (16%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 5.4 Intersection LOS: A
Intersection Capacity Utilization 64.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 28: NB RAMPS & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	1588	262	52	2133	7	361	21	33	62	47	263
Future Volume (vph)	269	1588	262	52	2133	7	361	21	33	62	47	263
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		7.1	7.1		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	0.91		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (prot)	1770	4977		1770	6405		1770	1691		1681	1756	1583
Flt Permitted	0.06	1.00		0.07	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (perm)	118	4977		130	6405		1770	1691		1681	1756	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)	283	1672	276	55	2245	7	380	22	35	65	49	277
RTOR Reduction (vph)	0	15	0	0	1	0	0	28	0	0	0	137
Lane Group Flow (vph)	283	1933	0	55	2251	0	380	29	0	56	58	140
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	74.7	63.3		62.5	57.2		24.9	24.9		8.7	8.7	65.9
Effective Green, g (s)	74.7	63.3		62.5	57.2		24.9	24.9		8.7	8.7	65.9
Actuated g/C Ratio	0.57	0.49		0.48	0.44		0.19	0.19		0.07	0.07	0.51
Clearance Time (s)	6.8	6.8		6.8	6.8		7.1	7.1		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		2.5	2.5	2.5
Lane Grp Cap (vph)	212	2423		129	2818		339	323		112	117	802
v/s Ratio Prot	c0.12	c0.39		0.02	0.35		c0.21	0.02		c0.03	0.03	0.01
v/s Ratio Perm	c0.65			0.19								0.08
v/c Ratio	1.33	0.80		0.43	0.80		1.12	0.09		0.50	0.50	0.18
Uniform Delay, d1	39.8	28.0		22.6	31.4		52.5	43.2		58.6	58.5	17.3
Progression Factor	1.08	0.91		1.67	0.64		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	176.5	2.5		0.7	2.0		85.7	0.1		2.5	2.4	0.1
Delay (s)	219.6	27.9		38.5	22.3		138.2	43.4		61.1	60.9	17.4
Level of Service	F	C		D	C		F	D		E	E	B
Approach Delay (s)		52.2			22.7			125.9			30.1	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	43.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

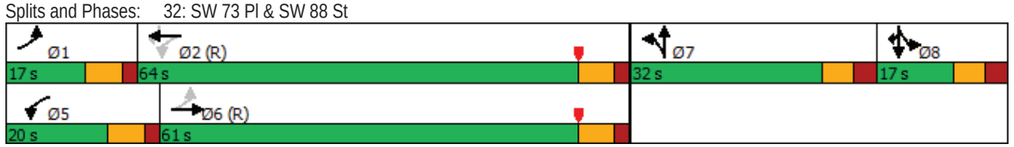
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	283	1948	55	2252	380	57	56	58	277
v/c Ratio	1.35	0.78	0.38	0.80	1.12	0.16	0.50	0.50	0.30
Control Delay	213.5	27.4	28.7	22.4	133.2	22.4	73.5	72.7	1.8
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	213.5	27.6	28.7	22.4	133.2	22.4	73.5	72.7	1.8
Queue Length 50th (ft)	~258	497	14	181	~369	15	48	50	0
Queue Length 95th (ft)	#453	586	m38	191	#568	54	96	100	25
Internal Link Dist (ft)		370		405		253		159	
Turn Bay Length (ft)	240		120						
Base Capacity (vph)	210	2490	236	2820	339	352	128	133	948
Starvation Cap Reductn	0	104	0	0	0	0	0	0	0
Spillback Cap Reductn	0	58	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	0.82	0.23	0.80	1.12	0.16	0.44	0.44	0.29

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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	269	1588	52	2133	361	21	62	47	263
Future Volume (vph)	269	1588	52	2133	361	21	62	47	263
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	16.0	5.0	16.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	22.8	11.8	22.8	32.0	32.0	14.1	14.1	14.1
Total Split (s)	17.0	61.0	20.0	64.0	32.0	32.0	17.0	17.0	17.0
Total Split (%)	13.1%	46.9%	15.4%	49.2%	24.6%	24.6%	13.1%	13.1%	13.1%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.1	7.1	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None
Act Effct Green (s)	73.3	64.6	63.5	57.2	24.9	24.9	8.7	8.7	65.6
Actuated g/C Ratio	0.56	0.50	0.49	0.44	0.19	0.19	0.07	0.07	0.50
v/c Ratio	1.35	0.78	0.38	0.80	1.12	0.16	0.50	0.50	0.30
Control Delay	213.5	27.4	28.7	22.4	133.2	22.4	73.5	72.7	1.8
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	213.5	27.6	28.7	22.4	133.2	22.4	73.5	72.7	1.8
LOS	F	C	C	C	F	C	E	E	A
Approach Delay		51.2		22.5		118.7		22.6	
Approach LOS		D		C		F		C	

Intersection Summary			
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 128 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.35			
Intersection Signal Delay: 42.3		Intersection LOS: D	
Intersection Capacity Utilization 89.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 32: SW 73 Pl & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	1276	236	84	1481	28	558	142	102	47	74	156
Future Volume (vph)	150	1276	236	84	1481	28	558	142	102	47	74	156
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		7.2	7.2		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		0.91	0.91		0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (prot)	1770	4966		1770	6390		1610	3206		1681	1764	1583
Flt Permitted	0.08	1.00		0.08	1.00		0.95	0.97		0.95	1.00	1.00
Satd. Flow (perm)	144	4966		145	6390		1610	3206		1681	1764	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)	158	1343	248	88	1559	29	587	149	107	49	78	164
RTOR Reduction (vph)	0	19	0	0	2	0	0	16	0	0	0	87
Lane Group Flow (vph)	158	1572	0	88	1586	0	293	534	0	44	83	77
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	63.7	53.6		59.1	51.3		31.2	31.2		9.5	9.5	60.8
Effective Green, g (s)	63.7	53.6		59.1	51.3		31.2	31.2		9.5	9.5	60.8
Actuated g/C Ratio	0.49	0.41		0.45	0.39		0.24	0.24		0.07	0.07	0.47
Clearance Time (s)	6.8	6.8		6.8	6.8		7.2	7.2		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		3.5	3.5	3.5
Lane Grp Cap (vph)	196	2047		163	2521		386	769		122	128	740
v/s Ratio Prot	c0.06	0.32		0.03	0.25		c0.18	0.17		0.03	c0.05	0.01
v/s Ratio Perm	c0.33			0.21								0.04
v/c Ratio	0.81	0.77		0.54	0.63		0.76	0.69		0.36	0.65	0.10
Uniform Delay, d1	26.5	32.9		24.4	31.7		45.9	45.1		57.4	58.6	19.4
Progression Factor	1.91	0.52		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.2	1.8		1.7	1.2		8.6	2.8		2.1	11.2	0.1
Delay (s)	64.7	18.8		26.1	32.9		54.5	47.9		59.5	69.9	19.4
Level of Service	E	B		C	C		D	D		E	E	B
Approach Delay (s)		22.9			32.5			50.2			39.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.9
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	158	1591	88	1588	293	550	44	83	164
v/c Ratio	0.81	0.77	0.54	0.63	0.76	0.70	0.36	0.64	0.20
Control Delay	71.2	19.3	32.5	33.8	58.5	47.9	66.4	81.2	2.4
Queue Delay	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	71.2	19.7	32.5	33.9	58.5	47.9	66.4	81.2	2.5
Queue Length 50th (ft)	100	107	39	327	250	222	36	71	0
Queue Length 95th (ft)	m#151	282	79	370	350	276	82	#170	28
Internal Link Dist (ft)		405		721		1079		178	
Turn Bay Length (ft)	120		130		420				
Base Capacity (vph)	200	2067	196	2522	455	922	123	129	825
Starvation Cap Reductn	0	118	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	111	0	0	0	0	27
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.82	0.45	0.66	0.64	0.60	0.36	0.64	0.21

Intersection Summary

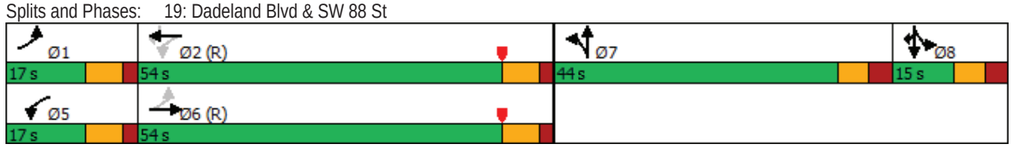
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	150	1276	84	1481	558	142	47	74	156
Future Volume (vph)	150	1276	84	1481	558	142	47	74	156
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	24.8	11.8	24.8	34.2	34.2	14.1	14.1	14.1
Total Split (s)	17.0	54.0	17.0	54.0	44.0	44.0	15.0	15.0	15.0
Total Split (%)	13.1%	41.5%	13.1%	41.5%	33.8%	33.8%	11.5%	11.5%	11.5%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.2	3.2	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.2	7.2	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None
Act Effct Green (s)	63.7	53.6	59.1	51.3	31.2	31.2	9.5	9.5	60.5
Actuated g/C Ratio	0.49	0.41	0.45	0.39	0.24	0.24	0.07	0.07	0.47
v/c Ratio	0.81	0.77	0.54	0.63	0.76	0.70	0.36	0.64	0.20
Control Delay	71.2	19.3	32.5	33.8	58.5	47.9	66.4	81.2	2.4
Queue Delay	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	71.2	19.7	32.5	33.9	58.5	47.9	66.4	81.2	2.5
LOS	E	B	C	C	E	D	E	F	A
Approach Delay		24.3		33.8		51.6		34.6	
Approach LOS		C		C		D		C	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 119 (92%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 74.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 19: Dadeland Blvd & SW 88 St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1389	5	33	1238	65	230
Future Volume (veh/h)	1389	5	33	1238	65	230
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	1462	5	35	1303	68	242
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2430	8	242	2585	71	254
Arrive On Green	0.67	0.67	0.02	0.73	0.20	0.20
Sat Flow, veh/h	3726	12	1781	3647	355	1264
Grp Volume(v), veh/h	715	752	35	1303	311	0
Grp Sat Flow(s),veh/h/ln	1777	1868	1781	1777	1625	0
Q Serve(g_s), s	40.1	40.1	1.1	28.4	34.0	0.0
Cycle Q Clear(g_c), s	40.1	40.1	1.1	28.4	34.0	0.0
Prop In Lane		0.01	1.00		0.22	0.78
Lane Grp Cap(c), veh/h	1189	1250	242	2585	326	0
V/C Ratio(X)	0.60	0.60	0.14	0.50	0.95	0.00
Avail Cap(c_a), veh/h	1189	1250	349	2585	334	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.84	0.84	1.00	0.00
Uniform Delay (d), s/veh	16.5	16.5	13.6	10.6	71.1	0.0
Incr Delay (d2), s/veh	2.3	2.2	0.1	0.6	36.5	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	16.5	17.4	0.4	10.8	17.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.8	18.7	13.6	11.1	107.6	0.0
LnGrp LOS	B	B	B	B	F	A
Approach Vol, veh/h	1467			1338	311	
Approach Delay, s/veh	18.7			11.2	107.6	
Approach LOS	B			B	F	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	137.3		42.7	10.5	126.8
Change Period (Y+Rc), s	6.4		6.5	6.4	6.4
Max Green Setting (Gmax), s	130.4		37.0	15.0	109.0
Max Q Clear Time (g_c+I1), s	30.4		36.0	3.1	42.1
Green Ext Time (p_c), s	3.7		0.1	0.0	3.3

Intersection Summary	
HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1467	35	1303	310
v/c Ratio	0.58	0.16	0.48	0.90
Control Delay	15.5	7.8	9.3	79.8
Queue Delay	0.0	0.0	18.6	0.0
Total Delay	15.5	7.8	27.8	79.8
Queue Length 50th (ft)	452	9	284	267
Queue Length 95th (ft)	589	22	376	379
Internal Link Dist (ft)	446		202	570
Turn Bay Length (ft)		180		
Base Capacity (vph)	2510	305	2701	409
Starvation Cap Reductn	0	0	1422	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.58	0.11	1.02	0.76

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	1389	33	1238	65
Future Volume (vph)	1389	33	1238	65
Turn Type	NA	pm+pt	NA	Prot
Protected Phases	6	5	2	4
Permitted Phases		2		
Detector Phase	6	5	2	4
Switch Phase				
Minimum Initial (s)	20.0	5.0	20.0	7.0
Minimum Split (s)	26.4	11.4	26.8	13.5
Total Split (s)	115.4	21.4	136.8	43.5
Total Split (%)	64.0%	11.9%	75.9%	24.1%
Yellow Time (s)	4.4	4.4	4.4	4.0
All-Red Time (s)	2.0	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.5
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	C-Max	None	C-Max	None
Act Effct Green (s)	128.0	137.7	137.7	29.7
Actuated g/C Ratio	0.71	0.76	0.76	0.16
v/c Ratio	0.58	0.16	0.48	0.90
Control Delay	15.5	7.8	9.3	79.8
Queue Delay	0.0	0.0	18.6	0.0
Total Delay	15.5	7.8	27.8	79.8
LOS	B	A	C	E
Approach Delay	15.5		27.3	79.8
Approach LOS	B		C	E

Intersection Summary		
Cycle Length: 180.3		
Actuated Cycle Length: 180.3		
Offset: 134 (74%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow		
Natural Cycle: 70		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.90		
Intersection Signal Delay: 27.0	Intersection LOS: C	
Intersection Capacity Utilization 67.1%	ICU Level of Service C	
Analysis Period (min) 15		

Splits and Phases: 2: SW 77 Ct & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1403	216	86	711	0	0	0	0	639	0	560
Future Volume (veh/h)	0	1403	216	86	711	0	0	0	0	639	0	560
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1477	0	91	748	0				673	0	589
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	2	2	2	0				2	0	2
Cap, veh/h	0	4277		292	2588	0				687	0	555
Arrive On Green	0.00	0.66	0.00	0.03	0.73	0.00				0.20	0.00	0.20
Sat Flow, veh/h	0	6958	0	1781	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1477	0	91	748	0				673	0	589
Grp Sat Flow(s),veh/h/ln	0	1609	0	1781	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	18.1	0.0	2.9	13.1	0.0				35.1	0.0	36.0
Cycle Q Clear(g_c), s	0.0	18.1	0.0	2.9	13.1	0.0				35.1	0.0	36.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4277		292	2588	0				687	0	555
V/C Ratio(X)	0.00	0.35		0.31	0.29	0.00				0.98	0.00	1.06
Avail Cap(c_a), veh/h	0	4277		409	2588	0				687	0	555
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	0.78	0.00	0.90	0.90	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.2	0.0	9.9	8.5	0.0				72.1	0.0	72.5
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.9	0.3	0.0				29.1	0.0	55.6
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(50%),veh/ln	0.0	6.5	0.0	1.2	5.0	0.0				18.4	0.0	17.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.4	0.0	10.7	8.7	0.0				101.2	0.0	128.1
LnGrp LOS	A	B		B	A	A				F	A	F
Approach Vol, veh/h		1477	A		839						1262	
Approach Delay, s/veh		13.4			8.9						113.8	
Approach LOS		B			A						F	

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	138.2	11.5	126.7	42.8
Change Period (Y+Rc), s	6.4	6.4	6.4	6.8
Max Green Setting (Gmax), s	131.0	17.0	108.0	36.0
Max Q Clear Time (g_c+I1), s	15.1	4.9	20.1	38.0
Green Ext Time (p_c), s	1.8	0.3	4.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1704	91	748	673	589
v/c Ratio	0.42	0.43	0.29	0.98	0.82
Control Delay	16.1	13.5	8.8	101.3	55.8
Queue Delay	28.0	0.0	3.0	0.0	0.0
Total Delay	44.0	13.5	11.8	101.3	55.8
Queue Length 50th (ft)	271	29	149	415	263
Queue Length 95th (ft)	303	47	177	#551	349
Internal Link Dist (ft)	202		251		
Turn Bay Length (ft)				465	300
Base Capacity (vph)	4032	277	2574	684	715
Starvation Cap Reductn	2409	0	1685	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.05	0.33	0.84	0.98	0.82

Intersection Summary

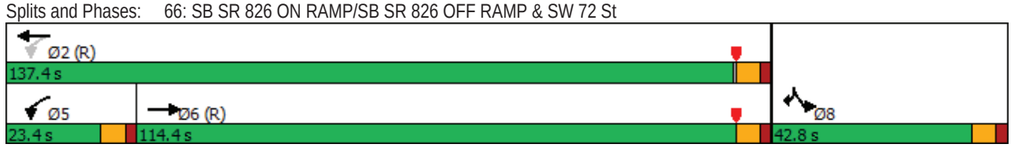
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	1403	86	711	639	560
Future Volume (vph)	1403	86	711	639	560
Turn Type	NA	pm+pt	NA	Prot	Prot
Protected Phases	6	5	2	8	8
Permitted Phases		2			
Detector Phase	6	5	2	8	8
Switch Phase					
Minimum Initial (s)	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.4	11.4	24.4	13.8	13.8
Total Split (s)	114.4	23.4	137.4	42.8	42.8
Total Split (%)	63.3%	13.0%	76.1%	23.7%	23.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.8	6.8
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	115.6	131.4	131.4	36.0	36.0
Actuated g/C Ratio	0.64	0.73	0.73	0.20	0.20
v/c Ratio	0.42	0.43	0.29	0.98	0.82
Control Delay	16.1	13.5	8.8	101.3	55.8
Queue Delay	28.0	0.0	3.0	0.0	0.0
Total Delay	44.0	13.5	11.8	101.3	55.8
LOS	D	B	B	F	E
Approach Delay	44.0		12.0		
Approach LOS	D		B		

Intersection Summary

Cycle Length: 180.6
Actuated Cycle Length: 180.6
Offset: 131 (73%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 48.9 Intersection LOS: D
Intersection Capacity Utilization 97.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 66: SB SR 826 ON RAMP/SB SR 826 OFF RAMP & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	507	1535	0	0	646	543	151	0	277	0	0	0
Future Volume (veh/h)	507	1535	0	0	646	543	151	0	277	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	534	1616	0	0	680	0	159	0	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, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	616	3090	0	0	3343		201	0				
Arrive On Green	0.18	0.87	0.00	0.00	0.65	0.00	0.06	0.00	0.00			
Sat Flow, veh/h	3456	3647	0	0	5443	0	3456	0	1585			
Grp Volume(v), veh/h	534	1616	0	0	680	0	159	0	0			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1702	0	1728	0	1585			
Q Serve(g_s), s	27.0	19.6	0.0	0.0	9.6	0.0	8.2	0.0	0.0			
Cycle Q Clear(g_c), s	27.0	19.6	0.0	0.0	9.6	0.0	8.2	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	616	3090	0	0	3343		201	0				
V/C Ratio(X)	0.87	0.52	0.00	0.00	0.20		0.79	0.00				
Avail Cap(c_a), veh/h	710	3090	0	0	3343		365	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)	0.79	0.79	0.00	0.00	0.77	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	71.9	2.8	0.0	0.0	12.4	0.0	83.7	0.0	0.0			
Incr Delay (d2), s/veh	11.3	0.5	0.0	0.0	0.1	0.0	6.8	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	12.9	4.9	0.0	0.0	3.7	0.0	3.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.2	3.3	0.0	0.0	12.5	0.0	90.5	0.0	0.0			
LnGrp LOS	F	A	A	A	B		F	A				
Approach Vol, veh/h		2150			680	A		159	A			
Approach Delay, s/veh		23.1			12.5			90.5				
Approach LOS		C			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	38.7	124.2		17.1		162.9			
Change Period (Y+Rc), s	* 6.6	6.4		* 6.6		6.4			
Max Green Setting (Gmax), s	* 37	104.0		* 19		147.6			
Max Q Clear Time (g_c+I1), s	29.0	11.6		10.2		21.6			
Green Ext Time (p_c), s	3.1	1.7		0.3		5.2			

Intersection Summary									
HCM 6th Ctrl Delay			24.3						
HCM 6th LOS			C						

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	534	1616	1252	159	292
v/c Ratio	0.80	0.56	0.44	0.44	1.22
Control Delay	78.8	6.1	17.3	79.4	175.3
Queue Delay	53.3	14.6	0.0	0.0	0.0
Total Delay	132.1	20.7	17.3	79.4	175.3
Queue Length 50th (ft)	309	282	249	92	~333
Queue Length 95th (ft)	380	318	284	134	#540
Internal Link Dist (ft)		251	2404		
Turn Bay Length (ft)				295	504
Base Capacity (vph)	707	2908	2878	363	239
Starvation Cap Reductn	254	1308	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.18	1.01	0.44	0.44	1.22

Intersection Summary

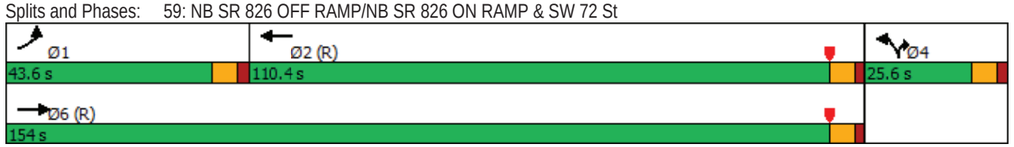
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	507	1535	646	151	277
Future Volume (vph)	507	1535	646	151	277
Turn Type	Prot	NA	NA	Prot	Prot
Protected Phases	1	6	2	4	4
Permitted Phases					
Detector Phase	1	6	2	4	4
Switch Phase					
Minimum Initial (s)	7.0	18.0	18.0	7.0	7.0
Minimum Split (s)	13.6	24.4	24.4	13.6	13.6
Total Split (s)	43.6	154.0	110.4	25.6	25.6
Total Split (%)	24.3%	85.7%	61.5%	14.3%	14.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.2	2.0	2.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.6
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None
Act Effct Green (s)	34.9	147.6	106.1	19.0	19.0
Actuated g/C Ratio	0.19	0.82	0.59	0.11	0.11
v/c Ratio	0.80	0.56	0.44	0.44	1.22
Control Delay	78.8	6.1	17.3	79.4	175.3
Queue Delay	53.3	14.6	0.0	0.0	0.0
Total Delay	132.1	20.7	17.3	79.4	175.3
LOS	F	C	B	E	F
Approach Delay		48.4	17.3		
Approach LOS		D	B		

Intersection Summary		
Cycle Length: 179.6		
Actuated Cycle Length: 179.6		
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow		
Natural Cycle: 55		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.22		
Intersection Signal Delay: 49.2	Intersection LOS: D	
Intersection Capacity Utilization 97.8%	ICU Level of Service F	
Analysis Period (min) 15		

Splits and Phases: 59: NB SR 826 OFF RAMP/NB SR 826 ON RAMP & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	1280	94	67	984	24	121	349	189	30	175	88
Future Volume (veh/h)	400	1280	94	67	984	24	121	349	189	30	175	88
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	421	1347	99	71	1036	25	127	367	199	32	184	93
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	410	2002	147	212	1808	44	232	399	385	97	358	487
Arrive On Green	0.12	0.60	0.60	0.03	0.51	0.51	0.04	0.21	0.21	0.02	0.19	0.19
Sat Flow, veh/h	1781	3357	246	1781	3546	86	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	421	711	735	71	519	542	127	367	199	32	184	93
Grp Sat Flow(s),veh/h/ln	1781	1777	1826	1781	1777	1855	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	21.0	48.7	49.2	3.5	36.6	36.6	8.0	34.8	19.7	2.6	16.0	7.8
Cycle Q Clear(g_c), s	21.0	48.7	49.2	3.5	36.6	36.6	8.0	34.8	19.7	2.6	16.0	7.8
Prop In Lane	1.00		0.13	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	410	1060	1089	212	906	946	232	399	385	97	358	487
V/C Ratio(X)	1.03	0.67	0.67	0.34	0.57	0.57	0.55	0.92	0.52	0.33	0.51	0.19
Avail Cap(c_a), veh/h	410	1060	1089	238	906	946	232	444	423	136	444	560
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)	0.70	0.70	0.70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	24.6	24.7	23.8	30.7	30.7	61.3	69.7	59.3	59.8	65.7	46.1
Incr Delay (d2), s/veh	44.2	2.4	2.4	0.9	2.6	2.5	2.7	23.4	1.3	2.0	1.4	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(50%),veh/ln	14.4	20.8	21.6	1.5	16.3	17.0	1.8	19.3	8.1	1.2	7.8	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.3	27.0	27.0	24.8	33.3	33.2	64.0	93.0	60.6	61.7	67.0	46.4
LnGrp LOS	F	C	C	C	C	C	E	F	E	E	E	D
Approach Vol, veh/h		1867			1132			693			309	
Approach Delay, s/veh		37.9			32.7			78.4			60.3	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.4	98.7	10.0	44.9	11.7	114.4	14.0	40.9
Change Period (Y+Rc), s	6.4	6.4	6.0	* 6.3	6.4	6.4	6.0	* 6.3
Max Green Setting (Gmax), s	21.0	84.0	8.0	* 43	8.0	97.0	8.0	* 43
Max Q Clear Time (g_c+I1), s	23.0	38.6	4.6	36.8	5.5	51.2	10.0	18.0
Green Ext Time (p_c), s	0.0	2.1	0.0	1.8	0.0	3.3	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	421	1446	71	1061	127	367	199	32	184	93
v/c Ratio	1.06	0.72	0.41	0.65	0.50	0.91	0.37	0.26	0.49	0.14
Control Delay	96.9	31.8	22.7	39.5	58.0	94.6	26.9	49.6	67.3	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.9	31.8	22.7	39.5	58.0	94.6	26.9	49.6	67.3	8.8
Queue Length 50th (ft)	~454	690	32	504	113	423	94	27	189	8
Queue Length 95th (ft)	#703	793	57	582	173	#580	170	56	271	50
Internal Link Dist (ft)		2404		929		1266			1240	
Turn Bay Length (ft)	350		280		105		105	100		100
Base Capacity (vph)	396	2016	178	1636	253	442	536	129	442	664
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	1.06	0.72	0.40	0.65	0.50	0.83	0.37	0.25	0.42	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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	400	1280	67	984	121	349	189	30	175	88
Future Volume (vph)	400	1280	67	984	121	349	189	30	175	88
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	5	3	8	1
Permitted Phases	6		2		4		4	8		8
Detector Phase	1	6	5	2	7	4	5	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	14.4	103.4	14.4	90.4	14.0	49.3	14.4	14.0	49.3	14.4
Total Split (s)	27.4	103.4	14.4	90.4	14.0	49.3	14.4	14.0	49.3	27.4
Total Split (%)	15.1%	57.1%	8.0%	49.9%	7.7%	27.2%	8.0%	7.7%	27.2%	15.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.3	2.0	2.0	2.3	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.0	6.3	6.4	6.0	6.3	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	118.0	104.1	91.5	84.0	46.1	39.4	53.3	43.9	36.4	70.3
Actuated g/C Ratio	0.65	0.57	0.51	0.46	0.25	0.22	0.29	0.24	0.20	0.39
v/c Ratio	1.06	0.72	0.41	0.65	0.50	0.91	0.37	0.26	0.49	0.14
Control Delay	96.9	31.8	22.7	39.5	58.0	94.6	26.9	49.6	67.3	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.9	31.8	22.7	39.5	58.0	94.6	26.9	49.6	67.3	8.8
LOS	F	C	C	D	E	F	C	D	E	A
Approach Delay		46.5		38.4		68.5			47.9	
Approach LOS		D		D		E			D	

Intersection Summary

Cycle Length: 181.1
Actuated Cycle Length: 181.1
Offset: 79 (44%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 185
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 48.1 Intersection LOS: D
Intersection Capacity Utilization 93.6% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 62: SW 72 Ave & SW 72 St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1098	28	211	1646	20	67
Future Volume (veh/h)	1098	28	211	1646	20	67
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	1156	29	222	1733	21	71
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2735	69	427	3024	25	85
Arrive On Green	0.77	0.77	0.04	0.85	0.07	0.07
Sat Flow, veh/h	3636	89	1781	3647	368	1243
Grp Volume(v), veh/h	580	605	222	1733	93	0
Grp Sat Flow(s),veh/h/ln	1777	1854	1781	1777	1628	0
Q Serve(g_s), s	17.7	17.7	4.0	22.7	9.0	0.0
Cycle Q Clear(g_c), s	17.7	17.7	4.0	22.7	9.0	0.0
Prop In Lane		0.05	1.00		0.23	0.76
Lane Grp Cap(c), veh/h	1372	1432	427	3024	112	0
V/C Ratio(X)	0.42	0.42	0.52	0.57	0.83	0.00
Avail Cap(c_a), veh/h	1372	1432	492	3024	193	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.67	0.67	1.00	0.00
Uniform Delay (d), s/veh	6.2	6.2	5.1	3.5	73.6	0.0
Incr Delay (d2), s/veh	1.0	0.9	0.2	0.5	14.6	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	6.5	1.2	5.8	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.1	7.1	5.4	4.0	88.2	0.0
LnGrp LOS	A	A	A	A	F	A
Approach Vol, veh/h	1185			1955	93	
Approach Delay, s/veh	7.1			4.2	88.2	
Approach LOS	A			A	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		142.5		17.5	12.6	129.9
Change Period (Y+Rc), s		6.4		6.5	6.4	6.4
Max Green Setting (Gmax), s		128.4		19.0	12.0	110.0
Max Q Clear Time (g_c+I1), s		24.7		11.0	6.0	19.7
Green Ext Time (p_c), s		5.9		0.1	0.2	2.4

Intersection Summary		
HCM 6th Ctrl Delay		7.7
HCM 6th LOS		A

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1185	222	1733	92
v/c Ratio	0.43	0.56	0.57	0.58
Control Delay	6.9	7.6	3.9	37.3
Queue Delay	0.0	1.8	9.7	0.0
Total Delay	6.9	9.4	13.6	37.3
Queue Length 50th (ft)	183	26	178	22
Queue Length 95th (ft)	278	52	287	82
Internal Link Dist (ft)	446		202	570
Turn Bay Length (ft)		180		
Base Capacity (vph)	2734	432	3056	258
Starvation Cap Reductn	0	97	1308	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.66	0.99	0.36

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	1098	211	1646	20
Future Volume (vph)	1098	211	1646	20
Turn Type	NA	pm+pt	NA	Prot
Protected Phases	6	5	2	4
Permitted Phases		2		
Detector Phase	6	5	2	4
Switch Phase				
Minimum Initial (s)	20.0	5.0	20.0	7.0
Minimum Split (s)	26.4	11.4	26.4	13.5
Total Split (s)	116.4	18.4	134.8	25.5
Total Split (%)	72.6%	11.5%	84.1%	15.9%
Yellow Time (s)	4.4	4.4	4.4	4.0
All-Red Time (s)	2.0	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.5
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	C-Max	None	C-Max	None
Act Effct Green (s)	124.3	138.5	138.5	8.9
Actuated g/C Ratio	0.78	0.86	0.86	0.06
v/c Ratio	0.43	0.56	0.57	0.58
Control Delay	6.9	7.6	3.9	37.3
Queue Delay	0.0	1.8	9.7	0.0
Total Delay	6.9	9.4	13.6	37.3
LOS	A	A	B	D
Approach Delay	6.9		13.2	37.3
Approach LOS	A		B	D

Intersection Summary			
Cycle Length: 160.3			
Actuated Cycle Length: 160.3			
Offset: 33 (21%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: SW 77 Ct & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1023	142	182	1286	0	0	0	0	634	0	571
Future Volume (veh/h)	0	1023	142	182	1286	0	0	0	0	634	0	571
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1077	0	192	1354	0				667	0	601
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	2	2	2	0				2	0	2
Cap, veh/h	0	4103		437	2600	0				644	0	520
Arrive On Green	0.00	0.64	0.00	0.05	0.73	0.00				0.19	0.00	0.19
Sat Flow, veh/h	0	6958	0	1781	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1077	0	192	1354	0				667	0	601
Grp Sat Flow(s),veh/h/ln	0	1609	0	1781	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	11.7	0.0	5.8	26.6	0.0				30.0	0.0	30.0
Cycle Q Clear(g_c), s	0.0	11.7	0.0	5.8	26.6	0.0				30.0	0.0	30.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4103		437	2600	0				644	0	520
V/C Ratio(X)	0.00	0.26		0.44	0.52	0.00				1.04	0.00	1.16
Avail Cap(c_a), veh/h	0	4103		717	2600	0				644	0	520
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	0.90	0.00	0.60	0.60	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.7	0.0	8.8	9.4	0.0				65.5	0.0	65.5
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.7	0.5	0.0				45.1	0.0	90.2
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(50%),veh/ln	0.0	4.2	0.0	2.2	9.7	0.0				17.3	0.0	17.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.8	0.0	9.5	9.8	0.0				110.6	0.0	155.7
LnGrp LOS	A	B		A	A	A				F	A	F
Approach Vol, veh/h		1077	A		1546						1268	
Approach Delay, s/veh		12.8			9.8						132.0	
Approach LOS		B			A						F	

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	124.2	15.1	109.1	36.8
Change Period (Y+Rc), s	6.4	6.4	6.4	6.8
Max Green Setting (Gmax), s	117.4	34.0	77.0	30.0
Max Q Clear Time (g_c+I1), s	28.6	7.8	13.7	32.0
Green Ext Time (p_c), s	3.9	1.0	2.9	0.0

Intersection Summary		
HCM 6th Ctrl Delay	50.4	
HCM 6th LOS	D	

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1226	192	1354	667	601
v/c Ratio	0.32	0.56	0.52	1.04	1.05
Control Delay	14.7	13.1	10.3	108.2	106.7
Queue Delay	2.5	0.2	22.8	0.0	0.0
Total Delay	17.2	13.3	33.1	108.2	106.7
Queue Length 50th (ft)	166	56	298	~388	~357
Queue Length 95th (ft)	197	82	345	#516	#497
Internal Link Dist (ft)	202		251		
Turn Bay Length (ft)				465	300
Base Capacity (vph)	3887	540	2587	641	571
Starvation Cap Reductn	2483	60	1276	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.87	0.40	1.03	1.04	1.05

Intersection Summary

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

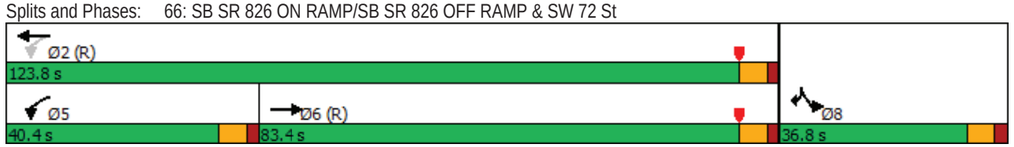
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	1023	182	1286	634	571
Future Volume (vph)	1023	182	1286	634	571
Turn Type	NA	pm+pt	NA	Prot	Prot
Protected Phases	6	5	2	8	8
Permitted Phases		2			
Detector Phase	6	5	2	8	8
Switch Phase					
Minimum Initial (s)	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.4	11.4	24.4	13.8	13.8
Total Split (s)	83.4	40.4	123.8	36.8	36.8
Total Split (%)	51.9%	25.2%	77.1%	22.9%	22.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.8	6.8
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	98.9	117.4	117.4	30.0	30.0
Actuated g/C Ratio	0.62	0.73	0.73	0.19	0.19
v/c Ratio	0.32	0.56	0.52	1.04	1.05
Control Delay	14.7	13.1	10.3	108.2	106.7
Queue Delay	2.5	0.2	22.8	0.0	0.0
Total Delay	17.2	13.3	33.1	108.2	106.7
LOS	B	B	C	F	F
Approach Delay	17.2		30.7		
Approach LOS	B		C		

Intersection Summary

Cycle Length: 160.6
Actuated Cycle Length: 160.6
Offset: 34 (21%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 50.7 Intersection LOS: D
Intersection Capacity Utilization 97.6% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 66: SB SR 826 ON RAMP/SB SR 826 OFF RAMP & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	499	1158	0	0	1264	787	204	0	88	0	0	0
Future Volume (veh/h)	499	1158	0	0	1264	787	204	0	88	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	525	1219	0	0	1331	0	215	0	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, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	619	3000	0	0	3185		257	0				
Arrive On Green	0.18	0.84	0.00	0.00	0.62	0.00	0.07	0.00	0.00			
Sat Flow, veh/h	3456	3647	0	0	5443	0	3456	0	1585			
Grp Volume(v), veh/h	525	1219	0	0	1331	0	215	0	0			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1702	0	1728	0	1585			
Q Serve(g_s), s	23.5	13.0	0.0	0.0	21.2	0.0	9.8	0.0	0.0			
Cycle Q Clear(g_c), s	23.5	13.0	0.0	0.0	21.2	0.0	9.8	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	619	3000	0	0	3185		257	0				
V/C Ratio(X)	0.85	0.41	0.00	0.00	0.42		0.84	0.00				
Avail Cap(c_a), veh/h	734	3000	0	0	3185		281	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)	0.80	0.80	0.00	0.00	0.22	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	63.5	3.0	0.0	0.0	15.3	0.0	73.1	0.0	0.0			
Incr Delay (d2), s/veh	9.9	0.3	0.0	0.0	0.1	0.0	18.1	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(50%),veh/ln	11.1	3.5	0.0	0.0	8.0	0.0	5.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.5	3.3	0.0	0.0	15.4	0.0	91.2	0.0	0.0			
LnGrp LOS	E	A	A	A	B		F	A				
Approach Vol, veh/h		1744			1331	A		215	A			
Approach Delay, s/veh		24.4			15.4			91.2				
Approach LOS		C			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	35.3	106.2		18.5		141.5			
Change Period (Y+Rc), s	* 6.6	6.4		* 6.6		6.4			
Max Green Setting (Gmax), s	* 34	93.0		* 13		133.6			
Max Q Clear Time (g_c+I1), s	25.5	23.2		11.8		15.0			
Green Ext Time (p_c), s	3.2	3.8		0.1		3.4			

Intersection Summary									
HCM 6th Ctrl Delay			25.1						
HCM 6th LOS			C						

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	525	1219	2159	215	93
v/c Ratio	0.78	0.41	0.73	0.79	0.44
Control Delay	69.3	3.6	22.9	92.2	19.0
Queue Delay	26.0	2.8	0.0	0.0	0.0
Total Delay	95.4	6.4	22.9	92.2	19.0
Queue Length 50th (ft)	268	136	542	115	0
Queue Length 95th (ft)	332	158	611	#175	59
Internal Link Dist (ft)		251	2404		
Turn Bay Length (ft)				295	504
Base Capacity (vph)	731	2969	2946	279	214
Starvation Cap Reductn	218	1596	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.02	0.89	0.73	0.77	0.43

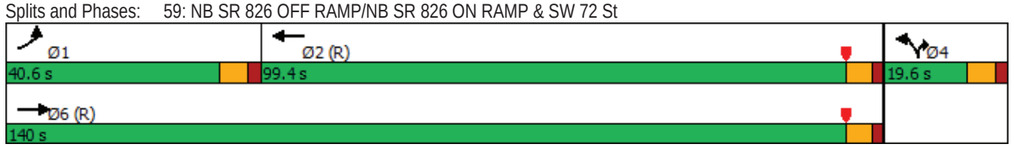
Intersection Summary

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

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	499	1158	1264	204	88
Future Volume (vph)	499	1158	1264	204	88
Turn Type	Prot	NA	NA	Prot	Prot
Protected Phases	1	6	2	4	4
Permitted Phases					
Detector Phase	1	6	2	4	4
Switch Phase					
Minimum Initial (s)	7.0	18.0	18.0	7.0	7.0
Minimum Split (s)	13.6	24.4	24.4	13.6	13.6
Total Split (s)	40.6	140.0	99.4	19.6	19.6
Total Split (%)	25.4%	87.7%	62.3%	12.3%	12.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.2	2.0	2.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.6
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None
Act Effct Green (s)	31.4	133.9	95.9	12.7	12.7
Actuated g/C Ratio	0.20	0.84	0.60	0.08	0.08
v/c Ratio	0.78	0.41	0.73	0.79	0.44
Control Delay	69.3	3.6	22.9	92.2	19.0
Queue Delay	26.0	2.8	0.0	0.0	0.0
Total Delay	95.4	6.4	22.9	92.2	19.0
LOS	F	A	C	F	B
Approach Delay		33.2	22.9		
Approach LOS		C	C		

Intersection Summary			
Cycle Length: 159.6			
Actuated Cycle Length: 159.6			
Offset: 26 (16%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 30.6		Intersection LOS: C	
Intersection Capacity Utilization 97.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 59: NB SR 826 OFF RAMP/NB SR 826 ON RAMP & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	915	155	224	1728	24	164	245	40	29	344	161
Future Volume (veh/h)	115	915	155	224	1728	24	164	245	40	29	344	161
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	121	963	163	236	1819	25	173	258	42	31	362	169
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	141	1625	275	293	1934	27	156	443	454	210	382	395
Arrive On Green	0.05	0.53	0.53	0.05	0.54	0.54	0.06	0.24	0.24	0.02	0.20	0.20
Sat Flow, veh/h	1781	3040	514	1781	3589	49	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	121	563	563	236	899	945	173	258	42	31	362	169
Grp Sat Flow(s),veh/h/ln	1781	1777	1778	1781	1777	1861	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.3	34.7	34.8	8.0	76.0	76.6	9.0	19.7	3.1	2.2	30.8	14.4
Cycle Q Clear(g_c), s	5.3	34.7	34.8	8.0	76.0	76.6	9.0	19.7	3.1	2.2	30.8	14.4
Prop In Lane	1.00		0.29	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	141	950	950	293	957	1003	156	443	454	210	382	395
V/C Ratio(X)	0.86	0.59	0.59	0.81	0.94	0.94	1.11	0.58	0.09	0.15	0.95	0.43
Avail Cap(c_a), veh/h	149	950	950	293	957	1003	156	443	454	268	383	397
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)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	25.5	25.5	29.6	34.7	34.8	55.7	54.4	42.1	49.6	63.2	50.8
Incr Delay (d2), s/veh	32.5	2.5	2.5	15.2	17.6	17.5	105.2	2.2	0.1	0.3	33.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	15.0	15.1	5.9	36.1	38.1	6.6	9.6	1.3	1.0	18.2	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.6	28.0	28.0	44.8	52.3	52.3	161.0	56.6	42.2	49.9	96.2	51.6
LnGrp LOS	E	C	C	D	D	D	F	E	D	D	F	D
Approach Vol, veh/h		1247			2080			473			562	
Approach Delay, s/veh		32.4			51.5			93.5			80.3	
Approach LOS		C			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	93.1	9.8	44.4	14.4	92.5	15.0	39.1
Change Period (Y+Rc), s	6.4	6.4	6.0	* 6.3	6.4	6.4	6.0	* 6.3
Max Green Setting (Gmax), s	8.0	86.0	9.0	* 33	8.0	86.0	9.0	* 33
Max Q Clear Time (g_c+I1), s	7.3	78.6	4.2	21.7	10.0	36.8	11.0	32.8
Green Ext Time (p_c), s	0.0	3.1	0.0	1.4	0.0	2.3	0.0	0.1

Intersection Summary		
HCM 6th Ctrl Delay	54.3	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	121	1126	236	1844	173	258	42	31	362	169
v/c Ratio	0.88	0.61	0.94	0.98	1.17	0.61	0.08	0.14	0.96	0.33
Control Delay	85.0	27.2	64.7	52.6	168.2	64.1	3.5	42.0	99.7	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.0	27.2	64.7	52.6	168.2	64.1	3.5	42.0	99.7	29.1
Queue Length 50th (ft)	76	414	104	974	~161	251	0	23	381	85
Queue Length 95th (ft)	#208	485	#239	#1168	#333	359	14	52	#585	155
Internal Link Dist (ft)		2404		929		1266			1240	
Turn Bay Length (ft)	350		280		105		105	100		100
Base Capacity (vph)	138	1855	250	1885	148	423	546	247	381	509
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	0.88	0.61	0.94	0.98	1.17	0.61	0.08	0.13	0.95	0.33

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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	115	915	224	1728	164	245	40	29	344	161
Future Volume (vph)	115	915	224	1728	164	245	40	29	344	161
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	5	3	8	1
Permitted Phases	6		2		4		4	8		8
Detector Phase	1	6	5	2	7	4	5	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.0	28.3	11.4	11.0	28.3	11.4
Total Split (s)	14.4	92.4	14.4	92.4	15.0	39.3	14.4	15.0	39.3	14.4
Total Split (%)	8.9%	57.4%	8.9%	57.4%	9.3%	24.4%	8.9%	9.3%	24.4%	8.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.3	2.0	2.0	2.3	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.0	6.3	6.4	6.0	6.3	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	94.3	86.0	94.3	86.0	44.1	36.6	51.2	40.4	32.7	47.3
Actuated g/C Ratio	0.59	0.53	0.59	0.53	0.27	0.23	0.32	0.25	0.20	0.29
v/c Ratio	0.88	0.61	0.94	0.98	1.17	0.61	0.08	0.14	0.96	0.33
Control Delay	85.0	27.2	64.7	52.6	168.2	64.1	3.5	42.0	99.7	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.0	27.2	64.7	52.6	168.2	64.1	3.5	42.0	99.7	29.1
LOS	F	C	E	D	F	E	A	D	F	C
Approach Delay		32.8		54.0		96.8			75.3	
Approach LOS		C		D		F			E	

Intersection Summary

Cycle Length: 161.1
Actuated Cycle Length: 161.1
Offset: 128 (79%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 55.3 Intersection LOS: E
Intersection Capacity Utilization 103.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 62: SW 72 Ave & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1274	5	29	996	49	18	3	172	76	1	37
Future Volume (veh/h)	4	1274	5	29	996	49	18	3	172	76	1	37
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	1341	5	31	1048	52	19	3	181	80	1	39
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	383	2598	10	303	2465	122	57	12	211	155	14	50
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.72	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	513	3631	14	406	3445	171	94	89	1506	632	102	353
Grp Volume(v), veh/h	4	656	690	31	540	560	203	0	0	120	0	0
Grp Sat Flow(s),veh/h/ln	513	1777	1868	406	1777	1840	1690	0	0	1087	0	0
Q Serve(g_s), s	0.3	15.0	15.0	3.4	11.2	11.2	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.5	15.0	15.0	18.4	11.2	11.2	10.4	0.0	0.0	10.1	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.09	0.09		0.89	0.67		0.32
Lane Grp Cap(c), veh/h	383	1271	1336	303	1271	1316	281	0	0	219	0	0
V/C Ratio(X)	0.01	0.52	0.52	0.10	0.43	0.43	0.72	0.00	0.00	0.55	0.00	0.00
Avail Cap(c_a), veh/h	383	1271	1336	303	1271	1316	322	0	0	254	0	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	1.00	0.91	0.91	0.91	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.6	5.8	5.8	9.9	5.2	5.2	37.9	0.0	0.0	37.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.5	1.4	0.6	0.9	0.9	6.1	0.0	0.0	1.6	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(50%),veh/ln	0.0	4.5	4.7	0.3	3.3	3.4	4.8	0.0	0.0	2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.6	7.3	7.2	10.5	6.2	6.2	44.0	0.0	0.0	38.8	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	D	A	A	D	A	A
Approach Vol, veh/h		1350			1131			203			120	
Approach Delay, s/veh		7.2			6.3			44.0			38.8	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		70.8		19.2		70.8		19.2				
Change Period (Y+Rc), s		6.4		6.6		6.4		6.6				
Max Green Setting (Gmax), s		62.0		15.0		62.0		15.0				
Max Q Clear Time (g_c+I1), s		20.4		12.4		17.0		12.1				
Green Ext Time (p_c), s		2.5		0.2		2.9		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			10.9									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	4	1346	31	1100	203	120
v/c Ratio	0.01	0.53	0.14	0.44	0.70	0.85
Control Delay	4.5	7.2	6.4	6.2	34.5	73.8
Queue Delay	0.0	0.0	0.0	1.0	0.0	0.0
Total Delay	4.5	7.2	6.4	7.2	34.5	73.8
Queue Length 50th (ft)	1	172	5	125	63	53
Queue Length 95th (ft)	4	223	16	163	136	#143
Internal Link Dist (ft)		2920		252	920	920
Turn Bay Length (ft)	110		115			
Base Capacity (vph)	314	2529	228	2517	330	165
Starvation Cap Reductn	0	0	0	1077	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.53	0.14	0.76	0.62	0.73

Intersection Summary

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

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	1274	29	996	18	3	76	1
Future Volume (vph)	4	1274	29	996	18	3	76	1
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	6	6	2	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	16.0	16.0	16.0	16.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.4	22.4	22.4	22.4	13.6	13.6	19.6	19.6
Total Split (s)	68.4	68.4	68.4	68.4	21.6	21.6	21.6	21.6
Total Split (%)	76.0%	76.0%	76.0%	76.0%	24.0%	24.0%	24.0%	24.0%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	64.4	64.4	64.4	64.4		12.6		12.6
Actuated g/C Ratio	0.72	0.72	0.72	0.72		0.14		0.14
v/c Ratio	0.01	0.53	0.14	0.44		0.70		0.85
Control Delay	4.5	7.2	6.4	6.2		34.5		73.8
Queue Delay	0.0	0.0	0.0	1.0		0.0		0.0
Total Delay	4.5	7.2	6.4	7.2		34.5		73.8
LOS	A	A	A	A		C		E
Approach Delay		7.2		7.2		34.5		73.8
Approach LOS		A		A		C		E

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 85 (94%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 70.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 73: SW 77 Ct & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1387	135	150	630	0	0	0	0	354	0	444
Future Volume (vph)	0	1387	135	150	630	0	0	0	0	354	0	444
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0					7.5		7.0
Lane Util. Factor		0.86		0.97	0.95					0.97		0.88
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		6323		3433	3539					3433		2787
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		6323		3433	3539					3433		2787
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	1460	142	158	663	0	0	0	0	373	0	467
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	0	0	121
Lane Group Flow (vph)	0	1593	0	158	663	0	0	0	0	373	0	346
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		2		1 3	6 3					7		5 7
Permitted Phases												
Actuated Green, G (s)		91.0		31.0	107.9					30.0		44.1
Effective Green, g (s)		91.0		31.0	107.9					30.0		44.1
Actuated g/C Ratio		0.50		0.17	0.60					0.17		0.24
Clearance Time (s)		7.0								7.5		
Vehicle Extension (s)		1.0								4.0		
Lane Grp Cap (vph)		3178		587	2109					569		679
v/s Ratio Prot		c0.25		0.05	c0.19					c0.11		0.12
v/s Ratio Perm												
v/c Ratio	0.50	0.27	0.31							0.66		0.51
Uniform Delay, d1	29.9	65.2	18.2							70.7		59.1
Progression Factor	1.00	0.97	0.20							1.00		1.00
Incremental Delay, d2	0.6	0.2	0.1							3.0		0.8
Delay (s)	30.5	63.8	3.7							73.7		59.9
Level of Service	C	E	A							E		E
Approach Delay (s)	30.5		15.3		0.0			66.0				
Approach LOS	C		B		A			E				

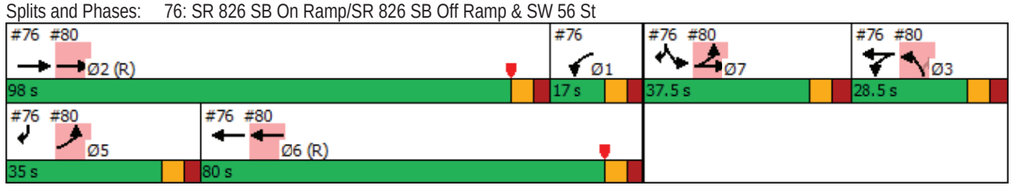
Intersection Summary			
HCM 2000 Control Delay	35.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	181.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	SBL	SBR	Ø1	Ø3	Ø5	Ø6
Lane Configurations									
Traffic Volume (vph)	1387	150	630	354	444				
Future Volume (vph)	1387	150	630	354	444				
Turn Type	NA	Prot	NA	Prot	custom				
Protected Phases	2	1 3	6 3	7	5 7	1	3	5	6
Permitted Phases									
Detector Phase	2	1 3	6 3	7	5 7				
Switch Phase									
Minimum Initial (s)	7.0			5.0		5.0	5.0	5.0	7.0
Minimum Split (s)	34.0			12.5		12.0	12.5	12.0	34.0
Total Split (s)	98.0			37.5		17.0	28.5	35.0	80.0
Total Split (%)	54.1%			20.7%		9%	16%	19%	44%
Yellow Time (s)	4.0			4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	3.0			3.5		3.0	3.5	3.0	3.0
Lost Time Adjust (s)	0.0			0.0					
Total Lost Time (s)	7.0			7.5					
Lead/Lag	Lead			Lead		Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes			Yes		Yes	Yes	Yes	Yes
Recall Mode	C-Max			None		None	None	None	C-Max
Act Effct Green (s)	91.0	31.5	108.4	30.0	44.6				
Actuated g/C Ratio	0.50	0.17	0.60	0.17	0.25				
v/c Ratio	0.50	0.26	0.31	0.66	0.58				
Control Delay	30.2	37.9	2.3	76.8	26.5				
Queue Delay	48.6	0.0	0.1	0.0	0.0				
Total Delay	78.9	37.9	2.4	76.8	26.5				
LOS	E	D	A	E	C				
Approach Delay	78.9		9.2						
Approach LOS	E		A						

Intersection Summary			
Cycle Length: 181			
Actuated Cycle Length: 181			
Offset: 49 (27%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.49			
Intersection Signal Delay: 53.6		Intersection LOS: D	
Intersection Capacity Utilization 76.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 76: SR 826 SB On Ramp/SR 826 SB Off Ramp & SW 56 St



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1602	158	663	373	467
v/c Ratio	0.50	0.26	0.31	0.66	0.58
Control Delay	30.2	37.9	2.3	76.8	26.5
Queue Delay	48.6	0.0	0.1	0.0	0.0
Total Delay	78.9	37.9	2.4	76.8	26.5
Queue Length 50th (ft)	359	67	18	217	134
Queue Length 95th (ft)	391	98	21	278	177
Internal Link Dist (ft)	252		299		
Turn Bay Length (ft)				440	440
Base Capacity (vph)	3188	597	2119	569	1009
Starvation Cap Reductn	1751	0	515	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.11	0.26	0.41	0.66	0.46

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	417	1324	0	0	586	451	194	0	451	0	0	0
Future Volume (vph)	417	1324	0	0	586	451	194	0	451	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0		7.5		7.5			
Lane Util. Factor	0.97	0.95			0.86		0.97		1.00			
Frt	1.00	1.00			0.93		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3433	3539			5990		3433		1583			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	3433	3539			5990		3433		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)	439	1394	0	0	617	475	204	0	475	0	0	0
RTOR Reduction (vph)	0	0	0	0	67	0	0	0	136	0	0	0
Lane Group Flow (vph)	439	1394	0	0	1025	0	204	0	339	0	0	0
Turn Type	Prot	NA			NA		Prot		Perm			
Protected Phases	5 7	2 7			6		3					
Permitted Phases									3			
Actuated Green, G (s)	44.1	121.0			86.9		21.0		21.0			
Effective Green, g (s)	44.1	121.0			86.9		21.0		21.0			
Actuated g/C Ratio	0.24	0.67			0.48		0.12		0.12			
Clearance Time (s)					7.0		7.5		7.5			
Vehicle Extension (s)					1.0		3.0		3.0			
Lane Grp Cap (vph)	836	2365			2875		398		183			
v/s Ratio Prot	0.13	c0.39			c0.17		0.06					
v/s Ratio Perm									c0.21			
v/c Ratio	0.53	0.59			0.36		0.51		1.85			
Uniform Delay, d1	59.4	16.4			29.5		75.2		80.0			
Progression Factor	1.48	0.36			1.00		1.00		1.00			
Incremental Delay, d2	0.7	0.4			0.3		1.1		403.6			
Delay (s)	88.8	6.3			29.9		76.3		483.6			
Level of Service	F	A			C		E		F			
Approach Delay (s)		26.1			29.9			361.2			0.0	
Approach LOS		C			C			F			A	

Intersection Summary			
HCM 2000 Control Delay	90.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	181.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

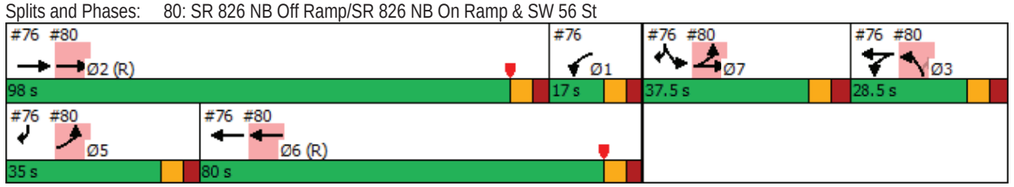
Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	439	1394	1092	204	475
v/c Ratio	0.52	0.59	0.37	0.51	1.49
Control Delay	55.6	4.0	26.5	80.2	268.0
Queue Delay	0.1	0.0	0.0	0.0	0.0
Total Delay	55.7	4.0	26.5	80.2	268.0
Queue Length 50th (ft)	201	101	206	119	~608
Queue Length 95th (ft)	236	79	245	166	#849
Internal Link Dist (ft)		299	2411		
Turn Bay Length (ft)				350	350
Base Capacity (vph)	1109	2375	2943	398	319
Starvation Cap Reductn	107	45	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.60	0.37	0.51	1.49

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.

Lane Group	EBL	EBT	WBT	NBL	NBR	Ø1	Ø2	Ø5	Ø7
Lane Configurations									
Traffic Volume (vph)	417	1324	586	194	451				
Future Volume (vph)	417	1324	586	194	451				
Turn Type	Prot	NA	NA	Prot	Perm				
Protected Phases	5 7	2 7	6	3		1	2	5	7
Permitted Phases					3				
Detector Phase	5 7	2 7	6	3	3				
Switch Phase									
Minimum Initial (s)			7.0	5.0	5.0	5.0	7.0	5.0	5.0
Minimum Split (s)			34.0	12.5	12.5	12.0	34.0	12.0	12.5
Total Split (s)			80.0	28.5	28.5	17.0	98.0	35.0	37.5
Total Split (%)			44.2%	15.7%	15.7%	9%	54%	19%	21%
Yellow Time (s)			4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)			3.0	3.5	3.5	3.0	3.0	3.0	3.5
Lost Time Adjust (s)			0.0	0.0	0.0				
Total Lost Time (s)			7.0	7.5	7.5				
Lead/Lag			Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode			C-Max	None	None	None	C-Max	None	None
Act Effct Green (s)	44.6	121.5	86.9	21.0	21.0				
Actuated g/C Ratio	0.25	0.67	0.48	0.12	0.12				
v/c Ratio	0.52	0.59	0.37	0.51	1.49				
Control Delay	55.6	4.0	26.5	80.2	268.0				
Queue Delay	0.1	0.0	0.0	0.0	0.0				
Total Delay	55.7	4.0	26.5	80.2	268.0				
LOS	E	A	C	F	F				
Approach Delay		16.4	26.5						
Approach LOS		B	C						

Intersection Summary			
Cycle Length: 181			
Actuated Cycle Length: 181			
Offset: 49 (27%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.49			
Intersection Signal Delay: 56.2		Intersection LOS: E	
Intersection Capacity Utilization 76.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 80: SR 826 NB Off Ramp/SR 826 NB On Ramp & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	436	1204	137	85	796	199	106	341	52	86	138	102
Future Volume (veh/h)	436	1204	137	85	796	199	106	341	52	86	138	102
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	459	1267	144	89	838	209	112	359	55	91	145	107
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	487	2200	249	221	1659	414	163	274	42	142	155	107
Arrive On Green	0.04	0.23	0.23	0.03	0.59	0.59	0.07	0.09	0.09	0.06	0.08	0.08
Sat Flow, veh/h	1781	3217	364	1781	2818	703	1781	3093	470	1781	2010	1387
Grp Volume(v), veh/h	459	697	714	89	528	519	112	205	209	91	127	125
Grp Sat Flow(s),veh/h/ln	1781	1777	1805	1781	1777	1744	1781	1777	1786	1781	1777	1621
Q Serve(g_s), s	19.6	63.2	63.7	3.6	31.5	31.5	10.4	16.0	16.0	8.4	12.9	14.0
Cycle Q Clear(g_c), s	19.6	63.2	63.7	3.6	31.5	31.5	10.4	16.0	16.0	8.4	12.9	14.0
Prop In Lane	1.00		0.20	1.00		0.40	1.00		0.26	1.00		0.86
Lane Grp Cap(c), veh/h	487	1215	1234	221	1046	1027	163	157	158	142	137	125
V/C Ratio(X)	0.94	0.57	0.58	0.40	0.50	0.51	0.69	1.30	1.32	0.64	0.92	1.00
Avail Cap(c_a), veh/h	588	1215	1234	225	1046	1027	266	157	158	266	137	125
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.47	0.47	0.47	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	46.6	46.8	21.6	21.8	21.8	70.9	82.5	82.5	71.9	83.0	83.5
Incr Delay (d2), s/veh	12.5	0.9	0.9	1.2	1.7	1.8	3.8	174.6	182.2	3.5	54.5	79.5
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(50%),veh/ln	24.1	30.7	31.4	1.5	13.6	13.3	5.0	15.0	15.5	4.0	8.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	47.6	47.8	22.8	23.5	23.6	74.8	257.0	264.7	75.4	137.5	162.9
LnGrp LOS	D	D	D	C	C	C	E	F	F	E	F	F
Approach Vol, veh/h		1870			1136			526			343	
Approach Delay, s/veh		47.1			23.5			221.3			130.3	
Approach LOS		D			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.2	113.0	16.6	22.2	12.0	130.2	18.7	20.2
Change Period (Y+Rc), s	6.4	6.4	* 6.2	* 6.2	6.4	6.4	* 6.2	* 6.2
Max Green Setting (Gmax), s	33.0	86.0	* 23	* 14	6.0	113.0	* 23	* 14
Max Q Clear Time (g_c+I1), s	21.6	33.5	10.4	18.0	5.6	65.7	12.4	16.0
Green Ext Time (p_c), s	1.1	2.2	0.1	0.0	0.0	3.2	0.1	0.0

Intersection Summary		
HCM 6th Ctrl Delay	71.2	
HCM 6th LOS	E	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	459	1411	89	1047	112	414	91	252
v/c Ratio	0.99	0.65	0.45	0.64	0.47	0.87	0.54	0.52
Control Delay	74.9	23.1	21.3	37.2	63.2	93.2	67.8	55.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	23.1	21.3	37.2	63.2	93.2	67.8	55.6
Queue Length 50th (ft)	371	533	32	479	110	254	88	102
Queue Length 95th (ft)	#617	604	53	556	174	#407	145	159
Internal Link Dist (ft)		2411		1058		197		324
Turn Bay Length (ft)	180		180		135		305	
Base Capacity (vph)	464	2178	198	1641	305	474	266	482
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.65	0.45	0.64	0.37	0.87	0.34	0.52

Intersection Summary

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

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	436	1204	85	796	106	341	86	138
Future Volume (vph)	436	1204	85	796	106	341	86	138
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.4	25.4	11.4	25.4	11.2	20.0	11.2	20.0
Total Split (s)	39.4	119.4	12.4	92.4	29.2	20.2	29.2	20.2
Total Split (%)	21.7%	65.9%	6.8%	51.0%	16.1%	11.1%	16.1%	11.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effct Green (s)	125.4	113.0	92.0	86.0	38.9	24.5	35.1	22.6
Actuated g/C Ratio	0.69	0.62	0.51	0.47	0.21	0.14	0.19	0.12
v/c Ratio	0.99	0.65	0.45	0.64	0.47	0.87	0.54	0.52
Control Delay	74.9	23.1	21.3	37.2	63.2	93.2	67.8	55.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	23.1	21.3	37.2	63.2	93.2	67.8	55.6
LOS	E	C	C	D	E	F	E	E
Approach Delay		35.8		35.9		86.8		58.8
Approach LOS		D		D		F		E

Intersection Summary

Cycle Length: 181.2
Actuated Cycle Length: 181.2
Offset: 29 (16%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 44.8 Intersection LOS: D
Intersection Capacity Utilization 89.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 5: SW 72 Ave & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1112	17	44	2385	74	16	4	32	29	0	23
Future Volume (veh/h)	30	1112	17	44	2385	74	16	4	32	29	0	23
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	1171	18	46	2511	78	17	4	34	31	0	24
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	146	3160	49	429	3104	96	45	11	48	68	3	31
Arrive On Green	0.88	0.88	0.88	1.00	1.00	1.00	0.05	0.05	0.05	0.05	0.00	0.05
Sat Flow, veh/h	120	3582	55	471	3519	109	416	237	1057	811	77	687
Grp Volume(v), veh/h	32	581	608	46	1261	1328	55	0	0	55	0	0
Grp Sat Flow(s),veh/h/ln	120	1777	1860	471	1777	1851	1709	0	0	1575	0	0
Q Serve(g_s), s	7.7	10.3	10.3	1.3	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	7.7	10.3	10.3	11.6	0.0	0.0	5.5	0.0	0.0	6.0	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.06	0.31		0.62	0.56		0.44
Lane Grp Cap(c), veh/h	146	1568	1641	429	1568	1633	104	0	0	103	0	0
V/C Ratio(X)	0.22	0.37	0.37	0.11	0.80	0.81	0.53	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	146	1568	1641	429	1568	1633	324	0	0	312	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.18	0.18	0.18	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.7	1.9	1.9	0.4	0.0	0.0	84.7	0.0	0.0	84.8	0.0	0.0
Incr Delay (d2), s/veh	3.4	0.7	0.6	0.1	0.8	0.9	3.1	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(50%),veh/ln	0.3	2.5	2.6	0.0	0.4	0.4	2.6	0.0	0.0	2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.1	2.5	2.5	0.5	0.8	0.9	87.7	0.0	0.0	88.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	F	A	A	F	A	A
Approach Vol, veh/h		1221			2635			55			55	
Approach Delay, s/veh		2.6			0.8			87.7			88.0	
Approach LOS		A			A			F			F	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	165.2	14.8	165.2	14.8
Change Period (Y+Rc), s	6.4	6.6	6.4	6.6
Max Green Setting (Gmax), s	133.0	34.0	133.0	34.0
Max Q Clear Time (g_c+I1), s	13.6	7.5	12.3	8.0
Green Ext Time (p_c), s	13.0	0.2	4.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	3.8
HCM 6th LOS	A

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	1189	46	2589	55	55
v/c Ratio	0.55	0.38	0.12	0.82	0.48	0.58
Control Delay	43.7	2.4	1.6	4.7	50.8	76.7
Queue Delay	0.0	0.0	0.0	2.3	0.0	0.0
Total Delay	43.7	2.4	1.6	7.0	50.8	76.7
Queue Length 50th (ft)	7	106	3	249	24	40
Queue Length 95th (ft)	#30	163	m6	m399	76	92
Internal Link Dist (ft)		2920		252	920	920
Turn Bay Length (ft)	110		115			
Base Capacity (vph)	58	3161	383	3153	313	275
Starvation Cap Reductn	0	0	0	414	0	0
Spillback Cap Reductn	0	1	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.38	0.12	0.95	0.18	0.20

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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	1112	44	2385	16	4	29	0
Future Volume (vph)	30	1112	44	2385	16	4	29	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	6	6	2	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	16.0	16.0	16.0	16.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.4	22.4	22.4	22.4	13.6	13.6	13.6	13.6
Total Split (s)	139.4	139.4	139.4	139.4	40.6	40.6	40.6	40.6
Total Split (%)	77.4%	77.4%	77.4%	77.4%	22.6%	22.6%	22.6%	22.6%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	161.1	161.1	161.1	161.1		9.9		9.9
Actuated g/C Ratio	0.90	0.90	0.90	0.90		0.06		0.06
v/c Ratio	0.55	0.38	0.12	0.82		0.48		0.58
Control Delay	43.7	2.4	1.6	4.7		50.8		76.7
Queue Delay	0.0	0.0	0.0	2.3		0.0		0.0
Total Delay	43.7	2.4	1.6	7.0		50.8		76.7
LOS	D	A	A	A		D		E
Approach Delay		3.5		6.9		50.8		76.7
Approach LOS		A		A		D		E

Intersection Summary			
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 82 (46%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 7.4		Intersection LOS: A	
Intersection Capacity Utilization 84.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 73: SW 77 Ct & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	946	227	206	1703	0	0	0	0	419	0	800
Future Volume (vph)	0	946	227	206	1703	0	0	0	0	419	0	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0					7.5		7.0
Lane Util. Factor		0.86		0.97	0.95					0.97		0.88
Frt		0.97		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		6222		3433	3539					3433		2787
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		6222		3433	3539					3433		2787
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	996	239	217	1793	0	0	0	0	441	0	842
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	0	0	0	44
Lane Group Flow (vph)	0	1211	0	217	1793	0	0	0	0	441	0	798
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		2		1 3	6 3					7		5 7
Permitted Phases												
Actuated Green, G (s)		95.0		31.0	112.0					25.0		39.0
Effective Green, g (s)		95.0		31.0	112.0					25.0		39.0
Actuated g/C Ratio		0.53		0.17	0.62					0.14		0.22
Clearance Time (s)		7.0								7.5		
Vehicle Extension (s)		1.0								4.0		
Lane Grp Cap (vph)		3283		591	2202					476		603
v/s Ratio Prot		0.19		0.06	c0.51					0.13		c0.29
v/s Ratio Perm												
v/c Ratio	0.37	0.37	0.81							0.93		1.32
Uniform Delay, d1	24.9	65.8	26.0							76.6		70.5
Progression Factor	0.93	1.08	0.27							1.00		1.00
Incremental Delay, d2	0.3	0.3	1.6							24.4		157.0
Delay (s)	23.4	71.7	8.6							101.0		227.5
Level of Service	C	E	A							F		F
Approach Delay (s)	23.4		15.4		0.0			184.0				
Approach LOS	C		B		A			F				

Intersection Summary			
HCM 2000 Control Delay	65.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1235	217	1793	441	842
v/c Ratio	0.37	0.36	0.81	0.93	1.29
Control Delay	22.4	44.6	7.7	102.0	177.1
Queue Delay	0.4	0.0	0.1	0.0	1.1
Total Delay	22.8	44.6	7.7	102.0	178.2
Queue Length 50th (ft)	148	111	132	270	~532
Queue Length 95th (ft)	173	m148	m83	#375	#684
Internal Link Dist (ft)	252		299		
Turn Bay Length (ft)				440	440
Base Capacity (vph)	3307	600	2211	476	655
Starvation Cap Reductn	1397	0	0	0	0
Spillback Cap Reductn	0	0	18	0	94
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.36	0.82	0.93	1.50

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.

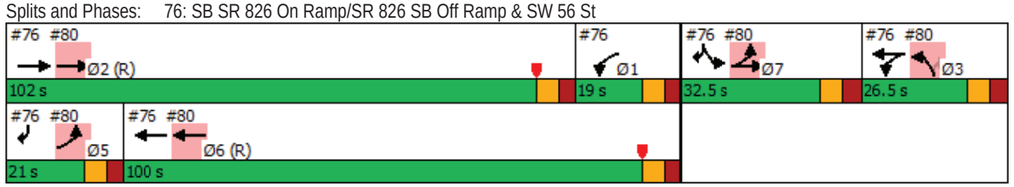
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBL	WBT	SBL	SBR	Ø1	Ø3	Ø5	Ø6
Lane Configurations									
Traffic Volume (vph)	946	206	1703	419	800				
Future Volume (vph)	946	206	1703	419	800				
Turn Type	NA	Prot	NA	Prot	custom				
Protected Phases	2	1 3	6 3	7	5 7	1	3	5	6
Permitted Phases									
Detector Phase	2	1 3	6 3	7	5 7				
Switch Phase									
Minimum Initial (s)	7.0			5.0		5.0	5.0	5.0	7.0
Minimum Split (s)	34.0			12.5		12.0	12.5	12.0	34.0
Total Split (s)	102.0			32.5		19.0	26.5	21.0	100.0
Total Split (%)	56.7%			18.1%		11%	15%	12%	56%
Yellow Time (s)	4.0			4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	3.0			3.5		3.0	3.5	3.0	3.0
Lost Time Adjust (s)	0.0			0.0					
Total Lost Time (s)	7.0			7.5					
Lead/Lag	Lead			Lead		Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes			Yes		Yes	Yes	Yes	Yes
Recall Mode	C-Max			None		None	None	None	C-Max
Act Effct Green (s)	95.0	31.5	112.5	25.0	39.5				
Actuated g/C Ratio	0.53	0.18	0.62	0.14	0.22				
v/c Ratio	0.37	0.36	0.81	0.93	1.29				
Control Delay	22.4	44.6	7.7	102.0	177.1				
Queue Delay	0.4	0.0	0.1	0.0	1.1				
Total Delay	22.8	44.6	7.7	102.0	178.2				
LOS	C	D	A	F	F				
Approach Delay	22.8		11.7						
Approach LOS	C		B						

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 29 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 54.5 Intersection LOS: D
Intersection Capacity Utilization 86.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 76: SB SR 826 On Ramp/SR 826 SB Off Ramp & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	412	953	0	0	1581	505	328	0	175	0	0	0
Future Volume (vph)	412	953	0	0	1581	505	328	0	175	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0		7.5		7.5			
Lane Util. Factor	0.97	0.95			0.86		0.97		1.00			
Frt	1.00	1.00			0.96		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3433	3539			6175		3433		1583			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	3433	3539			6175		3433		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)	434	1003	0	0	1664	532	345	0	184	0	0	0
RTOR Reduction (vph)	0	0	0	0	32	0	0	0	165	0	0	0
Lane Group Flow (vph)	434	1003	0	0	2164	0	345	0	19	0	0	0
Turn Type	Prot	NA			NA		Prot		Perm			
Protected Phases	5 7	2 7			6		3					
Permitted Phases									3			
Actuated Green, G (s)	39.0	120.0			93.0		19.0		19.0			
Effective Green, g (s)	39.0	120.0			93.0		19.0		19.0			
Actuated g/C Ratio	0.22	0.67			0.52		0.11		0.11			
Clearance Time (s)					7.0		7.5		7.5			
Vehicle Extension (s)					1.0		3.0		3.0			
Lane Grp Cap (vph)	743	2359			3190		362		167			
v/s Ratio Prot	c0.13	0.28			c0.35		c0.10					
v/s Ratio Perm									0.01			
v/c Ratio	0.58	0.43			0.68		0.95		0.12			
Uniform Delay, d1	63.2	14.0			32.4		80.1		72.9			
Progression Factor	1.17	0.33			1.00		1.00		1.00			
Incremental Delay, d2	1.2	0.1			1.2		35.0		0.3			
Delay (s)	75.3	4.8			33.6		115.0		73.2			
Level of Service	E	A			C		F		E			
Approach Delay (s)		26.1			33.6			100.5			0.0	
Approach LOS		C			C			F			A	

Intersection Summary			
HCM 2000 Control Delay	39.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	434	1003	2196	345	184
v/c Ratio	0.58	0.42	0.68	0.95	0.56
Control Delay	49.8	2.8	32.7	115.1	15.6
Queue Delay	0.2	0.1	0.0	0.0	0.0
Total Delay	50.0	2.9	32.7	115.1	15.6
Queue Length 50th (ft)	150	38	539	212	0
Queue Length 95th (ft)	m198	m56	575	#318	83
Internal Link Dist (ft)		299	2411		
Turn Bay Length (ft)				350	350
Base Capacity (vph)	753	2369	3223	362	331
Starvation Cap Reductn	32	387	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.51	0.68	0.95	0.56

Intersection Summary

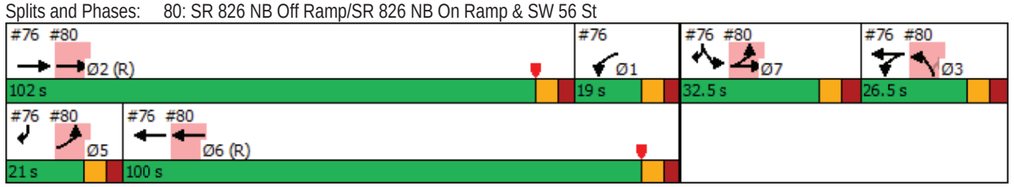
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	WBT	NBL	NBR	Ø1	Ø2	Ø5	Ø7
Lane Configurations									
Traffic Volume (vph)	412	953	1581	328	175				
Future Volume (vph)	412	953	1581	328	175				
Turn Type	Prot	NA	NA	Prot	Perm				
Protected Phases	5 7	2 7	6	3		1	2	5	7
Permitted Phases					3				
Detector Phase	5 7	2 7	6	3	3				
Switch Phase									
Minimum Initial (s)			7.0	5.0	5.0	5.0	7.0	5.0	5.0
Minimum Split (s)			34.0	12.5	12.5	12.0	34.0	12.0	12.5
Total Split (s)			100.0	26.5	26.5	19.0	102.0	21.0	32.5
Total Split (%)			55.6%	14.7%	14.7%	11%	57%	12%	18%
Yellow Time (s)			4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)			3.0	3.5	3.5	3.0	3.0	3.0	3.5
Lost Time Adjust (s)			0.0	0.0	0.0				
Total Lost Time (s)			7.0	7.5	7.5				
Lead/Lag			Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode			C-Max	None	None	None	C-Max	None	None
Act Effct Green (s)	39.5	120.5	93.0	19.0	19.0				
Actuated g/C Ratio	0.22	0.67	0.52	0.11	0.11				
v/c Ratio	0.58	0.42	0.68	0.95	0.56				
Control Delay	49.8	2.8	32.7	115.1	15.6				
Queue Delay	0.2	0.1	0.0	0.0	0.0				
Total Delay	50.0	2.9	32.7	115.1	15.6				
LOS	D	A	C	F	B				
Approach Delay		17.1	32.7						
Approach LOS		B	C						

Intersection Summary			
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 29 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.29			
Intersection Signal Delay: 33.4		Intersection LOS: C	
Intersection Capacity Utilization 86.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 80: SR 826 NB Off Ramp/SR 826 NB On Ramp & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	897	99	66	1381	100	201	182	66	125	322	478
Future Volume (veh/h)	110	897	99	66	1381	100	201	182	66	125	322	478
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	944	104	69	1454	105	212	192	69	132	339	503
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	165	1723	190	274	1751	126	178	614	214	343	393	350
Arrive On Green	0.04	0.53	0.53	0.03	0.52	0.52	0.08	0.24	0.24	0.06	0.22	0.22
Sat Flow, veh/h	1781	3228	356	1781	3362	242	1781	2586	900	1781	1777	1585
Grp Volume(v), veh/h	116	520	528	69	765	794	212	130	131	132	339	503
Grp Sat Flow(s),veh/h/ln	1781	1777	1806	1781	1777	1827	1781	1777	1708	1781	1777	1585
Q Serve(g_s), s	5.5	34.9	34.9	3.3	65.6	66.6	14.0	10.9	11.5	10.4	33.2	40.0
Cycle Q Clear(g_c), s	5.5	34.9	34.9	3.3	65.6	66.6	14.0	10.9	11.5	10.4	33.2	40.0
Prop In Lane	1.00		0.20	1.00		0.13	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	165	949	964	274	925	951	178	422	406	343	393	350
V/C Ratio(X)	0.71	0.55	0.55	0.25	0.83	0.83	1.19	0.31	0.32	0.38	0.86	1.44
Avail Cap(c_a), veh/h	189	949	964	322	925	951	178	422	406	343	393	350
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)	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	27.8	27.8	22.5	36.5	36.8	54.0	56.8	57.0	50.6	67.9	70.5
Incr Delay (d2), s/veh	8.8	2.0	2.0	0.5	8.4	8.5	129.4	0.5	0.6	0.5	17.9	211.9
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(50%),veh/ln	3.0	15.3	15.6	1.4	30.1	31.4	12.8	5.0	5.1	4.8	17.1	36.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	29.8	29.8	22.9	44.9	45.3	183.4	57.3	57.5	51.2	85.8	282.4
LnGrp LOS	D	C	C	C	D	D	F	E	E	D	F	F
Approach Vol, veh/h		1164			1628			473			974	
Approach Delay, s/veh		31.4			44.2			113.9			182.6	
Approach LOS		C			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	100.6	17.2	49.2	11.6	103.0	20.2	46.2
Change Period (Y+Rc), s	6.4	6.4	* 6.2	* 6.2	6.4	6.4	* 6.2	* 6.2
Max Green Setting (Gmax), s	10.0	92.0	* 11	* 43	10.0	92.0	* 14	* 40
Max Q Clear Time (g_c+I1), s	7.5	68.6	12.4	13.5	5.3	36.9	16.0	42.0
Green Ext Time (p_c), s	0.1	3.6	0.0	1.9	0.0	2.1	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay	80.3	
HCM 6th LOS	F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	116	1048	69	1559	212	261	132	842
v/c Ratio	0.85	0.58	0.27	0.87	1.20	0.31	0.39	1.14dr
Control Delay	85.2	31.7	18.2	46.1	172.8	52.1	48.7	100.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.2	31.7	18.2	46.1	172.8	52.1	48.7	100.7
Queue Length 50th (ft)	87	442	33	851	~254	122	114	~507
Queue Length 95th (ft)	#213	522	58	960	#440	168	174	#648
Internal Link Dist (ft)		2411		1058		197		324
Turn Bay Length (ft)	180		180		135		305	
Base Capacity (vph)	139	1806	269	1785	177	831	339	805
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.58	0.26	0.87	1.20	0.31	0.39	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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	110	897	66	1381	201	182	125	322
Future Volume (vph)	110	897	66	1381	201	182	125	322
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.4	25.4	11.4	25.4	11.2	25.2	11.2	25.2
Total Split (s)	16.4	98.4	16.4	98.4	20.2	49.2	17.2	46.2
Total Split (%)	9.1%	54.3%	9.1%	54.3%	11.1%	27.2%	9.5%	25.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effct Green (s)	103.5	93.7	100.5	92.1	57.3	43.3	50.7	40.0
Actuated g/C Ratio	0.57	0.52	0.55	0.51	0.32	0.24	0.28	0.22
v/c Ratio	0.85	0.58	0.27	0.87	1.20	0.31	0.39	1.14dr
Control Delay	85.2	31.7	18.2	46.1	172.8	52.1	48.7	100.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.2	31.7	18.2	46.1	172.8	52.1	48.7	100.7
LOS	F	C	B	D	F	D	D	F
Approach Delay		37.0		44.9		106.2		93.7
Approach LOS		D		D		F		F

Intersection Summary

Cycle Length: 181.2
Actuated Cycle Length: 181.2
Offset: 79 (44%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 60.8 Intersection LOS: E
Intersection Capacity Utilization 103.9% ICU Level of Service G
Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 5: SW 72 Ave & SW 56 St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1897	4	42	1477	120	5	4	32	312	15	44
Future Volume (vph)	43	1897	4	42	1477	120	5	4	32	312	15	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	360		0	265		0	0		0	150		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	100			100			25			75		
Lane Util. Factor	1.00	0.86	0.86	0.97	0.86	0.86	1.00	1.00	1.00	0.95	0.95	1.00
Frt					0.989				0.850		0.964	
Flt Protected	0.950			0.950			0.950			0.950	0.967	
Satd. Flow (prot)	1770	6408	0	3433	6337	0	1770	1863	1583	1681	1650	0
Flt Permitted	0.950			0.950			0.950			0.950	0.967	
Satd. Flow (perm)	1770	6408	0	3433	6337	0	1770	1863	1583	1681	1650	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					12				73		8	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		360			687			986			1012	
Travel Time (s)		6.1			11.7			22.4			23.0	
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
Adj. Flow (vph)	46	2018	4	45	1571	128	5	4	34	332	16	47
Shared Lane Traffic (%)										40%		
Lane Group Flow (vph)	46	2022	0	45	1699	0	5	4	34	199	196	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4	4 5	3	3	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.0	25.0		12.0	25.0		26.0	26.0		26.0	26.0	
Total Split (s)	19.0	89.0		14.0	84.0		28.0	28.0		49.0	49.0	
Total Split (%)	10.6%	49.4%		7.8%	46.7%		15.6%	15.6%		27.2%	27.2%	
Maximum Green (s)	12.0	82.0		7.0	77.0		20.0	20.0		41.0	41.0	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.1	113.9		7.8	111.7		7.1	7.1	19.3	26.8	26.8	
Actuated g/C Ratio	0.06	0.63		0.04	0.62		0.04	0.04	0.11	0.15	0.15	
v/c Ratio	0.46	0.50		0.30	0.43		0.07	0.05	0.15	0.80	0.78	
Control Delay	96.6	20.4		98.6	11.1		85.6	85.0	1.3	95.6	90.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	96.6	20.4		98.6	11.1		85.6	85.0	1.3	95.6	90.4	
LOS	F	C		F	B		F	F	A	F	F	
Approach Delay		22.1			13.4			18.9			93.0	
Approach LOS		C			B			B			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 140 (78%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 25.1	Intersection LOS: C
Intersection Capacity Utilization 65.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: SW 79 Ave & Bird Rd



Queues
3: SW 79 Ave & Bird Rd

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	46	2022	45	1699	5	4	34	199	196
v/c Ratio	0.46	0.50	0.30	0.43	0.07	0.05	0.15	0.80	0.78
Control Delay	96.6	20.4	98.6	11.1	85.6	85.0	1.3	95.6	90.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.6	20.4	98.6	11.1	85.6	85.0	1.3	95.6	90.4
Queue Length 50th (ft)	54	390	29	147	6	5	0	243	229
Queue Length 95th (ft)	101	491	54	147	22	20	0	328	313
Internal Link Dist (ft)		280		607		906			932
Turn Bay Length (ft)	360		265					150	
Base Capacity (vph)	122	4056	153	3936	196	207	256	382	382
Starvation Cap Reductn	0	0	0	415	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	0.38	0.50	0.29	0.48	0.03	0.02	0.13	0.52	0.51

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: SW 79 Ave & Bird Rd

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1897	4	42	1477	120	5	4	32	312	15	44
Future Volume (vph)	43	1897	4	42	1477	120	5	4	32	312	15	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		8.0	8.0	8.0	8.0	8.0	
Lane Util. Factor	1.00	0.86		0.97	0.86		1.00	1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.97	
Satd. Flow (prot)	1770	6406		3433	6335		1770	1863	1583	1681	1650	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.97	
Satd. Flow (perm)	1770	6406		3433	6335		1770	1863	1583	1681	1650	
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)	46	2018	4	45	1571	128	5	4	34	332	16	47
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	30	0	7	0
Lane Group Flow (vph)	46	2022	0	45	1694	0	5	4	4	199	189	0
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												
Actuated Green, G (s)	8.8	110.9		6.6	108.7		5.7	5.7	20.3	26.8	26.8	
Effective Green, g (s)	8.8	110.9		6.6	108.7		5.7	5.7	20.3	26.8	26.8	
Actuated g/C Ratio	0.05	0.62		0.04	0.60		0.03	0.03	0.11	0.15	0.15	
Clearance Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	86	3946		125	3825		56	58	178	250	245	
v/s Ratio Prot	c0.03	c0.32		0.01	0.27		c0.00	0.00	0.00	c0.12	0.11	
v/s Ratio Perm												
v/c Ratio	0.53	0.51		0.36	0.44		0.09	0.07	0.02	0.80	0.77	
Uniform Delay, d1	83.6	19.4		84.6	19.3		84.6	84.6	71.0	74.0	73.7	
Progression Factor	1.00	1.00		1.13	0.54		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.3	0.5		1.7	0.3		0.7	0.5	0.0	15.9	14.0	
Delay (s)	89.9	19.9		97.0	10.7		85.3	85.1	71.1	89.9	87.6	
Level of Service	F	B		F	B		F	F	E	F	F	
Approach Delay (s)		21.4			13.0			74.0			88.8	
Approach LOS		C			B			E			F	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

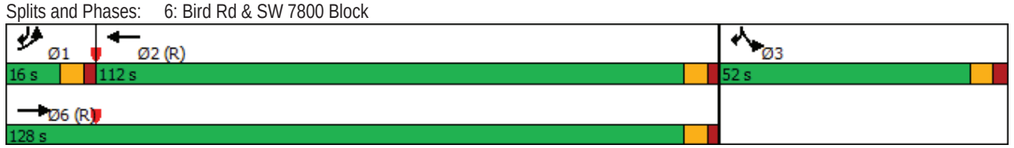
c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	2221	1632	111	349	25
Future Volume (vph)	20	2221	1632	111	349	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230			0	0	100
Storage Lanes	2			0	2	1
Taper Length (ft)	100				25	
Lane Util. Factor	0.97	0.86	0.86	0.86	0.97	1.00
Frt			0.990			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	6408	6344	0	3433	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	6408	6344	0	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			14			19
Link Speed (mph)		40	40		30	
Link Distance (ft)		687	783		1033	
Travel Time (s)		11.7	13.3		23.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	21	2363	1736	118	371	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	2363	1854	0	371	27
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		3	3 1
Permitted Phases						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2		3	3 1
Switch Phase						
Minimum Initial (s)	5.0	7.0	7.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		25.0	
Total Split (s)	16.0	128.0	112.0		52.0	
Total Split (%)	8.9%	71.1%	62.2%		28.9%	
Maximum Green (s)	9.6	121.6	105.6		45.0	
Yellow Time (s)	4.4	4.4	4.4		4.0	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		7.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	6.6	141.7	131.1		24.9	37.9
Actuated g/C Ratio	0.04	0.79	0.73		0.14	0.21
v/c Ratio	0.17	0.47	0.40		0.78	0.08
Control Delay	125.9	2.4	6.0		86.8	25.9
Queue Delay	0.0	0.1	0.0		0.0	0.0
Total Delay	125.9	2.4	6.0		86.8	25.9
LOS	F	A	A		F	C
Approach Delay		3.5	6.0		82.6	
Approach LOS		A	A		F	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 152 (84%), Referenced to phase 2:WBT and 6:EBT, Start of Green		
Natural Cycle: 65		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.78		
Intersection Signal Delay: 11.3	Intersection LOS: B	
Intersection Capacity Utilization 53.3%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 6: Bird Rd & SW 7800 Block



Queues
6: Bird Rd & SW 7800 Block

08/05/2019

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	21	2363	1854	371	27
v/c Ratio	0.17	0.47	0.40	0.78	0.08
Control Delay	125.9	2.4	6.0	86.8	25.9
Queue Delay	0.0	0.1	0.0	0.0	0.0
Total Delay	125.9	2.4	6.0	86.8	25.9
Queue Length 50th (ft)	12	5	80	222	8
Queue Length 95th (ft)	m27	35	104	274	37
Internal Link Dist (ft)		607	703	953	
Turn Bay Length (ft)	230				100
Base Capacity (vph)	183	5045	4625	858	413
Starvation Cap Reductn	0	731	0	0	0
Spillback Cap Reductn	0	226	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.55	0.40	0.43	0.07

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

HCM 6th Signalized Intersection Summary
6: Bird Rd & SW 7800 Block

08/05/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	2221	1632	111	349	25
Future Volume (veh/h)	20	2221	1632	111	349	25
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	2363	1736	118	371	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	62	5156	4635	315	429	226
Arrive On Green	0.04	1.00	1.00	1.00	0.12	0.12
Sat Flow, veh/h	3456	6696	6461	421	3456	1585
Grp Volume(v), veh/h	21	2363	1351	503	371	27
Grp Sat Flow(s),veh/h/ln	1728	1609	1609	1795	1728	1585
Q Serve(g_s), s	1.1	0.0	0.0	0.0	19.0	2.7
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.0	19.0	2.7
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	62	5156	3608	1342	429	226
V/C Ratio(X)	0.34	0.46	0.37	0.37	0.86	0.12
Avail Cap(c_a), veh/h	184	5156	3608	1342	864	425
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	85.7	0.0	0.0	0.0	77.3	67.4
Incr Delay (d2), s/veh	2.6	0.2	0.3	0.7	5.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	0.1	0.3	8.8	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	88.3	0.2	0.3	0.7	82.6	67.6
LnGrp LOS	F	A	A	A	F	E
Approach Vol, veh/h		2384	1854		398	
Approach Delay, s/veh		1.0	0.4		81.6	
Approach LOS		A	A		F	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.7	141.0			150.6	29.4
Change Period (Y+Rc), s	6.4	6.4			6.4	7.0
Max Green Setting (Gmax), s	9.6	105.6			121.6	45.0
Max Q Clear Time (g_c+I1), s	3.1	2.0			2.0	21.0
Green Ext Time (p_c), s	0.0	22.6			48.4	1.4

Intersection Summary		
HCM 6th Ctrl Delay		7.7
HCM 6th LOS		A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	3190	285	161	2021	43	119	188	149	113	130	96
Future Volume (vph)	216	3190	285	161	2021	43	119	188	149	113	130	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	360		0	330		0	300		0	220		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	50			50			50			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.988			0.997			0.934				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5024	0	1770	5070	0	1770	3306	0	1770	1863	1583
Flt Permitted	0.039			0.038			0.361			0.290		
Satd. Flow (perm)	73	5024	0	71	5070	0	672	3306	0	540	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			2			94				139
Link Speed (mph)		40			40			30			35	
Link Distance (ft)		1360			1017			1024			1018	
Travel Time (s)		23.2			17.3			23.3			19.8	
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
Adj. Flow (vph)	223	3289	294	166	2084	44	123	194	154	116	134	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	3583	0	166	2128	0	123	348	0	116	134	99
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	7.0
Minimum Split (s)	11.4	24.4		11.4	24.4		11.7	30.7		11.7	13.7	13.7
Total Split (s)	37.0	118.3		18.0	99.3		16.2	30.7		13.0	27.5	27.5
Total Split (%)	20.6%	65.7%		10.0%	55.2%		9.0%	17.1%		7.2%	15.3%	15.3%
Maximum Green (s)	30.6	111.9		11.6	92.9		9.5	24.0		6.3	20.8	20.8
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	2.7
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)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			5.0				
Flash Dont Walk (s)		11.0			11.0			19.0				
Pedestrian Calls (#/hr)		4			0			6				
Act Effct Green (s)	130.0	111.9		118.9	103.9		30.2	20.7		23.8	17.5	17.5
Actuated g/C Ratio	0.72	0.62		0.66	0.58		0.17	0.12		0.13	0.10	0.10
v/c Ratio	0.83	1.15		0.88	0.73		0.72	0.75		1.02	0.74	0.35
Control Delay	59.9	105.2		93.1	30.8		88.6	66.4		155.2	102.6	6.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	59.9	105.2		93.1	30.8		88.6	66.4		155.2	102.6	6.0
LOS	E	F		F	C		F	E		F	F	A
Approach Delay		102.5			35.3			72.2			92.7	
Approach LOS		F			D			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 132 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.15			
Intersection Signal Delay: 77.7		Intersection LOS: E	
Intersection Capacity Utilization 115.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 8: SW 72 Ave & Bird Rd



Queues
8: SW 72 Ave & Bird Rd

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	223	3583	166	2128	123	348	116	134	99
v/c Ratio	0.83	1.15	0.88	0.73	0.72	0.75	1.02	0.74	0.35
Control Delay	59.9	105.2	93.1	30.8	88.6	66.4	155.2	102.6	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	105.2	93.1	30.8	88.6	66.4	155.2	102.6	6.0
Queue Length 50th (ft)	196	~1797	147	661	128	156	120	156	0
Queue Length 95th (ft)	m243	#1834	#347	813	#199	214	#255	234	17
Internal Link Dist (ft)		1280		937		944		938	
Turn Bay Length (ft)	360		330		300		220		250
Base Capacity (vph)	342	3128	188	2927	170	522	114	215	305
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	0.65	1.15	0.88	0.73	0.72	0.67	1.02	0.62	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.

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

HCM 6th Signalized Intersection Summary
8: SW 72 Ave & Bird Rd

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	3190	285	161	2021	43	119	188	149	113	130	96
Future Volume (veh/h)	216	3190	285	161	2021	43	119	188	149	113	130	96
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	3289	294	166	2084	44	123	194	154	116	134	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	244	3043	264	155	3218	68	174	230	173	117	189	
Arrive On Green	0.10	0.85	0.85	0.06	0.63	0.63	0.05	0.12	0.12	0.04	0.10	0.00
Sat Flow, veh/h	1781	4784	415	1781	5146	108	1781	1933	1453	1781	1870	1585
Grp Volume(v), veh/h	223	2312	1271	166	1377	751	123	177	171	116	134	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1796	1781	1702	1851	1781	1777	1609	1781	1870	1585
Q Serve(g_s), s	11.0	114.5	114.5	11.6	45.8	46.0	9.5	17.6	18.8	6.3	12.5	0.0
Cycle Q Clear(g_c), s	11.0	114.5	114.5	11.6	45.8	46.0	9.5	17.6	18.8	6.3	12.5	0.0
Prop In Lane	1.00		0.23	1.00		0.06	1.00		0.90	1.00		1.00
Lane Grp Cap(c), veh/h	244	2165	1142	155	2129	1157	174	211	191	117	189	
V/C Ratio(X)	0.91	1.07	1.11	1.07	0.65	0.65	0.71	0.84	0.89	0.99	0.71	
Avail Cap(c_a), veh/h	413	2165	1142	155	2129	1157	174	237	215	117	216	
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.41	0.41	0.41	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.0	13.9	13.9	68.3	21.2	21.3	71.6	77.6	78.1	78.3	78.3	0.0
Incr Delay (d2), s/veh	7.5	35.3	56.4	92.9	1.5	2.8	12.3	20.9	31.6	79.2	8.7	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(50%),veh/ln	10.3	33.6	42.2	11.2	18.3	20.3	1.6	9.3	9.5	4.9	6.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	49.2	70.3	161.2	22.8	24.1	83.9	98.5	109.8	157.6	87.0	0.0
LnGrp LOS	D	F	F	F	C	C	F	F	F	F	F	
Approach Vol, veh/h		3806			2294			471			250	A
Approach Delay, s/veh		56.1			33.2			98.8			119.8	
Approach LOS		E			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.9	119.0	13.0	28.1	18.0	120.9	16.2	24.9
Change Period (Y+Rc), s	6.4	6.4	* 6.7	* 6.7	6.4	6.4	* 6.7	* 6.7
Max Green Setting (Gmax), s	30.6	92.9	* 6.3	* 24	11.6	111.9	* 9.5	* 21
Max Q Clear Time (g_c+I1), s	13.0	48.0	8.3	20.8	13.6	116.5	11.5	14.5
Green Ext Time (p_c), s	0.5	24.2	0.0	0.6	0.0	0.0	0.0	0.3

Intersection Summary

HCM 6th Ctrl Delay	53.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	3509	0	0	2184	190	46
Future Volume (vph)	3509	0	0	2184	190	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.95
Frt					0.971	
Flt Protected					0.961	
Satd. Flow (prot)	5085	0	0	5085	3372	0
Flt Permitted					0.961	
Satd. Flow (perm)	5085	0	0	5085	3372	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					2	
Link Speed (mph)	40			40	30	
Link Distance (ft)	722			1360	1004	
Travel Time (s)	12.3			23.2	22.8	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3581	0	0	2229	194	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3581	0	0	2229	241	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Right	Left	Right
Median Width(ft)	12			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (ft)	100			100	20	
Trailing Detector (ft)	0			0	0	
Detector 1 Position(ft)	0			0	0	
Detector 1 Size(ft)	6			6	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Detector Phase	2			2	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	25.2			25.2	24.8	
Total Split (s)	153.6			153.6	26.4	
Total Split (%)	85.3%			85.3%	14.7%	
Maximum Green (s)	147.2			147.2	19.6	
Yellow Time (s)	4.4			4.4	4.0	
All-Red Time (s)	2.0			2.0	2.8	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.4			6.4	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	4			4	7	
Act Effct Green (s)	149.5			149.5	17.3	
Actuated g/C Ratio	0.83			0.83	0.10	
v/c Ratio	0.85			0.53	0.74	
Control Delay	5.9			1.2	92.3	
Queue Delay	19.0			0.0	0.0	
Total Delay	24.9			1.3	92.3	
LOS	C			A	F	
Approach Delay	24.9			1.3	92.3	
Approach LOS	C			A	F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 144 (80%), Referenced to phase 2:EBWB, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 85.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 11: SW 74 Ave & Bird Rd



Queues
11: SW 74 Ave & Bird Rd

08/05/2019

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	3581	2229	241
v/c Ratio	0.85	0.53	0.74
Control Delay	5.9	1.2	92.3
Queue Delay	19.0	0.0	0.0
Total Delay	24.9	1.3	92.3
Queue Length 50th (ft)	261	6	143
Queue Length 95th (ft)	m315	6	194
Internal Link Dist (ft)	642	1280	924
Turn Bay Length (ft)			
Base Capacity (vph)	4222	4222	368
Starvation Cap Reductn	530	0	0
Spillback Cap Reductn	764	337	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.04	0.57	0.65

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

HCM Signalized Intersection Capacity Analysis
11: SW 74 Ave & Bird Rd

08/05/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	3509	0	0	2184	190	46
Future Volume (vph)	3509	0	0	2184	190	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4			6.4	6.8	
Lane Util. Factor	0.91			0.91	0.97	
Frt	1.00			1.00	0.97	
Flt Protected	1.00			1.00	0.96	
Satd. Flow (prot)	5085			5085	3372	
Flt Permitted	1.00			1.00	0.96	
Satd. Flow (perm)	5085			5085	3372	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3581	0	0	2229	194	47
RTOR Reduction (vph)	0	0	0	0	2	0
Lane Group Flow (vph)	3581	0	0	2229	239	0
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Actuated Green, G (s)	149.5			149.5	17.3	
Effective Green, g (s)	149.5			149.5	17.3	
Actuated g/C Ratio	0.83			0.83	0.10	
Clearance Time (s)	6.4			6.4	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	4223			4223	324	
v/s Ratio Prot	c0.70			0.44	c0.07	
v/s Ratio Perm						
v/c Ratio	0.85			0.53	0.74	
Uniform Delay, d1	8.7			4.6	79.1	
Progression Factor	0.54			0.19	1.00	
Incremental Delay, d2	0.8			0.3	8.5	
Delay (s)	5.5			1.2	87.7	
Level of Service	A			A	F	
Approach Delay (s)	5.5			1.2	87.7	
Approach LOS	A			A	F	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

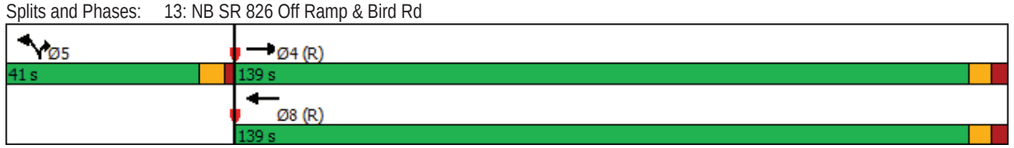
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	2576	672	0	1606	837	382	0	1000	0	0
Future Volume (vph)	0	2576	672	0	1606	837	382	0	1000	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		300	300	0	0
Storage Lanes	0		1	0		0		1	1	0	0
Taper Length (ft)	25			25				25		25	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.86	0.86	0.97	1.00	0.76	1.00	1.00
Frt			0.850		0.949				0.850		
Flt Protected							0.950				
Satd. Flow (prot)	0	5085	1583	0	6081	0	3433	0	3610	0	0
Flt Permitted							0.950				
Satd. Flow (perm)	0	5085	1583	0	6081	0	3433	0	3610	0	0
Right Turn on Red			Yes			No			Yes		
Satd. Flow (RTOR)			157						26		
Link Speed (mph)		40			40			30		30	
Link Distance (ft)		531			722			1284		1049	
Travel Time (s)		9.1			12.3			29.2		23.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95
Adj. Flow (vph)	0	2712	707	0	1691	881	402	0	1053	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	2712	707	0	2572	0	402	0	1053	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(ft)		0			24			24		0	
Link Offset(ft)		0			0			0		0	
Crosswalk Width(ft)		16			16			16		16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	15	9	15	9
Number of Detectors		2	1		2		1		1		
Detector Template		Thru	Right		Thru		Left		Right		
Leading Detector (ft)		100	20		100		20		20		
Trailing Detector (ft)		0	0		0		0		0		
Detector 1 Position(ft)		0	0		0		0		0		
Detector 1 Size(ft)		6	20		6		20		20		
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)		0.0	0.0		0.0		0.0		0.0		
Detector 1 Queue (s)		0.0	0.0		0.0		0.0		0.0		
Detector 1 Delay (s)		0.0	0.0		0.0		0.0		0.0		
Detector 2 Position(ft)		94			94						
Detector 2 Size(ft)		6			6						
Detector 2 Type		Cl+Ex			Cl+Ex						
Detector 2 Channel											
Detector 2 Extend (s)		0.0			0.0						
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		4			8		5		5		
Permitted Phases			Free								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Detector Phase		4			8		5		5		
Switch Phase											
Minimum Initial (s)		7.0			7.0		7.0		7.0		
Minimum Split (s)		138.6			138.6		13.4		13.4		
Total Split (s)		139.0			139.0		41.0		41.0		
Total Split (%)		77.2%			77.2%		22.8%		22.8%		
Maximum Green (s)		131.7			131.7		34.6		34.6		
Yellow Time (s)		4.0			4.0		4.4		4.4		
All-Red Time (s)		3.3			3.3		2.0		2.0		
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		
Total Lost Time (s)		7.3			7.3		6.4		6.4		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)		3.0			3.0		3.0		3.0		
Recall Mode		C-Max			C-Max		None		None		
Act Effct Green (s)		131.7	180.0		131.7		34.6		34.6		
Actuated g/C Ratio		0.73	1.00		0.73		0.19		0.19		
v/c Ratio		0.73	0.45		0.58		0.61		1.47		
Control Delay		29.0	0.3		27.8		71.0		266.5		
Queue Delay		47.2	0.0		0.3		0.0		0.0		
Total Delay		76.2	0.3		28.1		71.0		266.5		
LOS		E	A		C		E		F		
Approach Delay		60.5			28.1			212.5			
Approach LOS		E			C			F			

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 38 (21%), Referenced to phase 4:EBT and 8:WBT, Start of Green		
Natural Cycle: 155		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.47		
Intersection Signal Delay: 79.0	Intersection LOS: E	
Intersection Capacity Utilization 84.5%	ICU Level of Service E	
Analysis Period (min) 15		

Splits and Phases: 13: NB SR 826 Off Ramp & Bird Rd



Queues
13: NB SR 826 Off Ramp & Bird Rd

08/05/2019

Lane Group	EBT	EBR	WBT	NBL2	NBR
Lane Group Flow (vph)	2712	707	2572	402	1053
v/c Ratio	0.73	0.45	0.58	0.61	1.47
Control Delay	29.0	0.3	27.8	71.0	266.5
Queue Delay	47.2	0.0	0.3	0.0	0.0
Total Delay	76.2	0.3	28.1	71.0	266.5
Queue Length 50th (ft)	1056	0	660	227	~738
Queue Length 95th (ft)	1094	m0	811	288	#857
Internal Link Dist (ft)	451		642		
Turn Bay Length (ft)				300	300
Base Capacity (vph)	3720	1583	4449	659	714
Starvation Cap Reductn	1544	0	977	0	0
Spillback Cap Reductn	0	0	225	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.25	0.45	0.74	0.61	1.47

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 6th Signalized Intersection Summary
13: NB SR 826 Off Ramp & Bird Rd

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (veh/h)	0	2576	672	0	1606	837	382	0	1000	0	0
Future Volume (veh/h)	0	2576	672	0	1606	837	382	0	1000	0	0
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	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach		No			No			No			
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870		
Adj Flow Rate, veh/h	0	2712	0	0	1691	881	402	402	1053		
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	2	0	2	2	2	2	2		
Cap, veh/h	0	3736		0	3531	1160	664	664	695		
Arrive On Green	0.00	0.97	0.00	0.00	0.97	0.97	0.19	0.19	0.19		
Sat Flow, veh/h	0	5274	1585	0	5087	1585	3456	3456	3614		
Grp Volume(v), veh/h	0	2712	0	0	1691	881	402	402	1053		
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1585	1728	1728	1205		
Q Serve(g_s), s	0.0	8.8	0.0	0.0	3.2	10.3	19.1	19.1	34.6		
Cycle Q Clear(g_c), s	0.0	8.8	0.0	0.0	3.2	10.3	19.1	19.1	34.6		
Prop In Lane	0.00		1.00	0.00		1.00	1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	3736		0	3531	1160	664	664	695		
V/C Ratio(X)	0.00	0.73		0.00	0.48	0.76	0.61	0.61	1.52		
Avail Cap(c_a), veh/h	0	3736		0	3531	1160	664	664	695		
HCM Platoon Ratio	1.00	1.33	1.33	1.00	1.33	1.33	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.23	0.00	0.00	0.82	0.82	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.8	0.0	0.0	0.7	0.8	66.5	66.5	72.7		
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.4	3.9	1.6	1.6	239.5		
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	0.0	1.1	0.0	0.0	0.7	2.2	8.7	8.7	26.2		
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh	0.0	1.1	0.0	0.0	1.1	4.7	68.0	68.0	312.2		
LnGrp LOS	A	A		A	A	A	E	E	F		
Approach Vol, veh/h		2712	A		2572		1455	1455			
Approach Delay, s/veh		1.1			2.3		244.7	244.7			
Approach LOS		A			A		F	F			

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	41.0	139.0	139.0
Change Period (Y+Rc), s	6.4	* 7.3	* 7.3
Max Green Setting (Gmax), s	34.6	* 1.3E2	* 1.3E2
Max Q Clear Time (g_c+I1), s	36.6	10.8	12.3
Green Ext Time (p_c), s	0.0	68.8	54.5

Intersection Summary

HCM 6th Ctrl Delay	54.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

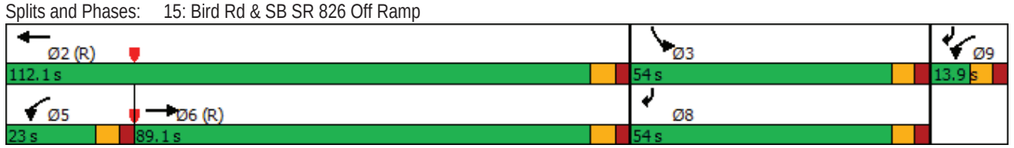
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2145	425	685	1303	0	0	0	0	1103	0	443
Future Volume (vph)	0	2145	425	685	1303	0	0	0	0	1103	0	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	350		650
Storage Lanes	0		0	3		0	0		0	2		1
Taper Length (ft)	25			25			25			100		
Lane Util. Factor	1.00	0.86	0.86	0.94	0.91	1.00	1.00	1.00	1.00	0.94	1.00	0.76
Frt		0.975										0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	6248	0	4990	5085	0	0	0	0	4990	0	3610
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	6248	0	4990	5085	0	0	0	0	4990	0	3610
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		36										
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		783			531			602			1309	
Travel Time (s)		13.3			9.1			13.7			29.8	
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
Adj. Flow (vph)	0	2282	452	729	1386	0	0	0	0	1173	0	471
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2734	0	729	1386	0	0	0	0	1173	0	471
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1		1
Detector Template		Thru		Left	Thru					Left		Right
Leading Detector (ft)		100		20	100					20		20
Trailing Detector (ft)		0		0	0					0		0
Detector 1 Position(ft)		0		0	0					0		0
Detector 1 Size(ft)		6		20	6					20		20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		6		5 9	2					3		8 9
Permitted Phases												

Lane Group	Ø5	Ø8	Ø9
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Detector 2 Position(ft)			
Detector 2 Size(ft)			
Detector 2 Type			
Detector 2 Channel			
Detector 2 Extend (s)			
Turn Type			
Protected Phases	5	8	9
Permitted Phases			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		6		5 9	2					3		8 9
Switch Phase												
Minimum Initial (s)		7.0			7.0					7.0		
Minimum Split (s)		25.0			25.0					13.9		
Total Split (s)		89.1			112.1					54.0		
Total Split (%)		49.5%			62.3%					30.0%		
Maximum Green (s)		82.1			105.1					47.1		
Yellow Time (s)		4.4			4.4					4.0		
All-Red Time (s)		2.6			2.6					2.9		
Lost Time Adjust (s)		0.0			0.0					0.0		
Total Lost Time (s)		7.0			7.0					6.9		
Lead/Lag		Lag										
Lead-Lag Optimize?		Yes										
Vehicle Extension (s)		3.0			3.0					3.0		
Recall Mode		C-Max			C-Max					None		
Act Effct Green (s)		82.5		30.7	105.1					45.9		61.0
Actuated g/C Ratio		0.46		0.17	0.58					0.26		0.34
v/c Ratio		0.95		0.86	0.47					0.92		0.39
Control Delay		47.9		77.4	37.3					77.5		46.4
Queue Delay		44.3		0.0	0.8					46.9		0.0
Total Delay		92.2		77.4	38.2					124.4		46.4
LOS		F		E	D					F		D
Approach Delay		92.2			51.7						102.0	
Approach LOS		F			D						F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 143 (79%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 81.5	Intersection LOS: F
Intersection Capacity Utilization 87.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 15: Bird Rd & SB SR 826 Off Ramp



Lane Group	Ø5	Ø8	Ø9
Detector Phase			
Switch Phase			
Minimum Initial (s)	5.0	7.0	7.0
Minimum Split (s)	12.0	24.9	13.9
Total Split (s)	23.0	54.0	13.9
Total Split (%)	13%	30%	8%
Maximum Green (s)	16.0	47.1	7.0
Yellow Time (s)	4.4	4.0	4.0
All-Red Time (s)	2.6	2.9	2.9
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead		
Lead-Lag Optimize?	Yes		
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

Queues
15: Bird Rd & SB SR 826 Off Ramp

08/05/2019

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	2734	729	1386	1173	471
v/c Ratio	0.95	0.86	0.47	0.92	0.39
Control Delay	47.9	77.4	37.3	77.5	46.4
Queue Delay	44.3	0.0	0.8	46.9	0.0
Total Delay	92.2	77.4	38.2	124.4	46.4
Queue Length 50th (ft)	801	321	420	479	186
Queue Length 95th (ft)	869	#373	527	539	232
Internal Link Dist (ft)	703		451		
Turn Bay Length (ft)				350	650
Base Capacity (vph)	2883	861	2969	1305	1192
Starvation Cap Reductn	20	0	1163	0	0
Spillback Cap Reductn	467	0	0	311	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.13	0.85	0.77	1.18	0.40

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
15: Bird Rd & SB SR 826 Off Ramp

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2145	425	685	1303	0	0	0	0	1103	0	443
Future Volume (vph)	0	2145	425	685	1303	0	0	0	0	1103	0	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0					6.9		6.9
Lane Util. Factor		0.86		0.94	0.91					0.94		0.76
Frt		0.98		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		6249		4990	5085					4990		3610
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		6249		4990	5085					4990		3610
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)	0	2282	452	729	1386	0	0	0	0	1173	0	471
RTOR Reduction (vph)	0	20	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2715	0	729	1386	0	0	0	0	1173	0	471
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		6		5 9	2					3		8 9
Permitted Phases												
Actuated Green, G (s)		82.5		30.7	105.1					45.9		61.0
Effective Green, g (s)		82.5		23.8	105.1					45.9		61.0
Actuated g/C Ratio		0.46		0.13	0.58					0.25		0.34
Clearance Time (s)		7.0			7.0					6.9		
Vehicle Extension (s)		3.0			3.0					3.0		
Lane Grp Cap (vph)		2864		659	2969					1272		1223
v/s Ratio Prot		c0.43		c0.15	0.27					c0.24		0.13
v/s Ratio Perm												
v/c Ratio		0.95		1.11	0.47					0.92		0.39
Uniform Delay, d1		46.7		78.1	21.4					65.3		45.2
Progression Factor		0.87		0.94	1.71					1.00		1.00
Incremental Delay, d2		7.7		65.0	0.4					11.1		0.2
Delay (s)		48.3		138.5	37.1					76.4		45.4
Level of Service		D		F	D					E		D
Approach Delay (s)		48.3			72.1		0.0			67.5		
Approach LOS		D			E		A			E		

Intersection Summary

HCM 2000 Control Delay	60.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	1607	20	130	2422	232	16	11	67	163	34	65
Future Volume (vph)	104	1607	20	130	2422	232	16	11	67	163	34	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325		0	265		0	0		0	150		0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (ft)	100			100			25			75		
Lane Util. Factor	1.00	0.86	0.86	0.97	0.86	0.86	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.998			0.987				0.850		0.924	
Flt Protected	0.950			0.950			0.950			0.950	0.989	
Satd. Flow (prot)	1770	6395	0	3433	6325	0	1770	1863	1583	1681	1617	0
Flt Permitted	0.950			0.950			0.950			0.950	0.989	
Satd. Flow (perm)	1770	6395	0	3433	6325	0	1770	1863	1583	1681	1617	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			17				73		23	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		363			687			1051			1028	
Travel Time (s)		6.2			11.7			23.9			23.4	
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
Adj. Flow (vph)	106	1640	20	133	2471	237	16	11	68	166	35	66
Shared Lane Traffic (%)										18%		
Lane Group Flow (vph)	106	1660	0	133	2708	0	16	11	68	136	131	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4	4 5	3	3	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.0	30.0		12.0	30.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	103.0		19.0	96.0		26.0	26.0		32.0	32.0	
Total Split (%)	14.4%	57.2%		10.6%	53.3%		14.4%	14.4%		17.8%	17.8%	
Maximum Green (s)	19.0	96.0		12.0	89.0		18.0	18.0		24.0	24.0	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		18.0			18.0		13.0	13.0		10.0	10.0	
Pedestrian Calls (#/hr)		0			0		3	3		8	8	
Act Effct Green (s)	15.5	109.8		11.6	105.9		9.4	9.4	28.0	19.2	19.2	
Actuated g/C Ratio	0.09	0.61		0.06	0.59		0.05	0.05	0.16	0.11	0.11	
v/c Ratio	0.70	0.43		0.60	0.73		0.17	0.11	0.22	0.76	0.68	
Control Delay	102.9	19.7		104.0	18.7		83.6	81.2	11.5	103.3	80.6	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.0	0.0	0.0	0.0	
Total Delay	102.9	19.7		104.0	18.9		83.6	81.2	11.5	103.3	80.6	
LOS	F	B		F	B		F	F	B	F	F	
Approach Delay		24.7			22.9			31.7			92.2	
Approach LOS		C			C			C			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 110 (61%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 125			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 27.4		Intersection LOS: C	
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: SW 79 Ave & Bird Rd



Queues
3: SW 79 Ave & Bird Rd

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	106	1660	133	2708	16	11	68	136	131
v/c Ratio	0.70	0.43	0.60	0.73	0.17	0.11	0.22	0.76	0.68
Control Delay	102.9	19.7	104.0	18.7	83.6	81.2	11.5	103.3	80.6
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	102.9	19.7	104.0	18.9	83.6	81.2	11.5	103.3	80.6
Queue Length 50th (ft)	124	285	84	358	19	13	0	167	131
Queue Length 95th (ft)	195	383	125	752	46	35	42	248	211
Internal Link Dist (ft)		283		607		971			948
Turn Bay Length (ft)	325		265					150	
Base Capacity (vph)	186	3901	236	3726	177	186	314	224	235
Starvation Cap Reductn	0	0	0	250	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	0.57	0.43	0.56	0.78	0.09	0.06	0.22	0.61	0.56

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: SW 79 Ave & Bird Rd

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	1607	20	130	2422	232	16	11	67	163	34	65
Future Volume (vph)	104	1607	20	130	2422	232	16	11	67	163	34	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		8.0	8.0	8.0	8.0	8.0	
Lane Util. Factor	1.00	0.86		0.97	0.86		1.00	1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.99	
Satd. Flow (prot)	1770	6396		3433	6324		1770	1863	1583	1681	1617	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.99	
Satd. Flow (perm)	1770	6396		3433	6324		1770	1863	1583	1681	1617	
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)	106	1640	20	133	2471	237	16	11	68	166	35	66
RTOR Reduction (vph)	0	1	0	0	7	0	0	0	57	0	21	0
Lane Group Flow (vph)	106	1659	0	133	2701	0	16	11	11	136	110	0
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												
Actuated Green, G (s)	15.5	109.8		11.6	105.9		9.4	9.4	29.0	19.2	19.2	
Effective Green, g (s)	15.5	109.8		11.6	105.9		9.4	9.4	29.0	19.2	19.2	
Actuated g/C Ratio	0.09	0.61		0.06	0.59		0.05	0.05	0.16	0.11	0.11	
Clearance Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	3901		221	3720		92	97	255	179	172	
v/s Ratio Prot	c0.06	c0.26		0.04	c0.43		c0.01	0.01	0.01	c0.08	0.07	
v/s Ratio Perm												
v/c Ratio	0.70	0.43		0.60	0.73		0.17	0.11	0.04	0.76	0.64	
Uniform Delay, d1	80.0	18.5		82.0	26.6		81.6	81.3	63.8	78.2	77.1	
Progression Factor	1.00	1.00		1.16	0.63		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.0	0.3		3.5	1.0		0.9	0.5	0.1	16.8	7.9	
Delay (s)	93.0	18.8		98.4	17.7		82.5	81.8	63.8	95.0	85.1	
Level of Service	F	B		F	B		F	F	E	F	F	
Approach Delay (s)		23.3			21.5			69.1			90.1	
Approach LOS		C			C			E			F	

Intersection Summary			
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

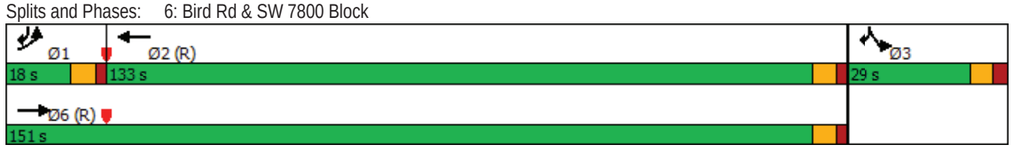
c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	74	1763	2658	318	190	111
Future Volume (vph)	74	1763	2658	318	190	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230			0	0	100
Storage Lanes	2			0	2	1
Taper Length (ft)	100				25	
Lane Util. Factor	0.97	0.86	0.86	0.86	0.97	1.00
Frt			0.984			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	6408	6305	0	3433	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	6408	6305	0	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			39			5
Link Speed (mph)		40	40		30	
Link Distance (ft)		687	783		1012	
Travel Time (s)		11.7	13.3		23.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	76	1818	2740	328	196	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	1818	3068	0	196	114
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		3	3 1
Permitted Phases						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2		3	3 1
Switch Phase						
Minimum Initial (s)	5.0	7.0	7.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		25.0	
Total Split (s)	18.0	151.0	133.0		29.0	
Total Split (%)	10.0%	83.9%	73.9%		16.1%	
Maximum Green (s)	11.6	144.6	126.6		22.0	
Yellow Time (s)	4.4	4.4	4.4		4.0	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		7.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	9.3	150.0	134.3		16.6	32.3
Actuated g/C Ratio	0.05	0.83	0.75		0.09	0.18
v/c Ratio	0.43	0.34	0.65		0.62	0.40
Control Delay	116.1	1.3	10.2		87.0	65.3
Queue Delay	0.0	0.0	0.1		0.0	0.0
Total Delay	116.1	1.4	10.4		87.0	65.3
LOS	F	A	B		F	E
Approach Delay		6.0	10.4		79.0	
Approach LOS		A	B		E	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 99 (55%), Referenced to phase 2:WBT and 6:EBT, Start of Green		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.65		
Intersection Signal Delay: 12.8		Intersection LOS: B
Intersection Capacity Utilization 61.9%		ICU Level of Service B
Analysis Period (min) 15		

Splits and Phases: 6: Bird Rd & SW 7800 Block



Queues
6: Bird Rd & SW 7800 Block

08/05/2019

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	76	1818	3068	196	114
v/c Ratio	0.43	0.34	0.65	0.62	0.40
Control Delay	116.1	1.3	10.2	87.0	65.3
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	116.1	1.4	10.4	87.0	65.3
Queue Length 50th (ft)	48	29	375	117	115
Queue Length 95th (ft)	m80	50	571	158	176
Internal Link Dist (ft)		607	703	932	
Turn Bay Length (ft)	230				100
Base Capacity (vph)	221	5341	4715	419	298
Starvation Cap Reductn	0	889	487	0	0
Spillback Cap Reductn	0	29	143	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.41	0.73	0.47	0.38

Intersection Summary

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

HCM 6th Signalized Intersection Summary
6: Bird Rd & SW 7800 Block

08/05/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	74	1763	2658	318	190	111
Future Volume (veh/h)	74	1763	2658	318	190	111
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	1818	2740	328	196	114
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	112	5419	4554	535	288	183
Arrive On Green	0.06	1.00	1.00	1.00	0.08	0.08
Sat Flow, veh/h	3456	6696	6142	691	3456	1585
Grp Volume(v), veh/h	76	1818	2239	829	196	114
Grp Sat Flow(s),veh/h/ln	1728	1609	1609	1746	1728	1585
Q Serve(g_s), s	3.9	0.0	0.0	0.0	9.9	12.3
Cycle Q Clear(g_c), s	3.9	0.0	0.0	0.0	9.9	12.3
Prop In Lane	1.00			0.40	1.00	1.00
Lane Grp Cap(c), veh/h	112	5419	3737	1352	288	183
V/C Ratio(X)	0.68	0.34	0.60	0.61	0.68	0.62
Avail Cap(c_a), veh/h	223	5419	3737	1352	422	245
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.59	0.59	1.00	1.00
Uniform Delay (d), s/veh	83.3	0.0	0.0	0.0	80.2	75.9
Incr Delay (d2), s/veh	6.4	0.2	0.4	1.2	2.8	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.1	0.1	0.5	4.6	5.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	89.7	0.2	0.4	1.2	83.0	79.3
LnGrp LOS	F	A	A	A	F	E
Approach Vol, veh/h		1894	3068		310	
Approach Delay, s/veh		3.7	0.6		81.7	
Approach LOS		A	A		F	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.2	145.8			158.0	22.0
Change Period (Y+Rc), s	6.4	6.4			6.4	7.0
Max Green Setting (Gmax), s	11.6	126.6			144.6	22.0
Max Q Clear Time (g_c+I1), s	5.9	2.0			2.0	14.3
Green Ext Time (p_c), s	0.1	77.5			25.1	0.6

Intersection Summary

HCM 6th Ctrl Delay	6.5
HCM 6th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	2112	146	124	2255	71	246	209	202	81	173	379
Future Volume (vph)	120	2112	146	124	2255	71	246	209	202	81	173	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	360		0	330		0	300		0	220		250
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	50			50			50			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.990			0.995			0.926				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5034	0	1770	5060	0	1770	3277	0	1770	1863	1583
Flt Permitted	0.043			0.043			0.386			0.458		
Satd. Flow (perm)	80	5034	0	80	5060	0	719	3277	0	853	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			4			129				141
Link Speed (mph)		40			40			30			35	
Link Distance (ft)		1360			1024			1071			1022	
Travel Time (s)		23.2			17.5			24.3			19.9	
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
Adj. Flow (vph)	121	2133	147	125	2278	72	248	211	204	82	175	383
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	2280	0	125	2350	0	248	415	0	82	175	383
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	7.0
Minimum Split (s)	11.4	24.4		11.4	24.4		11.7	30.7		11.7	24.7	24.7
Total Split (s)	18.0	96.0		19.0	97.0		23.0	51.1		13.9	42.0	42.0
Total Split (%)	10.0%	53.3%		10.6%	53.9%		12.8%	28.4%		7.7%	23.3%	23.3%
Maximum Green (s)	11.6	89.6		12.6	90.6		16.3	44.4		7.2	35.3	35.3
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	2.7
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)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			5.0				
Flash Dont Walk (s)		11.0			11.0			19.0				
Pedestrian Calls (#/hr)		5			5			0				
Act Effct Green (s)	104.2	93.3		105.4	93.9		55.7	41.8		39.9	32.7	32.7
Actuated g/C Ratio	0.58	0.52		0.59	0.52		0.31	0.23		0.22	0.18	0.18
v/c Ratio	0.82	0.87		0.81	0.89		0.78	0.48		0.36	0.52	0.95
Control Delay	89.4	32.0		77.9	44.2		68.6	41.9		51.0	71.8	79.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	89.4	32.0		77.9	44.2		68.6	41.9		51.0	71.8	79.0
LOS	F	C		E	D		E	D		D	E	E
Approach Delay		34.9			45.9			51.9			73.5	
Approach LOS		C			D			D			E	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 135 (75%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green		
Natural Cycle: 110		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.95		
Intersection Signal Delay: 45.1	Intersection LOS: D	
Intersection Capacity Utilization 98.7%	ICU Level of Service F	
Analysis Period (min) 15		

Splits and Phases: 8: SW 72 Ave & Bird Rd



Queues
8: SW 72 Ave & Bird Rd

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	121	2280	125	2350	248	415	82	175	383
v/c Ratio	0.82	0.87	0.81	0.89	0.78	0.48	0.36	0.52	0.95
Control Delay	89.4	32.0	77.9	44.2	68.6	41.9	51.0	71.8	79.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.4	32.0	77.9	44.2	68.6	41.9	51.0	71.8	79.0
Queue Length 50th (ft)	110	851	97	929	232	151	69	186	300
Queue Length 95th (ft)	m#160	830	#204	995	324	210	116	272	#501
Internal Link Dist (ft)		1280		944		991		942	
Turn Bay Length (ft)	360		330		300		220		250
Base Capacity (vph)	155	2612	165	2641	318	905	226	365	423
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	0.78	0.87	0.76	0.89	0.78	0.46	0.36	0.48	0.91

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 6th Signalized Intersection Summary
8: SW 72 Ave & Bird Rd

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	2112	146	124	2255	71	246	209	202	81	173	379
Future Volume (veh/h)	120	2112	146	124	2255	71	246	209	202	81	173	379
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	121	2133	147	125	2278	72	248	211	204	82	175	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	154	3020	207	208	3147	99	220	281	250	144	201	
Arrive On Green	0.08	1.00	1.00	0.04	0.62	0.62	0.09	0.16	0.16	0.04	0.11	0.00
Sat Flow, veh/h	1781	4880	334	1781	5085	160	1781	1777	1585	1781	1870	1585
Grp Volume(v), veh/h	121	1483	797	125	1522	828	248	211	204	82	175	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1810	1781	1702	1842	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	4.7	0.0	0.0	4.7	55.5	56.1	16.3	20.4	22.4	7.2	16.6	0.0
Cycle Q Clear(g_c), s	4.7	0.0	0.0	4.7	55.5	56.1	16.3	20.4	22.4	7.2	16.6	0.0
Prop In Lane	1.00		0.18	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	154	2106	1120	208	2107	1140	220	281	250	144	201	
V/C Ratio(X)	0.79	0.70	0.71	0.60	0.72	0.73	1.13	0.75	0.81	0.57	0.87	
Avail Cap(c_a), veh/h	202	2106	1120	266	2107	1140	220	438	391	144	367	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.58	0.58	0.58	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.4	0.0	0.0	11.4	23.6	23.8	68.2	72.4	73.2	69.4	79.1	0.0
Incr Delay (d2), s/veh	8.6	1.2	2.3	2.8	2.2	4.1	99.4	4.0	7.3	5.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.3	0.7	2.0	22.3	25.0	8.4	9.7	9.7	3.6	8.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	1.2	2.3	14.2	25.8	27.8	167.6	76.4	80.5	74.7	90.0	0.0
LnGrp LOS	D	A	A	B	C	C	F	E	F	E	F	
Approach Vol, veh/h		2401			2475			663			257	A
Approach Delay, s/veh		3.6			25.9			111.8			85.1	
Approach LOS		A			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.2	117.8	13.9	35.1	13.2	117.8	23.0	26.0
Change Period (Y+Rc), s	6.4	6.4	* 6.7	* 6.7	6.4	6.4	* 6.7	* 6.7
Max Green Setting (Gmax), s	11.6	90.6	* 7.2	* 44	12.6	89.6	* 16	* 35
Max Q Clear Time (g_c+I1), s	6.7	58.1	9.2	24.4	6.7	2.0	18.3	18.6
Green Ext Time (p_c), s	0.1	22.8	0.0	2.5	0.1	36.9	0.0	0.8

Intersection Summary

HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2394	0	0	2872	780	36
Future Volume (vph)	2394	0	0	2872	780	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.95
Frt					0.993	
Flt Protected					0.954	
Satd. Flow (prot)	5085	0	0	5085	3423	0
Flt Permitted					0.954	
Satd. Flow (perm)	5085	0	0	5085	3423	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					3	
Link Speed (mph)	40			40	30	
Link Distance (ft)	722			1360	1047	
Travel Time (s)	12.3			23.2	23.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2520	0	0	3023	821	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2520	0	0	3023	859	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Right	Left	Right
Median Width(ft)	12			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (ft)	100			100	20	
Trailing Detector (ft)	0			0	0	
Detector 1 Position(ft)	0			0	0	
Detector 1 Size(ft)	6			6	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Detector Phase	2			2	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	25.2			25.2	24.8	
Total Split (s)	124.0			124.0	56.0	
Total Split (%)	68.9%			68.9%	31.1%	
Maximum Green (s)	117.6			117.6	49.2	
Yellow Time (s)	4.4			4.4	4.0	
All-Red Time (s)	2.0			2.0	2.8	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.4			6.4	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	3			3	3	
Act Effct Green (s)	119.0			119.0	47.8	
Actuated g/C Ratio	0.66			0.66	0.27	
v/c Ratio	0.75			0.90	0.94	
Control Delay	22.1			11.3	82.9	
Queue Delay	0.0			0.4	0.0	
Total Delay	22.1			11.7	82.9	
LOS	C			B	F	
Approach Delay	22.1			11.7	82.9	
Approach LOS	C			B	F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 128 (71%), Referenced to phase 2:EBWB, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 25.4		Intersection LOS: C	
Intersection Capacity Utilization 89.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 11: SW 74 Ave & Bird Rd



Queues
11: SW 74 Ave & Bird Rd

08/05/2019

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	2520	3023	859
v/c Ratio	0.75	0.90	0.94
Control Delay	22.1	11.3	82.9
Queue Delay	0.0	0.4	0.0
Total Delay	22.1	11.7	82.9
Queue Length 50th (ft)	567	289	510
Queue Length 95th (ft)	586	312	#627
Internal Link Dist (ft)	642	1280	967
Turn Bay Length (ft)			
Base Capacity (vph)	3361	3361	937
Starvation Cap Reductn	30	0	0
Spillback Cap Reductn	0	79	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.76	0.92	0.92

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

HCM Signalized Intersection Capacity Analysis
11: SW 74 Ave & Bird Rd

08/05/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2394	0	0	2872	780	36
Future Volume (vph)	2394	0	0	2872	780	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4			6.4	6.8	
Lane Util. Factor	0.91			0.91	0.97	
Frt	1.00			1.00	0.99	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	5085			5085	3426	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	5085			5085	3426	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2520	0	0	3023	821	38
RTOR Reduction (vph)	0	0	0	0	2	0
Lane Group Flow (vph)	2520	0	0	3023	857	0
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Actuated Green, G (s)	119.0			119.0	47.8	
Effective Green, g (s)	119.0			119.0	47.8	
Actuated g/C Ratio	0.66			0.66	0.27	
Clearance Time (s)	6.4			6.4	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3361			3361	909	
v/s Ratio Prot	0.50			c0.59	c0.25	
v/s Ratio Perm						
v/c Ratio	0.75			0.90	0.94	
Uniform Delay, d1	20.5			25.5	64.8	
Progression Factor	1.00			0.34	1.00	
Incremental Delay, d2	1.3			2.3	17.5	
Delay (s)	21.7			11.0	82.3	
Level of Service	C			B	F	
Approach Delay (s)	21.7			11.0	82.3	
Approach LOS	C			B	F	

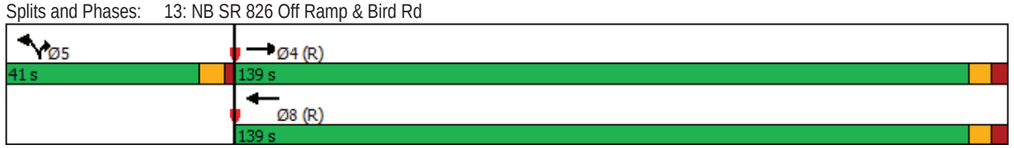
Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	1858	393	0	2751	813	537	0	675	0	0
Future Volume (vph)	0	1858	393	0	2751	813	537	0	675	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0		300	300	0	0
Storage Lanes	0		1	0		0		1	1	0	0
Taper Length (ft)	25			25				25		25	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.86	0.86	0.97	1.00	0.76	1.00	1.00
Frt			0.850		0.966				0.850		
Flt Protected							0.950				
Satd. Flow (prot)	0	5085	1583	0	6190	0	3433	0	3610	0	0
Flt Permitted							0.950				
Satd. Flow (perm)	0	5085	1583	0	6190	0	3433	0	3610	0	0
Right Turn on Red			Yes			No			Yes		
Satd. Flow (RTOR)			127						75		
Link Speed (mph)		40			40			30		30	
Link Distance (ft)		531			722			1285		1123	
Travel Time (s)		9.1			12.3			29.2		25.5	
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
Adj. Flow (vph)	0	1896	401	0	2807	830	548	0	689	0	0
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	1896	401	0	3637	0	548	0	689	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right
Median Width(ft)		0			24			24		0	
Link Offset(ft)		0			0			0		0	
Crosswalk Width(ft)		16			16			16		16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	15	9	15	9
Number of Detectors		2	1		2		1		1		
Detector Template		Thru	Right		Thru		Left		Right		
Leading Detector (ft)		100	20		100		20		20		
Trailing Detector (ft)		0	0		0		0		0		
Detector 1 Position(ft)		0	0		0		0		0		
Detector 1 Size(ft)		6	20		6		20		20		
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		
Detector 1 Channel											
Detector 1 Extend (s)		0.0	0.0		0.0		0.0		0.0		
Detector 1 Queue (s)		0.0	0.0		0.0		0.0		0.0		
Detector 1 Delay (s)		0.0	0.0		0.0		0.0		0.0		
Detector 2 Position(ft)		94			94						
Detector 2 Size(ft)		6			6						
Detector 2 Type		Cl+Ex			Cl+Ex						
Detector 2 Channel											
Detector 2 Extend (s)		0.0			0.0						
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		4			8		5		5		
Permitted Phases			Free								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Detector Phase		4			8		5		5		
Switch Phase											
Minimum Initial (s)		7.0			7.0		7.0		7.0		
Minimum Split (s)		138.6			138.6		13.4		13.4		
Total Split (s)		139.0			139.0		41.0		41.0		
Total Split (%)		77.2%			77.2%		22.8%		22.8%		
Maximum Green (s)		131.7			131.7		34.6		34.6		
Yellow Time (s)		4.0			4.0		4.4		4.4		
All-Red Time (s)		3.3			3.3		2.0		2.0		
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		
Total Lost Time (s)		7.3			7.3		6.4		6.4		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)		3.0			3.0		3.0		3.0		
Recall Mode		C-Max			C-Max		None		None		
Act Effct Green (s)		132.4	180.0		132.4		33.9		33.9		
Actuated g/C Ratio		0.74	1.00		0.74		0.19		0.19		
v/c Ratio		0.51	0.25		0.80		0.85		0.93		
Control Delay		1.7	0.2		11.7		83.7		83.4		
Queue Delay		0.2	0.0		2.6		52.1		0.0		
Total Delay		1.8	0.2		14.3		135.8		83.4		
LOS		A	A		B		F		F		
Approach Delay		1.6			14.3			106.6			
Approach LOS		A			B			F			

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 136 (76%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 155	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 26.1	Intersection LOS: C
Intersection Capacity Utilization 78.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 13: NB SR 826 Off Ramp & Bird Rd



Queues
13: NB SR 826 Off Ramp & Bird Rd

08/05/2019

Lane Group	EBT	EBR	WBT	NBL2	NBR
Lane Group Flow (vph)	1896	401	3637	548	689
v/c Ratio	0.51	0.25	0.80	0.85	0.93
Control Delay	1.7	0.2	11.7	83.7	83.4
Queue Delay	0.2	0.0	2.6	52.1	0.0
Total Delay	1.8	0.2	14.3	135.8	83.4
Queue Length 50th (ft)	32	0	483	325	320
Queue Length 95th (ft)	34	m0	606	398	#414
Internal Link Dist (ft)	451		642		
Turn Bay Length (ft)				300	300
Base Capacity (vph)	3740	1583	4554	659	754
Starvation Cap Reductn	718	0	771	0	0
Spillback Cap Reductn	0	0	76	223	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.63	0.25	0.96	1.26	0.91

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 6th Signalized Intersection Summary
13: NB SR 826 Off Ramp & Bird Rd

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (veh/h)	0	1858	393	0	2751	813	537	0	675	0	0
Future Volume (veh/h)	0	1858	393	0	2751	813	537	0	675	0	0
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	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach		No			No			No			
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870		
Adj Flow Rate, veh/h	0	1896	0	0	2807	830	548	548	689		
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	0	2	2	2	2	2		
Cap, veh/h	0	3736		0	3722	997	664	664	695		
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.19	0.19	0.19		
Sat Flow, veh/h	0	5274	1585	0	5349	1363	3456	3456	3614		
Grp Volume(v), veh/h	0	1896	0	0	2647	990	548	548	689		
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1625	1728	1728	1205		
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	27.4	27.4	34.3		
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	27.4	27.4	34.3		
Prop In Lane	0.00		1.00	0.00		0.84	1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	3736		0	3531	1189	664	664	695		
V/C Ratio(X)	0.00	0.51		0.00	0.75	0.83	0.82	0.82	0.99		
Avail Cap(c_a), veh/h	0	3736		0	3531	1189	664	664	695		
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.48	0.00	0.00	0.30	0.30	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	69.8	69.8	72.6		
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.5	2.2	8.4	8.4	32.0		
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	0.0	0.1	0.0	0.0	0.1	0.7	13.0	13.0	12.7		
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh	0.0	0.2	0.0	0.0	0.5	2.2	78.2	78.2	104.6		
LnGrp LOS	A	A		A	A	A	E	E	F		
Approach Vol, veh/h		1896	A		3637		1237	1237			
Approach Delay, s/veh		0.2			0.9		92.9	92.9			
Approach LOS		A			A		F	F			

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	41.0	139.0	139.0
Change Period (Y+Rc), s	6.4	* 7.3	* 7.3
Max Green Setting (Gmax), s	34.6	* 1.3E2	* 1.3E2
Max Q Clear Time (g_c+I1), s	36.3	2.0	2.0
Green Ext Time (p_c), s	0.0	27.7	107.1

Intersection Summary

HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Notes

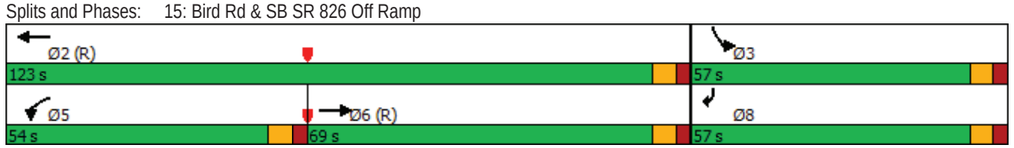
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1537	416	1195	2093	0	0	0	0	714	0	908
Future Volume (vph)	0	1537	416	1195	2093	0	0	0	0	714	0	908
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	350		650
Storage Lanes	0		0	3		0	0		0	2		1
Taper Length (ft)	25			25			25			100		
Lane Util. Factor	1.00	0.86	0.86	0.94	0.91	1.00	1.00	1.00	1.00	0.94	1.00	0.76
Frt		0.968										0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	6203	0	4990	5085	0	0	0	0	4990	0	3610
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	6203	0	4990	5085	0	0	0	0	4990	0	3610
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		41										
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		783			531			599			1309	
Travel Time (s)		13.3			9.1			13.6			29.8	
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
Adj. Flow (vph)	0	1585	429	1232	2158	0	0	0	0	736	0	936
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2014	0	1232	2158	0	0	0	0	736	0	936
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1		1
Detector Template		Thru		Left	Thru					Left		Right
Leading Detector (ft)		100		20	100					20		20
Trailing Detector (ft)		0		0	0					0		0
Detector 1 Position(ft)		0		0	0					0		0
Detector 1 Size(ft)		6		20	6					20		20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Prot	NA					Prot		Prot
Protected Phases		6		5	2					3		8
Permitted Phases												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		6		5	2					3		8
Switch Phase												
Minimum Initial (s)		7.0		5.0	7.0					7.0		7.0
Minimum Split (s)		25.0		12.0	25.0					13.9		24.9
Total Split (s)		69.0		54.0	123.0					57.0		57.0
Total Split (%)		38.3%		30.0%	68.3%					31.7%		31.7%
Maximum Green (s)		62.0		47.0	116.0					50.1		50.1
Yellow Time (s)		4.4		4.4	4.4					4.0		4.0
All-Red Time (s)		2.6		2.6	2.6					2.9		2.9
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		7.0		7.0	7.0					6.9		6.9
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0		3.0
Recall Mode		C-Max		None	C-Max					None		None
Act Effct Green (s)		63.3		46.5	116.9					49.2		49.2
Actuated g/C Ratio		0.35		0.26	0.65					0.27		0.27
v/c Ratio		0.91		0.96	0.65					0.54		0.95
Control Delay		57.0		91.2	15.2					57.3		82.3
Queue Delay		0.0		32.2	1.6					0.0		0.0
Total Delay		57.0		123.4	16.8					57.3		82.3
LOS		E		F	B					E		F
Approach Delay		57.0			55.5						71.3	
Approach LOS		E			E						E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 159 (88%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 59.7	Intersection LOS: E
Intersection Capacity Utilization 80.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 15: Bird Rd & SB SR 826 Off Ramp



Queues
15: Bird Rd & SB SR 826 Off Ramp

08/05/2019

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	2014	1232	2158	736	936
v/c Ratio	0.91	0.96	0.65	0.54	0.95
Control Delay	57.0	91.2	15.2	57.3	82.3
Queue Delay	0.0	32.2	1.6	0.0	0.0
Total Delay	57.0	123.4	16.8	57.3	82.3
Queue Length 50th (ft)	675	516	421	263	476
Queue Length 95th (ft)	720	#594	438	309	#582
Internal Link Dist (ft)	703		451		
Turn Bay Length (ft)				350	650
Base Capacity (vph)	2209	1302	3302	1388	1004
Starvation Cap Reductn	3	152	894	0	0
Spillback Cap Reductn	0	0	37	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.91	1.07	0.90	0.53	0.93

Intersection Summary

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

HCM 6th Signalized Intersection Summary
15: Bird Rd & SB SR 826 Off Ramp

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1537	416	1195	2093	0	0	0	0	714	0	908
Future Volume (veh/h)	0	1537	416	1195	2093	0	0	0	0	714	0	908
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1585	0	1232	2158	0				736	0	936
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	2	2	2	0				2	0	2
Cap, veh/h	0	2283		1280	3311	0				1378	0	991
Arrive On Green	0.00	0.12	0.00	0.51	1.00	0.00				0.27	0.00	0.27
Sat Flow, veh/h	0	6958	0	5023	5274	0				5023	0	3614
Grp Volume(v), veh/h	0	1585	0	1232	2158	0				736	0	936
Grp Sat Flow(s),veh/h/ln	0	1609	0	1674	1702	0				1674	0	1205
Q Serve(g_s), s	0.0	42.6	0.0	42.5	0.0	0.0				22.4	0.0	45.7
Cycle Q Clear(g_c), s	0.0	42.6	0.0	42.5	0.0	0.0				22.4	0.0	45.7
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2283		1280	3311	0				1378	0	991
V/C Ratio(X)	0.00	0.69		0.96	0.65	0.00				0.53	0.00	0.94
Avail Cap(c_a), veh/h	0	2283		1312	3311	0				1398	0	1006
HCM Platoon Ratio	1.00	0.33	0.33	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.94	0.00	0.49	0.49	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	70.1	0.0	43.3	0.0	0.0				55.5	0.0	64.0
Incr Delay (d2), s/veh	0.0	1.7	0.0	10.1	0.5	0.0				0.4	0.0	16.5
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	0.0	18.8	0.0	15.6	0.2	0.0				9.7	0.0	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	71.7	0.0	53.4	0.5	0.0				55.9	0.0	80.5
LnGrp LOS	A	E		D	A	A				E	A	F
Approach Vol, veh/h		1585	A		3390						1672	
Approach Delay, s/veh		71.7			19.7						69.7	
Approach LOS		E			B						E	

Timer - Assigned Phs	2		5	6	8			
Phs Duration (G+Y+Rc), s	123.7		52.9	70.9	56.3			
Change Period (Y+Rc), s	7.0		7.0	7.0	6.9			
Max Green Setting (Gmax), s	116.0		47.0	62.0	50.1			
Max Q Clear Time (g_c+I1), s	2.0		44.5	44.6	47.7			
Green Ext Time (p_c), s	37.8		1.4	10.2	1.7			

Intersection Summary								
HCM 6th Ctrl Delay		44.7						
HCM 6th LOS		D						

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	1250	58	84	1408	106	63	209	116	136	158	94
Future Volume (vph)	65	1250	58	84	1408	106	63	209	116	136	158	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265		0	280		0	135		135	110		40
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.989				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5050	0	1770	5029	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5050	0	1770	5029	0	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			8				96			59
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1042			1312			1017			1087	
Travel Time (s)		17.8			22.4			19.8			21.2	
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
Adj. Flow (vph)	70	1344	62	90	1514	114	68	225	125	146	170	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	1406	0	90	1628	0	68	225	125	146	170	101
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4	5	3	8	1
Permitted Phases									4			8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.6	33.6		11.6	33.6		11.1	31.1	11.6	11.1	31.1	11.6
Total Split (s)	22.1	81.0		25.0	83.9		20.2	42.0	25.0	32.0	53.8	22.1
Total Split (%)	12.3%	45.0%		13.9%	46.6%		11.2%	23.3%	13.9%	17.8%	29.9%	12.3%
Maximum Green (s)	15.5	74.4		18.4	77.3		14.1	35.9	18.4	25.9	47.7	15.5
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.2	2.2		2.2	2.2		2.1	2.1	2.2	2.1	2.1	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6		6.6	6.6		6.1	6.1	6.6	6.1	6.1	6.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Walk Time (s)		7.0			7.0			5.0			5.0	
Flash Dont Walk (s)		20.0			20.0			20.0			20.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	12.3	93.4		14.4	95.4		11.7	27.0	47.4	19.9	35.1	53.6
Actuated g/C Ratio	0.07	0.52		0.08	0.53		0.06	0.15	0.26	0.11	0.20	0.30
v/c Ratio	0.58	0.54		0.64	0.61		0.60	0.81	0.26	0.75	0.47	0.20
Control Delay	99.4	31.7		108.7	21.6		102.2	95.0	14.2	99.8	67.0	19.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.4	31.7		108.7	21.6		102.2	95.0	14.2	99.8	67.0	19.1
LOS	F	C		F	C		F	F	B	F	E	B
Approach Delay		34.9			26.2			72.0			66.9	
Approach LOS		C			C			E			E	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 31 (17%), Referenced to phase 2:WBT and 6:EBT, Start of Green		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.81		
Intersection Signal Delay: 38.3	Intersection LOS: D	
Intersection Capacity Utilization 73.4%	ICU Level of Service D	
Analysis Period (min) 15		

Splits and Phases: 1: SW 82nd Ave & SW 24th Street



Queues
1: SW 82nd Ave & SW 24th Street

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	70	1406	90	1628	68	225	125	146	170	101
v/c Ratio	0.58	0.54	0.64	0.61	0.60	0.81	0.26	0.75	0.47	0.20
Control Delay	99.4	31.7	108.7	21.6	102.2	95.0	14.2	99.8	67.0	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.4	31.7	108.7	21.6	102.2	95.0	14.2	99.8	67.0	19.1
Queue Length 50th (ft)	82	400	112	230	79	261	26	170	181	36
Queue Length 95th (ft)	140	546	178	423	138	348	76	248	242	77
Internal Link Dist (ft)		962		1232		937			1007	
Turn Bay Length (ft)	265		280		135		135	110		40
Base Capacity (vph)	154	2622	182	2670	138	371	522	254	493	540
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	0.45	0.54	0.49	0.61	0.49	0.61	0.24	0.57	0.34	0.19

Intersection Summary

HCM 6th Signalized Intersection Summary
1: SW 82nd Ave & SW 24th Street

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1250	58	84	1408	106	63	209	116	136	158	94
Future Volume (veh/h)	65	1250	58	84	1408	106	63	209	116	136	158	94
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	1344	62	90	1514	114	68	225	125	146	170	101
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	87	2845	131	108	2811	212	85	255	312	166	341	366
Arrive On Green	0.05	0.57	0.57	0.12	1.00	1.00	0.05	0.14	0.14	0.09	0.18	0.18
Sat Flow, veh/h	1781	5002	231	1781	4844	365	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	70	915	491	90	1064	564	68	225	125	146	170	101
Grp Sat Flow(s),veh/h/ln	1781	1702	1829	1781	1702	1805	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	7.0	28.5	28.5	8.9	0.0	0.0	6.8	21.3	12.4	14.6	14.7	9.4
Cycle Q Clear(g_c), s	7.0	28.5	28.5	8.9	0.0	0.0	6.8	21.3	12.4	14.6	14.7	9.4
Prop In Lane	1.00		0.13	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	87	1936	1040	108	1975	1047	85	255	312	166	341	366
V/C Ratio(X)	0.80	0.47	0.47	0.84	0.54	0.54	0.80	0.88	0.40	0.88	0.50	0.28
Avail Cap(c_a), veh/h	153	1936	1040	182	1975	1047	140	373	412	256	496	497
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
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	84.8	22.9	22.9	78.3	0.0	0.0	84.9	76.3	63.0	80.6	66.2	56.8
Incr Delay (d2), s/veh	15.7	0.8	1.5	13.7	0.9	1.8	15.9	15.4	0.8	18.9	1.1	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(50%),veh/ln	3.6	11.6	12.7	4.3	0.3	0.5	3.5	11.3	5.1	7.6	7.2	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.4	23.7	24.4	92.0	0.9	1.8	100.8	91.7	63.9	99.5	67.3	57.2
LnGrp LOS	F	C	C	F	A	A	F	F	E	F	E	E
Approach Vol, veh/h		1476			1718			418			417	
Approach Delay, s/veh		27.6			6.0			84.8			76.2	
Approach LOS		C			A			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.4	111.1	22.9	30.7	17.5	109.0	14.7	38.9
Change Period (Y+Rc), s	* 6.6	* 6.6	6.1	6.1	* 6.6	* 6.6	6.1	6.1
Max Green Setting (Gmax), s	* 16	* 77	25.9	35.9	* 18	* 74	14.1	47.7
Max Q Clear Time (g_c+I1), s	9.0	2.0	16.6	23.3	10.9	30.5	8.8	16.7
Green Ext Time (p_c), s	0.1	17.4	0.2	1.3	0.1	12.3	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1975	116	8	1422	25	47	0	6	3	0	2
Future Volume (vph)	35	1975	116	8	1422	25	47	0	6	3	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	120		0	95		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.997			0.850			0.946	
Flt Protected	0.950			0.950			0.950				0.971	
Satd. Flow (prot)	1770	5045	0	1770	3529	0	1770	1583	0	0	1711	0
Flt Permitted	0.152			0.058			0.754				0.885	
Satd. Flow (perm)	283	5045	0	108	3529	0	1405	1583	0	0	1560	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			4			175			34	
Link Speed (mph)		15			40			30			30	
Link Distance (ft)		526			1011			1008			1005	
Travel Time (s)		23.9			17.2			22.9			22.8	
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
Adj. Flow (vph)	38	2124	125	9	1529	27	51	0	6	3	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	2249	0	9	1556	0	51	6	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	6	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	16.0	16.0		16.0	16.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.4	20.4		19.0	20.4		12.2	12.2		27.2	27.2	
Total Split (s)	93.6	93.6		19.0	112.6		27.4	27.4		27.4	27.4	
Total Split (%)	66.9%	66.9%		13.6%	80.4%		19.6%	19.6%		19.6%	19.6%	
Maximum Green (s)	89.2	89.2		16.0	108.2		22.2	22.2		22.2	22.2	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.4	0.4		0.0	0.4		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)										2.0	2.0	
Flash Dont Walk (s)										20.0	20.0	
Pedestrian Calls (#/hr)										15	15	
Act Effct Green (s)	115.9	115.9		120.2	119.7		14.0	14.0			14.0	
Actuated g/C Ratio	0.83	0.83		0.86	0.86		0.10	0.10			0.10	
v/c Ratio	0.16	0.54		0.03	0.52		0.36	0.02			0.03	
Control Delay	8.3	7.0		3.1	4.6		63.4	0.2			0.2	
Queue Delay	0.0	0.7		0.0	0.0		0.0	0.0			0.0	
Total Delay	8.3	7.7		3.1	4.6		63.4	0.2			0.2	
LOS	A	A		A	A		E	A			A	
Approach Delay		7.7			4.6			56.8			0.2	
Approach LOS		A			A			E			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 7.2		Intersection LOS: A	
Intersection Capacity Utilization 54.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: SW 74th Ave/Driveways & SW 24th Street



Queues
2: SW 74th Ave/Driveways & SW 24th Street

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	38	2249	9	1556	51	6	5
v/c Ratio	0.16	0.54	0.03	0.52	0.36	0.02	0.03
Control Delay	8.3	7.0	3.1	4.6	63.4	0.2	0.2
Queue Delay	0.0	0.7	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	7.7	3.1	4.6	63.4	0.2	0.2
Queue Length 50th (ft)	4	143	1	142	45	0	0
Queue Length 95th (ft)	35	508	5	305	84	0	0
Internal Link Dist (ft)		446		931		928	925
Turn Bay Length (ft)	120		120		95		
Base Capacity (vph)	234	4179	282	3018	222	398	275
Starvation Cap Reductn	0	1427	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	0.16	0.82	0.03	0.52	0.23	0.02	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: SW 74th Ave/Driveways & SW 24th Street

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1975	116	8	1422	25	47	0	6	3	0	2
Future Volume (vph)	35	1975	116	8	1422	25	47	0	6	3	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85			0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1770	5043		1770	3530		1770	1583			1711	
Flt Permitted	0.15	1.00		0.06	1.00		0.75	1.00			0.89	
Satd. Flow (perm)	283	5043		108	3530		1405	1583			1560	
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)	38	2124	125	9	1529	27	51	0	6	3	0	2
RTOR Reduction (vph)	0	3	0	0	1	0	0	5	0	0	5	0
Lane Group Flow (vph)	38	2246	0	9	1555	0	51	1	0	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	111.6	111.6		117.8	117.8		12.6	12.6			12.6	
Effective Green, g (s)	111.6	111.6		117.8	117.8		12.6	12.6			12.6	
Actuated g/C Ratio	0.80	0.80		0.84	0.84		0.09	0.09			0.09	
Clearance Time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	225	4019		128	2970		126	142			140	
v/s Ratio Prot		c0.45		0.00	c0.44			0.00				
v/s Ratio Perm	0.13			0.06			c0.04				0.00	
v/c Ratio	0.17	0.56		0.07	0.52		0.40	0.00			0.00	
Uniform Delay, d1	3.3	5.2		3.7	3.1		60.2	58.0			58.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.6	0.6		0.2	0.7		2.1	0.0			0.0	
Delay (s)	4.9	5.8		4.0	3.8		62.3	58.0			58.0	
Level of Service	A	A		A	A		E	E			E	
Approach Delay (s)		5.7			3.8			61.8			58.0	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1572	3	106	1562	42	25	2	193	175	20	11
Future Volume (vph)	8	1572	3	106	1562	42	25	2	193	175	20	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		0	265		0	130		0	0		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.996			0.851				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	0	1770	5065	0	1770	1585	0	1770	1863	1583
Flt Permitted	0.107			0.111			0.744			0.440		
Satd. Flow (perm)	199	5085	0	207	5065	0	1386	1585	0	820	1863	1583
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)								41				14
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1312			826			1079			110	
Travel Time (s)		22.4			14.1			24.5			2.5	
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
Adj. Flow (vph)	9	1672	3	113	1662	45	27	2	205	186	21	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	1675	0	113	1707	0	27	207	0	186	21	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	6	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	32.3	32.3		32.3	32.3		27.5	27.5		27.5	27.5	27.5
Total Split (s)	129.0	129.0		129.0	129.0		51.0	51.0		51.0	51.0	51.0
Total Split (%)	71.7%	71.7%		71.7%	71.7%		28.3%	28.3%		28.3%	28.3%	28.3%
Maximum Green (s)	123.7	123.7		123.7	123.7		45.5	45.5		45.5	45.5	45.5
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.5	1.5		1.5	1.5	1.5
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)	5.3	5.3		5.3	5.3		5.5	5.5		5.5	5.5	5.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	4	4		1	1		0	0		2	2	2
Act Effct Green (s)	127.5	127.5		127.5	127.5		41.7	41.7		41.7	41.7	41.7
Actuated g/C Ratio	0.71	0.71		0.71	0.71		0.23	0.23		0.23	0.23	0.23
v/c Ratio	0.06	0.47		0.77	0.48		0.08	0.52		0.98	0.05	0.03
Control Delay	4.2	2.9		49.1	7.9		52.7	52.1		127.1	51.7	18.1
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	0.0
Total Delay	4.2	2.9		49.1	8.1		52.7	52.1		127.1	51.7	18.1
LOS	A	A		D	A		D	D		F	D	B
Approach Delay		2.9			10.6			52.2			113.9	
Approach LOS		A			B			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 22 (12%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 15.5		Intersection LOS: B	
Intersection Capacity Utilization 76.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: SW 79th Ave & SW 24th Street



Queues
3: SW 79th Ave & SW 24th Street

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	9	1675	113	1707	27	207	186	21	12
v/c Ratio	0.06	0.47	0.77	0.48	0.08	0.52	0.98	0.05	0.03
Control Delay	4.2	2.9	49.1	7.9	52.7	52.1	127.1	51.7	18.1
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	2.9	49.1	8.1	52.7	52.1	127.1	51.7	18.1
Queue Length 50th (ft)	1	51	101	343	25	169	215	19	0
Queue Length 95th (ft)	m2	80	#220	90	55	259	#375	46	17
Internal Link Dist (ft)		1232		746		999		30	
Turn Bay Length (ft)	255		265		130				
Base Capacity (vph)	140	3601	146	3587	350	431	207	470	410
Starvation Cap Reductn	0	0	0	745	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	0.06	0.47	0.77	0.60	0.08	0.48	0.90	0.04	0.03

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 6th Signalized Intersection Summary
3: SW 79th Ave & SW 24th Street

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1572	3	106	1562	42	25	2	193	175	20	11
Future Volume (veh/h)	8	1572	3	106	1562	42	25	2	193	175	20	11
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	1672	3	113	1662	45	27	2	205	186	21	12
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	156	3617	6	243	3513	95	376	4	397	205	473	401
Arrive On Green	1.00	1.00	1.00	0.23	0.23	0.23	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	287	5263	9	296	5111	138	1376	15	1572	1175	1870	1585
Grp Volume(v), veh/h	9	1081	594	113	1107	600	27	0	207	186	21	12
Grp Sat Flow(s),veh/h/ln	287	1702	1869	296	1702	1845	1376	0	1587	1175	1870	1585
Q Serve(g_s), s	2.4	0.0	0.0	60.9	50.7	50.7	2.7	0.0	20.2	25.3	1.5	1.0
Cycle Q Clear(g_c), s	53.1	0.0	0.0	60.9	50.7	50.7	4.3	0.0	20.2	45.5	1.5	1.0
Prop In Lane	1.00		0.01	1.00		0.07	1.00		0.99	1.00		1.00
Lane Grp Cap(c), veh/h	156	2339	1284	243	2339	1268	376	0	401	205	473	401
V/C Ratio(X)	0.06	0.46	0.46	0.46	0.47	0.47	0.07	0.00	0.52	0.91	0.04	0.03
Avail Cap(c_a), veh/h	156	2339	1284	243	2339	1268	376	0	401	205	473	401
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	0.89	0.89	0.89	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	0.0	0.0	45.3	41.4	41.4	52.4	0.0	57.8	78.7	50.8	50.6
Incr Delay (d2), s/veh	0.6	0.5	1.0	5.6	0.6	1.1	0.1	0.0	1.1	37.9	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(50%),veh/ln	0.2	0.2	0.4	5.2	23.5	25.7	1.0	0.0	8.3	10.9	0.7	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.5	0.5	1.0	50.9	42.0	42.5	52.5	0.0	58.9	116.7	50.9	50.7
LnGrp LOS	B	A	A	D	D	D	D	A	E	F	D	D
Approach Vol, veh/h		1684			1820			234			219	
Approach Delay, s/veh		0.8			42.7			58.2			106.7	
Approach LOS		A			D			E			F	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		129.0		51.0		129.0		51.0				
Change Period (Y+Rc), s		* 5.3		5.5		* 5.3		5.5				
Max Green Setting (Gmax), s		* 1.2E2		45.5		* 1.2E2		45.5				
Max Q Clear Time (g_c+I1), s		62.9		22.2		55.1		47.5				
Green Ext Time (p_c), s		25.0		1.4		18.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Notes

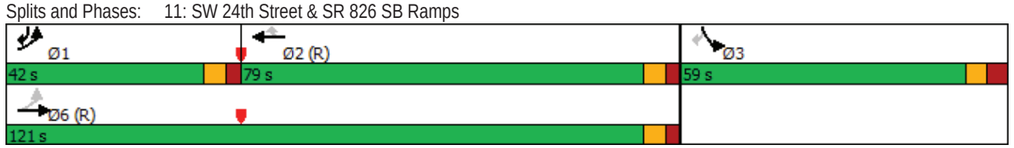
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	215	1794	1286	452	575	467
Future Volume (vph)	215	1794	1286	452	575	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320			270	400	400
Storage Lanes	1			1	1	2
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.88
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	5085	5085	1583	3433	2787
Flt Permitted	0.146				0.950	
Satd. Flow (perm)	272	5085	5085	1583	3433	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				379		21
Link Speed (mph)		40	15		25	
Link Distance (ft)		826	894		1070	
Travel Time (s)		14.1	40.6		29.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	222	1849	1326	466	593	481
Shared Lane Traffic (%)						
Lane Group Flow (vph)	222	1849	1326	466	593	481
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6			2		3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2	2	3	1
Switch Phase						
Minimum Initial (s)	5.0	16.0	16.0	16.0	7.0	5.0
Minimum Split (s)	12.9	22.6	22.6	22.6	20.0	12.9
Total Split (s)	42.0	121.0	79.0	79.0	59.0	42.0
Total Split (%)	23.3%	67.2%	43.9%	43.9%	32.8%	23.3%
Maximum Green (s)	35.4	114.4	72.4	72.4	51.1	35.4
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	2.6	3.9	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	7.9	6.6
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	128.7	128.7	104.9	104.9	36.8	61.9
Actuated g/C Ratio	0.72	0.72	0.58	0.58	0.20	0.34
v/c Ratio	0.66	0.51	0.45	0.43	0.85	0.49
Control Delay	32.5	11.4	12.7	2.1	80.5	45.1
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	32.5	11.5	12.7	2.1	80.5	45.1
LOS	C	B	B	A	F	D
Approach Delay		13.7	10.0		64.6	
Approach LOS		B	A		E	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 21 (12%), Referenced to phase 2:WBT and 6:EBTL, Start of Green		
Natural Cycle: 60		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.85		
Intersection Signal Delay: 23.4		Intersection LOS: C
Intersection Capacity Utilization 70.7%		ICU Level of Service C
Analysis Period (min) 15		

Splits and Phases: 11: SW 24th Street & SR 826 SB Ramps



Queues
11: SW 24th Street & SR 826 SB Ramps

08/05/2019

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	222	1849	1326	466	593	481
v/c Ratio	0.66	0.51	0.45	0.43	0.85	0.49
Control Delay	32.5	11.4	12.7	2.1	80.5	45.1
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	32.5	11.5	12.7	2.1	80.5	45.1
Queue Length 50th (ft)	110	197	222	0	352	247
Queue Length 95th (ft)	m216	449	262	113	403	260
Internal Link Dist (ft)		746	814		990	
Turn Bay Length (ft)	320			270	400	400
Base Capacity (vph)	489	3636	2963	1080	974	1251
Starvation Cap Reductn	0	396	0	0	0	0
Spillback Cap Reductn	0	30	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.57	0.45	0.43	0.61	0.38

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
11: SW 24th Street & SR 826 SB Ramps

08/05/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	215	1794	1286	452	575	467
Future Volume (vph)	215	1794	1286	452	575	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6	6.6	7.9	6.6
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.88
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)	1770	5085	5085	1583	3433	2787
Flt Permitted	0.15	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	273	5085	5085	1583	3433	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	222	1849	1326	466	593	481
RTOR Reduction (vph)	0	0	0	158	0	15
Lane Group Flow (vph)	222	1849	1326	308	593	466
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6			2		3
Actuated Green, G (s)	128.7	128.7	104.9	104.9	36.8	54.0
Effective Green, g (s)	128.7	128.7	104.9	104.9	36.8	54.0
Actuated g/C Ratio	0.71	0.71	0.58	0.58	0.20	0.30
Clearance Time (s)	6.6	6.6	6.6	6.6	7.9	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	338	3635	2963	922	701	836
v/s Ratio Prot	c0.06	0.36	0.26		c0.17	0.05
v/s Ratio Perm	c0.41			0.19		0.11
v/c Ratio	0.66	0.51	0.45	0.33	0.85	0.56
Uniform Delay, d1	13.9	11.5	21.2	19.5	68.9	53.0
Progression Factor	2.18	0.91	0.54	0.22	1.00	1.00
Incremental Delay, d2	4.0	0.4	0.4	0.9	9.3	0.8
Delay (s)	34.2	10.9	11.9	5.1	78.1	53.8
Level of Service	C	B	B	A	E	D
Approach Delay (s)		13.4	10.1		67.2	
Approach LOS		B	B		E	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1777	660	266	1476	262	686
Future Volume (vph)	1777	660	266	1476	262	686
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		435	155		260	260
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt		0.850			0.915	0.850
Flt Protected			0.950		0.979	
Satd. Flow (prot)	5085	1583	1770	5085	3237	1441
Flt Permitted			0.044		0.979	
Satd. Flow (perm)	5085	1583	82	5085	3237	1441
Right Turn on Red		Yes				No
Satd. Flow (RTOR)		636				
Link Speed (mph)	15			15	25	
Link Distance (ft)	894			399	1075	
Travel Time (s)	40.6			18.1	29.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1832	680	274	1522	270	707
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1832	680	274	1522	624	353
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	36	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	6	5	2	7	7
Switch Phase						
Minimum Initial (s)	18.0	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.5	24.5	11.2	24.5	20.0	20.0
Total Split (s)	81.0	81.0	37.0	118.0	62.0	62.0
Total Split (%)	45.0%	45.0%	20.6%	65.6%	34.4%	34.4%
Maximum Green (s)	74.5	74.5	30.8	111.5	54.2	54.2
Yellow Time (s)	4.0	4.0	3.7	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	84.3	84.3	117.4	117.1	48.6	48.6
Actuated g/C Ratio	0.47	0.47	0.65	0.65	0.27	0.27
v/c Ratio	0.77	0.63	0.90	0.46	0.71	0.91
Control Delay	39.2	9.7	115.9	10.2	63.9	90.3
Queue Delay	0.1	0.1	11.4	0.2	0.9	21.1
Total Delay	39.3	9.8	127.3	10.4	64.8	111.4
LOS	D	A	F	B	E	F
Approach Delay	31.3			28.2	81.6	
Approach LOS	C			C	F	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 163 (91%), Referenced to phase 2:WBTL and 6:EBT, Start of Green		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.91		
Intersection Signal Delay: 39.6		Intersection LOS: D
Intersection Capacity Utilization 80.8%		ICU Level of Service D
Analysis Period (min) 15		

Splits and Phases: 13: SR 826 NB Ramps & SW 24th Street



Queues
13: SR 826 NB Ramps & SW 24th Street

08/05/2019

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1832	680	274	1522	624	353
v/c Ratio	0.77	0.63	0.90	0.46	0.71	0.91
Control Delay	39.2	9.7	115.9	10.2	63.9	90.3
Queue Delay	0.1	0.1	11.4	0.2	0.9	21.1
Total Delay	39.3	9.8	127.3	10.4	64.8	111.4
Queue Length 50th (ft)	765	213	291	153	340	439
Queue Length 95th (ft)	606	186	#416	186	402	#604
Internal Link Dist (ft)	814			319	995	
Turn Bay Length (ft)		435	155		260	260
Base Capacity (vph)	2380	1079	342	3307	974	433
Starvation Cap Reductn	73	27	50	733	0	0
Spillback Cap Reductn	5	0	0	0	143	80
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.65	0.94	0.59	0.75	1.00

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

HCM Signalized Intersection Capacity Analysis
13: SR 826 NB Ramps & SW 24th Street

08/05/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1777	660	266	1476	262	686
Future Volume (vph)	1777	660	266	1476	262	686
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt	1.00	0.85	1.00	1.00	0.91	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.98	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3236	1441
Flt Permitted	1.00	1.00	0.04	1.00	0.98	1.00
Satd. Flow (perm)	5085	1583	82	5085	3236	1441
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1832	680	274	1522	270	707
RTOR Reduction (vph)	0	338	0	0	0	0
Lane Group Flow (vph)	1832	342	274	1522	624	353
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7
Actuated Green, G (s)	84.3	84.3	117.1	117.1	48.6	48.6
Effective Green, g (s)	84.3	84.3	117.1	117.1	48.6	48.6
Actuated g/C Ratio	0.47	0.47	0.65	0.65	0.27	0.27
Clearance Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2381	741	302	3308	873	389
v/s Ratio Prot	0.36		c0.13	0.30	0.19	
v/s Ratio Perm		0.22	c0.45			c0.24
v/c Ratio	0.77	0.46	0.91	0.46	0.71	0.91
Uniform Delay, d1	39.8	32.5	61.4	15.7	59.4	63.5
Progression Factor	0.89	1.99	1.57	0.60	1.00	1.00
Incremental Delay, d2	2.1	1.8	25.3	0.4	2.8	24.1
Delay (s)	37.4	66.3	121.6	9.8	62.2	87.7
Level of Service	D	E	F	A	E	F
Approach Delay (s)	45.2			26.9	71.4	
Approach LOS	D			C	E	

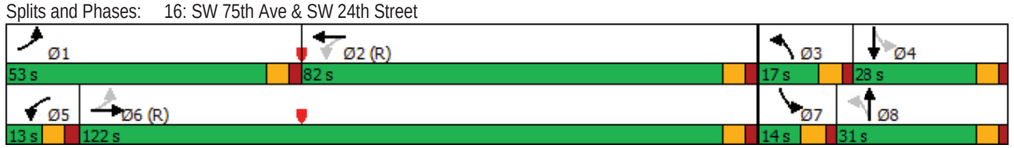
Intersection Summary			
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	317	2045	101	27	1308	101	99	75	34	76	12	317
Future Volume (vph)	317	2045	101	27	1308	101	99	75	34	76	12	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	230		0	30		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.989			0.954			0.856	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5050	0	1770	5029	0	1770	1777	0	1770	1595	0
Flt Permitted	0.115			0.063			0.244			0.580		
Satd. Flow (perm)	214	5050	0	117	5029	0	455	1777	0	1080	1595	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			8			10			330	
Link Speed (mph)		15			15			30			30	
Link Distance (ft)		399			526			351			1038	
Travel Time (s)		18.1			23.9			8.0			23.6	
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
Adj. Flow (vph)	330	2130	105	28	1363	105	103	78	35	79	13	330
Shared Lane Traffic (%)												
Lane Group Flow (vph)	330	2235	0	28	1468	0	103	113	0	79	343	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	11.5	13.5		11.5	13.5		11.4	13.0		11.4	13.0	
Total Split (s)	53.0	122.0		13.0	82.0		17.0	31.0		14.0	28.0	
Total Split (%)	29.4%	67.8%		7.2%	45.6%		9.4%	17.2%		7.8%	15.6%	
Maximum Green (s)	46.5	115.5		6.5	75.5		10.6	25.0		7.6	22.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.0		4.4	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	137.1	126.9		106.5	100.4		26.5	16.4		20.7	13.5	
Actuated g/C Ratio	0.76	0.70		0.59	0.56		0.15	0.09		0.12	0.08	
v/c Ratio	0.78	0.63		0.23	0.52		0.72	0.66		0.52	0.81	
Control Delay	55.2	12.4		16.6	27.4		92.9	89.2		77.5	23.6	
Queue Delay	2.4	2.7		0.0	1.9		7.2	0.0		0.0	1.1	
Total Delay	57.6	15.0		16.6	29.2		100.2	89.2		77.5	24.7	
LOS	E	B		B	C		F	F		E	C	
Approach Delay		20.5			29.0			94.4			34.6	
Approach LOS		C			C			F			C	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 164 (91%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.81		
Intersection Signal Delay: 27.9	Intersection LOS: C	
Intersection Capacity Utilization 92.8%	ICU Level of Service F	
Analysis Period (min) 15		

Splits and Phases: 16: SW 75th Ave & SW 24th Street



Queues
16: SW 75th Ave & SW 24th Street

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	330	2235	28	1468	103	113	79	343
v/c Ratio	0.78	0.63	0.23	0.52	0.72	0.66	0.52	0.81
Control Delay	55.2	12.4	16.6	27.4	92.9	89.2	77.5	23.6
Queue Delay	2.4	2.7	0.0	1.9	7.2	0.0	0.0	1.1
Total Delay	57.6	15.0	16.6	29.2	100.2	89.2	77.5	24.7
Queue Length 50th (ft)	306	312	7	380	110	120	83	15
Queue Length 95th (ft)	m433	454	20	545	166	185	132	127
Internal Link Dist (ft)		319		446		271		958
Turn Bay Length (ft)	225		230		30		100	
Base Capacity (vph)	564	3562	129	2809	144	255	153	484
Starvation Cap Reductn	128	1169	0	1125	0	0	0	0
Spillback Cap Reductn	0	0	0	58	18	0	0	35
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.93	0.22	0.87	0.82	0.44	0.52	0.76

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
16: SW 75th Ave & SW 24th Street

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	317	2045	101	27	1308	101	99	75	34	76	12	317
Future Volume (vph)	317	2045	101	27	1308	101	99	75	34	76	12	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5049		1770	5031		1770	1776		1770	1594	
Flt Permitted	0.11	1.00		0.06	1.00		0.24	1.00		0.58	1.00	
Satd. Flow (perm)	213	5049		118	5031		454	1776		1080	1594	
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)	330	2130	105	28	1362	105	103	78	35	79	12	330
RTOR Reduction (vph)	0	2	0	0	4	0	0	9	0	0	305	0
Lane Group Flow (vph)	330	2233	0	28	1464	0	103	104	0	79	38	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	137.1	125.6		105.4	100.4		26.9	16.4		21.1	13.5	
Effective Green, g (s)	137.1	125.6		105.4	100.4		26.9	16.4		21.1	13.5	
Actuated g/C Ratio	0.76	0.70		0.59	0.56		0.15	0.09		0.12	0.08	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	423	3523		114	2806		144	161		155	119	
v/s Ratio Prot	c0.13	0.44		0.01	0.29		c0.04	0.06		0.02	0.02	
v/s Ratio Perm	c0.46			0.14			c0.06			0.04		
v/c Ratio	0.78	0.63		0.25	0.52		0.72	0.65		0.51	0.32	
Uniform Delay, d1	36.0	14.7		16.4	24.8		69.6	79.0		73.4	78.9	
Progression Factor	1.61	0.78		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.9	0.6		1.1	0.7		15.5	8.6		2.6	1.5	
Delay (s)	64.0	12.0		17.5	25.5		85.1	87.6		76.1	80.4	
Level of Service	E	B		B	C		F	F		E	F	
Approach Delay (s)		18.7			25.4			86.4			79.6	
Approach LOS		B			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

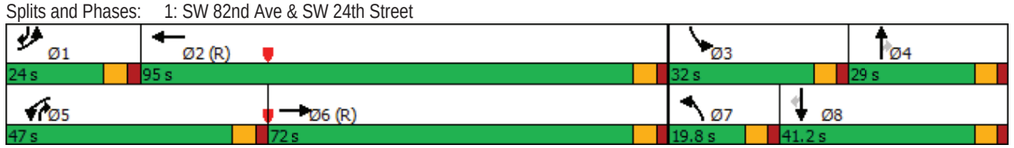
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1303	67	268	1819	200	67	159	137	163	196	96
Future Volume (vph)	100	1303	67	268	1819	200	67	159	137	163	196	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265		0	280		0	135		135	110		40
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.985				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4999	0	1770	5009	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4999	0	1770	5009	0	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			15				96			99
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1042			1312			1017			1087	
Travel Time (s)		17.8			22.4			19.8			21.2	
Peak Hour Factor	0.97	0.97	0.40	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	103	1343	168	276	1875	206	69	164	141	168	202	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	1511	0	276	2081	0	69	164	141	168	202	99
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4	5	3	8	1
Permitted Phases									4			8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.6	20.0		11.6	20.0		11.1	20.0	11.6	11.1	20.0	11.6
Total Split (s)	24.0	72.0		47.0	95.0		19.8	29.0	47.0	32.0	41.2	24.0
Total Split (%)	13.3%	40.0%		26.1%	52.8%		11.0%	16.1%	26.1%	17.8%	22.9%	13.3%
Maximum Green (s)	17.4	65.4		40.4	88.4		13.7	22.9	40.4	25.9	35.1	17.4
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.2	2.2		2.2	2.2		2.1	2.1	2.2	2.1	2.1	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6		6.6	6.6		6.1	6.1	6.6	6.1	6.1	6.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	14.8	80.3		32.8	98.3		11.6	19.9	58.8	21.5	29.9	50.8
Actuated g/C Ratio	0.08	0.45		0.18	0.55		0.06	0.11	0.33	0.12	0.17	0.28
v/c Ratio	0.71	0.68		0.86	0.76		0.61	0.80	0.24	0.80	0.65	0.19
Control Delay	105.6	43.1		91.7	29.7		103.9	104.2	14.5	102.5	79.8	7.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	43.1		91.7	29.7		103.9	104.2	14.5	102.5	79.8	7.7
LOS	F	D		F	C		F	F	B	F	E	A
Approach Delay		47.1			37.0			70.3			72.7	
Approach LOS		D			D			E			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 132 (73%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 46.4	Intersection LOS: D
Intersection Capacity Utilization 83.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: SW 82nd Ave & SW 24th Street



Queues
1: SW 82nd Ave & SW 24th Street

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	103	1511	276	2081	69	164	141	168	202	99
v/c Ratio	0.71	0.68	0.86	0.76	0.61	0.80	0.24	0.80	0.65	0.19
Control Delay	105.6	43.1	91.7	29.7	103.9	104.2	14.5	102.5	79.8	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	43.1	91.7	29.7	103.9	104.2	14.5	102.5	79.8	7.7
Queue Length 50th (ft)	120	523	345	668	81	191	37	196	225	0
Queue Length 95th (ft)	191	654	447	632	139	278	86	282	313	47
Internal Link Dist (ft)		962		1232		937			1007	
Turn Bay Length (ft)	265		280		135		135	110		40
Base Capacity (vph)	171	2238	397	2742	134	238	644	254	363	539
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	0.60	0.68	0.70	0.76	0.51	0.69	0.22	0.66	0.56	0.18

Intersection Summary

HCM 6th Signalized Intersection Summary
1: SW 82nd Ave & SW 24th Street

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1303	67	268	1819	200	67	159	137	163	196	96
Future Volume (veh/h)	100	1303	67	268	1819	200	67	159	137	163	196	96
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	1343	168	276	1875	206	69	164	141	168	202	99
Peak Hour Factor	0.97	0.97	0.40	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	122	2231	279	298	2729	298	86	189	425	188	296	359
Arrive On Green	0.07	0.49	0.49	0.17	0.58	0.58	0.05	0.10	0.10	0.11	0.16	0.16
Sat Flow, veh/h	1781	4596	575	1781	4673	510	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	995	516	276	1363	718	69	164	141	168	202	99
Grp Sat Flow(s),veh/h/ln	1781	1702	1767	1781	1702	1779	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	10.3	38.2	38.2	27.5	50.0	50.7	6.9	15.6	12.9	16.8	18.3	9.3
Cycle Q Clear(g_c), s	10.3	38.2	38.2	27.5	50.0	50.7	6.9	15.6	12.9	16.8	18.3	9.3
Prop In Lane	1.00		0.33	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	1652	858	298	1988	1039	86	189	425	188	296	359
V/C Ratio(X)	0.85	0.60	0.60	0.93	0.69	0.69	0.80	0.87	0.33	0.89	0.68	0.28
Avail Cap(c_a), veh/h	172	1652	858	400	1988	1039	136	238	466	256	365	417
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	0.76	0.76	0.76	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.9	33.7	33.7	73.9	26.0	26.1	84.8	79.7	52.9	79.5	71.5	57.4
Incr Delay (d2), s/veh	22.6	1.6	3.1	19.1	1.5	2.9	16.7	23.2	0.5	24.5	3.8	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(50%),veh/ln	5.5	16.1	17.1	14.1	20.2	21.9	3.6	8.7	5.2	9.0	9.1	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	105.5	35.3	36.8	93.0	27.4	29.0	101.5	103.0	53.4	104.0	75.3	57.8
LnGrp LOS	F	D	D	F	C	C	F	F	D	F	E	E
Approach Vol, veh/h		1614			2357			374			469	
Approach Delay, s/veh		40.3			35.6			84.0			81.9	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.9	111.7	25.1	24.3	36.7	94.0	14.8	34.6
Change Period (Y+Rc), s	* 6.6	* 6.6	6.1	6.1	* 6.6	* 6.6	6.1	6.1
Max Green Setting (Gmax), s	* 17	* 88	25.9	22.9	* 40	* 65	13.7	35.1
Max Q Clear Time (g_c+I1), s	12.3	52.7	18.8	17.6	29.5	40.2	8.9	20.3
Green Ext Time (p_c), s	0.1	20.9	0.2	0.6	0.6	11.4	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	45.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	1828	61	2	1901	12	79	2	16	2	0	0
Future Volume (vph)	15	1828	61	2	1901	12	79	2	16	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	120		0	95		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.999			0.867				
Flt Protected	0.950			0.950			0.950				0.950	
Satd. Flow (prot)	1770	5060	0	1770	3536	0	1770	1615	0	0	1770	0
Flt Permitted	0.091			0.091			0.757				0.746	
Satd. Flow (perm)	170	5060	0	170	3536	0	1410	1615	0	0	1390	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			1			16				
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		526			1011			1008			1005	
Travel Time (s)		9.0			17.2			22.9			22.8	
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
Adj. Flow (vph)	15	1865	62	2	1940	12	81	2	16	2	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	1927	0	2	1952	0	81	18	0	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	6	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	16.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.4	20.4		8.4	20.4		20.0	20.0		20.0	20.0	
Total Split (s)	142.0	142.0		9.0	151.0		29.0	29.0		29.0	29.0	
Total Split (%)	78.9%	78.9%		5.0%	83.9%		16.1%	16.1%		16.1%	16.1%	
Maximum Green (s)	137.6	137.6		6.0	146.6		23.8	23.8		23.8	23.8	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.4	0.4		0.0	0.4		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	153.0	153.0		156.1	154.7		15.7	15.7			15.7	
Actuated g/C Ratio	0.85	0.85		0.87	0.86		0.09	0.09			0.09	
v/c Ratio	0.10	0.45		0.01	0.64		0.66	0.12			0.02	
Control Delay	1.3	0.4		2.5	5.5		103.6	31.3			71.5	
Queue Delay	0.0	0.1		0.0	0.6		0.0	0.0			0.0	
Total Delay	1.3	0.5		2.5	6.1		103.6	31.3			71.5	
LOS	A	A		A	A		F	C			E	
Approach Delay		0.6			6.1			90.5			71.5	
Approach LOS		A			A			F			E	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 155 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green		
Natural Cycle: 60		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.66		
Intersection Signal Delay: 5.5		Intersection LOS: A
Intersection Capacity Utilization 66.8%		ICU Level of Service C
Analysis Period (min) 15		

Splits and Phases: 2: SW 74th Ave/Driveways & SW 24th Street



Queues
2: SW 74th Ave/Driveways & SW 24th Street

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	15	1927	2	1952	81	18	2
v/c Ratio	0.10	0.45	0.01	0.64	0.66	0.12	0.02
Control Delay	1.3	0.4	2.5	5.5	103.6	31.3	71.5
Queue Delay	0.0	0.1	0.0	0.6	0.0	0.0	0.0
Total Delay	1.3	0.5	2.5	6.1	103.6	31.3	71.5
Queue Length 50th (ft)	0	5	0	307	94	2	2
Queue Length 95th (ft)	m0	16	2	460	154	30	12
Internal Link Dist (ft)		446		931		928	925
Turn Bay Length (ft)	120		120		95		
Base Capacity (vph)	144	4302	200	3040	186	227	183
Starvation Cap Reductn	0	973	0	0	0	0	0
Spillback Cap Reductn	0	0	0	609	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.58	0.01	0.80	0.44	0.08	0.01

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

HCM 6th Signalized Intersection Summary
2: SW 74th Ave/Driveways & SW 24th Street

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1828	61	2	1901	12	79	2	16	2	0	0
Future Volume (veh/h)	15	1828	61	2	1901	12	79	2	16	2	0	0
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	1865	62	2	1940	12	81	2	16	2	0	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	4376	145	244	3192	20	137	12	93	116	0	0
Arrive On Green	1.00	1.00	1.00	0.00	0.88	0.88	0.07	0.07	0.07	0.07	0.00	0.00
Sat Flow, veh/h	226	5076	169	1781	3621	22	1418	179	1433	1169	0	0
Grp Volume(v), veh/h	15	1250	677	2	951	1001	81	0	18	2	0	0
Grp Sat Flow(s),veh/h/ln	226	1702	1840	1781	1777	1866	1418	0	1612	1169	0	0
Q Serve(g_s), s	1.8	0.0	0.0	0.0	24.6	24.7	7.5	0.0	1.9	0.2	0.0	0.0
Cycle Q Clear(g_c), s	23.0	0.0	0.0	0.0	24.6	24.7	9.6	0.0	1.9	2.1	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.01	1.00		0.89	1.00		0.00
Lane Grp Cap(c), veh/h	208	2935	1586	244	1566	1645	137	0	105	116	0	0
V/C Ratio(X)	0.07	0.43	0.43	0.01	0.61	0.61	0.59	0.00	0.17	0.02	0.00	0.00
Avail Cap(c_a), veh/h	208	2935	1586	299	1566	1645	232	0	213	210	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.58	0.58	0.58	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.6	0.0	0.0	1.4	2.7	2.7	83.0	0.0	79.5	80.6	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.3	0.5	0.0	1.8	1.7	4.1	0.0	0.8	0.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.2	0.0	6.1	6.4	3.9	0.0	0.8	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.0	0.3	0.5	1.4	4.5	4.4	87.0	0.0	80.3	80.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	F	A	F	F	A	A
Approach Vol, veh/h		1942			1954			99			2	
Approach Delay, s/veh		0.4			4.4			85.8			80.6	
Approach LOS		A			A			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		163.1		16.9	3.5	159.6		16.9				
Change Period (Y+Rc), s		* 4.4		* 5.2	3.0	* 4.4		* 5.2				
Max Green Setting (Gmax), s		* 1.5E2		* 24	6.0	* 1.4E2		* 24				
Max Q Clear Time (g_c+I1), s		26.7		11.6	2.0	25.0		4.1				
Green Ext Time (p_c), s		32.2		0.2	0.0	27.4		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	4.5
HCM 6th LOS	A

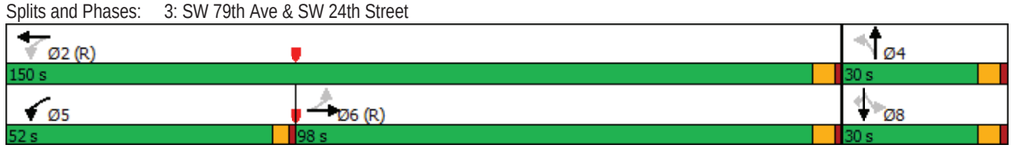
Notes
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1586	40	370	2254	290	21	23	103	66	29	12
Future Volume (vph)	11	1586	40	370	2254	290	21	23	103	66	29	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		0	265		0	130		0	0		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.983			0.877				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5065	0	1770	4999	0	1770	1634	0	1770	1863	1583
Flt Permitted	0.049			0.098			0.738			0.411		
Satd. Flow (perm)	91	5065	0	183	4999	0	1375	1634	0	766	1863	1583
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		3						105				40
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1312			826			1079			110	
Travel Time (s)		22.4			14.1			24.5			2.5	
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
Adj. Flow (vph)	11	1618	41	378	2300	296	21	23	105	67	30	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	1659	0	378	2596	0	21	128	0	67	30	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	6	6		5	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	98.0	98.0		52.0	150.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	54.4%	54.4%		28.9%	83.3%		16.7%	16.7%		16.7%	16.7%	16.7%
Maximum Green (s)	92.7	92.7		47.7	144.7		24.5	24.5		24.5	24.5	24.5
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.5	1.5		1.5	1.5	1.5
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)	5.3	5.3		4.3	5.3		5.5	5.5		5.5	5.5	5.5
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	None
Act Effct Green (s)	113.3	113.3		152.5	151.5		17.7	17.7		17.7	17.7	17.7
Actuated g/C Ratio	0.63	0.63		0.85	0.84		0.10	0.10		0.10	0.10	0.10
v/c Ratio	0.19	0.52		0.83	0.62		0.16	0.50		0.89	0.16	0.06
Control Delay	12.5	7.1		45.8	6.5		73.9	25.0		155.6	73.5	0.7
Queue Delay	0.0	0.0		0.0	0.3		0.0	0.0		0.0	0.0	0.0
Total Delay	12.5	7.1		45.8	6.8		73.9	25.0		155.6	73.5	0.7
LOS	B	A		D	A		E	C		F	E	A
Approach Delay		7.2			11.7			31.9			116.0	
Approach LOS		A			B			C			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 166 (92%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 87.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: SW 79th Ave & SW 24th Street



Queues
3: SW 79th Ave & SW 24th Street

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	11	1659	378	2596	21	128	67	30	12
v/c Ratio	0.19	0.52	0.83	0.62	0.16	0.50	0.89	0.16	0.06
Control Delay	12.5	7.1	45.8	6.5	73.9	25.0	155.6	73.5	0.7
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	7.1	45.8	6.8	73.9	25.0	155.6	73.5	0.7
Queue Length 50th (ft)	0	70	280	267	23	25	80	33	0
Queue Length 95th (ft)	m6	576	412	480	54	95	#151	68	0
Internal Link Dist (ft)		1232		746		999		30	
Turn Bay Length (ft)	255		265		130				
Base Capacity (vph)	57	3188	575	4207	187	313	104	253	250
Starvation Cap Reductn	0	0	0	758	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	0.19	0.52	0.66	0.75	0.11	0.41	0.64	0.12	0.05

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 6th Signalized Intersection Summary
3: SW 79th Ave & SW 24th Street

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	1586	40	370	2254	290	21	23	103	66	29	12
Future Volume (veh/h)	11	1586	40	370	2254	290	21	23	103	66	29	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	1618	41	378	2300	296	21	23	105	67	30	12
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	3526	89	396	3693	463	207	40	182	119	255	216
Arrive On Green	0.92	0.92	0.92	0.18	1.00	1.00	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	119	5121	130	1781	4594	577	1365	293	1337	1262	1870	1585
Grp Volume(v), veh/h	11	1075	584	378	1689	907	21	0	128	67	30	12
Grp Sat Flow(s),veh/h/ln	119	1702	1847	1781	1702	1767	1365	0	1630	1262	1870	1585
Q Serve(g_s), s	1.6	8.3	8.3	13.3	0.0	0.0	2.5	0.0	13.3	9.5	2.5	1.2
Cycle Q Clear(g_c), s	1.6	8.3	8.3	13.3	0.0	0.0	5.0	0.0	13.3	22.7	2.5	1.2
Prop In Lane	1.00		0.07	1.00		0.33	1.00		0.82	1.00		1.00
Lane Grp Cap(c), veh/h	122	2344	1272	396	2736	1420	207	0	222	119	255	216
V/C Ratio(X)	0.09	0.46	0.46	0.95	0.62	0.64	0.10	0.00	0.58	0.56	0.12	0.06
Avail Cap(c_a), veh/h	122	2344	1272	705	2736	1420	207	0	222	119	255	216
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	0.51	0.51	0.51	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	2.4	2.7	2.7	15.5	0.0	0.0	70.5	0.0	72.9	83.5	68.3	67.7
Incr Delay (d2), s/veh	1.0	0.5	0.8	9.2	0.5	1.1	0.2	0.0	3.7	6.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.1	2.4	10.6	0.2	0.4	0.9	0.0	5.8	3.3	1.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.5	3.2	3.6	24.7	0.5	1.1	70.7	0.0	76.6	89.5	68.5	67.8
LnGrp LOS	A	A	A	C	A	A	E	A	E	F	E	E
Approach Vol, veh/h		1670			2974			149			109	
Approach Delay, s/veh		3.3			3.8			75.7			81.3	
Approach LOS		A			A			E			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		150.0		30.0	20.8	129.2		30.0				
Change Period (Y+Rc), s		* 5.3		5.5	* 4.3	* 5.3		5.5				
Max Green Setting (Gmax), s		* 1.4E2		24.5	* 48	* 93		24.5				
Max Q Clear Time (g_c+I1), s		2.0		15.3	15.3	10.3		24.7				
Green Ext Time (p_c), s		60.6		0.5	1.1	19.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	7.5
HCM 6th LOS	A

Notes

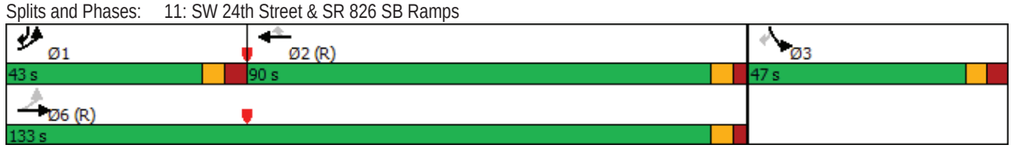
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	267	1548	2011	619	613	917
Future Volume (vph)	267	1548	2011	619	613	917
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320			270	400	400
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.88
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	5085	5085	1583	3433	2787
Flt Permitted	0.040				0.950	
Satd. Flow (perm)	75	5085	5085	1583	3433	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				369		4
Link Speed (mph)		40	40		25	
Link Distance (ft)		826	894		1070	
Travel Time (s)		14.1	15.2		29.2	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	270	1564	2031	625	619	926
Shared Lane Traffic (%)						
Lane Group Flow (vph)	270	1564	2031	625	619	926
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6			2		3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2	2	3	1
Switch Phase						
Minimum Initial (s)	7.0	16.0	16.0	16.0	7.0	7.0
Minimum Split (s)	14.9	22.6	22.6	22.6	20.0	14.9
Total Split (s)	43.0	133.0	90.0	90.0	47.0	43.0
Total Split (%)	23.9%	73.9%	50.0%	50.0%	26.1%	23.9%
Maximum Green (s)	35.1	126.4	83.4	83.4	39.1	35.1
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.9	2.6	2.6	2.6	3.9	3.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	6.6	6.6	6.6	7.9	7.9
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	128.0	129.3	91.0	91.0	36.2	74.5
Actuated g/C Ratio	0.71	0.72	0.51	0.51	0.20	0.41
v/c Ratio	0.80	0.43	0.79	0.64	0.90	0.80
Control Delay	81.4	3.2	22.1	6.4	86.4	51.6
Queue Delay	0.0	0.0	0.3	0.3	0.0	0.0
Total Delay	81.4	3.2	22.4	6.7	86.4	51.6
LOS	F	A	C	A	F	D
Approach Delay		14.7	18.7		65.6	
Approach LOS		B	B		E	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 17 (9%), Referenced to phase 2:WBT and 6:EBTL, Start of Green		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.90		
Intersection Signal Delay: 29.5		Intersection LOS: C
Intersection Capacity Utilization 89.8%		ICU Level of Service E
Analysis Period (min) 15		

Splits and Phases: 11: SW 24th Street & SR 826 SB Ramps



Queues
11: SW 24th Street & SR 826 SB Ramps

08/05/2019

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	270	1564	2031	625	619	926
v/c Ratio	0.80	0.43	0.79	0.64	0.90	0.80
Control Delay	81.4	3.2	22.1	6.4	86.4	51.6
Queue Delay	0.0	0.0	0.3	0.3	0.0	0.0
Total Delay	81.4	3.2	22.4	6.7	86.4	51.6
Queue Length 50th (ft)	177	37	353	92	368	538
Queue Length 95th (ft)	331	53	601	133	441	594
Internal Link Dist (ft)		746	814		990	
Turn Bay Length (ft)	320			270	400	400
Base Capacity (vph)	383	3651	2572	983	745	1229
Starvation Cap Reductn	0	437	137	60	0	0
Spillback Cap Reductn	0	68	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.49	0.83	0.68	0.83	0.75

Intersection Summary

HCM 6th Signalized Intersection Summary
11: SW 24th Street & SR 826 SB Ramps

08/05/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	267	1548	2011	619	613	917
Future Volume (veh/h)	267	1548	2011	619	613	917
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	270	1564	2031	0	619	926
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	304	3586	2949		751	831
Arrive On Green	0.16	1.00	1.00	0.00	0.22	0.22
Sat Flow, veh/h	1781	5274	5274	1585	3456	2790
Grp Volume(v), veh/h	270	1564	2031	0	619	926
Grp Sat Flow(s),veh/h/ln	1781	1702	1702	1585	1728	1395
Q Serve(g_s), s	11.8	0.0	0.0	0.0	30.7	39.1
Cycle Q Clear(g_c), s	11.8	0.0	0.0	0.0	30.7	39.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	304	3586	2949		751	831
V/C Ratio(X)	0.89	0.44	0.69		0.82	1.11
Avail Cap(c_a), veh/h	508	3586	2949		751	831
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.67	0.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	0.0	0.0	0.0	67.2	63.2
Incr Delay (d2), s/veh	8.7	0.3	0.9	0.0	7.5	67.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.1	0.2	0.0	14.5	27.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.7	0.3	0.9	0.0	74.6	130.6
LnGrp LOS	C	A	A		E	F
Approach Vol, veh/h		1834	2031	A	1545	
Approach Delay, s/veh		3.9	0.9		108.2	
Approach LOS		A	A		F	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	22.4	110.6			133.0	47.0
Change Period (Y+Rc), s	7.9	6.6			6.6	7.9
Max Green Setting (Gmax), s	35.1	83.4			126.4	39.1
Max Q Clear Time (g_c+I1), s	13.8	2.0			2.0	41.1
Green Ext Time (p_c), s	0.7	30.3			18.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1740	463	316	2183	447	473
Future Volume (vph)	1740	463	316	2183	447	473
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		435	155		260	260
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt		0.850			0.956	0.850
Flt Protected			0.950		0.966	
Satd. Flow (prot)	5085	1583	1770	5085	3337	1441
Flt Permitted			0.053		0.966	
Satd. Flow (perm)	5085	1583	99	5085	3337	1441
Right Turn on Red		Yes				No
Satd. Flow (RTOR)		464				
Link Speed (mph)	40			40	25	
Link Distance (ft)	894			399	1075	
Travel Time (s)	15.2			6.8	29.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1776	472	322	2228	456	483
Shared Lane Traffic (%)						39%
Lane Group Flow (vph)	1776	472	322	2228	644	295
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	36	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6	6	5	2	7	7
Switch Phase						
Minimum Initial (s)	18.0	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.5	24.5	11.2	24.5	20.0	20.0
Total Split (s)	83.0	83.0	45.0	128.0	52.0	52.0
Total Split (%)	46.1%	46.1%	25.0%	71.1%	28.9%	28.9%
Maximum Green (s)	76.5	76.5	38.8	121.5	44.2	44.2
Yellow Time (s)	4.0	4.0	3.7	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	86.8	86.8	125.3	125.0	40.7	40.7
Actuated g/C Ratio	0.48	0.48	0.70	0.69	0.23	0.23
v/c Ratio	0.72	0.47	0.88	0.63	0.85	0.91
Control Delay	36.2	5.9	95.4	6.7	78.4	97.8
Queue Delay	0.1	0.0	25.4	0.9	2.8	10.4
Total Delay	36.3	5.9	120.8	7.5	81.2	108.3
LOS	D	A	F	A	F	F
Approach Delay	29.9			21.8	89.7	
Approach LOS	C			C	F	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 17 (9%), Referenced to phase 2:WBTL and 6:EBT, Start of Green		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.91		
Intersection Signal Delay: 36.1		Intersection LOS: D
Intersection Capacity Utilization 85.9%		ICU Level of Service E
Analysis Period (min) 15		

Splits and Phases: 13: SR 826 NB Ramps & SW 24th Street



Queues
13: SR 826 NB Ramps & SW 24th Street

08/05/2019

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1776	472	322	2228	644	295
v/c Ratio	0.72	0.47	0.88	0.63	0.85	0.91
Control Delay	36.2	5.9	95.4	6.7	78.4	97.8
Queue Delay	0.1	0.0	25.4	0.9	2.8	10.4
Total Delay	36.3	5.9	120.8	7.5	81.2	108.3
Queue Length 50th (ft)	729	76	344	204	372	369
Queue Length 95th (ft)	811	75	m376	216	447	#542
Internal Link Dist (ft)	814			319	995	
Turn Bay Length (ft)		435	155		260	260
Base Capacity (vph)	2451	1003	429	3530	819	353
Starvation Cap Reductn	107	0	109	904	0	0
Spillback Cap Reductn	10	0	0	25	91	41
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.47	1.01	0.85	0.88	0.95

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
13: SR 826 NB Ramps & SW 24th Street

08/05/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1740	463	316	2183	447	473
Future Volume (vph)	1740	463	316	2183	447	473
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt	1.00	0.85	1.00	1.00	0.96	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.97	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3337	1441
Flt Permitted	1.00	1.00	0.05	1.00	0.97	1.00
Satd. Flow (perm)	5085	1583	98	5085	3337	1441
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1776	472	322	2228	456	483
RTOR Reduction (vph)	0	240	0	0	0	0
Lane Group Flow (vph)	1776	232	322	2228	644	295
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7
Actuated Green, G (s)	86.8	86.8	125.0	125.0	40.7	40.7
Effective Green, g (s)	86.8	86.8	125.0	125.0	40.7	40.7
Actuated g/C Ratio	0.48	0.48	0.69	0.69	0.23	0.23
Clearance Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2452	763	365	3531	754	325
v/s Ratio Prot	0.35		c0.16	0.44	0.19	
v/s Ratio Perm		0.15	c0.46			c0.20
v/c Ratio	0.72	0.30	0.88	0.63	0.85	0.91
Uniform Delay, d1	37.1	28.3	57.9	15.0	66.8	67.8
Progression Factor	0.89	1.63	1.59	0.41	1.00	1.00
Incremental Delay, d2	1.6	0.9	9.2	0.3	9.3	27.5
Delay (s)	34.5	46.9	101.4	6.4	76.1	95.3
Level of Service	C	D	F	A	E	F
Approach Delay (s)	37.1			18.4	82.1	
Approach LOS	D			B	F	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	1790	175	30	1851	53	121	52	37	48	19	509
Future Volume (vph)	248	1790	175	30	1851	53	121	52	37	48	19	509
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	230		0	30		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.996			0.938			0.856	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5019	0	1770	5065	0	1770	1747	0	1770	1595	0
Flt Permitted	0.050			0.054			0.076			0.697		
Satd. Flow (perm)	93	5019	0	101	5065	0	142	1747	0	1298	1595	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			3			20			215	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		399			526			351			1038	
Travel Time (s)		6.8			9.0			8.0			23.6	
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
Adj. Flow (vph)	256	1845	180	31	1908	55	125	54	38	49	20	525
Shared Lane Traffic (%)												
Lane Group Flow (vph)	256	2025	0	31	1963	0	125	92	0	49	545	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	11.5	20.0		11.5	20.0		11.4	38.0		11.4	20.0	
Total Split (s)	31.0	96.9		12.7	78.6		17.4	58.8		11.6	53.0	
Total Split (%)	17.2%	53.8%		7.1%	43.7%		9.7%	32.7%		6.4%	29.4%	
Maximum Green (s)	24.5	90.4		6.2	72.1		11.0	52.8		5.2	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.0		4.4	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)								7.0				
Flash Dont Walk (s)								25.0				
Pedestrian Calls (#/hr)								11				
Act Effct Green (s)	105.0	94.9		81.1	75.0		61.6	53.2		49.9	45.1	
Actuated g/C Ratio	0.58	0.53		0.45	0.42		0.34	0.30		0.28	0.25	
v/c Ratio	0.94	0.76		0.31	0.93		0.84	0.17		0.13	0.97	
Control Delay	113.3	21.4		28.9	54.6		85.4	37.8		40.7	71.1	
Queue Delay	5.1	0.8		0.0	45.0		23.9	0.0		0.0	44.1	
Total Delay	118.4	22.2		28.9	99.7		109.3	37.8		40.7	115.2	
LOS	F	C		C	F		F	D		D	F	
Approach Delay		33.0			98.6			79.0			109.1	
Approach LOS		C			F			E			F	

Intersection Summary		
Area Type:	Other	
Cycle Length: 180		
Actuated Cycle Length: 180		
Offset: 7 (4%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green		
Natural Cycle: 135		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.97		
Intersection Signal Delay: 69.5	Intersection LOS: E	
Intersection Capacity Utilization 110.7%	ICU Level of Service H	
Analysis Period (min) 15		

Splits and Phases: 16: SW 75th Ave & SW 24th Street



Queues
16: SW 75th Ave & SW 24th Street

08/05/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	256	2025	31	1963	125	92	49	545
v/c Ratio	0.94	0.76	0.31	0.93	0.84	0.17	0.13	0.97
Control Delay	113.3	21.4	28.9	54.6	85.4	37.8	40.7	71.1
Queue Delay	5.1	0.8	0.0	45.0	23.9	0.0	0.0	44.1
Total Delay	118.4	22.2	28.9	99.7	109.3	37.8	40.7	115.2
Queue Length 50th (ft)	280	253	12	834	103	63	39	429
Queue Length 95th (ft)	m#427	379	m16	#468	#221	116	72	#677
Internal Link Dist (ft)		319		446		271		958
Turn Bay Length (ft)	225		230		30		100	
Base Capacity (vph)	282	2652	103	2112	148	530	373	575
Starvation Cap Reductn	11	311	0	329	0	0	0	0
Spillback Cap Reductn	0	0	0	34	21	0	0	120
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.87	0.30	1.10	0.98	0.17	0.13	1.20

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 6th Signalized Intersection Summary
16: SW 75th Ave & SW 24th Street

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	248	1790	175	30	1851	53	121	52	37	48	19	509
Future Volume (veh/h)	248	1790	175	30	1851	53	121	52	37	48	19	509
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	256	1845	180	31	1908	55	125	54	38	49	20	525
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	271	2436	237	166	2108	61	149	300	211	422	15	401
Arrive On Green	0.25	1.00	1.00	0.01	0.28	0.28	0.06	0.29	0.29	0.03	0.26	0.26
Sat Flow, veh/h	1781	4732	459	1781	5101	147	1781	1022	719	1781	58	1535
Grp Volume(v), veh/h	256	1325	700	31	1273	690	125	0	92	49	0	545
Grp Sat Flow(s),veh/h/ln	1781	1702	1788	1781	1702	1844	1781	0	1741	1781	0	1594
Q Serve(g_s), s	20.0	0.0	0.0	1.8	64.9	65.1	9.1	0.0	7.1	3.6	0.0	47.0
Cycle Q Clear(g_c), s	20.0	0.0	0.0	1.8	64.9	65.1	9.1	0.0	7.1	3.6	0.0	47.0
Prop In Lane	1.00		0.26	1.00		0.08	1.00		0.41	1.00		0.96
Lane Grp Cap(c), veh/h	271	1752	920	166	1407	762	149	0	511	422	0	416
V/C Ratio(X)	0.94	0.76	0.76	0.19	0.90	0.91	0.84	0.00	0.18	0.12	0.00	1.31
Avail Cap(c_a), veh/h	294	1752	920	188	1407	762	149	0	511	423	0	416
HCM Platoon Ratio	2.00	2.00	2.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.58	0.58	0.58	0.72	0.72	0.72	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.3	0.0	0.0	29.4	61.7	61.7	49.9	0.0	47.4	46.7	0.0	66.5
Incr Delay (d2), s/veh	25.5	1.8	3.5	0.4	7.4	12.6	32.7	0.0	0.2	0.1	0.0	155.6
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(50%),veh/ln	12.0	0.4	0.9	0.8	30.3	33.9	5.5	0.0	3.2	1.7	0.0	37.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.9	1.8	3.5	29.8	69.1	74.3	82.6	0.0	47.6	46.8	0.0	222.1
LnGrp LOS	E	A	A	C	E	E	F	A	D	D	A	F
Approach Vol, veh/h		2281			1994			217			594	
Approach Delay, s/veh		10.4			70.3			67.7			207.7	
Approach LOS		B			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.7	80.9	17.4	53.0	10.4	99.2	11.5	58.9
Change Period (Y+Rc), s	6.5	6.5	6.4	6.0	6.5	6.5	6.4	6.0
Max Green Setting (Gmax), s	24.5	72.1	11.0	47.0	6.2	90.4	5.2	52.8
Max Q Clear Time (g_c+I1), s	22.0	67.1	11.1	49.0	3.8	2.0	5.6	9.1
Green Ext Time (p_c), s	0.2	4.2	0.0	0.0	0.0	28.3	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	59.4
HCM 6th LOS	E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	2046	30	211	1674	103	166	74	339	140	53	5
Future Volume (vph)	52	2046	30	211	1674	103	166	74	339	140	53	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	180		180	150		150
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5075	0	1770	5085	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.087			0.042			0.950			0.706		
Satd. Flow (perm)	162	5075	0	78	5085	1583	1770	1863	1583	1315	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				98			22			137
Link Speed (mph)		45			45			35			30	
Link Distance (ft)		1040			1585			1007			1001	
Travel Time (s)		15.8			24.0			19.6			22.8	
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
Adj. Flow (vph)	55	2154	32	222	1762	108	175	78	357	147	56	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	2186	0	222	1762	108	175	78	357	147	56	5
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pt+ov	Perm	NA	Perm
Protected Phases	1	6		5	2		7	4	4 5		8	
Permitted Phases	6			2		2				8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2	2	7	4	4 5	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	18.0		5.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0
Minimum Split (s)	11.8	24.8		24.8	24.8	24.8	26.5	26.5		24.8	24.8	24.8
Total Split (s)	15.4	93.5		31.9	110.0	110.0	30.6	64.6		34.0	34.0	34.0
Total Split (%)	8.1%	49.2%		16.8%	57.9%	57.9%	16.1%	34.0%		17.9%	17.9%	17.9%
Maximum Green (s)	8.6	86.7		25.1	103.2	103.2	24.1	58.1		27.2	27.2	27.2
Yellow Time (s)	4.8	4.8		4.8	4.8	4.8	4.0	4.0		4.8	4.8	4.8
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8		6.8	6.8	6.8	6.5	6.5		6.8	6.8	6.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	Max
Walk Time (s)		7.0								7.0	7.0	7.0
Flash Dont Walk (s)		11.0								11.0	11.0	11.0
Pedestrian Calls (#/hr)		5								5	5	5
Act Effct Green (s)	96.7	89.1		118.6	104.2	104.2	22.4	58.1	87.6	28.9	28.9	28.9
Actuated g/C Ratio	0.51	0.47		0.62	0.55	0.55	0.12	0.31	0.46	0.15	0.15	0.15
v/c Ratio	0.38	0.92		0.89	0.63	0.12	0.84	0.14	0.48	0.73	0.20	0.01
Control Delay	23.8	54.5		101.8	26.7	3.3	113.1	48.7	35.3	98.5	73.5	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.8	54.5		101.8	26.7	3.3	113.1	48.7	35.3	98.5	73.5	0.0
LOS	C	D		F	C	A	F	D	D	F	E	A
Approach Delay		53.7			33.4			59.3			89.4	
Approach LOS		D			C			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 190			
Actuated Cycle Length: 190			
Offset: 166 (87%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 47.6		Intersection LOS: D	
Intersection Capacity Utilization 92.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 4: SW 82nd Ave & SW 8th St



Queues
4: SW 82nd Ave & SW 8th St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	55	2186	222	1762	108	175	78	357	147	56	5
v/c Ratio	0.38	0.92	0.89	0.63	0.12	0.84	0.14	0.48	0.73	0.20	0.01
Control Delay	23.8	54.5	101.8	26.7	3.3	113.1	48.7	35.3	98.5	73.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.8	54.5	101.8	26.7	3.3	113.1	48.7	35.3	98.5	73.5	0.0
Queue Length 50th (ft)	26	950	221	513	2	216	71	281	180	63	0
Queue Length 95th (ft)	47	1015	#360	582	24	#338	119	381	#302	114	0
Internal Link Dist (ft)		960		1505			927			921	
Turn Bay Length (ft)	150		150		150	180		180	150		150
Base Capacity (vph)	156	2381	272	2789	912	224	569	761	200	283	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.92	0.82	0.63	0.12	0.78	0.14	0.47	0.73	0.20	0.01

Intersection Summary

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

HCM 6th Signalized Intersection Summary
4: SW 82nd Ave & SW 8th St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	2046	30	211	1674	103	166	74	339	140	53	5
Future Volume (veh/h)	52	2046	30	211	1674	103	166	74	339	140	53	5
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	2154	32	222	1762	108	175	78	357	147	56	5
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	171	2637	39	241	2972	922	193	535	608	174	268	227
Arrive On Green	0.02	0.51	0.51	0.10	0.58	0.58	0.11	0.29	0.29	0.14	0.14	0.14
Sat Flow, veh/h	1781	5184	77	1781	5106	1585	1781	1870	1585	954	1870	1585
Grp Volume(v), veh/h	55	1414	772	222	1762	108	175	78	357	147	56	5
Grp Sat Flow(s),veh/h/ln	1781	1702	1857	1781	1702	1585	1781	1870	1585	954	1870	1585
Q Serve(g_s), s	2.8	66.3	66.5	16.3	41.9	5.8	18.5	5.9	34.0	27.2	5.0	0.5
Cycle Q Clear(g_c), s	2.8	66.3	66.5	16.3	41.9	5.8	18.5	5.9	34.0	27.2	5.0	0.5
Prop In Lane	1.00		0.04	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	1732	944	241	2972	922	193	535	608	174	268	227
V/C Ratio(X)	0.32	0.82	0.82	0.92	0.59	0.12	0.91	0.15	0.59	0.84	0.21	0.02
Avail Cap(c_a), veh/h	207	1732	944	302	2972	922	226	572	640	174	268	227
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	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.0	39.2	39.3	58.5	25.4	17.8	83.7	50.6	46.5	82.4	71.9	70.0
Incr Delay (d2), s/veh	1.1	4.4	7.8	27.8	0.9	0.3	32.7	0.1	1.3	36.5	1.8	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(50%),veh/ln	1.2	28.1	31.7	12.5	16.8	2.2	10.3	2.8	13.9	9.1	2.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	43.6	47.1	86.3	26.2	18.1	116.5	50.7	47.8	118.9	73.7	70.1
LnGrp LOS	C	D	D	F	C	B	F	D	D	F	E	E
Approach Vol, veh/h		2241			2092			610			208	
Approach Delay, s/veh		44.3			32.2			67.9			105.5	
Approach LOS		D			C			E			F	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.5	117.4		61.1	25.4	103.5	27.1	34.0				
Change Period (Y+Rc), s	6.8	6.8		* 6.8	6.8	6.8	6.5	6.8				
Max Green Setting (Gmax), s	8.6	103.2		* 58	25.1	86.7	24.1	27.2				
Max Q Clear Time (g_c+I1), s	4.8	43.9		36.0	18.3	68.5	20.5	29.2				
Green Ext Time (p_c), s	0.0	21.0		1.6	0.3	13.4	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay			44.7									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	2199	50	27	1707	12	150	177	16	42	129	122
Future Volume (vph)	149	2199	50	27	1707	12	150	177	16	42	129	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	150		0	80		0	100		225
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997				0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3529	0	1770	3539	1583	1770	1839	0	1770	1863	1583
Flt Permitted	0.049			0.033			0.342			0.367		
Satd. Flow (perm)	91	3529	0	61	3539	1583	637	1839	0	684	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				158		2				52
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		838			352			1001			1025	
Travel Time (s)		12.7			5.3			19.5			20.0	
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
Adj. Flow (vph)	157	2315	53	28	1797	13	158	186	17	44	136	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	157	2368	0	28	1797	13	158	203	0	44	136	128
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6			2		Free	4			8		8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.4	30.0		11.0	27.0		11.1	29.4		11.1	29.4	11.4
Total Split (s)	22.6	133.8		11.0	122.2		15.8	34.0		11.2	29.4	22.6
Total Split (%)	11.9%	70.4%		5.8%	64.3%		8.3%	17.9%		5.9%	15.5%	11.9%
Maximum Green (s)	16.6	127.8		5.0	116.2		9.7	27.6		5.1	23.0	16.6
Yellow Time (s)	4.0	4.0		4.0	4.0		3.7	4.0		3.7	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.4	2.4		2.4	2.4	2.0
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)	6.0	6.0		6.0	6.0		6.1	6.4		6.1	6.4	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		6.0			6.0			5.0			5.0	
Flash Dont Walk (s)		14.0			14.0			18.0			18.0	
Pedestrian Calls (#/hr)		1			4			0			0	
Act Effct Green (s)	142.1	132.8		126.8	121.3	190.0	34.6	26.6		25.1	19.7	40.9
Actuated g/C Ratio	0.75	0.70		0.67	0.64	1.00	0.18	0.14		0.13	0.10	0.22
v/c Ratio	0.79	0.96		0.31	0.80	0.01	0.91	0.79		0.37	0.70	0.34
Control Delay	66.5	30.6		22.0	29.7	0.0	118.1	99.3		73.1	101.2	37.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	66.5	30.6		22.0	29.7	0.0	118.1	99.3		73.1	101.2	37.9
LOS	E	C		C	C	A	F	F		E	F	D
Approach Delay		32.8			29.3			107.5			70.9	
Approach LOS		C			C			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 190			
Actuated Cycle Length: 190			
Offset: 73 (38%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 39.2		Intersection LOS: D	
Intersection Capacity Utilization 102.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 6: SW 74th Ave & SW 8th St



Queues
6: SW 74th Ave & SW 8th St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	157	2368	28	1797	13	158	203	44	136	128
v/c Ratio	0.79	0.96	0.31	0.80	0.01	0.91	0.79	0.37	0.70	0.34
Control Delay	66.5	30.6	22.0	29.7	0.0	118.1	99.3	73.1	101.2	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.5	30.6	22.0	29.7	0.0	118.1	99.3	73.1	101.2	37.9
Queue Length 50th (ft)	106	1592	9	894	0	176	248	46	165	77
Queue Length 95th (ft)	m161	#1696	24	1006	0	#314	#361	87	248	146
Internal Link Dist (ft)		758		272			921		945	
Turn Bay Length (ft)	225		150			80		100		225
Base Capacity (vph)	215	2467	90	2259	1583	173	270	119	225	397
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	0.73	0.96	0.31	0.80	0.01	0.91	0.75	0.37	0.60	0.32

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
6: SW 74th Ave & SW 8th St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	2199	50	27	1707	12	150	177	16	42	129	122
Future Volume (vph)	149	2199	50	27	1707	12	150	177	16	42	129	122
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	4.0	6.1	6.4		6.1	6.4	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3527		1770	3539	1583	1770	1839		1770	1863	1583
Flt Permitted	0.05	1.00		0.03	1.00	1.00	0.34	1.00		0.37	1.00	1.00
Satd. Flow (perm)	92	3527		62	3539	1583	638	1839		684	1863	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)	157	2315	53	28	1797	13	158	186	17	44	136	128
RTOR Reduction (vph)	0	1	0	0	0	0	0	2	0	0	0	42
Lane Group Flow (vph)	157	2367	0	28	1797	13	158	201	0	44	136	86
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	140.8	130.4		124.4	120.0	190.0	36.3	26.6		25.1	21.0	35.8
Effective Green, g (s)	140.8	130.4		124.4	120.0	190.0	36.3	26.6		25.1	21.0	35.8
Actuated g/C Ratio	0.74	0.69		0.65	0.63	1.00	0.19	0.14		0.13	0.11	0.19
Clearance Time (s)	6.0	6.0		6.0	6.0		6.1	6.4		6.1	6.4	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	198	2420		80	2235	1583	179	257		113	205	298
v/s Ratio Prot	c0.06	c0.67		0.01	0.51		c0.04	0.11		0.01	0.07	0.02
v/s Ratio Perm	0.52			0.22		0.01	c0.12			0.04		0.03
v/c Ratio	0.79	0.98		0.35	0.80	0.01	0.88	0.78		0.39	0.66	0.29
Uniform Delay, d1	55.0	28.4		47.5	26.2	0.0	73.4	78.9		73.8	81.1	66.2
Progression Factor	1.12	0.78		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	15.5	11.8		2.6	3.2	0.0	36.2	14.4		2.2	7.8	0.5
Delay (s)	77.1	33.9		50.1	29.4	0.0	109.7	93.3		76.0	88.9	66.7
Level of Service	E	C		D	C	A	F	F		E	F	E
Approach Delay (s)		36.6			29.5			100.5			77.8	
Approach LOS		D			C			F			E	

Intersection Summary

HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	102.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2191	412	381	1428	0	0
Future Volume (vph)	2191	412	381	1428	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	240		0	0
Storage Lanes		0	2		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	0.91	0.97	0.91	1.00	1.00
Frt	0.976					
Flt Protected			0.950			
Satd. Flow (prot)	4963	0	3433	5085	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	4963	0	3433	5085	0	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	15					
Link Speed (mph)	45			45	40	
Link Distance (ft)	1585			359	1026	
Travel Time (s)	24.0			5.4	17.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2306	434	401	1503	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2740	0	401	1503	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2		
Detector Template	Thru		Left	Thru		
Leading Detector (ft)	100		20	100		
Trailing Detector (ft)	0		0	0		
Detector 1 Position(ft)	0		0	0		
Detector 1 Size(ft)	6		20	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0		
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6		5			
Switch Phase						
Minimum Initial (s)	69.0		5.0			
Minimum Split (s)	75.8		11.8			
Total Split (s)	76.0		19.0			
Total Split (%)	80.0%		20.0%			
Maximum Green (s)	69.2		12.2			
Yellow Time (s)	4.8		4.8			
All-Red Time (s)	2.0		2.0			
Lost Time Adjust (s)	0.0		0.0			
Total Lost Time (s)	6.8		6.8			
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0			
Recall Mode	C-Max		None			
Walk Time (s)	7.0					
Flash Dont Walk (s)	7.0					
Pedestrian Calls (#/hr)	4					
Act Effct Green (s)	69.2		12.2	95.0		
Actuated g/C Ratio	0.73		0.13	1.00		
v/c Ratio	0.76		0.91	0.30		
Control Delay	8.4		65.9	0.1		
Queue Delay	0.0		0.0	0.0		
Total Delay	8.4		65.9	0.1		
LOS	A		E	A		
Approach Delay	8.4			14.0		
Approach LOS	A			B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 92 (97%), Referenced to phase 6:EBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 79.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 8: SR826 SB on-ramp & SW 8th St



Queues
8: SR826 SB on-ramp & SW 8th St

08/09/2019

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	2740	401	1503
v/c Ratio	0.76	0.91	0.30
Control Delay	8.4	65.9	0.1
Queue Delay	0.0	0.0	0.0
Total Delay	8.4	65.9	0.1
Queue Length 50th (ft)	297	146	0
Queue Length 95th (ft)	317	#214	0
Internal Link Dist (ft)	1505		279
Turn Bay Length (ft)		240	
Base Capacity (vph)	3619	440	5085
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.76	0.91	0.30

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

HCM Signalized Intersection Capacity Analysis
8: SR826 SB on-ramp & SW 8th St

08/09/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2191	412	381	1428	0	0
Future Volume (vph)	2191	412	381	1428	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8		6.8	4.0		
Lane Util. Factor	0.91		0.97	0.91		
Frt	0.98		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4964		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	4964		3433	5085		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2306	434	401	1503	0	0
RTOR Reduction (vph)	4	0	0	0	0	0
Lane Group Flow (vph)	2736	0	401	1503	0	0
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						
Actuated Green, G (s)	69.2		12.2	95.0		
Effective Green, g (s)	69.2		12.2	95.0		
Actuated g/C Ratio	0.73		0.13	1.00		
Clearance Time (s)	6.8		6.8			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	3615		440	5085		
v/s Ratio Prot	c0.55		c0.12	0.30		
v/s Ratio Perm						
v/c Ratio	0.76		0.91	0.30		
Uniform Delay, d1	7.8		40.9	0.0		
Progression Factor	0.96		1.01	1.00		
Incremental Delay, d2	0.8		21.5	0.1		
Delay (s)	8.3		62.6	0.1		
Level of Service	A		E	A		
Approach Delay (s)	8.3			13.3	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	420	666	0	917	0	0
Future Volume (vph)	420	666	0	917	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00
Frt	0.908					
Flt Protected						
Satd. Flow (prot)	3214	0	0	1863	0	0
Flt Permitted						
Satd. Flow (perm)	3214	0	0	1863	0	0
Link Speed (mph)	40			30	40	
Link Distance (ft)	770			371	322	
Travel Time (s)	13.1			8.4	5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	442	701	0	965	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1143	0	0	965	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1780	917	0	1389	420	0
Future Volume (vph)	1780	917	0	1389	420	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	1.00	0.95	0.97	1.00
Frt	0.949					
Flt Protected					0.950	
Satd. Flow (prot)	4826	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	4826	0	0	3539	3433	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	291					
Link Speed (mph)	45			45	25	
Link Distance (ft)	316			233	371	
Travel Time (s)	4.8			3.5	10.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1874	965	0	1462	442	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2839	0	0	1462	442	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (ft)	100			100	20	
Trailing Detector (ft)	0			0	0	
Detector 1 Position(ft)	0			0	0	
Detector 1 Size(ft)	6			6	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Detector Phase	6			6	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	

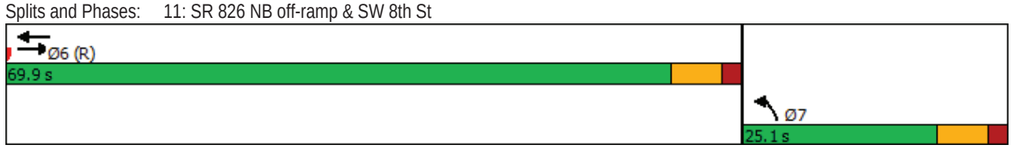
Lanes, Volumes, Timings
11: SR 826 NB off-ramp & SW 8th St

08/09/2019

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	24.8			24.8	24.8	
Total Split (s)	69.9			69.9	25.1	
Total Split (%)	73.6%			73.6%	26.4%	
Maximum Green (s)	63.1			63.1	18.3	
Yellow Time (s)	4.8			4.8	4.8	
All-Red Time (s)	2.0			2.0	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.8			6.8	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	Max	
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	11.0			11.0		
Pedestrian Calls (#/hr)	4			4		
Act Effct Green (s)	63.1			63.1	18.3	
Actuated g/C Ratio	0.66			0.66	0.19	
v/c Ratio	0.86			0.62	0.67	
Control Delay	9.4			12.5	41.2	
Queue Delay	1.6			0.0	0.0	
Total Delay	11.0			12.5	41.2	
LOS	B			B	D	
Approach Delay	11.0			12.5	41.2	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 17 (18%), Referenced to phase 6:EBWB, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 14.3		Intersection LOS: B	
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 11: SR 826 NB off-ramp & SW 8th St



Queues
11: SR 826 NB off-ramp & SW 8th St

08/09/2019

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	2839	1462	442
v/c Ratio	0.86	0.62	0.67
Control Delay	9.4	12.5	41.2
Queue Delay	1.6	0.0	0.0
Total Delay	11.0	12.5	41.2
Queue Length 50th (ft)	408	427	128
Queue Length 95th (ft)	122	333	180
Internal Link Dist (ft)	236	153	291
Turn Bay Length (ft)			
Base Capacity (vph)	3303	2350	661
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	285	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.94	0.62	0.67

Intersection Summary

HCM Signalized Intersection Capacity Analysis
11: SR 826 NB off-ramp & SW 8th St

08/09/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1780	917	0	1389	420	0
Future Volume (vph)	1780	917	0	1389	420	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8			6.8	6.8	
Lane Util. Factor	0.91			0.95	0.97	
Frt	0.95			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4826			3539	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4826			3539	3433	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1874	965	0	1462	442	0
RTOR Reduction (vph)	98	0	0	0	0	0
Lane Group Flow (vph)	2741	0	0	1462	442	0
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Actuated Green, G (s)	63.1			63.1	18.3	
Effective Green, g (s)	63.1			63.1	18.3	
Actuated g/C Ratio	0.66			0.66	0.19	
Clearance Time (s)	6.8			6.8	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3205			2350	661	
v/s Ratio Prot	c0.57			0.41	c0.13	
v/s Ratio Perm						
v/c Ratio	0.86			0.62	0.67	
Uniform Delay, d1	12.4			9.1	35.5	
Progression Factor	0.61			1.27	1.00	
Incremental Delay, d2	2.5			0.8	5.3	
Delay (s)	10.1			12.3	40.8	
Level of Service	B			B	D	
Approach Delay (s)	10.1			12.3	40.8	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
14: NB to EB off-ramp & SW 8th St & SR 826 NB on-ramp

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SER	NEL	NER
Lane Configurations										
Traffic Volume (vph)	0	1780	0	0	1389	612	0	0	0	666
Future Volume (vph)	0	1780	0	0	1389	612	0	0	0	666
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.954					0.865
Flt Protected										
Satd. Flow (prot)	0	3539	0	0	3376	0	0	0	0	1611
Flt Permitted										
Satd. Flow (perm)	0	3539	0	0	3376	0	0	0	0	1611
Link Speed (mph)		45			45		25		30	
Link Distance (ft)		300			838		991		452	
Travel Time (s)		4.5			12.7		27.0		10.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1874	0	0	1462	644	0	0	0	701
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	1874	0	0	2106	0	0	0	0	701
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(ft)		12			12		0		0	
Link Offset(ft)		0			0		0		0	
Crosswalk Width(ft)		16			16		16		16	
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	9	15	9
Sign Control		Free			Free		Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	2191	0	0	1215	0	0	0	506	0	0	594
Future Volume (vph)	0	2191	0	0	1215	0	0	0	506	0	0	594
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt									0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	5085	0	0	3539	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	5085	0	0	3539	0	0	0	1611	0	0	1611
Link Speed (mph)		45			45			20			40	
Link Distance (ft)		359			373			399			1019	
Travel Time (s)		5.4			5.7			13.6			17.4	
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
Adj. Flow (vph)	0	2306	0	0	1279	0	0	0	533	0	0	625
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2306	0	0	1279	0	0	0	533	0	0	625
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1883	84	197	2861	39	147	97	198	116	129	9
Future Volume (vph)	41	1883	84	197	2861	39	147	97	198	116	129	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	180		180	150		150
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5055	0	1770	5085	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.039			0.037			0.315			0.691		
Satd. Flow (perm)	73	5055	0	69	5085	1583	587	1863	1583	1287	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				124			48			163
Link Speed (mph)		45			45			35			30	
Link Distance (ft)		1040			1585			1007			1067	
Travel Time (s)		15.8			24.0			19.6			24.3	
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
Adj. Flow (vph)	43	1982	88	207	3012	41	155	102	208	122	136	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	2070	0	207	3012	41	155	102	208	122	136	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	pt+ov	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4	4 5	3	8	
Permitted Phases	6			2		2	4			8		8

Lanes, Volumes, Timings
4: SW 82nd Ave & SW 8th St

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2	2	7	4	4 5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	18.0		5.0	18.0	18.0	18.0	18.0		5.0	18.0	18.0
Minimum Split (s)	11.8	24.8		20.0	24.8	24.8	26.5	26.5		9.5	24.8	24.8
Total Split (s)	11.8	103.5		35.0	126.7	126.7	26.5	34.3		17.2	25.0	25.0
Total Split (%)	6.2%	54.5%		18.4%	66.7%	66.7%	13.9%	18.1%		9.1%	13.2%	13.2%
Maximum Green (s)	5.0	96.7		28.2	119.9	119.9	20.0	27.8		12.7	18.2	18.2
Yellow Time (s)	4.8	4.8		4.8	4.8	4.8	4.0	4.0		3.5	4.8	4.8
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8		6.8	6.8	6.8	6.5	6.5		4.5	6.8	6.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	Max	Max
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							11.0	11.0				
Pedestrian Calls (#/hr)							2	2				
Act Effct Green (s)	107.8	102.8		131.7	122.3	122.3	45.0	28.2	57.1	33.6	19.0	19.0
Actuated g/C Ratio	0.57	0.54		0.69	0.64	0.64	0.24	0.15	0.30	0.18	0.10	0.10
v/c Ratio	0.50	0.76		0.84	0.92	0.04	0.60	0.37	0.41	0.47	0.73	0.03
Control Delay	44.8	36.7		84.0	35.5	0.1	71.2	77.4	41.9	65.9	105.0	0.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	36.7		84.0	35.5	0.1	71.2	77.4	41.9	65.9	105.0	0.2
LOS	D	D		F	D	A	E	E	D	E	F	A
Approach Delay		36.9			38.1			59.5			83.6	
Approach LOS		D			D			E			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 190	
Actuated Cycle Length: 190	
Offset: 4 (2%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 41.3	Intersection LOS: D
Intersection Capacity Utilization 111.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 4: SW 82nd Ave & SW 8th St



Queues
4: SW 82nd Ave & SW 8th St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	2070	207	3012	41	155	102	208	122	136	9
v/c Ratio	0.50	0.76	0.84	0.92	0.04	0.60	0.37	0.41	0.47	0.73	0.03
Control Delay	44.8	36.7	84.0	35.5	0.1	71.2	77.4	41.9	65.9	105.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	36.7	84.0	35.5	0.1	71.2	77.4	41.9	65.9	105.0	0.2
Queue Length 50th (ft)	16	728	204	1236	0	164	117	160	125	169	0
Queue Length 95th (ft)	54	833	295	1260	m0	243	186	235	192	#281	0
Internal Link Dist (ft)		960		1505			927			987	
Turn Bay Length (ft)	150		150		150	180		180	150		150
Base Capacity (vph)	86	2738	300	3271	1062	263	276	559	262	186	305
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.76	0.69	0.92	0.04	0.59	0.37	0.37	0.47	0.73	0.03

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 6th Signalized Intersection Summary
4: SW 82nd Ave & SW 8th St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1883	84	197	2861	39	147	97	198	116	129	9
Future Volume (veh/h)	41	1883	84	197	2861	39	147	97	198	116	129	9
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	1982	88	207	3012	41	155	102	208	122	136	9
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	90	3005	133	227	3290	1021	238	251	321	247	179	152
Arrive On Green	0.02	0.60	0.60	0.07	0.64	0.64	0.09	0.13	0.13	0.07	0.10	0.10
Sat Flow, veh/h	1781	5012	222	1781	5106	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	43	1344	726	207	3012	41	155	102	208	122	136	9
Grp Sat Flow(s),veh/h/ln	1781	1702	1830	1781	1702	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.8	49.7	50.0	10.5	97.2	1.8	14.5	9.5	22.9	11.7	13.5	1.0
Cycle Q Clear(g_c), s	1.8	49.7	50.0	10.5	97.2	1.8	14.5	9.5	22.9	11.7	13.5	1.0
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	2040	1097	227	3290	1021	238	251	321	247	179	152
V/C Ratio(X)	0.48	0.66	0.66	0.91	0.92	0.04	0.65	0.41	0.65	0.49	0.76	0.06
Avail Cap(c_a), veh/h	95	2040	1097	370	3290	1021	256	274	340	247	179	152
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	0.70	0.70	0.70	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	25.2	25.3	43.1	29.3	12.3	67.1	75.3	69.5	71.5	83.8	78.1
Incr Delay (d2), s/veh	3.9	1.7	3.1	13.1	3.8	0.1	5.2	1.1	3.9	1.5	25.6	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(50%),veh/ln	1.3	20.0	22.1	10.8	38.4	0.7	7.0	4.7	9.7	5.5	7.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.9	26.9	28.4	56.2	33.1	12.4	72.4	76.4	73.4	73.0	109.4	78.9
LnGrp LOS	D	C	C	E	C	B	E	E	E	E	F	E
Approach Vol, veh/h		2113			3260			465			267	
Approach Delay, s/veh		27.8			34.3			73.7			91.7	
Approach LOS		C			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	129.2	17.2	32.3	19.8	120.7	24.5	25.0
Change Period (Y+Rc), s	6.8	6.8	4.5	* 6.8	6.8	6.8	6.5	6.8
Max Green Setting (Gmax), s	5.0	119.9	12.7	* 28	28.2	96.7	20.0	18.2
Max Q Clear Time (g_c+I1), s	3.8	99.2	13.7	24.9	12.5	52.0	16.5	15.5
Green Ext Time (p_c), s	0.0	19.2	0.0	0.4	0.5	22.3	0.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
6: SW 74th Ave & SW 8th St

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	1701	63	20	2508	9	102	87	14	61	83	16
Future Volume (vph)	127	1701	63	20	2508	9	102	87	14	61	83	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	150		0	80		0	100		225
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3522	0	1770	3539	1583	1770	1824	0	1770	1863	1583
Flt Permitted	0.030			0.079			0.681			0.438		
Satd. Flow (perm)	56	3522	0	147	3539	1583	1269	1824	0	816	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				123		3				52
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		838			352			1001			1025	
Travel Time (s)		12.7			5.3			19.5			20.0	
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
Adj. Flow (vph)	134	1791	66	21	2640	9	107	92	15	64	87	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	1857	0	21	2640	9	107	107	0	64	87	17
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6			2		Free	4			8		8

Lanes, Volumes, Timings
6: SW 74th Ave & SW 8th St

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.4	30.0		11.0	27.0		11.1	20.0		11.1	29.4	11.4
Total Split (s)	15.0	138.5		11.0	134.5		11.1	27.5		13.0	29.4	15.0
Total Split (%)	7.9%	72.9%		5.8%	70.8%		5.8%	14.5%		6.8%	15.5%	7.9%
Maximum Green (s)	9.0	132.5		5.0	128.5		5.0	21.1		6.9	23.0	9.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.7	4.0		3.7	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.4	2.4		2.4	2.4	2.0
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)	6.0	6.0		6.0	6.0		6.1	6.4		6.1	6.4	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		6.0			6.0			5.0			5.0	
Flash Dont Walk (s)		14.0			14.0			18.0			18.0	
Pedestrian Calls (#/hr)		1			4			0			0	
Act Effct Green (s)	148.1	141.6		134.2	128.5	190.0	21.3	16.0		25.1	17.9	38.4
Actuated g/C Ratio	0.78	0.75		0.71	0.68	1.00	0.11	0.08		0.13	0.09	0.20
v/c Ratio	0.78	0.71		0.14	1.10	0.01	0.69	0.69		0.45	0.50	0.05
Control Delay	84.9	11.0		7.6	83.7	0.0	99.1	103.5		80.4	90.8	0.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	84.9	11.0		7.6	83.7	0.0	99.1	103.5		80.4	90.8	0.2
LOS	F	B		A	F	A	F	F		F	F	A
Approach Delay		16.0			82.8			101.3			77.7	
Approach LOS		B			F			F			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 190	
Actuated Cycle Length: 190	
Offset: 80 (42%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 57.0	Intersection LOS: E
Intersection Capacity Utilization 104.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: SW 74th Ave & SW 8th St



Queues
6: SW 74th Ave & SW 8th St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	134	1857	21	2640	9	107	107	64	87	17
v/c Ratio	0.78	0.71	0.14	1.10	0.01	0.69	0.69	0.45	0.50	0.05
Control Delay	84.9	11.0	7.6	83.7	0.0	99.1	103.5	80.4	90.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.9	11.0	7.6	83.7	0.0	99.1	103.5	80.4	90.8	0.2
Queue Length 50th (ft)	107	771	5	~1962	0	122	129	71	105	0
Queue Length 95th (ft)	#295	720	14	#2054	0	187	199	121	168	0
Internal Link Dist (ft)		758		272			921		945	
Turn Bay Length (ft)	225		150			80		100		225
Base Capacity (vph)	171	2626	152	2393	1583	155	205	142	225	361
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	0.78	0.71	0.14	1.10	0.01	0.69	0.52	0.45	0.39	0.05

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
6: SW 74th Ave & SW 8th St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	1701	63	20	2508	9	102	87	14	61	83	16
Future Volume (vph)	127	1701	63	20	2508	9	102	87	14	61	83	16
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	4.0	6.1	6.4		6.1	6.4	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3520		1770	3539	1583	1770	1824		1770	1863	1583
Flt Permitted	0.03	1.00		0.08	1.00	1.00	0.68	1.00		0.44	1.00	1.00
Satd. Flow (perm)	55	3520		148	3539	1583	1269	1824		816	1863	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)	134	1791	66	21	2640	9	107	92	15	64	87	17
RTOR Reduction (vph)	0	1	0	0	0	0	0	3	0	0	0	14
Lane Group Flow (vph)	134	1856	0	21	2640	9	107	104	0	64	87	3
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	148.6	139.2		131.9	128.5	190.0	21.0	16.0		24.8	17.9	32.0
Effective Green, g (s)	148.6	139.2		131.9	128.5	190.0	21.0	16.0		24.8	17.9	32.0
Actuated g/C Ratio	0.78	0.73		0.69	0.68	1.00	0.11	0.08		0.13	0.09	0.17
Clearance Time (s)	6.0	6.0		6.0	6.0		6.1	6.4		6.1	6.4	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	170	2578		131	2393	1583	153	153		141	175	266
v/s Ratio Prot	c0.06	c0.53		0.00	c0.75		c0.02	0.06		0.02	0.05	0.00
v/s Ratio Perm	0.55			0.11		c0.01	c0.06			0.04		0.00
v/c Ratio	0.79	0.72		0.16	1.10	0.01	0.70	0.68		0.45	0.50	0.01
Uniform Delay, d1	71.8	14.4		14.5	30.8	0.0	80.8	84.5		74.6	81.8	65.8
Progression Factor	1.20	0.66		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	19.5	1.6		0.6	53.4	0.0	13.1	11.8		2.3	2.2	0.0
Delay (s)	105.4	11.1		15.1	84.2	0.0	93.9	96.3		76.9	84.0	65.8
Level of Service	F	B		B	F	A	F	F		E	F	E
Approach Delay (s)		17.4			83.4			95.1			79.5	
Approach LOS		B			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	57.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
8: SR826 SB on-ramp & SW 8th St

08/09/2019

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1667	612	641	3189	0	0
Future Volume (vph)	1667	612	641	3189	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	240		0	0
Storage Lanes		0	2		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	0.91	0.97	0.91	1.00	1.00
Frt	0.960					
Flt Protected			0.950			
Satd. Flow (prot)	4882	0	3433	5085	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	4882	0	3433	5085	0	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	35					
Link Speed (mph)	45			45	40	
Link Distance (ft)	1585			359	1026	
Travel Time (s)	24.0			5.4	17.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1755	644	675	3357	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2399	0	675	3357	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2		
Detector Template	Thru		Left	Thru		
Leading Detector (ft)	100		20	100		
Trailing Detector (ft)	0		0	0		
Detector 1 Position(ft)	0		0	0		
Detector 1 Size(ft)	6		20	6		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0		
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						

Lanes, Volumes, Timings
8: SR826 SB on-ramp & SW 8th St

08/09/2019

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	6		5			
Switch Phase						
Minimum Initial (s)	18.0		5.0			
Minimum Split (s)	24.8		11.8			
Total Split (s)	63.0		32.0			
Total Split (%)	66.3%		33.7%			
Maximum Green (s)	56.2		25.2			
Yellow Time (s)	4.8		4.8			
All-Red Time (s)	2.0		2.0			
Lost Time Adjust (s)	0.0		0.0			
Total Lost Time (s)	6.8		6.8			
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0			
Recall Mode	C-Max		None			
Walk Time (s)	7.0					
Flash Dont Walk (s)	7.0					
Pedestrian Calls (#/hr)	4					
Act Effct Green (s)	58.6		22.8	95.0		
Actuated g/C Ratio	0.62		0.24	1.00		
v/c Ratio	0.79		0.82	0.66		
Control Delay	12.2		32.9	0.2		
Queue Delay	0.0		0.0	0.0		
Total Delay	12.2		32.9	0.2		
LOS	B		C	A		
Approach Delay	12.2			5.7		
Approach LOS	B			A		

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 24 (25%), Referenced to phase 6:EBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 8.1		Intersection LOS: A	
Intersection Capacity Utilization 75.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 8: SR826 SB on-ramp & SW 8th St



Queues
8: SR826 SB on-ramp & SW 8th St

08/09/2019

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	2399	675	3357
v/c Ratio	0.79	0.82	0.66
Control Delay	12.2	32.9	0.2
Queue Delay	0.0	0.0	0.0
Total Delay	12.2	32.9	0.2
Queue Length 50th (ft)	331	189	0
Queue Length 95th (ft)	459	m169	m0
Internal Link Dist (ft)	1505		279
Turn Bay Length (ft)		240	
Base Capacity (vph)	3026	910	5085
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.79	0.74	0.66

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

HCM Signalized Intersection Capacity Analysis
8: SR826 SB on-ramp & SW 8th St

08/09/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1667	612	641	3189	0	0
Future Volume (vph)	1667	612	641	3189	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8		6.8	4.0		
Lane Util. Factor	0.91		0.97	0.91		
Frt	0.96		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4881		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	4881		3433	5085		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1755	644	675	3357	0	0
RTOR Reduction (vph)	13	0	0	0	0	0
Lane Group Flow (vph)	2386	0	675	3357	0	0
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						
Actuated Green, G (s)	58.6		22.8	95.0		
Effective Green, g (s)	58.6		22.8	95.0		
Actuated g/C Ratio	0.62		0.24	1.00		
Clearance Time (s)	6.8		6.8			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	3010		823	5085		
v/s Ratio Prot	c0.49		0.20	0.66		
v/s Ratio Perm						
v/c Ratio	0.79		0.82	0.66		
Uniform Delay, d1	13.6		34.2	0.0		
Progression Factor	0.76		0.87	1.00		
Incremental Delay, d2	1.6		2.4	0.2		
Delay (s)	12.0		32.1	0.2		
Level of Service	B		C	A		
Approach Delay (s)	12.0			5.6	0.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
10: SR 826 NB off-ramp

08/09/2019

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	829	615	0	630	0	0
Future Volume (vph)	829	615	0	630	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00
Frt	0.936					
Flt Protected						
Satd. Flow (prot)	3313	0	0	1863	0	0
Flt Permitted						
Satd. Flow (perm)	3313	0	0	1863	0	0
Link Speed (mph)	40			30	40	
Link Distance (ft)	770			371	322	
Travel Time (s)	13.1			8.4	5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	873	647	0	663	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1520	0	0	663	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Free	

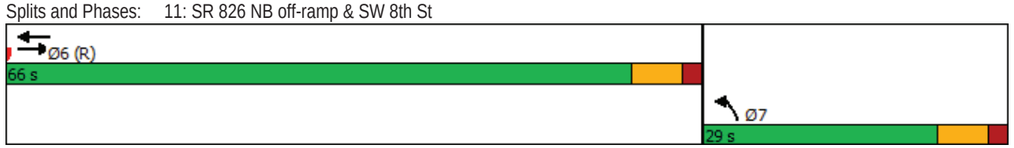
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1296	630	0	2375	829	0
Future Volume (vph)	1296	630	0	2375	829	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	1.00	0.95	0.97	1.00
Frt	0.951					
Flt Protected					0.950	
Satd. Flow (prot)	4836	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	4836	0	0	3539	3433	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	245					
Link Speed (mph)	45			45	25	
Link Distance (ft)	316			233	371	
Travel Time (s)	4.8			3.5	10.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1364	663	0	2500	873	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2027	0	0	2500	873	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (ft)	100			100	20	
Trailing Detector (ft)	0			0	0	
Detector 1 Position(ft)	0			0	0	
Detector 1 Size(ft)	6			6	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Detector Phase	6			6	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	24.8			24.8	24.8	
Total Split (s)	66.0			66.0	29.0	
Total Split (%)	69.5%			69.5%	30.5%	
Maximum Green (s)	59.2			59.2	22.2	
Yellow Time (s)	4.8			4.8	4.8	
All-Red Time (s)	2.0			2.0	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.8			6.8	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	Max	
Walk Time (s)	7.0			7.0	0.0	
Flash Dont Walk (s)	11.0			11.0	0.0	
Pedestrian Calls (#/hr)	1			1	0	
Act Effct Green (s)	59.2			59.2	22.2	
Actuated g/C Ratio	0.62			0.62	0.23	
v/c Ratio	0.65			1.13	1.09	
Control Delay	1.1			98.8	94.4	
Queue Delay	0.0			0.0	0.0	
Total Delay	1.1			98.8	94.4	
LOS	A			F	F	
Approach Delay	1.1			98.8	94.4	
Approach LOS	A			F	F	

Intersection Summary		
Area Type:	Other	
Cycle Length: 95		
Actuated Cycle Length: 95		
Offset: 37 (39%), Referenced to phase 6:EBWB, Start of Green		
Natural Cycle: 150		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.13		
Intersection Signal Delay: 61.4	Intersection LOS: E	
Intersection Capacity Utilization 100.6%	ICU Level of Service G	
Analysis Period (min) 15		

Splits and Phases: 11: SR 826 NB off-ramp & SW 8th St



Queues
11: SR 826 NB off-ramp & SW 8th St

08/09/2019

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	2027	2500	873
v/c Ratio	0.65	1.13	1.09
Control Delay	1.1	98.8	94.4
Queue Delay	0.0	0.0	0.0
Total Delay	1.1	98.8	94.4
Queue Length 50th (ft)	4	~1125	~307
Queue Length 95th (ft)	4	m#1595	#426
Internal Link Dist (ft)	236	153	291
Turn Bay Length (ft)			
Base Capacity (vph)	3105	2205	802
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.65	1.13	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
11: SR 826 NB off-ramp & SW 8th St

08/09/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1296	630	0	2375	829	0
Future Volume (vph)	1296	630	0	2375	829	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8			6.8	6.8	
Lane Util. Factor	0.91			0.95	0.97	
Frt	0.95			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4836			3539	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4836			3539	3433	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1364	663	0	2500	873	0
RTOR Reduction (vph)	92	0	0	0	0	0
Lane Group Flow (vph)	1935	0	0	2500	873	0
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Actuated Green, G (s)	59.2			59.2	22.2	
Effective Green, g (s)	59.2			59.2	22.2	
Actuated g/C Ratio	0.62			0.62	0.23	
Clearance Time (s)	6.8			6.8	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3013			2205	802	
v/s Ratio Prot	0.40			c0.71	c0.25	
v/s Ratio Perm						
v/c Ratio	0.64			1.13	1.09	
Uniform Delay, d1	11.2			17.9	36.4	
Progression Factor	0.04			2.28	1.00	
Incremental Delay, d2	0.8			60.8	58.6	
Delay (s)	1.2			101.6	95.0	
Level of Service	A			F	F	
Approach Delay (s)	1.2			101.6	95.0	
Approach LOS	A			F	F	

Intersection Summary			
HCM 2000 Control Delay	62.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	100.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SER	NEL	NER
Lane Configurations										
Traffic Volume (vph)	0	1296	0	0	2375	286	0	0	0	615
Future Volume (vph)	0	1296	0	0	2375	286	0	0	0	615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.984					0.865
Flt Protected										
Satd. Flow (prot)	0	3539	0	0	3483	0	0	0	0	1611
Flt Permitted										
Satd. Flow (perm)	0	3539	0	0	3483	0	0	0	0	1611
Link Speed (mph)		45			45		25		30	
Link Distance (ft)		300			838		991		452	
Travel Time (s)		4.5			12.7		27.0		10.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1364	0	0	2500	301	0	0	0	647
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	1364	0	0	2801	0	0	0	0	647
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right
Median Width(ft)		12			12		0		0	
Link Offset(ft)		0			0		0		0	
Crosswalk Width(ft)		16			16		16		16	
Two way Left Turn Lane										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15	9	15	9
Sign Control		Free			Free		Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1667	0	0	3204	0	0	0	259	0	0	626
Future Volume (vph)	0	1667	0	0	3204	0	0	0	259	0	0	626
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt									0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	5085	0	0	3539	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	5085	0	0	3539	0	0	0	1611	0	0	1611
Link Speed (mph)		45			45			20			40	
Link Distance (ft)		359			373			399			1019	
Travel Time (s)		5.4			5.7			13.6			17.4	
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
Adj. Flow (vph)	0	1755	0	0	3373	0	0	0	273	0	0	659
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1755	0	0	3373	0	0	0	273	0	0	659
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	134.0%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	1815	27	34	1064	128	48	54	20	352	123	95
Future Volume (vph)	104	1815	27	34	1064	128	48	54	20	352	123	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	150		120	200		0
Storage Lanes	1		0	1		0	1		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.998			0.984			0.960				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5075	0	1770	5004	0	1770	1788	0	3433	1863	1583
Flt Permitted	0.167			0.068			0.950			0.950		
Satd. Flow (perm)	311	5075	0	127	5004	0	1770	1788	0	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			17			8				100
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1056			1218			1069			1038	
Travel Time (s)		16.0			18.5			24.3			23.6	
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
Adj. Flow (vph)	109	1911	28	36	1120	135	51	57	21	371	129	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	1939	0	36	1255	0	51	78	0	371	129	100
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	3 1
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	24.4		11.4	24.4		20.0	20.0		30.6	30.6	
Total Split (s)	22.0	103.0		15.0	96.0		23.0	23.0		39.0	39.0	
Total Split (%)	12.2%	57.2%		8.3%	53.3%		12.8%	12.8%		21.7%	21.7%	
Maximum Green (s)	15.6	96.6		8.6	89.6		16.4	16.4		32.4	32.4	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)										5.0	5.0	
Flash Dont Walk (s)										19.0	19.0	
Pedestrian Calls (#/hr)										4	4	
Act Effct Green (s)	119.8	111.6		113.3	106.5		12.2	12.2		25.8	25.8	35.1
Actuated g/C Ratio	0.67	0.62		0.63	0.59		0.07	0.07		0.14	0.14	0.20
v/c Ratio	0.39	0.62		0.26	0.42		0.43	0.61		0.75	0.48	0.26
Control Delay	15.1	23.8		20.8	5.7		90.4	92.2		83.8	76.3	7.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	15.1	23.8		20.8	5.7		90.4	92.2		83.8	76.3	7.3
LOS	B	C		C	A		F	F		F	E	A
Approach Delay		23.3			6.1			91.5			69.4	
Approach LOS		C			A			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 93 (52%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 26.8		Intersection LOS: C	
Intersection Capacity Utilization 75.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: NW 82nd Ave & Flagler St



Queues
1: NW 82nd Ave & Flagler St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	109	1939	36	1255	51	78	371	129	100
v/c Ratio	0.39	0.62	0.26	0.42	0.43	0.61	0.75	0.48	0.26
Control Delay	15.1	23.8	20.8	5.7	90.4	92.2	83.8	76.3	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	23.8	20.8	5.7	90.4	92.2	83.8	76.3	7.3
Queue Length 50th (ft)	42	515	4	49	59	82	221	143	0
Queue Length 95th (ft)	80	666	27	57	109	142	270	211	41
Internal Link Dist (ft)		976		1138		989		958	
Turn Bay Length (ft)	200		200		150		200		
Base Capacity (vph)	337	3148	159	2968	161	170	617	335	493
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	0.62	0.23	0.42	0.32	0.46	0.60	0.39	0.20

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: NW 82nd Ave & Flagler St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	1815	27	34	1064	128	48	54	20	352	123	95
Future Volume (vph)	104	1815	27	34	1064	128	48	54	20	352	123	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	6.6
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	0.98		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5074		1770	5003		1770	1788		3433	1863	1583
Flt Permitted	0.17	1.00		0.07	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	311	5074		126	5003		1770	1788		3433	1863	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)	109	1911	28	36	1120	135	51	57	21	371	129	100
RTOR Reduction (vph)	0	1	0	0	7	0	0	7	0	0	0	80
Lane Group Flow (vph)	109	1938	0	36	1248	0	51	71	0	371	129	20
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								
Actuated Green, G (s)	119.8	110.3		112.2	106.5		12.2	12.2		25.8	25.8	35.3
Effective Green, g (s)	119.8	110.3		112.2	106.5		12.2	12.2		25.8	25.8	35.3
Actuated g/C Ratio	0.67	0.61		0.62	0.59		0.07	0.07		0.14	0.14	0.20
Clearance Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	283	3109		130	2960		119	121		492	267	310
v/s Ratio Prot	c0.02	c0.38		0.01	0.25		0.03	c0.04		c0.11	0.07	0.01
v/s Ratio Perm	0.24			0.16								
v/c Ratio	0.39	0.62		0.28	0.42		0.43	0.58		0.75	0.48	0.06
Uniform Delay, d1	12.7	21.8		17.3	20.0		80.6	81.4		74.1	71.0	58.9
Progression Factor	1.00	1.00		1.43	0.25		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	1.0		1.1	0.4		2.5	7.0		6.5	1.4	0.1
Delay (s)	13.6	22.8		25.8	5.4		83.0	88.4		80.5	72.3	59.0
Level of Service	B	C		C	A		F	F		F	E	E
Approach Delay (s)		22.3			6.0			86.3			75.2	
Approach LOS		C			A			F			E	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	1939	2	60	1162	500	38	61	57	522	8	79
Future Volume (vph)	168	1939	2	60	1162	500	38	61	57	522	8	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	180		0	120		120	0		220
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950	0.954	
Satd. Flow (prot)	1770	5085	0	1770	5085	1583	1770	1863	1583	1681	1688	1583
Flt Permitted	0.159			0.047			0.950			0.950	0.954	
Satd. Flow (perm)	296	5085	0	88	5085	1583	1770	1863	1583	1681	1688	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						462			97			142
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1218			364			1050			1084	
Travel Time (s)		18.5			5.5			23.9			24.6	
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
Adj. Flow (vph)	177	2041	2	63	1223	526	40	64	60	549	8	83
Shared Lane Traffic (%)										49%		
Lane Group Flow (vph)	177	2043	0	63	1223	526	40	64	60	280	277	83
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2	2	4	4	5	8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	5.0	7.0	7.0	7.0
Minimum Split (s)	13.4	30.4		12.0	30.4	30.4	13.6	13.6	12.0	34.2	34.2	34.2
Total Split (s)	25.2	95.0		16.0	85.8	85.8	19.0	19.0	16.0	50.0	50.0	50.0
Total Split (%)	14.0%	52.8%		8.9%	47.7%	47.7%	10.6%	10.6%	8.9%	27.8%	27.8%	27.8%
Maximum Green (s)	18.8	88.6		9.0	79.4	79.4	12.4	12.4	9.0	43.8	43.8	43.8
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.6	2.0	2.0	2.6	2.6	2.6	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)	0.0	7.0			7.0	7.0	0.0	0.0		7.0	7.0	7.0
Flash Dont Walk (s)	0.0	17.0			17.0	17.0	0.0	0.0		21.0	21.0	21.0
Pedestrian Calls (#/hr)	0	15			0	0	9	9		23	23	23
Act Effct Green (s)	112.3	99.6		102.1	94.8	94.8	10.6	10.6	18.1	35.7	35.7	35.7
Actuated g/C Ratio	0.62	0.55		0.57	0.53	0.53	0.06	0.06	0.10	0.20	0.20	0.20
v/c Ratio	0.61	0.73		0.51	0.46	0.50	0.38	0.58	0.24	0.84	0.83	0.19
Control Delay	33.0	20.9		67.2	4.8	3.1	91.5	103.0	3.2	90.5	88.9	1.0
Queue Delay	0.0	0.0		0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	20.9		67.2	4.8	3.6	91.5	103.0	3.2	90.5	88.9	1.0
LOS	C	C		E	A	A	F	F	A	F	F	A
Approach Delay		21.9			6.6			63.7			78.2	
Approach LOS		C			A			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 96 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 79.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: SW 79th Ave/NW 79th Ave & Flagler St



Queues
2: SW 79th Ave/NW 79th Ave & Flagler St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	177	2043	63	1223	526	40	64	60	280	277	83
v/c Ratio	0.61	0.73	0.51	0.46	0.50	0.38	0.58	0.24	0.84	0.83	0.19
Control Delay	33.0	20.9	67.2	4.8	3.1	91.5	103.0	3.2	90.5	88.9	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	20.9	67.2	4.8	3.6	91.5	103.0	3.2	90.5	88.9	1.0
Queue Length 50th (ft)	63	359	24	59	0	46	75	0	336	331	0
Queue Length 95th (ft)	163	279	m79	125	0	92	132	5	441	433	0
Internal Link Dist (ft)		1138		284			970			1004	
Turn Bay Length (ft)	240		180			120		120			220
Base Capacity (vph)	341	2814	134	2679	1052	121	128	256	409	410	492
Starvation Cap Reductn	0	0	0	0	202	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.73	0.47	0.46	0.62	0.33	0.50	0.23	0.68	0.68	0.17

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
2: SW 79th Ave/NW 79th Ave & Flagler St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	1939	2	60	1162	500	38	61	57	522	8	79
Future Volume (vph)	168	1939	2	60	1162	500	38	61	57	522	8	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	5085		1770	5085	1583	1770	1863	1583	1681	1688	1583
Flt Permitted	0.16	1.00		0.05	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	297	5085		87	5085	1583	1770	1863	1583	1681	1688	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)	177	2041	2	63	1223	526	40	64	60	549	8	83
RTOR Reduction (vph)	0	0	0	0	0	218	0	0	54	0	0	67
Lane Group Flow (vph)	177	2043	0	63	1223	308	40	64	6	280	277	16
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8
Actuated Green, G (s)	112.9	99.7		102.7	94.9	94.9	10.6	10.6	18.4	35.7	35.7	35.7
Effective Green, g (s)	112.9	99.7		102.7	94.9	94.9	10.6	10.6	18.4	35.7	35.7	35.7
Actuated g/C Ratio	0.63	0.55		0.57	0.53	0.53	0.06	0.06	0.10	0.20	0.20	0.20
Clearance Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	294	2816		122	2680	834	104	109	161	333	334	313
v/s Ratio Prot	c0.04	c0.40		0.02	0.24		0.02	c0.03	0.00	c0.17	0.16	
v/s Ratio Perm	0.33			0.27		0.19			0.00			0.01
v/c Ratio	0.60	0.73		0.52	0.46	0.37	0.38	0.59	0.04	0.84	0.83	0.05
Uniform Delay, d1	17.4	29.9		26.6	26.5	25.0	81.6	82.6	72.8	69.4	69.2	58.4
Progression Factor	1.75	0.62		2.13	0.15	0.37	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	1.3		3.2	0.5	1.1	2.4	7.8	0.1	17.1	15.5	0.1
Delay (s)	33.2	19.8		59.8	4.5	10.5	83.9	90.4	72.9	86.6	84.7	58.5
Level of Service	C	B		E	A	B	F	F	E	F	F	E
Approach Delay (s)		20.9			8.2			82.4			82.1	
Approach LOS		C			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	26.2
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

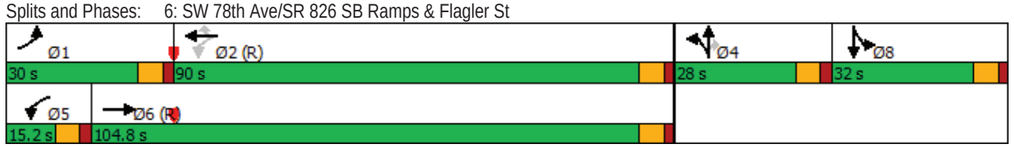
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	416	2013	22	47	1500	382	16	77	168	452	14	0
Future Volume (vph)	416	2013	22	47	1500	382	16	77	168	452	14	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		0	150		0	220		80	250		0
Storage Lanes	3		0	1		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.94	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.94	1.00	1.00
Frt		0.998				0.850			0.850			
Flt Protected	0.950			0.950				0.991		0.950		
Satd. Flow (prot)	4990	5075	0	1770	5085	1583	0	1846	1583	4990	1863	0
Flt Permitted	0.950			0.054				0.991		0.950		
Satd. Flow (perm)	4990	5075	0	101	5085	1583	0	1846	1583	4990	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				286			137			
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		504			278			1048			354	
Travel Time (s)		7.6			4.2			23.8			8.0	
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
Adj. Flow (vph)	438	2119	23	49	1579	402	17	81	177	476	15	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	438	2142	0	49	1579	402	0	98	177	476	15	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases				2		2			4			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.4	24.4		11.4	24.4	24.4	24.4	24.4	24.4	20.0	20.0	
Total Split (s)	30.0	104.8		15.2	90.0	90.0	28.0	28.0	28.0	32.0	32.0	
Total Split (%)	16.7%	58.2%		8.4%	50.0%	50.0%	15.6%	15.6%	15.6%	17.8%	17.8%	
Maximum Green (s)	23.6	98.4		8.8	83.6	83.6	21.6	21.6	21.6	25.6	25.6	
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
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)	6.4	6.4		6.4	6.4	6.4		6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		7.0			7.0	7.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		10.0			10.0	10.0	0.0	0.0	0.0	0.0	0.0	
Pedestrian Calls (#/hr)		0			0	0	0	0	0	0	0	
Act Effct Green (s)	20.7	112.0		103.3	96.1	96.1		14.9	14.9	22.7	22.7	
Actuated g/C Ratio	0.12	0.62		0.57	0.53	0.53		0.08	0.08	0.13	0.13	
v/c Ratio	0.76	0.68		0.40	0.58	0.41		0.64	0.69	0.76	0.06	
Control Delay	87.7	14.2		37.5	7.9	1.6		98.3	34.9	83.9	68.0	
Queue Delay	0.0	0.1		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	87.7	14.3		37.5	7.9	1.6		98.3	34.9	83.9	68.0	
LOS	F	B		D	A	A		F	C	F	E	
Approach Delay		26.8			7.4			57.5			83.4	
Approach LOS		C			A			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 77 (43%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 26.2 Intersection LOS: C
Intersection Capacity Utilization 74.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 6: SW 78th Ave/SR 826 SB Ramps & Flagler St



Queues
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	438	2142	49	1579	402	98	177	476	15
v/c Ratio	0.76	0.68	0.40	0.58	0.41	0.64	0.69	0.76	0.06
Control Delay	87.7	14.2	37.5	7.9	1.6	98.3	34.9	83.9	68.0
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.7	14.3	37.5	7.9	1.6	98.3	34.9	83.9	68.0
Queue Length 50th (ft)	176	321	6	186	0	114	45	195	16
Queue Length 95th (ft)	221	438	m52	357	2	179	134	234	41
Internal Link Dist (ft)		424		198		968			274
Turn Bay Length (ft)	220		150				80	250	
Base Capacity (vph)	654	3159	140	2714	978	221	310	716	267
Starvation Cap Reductn	0	227	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	0.67	0.73	0.35	0.58	0.41	0.44	0.57	0.66	0.06

Intersection Summary

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

HCM 6th Signalized Intersection Summary
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	416	2013	22	47	1500	382	16	77	168	452	14	0
Future Volume (veh/h)	416	2013	22	47	1500	382	16	77	168	452	14	0
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	438	2119	23	49	1579	0	17	81	177	476	15	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	0
Cap, veh/h	511	3134	34	147	2683		39	184	190	555	207	
Arrive On Green	0.10	0.60	0.60	0.03	0.53	0.00	0.12	0.12	0.12	0.11	0.11	0.00
Sat Flow, veh/h	5023	5208	56	1781	5106	1585	322	1533	1585	5023	1870	0
Grp Volume(v), veh/h	438	1385	757	49	1579	0	98	0	177	476	15	0
Grp Sat Flow(s),veh/h/ln	1674	1702	1860	1781	1702	1585	1854	0	1585	1674	1870	0
Q Serve(g_s), s	15.4	49.1	49.2	2.3	38.2	0.0	8.8	0.0	19.9	16.8	1.3	0.0
Cycle Q Clear(g_c), s	15.4	49.1	49.2	2.3	38.2	0.0	8.8	0.0	19.9	16.8	1.3	0.0
Prop In Lane	1.00		0.03	1.00		1.00	0.17		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	511	2049	1120	147	2683		223	0	190	555	207	
V/C Ratio(X)	0.86	0.68	0.68	0.33	0.59		0.44	0.00	0.93	0.86	0.07	
Avail Cap(c_a), veh/h	659	2049	1120	189	2683		223	0	190	714	266	
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	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	79.5	24.1	24.1	23.4	29.3	0.0	73.6	0.0	78.5	78.7	71.8	0.0
Incr Delay (d2), s/veh	8.8	1.8	3.3	1.3	1.0	0.0	1.4	0.0	45.8	8.2	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(50%),veh/ln	7.0	19.6	21.9	1.0	15.6	0.0	4.3	0.0	10.6	7.7	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.3	25.9	27.4	24.7	30.3	0.0	75.0	0.0	124.3	86.9	71.9	0.0
LnGrp LOS	F	C	C	C	C		E	A	F	F	E	
Approach Vol, veh/h		2580			1628	A		275			491	A
Approach Delay, s/veh		36.9			30.1			106.7			86.4	
Approach LOS		D			C			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.7	101.0		28.0	11.0	114.7		26.3				
Change Period (Y+Rc), s	6.4	6.4		6.4	6.4	6.4		6.4				
Max Green Setting (Gmax), s	23.6	83.6		21.6	8.8	98.4		25.6				
Max Q Clear Time (g_c+I1), s	17.4	40.2		21.9	4.3	51.2		18.8				
Green Ext Time (p_c), s	0.9	15.2		0.0	0.0	24.1		1.1				

Intersection Summary

HCM 6th Ctrl Delay	43.4	
HCM 6th LOS	D	

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	2649	1516	0	0	230
Future Volume (vph)	0	2649	1516	0	0	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	0	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		364	504		420	
Travel Time (s)		5.5	7.6		9.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	2788	1596	0	0	242
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2788	1596	0	0	242
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		36	36		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	3265	1539	0	0	390
Future Volume (vph)	0	3265	1539	0	0	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.86	0.91	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	6408	5085	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	6408	5085	0	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		347	377		635	
Travel Time (s)		5.3	5.7		14.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	3437	1620	0	0	411
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3437	1620	0	0	411
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

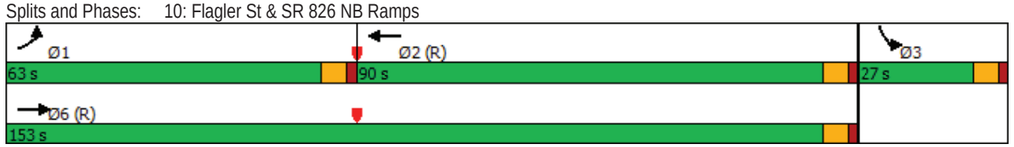
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	669	1938	1539	504	250	0
Future Volume (vph)	669	1938	1539	504	250	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	350
Storage Lanes	2			1	3	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	0.95	0.91	1.00	0.94	1.00
Frt				0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	5085	1583	4990	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	5085	1583	4990	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				90		
Link Speed (mph)		45	30		30	
Link Distance (ft)		377	874		483	
Travel Time (s)		5.7	19.9		11.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	704	2040	1620	531	263	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	704	2040	1620	531	263	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Free	Prot	
Protected Phases	1	6	2		3	
Permitted Phases				Free		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2		3	
Switch Phase						
Minimum Initial (s)	5.0	16.0	16.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		24.4	
Total Split (s)	63.0	153.0	90.0		27.0	
Total Split (%)	35.0%	85.0%	50.0%		15.0%	
Maximum Green (s)	56.6	146.6	83.6		20.6	
Yellow Time (s)	4.4	4.4	4.4		4.4	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		6.4	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	2.0	1.0	1.0		2.0	
Recall Mode	None	C-Max	C-Max		None	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	41.9	153.3	105.0	180.0	13.9	
Actuated g/C Ratio	0.23	0.85	0.58	1.00	0.08	
v/c Ratio	0.88	0.68	0.55	0.34	0.68	
Control Delay	77.5	5.1	7.5	0.5	90.2	
Queue Delay	0.0	0.1	0.1	0.0	0.0	
Total Delay	77.5	5.2	7.6	0.5	90.2	
LOS	E	A	A	A	F	
Approach Delay		23.8	5.9		90.2	
Approach LOS		C	A		F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 66 (37%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 70.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 10: Flagler St & SR 826 NB Ramps



Queues
10: Flagler St & SR 826 NB Ramps

08/09/2019

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	704	2040	1620	531	263
v/c Ratio	0.88	0.68	0.55	0.34	0.68
Control Delay	77.5	5.1	7.5	0.5	90.2
Queue Delay	0.0	0.1	0.1	0.0	0.0
Total Delay	77.5	5.2	7.6	0.5	90.2
Queue Length 50th (ft)	389	258	131	0	109
Queue Length 95th (ft)	444	331	156	0	142
Internal Link Dist (ft)		297	794		403
Turn Bay Length (ft)				100	
Base Capacity (vph)	1079	3014	2967	1583	571
Starvation Cap Reductn	0	56	390	0	0
Spillback Cap Reductn	0	199	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.72	0.63	0.34	0.46

Intersection Summary

HCM 6th Signalized Intersection Summary
10: Flagler St & SR 826 NB Ramps

08/09/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	669	1938	1539	504	250	0
Future Volume (veh/h)	669	1938	1539	504	250	0
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	704	2040	1620	0	263	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	754	3427	3629		0	
Arrive On Green	0.22	0.96	1.00	0.00	0.00	0.00
Sat Flow, veh/h	3456	3647	5274	1585	0	0
Grp Volume(v), veh/h	704	2040	1620	0	0	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1702	1585	0	0
Q Serve(g_s), s	36.0	8.6	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	36.0	8.6	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	754	3427	3629		0	
V/C Ratio(X)	0.93	0.60	0.45		0.00	
Avail Cap(c_a), veh/h	1087	3427	3629		0	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.82	0.00	0.00	0.00
Uniform Delay (d), s/veh	69.1	0.3	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	9.1	0.8	0.3	0.0	0.0	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	16.7	0.4	0.1	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	78.1	1.0	0.3	0.0	0.0	0.0
LnGrp LOS	E	A	A		A	
Approach Vol, veh/h		2744	1620	A	0	A
Approach Delay, s/veh		20.8	0.3		0.0	
Approach LOS		C	A			

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	45.7	134.3			180.0	0.0
Change Period (Y+Rc), s	6.4	6.4			6.4	6.4
Max Green Setting (Gmax), s	56.6	83.6			146.6	20.6
Max Q Clear Time (g_c+I1), s	38.0	2.0			10.6	0.0
Green Ext Time (p_c), s	1.3	6.1			7.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	2217	15	19	1910	6	84	2	0	19	0	9
Future Volume (vph)	16	2217	15	19	1910	6	84	2	0	19	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		85
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999										0.850
Flt Protected	0.950			0.950				0.953			0.950	
Satd. Flow (prot)	1770	5080	0	1770	5085	0	0	1775	1863	0	1770	1583
Flt Permitted	0.070			0.042				0.953			0.950	
Satd. Flow (perm)	130	5080	0	78	5085	0	0	1775	1863	0	1770	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1										61
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		874			246			109			996	
Travel Time (s)		19.9			5.6			2.5			22.6	
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
Adj. Flow (vph)	17	2334	16	20	2011	6	88	2	0	20	0	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	2350	0	20	2017	0	0	90	0	0	20	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	pt+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2		4	4	4 5	8	8	1
Permitted Phases	6			2								8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4	4 5	8	8	1
Switch Phase												
Minimum Initial (s)	5.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	11.4	31.4		11.4	31.4		31.6	31.6		31.6	31.6	11.4
Total Split (s)	11.4	104.7		11.9	105.2		31.8	31.8		31.6	31.6	11.4
Total Split (%)	6.3%	58.2%		6.6%	58.4%		17.7%	17.7%		17.6%	17.6%	6.3%
Maximum Green (s)	5.0	98.3		5.5	98.8		25.2	25.2		25.0	25.0	5.0
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	4.4
All-Red Time (s)	2.0	2.0		2.0	2.0		2.6	2.6		2.6	2.6	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4			6.6			6.6	6.4
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.5	1.0		3.5	1.0		3.5	3.5		3.5	3.5	3.5
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		18.0			18.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		1			0		5	5		1	1	
Act Effct Green (s)	134.9	131.2		135.1	131.3			15.8			11.2	18.4
Actuated g/C Ratio	0.75	0.73		0.75	0.73			0.09			0.06	0.10
v/c Ratio	0.11	0.63		0.17	0.54			0.58			0.18	0.04
Control Delay	11.1	19.1		13.9	5.1			92.3			80.4	0.3
Queue Delay	0.0	0.2		0.0	0.0			0.0			0.0	0.0
Total Delay	11.1	19.3		13.9	5.1			92.3			80.4	0.3
LOS	B	B		B	A			F			F	A
Approach Delay		19.2			5.2			92.3			55.5	
Approach LOS		B			A			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 24 (13%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 14.6 Intersection LOS: B
Intersection Capacity Utilization 65.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 14: Flagler St & SW 74th Ave



Queues
14: Flagler St & SW 74th Ave

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	17	2350	20	2017	90	20	9
v/c Ratio	0.11	0.63	0.17	0.54	0.58	0.18	0.04
Control Delay	11.1	19.1	13.9	5.1	92.3	80.4	0.3
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	11.1	19.3	13.9	5.1	92.3	80.4	0.3
Queue Length 50th (ft)	5	646	2	102	105	23	0
Queue Length 95th (ft)	m14	895	m4	142	162	51	0
Internal Link Dist (ft)		794		166	29	916	
Turn Bay Length (ft)	200						85
Base Capacity (vph)	153	3704	116	3710	248	245	216
Starvation Cap Reductn	0	419	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	0.11	0.72	0.17	0.54	0.36	0.08	0.04

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

HCM 6th Signalized Intersection Summary
14: Flagler St & SW 74th Ave

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	2217	15	19	1910	6	84	2	0	19	0	9
Future Volume (veh/h)	16	2217	15	19	1910	6	84	2	0	19	0	9
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	2334	16	20	2011	6	88	2	0	20	0	9
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	193	3903	27	185	3929	12	109	2	127	53	0	72
Arrive On Green	0.03	1.00	1.00	0.02	0.75	0.75	0.06	0.06	0.00	0.03	0.00	0.03
Sat Flow, veh/h	1781	5232	36	1781	5256	16	1744	40	1585	1781	0	1585
Grp Volume(v), veh/h	17	1518	832	20	1302	715	90	0	0	20	0	9
Grp Sat Flow(s),veh/h/ln	1781	1702	1864	1781	1702	1868	1783	0	1585	1781	0	1585
Q Serve(g_s), s	0.4	0.0	0.0	0.5	28.2	28.2	9.0	0.0	0.0	2.0	0.0	1.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	0.5	28.2	28.2	9.0	0.0	0.0	2.0	0.0	1.0
Prop In Lane	1.00		0.02	1.00		0.01	0.98		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	193	2539	1390	185	2545	1396	111	0	127	53	0	72
V/C Ratio(X)	0.09	0.60	0.60	0.11	0.51	0.51	0.81	0.00	0.00	0.38	0.00	0.12
Avail Cap(c_a), veh/h	215	2539	1390	208	2545	1396	250	0	250	247	0	245
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.4	0.0	0.0	5.1	9.3	9.3	83.3	0.0	0.0	85.7	0.0	82.4
Incr Delay (d2), s/veh	0.2	0.7	1.3	0.3	0.7	1.3	15.3	0.0	0.0	5.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.5	0.2	10.5	11.8	4.6	0.0	0.0	1.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.5	0.7	1.3	5.4	10.0	10.6	98.6	0.0	0.0	90.9	0.0	83.4
LnGrp LOS	A	A	A	A	B	B	F	A	A	F	A	F
Approach Vol, veh/h		2367			2037			90			29	
Approach Delay, s/veh		1.0			10.2			98.6			88.6	
Approach LOS		A			B			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	141.0		17.8	9.6	140.7		12.0				
Change Period (Y+Rc), s	6.4	6.4		6.6	6.4	6.4		6.6				
Max Green Setting (Gmax), s	5.0	98.8		25.2	5.5	98.3		25.0				
Max Q Clear Time (g_c+I1), s	2.4	30.2		11.0	2.5	2.0		4.0				
Green Ext Time (p_c), s	0.0	7.4		0.4	0.0	10.0		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A

Lanes, Volumes, Timings
16: Florida Blvd

08/09/2019

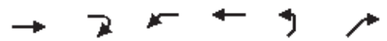


Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	0	0	28	86	38
Future Volume (vph)	0	0	0	28	86	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865	0.959	
Flt Protected					0.966	
Satd. Flow (prot)	0	0	0	1611	1726	0
Flt Permitted					0.966	
Satd. Flow (perm)	0	0	0	1611	1726	0
Link Speed (mph)	30		30		30	
Link Distance (ft)	286		109		1074	
Travel Time (s)	6.5		2.5		24.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	29	91	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	29	131	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	0		0		12	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9
Sign Control	Free		Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	10.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lanes, Volumes, Timings
18: Flagler St

08/09/2019



Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	2236	0	0	1935	0	38
Future Volume (vph)	2236	0	0	1935	0	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	5085	0	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	5085	0	0	5085	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	246			1057	286	
Travel Time (s)	5.6			24.0	6.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2354	0	0	2037	0	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2354	0	0	2037	0	40
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	R NA
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	480	1554	192	64	1472	0	126	459	82	156	180	271
Future Volume (vph)	480	1554	192	64	1472	0	126	459	82	156	180	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	0		0	350		0	0		0
Storage Lanes	1		0	1		0	1		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	0.95	0.97	0.95	1.00
Frt		0.984						0.977				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5004	0	1770	5085	0	1770	3458	0	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5004	0	1770	5085	0	1770	3458	0	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19						10				62
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1057			473			1114			119	
Travel Time (s)		24.0			10.8			25.3			2.7	
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
Adj. Flow (vph)	505	1636	202	67	1549	0	133	483	86	164	189	285
Shared Lane Traffic (%)												
Lane Group Flow (vph)	505	1838	0	67	1549	0	133	569	0	164	189	285
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases												8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	5.0
Minimum Split (s)	11.7	36.7		11.7	36.7		11.6	35.6		11.6	35.6	11.7
Total Split (s)	59.1	103.3		20.0	64.2		21.1	40.2		16.5	35.6	59.1
Total Split (%)	32.8%	57.4%		11.1%	35.7%		11.7%	22.3%		9.2%	19.8%	32.8%
Maximum Green (s)	52.4	96.6		13.3	57.5		14.5	33.6		9.9	29.0	52.4
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	4.4
All-Red Time (s)	2.3	2.3		2.3	2.3		2.2	2.2		2.2	2.2	2.3
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)	6.7	6.7		6.7	6.7		6.6	6.6		6.6	6.6	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	5.0	1.0		2.0	1.0		2.0	4.0		2.0	3.0	5.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		23.0			23.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	52.8	100.0		10.7	57.9		14.5	32.8		9.9	28.2	87.6
Actuated g/C Ratio	0.29	0.56		0.06	0.32		0.08	0.18		0.06	0.16	0.49
v/c Ratio	0.97	0.66		0.64	0.95		0.94	0.89		0.87	0.34	0.36
Control Delay	101.4	34.4		108.9	72.0		139.6	87.4		121.7	69.3	23.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	101.4	34.4		108.9	72.0		139.6	87.4		121.7	69.3	23.3
LOS	F	C		F	E		F	F		F	E	C
Approach Delay		48.9			73.6			97.3			62.2	
Approach LOS		D			E			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 16 (9%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 64.4		Intersection LOS: E	
Intersection Capacity Utilization 97.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 19: NW 72nd Ave & Flagler St



Queues
19: NW 72nd Ave & Flagler St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	505	1838	67	1549	133	569	164	189	285
v/c Ratio	0.97	0.66	0.64	0.95	0.94	0.89	0.87	0.34	0.36
Control Delay	101.4	34.4	108.9	72.0	139.6	87.4	121.7	69.3	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.4	34.4	108.9	72.0	139.6	87.4	121.7	69.3	23.3
Queue Length 50th (ft)	631	371	79	660	159	343	101	105	159
Queue Length 95th (ft)	#863	692	136	#754	#305	#436	#173	149	235
Internal Link Dist (ft)		977		393		1034		39	
Turn Bay Length (ft)	500				350				
Base Capacity (vph)	519	2789	130	1636	142	653	188	570	801
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	0.97	0.66	0.52	0.95	0.94	0.87	0.87	0.33	0.36

Intersection Summary

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

HCM 6th Signalized Intersection Summary
19: NW 72nd Ave & Flagler St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	480	1554	192	64	1472	0	126	459	82	156	180	271
Future Volume (veh/h)	480	1554	192	64	1472	0	126	459	82	156	180	271
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	505	1636	202	67	1549	0	133	483	86	164	189	285
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	0	2	2	2	2	2	2
Cap, veh/h	519	2643	325	83	1683		143	532	94	190	536	701
Arrive On Green	0.29	0.57	0.57	0.05	0.33	0.00	0.08	0.18	0.18	0.05	0.15	0.15
Sat Flow, veh/h	1781	4605	567	1781	5274	0	1781	3017	534	3456	3554	1585
Grp Volume(v), veh/h	505	1208	630	67	1549	0	133	283	286	164	189	285
Grp Sat Flow(s),veh/h/ln	1781	1702	1768	1781	1702	0	1781	1777	1774	1728	1777	1585
Q Serve(g_s), s	50.5	42.2	42.4	6.7	52.5	0.0	13.4	28.1	28.4	8.5	8.6	22.0
Cycle Q Clear(g_c), s	50.5	42.2	42.4	6.7	52.5	0.0	13.4	28.1	28.4	8.5	8.6	22.0
Prop In Lane	1.00		0.32	1.00		0.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	519	1954	1015	83	1683		143	314	313	190	536	701
V/C Ratio(X)	0.97	0.62	0.62	0.80	0.92		0.93	0.90	0.91	0.86	0.35	0.41
Avail Cap(c_a), veh/h	519	1954	1015	132	1683		143	332	331	190	573	717
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	25.3	25.4	85.0	58.1	0.0	82.2	72.6	72.8	84.4	68.5	34.2
Incr Delay (d2), s/veh	33.0	1.5	2.9	7.9	9.7	0.0	52.8	26.7	28.2	30.0	0.4	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(50%),veh/ln	27.7	17.6	18.8	3.3	24.2	0.0	8.3	15.2	15.5	4.6	4.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.1	26.8	28.2	92.8	67.8	0.0	135.0	99.3	101.0	114.4	68.9	34.5
LnGrp LOS	F	C	C	F	E		F	F	F	F	E	C
Approach Vol, veh/h		2343			1616	A		702			638	
Approach Delay, s/veh		42.1			68.8			106.8			65.2	
Approach LOS		D			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	59.1	66.0	16.5	38.4	15.1	110.0	21.1	33.8
Change Period (Y+Rc), s	* 6.7	* 6.7	* 6.6	* 6.6	* 6.7	* 6.7	* 6.6	* 6.6
Max Green Setting (Gmax), s	* 52	* 58	* 9.9	* 34	* 13	* 97	* 15	* 29
Max Q Clear Time (g_c+I1), s	52.5	54.5	10.5	30.4	8.7	44.4	15.4	24.0
Green Ext Time (p_c), s	0.0	1.7	0.0	1.3	0.0	6.5	0.0	1.0

Intersection Summary

HCM 6th Ctrl Delay	61.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
21: SW 72nd Ave

08/09/2019

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	381	939	0	0	1016
Future Volume (vph)	0	381	939	0	0	1016
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.81
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	3539	0	0	7544
Flt Permitted						
Satd. Flow (perm)	0	1611	3539	0	0	7544
Link Speed (mph)	30		30			30
Link Distance (ft)	474		119			198
Travel Time (s)	10.8		2.7			4.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	401	988	0	0	1069
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	401	988	0	0	1069
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lanes, Volumes, Timings
24: SR 826 SB Ramps

08/09/2019

Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	875	1008	687	0	0
Future Volume (vph)	0	875	1008	687	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			0	0	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.91	0.95	0.95	1.00	1.00
Frt			0.939			
Flt Protected						
Satd. Flow (prot)	0	5085	3323	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	5085	3323	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		354	757		244	
Travel Time (s)		8.0	17.2		5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	921	1061	723	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	921	1784	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	SBR	SBR2	NEL
Lane Configurations					
Traffic Volume (vph)	0	0	230	434	0
Future Volume (vph)	0	0	230	434	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Frt			0.865		
Flt Protected					
Satd. Flow (prot)	0	0	1611	0	0
Flt Permitted					
Satd. Flow (perm)	0	0	1611	0	0
Link Speed (mph)	30		30		30
Link Distance (ft)	667		244		420
Travel Time (s)	15.2		5.5		9.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	242	457	0
Shared Lane Traffic (%)					
Lane Group Flow (vph)	0	0	699	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Right	Right	Left
Median Width(ft)	0		0		0
Link Offset(ft)	0		0		0
Crosswalk Width(ft)	16		16		16
Two way Left Turn Lane					
Headway Factor	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9	9	15
Sign Control	Free		Free		Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	1173	250	390	0	0
Future Volume (vph)	0	1173	250	390	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00
Frt			0.918			
Flt Protected						
Satd. Flow (prot)	0	5085	1710	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	5085	1710	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		483	551		635	
Travel Time (s)		11.0	12.5		14.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1235	263	411	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1235	674	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	2121	1536	381	0	0
Future Volume (vph)	0	2121	1536	381	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.95	0.95	1.00	1.00
Frt			0.970			
Flt Protected						
Satd. Flow (prot)	0	5085	3433	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	5085	3433	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		473	708		474	
Travel Time (s)		10.8	16.1		10.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	2233	1617	401	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2233	2018	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	1378	60	55	1953	274	51	81	23	528	119	118
Future Volume (vph)	156	1378	60	55	1953	274	51	81	23	528	119	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	150		120	200		0
Storage Lanes	1		0	1		0	1		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.994			0.982			0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5055	0	1770	4994	0	1770	1801	0	3433	1863	1583
Flt Permitted	0.043			0.123			0.950			0.950		
Satd. Flow (perm)	80	5055	0	229	4994	0	1770	1801	0	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			21			7				106
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1056			1218			1069			1038	
Travel Time (s)		16.0			18.5			24.3			23.6	
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
Adj. Flow (vph)	166	1466	64	59	2078	291	54	86	24	562	127	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	1530	0	59	2369	0	54	110	0	562	127	126
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								

Lanes, Volumes, Timings
1: NW 82nd Ave & Flagler Str/Flagler St

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4		3	3	3 1
Switch Phase												
Minimum Initial (s)	5.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.4	24.4		11.4	24.4		24.6	24.6		32.6	32.6	
Total Split (s)	20.1	95.2		13.6	88.7		24.8	24.8		36.4	36.4	
Total Split (%)	11.8%	56.0%		8.0%	52.2%		14.6%	14.6%		21.4%	21.4%	
Maximum Green (s)	13.7	88.8		7.2	82.3		18.2	18.2		29.8	29.8	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		0.0			0.0		0.0	0.0		5.0	5.0	
Flash Dont Walk (s)		0.0			0.0		0.0	0.0		19.0	19.0	
Pedestrian Calls (#/hr)		0			0		0	0		5	5	
Act Effct Green (s)	106.7	96.2		92.3	85.9		14.1	14.1		29.5	29.5	43.8
Actuated g/C Ratio	0.63	0.57		0.54	0.51		0.08	0.08		0.17	0.17	0.26
v/c Ratio	0.86	0.53		0.32	0.94		0.37	0.71		0.94	0.39	0.26
Control Delay	81.0	24.8		7.1	12.8		79.6	94.0		94.0	66.3	8.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	81.0	24.8		7.1	12.8		79.6	94.0		94.0	66.3	8.8
LOS	F	C		A	B		E	F		F	E	A
Approach Delay		30.3			12.7			89.3			76.5	
Approach LOS		C			B			F			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 39 (23%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 90.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: NW 82nd Ave & Flagler Str/Flagler St



Queues
1: NW 82nd Ave & Flagler Str/Flagler St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	166	1530	59	2369	54	110	562	127	126
v/c Ratio	0.86	0.53	0.32	0.94	0.37	0.71	0.94	0.39	0.26
Control Delay	81.0	24.8	7.1	12.8	79.6	94.0	94.0	66.3	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.0	24.8	7.1	12.8	79.6	94.0	94.0	66.3	8.8
Queue Length 50th (ft)	132	395	6	94	58	114	322	127	13
Queue Length 95th (ft)	#288	464	m11	#157	106	182	#435	198	55
Internal Link Dist (ft)		976		1138		989		958	
Turn Bay Length (ft)	200		200		150		200		
Base Capacity (vph)	199	2862	191	2533	189	199	601	326	493
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	0.53	0.31	0.94	0.29	0.55	0.94	0.39	0.26

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
1: NW 82nd Ave & Flagler Str/Flagler St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	1378	60	55	1953	274	51	81	23	528	119	118
Future Volume (vph)	156	1378	60	55	1953	274	51	81	23	528	119	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	6.6
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		0.97	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5053		1770	4992		1770	1802		3433	1863	1583
Flt Permitted	0.04	1.00		0.12	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	81	5053		229	4992		1770	1802		3433	1863	1583
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)	166	1466	64	59	2078	291	54	86	24	562	127	126
RTOR Reduction (vph)	0	3	0	0	10	0	0	6	0	0	0	79
Lane Group Flow (vph)	166	1527	0	59	2359	0	54	104	0	562	127	47
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								
Actuated Green, G (s)	106.8	94.9		91.4	85.9		14.1	14.1		29.5	29.5	44.0
Effective Green, g (s)	106.8	94.9		91.4	85.9		14.1	14.1		29.5	29.5	44.0
Actuated g/C Ratio	0.63	0.56		0.54	0.51		0.08	0.08		0.17	0.17	0.26
Clearance Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	194	2820		172	2522		146	149		595	323	409
v/s Ratio Prot	c0.07	0.30		0.01	c0.47		0.03	c0.06		c0.16	0.07	0.03
v/s Ratio Perm	0.46			0.17								
v/c Ratio	0.86	0.54		0.34	0.94		0.37	0.70		0.94	0.39	0.12
Uniform Delay, d1	56.3	23.8		20.1	39.4		73.7	75.9		69.4	62.3	48.1
Progression Factor	1.00	1.00		0.36	0.19		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	28.0	0.8		0.2	4.2		1.2	12.2		23.8	0.6	0.1
Delay (s)	84.4	24.5		7.3	11.6		74.9	88.1		93.3	62.9	48.2
Level of Service	F	C		A	B		E	F		F	E	D
Approach Delay (s)		30.4			11.5			83.7			81.6	
Approach LOS		C			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
2: SW 79th Ave/NW 79th Ave & Flagler St

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1629	10	66	2093	520	36	36	21	637	23	192
Future Volume (vph)	180	1629	10	66	2093	520	36	36	21	637	23	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	180		0	120		120	0		220
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.999				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950	0.956	
Satd. Flow (prot)	1770	5080	0	1770	5085	1583	1770	1863	1583	1681	1692	1583
Flt Permitted	0.047			0.091			0.950			0.950	0.956	
Satd. Flow (perm)	88	5080	0	170	5085	1583	1770	1863	1583	1681	1692	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				298			103			150
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		1218			364			1050			1084	
Travel Time (s)		18.5			5.5			23.9			24.6	
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
Adj. Flow (vph)	189	1715	11	69	2203	547	38	38	22	671	24	202
Shared Lane Traffic (%)										48%		
Lane Group Flow (vph)	189	1726	0	69	2203	547	38	38	22	349	346	202
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8

Lanes, Volumes, Timings
2: SW 79th Ave/NW 79th Ave & Flagler St

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2	2	4	4	5	8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	5.0	7.0	7.0	7.0
Minimum Split (s)	13.4	30.4		12.0	30.4	30.4	13.6	13.6	12.0	34.2	34.2	34.2
Total Split (s)	23.0	94.4		15.0	86.4	86.4	13.6	13.6	15.0	47.0	47.0	47.0
Total Split (%)	13.5%	55.5%		8.8%	50.8%	50.8%	8.0%	8.0%	8.8%	27.6%	27.6%	27.6%
Maximum Green (s)	16.6	88.0		8.0	80.0	80.0	7.0	7.0	8.0	40.8	40.8	40.8
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.6	2.0	2.0	2.6	2.6	2.6	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)	0.0	7.0			7.0	7.0	0.0	0.0		7.0	7.0	7.0
Flash Dont Walk (s)	0.0	17.0			17.0	17.0	0.0	0.0		21.0	21.0	21.0
Pedestrian Calls (#/hr)	0	20			0	0	0	0		21	21	21
Act Effct Green (s)	107.9	93.4		86.9	80.0	80.0	7.0	7.0	12.7	38.7	38.7	38.7
Actuated g/C Ratio	0.63	0.55		0.51	0.47	0.47	0.04	0.04	0.07	0.23	0.23	0.23
v/c Ratio	0.71	0.62		0.44	0.92	0.61	0.53	0.50	0.10	0.91	0.90	0.43
Control Delay	69.5	21.2		20.7	19.9	2.5	105.3	102.1	1.0	92.1	89.7	18.1
Queue Delay	0.0	0.0		0.0	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.5	21.2		20.7	20.8	3.1	105.3	102.1	1.0	92.1	89.7	18.1
LOS	E	C		C	C	A	F	F	A	F	F	B
Approach Delay		25.9			17.4			80.6			74.5	
Approach LOS		C			B			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 170			
Actuated Cycle Length: 170			
Offset: 28 (16%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 125			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 30.3		Intersection LOS: C	
Intersection Capacity Utilization 91.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: SW 79th Ave/NW 79th Ave & Flagler St



Queues
2: SW 79th Ave/NW 79th Ave & Flagler St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	189	1726	69	2203	547	38	38	22	349	346	202
v/c Ratio	0.71	0.62	0.44	0.92	0.61	0.53	0.50	0.10	0.91	0.90	0.43
Control Delay	69.5	21.2	20.7	19.9	2.5	105.3	102.1	1.0	92.1	89.7	18.1
Queue Delay	0.0	0.0	0.0	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.5	21.2	20.7	20.8	3.1	105.3	102.1	1.0	92.1	89.7	18.1
Queue Length 50th (ft)	184	313	8	668	0	42	42	0	396	391	46
Queue Length 95th (ft)	m#273	333	m11	492	m0	#94	#88	0	#581	#570	126
Internal Link Dist (ft)		1138		284			970			1004	
Turn Bay Length (ft)	240		180			120		120			220
Base Capacity (vph)	268	2791	162	2392	902	72	76	218	403	406	493
Starvation Cap Reductn	0	0	0	56	113	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.62	0.43	0.94	0.69	0.53	0.50	0.10	0.87	0.85	0.41

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
2: SW 79th Ave/NW 79th Ave & Flagler St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1629	10	66	2093	520	36	36	21	637	23	192
Future Volume (vph)	180	1629	10	66	2093	520	36	36	21	637	23	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	5080		1770	5085	1583	1770	1863	1583	1681	1691	1583
Flt Permitted	0.05	1.00		0.09	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	88	5080		170	5085	1583	1770	1863	1583	1681	1691	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)	189	1715	11	69	2203	547	38	38	22	671	24	202
RTOR Reduction (vph)	0	0	0	0	0	160	0	0	20	0	0	116
Lane Group Flow (vph)	189	1726	0	69	2203	387	38	38	2	349	346	86
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8
Actuated Green, G (s)	106.5	92.0		86.1	78.6	78.6	5.6	5.6	13.1	38.7	38.7	38.7
Effective Green, g (s)	106.5	92.0		86.1	78.6	78.6	5.6	5.6	13.1	38.7	38.7	38.7
Actuated g/C Ratio	0.63	0.54		0.51	0.46	0.46	0.03	0.03	0.08	0.23	0.23	0.23
Clearance Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	267	2749		156	2351	731	58	61	121	382	384	360
v/s Ratio Prot	c0.09	c0.34		0.02	c0.43		c0.02	0.02	0.00	c0.21	0.20	
v/s Ratio Perm	0.35			0.20		0.24			0.00			0.05
v/c Ratio	0.71	0.63		0.44	0.94	0.53	0.66	0.62	0.01	0.91	0.90	0.24
Uniform Delay, d1	53.1	27.1		23.6	43.4	32.5	81.2	81.2	72.5	64.0	63.8	53.6
Progression Factor	1.31	0.74		0.93	0.33	0.02	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.4	0.8		1.4	6.6	2.0	23.6	18.1	0.0	25.7	23.5	0.3
Delay (s)	80.8	21.0		23.4	21.1	2.7	104.8	99.3	72.5	89.7	87.3	54.0
Level of Service	F	C		C	C	A	F	F	E	F	F	D
Approach Delay (s)		26.9			17.6			95.4			80.7	
Approach LOS		C			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	26.2
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	455	1787	37	112	2237	641	24	51	76	432	47	0
Future Volume (vph)	455	1787	37	112	2237	641	24	51	76	432	47	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		0	150		0	220		80	250		0
Storage Lanes	3		0	1		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.94	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.94	1.00	1.00
Frt		0.997				0.850			0.850			
Flt Protected	0.950			0.950				0.984		0.950		
Satd. Flow (prot)	4990	5070	0	1770	5085	1583	0	1833	1583	4990	1863	0
Flt Permitted	0.950			0.078				0.984		0.950		
Satd. Flow (perm)	4990	5070	0	145	5085	1583	0	1833	1583	4990	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				381			145			
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		504			280			1048			354	
Travel Time (s)		7.6			4.2			23.8			8.0	
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
Adj. Flow (vph)	464	1823	38	114	2283	654	24	52	78	441	48	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	464	1861	0	114	2283	654	0	76	78	441	48	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			36			36	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	Perm	Split	NA	Prot	Split	NA	
Protected Phases	1	6		5	2		4	4	4	8	8	
Permitted Phases				2		2						

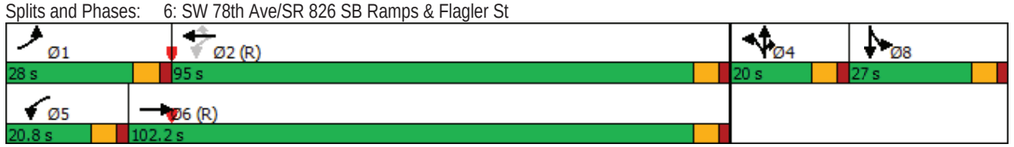
Lanes, Volumes, Timings
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.4	23.4		11.4	24.4	24.4	13.4	13.4	13.4	13.4	13.4	
Total Split (s)	28.0	102.2		20.8	95.0	95.0	20.0	20.0	20.0	27.0	27.0	
Total Split (%)	16.5%	60.1%		12.2%	55.9%	55.9%	11.8%	11.8%	11.8%	15.9%	15.9%	
Maximum Green (s)	21.6	95.8		14.4	88.6	88.6	13.6	13.6	13.6	20.6	20.6	
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
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)	6.4	6.4		6.4	6.4	6.4		6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	Max	Max	
Walk Time (s)		7.0			7.0	7.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		10.0			10.0	10.0	0.0	0.0	0.0	0.0	0.0	
Pedestrian Calls (#/hr)		13			1	1	0	0	0	0	0	
Act Effct Green (s)	20.1	99.9		100.4	90.1	90.1		11.6	11.6	22.6	22.6	
Actuated g/C Ratio	0.12	0.59		0.59	0.53	0.53		0.07	0.07	0.13	0.13	
v/c Ratio	0.79	0.62		0.62	0.85	0.64		0.61	0.32	0.66	0.19	
Control Delay	83.1	13.8		49.8	18.3	3.3		97.2	3.5	75.9	69.0	
Queue Delay	0.0	0.1		0.0	0.4	0.5		0.0	0.0	0.0	0.0	
Total Delay	83.1	13.9		49.8	18.7	3.8		97.2	3.5	75.9	69.0	
LOS	F	B		D	B	A		F	A	E	E	
Approach Delay		27.7			16.7			49.8			75.3	
Approach LOS		C			B			D			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 12 (7%), Referenced to phase 2:WBTL and 6:EBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 26.5	Intersection LOS: C
Intersection Capacity Utilization 82.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: SW 78th Ave/SR 826 SB Ramps & Flagler St



Queues
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	464	1861	114	2283	654	76	78	441	48
v/c Ratio	0.79	0.62	0.62	0.85	0.64	0.61	0.32	0.66	0.19
Control Delay	83.1	13.8	49.8	18.3	3.3	97.2	3.5	75.9	69.0
Queue Delay	0.0	0.1	0.0	0.4	0.5	0.0	0.0	0.0	0.0
Total Delay	83.1	13.9	49.8	18.7	3.8	97.2	3.5	75.9	69.0
Queue Length 50th (ft)	175	281	42	789	26	83	0	169	49
Queue Length 95th (ft)	m217	330	m87	492	3	144	0	213	94
Internal Link Dist (ft)		424		200		968			274
Turn Bay Length (ft)	220		150				80	250	
Base Capacity (vph)	634	2981	226	2696	1018	146	260	664	247
Starvation Cap Reductn	0	237	0	68	99	0	0	0	0
Spillback Cap Reductn	0	0	0	94	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.68	0.50	0.88	0.71	0.52	0.30	0.66	0.19

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

HCM 6th Signalized Intersection Summary
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	455	1787	37	112	2237	641	24	51	76	432	47	0
Future Volume (veh/h)	455	1787	37	112	2237	641	24	51	76	432	47	0
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	464	1823	38	114	2283	0	24	52	78	441	48	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, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	537	3229	67	217	2860		36	77	97	609	227	
Arrive On Green	0.11	0.63	0.63	0.04	0.56	0.00	0.06	0.06	0.06	0.12	0.12	0.00
Sat Flow, veh/h	5023	5148	107	1781	5106	1585	581	1260	1585	5023	1870	0
Grp Volume(v), veh/h	464	1205	656	114	2283	0	76	0	78	441	48	0
Grp Sat Flow(s),veh/h/ln	1674	1702	1851	1781	1702	1585	1841	0	1585	1674	1870	0
Q Serve(g_s), s	15.5	34.7	34.8	4.7	60.5	0.0	6.9	0.0	8.3	14.4	3.9	0.0
Cycle Q Clear(g_c), s	15.5	34.7	34.8	4.7	60.5	0.0	6.9	0.0	8.3	14.4	3.9	0.0
Prop In Lane	1.00		0.06	1.00		1.00	0.32		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	537	2135	1161	217	2860		113	0	97	609	227	
V/C Ratio(X)	0.86	0.56	0.56	0.52	0.80		0.67	0.00	0.80	0.72	0.21	
Avail Cap(c_a), veh/h	638	2135	1161	297	2860		147	0	127	609	227	
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	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	74.7	18.3	18.3	17.5	29.8	0.0	78.1	0.0	78.8	72.0	67.4	0.0
Incr Delay (d2), s/veh	10.4	1.1	2.0	2.0	2.4	0.0	7.5	0.0	23.6	7.3	2.1	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(50%),veh/ln	7.1	13.4	14.9	2.0	24.3	0.0	3.5	0.0	4.0	6.6	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.1	19.4	20.3	19.5	32.2	0.0	85.7	0.0	102.4	79.3	69.5	0.0
LnGrp LOS	F	B	C	B	C		F	A	F	E	E	
Approach Vol, veh/h		2325			2397	A		154			489	A
Approach Delay, s/veh		32.8			31.6			94.2			78.3	
Approach LOS		C			C			F			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.6	101.6		16.8	13.2	113.0		27.0				
Change Period (Y+Rc), s	6.4	6.4		6.4	6.4	6.4		6.4				
Max Green Setting (Gmax), s	21.6	88.6		13.6	14.4	95.8		20.6				
Max Q Clear Time (g_c+I1), s	17.5	62.5		10.3	6.7	36.8		16.4				
Green Ext Time (p_c), s	0.7	19.1		0.2	0.1	20.3		0.8				

Intersection Summary		
HCM 6th Ctrl Delay		38.1
HCM 6th LOS		D

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
8: Flagler St

08/09/2019

Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	2287	2261	0	0	329
Future Volume (vph)	0	2287	2261	0	0	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5085	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5085	0	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		364	504		420	
Travel Time (s)		5.5	7.6		9.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2486	2458	0	0	358
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2486	2458	0	0	358
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		36	36		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary				
Area Type:	Other			
Control Type: Unsignalized				
Intersection Capacity Utilization 70.7%			ICU Level of Service C	
Analysis Period (min) 15				

Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	2295	2423	0	0	567
Future Volume (vph)	0	2295	2423	0	0	567
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.86	0.91	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	6408	5085	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	6408	5085	0	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		353	368		628	
Travel Time (s)		5.3	5.6		14.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2495	2634	0	0	616
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2495	2634	0	0	616
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	641	1625	2423	300	161	0
Future Volume (vph)	641	1625	2423	300	161	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	0
Storage Lanes	2			1	3	0
Taper Length (ft)	25				25	
Lane Util. Factor	0.97	0.95	0.91	1.00	0.94	1.00
Frt				0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	5085	1583	4990	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	5085	1583	4990	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				36		
Link Speed (mph)		45	30		30	
Link Distance (ft)		368	874		483	
Travel Time (s)		5.6	19.9		11.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	654	1658	2472	306	164	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	654	1658	2472	306	164	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Free	Prot	
Protected Phases	1	6	2		3	
Permitted Phases				Free		

Lanes, Volumes, Timings
10: Flagler St & SR 826 NB Ramps

08/09/2019

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	1	6	2		3	
Switch Phase						
Minimum Initial (s)	5.0	16.0	16.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		13.4	
Total Split (s)	49.2	153.8	104.6		16.2	
Total Split (%)	28.9%	90.5%	61.5%		9.5%	
Maximum Green (s)	42.8	147.4	98.2		9.8	
Yellow Time (s)	4.4	4.4	4.4		4.4	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		6.4	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	2.0	1.0	1.0		2.0	
Recall Mode	None	C-Max	C-Max		None	
Walk Time (s)		0.0	0.0		0.0	
Flash Dont Walk (s)		0.0	0.0		0.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	36.5	148.1	105.1	170.0	9.1	
Actuated g/C Ratio	0.21	0.87	0.62	1.00	0.05	
v/c Ratio	0.89	0.54	0.79	0.19	0.61	
Control Delay	77.6	3.0	27.2	0.3	88.7	
Queue Delay	0.0	0.0	2.8	0.0	0.0	
Total Delay	77.6	3.0	30.0	0.3	88.7	
LOS	E	A	C	A	F	
Approach Delay		24.1	26.7		88.7	
Approach LOS		C	C		F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 170			
Actuated Cycle Length: 170			
Offset: 164 (96%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 27.5		Intersection LOS: C	
Intersection Capacity Utilization 86.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 10: Flagler St & SR 826 NB Ramps



Queues
10: Flagler St & SR 826 NB Ramps

08/09/2019

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	654	1658	2472	306	164
v/c Ratio	0.89	0.54	0.79	0.19	0.61
Control Delay	77.6	3.0	27.2	0.3	88.7
Queue Delay	0.0	0.0	2.8	0.0	0.0
Total Delay	77.6	3.0	30.0	0.3	88.7
Queue Length 50th (ft)	344	153	732	0	64
Queue Length 95th (ft)	394	180	864	0	93
Internal Link Dist (ft)		288	794		403
Turn Bay Length (ft)				100	
Base Capacity (vph)	864	3082	3144	1583	287
Starvation Cap Reductn	0	43	541	0	0
Spillback Cap Reductn	0	0	10	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.55	0.95	0.19	0.57

Intersection Summary

HCM 6th Signalized Intersection Summary
10: Flagler St & SR 826 NB Ramps

08/09/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	641	1625	2423	300	161	0
Future Volume (veh/h)	641	1625	2423	300	161	0
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	654	1658	2472	0	164	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	703	3420	3683		0	0
Arrive On Green	0.20	0.96	0.72	0.00	0.00	0.00
Sat Flow, veh/h	3456	3647	5274	1585	0	0
Grp Volume(v), veh/h	654	1658	2472	0	0	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1702	1585	0	0
Q Serve(g_s), s	31.6	5.6	44.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	31.6	5.6	44.5	0.0	0.0	0.0
Prop In Lane	1.00			1.00	0.00	0.00
Lane Grp Cap(c), veh/h	703	3420	3683		0	0
V/C Ratio(X)	0.93	0.48	0.67		0.00	0.00
Avail Cap(c_a), veh/h	870	3420	3683		0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.54	0.00	0.00	0.00
Uniform Delay (d), s/veh	66.5	0.2	12.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	13.1	0.5	0.5	0.0	0.0	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	15.0	0.2	16.6	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	79.6	0.7	13.3	0.0	0.0	0.0
LnGrp LOS	E	A	B		A	A
Approach Vol, veh/h		2312	2472	A	0	
Approach Delay, s/veh		23.0	13.3		0.0	
Approach LOS		C	B			

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	41.0	129.0			170.0	0.0
Change Period (Y+Rc), s	6.4	6.4			6.4	6.4
Max Green Setting (Gmax), s	42.8	98.2			147.4	9.8
Max Q Clear Time (g_c+I1), s	33.6	46.5			7.6	0.0
Green Ext Time (p_c), s	1.0	13.5			5.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
14: Flagler St & SW 74th Ave

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1858	12	27	2600	9	83	8	0	35	5	9
Future Volume (vph)	44	1858	12	27	2600	9	83	8	0	35	5	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		0	0		85
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999										0.850
Flt Protected	0.950			0.950				0.956			0.958	
Satd. Flow (prot)	1770	5080	0	1770	5085	0	0	1781	1863	0	1785	1583
Flt Permitted	0.033			0.950				0.956			0.958	
Satd. Flow (perm)	61	5080	0	1770	5085	0	0	1781	1863	0	1785	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1										61
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		874			246			109			996	
Travel Time (s)		19.9			5.6			2.5			22.6	
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
Adj. Flow (vph)	46	1935	13	28	2708	9	86	8	0	36	5	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	1948	0	28	2717	0	0	94	0	0	41	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Prot	NA		Split	NA	pt+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2		4	4	4 5	8	8	1
Permitted Phases	6											8

Lanes, Volumes, Timings
14: Flagler St & SW 74th Ave

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		4	4	4 5	8	8	1
Switch Phase												
Minimum Initial (s)	5.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	11.4	31.4		9.5	31.4		31.6	31.6		31.6	31.6	11.4
Total Split (s)	11.4	105.2		11.6	105.4		31.6	31.6		31.6	31.6	11.4
Total Split (%)	6.3%	58.4%		6.4%	58.6%		17.6%	17.6%		17.6%	17.6%	6.3%
Maximum Green (s)	5.0	98.8		7.1	99.0		25.0	25.0		25.0	25.0	5.0
Yellow Time (s)	4.4	4.4		3.5	4.4		4.0	4.0		4.0	4.0	4.4
All-Red Time (s)	2.0	2.0		1.0	2.0		2.6	2.6		2.6	2.6	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.4	6.4		4.5	6.4			6.6			6.6	6.4
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.5	1.0		3.0	1.0		3.5	3.5		3.5	3.5	3.5
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		18.0			18.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		1			0		2	2		2	2	
Act Effct Green (s)	129.9	124.6		7.5	124.1			16.1			12.4	22.8
Actuated g/C Ratio	0.72	0.69		0.04	0.69			0.09			0.07	0.13
v/c Ratio	0.43	0.55		0.38	0.77			0.59			0.33	0.04
Control Delay	32.4	17.4		92.8	11.6			92.6			84.5	0.2
Queue Delay	0.0	0.3		0.0	0.0			0.0			0.0	0.0
Total Delay	32.4	17.8		92.8	11.6			92.6			84.5	0.2
LOS	C	B		F	B			F			F	A
Approach Delay		18.1			12.4			92.6			69.4	
Approach LOS		B			B			F			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 143 (79%), Referenced to phase 2:WBT and 6:EBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 16.9	Intersection LOS: B
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 14: Flagler St & SW 74th Ave



Queues
14: Flagler St & SW 74th Ave

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	46	1948	28	2717	94	41	9
v/c Ratio	0.43	0.55	0.38	0.77	0.59	0.33	0.04
Control Delay	32.4	17.4	92.8	11.6	92.6	84.5	0.2
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	17.8	92.8	11.6	92.6	84.5	0.2
Queue Length 50th (ft)	13	415	34	347	109	48	0
Queue Length 95th (ft)	#68	655	m35	m479	168	86	0
Internal Link Dist (ft)		794		166	29	916	
Turn Bay Length (ft)	200						85
Base Capacity (vph)	106	3516	76	3506	247	247	253
Starvation Cap Reductn	0	830	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	0.43	0.73	0.37	0.77	0.38	0.17	0.04

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 6th Signalized Intersection Summary
14: Flagler St & SW 74th Ave

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	1858	12	27	2600	9	83	8	0	35	5	9
Future Volume (veh/h)	44	1858	12	27	2600	9	83	8	0	35	5	9
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	1935	12	28	2708	9	86	8	0	36	5	9
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	131	3901	24	37	3837	13	106	10	135	56	8	96
Arrive On Green	0.02	0.74	0.74	0.02	0.73	0.73	0.06	0.06	0.00	0.04	0.04	0.04
Sat Flow, veh/h	1781	5236	32	1781	5254	17	1636	152	1585	1573	219	1585
Grp Volume(v), veh/h	46	1258	689	28	1754	963	94	0	0	41	0	9
Grp Sat Flow(s),veh/h/ln	1781	1702	1865	1781	1702	1867	1789	0	1585	1792	0	1585
Q Serve(g_s), s	1.2	26.9	26.9	2.8	51.6	51.7	9.3	0.0	0.0	4.1	0.0	1.0
Cycle Q Clear(g_c), s	1.2	26.9	26.9	2.8	51.6	51.7	9.3	0.0	0.0	4.1	0.0	1.0
Prop In Lane	1.00		0.02	1.00		0.01	0.91		1.00	0.88		1.00
Lane Grp Cap(c), veh/h	131	2536	1389	37	2486	1364	115	0	135	64	0	96
V/C Ratio(X)	0.35	0.50	0.50	0.75	0.71	0.71	0.81	0.00	0.00	0.64	0.00	0.09
Avail Cap(c_a), veh/h	136	2536	1389	70	2486	1364	248	0	253	249	0	260
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)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.7	9.3	9.3	87.7	13.5	13.5	83.1	0.0	0.0	85.6	0.0	79.9
Incr Delay (d2), s/veh	1.6	0.6	1.0	25.6	1.7	3.1	15.1	0.0	0.0	12.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	10.1	11.2	1.6	19.8	22.3	4.8	0.0	0.0	2.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.3	9.9	10.3	113.3	15.2	16.6	98.3	0.0	0.0	97.8	0.0	80.4
LnGrp LOS	C	A	B	F	B	B	F	A	A	F	A	F
Approach Vol, veh/h		1993			2745			94			50	
Approach Delay, s/veh		10.3			16.7			98.3			94.7	
Approach LOS		B			B			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	137.9		18.2	8.3	140.5		13.0				
Change Period (Y+Rc), s	6.4	6.4		6.6	4.5	6.4		6.6				
Max Green Setting (Gmax), s	5.0	99.0		25.0	7.1	98.8		25.0				
Max Q Clear Time (g_c+I1), s	3.2	53.7		11.3	4.8	28.9		6.1				
Green Ext Time (p_c), s	0.0	13.4		0.4	0.0	6.9		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		16.4
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings
16: Florida Blvd

08/09/2019

Lane Group	WBL	WBR	SBL	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	0	0	32	91	3
Future Volume (vph)	0	0	0	32	91	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865	0.996	
Flt Protected					0.954	
Satd. Flow (prot)	0	0	0	1611	1770	0
Flt Permitted					0.954	
Satd. Flow (perm)	0	0	0	1611	1770	0
Link Speed (mph)	30		30		30	
Link Distance (ft)	286		109		1074	
Travel Time (s)	6.5		2.5		24.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	34	98	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	34	101	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Right
Median Width(ft)	0		0		12	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9
Sign Control	Free		Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 8.6%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	2446	0	0	2636	0	3
Future Volume (vph)	2446	0	0	2636	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	5085	0	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	5085	0	0	5085	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	246			1057	286	
Travel Time (s)	5.6			24.0	6.5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	2630	0	0	2834	0	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2630	0	0	2834	0	3
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	R NA
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	351	1391	276	78	1559	0	191	276	15	348	650	846
Future Volume (vph)	351	1391	276	78	1559	0	191	276	15	348	650	846
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		0	0		0	350		0	0		0
Storage Lanes	1		0	1		0	1		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	0.95	0.97	0.95	1.00
Frt		0.975						0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4958	0	1770	5085	0	1770	3511	0	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4958	0	1770	5085	0	1770	3511	0	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32						3				62
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1057			473			1114			119	
Travel Time (s)		24.0			10.8			25.3			2.7	
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
Adj. Flow (vph)	358	1419	282	80	1591	0	195	282	15	355	663	863
Shared Lane Traffic (%)												
Lane Group Flow (vph)	358	1701	0	80	1591	0	195	297	0	355	663	863
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases												8

Lanes, Volumes, Timings
19: NW 72nd Ave & Flagler St

08/09/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	5.0
Minimum Split (s)	24.7	36.7		11.7	36.7		11.6	35.6		11.6	35.6	24.7
Total Split (s)	55.0	94.3		22.3	61.6		25.4	37.0		26.4	38.0	55.0
Total Split (%)	30.6%	52.4%		12.4%	34.2%		14.1%	20.6%		14.7%	21.1%	30.6%
Maximum Green (s)	48.3	87.6		15.6	54.9		18.8	30.4		19.8	31.4	48.3
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	4.4
All-Red Time (s)	2.3	2.3		2.3	2.3		2.2	2.2		2.2	2.2	2.3
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)	6.7	6.7		6.7	6.7		6.6	6.6		6.6	6.6	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	5.0	1.0		2.0	1.0		2.0	4.0		2.0	3.0	5.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		23.0			23.0			22.0			22.0	
Pedestrian Calls (#/hr)		4			1			9			0	
Act Effct Green (s)	48.3	91.1		12.1	54.9		18.8	30.5		19.7	31.4	86.3
Actuated g/C Ratio	0.27	0.51		0.07	0.30		0.10	0.17		0.11	0.17	0.48
v/c Ratio	0.76	0.67		0.68	1.03		1.06	0.50		0.94	1.07	1.09
Control Delay	90.7	31.1		108.3	89.9		155.6	70.4		112.4	125.2	100.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	90.7	31.1		108.3	89.9		155.6	70.4		112.4	125.2	100.1
LOS	F	C		F	F		F	E		F	F	F
Approach Delay		41.5			90.8			104.2			111.3	
Approach LOS		D			F			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 152 (84%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 81.5	Intersection LOS: F
Intersection Capacity Utilization 109.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 19: NW 72nd Ave & Flagler St



Queues
19: NW 72nd Ave & Flagler St

08/09/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	358	1701	80	1591	195	297	355	663	863
v/c Ratio	0.76	0.67	0.68	1.03	1.06	0.50	0.94	1.07	1.09
Control Delay	90.7	31.1	108.3	89.9	155.6	70.4	112.4	125.2	100.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.7	31.1	108.3	89.9	155.6	70.4	112.4	125.2	100.1
Queue Length 50th (ft)	436	327	94	~730	~251	168	218	~455	~1104
Queue Length 95th (ft)	550	488	156	#824	#429	223	#322	#590	#1372
Internal Link Dist (ft)		977		393		1034		39	
Turn Bay Length (ft)	500				350				
Base Capacity (vph)	474	2525	153	1550	184	596	377	617	791
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	0.76	0.67	0.52	1.03	1.06	0.50	0.94	1.07	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.

HCM 6th Signalized Intersection Summary
19: NW 72nd Ave & Flagler St

08/09/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	351	1391	276	78	1559	0	191	276	15	348	650	846
Future Volume (veh/h)	351	1391	276	78	1559	0	191	276	15	348	650	846
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	358	1419	282	80	1591	0	195	282	15	355	663	863
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, %	2	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	389	2216	440	97	1813		186	580	31	380	620	622
Arrive On Green	0.22	0.52	0.52	0.05	0.36	0.00	0.10	0.17	0.17	0.11	0.17	0.17
Sat Flow, veh/h	1781	4274	848	1781	5274	0	1781	3433	182	3456	3554	1585
Grp Volume(v), veh/h	358	1130	571	80	1591	0	195	145	152	355	663	863
Grp Sat Flow(s),veh/h/ln	1781	1702	1718	1781	1702	0	1781	1777	1838	1728	1777	1585
Q Serve(g_s), s	35.4	43.0	43.2	8.0	52.5	0.0	18.8	13.3	13.5	18.3	31.4	31.4
Cycle Q Clear(g_c), s	35.4	43.0	43.2	8.0	52.5	0.0	18.8	13.3	13.5	18.3	31.4	31.4
Prop In Lane	1.00		0.49	1.00		0.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	389	1765	891	97	1813		186	300	310	380	620	622
V/C Ratio(X)	0.92	0.64	0.64	0.82	0.88		1.05	0.48	0.49	0.93	1.07	1.39
Avail Cap(c_a), veh/h	478	1765	891	154	1813		186	300	310	380	620	622
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.8	31.2	31.3	84.2	54.4	0.0	80.6	67.7	67.8	79.5	74.3	54.7
Incr Delay (d2), s/veh	23.6	1.8	3.5	8.7	6.4	0.0	79.2	1.7	1.7	29.5	56.2	183.7
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(50%),veh/ln	18.8	18.3	19.0	4.0	23.7	0.0	12.8	6.3	6.5	9.8	19.2	59.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.5	33.0	34.8	92.9	60.8	0.0	159.8	69.4	69.5	109.0	130.5	238.4
LnGrp LOS	F	C	C	F	E		F	E	E	F	F	F
Approach Vol, veh/h		2059			1671	A		492			1881	
Approach Delay, s/veh		43.8			62.3			105.3			175.9	
Approach LOS		D			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	46.0	70.6	26.4	37.0	16.6	100.0	25.4	38.0
Change Period (Y+Rc), s	* 6.7	* 6.7	* 6.6	* 6.6	* 6.7	* 6.7	* 6.6	* 6.6
Max Green Setting (Gmax), s	* 48	* 55	* 20	* 30	* 16	* 88	* 19	* 31
Max Q Clear Time (g_c+I1), s	37.4	54.5	20.3	15.5	10.0	45.2	20.8	33.4
Green Ext Time (p_c), s	1.9	0.2	0.0	2.0	0.0	5.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	94.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
21: SW 72nd Ave

08/09/2019

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	299	627	0	0	1844
Future Volume (vph)	0	299	627	0	0	1844
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.81
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	3539	0	0	7544
Flt Permitted						
Satd. Flow (perm)	0	1611	3539	0	0	7544
Link Speed (mph)	30		30			30
Link Distance (ft)	474		119			198
Travel Time (s)	10.8		2.7			4.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	325	682	0	0	2004
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	325	682	0	0	2004
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	1147	811	783	0	0
Future Volume (vph)	0	1147	811	783	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			150	0	0
Storage Lanes	0			0	0	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.91	0.95	0.95	1.00	1.00
Frt			0.926			
Flt Protected						
Satd. Flow (prot)	0	5085	3277	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	5085	3277	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		354	757		244	
Travel Time (s)		8.0	17.2		5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1247	882	851	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1247	1733	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	SBR	SBR2	NEL
Lane Configurations					
Traffic Volume (vph)	0	0	329	233	0
Future Volume (vph)	0	0	329	233	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Frt			0.865		
Flt Protected					
Satd. Flow (prot)	0	0	1611	0	0
Flt Permitted					
Satd. Flow (perm)	0	0	1611	0	0
Link Speed (mph)	30		30		30
Link Distance (ft)	667		244		420
Travel Time (s)	15.2		5.5		9.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	358	253	0
Shared Lane Traffic (%)					
Lane Group Flow (vph)	0	0	611	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Right	Right	Left
Median Width(ft)	0		0		0
Link Offset(ft)	0		0		0
Crosswalk Width(ft)	16		16		16
Two way Left Turn Lane					
Headway Factor	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9	9	15
Sign Control	Free		Free		Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	0	1712	161	567	0	0
Future Volume (vph)	0	1712	161	567	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00
Frt			0.895			
Flt Protected						
Satd. Flow (prot)	0	5085	1667	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	5085	1667	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		483	551		628	
Travel Time (s)		11.0	12.5		14.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1861	175	616	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1861	791	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	1973	1637	299	0	0
Future Volume (vph)	0	1973	1637	299	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.95	0.95	1.00	1.00
Frt			0.977			
Flt Protected						
Satd. Flow (prot)	0	5085	3458	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	5085	3458	0	0	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		473	708		474	
Travel Time (s)		10.8	16.1		10.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	2099	1741	318	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2099	2059	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Right	Left	Right
Median Width(ft)			0	0	0	
Link Offset(ft)			0	0	0	
Crosswalk Width(ft)			16	16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

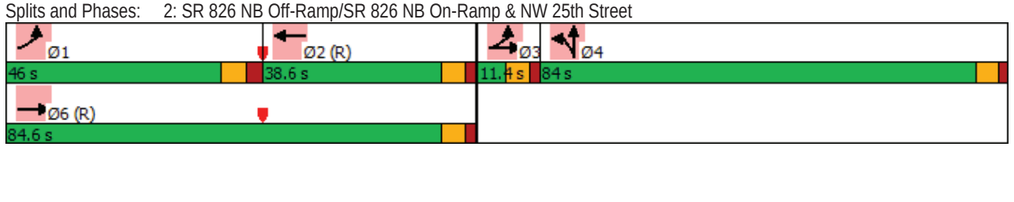
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	553	1502	0	0	712	165	1066	164	1155	0	0	0
Future Volume (vph)	553	1502	0	0	712	165	1066	164	1155	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		350	415		0	0		0
Storage Lanes	2		0	0		1	2		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.86	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3433	5085	0	0	6408	1583	3433	1863	1583	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3433	5085	0	0	6408	1583	3433	1863	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						179			559			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		287			1329			1466			505	
Travel Time (s)		6.5			30.2			28.6			11.5	
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
Adj. Flow (vph)	601	1633	0	0	774	179	1159	178	1255	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	601	1633	0	0	774	179	1159	178	1255	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA			NA	Free	Split	NA	Free			
Protected Phases	1 3	6 3			2		4	4				
Permitted Phases						Free			Free			
Minimum Split (s)					22.4		13.0	13.0				
Total Split (s)					38.6		84.0	84.0				
Total Split (%)					21.4%		46.7%	46.7%				
Maximum Green (s)					32.2		78.0	78.0				
Yellow Time (s)					4.4		4.0	4.0				
All-Red Time (s)					2.0		2.0	2.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					6.4		6.0	6.0				
Lead/Lag					Lag		Lag	Lag				
Lead-Lag Optimize?					Yes		Yes	Yes				
Walk Time (s)					0.0		0.0	0.0				
Flash Dont Walk (s)					0.0		0.0	0.0				
Pedestrian Calls (#/hr)					0		0	0				
Act Effct Green (s)	42.6	89.6			32.2	180.0	78.0	78.0	180.0			
Actuated g/C Ratio	0.24	0.50			0.18	1.00	0.43	0.43	1.00			
v/c Ratio	0.74	0.65			0.68	0.11	0.78	0.22	0.79			

Lane Group	Ø1	Ø3	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	3	6
Permitted Phases			
Minimum Split (s)	11.4	11.4	22.4
Total Split (s)	46.0	11.4	84.6
Total Split (%)	26%	6%	47%
Maximum Green (s)	38.6	5.0	78.2
Yellow Time (s)	4.4	4.4	4.4
All-Red Time (s)	3.0	2.0	2.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	
Walk Time (s)	0.0		0.0
Flash Dont Walk (s)	0.0		0.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	65.6	32.7			72.4	0.1	48.2	32.9	4.2			
Queue Delay	53.7	48.8			18.7	0.0	0.7	0.0	0.0			
Total Delay	119.3	81.5			91.1	0.1	48.9	32.9	4.2			
LOS	F	F			F	A	D	C	A			
Approach Delay		91.6			74.0			26.1				
Approach LOS		F			E			C				

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 164 (91%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 59.3		Intersection LOS: E	
Intersection Capacity Utilization 89.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: SR 826 NB Off-Ramp/SR 826 NB On-Ramp & NW 25th Street



Lane Group	Ø1	Ø3	Ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

Queues
2: SR 826 NB Off-Ramp/SR 826 NB On-Ramp & NW 25th Street

08/05/2019

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	601	1633	774	179	1159	178	1255
v/c Ratio	0.74	0.65	0.68	0.11	0.78	0.22	0.79
Control Delay	65.6	32.7	72.4	0.1	48.2	32.9	4.2
Queue Delay	53.7	48.8	18.7	0.0	0.7	0.0	0.0
Total Delay	119.3	81.5	91.1	0.1	48.9	32.9	4.2
Queue Length 50th (ft)	337	491	252	0	601	131	0
Queue Length 95th (ft)	403	523	292	0	691	191	0
Internal Link Dist (ft)		207	1249			1386	
Turn Bay Length (ft)				350	415		
Base Capacity (vph)	812	2531	1146	1583	1487	807	1583
Starvation Cap Reductn	356	1219	0	0	0	0	0
Spillback Cap Reductn	0	0	378	0	102	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	1.24	1.01	0.11	0.84	0.22	0.79

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: SR 826 NB Off-Ramp/SR 826 NB On-Ramp & NW 25th Street

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	553	1502	0	0	712	165	1066	164	1155	0	0	0
Future Volume (vph)	553	1502	0	0	712	165	1066	164	1155	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	6.4			6.4	4.0	6.0	6.0	4.0			
Lane Util. Factor	0.97	0.91			0.86	1.00	0.97	1.00	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	5085			6408	1583	3433	1863	1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	5085			6408	1583	3433	1863	1583			
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)	601	1633	0	0	774	179	1159	178	1255	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	601	1633	0	0	774	179	1159	178	1255	0	0	0
Turn Type	Prot	NA			NA	Free	Split	NA	Free			
Protected Phases	1 3	6 3			2		4	4				
Permitted Phases						Free			Free			
Actuated Green, G (s)	43.6	89.6			32.2	180.0	78.0	78.0	180.0			
Effective Green, g (s)	43.6	89.6			32.2	180.0	78.0	78.0	180.0			
Actuated g/C Ratio	0.24	0.50			0.18	1.00	0.43	0.43	1.00			
Clearance Time (s)					6.4		6.0	6.0				
Lane Grp Cap (vph)	831	2531			1146	1583	1487	807	1583			
v/s Ratio Prot	0.18	0.32			0.12		0.34	0.10				
v/s Ratio Perm						0.11			c0.79			
v/c Ratio	0.72	0.65			0.68	0.11	0.78	0.22	0.79			
Uniform Delay, d1	62.7	33.4			69.0	0.0	43.6	32.0	0.0			
Progression Factor	1.16	0.94			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	4.5	1.1			3.2	0.1	4.1	0.6	4.2			
Delay (s)	77.0	32.5			72.2	0.1	47.7	32.6	4.2			
Level of Service	E	C			E	A	D	C	A			
Approach Delay (s)		44.5			58.7			25.6			0.0	
Approach LOS		D			E			C			A	

Intersection Summary			
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	26.2
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

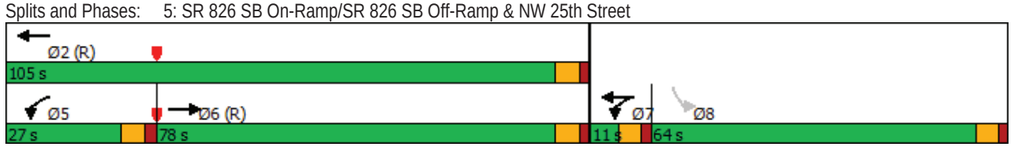
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1318	403	281	1497	0	0	0	0	737	0	949
Future Volume (vph)	0	1318	403	281	1497	0	0	0	0	737	0	949
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		370	0		0	0		0	0		0
Storage Lanes	0		1	2		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.81	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	7544	1583	3433	3539	0	0	0	0	3433	0	1583
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	7544	1583	3433	3539	0	0	0	0	3433	0	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			391									426
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		1353			287			1337			1320	
Travel Time (s)		30.8			6.5			30.4			25.7	
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
Adj. Flow (vph)	0	1433	438	305	1627	0	0	0	0	801	0	1032
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1433	438	305	1627	0	0	0	0	801	0	1032
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Free	Prot	NA					Perm		Free
Protected Phases		6		5 7	2 7							
Permitted Phases			Free							8		Free
Minimum Split (s)		22.4								13.0		
Total Split (s)		78.0								64.0		
Total Split (%)		43.3%								35.6%		
Maximum Green (s)		71.6								58.0		
Yellow Time (s)		4.4								4.0		
All-Red Time (s)		2.0								2.0		
Lost Time Adjust (s)		0.0								0.0		
Total Lost Time (s)		6.4								6.0		
Lead/Lag		Lag								Lag		
Lead-Lag Optimize?		Yes								Yes		
Walk Time (s)		0.0								0.0		
Flash Dont Walk (s)		0.0								0.0		
Pedestrian Calls (#/hr)		0								0		
Act Effct Green (s)		71.6	180.0	25.2	109.6					58.0		180.0
Actuated g/C Ratio		0.40	1.00	0.14	0.61					0.32		1.00
v/c Ratio		0.48	0.28	0.64	0.76					0.72		0.65

Lane Group	Ø2	Ø5	Ø7
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	2	5	7
Permitted Phases			
Minimum Split (s)	22.4	11.4	11.0
Total Split (s)	105.0	27.0	11.0
Total Split (%)	58%	15%	6%
Maximum Green (s)	98.6	20.6	5.0
Yellow Time (s)	4.4	4.4	4.0
All-Red Time (s)	2.0	2.0	2.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lead
Lead-Lag Optimize?		Yes	Yes
Walk Time (s)	0.0		
Flash Dont Walk (s)	0.0		
Pedestrian Calls (#/hr)	0		
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		40.9	0.4	60.3	34.3					58.5		2.1
Queue Delay		1.5	0.0	1.4	48.2					0.0		0.0
Total Delay		42.4	0.4	61.7	82.5					58.5		2.1
LOS		D	A	E	F					E		A
Approach Delay		32.6			79.2						26.7	
Approach LOS		C			E						C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 62 (34%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 65			
Control Type: Pretimed			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 46.7		Intersection LOS: D	
Intersection Capacity Utilization 89.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: SR 826 SB On-Ramp/SR 826 SB Off-Ramp & NW 25th Street



Lane Group	Ø2	Ø5	Ø7
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

Queues
5: SR 826 SB On-Ramp/SR 826 SB Off-Ramp & NW 25th Street

08/05/2019

Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1433	438	305	1627	801	1032
v/c Ratio	0.48	0.28	0.64	0.76	0.72	0.65
Control Delay	40.9	0.4	60.3	34.3	58.5	2.1
Queue Delay	1.5	0.0	1.4	48.2	0.0	0.0
Total Delay	42.4	0.4	61.7	82.5	58.5	2.1
Queue Length 50th (ft)	310	0	110	1038	434	0
Queue Length 95th (ft)	340	0	167	1132	512	0
Internal Link Dist (ft)	1273			207		
Turn Bay Length (ft)		370				
Base Capacity (vph)	3000	1583	480	2154	1106	1583
Starvation Cap Reductn	0	0	60	764	0	0
Spillback Cap Reductn	1297	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.28	0.73	1.17	0.72	0.65

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5: SR 826 SB On-Ramp/SR 826 SB Off-Ramp & NW 25th Street

08/05/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1318	403	281	1497	0	0	0	0	737	0	949
Future Volume (vph)	0	1318	403	281	1497	0	0	0	0	737	0	949
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.0		4.0
Lane Util. Factor		0.81	1.00	0.97	0.95					0.97		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		7544	1583	3433	3539					3433		1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		7544	1583	3433	3539					3433		1583
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	1433	438	305	1627	0	0	0	0	801	0	1032
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1433	438	305	1627	0	0	0	0	801	0	1032
Turn Type		NA	Free	Prot	NA					Perm		Free
Protected Phases		6		5 7	2 7							
Permitted Phases			Free							8		Free
Actuated Green, G (s)		71.6	180.0	25.6	110.0					58.0		180.0
Effective Green, g (s)		71.6	180.0	25.6	110.0					58.0		180.0
Actuated g/C Ratio		0.40	1.00	0.14	0.61					0.32		1.00
Clearance Time (s)		6.4								6.0		
Lane Grp Cap (vph)		3000	1583	488	2162					1106		1583
v/s Ratio Prot		0.19		0.09	c0.46							
v/s Ratio Perm			0.28							c0.23		c0.65
v/c Ratio	0.48	0.28	0.62	0.75						0.72		0.65
Uniform Delay, d1	40.3	0.0	72.7	25.2						53.9		0.0
Progression Factor	1.00	1.00	1.06	1.26						1.00		1.00
Incremental Delay, d2	0.5	0.4	3.9	1.6						4.1		2.1
Delay (s)	40.8	0.4	80.7	33.5						58.1		2.1
Level of Service	D	A	F	C						E		A
Approach Delay (s)	31.4			40.9		0.0			26.6			
Approach LOS	C			D		A			C			

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	24.8
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
9: SR 826 NB On-Ramp

08/05/2019

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	718	0	0	0	0	72
Future Volume (vph)	718	0	0	0	0	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	3539	0	0	0	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	0	0	0	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	505			856	532	
Travel Time (s)	11.5			19.5	12.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	780	0	0	0	0	78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	780	0	0	0	0	78
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lanes, Volumes, Timings
2: SR 826 NB Off-Ramp/SR 826 NB On-Ramp & NW 25th Street

08/07/2019

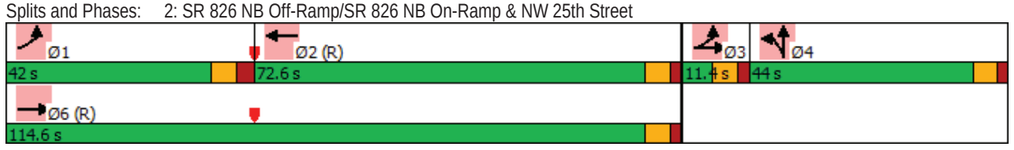
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	375	722	0	0	1368	256	376	97	802	0	0	0
Future Volume (vph)	375	722	0	0	1368	256	376	97	802	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		350	415		0	0		0
Storage Lanes	2		0	0		1	2		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.86	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3433	5085	0	0	6408	1583	3433	1863	1583	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3433	5085	0	0	6408	1583	3433	1863	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						204			476			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		287			1329			1466			505	
Travel Time (s)		6.5			30.2			28.6			11.5	
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
Adj. Flow (vph)	408	785	0	0	1487	278	409	105	872	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	408	785	0	0	1487	278	409	105	872	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA			NA	Free	Split	NA	Free			
Protected Phases	1 3	6 3			2		4	4				
Permitted Phases						Free			Free			
Minimum Split (s)					22.4		13.0	13.0				
Total Split (s)					72.6		44.0	44.0				
Total Split (%)					42.7%		25.9%	25.9%				
Maximum Green (s)					66.2		38.0	38.0				
Yellow Time (s)					4.4		4.0	4.0				
All-Red Time (s)					2.0		2.0	2.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					6.4		6.0	6.0				
Lead/Lag					Lag		Lag	Lag				
Lead-Lag Optimize?					Yes		Yes	Yes				
Walk Time (s)					0.0		0.0	0.0				
Flash Dont Walk (s)					0.0		0.0	0.0				
Pedestrian Calls (#/hr)					0		0	0				
Act Effct Green (s)	38.6	119.6			66.2	170.0	38.0	38.0	170.0			
Actuated g/C Ratio	0.23	0.70			0.39	1.00	0.22	0.22	1.00			
v/c Ratio	0.52	0.22			0.60	0.18	0.53	0.25	0.55			

Lane Group	Ø1	Ø3	Ø6
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	3	6
Permitted Phases			
Minimum Split (s)	11.4	11.4	22.4
Total Split (s)	42.0	11.4	114.6
Total Split (%)	25%	7%	67%
Maximum Green (s)	34.6	5.0	108.2
Yellow Time (s)	4.4	4.4	4.4
All-Red Time (s)	3.0	2.0	2.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	
Walk Time (s)	0.0		0.0
Flash Dont Walk (s)	0.0		0.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	36.2	33.5			42.5	0.2	61.2	56.3	1.4			
Queue Delay	2.6	9.4			0.0	0.0	0.0	0.0	0.0			
Total Delay	38.8	42.9			42.5	0.2	61.2	56.3	1.4			
LOS	D	D			D	A	E	E	A			
Approach Delay		41.5			35.8			23.2				
Approach LOS		D			D			C				

Intersection Summary			
Area Type:	Other		
Cycle Length: 170			
Actuated Cycle Length: 170			
Offset: 164 (96%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 65			
Control Type: Pretimed			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 33.4		Intersection LOS: C	
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: SR 826 NB Off-Ramp/SR 826 NB On-Ramp & NW 25th Street



Lane Group	Ø1	Ø3	Ø6
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	408	785	1487	278	409	105	872
v/c Ratio	0.52	0.22	0.60	0.18	0.53	0.25	0.55
Control Delay	36.2	33.5	42.5	0.2	61.2	56.3	1.4
Queue Delay	2.6	9.4	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	42.9	42.5	0.2	61.2	56.3	1.4
Queue Length 50th (ft)	186	279	382	0	209	97	0
Queue Length 95th (ft)	248	326	421	0	268	158	0
Internal Link Dist (ft)		207	1249			1386	
Turn Bay Length (ft)				350	415		
Base Capacity (vph)	779	3577	2495	1583	767	416	1583
Starvation Cap Reductn	251	2755	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	0.77	0.95	0.60	0.18	0.53	0.25	0.55

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: SR 826 NB Off-Ramp/SR 826 NB On-Ramp & NW 25th Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	375	722	0	0	1368	256	376	97	802	0	0	0
Future Volume (vph)	375	722	0	0	1368	256	376	97	802	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	6.4			6.4	4.0	6.0	6.0	4.0			
Lane Util. Factor	0.97	0.91			0.86	1.00	0.97	1.00	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	5085			6408	1583	3433	1863	1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	5085			6408	1583	3433	1863	1583			
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)	408	785	0	0	1487	278	409	105	872	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	408	785	0	0	1487	278	409	105	872	0	0	0
Turn Type	Prot	NA			NA	Free	Split	NA	Free			
Protected Phases	1 3	6 3			2		4	4				
Permitted Phases						Free			Free			
Actuated Green, G (s)	39.6	119.6			66.2	170.0	38.0	38.0	170.0			
Effective Green, g (s)	39.6	119.6			66.2	170.0	38.0	38.0	170.0			
Actuated g/C Ratio	0.23	0.70			0.39	1.00	0.22	0.22	1.00			
Clearance Time (s)					6.4		6.0	6.0				
Lane Grp Cap (vph)	799	3577			2495	1583	767	416	1583			
v/s Ratio Prot	0.12	0.15			0.23		0.12	0.06				
v/s Ratio Perm						0.18			c0.55			
v/c Ratio	0.51	0.22			0.60	0.18	0.53	0.25	0.55			
Uniform Delay, d1	56.8	8.8			41.3	0.0	58.2	54.3	0.0			
Progression Factor	0.71	3.76			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.1	0.1			1.1	0.2	2.6	1.5	1.4			
Delay (s)	42.4	33.3			42.3	0.2	60.8	55.8	1.4			
Level of Service	D	C			D	A	E	E	A			
Approach Delay (s)		36.4			35.7			23.0			0.0	
Approach LOS		D			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	26.2
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
5: SR 826 SB On-Ramp/SR 826 SB Off-Ramp & NW 25th Street

08/07/2019

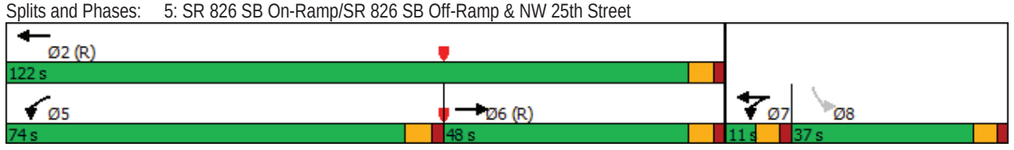
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	840	1284	757	987	0	0	0	0	257	0	345
Future Volume (vph)	0	840	1284	757	987	0	0	0	0	257	0	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		370	0		0	0		0	0		0
Storage Lanes	0		1	2		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.81	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	7544	1583	3433	3539	0	0	0	0	3433	0	1583
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	7544	1583	3433	3539	0	0	0	0	3433	0	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			587									362
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		1353			287			1337			1320	
Travel Time (s)		30.8			6.5			30.4			25.7	
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
Adj. Flow (vph)	0	913	1396	823	1073	0	0	0	0	279	0	375
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	913	1396	823	1073	0	0	0	0	279	0	375
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Free	Prot	NA					Perm		Free
Protected Phases		6		5 7	2 7							
Permitted Phases			Free							8		Free
Minimum Split (s)		22.4								13.0		
Total Split (s)		48.0								37.0		
Total Split (%)		28.2%								21.8%		
Maximum Green (s)		41.6								31.0		
Yellow Time (s)		4.4								4.0		
All-Red Time (s)		2.0								2.0		
Lost Time Adjust (s)		0.0								0.0		
Total Lost Time (s)		6.4								6.0		
Lead/Lag		Lag								Lag		
Lead-Lag Optimize?		Yes								Yes		
Walk Time (s)		0.0								0.0		
Flash Dont Walk (s)		0.0								0.0		
Pedestrian Calls (#/hr)		0								0		
Act Effct Green (s)		41.6	170.0	72.2	126.6					31.0		170.0
Actuated g/C Ratio		0.24	1.00	0.42	0.74					0.18		1.00
v/c Ratio		0.49	0.88	0.56	0.41					0.45		0.24

Lane Group	Ø2	Ø5	Ø7
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	2	5	7
Permitted Phases			
Minimum Split (s)	22.4	11.4	11.0
Total Split (s)	122.0	74.0	11.0
Total Split (%)	72%	44%	6%
Maximum Green (s)	115.6	67.6	5.0
Yellow Time (s)	4.4	4.4	4.0
All-Red Time (s)	2.0	2.0	2.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lead	Lead
Lead-Lag Optimize?		Yes	Yes
Walk Time (s)	0.0		
Flash Dont Walk (s)	0.0		
Pedestrian Calls (#/hr)	0		
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		56.3	7.7	15.0	1.1					64.5		0.4
Queue Delay		0.1	0.0	0.3	0.2					0.8		0.0
Total Delay		56.4	7.7	15.3	1.3					65.3		0.4
LOS		E	A	B	A					E		A
Approach Delay		27.0			7.4						28.0	
Approach LOS		C			A						C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 170			
Actuated Cycle Length: 170			
Offset: 62 (36%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 65			
Control Type: Pretimed			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 19.5		Intersection LOS: B	
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: SR 826 SB On-Ramp/SR 826 SB Off-Ramp & NW 25th Street



Lane Group	Ø2	Ø5	Ø7
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	913	1396	823	1073	279	375
v/c Ratio	0.49	0.88	0.56	0.41	0.45	0.24
Control Delay	56.3	7.7	15.0	1.1	64.5	0.4
Queue Delay	0.1	0.0	0.3	0.2	0.8	0.0
Total Delay	56.4	7.7	15.3	1.3	65.3	0.4
Queue Length 50th (ft)	218	0	128	8	144	0
Queue Length 95th (ft)	249	0	147	7	194	0
Internal Link Dist (ft)	1273			207		
Turn Bay Length (ft)		370				
Base Capacity (vph)	1846	1583	1458	2635	626	1583
Starvation Cap Reductn	0	0	181	663	0	0
Spillback Cap Reductn	201	0	0	0	139	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.88	0.64	0.54	0.57	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5: SR 826 SB On-Ramp/SR 826 SB Off-Ramp & NW 25th Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	840	1284	757	987	0	0	0	0	257	0	345
Future Volume (vph)	0	840	1284	757	987	0	0	0	0	257	0	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	4.0	6.4	6.4					6.0		4.0
Lane Util. Factor		0.81	1.00	0.97	0.95					0.97		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		7544	1583	3433	3539					3433		1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		7544	1583	3433	3539					3433		1583
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	913	1396	823	1073	0	0	0	0	279	0	375
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	913	1396	823	1073	0	0	0	0	279	0	375
Turn Type		NA	Free	Prot	NA					Perm		Free
Protected Phases		6		5 7	2 7							
Permitted Phases			Free							8		Free
Actuated Green, G (s)		41.6	170.0	72.6	127.0					31.0		170.0
Effective Green, g (s)		41.6	170.0	72.6	127.0					31.0		170.0
Actuated g/C Ratio		0.24	1.00	0.43	0.75					0.18		1.00
Clearance Time (s)		6.4								6.0		
Lane Grp Cap (vph)		1846	1583	1466	2643					626		1583
v/s Ratio Prot		0.12		0.24	0.30							
v/s Ratio Perm			c0.88							0.08		0.24
v/c Ratio	0.49	0.88	0.56	0.41						0.45		0.24
Uniform Delay, d1	55.2	0.0	36.7	7.8						61.9		0.0
Progression Factor	1.00	1.00	0.42	0.09						1.00		1.00
Incremental Delay, d2	1.0	7.4	1.3	0.4						2.3		0.4
Delay (s)	56.1	7.4	16.8	1.1						64.1		0.4
Level of Service	E	A	B	A						E		A
Approach Delay (s)	26.7			7.9		0.0				27.6		
Approach LOS	C			A		A				C		

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	24.8
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
9: SR 826 NB On-Ramp

08/07/2019

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	631	0	0	0	0	222
Future Volume (vph)	631	0	0	0	0	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	3539	0	0	0	0	1611
Flt Permitted						
Satd. Flow (perm)	3539	0	0	0	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	505			856	532	
Travel Time (s)	11.5			19.5	12.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	686	0	0	0	0	241
Shared Lane Traffic (%)						
Lane Group Flow (vph)	686	0	0	0	0	241
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.9%		ICU Level of Service A	
Analysis Period (min) 15			

APPENDIX I

2045 No-Build Alternative Output HCS Reports (SR 826)

HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	11/9/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #2		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	2694	150	
Peak Hour Factor (PHF)	0.95	0.95	
Total Trucks, %	4.40	1.50	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.985	
Flow Rate (v_i), pc/h	2960	160	
Capacity (c), pc/h	4600	2000	
Volume-to-Capacity Ratio (v/c)	0.64	0.08	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	27.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.377
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2960	Ramp Junction Speed (S), mi/h	53.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.8
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	11/8/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #2		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3318	162	
Peak Hour Factor (PHF)	0.95	0.95	
Total Trucks, %	4.40	1.50	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.985	
Flow Rate (v_i), pc/h	3646	173	
Capacity (c), pc/h	4600	2000	
Volume-to-Capacity Ratio (v/c)	0.79	0.09	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.379
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3646	Ramp Junction Speed (S), mi/h	53.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	34.3
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/9/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #3		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2544	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1398
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/8/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #3		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3156	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1734
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.0
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/9/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #4-8		

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Freeway
Short Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2355	2152	172	189
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.30	2.30	1.90
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.978	0.978	0.981
Flow Rate (v_i), pc/h	2588	2316	185	203

Weaving Flow Rate (v_w), pc/h	2519	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	2773	Density-Based Capacity (c_{IWL}), pc/h/ln	1837
Total Flow Rate (v), pc/h	5292	Demand Flow-Based Capacity (c_{IW}), pc/h	5042
Volume Ratio (VR)	0.476	Weaving Segment Capacity (c_W), veh/h	4830
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h	4988
Maximum Weaving Length (L_{MAX}), ft	7547	Volume-to-Capacity Ratio (v/c)	1.06

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/8/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #4-8		

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Freeway
Short Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2884	2239	210	272
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.30	2.30	1.90
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.978	0.978	0.981
Flow Rate (v_i), pc/h	3169	2410	226	292

Weaving Flow Rate (v_w), pc/h	2702	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3395	Density-Based Capacity (c_{IWL}), pc/h/ln	1866
Total Flow Rate (v), pc/h	6097	Demand Flow-Based Capacity (c_{IW}), pc/h	5418
Volume Ratio (VR)	0.443	Weaving Segment Capacity (c_W), veh/h	5190
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h	5363
Maximum Weaving Length (L_{MAX}), ft	7168	Volume-to-Capacity Ratio (v/c)	1.14

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/9/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #9		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4508	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1607
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.6
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/8/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #9		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5124	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1827
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.7
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #10-12		

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L_S), ft	2100	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4058	1326	147	450
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	1.60	1.60	1.60	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.984	0.984	0.980
Flow Rate (v_i), pc/h	4341	1418	157	483

Weaving Flow Rate (v_w), pc/h	1901	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	4498	Density-Based Capacity (c_{IWL}), pc/h/ln	2036
Total Flow Rate (v), pc/h	6399	Demand Flow-Based Capacity (c_{IW}), pc/h	8081
Volume Ratio (VR)	0.297	Weaving Segment Capacity (c_W), veh/h	7952
Minimum Lane Change Rate (LC_{MIN}), lc/h	483	Adjusted Weaving Area Capacity, pc/h	8082
Maximum Weaving Length (L_{MAX}), ft	5552	Volume-to-Capacity Ratio (v/c)	0.79

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	756	Average Weaving Speed (S_W), mi/h	51.4
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1294	Average Non-Weaving Speed (S_{NW}), mi/h	48.8
Weaving Lane Change Rate (LC_W), lc/h	907	Average Speed (S), mi/h	49.5
Total Lane Change Rate (LC_{All}), lc/h	2201	Density (D), pc/mi/ln	32.3
Weaving Intensity Factor (W)	0.235	Level of Service (LOS)	D

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #10-12		

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L_S), ft	2100	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4853	1230	145	541
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	1.60	1.60	1.60	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.984	0.984	0.980
Flow Rate (v_i), pc/h	5191	1316	155	581

Weaving Flow Rate (v_w), pc/h	1897	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	5346	Density-Based Capacity (c_{IWL}), pc/h/ln	2064
Total Flow Rate (v), pc/h	7243	Demand Flow-Based Capacity (c_{IW}), pc/h	9160
Volume Ratio (VR)	0.262	Weaving Segment Capacity (c_W), veh/h	8124
Minimum Lane Change Rate (LC_{MIN}), lc/h	581	Adjusted Weaving Area Capacity, pc/h	8258
Maximum Weaving Length (L_{MAX}), ft	5180	Volume-to-Capacity Ratio (v/c)	0.88

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	898	Average Weaving Speed (S_W), mi/h	50.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1469	Average Non-Weaving Speed (S_{NW}), mi/h	47.1
Weaving Lane Change Rate (LC_W), lc/h	1005	Average Speed (S), mi/h	48.0
Total Lane Change Rate (LC_{All}), lc/h	2474	Density (D), pc/mi/ln	37.7
Weaving Intensity Factor (W)	0.257	Level of Service (LOS)	E

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #13		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5385	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1454
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #13		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5814	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1569
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Diverge:

SR826 Off Ramp to Bird Rd EB - No-Build #14

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5814	60	4	2.6%	0.95	1.5	0.987	1.00	6200	9200	No	0.67
Diverging	685	45	1	1.6%	0.95	1.5	0.992	1.00	727	2100	No	0.35
Downstream	5129	60	3	2.6%	0.95	1.5	0.987	1.00	5470	6900	No	0.79

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5385	60	4	2.6%	0.95	1.5	0.987	1.00	5743	9200	No	0.62
Diverging	717	45	1	1.6%	0.95	1.5	0.992	1.00	761	2100	No	0.36
Downstream	4668	60	3	2.6%	0.95	1.5	0.987	1.00	4978	6900	No	0.72

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	27.13	C
PM Peak	25.13	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:

SR826 Off Ramp to Bird Rd EB - No-Build #14

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5814	60	4	2.6%	0.95	1.5	0.987	1.00	6200	9200	No	0.67
Diverging	685	45	1	1.6%	0.95	1.5	0.992	1.00	727	2100	No	0.35
Downstream	5129	60	3	2.6%	0.95	1.5	0.987	1.00	5470	6900	No	0.79

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5385	60	4	2.6%	0.95	1.5	0.987	1.00	5743	9200	No	0.62
Diverging	717	45	1	1.6%	0.95	1.5	0.992	1.00	761	2100	No	0.36
Downstream	4668	60	3	2.6%	0.95	1.5	0.987	1.00	4978	6900	No	0.72

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	27.13	C
PM Peak	25.13	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #15		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4668	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1680
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.4
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #15		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5129	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1846
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.5
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Merge:

On ramp from Miller Dr WB - No-Build #16

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5129	60	3	2.6%	0.95	1.5	0.987	1.00	5470	6900	No	0.79
Merging	1278	40	1	1.5%	0.95	1.5	0.993	1.00	1356	2100	No	0.65
Downstream	6407	60	4	2.6%	0.95	1.5	0.987	1.00	6832	9200	No	0.74

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	4668	60	3	2.6%	0.95	1.5	0.987	1.00	4978	6900	No	0.72
Diverging	1175	40	1	1.5%	0.95	1.5	0.993	1.00	1247	2100	No	0.59
Downstream	5843	60	4	2.6%	0.95	1.5	0.987	1.00	6231	9200	No	0.68

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

Capacity Check for Major Merge:

On ramp from Miller Dr WB - No-Build #16

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5129	60	3	2.6%	0.95	1.5	0.987	1.00	5470	6900	No	0.79
Merging	1278	40	1	1.5%	0.95	1.5	0.993	1.00	1356	2100	No	0.65
Downstream	6407	60	4	2.6%	0.95	1.5	0.987	1.00	6832	9200	No	0.74

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	4668	60	3	2.6%	0.95	1.5	0.987	1.00	4978	6900	No	0.72
Diverging	1175	40	1	1.5%	0.95	1.5	0.993	1.00	1247	2100	No	0.59
Downstream	5843	60	4	2.6%	0.95	1.5	0.987	1.00	6231	9200	No	0.68

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #17		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5843	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1577
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.0
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #17		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6407	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1729
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.9
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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Capacity Check for Major Merge:

On ramp from SR874 NB (toll road) - No-Build #18

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6407	60	4	2.6%	0.95	1.5	0.987	1.00	6832	9200	No	0.74
Merging	3532	65	3	2.7%	0.95	1.5	0.987	1.00	3769	6600	No	0.57
Downstream	9939	60	6	2.6%	0.95	1.5	0.987	1.00	10599	13800	No	0.77

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	5843	60	4	2.6%	0.95	1.5	0.987	1.00	6231	9200	No	0.68
Diverging	3237	65	3	2.7%	0.95	1.5	0.987	1.00	3454	6600	No	0.52
Downstream	9080	60	6	2.6%	0.95	1.5	0.987	1.00	9683	13800	No	0.70

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

Capacity Check for Major Merge:

On ramp from SR874 NB (toll road) - No-Build #18

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6407	60	3	2.6%	0.95	1.5	0.987	1.00	6832	6900	No	0.99
Merging	3532	65	3	2.7%	0.95	1.5	0.987	1.00	3769	6600	No	0.57
Downstream	9939	60	6	2.6%	0.95	1.5	0.987	1.00	10599	13800	No	0.77

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	5843	60	3	2.6%	0.95	1.5	0.987	1.00	6231	6900	No	0.90
Diverging	3237	65	3	2.7%	0.95	1.5	0.987	1.00	3454	6600	No	0.52
Downstream	9080	60	6	2.6%	0.95	1.5	0.987	1.00	9683	13800	No	0.70

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #19		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9080	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1634
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #19		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9939	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1788
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #20		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	9080	473	
Peak Hour Factor (PHF)	0.95	0.95	
Total Trucks, %	2.60	1.30	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.987	
Flow Rate (v_i), pc/h	9803	504	
Capacity (c), pc/h	13800	1900	
Volume-to-Capacity Ratio (v/c)	0.75	0.27	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.388
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2206
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.155	Outer Lanes Freeway Speed (S_O), mi/h	53.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2941	Ramp Junction Speed (S), mi/h	53.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3445	Average Density (D), pc/mi/ln	32.1
Level of Service (LOS)	C		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #20		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	9939	740	
Peak Hour Factor (PHF)	0.95	0.95	
Total Trucks, %	2.60	1.30	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.987	
Flow Rate (v_i), pc/h	10730	789	
Capacity (c), pc/h	13800	1900	
Volume-to-Capacity Ratio (v/c)	0.83	0.42	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.481
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2414
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	51.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.119	Outer Lanes Freeway Speed (S_O), mi/h	52.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	3219	Ramp Junction Speed (S), mi/h	52.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4008	Average Density (D), pc/mi/ln	36.8
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #21		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8553	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1539
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.7
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #21		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10679	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1922
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.0
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #22		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	9553	1240
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976
Flow Rate (v_i), pc/h	10314	1337
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.84	0.67

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	37.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.622
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2321
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	48.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.051	Outer Lanes Freeway Speed (S_O), mi/h	53.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3094	Ramp Junction Speed (S), mi/h	51.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4431	Average Density (D), pc/mi/ln	38.1
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #22		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	10679	1086
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976
Flow Rate (v_i), pc/h	11529	1171
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.92	0.59

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	39.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.694
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2594
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	47.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.071	Outer Lanes Freeway Speed (S_O), mi/h	51.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3459	Ramp Junction Speed (S), mi/h	49.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4630	Average Density (D), pc/mi/ln	42.7
Level of Service (LOS)	E		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #23		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10793	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1942
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #23		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	11765	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2117
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.7
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #24		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	10793	1073
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976
Flow Rate (v_i), pc/h	11652	1157
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.84	0.61

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	38.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.597
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2138
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	49.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	61.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	4463	Ramp Junction Speed (S), mi/h	54.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	35.6
Level of Service (LOS)	E		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #24		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	11765	1278
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976
Flow Rate (v_i), pc/h	12702	1378
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.92	0.73

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	42.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.617
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2298
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	48.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	60.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	4931	Ramp Junction Speed (S), mi/h	54.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	39.2
Level of Service (LOS)	E		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #25		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9720	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1749
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.7
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #25		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10487	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1887
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #26		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	9720	922
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.975
Flow Rate (v_i), pc/h	10494	995
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.83	0.52

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	30.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.501
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2361
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	51.0
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.093	Outer Lanes Freeway Speed (S_O), mi/h	53.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	3148	Ramp Junction Speed (S), mi/h	52.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4143	Average Density (D), pc/mi/ln	36.8
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #26		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1100
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	10487	1110
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.975
Flow Rate (v_i), pc/h	11322	1198
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.91	0.63

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.641
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2547
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	48.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.068	Outer Lanes Freeway Speed (S_O), mi/h	52.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	3397	Ramp Junction Speed (S), mi/h	50.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4595	Average Density (D), pc/mi/ln	41.5
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #27		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10642	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1915
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #27		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	11597	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2087
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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Capacity Check for Major Diverge:

SR826 Off Ramp to SW 8th St EB - No-Build #28

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	11597	60	6	2.6%	0.95	1.5	0.987	1.00	12367	13800	No	0.90
Diverging	1583	45	2	1.4%	0.95	1.5	0.993	1.00	1678	4200	No	0.40
Downstream	10014	60	5	2.6%	0.95	1.5	0.987	1.00	10679	11500	No	0.93

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	10642	60	6	2.6%	0.95	1.5	0.987	1.00	11348	13800	No	0.82
Diverging	1901	45	2	1.4%	0.95	1.5	0.993	1.00	2016	4200	No	0.48
Downstream	8741	60	5	2.6%	0.95	1.5	0.987	1.00	9321	11500	No	0.81

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	36.07	E
PM Peak	33.10	D

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:

SR826 Off Ramp to SW 8th St EB - No-Build #28

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	11597	60	6	2.6%	0.95	1.5	0.987	1.00	12367	13800	No	0.90
Diverging	1583	45	2	1.4%	0.95	1.5	0.993	1.00	1678	4200	No	0.40
Downstream	10014	60	5	2.6%	0.95	1.5	0.987	1.00	10679	11500	No	0.93

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	10642	60	6	2.6%	0.95	1.5	0.987	1.00	11348	13800	No	0.82
Diverging	1901	45	2	1.4%	0.95	1.5	0.993	1.00	2016	4200	No	0.48
Downstream	8741	60	5	2.6%	0.95	1.5	0.987	1.00	9321	11500	No	0.81

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	36.07	E
PM Peak	33.10	D

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #29		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8741	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1887
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.0
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #29		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10014	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2162
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.8
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR826 - No-Build #30-35		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7318	966	188	1423
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.00	2.00	1.30
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.980	0.980	0.987
Flow Rate (v_i), pc/h	7901	1038	202	1518

Weaving Flow Rate (v_w), pc/h	2556	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	8103	Density-Based Capacity (c_{IWL}), pc/h/ln	2148
Total Flow Rate (v), pc/h	10659	Demand Flow-Based Capacity (c_{IW}), pc/h	14583
Volume Ratio (VR)	0.240	Weaving Segment Capacity (c_W), veh/h	14219
Minimum Lane Change Rate (LC_{MIN}), lc/h	1518	Adjusted Weaving Area Capacity, pc/h	14551
Maximum Weaving Length (L_{MAX}), ft	3383	Volume-to-Capacity Ratio (v/c)	0.73

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1134	Average Weaving Speed (S_W), mi/h	45.3
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1080	Average Non-Weaving Speed (S_{NW}), mi/h	41.8
Weaving Lane Change Rate (LC_W), lc/h	2622	Average Speed (S), mi/h	42.6
Total Lane Change Rate (LC_{All}), lc/h	3702	Density (D), pc/mi/ln	35.7
Weaving Intensity Factor (W)	0.487	Level of Service (LOS)	E

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR826 - No-Build #30-35		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	8394	1611	311	1620
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.00	2.00	1.30
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.980	0.980	0.987
Flow Rate (v_i), pc/h	9062	1730	334	1728

Weaving Flow Rate (v_w), pc/h	3458	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	9396	Density-Based Capacity (c_{IWL}), pc/h/ln	2125
Total Flow Rate (v), pc/h	12854	Demand Flow-Based Capacity (c_{IW}), pc/h	13011
Volume Ratio (VR)	0.269	Weaving Segment Capacity (c_W), veh/h	12686
Minimum Lane Change Rate (LC_{MIN}), lc/h	1728	Adjusted Weaving Area Capacity, pc/h	12979
Maximum Weaving Length (L_{MAX}), ft	3688	Volume-to-Capacity Ratio (v/c)	0.99

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #36		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7538	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1356
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.9
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #36		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9019	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1623
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.0
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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Capacity Check for Major Diverge:

SR826 Off Ramp to SR836 - No-Build #37

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	9019	60	6	2.6%	0.95	1.5	0.987	1.00	9618	13800	No	0.70
Diverging	2396	45	3	3.2%	0.95	1.5	0.984	1.00	2563	5700	No	0.45
Downstream	6623	60	4	2.6%	0.95	1.5	0.987	1.00	7063	9200	No	0.77

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	7538	60	6	2.6%	0.95	1.5	0.987	1.00	8038	13800	No	0.58
Diverging	2804	45	3	3.2%	0.95	1.5	0.984	1.00	2999	4200	No	0.71
Downstream	4734	60	4	2.6%	0.95	1.5	0.987	1.00	5048	9200	No	0.55

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	28.05	D
PM Peak	23.44	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:

SR826 Off Ramp to SR836 - No-Build #37

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	9019	60	6	2.6%	0.95	1.5	0.987	1.00	9618	13800	No	0.70
Diverging	2396	45	3	3.2%	0.95	1.5	0.984	1.00	2563	5700	No	0.45
Downstream	6623	60	4	2.6%	0.95	1.5	0.987	1.00	7063	9200	No	0.77

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	7538	60	6	2.6%	0.95	1.5	0.987	1.00	8038	13800	No	0.58
Diverging	2804	45	3	3.2%	0.95	1.5	0.984	1.00	2999	4200	No	0.71
Downstream	4734	60	4	2.6%	0.95	1.5	0.987	1.00	5048	9200	No	0.55

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	28.05	D
PM Peak	23.44	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #38		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4734	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1278
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.3
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/08/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #38		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6623	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1788
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.0
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #39		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	4734	1328
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.977
Flow Rate (v_i), pc/h	5111	1431
Capacity (c), pc/h	9200	2100
Volume-to-Capacity Ratio (v/c)	0.71	0.68

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.411
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1534
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	52.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.039	Outer Lanes Freeway Speed (S_O), mi/h	56.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2044	Ramp Junction Speed (S), mi/h	54.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3475	Average Density (D), pc/mi/ln	30.1
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #39		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	4	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	6623	1334
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.977
Flow Rate (v_i), pc/h	7150	1437
Capacity (c), pc/h	9200	2100
Volume-to-Capacity Ratio (v/c)	0.93	0.68

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	35.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.572
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2145
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	49.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.038	Outer Lanes Freeway Speed (S_O), mi/h	54.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	2860	Ramp Junction Speed (S), mi/h	51.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4297	Average Density (D), pc/mi/ln	41.4
Level of Service (LOS)	E		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #40		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.60
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6062	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1636
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2228
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.0
Total Ramp Density Adjustment	7.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #40		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.60
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7957	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2148
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2228
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.2
Total Ramp Density Adjustment	7.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.8		

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Capacity Check for Major Merge:

On ramp from SR874 NB (toll road) - No-Build #41

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	7957	60	4	2.6%	0.95	1.5	0.987	1.00	8485	9200	No	0.92
Merging	3222	50	2	3.5%	0.95	1.5	0.983	1.00	3451	4400	No	0.78
Downstream	11179	60	6	4.4%	0.95	1.5	0.978	1.00	12027	13800	No	0.87

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	6062	60	4	2.6%	0.95	1.5	0.987	1.00	6465	9200	No	0.70
Diverging	2446	50	2	3.5%	0.95	1.5	0.983	1.00	2620	4400	No	0.60
Downstream	8508	60	6	4.4%	0.95	1.5	0.978	1.00	9153	13800	No	0.66

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

Capacity Check for Major Merge:

On ramp from SR874 NB (toll road) - No-Build #41

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	7957	60	4	2.6%	0.95	1.5	0.987	1.00	8485	9200	No	0.92
Merging	3222	50	2	3.5%	0.95	1.5	0.983	1.00	3451	4400	No	0.78
Downstream	11179	60	6	4.4%	0.95	1.5	0.978	1.00	12027	13800	No	0.87

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	6062	60	4	2.6%	0.95	1.5	0.987	1.00	6465	9200	No	0.70
Diverging	2446	50	2	3.5%	0.95	1.5	0.983	1.00	2620	4400	No	0.60
Downstream	8508	60	6	4.4%	0.95	1.5	0.978	1.00	9153	13800	No	0.66

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR826 - No-Build #42		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8508	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1558
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.1
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR826 - No-Build #42		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	11179	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2047
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.0
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #43-45		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7151	1509	286	1357
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	3.30	3.30	3.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.968	0.968	0.967
Flow Rate (v_i), pc/h	7857	1641	311	1477

Weaving Flow Rate (v_w), pc/h	3118	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	8168	Density-Based Capacity (c_{IWL}), pc/h/ln	2188
Total Flow Rate (v), pc/h	11286	Demand Flow-Based Capacity (c_{IW}), pc/h	12681
Volume Ratio (VR)	0.276	Weaving Segment Capacity (c_W), veh/h	12149
Minimum Lane Change Rate (LC_{MIN}), lc/h	1641	Adjusted Weaving Area Capacity, pc/h	12643
Maximum Weaving Length (L_{MAX}), ft	3762	Volume-to-Capacity Ratio (v/c)	0.89

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1879	Average Weaving Speed (S_W), mi/h	50.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-138	Average Non-Weaving Speed (S_{NW}), mi/h	40.4
Weaving Lane Change Rate (LC_W), lc/h	3129	Average Speed (S), mi/h	42.7
Total Lane Change Rate (LC_{All}), lc/h	2991	Density (D), pc/mi/ln	37.8
Weaving Intensity Factor (W)	0.278	Level of Service (LOS)	E

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #43-45		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	9024	1820	435	2155
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	3.30	3.30	3.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.968	0.968	0.967
Flow Rate (v_i), pc/h	9915	1979	473	2346

Weaving Flow Rate (v_w), pc/h	4325	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	10388	Density-Based Capacity (c_{IWL}), pc/h/ln	2173
Total Flow Rate (v), pc/h	14713	Demand Flow-Based Capacity (c_{IW}), pc/h	11905
Volume Ratio (VR)	0.294	Weaving Segment Capacity (c_W), veh/h	11405
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h	11866
Maximum Weaving Length (L_{MAX}), ft	3954	Volume-to-Capacity Ratio (v/c)	1.24

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #46		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8661	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1903
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #46		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10845	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2383
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.04
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

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Capacity Check for Major Merge:

On ramp from NW25th St WB - No-Build #47

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	10845	60	5	4.4%	0.95	1.5	0.978	1.00	11667	11500	Yes	1.01
Merging	1380	30	1	6.8%	0.95	1.5	0.967	1.00	1503	2000	No	0.75
Downstream	12225	60	6	4.4%	0.95	1.5	0.978	1.00	13152	13800	No	0.95

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	8661	60	5	4.4%	0.95	1.5	0.978	1.00	9318	11500	No	0.81
Diverging	1334	30	1	6.8%	0.95	1.5	0.967	1.00	1452	2000	No	0.73
Downstream	9995	60	6	4.4%	0.95	1.5	0.978	1.00	10753	13800	No	0.78

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

Capacity Check for Major Merge:

Loop On ramp from SW88th St EB - No-Build #47

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	10845	60	5	4.4%	0.95	1.5	0.978	1.00	11667	11500	Yes	1.01
Merging	1380	30	1	6.8%	0.95	1.5	0.967	1.00	1503	2000	No	0.75
Downstream	12225	60	6	4.4%	0.95	1.5	0.978	1.00	13152	13800	No	0.95

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	8661	60	5	4.4%	0.95	1.5	0.978	1.00	9318	11500	No	0.81
Diverging	1334	30	1	6.8%	0.95	1.5	0.967	1.00	1452	2000	No	0.73
Downstream	9995	60	6	4.4%	0.95	1.5	0.978	1.00	10753	13800	No	0.78

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - No-Build #48		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9995	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1830
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/03/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - No-Build #48		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	12225	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2239
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #1		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10263	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1880
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.7
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #1		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	12302	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2253
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #2		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity			
Demand Volume (V_i), veh/h	10263	1255	
Peak Hour Factor (PHF)	0.95	0.95	
Total Trucks, %	4.40	7.00	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.935	
Flow Rate (v_i), pc/h	11277	1413	
Capacity (c), pc/h	13800	2000	
Volume-to-Capacity Ratio (v/c)	0.82	0.71	

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	40.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.490
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1986
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	51.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	62.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	4485	Ramp Junction Speed (S), mi/h	55.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	33.7
Level of Service (LOS)	E		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #2		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity			
Demand Volume (V_i), veh/h	12302	2019	
Peak Hour Factor (PHF)	0.95	0.95	
Total Trucks, %	4.40	7.00	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.935	
Flow Rate (v_i), pc/h	13517	2273	
Capacity (c), pc/h	13800	2000	
Volume-to-Capacity Ratio (v/c)	0.98	1.14	

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	51.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2218
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	49.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	61.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	5702	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #3		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9008	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1650
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.4
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #3		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10283	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1883
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.8
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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Capacity Check for Major Merge:

On ramp from NW 25th St EB - No-Build #4

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	10283	60	6	4.4%	0.95	1.5	0.978	1.00	11063	13800	No	0.80
Merging	1161	30	2	2.7%	0.95	1.5	0.987	1.00	1239	4000	No	0.31
Downstream	11444	60	7	4.4%	0.95	1.5	0.978	1.00	12312	13800	No	0.89

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	9008	60	6	4.4%	0.95	1.5	0.978	1.00	9691	13800	No	0.70
Diverging	2417	30	2	2.7%	0.95	1.5	0.987	1.00	2579	4000	No	0.64
Downstream	11425	60	7	4.4%	0.95	1.5	0.978	1.00	12291	13800	No	0.89

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

Capacity Check for Major Merge:

On ramp from NW 25th St EB - No-Build #4

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	10283	60	6	4.4%	0.95	1.5	0.978	1.00	11063	13800	No	0.80
Merging	1161	30	2	2.7%	0.95	1.5	0.987	1.00	1239	4000	No	0.31
Downstream	11444	60	7	4.4%	0.95	1.5	0.978	1.00	12312	13800	No	0.89

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	9008	60	6	4.4%	0.95	1.5	0.978	1.00	9691	13800	No	0.70
Diverging	2417	30	2	2.7%	0.95	1.5	0.987	1.00	2579	4000	No	0.64
Downstream	11425	60	7	4.4%	0.95	1.5	0.978	1.00	12291	13800	No	0.89

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #5		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	2
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7253	1946	471	1755
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.70	2.70	3.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974	0.974	0.963
Flow Rate (v_i), pc/h	7969	2103	509	1918

Weaving Flow Rate (v_w), pc/h	4021	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	8478	Density-Based Capacity (c_{IWL}), pc/h/ln	2150
Total Flow Rate (v), pc/h	12499	Demand Flow-Based Capacity (c_{IW}), pc/h	10870
Volume Ratio (VR)	0.322	Weaving Segment Capacity (c_W), veh/h	10413
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h	10822
Maximum Weaving Length (L_{MAX}), ft	4255	Volume-to-Capacity Ratio (v/c)	1.15

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #5		

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	2
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7337	828	333	2946
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.70	2.70	3.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974	0.974	0.963
Flow Rate (v_i), pc/h	8062	895	360	3220

Weaving Flow Rate (v_w), pc/h	4115	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	8422	Density-Based Capacity (c_{IWL}), pc/h/ln	2145
Total Flow Rate (v), pc/h	12537	Demand Flow-Based Capacity (c_{IW}), pc/h	10671
Volume Ratio (VR)	0.328	Weaving Segment Capacity (c_W), veh/h	10223
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h	10639
Maximum Weaving Length (L_{MAX}), ft	4320	Volume-to-Capacity Ratio (v/c)	1.18

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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Capacity Check for Major Diverge:

SR826 Off Ramp to SR836 WB - No-Build #6

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	11444	60	7	4.4%	0.95	1.5	0.978	1.00	12312	13800	No	0.89
Diverging	3278	45	3	3.8%	0.95	1.5	0.981	1.00	3517	5700	No	0.62
Downstream	8166	60	5	4.4%	0.95	1.5	0.978	1.00	8785	11500	No	0.76

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	11425	60	7	4.4%	0.95	1.5	0.978	1.00	12291	13800	No	0.89
Diverging	2225	45	3	3.8%	0.95	1.5	0.981	1.00	2387	4200	No	0.57
Downstream	9200	60	5	4.4%	0.95	1.5	0.978	1.00	9898	11500	No	0.86

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	30.78	D
PM Peak	30.73	D

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:

SR826 Off Ramp to SR836 WB - No-Build #6

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	11444	60	7	4.4%	0.95	1.5	0.978	1.00	12312	13800	No	0.89
Diverging	3278	45	3	3.8%	0.95	1.5	0.981	1.00	3517	5700	No	0.62
Downstream	8166	60	5	4.4%	0.95	1.5	0.978	1.00	8785	11500	No	0.76

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	11425	60	7	4.4%	0.95	1.5	0.978	1.00	12291	13800	No	0.89
Diverging	2225	45	3	3.8%	0.95	1.5	0.981	1.00	2387	4200	No	0.57
Downstream	9200	60	5	4.4%	0.95	1.5	0.978	1.00	9898	11500	No	0.86

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	30.78	D
PM Peak	30.73	D

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #7		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9200	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2022
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.8
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #7		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8166	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1795
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.1
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #8		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	5	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	9200	245
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974
Flow Rate (v_i), pc/h	10109	265
Capacity (c), pc/h	11500	1900
Volume-to-Capacity Ratio (v/c)	0.88	0.14

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.517
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2206
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	50.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	61.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	3675	Ramp Junction Speed (S), mi/h	55.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	36.2
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #8		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	5	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	8166	749
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974
Flow Rate (v_i), pc/h	8973	809
Capacity (c), pc/h	11500	1900
Volume-to-Capacity Ratio (v/c)	0.78	0.43

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	32.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.566
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1796
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	49.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	62.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3586	Ramp Junction Speed (S), mi/h	55.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	32.3
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #9		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8955	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1934
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.2
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #9		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7417	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1602
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.9
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Diverge:

SR826 Off Ramp to Flagler St WB - No-Build #10

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	7417	60	5	2.6%	0.95	1.5	0.987	1.00	7909	11500	No	0.69
Diverging	2622	40	2	1.7%	0.95	1.5	0.992	1.00	2784	4200	No	0.66
Downstream	4795	60	4	2.6%	0.95	1.5	0.987	1.00	5113	9200	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	8955	60	5	2.6%	0.95	1.5	0.987	1.00	9549	11500	No	0.83
Diverging	2024	40	2	1.7%	0.95	1.5	0.992	1.00	2149	4200	No	0.51
Downstream	6931	60	4	2.6%	0.95	1.5	0.987	1.00	7391	9200	No	0.80

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	27.68	C
PM Peak	33.42	D

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:

SR826 Off Ramp to Flagler St WB - No-Build #10

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	7417	60	5	2.6%	0.95	1.5	0.987	1.00	7909	11500	No	0.69
Diverging	2622	40	2	1.7%	0.95	1.5	0.992	1.00	2784	4200	No	0.66
Downstream	4795	60	4	2.6%	0.95	1.5	0.987	1.00	5113	9200	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	8955	60	5	2.6%	0.95	1.5	0.987	1.00	9549	11500	No	0.83
Diverging	2024	40	2	1.7%	0.95	1.5	0.992	1.00	2149	4200	No	0.51
Downstream	6931	60	4	2.6%	0.95	1.5	0.987	1.00	7391	9200	No	0.80

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	27.68	C
PM Peak	33.42	D

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #11		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6931	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1871
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.0
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #11		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4795	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1294
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.2
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Merge:

On ramp from SR836 EB - No-Build #12

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4795	60	4	2.6%	0.95	1.5	0.987	1.00	5113	9200	No	0.56
Merging	3544	40	2	2.7%	0.95	1.5	0.987	1.00	3781	4200	No	0.90
Downstream	8339	60	5	2.6%	0.95	1.5	0.987	1.00	8893	11500	No	0.77

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6931	60	4	2.6%	0.95	1.5	0.987	1.00	7391	9200	No	0.80
Diverging	2577	40	2	2.7%	0.95	1.5	0.987	1.00	2750	4200	No	0.65
Downstream	9508	60	5	2.6%	0.95	1.5	0.987	1.00	10139	11500	No	0.88

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

Capacity Check for Major Merge:

On ramp from SR836 EB - No-Build #12

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4795	60	4	2.6%	0.95	1.5	0.987	1.00	5113	9200	No	0.56
Merging	3544	40	2	2.7%	0.95	1.5	0.987	1.00	3781	4200	No	0.90
Downstream	8339	60	5	2.6%	0.95	1.5	0.987	1.00	8893	11500	No	0.77

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6931	60	4	2.6%	0.95	1.5	0.987	1.00	7391	9200	No	0.80
Diverging	2577	40	2	2.7%	0.95	1.5	0.987	1.00	2750	4200	No	0.65
Downstream	9508	60	5	2.6%	0.95	1.5	0.987	1.00	10139	11500	No	0.88

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #13		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9508	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2053
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.1
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #13		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8339	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1801
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.7
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/12/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #14		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	5	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	9508	963
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.975
Flow Rate (v_i), pc/h	10265	1040
Capacity (c), pc/h	11500	2200
Volume-to-Capacity Ratio (v/c)	0.98	0.47

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.3
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.424
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2330
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	52.4
Prop. Freeway Vehicles in Lane 3 and 4 (P_{FM})	0.088	Outer Lanes Freeway Speed (S_O), mi/h	53.3
Flow in Lanes 3 and 4 (v_{34}), pc/h	3106	Ramp Junction Speed (S), mi/h	52.9
Flow Entering Ramp-Infl. Area (v_{R34}), pc/h	4146	Average Density (D), pc/mi/ln	42.7
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #14		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	5	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	8339	922
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.975
Flow Rate (v_i), pc/h	9003	995
Capacity (c), pc/h	11500	2200
Volume-to-Capacity Ratio (v/c)	0.87	0.45

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.0
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.320
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1951
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.2
Prop. Freeway Vehicles in Lane 3 and 4 (P_{FM})	0.093	Outer Lanes Freeway Speed (S_O), mi/h	54.8
Flow in Lanes 3 and 4 (v_{34}), pc/h	2601	Ramp Junction Speed (S), mi/h	54.5
Flow Entering Ramp-Infl. Area (v_{R34}), pc/h	3596	Average Density (D), pc/mi/ln	36.7
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #15		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10471	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2261
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #15		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9261	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2000
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.7
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #16		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	5	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	10471	1130
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.971
Flow Rate (v_i), pc/h	11305	1225
Capacity (c), pc/h	11500	2100
Volume-to-Capacity Ratio (v/c)	1.09	0.58

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	39.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2642
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	46.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.065	Outer Lanes Freeway Speed (S_O), mi/h	51.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3522	Ramp Junction Speed (S), mi/h	-
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4747	Average Density (D), pc/mi/ln	-
Level of Service (LOS)	F		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #16		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	5	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	9261	1250
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.971
Flow Rate (v_i), pc/h	9998	1355
Capacity (c), pc/h	11500	2100
Volume-to-Capacity Ratio (v/c)	0.99	0.65

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	36.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.588
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2250
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	49.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.048	Outer Lanes Freeway Speed (S_O), mi/h	53.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2999	Ramp Junction Speed (S), mi/h	51.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4354	Average Density (D), pc/mi/ln	44.1
Level of Service (LOS)	E		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #17		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	11601	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2505
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.12
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #17		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10511	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2270
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #18-20		

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	10145	1377	198	1456
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.10	2.10	2.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.979	0.979	0.977
Flow Rate (v_i), pc/h	10953	1481	213	1569

Weaving Flow Rate (v_w), pc/h	3050	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	11166	Density-Based Capacity (c_{IWL}), pc/h/ln	2117
Total Flow Rate (v), pc/h	14216	Demand Flow-Based Capacity (c_{IW}), pc/h	11163
Volume Ratio (VR)	0.215	Weaving Segment Capacity (c_W), veh/h	10884
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h	11156
Maximum Weaving Length (L_{MAX}), ft	4690	Volume-to-Capacity Ratio (v/c)	1.27

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #18-20		

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Short Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	9442	1048	119	1069
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.10	2.10	2.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.979	0.979	0.977
Flow Rate (v_i), pc/h	10194	1127	128	1152

Weaving Flow Rate (v_w), pc/h	2279	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	10322	Density-Based Capacity (c_{IWL}), pc/h/ln	2144
Total Flow Rate (v), pc/h	12601	Demand Flow-Based Capacity (c_{IW}), pc/h	13260
Volume Ratio (VR)	0.181	Weaving Segment Capacity (c_W), veh/h	12542
Minimum Lane Change Rate (LC_{MIN}), lc/h	1152	Adjusted Weaving Area Capacity, pc/h	12857
Maximum Weaving Length (L_{MAX}), ft	4343	Volume-to-Capacity Ratio (v/c)	0.98

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Total Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #21		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	11524	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2074
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.4
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #21		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10491	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1888
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.9
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #22		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	11524	1030
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.974
Flow Rate (v_i), pc/h	12442	1113
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.98	0.59

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	39.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.886
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2700
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.079	Outer Lanes Freeway Speed (S_O), mi/h	51.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	3932	Ramp Junction Speed (S), mi/h	47.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	5045	Average Density (D), pc/mi/ln	47.6
Level of Service (LOS)	E		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #22		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	25.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	10491	835
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.974
Flow Rate (v_i), pc/h	11326	902
Capacity (c), pc/h	13800	1900
Volume-to-Capacity Ratio (v/c)	0.89	0.47

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	33.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.568
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2548
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	49.8
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.105	Outer Lanes Freeway Speed (S_O), mi/h	52.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	3398	Ramp Junction Speed (S), mi/h	51.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4300	Average Density (D), pc/mi/ln	40.0
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #23		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	12554	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2259
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #23		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	11326	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	2038
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #24		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	6	2
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity	Freeway	Ramp
Demand Volume (V_i), veh/h	12554	2063
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	3.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.967
Flow Rate (v_i), pc/h	13554	2246
Capacity (c), pc/h	13800	4200
Volume-to-Capacity Ratio (v/c)	0.98	0.53

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	31.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.435
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2700
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.260	Outer Lanes Freeway Speed (S_O), mi/h	59.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	4766	Ramp Junction Speed (S), mi/h	55.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	40.6
Level of Service (LOS)	D		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #24		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	6	2
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity	Freeway	Ramp
Demand Volume (V_i), veh/h	11326	2036
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	3.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.967
Flow Rate (v_i), pc/h	12228	2216
Capacity (c), pc/h	13800	4200
Volume-to-Capacity Ratio (v/c)	0.89	0.53

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	25.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.432
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2574
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.260	Outer Lanes Freeway Speed (S_O), mi/h	59.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	4024	Ramp Junction Speed (S), mi/h	56.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	36.3
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #25		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10491	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1888
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.3
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #25		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9290	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1672
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.3
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #26		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	380
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	10491	1810
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	1.80
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.982
Flow Rate (v_i), pc/h	11326	1940
Capacity (c), pc/h	13800	2100
Volume-to-Capacity Ratio (v/c)	0.82	0.92

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	42.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.408
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1848
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	62.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	4798	Ramp Junction Speed (S), mi/h	56.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	33.4
Level of Service (LOS)	E		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #26		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	6	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	380
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	9290	992
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	1.80
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.982
Flow Rate (v_i), pc/h	10030	1063
Capacity (c), pc/h	13800	2100
Volume-to-Capacity Ratio (v/c)	0.73	0.51

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	34.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.329
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1822
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	62.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3879	Ramp Junction Speed (S), mi/h	57.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	28.9
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #27		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8681	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1562
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #27		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8298	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1493
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Diverge:

SR826 Off Ramp to SR874 WB - No-Build #28

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	8298	60	6	2.6%	0.95	1.5	0.987	1.00	8849	13800	No	0.64
Diverging	3327	65	3	2.7%	0.95	1.5	0.987	1.00	3550	6600	No	0.54
Downstream	4971	60	3	2.6%	0.95	1.5	0.987	1.00	5301	6900	No	0.77

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	8681	60	6	2.6%	0.95	1.5	0.987	1.00	9257	13800	No	0.67
Diverging	3506	65	3	2.7%	0.95	1.5	0.987	1.00	3741	6600	No	0.57
Downstream	5175	60	3	2.6%	0.95	1.5	0.987	1.00	5519	6900	No	0.80

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	25.81	C
PM Peak	27.00	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:

SR826 Off Ramp to SR874 WB - No-Build #28

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	8298	60	6	2.6%	0.95	1.5	0.987	1.00	8849	13800	No	0.64
Diverging	3327	65	3	2.7%	0.95	1.5	0.987	1.00	3550	6600	No	0.54
Downstream	4971	60	3	2.6%	0.95	1.5	0.987	1.00	5301	6900	No	0.77

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	8681	60	6	2.6%	0.95	1.5	0.987	1.00	9257	13800	No	0.67
Diverging	3506	65	3	2.7%	0.95	1.5	0.987	1.00	3741	6600	No	0.57
Downstream	5175	60	3	2.6%	0.95	1.5	0.987	1.00	5519	6900	No	0.80

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	25.81	C
PM Peak	27.00	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #29		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5175	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1862
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #29		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4971	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1789
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/07/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #30-34		

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L_S), ft	2600	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.20	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3979	1164	350	1196
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	1.60	1.60	1.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.984	0.984	0.982
Flow Rate (v_i), pc/h	4296	1245	374	1282

Weaving Flow Rate (v_w), pc/h	2527	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	4670	Density-Based Capacity (c_{IWL}), pc/h/ln	2149
Total Flow Rate (v), pc/h	7197	Demand Flow-Based Capacity (c_{IW}), pc/h	9972
Volume Ratio (VR)	0.351	Weaving Segment Capacity (c_W), veh/h	8381
Minimum Lane Change Rate (LC_{MIN}), lc/h	1245	Adjusted Weaving Area Capacity, pc/h	8567
Maximum Weaving Length (L_{MAX}), ft	4571	Volume-to-Capacity Ratio (v/c)	0.84

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1457	Average Weaving Speed (S_W), mi/h	50.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1328	Average Non-Weaving Speed (S_{NW}), mi/h	42.4
Weaving Lane Change Rate (LC_W), lc/h	1807	Average Speed (S), mi/h	45.0
Total Lane Change Rate (LC_{All}), lc/h	3135	Density (D), pc/mi/ln	40.0
Weaving Intensity Factor (W)	0.262	Level of Service (LOS)	E

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/07/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #30-34		

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Short Length (L_S), ft	2600	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.20	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3819	811	245	1152
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	1.60	1.60	1.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.984	0.984	0.982
Flow Rate (v_i), pc/h	4123	868	262	1235

Weaving Flow Rate (v_w), pc/h	2103	Freeway Max Capacity (c_{IFL}), pc/h/ln	2300
Non-Weaving Flow Rate (v_{NW}), pc/h	4385	Density-Based Capacity (c_{IWL}), pc/h/ln	2172
Total Flow Rate (v), pc/h	6488	Demand Flow-Based Capacity (c_{IW}), pc/h	10802
Volume Ratio (VR)	0.324	Weaving Segment Capacity (c_W), veh/h	8471
Minimum Lane Change Rate (LC_{MIN}), lc/h	868	Adjusted Weaving Area Capacity, pc/h	8663
Maximum Weaving Length (L_{MAX}), ft	4277	Volume-to-Capacity Ratio (v/c)	0.75

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1368	Average Weaving Speed (S_W), mi/h	51.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1424	Average Non-Weaving Speed (S_{NW}), mi/h	46.0
Weaving Lane Change Rate (LC_W), lc/h	1430	Average Speed (S), mi/h	47.6
Total Lane Change Rate (LC_{All}), lc/h	2854	Density (D), pc/mi/ln	34.1
Weaving Intensity Factor (W)	0.243	Level of Service (LOS)	D

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #30-34		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6689	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1806
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #30-34		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6027	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1627
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Diverge:

SR826 Off Ramp to SR874 WB - No-Build #30-34

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6027	60	4	2.6%	0.95	1.5	0.987	1.00	6427	9200	No	0.70
Diverging	1396	40	2	1.8%	0.95	1.5	0.991	1.00	1483	4200	No	0.35
Downstream	4631	60	3	1.6%	0.95	1.5	0.992	1.00	4914	6900	No	0.71

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6689	60	4	2.6%	0.95	1.5	0.987	1.00	7133	9200	No	0.78
Diverging	1545	40	2	1.8%	0.95	1.5	0.991	1.00	1641	4200	No	0.39
Downstream	5144	60	3	1.6%	0.95	1.5	0.992	1.00	5459	6900	No	0.79

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	28.12	D
PM Peak	31.21	D

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:

SR826 Off Ramp to SR874 WB - No-Build #30-34

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6027	60	4	2.6%	0.95	1.5	0.987	1.00	6427	9200	No	0.70
Diverging	1396	40	2	1.8%	0.95	1.5	0.991	1.00	1483	4200	No	0.35
Downstream	4631	60	3	1.6%	0.95	1.5	0.992	1.00	4914	6900	No	0.71

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6689	60	4	2.6%	0.95	1.5	0.987	1.00	7133	9200	No	0.78
Diverging	1545	40	2	1.8%	0.95	1.5	0.991	1.00	1641	4200	No	0.39
Downstream	5144	60	3	1.6%	0.95	1.5	0.992	1.00	5459	6900	No	0.79

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	28.12	D
PM Peak	31.21	D

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #35		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5144	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1834
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #35		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4631	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1651
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #36		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	5144	353
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.975
Flow Rate (v_i), pc/h	5503	381
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.85	0.19

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	31.1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.435
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2262
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	52.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.589	Outer Lanes Freeway Speed (S_O), mi/h	53.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3241	Ramp Junction Speed (S), mi/h	52.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3622	Average Density (D), pc/mi/ln	37.1
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #36		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	4631	332
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.975
Flow Rate (v_i), pc/h	4954	358
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.77	0.18

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	28.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.392
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2036
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	52.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.589	Outer Lanes Freeway Speed (S_O), mi/h	54.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2918	Ramp Junction Speed (S), mi/h	53.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3276	Average Density (D), pc/mi/ln	33.1
Level of Service (LOS)	D		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #37		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.10
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5497	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1960
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2240
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2240
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.6
Total Ramp Density Adjustment	6.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #37		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.10
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4963	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1770
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2240
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2240
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.8
Total Ramp Density Adjustment	6.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.0		

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Capacity Check for Major Diverge:

SR826 Off Ramp to Sunset Dr WB - No-Build #38

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4963	60	3	1.6%	0.95	1.5	0.992	1.00	5267	6900	No	0.76
Diverging	2537	40	2	2.4%	0.95	1.5	0.988	1.00	2703	4200	No	0.64
Downstream	2426	60	2	1.6%	0.95	1.5	0.992	1.00	2575	4600	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5497	60	3	1.6%	0.95	1.5	0.992	1.00	5833	6900	No	0.85
Diverging	2620	40	2	2.4%	0.95	1.5	0.988	1.00	2791	4200	No	0.66
Downstream	2877	60	2	1.6%	0.95	1.5	0.992	1.00	3053	4600	No	0.66

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	30.72	D
PM Peak	34.03	D

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:

SR826 Off Ramp to Sunset Dr WB - No-Build #38

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4963	60	3	1.6%	0.95	1.5	0.992	1.00	5267	6900	No	0.76
Diverging	2537	40	2	2.4%	0.95	1.5	0.988	1.00	2703	4200	No	0.64
Downstream	2426	60	2	1.6%	0.95	1.5	0.992	1.00	2575	4600	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5497	60	3	1.6%	0.95	1.5	0.992	1.00	5833	6900	No	0.85
Diverging	2620	40	2	2.4%	0.95	1.5	0.988	1.00	2791	4200	No	0.66
Downstream	2877	60	2	1.6%	0.95	1.5	0.992	1.00	3053	4600	No	0.66

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	30.72	D
PM Peak	34.03	D

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/13/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #39		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2877	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1539
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #39		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2426	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1298
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #40		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	2877	223
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.974
Flow Rate (v_i), pc/h	3078	241
Capacity (c), pc/h	4600	1900
Volume-to-Capacity Ratio (v/c)	0.72	0.13

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	29.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.411
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	52.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	3078	Ramp Junction Speed (S), mi/h	52.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3319	Average Density (D), pc/mi/ln	31.5
Level of Service (LOS)	D		

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HCS7 Freeway Merge Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #40		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	2	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

	Freeway	Ramp
Demand Volume (V_i), veh/h	2426	98
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.974
Flow Rate (v_i), pc/h	2595	106
Capacity (c), pc/h	4600	1900
Volume-to-Capacity Ratio (v/c)	0.59	0.06

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	24.7
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.361
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.5
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	1.000	Outer Lanes Freeway Speed (S_O), mi/h	-
Flow in Lanes 1 and 2 (v_{12}), pc/h	2595	Ramp Junction Speed (S), mi/h	53.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2701	Average Density (D), pc/mi/ln	25.2
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - No-Build #41		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	44.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3100	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1703
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.5
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	44.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	11/09/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - No-Build #41		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	44.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2524	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1386
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.4
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	44.2		

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APPENDIX J

2045 No-Build Alternative Output HCS Reports (SR 874 and SR 836)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4937	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1320
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6177	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1652
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.2
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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Capacity Check for Major Diverge:
SR836 Off Ramp to SR826

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6177	60	4	1.6%	0.95	1.5	0.992	1.00	6555	9200	No	0.71
Diverging	2334	40	2	7.0%	0.95	1.5	0.966	1.00	2543	4200	No	0.61
Downstream	3843	60	3	1.6%	0.95	1.5	0.992	1.00	4078	6900	No	0.59

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4937	60	4	1.6%	0.95	1.5	0.992	1.00	5239	9200	No	0.57
Diverging	1902	40	2	7.0%	0.95	1.5	0.966	1.00	2073	4200	No	0.49
Downstream	3035	60	3	1.6%	0.95	1.5	0.992	1.00	3221	6900	No	0.47

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	28.68	D
PM Peak	22.92	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:
SR836 Off Ramp to SR826

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6177	60	4	1.6%	0.95	1.5	0.992	1.00	6555	9200	No	0.71
Diverging	2334	40	2	7.0%	0.95	1.5	0.966	1.00	2543	4200	No	0.61
Downstream	3843	60	3	1.6%	0.95	1.5	0.992	1.00	4078	6900	No	0.59

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4937	60	4	1.6%	0.95	1.5	0.992	1.00	5239	9200	No	0.57
Diverging	1902	40	2	7.0%	0.95	1.5	0.966	1.00	2073	4200	No	0.49
Downstream	3035	60	3	1.6%	0.95	1.5	0.992	1.00	3221	6900	No	0.47

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	28.68	D
PM Peak	22.92	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3035	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1082
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.8
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3843	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1370
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.0
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836 No-Build Alternative		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3035	710	
Peak Hour Factor (PHF)	0.95	0.95	
Total Trucks, %	1.60	4.00	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.962	
Flow Rate (v_i), pc/h	3247	777	
Capacity (c), pc/h	6900	2000	
Volume-to-Capacity Ratio (v/c)	0.47	0.39	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	22.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.433
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	882
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.643	Outer Lanes Freeway Speed (S_O), mi/h	65.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2365	Ramp Junction Speed (S), mi/h	55.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.6
Level of Service (LOS)	C		

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HCS7 Freeway Diverge Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836 No-Build Alternative		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3843	678	
Peak Hour Factor (PHF)	0.95	0.95	
Total Trucks, %	1.60	4.00	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.962	
Flow Rate (v_i), pc/h	4111	742	
Capacity (c), pc/h	6900	2000	
Volume-to-Capacity Ratio (v/c)	0.60	0.37	

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.9
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.430
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1270
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.623	Outer Lanes Freeway Speed (S_O), mi/h	64.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2841	Ramp Junction Speed (S), mi/h	55.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.6
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2325	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	829
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3165	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1129
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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Capacity Check for Major Merge:

On ramp from SR826

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3165	60	3	1.6%	0.95	1.5	0.992	1.00	3359	6900	No	0.49
Merging	3501	50	3	3.7%	0.95	1.5	0.982	1.00	3754	6000	No	0.63
Downstream	6666	60	6	1.6%	0.95	1.5	0.992	1.00	7073	13800	No	0.51

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	2325	60	3	1.6%	0.95	1.5	0.992	1.00	2467	6900	No	0.36
Diverging	3416	50	3	3.7%	0.95	1.5	0.982	1.00	3663	6000	No	0.61
Downstream	5741	60	6	1.6%	0.95	1.5	0.992	1.00	6092	13800	No	0.44

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

Capacity Check for Major Merge:

On ramp from SR826

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3165	60	3	1.6%	0.95	1.5	0.992	1.00	3359	6900	No	0.49
Merging	3501	50	3	3.7%	0.95	1.5	0.982	1.00	3754	6000	No	0.63
Downstream	6666	60	6	1.6%	0.95	1.5	0.992	1.00	7073	13800	No	0.51

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	2325	60	3	1.6%	0.95	1.5	0.992	1.00	2467	6900	No	0.36
Diverging	3416	50	3	3.7%	0.95	1.5	0.982	1.00	3663	6000	No	0.61
Downstream	5741	60	6	1.6%	0.95	1.5	0.992	1.00	6092	13800	No	0.44

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5741	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1024
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.6
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6666	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1188
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.6
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6676	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1428
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.7
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6899	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1476
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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Capacity Check for Major Diverge:
SR836 Off Ramp to SR826

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6899	60	5	1.6%	0.95	1.5	0.992	1.00	7321	11500	No	0.64
Diverging	5474	45	3	4.3%	0.95	1.5	0.979	1.00	5886	5700	Yes	1.03
Downstream	1425	60	4	1.6%	0.95	1.5	0.992	1.00	1512	9200	No	0.16

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6676	60	5	1.6%	0.95	1.5	0.992	1.00	7084	11500	No	0.62
Diverging	2960	45	3	4.3%	0.95	1.5	0.979	1.00	3183	4200	No	0.76
Downstream	3716	60	4	1.6%	0.95	1.5	0.992	1.00	3943	9200	No	0.43

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	25.62	C
PM Peak	24.79	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

Capacity Check for Major Diverge:
SR836 Off Ramp to SR826

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6899	60	5	1.6%	0.95	1.5	0.992	1.00	7321	11500	No	0.64
Diverging	5474	45	3	4.3%	0.95	1.5	0.979	1.00	5886	5700	Yes	1.03
Downstream	1425	60	4	1.6%	0.95	1.5	0.992	1.00	1512	9200	No	0.16

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6676	60	5	1.6%	0.95	1.5	0.992	1.00	7084	11500	No	0.62
Diverging	2960	45	3	4.3%	0.95	1.5	0.979	1.00	3183	4200	No	0.76
Downstream	3716	60	4	1.6%	0.95	1.5	0.992	1.00	3943	9200	No	0.43

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	25.62	C
PM Peak	24.79	C

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3716	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1325
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.9
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1425	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	508
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.2
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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Capacity Check for Major Merge:

On ramp from SR826

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	1425	60	3	1.6%	0.95	1.5	0.992	1.00	1512	6900	No	0.22
Merging	1873	45	2	2.5%	0.95	1.5	0.988	1.00	1997	4200	No	0.48
Downstream	3298	60	4	1.6%	0.95	1.5	0.992	1.00	3500	9200	No	0.38

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3716	60	3	1.6%	0.95	1.5	0.992	1.00	3943	6900	No	0.57
Diverging	1411	45	2	2.5%	0.95	1.5	0.988	1.00	1504	4200	No	0.36
Downstream	5127	60	4	1.6%	0.95	1.5	0.992	1.00	5441	9200	No	0.59

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

Capacity Check for Major Merge:

On ramp from SR826

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	1425	60	3	1.6%	0.95	1.5	0.992	1.00	1512	6900	No	0.22
Merging	1873	45	2	2.5%	0.95	1.5	0.988	1.00	1997	4200	No	0.48
Downstream	3298	60	4	1.6%	0.95	1.5	0.992	1.00	3500	9200	No	0.38

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3716	60	3	1.6%	0.95	1.5	0.992	1.00	3943	6900	No	0.57
Diverging	1411	45	2	2.5%	0.95	1.5	0.988	1.00	1504	4200	No	0.36
Downstream	5127	60	4	1.6%	0.95	1.5	0.992	1.00	5441	9200	No	0.59

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5127	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1371
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/04/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836 No-Build Alternative		

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3298	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	882
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3506	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1263
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK NB
Project Description	SR 874 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3327	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1199
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874 No-Build Alternative		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	65.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity			
Demand Volume (V_i), veh/h	3506	1347	
Peak Hour Factor (PHF)	0.95	0.95	
Total Trucks, %	2.70	1.60	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.984	
Flow Rate (v_i), pc/h	3789	1441	
Capacity (c), pc/h	7050	2100	
Volume-to-Capacity Ratio (v/c)	0.74	0.69	

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	30.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.431
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1546
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.1
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.592	Outer Lanes Freeway Speed (S_O), mi/h	61.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	2243	Ramp Junction Speed (S), mi/h	56.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3684	Average Density (D), pc/mi/ln	30.7
Level of Service (LOS)	D		

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Project Description	SR 874 No-Build Alternative		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	65.0	45.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity			
Demand Volume (V_i), veh/h	3327	958	
Peak Hour Factor (PHF)	0.95	0.95	
Total Trucks, %	2.70	1.60	
Single-Unit Trucks (SUT), %	-	-	
Tractor-Trailers (TT), %	-	-	
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.984	
Flow Rate (v_i), pc/h	3596	1025	
Capacity (c), pc/h	7050	2100	
Volume-to-Capacity Ratio (v/c)	0.66	0.49	

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	26.5
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.367
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1467
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.592	Outer Lanes Freeway Speed (S_O), mi/h	61.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2129	Ramp Junction Speed (S), mi/h	58.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3154	Average Density (D), pc/mi/ln	26.5
Level of Service (LOS)	C		

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HCS7 Basic Freeway Report

Project Information

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Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4853	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1748
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

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Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK NB
Project Description	SR 874 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4285	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1544
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

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Agency		Analysis Year	2045
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4031	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1452
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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Project Information

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Agency		Analysis Year	2045
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4475	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1612
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2045
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874 No-Build Alternative		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity	Freeway	Ramp
Demand Volume (V_i), veh/h	4031	794
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	2.20
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.978
Flow Rate (v_i), pc/h	4356	855
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.63	0.41

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	28.2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.310
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1358
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.612	Outer Lanes Freeway Speed (S_O), mi/h	64.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2998	Ramp Junction Speed (S), mi/h	57.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	25.4
Level of Service (LOS)	D		

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Project Description	SR 874 No-Build Alternative		

Geometric Data	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_D), ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors	Freeway	Ramp
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity	Freeway	Ramp
Demand Volume (V_i), veh/h	4475	943
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	2.20
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.978
Flow Rate (v_i), pc/h	4836	1015
Capacity (c), pc/h	6900	2100
Volume-to-Capacity Ratio (v/c)	0.70	0.48

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	30.6
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.324
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1559
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	54.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.592	Outer Lanes Freeway Speed (S_O), mi/h	63.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3277	Ramp Junction Speed (S), mi/h	56.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	28.3
Level of Service (LOS)	D		

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Project Description	SR 874 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3237	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1166
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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Project Description	SR 874 No-Build Alternative		

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3532	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1272
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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APPENDIX K

2045 No-Build Alternative Output Synchro Reports

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1472	6	32	1182	54	19	3	189	84	1	41
Future Volume (veh/h)	4	1472	6	32	1182	54	19	3	189	84	1	41
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	1549	6	34	1244	57	20	3	199	88	1	43
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	306	2548	10	239	2428	111	58	13	234	159	14	52
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	423	3631	14	332	3460	158	91	85	1520	602	93	336
Grp Volume(v), veh/h	4	758	797	34	638	663	222	0	0	132	0	0
Grp Sat Flow(s),veh/h/ln	423	1777	1868	332	1777	1842	1696	0	0	1030	0	0
Q Serve(g_s), s	0.4	20.0	20.0	5.3	15.1	15.1	0.0	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	15.5	20.0	20.0	25.3	15.1	15.1	11.3	0.0	0.0	11.8	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.09	0.09		0.90	0.67		0.33
Lane Grp Cap(c), veh/h	306	1247	1311	239	1247	1292	305	0	0	225	0	0
V/C Ratio(X)	0.01	0.61	0.61	0.14	0.51	0.51	0.73	0.00	0.00	0.59	0.00	0.00
Avail Cap(c_a), veh/h	306	1247	1311	239	1247	1292	325	0	0	242	0	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	1.00	0.86	0.86	0.86	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.9	7.0	7.0	13.6	6.2	6.3	37.2	0.0	0.0	36.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	2.2	2.1	1.1	1.3	1.3	7.0	0.0	0.0	2.7	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.2	6.5	0.4	4.5	4.7	5.3	0.0	0.0	3.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.9	9.2	9.1	14.6	7.5	7.5	44.2	0.0	0.0	39.5	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	D	A	A	D	A	A
Approach Vol, veh/h		1559			1335			222			132	
Approach Delay, s/veh		9.1			7.7			44.2			39.5	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	69.6	20.4	69.6	20.4
Change Period (Y+Rc), s	6.4	6.6	6.4	6.6
Max Green Setting (Gmax), s	62.0	15.0	62.0	15.0
Max Q Clear Time (g_c+I1), s	27.3	13.3	22.0	13.8
Green Ext Time (p_c), s	3.3	0.2	3.7	0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

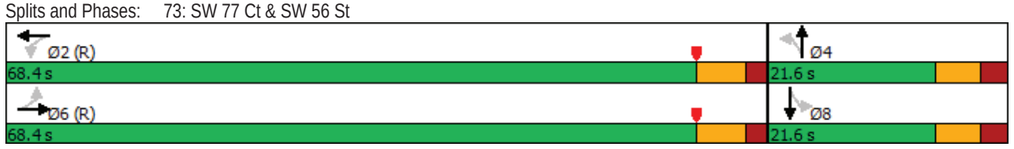
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	4	1555	34	1301	222	132
v/c Ratio	0.02	0.62	0.21	0.53	0.78	0.91
Control Delay	4.8	8.7	8.9	7.4	47.2	87.1
Queue Delay	0.0	0.0	0.0	2.0	0.0	0.0
Total Delay	4.8	8.7	8.9	9.4	47.2	87.1
Queue Length 50th (ft)	1	223	6	164	91	61
Queue Length 95th (ft)	4	285	21	210	#194	#167
Internal Link Dist (ft)		2920		252	920	920
Turn Bay Length (ft)	110		115			
Base Capacity (vph)	234	2489	161	2477	307	157
Starvation Cap Reductn	0	0	0	976	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	0.62	0.21	0.87	0.72	0.84

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

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	1472	32	1182	19	3	84	1
Future Volume (vph)	4	1472	32	1182	19	3	84	1
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	6	6	2	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	16.0	16.0	16.0	16.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.4	22.4	22.4	22.4	13.6	13.6	19.6	19.6
Total Split (s)	68.4	68.4	68.4	68.4	21.6	21.6	21.6	21.6
Total Split (%)	76.0%	76.0%	76.0%	76.0%	24.0%	24.0%	24.0%	24.0%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 85 (94%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 73: SW 77 Ct & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1566	179	239	721	0	0	0	0	594	0	547
Future Volume (vph)	0	1566	179	239	721	0	0	0	0	594	0	547
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0					7.5		7.0
Lane Util. Factor		0.86		0.97	0.95					0.97		0.88
Frt		0.98		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		6309		3433	3539					3433		2787
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		6309		3433	3539					3433		2787
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	1648	188	252	759	0	0	0	0	625	0	576
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	118
Lane Group Flow (vph)	0	1825	0	252	759	0	0	0	0	625	0	458
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		2		1 3	6 3					7		5 7
Permitted Phases												
Actuated Green, G (s)		91.0		31.0	105.0					30.0		47.0
Effective Green, g (s)		91.0		31.0	105.0					30.0		47.0
Actuated g/C Ratio		0.50		0.17	0.58					0.17		0.26
Clearance Time (s)		7.0								7.5		
Vehicle Extension (s)		1.0								4.0		
Lane Grp Cap (vph)		3171		587	2053					569		723
v/s Ratio Prot		c0.29		c0.07	c0.21					c0.18		0.16
v/s Ratio Perm												
v/c Ratio	0.58	0.43	0.37							1.10		0.63
Uniform Delay, d1	31.5	67.1	20.3							75.5		59.4
Progression Factor	1.00	0.95	0.21							1.00		1.00
Incremental Delay, d2	0.8	0.4	0.1							67.5		2.0
Delay (s)	32.3	64.4	4.3							143.0		61.4
Level of Service	C	E	A							F		E
Approach Delay (s)	32.3		19.3		0.0			103.8				
Approach LOS	C		B		A			F				

Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	181.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	111.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1836	252	759	625	576
v/c Ratio	0.58	0.42	0.37	1.10	0.68
Control Delay	32.0	40.0	2.6	134.2	30.0
Queue Delay	48.4	0.0	0.2	0.0	0.0
Total Delay	80.3	40.0	2.8	134.2	30.0
Queue Length 50th (ft)	433	112	22	~431	185
Queue Length 95th (ft)	467	156	24	#560	230
Internal Link Dist (ft)	252		299		
Turn Bay Length (ft)				440	440
Base Capacity (vph)	3184	597	2062	569	1009
Starvation Cap Reductn	1656	0	483	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.20	0.42	0.48	1.10	0.57

Intersection Summary

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

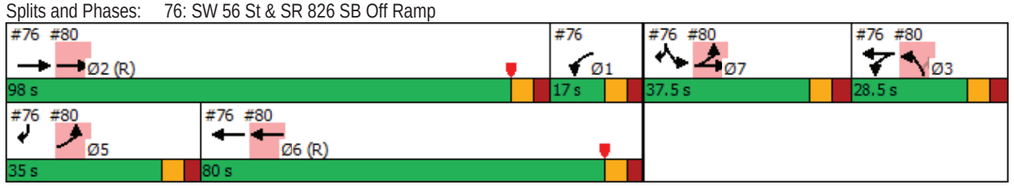
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	SBL	SBR	Ø1	Ø3	Ø5	Ø6
Lane Configurations									
Traffic Volume (vph)	1566	239	721	594	547				
Future Volume (vph)	1566	239	721	594	547				
Turn Type	NA	Prot	NA	Prot	custom				
Protected Phases	2	1 3	6 3	7	5 7	1	3	5	6
Permitted Phases									
Detector Phase	2	1 3	6 3	7	5 7				
Switch Phase									
Minimum Initial (s)	7.0			5.0		5.0	5.0	5.0	7.0
Minimum Split (s)	34.0			12.5		12.0	12.5	12.0	34.0
Total Split (s)	98.0			37.5		17.0	28.5	35.0	80.0
Total Split (%)	54.1%			20.7%		9%	16%	19%	44%
Yellow Time (s)	4.0			4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	3.0			3.5		3.0	3.5	3.0	3.0
Lost Time Adjust (s)	0.0			0.0					
Total Lost Time (s)	7.0			7.5					
Lead/Lag	Lead			Lead		Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes			Yes		Yes	Yes	Yes	Yes
Recall Mode	C-Max			None		None	None	None	C-Max

Intersection Summary

Cycle Length: 181
Actuated Cycle Length: 181
Offset: 49 (27%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 76: SW 56 St & SR 826 SB Off Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	481	1679	0	0	735	858	225	0	460	0	0	0
Future Volume (vph)	481	1679	0	0	735	858	225	0	460	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0		7.5		7.5			
Lane Util. Factor	0.97	0.95			0.86		0.97		1.00			
Frt	1.00	1.00			0.92		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3433	3539			5890		3433		1583			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	3433	3539			5890		3433		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)	506	1767	0	0	774	903	237	0	484	0	0	0
RTOR Reduction (vph)	0	0	0	0	105	0	0	0	136	0	0	0
Lane Group Flow (vph)	506	1767	0	0	1572	0	237	0	348	0	0	0
Turn Type	Prot	NA			NA		Prot		Perm			
Protected Phases	5 7	2 7			6		3					
Permitted Phases									3			
Actuated Green, G (s)	47.0	121.0			84.0		21.0		21.0			
Effective Green, g (s)	47.0	121.0			84.0		21.0		21.0			
Actuated g/C Ratio	0.26	0.67			0.46		0.12		0.12			
Clearance Time (s)					7.0		7.5		7.5			
Vehicle Extension (s)					1.0		3.0		3.0			
Lane Grp Cap (vph)	891	2365			2733		398		183			
v/s Ratio Prot	0.15	c0.50			c0.27		0.07					
v/s Ratio Perm									c0.22			
v/c Ratio	0.57	0.75			1.06dr		0.60		1.90			
Uniform Delay, d1	58.2	19.9			35.5		76.0		80.0			
Progression Factor	1.33	0.47			1.00		1.00		1.00			
Incremental Delay, d2	0.7	1.0			0.9		2.4		425.2			
Delay (s)	77.9	10.3			36.3		78.4		505.2			
Level of Service	E	B			D		E		F			
Approach Delay (s)		25.3			36.3			364.9			0.0	
Approach LOS		C			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	81.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	181.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	111.3%	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

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	506	1767	1677	237	484
v/c Ratio	0.56	0.74	1.06dr	0.60	1.52
Control Delay	48.2	6.3	32.5	82.8	279.7
Queue Delay	0.1	0.1	0.0	0.0	0.0
Total Delay	48.4	6.4	32.5	82.8	279.7
Queue Length 50th (ft)	200	137	377	140	~630
Queue Length 95th (ft)	m211	m66	436	191	#872
Internal Link Dist (ft)		299	2411		
Turn Bay Length (ft)				350	350
Base Capacity (vph)	1109	2375	2836	398	319
Starvation Cap Reductn	108	41	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.76	0.59	0.60	1.52

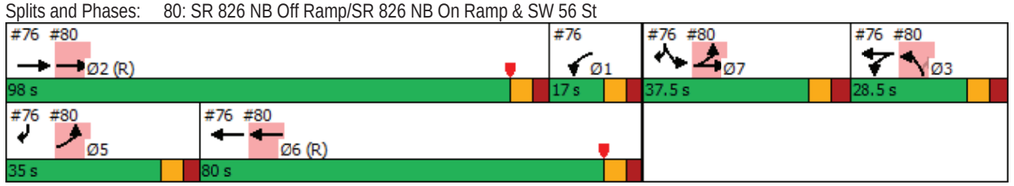
Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	EBL	EBT	WBT	NBL	NBR	Ø1	Ø2	Ø5	Ø7
Lane Configurations									
Traffic Volume (vph)	481	1679	735	225	460				
Future Volume (vph)	481	1679	735	225	460				
Turn Type	Prot	NA	NA	Prot	Perm				
Protected Phases	5 7	2 7	6	3		1	2	5	7
Permitted Phases					3				
Detector Phase	5 7	2 7	6	3	3				
Switch Phase									
Minimum Initial (s)			7.0	5.0	5.0	5.0	7.0	5.0	5.0
Minimum Split (s)			34.0	12.5	12.5	12.0	34.0	12.0	12.5
Total Split (s)			80.0	28.5	28.5	17.0	98.0	35.0	37.5
Total Split (%)			44.2%	15.7%	15.7%	9%	54%	19%	21%
Yellow Time (s)			4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)			3.0	3.5	3.5	3.0	3.0	3.0	3.5
Lost Time Adjust (s)			0.0	0.0	0.0				
Total Lost Time (s)			7.0	7.5	7.5				
Lead/Lag			Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode			C-Max	None	None	None	C-Max	None	None

Intersection Summary

Cycle Length: 181
Actuated Cycle Length: 181
Offset: 49 (27%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 80: SR 826 NB Off Ramp/SR 826 NB On Ramp & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	455	1513	244	113	1297	219	185	376	84	95	152	113
Future Volume (veh/h)	455	1513	244	113	1297	219	185	376	84	95	152	113
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	479	1593	257	119	1365	231	195	396	88	100	160	119
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	386	1968	311	132	1495	250	236	362	80	151	155	108
Arrive On Green	0.06	0.21	0.21	0.03	0.49	0.49	0.11	0.13	0.13	0.06	0.08	0.08
Sat Flow, veh/h	1781	3075	485	1781	3046	509	1781	2895	637	1781	1999	1397
Grp Volume(v), veh/h	479	906	944	119	789	807	195	242	242	100	141	138
Grp Sat Flow(s),veh/h/ln	1781	1777	1783	1781	1777	1779	1781	1777	1756	1781	1777	1619
Q Serve(g_s), s	33.0	87.5	91.6	6.0	73.7	76.4	17.8	22.6	22.6	9.3	14.0	14.0
Cycle Q Clear(g_c), s	33.0	87.5	91.6	6.0	73.7	76.4	17.8	22.6	22.6	9.3	14.0	14.0
Prop In Lane	1.00		0.27	1.00		0.29	1.00		0.36	1.00		0.86
Lane Grp Cap(c), veh/h	386	1137	1141	132	872	873	236	222	220	151	137	125
V/C Ratio(X)	1.24	0.80	0.83	0.90	0.91	0.92	0.83	1.09	1.10	0.66	1.03	1.10
Avail Cap(c_a), veh/h	386	1137	1141	132	872	873	266	222	220	266	137	125
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.29	0.29	0.29	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.0	60.2	61.8	41.5	42.2	42.9	66.0	79.2	79.2	71.5	83.5	83.5
Incr Delay (d2), s/veh	114.4	1.8	2.1	49.4	14.7	16.8	16.5	85.4	91.3	3.7	83.9	110.3
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(50%),veh/ln	31.2	42.6	44.8	4.4	35.2	36.9	9.3	15.7	15.9	4.4	9.7	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.4	62.0	64.0	90.9	56.9	59.7	82.4	164.6	170.5	75.1	167.4	193.8
LnGrp LOS	F	E	E	F	E	E	F	F	F	E	F	F
Approach Vol, veh/h		2329			1715			679			379	
Approach Delay, s/veh		88.6			60.6			143.1			152.7	
Approach LOS		F			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	39.4	95.3	17.5	28.8	12.4	122.3	26.1	20.2
Change Period (Y+Rc), s	6.4	6.4	* 6.2	* 6.2	6.4	6.4	* 6.2	* 6.2
Max Green Setting (Gmax), s	33.0	86.0	* 23	* 14	6.0	113.0	* 23	* 14
Max Q Clear Time (g_c+I1), s	35.0	78.4	11.3	24.6	8.0	93.6	19.8	16.0
Green Ext Time (p_c), s	0.0	2.7	0.1	0.0	0.0	4.8	0.1	0.0

Intersection Summary

HCM 6th Ctrl Delay	91.2
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	479	1850	119	1596	195	484	100	279
v/c Ratio	1.32	0.85	1.11	0.97	0.79	1.05	0.58	0.74
Control Delay	207.8	32.2	158.0	61.2	81.7	126.1	70.8	69.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	207.8	32.2	158.0	61.2	81.7	126.1	70.8	69.5
Queue Length 50th (ft)	~684	893	~101	956	201	~322	97	125
Queue Length 95th (ft)	#923	1002	#250	#1129	#292	#514	157	#205
Internal Link Dist (ft)		2411		1058		197		324
Turn Bay Length (ft)	180		180		135		305	
Base Capacity (vph)	363	2167	107	1649	266	459	264	375
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.85	1.11	0.97	0.73	1.05	0.38	0.74

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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	455	1513	113	1297	185	376	95	152
Future Volume (vph)	455	1513	113	1297	185	376	95	152
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.4	25.4	11.4	25.4	11.2	20.0	11.2	20.0
Total Split (s)	39.4	119.4	12.4	92.4	29.2	20.2	29.2	20.2
Total Split (%)	21.7%	65.9%	6.8%	51.0%	16.1%	11.1%	16.1%	11.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 181.2
Actuated Cycle Length: 181.2
Offset: 29 (16%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 5: SW 72 Ave & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	1426	18	48	2490	82	17	4	36	32	0	26
Future Volume (veh/h)	34	1426	18	48	2490	82	17	4	36	32	0	26
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	1501	19	51	2621	86	18	4	38	34	0	27
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	134	3151	40	311	3080	100	46	12	54	71	4	35
Arrive On Green	0.88	0.88	0.88	1.00	1.00	1.00	0.05	0.05	0.05	0.05	0.00	0.05
Sat Flow, veh/h	107	3594	45	343	3512	115	392	228	1070	774	80	678
Grp Volume(v), veh/h	36	742	778	51	1319	1388	60	0	0	61	0	0
Grp Sat Flow(s),veh/h/ln	107	1777	1862	343	1777	1850	1690	0	0	1532	0	0
Q Serve(g_s), s	11.3	15.9	15.9	3.2	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	11.3	15.9	15.9	19.2	0.0	0.0	6.1	0.0	0.0	7.0	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.06	0.30		0.63	0.56		0.44
Lane Grp Cap(c), veh/h	134	1558	1633	311	1558	1622	112	0	0	109	0	0
V/C Ratio(X)	0.27	0.48	0.48	0.16	0.85	0.86	0.54	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	134	1558	1633	311	1558	1622	324	0	0	310	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	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	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.1	2.3	2.3	1.0	0.0	0.0	84.0	0.0	0.0	84.3	0.0	0.0
Incr Delay (d2), s/veh	4.9	1.0	1.0	0.1	0.6	0.6	2.9	0.0	0.0	3.3	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(50%),veh/ln	0.3	4.1	4.2	0.1	0.2	0.3	2.9	0.0	0.0	2.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0	3.4	3.3	1.1	0.6	0.6	86.9	0.0	0.0	87.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	F	A	A	F	A	A
Approach Vol, veh/h		1556			2758			60			61	
Approach Delay, s/veh		3.4			0.6			86.9			87.6	
Approach LOS		A			A			F			F	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	164.2	15.8	164.2	15.8
Change Period (Y+Rc), s	6.4	6.6	6.4	6.6
Max Green Setting (Gmax), s	133.0	34.0	133.0	34.0
Max Q Clear Time (g_c+I1), s	21.2	8.1	17.9	9.0
Green Ext Time (p_c), s	16.3	0.2	5.9	0.2

Intersection Summary	
HCM 6th Ctrl Delay	4.0
HCM 6th LOS	A

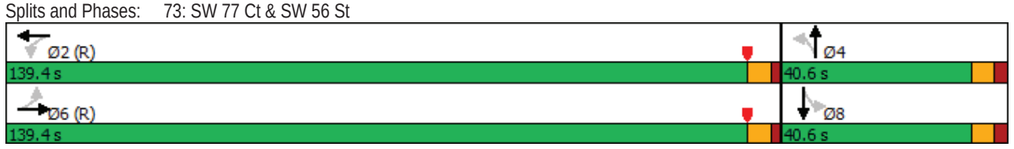
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	36	1520	51	2707	60	61
v/c Ratio	0.88	0.50	0.20	0.88	0.49	0.63
Control Delay	126.0	3.5	1.8	7.7	48.4	81.7
Queue Delay	0.0	0.0	0.0	14.2	0.1	0.1
Total Delay	126.0	3.5	1.8	21.9	48.4	81.8
Queue Length 50th (ft)	17	165	4	487	25	47
Queue Length 95th (ft)	#79	250	m8	m421	78	101
Internal Link Dist (ft)		2920		252	920	920
Turn Bay Length (ft)	110		115			
Base Capacity (vph)	41	3070	252	3062	312	268
Starvation Cap Reductn	0	0	0	411	0	0
Spillback Cap Reductn	0	71	0	0	16	14
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.51	0.20	1.02	0.20	0.24

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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	34	1426	48	2490	17	4	32	0
Future Volume (vph)	34	1426	48	2490	17	4	32	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	6	6	2	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	16.0	16.0	16.0	16.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.4	22.4	22.4	22.4	13.6	13.6	13.6	13.6
Total Split (s)	139.4	139.4	139.4	139.4	40.6	40.6	40.6	40.6
Total Split (%)	77.4%	77.4%	77.4%	77.4%	22.6%	22.6%	22.6%	22.6%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 82 (46%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 73: SW 77 Ct & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1166	328	250	1739	0	0	0	0	743	0	881
Future Volume (vph)	0	1166	328	250	1739	0	0	0	0	743	0	881
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0					7.5		7.0
Lane Util. Factor		0.86		0.97	0.95					0.97		0.88
Frt		0.97		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		6197		3433	3539					3433		2787
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		6197		3433	3539					3433		2787
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	1227	345	263	1831	0	0	0	0	782	0	927
RTOR Reduction (vph)	0	28	0	0	0	0	0	0	0	0	0	44
Lane Group Flow (vph)	0	1544	0	263	1831	0	0	0	0	782	0	883
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		2		1 3	6 3					7		5 7
Permitted Phases												
Actuated Green, G (s)		95.0		31.0	112.0					25.0		39.0
Effective Green, g (s)		95.0		31.0	112.0					25.0		39.0
Actuated g/C Ratio		0.53		0.17	0.62					0.14		0.22
Clearance Time (s)		7.0								7.5		
Vehicle Extension (s)		1.0								4.0		
Lane Grp Cap (vph)		3270		591	2202					476		603
v/s Ratio Prot		0.25		0.08	c0.52					c0.23		c0.32
v/s Ratio Perm												
v/c Ratio	0.47	0.45	0.83							1.64		1.46
Uniform Delay, d1	26.7	66.8	26.6							77.5		70.5
Progression Factor	0.90	1.08	0.17							1.00		1.00
Incremental Delay, d2	0.4	0.3	1.5							298.6		218.1
Delay (s)	24.5	72.1	6.1							376.1		288.6
Level of Service	C	E	A							F		F
Approach Delay (s)	24.5		14.4		0.0			328.6				
Approach LOS	C		B		A			F				

Intersection Summary			
HCM 2000 Control Delay	117.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	116.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1572	263	1831	782	927
v/c Ratio	0.48	0.44	0.83	1.64	1.42
Control Delay	23.6	45.3	5.6	341.6	230.4
Queue Delay	0.4	0.0	0.3	0.3	1.5
Total Delay	24.1	45.3	5.9	341.9	231.9
Queue Length 50th (ft)	229	136	74	~685	~651
Queue Length 95th (ft)	256	m169	m76	#820	#805
Internal Link Dist (ft)	252		299		
Turn Bay Length (ft)				440	440
Base Capacity (vph)	3298	600	2211	476	655
Starvation Cap Reductn	1083	0	0	0	0
Spillback Cap Reductn	116	0	67	14	120
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.71	0.44	0.85	1.69	1.73

Intersection Summary

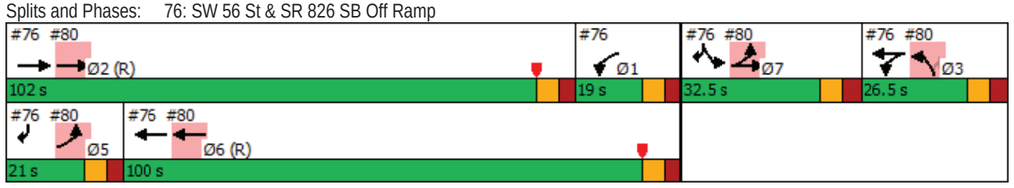
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBL	WBT	SBL	SBR	Ø1	Ø3	Ø5	Ø6
Lane Configurations									
Traffic Volume (vph)	1166	250	1739	743	881				
Future Volume (vph)	1166	250	1739	743	881				
Turn Type	NA	Prot	NA	Prot	custom				
Protected Phases	2	1 3	6 3	7	5 7	1	3	5	6
Permitted Phases									
Detector Phase	2	1 3	6 3	7	5 7				
Switch Phase									
Minimum Initial (s)	7.0			5.0		5.0	5.0	5.0	7.0
Minimum Split (s)	34.0			12.5		12.0	12.5	12.0	34.0
Total Split (s)	102.0			32.5		19.0	26.5	21.0	100.0
Total Split (%)	56.7%			18.1%		11%	15%	12%	56%
Yellow Time (s)	4.0			4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	3.0			3.5		3.0	3.5	3.0	3.0
Lost Time Adjust (s)	0.0			0.0					
Total Lost Time (s)	7.0			7.5					
Lead/Lag	Lead			Lead		Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes			Yes		Yes	Yes	Yes	Yes
Recall Mode	C-Max			None		None	None	None	C-Max

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 29 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 76: SW 56 St & SR 826 SB Off Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	473	1436	0	0	1628	741	361	0	235	0	0	0
Future Volume (vph)	473	1436	0	0	1628	741	361	0	235	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0		7.5		7.5			
Lane Util. Factor	0.97	0.95			0.86		0.97		1.00			
Frt	1.00	1.00			0.95		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	3433	3539			6107		3433		1583			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	3433	3539			6107		3433		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)	498	1512	0	0	1714	780	380	0	247	0	0	0
RTOR Reduction (vph)	0	0	0	0	45	0	0	0	139	0	0	0
Lane Group Flow (vph)	498	1512	0	0	2449	0	380	0	108	0	0	0
Turn Type	Prot	NA			NA		Prot		Perm			
Protected Phases	5 7	2 7			6		3					
Permitted Phases									3			
Actuated Green, G (s)	39.0	120.0			93.0		19.0		19.0			
Effective Green, g (s)	39.0	120.0			93.0		19.0		19.0			
Actuated g/C Ratio	0.22	0.67			0.52		0.11		0.11			
Clearance Time (s)					7.0		7.5		7.5			
Vehicle Extension (s)					1.0		3.0		3.0			
Lane Grp Cap (vph)	743	2359			3155		362		167			
v/s Ratio Prot	c0.15	c0.43			c0.40		c0.11					
v/s Ratio Perm									0.07			
v/c Ratio	0.67	0.64			0.89dr		1.05		0.65			
Uniform Delay, d1	64.6	17.5			35.1		80.5		77.3			
Progression Factor	1.13	1.02			1.00		1.00		1.00			
Incremental Delay, d2	1.0	0.2			1.9		60.9		8.4			
Delay (s)	73.6	18.0			37.0		141.4		85.7			
Level of Service	E	B			D		F		F			
Approach Delay (s)		31.8			37.0			119.5			0.0	
Approach LOS		C			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	116.7%	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

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	498	1512	2494	380	247
v/c Ratio	0.66	0.64	0.89dr	1.05	0.81
Control Delay	47.9	9.5	35.9	135.0	49.1
Queue Delay	0.3	0.0	0.0	0.0	0.0
Total Delay	48.2	9.5	35.9	135.0	49.1
Queue Length 50th (ft)	167	149	661	~250	110
Queue Length 95th (ft)	m164	m105	700	#365	#253
Internal Link Dist (ft)		299	2411		
Turn Bay Length (ft)				350	350
Base Capacity (vph)	753	2369	3200	362	305
Starvation Cap Reductn	33	43	0	0	0
Spillback Cap Reductn	0	0	7	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.65	0.78	1.05	0.81

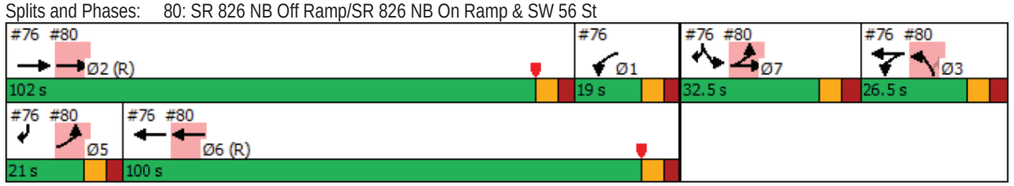
Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	EBL	EBT	WBT	NBL	NBR	Ø1	Ø2	Ø5	Ø7
Lane Configurations									
Traffic Volume (vph)	473	1436	1628	361	235				
Future Volume (vph)	473	1436	1628	361	235				
Turn Type	Prot	NA	NA	Prot	Perm				
Protected Phases	5 7	2 7	6	3		1	2	5	7
Permitted Phases					3				
Detector Phase	5 7	2 7	6	3	3				
Switch Phase									
Minimum Initial (s)			7.0	5.0	5.0	5.0	7.0	5.0	5.0
Minimum Split (s)			34.0	12.5	12.5	12.0	34.0	12.0	12.5
Total Split (s)			100.0	26.5	26.5	19.0	102.0	21.0	32.5
Total Split (%)			55.6%	14.7%	14.7%	11%	57%	12%	18%
Yellow Time (s)			4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)			3.0	3.5	3.5	3.0	3.0	3.0	3.5
Lost Time Adjust (s)			0.0	0.0	0.0				
Total Lost Time (s)			7.0	7.5	7.5				
Lead/Lag			Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode			C-Max	None	None	None	C-Max	None	None

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 29 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 80: SR 826 NB Off Ramp/SR 826 NB On Ramp & SW 56 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	1324	175	87	1613	111	325	201	73	134	378	506
Future Volume (veh/h)	121	1324	175	87	1613	111	325	201	73	134	378	506
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	127	1394	184	92	1698	117	342	212	77	141	398	533
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	145	1718	225	160	1770	121	178	612	216	330	393	350
Arrive On Green	0.05	0.54	0.54	0.03	0.52	0.52	0.08	0.24	0.24	0.06	0.22	0.22
Sat Flow, veh/h	1781	3159	413	1781	3375	231	1781	2576	908	1781	1777	1585
Grp Volume(v), veh/h	127	779	799	92	887	928	342	144	145	141	398	533
Grp Sat Flow(s),veh/h/ln	1781	1777	1796	1781	1777	1829	1781	1777	1707	1781	1777	1585
Q Serve(g_s), s	7.8	64.4	66.2	4.3	85.7	88.7	14.0	12.2	12.8	11.0	40.0	40.0
Cycle Q Clear(g_c), s	7.8	64.4	66.2	4.3	85.7	88.7	14.0	12.2	12.8	11.0	40.0	40.0
Prop In Lane	1.00		0.23	1.00		0.13	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	145	966	976	160	932	959	178	422	406	330	393	350
V/C Ratio(X)	0.87	0.81	0.82	0.58	0.95	0.97	1.93	0.34	0.36	0.43	1.01	1.52
Avail Cap(c_a), veh/h	147	966	976	196	932	959	178	422	406	330	393	350
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)	0.70	0.70	0.70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.7	33.5	34.0	33.7	40.8	41.5	54.0	57.3	57.5	51.1	70.5	70.5
Incr Delay (d2), s/veh	30.8	5.1	5.5	3.2	19.8	22.2	436.9	0.6	0.6	0.7	48.9	248.9
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(50%),veh/ln	7.1	28.5	29.7	2.0	41.6	44.7	27.9	5.6	5.7	5.1	23.6	40.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.5	38.7	39.4	37.0	60.7	63.8	490.9	57.8	58.1	51.8	119.4	319.4
LnGrp LOS	F	D	D	D	E	E	F	E	E	D	F	F
Approach Vol, veh/h		1705			1907			631			1072	
Approach Delay, s/veh		42.4			61.0			292.6			209.9	
Approach LOS		D			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	101.3	17.2	49.2	12.7	104.8	20.2	46.2
Change Period (Y+Rc), s	6.4	6.4	* 6.2	* 6.2	6.4	6.4	* 6.2	* 6.2
Max Green Setting (Gmax), s	10.0	92.0	* 11	* 43	10.0	92.0	* 14	* 40
Max Q Clear Time (g_c+I1), s	9.8	90.7	13.0	14.8	6.3	68.2	16.0	42.0
Green Ext Time (p_c), s	0.0	0.8	0.0	2.1	0.1	3.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	112.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	127	1578	92	1815	342	289	141	931
v/c Ratio	0.92	0.88	0.71	1.02	1.93	0.35	0.44	1.23dr
Control Delay	101.2	46.4	63.5	69.3	466.7	53.2	50.1	140.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.2	46.4	63.5	69.3	466.7	53.2	50.1	140.9
Queue Length 50th (ft)	102	872	57	~1195	~576	137	122	~636
Queue Length 95th (ft)	#245	983	#138	#1325	#795	187	185	#778
Internal Link Dist (ft)		2411		1058		197		324
Turn Bay Length (ft)	180		180		135		305	
Base Capacity (vph)	138	1787	138	1782	177	829	324	797
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.88	0.67	1.02	1.93	0.35	0.44	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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	121	1324	87	1613	325	201	134	378
Future Volume (vph)	121	1324	87	1613	325	201	134	378
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.4	25.4	11.4	25.4	11.2	25.2	11.2	25.2
Total Split (s)	16.4	98.4	16.4	98.4	20.2	49.2	17.2	46.2
Total Split (%)	9.1%	54.3%	9.1%	54.3%	11.1%	27.2%	9.5%	25.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 181.2
Actuated Cycle Length: 181.2
Offset: 79 (44%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 5: SW 72 Ave & SW 56 St

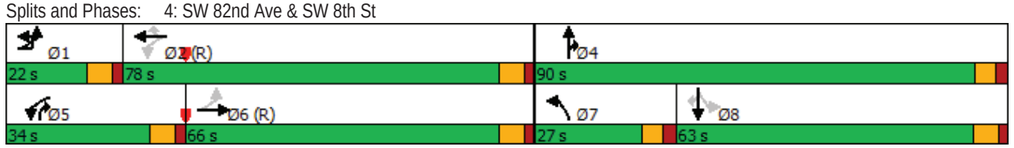


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	2315	34	387	1713	359	182	259	374	489	185	19
Future Volume (vph)	181	2315	34	387	1713	359	182	259	374	489	185	19
Satd. Flow (prot)	1770	5075	0	1770	5085	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.068			0.061			0.950			0.591		
Satd. Flow (perm)	127	5075	0	114	5085	1583	1770	1863	1583	1101	1863	1583
Satd. Flow (RTOR)		1				121			22			137
Lane Group Flow (vph)	191	2473	0	407	1803	378	192	273	394	515	195	20
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pt+ov	Perm	NA	Perm
Protected Phases	1	6		5	2		7	4	4 5		8	
Permitted Phases	6			2		2				8		8
Detector Phase	1	6		5	2	2	7	4	4 5	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	18.0		5.0	18.0	18.0	18.0	18.0		18.0	18.0	18.0
Minimum Split (s)	11.8	24.8		24.8	24.8	24.8	26.5	26.5		24.8	24.8	24.8
Total Split (s)	22.0	66.0		34.0	78.0	78.0	27.0	90.0		63.0	63.0	63.0
Total Split (%)	11.6%	34.7%		17.9%	41.1%	41.1%	14.2%	47.4%		33.2%	33.2%	33.2%
Maximum Green (s)	15.2	59.2		27.2	71.2	71.2	20.5	83.5		56.2	56.2	56.2
Yellow Time (s)	4.8	4.8		4.8	4.8	4.8	4.0	4.0		4.8	4.8	4.8
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8		6.8	6.8	6.8	6.5	6.5		6.8	6.8	6.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	Max
Walk Time (s)		7.0								7.0	7.0	7.0
Flash Dont Walk (s)		11.0								11.0	11.0	11.0
Pedestrian Calls (#/hr)		5								5	5	5
Act Effct Green (s)	74.4	59.2		93.2	71.2	71.2	20.5	83.5	117.5	56.2	56.2	56.2
Actuated g/C Ratio	0.39	0.31		0.49	0.37	0.37	0.11	0.44	0.62	0.30	0.30	0.30
v/c Ratio	1.06	1.56		1.39	0.95	0.57	1.01	0.33	0.40	1.58	0.35	0.04
Control Delay	134.6	297.5		242.7	65.8	32.6	148.2	36.4	18.6	317.9	54.9	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.6	297.5		242.7	65.8	32.6	148.2	36.4	18.6	317.9	54.9	0.1
LOS	F	F		F	E	C	F	D	B	F	D	A
Approach Delay		285.9			88.7			53.2			238.9	
Approach LOS		F			F			D			F	
Queue Length 50th (ft)	~208	~1600		~621	821	209	~246	223	227	~910	193	0
Queue Length 95th (ft)	#390	#1670		#854	867	327	#430	303	304	#1153	275	0
Internal Link Dist (ft)		960			1505			927			921	
Turn Bay Length (ft)	150			150		150	180		180	150		150
Base Capacity (vph)	181	1581		292	1905	668	190	818	987	325	551	564
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	1.56		1.39	0.95	0.57	1.01	0.33	0.40	1.58	0.35	0.04

Intersection Summary

Cycle Length: 190
Actuated Cycle Length: 190
Offset: 166 (87%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.58
Intersection Signal Delay: 177.1 Intersection LOS: F
Intersection Capacity Utilization 131.4% ICU Level of Service H
Analysis Period (min) 15
~ 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.

Splits and Phases: 4: SW 82nd Ave & SW 8th St



Queues
4: SW 82nd Ave & SW 8th St

No Build 2045 Conditions
Timing Plan: AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	180		180	150		150
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			30	
Link Distance (ft)		1040			1585			1007			1001	
Travel Time (s)		15.8			24.0			19.6			22.8	
Lane Group Flow (vph)	191	2473	0	407	1803	378	192	273	394	515	195	20
v/c Ratio	1.06	1.56		1.39	0.95	0.57	1.01	0.33	0.40	1.58	0.35	0.04
Control Delay	134.6	297.5		242.7	65.8	32.6	148.2	36.4	18.6	317.9	54.9	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.6	297.5		242.7	65.8	32.6	148.2	36.4	18.6	317.9	54.9	0.1
Queue Length 50th (ft)	~208	~1600		~621	821	209	~246	223	227	~910	193	0
Queue Length 95th (ft)	#390	#1670		#854	867	327	#430	303	304	#1153	275	0
Internal Link Dist (ft)		960			1505			927			921	
Turn Bay Length (ft)	150			150		150	180		180	150		150
Base Capacity (vph)	181	1581		292	1905	668	190	818	987	325	551	564
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	1.56		1.39	0.95	0.57	1.01	0.33	0.40	1.58	0.35	0.04

Intersection Summary	
Area Type:	Other

~ 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 6th Signalized Intersection Summary
4: SW 82nd Ave & SW 8th St

No Build 2045 Conditions
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	2315	34	387	1713	359	182	259	374	489	185	19
Future Volume (veh/h)	181	2315	34	387	1713	359	182	259	374	489	185	19
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	191	2437	36	407	1803	378	192	273	394	515	195	20
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	186	1615	24	293	1913	594	192	819	921	265	553	469
Arrive On Green	0.08	0.31	0.31	0.14	0.37	0.37	0.11	0.44	0.44	0.30	0.30	0.30
Sat Flow, veh/h	1781	5184	76	1781	5106	1585	1781	1870	1585	769	1870	1585
Grp Volume(v), veh/h	191	1598	875	407	1803	378	192	273	394	515	195	20
Grp Sat Flow(s),veh/h/ln	1781	1702	1857	1781	1702	1585	1781	1870	1585	769	1870	1585
Q Serve(g_s), s	15.2	59.2	59.2	27.2	64.8	37.2	20.5	18.3	26.3	56.2	15.6	1.7
Cycle Q Clear(g_c), s	15.2	59.2	59.2	27.2	64.8	37.2	20.5	18.3	26.3	56.2	15.6	1.7
Prop In Lane	1.00		0.04	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	186	1061	578	293	1913	594	192	819	921	265	553	469
V/C Ratio(X)	1.02	1.51	1.51	1.39	0.94	0.64	1.00	0.33	0.43	1.94	0.35	0.04
Avail Cap(c_a), veh/h	186	1061	578	293	1913	594	192	822	924	265	553	469
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	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.3	65.4	65.4	66.5	57.4	48.8	84.7	35.1	22.2	70.9	52.6	47.7
Incr Delay (d2), s/veh	72.5	233.0	239.3	192.3	9.5	4.4	64.6	0.2	0.3	436.5	1.8	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(50%),veh/ln	9.7	59.6	66.0	25.5	29.0	15.3	12.9	8.5	10.1	45.4	7.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	130.7	298.4	304.7	258.8	67.0	53.2	149.4	35.4	22.5	507.4	54.4	47.9
LnGrp LOS	F	F	F	F	E	D	F	D	C	F	D	D
Approach Vol, veh/h		2664			2588			859			730	
Approach Delay, s/veh		288.5			95.1			55.0			373.8	
Approach LOS		F			F			D			F	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	78.0		90.0	34.0	66.0	27.0	63.0				
Change Period (Y+Rc), s	6.8	6.8		* 6.8	6.8	6.8	6.5	6.8				
Max Green Setting (Gmax), s	15.2	71.2		* 84	27.2	59.2	20.5	56.2				
Max Q Clear Time (g_c+I1), s	17.2	66.8		28.3	29.2	61.2	22.5	58.2				
Green Ext Time (p_c), s	0.0	3.8		3.2	0.0	0.0	0.0	0.0				

Intersection Summary		
HCM 6th Ctrl Delay		195.1
HCM 6th LOS		F

Notes
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2567	655	512	2477	0	0
Future Volume (vph)	2567	655	512	2477	0	0
Satd. Flow (prot)	4933	0	3433	5085	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	4933	0	3433	5085	0	0
Satd. Flow (RTOR)	3					
Lane Group Flow (vph)	3391	0	539	2607	0	0
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						
Detector Phase	6		5			
Switch Phase						
Minimum Initial (s)	69.0		5.0			
Minimum Split (s)	75.8		11.8			
Total Split (s)	76.0		19.0			
Total Split (%)	80.0%		20.0%			
Maximum Green (s)	69.2		12.2			
Yellow Time (s)	4.8		4.8			
All-Red Time (s)	2.0		2.0			
Lost Time Adjust (s)	0.0		0.0			
Total Lost Time (s)	6.8		6.8			
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0			
Recall Mode	C-Max		None			
Walk Time (s)	7.0					
Flash Dont Walk (s)	7.0					
Pedestrian Calls (#/hr)	4					
Act Effct Green (s)	69.2		12.2	95.0		
Actuated g/C Ratio	0.73		0.13	1.00		
v/c Ratio	0.94		1.23	0.51		
Control Delay	26.0		153.2	0.3		
Queue Delay	0.0		0.0	0.0		
Total Delay	26.0		153.2	0.3		
LOS	C		F	A		
Approach Delay	26.0			26.5		
Approach LOS	C			C		
Queue Length 50th (ft)	582		~280	0		
Queue Length 95th (ft)	m72		m#378	m0		
Internal Link Dist (ft)	1505			279	946	
Turn Bay Length (ft)			240			
Base Capacity (vph)	3594		440	5085		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.94		1.23	0.51		

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 95
Offset: 92 (97%), Referenced to phase 6:EBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 26.2 Intersection LOS: C
Intersection Capacity Utilization 90.2% ICU Level of Service E
Analysis Period (min) 15
~ 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.

Splits and Phases: 8: SR826 SB on-ramp & SW 8th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2567	655	512	2477	0	0
Future Volume (vph)	2567	655	512	2477	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8		6.8	4.0		
Lane Util. Factor	0.91		0.97	0.91		
Frt	0.97		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4930		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	4930		3433	5085		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2702	689	539	2607	0	0
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	3390	0	539	2607	0	0
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						
Actuated Green, G (s)	69.2		12.2	95.0		
Effective Green, g (s)	69.2		12.2	95.0		
Actuated g/C Ratio	0.73		0.13	1.00		
Clearance Time (s)	6.8		6.8			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	3591		440	5085		
v/s Ratio Prot	c0.69		c0.16	0.51		
v/s Ratio Perm						
v/c Ratio	0.94		1.23	0.51		
Uniform Delay, d1	11.2		41.4	0.0		
Progression Factor	2.23		1.02	1.00		
Incremental Delay, d2	0.7		115.9	0.3		
Delay (s)	25.7		158.2	0.3		
Level of Service	C		F	A		
Approach Delay (s)	25.7			27.3	0.0	
Approach LOS	C			C	A	

Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	240		0	0
Storage Lanes		0	2		0	0
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	45			45	40	
Link Distance (ft)	1585			359	1026	
Travel Time (s)	24.0			5.4	17.5	
Lane Group Flow (vph)	3391	0	539	2607	0	0
v/c Ratio	0.94		1.23	0.51		
Control Delay	26.0		153.2	0.3		
Queue Delay	0.0		0.0	0.0		
Total Delay	26.0		153.2	0.3		
Queue Length 50th (ft)	582		~280	0		
Queue Length 95th (ft)	m72		m#378	m0		
Internal Link Dist (ft)	1505			279	946	
Turn Bay Length (ft)			240			
Base Capacity (vph)	3594		440	5085		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.94		1.23	0.51		

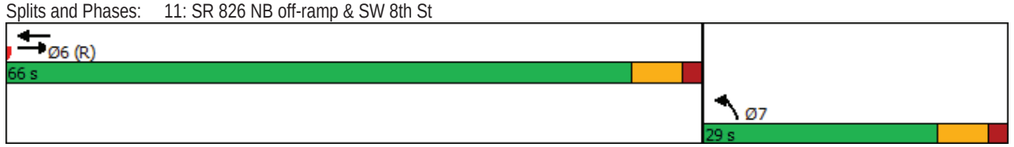
Intersection Summary	
Area Type:	Other
~	Volume exceeds capacity, queue is theoretically infinite.
	Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1985	1143	0	1576	763	0
Future Volume (vph)	1985	1143	0	1576	763	0
Satd. Flow (prot)	4806	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	4806	0	0	3539	3433	0
Satd. Flow (RTOR)	290					
Lane Group Flow (vph)	3292	0	0	1659	803	0
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Detector Phase	6			6	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	
Minimum Split (s)	24.8			24.8	24.8	
Total Split (s)	66.0			66.0	29.0	
Total Split (%)	69.5%			69.5%	30.5%	
Maximum Green (s)	59.2			59.2	22.2	
Yellow Time (s)	4.8			4.8	4.8	
All-Red Time (s)	2.0			2.0	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.8			6.8	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	Max	
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	11.0			11.0		
Pedestrian Calls (#/hr)	4			4		
Act Effct Green (s)	59.2			59.2	22.2	
Actuated g/C Ratio	0.62			0.62	0.23	
v/c Ratio	1.08dr			0.75	1.00	
Control Delay	43.0			14.8	69.7	
Queue Delay	17.2			0.0	0.0	
Total Delay	60.2			14.8	69.7	
LOS	E			B	E	
Approach Delay	60.2			14.8	69.7	
Approach LOS	E			B	E	
Queue Length 50th (ft)	~902			373	~251	
Queue Length 95th (ft)	#967			m415	#377	
Internal Link Dist (ft)	236			153	291	
Turn Bay Length (ft)						
Base Capacity (vph)	3104			2205	802	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	500			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	1.26			0.75	1.00	

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 95
Offset: 17 (18%), Referenced to phase 6:EBWB, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 48.4 Intersection LOS: D
Intersection Capacity Utilization 97.0% ICU Level of Service F
Analysis Period (min) 15
~ 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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 11: SR 826 NB off-ramp & SW 8th St



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Right Turn on Red		Yes				Yes
Link Speed (mph)	45			45	25	
Link Distance (ft)	316			233	371	
Travel Time (s)	4.8			3.5	10.1	
Lane Group Flow (vph)	3292	0	0	1659	803	0
v/c Ratio	1.08dr			0.75	1.00	
Control Delay	43.0			14.8	69.7	
Queue Delay	17.2			0.0	0.0	
Total Delay	60.2			14.8	69.7	
Queue Length 50th (ft)	~902			373	~251	
Queue Length 95th (ft)	#967			m415	#377	
Internal Link Dist (ft)	236			153	291	
Turn Bay Length (ft)						
Base Capacity (vph)	3104			2205	802	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	500			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	1.26			0.75	1.00	

Intersection Summary	
Area Type:	Other

~ 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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1985	1143	0	1576	763	0
Future Volume (vph)	1985	1143	0	1576	763	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8			6.8	6.8	
Lane Util. Factor	0.91			0.95	0.97	
Frt	0.95			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4807			3539	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4807			3539	3433	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2089	1203	0	1659	803	0
RTOR Reduction (vph)	109	0	0	0	0	0
Lane Group Flow (vph)	3183	0	0	1659	803	0
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Actuated Green, G (s)	59.2			59.2	22.2	
Effective Green, g (s)	59.2			59.2	22.2	
Actuated g/C Ratio	0.62			0.62	0.23	
Clearance Time (s)	6.8			6.8	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	2995			2205	802	
v/s Ratio Prot	c0.66			0.47	c0.23	
v/s Ratio Perm						
v/c Ratio	1.08dr			0.75	1.00	
Uniform Delay, d1	17.9			12.7	36.4	
Progression Factor	0.49			1.08	1.00	
Incremental Delay, d2	33.4			0.9	32.1	
Delay (s)	42.2			14.6	68.5	
Level of Service	D			B	E	
Approach Delay (s)	42.2			14.6	68.5	
Approach LOS	D			B	E	

Intersection Summary			
HCM 2000 Control Delay	37.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	2590	55	30	2050	13	166	196	17	46	142	134
Future Volume (vph)	164	2590	55	30	2050	13	166	196	17	46	142	134
Satd. Flow (prot)	1770	3529	0	1770	3539	1583	1770	1840	0	1770	1863	1583
Flt Permitted	0.032			0.033			0.362			0.240		
Satd. Flow (perm)	60	3529	0	61	3539	1583	674	1840	0	447	1863	1583
Satd. Flow (RTOR)		2				158		2				52
Lane Group Flow (vph)	173	2784	0	32	2158	14	175	224	0	48	149	141
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6			2		Free	4			8		8
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.4	30.0		11.0	27.0		11.1	29.4		11.1	29.4	11.4
Total Split (s)	21.0	136.0		11.0	126.0		13.0	32.0		11.0	30.0	21.0
Total Split (%)	11.1%	71.6%		5.8%	66.3%		6.8%	16.8%		5.8%	15.8%	11.1%
Maximum Green (s)	15.0	130.0		5.0	120.0		6.9	25.6		4.9	23.6	15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.7	4.0		3.7	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.4	2.4		2.4	2.4	2.0
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)	6.0	6.0		6.0	6.0		6.1	6.4		6.1	6.4	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		6.0			6.0			5.0			5.0	
Flash Dont Walk (s)		14.0			14.0			18.0			18.0	
Pedestrian Calls (#/hr)		1			4			0			0	
Act Effct Green (s)	143.0	134.2		126.7	121.6	190.0	31.6	25.8		26.8	21.6	43.4
Actuated g/C Ratio	0.75	0.71		0.67	0.64	1.00	0.17	0.14		0.14	0.11	0.23
v/c Ratio	0.95	1.12		0.37	0.95	0.01	1.15	0.89		0.50	0.71	0.35
Control Delay	98.2	76.9		26.7	42.6	0.0	181.6	113.2		83.8	98.9	40.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	98.2	76.9		26.7	42.6	0.0	181.6	113.2		83.8	98.9	40.3
LOS	F	E		C	D	A	F	F		F	F	D
Approach Delay		78.2			42.1			143.2			72.3	
Approach LOS		E			D			F			E	
Queue Length 50th (ft)	163	~2145		10	1294	0	~225	278		50	180	92
Queue Length 95th (ft)	m#190	m#2017		32	#1443	0	#415	#447		95	266	165
Internal Link Dist (ft)		758			272			921			945	
Turn Bay Length (ft)	225			150			80			100		225
Base Capacity (vph)	183	2493		86	2265	1583	152	251		96	231	401
Starvation Cap Reductn	0	14		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	0.95	1.12		0.37	0.95	0.01	1.15	0.89		0.50	0.65	0.35

Intersection Summary

Cycle Length: 190
Actuated Cycle Length: 190
Offset: 73 (38%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 68.7 Intersection LOS: E
Intersection Capacity Utilization 114.6% ICU Level of Service H
Analysis Period (min) 15
~ 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.

Splits and Phases: 6: SW 74th Ave & SW 8th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	2590	55	30	2050	13	166	196	17	46	142	134
Future Volume (vph)	164	2590	55	30	2050	13	166	196	17	46	142	134
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	4.0	6.1	6.4		6.1	6.4	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3528		1770	3539	1583	1770	1840		1770	1863	1583
Flt Permitted	0.03	1.00		0.03	1.00	1.00	0.36	1.00		0.24	1.00	1.00
Satd. Flow (perm)	59	3528		62	3539	1583	675	1840		448	1863	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)	173	2726	58	32	2158	14	175	206	18	48	149	141
RTOR Reduction (vph)	0	1	0	0	0	0	0	2	0	0	0	42
Lane Group Flow (vph)	173	2783	0	32	2158	14	175	222	0	48	149	99
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	141.8	131.8		124.4	120.4	190.0	32.7	25.8		26.7	22.8	38.2
Effective Green, g (s)	141.8	131.8		124.4	120.4	190.0	32.7	25.8		26.7	22.8	38.2
Actuated g/C Ratio	0.75	0.69		0.65	0.63	1.00	0.17	0.14		0.14	0.12	0.20
Clearance Time (s)	6.0	6.0		6.0	6.0		6.1	6.4		6.1	6.4	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	182	2447		76	2242	1583	155	249		90	223	318
v/s Ratio Prot	c0.08	c0.79		0.01	0.61		c0.04	0.12		0.01	0.08	0.03
v/s Ratio Perm	0.63			0.27		0.01	c0.15			0.06		0.04
v/c Ratio	0.95	1.14		0.42	0.96	0.01	1.13	0.89		0.53	0.67	0.31
Uniform Delay, d1	73.4	29.1		47.8	32.7	0.0	78.7	80.7		74.5	80.0	64.7
Progression Factor	1.02	0.65		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	40.1	65.5		3.7	12.0	0.0	111.1	30.4		6.0	7.4	0.6
Delay (s)	114.8	84.4		51.5	44.7	0.0	189.9	111.1		80.4	87.4	65.3
Level of Service	F	F		D	D	A	F	F		F	F	E
Approach Delay (s)		86.1			44.5			145.7			77.2	
Approach LOS		F			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	74.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	114.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	150		0	80		0	100		225
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		838			352			1001			1025	
Travel Time (s)		12.7			5.3			19.5			20.0	
Lane Group Flow (vph)	173	2784	0	32	2158	14	175	224	0	48	149	141
v/c Ratio	0.95	1.12		0.37	0.95	0.01	1.15	0.89		0.50	0.71	0.35
Control Delay	98.2	76.9		26.7	42.6	0.0	181.6	113.2		83.8	98.9	40.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	98.2	76.9		26.7	42.6	0.0	181.6	113.2		83.8	98.9	40.3
Queue Length 50th (ft)	163	~2145		10	1294	0	~225	278		50	180	92
Queue Length 95th (ft)	m#190	m#2017		32	#1443	0	#415	#447		95	266	165
Internal Link Dist (ft)		758			272			921			945	
Turn Bay Length (ft)	225			150			80			100		225
Base Capacity (vph)	183	2493		86	2265	1583	152	251		96	231	401
Starvation Cap Reductn	0	14		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	0.95	1.12		0.37	0.95	0.01	1.15	0.89		0.50	0.65	0.35

Intersection Summary	
Area Type:	Other

~ 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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	1945	93	217	3069	136	162	340	259	407	452	30
Future Volume (vph)	144	1945	93	217	3069	136	162	340	259	407	452	30
Satd. Flow (prot)	1770	5050	0	1770	5085	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.049			0.045			0.123			0.109		
Satd. Flow (perm)	91	5050	0	84	5085	1583	229	1863	1583	203	1863	1583
Satd. Flow (RTOR)		5				124			85			137
Lane Group Flow (vph)	152	2145	0	228	3231	143	171	358	273	428	476	32
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	pt+ov	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4	4 5	3	8	
Permitted Phases	6			2		2	4			8		8
Detector Phase	1	6		5	2	2	7	4	4 5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	18.0		5.0	18.0	18.0	18.0	18.0		5.0	18.0	18.0
Minimum Split (s)	11.8	24.8		20.0	24.8	24.8	26.5	26.5		9.5	24.8	24.8
Total Split (s)	17.0	88.0		28.0	99.0	99.0	27.0	39.0		35.0	47.0	47.0
Total Split (%)	8.9%	46.3%		14.7%	52.1%	52.1%	14.2%	20.5%		18.4%	24.7%	24.7%
Maximum Green (s)	10.2	81.2		21.2	92.2	92.2	20.5	32.5		30.5	40.2	40.2
Yellow Time (s)	4.8	4.8		4.8	4.8	4.8	4.0	4.0		3.5	4.8	4.8
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8		6.8	6.8	6.8	6.5	6.5		4.5	6.8	6.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	Max	Max
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							11.0	11.0				
Pedestrian Calls (#/hr)							2	2				
Act Effct Green (s)	91.4	81.2		109.2	92.2	92.2	51.8	32.5	60.5	69.5	41.4	41.4
Actuated g/C Ratio	0.48	0.43		0.57	0.49	0.49	0.27	0.17	0.32	0.37	0.22	0.22
v/c Ratio	1.14	0.99		0.97	1.31	0.17	0.78	1.13	0.49	1.32	1.18	0.07
Control Delay	166.4	70.8		101.4	182.9	7.3	75.6	155.9	38.4	208.1	162.4	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	166.4	70.8		101.4	182.9	7.3	75.6	155.9	38.4	208.1	162.4	0.3
LOS	F	E		F	F	A	E	F	D	F	F	A
Approach Delay		77.1			170.8			98.8			177.7	
Approach LOS		E			F			F			F	
Queue Length 50th (ft)	~169	972		234	~1892	14	158	~513	191	~633	~711	0
Queue Length 95th (ft)	#336	#1086		#424	#1933	m45	#269	#736	290	#868	#961	0
Internal Link Dist (ft)		960			1505			927			987	
Turn Bay Length (ft)	150			150		150	180		180	150		150
Base Capacity (vph)	133	2161		236	2467	831	230	318	561	325	405	451
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.99		0.97	1.31	0.17	0.74	1.13	0.49	1.32	1.18	0.07

Intersection Summary

Cycle Length: 190
Actuated Cycle Length: 190
Offset: 4 (2%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.32
Intersection Signal Delay: 135.9 Intersection LOS: F
Intersection Capacity Utilization 128.5% ICU Level of Service H
Analysis Period (min) 15
~ 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.

Splits and Phases: 4: SW 82nd Ave & SW 8th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	1945	93	217	3069	136	162	340	259	407	452	30
Future Volume (veh/h)	144	1945	93	217	3069	136	162	340	259	407	452	30
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	2047	98	228	3231	143	171	358	273	428	476	32
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	134	2432	116	246	2744	852	207	320	436	324	423	359
Arrive On Green	0.05	0.49	0.49	0.10	0.54	0.54	0.09	0.17	0.17	0.16	0.23	0.23
Sat Flow, veh/h	1781	4993	238	1781	5106	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	152	1393	752	228	3231	143	171	358	273	428	476	32
Grp Sat Flow(s),veh/h/ln	1781	1702	1827	1781	1702	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	10.2	67.5	68.1	17.5	102.1	8.7	14.8	32.5	28.7	30.5	43.0	3.0
Cycle Q Clear(g_c), s	10.2	67.5	68.1	17.5	102.1	8.7	14.8	32.5	28.7	30.5	43.0	3.0
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	1658	890	246	2744	852	207	320	436	324	423	359
V/C Ratio(X)	1.14	0.84	0.84	0.93	1.18	0.17	0.83	1.12	0.63	1.32	1.12	0.09
Avail Cap(c_a), veh/h	134	1658	890	260	2744	852	230	320	436	324	423	359
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	0.64	0.64	0.64	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.6	42.3	42.5	60.3	43.9	22.3	59.4	78.8	60.3	63.3	73.5	58.0
Incr Delay (d2), s/veh	119.6	5.3	9.7	26.4	82.6	0.3	19.9	86.4	2.8	164.8	82.2	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(50%),veh/ln	11.0	28.9	32.4	12.8	62.2	3.4	7.9	23.4	12.0	30.8	30.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	183.3	47.6	52.1	86.7	126.5	22.6	79.3	165.1	63.1	228.1	155.7	58.5
LnGrp LOS	F	D	D	F	F	C	E	F	E	F	F	E
Approach Vol, veh/h		2297			3602			802			936	
Approach Delay, s/veh		58.1			119.9			112.1			185.5	
Approach LOS		E			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	109.2	35.0	39.3	26.5	99.7	24.5	49.8
Change Period (Y+Rc), s	6.8	6.8	4.5	* 6.8	6.8	6.8	6.5	6.8
Max Green Setting (Gmax), s	10.2	92.2	30.5	* 33	21.2	81.2	20.5	40.2
Max Q Clear Time (g_c+I1), s	12.2	104.1	32.5	34.5	19.5	70.1	16.8	45.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	8.9	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	108.5
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	2145	228	3231	143	171	358	273	428	476	32
v/c Ratio	1.14	0.99	0.97	1.31	0.17	0.78	1.13	0.49	1.32	1.18	0.07
Control Delay	166.4	70.8	101.4	182.9	7.3	75.6	155.9	38.4	208.1	162.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	166.4	70.8	101.4	182.9	7.3	75.6	155.9	38.4	208.1	162.4	0.3
Queue Length 50th (ft)	~169	972	234	~1892	14	158	~513	191	~633	~711	0
Queue Length 95th (ft)	#336	#1086	#424	#1933	m45	#269	#736	290	#868	#961	0
Internal Link Dist (ft)		960		1505			927			987	
Turn Bay Length (ft)	150		150		150	180		180	150		150
Base Capacity (vph)	133	2161	236	2467	831	230	318	561	325	405	451
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.99	0.97	1.31	0.17	0.74	1.13	0.49	1.32	1.18	0.07

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.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2006	673	902	3432	0	0
Future Volume (vph)	2006	673	902	3432	0	0
Satd. Flow (prot)	4892	0	3433	5085	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	4892	0	3433	5085	0	0
Satd. Flow (RTOR)	11					
Lane Group Flow (vph)	2820	0	949	3613	0	0
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						
Detector Phase	6		5			
Switch Phase						
Minimum Initial (s)	18.0		5.0			
Minimum Split (s)	24.8		11.8			
Total Split (s)	61.0		34.0			
Total Split (%)	64.2%		35.8%			
Maximum Green (s)	54.2		27.2			
Yellow Time (s)	4.8		4.8			
All-Red Time (s)	2.0		2.0			
Lost Time Adjust (s)	0.0		0.0			
Total Lost Time (s)	6.8		6.8			
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0			
Recall Mode	C-Max		None			
Walk Time (s)	7.0					
Flash Dont Walk (s)	7.0					
Pedestrian Calls (#/hr)	4					
Act Effct Green (s)	54.2		27.2	95.0		
Actuated g/C Ratio	0.57		0.29	1.00		
v/c Ratio	1.01		0.97	0.71		
Control Delay	29.6		34.8	0.1		
Queue Delay	0.0		0.0	0.0		
Total Delay	29.6		34.8	0.1		
LOS	C		C	A		
Approach Delay	29.6			7.3		
Approach LOS	C			A		
Queue Length 50th (ft)	~679		292	0		
Queue Length 95th (ft)	m610		m226	m0		
Internal Link Dist (ft)	1505			279	946	
Turn Bay Length (ft)			240			
Base Capacity (vph)	2795		982	5085		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	1.01		0.97	0.71		

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 95
Offset: 24 (25%), Referenced to phase 6:EBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 15.8 Intersection LOS: B
Intersection Capacity Utilization 90.9% ICU Level of Service E
Analysis Period (min) 15
~ 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.

Splits and Phases: 8: SR826 SB on-ramp & SW 8th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2006	673	902	3432	0	0
Future Volume (vph)	2006	673	902	3432	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8		6.8	4.0		
Lane Util. Factor	0.91		0.97	0.91		
Frt	0.96		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4894		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	4894		3433	5085		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2112	708	949	3613	0	0
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	2815	0	949	3613	0	0
Turn Type	NA		Prot	NA		
Protected Phases	6		5	Free		
Permitted Phases						
Actuated Green, G (s)	54.2		27.2	95.0		
Effective Green, g (s)	54.2		27.2	95.0		
Actuated g/C Ratio	0.57		0.29	1.00		
Clearance Time (s)	6.8		6.8			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	2792		982	5085		
v/s Ratio Prot	c0.58		c0.28	0.71		
v/s Ratio Perm						
v/c Ratio	1.01		0.97	0.71		
Uniform Delay, d1	20.4		33.4	0.0		
Progression Factor	0.85		0.90	1.00		
Incremental Delay, d2	11.3		3.6	0.1		
Delay (s)	28.6		33.8	0.1		
Level of Service	C		C	A		
Approach Delay (s)	28.6			7.1	0.0	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	2820	949	3613
v/c Ratio	1.01	0.97	0.71
Control Delay	29.6	34.8	0.1
Queue Delay	0.0	0.0	0.0
Total Delay	29.6	34.8	0.1
Queue Length 50th (ft)	~679	292	0
Queue Length 95th (ft)	m610	m226	m0
Internal Link Dist (ft)	1505		279
Turn Bay Length (ft)		240	
Base Capacity (vph)	2795	982	5085
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.01	0.97	0.71

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	305	9	6	128	139	15	97	212	191	43	24
Future Volume (vph)	51	305	9	6	128	139	15	97	212	191	43	24
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	6.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00			1.00	0.85		1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00			1.00	1.00		0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1855			1859	1583		1850	1583	1770	1763	
Flt Permitted	0.67	1.00			0.99	1.00		0.99	1.00	0.95	1.00	
Satd. Flow (perm)	1243	1855			1835	1583		1850	1583	1770	1763	
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)	54	321	9	6	135	146	16	102	223	201	45	25
RTOR Reduction (vph)	0	1	0	0	0	55	0	0	163	0	18	0
Lane Group Flow (vph)	54	329	0	0	141	91	0	118	60	201	52	0
Turn Type	Perm	NA		Perm	NA	pt+ov	custom	NA	Prot	Split	NA	
Protected Phases		2			6	6 3	8 4	8 4	8 4	3	3	
Permitted Phases	2			6			8					
Actuated Green, G (s)	47.4	47.4			47.4	68.2		29.8	29.8	14.8	14.8	
Effective Green, g (s)	47.4	47.4			47.4	68.2		29.8	29.8	14.8	14.8	
Actuated g/C Ratio	0.43	0.43			0.43	0.62		0.27	0.27	0.13	0.13	
Clearance Time (s)	6.0	6.0			6.0					6.0	6.0	
Vehicle Extension (s)	1.0	1.0			1.0					2.5	2.5	
Lane Grp Cap (vph)	535	799			790	981		501	428	238	237	
v/s Ratio Prot		c0.18				0.06		c0.06	0.04	c0.11	0.03	
v/s Ratio Perm	0.04				0.08							
v/c Ratio	0.10	0.41			0.18	0.09		0.24	0.14	0.84	0.22	
Uniform Delay, d1	18.6	21.7			19.3	8.4		31.2	30.4	46.5	42.4	
Progression Factor	1.00	1.00			0.12	0.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	1.6			0.5	0.0		0.2	0.1	22.7	0.3	
Delay (s)	19.0	23.2			2.8	0.0		31.4	30.5	69.2	42.8	
Level of Service	B	C			A	A		C	C	E	D	
Approach Delay (s)		22.6			1.4			30.8			62.4	
Approach LOS		C			A			C			E	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

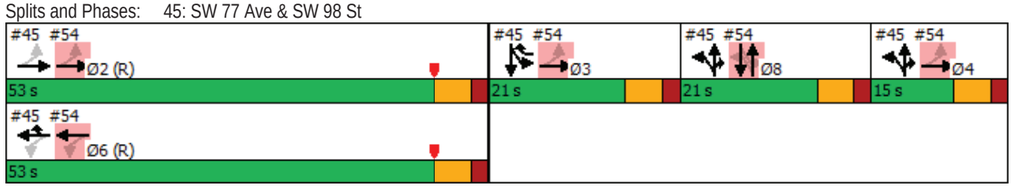
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	54	330	141	146	118	223	201	70
v/c Ratio	0.10	0.41	0.18	0.14	0.24	0.38	0.84	0.27
Control Delay	19.6	23.6	2.8	0.3	32.7	6.2	76.4	34.2
Queue Delay	0.0	0.0	0.9	0.8	0.0	0.5	0.0	0.0
Total Delay	19.6	23.6	3.7	1.1	32.7	6.6	76.4	34.2
Queue Length 50th (ft)	22	158	7	0	65	0	140	31
Queue Length 95th (ft)	48	235	10	0	114	58	#266	75
Internal Link Dist (ft)		705	21		679			679
Turn Bay Length (ft)	50					105	75	
Base Capacity (vph)	535	800	791	1039	485	579	241	258
Starvation Cap Reductn	0	0	445	665	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	111	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.41	0.41	0.39	0.24	0.48	0.83	0.27

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	Ø4	Ø8
Lane Configurations											
Traffic Volume (vph)	51	305	6	128	139	97	212	191	43		
Future Volume (vph)	51	305	6	128	139	97	212	191	43		
Turn Type	Perm	NA	Perm	NA	pt+ov	NA	Prot	Split	NA		
Protected Phases		2		6	6 3	8 4	8 4	3	3	4	8
Permitted Phases	2		6								
Detector Phase	2	2	6	6	6 3	8 4	8 4	3	3		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0				7.0	7.0	9.0	7.0
Minimum Split (s)	21.0	21.0	21.0	21.0				13.0	13.0	15.0	21.0
Total Split (s)	53.0	53.0	53.0	53.0				21.0	21.0	15.0	21.0
Total Split (%)	48.2%	48.2%	48.2%	48.2%				19.1%	19.1%	14%	19%
Yellow Time (s)	4.0	4.0	4.0	4.0				4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0				2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0				0.0	0.0		
Total Lost Time (s)	6.0	6.0		6.0				6.0	6.0		
Lead/Lag								Lead	Lead		Lag
Lead-Lag Optimize?								Yes	Yes		Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max				None	None	None	None
Act Effct Green (s)	47.4	47.4		47.4	68.2	29.8	29.8	14.8	14.8		
Actuated g/C Ratio	0.43	0.43		0.43	0.62	0.27	0.27	0.13	0.13		
v/c Ratio	0.10	0.41		0.18	0.14	0.24	0.38	0.84	0.27		
Control Delay	19.6	23.6		2.8	0.3	32.7	6.2	76.4	34.2		
Queue Delay	0.0	0.0		0.9	0.8	0.0	0.5	0.0	0.0		
Total Delay	19.6	23.6		3.7	1.1	32.7	6.6	76.4	34.2		
LOS	B	C		A	A	C	A	E	C		
Approach Delay		23.1		2.4		15.7			65.5		
Approach LOS		C		A		B			E		

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 14 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 25.4		Intersection LOS: C	
Intersection Capacity Utilization 61.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 45: SW 77 Ave & SW 98 St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	708	252	26	1	21
Future Volume (Veh/h)	0	708	252	26	1	21
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	745	265	27	1	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		101	59			
pX, platoon unblocked					0.88	
vC, conflicting volume	292				1024	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	292				957	146
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	1267				224	875

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	745	177	115	23
Volume Left	0	0	0	1
Volume Right	0	0	27	22
cSH	1700	1700	1700	777
Volume to Capacity	0.44	0.10	0.07	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	9.8
Lane LOS				A
Approach Delay (s)	0.0	0.0		9.8
Approach LOS				A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↰			↰			↰	
Traffic Volume (vph)	0	708	0	1	277	0	1	32	0	0	16	0
Future Volume (vph)	0	708	0	1	277	0	1	32	0	0	16	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		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1862			1860			1863	
Flt Permitted		1.00			0.78			0.99			1.00	
Satd. Flow (perm)		1863			1457			1849			1863	
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	745	0	1	292	0	1	34	0	0	17	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	745	0	0	293	0	0	35	0	0	17	0
Turn Type		NA		Perm	NA		Perm	NA			NA	
Protected Phases		2 3 4			6			8			8	
Permitted Phases	2 3 4			6			8			8		
Actuated Green, G (s)		87.3			47.4			10.7			10.7	
Effective Green, g (s)		87.3			47.4			10.7			10.7	
Actuated g/C Ratio		0.79			0.43			0.10			0.10	
Clearance Time (s)					6.0			6.0			6.0	
Vehicle Extension (s)					1.0			2.5			2.5	
Lane Grp Cap (vph)	1478			627			179				181	
v/s Ratio Prot	c0.40										0.01	
v/s Ratio Perm				0.20			c0.02					
v/c Ratio	0.50			0.47			0.20				0.09	
Uniform Delay, d1	3.9			22.3			45.7				45.2	
Progression Factor	0.72			0.86			1.00				1.00	
Incremental Delay, d2	0.2			2.2			0.4				0.2	
Delay (s)	3.0			21.3			46.1				45.4	
Level of Service	A			C			D				D	
Approach Delay (s)	3.0			21.3			46.1				45.4	
Approach LOS	A			C			D				D	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

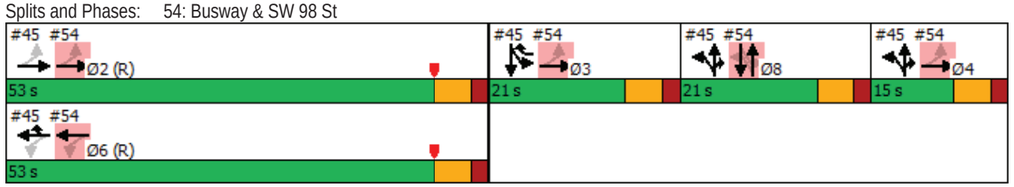
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	745	293	35	17
v/c Ratio	0.50	0.47	0.20	0.09
Control Delay	4.2	21.6	46.8	44.6
Queue Delay	0.6	3.0	0.0	0.0
Total Delay	4.8	24.6	46.8	44.6
Queue Length 50th (ft)	57	183	23	11
Queue Length 95th (ft)	m160	235	53	32
Internal Link Dist (ft)	1	1	545	650
Turn Bay Length (ft)				
Base Capacity (vph)	1482	628	252	254
Starvation Cap Reductn	364	232	0	0
Spillback Cap Reductn	364	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.67	0.74	0.14	0.07

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

Lane Group	EBT	WBL	WBT	NBL	NBT	SBT	Ø2	Ø3	Ø4
Lane Configurations									
Traffic Volume (vph)	708	1	277	1	32	16			
Future Volume (vph)	708	1	277	1	32	16			
Turn Type	NA	Perm	NA	Perm	NA	NA			
Protected Phases	2 3 4		6		8	8	2	3	4
Permitted Phases		6		8					
Detector Phase	2 3 4	6	6	8	8	8			
Switch Phase									
Minimum Initial (s)		15.0	15.0	7.0	7.0	7.0	15.0	7.0	9.0
Minimum Split (s)		21.0	21.0	21.0	21.0	21.0	21.0	13.0	15.0
Total Split (s)		53.0	53.0	21.0	21.0	21.0	53.0	21.0	15.0
Total Split (%)		48.2%	48.2%	19.1%	19.1%	19.1%	48%	19%	14%
Yellow Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0		0.0	0.0			
Total Lost Time (s)			6.0		6.0	6.0			
Lead/Lag				Lag	Lag	Lag		Lead	
Lead-Lag Optimize?				Yes	Yes	Yes		Yes	
Recall Mode		C-Max	C-Max	None	None	None	C-Max	None	None
Act Effct Green (s)	87.3		47.4		10.7	10.7			
Actuated g/C Ratio	0.79		0.43		0.10	0.10			
v/c Ratio	0.50		0.47		0.20	0.09			
Control Delay	4.2		21.6		46.8	44.6			
Queue Delay	0.6		3.0		0.0	0.0			
Total Delay	4.8		24.6		46.8	44.6			
LOS	A		C		D	D			
Approach Delay	4.8		24.6		46.8	44.6			
Approach LOS	A		C		D	D			

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 14 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 12.1		Intersection LOS: B	
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 54: Busway & SW 98 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	200	50	12	140	159	166	1591	27	66	1058	125
Future Volume (vph)	130	200	50	12	140	159	166	1591	27	66	1058	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91		1.00	0.91	
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected		0.98	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1827	1583		1855	1583	1770	5073		1770	5004	
Flt Permitted		0.69	1.00		0.79	1.00	0.17	1.00		0.09	1.00	
Satd. Flow (perm)		1278	1583		1466	1583	317	5073		174	5004	
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)	137	211	53	13	147	167	175	1675	28	69	1114	132
RTOR Reduction (vph)	0	0	39	0	0	39	0	1	0	0	7	0
Lane Group Flow (vph)	0	348	14	0	160	128	175	1702	0	69	1239	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		
Actuated Green, G (s)		59.0	59.0		59.0	59.0	142.6	132.6		137.8	130.2	
Effective Green, g (s)		59.0	59.0		59.0	59.0	142.6	132.6		137.8	130.2	
Actuated g/C Ratio		0.27	0.27		0.27	0.27	0.65	0.60		0.63	0.59	
Clearance Time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		342	424		393	424	271	3057		164	2961	
v/s Ratio Prot							c0.03	0.34		0.01	0.25	
v/s Ratio Perm	c0.27	0.01		0.11	0.08	c0.39				0.25		
v/c Ratio	1.02	0.03		0.41	0.30	0.65	0.56			0.42	0.42	
Uniform Delay, d1	80.5	59.4		66.1	64.1	17.9	26.1			20.4	24.4	
Progression Factor	1.00	1.19		1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	50.1	0.0		0.7	0.4	5.2	0.7			1.7	0.4	
Delay (s)	130.2	70.6		66.8	64.5	23.1	26.9			22.1	24.8	
Level of Service	F	E		E	E	C	C			C	C	
Approach Delay (s)	122.4			65.6			26.5				24.7	
Approach LOS	F			E			C				C	

Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	348	53	160	167	175	1703	69	1246
v/c Ratio	1.02	0.11	0.41	0.36	0.65	0.56	0.42	0.42
Control Delay	125.5	14.7	69.9	46.2	25.5	27.0	20.9	24.5
Queue Delay	29.9	0.0	0.0	0.0	1.2	0.0	0.0	0.0
Total Delay	155.4	14.7	70.0	46.2	26.7	27.0	20.9	24.6
Queue Length 50th (ft)	~534	5	193	135	91	532	33	348
Queue Length 95th (ft)	#768	30	279	217	127	569	56	382
Internal Link Dist (ft)	114		541			308		851
Turn Bay Length (ft)				25	90		100	
Base Capacity (vph)	342	463	393	463	271	3059	166	2967
Starvation Cap Reductn	69	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	4	0	19	0	0	107
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.27	0.11	0.41	0.36	0.69	0.56	0.42	0.44

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	130	200	50	12	140	159	166	1591	66	1058
Future Volume (vph)	130	200	50	12	140	159	166	1591	66	1058
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		8			4		1	6	5	2
Permitted Phases	8		8	4		4	6		2	
Detector Phase	8	8	8	4	4	4	1	6	5	2
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	31.2	31.2	31.2	35.2	35.2	35.2	11.8	25.8	11.8	25.8
Total Split (s)	66.2	66.2	66.2	66.2	66.2	66.2	16.8	139.0	14.8	137.0
Total Split (%)	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	7.6%	63.2%	6.7%	62.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8
All-Red Time (s)	3.2	3.2	3.2	3.2	3.2	3.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.2	7.2		7.2	7.2	6.8	6.8	6.8	6.8
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		59.0	59.0		59.0	59.0	142.6	132.6	137.8	130.2
Actuated g/C Ratio		0.27	0.27		0.27	0.27	0.65	0.60	0.63	0.59
v/c Ratio		1.02	0.11		0.41	0.36	0.65	0.56	0.42	0.42
Control Delay		125.5	14.7		69.9	46.2	25.5	27.0	20.9	24.5
Queue Delay		29.9	0.0		0.0	0.0	1.2	0.0	0.0	0.0
Total Delay		155.4	14.7		70.0	46.2	26.7	27.0	20.9	24.6
LOS		F	B		E	D	C	C	C	C
Approach Delay		136.8			57.8			27.0		24.4
Approach LOS		F			E			C		C

Intersection Summary

Cycle Length: 220
Actuated Cycle Length: 220
Offset: 177 (80%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 39.9 Intersection LOS: D
Intersection Capacity Utilization 84.6% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 46: US 1 & SW 98 St

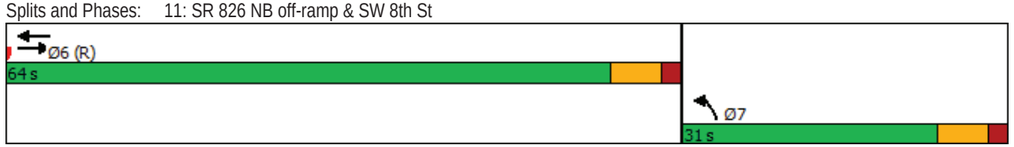


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1722	819	0	2651	993	0
Future Volume (vph)	1722	819	0	2651	993	0
Satd. Flow (prot)	4841	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	4841	0	0	3539	3433	0
Satd. Flow (RTOR)	227					
Lane Group Flow (vph)	2675	0	0	2791	1045	0
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Detector Phase	6			6	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	
Minimum Split (s)	24.8			24.8	24.8	
Total Split (s)	64.0			64.0	31.0	
Total Split (%)	67.4%			67.4%	32.6%	
Maximum Green (s)	57.2			57.2	24.2	
Yellow Time (s)	4.8			4.8	4.8	
All-Red Time (s)	2.0			2.0	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.8			6.8	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	Max	
Walk Time (s)	7.0			7.0	0.0	
Flash Dont Walk (s)	11.0			11.0	0.0	
Pedestrian Calls (#/hr)	1			1	0	
Act Effct Green (s)	57.2			57.2	24.2	
Actuated g/C Ratio	0.60			0.60	0.25	
v/c Ratio	0.89			1.31	1.20	
Control Delay	3.7			173.8	132.4	
Queue Delay	1.9			0.0	0.0	
Total Delay	5.7			173.8	132.4	
LOS	A			F	F	
Approach Delay	5.7			173.8	132.4	
Approach LOS	A			F	F	
Queue Length 50th (ft)	30			~2341	~396	
Queue Length 95th (ft)	m30			m#1627	#520	
Internal Link Dist (ft)	236			153	291	
Turn Bay Length (ft)						
Base Capacity (vph)	3005			2130	874	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	197			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.95			1.31	1.20	

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 95
Offset: 37 (39%), Referenced to phase 6:EBWB, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 98.1 — Intersection LOS: F
Intersection Capacity Utilization 112.9% — ICU Level of Service H
Analysis Period (min) 15
~ 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.

Splits and Phases: 11: SR 826 NB off-ramp & SW 8th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1722	819	0	2651	993	0
Future Volume (vph)	1722	819	0	2651	993	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8			6.8	6.8	
Lane Util. Factor	0.91			0.95	0.97	
Frt	0.95			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4839			3539	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4839			3539	3433	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1813	862	0	2791	1045	0
RTOR Reduction (vph)	90	0	0	0	0	0
Lane Group Flow (vph)	2585	0	0	2791	1045	0
Turn Type	NA			NA	Prot	
Protected Phases	6			6	7	
Permitted Phases						
Actuated Green, G (s)	57.2			57.2	24.2	
Effective Green, g (s)	57.2			57.2	24.2	
Actuated g/C Ratio	0.60			0.60	0.25	
Clearance Time (s)	6.8			6.8	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	2913			2130	874	
v/s Ratio Prot	0.53			c0.79	c0.30	
v/s Ratio Perm						
v/c Ratio	0.89			1.31	1.20	
Uniform Delay, d1	16.1			18.9	35.4	
Progression Factor	0.07			2.09	1.00	
Incremental Delay, d2	2.7			140.0	99.2	
Delay (s)	3.8			179.6	134.6	
Level of Service	A			F	F	
Approach Delay (s)	3.8			179.6	134.6	
Approach LOS	A			F	F	

Intersection Summary			
HCM 2000 Control Delay	100.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	112.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	2675	2791	1045
v/c Ratio	0.89	1.31	1.20
Control Delay	3.7	173.8	132.4
Queue Delay	1.9	0.0	0.0
Total Delay	5.7	173.8	132.4
Queue Length 50th (ft)	30	~2341	~396
Queue Length 95th (ft)	m30	m#1627	#520
Internal Link Dist (ft)	236	153	291
Turn Bay Length (ft)			
Base Capacity (vph)	3005	2130	874
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	197	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.95	1.31	1.20

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	2389	69	21	2847	10	113	96	15	67	92	17
Future Volume (vph)	140	2389	69	21	2847	10	113	96	15	67	92	17
Satd. Flow (prot)	1770	3525	0	1770	3539	1583	1770	1824	0	1770	1863	1583
Flt Permitted	0.030			0.031			0.638			0.405		
Satd. Flow (perm)	56	3525	0	58	3539	1583	1188	1824	0	754	1863	1583
Satd. Flow (RTOR)		4				123		3				52
Lane Group Flow (vph)	147	2588	0	22	2997	11	119	117	0	71	97	18
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6			2		Free	4			8		8
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.4	30.0		11.0	27.0		11.1	20.0		11.1	29.4	11.4
Total Split (s)	14.0	138.0		11.0	135.0		11.0	28.0		13.0	30.0	14.0
Total Split (%)	7.4%	72.6%		5.8%	71.1%		5.8%	14.7%		6.8%	15.8%	7.4%
Maximum Green (s)	8.0	132.0		5.0	129.0		4.9	21.6		6.9	23.6	8.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.7	4.0		3.7	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.4	2.4		2.4	2.4	2.0
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)	6.0	6.0		6.0	6.0		6.1	6.4		6.1	6.4	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		6.0			6.0			5.0			5.0	
Flash Dont Walk (s)		14.0			14.0			18.0			18.0	
Pedestrian Calls (#/hr)		1			4			0			0	
Act Effct Green (s)	146.7	140.7		134.7	129.0	190.0	22.0	16.8		26.0	18.8	38.0
Actuated g/C Ratio	0.77	0.74		0.71	0.68	1.00	0.12	0.09		0.14	0.10	0.20
v/c Ratio	0.93	0.99		0.24	1.25	0.01	0.78	0.71		0.51	0.53	0.05
Control Delay	104.3	29.8		12.4	144.2	0.0	109.4	104.8		82.9	91.0	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	104.3	29.8		12.4	144.2	0.0	109.4	104.8		82.9	91.0	0.3
LOS	F	C		B	F	A	F	F		F	F	A
Approach Delay		33.8			142.8			107.1			79.1	
Approach LOS		C			F			F			E	
Queue Length 50th (ft)	130	~1797		6	~2442	0	136	141		79	117	0
Queue Length 95th (ft)	m#269	#1933		15	#2514	0	204	214		131	183	0
Internal Link Dist (ft)		758			272			921			945	
Turn Bay Length (ft)	225			150			80			100		225
Base Capacity (vph)	158	2611		92	2402	1583	152	210		140	231	358
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	0.93	0.99		0.24	1.25	0.01	0.78	0.56		0.51	0.42	0.05

Intersection Summary

Cycle Length: 190
Actuated Cycle Length: 190
Offset: 80 (42%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 91.3 — Intersection LOS: F
Intersection Capacity Utilization 114.7% — ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 6: SW 74th Ave & SW 8th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	2389	69	21	2847	10	113	96	15	67	92	17
Future Volume (vph)	140	2389	69	21	2847	10	113	96	15	67	92	17
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	4.0	6.1	6.4		6.1	6.4	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3524		1770	3539	1583	1770	1825		1770	1863	1583
Flt Permitted	0.03	1.00		0.03	1.00	1.00	0.64	1.00		0.40	1.00	1.00
Satd. Flow (perm)	55	3524		58	3539	1583	1189	1825		754	1863	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)	147	2515	73	22	2997	11	119	101	16	71	97	18
RTOR Reduction (vph)	0	1	0	0	0	0	0	3	0	0	0	15
Lane Group Flow (vph)	147	2587	0	22	2997	11	119	114	0	71	97	3
Turn Type	pm+pt	NA		pm+pt	NA	Free	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6			2		Free	4			8		8
Actuated Green, G (s)	147.8	138.3		132.5	129.0	190.0	21.7	16.8		25.7	18.8	31.6
Effective Green, g (s)	147.8	138.3		132.5	129.0	190.0	21.7	16.8		25.7	18.8	31.6
Actuated g/C Ratio	0.78	0.73		0.70	0.68	1.00	0.11	0.09		0.14	0.10	0.17
Clearance Time (s)	6.0	6.0		6.0	6.0		6.1	6.4		6.1	6.4	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	158	2565		71	2402	1583	150	161		138	184	263
v/s Ratio Prot	c0.06	c0.73		0.01	c0.85		c0.02	0.06		0.02	0.05	0.00
v/s Ratio Perm	0.66			0.21		c0.01	c0.07			0.05		0.00
v/c Ratio	0.93	1.01		0.31	1.25	0.01	0.79	0.71		0.51	0.53	0.01
Uniform Delay, d1	74.7	25.8		50.4	30.5	0.0	81.5	84.2		74.2	81.4	66.2
Progression Factor	1.12	0.60		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	45.2	18.2		2.5	115.1	0.0	24.3	13.4		3.2	2.7	0.0
Delay (s)	128.5	33.7		52.9	145.6	0.0	105.8	97.6		77.4	84.1	66.2
Level of Service	F	C		D	F	A	F	F		E	F	E
Approach Delay (s)		38.8			144.4			101.7			79.8	
Approach LOS		D			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)	190.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	114.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	147	2588	22	2997	11	119	117	71	97	18
v/c Ratio	0.93	0.99	0.24	1.25	0.01	0.78	0.71	0.51	0.53	0.05
Control Delay	104.3	29.8	12.4	144.2	0.0	109.4	104.8	82.9	91.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.3	29.8	12.4	144.2	0.0	109.4	104.8	82.9	91.0	0.3
Queue Length 50th (ft)	130	~1797	6	~2442	0	136	141	79	117	0
Queue Length 95th (ft)	m#269	#1933	15	#2514	0	204	214	131	183	0
Internal Link Dist (ft)		758		272			921		945	
Turn Bay Length (ft)	225		150			80		100		225
Base Capacity (vph)	158	2611	92	2402	1583	152	210	140	231	358
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	0.93	0.99	0.24	1.25	0.01	0.78	0.56	0.51	0.42	0.05

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.
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)	141	166	149	78	195	100	148	2843	229	134	2550	287
Future Volume (vph)	141	166	149	78	195	100	148	2843	229	134	2550	287
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.7
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1763	1583	1770	1863	1583	1770	5028		1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.04	1.00	1.00
Satd. Flow (perm)	1681	1763	1583	1770	1863	1583	1770	5028		70	5085	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)	148	175	157	82	205	105	156	2993	241	141	2684	302
RTOR Reduction (vph)	0	0	80	0	0	94	0	4	0	0	0	85
Lane Group Flow (vph)	133	190	77	82	205	11	156	3230	0	141	2684	217
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		pm+pt	NA	Over
Protected Phases	3	3		4	4		1	6		5	2	3
Permitted Phases			3			4				2		
Actuated Green, G (s)	29.1	29.1	29.1	20.2	20.2	20.2	17.6	110.1		119.7	106.1	29.1
Effective Green, g (s)	29.1	29.1	29.1	20.2	20.2	20.2	17.6	110.1		119.7	106.1	29.1
Actuated g/C Ratio	0.15	0.15	0.15	0.10	0.10	0.10	0.09	0.55		0.60	0.53	0.15
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.5	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	244	256	230	178	188	159	155	2767		157	2697	230
v/s Ratio Prot	0.08	0.11		0.05	c0.11		c0.09	c0.64		0.06	0.53	c0.14
v/s Ratio Perm			0.05			0.01				0.47		
v/c Ratio	0.55	0.74	0.33	0.46	1.09	0.07	1.01	1.17		0.90	1.00	0.94
Uniform Delay, d1	79.3	81.9	76.7	84.8	89.9	81.4	91.2	45.0		69.0	46.7	84.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.65	1.79	1.46
Incremental Delay, d2	2.5	11.0	0.9	1.9	91.8	0.2	74.0	79.5		27.4	11.5	28.7
Delay (s)	81.8	92.9	77.6	86.6	181.7	81.5	165.2	124.5		72.1	94.9	152.3
Level of Service	F	F	E	F	F	F	F	F		E	F	F
Approach Delay (s)		84.8			135.0			126.3			99.4	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	112.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	109.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	133	190	157	82	205	105	156	3234	141	2684	302
v/c Ratio	0.54	0.74	0.51	0.46	1.10	0.41	1.01	1.17	0.89	1.00	0.96
Control Delay	88.0	99.7	37.3	94.3	170.0	17.6	160.0	119.7	67.9	92.1	105.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	99.7	37.3	94.3	170.0	17.6	160.0	119.7	67.9	92.1	105.5
Queue Length 50th (ft)	173	255	75	104	~313	0	~210	~1852	123	1364	250
Queue Length 95th (ft)	260	361	162	172	#504	68	#384	#1886	m#164	#1418	m#352
Internal Link Dist (ft)		935			1608			1322		2289	
Turn Bay Length (ft)	60		25	320		320	460		250		360
Base Capacity (vph)	252	264	317	178	187	254	155	2771	163	2697	322
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.72	0.50	0.46	1.10	0.41	1.01	1.17	0.87	1.00	0.94

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	141	166	149	78	195	100	148	2843	134	2550	287
Future Volume (vph)	141	166	149	78	195	100	148	2843	134	2550	287
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+pt	NA	Over
Protected Phases	3	3		4	4		1	6	5	2	3
Permitted Phases			3			4			2		
Detector Phase	3	3	3	4	4	4	1	6	5	2	3
Switch Phase											
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	5.0	9.0	7.0
Minimum Split (s)	36.7	36.7	36.7	24.7	24.7	24.7	11.8	44.8	11.8	44.8	36.7
Total Split (s)	36.7	36.7	36.7	26.0	26.0	26.0	24.4	116.3	21.0	112.9	36.7
Total Split (%)	18.4%	18.4%	18.4%	13.0%	13.0%	13.0%	12.2%	58.2%	10.5%	56.5%	18.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.0
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8	6.8	6.8	6.7
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	29.1	29.1	29.1	20.2	20.2	20.2	17.6	110.1	119.7	106.1	29.1
Actuated g/C Ratio	0.15	0.15	0.15	0.10	0.10	0.10	0.09	0.55	0.60	0.53	0.15
v/c Ratio	0.54	0.74	0.51	0.46	1.10	0.41	1.01	1.17	0.89	1.00	0.96
Control Delay	88.0	99.7	37.3	94.3	170.0	17.6	160.0	119.7	67.9	92.1	105.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	99.7	37.3	94.3	170.0	17.6	160.0	119.7	67.9	92.1	105.5
LOS	F	F	D	F	F	B	F	F	E	F	F
Approach Delay		76.1			113.4			121.5		92.3	
Approach LOS		E			F			F		F	

Intersection Summary			
Cycle Length: 200			
Actuated Cycle Length: 200			
Offset: 83 (42%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 105.8		Intersection LOS: F	
Intersection Capacity Utilization 109.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 51: US 1 & Killian Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	647	199	63	41	157	682	89	3016	10	473	2849	323
Future Volume (vph)	647	199	63	41	157	682	89	3016	10	473	2849	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Lane Util. Factor	0.91	0.91	1.00	1.00	0.91	0.91	0.97	0.91	1.00	0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	0.90	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3288	1583	1770	3042	1441	3433	5085	1583	3433	6408	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3288	1583	1770	3042	1441	3433	5085	1583	3433	6408	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)	681	209	66	43	165	718	94	3175	11	498	2999	340
RTOR Reduction (vph)	0	0	54	0	98	118	0	0	5	0	0	25
Lane Group Flow (vph)	340	550	12	43	426	241	94	3175	6	498	2999	315
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3			4			6			2
Actuated Green, G (s)	36.5	36.5	36.5	18.0	18.0	18.0	9.5	97.2	115.2	21.2	108.9	145.4
Effective Green, g (s)	36.5	36.5	36.5	18.0	18.0	18.0	9.5	97.2	115.2	21.2	108.9	145.4
Actuated g/C Ratio	0.18	0.18	0.18	0.09	0.09	0.09	0.05	0.49	0.58	0.11	0.54	0.73
Clearance Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	293	600	288	159	273	129	163	2471	911	363	3489	1150
v/s Ratio Prot	c0.21	0.17		0.02	0.14		0.03	c0.62	0.00	c0.15	0.47	0.05
v/s Ratio Perm			0.01			c0.17			0.00			0.15
v/c Ratio	1.16	1.11dl	0.04	0.27	1.54dr	1.87	0.58	1.28	0.01	1.37	0.86	0.27
Uniform Delay, d1	81.8	80.3	67.3	84.9	91.0	91.0	93.3	51.4	18.0	89.4	39.0	9.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.27	0.42	1.00	1.00	1.00	1.00
Incremental Delay, d2	103.3	18.8	0.1	0.9	268.9	417.7	0.4	128.5	0.0	184.0	3.0	0.1
Delay (s)	185.0	99.1	67.4	85.8	359.9	508.7	118.7	149.9	18.1	273.4	42.0	9.4
Level of Service	F	F	E	F	F	F	F	F	B	F	D	A
Approach Delay (s)		127.4			404.9			148.5			69.2	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	138.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	123.9%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	340	550	66	43	524	359	94	3175	11	498	2999	340
v/c Ratio	1.16	1.11dl	0.17	0.27	1.54dr	1.45	0.58	1.28	0.01	1.37	0.86	0.28
Control Delay	170.1	100.6	0.9	89.7	245.7	258.5	119.8	151.8	0.0	243.3	42.4	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	170.1	100.6	0.9	89.7	245.7	258.5	119.8	151.8	0.0	243.3	42.4	5.7
Queue Length 50th (ft)	~578	396	0	54	~432	~526	66	~1921	0	~443	974	88
Queue Length 95th (ft)	#823	#513	0	102	#571	#776	m61	m#1509	m0	#571	1001	127
Internal Link Dist (ft)		943			618			468			720	
Turn Bay Length (ft)	195		25	95		300	150		550	265		320
Base Capacity (vph)	293	600	397	159	371	247	171	2471	949	363	3489	1227
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.92	0.17	0.27	1.41	1.45	0.55	1.28	0.01	1.37	0.86	0.28

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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	647	199	63	41	157	682	89	3016	10	473	2849	323
Future Volume (vph)	647	199	63	41	157	682	89	3016	10	473	2849	323
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3			4			6			2
Detector Phase	3	3	3	4	4	4	1	6	4	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	7.0	5.0	9.0	7.0
Minimum Split (s)	41.5	41.5	41.5	14.0	14.0	14.0	11.8	44.8	14.0	11.8	44.8	41.5
Total Split (s)	43.0	43.0	43.0	25.0	25.0	25.0	16.8	104.0	25.0	28.0	115.2	43.0
Total Split (%)	21.5%	21.5%	21.5%	12.5%	12.5%	12.5%	8.4%	52.0%	12.5%	14.0%	57.6%	21.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.0	4.8	4.8	4.0
All-Red Time (s)	2.5	2.5	2.5	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	36.5	36.5	36.5	18.0	18.0	18.0	9.5	97.2	115.0	21.2	108.9	152.2
Actuated g/C Ratio	0.18	0.18	0.18	0.09	0.09	0.09	0.05	0.49	0.58	0.11	0.54	0.76
v/c Ratio	1.16	1.11dl	0.17	0.27	1.54dr	1.45	0.58	1.28	0.01	1.37	0.86	0.28
Control Delay	170.1	100.6	0.9	89.7	245.7	258.5	119.8	151.8	0.0	243.3	42.4	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	170.1	100.6	0.9	89.7	245.7	258.5	119.8	151.8	0.0	243.3	42.4	5.7
LOS	F	F	A	F	F	F	F	F	A	F	D	A
Approach Delay		118.4			243.4			150.4			65.2	
Approach LOS		F			F			F			E	

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 139 (70%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.45
Intersection Signal Delay: 120.2 Intersection LOS: F
Intersection Capacity Utilization 123.9% ICU Level of Service H
Analysis Period (min) 15

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 11: US 1 & SW 104 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	2290	55	31	2112	176	31	30	18	453	32	64
Future Volume (vph)	114	2290	55	31	2112	176	31	30	18	453	32	64
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			6.7	6.7	6.8	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.99			1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	0.97	
Satd. Flow (prot)	1770	5067		1770	5027			1817	1583	1681	1654	
Flt Permitted	0.05	1.00		0.06	1.00			0.98	1.00	0.95	0.97	
Satd. Flow (perm)	101	5067		107	5027			1817	1583	1681	1654	
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)	120	2411	58	33	2223	185	33	32	19	477	34	67
RTOR Reduction (vph)	0	2	0	0	7	0	0	0	18	0	8	0
Lane Group Flow (vph)	120	2467	0	33	2401	0	0	65	1	291	279	0
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2					4			
Actuated Green, G (s)	80.8	73.8		73.0	69.9			5.8	5.8	20.2	20.2	
Effective Green, g (s)	80.8	73.8		73.0	69.9			5.8	5.8	20.2	20.2	
Actuated g/C Ratio	0.62	0.57		0.56	0.54			0.04	0.04	0.16	0.16	
Clearance Time (s)	6.8	6.8		6.8	6.8			6.7	6.7	6.8	6.8	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	152	2876		99	2702			81	70	261	257	
v/s Ratio Prot	c0.04	c0.49		0.01	0.48			c0.04		c0.17	0.17	
v/s Ratio Perm	0.45			0.18					0.00			
v/c Ratio	0.79	0.86		0.33	0.89			0.80	0.01	1.11	1.08	
Uniform Delay, d1	31.2	23.7		21.9	26.6			61.5	59.4	54.9	54.9	
Progression Factor	1.00	1.00		0.92	0.48			1.00	1.00	1.00	1.00	
Incremental Delay, d2	21.7	3.6		0.6	3.8			40.8	0.1	90.1	80.3	
Delay (s)	52.9	27.3		20.6	16.5			102.4	59.4	145.0	135.2	
Level of Service	D	C		C	B			F	E	F	F	
Approach Delay (s)		28.4			16.6			92.6			140.1	
Approach LOS		C			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	120	2469	33	2408	65	19	291	287
v/c Ratio	0.78	0.81	0.26	0.87	0.65	0.08	1.11	1.08
Control Delay	57.4	25.2	12.7	16.2	88.6	0.7	139.7	128.3
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	25.3	12.7	16.2	88.6	0.7	139.7	128.3
Queue Length 50th (ft)	52	658	4	106	55	0	~295	~276
Queue Length 95th (ft)	#158	735	m6	748	#124	0	#487	#471
Internal Link Dist (ft)		622		570	551			449
Turn Bay Length (ft)	170		150				210	
Base Capacity (vph)	156	3032	128	2758	101	226	261	265
Starvation Cap Reductn	0	0	0	8	0	0	0	0
Spillback Cap Reductn	0	94	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.84	0.26	0.88	0.64	0.08	1.11	1.08

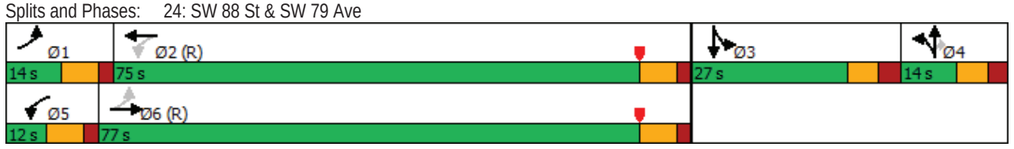
Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	114	2290	31	2112	30	18	453	32
Future Volume (vph)	114	2290	31	2112	30	18	453	32
Turn Type	pm+pt	NA	pm+pt	NA	NA	Perm	Split	NA
Protected Phases	1	6	5	2	4		3	3
Permitted Phases	6		2			4		
Detector Phase	1	6	5	2	4	4	3	3
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	23.8	11.8	23.8	13.7	13.7	26.8	26.8
Total Split (s)	14.0	77.0	12.0	75.0	14.0	14.0	27.0	27.0
Total Split (%)	10.8%	59.2%	9.2%	57.7%	10.8%	10.8%	20.8%	20.8%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.7	2.7	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.8	6.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 82 (63%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 24: SW 88 St & SW 79 Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2656	111	199	2229	3	100	1	498	36	9	13
Future Volume (veh/h)	0	2656	111	199	2229	3	100	1	498	36	9	13
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2796	117	209	2346	3	105	1	524	38	9	14
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	55	3025	125	220	3776	5	265	1	284	45	13	4
Arrive On Green	0.00	1.00	1.00	0.06	0.72	0.72	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	153	5029	208	1781	5266	7	1388	3	1582	0	72	21
Grp Volume(v), veh/h	0	1880	1033	209	1516	833	105	0	525	61	0	0
Grp Sat Flow(s),veh/h/ln	153	1702	1833	1781	1702	1869	1388	0	1586	93	0	0
Q Serve(g_s), s	0.0	0.0	0.0	7.3	29.6	29.6	0.0	0.0	23.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.3	29.6	29.6	10.5	0.0	23.3	23.3	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.00	1.00		1.00	0.62		0.23
Lane Grp Cap(c), veh/h	55	2048	1103	220	2440	1340	265	0	284	62	0	0
V/C Ratio(X)	0.00	0.92	0.94	0.95	0.62	0.62	0.40	0.00	1.85	0.99	0.00	0.00
Avail Cap(c_a), veh/h	55	2048	1103	220	2440	1340	265	0	284	62	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.43	0.43	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	27.5	9.4	9.4	48.1	0.0	53.4	58.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.8	8.1	46.6	1.2	2.2	0.7	0.0	394.7	110.5	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(50%),veh/ln	0.0	1.1	2.5	9.3	10.5	11.8	3.1	0.0	40.4	3.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.8	8.1	74.1	10.6	11.6	48.8	0.0	448.1	169.3	0.0	0.0
LnGrp LOS	A	A	A	E	B	B	D	A	F	F	A	A
Approach Vol, veh/h		2913			2558			630			61	
Approach Delay, s/veh		5.3			16.1			381.5			169.3	
Approach LOS		A			B			F			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		100.0		30.0	15.0	85.0		30.0				
Change Period (Y+Rc), s		6.8		* 6.7	6.8	6.8		* 6.7				
Max Green Setting (Gmax), s		93.2		* 23	8.2	78.2		* 23				
Max Q Clear Time (g_c+I1), s		31.6		25.3	9.3	2.0		25.3				
Green Ext Time (p_c), s		10.0		0.0	0.0	17.2		0.0				

Intersection Summary

HCM 6th Ctrl Delay 49.9
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2913	209	2349	105	525	61
v/c Ratio	0.96	1.24	0.64	0.41	1.42	1.15
Control Delay	19.4	175.1	14.8	53.0	236.8	211.5
Queue Delay	0.5	0.0	0.1	0.0	0.0	0.0
Total Delay	19.9	175.1	14.9	53.0	236.8	211.5
Queue Length 50th (ft)	202	~164	532	79	~522	~53
Queue Length 95th (ft)	m243	#327	575	140	#746	#151
Internal Link Dist (ft)	570		101		608	199
Turn Bay Length (ft)				120		
Base Capacity (vph)	3040	169	3645	254	369	53
Starvation Cap Reductn	22	0	0	0	0	0
Spillback Cap Reductn	5	0	183	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	1.24	0.68	0.41	1.42	1.15

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.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	2656	199	2229	100	1	36	9
Future Volume (vph)	2656	199	2229	100	1	36	9
Turn Type	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	6	5	2		4		8
Permitted Phases		2		4		8	
Detector Phase	6	5	2	4	4	8	8
Switch Phase							
Minimum Initial (s)	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	23.8	11.8	23.8	29.7	29.7	29.7	29.7
Total Split (s)	85.0	15.0	100.0	30.0	30.0	30.0	30.0
Total Split (%)	65.4%	11.5%	76.9%	23.1%	23.1%	23.1%	23.1%
Yellow Time (s)	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.8	6.8	6.8	6.7	6.7		6.7
Lead/Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes					
Recall Mode	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 90 (69%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 35: SW 77 Ave & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	3164	0	0	1380	1219	76	0	86	0	0	0
Future Volume (veh/h)	0	3164	0	0	1380	1219	76	0	86	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	3331	0	0	1453	0	80	0	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	0	2			
Cap, veh/h	0	4324	0	0	4324		176	0				
Arrive On Green	0.00	0.85	0.00	0.00	1.00	0.00	0.05	0.00	0.00			
Sat Flow, veh/h	0	5443	0	0	5274	1585	3456	0	1585			
Grp Volume(v), veh/h	0	3331	0	0	1453	0	80	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	0	0	1702	1585	1728	0	1585			
Q Serve(g_s), s	0.0	37.4	0.0	0.0	0.0	0.0	2.9	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	37.4	0.0	0.0	0.0	0.0	2.9	0.0	0.0			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	4324	0	0	4324		176	0				
V/C Ratio(X)	0.00	0.77	0.00	0.00	0.34		0.46	0.00				
Avail Cap(c_a), veh/h	0	4324	0	0	4324		465	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.41	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	4.4	0.0	0.0	0.0	0.0	59.9	0.0	0.0			
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.0	0.1	0.0	1.4	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(50%),veh/ln	0.0	9.1	0.0	0.0	0.0	0.0	1.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	5.8	0.0	0.0	0.1	0.0	61.3	0.0	0.0			
LnGrp LOS	A	A	A	A	A		E	A				
Approach Vol, veh/h		3331			1453	A		80	A			
Approach Delay, s/veh		5.8			0.1			61.3				
Approach LOS		A			A			E				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	116.9	13.1	116.9
Change Period (Y+Rc), s	6.8	6.5	6.8
Max Green Setting (Gmax), s	99.2	17.5	99.2
Max Q Clear Time (g_c+I1), s	2.0	4.9	39.4
Green Ext Time (p_c), s	5.2	0.1	29.9

Intersection Summary	
HCM 6th Ctrl Delay	5.0
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	3331	1453	1283	80	91
v/c Ratio	0.76	0.33	0.81	0.37	0.07
Control Delay	3.5	0.6	24.1	63.0	0.5
Queue Delay	2.2	0.1	0.0	0.0	0.0
Total Delay	5.7	0.8	24.1	63.0	0.5
Queue Length 50th (ft)	121	22	676	34	0
Queue Length 95th (ft)	m158	m26	m772	59	8
Internal Link Dist (ft)	324	370			
Turn Bay Length (ft)				750	490
Base Capacity (vph)	4402	4402	1583	462	1383
Starvation Cap Reductn	578	1573	0	0	0
Spillback Cap Reductn	892	0	0	0	277
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.95	0.51	0.81	0.17	0.08

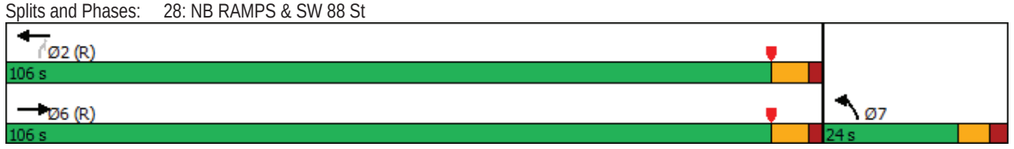
Intersection Summary

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

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	3164	1380	1219	76	86
Future Volume (vph)	3164	1380	1219	76	86
Turn Type	NA	NA	Free	Prot	Perm
Protected Phases	6	2		7	
Permitted Phases			Free		2
Detector Phase	6	2		7	2
Switch Phase					
Minimum Initial (s)	16.0	16.0		7.0	16.0
Minimum Split (s)	22.8	22.8		24.0	22.8
Total Split (s)	106.0	106.0		24.0	106.0
Total Split (%)	81.5%	81.5%		18.5%	81.5%
Yellow Time (s)	4.8	4.8		4.0	4.8
All-Red Time (s)	2.0	2.0		2.5	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.8	6.8		6.5	6.8
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max		None	C-Max

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 7 (5%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 28: NB RAMPS & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	484	2116	650	55	2138	12	159	17	30	60	47	302
Future Volume (vph)	484	2116	650	55	2138	12	159	17	30	60	47	302
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		7.1	7.1		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (prot)	1770	4906		1770	6402		1770	1684		1681	1757	1583
Flt Permitted	0.06	1.00		0.07	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (perm)	120	4906		135	6402		1770	1684		1681	1757	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)	509	2227	684	58	2251	13	167	18	32	63	49	318
RTOR Reduction (vph)	0	41	0	0	1	0	0	28	0	0	0	164
Lane Group Flow (vph)	509	2870	0	58	2263	0	167	22	0	55	57	154
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	86.1	74.5		60.0	55.2		15.2	15.2		7.7	7.7	62.9
Effective Green, g (s)	86.1	74.5		60.0	55.2		15.2	15.2		7.7	7.7	62.9
Actuated g/C Ratio	0.66	0.57		0.46	0.42		0.12	0.12		0.06	0.06	0.48
Clearance Time (s)	6.8	6.8		6.8	6.8		7.1	7.1		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		2.5	2.5	2.5
Lane Grp Cap (vph)	385	2811		122	2718		206	196		99	104	765
v/s Ratio Prot	c0.24	0.58		0.02	0.35		c0.09	0.01		c0.03	0.03	0.01
v/s Ratio Perm	c0.63			0.20								0.09
v/c Ratio	1.32	1.02		0.48	0.83		0.81	0.11		0.56	0.55	0.20
Uniform Delay, d1	43.2	27.8		29.9	33.3		56.0	51.4		59.5	59.5	19.2
Progression Factor	1.11	0.70		1.28	0.54		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	156.6	19.4		0.9	2.6		21.4	0.3		5.3	4.6	0.1
Delay (s)	204.6	38.7		39.0	20.5		77.4	51.7		64.8	64.1	19.3
Level of Service	F	D		D	C		E	D		E	E	B
Approach Delay (s)		63.4			21.0			71.5			31.0	
Approach LOS		E			C			E			C	

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	509	2911	58	2264	167	50	55	57	318
v/c Ratio	1.32	1.00	0.43	0.83	0.81	0.22	0.56	0.55	0.32
Control Delay	192.5	34.0	28.3	20.7	83.9	27.5	80.7	79.6	2.4
Queue Delay	0.0	18.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	192.5	52.3	28.3	20.7	83.9	27.5	80.7	79.6	2.4
Queue Length 50th (ft)	~509	~978	10	118	138	14	48	49	0
Queue Length 95th (ft)	#731	#1065	m45	127	#250	53	#103	#104	43
Internal Link Dist (ft)		370		405		253		159	
Turn Bay Length (ft)	240		120						
Base Capacity (vph)	385	2904	141	2718	216	234	102	106	998
Starvation Cap Reductn	0	144	0	21	0	0	0	0	0
Spillback Cap Reductn	0	125	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	1.05	0.41	0.84	0.77	0.21	0.54	0.54	0.32

Intersection Summary

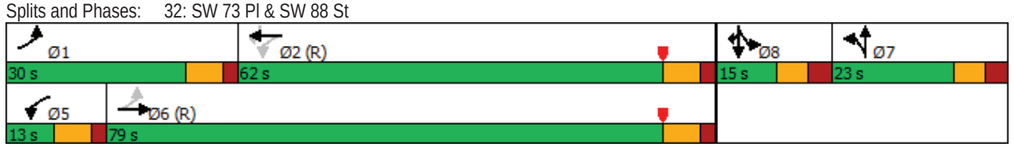
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	484	2116	55	2138	159	17	60	47	302
Future Volume (vph)	484	2116	55	2138	159	17	60	47	302
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	16.0	5.0	16.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	22.8	11.8	22.8	23.0	23.0	14.1	14.1	14.1
Total Split (s)	30.0	79.0	13.0	62.0	23.0	23.0	15.0	15.0	15.0
Total Split (%)	23.1%	60.8%	10.0%	47.7%	17.7%	17.7%	11.5%	11.5%	11.5%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.1	7.1	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 128 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 32: SW 73 Pl & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	1393	696	203	1964	6	228	137	139	10	44	13
Future Volume (vph)	37	1393	696	203	1964	6	228	137	139	10	44	13
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		7.2	7.2		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		0.91	0.91		0.95	0.95	1.00
Frt	1.00	0.95		1.00	1.00		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99		0.95	1.00	1.00
Satd. Flow (prot)	1770	4831		1770	6405		1610	3151		1681	1768	1583
Flt Permitted	0.07	1.00		0.06	1.00		0.95	0.99		0.95	1.00	1.00
Satd. Flow (perm)	122	4831		110	6405		1610	3151		1681	1768	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)	39	1466	733	214	2067	6	240	144	146	11	46	14
RTOR Reduction (vph)	0	71	0	0	0	0	0	91	0	0	0	6
Lane Group Flow (vph)	39	2128	0	214	2073	0	180	259	0	10	47	8
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	66.4	61.0		81.9	69.7		20.0	20.0		7.0	7.0	76.7
Effective Green, g (s)	66.4	61.0		81.9	69.7		20.0	20.0		7.0	7.0	76.7
Actuated g/C Ratio	0.51	0.47		0.63	0.54		0.15	0.15		0.05	0.05	0.59
Clearance Time (s)	6.8	6.8		6.8	6.8		7.2	7.2		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		3.5	3.5	3.5
Lane Grp Cap (vph)	130	2266		249	3434		247	484		90	95	933
v/s Ratio Prot	0.01	c0.44		c0.09	0.32		c0.11	0.08		0.01	c0.03	0.00
v/s Ratio Perm	0.14			0.45								0.00
v/c Ratio	0.30	0.94		0.86	0.60		0.73	0.53		0.11	0.49	0.01
Uniform Delay, d1	17.0	32.7		40.7	20.7		52.4	50.7		58.5	59.8	11.0
Progression Factor	0.95	0.39		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	3.0		23.5	0.8		10.6	1.3		0.6	4.7	0.0
Delay (s)	16.6	15.6		64.2	21.5		63.0	52.0		59.2	64.5	11.0
Level of Service	B	B		E	C		E	D		E	E	B
Approach Delay (s)		15.7			25.5			55.7			53.2	
Approach LOS		B			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.9
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

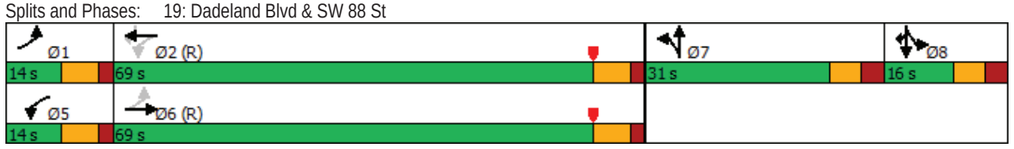
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	39	2199	214	2073	180	350	10	47	14
v/c Ratio	0.27	0.92	0.87	0.58	0.73	0.61	0.09	0.41	0.01
Control Delay	12.2	14.2	66.7	22.0	69.2	39.2	58.8	69.3	0.0
Queue Delay	0.0	19.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	33.5	66.7	22.1	69.2	39.2	58.8	69.3	0.0
Queue Length 50th (ft)	5	238	~163	363	159	104	8	40	0
Queue Length 95th (ft)	m5	m239	#362	423	243	155	28	84	0
Internal Link Dist (ft)		405		721		1079		178	
Turn Bay Length (ft)	120		130		420				
Base Capacity (vph)	156	2387	247	3574	294	665	116	122	1002
Starvation Cap Reductn	0	265	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	201	0	1	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	1.04	0.87	0.61	0.61	0.53	0.09	0.39	0.01

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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	37	1393	203	1964	228	137	10	44	13
Future Volume (vph)	37	1393	203	1964	228	137	10	44	13
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	24.8	11.8	24.8	31.0	31.0	14.1	14.1	14.1
Total Split (s)	14.0	69.0	14.0	69.0	31.0	31.0	16.0	16.0	16.0
Total Split (%)	10.8%	53.1%	10.8%	53.1%	23.8%	23.8%	12.3%	12.3%	12.3%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.2	3.2	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.2	7.2	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 1 (1%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 125
Control Type: Actuated-Coordinated

Splits and Phases: 19: Dadeland Blvd & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	1686	44	132	2666	391	78	29	47	258	15	89
Future Volume (vph)	76	1686	44	132	2666	391	78	29	47	258	15	89
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			6.7	6.7	6.8	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	0.98	
Satd. Flow (prot)	1770	5066		1770	4988			1798	1583	1681	1603	
Flt Permitted	0.06	1.00		0.07	1.00			0.96	1.00	0.95	0.98	
Satd. Flow (perm)	105	5066		131	4988			1798	1583	1681	1603	
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)	80	1775	46	139	2806	412	82	31	49	272	16	94
RTOR Reduction (vph)	0	2	0	0	15	0	0	0	46	0	29	0
Lane Group Flow (vph)	80	1819	0	139	3203	0	0	113	3	196	157	0
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	6			2					4			
Actuated Green, G (s)	76.4	71.2		76.4	71.2			9.1	9.1	17.4	17.4	
Effective Green, g (s)	76.4	71.2		76.4	71.2			9.1	9.1	17.4	17.4	
Actuated g/C Ratio	0.59	0.55		0.59	0.55			0.07	0.07	0.13	0.13	
Clearance Time (s)	6.8	6.8		6.8	6.8			6.7	6.7	6.8	6.8	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	128	2774		142	2731			125	110	224	214	
v/s Ratio Prot	0.02	0.36		c0.04	c0.64			c0.06		c0.12	0.10	
v/s Ratio Perm	0.34			0.54					0.00			
v/c Ratio	0.62	0.66		0.98	1.17			0.90	0.03	0.88	0.74	
Uniform Delay, d1	29.7	20.7		22.3	29.4			60.0	56.3	55.2	54.1	
Progression Factor	1.00	1.00		1.64	0.55			1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.7	1.2		44.5	79.8			51.8	0.1	29.1	11.7	
Delay (s)	36.4	22.0		81.0	95.8			111.8	56.4	84.4	65.8	
Level of Service	D	C		F	F			F	E	F	E	
Approach Delay (s)		22.6			95.2			95.1			75.3	
Approach LOS		C			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	70.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	80	1821	139	3218	113	49	196	186
v/c Ratio	0.63	0.66	0.98	1.17	0.90	0.20	0.88	0.77
Control Delay	38.8	22.1	78.2	98.2	117.3	1.8	89.7	65.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	22.2	78.2	98.2	117.3	1.8	89.7	65.3
Queue Length 50th (ft)	24	380	61	~1168	97	0	171	132
Queue Length 95th (ft)	#84	432	m#93	#476	#223	0	#308	#246
Internal Link Dist (ft)		622		570	551			449
Turn Bay Length (ft)	170		150				210	
Base Capacity (vph)	127	2776	142	2747	125	246	235	252
Starvation Cap Reductn	0	0	0	35	0	0	0	0
Spillback Cap Reductn	0	84	0	0	0	2	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.68	0.98	1.19	0.90	0.20	0.83	0.74

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.

Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	76	1686	132	2666	29	47	258	15
Future Volume (vph)	76	1686	132	2666	29	47	258	15
Turn Type	pm+pt	NA	pm+pt	NA	NA	Perm	Split	NA
Protected Phases	1	6	5	2	4		3	3
Permitted Phases	6		2			4		
Detector Phase	1	6	5	2	4	4	3	3
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	23.8	11.8	23.8	13.7	13.7	25.0	25.0
Total Split (s)	12.0	78.0	12.0	78.0	15.0	15.0	25.0	25.0
Total Split (%)	9.2%	60.0%	9.2%	60.0%	11.5%	11.5%	19.2%	19.2%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.7	2.7	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.8	6.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 58 (45%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 24: SW 88 St & SW 79 Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1905	110	339	3081	0	151	2	530	18	7	6
Future Volume (veh/h)	15	1905	110	339	3081	0	151	2	530	18	7	6
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	2005	116	357	3243	0	159	2	558	19	7	6
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	69	2665	154	381	3661	0	255	1	283	44	15	4
Arrive On Green	1.00	1.00	1.00	0.13	0.72	0.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	62	4939	285	1781	5274	0	1401	6	1580	0	86	20
Grp Volume(v), veh/h	16	1380	741	357	3243	0	159	0	560	32	0	0
Grp Sat Flow(s),veh/h/ln	62	1702	1819	1781	1702	0	1401	0	1586	106	0	0
Q Serve(g_s), s	29.1	0.0	0.0	14.0	64.1	0.0	0.0	0.0	23.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	70.1	0.0	0.0	14.0	64.1	0.0	17.8	0.0	23.3	23.3	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.00	1.00		1.00	0.59		0.19
Lane Grp Cap(c), veh/h	69	1837	982	381	3661	0	255	0	284	63	0	0
V/C Ratio(X)	0.23	0.75	0.76	0.94	0.89	0.00	0.62	0.00	1.97	0.51	0.00	0.00
Avail Cap(c_a), veh/h	69	1837	982	408	3661	0	255	0	284	63	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.69	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	0.0	0.0	24.2	14.3	0.0	51.1	0.0	53.4	51.5	0.0	0.0
Incr Delay (d2), s/veh	5.3	2.0	3.8	27.9	3.6	0.0	4.2	0.0	449.1	4.9	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(50%),veh/ln	0.6	0.5	1.0	13.4	23.0	0.0	5.3	0.0	44.7	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7	2.0	3.8	52.0	17.8	0.0	55.3	0.0	502.4	56.4	0.0	0.0
LnGrp LOS	C	A	A	D	B	A	E	A	F	E	A	A
Approach Vol, veh/h		2137			3600			719			32	
Approach Delay, s/veh		2.8			21.2			403.5			56.4	
Approach LOS		A			C			F			E	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		100.0		30.0	23.1	76.9		30.0				
Change Period (Y+Rc), s		6.8		* 6.7	6.8	6.8		* 6.7				
Max Green Setting (Gmax), s		93.2		* 23	18.2	68.2		* 23				
Max Q Clear Time (g_c+I1), s		66.1		25.3	16.0	72.1		25.3				
Green Ext Time (p_c), s		18.2		0.0	0.2	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		57.7
HCM 6th LOS		E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	16	2121	357	3243	159	560	32
v/c Ratio	0.28	0.80	1.17	0.89	0.65	1.18	0.44
Control Delay	18.9	15.2	147.7	18.5	63.1	126.7	65.7
Queue Delay	0.0	0.0	0.0	5.0	0.0	0.0	0.0
Total Delay	18.9	15.2	147.7	23.4	63.1	126.7	65.7
Queue Length 50th (ft)	3	142	~305	931	126	~393	23
Queue Length 95th (ft)	m4	187	#501	998	204	#622	61
Internal Link Dist (ft)		570		101		608	199
Turn Bay Length (ft)	190				120		
Base Capacity (vph)	57	2646	304	3645	245	476	73
Starvation Cap Reductn	0	8	0	352	0	0	0
Spillback Cap Reductn	0	0	0	360	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.80	1.17	0.99	0.65	1.18	0.44

Intersection Summary

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

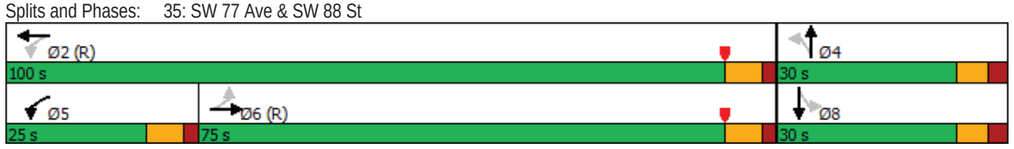
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	1905	339	3081	151	2	18	7
Future Volume (vph)	15	1905	339	3081	151	2	18	7
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		6	5	2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	6	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	7.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	23.8	23.8	11.8	23.8	29.7	29.7	29.7	29.7
Total Split (s)	75.0	75.0	25.0	100.0	30.0	30.0	30.0	30.0
Total Split (%)	57.7%	57.7%	19.2%	76.9%	23.1%	23.1%	23.1%	23.1%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7		6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 64 (49%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 35: SW 77 Ave & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2688	0	0	2334	1241	76	0	74	0	0	0
Future Volume (veh/h)	0	2688	0	0	2334	1241	76	0	74	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	2829	0	0	2457	0	80	0	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	0	2			
Cap, veh/h	0	4324	0	0	4324		176	0				
Arrive On Green	0.00	0.85	0.00	0.00	1.00	0.00	0.05	0.00	0.00			
Sat Flow, veh/h	0	5443	0	0	5274	1585	3456	0	1585			
Grp Volume(v), veh/h	0	2829	0	0	2457	0	80	0	0			
Grp Sat Flow(s),veh/h/ln	0	1702	0	0	1702	1585	1728	0	1585			
Q Serve(g_s), s	0.0	24.7	0.0	0.0	0.0	0.0	2.9	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	24.7	0.0	0.0	0.0	0.0	2.9	0.0	0.0			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	4324	0	0	4324		176	0				
V/C Ratio(X)	0.00	0.65	0.00	0.00	0.57		0.46	0.00				
Avail Cap(c_a), veh/h	0	4324	0	0	4324		253	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.09	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	3.4	0.0	0.0	0.0	0.0	59.9	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.0	0.0	0.0	1.4	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(50%),veh/ln	0.0	5.9	0.0	0.0	0.0	0.0	1.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.2	0.0	0.0	0.0	0.0	61.3	0.0	0.0			
LnGrp LOS	A	A	A	A	A		E	A				
Approach Vol, veh/h		2829			2457	A		80	A			
Approach Delay, s/veh		4.2			0.0			61.3				
Approach LOS		A			A			E				

Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		116.9		13.1		116.9			
Change Period (Y+Rc), s		6.8		6.5		6.8			
Max Green Setting (Gmax), s		107.2		9.5		107.2			
Max Q Clear Time (g_c+I1), s		2.0		4.9		26.7			
Green Ext Time (p_c), s		13.9		0.1		20.2			

Intersection Summary		
HCM 6th Ctrl Delay	3.2	
HCM 6th LOS	A	

Notes
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	2829	2457	1306	80	78
v/c Ratio	0.64	0.56	0.83	0.38	0.06
Control Delay	10.1	1.6	18.1	63.5	0.5
Queue Delay	0.4	0.2	0.0	0.0	0.0
Total Delay	10.5	1.8	18.1	63.5	0.5
Queue Length 50th (ft)	594	81	1145	34	0
Queue Length 95th (ft)	m643	m74	m1048	60	7
Internal Link Dist (ft)	324	370			
Turn Bay Length (ft)				750	490
Base Capacity (vph)	4408	4408	1583	250	1382
Starvation Cap Reductn	828	812	0	0	0
Spillback Cap Reductn	892	128	0	0	277
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	0.68	0.83	0.32	0.07

Intersection Summary

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

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	2688	2334	1241	76	74
Future Volume (vph)	2688	2334	1241	76	74
Turn Type	NA	NA	Free	Prot	Perm
Protected Phases	6	2		7	
Permitted Phases			Free		2
Detector Phase	6	2		7	2
Switch Phase					
Minimum Initial (s)	16.0	16.0		7.0	16.0
Minimum Split (s)	22.8	22.8		16.0	22.8
Total Split (s)	114.0	114.0		16.0	114.0
Total Split (%)	87.7%	87.7%		12.3%	87.7%
Yellow Time (s)	4.8	4.8		4.0	4.8
All-Red Time (s)	2.0	2.0		2.5	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.8	6.8		6.5	6.8
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max		None	C-Max

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 21 (16%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 28: NB RAMPS & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	364	2108	290	57	2808	8	397	22	37	68	51	370
Future Volume (vph)	364	2108	290	57	2808	8	397	22	37	68	51	370
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		7.1	7.1		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	0.91		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (prot)	1770	4993		1770	6405		1770	1687		1681	1756	1583
Flt Permitted	0.06	1.00		0.07	1.00		0.95	1.00		0.95	0.99	1.00
Satd. Flow (perm)	118	4993		130	6405		1770	1687		1681	1756	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)	383	2219	305	60	2956	8	418	23	39	72	54	389
RTOR Reduction (vph)	0	12	0	0	0	0	0	32	0	0	0	176
Lane Group Flow (vph)	383	2512	0	60	2964	0	418	30	0	62	64	213
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	74.1	62.9		62.7	57.2		24.9	24.9		8.9	8.9	66.1
Effective Green, g (s)	74.1	62.9		62.7	57.2		24.9	24.9		8.9	8.9	66.1
Actuated g/C Ratio	0.57	0.48		0.48	0.44		0.19	0.19		0.07	0.07	0.51
Clearance Time (s)	6.8	6.8		6.8	6.8		7.1	7.1		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		2.5	2.5	2.5
Lane Grp Cap (vph)	209	2415		132	2818		339	323		115	120	804
v/s Ratio Prot	c0.16	c0.50		0.02	0.46		c0.24	0.02		c0.04	0.04	0.02
v/s Ratio Perm	c0.88			0.20								0.12
v/c Ratio	1.83	1.04		0.45	1.05		1.23	0.09		0.54	0.53	0.26
Uniform Delay, d1	42.0	33.5		29.3	36.4		52.5	43.3		58.6	58.5	18.1
Progression Factor	1.26	0.69		1.50	0.51		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	388.9	27.9		0.4	28.0		127.9	0.2		3.7	3.5	0.1
Delay (s)	441.8	51.0		44.2	46.7		180.5	43.4		62.3	62.0	18.3
Level of Service	F	D		D	D		F	D		E	E	B
Approach Delay (s)		102.5			46.6			162.8			29.0	
Approach LOS		F			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	76.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.62		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	106.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

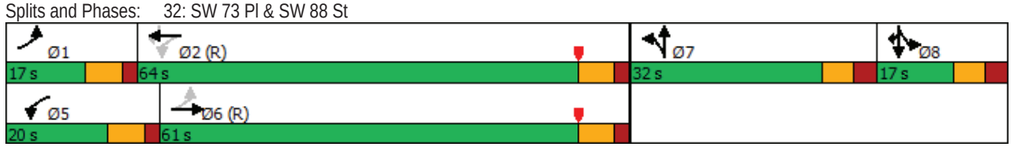
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	383	2524	60	2964	418	62	62	64	389
v/c Ratio	1.84	1.02	0.41	1.05	1.23	0.18	0.54	0.53	0.40
Control Delay	419.8	44.9	24.3	47.9	171.6	21.7	75.7	74.7	2.5
Queue Delay	0.0	16.4	0.0	3.2	0.0	0.0	0.0	0.0	0.0
Total Delay	419.8	61.4	24.3	51.2	171.6	21.7	75.7	74.7	2.5
Queue Length 50th (ft)	~443	~864	13	~799	~435	16	53	55	7
Queue Length 95th (ft)	#652	#983	m18	m#804	#642	56	105	107	37
Internal Link Dist (ft)		370		405		253		159	
Turn Bay Length (ft)	240		120						
Base Capacity (vph)	208	2479	236	2819	339	354	128	133	987
Starvation Cap Reductn	0	102	0	21	0	0	0	0	0
Spillback Cap Reductn	0	0	0	19	0	0	0	0	4
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.84	1.06	0.25	1.06	1.23	0.18	0.48	0.48	0.40

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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	364	2108	57	2808	397	22	68	51	370
Future Volume (vph)	364	2108	57	2808	397	22	68	51	370
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	16.0	5.0	16.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	22.8	11.8	22.8	32.0	32.0	14.1	14.1	14.1
Total Split (s)	17.0	61.0	20.0	64.0	32.0	32.0	17.0	17.0	17.0
Total Split (%)	13.1%	46.9%	15.4%	49.2%	24.6%	24.6%	13.1%	13.1%	13.1%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.1	7.1	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 128 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 32: SW 73 Pl & SW 88 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	1471	376	138	1984	31	573	157	122	51	150	319
Future Volume (vph)	294	1471	376	138	1984	31	573	157	122	51	150	319
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		7.2	7.2		7.1	7.1	7.1
Lane Util. Factor	1.00	0.91		1.00	0.86		0.91	0.91		0.95	0.95	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (prot)	1770	4930		1770	6393		1610	3200		1681	1767	1583
Flt Permitted	0.08	1.00		0.08	1.00		0.95	0.98		0.95	1.00	1.00
Satd. Flow (perm)	156	4930		158	6393		1610	3200		1681	1767	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)	309	1548	396	145	2088	33	603	165	128	54	158	336
RTOR Reduction (vph)	0	34	0	0	1	0	0	19	0	0	0	154
Lane Group Flow (vph)	309	1910	0	145	2120	0	301	576	0	49	163	182
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	custom
Protected Phases	1	6		5	2		7	7		8	8	8
Permitted Phases	6			2								2
Actuated Green, G (s)	58.1	47.9		56.7	47.2		31.9	31.9		12.8	12.8	60.0
Effective Green, g (s)	58.1	47.9		56.7	47.2		31.9	31.9		12.8	12.8	60.0
Actuated g/C Ratio	0.45	0.37		0.44	0.36		0.25	0.25		0.10	0.10	0.46
Clearance Time (s)	6.8	6.8		6.8	6.8		7.2	7.2		7.1	7.1	7.1
Vehicle Extension (s)	3.0	1.0		2.0	1.0		3.5	3.5		3.5	3.5	3.5
Lane Grp Cap (vph)	196	1816		186	2321		395	785		165	173	730
v/s Ratio Prot	c0.12	0.39		0.06	0.33		c0.19	0.18		0.03	c0.09	0.02
v/s Ratio Perm	c0.58			0.28								0.09
v/c Ratio	1.58	1.05		0.78	0.91		0.76	0.73		0.30	0.94	0.25
Uniform Delay, d1	35.8	41.0		30.3	39.4		45.5	45.1		54.4	58.2	21.3
Progression Factor	1.78	0.67		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	265.6	27.6		17.0	6.9		8.7	3.7		1.2	51.9	0.2
Delay (s)	329.4	54.9		47.2	46.4		54.2	48.8		55.6	110.1	21.5
Level of Service	F	D		D	D		D	D		E	F	C
Approach Delay (s)		92.5			46.4			50.6			50.9	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	64.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	27.9
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	309	1944	145	2121	301	595	49	163	336
v/c Ratio	1.58	1.05	0.78	0.91	0.76	0.74	0.30	0.94	0.38
Control Delay	303.0	54.9	53.6	46.5	58.2	48.8	62.7	112.7	3.9
Queue Delay	0.0	19.9	0.0	28.4	0.0	0.0	0.0	0.0	0.1
Total Delay	303.0	74.8	53.6	74.9	58.2	48.8	62.7	112.7	4.0
Queue Length 50th (ft)	~330	~259	68	491	257	242	41	~154	15
Queue Length 95th (ft)	m#330	m#254	#169	544	361	300	89	#356	56
Internal Link Dist (ft)		405		721		1079		178	
Turn Bay Length (ft)	120		130		420				
Base Capacity (vph)	196	1848	196	2323	455	923	165	173	881
Starvation Cap Reductn	0	120	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	320	0	0	0	0	79
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.58	1.13	0.74	1.06	0.66	0.64	0.30	0.94	0.42

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.

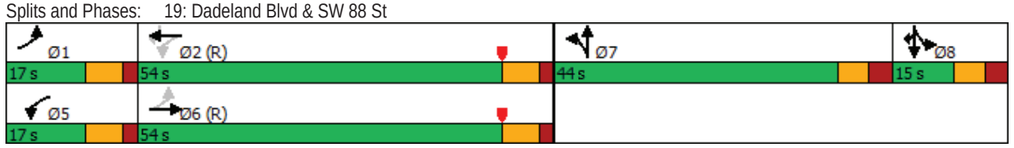
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	294	1471	138	1984	573	157	51	150	319
Future Volume (vph)	294	1471	138	1984	573	157	51	150	319
Turn Type	pm+pt	NA	pm+pt	NA	Split	NA	Split	NA	custom
Protected Phases	1	6	5	2	7	7	8	8	8
Permitted Phases	6		2						2
Detector Phase	1	6	5	2	7	7	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.8	24.8	11.8	24.8	34.2	34.2	14.1	14.1	14.1
Total Split (s)	17.0	54.0	17.0	54.0	44.0	44.0	15.0	15.0	15.0
Total Split (%)	13.1%	41.5%	13.1%	41.5%	33.8%	33.8%	11.5%	11.5%	11.5%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.2	3.2	3.1	3.1	3.1
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)	6.8	6.8	6.8	6.8	7.2	7.2	7.1	7.1	7.1
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 119 (92%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 125
Control Type: Actuated-Coordinated

Splits and Phases: 19: Dadeland Blvd & SW 88 St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1529	6	37	1346	72	254
Future Volume (veh/h)	1529	6	37	1346	72	254
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	1609	6	39	1417	76	267
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2621	10	238	2776	74	259
Arrive On Green	0.72	0.72	0.02	0.78	0.21	0.21
Sat Flow, veh/h	3725	14	1781	3647	359	1262
Grp Volume(v), veh/h	787	828	39	1417	344	0
Grp Sat Flow(s),veh/h/ln	1777	1868	1781	1777	1625	0
Q Serve(g_s), s	39.8	39.9	1.0	26.1	37.0	0.0
Cycle Q Clear(g_c), s	39.8	39.9	1.0	26.1	37.0	0.0
Prop In Lane		0.01	1.00		0.22	0.78
Lane Grp Cap(c), veh/h	1282	1348	238	2776	334	0
V/C Ratio(X)	0.61	0.61	0.16	0.51	1.03	0.00
Avail Cap(c_a), veh/h	1282	1348	344	2776	334	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.80	0.80	1.00	0.00
Uniform Delay (d), s/veh	12.5	12.5	11.2	7.2	71.5	0.0
Incr Delay (d2), s/veh	2.2	2.1	0.1	0.5	57.1	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	15.7	16.5	0.4	9.2	20.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.7	14.6	11.3	7.7	128.6	0.0
LnGrp LOS	B	B	B	A	F	A
Approach Vol, veh/h	1615			1456	344	
Approach Delay, s/veh	14.7			7.8	128.6	
Approach LOS	B			A	F	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		147.3		43.5	10.7	136.6
Change Period (Y+Rc), s		6.4		6.5	6.4	6.4
Max Green Setting (Gmax), s		130.4		37.0	15.0	109.0
Max Q Clear Time (g_c+I1), s		28.1		39.0	3.0	41.9
Green Ext Time (p_c), s		4.2		0.0	0.0	3.9
Intersection Summary						
HCM 6th Ctrl Delay			23.2			
HCM 6th LOS			C			

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1615	39	1417	343
v/c Ratio	0.66	0.22	0.54	0.92
Control Delay	18.7	9.5	11.0	83.2
Queue Delay	0.0	0.0	34.1	0.0
Total Delay	18.7	9.5	45.2	83.2
Queue Length 50th (ft)	592	12	367	305
Queue Length 95th (ft)	697	25	430	#469
Internal Link Dist (ft)	446		202	570
Turn Bay Length (ft)		180		
Base Capacity (vph)	2446	263	2640	408
Starvation Cap Reductn	0	0	1308	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.66	0.15	1.06	0.84

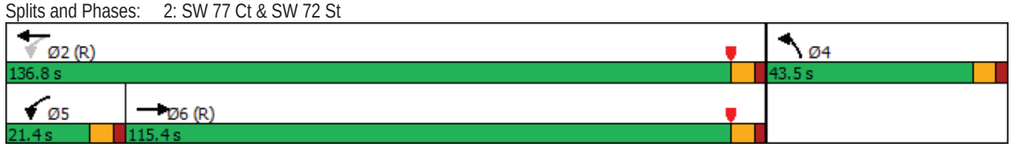
Intersection Summary

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

Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	1529	37	1346	72
Future Volume (vph)	1529	37	1346	72
Turn Type	NA	pm+pt	NA	Prot
Protected Phases	6	5	2	4
Permitted Phases		2		
Detector Phase	6	5	2	4
Switch Phase				
Minimum Initial (s)	20.0	5.0	20.0	7.0
Minimum Split (s)	26.4	11.4	26.8	13.5
Total Split (s)	115.4	21.4	136.8	43.5
Total Split (%)	64.0%	11.9%	75.9%	24.1%
Yellow Time (s)	4.4	4.4	4.4	4.0
All-Red Time (s)	2.0	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.5
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	C-Max	None	C-Max	None

Intersection Summary
Cycle Length: 180.3
Actuated Cycle Length: 180.3
Offset: 134 (74%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 2: SW 77 Ct & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1546	237	95	783	0	0	0	0	796	0	600
Future Volume (veh/h)	0	1546	237	95	783	0	0	0	0	796	0	600
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1627	0	100	824	0				838	0	632
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	2	2	2	0				2	0	2
Cap, veh/h	0	4264		263	2588	0				687	0	555
Arrive On Green	0.00	0.66	0.00	0.03	0.73	0.00				0.20	0.00	0.20
Sat Flow, veh/h	0	6958	0	1781	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1627	0	100	824	0				838	0	632
Grp Sat Flow(s),veh/h/ln	0	1609	0	1781	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	20.7	0.0	3.2	14.9	0.0				36.0	0.0	36.0
Cycle Q Clear(g_c), s	0.0	20.7	0.0	3.2	14.9	0.0				36.0	0.0	36.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4264		263	2588	0				687	0	555
V/C Ratio(X)	0.00	0.38		0.38	0.32	0.00				1.22	0.00	1.14
Avail Cap(c_a), veh/h	0	4264		377	2588	0				687	0	555
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	0.70	0.00	0.81	0.81	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.8	0.0	10.5	8.7	0.0				72.5	0.0	72.5
Incr Delay (d2), s/veh	0.0	0.2	0.0	1.2	0.3	0.0				111.5	0.0	82.7
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(50%),veh/ln	0.0	7.5	0.0	1.3	5.6	0.0				26.7	0.0	19.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.0	0.0	11.7	9.0	0.0				184.0	0.0	155.2
LnGrp LOS	A	B		B	A	A				F	A	F
Approach Vol, veh/h		1627	A		924						1470	
Approach Delay, s/veh		14.0			9.3						171.6	
Approach LOS		B			A						F	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		138.2			11.8	126.4		42.8				
Change Period (Y+Rc), s		6.4			6.4	6.4		6.8				
Max Green Setting (Gmax), s		131.0			17.0	108.0		36.0				
Max Q Clear Time (g_c+I1), s		16.9			5.2	22.7		38.0				
Green Ext Time (p_c), s		2.0			0.3	5.1		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	70.5
HCM 6th LOS	E

Notes
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1876	100	824	838	632
v/c Ratio	0.47	0.52	0.32	1.23	0.88
Control Delay	17.2	19.8	9.1	171.1	62.4
Queue Delay	45.0	0.0	3.8	0.0	0.0
Total Delay	62.2	19.8	12.9	171.1	62.4
Queue Length 50th (ft)	313	32	169	~627	299
Queue Length 95th (ft)	360	67	200	#763	#411
Internal Link Dist (ft)	202		251		
Turn Bay Length (ft)				465	300
Base Capacity (vph)	4007	254	2574	684	715
Starvation Cap Reductn	2290	0	1637	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.09	0.39	0.88	1.23	0.88

Intersection Summary

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

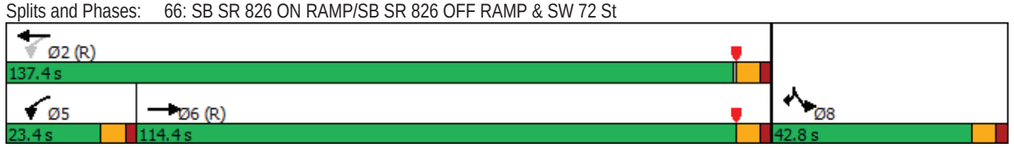
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	1546	95	783	796	600
Future Volume (vph)	1546	95	783	796	600
Turn Type	NA	pm+pt	NA	Prot	Prot
Protected Phases	6	5	2	8	8
Permitted Phases		2			
Detector Phase	6	5	2	8	8
Switch Phase					
Minimum Initial (s)	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.4	11.4	24.4	13.8	13.8
Total Split (s)	114.4	23.4	137.4	42.8	42.8
Total Split (%)	63.3%	13.0%	76.1%	23.7%	23.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.8	6.8
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None

Intersection Summary

Cycle Length: 180.6
Actuated Cycle Length: 180.6
Offset: 131 (73%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 66: SB SR 826 ON RAMP/SB SR 826 OFF RAMP & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	538	1804	0	0	702	837	176	0	305	0	0	0
Future Volume (veh/h)	538	1804	0	0	702	837	176	0	305	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	566	1899	0	0	739	0	185	0	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, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	642	3063	0	0	3266		227	0				
Arrive On Green	0.19	0.86	0.00	0.00	0.64	0.00	0.07	0.00	0.00			
Sat Flow, veh/h	3456	3647	0	0	5443	0	3456	0	1585			
Grp Volume(v), veh/h	566	1899	0	0	739	0	185	0	0			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1702	0	1728	0	1585			
Q Serve(g_s), s	28.7	28.5	0.0	0.0	11.0	0.0	9.5	0.0	0.0			
Cycle Q Clear(g_c), s	28.7	28.5	0.0	0.0	11.0	0.0	9.5	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	642	3063	0	0	3266		227	0				
V/C Ratio(X)	0.88	0.62	0.00	0.00	0.23		0.81	0.00				
Avail Cap(c_a), veh/h	710	3063	0	0	3266		365	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)	0.63	0.63	0.00	0.00	0.31	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	71.4	3.7	0.0	0.0	13.7	0.0	83.0	0.0	0.0			
Incr Delay (d2), s/veh	10.1	0.6	0.0	0.0	0.0	0.0	7.2	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(50%),veh/ln	13.7	8.5	0.0	0.0	4.4	0.0	4.5	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	4.3	0.0	0.0	13.7	0.0	90.2	0.0	0.0			
LnGrp LOS	F	A	A	A	B		F	A				
Approach Vol, veh/h		2465			739	A		185	A			
Approach Delay, s/veh		22.0			13.7			90.2				
Approach LOS		C			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	40.0	121.5		18.4		161.6			
Change Period (Y+Rc), s	* 6.6	6.4		* 6.6		6.4			
Max Green Setting (Gmax), s	* 37	104.0		* 19		147.6			
Max Q Clear Time (g_c+I1), s	30.7	13.0		11.5		30.5			
Green Ext Time (p_c), s	2.7	2.2		0.3		8.6			

Intersection Summary									
HCM 6th Ctrl Delay			23.9						
HCM 6th LOS			C						

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	566	1899	1620	185	321
v/c Ratio	0.84	0.65	0.57	0.51	1.45
Control Delay	81.0	7.4	19.2	81.3	264.8
Queue Delay	52.6	28.1	0.0	0.0	0.0
Total Delay	133.6	35.5	19.2	81.3	264.8
Queue Length 50th (ft)	331	389	355	108	~447
Queue Length 95th (ft)	404	436	397	153	#662
Internal Link Dist (ft)		251	2404		
Turn Bay Length (ft)				295	504
Base Capacity (vph)	707	2908	2860	363	222
Starvation Cap Reductn	251	1103	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.24	1.05	0.57	0.51	1.45

Intersection Summary

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

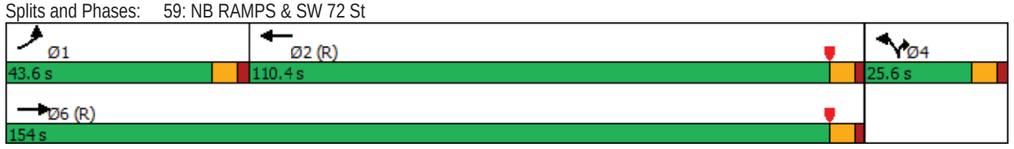
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	538	1804	702	176	305
Future Volume (vph)	538	1804	702	176	305
Turn Type	Prot	NA	NA	Prot	Prot
Protected Phases	1	6	2	4	4
Permitted Phases					
Detector Phase	1	6	2	4	4
Switch Phase					
Minimum Initial (s)	7.0	18.0	18.0	7.0	7.0
Minimum Split (s)	13.6	24.4	24.4	13.6	13.6
Total Split (s)	43.6	154.0	110.4	25.6	25.6
Total Split (%)	24.3%	85.7%	61.5%	14.3%	14.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.2	2.0	2.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.6
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 179.6
Actuated Cycle Length: 179.6
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 59: NB RAMPS & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	441	1552	139	74	1183	27	197	385	208	34	266	101
Future Volume (veh/h)	441	1552	139	74	1183	27	197	385	208	34	266	101
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	464	1634	146	78	1245	28	207	405	219	36	280	106
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	342	1904	168	138	1751	39	187	429	415	94	389	514
Arrive On Green	0.12	0.58	0.58	0.03	0.49	0.49	0.04	0.23	0.23	0.02	0.21	0.21
Sat Flow, veh/h	1781	3303	292	1781	3553	80	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	464	871	909	78	622	651	207	405	219	36	280	106
Grp Sat Flow(s),veh/h/ln	1781	1777	1818	1781	1777	1856	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	21.0	73.7	76.6	3.9	49.5	49.5	8.0	38.6	21.4	2.9	25.2	8.8
Cycle Q Clear(g_c), s	21.0	73.7	76.6	3.9	49.5	49.5	8.0	38.6	21.4	2.9	25.2	8.8
Prop In Lane	1.00		0.16	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	342	1025	1048	138	876	915	187	429	415	94	389	514
V/C Ratio(X)	1.36	0.85	0.87	0.56	0.71	0.71	1.11	0.94	0.53	0.38	0.72	0.21
Avail Cap(c_a), veh/h	342	1025	1048	159	876	915	187	444	428	132	444	560
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)	0.55	0.55	0.55	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	31.8	32.4	36.1	35.8	35.8	70.7	68.6	57.3	58.1	66.7	44.3
Incr Delay (d2), s/veh	171.3	5.1	5.6	3.6	4.9	4.7	97.0	28.8	1.3	2.5	5.1	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(50%),veh/ln	32.2	32.9	35.1	1.8	22.8	23.8	10.0	22.0	8.9	1.4	12.7	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	214.4	36.9	38.1	39.7	40.7	40.5	167.7	97.4	58.6	60.6	71.9	44.5
LnGrp LOS	F	D	D	D	D	D	F	F	E	E	E	D
Approach Vol, veh/h		2244			1351			831			422	
Approach Delay, s/veh		74.1			40.5			104.7			64.0	
Approach LOS		E			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.4	95.6	10.2	47.8	12.2	110.8	14.0	44.0
Change Period (Y+Rc), s	6.4	6.4	6.0	* 6.3	6.4	6.4	6.0	* 6.3
Max Green Setting (Gmax), s	21.0	84.0	8.0	* 43	8.0	97.0	8.0	* 43
Max Q Clear Time (g_c+I1), s	23.0	51.5	4.9	40.6	5.9	78.6	10.0	27.2
Green Ext Time (p_c), s	0.0	3.3	0.0	1.0	0.0	5.3	0.0	2.1

Intersection Summary

HCM 6th Ctrl Delay	69.1
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	464	1780	78	1273	207	405	219	36	280	106
v/c Ratio	1.47	0.91	0.67	0.78	1.05	0.94	0.40	0.32	0.70	0.16
Control Delay	263.2	44.4	60.3	44.8	132.1	98.0	29.0	51.4	74.9	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	263.2	44.4	60.3	44.8	132.1	98.0	29.0	51.4	74.9	17.7
Queue Length 50th (ft)	~718	1029	40	662	~194	475	113	30	302	37
Queue Length 95th (ft)	#957	#1160	#119	755	#383	#681	196	61	414	84
Internal Link Dist (ft)		2404		929		1266			1240	
Turn Bay Length (ft)	350		280		105		105	100		100
Base Capacity (vph)	316	1960	119	1637	197	442	556	119	442	649
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	1.47	0.91	0.66	0.78	1.05	0.92	0.39	0.30	0.63	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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	441	1552	74	1183	197	385	208	34	266	101
Future Volume (vph)	441	1552	74	1183	197	385	208	34	266	101
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	5	3	8	1
Permitted Phases	6		2		4		4	8		8
Detector Phase	1	6	5	2	7	4	5	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	14.4	103.4	14.4	90.4	14.0	49.3	14.4	14.0	49.3	14.4
Total Split (s)	27.4	103.4	14.4	90.4	14.0	49.3	14.4	14.0	49.3	27.4
Total Split (%)	15.1%	57.1%	8.0%	49.9%	7.7%	27.2%	8.0%	7.7%	27.2%	15.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.3	2.0	2.0	2.3	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.0	6.3	6.4	6.0	6.3	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 181.1
Actuated Cycle Length: 181.1
Offset: 79 (44%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 185
Control Type: Actuated-Coordinated

Splits and Phases: 62: SW 72 Ave & SW 72 St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1128	31	232	1791	21	74
Future Volume (veh/h)	1128	31	232	1791	21	74
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
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	1187	33	244	1885	22	78
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2695	75	415	3005	26	93
Arrive On Green	0.76	0.76	0.04	0.85	0.07	0.07
Sat Flow, veh/h	3625	98	1781	3647	354	1256
Grp Volume(v), veh/h	597	623	244	1885	101	0
Grp Sat Flow(s),veh/h/ln	1777	1853	1781	1777	1627	0
Q Serve(g_s), s	19.2	19.2	4.6	27.9	9.8	0.0
Cycle Q Clear(g_c), s	19.2	19.2	4.6	27.9	9.8	0.0
Prop In Lane		0.05	1.00		0.22	0.77
Lane Grp Cap(c), veh/h	1356	1414	415	3005	120	0
V/C Ratio(X)	0.44	0.44	0.59	0.63	0.84	0.00
Avail Cap(c_a), veh/h	1356	1414	473	3005	193	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.60	0.60	1.00	0.00
Uniform Delay (d), s/veh	6.8	6.8	6.1	4.1	73.2	0.0
Incr Delay (d2), s/veh	1.0	1.0	0.4	0.6	16.3	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	6.8	7.1	1.4	7.3	4.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.8	7.8	6.5	4.7	89.5	0.0
LnGrp LOS	A	A	A	A	F	A
Approach Vol, veh/h	1220			2129	101	
Approach Delay, s/veh	7.8			4.9	89.5	
Approach LOS	A			A	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		141.7		18.3	13.2	128.5
Change Period (Y+Rc), s		6.4		6.5	6.4	6.4
Max Green Setting (Gmax), s		128.4		19.0	12.0	110.0
Max Q Clear Time (g_c+I1), s		29.9		11.8	6.6	21.2
Green Ext Time (p_c), s		6.9		0.1	0.2	2.5

Intersection Summary		
HCM 6th Ctrl Delay		8.4
HCM 6th LOS		A

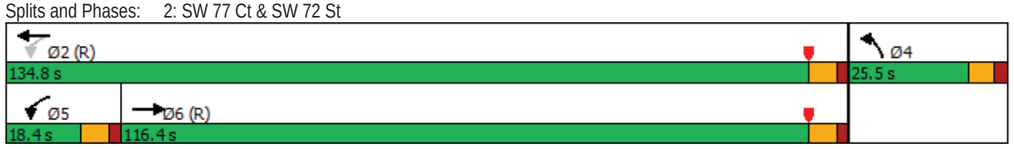
Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	1220	244	1885	100
v/c Ratio	0.45	0.64	0.62	0.60
Control Delay	7.4	9.7	4.5	36.6
Queue Delay	0.0	1.6	13.9	0.0
Total Delay	7.4	11.3	18.3	36.6
Queue Length 50th (ft)	195	29	215	23
Queue Length 95th (ft)	308	58	349	85
Internal Link Dist (ft)	446		202	570
Turn Bay Length (ft)		180		
Base Capacity (vph)	2716	416	3052	264
Starvation Cap Reductn	0	65	1187	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.70	1.01	0.38

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	1128	232	1791	21
Future Volume (vph)	1128	232	1791	21
Turn Type	NA	pm+pt	NA	Prot
Protected Phases	6	5	2	4
Permitted Phases		2		
Detector Phase	6	5	2	4
Switch Phase				
Minimum Initial (s)	20.0	5.0	20.0	7.0
Minimum Split (s)	26.4	11.4	26.4	13.5
Total Split (s)	116.4	18.4	134.8	25.5
Total Split (%)	72.6%	11.5%	84.1%	15.9%
Yellow Time (s)	4.4	4.4	4.4	4.0
All-Red Time (s)	2.0	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.5
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	C-Max	None	C-Max	None

Intersection Summary
Cycle Length: 160.3
Actuated Cycle Length: 160.3
Offset: 33 (21%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 2: SW 77 Ct & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1052	150	203	1417	0	0	0	0	939	0	606
Future Volume (veh/h)	0	1052	150	203	1417	0	0	0	0	939	0	606
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1107	0	214	1492	0				988	0	638
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	2	2	2	0				2	0	2
Cap, veh/h	0	4068		434	2600	0				644	0	520
Arrive On Green	0.00	0.63	0.00	0.06	0.73	0.00				0.19	0.00	0.19
Sat Flow, veh/h	0	6958	0	1781	3647	0				3456	0	2790
Grp Volume(v), veh/h	0	1107	0	214	1492	0				988	0	638
Grp Sat Flow(s),veh/h/ln	0	1609	0	1781	1777	0				1728	0	1395
Q Serve(g_s), s	0.0	12.3	0.0	6.5	31.3	0.0				30.0	0.0	30.0
Cycle Q Clear(g_c), s	0.0	12.3	0.0	6.5	31.3	0.0				30.0	0.0	30.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4068		434	2600	0				644	0	520
V/C Ratio(X)	0.00	0.27		0.49	0.57	0.00				1.53	0.00	1.23
Avail Cap(c_a), veh/h	0	4068		704	2600	0				644	0	520
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	0.89	0.00	0.41	0.41	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.1	0.0	9.1	10.0	0.0				65.5	0.0	65.5
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.6	0.4	0.0				248.2	0.0	118.5
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	0.0	4.4	0.0	2.5	11.3	0.0				35.5	0.0	19.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.3	0.0	9.7	10.4	0.0				313.7	0.0	184.0
LnGrp LOS	A	B		A	B	A				F	A	F
Approach Vol, veh/h		1107	A		1706						1626	
Approach Delay, s/veh		13.3			10.3						262.8	
Approach LOS		B			B						F	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		124.2			16.0	108.2		36.8				
Change Period (Y+Rc), s		6.4			6.4	6.4		6.8				
Max Green Setting (Gmax), s		117.4			34.0	77.0		30.0				
Max Q Clear Time (g_c+I1), s		33.3			8.5	14.3		32.0				
Green Ext Time (p_c), s		4.6			1.1	3.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	103.5
HCM 6th LOS	F

Notes
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1265	214	1492	988	638
v/c Ratio	0.33	0.62	0.58	1.54	1.12
Control Delay	15.5	15.0	11.1	292.5	125.9
Queue Delay	2.7	0.1	35.5	0.0	0.0
Total Delay	18.2	15.1	46.6	292.5	125.9
Queue Length 50th (ft)	175	63	351	~748	~403
Queue Length 95th (ft)	216	92	403	#885	#546
Internal Link Dist (ft)	202		251		
Turn Bay Length (ft)				465	300
Base Capacity (vph)	3836	532	2587	641	571
Starvation Cap Reductn	2410	36	1190	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.89	0.43	1.07	1.54	1.12

Intersection Summary

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

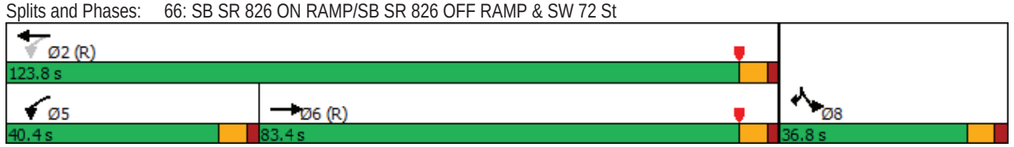
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	1052	203	1417	939	606
Future Volume (vph)	1052	203	1417	939	606
Turn Type	NA	pm+pt	NA	Prot	Prot
Protected Phases	6	5	2	8	8
Permitted Phases		2			
Detector Phase	6	5	2	8	8
Switch Phase					
Minimum Initial (s)	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.4	11.4	24.4	13.8	13.8
Total Split (s)	83.4	40.4	123.8	36.8	36.8
Total Split (%)	51.9%	25.2%	77.1%	22.9%	22.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.8	6.8
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None

Intersection Summary

Cycle Length: 160.6
Actuated Cycle Length: 160.6
Offset: 34 (21%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 66: SB SR 826 ON RAMP/SB SR 826 OFF RAMP & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	511	1480	0	0	1360	962	260	0	100	0	0	0
Future Volume (veh/h)	511	1480	0	0	1360	962	260	0	100	0	0	0
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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	538	1558	0	0	1432	0	274	0	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, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	631	2976	0	0	3133		281	0				
Arrive On Green	0.18	0.84	0.00	0.00	0.61	0.00	0.08	0.00	0.00			
Sat Flow, veh/h	3456	3647	0	0	5443	0	3456	0	1585			
Grp Volume(v), veh/h	538	1558	0	0	1432	0	274	0	0			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1702	0	1728	0	1585			
Q Serve(g_s), s	24.1	20.3	0.0	0.0	24.1	0.0	12.7	0.0	0.0			
Cycle Q Clear(g_c), s	24.1	20.3	0.0	0.0	24.1	0.0	12.7	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	631	2976	0	0	3133		281	0				
V/C Ratio(X)	0.85	0.52	0.00	0.00	0.46		0.98	0.00				
Avail Cap(c_a), veh/h	734	2976	0	0	3133		281	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)	0.34	0.34	0.00	0.00	0.14	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	63.3	3.8	0.0	0.0	16.6	0.0	73.3	0.0	0.0			
Incr Delay (d2), s/veh	4.6	0.2	0.0	0.0	0.1	0.0	46.9	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	11.1	6.1	0.0	0.0	9.5	0.0	7.5	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.9	4.0	0.0	0.0	16.7	0.0	120.2	0.0	0.0			
LnGrp LOS	E	A	A	A	B		F	A				
Approach Vol, veh/h		2096			1432	A		274	A			
Approach Delay, s/veh		20.4			16.7			120.2				
Approach LOS		C			B			F				

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	35.8	104.6		19.6		140.4			
Change Period (Y+Rc), s	* 6.6	6.4		* 6.6		6.4			
Max Green Setting (Gmax), s	* 34	93.0		* 13		133.6			
Max Q Clear Time (g_c+I1), s	26.1	26.1		14.7		22.3			
Green Ext Time (p_c), s	3.1	5.0		0.0		5.9			

Intersection Summary									
HCM 6th Ctrl Delay			26.2						
HCM 6th LOS			C						

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	538	1558	2445	274	105
v/c Ratio	0.78	0.53	0.98dr	0.98	0.49
Control Delay	69.0	4.5	27.5	121.0	24.9
Queue Delay	44.4	6.4	0.0	0.0	0.0
Total Delay	113.5	10.9	27.5	121.0	24.9
Queue Length 50th (ft)	273	204	707	150	13
Queue Length 95th (ft)	341	233	774	#248	78
Internal Link Dist (ft)		251	2404		
Turn Bay Length (ft)				295	504
Base Capacity (vph)	731	2962	2916	279	213
Starvation Cap Reductn	232	1349	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.08	0.97	0.84	0.98	0.49

Intersection Summary

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

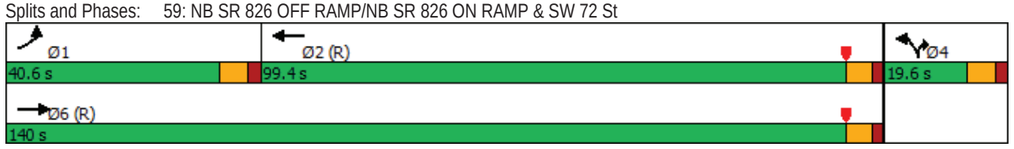
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	EBL	EBT	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	511	1480	1360	260	100
Future Volume (vph)	511	1480	1360	260	100
Turn Type	Prot	NA	NA	Prot	Prot
Protected Phases	1	6	2	4	4
Permitted Phases					
Detector Phase	1	6	2	4	4
Switch Phase					
Minimum Initial (s)	7.0	18.0	18.0	7.0	7.0
Minimum Split (s)	13.6	24.4	24.4	13.6	13.6
Total Split (s)	40.6	140.0	99.4	19.6	19.6
Total Split (%)	25.4%	87.7%	62.3%	12.3%	12.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.2	2.0	2.0	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.6
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 159.6
Actuated Cycle Length: 159.6
Offset: 26 (16%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 59: NB SR 826 OFF RAMP/NB SR 826 ON RAMP & SW 72 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	1264	171	247	1767	27	180	373	48	30	379	305
Future Volume (veh/h)	126	1264	171	247	1767	27	180	373	48	30	379	305
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	1331	180	260	1860	28	189	393	51	32	399	321
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	150	1748	235	211	1990	30	144	444	455	119	383	404
Arrive On Green	0.05	0.56	0.56	0.05	0.56	0.56	0.06	0.24	0.24	0.02	0.20	0.20
Sat Flow, veh/h	1781	3148	423	1781	3584	54	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	133	747	764	260	920	968	189	393	51	32	399	321
Grp Sat Flow(s),veh/h/ln	1781	1777	1794	1781	1777	1861	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.3	51.9	53.1	8.0	76.9	77.6	9.0	32.7	3.8	2.3	33.0	30.5
Cycle Q Clear(g_c), s	6.3	51.9	53.1	8.0	76.9	77.6	9.0	32.7	3.8	2.3	33.0	30.5
Prop In Lane	1.00		0.24	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	150	987	996	211	987	1033	144	444	455	119	383	404
V/C Ratio(X)	0.88	0.76	0.77	1.23	0.93	0.94	1.31	0.89	0.11	0.27	1.04	0.80
Avail Cap(c_a), veh/h	150	987	996	211	987	1033	144	444	455	177	383	404
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)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.9	27.5	27.7	34.6	33.0	33.2	53.8	59.3	42.3	51.2	64.0	56.1
Incr Delay (d2), s/veh	36.9	4.6	4.8	139.1	16.4	16.4	180.2	19.1	0.1	1.2	57.0	10.8
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(50%),veh/ln	7.0	23.2	23.9	13.0	36.9	39.0	8.8	17.9	1.5	1.1	21.8	13.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.9	32.1	32.5	173.8	49.4	49.6	234.0	78.4	42.4	52.4	121.0	66.9
LnGrp LOS	F	C	C	F	D	D	F	E	D	D	F	E
Approach Vol, veh/h		1644			2148			633			752	
Approach Delay, s/veh		36.2			64.5			121.9			95.0	
Approach LOS		D			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	95.9	9.8	44.5	14.4	95.9	15.0	39.3
Change Period (Y+Rc), s	6.4	6.4	6.0	* 6.3	6.4	6.4	6.0	* 6.3
Max Green Setting (Gmax), s	8.0	86.0	9.0	* 33	8.0	86.0	9.0	* 33
Max Q Clear Time (g_c+I1), s	8.3	79.6	4.3	34.7	10.0	55.1	11.0	35.0
Green Ext Time (p_c), s	0.0	3.3	0.0	0.0	0.0	4.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	67.0
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	133	1511	260	1888	189	393	51	32	399	321
v/c Ratio	0.99	0.81	1.74	1.00	1.32	0.92	0.09	0.24	1.05	0.63
Control Delay	113.3	35.0	386.7	58.2	223.6	88.2	5.9	45.1	118.9	45.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.3	35.0	386.7	58.2	223.6	88.2	5.9	45.1	118.9	45.4
Queue Length 50th (ft)	90	668	~339	~1027	~208	417	0	24	~454	238
Queue Length 95th (ft)	#241	770	#531	#1218	#384	#657	25	53	#673	351
Internal Link Dist (ft)		2404		929		1266			1240	
Turn Bay Length (ft)	350		280		105		105	100		100
Base Capacity (vph)	134	1862	149	1885	143	426	546	149	381	509
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	0.99	0.81	1.74	1.00	1.32	0.92	0.09	0.21	1.05	0.63

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.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	126	1264	247	1767	180	373	48	30	379	305
Future Volume (vph)	126	1264	247	1767	180	373	48	30	379	305
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	1	6	5	2	7	4	5	3	8	1
Permitted Phases	6		2		4		4	8		8
Detector Phase	1	6	5	2	7	4	5	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.0	28.3	11.4	11.0	28.3	11.4
Total Split (s)	14.4	92.4	14.4	92.4	15.0	39.3	14.4	15.0	39.3	14.4
Total Split (%)	8.9%	57.4%	8.9%	57.4%	9.3%	24.4%	8.9%	9.3%	24.4%	8.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.3	2.0	2.0	2.3	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.0	6.3	6.4	6.0	6.3	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 161.1
Actuated Cycle Length: 161.1
Offset: 128 (79%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 62: SW 72 Ave & SW 72 St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	1854	30	38	1087	224	53	59	21	388	135	104
Future Volume (vph)	115	1854	30	38	1087	224	53	59	21	388	135	104
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.998			0.974			0.961				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5075	0	1770	4953	0	1770	1790	0	3433	1863	1583
Flt Permitted	0.136			0.061			0.950			0.950		
Satd. Flow (perm)	253	5075	0	114	4953	0	1770	1790	0	3433	1863	1583
Satd. Flow (RTOR)		2			33			8				109
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	1984	0	40	1380	0	56	84	0	408	142	109
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								
Detector Phase	1	6		5	2		4	4		3	3	3 1
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.4	24.4		11.4	24.4		20.0	20.0		30.6	30.6	
Total Split (s)	24.0	101.0		14.0	91.0		24.0	24.0		41.0	41.0	
Total Split (%)	13.3%	56.1%		7.8%	50.6%		13.3%	13.3%		22.8%	22.8%	
Maximum Green (s)	17.6	94.6		7.6	84.6		17.4	17.4		34.4	34.4	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)										5.0	5.0	
Flash Dont Walk (s)										19.0	19.0	
Pedestrian Calls (#/hr)										4	4	
Act Effct Green (s)	117.7	109.0		110.0	103.2		12.8	12.8		27.8	27.8	37.8
Actuated g/C Ratio	0.65	0.61		0.61	0.57		0.07	0.07		0.15	0.15	0.21
v/c Ratio	0.48	0.65		0.31	0.48		0.44	0.63		0.77	0.49	0.26
Control Delay	18.8	26.1		30.5	5.6		90.2	92.6		82.8	74.7	6.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	18.8	26.1		30.5	5.6		90.2	92.6		82.8	74.7	6.8
LOS	B	C		C	A		F	F		F	E	A
Approach Delay		25.7			6.3			91.7			68.5	
Approach LOS		C			A			F			E	
Stops (vph)	43	1211		12	108		50	70		364	120	12
Fuel Used(gal)	2	38		1	13		2	3		12	4	1
CO Emissions (g/hr)	123	2655		48	922		118	179		817	266	73
NOx Emissions (g/hr)	24	517		9	179		23	35		159	52	14
VOC Emissions (g/hr)	29	615		11	214		27	42		189	62	17
Dilemma Vehicles (#)	0	52		0	42		0	0		0	0	0

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 93 (52%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 28.0	Intersection LOS: C
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: NW 82nd Ave & Flagler St



HCM Signalized Intersection Capacity Analysis
1: NW 82nd Ave & Flagler St

12/14/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	1854	30	38	1087	224	53	59	21	388	135	104
Future Volume (vph)	115	1854	30	38	1087	224	53	59	21	388	135	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	6.6
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	0.97		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5073		1770	4955		1770	1790		3433	1863	1583
Flt Permitted	0.14	1.00		0.06	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	254	5073		113	4955		1770	1790		3433	1863	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)	121	1952	32	40	1144	236	56	62	22	408	142	109
RTOR Reduction (vph)	0	1	0	0	14	0	0	7	0	0	0	86
Lane Group Flow (vph)	121	1983	0	40	1366	0	56	77	0	408	142	23
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								
Actuated Green, G (s)	117.8	107.7		109.0	103.3		12.8	12.8		27.8	27.8	37.9
Effective Green, g (s)	117.8	107.7		109.0	103.3		12.8	12.8		27.8	27.8	37.9
Actuated g/C Ratio	0.65	0.60		0.61	0.57		0.07	0.07		0.15	0.15	0.21
Clearance Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	251	3035		120	2843		125	127		530	287	333
v/s Ratio Prot	c0.03	c0.39		0.01	0.28		0.03	c0.04		c0.12	0.08	0.01
v/s Ratio Perm	0.29			0.19								
v/c Ratio	0.48	0.65		0.33	0.48		0.45	0.60		0.77	0.49	0.07
Uniform Delay, d1	14.9	23.8		19.5	22.6		80.2	81.1		73.0	69.7	56.9
Progression Factor	1.00	1.00		1.94	0.22		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.5	1.1		1.4	0.5		2.5	7.8		6.7	1.3	0.1
Delay (s)	16.3	25.0		39.3	5.4		82.8	89.0		79.7	71.0	57.0
Level of Service	B	C		D	A		F	F		E	E	E
Approach Delay (s)		24.5			6.3			86.5			74.1	
Approach LOS		C			A			F			E	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
1: NW 82nd Ave & Flagler St

12/14/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	121	1984	40	1380	56	84	408	142	109
v/c Ratio	0.48	0.65	0.31	0.48	0.44	0.63	0.77	0.49	0.26
Control Delay	18.8	26.1	30.5	5.6	90.2	92.6	82.8	74.7	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	26.1	30.5	5.6	90.2	92.6	82.8	74.7	6.8
Queue Length 50th (ft)	50	565	4	46	65	89	241	156	0
Queue Length 95th (ft)	92	712	m40	72	115	150	293	226	40
Internal Link Dist (ft)		976		1138		989		958	
Turn Bay Length (ft)	200		200		150		200		
Base Capacity (vph)	316	3072	139	2854	171	180	656	356	533
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	0.38	0.65	0.29	0.48	0.33	0.47	0.62	0.40	0.20

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	242	2011	2	66	1221	625	42	67	63	575	14	111
Future Volume (vph)	242	2011	2	66	1221	625	42	67	63	575	14	111
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950	0.955	
Satd. Flow (prot)	1770	5085	0	1770	5085	1583	1770	1863	1583	1681	1690	1583
Flt Permitted	0.126			0.048			0.950			0.950	0.955	
Satd. Flow (perm)	235	5085	0	89	5085	1583	1770	1863	1583	1681	1690	1583
Satd. Flow (RTOR)						501			97			142
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
Shared Lane Traffic (%)										49%		
Lane Group Flow (vph)	255	2119	0	69	1285	658	44	71	66	309	311	117
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8
Detector Phase	1	6		5	2	2	4	4	5	8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	5.0	7.0	7.0	7.0
Minimum Split (s)	13.4	30.4		12.0	30.4	30.4	13.6	13.6	12.0	34.2	34.2	34.2
Total Split (s)	34.0	95.0		15.0	76.0	76.0	19.0	19.0	15.0	51.0	51.0	51.0
Total Split (%)	18.9%	52.8%		8.3%	42.2%	42.2%	10.6%	10.6%	8.3%	28.3%	28.3%	28.3%
Maximum Green (s)	27.6	88.6		8.0	69.6	69.6	12.4	12.4	8.0	44.8	44.8	44.8
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.6	2.0	2.0	2.6	2.6	2.6	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)	0.0	7.0			7.0	7.0	0.0	0.0		7.0	7.0	7.0
Flash Dont Walk (s)	0.0	17.0			17.0	17.0	0.0	0.0		21.0	21.0	21.0
Pedestrian Calls (#/hr)	0	15			0	0	9	9		23	23	23
Act Effct Green (s)	111.1	96.6		90.4	83.5	83.5	11.0	11.0	18.2	38.6	38.6	38.6
Actuated g/C Ratio	0.62	0.54		0.50	0.46	0.46	0.06	0.06	0.10	0.21	0.21	0.21
v/c Ratio	0.78	0.78		0.60	0.55	0.66	0.41	0.63	0.27	0.86	0.86	0.26
Control Delay	66.6	23.4		74.2	5.4	7.4	92.4	105.9	4.5	89.9	89.9	4.7
Queue Delay	0.0	0.1		0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.6	23.5		74.2	5.4	10.6	92.4	105.9	4.5	89.9	89.9	4.7
LOS	E	C		E	A	B	F	F	A	F	F	A
Approach Delay		28.2			9.5			65.6			76.4	
Approach LOS		C			A			E			E	
Stops (vph)	168	1107		63	242	268	39	65	3	280	281	6
Fuel Used(gal)	7	39		2	7	6	1	2	1	9	9	1
CO Emissions (g/hr)	509	2746		135	506	402	94	164	41	658	660	75
NOx Emissions (g/hr)	99	534		26	98	78	18	32	8	128	128	15
VOC Emissions (g/hr)	118	636		31	117	93	22	38	10	152	153	17
Dilemma Vehicles (#)	0	59		0	5	0	0	0	0	0	0	0

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 96 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 29.1	Intersection LOS: C
Intersection Capacity Utilization 82.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: SW 79th Ave/NW 79th Ave & Flagler St



HCM Signalized Intersection Capacity Analysis
2: SW 79th Ave/NW 79th Ave & Flagler St

12/14/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	242	2011	2	66	1221	625	42	67	63	575	14	111
Future Volume (vph)	242	2011	2	66	1221	625	42	67	63	575	14	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	5085		1770	5085	1583	1770	1863	1583	1681	1689	1583
Flt Permitted	0.13	1.00		0.05	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	235	5085		89	5085	1583	1770	1863	1583	1681	1689	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)	255	2117	2	69	1285	658	44	71	66	605	15	117
RTOR Reduction (vph)	0	0	0	0	0	269	0	0	59	0	0	92
Lane Group Flow (vph)	255	2119	0	69	1285	389	44	71	7	309	311	25
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8
Actuated Green, G (s)	111.2	96.6		91.1	83.5	83.5	11.0	11.0	18.6	38.6	38.6	38.6
Effective Green, g (s)	111.2	96.6		91.1	83.5	83.5	11.0	11.0	18.6	38.6	38.6	38.6
Actuated g/C Ratio	0.62	0.54		0.51	0.46	0.46	0.06	0.06	0.10	0.21	0.21	0.21
Clearance Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	326	2728		116	2358	734	108	113	163	360	362	339
v/s Ratio Prot	c0.09	c0.42		0.03	0.25		0.02	c0.04	0.00	0.18	c0.18	
v/s Ratio Perm	c0.39			0.28		0.25			0.00			0.02
v/c Ratio	0.78	0.78		0.59	0.54	0.53	0.41	0.63	0.04	0.86	0.86	0.07
Uniform Delay, d1	28.1	33.1		31.3	34.6	34.3	81.4	82.5	72.7	68.1	68.1	56.4
Progression Factor	2.11	0.63		1.75	0.13	0.54	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.1	1.7		5.7	0.6	1.9	2.5	10.4	0.1	18.0	18.0	0.1
Delay (s)	68.6	22.5		60.2	5.1	20.4	83.9	92.9	72.8	86.0	86.0	56.5
Level of Service	E	C		E	A	C	F	F	E	F	F	E
Approach Delay (s)		27.4			12.0			83.4			81.4	
Approach LOS		C			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	26.2
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: SW 79th Ave/NW 79th Ave & Flagler St

12/14/2018

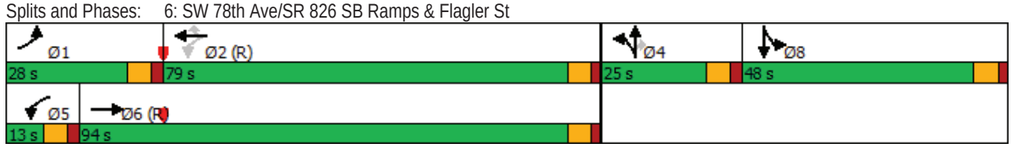
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	255	2119	69	1285	658	44	71	66	309	311	117
v/c Ratio	0.78	0.78	0.60	0.55	0.66	0.41	0.63	0.27	0.86	0.86	0.26
Control Delay	66.6	23.4	74.2	5.4	7.4	92.4	105.9	4.5	89.9	89.9	4.7
Queue Delay	0.0	0.1	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.6	23.5	74.2	5.4	10.6	92.4	105.9	4.5	89.9	89.9	4.7
Queue Length 50th (ft)	195	306	35	44	53	51	83	0	371	373	0
Queue Length 95th (ft)	314	339	m63	145	856	99	144	11	486	490	32
Internal Link Dist (ft)		1138		284			970			1004	
Turn Bay Length (ft)	240		180			120		120			220
Base Capacity (vph)	380	2729	120	2357	1002	121	128	251	418	420	500
Starvation Cap Reductn	0	0	0	0	241	0	0	0	0	0	0
Spillback Cap Reductn	0	75	0	0	0	0	0	1	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.80	0.57	0.55	0.86	0.36	0.55	0.26	0.74	0.74	0.23

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	2118	25	51	1652	466	17	85	185	993	15	0
Future Volume (vph)	482	2118	25	51	1652	466	17	85	185	993	15	0
Lane Util. Factor	0.94	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.94	1.00	1.00
Frt		0.998				0.850			0.850			
Flt Protected	0.950			0.950				0.992		0.950		
Satd. Flow (prot)	4990	5075	0	1770	5085	1583	0	1848	1583	4990	1863	0
Flt Permitted	0.950			0.053				0.992		0.950		
Satd. Flow (perm)	4990	5075	0	99	5085	1583	0	1848	1583	4990	1863	0
Satd. Flow (RTOR)		1				284			137			
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	507	2255	0	54	1739	491	0	107	195	1045	16	0
Turn Type	Prot	NA		pm+pt	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases				2		2			4			
Detector Phase	1	6		5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.4	24.4		11.4	24.4	24.4	24.4	24.4	24.4	20.0	20.0	
Total Split (s)	28.0	94.0		13.0	79.0	79.0	25.0	25.0	25.0	48.0	48.0	
Total Split (%)	15.6%	52.2%		7.2%	43.9%	43.9%	13.9%	13.9%	13.9%	26.7%	26.7%	
Maximum Green (s)	21.6	87.6		6.6	72.6	72.6	18.6	18.6	18.6	41.6	41.6	
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
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)	6.4	6.4		6.4	6.4	6.4		6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		7.0			7.0	7.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		10.0			10.0	10.0	0.0	0.0	0.0	0.0	0.0	
Pedestrian Calls (#/hr)		0			0	0	0	0	0	0	0	
Act Effct Green (s)	21.2	92.9		82.4	75.8	75.8		15.2	15.2	42.2	42.2	
Actuated g/C Ratio	0.12	0.52		0.46	0.42	0.42		0.08	0.08	0.23	0.23	
v/c Ratio	0.86	0.86		0.51	0.81	0.59		0.69	0.76	0.89	0.04	
Control Delay	100.8	25.9		53.8	18.6	3.3		102.0	43.6	77.0	53.5	
Queue Delay	0.0	0.6		0.0	0.1	0.0		0.0	0.0	0.0	0.0	
Total Delay	100.8	26.4		53.8	18.7	3.3		102.0	43.6	77.0	53.5	
LOS	F	C		D	B	A		F	D	E	D	
Approach Delay		40.1			16.2			64.3			76.6	
Approach LOS		D			B			E			E	
Stops (vph)	474	1265		24	1001	43		98	61	929	12	
Fuel Used(gal)	17	34		1	25	3		3	3	23	0	
CO Emissions (g/hr)	1214	2377		74	1776	192		244	244	1638	19	
NOx Emissions (g/hr)	236	463		14	346	37		48	47	319	4	
VOC Emissions (g/hr)	281	551		17	412	44		57	57	380	4	
Dilemma Vehicles (#)	0	72		0	65	0		0	0	0	0	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 77 (43%), Referenced to phase 2:WBTL and 6:EBT, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 38.8	Intersection LOS: D
Intersection Capacity Utilization 87.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: SW 78th Ave/SR 826 SB Ramps & Flagler St



HCM 6th Signalized Intersection Summary
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

12/14/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	482	2118	25	51	1652	466	17	85	185	993	15	0
Future Volume (veh/h)	482	2118	25	51	1652	466	17	85	185	993	15	0
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	507	2229	26	54	1739	0	18	89	195	1045	16	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	0
Cap, veh/h	566	2628	31	110	2139		32	159	164	1119	417	
Arrive On Green	0.11	0.51	0.51	0.03	0.42	0.00	0.10	0.10	0.10	0.22	0.22	0.00
Sat Flow, veh/h	5023	5203	61	1781	5106	1585	312	1543	1585	5023	1870	0
Grp Volume(v), veh/h	507	1457	798	54	1739	0	107	0	195	1045	16	0
Grp Sat Flow(s),veh/h/ln	1674	1702	1859	1781	1702	1585	1855	0	1585	1674	1870	0
Q Serve(g_s), s	17.9	66.7	66.9	3.1	54.0	0.0	9.9	0.0	18.6	36.7	1.2	0.0
Cycle Q Clear(g_c), s	17.9	66.7	66.9	3.1	54.0	0.0	9.9	0.0	18.6	36.7	1.2	0.0
Prop In Lane	1.00		0.03	1.00		1.00	0.17		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	566	1719	939	110	2139		192	0	164	1119	417	
V/C Ratio(X)	0.89	0.85	0.85	0.49	0.81		0.56	0.00	1.19	0.93	0.04	
Avail Cap(c_a), veh/h	603	1719	939	128	2139		192	0	164	1161	432	
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	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	78.8	38.6	38.6	39.4	46.1	0.0	76.8	0.0	80.7	68.6	54.8	0.0
Incr Delay (d2), s/veh	15.3	5.4	9.5	3.4	3.5	0.0	3.6	0.0	130.8	13.2	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(50%),veh/ln	8.5	28.3	32.0	1.4	23.1	0.0	5.0	0.0	13.6	17.2	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.1	44.0	48.1	42.8	49.6	0.0	80.4	0.0	211.5	81.9	54.9	0.0
LnGrp LOS	F	D	D	D	D		F	A	F	F	D	
Approach Vol, veh/h		2762			1793	A		302			1061	A
Approach Delay, s/veh		54.4			49.4			165.0			81.5	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.7	81.8		25.0	11.2	97.3		46.5				
Change Period (Y+Rc), s	6.4	6.4		6.4	6.4	6.4		6.4				
Max Green Setting (Gmax), s	21.6	72.6		18.6	6.6	87.6		41.6				
Max Q Clear Time (g_c+I1), s	19.9	56.0		20.6	5.1	68.9		38.7				
Green Ext Time (p_c), s	0.4	10.6		0.0	0.0	14.1		1.4				

Intersection Summary		
HCM 6th Ctrl Delay		63.4
HCM 6th LOS		E

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Queues
6: SW 78th Ave/SR 826 SB Ramps & Flagler St

12/14/2018

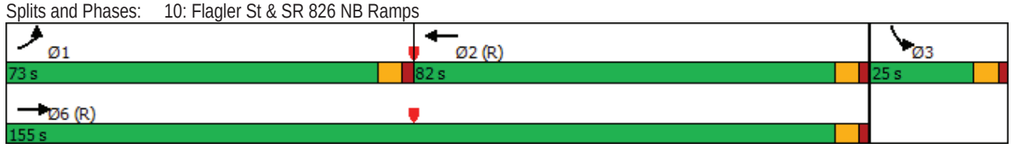
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	507	2255	54	1739	491	107	195	1045	16
v/c Ratio	0.86	0.86	0.51	0.81	0.59	0.69	0.76	0.89	0.04
Control Delay	100.8	25.9	53.8	18.6	3.3	102.0	43.6	77.0	53.5
Queue Delay	0.0	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	100.8	26.4	53.8	18.7	3.3	102.0	43.6	77.0	53.5
Queue Length 50th (ft)	223	353	17	519	6	125	66	421	15
Queue Length 95th (ft)	#269	679	m45	222	11	196	163	#491	39
Internal Link Dist (ft)		424		198		968			274
Turn Bay Length (ft)	220		150				80	250	
Base Capacity (vph)	600	2619	107	2141	830	190	286	1183	441
Starvation Cap Reductn	0	112	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	26	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.90	0.50	0.82	0.59	0.56	0.68	0.88	0.04

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.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	984	2262	1743	923	279	0
Future Volume (vph)	984	2262	1743	923	279	0
Lane Util. Factor	0.97	0.95	0.91	1.00	0.94	1.00
Frt				0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	5085	1583	4990	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	5085	1583	4990	0
Satd. Flow (RTOR)				145		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1036	2381	1835	972	294	0
Turn Type	Prot	NA	NA	Free	Prot	
Protected Phases	1	6	2		3	
Permitted Phases				Free		
Detector Phase	1	6	2		3	
Switch Phase						
Minimum Initial (s)	5.0	16.0	16.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		24.4	
Total Split (s)	73.0	155.0	82.0		25.0	
Total Split (%)	40.6%	86.1%	45.6%		13.9%	
Maximum Green (s)	66.6	148.6	75.6		18.6	
Yellow Time (s)	4.4	4.4	4.4		4.4	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		6.4	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	2.0	1.0	1.0		2.0	
Recall Mode	None	C-Max	C-Max		None	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	59.4	152.2	86.4	180.0	15.0	
Actuated g/C Ratio	0.33	0.85	0.48	1.00	0.08	
v/c Ratio	0.92	0.80	0.75	0.61	0.71	
Control Delay	60.4	5.6	14.7	6.3	90.0	
Queue Delay	0.0	0.6	0.3	0.0	0.0	
Total Delay	60.4	6.2	15.0	6.3	90.0	
LOS	E	A	B	A	F	
Approach Delay		22.7	12.0		90.0	
Approach LOS		C	B		F	
Stops (vph)	875	499	819	102	269	
Fuel Used(gal)	25	14	22	8	8	
CO Emissions (g/hr)	1775	1001	1510	562	535	
NOx Emissions (g/hr)	345	195	294	109	104	
VOC Emissions (g/hr)	411	232	350	130	124	
Dilemma Vehicles (#)	0	72	0	0	0	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 66 (37%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 83.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 10: Flagler St & SR 826 NB Ramps



HCM 6th Signalized Intersection Summary
10: Flagler St & SR 826 NB Ramps

12/14/2018

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	984	2262	1743	923	279	0
Future Volume (veh/h)	984	2262	1743	923	279	0
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	1036	2381	1835	0	294	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1088	3427	3136		0	
Arrive On Green	0.31	0.96	1.00	0.00	0.00	0.00
Sat Flow, veh/h	3456	3647	5274	1585	0	0
Grp Volume(v), veh/h	1036	2381	1835	0	0	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1702	1585	0	0
Q Serve(g_s), s	52.8	13.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	52.8	13.0	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	1088	3427	3136		0	
V/C Ratio(X)	0.95	0.69	0.59		0.00	
Avail Cap(c_a), veh/h	1279	3427	3136		0	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.59	0.00	0.00	0.00
Uniform Delay (d), s/veh	60.3	0.3	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	13.3	1.2	0.5	0.0	0.0	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	24.7	0.6	0.1	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	73.6	1.5	0.5	0.0	0.0	0.0
LnGrp LOS	E	A	A		A	
Approach Vol, veh/h		3417	1835	A	0	A
Approach Delay, s/veh		23.4	0.5		0.0	
Approach LOS		C	A			

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	63.1	116.9			180.0	0.0
Change Period (Y+Rc), s	6.4	6.4			6.4	6.4
Max Green Setting (Gmax), s	66.6	75.6			148.6	18.6
Max Q Clear Time (g_c+I1), s	54.8	2.0			15.0	0.0
Green Ext Time (p_c), s	1.9	7.5			10.5	0.0

Intersection Summary		
HCM 6th Ctrl Delay		15.4
HCM 6th LOS		B

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Queues
10: Flagler St & SR 826 NB Ramps

12/14/2018

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	1036	2381	1835	972	294
v/c Ratio	0.92	0.80	0.75	0.61	0.71
Control Delay	60.4	5.6	14.7	6.3	90.0
Queue Delay	0.0	0.6	0.3	0.0	0.0
Total Delay	60.4	6.2	15.0	6.3	90.0
Queue Length 50th (ft)	554	280	218	80	122
Queue Length 95th (ft)	629	334	538	265	156
Internal Link Dist (ft)		297	794		403
Turn Bay Length (ft)				100	
Base Capacity (vph)	1271	2993	2441	1583	515
Starvation Cap Reductn	0	262	168	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.82	0.87	0.81	0.61	0.57

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	2469	16	20	2606	7	93	2	0	20	0	10
Future Volume (vph)	17	2469	16	20	2606	7	93	2	0	20	0	10
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999										0.850
Flt Protected	0.950			0.950				0.953			0.950	
Satd. Flow (prot)	1770	5080	0	1770	5085	0	0	1775	1863	0	1770	1583
Flt Permitted	0.032			0.032				0.953			0.950	
Satd. Flow (perm)	60	5080	0	60	5085	0	0	1775	1863	0	1770	1583
Satd. Flow (RTOR)		1										61
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	2616	0	21	2750	0	0	100	0	0	21	11
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	pt+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2		4	4	4 5	8	8	1
Permitted Phases	6			2								8
Detector Phase	1	6		5	2		4	4	4 5	8	8	1
Switch Phase												
Minimum Initial (s)	5.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	11.4	31.4		11.4	31.4		31.6	31.6		31.6	31.6	11.4
Total Split (s)	12.0	104.0		12.0	104.0		32.0	32.0		32.0	32.0	12.0
Total Split (%)	6.7%	57.8%		6.7%	57.8%		17.8%	17.8%		17.8%	17.8%	6.7%
Maximum Green (s)	5.6	97.6		5.6	97.6		25.4	25.4		25.4	25.4	5.6
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	4.4
All-Red Time (s)	2.0	2.0		2.0	2.0		2.6	2.6		2.6	2.6	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4			6.6			6.6	6.4
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.5	1.0		3.5	1.0		3.5	3.5		3.5	3.5	3.5
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		18.0			18.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		1			0		5	5		1	1	
Act Effct Green (s)	134.2	130.3		134.2	130.3			16.6			11.2	18.7
Actuated g/C Ratio	0.75	0.72		0.75	0.72			0.09			0.06	0.10
v/c Ratio	0.17	0.71		0.20	0.75			0.61			0.19	0.05
Control Delay	13.2	22.7		18.4	10.2			93.5			80.7	0.4
Queue Delay	0.0	0.3		0.0	0.0			0.0			0.0	0.0
Total Delay	13.2	23.0		18.4	10.2			93.5			80.7	0.4
LOS	B	C		B	B			F			F	A
Approach Delay		22.9			10.3			93.5			53.1	
Approach LOS		C			B			F			D	
Stops (vph)	6	1045		9	880			89			19	0
Fuel Used(gal)	0	34		0	15			2			1	0
CO Emissions (g/hr)	14	2389		11	1069			166			41	5
NOx Emissions (g/hr)	3	465		2	208			32			8	1
VOC Emissions (g/hr)	3	554		3	248			39			10	1
Dilemma Vehicles (#)	0	0		0	0			0			0	0

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 24 (13%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 14: Flagler St & SW 74th Ave



HCM 6th Signalized Intersection Summary
14: Flagler St & SW 74th Ave

12/14/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	2469	16	20	2606	7	93	2	0	20	0	10
Future Volume (veh/h)	17	2469	16	20	2606	7	93	2	0	20	0	10
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	2599	17	21	2743	7	98	2	0	21	0	11
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	116	3864	25	158	3890	10	119	2	137	55	0	75
Arrive On Green	0.03	1.00	1.00	0.02	0.74	0.74	0.07	0.07	0.00	0.03	0.00	0.03
Sat Flow, veh/h	1781	5234	34	1781	5259	13	1747	36	1585	1781	0	1585
Grp Volume(v), veh/h	18	1689	927	21	1775	975	100	0	0	21	0	11
Grp Sat Flow(s),veh/h/ln	1781	1702	1864	1781	1702	1868	1783	0	1585	1781	0	1585
Q Serve(g_s), s	0.4	0.0	0.0	0.5	51.0	51.2	10.0	0.0	0.0	2.1	0.0	1.2
Cycle Q Clear(g_c), s	0.4	0.0	0.0	0.5	51.0	51.2	10.0	0.0	0.0	2.1	0.0	1.2
Prop In Lane	1.00		0.02	1.00		0.01	0.98		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	2513	1376	158	2518	1382	122	0	137	55	0	75
V/C Ratio(X)	0.16	0.67	0.67	0.13	0.70	0.71	0.82	0.00	0.00	0.38	0.00	0.15
Avail Cap(c_a), veh/h	142	2513	1376	182	2518	1382	252	0	252	251	0	250
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.52	0.52	0.52	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.9	0.0	0.0	5.4	12.7	12.8	82.8	0.0	0.0	85.5	0.0	82.2
Incr Delay (d2), s/veh	0.4	0.8	1.4	0.5	1.7	3.1	14.9	0.0	0.0	5.1	0.0	1.1
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(50%),veh/ln	0.3	0.3	0.5	0.2	19.4	21.8	5.1	0.0	0.0	1.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	0.8	1.4	5.9	14.4	15.8	97.7	0.0	0.0	90.6	0.0	83.3
LnGrp LOS	B	A	A	A	B	B	F	A	A	F	A	F
Approach Vol, veh/h		2634			2771			100			32	
Approach Delay, s/veh		1.1			14.8			97.7			88.1	
Approach LOS		A			B			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	139.6		18.9	9.7	139.3		12.2				
Change Period (Y+Rc), s	6.4	6.4		6.6	6.4	6.4		6.6				
Max Green Setting (Gmax), s	5.6	97.6		25.4	5.6	97.6		25.4				
Max Q Clear Time (g_c+I1), s	2.4	53.2		12.0	2.5	2.0		4.1				
Green Ext Time (p_c), s	0.0	13.7		0.4	0.0	12.9		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		10.2
HCM 6th LOS		B

Queues
14: Flagler St & SW 74th Ave

12/14/2018

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	18	2616	21	2750	100	21	11
v/c Ratio	0.17	0.71	0.20	0.75	0.61	0.19	0.05
Control Delay	13.2	22.7	18.4	10.2	93.5	80.7	0.4
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	23.0	18.4	10.2	93.5	80.7	0.4
Queue Length 50th (ft)	6	490	3	235	116	25	0
Queue Length 95th (ft)	m11	458	m4	m260	178	53	0
Internal Link Dist (ft)		794		166	29	916	
Turn Bay Length (ft)	200						85
Base Capacity (vph)	104	3676	105	3681	250	249	219
Starvation Cap Reductn	0	442	0	0	0	0	0
Spillback Cap Reductn	0	0	0	10	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.81	0.20	0.75	0.40	0.08	0.05

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

Flagler St at SR 826 06/13/2018 AM No Build Conditions
RS&H
Synchro 10 Report
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	485	1666	211	98	1957	0	139	505	285	170	344	502
Future Volume (vph)	485	1666	211	98	1957	0	139	505	285	170	344	502
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	0.95	0.97	0.95	1.00
Frt		0.983						0.946				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4999	0	1770	5085	0	1770	3348	0	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4999	0	1770	5085	0	1770	3348	0	3433	3539	1583
Satd. Flow (RTOR)		18						54				102
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
Shared Lane Traffic (%)												
Lane Group Flow (vph)	511	1976	0	103	2060	0	146	832	0	179	362	528
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases												8
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	5.0
Minimum Split (s)	11.7	36.7		11.7	36.7		11.6	35.6		11.6	35.6	11.7
Total Split (s)	50.0	96.7		25.3	72.0		22.0	43.0		15.0	36.0	50.0
Total Split (%)	27.8%	53.7%		14.1%	40.0%		12.2%	23.9%		8.3%	20.0%	27.8%
Maximum Green (s)	43.3	90.0		18.6	65.3		15.4	36.4		8.4	29.4	43.3
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	4.4
All-Red Time (s)	2.3	2.3		2.3	2.3		2.2	2.2		2.2	2.2	2.3
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)	6.7	6.7		6.7	6.7		6.6	6.6		6.6	6.6	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	5.0	1.0		2.0	1.0		2.0	4.0		2.0	3.0	5.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		23.0			23.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	43.3	94.2		14.4	65.3		15.4	36.4		8.4	29.4	79.3
Actuated g/C Ratio	0.24	0.52		0.08	0.36		0.09	0.20		0.05	0.16	0.44
v/c Ratio	1.20	0.75		0.73	1.12		0.97	1.16		1.12	0.63	0.70
Control Delay	167.7	36.8		108.4	112.2		143.8	141.6		178.8	75.6	38.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	167.7	36.8		108.4	112.2		143.8	141.6		178.8	75.6	38.1
LOS	F	D		F	F		F	F		F	E	D
Approach Delay		63.7			112.1			142.0			74.3	
Approach LOS		E			F			F			E	
Stops (vph)	393	1090		95	1725		122	633		141	315	337
Fuel Used(gal)	23	36		3	61		6	33		7	7	6
CO Emissions (g/hr)	1589	2485		213	4297		416	2317		498	514	435
NOx Emissions (g/hr)	309	484		41	836		81	451		97	100	85
VOC Emissions (g/hr)	368	576		49	996		96	537		115	119	101
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	0

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 16 (9%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.20	
Intersection Signal Delay: 92.4	Intersection LOS: F
Intersection Capacity Utilization 114.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 19: NW 72nd Ave & Flagler St



HCM 6th Signalized Intersection Summary
19: NW 72nd Ave & Flagler St

12/14/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	485	1666	211	98	1957	0	139	505	285	170	344	502
Future Volume (veh/h)	485	1666	211	98	1957	0	139	505	285	170	344	502
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	511	1754	222	103	2060	0	146	532	300	179	362	528
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	0	2	2	2	2	2	2
Cap, veh/h	429	2457	309	122	1852		152	443	249	161	580	640
Arrive On Green	0.24	0.54	0.54	0.07	0.36	0.00	0.09	0.20	0.20	0.05	0.16	0.16
Sat Flow, veh/h	1781	4592	578	1781	5274	0	1781	2192	1233	3456	3554	1585
Grp Volume(v), veh/h	511	1298	678	103	2060	0	146	431	401	179	362	528
Grp Sat Flow(s),veh/h/ln	1781	1702	1766	1781	1702	0	1781	1777	1648	1728	1777	1585
Q Serve(g_s), s	43.3	51.6	52.2	10.3	65.3	0.0	14.7	36.4	36.4	8.4	17.1	29.4
Cycle Q Clear(g_c), s	43.3	51.6	52.2	10.3	65.3	0.0	14.7	36.4	36.4	8.4	17.1	29.4
Prop In Lane	1.00		0.33	1.00		0.00	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	429	1822	945	122	1852		152	359	333	161	580	640
V/C Ratio(X)	1.19	0.71	0.72	0.85	1.11		0.96	1.20	1.20	1.11	0.62	0.82
Avail Cap(c_a), veh/h	429	1822	945	184	1852		152	359	333	161	580	640
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.3	31.4	31.6	82.9	57.4	0.0	82.0	71.8	71.8	85.8	70.1	48.0
Incr Delay (d2), s/veh	107.6	2.4	4.7	13.1	58.7	0.0	59.7	113.7	116.4	103.4	2.1	8.6
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(50%),veh/ln	32.6	22.0	23.6	5.2	38.1	0.0	9.3	28.0	26.2	6.1	8.0	22.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	175.9	33.8	36.2	96.1	116.1	0.0	141.7	185.5	188.2	189.2	72.2	56.6
LnGrp LOS	F	C	D	F	F		F	F	F	F	E	E
Approach Vol, veh/h		2487			2163	A		978			1069	
Approach Delay, s/veh		63.7			115.1			180.0			84.1	
Approach LOS		E			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	50.0	72.0	15.0	43.0	19.0	103.0	22.0	36.0
Change Period (Y+Rc), s	* 6.7	* 6.7	* 6.6	* 6.6	* 6.7	* 6.7	* 6.6	* 6.6
Max Green Setting (Gmax), s	* 43	* 65	* 8.4	* 36	* 19	* 90	* 15	* 29
Max Q Clear Time (g_c+I1), s	45.3	67.3	10.4	38.4	12.3	54.2	16.7	31.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	7.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	100.5
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Queues
19: NW 72nd Ave & Flagler St

12/14/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	511	1976	103	2060	146	832	179	362	528
v/c Ratio	1.20	0.75	0.73	1.12	0.97	1.16	1.12	0.63	0.70
Control Delay	167.7	36.8	108.4	112.2	143.8	141.6	178.8	75.6	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	167.7	36.8	108.4	112.2	143.8	141.6	178.8	75.6	38.1
Queue Length 50th (ft)	~744	380	121	~1019	175	~580	~124	213	414
Queue Length 95th (ft)	#990	676	190	#1104	#333	#721	#212	273	565
Internal Link Dist (ft)		977		393		1034		39	
Turn Bay Length (ft)	500				350				
Base Capacity (vph)	425	2624	182	1844	151	720	160	578	754
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	1.20	0.75	0.57	1.12	0.97	1.16	1.12	0.63	0.70

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.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	1614	66	60	2236	385	56	89	26	582	131	234
Future Volume (vph)	221	1614	66	60	2236	385	56	89	26	582	131	234
Satd. Flow (prot)	1770	5055	0	1770	4973	0	1770	1799	0	3433	1863	1583
Flt Permitted	0.045			0.083			0.950			0.950		
Satd. Flow (perm)	84	5055	0	155	4973	0	1770	1799	0	3433	1863	1583
Satd. Flow (RTOR)		5			27			7				99
Adj. Flow (vph)	235	1717	70	64	2379	410	60	95	28	619	139	249
Lane Group Flow (vph)	235	1787	0	64	2789	0	60	123	0	619	139	249
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								
Detector Phase	1	6		5	2		4	4		3	3	3 1
Switch Phase												
Minimum Initial (s)	5.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.4	24.4		11.4	24.4		24.6	24.6		32.6	32.6	
Total Split (s)	22.0	95.0		15.0	88.0		25.0	25.0		35.0	35.0	
Total Split (%)	12.9%	55.9%		8.8%	51.8%		14.7%	14.7%		20.6%	20.6%	
Maximum Green (s)	15.6	88.6		8.6	81.6		18.4	18.4		28.4	28.4	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		0.0			0.0		0.0	0.0		5.0	5.0	
Flash Dont Walk (s)		0.0			0.0		0.0	0.0		19.0	19.0	
Pedestrian Calls (#/hr)		0			0		0	0		5	5	
Act Effct Green (s)	106.9	93.7		88.4	81.6		15.1	15.1		28.4	28.4	47.1
Actuated g/C Ratio	0.63	0.55		0.52	0.48		0.09	0.09		0.17	0.17	0.28
v/c Ratio	0.98	0.64		0.44	1.16		0.38	0.74		1.08	0.45	0.49
Control Delay	104.1	28.3		16.7	85.7		79.1	96.4		125.1	68.9	23.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	104.1	28.3		16.7	85.7		79.1	96.4		125.1	68.9	23.1
LOS	F	C		B	F		E	F		F	E	C
Approach Delay		37.1			84.1			90.8			92.1	
Approach LOS		D			F			F			F	
Stops (vph)	141	1138		13	584		52	106		511	117	117
Fuel Used(gal)	8	35		1	74		2	4		22	4	4
CO Emissions (g/hr)	556	2470		59	5153		116	268		1563	248	255
NOx Emissions (g/hr)	108	481		11	1003		23	52		304	48	50
VOC Emissions (g/hr)	129	572		14	1194		27	62		362	57	59
Dilemma Vehicles (#)	0	50		0	63		0	0		0	0	0

Intersection Summary
Cycle Length: 170
Actuated Cycle Length: 170

Offset: 39 (23%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 70.0 Intersection LOS: E
Intersection Capacity Utilization 108.6% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: NW 82nd Ave & Flagler Str/Flagler St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	1614	66	60	2236	385	56	89	26	582	131	234
Future Volume (vph)	221	1614	66	60	2236	385	56	89	26	582	131	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	6.6
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		0.97	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5055		1770	4973		1770	1799		3433	1863	1583
Flt Permitted	0.05	1.00		0.08	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	85	5055		154	4973		1770	1799		3433	1863	1583
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)	235	1717	70	64	2379	410	60	95	28	619	139	249
RTOR Reduction (vph)	0	2	0	0	14	0	0	6	0	0	0	71
Lane Group Flow (vph)	235	1785	0	64	2775	0	60	117	0	619	139	178
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		4	4		3	3	3 1
Permitted Phases	6			2								
Actuated Green, G (s)	106.9	93.7		88.4	81.6		15.1	15.1		28.4	28.4	47.3
Effective Green, g (s)	106.9	93.7		88.4	81.6		15.1	15.1		28.4	28.4	47.3
Actuated g/C Ratio	0.63	0.55		0.52	0.48		0.09	0.09		0.17	0.17	0.28
Clearance Time (s)	6.4	6.4		6.4	6.4		6.6	6.6		6.6	6.6	
Vehicle Extension (s)	2.0	1.0		2.0	1.0		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	240	2786		144	2387		157	159		573	311	440
v/s Ratio Prot	c0.11	0.35		0.02	c0.56		0.03	c0.06		c0.18	0.07	0.11
v/s Ratio Perm	0.51			0.21								
v/c Ratio	0.98	0.64		0.44	1.16		0.38	0.73		1.08	0.45	0.40
Uniform Delay, d1	61.4	26.5		22.9	44.2		73.1	75.5		70.8	63.7	49.9
Progression Factor	1.00	1.00		1.08	0.16		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	51.4	1.1		0.1	73.6		1.1	15.2		61.1	0.7	0.4
Delay (s)	112.9	27.6		24.9	80.8		74.2	90.6		131.9	64.5	50.3
Level of Service	F	C		C	F		E	F		F	E	D
Approach Delay (s)		37.5			79.5			85.2			102.4	
Approach LOS		D			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	69.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	235	1787	64	2789	60	123	619	139	249
v/c Ratio	0.98	0.64	0.44	1.16	0.38	0.74	1.08	0.45	0.49
Control Delay	104.1	28.3	16.7	85.7	79.1	96.4	125.1	68.9	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.1	28.3	16.7	85.7	79.1	96.4	125.1	68.9	23.1
Queue Length 50th (ft)	~218	497	7	~1311	64	128	~394	142	105
Queue Length 95th (ft)	#443	580	m8	m#1123	115	202	#522	217	175
Internal Link Dist (ft)		976		1138		989		958	
Turn Bay Length (ft)	200		200		150		200		
Base Capacity (vph)	240	2787	163	2401	191	200	573	311	510
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	0.98	0.64	0.39	1.16	0.31	0.61	1.08	0.45	0.49

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	1998	11	73	2348	573	40	40	22	805	32	343
Future Volume (vph)	332	1998	11	73	2348	573	40	40	22	805	32	343
Satd. Flow (prot)	1770	5080	0	1770	5085	1583	1770	1863	1583	1681	1692	1583
Flt Permitted	0.050			0.055			0.950			0.950	0.956	
Satd. Flow (perm)	93	5080	0	102	5085	1583	1770	1863	1583	1681	1692	1583
Satd. Flow (RTOR)		1				277			103			207
Adj. Flow (vph)	349	2103	12	77	2472	603	42	42	23	847	34	361
Lane Group Flow (vph)	349	2115	0	77	2472	603	42	42	23	440	441	361
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8
Detector Phase	1	6		5	2	2	4	4	5	8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	5.0	7.0	7.0	7.0
Minimum Split (s)	13.4	30.4		12.0	30.4	30.4	13.6	13.6	12.0	34.2	34.2	34.2
Total Split (s)	30.0	95.0		16.0	81.0	81.0	14.0	14.0	16.0	45.0	45.0	45.0
Total Split (%)	17.6%	55.9%		9.4%	47.6%	47.6%	8.2%	8.2%	9.4%	26.5%	26.5%	26.5%
Maximum Green (s)	23.6	88.6		9.0	74.6	74.6	7.4	7.4	9.0	38.8	38.8	38.8
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.0	4.0	4.4	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.6	2.0	2.0	2.6	2.6	2.6	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag			Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes			Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)	0.0	7.0			7.0	7.0	0.0	0.0		7.0	7.0	7.0
Flash Dont Walk (s)	0.0	17.0			17.0	17.0	0.0	0.0		21.0	21.0	21.0
Pedestrian Calls (#/hr)	0	20			0	0	0	0		21	21	21
Act Effct Green (s)	104.6	89.5		82.1	74.6	74.6	7.3	7.3	13.7	41.6	41.6	41.6
Actuated g/C Ratio	0.62	0.53		0.48	0.44	0.44	0.04	0.04	0.08	0.24	0.24	0.24
v/c Ratio	1.20	0.79		0.60	1.11	0.71	0.55	0.53	0.10	1.07	1.07	0.66
Control Delay	164.8	25.0		55.8	74.7	4.7	106.0	102.8	1.0	122.9	121.4	31.2
Queue Delay	0.0	0.1		0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	164.8	25.1		55.8	74.7	5.6	106.0	102.8	1.0	122.9	121.4	31.2
LOS	F	C		E	E	A	F	F	A	F	F	C
Approach Delay		44.9			61.0			82.1			95.7	
Approach LOS		D			E			F			F	
Stops (vph)	244	892		35	1894	37	38	39	0	342	344	143
Fuel Used(gal)	17	37		1	65	2	1	1	0	16	16	6
CO Emissions (g/hr)	1174	2600		100	4529	165	98	96	13	1110	1104	410
NOx Emissions (g/hr)	228	506		20	881	32	19	19	3	216	215	80
VOC Emissions (g/hr)	272	603		23	1050	38	23	22	3	257	256	95
Dilemma Vehicles (#)	0	56		0	91	0	0	0	0	0	0	0

Intersection Summary
Cycle Length: 170
Actuated Cycle Length: 170

Offset: 28 (16%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 61.8 Intersection LOS: E
Intersection Capacity Utilization 109.4% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 2: SW 79th Ave/NW 79th Ave & Flagler St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	1998	11	73	2348	573	40	40	22	805	32	343
Future Volume (vph)	332	1998	11	73	2348	573	40	40	22	805	32	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	5081		1770	5085	1583	1770	1863	1583	1681	1692	1583
Flt Permitted	0.05	1.00		0.05	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	93	5081		102	5085	1583	1770	1863	1583	1681	1692	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	2103	12	77	2472	603	42	42	23	847	34	361
RTOR Reduction (vph)	0	0	0	0	0	158	0	0	21	0	0	156
Lane Group Flow (vph)	349	2115	0	77	2472	445	42	42	2	440	441	205
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	1	6		5	2		4	4	5	8	8	
Permitted Phases	6			2		2			4			8
Actuated Green, G (s)	103.3	88.2		81.4	73.3	73.3	5.9	5.9	14.0	41.6	41.6	41.6
Effective Green, g (s)	103.3	88.2		81.4	73.3	73.3	5.9	5.9	14.0	41.6	41.6	41.6
Actuated g/C Ratio	0.61	0.52		0.48	0.43	0.43	0.03	0.03	0.08	0.24	0.24	0.24
Clearance Time (s)	6.4	6.4		7.0	6.4	6.4	6.6	6.6	7.0	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	289	2636		128	2192	682	61	64	130	411	414	387
v/s Ratio Prot	c0.17	0.42		0.03	0.49		c0.02	0.02	0.00	c0.26	0.26	
v/s Ratio Perm	c0.56			0.26		0.28			0.00			0.13
v/c Ratio	1.21	0.80		0.60	1.13	0.65	0.69	0.66	0.01	1.07	1.07	0.53
Uniform Delay, d1	61.0	33.7		31.4	48.4	38.3	81.1	81.0	71.7	64.2	64.2	55.7
Progression Factor	1.20	0.70		1.47	0.41	0.08	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	113.5	1.8		4.9	61.7	3.1	27.7	21.7	0.0	64.5	62.6	1.3
Delay (s)	186.4	25.6		51.2	81.6	6.1	108.8	102.7	71.7	128.7	126.8	57.0
Level of Service	F	C		D	F	A	F	F	E	F	F	E
Approach Delay (s)		48.4			66.4			98.4			107.2	
Approach LOS		D			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	67.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	26.2
Intersection Capacity Utilization	109.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	349	2115	77	2472	603	42	42	23	440	441	361
v/c Ratio	1.20	0.79	0.60	1.11	0.71	0.55	0.53	0.10	1.07	1.07	0.66
Control Delay	164.8	25.0	55.8	74.7	4.7	106.0	102.8	1.0	122.9	121.4	31.2
Queue Delay	0.0	0.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	164.8	25.1	55.8	74.7	5.6	106.0	102.8	1.0	122.9	121.4	31.2
Queue Length 50th (ft)	~427	400	37	~1130	16	47	47	0	~602	~602	162
Queue Length 95th (ft)	m#576	m423	m52	m#1176	m27	#100	#94	0	#843	#842	291
Internal Link Dist (ft)		1138		284			970			1004	
Turn Bay Length (ft)	240		180			120		120			220
Base Capacity (vph)	290	2674	138	2231	850	77	81	230	411	414	544
Starvation Cap Reductn	0	0	0	33	75	0	0	0	0	0	0
Spillback Cap Reductn	0	47	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.20	0.81	0.56	1.12	0.78	0.55	0.52	0.10	1.07	1.07	0.66

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	584	2260	41	123	2464	692	27	56	167	760	51	0
Future Volume (vph)	584	2260	41	123	2464	692	27	56	167	760	51	0
Satd. Flow (prot)	4990	5070	0	1770	5085	1583	0	1833	1583	4990	1863	0
Flt Permitted	0.950			0.047				0.984		0.950		
Satd. Flow (perm)	4990	5070	0	88	5085	1583	0	1833	1583	4990	1863	0
Satd. Flow (RTOR)		2				360			145			
Adj. Flow (vph)	596	2306	42	126	2514	706	28	57	170	776	52	0
Lane Group Flow (vph)	596	2348	0	126	2514	706	0	85	170	776	52	0
Turn Type	Prot	NA		pm+pt	NA	Perm	Split	NA	Prot	Split	NA	
Protected Phases	1	6		5	2		4	4	4	8	8	
Permitted Phases				2		2						
Detector Phase	1	6		5	2	2	4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	13.4	23.4		11.4	24.4	24.4	13.4	13.4	13.4	13.4	13.4	
Total Split (s)	28.0	102.0		18.0	92.0	92.0	16.0	16.0	16.0	34.0	34.0	
Total Split (%)	16.5%	60.0%		10.6%	54.1%	54.1%	9.4%	9.4%	9.4%	20.0%	20.0%	
Maximum Green (s)	21.6	95.6		11.6	85.6	85.6	9.6	9.6	9.6	27.6	27.6	
Yellow Time (s)	4.4	4.4		4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
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)	6.4	6.4		6.4	6.4	6.4		6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	Max	Max	
Walk Time (s)		7.0			7.0	7.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s)		10.0			10.0	10.0	0.0	0.0	0.0	0.0	0.0	
Pedestrian Calls (#/hr)		13			1	1	0	0	0	0	0	
Act Effct Green (s)	21.6	96.4		96.4	85.6	85.6		9.6	9.6	27.6	27.6	
Actuated g/C Ratio	0.13	0.57		0.57	0.50	0.50		0.06	0.06	0.16	0.16	
v/c Ratio	0.94	0.82		0.80	0.98	0.72		0.83	0.75	0.96	0.17	
Control Delay	88.4	20.3		84.5	25.5	3.4		128.3	37.1	92.5	63.1	
Queue Delay	0.0	0.6		0.0	41.1	0.9		0.0	0.0	0.0	0.0	
Total Delay	88.4	20.9		84.5	66.6	4.3		128.3	37.1	92.5	63.1	
LOS	F	C		F	E	A		F	D	F	E	
Approach Delay		34.5			54.1			67.5			90.7	
Approach LOS		C			D			E			F	
Stops (vph)	548	1261		77	1869	25		74	33	709	43	
Fuel Used(gal)	19	33		4	46	4		3	3	20	1	
CO Emissions (g/hr)	1344	2286		250	3228	254		227	196	1421	72	
NOx Emissions (g/hr)	262	445		49	628	49		44	38	277	14	
VOC Emissions (g/hr)	312	530		58	748	59		53	45	329	17	
Dilemma Vehicles (#)	0	71		0	93	0		0	0	0	0	

Intersection Summary
Cycle Length: 170
Actuated Cycle Length: 170

Offset: 12 (7%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 50.9 — Intersection LOS: D
Intersection Capacity Utilization 95.8% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 6: SW 78th Ave/SR 826 SB Ramps & Flagler St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	584	2260	41	123	2464	692	27	56	167	760	51	0
Future Volume (veh/h)	584	2260	41	123	2464	692	27	56	167	760	51	0
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	596	2306	42	126	2514	0	28	57	170	776	52	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, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	638	3016	55	163	2571		34	70	90	816	304	
Arrive On Green	0.13	0.58	0.58	0.05	0.50	0.00	0.06	0.06	0.06	0.16	0.16	0.00
Sat Flow, veh/h	5023	5164	94	1781	5106	1585	606	1234	1585	5023	1870	0
Grp Volume(v), veh/h	596	1518	830	126	2514	0	85	0	170	776	52	0
Grp Sat Flow(s),veh/h/ln	1674	1702	1853	1781	1702	1585	1840	0	1585	1674	1870	0
Q Serve(g_s), s	20.0	56.9	57.3	5.8	81.9	0.0	7.8	0.0	9.6	26.0	4.1	0.0
Cycle Q Clear(g_c), s	20.0	56.9	57.3	5.8	81.9	0.0	7.8	0.0	9.6	26.0	4.1	0.0
Prop In Lane	1.00		0.05	1.00		1.00	0.33		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	638	1989	1083	163	2571		104	0	90	816	304	
V/C Ratio(X)	0.93	0.76	0.77	0.77	0.98		0.82	0.00	1.90	0.95	0.17	
Avail Cap(c_a), veh/h	638	1989	1083	202	2571		104	0	90	816	304	
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	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	73.5	26.5	26.6	33.8	41.3	0.0	79.3	0.0	80.2	70.5	61.3	0.0
Incr Delay (d2), s/veh	20.9	2.8	5.2	13.7	13.3	0.0	38.0	0.0	443.4	21.7	1.2	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(50%),veh/ln	9.7	22.8	25.7	3.2	36.0	0.0	4.8	0.0	15.0	12.9	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.4	29.4	31.8	47.5	54.5	0.0	117.3	0.0	523.6	92.2	62.6	0.0
LnGrp LOS	F	C	C	D	D		F	A	F	F	E	
Approach Vol, veh/h		2944			2640	A		255			828	A
Approach Delay, s/veh		43.2			54.2			388.2			90.4	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.0	92.0		16.0	14.3	105.7		34.0				
Change Period (Y+Rc), s	6.4	6.4		6.4	6.4	6.4		6.4				
Max Green Setting (Gmax), s	21.6	85.6		9.6	11.6	95.6		27.6				
Max Q Clear Time (g_c+I1), s	22.0	83.9		11.6	7.8	59.3		28.0				
Green Ext Time (p_c), s	0.0	1.7		0.0	0.1	23.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		66.6
HCM 6th LOS		E

Notes

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	596	2348	126	2514	706	85	170	776	52
v/c Ratio	0.94	0.82	0.80	0.98	0.72	0.83	0.75	0.96	0.17
Control Delay	88.4	20.3	84.5	25.5	3.4	128.3	37.1	92.5	63.1
Queue Delay	0.0	0.6	0.0	41.1	0.9	0.0	0.0	0.0	0.0
Total Delay	88.4	20.9	84.5	66.6	4.3	128.3	37.1	92.5	63.1
Queue Length 50th (ft)	235	380	94	640	0	96	27	308	51
Queue Length 95th (ft)	m#284	m545	m116	m#832	m0	#204	#136	#395	96
Internal Link Dist (ft)		424		200		968			274
Turn Bay Length (ft)	220		150				80	250	
Base Capacity (vph)	634	2875	165	2560	975	103	226	811	302
Starvation Cap Reductn	0	200	0	46	89	0	0	0	0
Spillback Cap Reductn	0	0	0	300	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.88	0.76	1.11	0.80	0.83	0.75	0.96	0.17

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.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	988	2150	2655	724	181	0
Future Volume (vph)	988	2150	2655	724	181	0
Satd. Flow (prot)	3433	3539	5085	1583	4990	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	5085	1583	4990	0
Satd. Flow (RTOR)				79		
Adj. Flow (vph)	1008	2194	2709	739	185	0
Lane Group Flow (vph)	1008	2194	2709	739	185	0
Turn Type	Prot	NA	NA	Free	Prot	
Protected Phases	1	6	2		3	
Permitted Phases				Free		
Detector Phase	1	6	2		3	
Switch Phase						
Minimum Initial (s)	5.0	16.0	16.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		13.4	
Total Split (s)	57.0	156.0	99.0		14.0	
Total Split (%)	33.5%	91.8%	58.2%		8.2%	
Maximum Green (s)	50.6	149.6	92.6		7.6	
Yellow Time (s)	4.4	4.4	4.4		4.4	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		6.4	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	2.0	1.0	1.0		2.0	
Recall Mode	None	C-Max	C-Max		None	
Walk Time (s)		0.0	0.0		0.0	
Flash Dont Walk (s)		0.0	0.0		0.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	50.6	149.6	92.6	170.0	7.6	
Actuated g/C Ratio	0.30	0.88	0.54	1.00	0.04	
v/c Ratio	0.99	0.70	0.98	0.47	0.83	
Control Delay	73.7	3.3	50.2	1.0	108.3	
Queue Delay	0.0	0.1	41.7	0.0	0.0	
Total Delay	73.7	3.4	92.0	1.0	108.3	
LOS	E	A	F	A	F	
Approach Delay		25.6	72.5		108.3	
Approach LOS		C	E		F	
Stops (vph)	859	347	2393	0	169	
Fuel Used(gal)	28	11	58	5	6	
CO Emissions (g/hr)	1948	761	4086	355	392	
NOx Emissions (g/hr)	379	148	795	69	76	
VOC Emissions (g/hr)	452	176	947	82	91	
Dilemma Vehicles (#)	0	72	0	0	0	

Intersection Summary
Cycle Length: 170
Actuated Cycle Length: 170

Offset: 164 (96%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 51.5 Intersection LOS: D
Intersection Capacity Utilization 101.3% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 10: Flagler St & SR 826 NB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	988	2150	2655	724	181	0
Future Volume (veh/h)	988	2150	2655	724	181	0
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	1008	2194	2709	0	185	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1029	3420	3202		0	0
Arrive On Green	0.30	0.96	0.63	0.00	0.00	0.00
Sat Flow, veh/h	3456	3647	5274	1585	0	0
Grp Volume(v), veh/h	1008	2194	2709	0	0	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1702	1585	0	0
Q Serve(g_s), s	49.2	10.3	71.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	49.2	10.3	71.6	0.0	0.0	0.0
Prop In Lane	1.00			1.00	0.00	0.00
Lane Grp Cap(c), veh/h	1029	3420	3202		0	0
V/C Ratio(X)	0.98	0.64	0.85		0.00	0.00
Avail Cap(c_a), veh/h	1029	3420	3202		0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.09	0.00	0.00	0.00
Uniform Delay (d), s/veh	59.2	0.3	25.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	23.1	0.9	0.3	0.0	0.0	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	24.3	0.4	28.4	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	82.3	1.3	25.5	0.0	0.0	0.0
LnGrp LOS	F	A	C		A	A
Approach Vol, veh/h		3202	2709	A	0	
Approach Delay, s/veh		26.8	25.5		0.0	
Approach LOS		C	C			

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	57.0	113.0			170.0	0.0
Change Period (Y+Rc), s	6.4	6.4			6.4	6.4
Max Green Setting (Gmax), s	50.6	92.6			149.6	7.6
Max Q Clear Time (g_c+I1), s	51.2	73.6			12.3	0.0
Green Ext Time (p_c), s	0.0	11.1			8.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	26.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	1008	2194	2709	739	185
v/c Ratio	0.99	0.70	0.98	0.47	0.83
Control Delay	73.7	3.3	50.2	1.0	108.3
Queue Delay	0.0	0.1	41.7	0.0	0.0
Total Delay	73.7	3.4	92.0	1.0	108.3
Queue Length 50th (ft)	546	222	1053	0	74
Queue Length 95th (ft)	m#703	226	#1147	0	#120
Internal Link Dist (ft)		288	794		403
Turn Bay Length (ft)				100	
Base Capacity (vph)	1021	3114	2769	1583	223
Starvation Cap Reductn	0	196	358	0	0
Spillback Cap Reductn	0	0	79	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.99	0.75	1.12	0.47	0.83

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	2407	13	30	3524	10	92	9	0	39	6	10
Future Volume (vph)	48	2407	13	30	3524	10	92	9	0	39	6	10
Satd. Flow (prot)	1770	5080	0	1770	5085	0	0	1781	1863	0	1785	1583
Flt Permitted	0.033			0.950				0.956			0.958	
Satd. Flow (perm)	61	5080	0	1770	5085	0	0	1781	1863	0	1785	1583
Satd. Flow (RTOR)		1										61
Adj. Flow (vph)	50	2507	14	31	3671	10	96	9	0	41	6	10
Lane Group Flow (vph)	50	2521	0	31	3681	0	0	105	0	0	47	10
Turn Type	pm+pt	NA		Prot	NA		Split	NA	pt+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2		4	4	4 5	8	8	1
Permitted Phases	6											8
Detector Phase	1	6		5	2		4	4	4 5	8	8	1
Switch Phase												
Minimum Initial (s)	5.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	11.4	31.4		9.5	31.4		31.6	31.6		31.6	31.6	11.4
Total Split (s)	12.0	104.0		12.0	104.0		32.0	32.0		32.0	32.0	12.0
Total Split (%)	6.7%	57.8%		6.7%	57.8%		17.8%	17.8%		17.8%	17.8%	6.7%
Maximum Green (s)	5.6	97.6		7.5	97.6		25.4	25.4		25.4	25.4	5.6
Yellow Time (s)	4.4	4.4		3.5	4.4		4.0	4.0		4.0	4.0	4.4
All-Red Time (s)	2.0	2.0		1.0	2.0		2.6	2.6		2.6	2.6	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.4	6.4		4.5	6.4			6.6			6.6	6.4
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.5	1.0		3.0	1.0		3.5	3.5		3.5	3.5	3.5
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		18.0			18.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		1			0		2	2		2	2	
Act Effct Green (s)	128.8	123.0		7.9	122.5			16.9			12.8	23.6
Actuated g/C Ratio	0.72	0.68		0.04	0.68			0.09			0.07	0.13
v/c Ratio	0.45	0.73		0.40	1.06			0.63			0.37	0.04
Control Delay	35.8	23.1		88.4	54.4			94.0			85.8	0.3
Queue Delay	0.0	1.1		0.0	0.0			0.0			0.0	0.0
Total Delay	35.8	24.2		88.4	54.4			94.0			85.8	0.3
LOS	D	C		F	D			F			F	A
Approach Delay		24.5			54.6			94.0			70.8	
Approach LOS		C			D			F			E	
Stops (vph)	20	1516		29	2008			95			42	0
Fuel Used(gal)	1	36		1	57			3			1	0
CO Emissions (g/hr)	55	2534		53	3983			178			96	5
NOx Emissions (g/hr)	11	493		10	775			35			19	1
VOC Emissions (g/hr)	13	587		12	923			41			22	1
Dilemma Vehicles (#)	0	0		0	0			0			0	0

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180

Offset: 143 (79%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 43.4 Intersection LOS: D
Intersection Capacity Utilization 94.5% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 14: Flagler St & SW 74th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	2407	13	30	3524	10	92	9	0	39	6	10
Future Volume (veh/h)	48	2407	13	30	3524	10	92	9	0	39	6	10
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	2507	14	31	3671	10	96	9	0	41	6	10
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	88	3857	22	40	3798	10	116	11	148	57	8	98
Arrive On Green	0.03	0.74	0.74	0.02	0.72	0.72	0.07	0.07	0.00	0.04	0.04	0.04
Sat Flow, veh/h	1781	5240	29	1781	5258	14	1635	153	1585	1563	229	1585
Grp Volume(v), veh/h	50	1628	893	31	2376	1305	105	0	0	47	0	10
Grp Sat Flow(s),veh/h/ln	1781	1702	1865	1781	1702	1868	1789	0	1585	1792	0	1585
Q Serve(g_s), s	1.3	43.5	43.7	3.1	115.4	116.0	10.4	0.0	0.0	4.7	0.0	1.1
Cycle Q Clear(g_c), s	1.3	43.5	43.7	3.1	115.4	116.0	10.4	0.0	0.0	4.7	0.0	1.1
Prop In Lane	1.00		0.02	1.00		0.01	0.91		1.00	0.87		1.00
Lane Grp Cap(c), veh/h	88	2505	1373	40	2459	1349	127	0	148	66	0	98
V/C Ratio(X)	0.56	0.65	0.65	0.78	0.97	0.97	0.83	0.00	0.00	0.72	0.00	0.10
Avail Cap(c_a), veh/h	98	2505	1373	74	2459	1349	252	0	259	253	0	264
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)	0.63	0.63	0.63	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.4	12.0	12.0	87.5	23.0	23.0	82.5	0.0	0.0	85.8	0.0	79.7
Incr Delay (d2), s/veh	4.4	0.8	1.5	26.7	11.8	17.9	14.8	0.0	0.0	16.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	16.4	18.3	1.7	47.2	54.3	5.4	0.0	0.0	2.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	12.9	13.6	114.2	34.7	40.9	97.3	0.0	0.0	101.8	0.0	80.2
LnGrp LOS	E	B	B	F	C	D	F	A	A	F	A	F
Approach Vol, veh/h		2571			3712			105			57	
Approach Delay, s/veh		14.0			37.6			97.3			98.0	
Approach LOS		B			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	136.4		19.4	8.5	138.9		13.2				
Change Period (Y+Rc), s	6.4	6.4		6.6	4.5	6.4		6.6				
Max Green Setting (Gmax), s	5.6	97.6		25.4	7.5	97.6		25.4				
Max Q Clear Time (g_c+I1), s	3.3	118.0		12.4	5.1	45.7		6.7				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	11.5		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		29.7
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	50	2521	31	3681	105	47	10
v/c Ratio	0.45	0.73	0.40	1.06	0.63	0.37	0.04
Control Delay	35.8	23.1	88.4	54.4	94.0	85.8	0.3
Queue Delay	0.0	1.1	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	24.2	88.4	54.4	94.0	85.8	0.3
Queue Length 50th (ft)	15	683	37	~1798	122	55	0
Queue Length 95th (ft)	69	1035	m35	m#1402	184	95	0
Internal Link Dist (ft)		794		166	29	916	
Turn Bay Length (ft)	200						85
Base Capacity (vph)	110	3471	82	3461	251	251	260
Starvation Cap Reductn	0	648	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	0.45	0.89	0.38	1.06	0.42	0.19	0.04

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	712	1402	304	86	2085	0	252	328	54	517	716	932
Future Volume (vph)	712	1402	304	86	2085	0	252	328	54	517	716	932
Satd. Flow (prot)	1770	4948	0	1770	5085	0	1770	3465	0	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4948	0	1770	5085	0	1770	3465	0	3433	3539	1583
Satd. Flow (RTOR)		37						9				62
Adj. Flow (vph)	727	1431	310	88	2128	0	257	335	55	528	731	951
Lane Group Flow (vph)	727	1741	0	88	2128	0	257	390	0	528	731	951
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases												8
Detector Phase	1	6		5	2		7	4		3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	5.0
Minimum Split (s)	24.7	36.7		11.7	36.7		11.6	35.6		11.6	35.6	24.7
Total Split (s)	55.0	95.0		23.0	63.0		23.0	38.0		24.0	39.0	55.0
Total Split (%)	30.6%	52.8%		12.8%	35.0%		12.8%	21.1%		13.3%	21.7%	30.6%
Maximum Green (s)	48.3	88.3		16.3	56.3		16.4	31.4		17.4	32.4	48.3
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4	4.4
All-Red Time (s)	2.3	2.3		2.3	2.3		2.2	2.2		2.2	2.2	2.3
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)	6.7	6.7		6.7	6.7		6.6	6.6		6.6	6.6	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	5.0	1.0		2.0	1.0		2.0	4.0		2.0	3.0	5.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		23.0			23.0			22.0			22.0	
Pedestrian Calls (#/hr)		4			1			9			0	
Act Effct Green (s)	48.3	91.8		12.8	56.3		16.4	31.4		17.4	32.4	87.3
Actuated g/C Ratio	0.27	0.51		0.07	0.31		0.09	0.17		0.10	0.18	0.48
v/c Ratio	1.53	0.69		0.70	1.34		1.60	0.64		1.60	1.15	1.19
Control Delay	298.2	32.6		109.0	202.5		341.6	72.8		327.6	146.1	136.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	298.2	32.6		109.0	202.5		341.6	72.8		327.6	146.1	136.0
LOS	F	C		F	F		F	E		F	F	F
Approach Delay		110.9			198.8			179.6			185.1	
Approach LOS		F			F			F			F	
Stops (vph)	506	824		85	1605		176	341		354	613	739
Fuel Used(gal)	52	30		3	102		21	11		37	25	31
CO Emissions (g/hr)	3627	2093		188	7165		1446	759		2581	1772	2150
NOx Emissions (g/hr)	706	407		37	1394		281	148		502	345	418
VOC Emissions (g/hr)	841	485		44	1660		335	176		598	411	498
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	0

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180

Offset: 152 (84%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.60
Intersection Signal Delay: 164.4 Intersection LOS: F
Intersection Capacity Utilization 135.7% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 19: NW 72nd Ave & Flagler St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	712	1402	304	86	2085	0	252	328	54	517	716	932
Future Volume (veh/h)	712	1402	304	86	2085	0	252	328	54	517	716	932
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	727	1431	310	88	2128	0	257	335	55	528	731	951
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, %	2	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	478	2192	474	106	1597		162	534	87	334	640	711
Arrive On Green	0.27	0.52	0.52	0.06	0.31	0.00	0.09	0.17	0.17	0.10	0.18	0.18
Sat Flow, veh/h	1781	4203	908	1781	5274	0	1781	3060	497	3456	3554	1585
Grp Volume(v), veh/h	727	1158	583	88	2128	0	257	193	197	528	731	951
Grp Sat Flow(s),veh/h/ln	1781	1702	1707	1781	1702	0	1781	1777	1781	1728	1777	1585
Q Serve(g_s), s	48.3	44.4	44.6	8.8	56.3	0.0	16.4	18.1	18.5	17.4	32.4	32.4
Cycle Q Clear(g_c), s	48.3	44.4	44.6	8.8	56.3	0.0	16.4	18.1	18.5	17.4	32.4	32.4
Prop In Lane	1.00		0.53	1.00		0.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	478	1776	890	106	1597		162	310	311	334	640	711
V/C Ratio(X)	1.52	0.65	0.65	0.83	1.33		1.58	0.62	0.63	1.58	1.14	1.34
Avail Cap(c_a), veh/h	478	1776	890	161	1597		162	310	311	334	640	711
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.9	31.2	31.3	83.8	61.9	0.0	81.8	68.8	69.0	81.3	73.8	49.7
Incr Delay (d2), s/veh	245.0	1.9	3.7	11.8	154.0	0.0	289.9	4.5	4.8	275.2	81.9	161.6
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(50%),veh/ln	54.5	18.9	19.5	4.4	47.1	0.0	20.7	8.7	8.9	20.6	22.1	63.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	310.8	33.1	35.0	95.6	215.8	0.0	371.7	73.3	73.8	356.5	155.7	211.3
LnGrp LOS	F	C	D	F	F		F	E	E	F	F	F
Approach Vol, veh/h		2468			2216	A		647			2210	
Approach Delay, s/veh		115.4			211.1			192.0			227.6	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	55.0	63.0	24.0	38.0	17.4	100.6	23.0	39.0
Change Period (Y+Rc), s	* 6.7	* 6.7	* 6.6	* 6.6	* 6.7	* 6.7	* 6.6	* 6.6
Max Green Setting (Gmax), s	* 48	* 56	* 17	* 31	* 16	* 88	* 16	* 32
Max Q Clear Time (g_c+I1), s	50.3	58.3	19.4	20.5	10.8	46.6	18.4	34.4
Green Ext Time (p_c), s	0.0	0.0	0.0	2.3	0.0	6.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	182.9
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	727	1741	88	2128	257	390	528	731	951
v/c Ratio	1.53	0.69	0.70	1.34	1.60	0.64	1.60	1.15	1.19
Control Delay	298.2	32.6	109.0	202.5	341.6	72.8	327.6	146.1	136.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	298.2	32.6	109.0	202.5	341.6	72.8	327.6	146.1	136.0
Queue Length 50th (ft)	~1223	281	103	~1193	~431	223	~456	~531	~1312
Queue Length 95th (ft)	#1489	533	168	#1276	#629	286	#580	#667	#1581
Internal Link Dist (ft)		977		393		1034		39	
Turn Bay Length (ft)	500				350				
Base Capacity (vph)	474	2540	160	1590	161	611	331	637	799
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	1.53	0.69	0.55	1.34	1.60	0.64	1.60	1.15	1.19

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)	22	108	17	94	591	421	5	85	60	140	70	57
Future Volume (vph)	22	108	17	94	591	421	5	85	60	140	70	57
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	6.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	0.98			1.00	0.85		1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00			0.99	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1825			1850	1583		1858	1583	1770	1738	
Flt Permitted	0.19	1.00			0.93	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	360	1825			1735	1583		1858	1583	1770	1738	
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)	23	114	18	99	622	443	5	89	63	147	74	60
RTOR Reduction (vph)	0	5	0	0	0	155	0	0	48	0	27	0
Lane Group Flow (vph)	23	127	0	0	721	288	0	94	15	147	107	0
Turn Type	Perm	NA		Perm	NA	pt+ov	custom	NA	Prot	Split	NA	
Protected Phases		2			6	6 3	8 4	8 4	8 4	3	3	
Permitted Phases	2			6			8					
Actuated Green, G (s)	57.5	57.5			57.5	71.5		26.5	26.5	8.0	8.0	
Effective Green, g (s)	57.5	57.5			57.5	71.5		26.5	26.5	8.0	8.0	
Actuated g/C Ratio	0.52	0.52			0.52	0.65		0.24	0.24	0.07	0.07	
Clearance Time (s)	6.0	6.0			6.0					6.0	6.0	
Vehicle Extension (s)	1.0	1.0			1.0					2.5	2.5	
Lane Grp Cap (vph)	188	953			906	1028		447	381	128	126	
v/s Ratio Prot		0.07				0.18		c0.05	0.01	c0.08	0.06	
v/s Ratio Perm	0.06				c0.42							
v/c Ratio	0.12	0.13			0.80	0.28		0.21	0.04	1.15	0.85	
Uniform Delay, d1	13.4	13.5			21.5	8.2		33.4	32.0	51.0	50.4	
Progression Factor	1.00	1.00			0.34	0.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	0.3			5.9	0.1		0.2	0.0	125.0	38.6	
Delay (s)	14.7	13.8			13.2	0.1		33.6	32.0	176.0	89.0	
Level of Service	B	B			B	A		C	C	F	F	
Approach Delay (s)		13.9			8.2			32.9			134.5	
Approach LOS		B			A			C			F	

Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

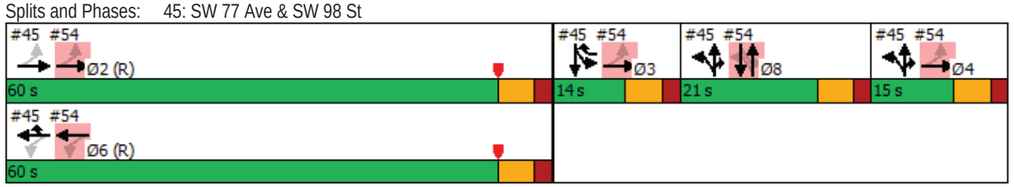
Lane Group	EBL	EBT	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	132	721	443	94	63	147	134
v/c Ratio	0.12	0.14	0.80	0.37	0.21	0.14	1.15	0.88
Control Delay	17.0	13.7	13.6	0.7	33.7	3.7	171.1	86.3
Queue Delay	0.0	0.0	9.7	2.4	0.0	0.1	1.4	0.0
Total Delay	17.0	13.7	23.3	3.1	33.7	3.8	172.4	86.3
Queue Length 50th (ft)	8	43	112	0	53	0	~122	75
Queue Length 95th (ft)	26	81	185	m0	94	18	#251	#191
Internal Link Dist (ft)		705	21		679			679
Turn Bay Length (ft)	50					105	75	
Base Capacity (vph)	188	959	906	1184	427	432	128	153
Starvation Cap Reductn	0	0	161	592	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	84	8	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.14	0.97	0.75	0.22	0.18	1.23	0.88

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.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	Ø4	Ø8
Lane Configurations											
Traffic Volume (vph)	22	108	94	591	421	85	60	140	70		
Future Volume (vph)	22	108	94	591	421	85	60	140	70		
Turn Type	Perm	NA	Perm	NA	pt+ov	NA	Prot	Split	NA		
Protected Phases		2		6	6 3	8 4	8 4	3	3	4	8
Permitted Phases	2		6								
Detector Phase	2	2	6	6	6 3	8 4	8 4	3	3		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0				7.0	7.0	9.0	7.0
Minimum Split (s)	21.0	21.0	21.0	21.0				13.0	13.0	15.0	21.0
Total Split (s)	60.0	60.0	60.0	60.0				14.0	14.0	15.0	21.0
Total Split (%)	54.5%	54.5%	54.5%	54.5%				12.7%	12.7%	14%	19%
Yellow Time (s)	4.0	4.0	4.0	4.0				4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0				2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0				0.0	0.0		
Total Lost Time (s)	6.0	6.0		6.0				6.0	6.0		
Lead/Lag								Lead	Lead		Lag
Lead-Lag Optimize?								Yes	Yes		Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max				None	None	None	None
Act Effct Green (s)	57.5	57.5		57.5	71.5	26.5	26.5	8.0	8.0		
Actuated g/C Ratio	0.52	0.52		0.52	0.65	0.24	0.24	0.07	0.07		
v/c Ratio	0.12	0.14		0.80	0.37	0.21	0.14	1.15	0.88		
Control Delay	17.0	13.7		13.6	0.7	33.7	3.7	171.1	86.3		
Queue Delay	0.0	0.0		9.7	2.4	0.0	0.1	1.4	0.0		
Total Delay	17.0	13.7		23.3	3.1	33.7	3.8	172.4	86.3		
LOS	B	B		C	A	C	A	F	F		
Approach Delay		14.2		15.6		21.7			131.4		
Approach LOS		B		B		C			F		

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 14 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.15			
Intersection Signal Delay: 34.6		Intersection LOS: C	
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 45: SW 77 Ave & SW 98 St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	308	778	0	2	328
Future Volume (Veh/h)	0	308	778	0	2	328
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	324	819	0	2	345
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		101	59			
pX, platoon unblocked					0.97	
vC, conflicting volume	819				1143	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	819				1131	410
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	42
cM capacity (veh/h)	805				191	591

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	324	546	273	347
Volume Left	0	0	0	2
Volume Right	0	0	0	345
cSH	1700	1700	1700	584
Volume to Capacity	0.19	0.32	0.16	0.59
Queue Length 95th (ft)	0	0	0	97
Control Delay (s)	0.0	0.0	0.0	19.8
Lane LOS				C
Approach Delay (s)	0.0	0.0		19.8
Approach LOS				C

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	304	3	2	778	0	0	18	0	0	30	0
Future Volume (vph)	3	304	3	2	778	0	0	18	0	0	30	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		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1860			1863			1863			1863	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1852			1856			1863			1863	
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)	3	320	3	2	819	0	0	19	0	0	32	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	326	0	0	821	0	0	19	0	0	32	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		2 3 4			6			8			8	
Permitted Phases	2 3 4			6			8			8		
Actuated Green, G (s)		88.4			57.5			9.6			9.6	
Effective Green, g (s)		88.4			57.5			9.6			9.6	
Actuated g/C Ratio		0.80			0.52			0.09			0.09	
Clearance Time (s)					6.0			6.0			6.0	
Vehicle Extension (s)					1.0			2.5			2.5	
Lane Grp Cap (vph)	1488			970			162			162		
v/s Ratio Prot							0.01			c0.02		
v/s Ratio Perm	c0.18			c0.44								
v/c Ratio	0.22			0.85			0.12			0.20		
Uniform Delay, d1	2.6			22.5			46.3			46.6		
Progression Factor	2.46			1.26			1.00			1.00		
Incremental Delay, d2	0.0			5.0			0.2			0.4		
Delay (s)	6.4			33.4			46.5			47.1		
Level of Service	A			C			D			D		
Approach Delay (s)	6.4			33.4			46.5			47.1		
Approach LOS	A			C			D			D		

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

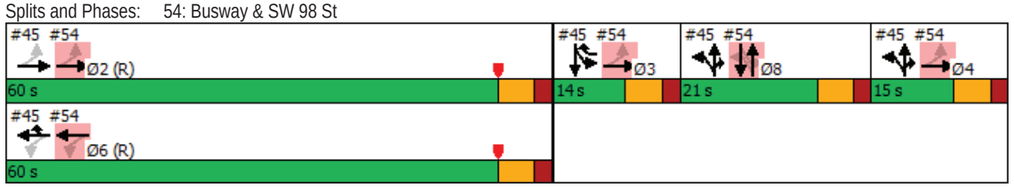
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	326	821	19	32
v/c Ratio	0.22	0.85	0.12	0.20
Control Delay	7.1	34.6	46.7	48.5
Queue Delay	3.1	49.8	0.0	0.0
Total Delay	10.2	84.4	46.7	48.5
Queue Length 50th (ft)	69	668	13	21
Queue Length 95th (ft)	m99	m774	35	51
Internal Link Dist (ft)	1	1	545	650
Turn Bay Length (ft)				
Base Capacity (vph)	1488	970	254	254
Starvation Cap Reductn	1041	314	0	0
Spillback Cap Reductn	318	21	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.73	1.25	0.07	0.13

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

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	Ø2	Ø3	Ø4
Lane Configurations									
Traffic Volume (vph)	3	304	2	778	18	30			
Future Volume (vph)	3	304	2	778	18	30			
Turn Type	Perm	NA	Perm	NA	NA	NA			
Protected Phases		2 3 4		6	8	8	2	3	4
Permitted Phases	2 3 4		6						
Detector Phase	2 3 4	2 3 4	6	6	8	8			
Switch Phase									
Minimum Initial (s)			15.0	15.0	7.0	7.0	15.0	7.0	9.0
Minimum Split (s)			21.0	21.0	21.0	21.0	21.0	13.0	15.0
Total Split (s)			60.0	60.0	21.0	21.0	60.0	14.0	15.0
Total Split (%)			54.5%	54.5%	19.1%	19.1%	55%	13%	14%
Yellow Time (s)			4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)				0.0	0.0	0.0			
Total Lost Time (s)				6.0	6.0	6.0			
Lead/Lag					Lag	Lag		Lead	
Lead-Lag Optimize?					Yes	Yes		Yes	
Recall Mode			C-Max	C-Max	None	None	C-Max	None	None
Act Effct Green (s)		88.4		57.5	9.6	9.6			
Actuated g/C Ratio		0.80		0.52	0.09	0.09			
v/c Ratio		0.22		0.85	0.12	0.20			
Control Delay		7.1		34.6	46.7	48.5			
Queue Delay		3.1		49.8	0.0	0.0			
Total Delay		10.2		84.4	46.7	48.5			
LOS		B		F	D	D			
Approach Delay		10.2		84.4	46.7	48.5			
Approach LOS		B		F	D	D			

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 14 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.15			
Intersection Signal Delay: 62.6		Intersection LOS: E	
Intersection Capacity Utilization 58.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 54: Busway & SW 98 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	144	66	20	122	76	70	1184	29	216	2282	598
Future Volume (vph)	84	144	66	20	122	76	70	1184	29	216	2282	598
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91		1.00	0.91	
Frt		1.00	0.85		1.00	0.85	1.00	1.00		1.00	0.97	
Flt Protected		0.98	1.00		0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1829	1583		1850	1583	1770	5067		1770	4927	
Flt Permitted		0.66	1.00		0.72	1.00	0.03	1.00		0.17	1.00	
Satd. Flow (perm)		1235	1583		1338	1583	54	5067		310	4927	
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)	88	152	69	21	128	80	74	1246	31	227	2402	629
RTOR Reduction (vph)	0	0	55	0	0	63	0	1	0	0	20	0
Lane Group Flow (vph)	0	240	14	0	149	17	74	1276	0	227	3011	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		
Actuated Green, G (s)		45.4	45.4		45.4	45.4	148.3	138.6		159.3	144.1	
Effective Green, g (s)		45.4	45.4		45.4	45.4	148.3	138.6		159.3	144.1	
Actuated g/C Ratio		0.21	0.21		0.21	0.21	0.67	0.63		0.72	0.65	
Clearance Time (s)		7.2	7.2		7.2	7.2	6.8	6.8		6.8	6.8	
Vehicle Extension (s)		4.5	4.5		4.5	4.5	2.5	1.0		2.5	1.0	
Lane Grp Cap (vph)		254	326		276	326	112	3192		325	3227	
v/s Ratio Prot							0.03	0.25		c0.05	c0.61	
v/s Ratio Perm	c0.19	0.01		0.11	0.01	0.42				0.46		
v/c Ratio	0.94	0.04		0.54	0.05	0.66	0.40			0.70	0.93	
Uniform Delay, d1	86.1	69.9		78.0	70.0	62.3	20.1			13.8	33.7	
Progression Factor	0.93	1.89		1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	41.6	0.1		3.1	0.1	12.4	0.4			5.9	6.4	
Delay (s)	122.0	132.4		81.1	70.1	74.7	20.5			19.7	40.1	
Level of Service	F	F		F	E	E	C			B	D	
Approach Delay (s)	124.3			77.3			23.5				38.7	
Approach LOS	F			E			C				D	

Intersection Summary			
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	240	69	149	80	74	1277	227	3031
v/c Ratio	0.94	0.18	0.54	0.20	0.66	0.40	0.70	0.93
Control Delay	122.4	11.0	85.3	10.2	74.5	21.3	21.7	40.1
Queue Delay	54.0	1.3	18.8	0.0	1.5	0.0	0.0	32.8
Total Delay	176.3	12.3	104.1	10.2	76.0	21.3	21.7	72.9
Queue Length 50th (ft)	355	0	193	0	56	336	102	1436
Queue Length 95th (ft)	#524	16	281	47	125	409	139	1538
Internal Link Dist (ft)	114		541			308		851
Turn Bay Length (ft)				25	90		100	
Base Capacity (vph)	272	416	295	416	140	3192	503	3248
Starvation Cap Reductn	80	223	0	0	0	0	0	0
Spillback Cap Reductn	0	0	130	0	13	0	0	420
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.25	0.36	0.90	0.19	0.58	0.40	0.45	1.07

Intersection Summary

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	84	144	66	20	122	76	70	1184	216	2282
Future Volume (vph)	84	144	66	20	122	76	70	1184	216	2282
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		8			4		1	6	5	2
Permitted Phases	8		8	4		4	6		2	
Detector Phase	8	8	8	4	4	4	1	6	5	2
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	31.2	31.2	31.2	35.2	35.2	35.2	11.8	25.8	11.8	25.8
Total Split (s)	55.8	55.8	55.8	55.8	55.8	55.8	20.0	115.6	48.6	144.2
Total Split (%)	25.4%	25.4%	25.4%	25.4%	25.4%	25.4%	9.1%	52.5%	22.1%	65.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8
All-Red Time (s)	3.2	3.2	3.2	3.2	3.2	3.2	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.2	7.2		7.2	7.2	6.8	6.8	6.8	6.8
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		45.4	45.4		45.4	45.4	148.3	138.6	158.8	144.2
Actuated g/C Ratio		0.21	0.21		0.21	0.21	0.67	0.63	0.72	0.66
v/c Ratio		0.94	0.18		0.54	0.20	0.66	0.40	0.70	0.93
Control Delay		122.4	11.0		85.3	10.2	74.5	21.3	21.7	40.1
Queue Delay		54.0	1.3		18.8	0.0	1.5	0.0	0.0	32.8
Total Delay		176.3	12.3		104.1	10.2	76.0	21.3	21.7	72.9
LOS		F	B		F	B	E	C	C	E
Approach Delay		139.7			71.3			24.3		69.3
Approach LOS		F			E			C		E

Intersection Summary

Cycle Length: 220
Actuated Cycle Length: 220
Offset: 157 (71%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 61.8 Intersection LOS: E
Intersection Capacity Utilization 104.7% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 46: US 1 & SW 98 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	275	58	289	194	83	167	1888	143	181	3359	457
Future Volume (vph)	138	275	58	289	194	83	167	1888	143	181	3359	457
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.7
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1765	1583	1770	1863	1583	1770	5031		1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.04	1.00	1.00
Satd. Flow (perm)	1681	1765	1583	1770	1863	1583	1770	5031		79	5085	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)	145	289	61	304	204	87	176	1987	151	191	3536	481
RTOR Reduction (vph)	0	0	51	0	0	75	0	4	0	0	0	116
Lane Group Flow (vph)	130	304	10	304	204	12	176	2134	0	191	3536	365
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		pm+pt	NA	Over
Protected Phases	3	3		4	4		1	6		5	2	3
Permitted Phases			3			4				2		
Actuated Green, G (s)	30.0	30.0	30.0	25.3	25.3	25.3	13.2	88.2		114.0	94.5	30.0
Effective Green, g (s)	30.0	30.0	30.0	25.3	25.3	25.3	13.2	88.2		114.0	94.5	30.0
Actuated g/C Ratio	0.16	0.16	0.16	0.13	0.13	0.13	0.07	0.46		0.60	0.50	0.16
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8		6.8	6.8	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.5	1.0		2.5	1.0	3.0
Lane Grp Cap (vph)	265	278	249	235	248	210	122	2335		220	2529	249
v/s Ratio Prot	0.08	0.17		c0.17	0.11		c0.10	0.42		0.09	c0.70	c0.23
v/s Ratio Perm			0.01			0.01				0.43		
v/c Ratio	0.49	1.09	0.04	1.29	0.82	0.06	1.44	0.91		0.87	1.40	1.47
Uniform Delay, d1	73.0	80.0	67.8	82.3	80.2	71.9	88.4	47.4		64.7	47.8	80.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.59	0.48	0.93
Incremental Delay, d2	1.4	81.3	0.1	160.0	19.3	0.1	239.2	6.9		3.5	179.4	211.3
Delay (s)	74.5	161.3	67.8	242.3	99.5	72.0	327.6	54.3		106.6	202.4	285.8
Level of Service	E	F	E	F	F	E	F	D		F	F	F
Approach Delay (s)		127.0			168.5			75.1			207.6	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	159.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	127.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	130	304	61	304	204	87	176	2138	191	3536	481
v/c Ratio	0.49	1.09	0.17	1.29	0.82	0.26	1.44	0.91	0.87	1.40	1.31
Control Delay	80.1	151.2	1.0	219.2	105.1	2.1	293.9	54.5	93.8	203.4	180.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.1	151.2	1.0	219.2	105.1	2.1	293.9	54.5	93.8	203.4	180.9
Queue Length 50th (ft)	158	~447	0	~481	253	0	~296	922	209	~2129	~631
Queue Length 95th (ft)	243	#670	0	#693	#390	1	#472	991	m171	m#1581	m#500
Internal Link Dist (ft)		935			1608			1322		2289	
Turn Bay Length (ft)	60		25	320		320	460		250		360
Base Capacity (vph)	265	278	366	235	248	330	122	2339	242	2529	366
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	1.09	0.17	1.29	0.82	0.26	1.44	0.91	0.79	1.40	1.31

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	138	275	58	289	194	83	167	1888	181	3359	457
Future Volume (vph)	138	275	58	289	194	83	167	1888	181	3359	457
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+pt	NA	Over
Protected Phases	3	3		4	4		1	6	5	2	3
Permitted Phases			3			4			2		
Detector Phase	3	3	3	4	4	4	1	6	5	2	3
Switch Phase											
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	5.0	9.0	7.0
Minimum Split (s)	36.7	36.7	36.7	24.7	24.7	24.7	11.8	44.8	11.8	44.8	36.7
Total Split (s)	36.7	36.7	36.7	32.0	32.0	32.0	20.0	92.5	28.8	101.3	36.7
Total Split (%)	19.3%	19.3%	19.3%	16.8%	16.8%	16.8%	10.5%	48.7%	15.2%	53.3%	19.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.0
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8	6.8	6.8	6.7
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
Act Effct Green (s)	30.0	30.0	30.0	25.3	25.3	25.3	13.2	88.2	112.8	94.5	30.0
Actuated g/C Ratio	0.16	0.16	0.16	0.13	0.13	0.13	0.07	0.46	0.59	0.50	0.16
v/c Ratio	0.49	1.09	0.17	1.29	0.82	0.26	1.44	0.91	0.87	1.40	1.31
Control Delay	80.1	151.2	1.0	219.2	105.1	2.1	293.9	54.5	93.8	203.4	180.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.1	151.2	1.0	219.2	105.1	2.1	293.9	54.5	93.8	203.4	180.9
LOS	F	F	A	F	F	A	F	D	F	F	F
Approach Delay		114.0			148.4			72.7		195.8	
Approach LOS		F			F			E		F	

Intersection Summary			
Cycle Length: 190			
Actuated Cycle Length: 190			
Offset: 158 (83%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.44			
Intersection Signal Delay: 149.4		Intersection LOS: F	
Intersection Capacity Utilization 127.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 51: US 1 & Killian Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	661	212	110	30	194	672	174	2150	25	775	3835	857
Future Volume (vph)	661	212	110	30	194	672	174	2150	25	775	3835	857
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Lane Util. Factor	0.91	0.91	1.00	1.00	0.91	0.91	0.97	0.91	1.00	0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	0.90	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3290	1583	1770	3068	1441	3433	5085	1583	3433	6408	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3290	1583	1770	3068	1441	3433	5085	1583	3433	6408	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)	696	223	116	32	204	707	183	2263	26	816	4037	902
RTOR Reduction (vph)	0	0	94	0	167	205	0	0	14	0	0	18
Lane Group Flow (vph)	348	571	22	32	391	148	183	2263	12	816	4037	884
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3			4			6			2
Actuated Green, G (s)	36.5	36.5	36.5	18.0	18.0	18.0	9.2	73.2	91.2	35.2	99.2	135.7
Effective Green, g (s)	36.5	36.5	36.5	18.0	18.0	18.0	9.2	73.2	91.2	35.2	99.2	135.7
Actuated g/C Ratio	0.19	0.19	0.19	0.09	0.09	0.09	0.05	0.39	0.48	0.19	0.52	0.71
Clearance Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Vehicle Extension (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.0	1.0	3.5	3.5	1.0	3.5
Lane Grp Cap (vph)	309	632	304	167	290	136	166	1959	759	636	3345	1130
v/s Ratio Prot	c0.22	0.17		0.02	c0.13		0.05	0.45	0.00	c0.24	c0.63	0.15
v/s Ratio Perm			0.01			0.10			0.01			0.41
v/c Ratio	1.13	1.08dl	0.07	0.19	1.35	1.09	1.10	1.16	0.02	1.28	1.21	0.78
Uniform Delay, d1	76.8	75.0	62.9	79.3	86.0	86.0	90.4	58.4	25.9	77.4	45.4	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.79	1.40	1.00	1.00	1.00	1.00
Incremental Delay, d2	89.7	16.6	0.1	0.7	177.2	103.7	85.0	73.8	0.0	139.1	96.1	3.7
Delay (s)	166.5	91.6	63.0	80.0	263.2	189.7	156.8	155.8	25.9	216.5	141.5	21.3
Level of Service	F	F	E	E	F	F	F	F	C	F	F	C
Approach Delay (s)		113.6			229.5			154.5			133.3	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	145.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	27.1
Intersection Capacity Utilization	117.1%	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			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	348	571	116	32	558	353	183	2263	26	816	4037	902
v/c Ratio	1.13	1.08dl	0.28	0.19	1.22	1.04	1.10	1.16	0.03	1.28	1.21	0.75
Control Delay	155.1	93.4	5.7	82.5	159.7	85.2	148.1	142.2	0.4	196.4	135.8	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	155.1	93.4	5.7	82.5	159.7	85.2	148.1	142.2	0.4	196.4	135.8	17.4
Queue Length 50th (ft)	~549	389	0	38	~347	~221	~130	~1238	0	~663	~1775	557
Queue Length 95th (ft)	#793	#500	36	79	#484	#468	m#167	#1317	m0	#800	#1780	737
Internal Link Dist (ft)		943			618			468			720	
Turn Bay Length (ft)	195		25	95		300	150		550	265		320
Base Capacity (vph)	309	631	417	167	458	341	166	1959	809	636	3345	1202
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.90	0.28	0.19	1.22	1.04	1.10	1.16	0.03	1.28	1.21	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.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	661	212	110	30	194	672	174	2150	25	775	3835	857
Future Volume (vph)	661	212	110	30	194	672	174	2150	25	775	3835	857
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	3		4	4		1	6	4	5	2	3
Permitted Phases			3			4			6			2
Detector Phase	3	3	3	4	4	4	1	6	4	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	9.0	7.0	5.0	9.0	7.0
Minimum Split (s)	41.5	41.5	41.5	14.0	14.0	14.0	11.8	44.8	14.0	11.8	44.8	41.5
Total Split (s)	43.0	43.0	43.0	25.0	25.0	25.0	16.0	80.0	25.0	42.0	106.0	43.0
Total Split (%)	22.6%	22.6%	22.6%	13.2%	13.2%	13.2%	8.4%	42.1%	13.2%	22.1%	55.8%	22.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.0	4.8	4.8	4.0
All-Red Time (s)	2.5	2.5	2.5	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	7.0	7.0	7.0	6.8	6.8	7.0	6.8	6.8	6.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	36.5	36.5	36.5	18.0	18.0	18.0	9.2	73.2	91.0	35.2	99.2	142.5
Actuated g/C Ratio	0.19	0.19	0.19	0.09	0.09	0.09	0.05	0.39	0.48	0.19	0.52	0.75
v/c Ratio	1.13	1.08dl	0.28	0.19	1.22	1.04	1.10	1.16	0.03	1.28	1.21	0.75
Control Delay	155.1	93.4	5.7	82.5	159.7	85.2	148.1	142.2	0.4	196.4	135.8	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	155.1	93.4	5.7	82.5	159.7	85.2	148.1	142.2	0.4	196.4	135.8	17.4
LOS	F	F	A	F	F	F	F	F	A	F	F	B
Approach Delay		104.3			129.2			141.1			125.8	
Approach LOS		F			F			F			F	

Intersection Summary

Cycle Length: 190
Actuated Cycle Length: 190
Offset: 113 (59%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.28
Intersection Signal Delay: 127.7 Intersection LOS: F
Intersection Capacity Utilization 117.1% ICU Level of Service H
Analysis Period (min) 15

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 11: US 1 & SW 104 St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	2317	4	46	2005	132	6	4	36	343	16	48
Future Volume (vph)	47	2317	4	46	2005	132	6	4	36	343	16	48
Satd. Flow (prot)	1770	6408	0	3433	6350	0	1770	1863	1583	1681	1650	0
Flt Permitted	0.950			0.950			0.950			0.950	0.967	
Satd. Flow (perm)	1770	6408	0	3433	6350	0	1770	1863	1583	1681	1650	0
Satd. Flow (RTOR)					12				73		7	
Lane Group Flow (vph)	50	2469	0	49	2273	0	6	4	38	219	214	0
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4	4 5	3	3	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.0	25.0		12.0	25.0		26.0	26.0		26.0	26.0	
Total Split (s)	17.0	112.0		14.0	109.0		26.0	26.0		28.0	28.0	
Total Split (%)	9.4%	62.2%		7.8%	60.6%		14.4%	14.4%		15.6%	15.6%	
Maximum Green (s)	10.0	105.0		7.0	102.0		18.0	18.0		20.0	20.0	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.5	120.5		8.0	118.1		7.1	7.1	19.5	20.0	20.0	
Actuated g/C Ratio	0.06	0.67		0.04	0.66		0.04	0.04	0.11	0.11	0.11	
v/c Ratio	0.49	0.58		0.32	0.55		0.09	0.05	0.16	1.18	1.13	
Control Delay	97.1	17.9		87.2	10.2		86.0	84.8	1.4	186.1	170.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	97.1	17.9		87.2	10.3		86.0	84.8	1.4	186.1	170.3	
LOS	F	B		F	B		F	F	A	F	F	
Approach Delay		19.5			11.9			19.0			178.3	
Approach LOS		B			B			B			F	
Queue Length 50th (ft)	58	478		29	223		7	5	0	~323	~298	
Queue Length 95th (ft)	108	526		56	204		26	20	2	#518	#496	
Internal Link Dist (ft)		280			607			906			932	
Turn Bay Length (ft)	360			265						150		
Base Capacity (vph)	112	4290		156	4170		177	186	255	186	189	
Starvation Cap Reductn	0	0		0	189		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	0.45	0.58		0.31	0.57		0.03	0.02	0.15	1.18	1.13	

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 140 (78%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 70.0% ICU Level of Service C
Analysis Period (min) 15
~ 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.

Splits and Phases: 3: SW 79 Ave & Bird Rd



HCM Signalized Intersection Capacity Analysis
3: SW 79 Ave & Bird Rd

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	2317	4	46	2005	132	6	4	36	343	16	48
Future Volume (vph)	47	2317	4	46	2005	132	6	4	36	343	16	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		8.0	8.0	8.0	8.0	8.0	
Lane Util. Factor	1.00	0.86		0.97	0.86		1.00	1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.97	
Satd. Flow (prot)	1770	6406		3433	6349		1770	1863	1583	1681	1650	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.97	
Satd. Flow (perm)	1770	6406		3433	6349		1770	1863	1583	1681	1650	
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)	50	2465	4	49	2133	140	6	4	38	365	17	51
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	34	0	7	0
Lane Group Flow (vph)	50	2469	0	49	2269	0	6	4	4	219	207	0
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												
Actuated Green, G (s)	9.2	108.8		6.8	106.4		5.7	5.7	20.5	28.7	28.7	
Effective Green, g (s)	9.2	108.8		6.8	106.4		5.7	5.7	20.5	28.7	28.7	
Actuated g/C Ratio	0.05	0.60		0.04	0.59		0.03	0.03	0.11	0.16	0.16	
Clearance Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	90	3872		129	3752		56	58	180	268	263	
v/s Ratio Prot	c0.03	c0.39		0.01	0.36		c0.00	0.00	0.00	c0.13	0.13	
v/s Ratio Perm												
v/c Ratio	0.56	0.64		0.38	0.60		0.11	0.07	0.02	0.82	0.79	
Uniform Delay, d1	83.4	22.9		84.5	23.4		84.7	84.6	70.9	73.1	72.7	
Progression Factor	1.00	1.00		1.39	0.33		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.2	0.8		1.6	0.6		0.8	0.5	0.1	17.3	14.4	
Delay (s)	90.6	23.7		119.0	8.5		85.5	85.1	70.9	90.4	87.1	
Level of Service	F	C		F	A		F	F	E	F	F	
Approach Delay (s)		25.1			10.8			73.9			88.8	
Approach LOS		C			B			E			F	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: SW 79 Ave & Bird Rd

12/10/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	50	2469	49	2273	6	4	38	219	214
v/c Ratio	0.49	0.58	0.32	0.55	0.09	0.05	0.16	1.18	1.13
Control Delay	97.1	17.9	87.2	10.2	86.0	84.8	1.4	186.1	170.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.1	17.9	87.2	10.3	86.0	84.8	1.4	186.1	170.3
Queue Length 50th (ft)	58	478	29	223	7	5	0	~323	~298
Queue Length 95th (ft)	108	526	56	204	26	20	2	#518	#496
Internal Link Dist (ft)		280		607		906			932
Turn Bay Length (ft)	360		265					150	
Base Capacity (vph)	112	4290	156	4170	177	186	255	186	189
Starvation Cap Reductn	0	0	0	189	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	0.45	0.58	0.31	0.57	0.03	0.02	0.15	1.18	1.13

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.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	21	2675	2215	122	385	28
Future Volume (vph)	21	2675	2215	122	385	28
Satd. Flow (prot)	3433	6408	6357	0	3433	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	6408	6357	0	3433	1583
Satd. Flow (RTOR)			16			13
Lane Group Flow (vph)	22	2846	2486	0	410	30
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		3	3 1
Permitted Phases						
Detector Phase	1	6	2		3	3 1
Switch Phase						
Minimum Initial (s)	5.0	7.0	7.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		25.0	
Total Split (s)	15.0	153.0	138.0		27.0	
Total Split (%)	8.3%	85.0%	76.7%		15.0%	
Maximum Green (s)	8.6	146.6	131.6		20.0	
Yellow Time (s)	4.4	4.4	4.4		4.0	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		7.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	6.7	146.6	135.9		20.0	33.1
Actuated g/C Ratio	0.04	0.81	0.76		0.11	0.18
v/c Ratio	0.17	0.55	0.52		1.08	0.10
Control Delay	117.2	2.2	13.3		139.6	40.5
Queue Delay	0.0	0.1	0.1		0.0	0.0
Total Delay	117.2	2.3	13.5		139.6	40.5
LOS	F	A	B		F	D
Approach Delay		3.2	13.5		132.8	
Approach LOS		A	B		F	
Queue Length 50th (ft)	12	2	518		~276	17
Queue Length 95th (ft)	m21	m2	157		#393	50
Internal Link Dist (ft)		607	703		953	
Turn Bay Length (ft)	230					100
Base Capacity (vph)	164	5218	4804		381	318
Starvation Cap Reductn	0	790	946		0	0
Spillback Cap Reductn	0	885	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.13	0.66	0.64		1.08	0.09

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 152 (84%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 60.9% ICU Level of Service B
Analysis Period (min) 15
~ 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.

Splits and Phases: 6: Bird Rd & SW 7800 Block



HCM 6th Signalized Intersection Summary
6: Bird Rd & SW 7800 Block

12/10/2018

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	2675	2215	122	385	28
Future Volume (veh/h)	21	2675	2215	122	385	28
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	2846	2356	130	410	30
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	64	5082	4626	255	469	244
Arrive On Green	0.04	1.00	1.00	1.00	0.14	0.14
Sat Flow, veh/h	3456	6696	6549	346	3456	1585
Grp Volume(v), veh/h	22	2846	1807	679	410	30
Grp Sat Flow(s),veh/h/ln	1728	1609	1609	1808	1728	1585
Q Serve(g_s), s	1.1	0.0	0.0	0.0	20.9	2.9
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.0	20.9	2.9
Prop In Lane	1.00			0.19	1.00	1.00
Lane Grp Cap(c), veh/h	64	5082	3551	1330	469	244
V/C Ratio(X)	0.34	0.56	0.51	0.51	0.87	0.12
Avail Cap(c_a), veh/h	146	5082	3551	1330	787	390
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.75	0.75	1.00	1.00
Uniform Delay (d), s/veh	85.6	0.0	0.0	0.0	76.3	65.6
Incr Delay (d2), s/veh	2.3	0.3	0.4	1.1	6.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	0.1	0.4	9.8	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	87.9	0.3	0.4	1.1	82.3	65.8
LnGrp LOS	F	A	A	A	F	E
Approach Vol, veh/h		2868	2486		440	
Approach Delay, s/veh		1.0	0.6		81.2	
Approach LOS		A	A		F	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.7	138.8			148.6	31.4
Change Period (Y+Rc), s	6.4	6.4			6.4	7.0
Max Green Setting (Gmax), s	7.6	111.6			125.6	41.0
Max Q Clear Time (g_c+I1), s	3.1	2.0			2.0	22.9
Green Ext Time (p_c), s	0.0	45.0			77.6	1.5

Intersection Summary	
HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Queues
6: Bird Rd & SW 7800 Block

12/10/2018

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	22	2846	2486	410	30
v/c Ratio	0.17	0.55	0.52	1.08	0.10
Control Delay	117.2	2.2	13.3	139.6	40.5
Queue Delay	0.0	0.1	0.1	0.0	0.0
Total Delay	117.2	2.3	13.5	139.6	40.5
Queue Length 50th (ft)	12	2	518	~276	17
Queue Length 95th (ft)	m21	m2	157	#393	50
Internal Link Dist (ft)		607	703	953	
Turn Bay Length (ft)	230				100
Base Capacity (vph)	164	5218	4804	381	318
Starvation Cap Reductn	0	790	946	0	0
Spillback Cap Reductn	0	885	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.66	0.64	1.08	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.

SW 40 St at SR 826 07/06/2018 No Build
Timing Plan: AM Peak Hour
Synchro 10 Report
Page 2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2324	736	1009	1656	0	0	0	0	1272	0	764
Future Volume (vph)	0	2324	736	1009	1656	0	0	0	0	1272	0	764
Satd. Flow (prot)	0	6177	0	4990	5085	0	0	0	0	4990	0	3610
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	6177	0	4990	5085	0	0	0	0	4990	0	3610
Satd. Flow (RTOR)		70										
Lane Group Flow (vph)	0	3255	0	1073	1762	0	0	0	0	1353	0	813
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		6		5 9	2					3		8 9
Permitted Phases												
Detector Phase		6		5 9	2					3		8 9
Switch Phase												
Minimum Initial (s)		7.0			7.0					7.0		
Minimum Split (s)		25.0			25.0					13.9		
Total Split (s)		105.0			125.0					36.0		
Total Split (%)		58.3%			69.4%					20.0%		
Maximum Green (s)		98.0			118.0					29.1		
Yellow Time (s)		4.4			4.4					4.0		
All-Red Time (s)		2.6			2.6					2.9		
Lost Time Adjust (s)		0.0			0.0					0.0		
Total Lost Time (s)		7.0			7.0					6.9		
Lead/Lag		Lag										
Lead-Lag Optimize?		Yes										
Vehicle Extension (s)	3.0			3.0						3.0		
Recall Mode	C-Max			C-Max						None		
Act Effct Green (s)	98.0		32.0	118.0						29.1		48.1
Actuated g/C Ratio	0.54		0.18	0.66						0.16		0.27
v/c Ratio	0.96		1.21	0.53						1.68		0.84
Control Delay	38.2		149.7	25.3						352.0		71.6
Queue Delay	44.0		0.0	2.7						0.0		0.0
Total Delay	82.2		149.7	28.0						352.0		71.6
LOS	F		F	C						F		E
Approach Delay	82.2			74.0							246.8	
Approach LOS	F			E							F	
Queue Length 50th (ft)	993		~556	485						~823		402
Queue Length 95th (ft)	m361		m#615	m509						#918		474
Internal Link Dist (ft)	703			451			522				1229	
Turn Bay Length (ft)										350		650
Base Capacity (vph)	3394		887	3333						806		964
Starvation Cap Reductn	3		0	1410						0		0
Spillback Cap Reductn	739		0	0						0		0
Storage Cap Reductn	0		0	0						0		0
Reduced v/c Ratio	1.23		1.21	0.92						1.68		0.84

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 143 (79%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.68
Intersection Signal Delay: 122.6 Intersection LOS: F
Intersection Capacity Utilization 104.4% ICU Level of Service G
Analysis Period (min) 15
~ 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.

Splits and Phases: 15: Bird Rd & SB SR 826 Off Ramp



HCM Signalized Intersection Capacity Analysis
15: Bird Rd & SB SR 826 Off Ramp

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2324	736	1009	1656	0	0	0	0	1272	0	764
Future Volume (vph)	0	2324	736	1009	1656	0	0	0	0	1272	0	764
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0					6.9		6.9
Lane Util. Factor		0.86		0.94	0.91					0.94		0.76
Frt		0.96		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		6177		4990	5085					4990		3610
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		6177		4990	5085					4990		3610
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)	0	2472	783	1073	1762	0	0	0	0	1353	0	813
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	3223	0	1073	1762	0	0	0	0	1353	0	813
Turn Type		NA		Prot	NA					Prot		custom
Protected Phases		6		5 9	2					3		8 9
Permitted Phases												
Actuated Green, G (s)		83.0		33.0	109.0					43.1		57.1
Effective Green, g (s)		83.0		26.1	109.0					43.1		57.1
Actuated g/C Ratio		0.46		0.15	0.61					0.24		0.32
Clearance Time (s)		7.0			7.0					6.9		
Vehicle Extension (s)		3.0			3.0					3.0		
Lane Grp Cap (vph)	2848		723	3079						1194		1145
v/s Ratio Prot	c0.52		c0.22	0.35						c0.27		0.23
v/s Ratio Perm												
v/c Ratio	1.13		1.48	0.57						1.13		0.71
Uniform Delay, d1	48.5		77.0	21.4						68.5		54.2
Progression Factor	0.74		1.09	0.60						1.00		1.00
Incremental Delay, d2	63.5		222.2	0.5						70.8		2.1
Delay (s)	99.2		306.1	13.4						139.2		56.3
Level of Service	F		F	B						F		E
Approach Delay (s)	99.2			124.2			0.0				108.1	
Approach LOS	F			F			A				F	

Intersection Summary			
HCM 2000 Control Delay	110.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	104.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
15: Bird Rd & SB SR 826 Off Ramp

12/10/2018

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	3255	1073	1762	1353	813
v/c Ratio	0.96	1.21	0.53	1.68	0.84
Control Delay	38.2	149.7	25.3	352.0	71.6
Queue Delay	44.0	0.0	2.7	0.0	0.0
Total Delay	82.2	149.7	28.0	352.0	71.6
Queue Length 50th (ft)	993	~556	485	~823	402
Queue Length 95th (ft)	m361	m#615	m509	#918	474
Internal Link Dist (ft)	703		451		
Turn Bay Length (ft)				350	650
Base Capacity (vph)	3394	887	3333	806	964
Starvation Cap Reductn	3	0	1410	0	0
Spillback Cap Reductn	739	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.23	1.21	0.92	1.68	0.84

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	2856	740	0	2027	1086	638	0	1051	0	0
Future Volume (vph)	0	2856	740	0	2027	1086	638	0	1051	0	0
Satd. Flow (prot)	0	5085	1583	0	6075	0	3433	0	3610	0	0
Flt Permitted							0.950				
Satd. Flow (perm)	0	5085	1583	0	6075	0	3433	0	3610	0	0
Satd. Flow (RTOR)			156						26		
Lane Group Flow (vph)	0	3006	779	0	3277	0	672	0	1106	0	0
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		4			8		5		5		
Permitted Phases			Free								
Detector Phase		4			8		5		5		
Switch Phase											
Minimum Initial (s)		7.0			7.0		7.0		7.0		
Minimum Split (s)		138.6			138.6		13.4		13.4		
Total Split (s)		139.0			139.0		41.0		41.0		
Total Split (%)		77.2%			77.2%		22.8%		22.8%		
Maximum Green (s)		131.7			131.7		34.6		34.6		
Yellow Time (s)		4.0			4.0		4.4		4.4		
All-Red Time (s)		3.3			3.3		2.0		2.0		
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		
Total Lost Time (s)		7.3			7.3		6.4		6.4		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)		3.0			3.0		3.0		3.0		
Recall Mode		C-Max			C-Max		None		None		
Act Effct Green (s)		131.7	180.0		131.7		34.6		34.6		
Actuated g/C Ratio		0.73	1.00		0.73		0.19		0.19		
v/c Ratio		0.81	0.49		0.97dr		1.02		1.55		
Control Delay		27.4	0.8		33.5		109.7		296.9		
Queue Delay		47.1	0.0		2.4		0.0		0.5		
Total Delay		74.5	0.8		35.9		109.7		297.4		
LOS		E	A		D		F		F		
Approach Delay		59.3			35.9			226.4			
Approach LOS		E			D			F			
Queue Length 50th (ft)		1209	24		1026		~430		~796		
Queue Length 95th (ft)		m1057	m0		1035		#563		#915		
Internal Link Dist (ft)		451			642			1204		969	
Turn Bay Length (ft)							300		300		
Base Capacity (vph)		3720	1583		4444		659		714		
Starvation Cap Reductn		1638	0		1000		0		0		
Spillback Cap Reductn		59	0		136		0		52		
Storage Cap Reductn		0	0		0		0		0		
Reduced v/c Ratio		1.44	0.49		0.95		1.02		1.67		

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 38 (21%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.55

Intersection Signal Delay: 84.3 Intersection LOS: F

Intersection Capacity Utilization 91.1% ICU Level of Service F

Analysis Period (min) 15

~ 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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 13: NB SR 826 Off Ramp & Bird Rd



HCM 6th Signalized Intersection Summary
13: NB SR 826 Off Ramp & Bird Rd

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (veh/h)	0	2856	740	0	2027	1086	638	0	1051	0	0
Future Volume (veh/h)	0	2856	740	0	2027	1086	638	0	1051	0	0
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	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach		No			No			No			
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870		
Adj Flow Rate, veh/h	0	3006	0	0	2134	1143	672	672	1106		
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	2	0	2	2	2	2	2		
Cap, veh/h	0	3736		0	3531	1160	664	664	695		
Arrive On Green	0.00	0.97	0.00	0.00	0.24	0.24	0.19	0.19	0.19		
Sat Flow, veh/h	0	5274	1585	0	5087	1585	3456	3456	3614		
Grp Volume(v), veh/h	0	3006	0	0	2134	1143	672	672	1106		
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1585	1728	1728	1205		
Q Serve(g_s), s	0.0	13.1	0.0	0.0	70.7	129.2	34.6	34.6	34.6		
Cycle Q Clear(g_c), s	0.0	13.1	0.0	0.0	70.7	129.2	34.6	34.6	34.6		
Prop In Lane	0.00		1.00	0.00		1.00	1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	3736		0	3531	1160	664	664	695		
V/C Ratio(X)	0.00	0.80		0.00	0.60	0.99	1.01	1.01	1.59		
Avail Cap(c_a), veh/h	0	3736		0	3531	1160	664	664	695		
HCM Platoon Ratio	1.00	1.33	1.33	1.00	0.33	0.33	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.09	0.00	0.00	0.65	0.65	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.8	0.0	0.0	45.1	67.3	72.7	72.7	72.7		
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.5	18.2	37.8	37.8	273.2		
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(50%),veh/ln	0.0	1.1	0.0	0.0	30.9	61.2	18.9	18.9	28.3		
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh	0.0	1.0	0.0	0.0	45.6	85.5	110.5	110.5	345.9		
LnGrp LOS	A	A		A	D	F	F	F	F		
Approach Vol, veh/h		3006	A		3277		1778	1778			
Approach Delay, s/veh		1.0			59.5		257.0	257.0			
Approach LOS		A			E		F	F			

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	41.0	139.0	139.0
Change Period (Y+Rc), s	6.4	* 7.3	* 7.3
Max Green Setting (Gmax), s	34.6	* 1.3E2	* 1.3E2
Max Q Clear Time (g_c+I1), s	36.6	15.1	131.2
Green Ext Time (p_c), s	0.0	83.4	0.5

Intersection Summary	
HCM 6th Ctrl Delay	81.3
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Queues
13: NB SR 826 Off Ramp & Bird Rd

12/10/2018

Lane Group	EBT	EBR	WBT	NBL2	NBR
Lane Group Flow (vph)	3006	779	3277	672	1106
v/c Ratio	0.81	0.49	0.97dr	1.02	1.55
Control Delay	27.4	0.8	33.5	109.7	296.9
Queue Delay	47.1	0.0	2.4	0.0	0.5
Total Delay	74.5	0.8	35.9	109.7	297.4
Queue Length 50th (ft)	1209	24	1026	~430	~796
Queue Length 95th (ft)	m1057	m0	1035	#563	#915
Internal Link Dist (ft)	451		642		
Turn Bay Length (ft)				300	300
Base Capacity (vph)	3720	1583	4444	659	714
Starvation Cap Reductn	1638	0	1000	0	0
Spillback Cap Reductn	59	0	136	0	52
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.44	0.49	0.95	1.02	1.67

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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	3872	0	0	2851	209	50
Future Volume (vph)	3872	0	0	2851	209	50
Satd. Flow (prot)	5085	0	0	5085	3372	0
Flt Permitted					0.961	
Satd. Flow (perm)	5085	0	0	5085	3372	0
Satd. Flow (RTOR)					1	
Lane Group Flow (vph)	3951	0	0	2909	264	0
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Detector Phase	2			2	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	
Minimum Split (s)	25.2			25.2	24.8	
Total Split (s)	150.0			150.0	30.0	
Total Split (%)	83.3%			83.3%	16.7%	
Maximum Green (s)	143.6			143.6	23.2	
Yellow Time (s)	4.4			4.4	4.0	
All-Red Time (s)	2.0			2.0	2.8	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.4			6.4	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	4			4	7	
Act Effct Green (s)	147.7			147.7	19.1	
Actuated g/C Ratio	0.82			0.82	0.11	
v/c Ratio	0.95			0.70	0.74	
Control Delay	11.4			2.0	90.1	
Queue Delay	36.2			2.5	0.0	
Total Delay	47.5			4.5	90.1	
LOS	D			A	F	
Approach Delay	47.5			4.5	90.1	
Approach LOS	D			A	F	
Queue Length 50th (ft)	615			47	157	
Queue Length 95th (ft)	m623			m62	207	
Internal Link Dist (ft)	642			1280	924	
Turn Bay Length (ft)						
Base Capacity (vph)	4172			4172	435	
Starvation Cap Reductn	517			471	0	
Spillback Cap Reductn	345			1098	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	1.08			0.95	0.61	

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 144 (80%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 31.5 Intersection LOS: C
Intersection Capacity Utilization 93.3% ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: SW 74 Ave & Bird Rd



HCM Signalized Intersection Capacity Analysis
11: SW 74 Ave & Bird Rd

12/10/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	3872	0	0	2851	209	50
Future Volume (vph)	3872	0	0	2851	209	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4			6.4	6.8	
Lane Util. Factor	0.91			0.91	0.97	
Frt	1.00			1.00	0.97	
Flt Protected	1.00			1.00	0.96	
Satd. Flow (prot)	5085			5085	3373	
Flt Permitted	1.00			1.00	0.96	
Satd. Flow (perm)	5085			5085	3373	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3951	0	0	2909	213	51
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	3951	0	0	2909	263	0
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Actuated Green, G (s)	149.5			149.5	17.3	
Effective Green, g (s)	149.5			149.5	17.3	
Actuated g/C Ratio	0.83			0.83	0.10	
Clearance Time (s)	6.4			6.4	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	4223			4223	324	
v/s Ratio Prot	c0.78			0.57	c0.08	
v/s Ratio Perm						
v/c Ratio	0.94			0.69	0.81	
Uniform Delay, d1	11.6			6.0	79.8	
Progression Factor	0.79			0.24	1.00	
Incremental Delay, d2	0.5			0.5	14.3	
Delay (s)	9.7			1.9	94.0	
Level of Service	A			A	F	
Approach Delay (s)	9.7			1.9	94.0	
Approach LOS	A			A	F	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
11: SW 74 Ave & Bird Rd

12/10/2018

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	3951	2909	264
v/c Ratio	0.95	0.70	0.74
Control Delay	11.4	2.0	90.1
Queue Delay	36.2	2.5	0.0
Total Delay	47.5	4.5	90.1
Queue Length 50th (ft)	615	47	157
Queue Length 95th (ft)	m623	m62	207
Internal Link Dist (ft)	642	1280	924
Turn Bay Length (ft)			
Base Capacity (vph)	4172	4172	435
Starvation Cap Reductn	517	471	0
Spillback Cap Reductn	345	1098	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.08	0.95	0.61

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	3223	364	312	2387	62	180	207	180	159	143	120
Future Volume (vph)	237	3223	364	312	2387	62	180	207	180	159	143	120
Satd. Flow (prot)	1770	5009	0	1770	5065	0	1770	3291	0	1770	1863	1583
Flt Permitted	0.034			0.036			0.280			0.301		
Satd. Flow (perm)	63	5009	0	67	5065	0	522	3291	0	561	1863	1583
Satd. Flow (RTOR)		25			4			50				139
Lane Group Flow (vph)	244	3698	0	322	2525	0	186	399	0	164	147	124
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	7.0
Minimum Split (s)	11.4	24.4		11.4	24.4		11.7	30.7		11.7	13.7	13.7
Total Split (s)	26.0	132.0		12.0	118.0		16.0	21.0		15.0	20.0	20.0
Total Split (%)	14.4%	73.3%		6.7%	65.6%		8.9%	11.7%		8.3%	11.1%	11.1%
Maximum Green (s)	19.6	125.6		5.6	111.6		9.3	14.3		8.3	13.3	13.3
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	2.7
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)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			5.0				
Flash Dont Walk (s)		11.0			11.0			19.0				
Pedestrian Calls (#/hr)		4			0			6				
Act Effct Green (s)	137.6	125.6		117.2	111.6		23.6	14.3		21.6	13.3	13.3
Actuated g/C Ratio	0.76	0.70		0.65	0.62		0.13	0.08		0.12	0.07	0.07
v/c Ratio	1.04	1.06		3.35	0.80		1.41	1.30		1.33	1.07	0.51
Control Delay	91.7	53.7		1101.9	28.5		270.4	208.2		245.6	171.2	15.0
Queue Delay	0.0	3.3		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	91.7	57.0		1101.9	28.5		270.4	208.2		245.6	171.2	15.0
LOS	F	E		F	C		F	F		F	F	B
Approach Delay		59.2			149.9			227.9			154.7	
Approach LOS		E			F			F			F	
Queue Length 50th (ft)	~257	~1732		~623	798		~241	~286		~199	~191	0
Queue Length 95th (ft)	m#292	#1763		#839	850		#414	#406		#365	#350	53
Internal Link Dist (ft)		1280			937			944			938	
Turn Bay Length (ft)	360			330			300			220		250
Base Capacity (vph)	234	3502		96	3141		132	307		123	137	245
Starvation Cap Reductn	0	26		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	1.04	1.06		3.35	0.80		1.41	1.30		1.33	1.07	0.51

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 132 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 3.35
Intersection Signal Delay: 110.2 Intersection LOS: F
Intersection Capacity Utilization 129.8% ICU Level of Service H
Analysis Period (min) 15
~ 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.

Splits and Phases: 8: SW 72 Ave & Bird Rd



HCM 6th Signalized Intersection Summary
8: SW 72 Ave & Bird Rd

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	237	3223	364	312	2387	62	180	207	180	159	143	120
Future Volume (veh/h)	237	3223	364	312	2387	62	180	207	180	159	143	120
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	244	3323	375	322	2461	64	186	213	186	164	147	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	259	2599	283	244	2856	74	216	244	202	144	195	
Arrive On Green	0.23	1.00	1.00	0.11	0.56	0.56	0.08	0.13	0.13	0.05	0.10	0.00
Sat Flow, veh/h	1781	4674	509	1781	5118	132	1781	1842	1529	1781	1870	1585
Grp Volume(v), veh/h	244	2387	1311	322	1633	892	186	205	194	164	147	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1779	1781	1702	1847	1781	1777	1595	1781	1870	1585
Q Serve(g_s), s	18.2	100.1	100.1	20.6	73.4	74.3	14.3	20.4	21.6	9.3	13.8	0.0
Cycle Q Clear(g_c), s	18.2	100.1	100.1	20.6	73.4	74.3	14.3	20.4	21.6	9.3	13.8	0.0
Prop In Lane	1.00		0.29	1.00		0.07	1.00		0.96	1.00		1.00
Lane Grp Cap(c), veh/h	259	1893	989	244	1899	1030	216	235	211	144	195	
V/C Ratio(X)	0.94	1.26	1.33	1.32	0.86	0.87	0.86	0.87	0.92	1.14	0.75	
Avail Cap(c_a), veh/h	272	1893	989	244	1899	1030	216	240	215	144	201	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.24	0.24	0.24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	51.4	0.0	0.0	68.3	33.8	34.0	69.6	76.6	77.2	74.9	78.3	0.0
Incr Delay (d2), s/veh	14.5	118.4	148.3	170.0	5.4	9.7	27.7	27.4	39.5	117.4	14.4	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(50%),veh/ln	10.7	31.1	40.7	22.8	30.9	35.2	3.3	11.2	11.3	6.8	7.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.9	118.4	148.3	238.3	39.2	43.7	97.2	104.0	116.6	192.3	92.8	0.0
LnGrp LOS	E	F	F	F	D	D	F	F	F	F	F	
Approach Vol, veh/h		3942			2847			585			311	A
Approach Delay, s/veh		125.1			63.1			106.1			145.2	
Approach LOS		F			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.7	106.8	16.0	30.5	27.0	106.5	21.0	25.5
Change Period (Y+Rc), s	6.4	6.4	* 6.7	* 6.7	6.4	6.4	* 6.7	* 6.7
Max Green Setting (Gmax), s	21.6	98.6	* 9.3	* 24	20.6	99.6	* 14	* 19
Max Q Clear Time (g_c+I1), s	20.2	76.3	11.3	23.6	22.6	102.1	16.3	15.8
Green Ext Time (p_c), s	0.1	18.2	0.0	0.2	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	101.5
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues
8: SW 72 Ave & Bird Rd

12/10/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	244	3698	322	2525	186	399	164	147	124
v/c Ratio	1.04	1.06	3.35	0.80	1.41	1.30	1.33	1.07	0.51
Control Delay	91.7	53.7	1101.9	28.5	270.4	208.2	245.6	171.2	15.0
Queue Delay	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.7	57.0	1101.9	28.5	270.4	208.2	245.6	171.2	15.0
Queue Length 50th (ft)	~257	~1732	~623	798	~241	~286	~199	~191	0
Queue Length 95th (ft)	m#292	#1763	#839	850	#414	#406	#365	#350	53
Internal Link Dist (ft)		1280		937		944		938	
Turn Bay Length (ft)	360		330		300		220		250
Base Capacity (vph)	234	3502	96	3141	132	307	123	137	245
Starvation Cap Reductn	0	26	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	1.04	1.06	3.35	0.80	1.41	1.30	1.33	1.07	0.51

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	2132	21	143	2788	256	17	12	74	179	38	72
Future Volume (vph)	115	2132	21	143	2788	256	17	12	74	179	38	72
Satd. Flow (prot)	1770	6401	0	3433	6325	0	1770	1863	1583	1681	1617	0
Flt Permitted	0.950			0.950			0.950			0.950	0.989	
Satd. Flow (perm)	1770	6401	0	3433	6325	0	1770	1863	1583	1681	1617	0
Satd. Flow (RTOR)		1			17				73		23	
Lane Group Flow (vph)	117	2197	0	146	3106	0	17	12	76	150	145	0
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4	4 5	3	3	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	12.0	30.0		12.0	30.0		26.0	26.0		26.0	26.0	
Total Split (s)	23.0	104.0		20.0	101.0		26.0	26.0		30.0	30.0	
Total Split (%)	12.8%	57.8%		11.1%	56.1%		14.4%	14.4%		16.7%	16.7%	
Maximum Green (s)	16.0	97.0		13.0	94.0		18.0	18.0		22.0	22.0	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		18.0			18.0		13.0	13.0		10.0	10.0	
Pedestrian Calls (#/hr)		0			0		3	3		8	8	
Act Effct Green (s)	16.1	108.5		12.3	104.7		9.5	9.5	28.7	19.7	19.7	
Actuated g/C Ratio	0.09	0.60		0.07	0.58		0.05	0.05	0.16	0.11	0.11	
v/c Ratio	0.74	0.57		0.63	0.84		0.18	0.12	0.24	0.82	0.74	
Control Delay	105.2	23.1		104.0	16.8		83.8	81.5	14.3	109.3	86.6	
Queue Delay	0.0	0.0		0.0	0.7		0.0	0.0	0.0	0.0	0.0	
Total Delay	105.2	23.1		104.0	17.4		83.8	81.5	14.3	109.3	86.6	
LOS	F	C		F	B		F	F	B	F	F	
Approach Delay		27.3			21.3			33.2			98.1	
Approach LOS		C			C			C			F	
Queue Length 50th (ft)	136	445		93	472		20	14	3	183	148	
Queue Length 95th (ft)	#240	553		m124	692		47	36	52	#291	238	
Internal Link Dist (ft)		283			607			971			948	
Turn Bay Length (ft)	325			265						150		
Base Capacity (vph)	169	3860		252	3685		177	186	322	205	217	
Starvation Cap Reductn	0	0		0	254		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	0.69	0.57		0.58	0.91		0.10	0.06	0.24	0.73	0.67	

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 110 (61%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 27.6 Intersection LOS: C
Intersection Capacity Utilization 84.2% ICU Level of Service E
Analysis Period (min) 15
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.

Splits and Phases: 3: SW 79 Ave & Bird Rd



HCM Signalized Intersection Capacity Analysis
3: SW 79 Ave & Bird Rd

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	2132	21	143	2788	256	17	12	74	179	38	72
Future Volume (vph)	115	2132	21	143	2788	256	17	12	74	179	38	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		8.0	8.0	8.0	8.0	8.0	
Lane Util. Factor	1.00	0.86		0.97	0.86		1.00	1.00	1.00	0.95	0.95	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.99	
Satd. Flow (prot)	1770	6399		3433	6327		1770	1863	1583	1681	1618	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.99	
Satd. Flow (perm)	1770	6399		3433	6327		1770	1863	1583	1681	1618	
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)	117	2176	21	146	2845	261	17	12	76	183	39	73
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	61	0	20	0
Lane Group Flow (vph)	117	2197	0	146	3099	0	17	12	15	150	125	0
Turn Type	Prot	NA		Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	1	6		5	2		4	4	4 5	3	3	
Permitted Phases												
Actuated Green, G (s)	16.1	108.5		12.3	104.7		9.5	9.5	29.8	19.7	19.7	
Effective Green, g (s)	16.1	108.5		12.3	104.7		9.5	9.5	29.8	19.7	19.7	
Actuated g/C Ratio	0.09	0.60		0.07	0.58		0.05	0.05	0.17	0.11	0.11	
Clearance Time (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	158	3857		234	3680		93	98	262	183	177	
v/s Ratio Prot	c0.07	c0.34		0.04	c0.49		c0.01	0.01	0.01	c0.09	0.08	
v/s Ratio Perm												
v/c Ratio	0.74	0.57		0.62	0.84		0.18	0.12	0.06	0.82	0.70	
Uniform Delay, d1	79.9	21.6		81.6	30.9		81.5	81.3	63.3	78.4	77.3	
Progression Factor	1.00	1.00		1.18	0.46		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.9	0.6		3.3	1.7		1.0	0.6	0.1	24.0	12.0	
Delay (s)	96.8	22.2		99.4	16.0		82.5	81.8	63.4	102.4	89.3	
Level of Service	F	C		F	B		F	F	E	F	F	
Approach Delay (s)		26.0			19.7			68.6			96.0	
Approach LOS		C			B			E			F	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: SW 79 Ave & Bird Rd

12/10/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	117	2197	146	3106	17	12	76	150	145
v/c Ratio	0.74	0.57	0.63	0.84	0.18	0.12	0.24	0.82	0.74
Control Delay	105.2	23.1	104.0	16.8	83.8	81.5	14.3	109.3	86.6
Queue Delay	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0
Total Delay	105.2	23.1	104.0	17.4	83.8	81.5	14.3	109.3	86.6
Queue Length 50th (ft)	136	445	93	472	20	14	3	183	148
Queue Length 95th (ft)	#240	553	m124	692	47	36	52	#291	238
Internal Link Dist (ft)		283		607		971			948
Turn Bay Length (ft)	325		265					150	
Base Capacity (vph)	169	3860	252	3685	177	186	322	205	217
Starvation Cap Reductn	0	0	0	254	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	0.69	0.57	0.58	0.91	0.10	0.06	0.24	0.73	0.67

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.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	82	2303	3094	350	209	122
Future Volume (vph)	82	2303	3094	350	209	122
Satd. Flow (prot)	3433	6408	6312	0	3433	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	6408	6312	0	3433	1583
Satd. Flow (RTOR)			38			2
Lane Group Flow (vph)	85	2374	3551	0	215	126
Turn Type	Prot	NA	NA		Prot	pt+ov
Protected Phases	1	6	2		3	3 1
Permitted Phases						
Detector Phase	1	6	2		3	3 1
Switch Phase						
Minimum Initial (s)	5.0	7.0	7.0		7.0	
Minimum Split (s)	11.4	24.4	24.4		25.0	
Total Split (s)	17.0	153.0	136.0		27.0	
Total Split (%)	9.4%	85.0%	75.6%		15.0%	
Maximum Green (s)	10.6	146.6	129.6		20.0	
Yellow Time (s)	4.4	4.4	4.4		4.0	
All-Red Time (s)	2.0	2.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4		7.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	9.4	149.5	133.7		17.1	32.9
Actuated g/C Ratio	0.05	0.83	0.74		0.10	0.18
v/c Ratio	0.48	0.45	0.76		0.66	0.43
Control Delay	113.3	1.5	11.9		88.3	68.3
Queue Delay	0.0	0.1	0.3		0.0	0.0
Total Delay	113.3	1.6	12.2		88.3	68.3
LOS	F	A	B		F	E
Approach Delay		5.5	12.2		80.9	
Approach LOS		A	B		F	
Queue Length 50th (ft)	54	45	610		128	131
Queue Length 95th (ft)	m87	62	m588		175	201
Internal Link Dist (ft)		607	703		932	
Turn Bay Length (ft)	230					100
Base Capacity (vph)	202	5321	4699		381	288
Starvation Cap Reductn	0	502	502		0	0
Spillback Cap Reductn	0	1041	188		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.42	0.55	0.85		0.56	0.44

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 99 (55%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 69.4% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Bird Rd & SW 7800 Block



HCM 6th Signalized Intersection Summary
6: Bird Rd & SW 7800 Block

12/10/2018

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	82	2303	3094	350	209	122
Future Volume (veh/h)	82	2303	3094	350	209	122
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	2374	3190	361	215	126
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	121	5379	4540	496	309	197
Arrive On Green	0.07	1.00	1.00	1.00	0.09	0.09
Sat Flow, veh/h	3456	6696	6193	648	3456	1585
Grp Volume(v), veh/h	85	2374	2574	977	215	126
Grp Sat Flow(s),veh/h/ln	1728	1609	1609	1754	1728	1585
Q Serve(g_s), s	4.3	0.0	0.0	0.0	10.9	13.6
Cycle Q Clear(g_c), s	4.3	0.0	0.0	0.0	10.9	13.6
Prop In Lane	1.00			0.37	1.00	1.00
Lane Grp Cap(c), veh/h	121	5379	3694	1342	309	197
V/C Ratio(X)	0.70	0.44	0.70	0.73	0.70	0.64
Avail Cap(c_a), veh/h	204	5379	3694	1342	384	232
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.38	0.38	1.00	1.00
Uniform Delay (d), s/veh	82.8	0.0	0.0	0.0	79.6	74.9
Incr Delay (d2), s/veh	5.7	0.2	0.4	1.3	4.0	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	2.0	0.1	0.1	0.5	5.1	5.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	88.5	0.2	0.4	1.3	83.6	79.4
LnGrp LOS	F	A	A	A	F	E
Approach Vol, veh/h		2459	3551		341	
Approach Delay, s/veh		3.3	0.7		82.0	
Approach LOS		A	A		F	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.7	144.2			156.9	23.1
Change Period (Y+Rc), s	6.4	6.4			6.4	7.0
Max Green Setting (Gmax), s	10.6	129.6			146.6	20.0
Max Q Clear Time (g_c+I1), s	6.3	2.0			2.0	15.6
Green Ext Time (p_c), s	0.1	101.3			51.6	0.5

Intersection Summary	
HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Queues
6: Bird Rd & SW 7800 Block

12/10/2018

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	85	2374	3551	215	126
v/c Ratio	0.48	0.45	0.76	0.66	0.43
Control Delay	113.3	1.5	11.9	88.3	68.3
Queue Delay	0.0	0.1	0.3	0.0	0.0
Total Delay	113.3	1.6	12.2	88.3	68.3
Queue Length 50th (ft)	54	45	610	128	131
Queue Length 95th (ft)	m87	62	m588	175	201
Internal Link Dist (ft)		607	703	932	
Turn Bay Length (ft)	230				100
Base Capacity (vph)	202	5321	4699	381	288
Starvation Cap Reductn	0	502	502	0	0
Spillback Cap Reductn	0	1041	188	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.42	0.55	0.85	0.56	0.44

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1779	733	1364	2474	0	0	0	0	1038	0	1025
Future Volume (vph)	0	1779	733	1364	2474	0	0	0	0	1038	0	1025
Satd. Flow (prot)	0	6126	0	4990	5085	0	0	0	0	4990	0	3610
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	6126	0	4990	5085	0	0	0	0	4990	0	3610
Satd. Flow (RTOR)		66										
Lane Group Flow (vph)	0	2590	0	1406	2551	0	0	0	0	1070	0	1057
Turn Type		NA		Prot	NA					Prot		Prot
Protected Phases		6		5	2					3		8
Permitted Phases												
Detector Phase		6		5	2					3		8
Switch Phase												
Minimum Initial (s)		7.0		5.0	7.0					7.0		7.0
Minimum Split (s)		25.0		12.0	25.0					13.9		24.9
Total Split (s)		75.0		51.0	126.0					54.0		54.0
Total Split (%)		41.7%		28.3%	70.0%					30.0%		30.0%
Maximum Green (s)		68.0		44.0	119.0					47.1		47.1
Yellow Time (s)		4.4		4.4	4.4					4.0		4.0
All-Red Time (s)		2.6		2.6	2.6					2.9		2.9
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		7.0		7.0	7.0					6.9		6.9
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)	3.0	3.0	3.0							3.0	3.0	
Recall Mode	C-Max	None	C-Max							None	None	
Act Effct Green (s)	68.0	44.0	119.0							47.1	47.1	
Actuated g/C Ratio	0.38	0.24	0.66							0.26	0.26	
v/c Ratio	1.16dr	1.15	0.76							0.82	1.12	
Control Delay	94.1	133.7	19.8							68.6	126.4	
Queue Delay	0.1	0.3	36.6							0.0	0.0	
Total Delay	94.2	134.0	56.4							68.6	126.4	
LOS	F	F	E							E	F	
Approach Delay	94.2		84.0							97.3		
Approach LOS	F		F							F		
Queue Length 50th (ft)	~994	~690	594							425	~627	
Queue Length 95th (ft)	#1050	m#676	m592							482	#743	
Internal Link Dist (ft)	703		451				519			1229		
Turn Bay Length (ft)										350	650	
Base Capacity (vph)	2355	1219	3361							1305	944	
Starvation Cap Reductn	8	94	990							0	0	
Spillback Cap Reductn	0	0	111							0	0	
Storage Cap Reductn	0	0	0							0	0	
Reduced v/c Ratio	1.10	1.25	1.08							0.82	1.12	

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 159 (88%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 90.3 Intersection LOS: F
Intersection Capacity Utilization 98.8% ICU Level of Service F
Analysis Period (min) 15
~ 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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 15: Bird Rd & SB SR 826 Off Ramp



HCM 6th Signalized Intersection Summary
15: Bird Rd & SB SR 826 Off Ramp

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1779	733	1364	2474	0	0	0	0	1038	0	1025
Future Volume (veh/h)	0	1779	733	1364	2474	0	0	0	0	1038	0	1025
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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1834	0	1406	2551	0				1070	0	1057
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	2	2	2	0				2	0	2
Cap, veh/h	0	2431		1228	3376	0				1314	0	946
Arrive On Green	0.00	0.12	0.00	0.49	1.00	0.00				0.26	0.00	0.26
Sat Flow, veh/h	0	6958	0	5023	5274	0				5023	0	3614
Grp Volume(v), veh/h	0	1834	0	1406	2551	0				1070	0	1057
Grp Sat Flow(s),veh/h/ln	0	1609	0	1674	1702	0				1674	0	1205
Q Serve(g_s), s	0.0	49.6	0.0	44.0	0.0	0.0				36.0	0.0	47.1
Cycle Q Clear(g_c), s	0.0	49.6	0.0	44.0	0.0	0.0				36.0	0.0	47.1
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2431		1228	3376	0				1314	0	946
V/C Ratio(X)	0.00	0.75		1.15	0.76	0.00				0.81	0.00	1.12
Avail Cap(c_a), veh/h	0	2431		1228	3376	0				1314	0	946
HCM Platoon Ratio	1.00	0.33	0.33	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.88	0.00	0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	70.7	0.0	46.0	0.0	0.0				62.3	0.0	66.4
Incr Delay (d2), s/veh	0.0	2.0	0.0	66.3	0.1	0.0				4.1	0.0	67.2
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(50%),veh/ln	0.0	21.9	0.0	22.7	0.0	0.0				15.9	0.0	20.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	72.7	0.0	112.3	0.1	0.0				66.4	0.0	133.7
LnGrp LOS	A	E		F	A	A				E	A	F
Approach Vol, veh/h		1834	A		3957						2127	
Approach Delay, s/veh		72.7			40.0						99.8	
Approach LOS		E			D						F	

Timer - Assigned Phs	2			5	6	8
Phs Duration (G+Y+Rc), s	126.0			51.0	75.0	54.0
Change Period (Y+Rc), s	7.0			7.0	7.0	6.9
Max Green Setting (Gmax), s	119.0			44.0	68.0	47.1
Max Q Clear Time (g_c+I1), s	2.0			46.0	51.6	49.1
Green Ext Time (p_c), s	58.4			0.0	11.3	0.0

Intersection Summary		
HCM 6th Ctrl Delay		63.6
HCM 6th LOS		E

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Queues
15: Bird Rd & SB SR 826 Off Ramp

12/10/2018

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	2590	1406	2551	1070	1057
v/c Ratio	1.16dr	1.15	0.76	0.82	1.12
Control Delay	94.1	133.7	19.8	68.6	126.4
Queue Delay	0.1	0.3	36.6	0.0	0.0
Total Delay	94.2	134.0	56.4	68.6	126.4
Queue Length 50th (ft)	~994	~690	594	425	~627
Queue Length 95th (ft)	#1050	m#676	m592	482	#743
Internal Link Dist (ft)	703		451		
Turn Bay Length (ft)				350	650
Base Capacity (vph)	2355	1219	3361	1305	944
Starvation Cap Reductn	8	94	990	0	0
Spillback Cap Reductn	0	0	111	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.10	1.25	1.08	0.82	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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

SW 40 St at SR 826 07/06/2018 No Build
Timing Plan: PM Peak Hour
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	2344	473	0	3115	1240	723	0	827	0	0
Future Volume (vph)	0	2344	473	0	3115	1240	723	0	827	0	0
Satd. Flow (prot)	0	5085	1583	0	6132	0	3433	0	3610	0	0
Flt Permitted							0.950				
Satd. Flow (perm)	0	5085	1583	0	6132	0	3433	0	3610	0	0
Satd. Flow (RTOR)			121						28		
Lane Group Flow (vph)	0	2392	483	0	4444	0	738	0	844	0	0
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		4			8		5		5		
Permitted Phases			Free								
Detector Phase		4			8		5		5		
Switch Phase											
Minimum Initial (s)		7.0			7.0		7.0		7.0		
Minimum Split (s)		138.6			138.6		13.4		13.4		
Total Split (s)		139.0			139.0		41.0		41.0		
Total Split (%)		77.2%			77.2%		22.8%		22.8%		
Maximum Green (s)		131.7			131.7		34.6		34.6		
Yellow Time (s)		4.0			4.0		4.4		4.4		
All-Red Time (s)		3.3			3.3		2.0		2.0		
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		
Total Lost Time (s)		7.3			7.3		6.4		6.4		
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)		3.0			3.0		3.0		3.0		
Recall Mode		C-Max			C-Max		None		None		
Act Effct Green (s)		131.7	180.0		131.7		34.6		34.6		
Actuated g/C Ratio		0.73	1.00		0.73		0.19		0.19		
v/c Ratio		0.64	0.31		1.07dr		1.12		1.18		
Control Delay		6.4	0.1		20.7		136.0		152.3		
Queue Delay		0.7	0.0		41.0		6.1		0.0		
Total Delay		7.1	0.1		61.6		142.1		152.3		
LOS		A	A		E		F		F		
Approach Delay		5.9			61.6			147.5			
Approach LOS		A			E			F			
Queue Length 50th (ft)		151	0		0		~514		~510		
Queue Length 95th (ft)		m182	m0		m0		#647		#627		
Internal Link Dist (ft)		451			642			1205		1043	
Turn Bay Length (ft)							300		300		
Base Capacity (vph)		3720	1583		4486		659		716		
Starvation Cap Reductn		851	0		607		0		0		
Spillback Cap Reductn		812	0		126		329		4		
Storage Cap Reductn		0	0		0		0		0		
Reduced v/c Ratio		0.83	0.31		1.15		2.24		1.19		

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 136 (76%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 155
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 58.9 Intersection LOS: E
Intersection Capacity Utilization 96.0% ICU Level of Service F
Analysis Period (min) 15
~ 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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 13: NB SR 826 Off Ramp & Bird Rd



HCM 6th Signalized Intersection Summary
13: NB SR 826 Off Ramp & Bird Rd

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (veh/h)	0	2344	473	0	3115	1240	723	0	827	0	0
Future Volume (veh/h)	0	2344	473	0	3115	1240	723	0	827	0	0
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	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach		No			No			No			
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870		
Adj Flow Rate, veh/h	0	2392	0	0	3179	1265	738	738	844		
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	0	2	2	2	2	2		
Cap, veh/h	0	3736		0	3531	1160	664	664	695		
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.19	0.19	0.19		
Sat Flow, veh/h	0	5274	1585	0	5087	1585	3456	3456	3614		
Grp Volume(v), veh/h	0	2392	0	0	3179	1265	738	738	844		
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1585	1728	1728	1205		
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	131.7	34.6	34.6	34.6		
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	131.7	34.6	34.6	34.6		
Prop In Lane	0.00		1.00	0.00		1.00	1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	3736		0	3531	1160	664	664	695		
V/C Ratio(X)	0.00	0.64		0.00	0.90	1.09	1.11	1.11	1.21		
Avail Cap(c_a), veh/h	0	3736		0	3531	1160	664	664	695		
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.09	0.00	0.00	0.09	0.09	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	72.7	72.7	72.7		
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.4	42.5	69.5	69.5	109.7		
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(50%),veh/ln	0.0	0.0	0.0	0.0	0.1	13.7	21.8	21.8	17.8		
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh	0.0	0.1	0.0	0.0	0.4	42.5	142.2	142.2	182.4		
LnGrp LOS	A	A		A	A	F	F	F	F		
Approach Vol, veh/h		2392	A		4444		1582	1582			
Approach Delay, s/veh		0.1			12.4		163.6	163.6			
Approach LOS		A			B		F	F			

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	41.0	139.0	139.0
Change Period (Y+Rc), s	6.4	* 7.3	* 7.3
Max Green Setting (Gmax), s	34.6	* 1.3E2	* 1.3E2
Max Q Clear Time (g_c+I1), s	36.6	2.0	133.7
Green Ext Time (p_c), s	0.0	51.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	37.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Queues
13: NB SR 826 Off Ramp & Bird Rd

12/10/2018

Lane Group	EBT	EBR	WBT	NBL2	NBR
Lane Group Flow (vph)	2392	483	4444	738	844
v/c Ratio	0.64	0.31	1.07dr	1.12	1.18
Control Delay	6.4	0.1	20.7	136.0	152.3
Queue Delay	0.7	0.0	41.0	6.1	0.0
Total Delay	7.1	0.1	61.6	142.1	152.3
Queue Length 50th (ft)	151	0	0	~514	~510
Queue Length 95th (ft)	m182	m0	m0	#647	#627
Internal Link Dist (ft)	451		642		
Turn Bay Length (ft)				300	300
Base Capacity (vph)	3720	1583	4486	659	716
Starvation Cap Reductn	851	0	607	0	0
Spillback Cap Reductn	812	0	126	329	4
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.83	0.31	1.15	2.24	1.19

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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	3020	0	0	3395	859	40
Future Volume (vph)	3020	0	0	3395	859	40
Satd. Flow (prot)	5085	0	0	5085	3423	0
Flt Permitted					0.954	
Satd. Flow (perm)	5085	0	0	5085	3423	0
Satd. Flow (RTOR)					1	
Lane Group Flow (vph)	3179	0	0	3574	946	0
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Detector Phase	2			2	7	
Switch Phase						
Minimum Initial (s)	7.0			7.0	7.0	
Minimum Split (s)	25.2			25.2	24.8	
Total Split (s)	128.0			128.0	52.0	
Total Split (%)	71.1%			71.1%	28.9%	
Maximum Green (s)	121.6			121.6	45.2	
Yellow Time (s)	4.4			4.4	4.0	
All-Red Time (s)	2.0			2.0	2.8	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.4			6.4	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	C-Max			C-Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	3			3	3	
Act Effct Green (s)	121.6			121.6	45.2	
Actuated g/C Ratio	0.68			0.68	0.25	
v/c Ratio	0.93			1.04	1.10	
Control Delay	26.6			31.3	121.9	
Queue Delay	0.3			0.0	0.0	
Total Delay	26.9			31.3	121.9	
LOS	C			C	F	
Approach Delay	26.9			31.3	121.9	
Approach LOS	C			C	F	
Queue Length 50th (ft)	871			~1647	~651	
Queue Length 95th (ft)	m782			m#317	#789	
Internal Link Dist (ft)	642			1280	967	
Turn Bay Length (ft)						
Base Capacity (vph)	3435			3435	860	
Starvation Cap Reductn	33			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.93			1.04	1.10	

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 128 (71%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 40.6 Intersection LOS: D
Intersection Capacity Utilization 102.4% ICU Level of Service G
Analysis Period (min) 15
~ 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.

Splits and Phases: 11: SW 74 Ave & Bird Rd



HCM Signalized Intersection Capacity Analysis
11: SW 74 Ave & Bird Rd

12/10/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	3020	0	0	3395	859	40
Future Volume (vph)	3020	0	0	3395	859	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4			6.4	6.8	
Lane Util. Factor	0.91			0.91	0.97	
Frt	1.00			1.00	0.99	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	5085			5085	3426	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	5085			5085	3426	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	3179	0	0	3574	904	42
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	3179	0	0	3574	945	0
Turn Type	NA			NA	Prot	
Protected Phases	2			2	7	
Permitted Phases						
Actuated Green, G (s)	121.6			121.6	45.2	
Effective Green, g (s)	121.6			121.6	45.2	
Actuated g/C Ratio	0.68			0.68	0.25	
Clearance Time (s)	6.4			6.4	6.8	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3435			3435	860	
v/s Ratio Prot	0.63			c0.70	c0.28	
v/s Ratio Perm						
v/c Ratio	0.93			1.04	1.10	
Uniform Delay, d1	25.3			29.2	67.4	
Progression Factor	0.90			0.28	1.00	
Incremental Delay, d2	3.5			21.2	61.5	
Delay (s)	26.2			29.3	128.9	
Level of Service	C			C	F	
Approach Delay (s)	26.2			29.3	128.9	
Approach LOS	C			C	F	

Intersection Summary			
HCM 2000 Control Delay	40.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
11: SW 74 Ave & Bird Rd

12/10/2018

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	3179	3574	946
v/c Ratio	0.93	1.04	1.10
Control Delay	26.6	31.3	121.9
Queue Delay	0.3	0.0	0.0
Total Delay	26.9	31.3	121.9
Queue Length 50th (ft)	871	~1647	~651
Queue Length 95th (ft)	m782	m#317	#789
Internal Link Dist (ft)	642	1280	967
Turn Bay Length (ft)			
Base Capacity (vph)	3435	3435	860
Starvation Cap Reductn	33	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.93	1.04	1.10

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.

SW 40 St at SR 826 07/06/2018 No Build
Timing Plan: PM Peak Hour
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	2568	199	238	2695	78	290	230	229	89	228	396
Future Volume (vph)	139	2568	199	238	2695	78	290	230	229	89	228	396
Satd. Flow (prot)	1770	5029	0	1770	5065	0	1770	3274	0	1770	1863	1583
Flt Permitted	0.044			0.041			0.195			0.353		
Satd. Flow (perm)	82	5029	0	76	5065	0	363	3274	0	658	1863	1583
Satd. Flow (RTOR)		10			4			125				179
Lane Group Flow (vph)	140	2795	0	240	2801	0	293	463	0	90	230	400
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		8
Detector Phase	1	6		5	2		7	4		3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	7.0
Minimum Split (s)	11.4	24.4		11.4	24.4		11.7	30.7		11.7	24.7	24.7
Total Split (s)	17.2	98.0		24.0	104.8		25.0	41.5		16.5	33.0	33.0
Total Split (%)	9.6%	54.4%		13.3%	58.2%		13.9%	23.1%		9.2%	18.3%	18.3%
Maximum Green (s)	10.8	91.6		17.6	98.4		18.3	34.8		9.8	26.3	26.3
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7		2.7	2.7	2.7
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)	6.4	6.4		6.4	6.4		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Walk Time (s)		7.0			7.0			5.0				
Flash Dont Walk (s)		11.0			11.0			19.0				
Pedestrian Calls (#/hr)		5			5			0				
Act Effct Green (s)	102.4	91.6		115.6	98.4		51.3	35.1		35.8	26.3	26.3
Actuated g/C Ratio	0.57	0.51		0.64	0.55		0.28	0.20		0.20	0.15	0.15
v/c Ratio	0.95	1.09		1.12	1.01		1.19	0.63		0.48	0.85	1.04
Control Delay	91.5	75.4		148.1	59.8		165.4	52.1		58.8	100.7	95.8
Queue Delay	0.0	0.0		0.0	30.6		0.0	0.0		0.0	0.0	6.6
Total Delay	91.5	75.4		148.1	90.4		165.4	52.1		58.8	100.7	102.3
LOS	F	E		F	F		F	D		E	F	F
Approach Delay		76.2			94.9			96.0			96.3	
Approach LOS		E			F			F			F	
Queue Length 50th (ft)	131	~1338		~274	~1235		~332	196		81	269	~318
Queue Length 95th (ft)	m#149	m#640		#469	#1330		#541	263		134	#420	#545
Internal Link Dist (ft)		1280			944			991			942	
Turn Bay Length (ft)	360			330			300			220		250
Base Capacity (vph)	147	2564		214	2770		246	739		192	272	384
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	200		0	0		0	0	7
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.95	1.09		1.12	1.09		1.19	0.63		0.47	0.85	1.06

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 135 (75%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 87.8 Intersection LOS: F
Intersection Capacity Utilization 117.1% ICU Level of Service H
Analysis Period (min) 15
~ 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.

Splits and Phases: 8: SW 72 Ave & Bird Rd



HCM 6th Signalized Intersection Summary
8: SW 72 Ave & Bird Rd

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	2568	199	238	2695	78	290	230	229	89	228	396
Future Volume (veh/h)	139	2568	199	238	2695	78	290	230	229	89	228	396
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	2594	201	240	2722	79	293	232	231	90	230	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	151	2522	191	214	2850	82	236	323	288	175	251	
Arrive On Green	0.12	1.00	1.00	0.10	0.56	0.56	0.10	0.18	0.18	0.05	0.13	0.00
Sat Flow, veh/h	1781	4841	367	1781	5101	147	1781	1777	1585	1781	1870	1585
Grp Volume(v), veh/h	140	1808	987	240	1809	992	293	232	231	90	230	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1804	1781	1702	1844	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	9.5	93.8	93.8	17.6	90.1	92.5	18.3	22.1	25.1	7.8	21.9	0.0
Cycle Q Clear(g_c), s	9.5	93.8	93.8	17.6	90.1	92.5	18.3	22.1	25.1	7.8	21.9	0.0
Prop In Lane	1.00		0.20	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	151	1773	940	214	1902	1030	236	323	288	175	251	
V/C Ratio(X)	0.93	1.02	1.05	1.12	0.95	0.96	1.24	0.72	0.80	0.51	0.92	
Avail Cap(c_a), veh/h	151	1773	940	214	1902	1030	236	344	306	176	273	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.26	0.26	0.26	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.1	0.0	0.0	67.1	37.4	37.9	62.8	69.3	70.5	63.4	77.0	0.0
Incr Delay (d2), s/veh	20.9	16.2	30.4	97.7	11.9	20.4	140.2	6.6	13.4	2.5	32.2	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(50%),veh/ln	6.9	4.0	7.9	15.7	39.3	46.0	11.2	10.7	11.4	3.7	12.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.0	16.2	30.4	164.8	49.3	58.3	203.0	75.9	83.9	65.9	109.1	0.0
LnGrp LOS	E	F	F	F	D	E	F	E	F	E	F	
Approach Vol, veh/h		2935			3041			756			320	A
Approach Delay, s/veh		23.7			61.4			127.6			97.0	
Approach LOS		C			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.2	107.0	16.4	39.5	24.0	100.2	25.0	30.8
Change Period (Y+Rc), s	6.4	6.4	* 6.7	* 6.7	6.4	6.4	* 6.7	* 6.7
Max Green Setting (Gmax), s	10.8	98.4	* 9.8	* 35	17.6	91.6	* 18	* 26
Max Q Clear Time (g_c+I1), s	11.5	94.5	9.8	27.1	19.6	95.8	20.3	23.9
Green Ext Time (p_c), s	0.0	3.8	0.0	1.7	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	54.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Queues
8: SW 72 Ave & Bird Rd

12/10/2018

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	140	2795	240	2801	293	463	90	230	400
v/c Ratio	0.95	1.09	1.12	1.01	1.19	0.63	0.48	0.85	1.04
Control Delay	91.5	75.4	148.1	59.8	165.4	52.1	58.8	100.7	95.8
Queue Delay	0.0	0.0	0.0	30.6	0.0	0.0	0.0	0.0	6.6
Total Delay	91.5	75.4	148.1	90.4	165.4	52.1	58.8	100.7	102.3
Queue Length 50th (ft)	131	~1338	~274	~1235	~332	196	81	269	~318
Queue Length 95th (ft)	m#149	m#640	#469	#1330	#541	263	134	#420	#545
Internal Link Dist (ft)		1280		944		991		942	
Turn Bay Length (ft)	360		330		300		220		250
Base Capacity (vph)	147	2564	214	2770	246	739	192	272	384
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	200	0	0	0	0	7
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.09	1.12	1.09	1.19	0.63	0.47	0.85	1.06

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.

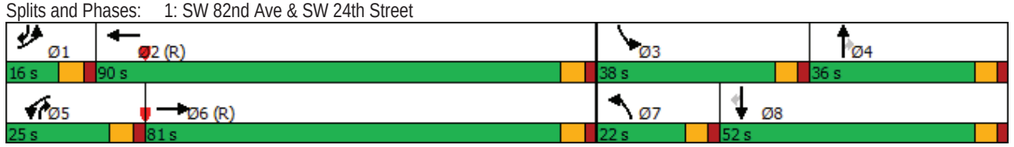
SW 40 St at SR 826 07/06/2018 No Build
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	1715	62	152	1891	166	79	261	140	263	198	103
Future Volume (vph)	72	1715	62	152	1891	166	79	261	140	263	198	103
Satd. Flow (prot)	1770	5060	0	1770	5024	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5060	0	1770	5024	0	1770	1863	1583	1770	1863	1583
Satd. Flow (RTOR)		4			10				96			99
Lane Group Flow (vph)	77	1911	0	163	2211	0	85	281	151	283	213	111
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4	5	3	8	1
Permitted Phases									4			8
Detector Phase	1	6		5	2		7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.6	33.6		11.6	33.6		11.1	31.1	11.6	11.1	31.1	11.6
Total Split (s)	16.0	81.0		25.0	90.0		22.0	36.0	25.0	38.0	52.0	16.0
Total Split (%)	8.9%	45.0%		13.9%	50.0%		12.2%	20.0%	13.9%	21.1%	28.9%	8.9%
Maximum Green (s)	9.4	74.4		18.4	83.4		15.9	29.9	18.4	31.9	45.9	9.4
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.2	2.2		2.2	2.2		2.1	2.1	2.2	2.1	2.1	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6		6.6	6.6		6.1	6.1	6.6	6.1	6.1	6.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Walk Time (s)		7.0			7.0			5.0			5.0	
Flash Dont Walk (s)		20.0			20.0			20.0			20.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	9.4	76.5		18.1	85.3		13.3	29.0	53.3	30.9	46.7	62.2
Actuated g/C Ratio	0.05	0.42		0.10	0.47		0.07	0.16	0.30	0.17	0.26	0.35
v/c Ratio	0.84	0.89		0.92	0.93		0.65	0.94	0.28	0.93	0.44	0.18
Control Delay	138.2	54.1		132.8	39.4		103.6	111.2	19.2	109.5	59.2	9.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	138.2	54.1		132.8	39.4		103.6	111.2	19.2	109.5	59.2	9.5
LOS	F	D		F	D		F	F	B	F	E	A
Approach Delay		57.4			45.8			83.1			73.6	
Approach LOS		E			D			F			E	
Queue Length 50th (ft)	92	776		204	835		99	331	47	332	211	9
Queue Length 95th (ft)	#200	843		#352	634		164	#512	112	#511	303	58
Internal Link Dist (ft)		962			1232			937			1007	
Turn Bay Length (ft)	265			280			135		135	110		40
Base Capacity (vph)	92	2153		180	2385		156	309	538	313	487	611
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	0.84	0.89		0.91	0.93		0.54	0.91	0.28	0.90	0.44	0.18

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 31 (17%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 56.6 Intersection LOS: E
Intersection Capacity Utilization 93.9% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: SW 82nd Ave & SW 24th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	1715	62	152	1891	166	79	261	140	263	198	103
Future Volume (veh/h)	72	1715	62	152	1891	166	79	261	140	263	198	103
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	77	1844	67	163	2033	178	85	281	151	283	213	111
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	93	2167	79	179	2281	198	103	301	415	301	509	514
Arrive On Green	0.05	0.43	0.43	0.20	0.95	0.95	0.06	0.16	0.16	0.17	0.27	0.27
Sat Flow, veh/h	1781	5058	184	1781	4784	416	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	77	1240	671	163	1442	769	85	281	151	283	213	111
Grp Sat Flow(s),veh/h/ln	1781	1702	1837	1781	1702	1796	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	7.7	59.0	59.1	16.1	23.2	24.9	8.5	26.7	14.0	28.3	16.8	9.2
Cycle Q Clear(g_c), s	7.7	59.0	59.1	16.1	23.2	24.9	8.5	26.7	14.0	28.3	16.8	9.2
Prop In Lane	1.00		0.10	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	93	1458	787	179	1623	856	103	301	415	301	509	514
V/C Ratio(X)	0.83	0.85	0.85	0.91	0.89	0.90	0.82	0.93	0.36	0.94	0.42	0.22
Avail Cap(c_a), veh/h	93	1458	787	182	1623	856	157	311	423	316	509	514
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.74	0.74	0.74	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	84.5	46.3	46.3	71.1	2.7	2.8	83.9	74.6	54.2	73.9	53.8	44.2
Incr Delay (d2), s/veh	43.5	6.4	11.3	34.0	5.9	11.1	18.6	33.6	0.5	34.6	0.5	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(50%),veh/ln	4.7	25.9	29.1	8.3	2.8	4.2	4.5	15.7	5.7	15.8	8.1	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	128.0	52.7	57.6	105.1	8.6	13.8	102.4	108.1	54.8	108.5	54.4	44.4
LnGrp LOS	F	D	E	F	A	B	F	F	D	F	D	D
Approach Vol, veh/h		1988			2374			517			607	
Approach Delay, s/veh		57.3			16.9			91.6			77.8	
Approach LOS		E			B			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	92.4	36.5	35.1	24.7	83.7	16.5	55.1
Change Period (Y+Rc), s	* 6.6	* 6.6	6.1	6.1	* 6.6	* 6.6	6.1	6.1
Max Green Setting (Gmax), s	* 9.4	* 83	31.9	29.9	* 18	* 74	15.9	45.9
Max Q Clear Time (g_c+I1), s	9.7	26.9	30.3	28.7	18.1	61.1	10.5	18.8
Green Ext Time (p_c), s	0.0	29.2	0.1	0.3	0.0	9.6	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	45.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	77	1911	163	2211	85	281	151	283	213	111
v/c Ratio	0.84	0.89	0.92	0.93	0.65	0.94	0.28	0.93	0.44	0.18
Control Delay	138.2	54.1	132.8	39.4	103.6	111.2	19.2	109.5	59.2	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	138.2	54.1	132.8	39.4	103.6	111.2	19.2	109.5	59.2	9.5
Queue Length 50th (ft)	92	776	204	835	99	331	47	332	211	9
Queue Length 95th (ft)	#200	843	#352	634	164	#512	112	#511	303	58
Internal Link Dist (ft)		962		1232		937			1007	
Turn Bay Length (ft)	265		280		135		135	110		40
Base Capacity (vph)	92	2153	180	2385	156	309	538	313	487	611
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	0.84	0.89	0.91	0.93	0.54	0.91	0.28	0.90	0.44	0.18

Intersection Summary

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	2124	3	117	2169	46	28	2	212	192	21	12
Future Volume (vph)	9	2124	3	117	2169	46	28	2	212	192	21	12
Satd. Flow (prot)	1770	5085	0	1770	5070	0	1770	1585	0	1770	1863	1583
Flt Permitted	0.044			0.051			0.743			0.376		
Satd. Flow (perm)	82	5085	0	95	5070	0	1384	1585	0	700	1863	1583
Satd. Flow (RTOR)								16				14
Lane Group Flow (vph)	10	2263	0	124	2356	0	30	228	0	204	22	13
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	6	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	32.3	32.3		32.3	32.3		27.5	27.5		27.5	27.5	27.5
Total Split (s)	136.0	136.0		136.0	136.0		44.0	44.0		44.0	44.0	44.0
Total Split (%)	75.6%	75.6%		75.6%	75.6%		24.4%	24.4%		24.4%	24.4%	24.4%
Maximum Green (s)	130.7	130.7		130.7	130.7		38.5	38.5		38.5	38.5	38.5
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.5	1.5		1.5	1.5	1.5
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)	5.3	5.3		5.3	5.3		5.5	5.5		5.5	5.5	5.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	4	4		1	1		0	0		2	2	2
Act Effct Green (s)	130.7	130.7		130.7	130.7		38.5	38.5		38.5	38.5	38.5
Actuated g/C Ratio	0.73	0.73		0.73	0.73		0.21	0.21		0.21	0.21	0.21
v/c Ratio	0.17	0.61		1.82	0.64		0.10	0.65		1.37	0.06	0.04
Control Delay	6.4	3.1		430.0	4.0		58.2	69.6		251.8	57.0	21.0
Queue Delay	0.0	0.0		0.0	0.4		0.0	0.0		0.0	0.0	0.0
Total Delay	6.4	3.1		430.0	4.4		58.2	69.6		251.8	57.0	21.0
LOS	A	A		F	A		E	E		F	E	C
Approach Delay		3.1			25.7			68.3			221.3	
Approach LOS		A			C			E			F	
Queue Length 50th (ft)	1	80		~224	72		29	232		~316	21	0
Queue Length 95th (ft)	m1	101		m#341	77		62	336		#497	49	21
Internal Link Dist (ft)		1232			746			999			30	
Turn Bay Length (ft)	255			265			130					
Base Capacity (vph)	59	3692		68	3681		296	351		149	398	349
Starvation Cap Reductn	0	0		0	712		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	0.17	0.61		1.82	0.79		0.10	0.65		1.37	0.06	0.04

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 22 (12%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.82
Intersection Signal Delay: 26.9 Intersection LOS: C
Intersection Capacity Utilization 90.6% ICU Level of Service E
Analysis Period (min) 15
~ 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.

Splits and Phases: 3: SW 79th Ave & SW 24th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	2124	3	117	2169	46	28	2	212	192	21	12
Future Volume (veh/h)	9	2124	3	117	2169	46	28	2	212	192	21	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	2260	3	124	2307	49	30	2	226	204	22	13
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	100	3824	5	161	3736	79	321	3	337	135	400	339
Arrive On Green	1.00	1.00	1.00	0.49	0.49	0.49	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	151	5266	7	166	5146	109	1373	14	1573	1153	1870	1585
Grp Volume(v), veh/h	10	1461	802	124	1524	832	30	0	228	204	22	13
Grp Sat Flow(s),veh/h/ln	151	1702	1869	166	1702	1851	1373	0	1587	1153	1870	1585
Q Serve(g_s), s	5.9	0.0	0.0	130.7	59.1	59.5	3.2	0.0	23.7	14.8	1.7	1.2
Cycle Q Clear(g_c), s	65.4	0.0	0.0	130.7	59.1	59.5	4.9	0.0	23.7	38.5	1.7	1.2
Prop In Lane	1.00		0.00	1.00		0.06	1.00		0.99	1.00		1.00
Lane Grp Cap(c), veh/h	100	2472	1357	161	2472	1344	321	0	339	135	400	339
V/C Ratio(X)	0.10	0.59	0.59	0.77	0.62	0.62	0.09	0.00	0.67	1.52	0.05	0.04
Avail Cap(c_a), veh/h	100	2472	1357	161	2472	1344	321	0	339	135	400	339
HCM Platoon Ratio	2.00	2.00	2.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.40	0.40	0.40	0.68	0.68	0.68	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	0.0	48.0	27.8	27.9	58.2	0.0	64.9	84.8	56.3	56.1
Incr Delay (d2), s/veh	0.8	0.4	0.8	21.3	0.8	1.5	0.1	0.0	5.1	266.6	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(50%),veh/ln	0.2	0.1	0.3	6.8	25.8	28.5	1.1	0.0	10.2	16.3	0.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	0.4	0.8	69.3	28.6	29.4	58.3	0.0	70.0	351.4	56.3	56.1
LnGrp LOS	B	A	A	E	C	C	E	A	E	F	E	E
Approach Vol, veh/h		2273			2480			258			239	
Approach Delay, s/veh		0.6			30.9			68.7			308.2	
Approach LOS		A			C			E			F	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	136.0	44.0	136.0	44.0
Change Period (Y+Rc), s	* 5.3	5.5	* 5.3	5.5
Max Green Setting (Gmax), s	* 1.3E2	38.5	* 1.3E2	38.5
Max Q Clear Time (g_c+I1), s	132.7	25.7	67.4	40.5
Green Ext Time (p_c), s	0.0	1.2	32.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	10	2263	124	2356	30	228	204	22	13
v/c Ratio	0.17	0.61	1.82	0.64	0.10	0.65	1.37	0.06	0.04
Control Delay	6.4	3.1	430.0	4.0	58.2	69.6	251.8	57.0	21.0
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	3.1	430.0	4.4	58.2	69.6	251.8	57.0	21.0
Queue Length 50th (ft)	1	80	~224	72	29	232	~316	21	0
Queue Length 95th (ft)	m1	101	m#341	77	62	336	#497	49	21
Internal Link Dist (ft)		1232		746		999		30	
Turn Bay Length (ft)	255		265		130				
Base Capacity (vph)	59	3692	68	3681	296	351	149	398	349
Starvation Cap Reductn	0	0	0	712	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	0.17	0.61	1.82	0.79	0.10	0.65	1.37	0.06	0.04

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.

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

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	307	2237	1800	528	631	556
Future Volume (vph)	307	2237	1800	528	631	556
Satd. Flow (prot)	1770	5085	5085	1583	3433	2787
Flt Permitted	0.046				0.950	
Satd. Flow (perm)	86	5085	5085	1583	3433	2787
Satd. Flow (RTOR)				334		5
Lane Group Flow (vph)	316	2306	1856	544	651	573
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6			2		3
Detector Phase	1	6	2	2	3	1
Switch Phase						
Minimum Initial (s)	5.0	16.0	16.0	16.0	7.0	5.0
Minimum Split (s)	12.9	22.6	22.6	22.6	20.0	12.9
Total Split (s)	45.0	130.0	85.0	85.0	50.0	45.0
Total Split (%)	25.0%	72.2%	47.2%	47.2%	27.8%	25.0%
Maximum Green (s)	38.4	123.4	78.4	78.4	42.1	38.4
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	2.6	3.9	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	7.9	6.6
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	127.2	127.2	88.6	88.6	38.3	78.2
Actuated g/C Ratio	0.71	0.71	0.49	0.49	0.21	0.43
v/c Ratio	0.88	0.64	0.74	0.57	0.89	0.47
Control Delay	71.7	21.1	26.1	7.2	84.2	36.4
Queue Delay	0.0	0.1	0.1	0.2	0.0	0.0
Total Delay	71.7	21.2	26.2	7.4	84.2	36.4
LOS	E	C	C	A	F	D
Approach Delay		27.3	21.9		61.8	
Approach LOS		C	C		E	
Queue Length 50th (ft)	311	575	357	92	387	264
Queue Length 95th (ft)	m415	m606	m558	m172	456	298
Internal Link Dist (ft)		746	814		990	
Turn Bay Length (ft)	320			270	400	400
Base Capacity (vph)	420	3594	2502	949	802	1312
Starvation Cap Reductn	0	277	100	51	0	0
Spillback Cap Reductn	0	242	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.70	0.77	0.61	0.81	0.44

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 21 (12%), Referenced to phase 2:WBT and 6:EBTL, Start of Green

Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 32.0 — Intersection LOS: C
Intersection Capacity Utilization 87.4% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: SW 24th Street & SR 826 SB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	307	2237	1800	528	631	556
Future Volume (vph)	307	2237	1800	528	631	556
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6	6.6	7.9	6.6
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.88
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)	1770	5085	5085	1583	3433	2787
Flt Permitted	0.05	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	86	5085	5085	1583	3433	2787
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	316	2306	1856	544	651	573
RTOR Reduction (vph)	0	0	0	170	0	3
Lane Group Flow (vph)	316	2306	1856	374	651	570
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6			2		3
Actuated Green, G (s)	127.2	127.2	88.6	88.6	38.3	70.3
Effective Green, g (s)	127.2	127.2	88.6	88.6	38.3	70.3
Actuated g/C Ratio	0.71	0.71	0.49	0.49	0.21	0.39
Clearance Time (s)	6.6	6.6	6.6	6.6	7.9	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	360	3593	2502	779	730	1088
v/s Ratio Prot	c0.16	0.45	0.36		c0.19	0.09
v/s Ratio Perm	c0.46			0.24		0.11
v/c Ratio	0.88	0.64	0.74	0.48	0.89	0.52
Uniform Delay, d1	59.4	14.2	36.6	30.4	68.8	42.0
Progression Factor	0.95	1.39	0.64	0.43	1.00	1.00
Incremental Delay, d2	16.1	0.7	1.5	1.6	13.2	0.5
Delay (s)	72.7	20.4	24.9	14.5	82.0	42.5
Level of Service	E	C	C	B	F	D
Approach Delay (s)		26.7	22.6		63.5	
Approach LOS		C	C		E	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	316	2306	1856	544	651	573
v/c Ratio	0.88	0.64	0.74	0.57	0.89	0.47
Control Delay	71.7	21.1	26.1	7.2	84.2	36.4
Queue Delay	0.0	0.1	0.1	0.2	0.0	0.0
Total Delay	71.7	21.2	26.2	7.4	84.2	36.4
Queue Length 50th (ft)	311	575	357	92	387	264
Queue Length 95th (ft)	m415	m606	m558	m172	456	298
Internal Link Dist (ft)		746	814		990	
Turn Bay Length (ft)	320			270	400	400
Base Capacity (vph)	420	3594	2502	949	802	1312
Starvation Cap Reductn	0	277	100	51	0	0
Spillback Cap Reductn	0	242	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.70	0.77	0.61	0.81	0.44

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2146	727	383	1867	461	817
Future Volume (vph)	2146	727	383	1867	461	817
Satd. Flow (prot)	5085	1583	1770	5085	3273	1441
Flt Permitted			0.048		0.974	
Satd. Flow (perm)	5085	1583	89	5085	3273	1441
Satd. Flow (RTOR)		598				
Lane Group Flow (vph)	2212	749	395	1925	896	421
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7
Detector Phase	6	6	5	2	7	7
Switch Phase						
Minimum Initial (s)	18.0	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.5	24.5	11.2	24.5	20.0	20.0
Total Split (s)	84.0	84.0	39.0	123.0	57.0	57.0
Total Split (%)	46.7%	46.7%	21.7%	68.3%	31.7%	31.7%
Maximum Green (s)	77.5	77.5	32.8	116.5	49.2	49.2
Yellow Time (s)	4.0	4.0	3.7	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	77.5	77.5	116.8	116.5	49.2	49.2
Actuated g/C Ratio	0.43	0.43	0.65	0.65	0.27	0.27
v/c Ratio	1.01	0.73	1.09	0.58	1.00	1.07
Control Delay	56.2	10.0	135.5	13.1	94.5	125.2
Queue Delay	34.6	0.2	8.5	1.7	36.4	27.2
Total Delay	90.7	10.2	144.0	14.8	131.0	152.4
LOS	F	B	F	B	F	F
Approach Delay	70.4			36.8	137.8	
Approach LOS	E			D	F	
Queue Length 50th (ft)	~861	164	~480	195	~552	~602
Queue Length 95th (ft)	#1070	161	m#650	296	#701	#854
Internal Link Dist (ft)	814			319	995	
Turn Bay Length (ft)		435	155		260	260
Base Capacity (vph)	2189	1022	364	3291	894	393
Starvation Cap Reductn	67	28	84	1129	0	0
Spillback Cap Reductn	191	0	0	0	302	266
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.75	1.41	0.89	1.51	3.31

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 163 (91%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 72.0 Intersection LOS: E
Intersection Capacity Utilization 101.5% ICU Level of Service G
Analysis Period (min) 15
~ 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.

Splits and Phases: 13: SR 826 NB Ramps & SW 24th Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2146	727	383	1867	461	817
Future Volume (vph)	2146	727	383	1867	461	817
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt	1.00	0.85	1.00	1.00	0.93	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.97	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3272	1441
Flt Permitted	1.00	1.00	0.05	1.00	0.97	1.00
Satd. Flow (perm)	5085	1583	89	5085	3272	1441
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2212	749	395	1925	475	842
RTOR Reduction (vph)	0	341	0	0	0	0
Lane Group Flow (vph)	2212	408	395	1925	896	421
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7
Actuated Green, G (s)	77.5	77.5	116.5	116.5	49.2	49.2
Effective Green, g (s)	77.5	77.5	116.5	116.5	49.2	49.2
Actuated g/C Ratio	0.43	0.43	0.65	0.65	0.27	0.27
Clearance Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2189	681	363	3291	894	393
v/s Ratio Prot	0.43		c0.20	0.38	0.27	
v/s Ratio Perm		0.26	c0.50			c0.29
v/c Ratio	1.01	0.60	1.09	0.58	1.00	1.07
Uniform Delay, d1	51.2	39.3	64.2	18.0	65.4	65.4
Progression Factor	0.73	0.84	1.48	0.70	1.00	1.00
Incremental Delay, d2	19.0	2.8	60.3	0.4	30.6	65.7
Delay (s)	56.4	36.0	155.2	13.0	96.0	131.1
Level of Service	E	D	F	B	F	F
Approach Delay (s)	51.2			37.2	107.2	
Approach LOS	D			D	F	

Intersection Summary			
HCM 2000 Control Delay	57.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	101.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2212	749	395	1925	896	421
v/c Ratio	1.01	0.73	1.09	0.58	1.00	1.07
Control Delay	56.2	10.0	135.5	13.1	94.5	125.2
Queue Delay	34.6	0.2	8.5	1.7	36.4	27.2
Total Delay	90.7	10.2	144.0	14.8	131.0	152.4
Queue Length 50th (ft)	~861	164	~480	195	~552	~602
Queue Length 95th (ft)	#1070	161	m#650	296	#701	#854
Internal Link Dist (ft)	814			319	995	
Turn Bay Length (ft)		435	155		260	260
Base Capacity (vph)	2189	1022	364	3291	894	393
Starvation Cap Reductn	67	28	84	1129	0	0
Spillback Cap Reductn	191	0	0	0	302	266
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.75	1.41	0.89	1.51	3.31

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	448	2403	112	30	1812	112	110	83	38	84	13	349
Future Volume (vph)	448	2403	112	30	1812	112	110	83	38	84	13	349
Satd. Flow (prot)	1770	5050	0	1770	5040	0	1770	1773	0	1770	1595	0
Flt Permitted	0.045			0.048			0.231			0.523		
Satd. Flow (perm)	84	5050	0	89	5040	0	430	1773	0	974	1595	0
Satd. Flow (RTOR)		8			7			11			364	
Lane Group Flow (vph)	467	2620	0	31	2005	0	115	126	0	88	378	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		
Detector Phase	1	6		5	2		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	11.5	13.5		11.5	13.5		11.4	13.0		11.4	13.0	
Total Split (s)	53.0	122.0		13.0	82.0		17.0	31.0		14.0	28.0	
Total Split (%)	29.4%	67.8%		7.2%	45.6%		9.4%	17.2%		7.8%	15.6%	
Maximum Green (s)	46.5	115.5		6.5	75.5		10.6	25.0		7.6	22.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.0		4.4	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	136.2	125.9		88.9	82.8		27.5	17.3		21.5	14.3	
Actuated g/C Ratio	0.76	0.70		0.49	0.46		0.15	0.10		0.12	0.08	
v/c Ratio	0.93	0.74		0.31	0.86		0.80	0.70		0.59	0.82	
Control Delay	65.4	18.4		30.9	49.1		101.5	91.1		81.7	23.1	
Queue Delay	52.9	47.0		0.0	46.9		67.1	0.0		0.0	11.4	
Total Delay	118.3	65.4		30.9	96.0		168.6	91.1		81.7	34.5	
LOS	F	E		C	F		F	F		F	C	
Approach Delay		73.4			95.0			128.1			43.4	
Approach LOS		E			F			F			D	
Queue Length 50th (ft)	549	544		10	802		122	135		92	16	
Queue Length 95th (ft)	m541	m536		29	900		#199	204		144	136	
Internal Link Dist (ft)		319			446			271			958	
Turn Bay Length (ft)	225			230			30			100		
Base Capacity (vph)	517	3535		105	2321		144	255		150	514	
Starvation Cap Reductn	246	1263		0	678		0	0		0	0	
Spillback Cap Reductn	0	0		0	222		49	0		0	113	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.72	1.15		0.30	1.22		1.21	0.49		0.59	0.94	

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 164 (91%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 80.8 — Intersection LOS: F
Intersection Capacity Utilization 111.9% — ICU Level of Service H
Analysis Period (min) 15
\# 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.

Splits and Phases: 16: SW 75th Ave & SW 24th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	448	2403	112	30	1812	112	110	83	38	84	13	349
Future Volume (vph)	448	2403	112	30	1812	112	110	83	38	84	13	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5051		1770	5041		1770	1774		1770	1594	
Flt Permitted	0.04	1.00		0.05	1.00		0.23	1.00		0.52	1.00	
Satd. Flow (perm)	83	5051		90	5041		431	1774		974	1594	
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)	467	2503	117	31	1888	117	115	86	40	88	14	364
RTOR Reduction (vph)	0	2	0	0	4	0	0	10	0	0	335	0
Lane Group Flow (vph)	467	2618	0	31	2001	0	115	116	0	88	43	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	136.2	124.7		87.8	82.8		27.9	17.3		21.9	14.3	
Effective Green, g (s)	136.2	124.7		87.8	82.8		27.9	17.3		21.9	14.3	
Actuated g/C Ratio	0.76	0.69		0.49	0.46		0.15	0.10		0.12	0.08	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	502	3499		90	2318		145	170		152	126	
v/s Ratio Prot	c0.24	0.52		0.01	0.40		c0.05	0.07		0.02	0.03	
v/s Ratio Perm	c0.46			0.16			c0.08			0.05		
v/c Ratio	0.93	0.75		0.34	0.86		0.79	0.68		0.58	0.34	
Uniform Delay, d1	58.0	17.6		44.3	43.5		69.3	78.7		73.4	78.4	
Progression Factor	1.15	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.4	0.1		2.3	4.6		25.0	10.8		5.3	1.6	
Delay (s)	70.1	17.7		46.6	48.1		94.2	89.5		78.6	80.0	
Level of Service	E	B		D	D		F	F		E	F	
Approach Delay (s)		25.6			48.1			91.7			79.7	
Approach LOS		C			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	111.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	467	2620	31	2005	115	126	88	378
v/c Ratio	0.93	0.74	0.31	0.86	0.80	0.70	0.59	0.82
Control Delay	65.4	18.4	30.9	49.1	101.5	91.1	81.7	23.1
Queue Delay	52.9	47.0	0.0	46.9	67.1	0.0	0.0	11.4
Total Delay	118.3	65.4	30.9	96.0	168.6	91.1	81.7	34.5
Queue Length 50th (ft)	549	544	10	802	122	135	92	16
Queue Length 95th (ft)	m541	m536	29	900	#199	204	144	136
Internal Link Dist (ft)		319		446		271		958
Turn Bay Length (ft)	225		230		30		100	
Base Capacity (vph)	517	3535	105	2321	144	255	150	514
Starvation Cap Reductn	246	1263	0	678	0	0	0	0
Spillback Cap Reductn	0	0	0	222	49	0	0	113
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.72	1.15	0.30	1.22	1.21	0.49	0.59	0.94

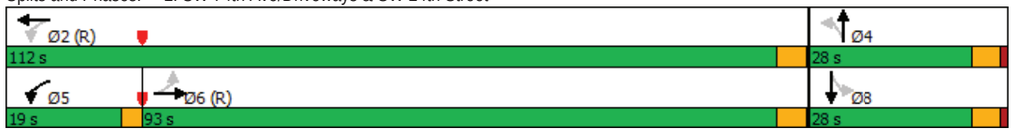
Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	2370	127	9	1883	28	51	0	7	3	0	2
Future Volume (vph)	39	2370	127	9	1883	28	51	0	7	3	0	2
Satd. Flow (prot)	1770	5045	0	1770	3532	0	1770	1583	0	0	1711	0
Flt Permitted	0.078			0.035			0.754				0.885	
Satd. Flow (perm)	145	5045	0	65	3532	0	1405	1583	0	0	1560	0
Satd. Flow (RTOR)		11			3			170			34	
Lane Group Flow (vph)	42	2685	0	10	2055	0	55	8	0	0	5	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	6	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	16.0	16.0		16.0	16.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.4	20.4		19.0	20.4		12.2	12.2		27.2	27.2	
Total Split (s)	93.0	93.0		19.0	112.0		28.0	28.0		28.0	28.0	
Total Split (%)	66.4%	66.4%		13.6%	80.0%		20.0%	20.0%		20.0%	20.0%	
Maximum Green (s)	88.6	88.6		16.0	107.6		22.8	22.8		22.8	22.8	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.4	0.4		0.0	0.4		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)										2.0	2.0	
Flash Dont Walk (s)										20.0	20.0	
Pedestrian Calls (#/hr)										15	15	
Act Effct Green (s)	115.8	115.8		120.1	119.6		14.1	14.1			14.1	
Actuated g/C Ratio	0.83	0.83		0.86	0.85		0.10	0.10			0.10	
v/c Ratio	0.35	0.64		0.04	0.68		0.39	0.03			0.03	
Control Delay	18.9	8.7		3.2	6.9		64.3	0.1			0.2	
Queue Delay	0.0	1.3		0.0	0.0		0.0	0.0			0.0	
Total Delay	18.9	10.0		3.2	6.9		64.3	0.1			0.2	
LOS	B	A		A	A		E	A			A	
Approach Delay		10.1			6.9			56.2			0.2	
Approach LOS		B			A			E			A	
Queue Length 50th (ft)	6	210		1	258		49	0			0	
Queue Length 95th (ft)	66	713		6	538		88	0			0	
Internal Link Dist (ft)		446			931			928			925	
Turn Bay Length (ft)	120			120			95					
Base Capacity (vph)	119	4174		250	3017		228	400			282	
Starvation Cap Reductn	0	1189		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	0.35	0.90		0.04	0.68		0.24	0.02			0.02	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 9.3 — Intersection LOS: A
Intersection Capacity Utilization 66.8% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: SW 74th Ave/Driveways & SW 24th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	2370	127	9	1883	28	51	0	7	3	0	2
Future Volume (vph)	39	2370	127	9	1883	28	51	0	7	3	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85			0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1770	5046		1770	3531		1770	1583			1711	
Flt Permitted	0.08	1.00		0.03	1.00		0.75	1.00			0.89	
Satd. Flow (perm)	145	5046		65	3531		1405	1583			1560	
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)	42	2548	137	10	2025	30	55	0	8	3	0	2
RTOR Reduction (vph)	0	2	0	0	0	0	0	7	0	0	5	0
Lane Group Flow (vph)	42	2683	0	10	2055	0	55	1	0	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	111.5	111.5		117.7	117.7		12.7	12.7			12.7	
Effective Green, g (s)	111.5	111.5		117.7	117.7		12.7	12.7			12.7	
Actuated g/C Ratio	0.80	0.80		0.84	0.84		0.09	0.09			0.09	
Clearance Time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	115	4018		93	2968		127	143			141	
v/s Ratio Prot		0.53		0.00	c0.58			0.00				
v/s Ratio Perm	0.29			0.09			c0.04				0.00	
v/c Ratio	0.37	0.67		0.11	0.69		0.43	0.01			0.00	
Uniform Delay, d1	4.1	6.2		6.1	4.2		60.2	57.9			57.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	8.7	0.9		0.5	1.4		2.4	0.0			0.0	
Delay (s)	12.8	7.1		6.6	5.6		62.6	57.9			57.9	
Level of Service	B	A		A	A		E	E			E	
Approach Delay (s)		7.2			5.6			62.0			57.9	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	42	2685	10	2055	55	8	5
v/c Ratio	0.35	0.64	0.04	0.68	0.39	0.03	0.03
Control Delay	18.9	8.7	3.2	6.9	64.3	0.1	0.2
Queue Delay	0.0	1.3	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	10.0	3.2	6.9	64.3	0.1	0.2
Queue Length 50th (ft)	6	210	1	258	49	0	0
Queue Length 95th (ft)	66	713	6	538	88	0	0
Internal Link Dist (ft)		446		931		928	925
Turn Bay Length (ft)	120		120		95		
Base Capacity (vph)	119	4174	250	3017	228	400	282
Starvation Cap Reductn	0	1189	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	0.35	0.90	0.04	0.68	0.24	0.02	0.02

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	1390	106	295	2146	337	71	180	213	287	216	107
Future Volume (vph)	111	1390	106	295	2146	337	71	180	213	287	216	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265		0	280		0	135		135	110		40
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	4968	0	1770	4984	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4968	0	1770	4984	0	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			24				96			99
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1042			1312			1017			1087	
Travel Time (s)		17.8			22.4			19.8			21.2	
Lane Group Flow (vph)	114	1698	0	304	2559	0	73	186	220	296	223	110
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4	5	3	8	1
Permitted Phases									4			8
Detector Phase	1	6		5	2		7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.6	20.0		11.6	20.0		11.1	20.0	11.6	11.1	20.0	11.6
Total Split (s)	20.0	73.0		44.0	97.0		21.0	25.0	44.0	38.0	42.0	20.0
Total Split (%)	11.1%	40.6%		24.4%	53.9%		11.7%	13.9%	24.4%	21.1%	23.3%	11.1%
Maximum Green (s)	13.4	66.4		37.4	90.4		14.9	18.9	37.4	31.9	35.9	13.4
Yellow Time (s)	4.4	4.4		4.4	4.4		4.0	4.0	4.4	4.0	4.0	4.4
All-Red Time (s)	2.2	2.2		2.2	2.2		2.1	2.1	2.2	2.1	2.1	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6		6.6	6.6		6.1	6.1	6.6	6.1	6.1	6.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	13.2	69.8		34.3	90.8		12.2	19.1	59.5	31.5	38.3	57.6
Actuated g/C Ratio	0.07	0.39		0.19	0.50		0.07	0.11	0.33	0.18	0.21	0.32
v/c Ratio	0.88	0.88		0.90	1.01		0.61	0.94	0.37	0.96	0.56	0.19
Control Delay	132.8	56.8		100.0	50.8		102.1	128.7	26.5	113.6	70.3	10.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	132.8	56.8		100.0	50.8		102.1	128.7	26.5	113.6	70.3	10.3
LOS	F	E		F	D		F	F	C	F	E	B
Approach Delay		61.6			56.0			77.7			80.2	
Approach LOS		E			E			E			F	
Queue Length 50th (ft)	136	691		380	~1166		85	223	108	351	239	9
Queue Length 95th (ft)	#264	762		#513	#1221		145	#389	186	#548	343	59
Internal Link Dist (ft)		962			1232			937			1007	
Turn Bay Length (ft)	265			280			135		135	110		40
Base Capacity (vph)	131	1940		367	2527		146	197	612	313	396	575
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.87	0.88		0.83	1.01		0.50	0.94	0.36	0.95	0.56	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 132 (73%), Referenced to phase 2:WBT and 6:EBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 62.2		Intersection LOS: E	
Intersection Capacity Utilization 101.7%		ICU Level of Service G	
Analysis Period (min) 15			
~ 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.			

Splits and Phases: 1: SW 82nd Ave & SW 24th Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1390	106	295	2146	337	71	180	213	287	216	107
Future Volume (veh/h)	111	1390	106	295	2146	337	71	180	213	287	216	107
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	114	1433	265	304	2212	347	73	186	220	296	223	110
Peak Hour Factor	0.97	0.97	0.40	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	132	1714	316	325	2254	344	90	196	456	313	430	482
Arrive On Green	0.07	0.40	0.40	0.12	0.34	0.34	0.05	0.10	0.10	0.18	0.23	0.23
Sat Flow, veh/h	1781	4331	800	1781	4470	681	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	114	1126	572	304	1669	890	73	186	220	296	223	110
Grp Sat Flow(s),veh/h/ln	1781	1702	1726	1781	1702	1748	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	11.4	53.7	53.9	30.4	87.0	90.7	7.3	17.8	18.9	29.6	18.8	9.3
Cycle Q Clear(g_c), s	11.4	53.7	53.9	30.4	87.0	90.7	7.3	17.8	18.9	29.6	18.8	9.3
Prop In Lane	1.00		0.46	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	132	1347	683	325	1716	881	90	196	456	313	430	482
V/C Ratio(X)	0.86	0.84	0.84	0.94	0.97	1.01	0.81	0.95	0.48	0.95	0.52	0.23
Avail Cap(c_a), veh/h	133	1347	683	370	1716	881	147	196	456	316	430	482
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.59	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.4	49.1	49.1	77.9	58.4	59.6	84.6	80.1	53.1	73.4	60.6	46.8
Incr Delay (d2), s/veh	40.4	6.3	11.7	20.1	11.4	25.8	15.5	49.1	0.8	36.5	1.1	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(50%),veh/ln	6.7	23.8	25.2	16.1	41.1	47.4	3.8	11.3	8.4	16.7	9.1	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	122.8	55.4	60.8	98.0	69.8	85.4	100.1	129.2	53.8	109.8	61.7	47.1
LnGrp LOS	F	E	E	F	E	F	F	F	D	F	E	D
Approach Vol, veh/h		1812			2863			479			629	
Approach Delay, s/veh		61.3			77.6			90.1			81.8	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.9	97.3	37.7	25.0	39.5	77.8	15.2	47.5
Change Period (Y+Rc), s	* 6.6	* 6.6	6.1	6.1	* 6.6	* 6.6	6.1	6.1
Max Green Setting (Gmax), s	* 13	* 90	31.9	18.9	* 37	* 66	14.9	35.9
Max Q Clear Time (g_c+I1), s	13.4	92.7	31.6	20.9	32.4	55.9	9.3	20.8
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.4	7.3	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	74.0
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	114	1698	304	2559	73	186	220	296	223	110
v/c Ratio	0.88	0.88	0.90	1.01	0.61	0.94	0.37	0.96	0.56	0.19
Control Delay	132.8	56.8	100.0	50.8	102.1	128.7	26.5	113.6	70.3	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	132.8	56.8	100.0	50.8	102.1	128.7	26.5	113.6	70.3	10.3
Queue Length 50th (ft)	136	691	380	~1166	85	223	108	351	239	9
Queue Length 95th (ft)	#264	762	#513	#1221	145	#389	186	#548	343	59
Internal Link Dist (ft)		962		1232		937			1007	
Turn Bay Length (ft)	265		280		135		135	110		40
Base Capacity (vph)	131	1940	367	2527	146	197	612	313	396	575
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	0.87	0.88	0.83	1.01	0.50	0.94	0.36	0.95	0.56	0.19

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1882	44	407	2743	319	22	26	114	73	32	13
Future Volume (vph)	12	1882	44	407	2743	319	22	26	114	73	32	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		0	265		0	130		0	0		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	5070	0	1770	5004	0	1770	1635	0	1770	1863	1583
Flt Permitted	0.038			0.053			0.736			0.386		
Satd. Flow (perm)	71	5070	0	99	5004	0	1371	1635	0	719	1863	1583
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		3						99				40
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		1312			826			1079			110	
Travel Time (s)		22.4			14.1			24.5			2.5	
Lane Group Flow (vph)	12	1965	0	415	3125	0	22	143	0	74	33	13
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	6	6		5	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	22.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	99.0	99.0		51.0	150.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	55.0%	55.0%		28.3%	83.3%		16.7%	16.7%		16.7%	16.7%	16.7%
Maximum Green (s)	93.7	93.7		46.7	144.7		24.5	24.5		24.5	24.5	24.5
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.5	1.5		1.5	1.5	1.5
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)	5.3	5.3		4.3	5.3		5.5	5.5		5.5	5.5	5.5
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	None
Act Effct Green (s)	104.0	104.0		150.4	149.4		19.8	19.8		19.8	19.8	19.8
Actuated g/C Ratio	0.58	0.58		0.84	0.83		0.11	0.11		0.11	0.11	0.11
v/c Ratio	0.30	0.67		0.90	0.75		0.15	0.53		0.94	0.16	0.06
Control Delay	22.8	11.8		55.3	11.8		72.1	32.1		163.1	71.9	0.5
Queue Delay	0.0	0.0		0.0	1.4		0.0	0.0		0.0	0.0	0.0
Total Delay	22.8	11.8		55.3	13.2		72.1	32.1		163.1	71.9	0.5
LOS	C	B		E	B		E	C		F	E	A
Approach Delay		11.9			18.2			37.4			120.4	
Approach LOS		B			B			D			F	
Queue Length 50th (ft)	2	531		411	682		24	48		87	36	0
Queue Length 95th (ft)	m6	791		m444	m656		55	125		#181	73	0
Internal Link Dist (ft)		1232			746			999			30	
Turn Bay Length (ft)	255			265			130					
Base Capacity (vph)	40	2931		516	4152		186	308		97	253	250
Starvation Cap Reductn	0	0		0	764		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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	0.30	0.67		0.80	0.92		0.12	0.46		0.76	0.13	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 166 (92%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 98.2%		ICU Level of Service F	
Analysis Period (min) 15			
# 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.			

Splits and Phases: 3: SW 79th Ave & SW 24th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	1882	44	407	2743	319	22	26	114	73	32	13
Future Volume (veh/h)	12	1882	44	407	2743	319	22	26	114	73	32	13
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	1920	45	415	2799	326	22	27	116	74	33	13
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	3190	75	432	3744	420	204	42	180	106	255	216
Arrive On Green	0.83	0.83	0.83	0.32	1.00	1.00	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	70	5133	120	1781	4658	523	1360	308	1324	1245	1870	1585
Grp Volume(v), veh/h	12	1273	692	415	2017	1108	22	0	143	74	33	13
Grp Sat Flow(s),veh/h/ln	70	1702	1849	1781	1702	1776	1360	0	1632	1245	1870	1585
Q Serve(g_s), s	6.9	23.2	23.3	25.3	0.0	0.0	2.6	0.0	14.9	9.6	2.8	1.3
Cycle Q Clear(g_c), s	6.9	23.2	23.3	25.3	0.0	0.0	5.4	0.0	14.9	24.5	2.8	1.3
Prop In Lane	1.00		0.07	1.00		0.29	1.00		0.81	1.00		1.00
Lane Grp Cap(c), veh/h	83	2116	1149	432	2736	1428	204	0	222	106	255	216
V/C Ratio(X)	0.14	0.60	0.60	0.96	0.74	0.78	0.11	0.00	0.64	0.70	0.13	0.06
Avail Cap(c_a), veh/h	83	2116	1149	612	2736	1428	204	0	222	106	255	216
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.44	0.44	0.44	0.19	0.19	0.19	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.5	7.9	7.9	30.6	0.0	0.0	70.7	0.0	73.6	85.7	68.4	67.7
Incr Delay (d2), s/veh	1.6	0.6	1.0	6.9	0.3	0.8	0.2	0.0	6.2	18.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.6	6.3	15.6	0.1	0.3	0.9	0.0	6.7	4.0	1.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	8.5	9.0	37.5	0.3	0.8	71.0	0.0	79.8	103.8	68.6	67.8
LnGrp LOS	A	A	A	D	A	A	E	A	E	F	E	E
Approach Vol, veh/h		1977			3540			165			120	
Approach Delay, s/veh		8.6			4.8			78.7			90.2	
Approach LOS		A			A			E			F	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		150.0		30.0	32.8	117.2		30.0				
Change Period (Y+Rc), s		* 5.3		5.5	* 4.3	* 5.3		5.5				
Max Green Setting (Gmax), s		* 1.4E2		24.5	* 47	* 94		24.5				
Max Q Clear Time (g_c+I1), s		2.0		16.9	27.3	25.3		26.5				
Green Ext Time (p_c), s		96.6		0.5	1.2	27.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		10.0
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	12	1965	415	3125	22	143	74	33	13
v/c Ratio	0.30	0.67	0.90	0.75	0.15	0.53	0.94	0.16	0.06
Control Delay	22.8	11.8	55.3	11.8	72.1	32.1	163.1	71.9	0.5
Queue Delay	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	11.8	55.3	13.2	72.1	32.1	163.1	71.9	0.5
Queue Length 50th (ft)	2	531	411	682	24	48	87	36	0
Queue Length 95th (ft)	m6	791	m444	m656	55	125	#181	73	0
Internal Link Dist (ft)		1232		746		999		30	
Turn Bay Length (ft)	255		265		130				
Base Capacity (vph)	40	2931	516	4152	186	308	97	253	250
Starvation Cap Reductn	0	0	0	764	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	0.30	0.67	0.80	0.92	0.12	0.46	0.76	0.13	0.05

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.

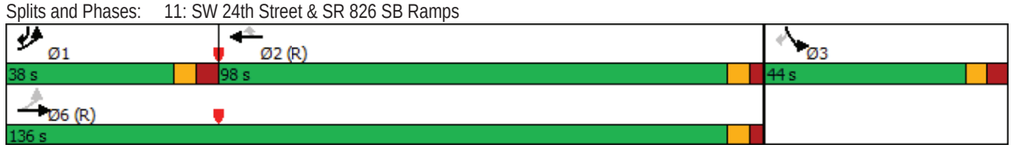
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	348	1767	2576	682	712	940
Future Volume (vph)	348	1767	2576	682	712	940
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320			270	400	400
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	5085	5085	1583	3433	2787
Flt Permitted	0.040				0.950	
Satd. Flow (perm)	75	5085	5085	1583	3433	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				347		1
Link Speed (mph)		40	40		25	
Link Distance (ft)		826	894		1070	
Travel Time (s)		14.1	15.2		29.2	
Lane Group Flow (vph)	352	1785	2602	689	719	949
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	1	6	2		3	1
Permitted Phases	6			2		3
Detector Phase	1	6	2	2	3	1
Switch Phase						
Minimum Initial (s)	7.0	16.0	16.0	16.0	7.0	7.0
Minimum Split (s)	14.9	22.6	22.6	22.6	20.0	14.9
Total Split (s)	38.0	136.0	98.0	98.0	44.0	38.0
Total Split (%)	21.1%	75.6%	54.4%	54.4%	24.4%	21.1%
Maximum Green (s)	30.1	129.4	91.4	91.4	36.1	30.1
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.9	2.6	2.6	2.6	3.9	3.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	6.6	6.6	6.6	7.9	7.9
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	128.1	129.4	91.4	91.4	36.1	74.1
Actuated g/C Ratio	0.71	0.72	0.51	0.51	0.20	0.41
v/c Ratio	1.05	0.49	1.01	0.71	1.05	0.83
Control Delay	128.8	1.8	40.6	7.7	113.9	54.7
Queue Delay	0.0	0.1	21.6	0.6	0.0	0.3
Total Delay	128.8	1.9	62.2	8.3	113.9	55.0
LOS	F	A	E	A	F	D
Approach Delay		22.8	50.9		80.4	
Approach LOS		C	D		F	
Queue Length 50th (ft)	~383	26	~993	105	~472	567
Queue Length 95th (ft)	#607	35	#1235	m189	#604	671
Internal Link Dist (ft)		746	814		990	
Turn Bay Length (ft)	320			270	400	400
Base Capacity (vph)	336	3655	2582	974	688	1147
Starvation Cap Reductn	0	582	143	78	0	0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Spillback Cap Reductn	0	506	0	0	0	23
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.58	1.07	0.77	1.05	0.84

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 17 (9%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 49.4 Intersection LOS: D
Intersection Capacity Utilization 108.0% ICU Level of Service G
Analysis Period (min) 15
~ 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.

Splits and Phases: 11: SW 24th Street & SR 826 SB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	348	1767	2576	682	712	940
Future Volume (veh/h)	348	1767	2576	682	712	940
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
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	352	1785	2602	0	719	949
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	338	3671	2593		693	1026
Arrive On Green	0.33	1.00	1.00	0.00	0.20	0.20
Sat Flow, veh/h	1781	5274	5274	1585	3456	2790
Grp Volume(v), veh/h	352	1785	2602	0	719	949
Grp Sat Flow(s),veh/h/ln	1781	1702	1702	1585	1728	1395
Q Serve(g_s), s	30.1	0.0	91.4	0.0	36.1	36.1
Cycle Q Clear(g_c), s	30.1	0.0	91.4	0.0	36.1	36.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	338	3671	2593		693	1026
V/C Ratio(X)	1.04	0.49	1.00		1.04	0.92
Avail Cap(c_a), veh/h	338	3671	2593		693	1026
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.45	0.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	0.0	0.0	0.0	71.9	54.5
Incr Delay (d2), s/veh	51.7	0.3	12.7	0.0	44.2	13.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	0.1	3.1	0.0	20.4	22.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	103.1	0.3	12.7	0.0	116.2	68.1
LnGrp LOS	F	A	F		F	E
Approach Vol, veh/h		2137	2602	A	1668	
Approach Delay, s/veh		17.2	12.7		88.8	
Approach LOS		B	B		F	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	38.0	98.0			136.0	44.0
Change Period (Y+Rc), s	7.9	6.6			6.6	7.9
Max Green Setting (Gmax), s	30.1	91.4			129.4	36.1
Max Q Clear Time (g_c+I1), s	32.1	93.4			2.0	38.1
Green Ext Time (p_c), s	0.0	0.0			24.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	352	1785	2602	689	719	949
v/c Ratio	1.05	0.49	1.01	0.71	1.05	0.83
Control Delay	128.8	1.8	40.6	7.7	113.9	54.7
Queue Delay	0.0	0.1	21.6	0.6	0.0	0.3
Total Delay	128.8	1.9	62.2	8.3	113.9	55.0
Queue Length 50th (ft)	~383	26	~993	105	~472	567
Queue Length 95th (ft)	#607	35	#1235	m189	#604	671
Internal Link Dist (ft)		746	814		990	
Turn Bay Length (ft)	320			270	400	400
Base Capacity (vph)	336	3655	2582	974	688	1147
Starvation Cap Reductn	0	582	143	78	0	0
Spillback Cap Reductn	0	506	0	0	0	23
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.58	1.07	0.77	1.05	0.84

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.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2034	510	412	2706	552	521
Future Volume (vph)	2034	510	412	2706	552	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		435	155		260	260
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	5085	1583	1770	5085	3355	1441
Flt Permitted			0.048		0.964	
Satd. Flow (perm)	5085	1583	89	5085	3355	1441
Right Turn on Red		Yes				No
Satd. Flow (RTOR)		438				
Link Speed (mph)	40			40	25	
Link Distance (ft)	894			399	1075	
Travel Time (s)	15.2			6.8	29.3	
Lane Group Flow (vph)	2076	520	420	2761	749	346
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7
Detector Phase	6	6	5	2	7	7
Switch Phase						
Minimum Initial (s)	18.0	18.0	5.0	18.0	7.0	7.0
Minimum Split (s)	24.5	24.5	11.2	24.5	20.0	20.0
Total Split (s)	83.0	83.0	45.0	128.0	52.0	52.0
Total Split (%)	46.1%	46.1%	25.0%	71.1%	28.9%	28.9%
Maximum Green (s)	76.5	76.5	38.8	121.5	44.2	44.2
Yellow Time (s)	4.0	4.0	3.7	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	2.5	2.5	3.8	3.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	76.5	76.5	121.8	121.5	44.2	44.2
Actuated g/C Ratio	0.42	0.42	0.68	0.68	0.25	0.25
v/c Ratio	0.96	0.56	1.00	0.80	0.91	0.98
Control Delay	52.6	7.5	100.8	9.3	81.6	108.9
Queue Delay	30.5	0.1	37.7	15.9	48.2	41.1
Total Delay	83.2	7.6	138.5	25.3	129.8	150.0
LOS	F	A	F	C	F	F
Approach Delay	68.0			40.2	136.2	
Approach LOS	E			D	F	
Queue Length 50th (ft)	906	75	473	213	447	451
Queue Length 95th (ft)	m926	m99	m402	m178	#558	#693
Internal Link Dist (ft)	814			319	995	
Turn Bay Length (ft)		435	155		260	260
Base Capacity (vph)	2161	924	422	3432	823	353
Starvation Cap Reductn	49	45	140	737	0	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Spillback Cap Reductn	221	0	0	334	274	117
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.59	1.49	1.02	1.36	1.47

Intersection Summary

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 17 (9%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 66.0 Intersection LOS: E
Intersection Capacity Utilization 100.4% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 13: SR 826 NB Ramps & SW 24th Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2034	510	412	2706	552	521
Future Volume (vph)	2034	510	412	2706	552	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt	1.00	0.85	1.00	1.00	0.96	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.96	1.00
Satd. Flow (prot)	5085	1583	1770	5085	3353	1441
Flt Permitted	1.00	1.00	0.05	1.00	0.96	1.00
Satd. Flow (perm)	5085	1583	90	5085	3353	1441
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2076	520	420	2761	563	532
RTOR Reduction (vph)	0	252	0	0	0	0
Lane Group Flow (vph)	2076	268	420	2761	749	346
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	7	
Permitted Phases		6	2			7
Actuated Green, G (s)	76.5	76.5	121.5	121.5	44.2	44.2
Effective Green, g (s)	76.5	76.5	121.5	121.5	44.2	44.2
Actuated g/C Ratio	0.42	0.42	0.68	0.68	0.25	0.25
Clearance Time (s)	6.5	6.5	6.2	6.5	7.8	7.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2161	672	422	3432	823	353
v/s Ratio Prot	0.41		c0.21	0.54	0.22	
v/s Ratio Perm		0.17	c0.46			c0.24
v/c Ratio	0.96	0.40	1.00	0.80	0.91	0.98
Uniform Delay, d1	50.3	35.8	62.4	20.8	66.0	67.5
Progression Factor	0.85	0.91	1.60	0.43	1.00	1.00
Incremental Delay, d2	10.1	1.4	12.0	0.2	14.1	42.4
Delay (s)	52.7	34.1	112.1	9.2	80.0	109.9
Level of Service	D	C	F	A	F	F
Approach Delay (s)	48.9			22.8	89.5	
Approach LOS	D			C	F	

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2076	520	420	2761	749	346
v/c Ratio	0.96	0.56	1.00	0.80	0.91	0.98
Control Delay	52.6	7.5	100.8	9.3	81.6	108.9
Queue Delay	30.5	0.1	37.7	15.9	48.2	41.1
Total Delay	83.2	7.6	138.5	25.3	129.8	150.0
Queue Length 50th (ft)	906	75	473	213	447	451
Queue Length 95th (ft)	m926	m99	m402	m178	#558	#693
Internal Link Dist (ft)	814			319	995	
Turn Bay Length (ft)		435	155		260	260
Base Capacity (vph)	2161	924	422	3432	823	353
Starvation Cap Reductn	49	45	140	737	0	0
Spillback Cap Reductn	221	0	0	334	274	117
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.59	1.49	1.02	1.36	1.47

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	1947	176	34	2448	58	133	57	41	74	20	560
Future Volume (vph)	432	1947	176	34	2448	58	133	57	41	74	20	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	230		0	30		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	5024	0	1770	5070	0	1770	1747	0	1770	1593	0
Flt Permitted	0.047			0.055			0.114			0.679		
Satd. Flow (perm)	88	5024	0	102	5070	0	212	1747	0	1265	1593	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			2			18			265	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		399			526			351			1038	
Travel Time (s)		6.8			9.0			8.0			23.6	
Lane Group Flow (vph)	445	2188	0	35	2584	0	137	101	0	76	598	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		
Detector Phase	1	6		5	2		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	11.5	20.0		11.5	20.0		11.4	38.0		11.4	20.0	
Total Split (s)	40.0	113.0		13.0	86.0		15.0	41.0		13.0	39.0	
Total Split (%)	22.2%	62.8%		7.2%	47.8%		8.3%	22.8%		7.2%	21.7%	
Maximum Green (s)	33.5	106.5		6.5	79.5		8.6	35.0		6.6	33.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.4	4.0		4.4	4.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.0		6.4	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Walk Time (s)								7.0				
Flash Dont Walk (s)								25.0				
Pedestrian Calls (#/hr)								11				
Act Effct Green (s)	119.5	109.2		85.7	79.5		43.2	35.0		39.2	33.0	
Actuated g/C Ratio	0.66	0.61		0.48	0.44		0.24	0.19		0.22	0.18	
v/c Ratio	1.20	0.72		0.33	1.15		1.10	0.29		0.26	1.18	
Control Delay	162.6	18.0		28.7	113.2		158.9	53.0		54.8	131.4	
Queue Delay	3.6	4.1		0.0	0.5		10.7	0.0		0.0	2.7	
Total Delay	166.2	22.1		28.7	113.7		169.5	53.0		54.8	134.1	
LOS	F	C		C	F		F	D		D	F	
Approach Delay		46.4			112.5			120.1			125.2	
Approach LOS		D			F			F			F	
Queue Length 50th (ft)	~595	320		10	~1316		~131	84		70	~573	
Queue Length 95th (ft)	m#645	m360		m12	#1380		#287	148		119	#825	
Internal Link Dist (ft)		319			446			271			958	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	225			230			30			100		
Base Capacity (vph)	371	3052		108	2240		125	354		294	508	
Starvation Cap Reductn	100	772		0	373		0	0		0	0	
Spillback Cap Reductn	0	0		0	185		41	0		0	131	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.64	0.96		0.32	1.38		1.63	0.29		0.26	1.59	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 7 (4%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 86.0		Intersection LOS: F	
Intersection Capacity Utilization 136.4%		ICU Level of Service H	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 16: SW 75th Ave & SW 24th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	432	1947	176	34	2448	58	133	57	41	74	20	560
Future Volume (veh/h)	432	1947	176	34	2448	58	133	57	41	74	20	560
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	445	2007	181	35	2524	60	137	59	42	76	21	577
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	372	2885	258	160	2266	54	125	198	141	293	10	282
Arrive On Green	0.37	1.00	1.00	0.02	0.44	0.44	0.05	0.19	0.19	0.04	0.18	0.18
Sat Flow, veh/h	1781	4770	427	1781	5131	121	1781	1017	724	1781	56	1538
Grp Volume(v), veh/h	445	1428	760	35	1671	913	137	0	101	76	0	598
Grp Sat Flow(s),veh/h/ln	1781	1702	1793	1781	1702	1849	1781	0	1740	1781	0	1594
Q Serve(g_s), s	33.5	0.0	0.0	1.9	79.5	79.5	8.6	0.0	8.9	6.3	0.0	33.0
Cycle Q Clear(g_c), s	33.5	0.0	0.0	1.9	79.5	79.5	8.6	0.0	8.9	6.3	0.0	33.0
Prop In Lane	1.00		0.24	1.00		0.07	1.00		0.42	1.00		0.96
Lane Grp Cap(c), veh/h	372	2059	1085	160	1503	816	125	0	338	293	0	292
V/C Ratio(X)	1.20	0.69	0.70	0.22	1.11	1.12	1.10	0.00	0.30	0.26	0.00	2.05
Avail Cap(c_a), veh/h	372	2059	1085	183	1503	816	125	0	338	293	0	292
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.18	0.18	0.18	0.47	0.47	0.47	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.7	0.0	0.0	26.3	50.3	50.3	64.6	0.0	62.0	57.3	0.0	73.5
Incr Delay (d2), s/veh	94.0	0.4	0.7	0.3	55.1	61.9	108.3	0.0	0.5	0.5	0.0	482.8
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(50%),veh/ln	22.6	0.1	0.2	0.8	44.6	50.0	5.4	0.0	4.1	2.9	0.0	52.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	141.7	0.4	0.7	26.6	105.4	112.2	172.9	0.0	62.5	57.8	0.0	556.3
LnGrp LOS	F	A	A	C	F	F	F	A	E	E	A	F
Approach Vol, veh/h		2633			2619			238			674	
Approach Delay, s/veh		24.3			106.7			126.0			500.1	
Approach LOS		C			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	40.0	86.0	15.0	39.0	10.6	115.4	13.0	41.0
Change Period (Y+Rc), s	6.5	6.5	6.4	6.0	6.5	6.5	6.4	6.0
Max Green Setting (Gmax), s	33.5	79.5	8.6	33.0	6.5	106.5	6.6	35.0
Max Q Clear Time (g_c+I1), s	35.5	81.5	10.6	35.0	3.9	2.0	8.3	10.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	35.2	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	115.3
HCM 6th LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	445	2188	35	2584	137	101	76	598
v/c Ratio	1.20	0.72	0.33	1.15	1.10	0.29	0.26	1.18
Control Delay	162.6	18.0	28.7	113.2	158.9	53.0	54.8	131.4
Queue Delay	3.6	4.1	0.0	0.5	10.7	0.0	0.0	2.7
Total Delay	166.2	22.1	28.7	113.7	169.5	53.0	54.8	134.1
Queue Length 50th (ft)	~595	320	10	~1316	~131	84	70	~573
Queue Length 95th (ft)	m#645	m360	m12	#1380	#287	148	119	#825
Internal Link Dist (ft)		319		446		271		958
Turn Bay Length (ft)	225		230		30		100	
Base Capacity (vph)	371	3052	108	2240	125	354	294	508
Starvation Cap Reductn	100	772	0	373	0	0	0	0
Spillback Cap Reductn	0	0	0	185	41	0	0	131
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.64	0.96	0.32	1.38	1.63	0.29	0.26	1.59

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.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1970	67	2	2432	13	87	2	17	2	0	0
Future Volume (vph)	16	1970	67	2	2432	13	87	2	17	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	120		0	95		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	5060	0	1770	3536	0	1770	1613	0	0	1770	0
Flt Permitted	0.037			0.075			0.757				0.745	
Satd. Flow (perm)	69	5060	0	140	3536	0	1410	1613	0	0	1388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			1			17				
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		526			1011			1008			1005	
Travel Time (s)		9.0			17.2			22.9			22.8	
Lane Group Flow (vph)	16	2078	0	2	2495	0	89	19	0	0	2	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	6	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	16.0	16.0		5.0	16.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.4	20.4		8.4	20.4		20.0	20.0		20.0	20.0	
Total Split (s)	141.0	141.0		12.0	153.0		27.0	27.0		27.0	27.0	
Total Split (%)	78.3%	78.3%		6.7%	85.0%		15.0%	15.0%		15.0%	15.0%	
Maximum Green (s)	136.6	136.6		9.0	148.6		21.8	21.8		21.8	21.8	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.4	0.4		0.0	0.4		1.2	1.2		1.2	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	4.4	4.4		3.0	4.4		5.2	5.2			5.2	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	152.4	152.4		155.5	154.1		16.3	16.3			16.3	
Actuated g/C Ratio	0.85	0.85		0.86	0.86		0.09	0.09			0.09	
v/c Ratio	0.28	0.49		0.01	0.82		0.70	0.12			0.02	
Control Delay	9.2	0.8		2.5	10.1		106.1	30.4			71.5	
Queue Delay	0.0	0.1		0.0	47.0		0.0	0.0			0.0	
Total Delay	9.2	0.9		2.5	57.1		106.1	30.4			71.5	
LOS	A	A		A	E		F	C			E	
Approach Delay		1.0			57.0			92.8			71.5	
Approach LOS		A			E			F			E	
Queue Length 50th (ft)	0	19		0	626		104	2			2	
Queue Length 95th (ft)	m1	35		2	882		167	31			12	
Internal Link Dist (ft)		446			931			928			925	
Turn Bay Length (ft)	120			120			95					
Base Capacity (vph)	58	4284		202	3027		170	210			168	
Starvation Cap Reductn	0	715		0	0		0	0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	1035		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.28	0.58		0.01	1.25		0.52	0.09			0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 180			
Actuated Cycle Length: 180			
Offset: 155 (86%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 32.9		Intersection LOS: C	
Intersection Capacity Utilization 81.5%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 2: SW 74th Ave/Driveways & SW 24th Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1970	67	2	2432	13	87	2	17	2	0	0
Future Volume (veh/h)	16	1970	67	2	2432	13	87	2	17	2	0	0
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	2010	68	2	2482	13	89	2	17	2	0	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	4346	147	216	3175	17	145	12	102	123	0	0
Arrive On Green	1.00	1.00	1.00	0.00	0.88	0.88	0.07	0.07	0.07	0.07	0.00	0.00
Sat Flow, veh/h	132	5072	171	1781	3625	19	1418	170	1441	1175	0	0
Grp Volume(v), veh/h	16	1348	730	2	1216	1279	89	0	19	2	0	0
Grp Sat Flow(s),veh/h/ln	132	1702	1840	1781	1777	1867	1418	0	1611	1175	0	0
Q Serve(g_s), s	7.4	0.0	0.0	0.0	48.3	48.6	8.4	0.0	2.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	52.6	0.0	0.0	0.0	48.3	48.6	10.6	0.0	2.0	2.2	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.01	1.00		0.89	1.00		0.00
Lane Grp Cap(c), veh/h	120	2916	1576	216	1557	1636	145	0	114	123	0	0
V/C Ratio(X)	0.13	0.46	0.46	0.01	0.78	0.78	0.62	0.00	0.17	0.02	0.00	0.00
Avail Cap(c_a), veh/h	120	2916	1576	300	1557	1636	216	0	195	193	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.65	0.65	0.65	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.7	0.0	0.0	1.5	4.4	4.4	82.4	0.0	78.7	79.7	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.3	0.6	0.0	4.0	3.8	4.2	0.0	0.7	0.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.3	0.0	12.8	13.5	4.3	0.0	0.9	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	0.3	0.6	1.5	8.3	8.2	86.6	0.0	79.3	79.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	F	A	E	E	A	A
Approach Vol, veh/h		2094			2497			108			2	
Approach Delay, s/veh		0.5			8.3			85.4			79.8	
Approach LOS		A			A			F			E	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		162.1		17.9	3.5	158.6		17.9				
Change Period (Y+Rc), s		* 4.4		* 5.2	3.0	* 4.4		* 5.2				
Max Green Setting (Gmax), s		* 1.5E2		* 22	9.0	* 1.4E2		* 22				
Max Q Clear Time (g_c+I1), s		50.6		12.6	2.0	54.6		4.2				
Green Ext Time (p_c), s		63.4		0.2	0.0	32.1		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		6.6
HCM 6th LOS		A

Notes

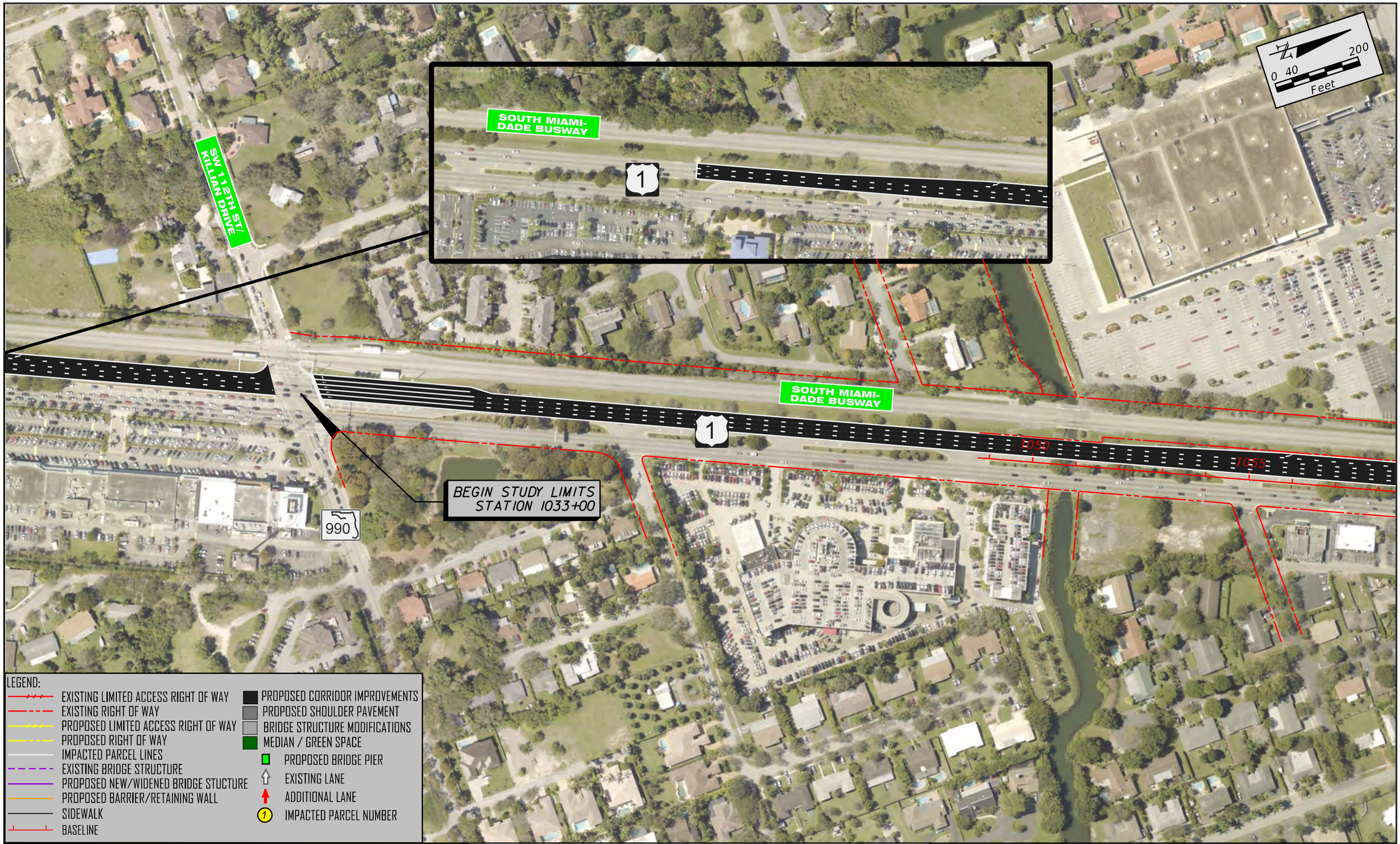
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	16	2078	2	2495	89	19	2
v/c Ratio	0.28	0.49	0.01	0.82	0.70	0.12	0.02
Control Delay	9.2	0.8	2.5	10.1	106.1	30.4	71.5
Queue Delay	0.0	0.1	0.0	47.0	0.0	0.0	0.0
Total Delay	9.2	0.9	2.5	57.1	106.1	30.4	71.5
Queue Length 50th (ft)	0	19	0	626	104	2	2
Queue Length 95th (ft)	m1	35	2	882	167	31	12
Internal Link Dist (ft)		446		931		928	925
Turn Bay Length (ft)	120		120		95		
Base Capacity (vph)	58	4284	202	3027	170	210	168
Starvation Cap Reductn	0	715	0	0	0	0	0
Spillback Cap Reductn	0	0	0	1035	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.58	0.01	1.25	0.52	0.09	0.01

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

APPENDIX K2

Preferred Alternative Concept Plans



LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- 1 IMPACTED PARCEL NUMBER

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826

SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
CONCEPT PLANS
PREFERRED ALTERNATIVE

SHEET NO.
1



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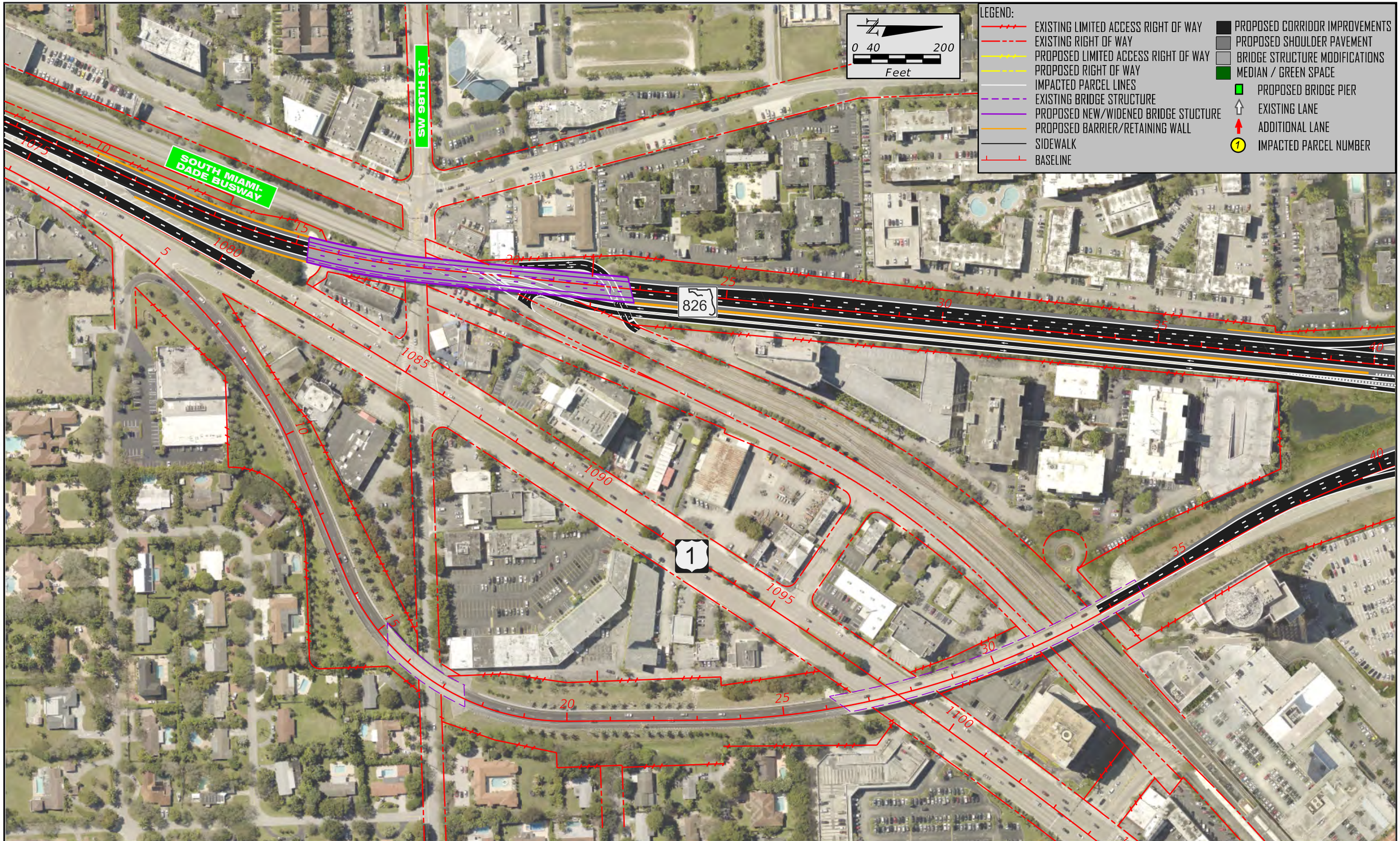
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SR 826/PALMETTO EXPRESSWAY
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SHEET NO.
2



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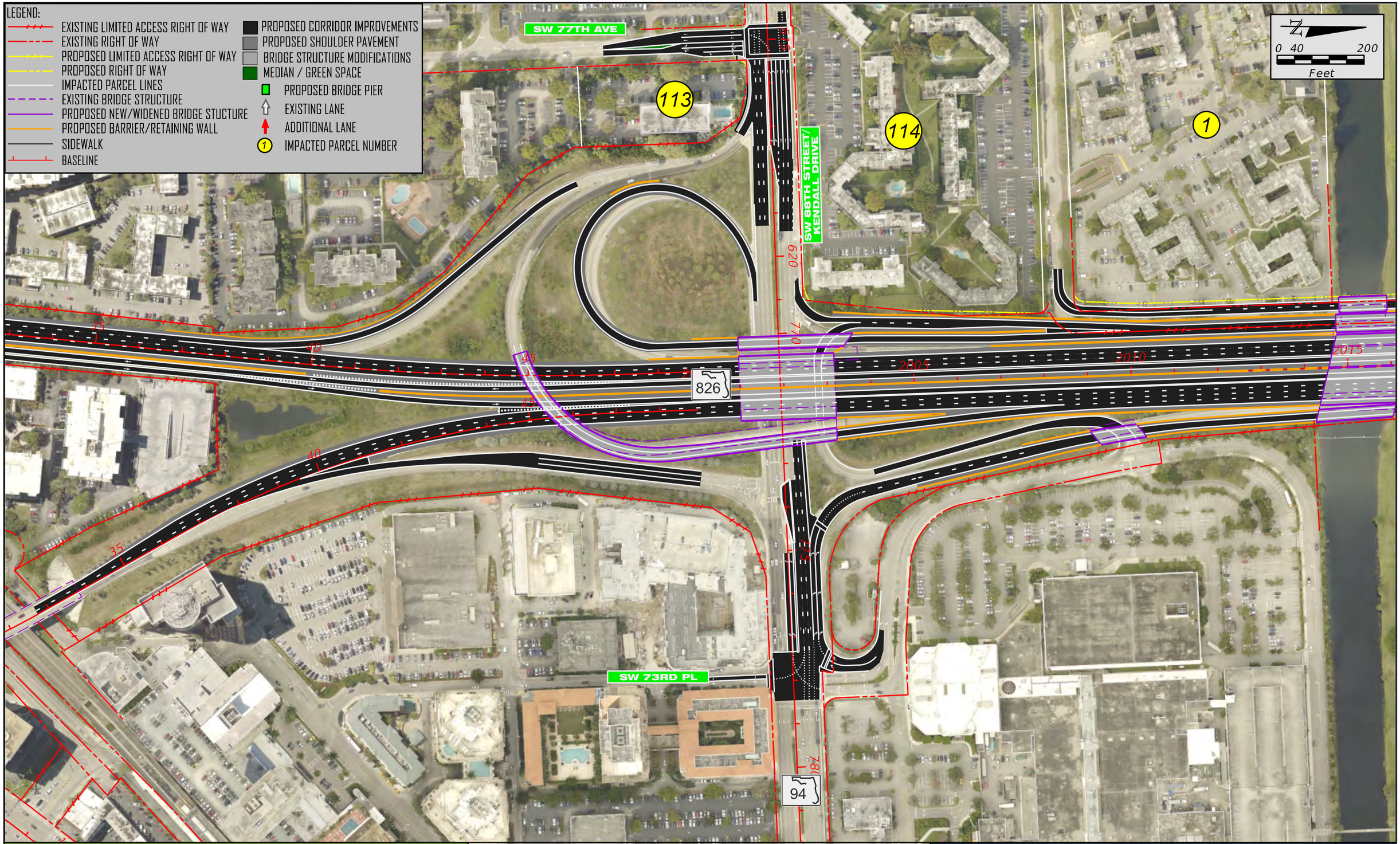
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FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
CONCEPT PLANS
PREFERRED ALTERNATIVE

SHEET NO.
3

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER



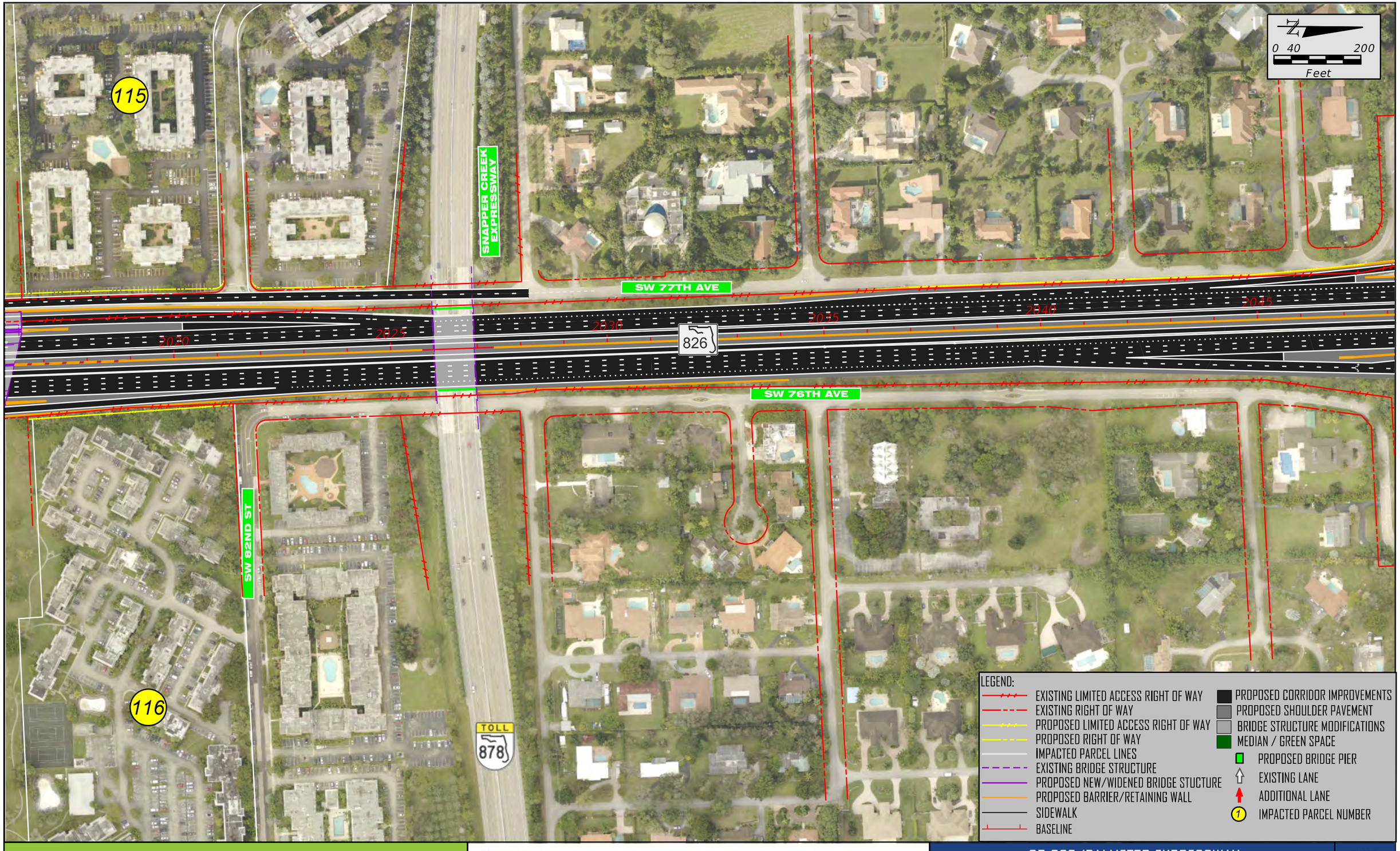
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SR 826/PALMETTO EXPRESSWAY
CONCEPT PLANS
PREFERRED ALTERNATIVE

SHEET NO. 4



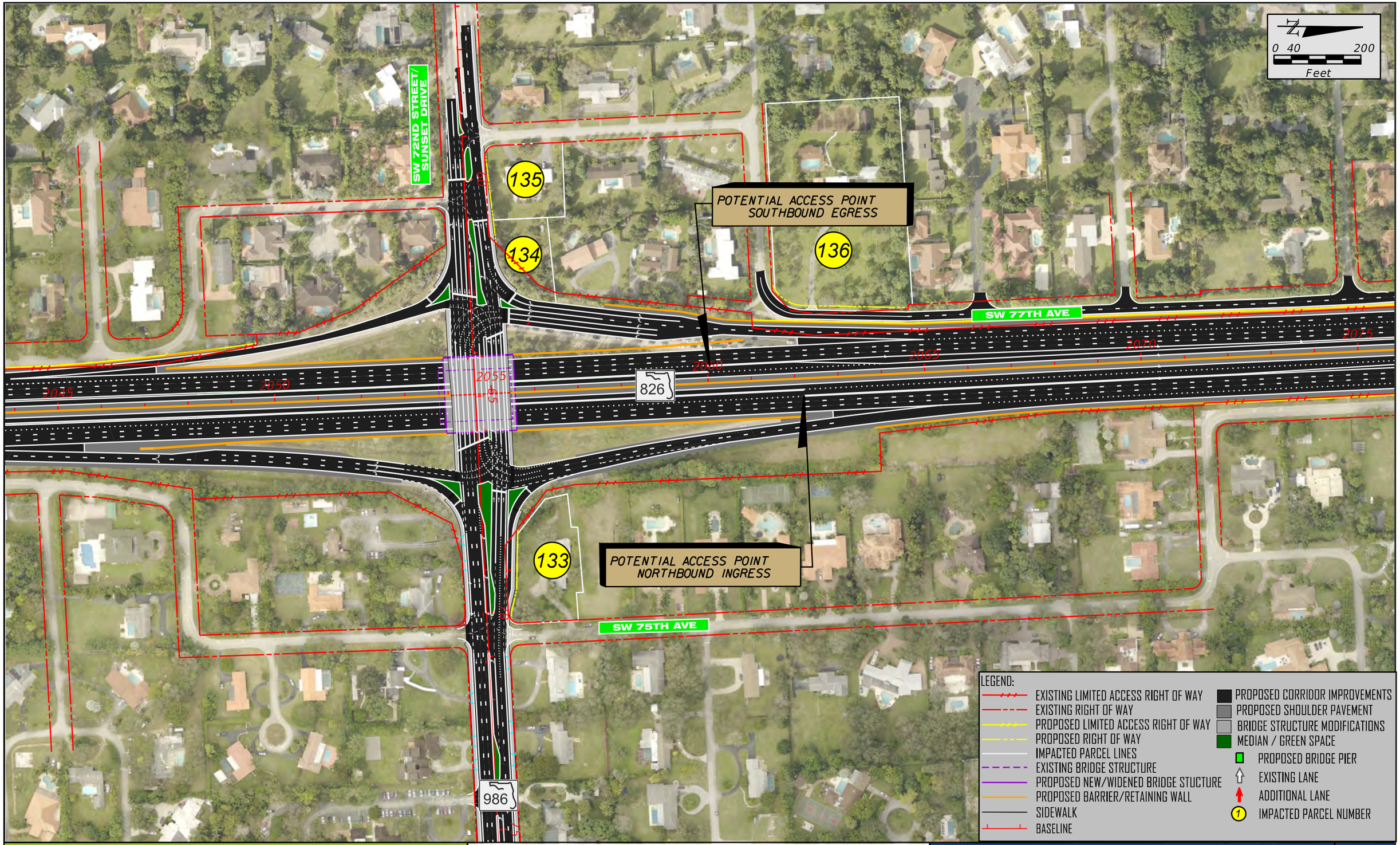
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SHEET NO. 5



FDOT

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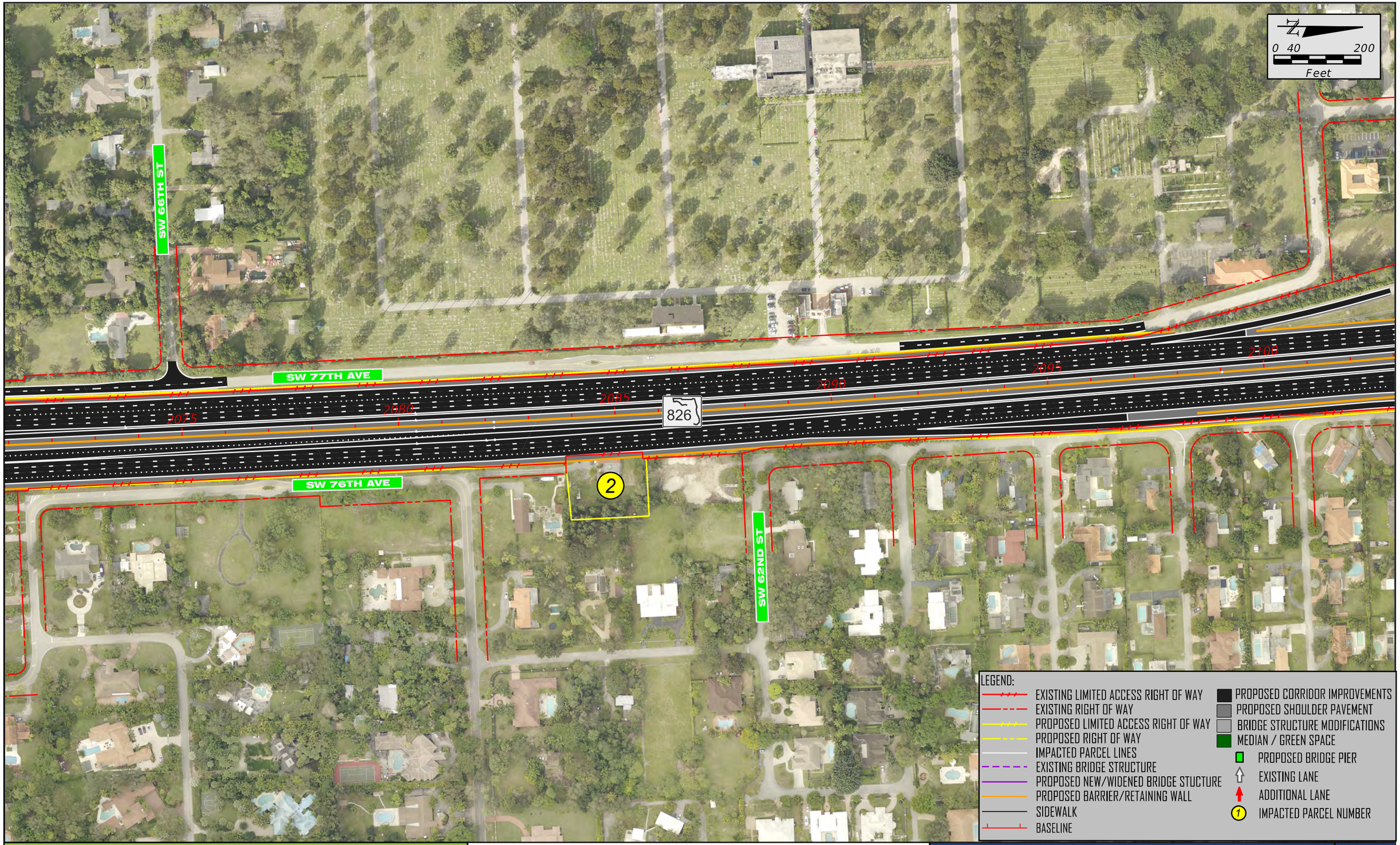
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CONCEPT PLANS
PREFERRED ALTERNATIVE

SHEET NO. 6



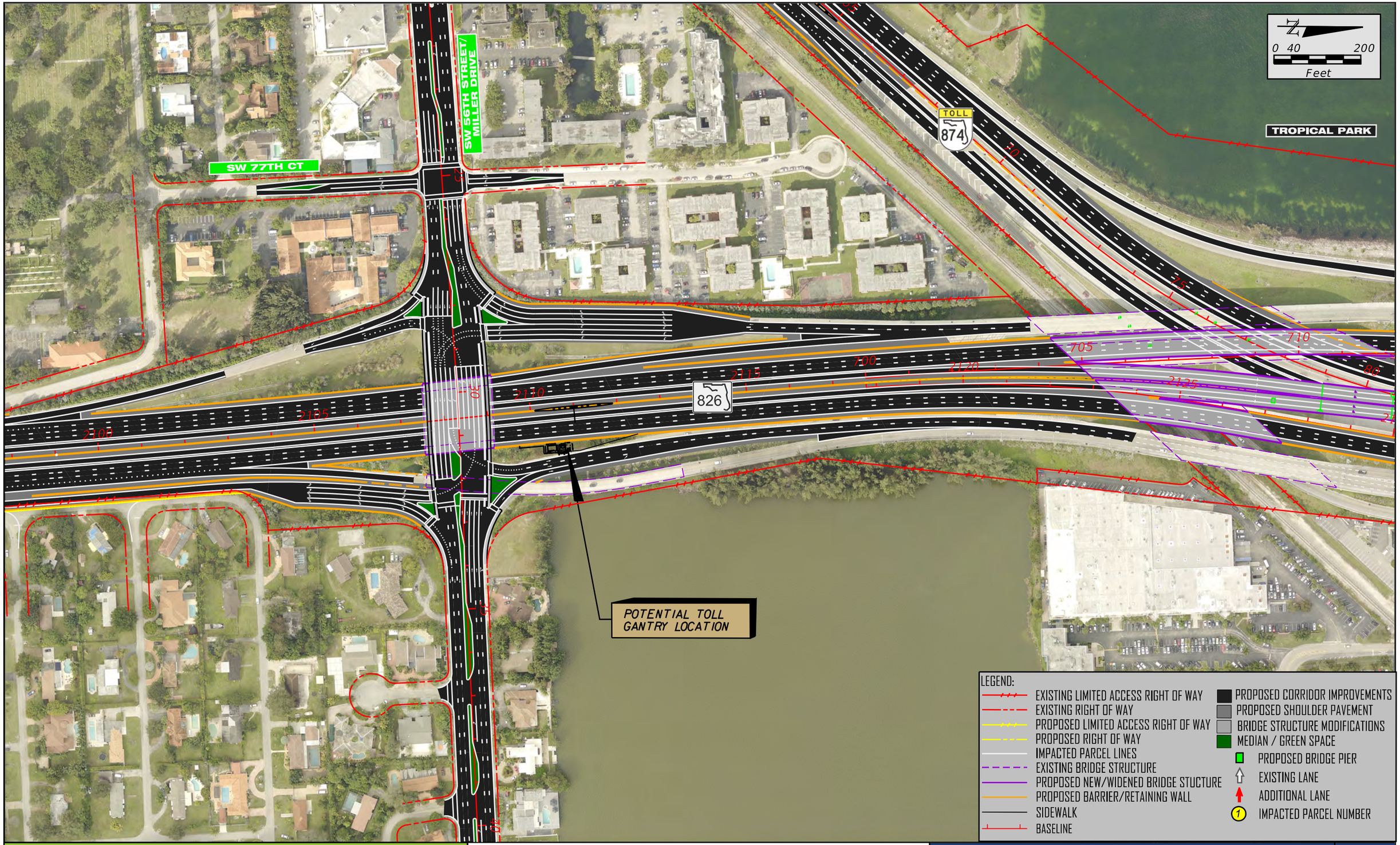
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CONCEPT PLANS
PREFERRED ALTERNATIVE

SHEET NO. 7



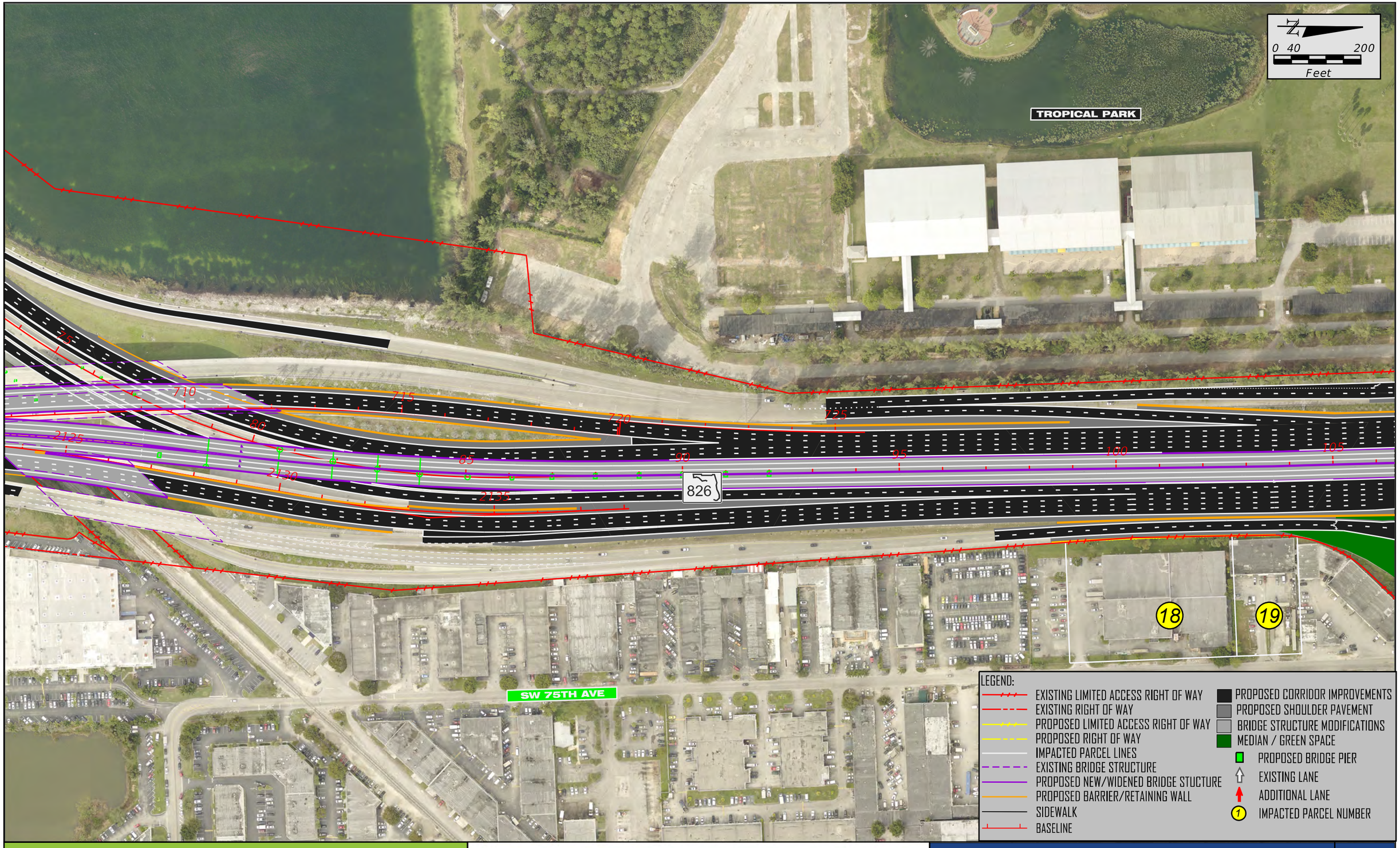
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CONCEPT PLANS
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SHEET NO. 8



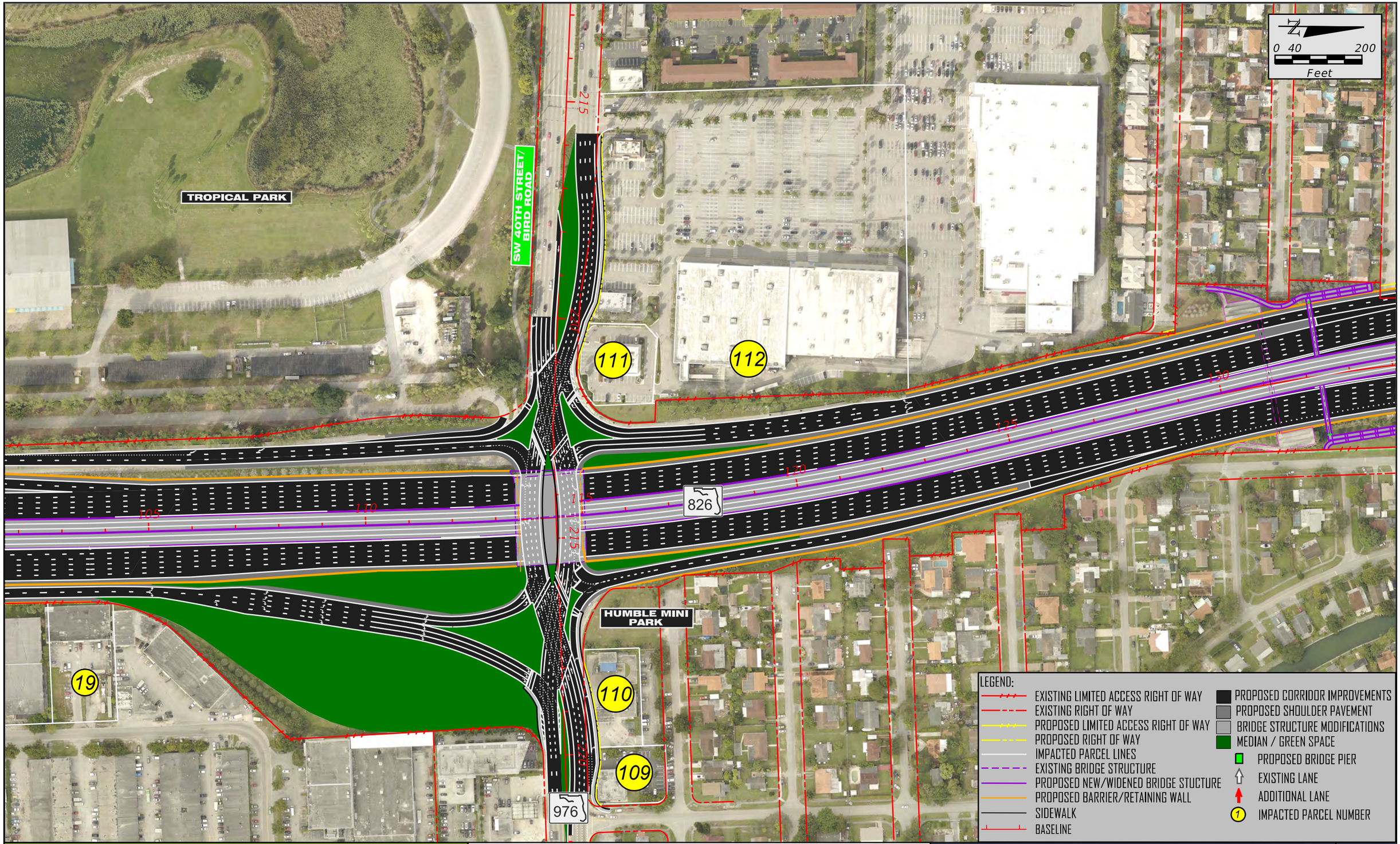
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CONCEPT PLANS
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SHEET NO. 9



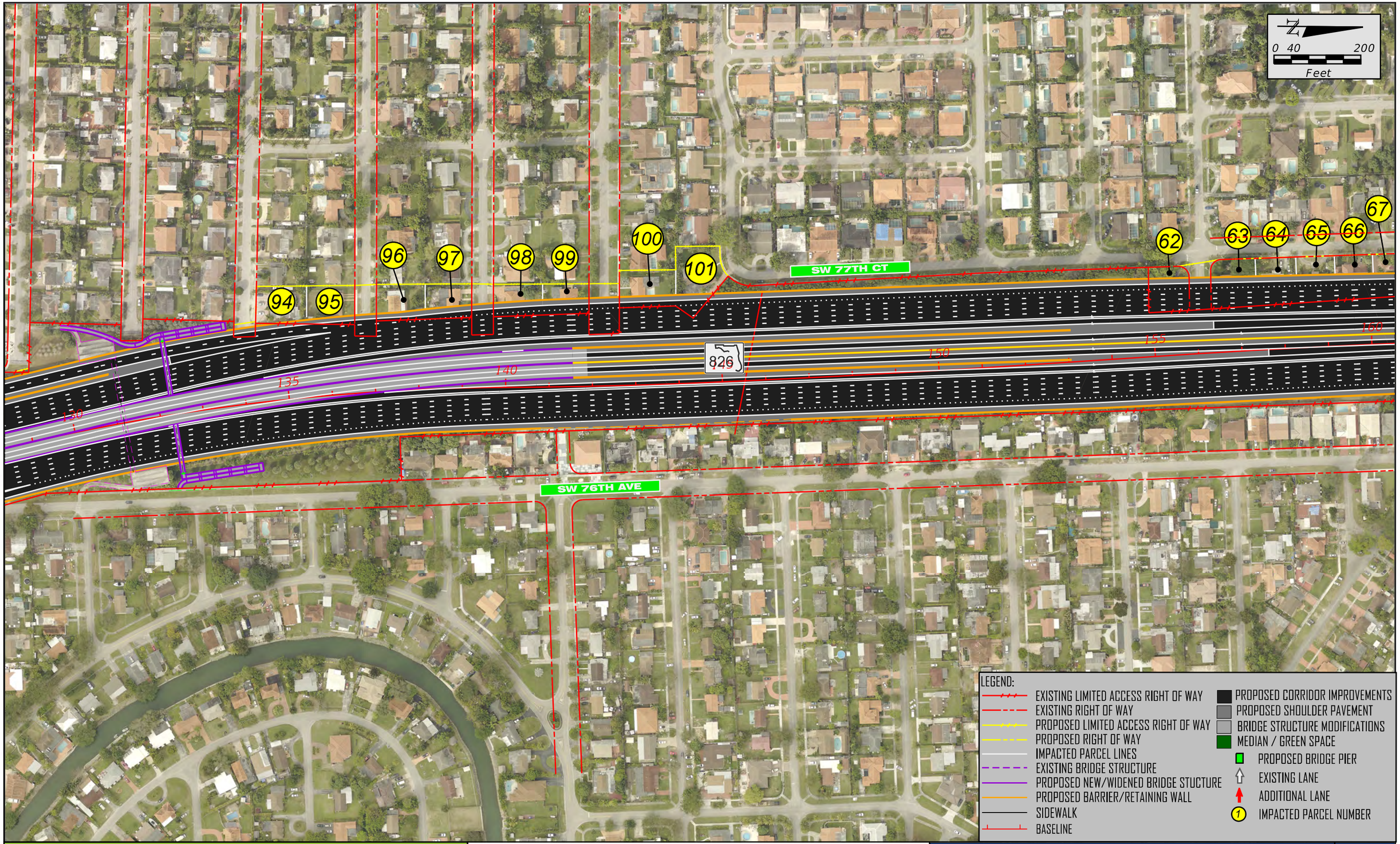
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SHEET NO. 10



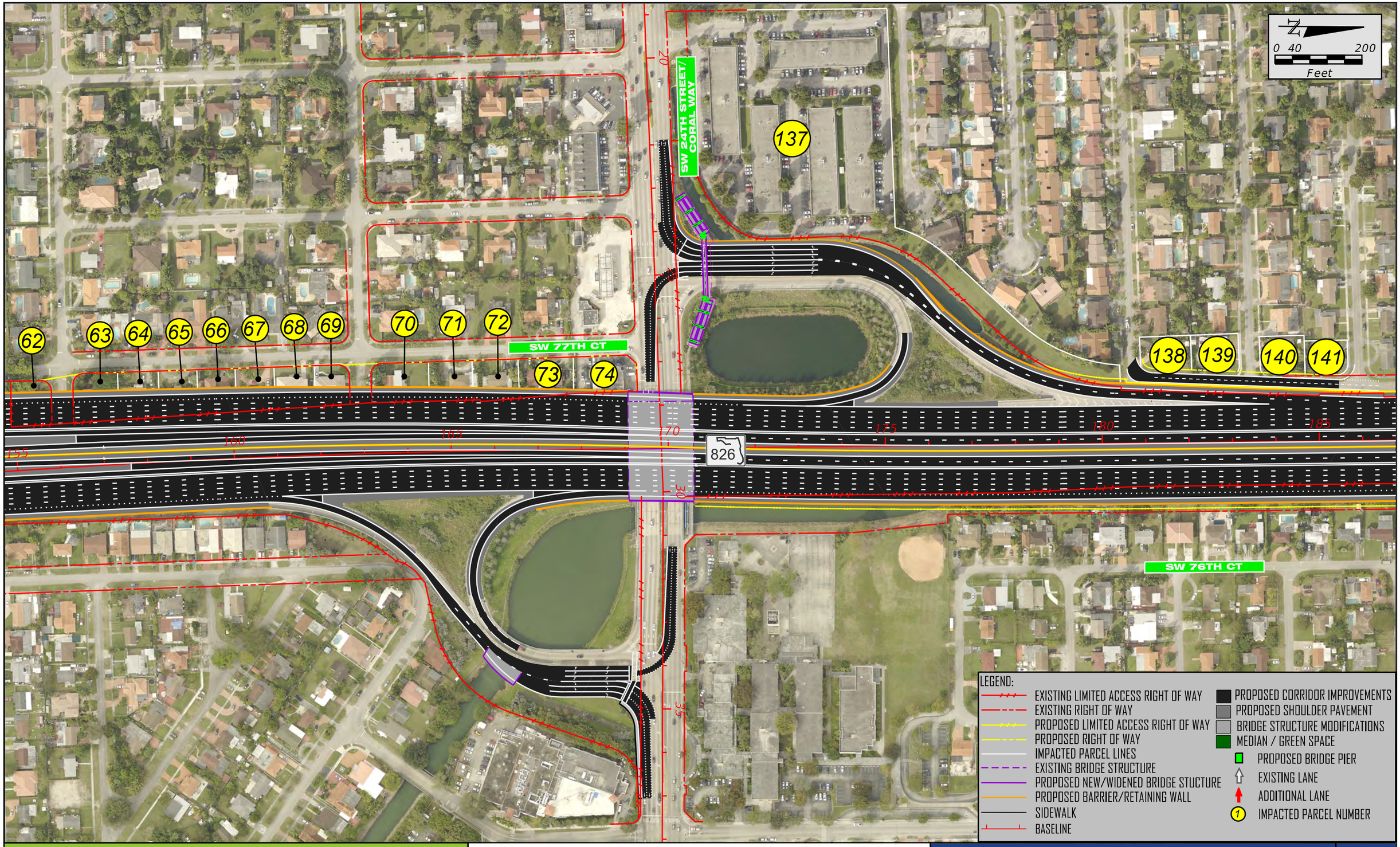
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CONCEPT PLANS
PREFERRED ALTERNATIVE

SHEET NO.
11



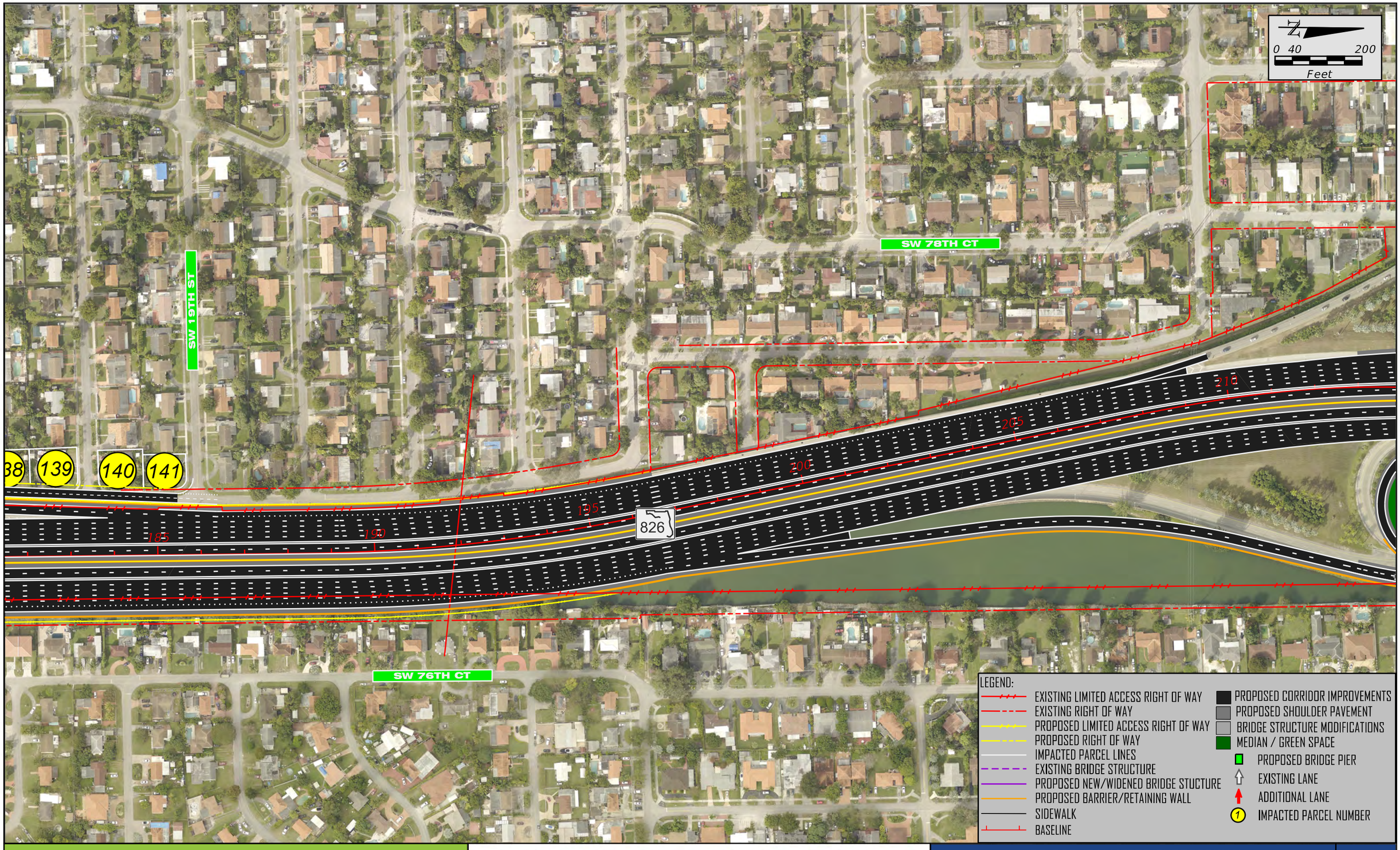
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CONCEPT PLANS
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SHEET NO. 12



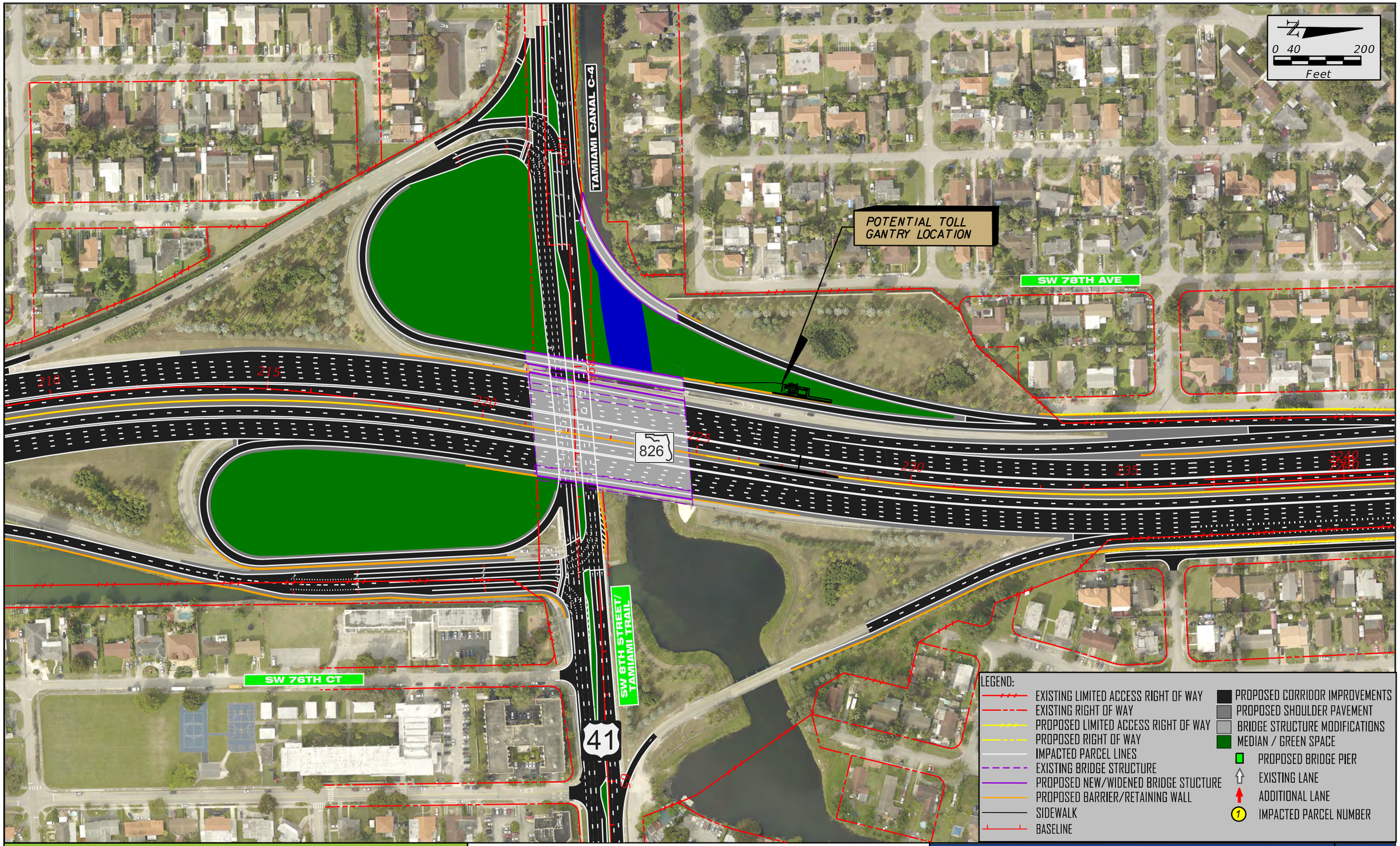
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CONCEPT PLANS
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SHEET NO. 13



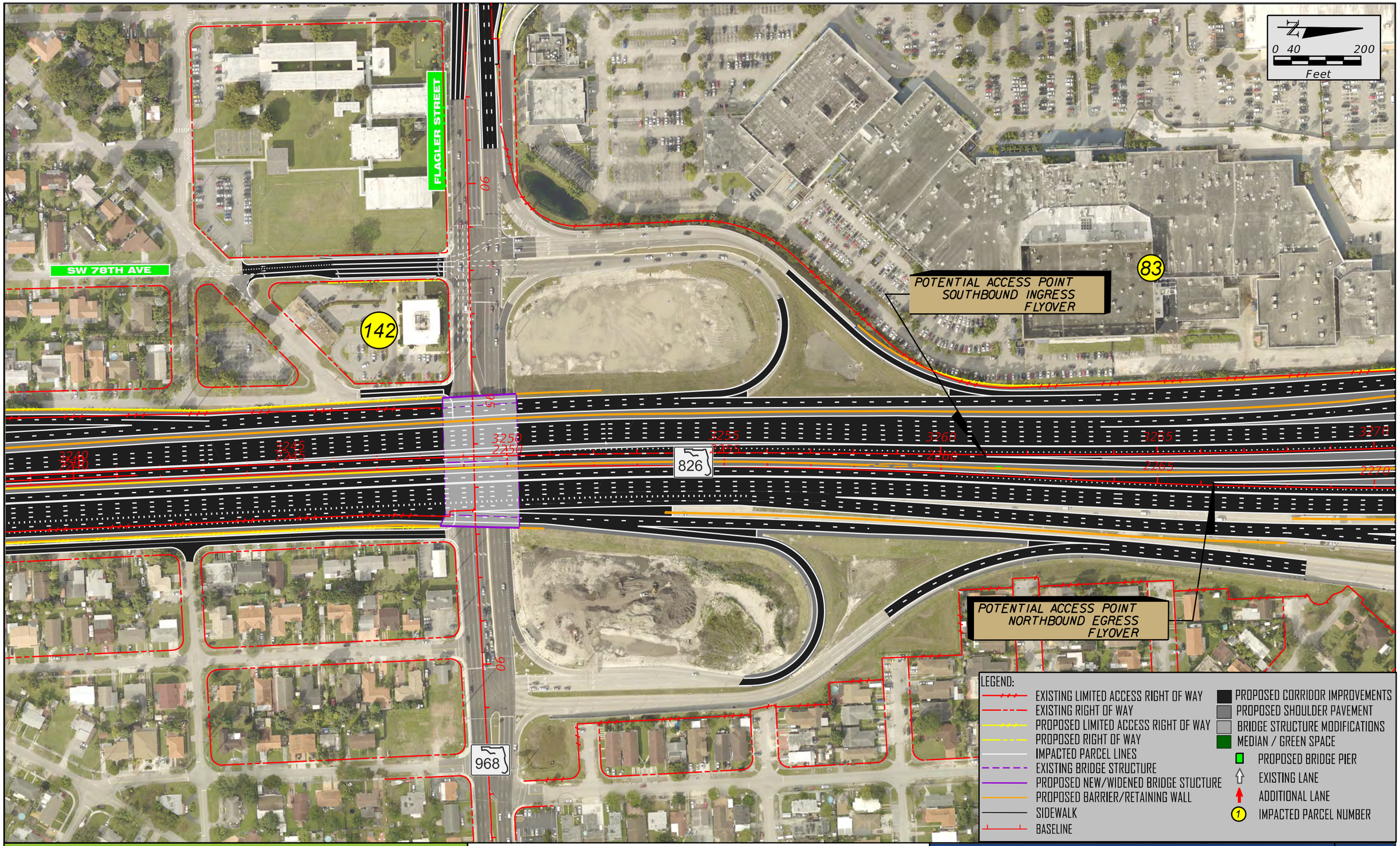
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SHEET NO. 14



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SR 826/PALMETTO EXPRESSWAY
CONCEPT PLANS
PREFERRED ALTERNATIVE

SHEET NO. 15

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

N

0 40 200

Feet

TOLL 836

826

POTENTIAL ACCESS POINT
SOUTHBOUND INGRESS

POTENTIAL ACCESS POINT
NORTHBOUND EGRESS

END STUDY LIMITS
STATION 130+00

SW 71ST AVE

NW 12TH ST

3270 3275 3280 3285 3290 3295 3300
2270 2275 2280 2285 2290 2295 2300
315 320 325 330

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SR 826/PALMETTO EXPRESSWAY
CONCEPT PLANS
PREFERRED ALTERNATIVE

SHEET NO.
16

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

N

0 40 200
Feet

SW 78TH AVE

826

3300 2300 3305 2305 3310 2310 3315 2315 3320 2320 3325 2325 2330

NW 72ND AVE

CORPORATE WAY

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CONCEPT PLANS
PREFERRED ALTERNATIVE

SHEET NO.
17

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

N

0 40 200

Feet

NW 25TH STREET

826

2330

2335

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SR 826/PALMETTO EXPRESSWAY
CONCEPT PLANS
PREFERRED ALTERNATIVE

SHEET NO. 18

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

N

0 40 200 Feet

SW 86TH ST

SW 92ND AVE

SW 79TH AVE

SW 88TH STREET/
KENDALL DRIVE

SW 79TH AVE

SW 77TH AVE

94

600 605 610 620

1 131 114 113

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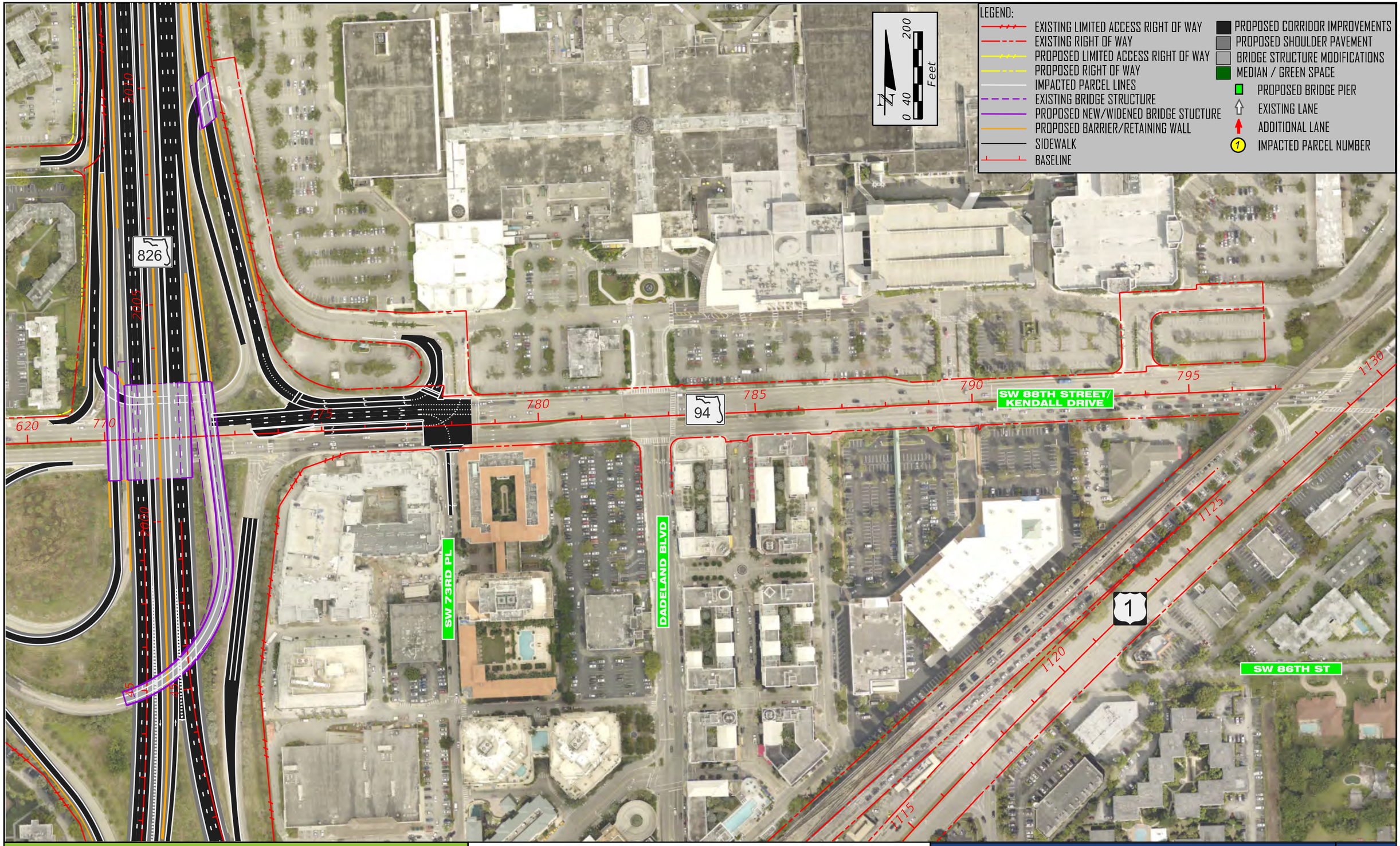
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SR 826/PALMETTO EXPRESSWAY
SW 88TH STREET
PREFERRED ALTERNATIVE

SHEET NO. 19



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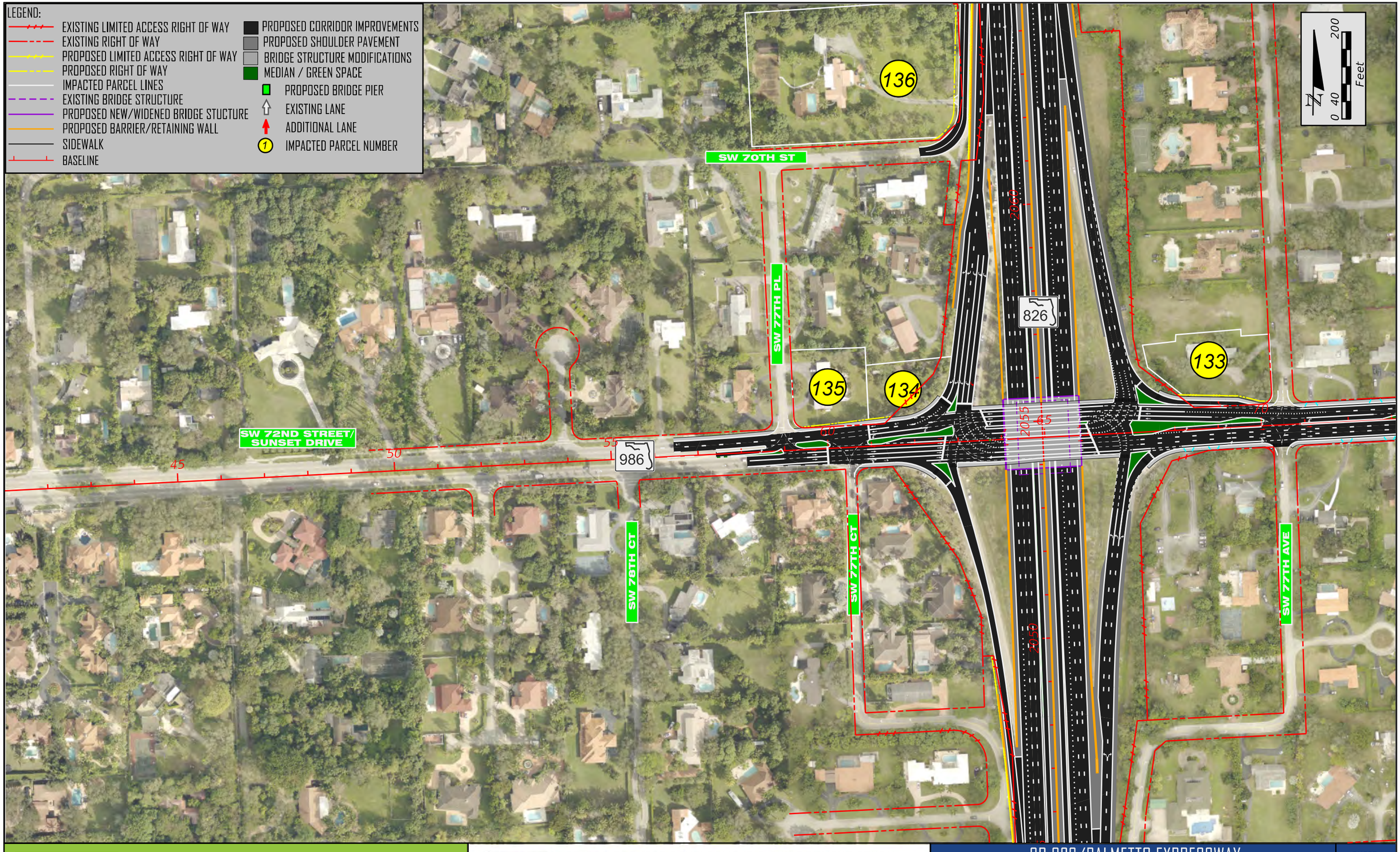
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FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SW 88TH STREET
PREFERRED ALTERNATIVE

SHEET NO. 20

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER



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SR 826/PALMETTO EXPRESSWAY
SW 72ND STREET
PREFERRED ALTERNATIVE

SHEET NO.
21

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

0 40 200 Feet

SW 73RD CT

SW 72ND STREET/ SUNSET DRIVE

80

75

85

90

986

SW 72ND AVE

SW 71ST AVE

132

SW 72ND CT

FDOT

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SR 826/PALMETTO EXPRESSWAY
SW 72ND STREET
PREFERRED ALTERNATIVE

SHEET NO.
22

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

N

0 40 200 Feet

SW 77TH CT

SW 56TH STREET/ MILLER DRIVE

SW 58TH ST

SW 57TH TER

TOLL 874

826

FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION DISTRICT SIX 1000 NW 111TH AVENUE MIAMI, FL 33172	SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway FPID No.: 432639-1-22-02 ETDM No.: 14308
SR 826/PALMETTO EXPRESSWAY SW 56TH STREET PREFERRED ALTERNATIVE	SHEET NO. 23	

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

N

0 40 200 Feet

SW 72ND AVE

SW 56TH STREET/
MILLER DRIVE

SW 74TH AVE

SW 57TH ST

35 40 45 50 55

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SIX
1000 NW 111TH AVENUE
MIAMI, FL 333172

826

SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SW 56TH STREET
PREFERRED ALTERNATIVE

SHEET NO.
24

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

N

0 40 200 Feet

SW 56TH STREET/
MILLER DRIVE

TOLL 874

3

10

50

30

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SIX
1000 NW 111TH AVENUE
MIAMI, FL 33172

826

SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SR 874
PREFERRED ALTERNATIVE

SHEET NO.
25

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

N

0 40 200 Feet

POTENTIAL ACCESS POINT
SOUTHBOUND EGRESS

POTENTIAL TOLL
GANTRY LOCATION

POTENTIAL ACCESS POINT
NORTHBOUND INGRESS

TOLL 874

826

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SIX
1000 NW 111TH AVENUE
MIAMI, FL 33172

SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SR 874
PREFERRED ALTERNATIVE

SHEET NO. 26

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

N

0 40 200 Feet

SW 79TH AVE

SW 40TH STREET/
BIRD STREET

976

826

112

111

110

109

HUMBLE MINI
PARK

TROPICAL PARK

TROPICAL PARK

200 205 210 215 220

215 220

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DISTRICT SIX
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SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SW 40TH STREET
PREFERRED ALTERNATIVE

SHEET NO.
27

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

0 40 200 Feet

SW 75TH AVE
SW 73RD CT
SW 72ND AVE
SW 70TH AVE
SW 40TH STREET/ BIRD STREET
SW 41ST ST
109
220
225
230
235
976

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DISTRICT SIX
1000 NW 111TH AVENUE
MIAMI, FL 333172

826

SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SW 40TH STREET
PREFERRED ALTERNATIVE

SHEET NO.
28

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

200 0 40 Feet

SW 82ND AVE

SW 24TH STREET/ CORAL WAY

972

826

SW 79TH AVE

SW 26TH ST

SW 77TH CT

74 73 72 71 70 69 68 67 66

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DISTRICT SIX
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SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SW 24TH STREET
PREFERRED ALTERNATIVE

SHEET NO. 29

LEGEND:

- EXISTING LIMITED ACCESS RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- IMPACTED PARCEL LINES
- EXISTING BRIDGE STRUCTURE
- PROPOSED NEW/WIDENED BRIDGE STUCTURE
- PROPOSED BARRIER/RETAINING WALL
- SIDEWALK
- BASELINE
- PROPOSED CORRIDOR IMPROVEMENTS
- PROPOSED SHOULDER PAVEMENT
- BRIDGE STRUCTURE MODIFICATIONS
- MEDIAN / GREEN SPACE
- PROPOSED BRIDGE PIER
- EXISTING LANE
- ADDITIONAL LANE
- (1) IMPACTED PARCEL NUMBER

N

0 40 200 Feet

SW 75TH AVE

SW 23RD ST

SW 72ND AVE

35 40 45 50 55

SW 24TH STREET/ CORAL WAY

972

SW 74TH AVE

FDOT

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SIX
1000 NW 111TH AVENUE
MIAMI, FL 33172

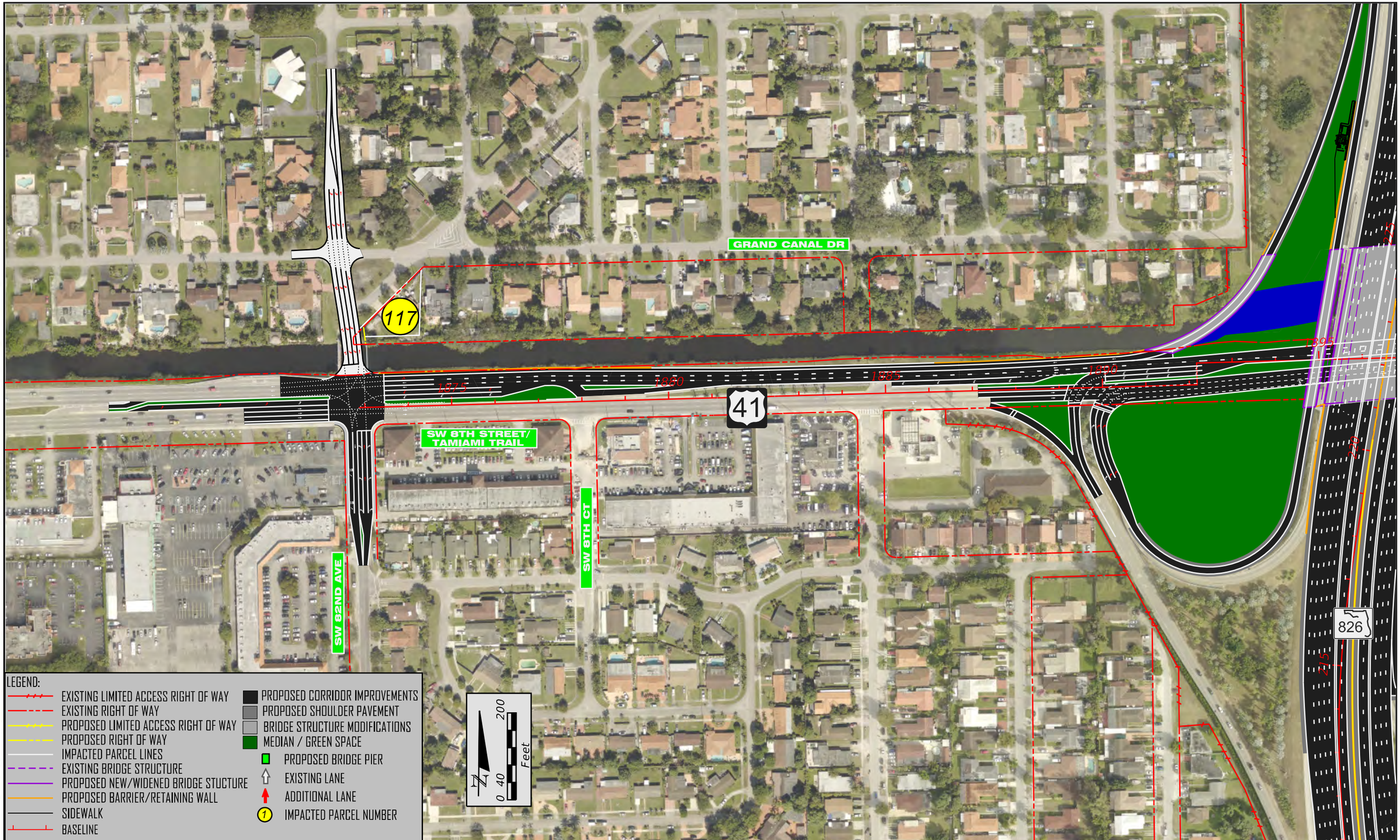
826

SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SW 24TH STREET
PREFERRED ALTERNATIVE

SHEET NO.
30



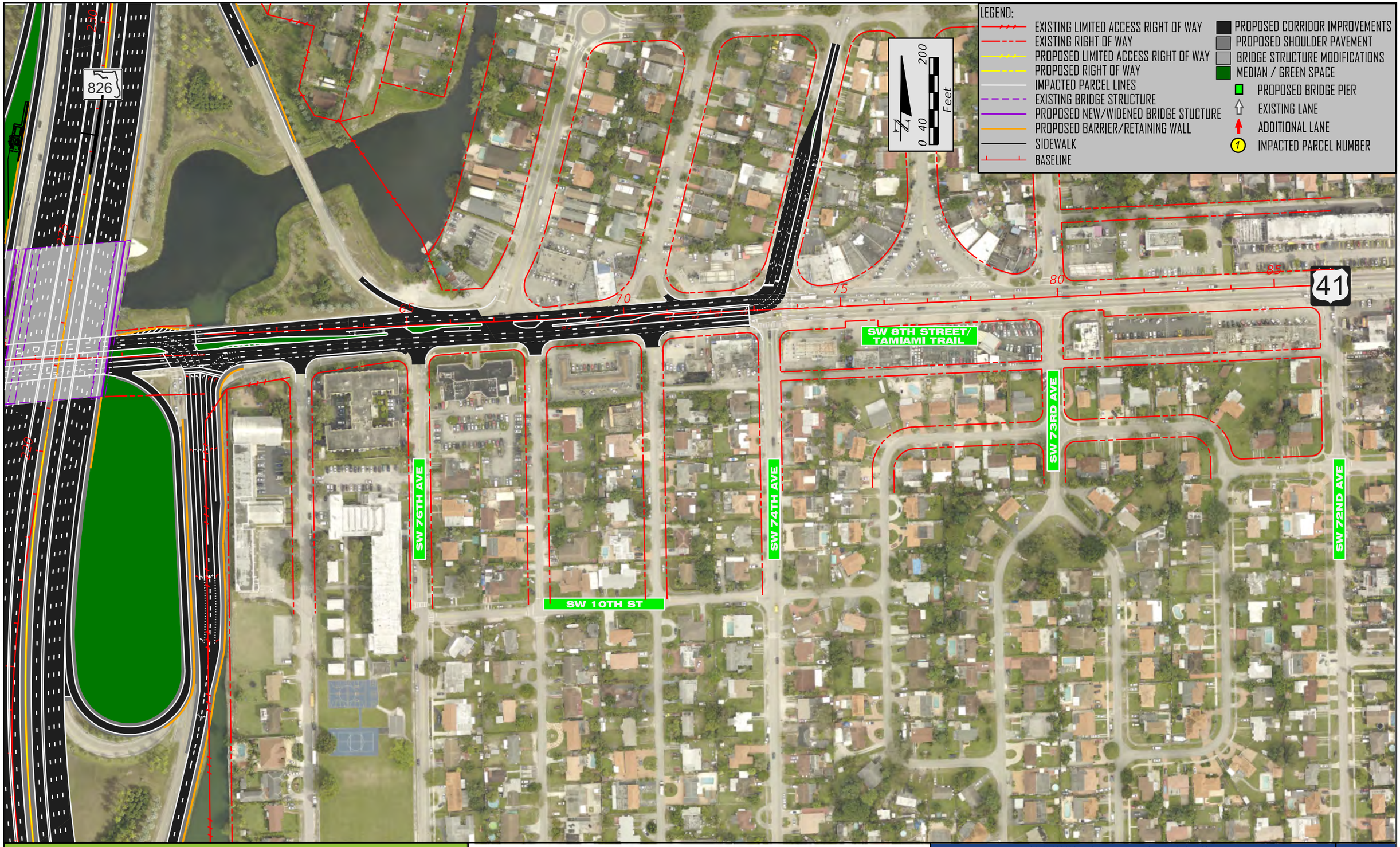
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MIAMI, FL 33172

SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SW 8TH STREET
PREFERRED ALTERNATIVE

SHEET NO.
31



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826

SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SW 8TH STREET
PREFERRED ALTERNATIVE

SHEET NO.
32



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SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
FLAGLER STREET
PREFERRED ALTERNATIVE

SHEET NO. 33



FLORIDA DEPARTMENT OF TRANSPORTATION
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1000 NW 111TH AVENUE
MIAMI, FL 33172

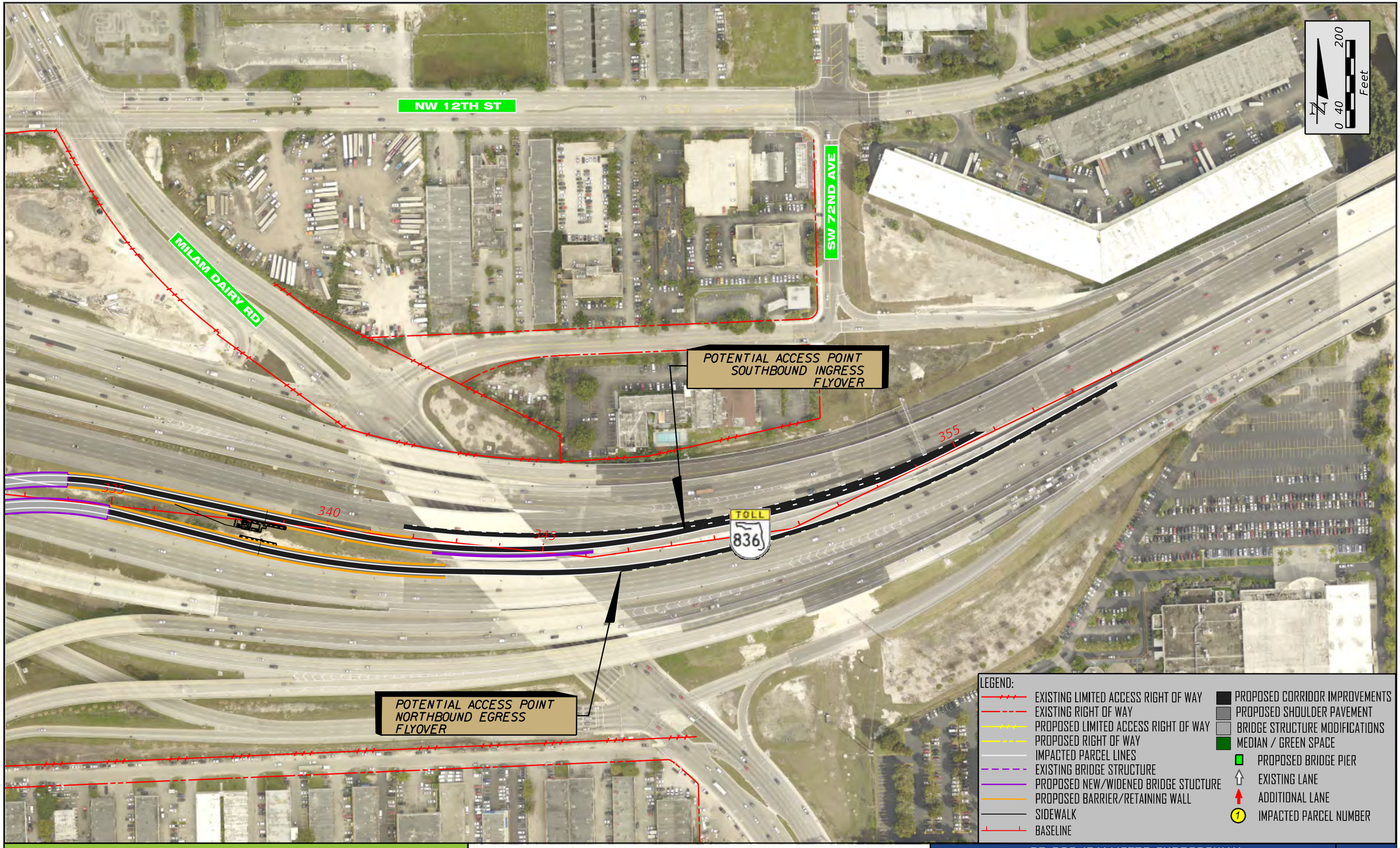
826

SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
FLAGLER STREET
PREFERRED ALTERNATIVE

SHEET NO. 34



FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SIX
1000 NW 111TH AVENUE
MIAMI, FL 33172

826

SR 826 PROJECT DEVELOPMENT & ENVIRONMENT STUDY

From US 1/SR 5/Dixie Highway to SR 836/Dolphin Expressway
FPID No.: 432639-1-22-02
ETDM No.: 14308

SR 826/PALMETTO EXPRESSWAY
SR 836
PREFERRED ALTERNATIVE

SHEET NO.
35

APPENDIX L

2025 Preferred Alternative Output HCS Reports (SR 826)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #1	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	43.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2351	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1292
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.7
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	43.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #1	Unit	United States Customary

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	43.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3183	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1748
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	43.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.2
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	43.5		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/17/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #2	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2351	118
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	1.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.985
Flow Rate (vi),pc/h	2583	126
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.37	0.06

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.374
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	762
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.690	Outer Lanes Freeway Speed (SO), mi/h	65.8
Flow in Lanes 1 and 2 (v12), pc/h	1821	Ramp Junction Speed (S), mi/h	56.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	15.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.1

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/17/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #2	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3183	120
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	1.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.985
Flow Rate (vi),pc/h	3497	128
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.51	0.06

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.375
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1122
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.667	Outer Lanes Freeway Speed (SO), mi/h	65.3
Flow in Lanes 1 and 2 (v12), pc/h	2375	Ramp Junction Speed (S), mi/h	56.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.9

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/17/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #3	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2233	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	818
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.6
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/17/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #3	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3063	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1122
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.3
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #5	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4029	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1107
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.0
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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Capacity Check for Major Merge:
On ramp from Miller Dr WB - Alternative 2 #4

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3063	60	3	4.4%	0.95	1.5	0.978	1.00	3296	6900	No	0.48
Merging	966	30	1	1.7%	0.95	1.5	0.992	1.00	1026	2000	No	0.51
Downstream	4029	60	4	4.4%	0.95	1.5	0.978	1.00	4335	9200	No	0.47

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)
*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	2233	60	3	4.4%	0.95	1.5	0.978	1.00	2403	6900	No	0.35
Diverging	707	30	1	1.7%	0.95	1.5	0.992	1.00	751	2000	No	0.38
Downstream	2940	60	4	4.4%	0.95	1.5	0.978	1.00	3163	9200	No	0.34

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)
*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #6-9	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Segment Length (L_S), ft	1500	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2786	1539	153	277
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.80	2.80	1.90
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.973	0.973	0.981
Flow Rate (v_i), pc/h	3061	1665	166	297
Weaving Flow Rate (v_w), pc/h	1962	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3227	Density-Based Capacity (c_{IWL}), pc/h/ln		2042
Total Flow Rate (v), pc/h	5189	Demand Flow-Based Capacity (c_{IW}), pc/h		9259
Volume Ratio (VR)	0.378	Weaving Segment Capacity (c_W), veh/h		8932
Minimum Lane Change Rate (LC_{MIN}), lc/h	1665	Adjusted Weaving Area Capacity, pc/h		9260
Maximum Weaving Length (L_{MAX}), ft	4870	Volume-to-Capacity Ratio (v/c)		0.56

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	160	Average Weaving Speed (S_W), mi/h	48.4
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	515	Average Non-Weaving Speed (S_{NW}), mi/h	43.0
Weaving Lane Change Rate (LC_W), lc/h	2089	Average Speed (S), mi/h	44.9
Weaving Lane Change Rate (LC_{All}), lc/h	2604	Density (D), pc/mi/ln	23.1
Weaving Intensity Factor (W)	0.349	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #5	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2940	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	808
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.4
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #10	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4326	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1157
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.3
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #6-9	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Segment Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2072	1925	149	161
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.80	2.80	1.90
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.973	0.973	0.981
Flow Rate (v_i), pc/h	2277	2083	161	173
Weaving Flow Rate (v_w), pc/h	2256	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	2438	Density-Based Capacity (c_{IWL}), pc/h/ln		1945
Total Flow Rate (v), pc/h	4694	Demand Flow-Based Capacity (c_{IW}), pc/h		7277
Volume Ratio (VR)	0.481	Weaving Segment Capacity (c_W), veh/h		7029
Minimum Lane Change Rate (LC_{MIN}), lc/h	2083	Adjusted Weaving Area Capacity, pc/h		7276
Maximum Weaving Length (L_{MAX}), ft	6039	Volume-to-Capacity Ratio (v/c)		0.65

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	113	Average Weaving Speed (S_W), mi/h	47.4
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	298	Average Non-Weaving Speed (S_{NW}), mi/h	40.5
Weaving Lane Change Rate (LC_W), lc/h	2489	Average Speed (S), mi/h	43.5
Weaving Lane Change Rate (LC_{All}), lc/h	2787	Density (D), pc/mi/ln	21.6
Weaving Intensity Factor (W)	0.389	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #10	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3998	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1069
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.7
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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Capacity Check for Major Diverge:
SR826 Off Ramp to Bird Rd EB - Alternative 2 #11

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4326	60	4	1.6%	0.95	1.5	0.992	1.00	4591	9200	No	0.50
Diverging	634	50	1	1.6%	0.95	1.5	0.992	1.00	673	2200	No	0.31
Downstream	3692	60	3	1.6%	0.95	1.5	0.992	1.00	3918	6900	No	0.57

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	3998	60	4	1.6%	0.95	1.5	0.992	1.00	4243	9200	No	0.46
Diverging	852	50	1	1.6%	0.95	1.5	0.992	1.00	905	2200	No	0.41
Downstream	3146	60	3	1.6%	0.95	1.5	0.992	1.00	3339	6900	No	0.48

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

	Major Diverge	
	Density	LOS
AM Peak	20.09	C
PM Peak	18.56	B

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #12	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3146	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1122
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.7
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #12	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3692	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1317
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.3
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #13-15	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	2100	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2786	1171	151	360
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	1.60	1.60	1.60	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.984	0.984	0.980
Flow Rate (v_i), pc/h	2980	1253	162	387
Weaving Flow Rate (v_w), pc/h	1640	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3142	Density-Based Capacity (c_{IWL}), pc/h/ln		1998
Total Flow Rate (v), pc/h	4782	Demand Flow-Based Capacity (c_{IW}), pc/h		6997
Volume Ratio (VR)	0.343	Weaving Segment Capacity (c_W), veh/h		6883
Minimum Lane Change Rate (LC_{MIN}), lc/h	387	Adjusted Weaving Area Capacity, pc/h		6997
Maximum Weaving Length (L_{MAX}), ft	6050	Volume-to-Capacity Ratio (v/c)		0.68

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	528	Average Weaving Speed (S_W), mi/h	52.4
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1015	Average Non-Weaving Speed (S_{NW}), mi/h	51.5
Weaving Lane Change Rate (LC_W), lc/h	811	Average Speed (S), mi/h	51.8
Weaving Lane Change Rate (LC_{All}), lc/h	1826	Density (D), pc/mi/ln	23.1
Weaving Intensity Factor (W)	0.202	Level of Service (LOS)	C

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #13-15	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	2100	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3178	906	146	514
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	1.60	1.60	1.60	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.984	0.984	0.980
Flow Rate (v_i), pc/h	3400	969	156	552
Weaving Flow Rate (v_w), pc/h	1521	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3556	Density-Based Capacity (c_{IWL}), pc/h/ln		2033
Total Flow Rate (v), pc/h	5077	Demand Flow-Based Capacity (c_{IW}), pc/h		8000
Volume Ratio (VR)	0.300	Weaving Segment Capacity (c_W), veh/h		7869
Minimum Lane Change Rate (LC_{MIN}), lc/h	552	Adjusted Weaving Area Capacity, pc/h		8000
Maximum Weaving Length (L_{MAX}), ft	5584	Volume-to-Capacity Ratio (v/c)		0.63

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	597	Average Weaving Speed (S_W), mi/h	51.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1100	Average Non-Weaving Speed (S_{NW}), mi/h	49.9
Weaving Lane Change Rate (LC_W), lc/h	976	Average Speed (S), mi/h	50.5
Weaving Lane Change Rate (LC_{All}), lc/h	2076	Density (D), pc/mi/ln	25.1
Weaving Intensity Factor (W)	0.224	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #16	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3958	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1068
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #16	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4085	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1102
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #18	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3566	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1283
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.0
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Diverge:
SR826 Off Ramp to Bird Rd EB - Alternative 2 #17

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

AM VOLUME

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	4085	60	4	2.6%	0.95	1.5	0.987	1.00	4356	9200	No	0.47
Diverging	519	45	1	1.6%	0.95	1.5	0.992	1.00	551	2100	No	0.26
Downstream	3566	60	3	2.6%	0.95	1.5	0.987	1.00	3803	6900	No	0.55

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	3958	60	4	2.6%	0.95	1.5	0.987	1.00	4221	9200	No	0.46
Diverging	551	45	1	1.6%	0.95	1.5	0.992	1.00	585	2100	No	0.28
Downstream	3407	60	3	2.6%	0.95	1.5	0.987	1.00	3633	6900	No	0.53

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	19.06	B
PM Peak	18.47	B

HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #18	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	3407	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1226
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.9
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Merge:

On ramp from Miller Dr WB - Alternative 2 #19

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3566	60	3	2.6%	0.95	1.5	0.987	1.00	3803	6900	No	0.55
Merging	882	40	1	1.5%	0.95	1.5	0.993	1.00	936	2100	No	0.45
Downstream	4448	60	4	2.6%	0.95	1.5	0.987	1.00	4743	9200	No	0.52

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3407	60	3	2.6%	0.95	1.5	0.987	1.00	3633	6900	No	0.53
Diverging	864	40	1	1.5%	0.95	1.5	0.993	1.00	917	2100	No	0.44
Downstream	4271	60	4	2.6%	0.95	1.5	0.987	1.00	4555	9200	No	0.50

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #20	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4271	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1153
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.9
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #20	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4448	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1200
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #22	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6064	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1309
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2230
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2230
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.7
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.0		

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Capacity Check for Major Merge:
On ramp from SR874 NB (toll road) - Alternative 2 #21

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	4448	60	4	2.6%	0.95	1.5	0.987	1.00	4743	9200	No	0.52
Merging	1616	65	2	2.7%	0.95	1.5	0.987	1.00	1725	4400	No	0.39
Downstream	6064	60	5	2.6%	0.95	1.5	0.987	1.00	6467	11500	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	4271	60	4	2.6%	0.95	1.5	0.987	1.00	4555	9200	No	0.50
Diverging	1131	65	2	2.7%	0.95	1.5	0.987	1.00	1207	4400	No	0.27
Downstream	5402	60	5	2.6%	0.95	1.5	0.987	1.00	5761	11500	No	0.50

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #23-25	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	2800	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7549	1294	191	783
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.50	2.50	2.50
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976	0.976	0.976
Flow Rate (v_i), pc/h	8150	1396	206	844
Weaving Flow Rate (v_W), pc/h	2240	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	8356	Density-Based Capacity (c_{IWL}), pc/h/ln		2159
Total Flow Rate (v), pc/h	10596	Demand Flow-Based Capacity (c_{IW}), pc/h		11374
Volume Ratio (VR)	0.211	Weaving Segment Capacity (c_W), veh/h		11093
Minimum Lane Change Rate (LC_{MIN}), lc/h	2240	Adjusted Weaving Area Capacity, pc/h		11375
Maximum Weaving Length (L_{MAX}), ft	4649	Volume-to-Capacity Ratio (v/c)		0.93

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #22	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5402	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1166
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2230
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2230
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.0
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #26	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6576	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1420
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #23-25	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	2800	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4635	1017	168	767
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.50	2.50	2.50
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.976	0.976	0.976
Flow Rate (v_i), pc/h	5004	1097	181	827
Weaving Flow Rate (v_w), pc/h	1924	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	5185	Density-Based Capacity (c_{IWL}), pc/h/ln		2111
Total Flow Rate (v), pc/h	7109	Demand Flow-Based Capacity (c_{IW}), pc/h		8856
Volume Ratio (VR)	0.271	Weaving Segment Capacity (c_W), veh/h		8637
Minimum Lane Change Rate (LC_{MIN}), lc/h	1924	Adjusted Weaving Area Capacity, pc/h		8856
Maximum Weaving Length (L_{MAX}), ft	5275	Volume-to-Capacity Ratio (v/c)		0.80

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1161	Average Weaving Speed (S_W), mi/h	48.9
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1430	Average Non-Weaving Speed (S_{NW}), mi/h	40.5
Weaving Lane Change Rate (LC_W), lc/h	3047	Average Speed (S), mi/h	42.5
Weaving Lane Change Rate (LC_{All}), lc/h	4477	Density (D), pc/mi/ln	27.9
Weaving Intensity Factor (W)	0.327	Level of Service (LOS)	C

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #27-29	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	3000	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5550	774	143	1026
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.60	2.60	1.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.975	0.975	0.986
Flow Rate (v_i), pc/h	5992	836	154	1095
Weaving Flow Rate (v_w), pc/h	1931	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	6146	Density-Based Capacity (c_{IWL}), pc/h/ln		2271
Total Flow Rate (v), pc/h	8077	Demand Flow-Based Capacity (c_{IW}), pc/h		14644
Volume Ratio (VR)	0.239	Weaving Segment Capacity (c_W), veh/h		13306
Minimum Lane Change Rate (LC_{MIN}), lc/h	836	Adjusted Weaving Area Capacity, pc/h		13626
Maximum Weaving Length (L_{MAX}), ft	3373	Volume-to-Capacity Ratio (v/c)		0.59

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1475	Average Weaving Speed (S_W), mi/h	51.0
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1380	Average Non-Weaving Speed (S_{NW}), mi/h	47.5
Weaving Lane Change Rate (LC_W), lc/h	2004	Average Speed (S), mi/h	48.3
Weaving Lane Change Rate (LC_{All}), lc/h	3384	Density (D), pc/mi/ln	27.9
Weaving Intensity Factor (W)	0.249	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #26	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5653	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1221
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #30	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6325	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1707
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.6
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #27-29	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	3000	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.80	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4373	593	173	1280
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.60	2.60	1.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.975	0.975	0.986
Flow Rate (v_i), pc/h	4721	640	187	1366
Weaving Flow Rate (v_w), pc/h	2006	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	4908	Density-Based Capacity (c_{IWL}), pc/h/ln		2230
Total Flow Rate (v), pc/h	6914	Demand Flow-Based Capacity (c_{IW}), pc/h		12069
Volume Ratio (VR)	0.290	Weaving Segment Capacity (c_W), veh/h		11793
Minimum Lane Change Rate (LC_{MIN}), lc/h	640	Adjusted Weaving Area Capacity, pc/h		12068
Maximum Weaving Length (L_{MAX}), ft	3911	Volume-to-Capacity Ratio (v/c)		0.57

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1178	Average Weaving Speed (S_W), mi/h	51.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1481	Average Non-Weaving Speed (S_{NW}), mi/h	49.9
Weaving Lane Change Rate (LC_W), lc/h	1808	Average Speed (S), mi/h	50.3
Weaving Lane Change Rate (LC_{All}), lc/h	3289	Density (D), pc/mi/ln	22.9
Weaving Intensity Factor (W)	0.243	Level of Service (LOS)	C

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR826 - Alternative 2 #31-35	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4793	1180	377	1532
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.00	2.00	1.30
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.980	0.980	0.987
Flow Rate (v_i), pc/h	5175	1267	405	1634
Weaving Flow Rate (v_w), pc/h	2901	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	5580	Density-Based Capacity (c_{IWL}), pc/h/ln		2065
Total Flow Rate (v), pc/h	8481	Demand Flow-Based Capacity (c_{IW}), pc/h		10234
Volume Ratio (VR)	0.342	Weaving Segment Capacity (c_W), veh/h		10012
Minimum Lane Change Rate (LC_{MIN}), lc/h	1634	Adjusted Weaving Area Capacity, pc/h		10234
Maximum Weaving Length (L_{MAX}), ft	4473	Volume-to-Capacity Ratio (v/c)		0.83

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	781	Average Weaving Speed (S_W), mi/h	46.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	560	Average Non-Weaving Speed (S_{NW}), mi/h	42.4
Weaving Lane Change Rate (LC_W), lc/h	2738	Average Speed (S), mi/h	43.6
Weaving Lane Change Rate (LC_{All}), lc/h	3298	Density (D), pc/mi/ln	27.8
Weaving Intensity Factor (W)	0.444	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #30	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4967	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1340
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.6
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #36	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5974	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1075
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.5
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR826 - Alternative 2 #31-35	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	1400	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	0
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3743	684	224	1224
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.00	2.00	1.30
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.980	0.980	0.987
Flow Rate (v_i), pc/h	4041	735	241	1305
Weaving Flow Rate (v_w), pc/h	2040	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	4282	Density-Based Capacity (c_{IWL}), pc/h/ln		2081
Total Flow Rate (v), pc/h	6322	Demand Flow-Based Capacity (c_{IW}), pc/h		10836
Volume Ratio (VR)	0.323	Weaving Segment Capacity (c_W), veh/h		10600
Minimum Lane Change Rate (LC_{MIN}), lc/h	1305	Adjusted Weaving Area Capacity, pc/h		10836
Maximum Weaving Length (L_{MAX}), ft	4266	Volume-to-Capacity Ratio (v/c)		0.58

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	599	Average Weaving Speed (S_W), mi/h	47.6
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	293	Average Non-Weaving Speed (S_{NW}), mi/h	46.3
Weaving Lane Change Rate (LC_W), lc/h	2409	Average Speed (S), mi/h	46.7
Weaving Lane Change Rate (LC_{All}), lc/h	2702	Density (D), pc/mi/ln	19.3
Weaving Intensity Factor (W)	0.380	Level of Service (LOS)	B

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #36	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4428	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	797
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2224
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2224
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.2
Total Ramp Density Adjustment	7.6	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.4		

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Capacity Check for Major Diverge:
SR826 Off Ramp to SR836 - Alternative 2 #37

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5974	60	6	2.6%	0.95	1.5	0.987	1.00	6371	13800	No	0.46
Diverging	890	45	3	3.2%	0.95	1.5	0.984	1.00	952	5700	No	0.17
Downstream	5084	60	4	2.6%	0.95	1.5	0.987	1.00	5422	9200	No	0.59

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4428	60	6	2.6%	0.95	1.5	0.987	1.00	4722	13800	No	0.34
Diverging	1195	45	3	3.2%	0.95	1.5	0.984	1.00	1279	5700	No	0.22
Downstream	3233	60	4	2.6%	0.95	1.5	0.987	1.00	3448	9200	No	0.37

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

	Major Diverge	
	Density	LOS
AM Peak	18.58	B
PM Peak	13.77	B

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #38	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3233	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	872
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.6
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #38	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5084	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1372
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.1
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #39	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3233	304
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.975
Flow Rate (vi),pc/h	3490	328
Capacity (c), pc/h	9200	2200
Volume-to-Capacity Ratio (v/c)	0.42	0.15

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.310
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1047
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	54.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.238	Outer Lanes Freeway Speed (SO), mi/h	58.0
Flow in Lanes 1 and 2 (v12), pc/h	1396	Ramp Junction Speed (S), mi/h	56.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	1724	Average Density (D), pc/mi/ln	17.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.0

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #39	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5084	418
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.975
Flow Rate (vi),pc/h	5489	451
Capacity (c), pc/h	9200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.21

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.343
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1647
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	53.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.161	Outer Lanes Freeway Speed (SO), mi/h	55.9
Flow in Lanes 1 and 2 (v12), pc/h	2196	Ramp Junction Speed (S), mi/h	54.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	2647	Average Density (D), pc/mi/ln	27.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.1

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #40	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3537	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	955
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.2
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #40	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5502	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1485
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.2
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #41	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3537	716
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.977
Flow Rate (vi),pc/h	3819	771
Capacity (c), pc/h	9200	2100
Volume-to-Capacity Ratio (v/c)	0.50	0.37

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.324
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1146
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	54.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.121	Outer Lanes Freeway Speed (SO), mi/h	57.7
Flow in Lanes 1 and 2 (v12), pc/h	1528	Ramp Junction Speed (S), mi/h	55.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	2299	Average Density (D), pc/mi/ln	20.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.6

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #41	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	5502	1079
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	2.40
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.977
Flow Rate (vi),pc/h	5940	1163
Capacity (c), pc/h	9200	2100
Volume-to-Capacity Ratio (v/c)	0.77	0.55

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.419
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1782
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	52.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.072	Outer Lanes Freeway Speed (SO), mi/h	55.4
Flow in Lanes 1 and 2 (v12), pc/h	2376	Ramp Junction Speed (S), mi/h	53.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	3539	Average Density (D), pc/mi/ln	32.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.1

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #42	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.60
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4253	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1148
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2228
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	7.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #42	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.60
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6581	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1776
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2228
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.6
Total Ramp Density Adjustment	7.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR826 - Alternative 2 #44	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8890	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1628
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.4
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Merge:
On ramp from SR836 WB - Alternative 2 #43

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	6581	60	4	2.6%	0.95	1.5	0.987	1.00	7018	9200	No	0.76
Merging	2309	50	2	3.5%	0.95	1.5	0.983	1.00	2474	4400	No	0.56
Downstream	8890	60	6	4.4%	0.95	1.5	0.978	1.00	9564	13800	No	0.69

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)
*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	4253	60	4	2.6%	0.95	1.5	0.987	1.00	4536	9200	No	0.49
Diverging	1777	50	2	3.5%	0.95	1.5	0.983	1.00	1904	4400	No	0.43
Downstream	6030	60	6	4.4%	0.95	1.5	0.978	1.00	6488	13800	No	0.47

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)
*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #45-47	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	7113	1695	423	1777
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	3.30	3.30	3.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.968	0.968	0.967
Flow Rate (v_i), pc/h	7816	1843	460	1934
Weaving Flow Rate (v_w), pc/h	3777	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	8276	Density-Based Capacity (c_{IWL}), pc/h/ln		2158
Total Flow Rate (v), pc/h	12053	Demand Flow-Based Capacity (c_{IW}), pc/h		11182
Volume Ratio (VR)	0.313	Weaving Segment Capacity (c_W), veh/h		10750
Minimum Lane Change Rate (LC_{MIN}), lc/h	0	Adjusted Weaving Area Capacity, pc/h		11182
Maximum Weaving Length (L_{MAX}), ft	4158	Volume-to-Capacity Ratio (v/c)		1.08

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	-	Average Weaving Speed (S_W), mi/h	-
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	-	Average Non-Weaving Speed (S_{NW}), mi/h	-
Weaving Lane Change Rate (LC_W), lc/h	-	Average Speed (S), mi/h	-
Weaving Lane Change Rate (LC_{All}), lc/h	-	Density (D), pc/mi/ln	-
Weaving Intensity Factor (W)	-	Level of Service (LOS)	F

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR826 - Alternative 2 #44	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6030	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1104
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.6
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #48	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8809	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1936
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #45-47	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.00	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5067	1221	232	963
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	3.30	3.30	3.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.968	0.968	0.967
Flow Rate (v_i), pc/h	5568	1328	252	1048
Weaving Flow Rate (v_w), pc/h	2376	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	5820	Density-Based Capacity (c_{IWL}), pc/h/ln		2177
Total Flow Rate (v), pc/h	8196	Demand Flow-Based Capacity (c_{IW}), pc/h		12069
Volume Ratio (VR)	0.290	Weaving Segment Capacity (c_W), veh/h		11599
Minimum Lane Change Rate (LC_{MIN}), lc/h	1328	Adjusted Weaving Area Capacity, pc/h		12069
Maximum Weaving Length (L_{MAX}), ft	3911	Volume-to-Capacity Ratio (v/c)		0.68

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1339	Average Weaving Speed (S_W), mi/h	48.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	984	Average Non-Weaving Speed (S_{NW}), mi/h	44.8
Weaving Lane Change Rate (LC_W), lc/h	2816	Average Speed (S), mi/h	45.9
Weaving Lane Change Rate (LC_{All}), lc/h	3800	Density (D), pc/mi/ln	25.5
Weaving Intensity Factor (W)	0.336	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #48	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	6289	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1382
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

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Capacity Check for Major Merge:

Loop On ramp from SW88th St EB - Alternative 2 #49

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	8809	60	5	4.4%	0.95	1.5	0.978	1.00	9477	11500	No	0.82
Merging	838	30	1	6.8%	0.95	1.5	0.967	1.00	913	2000	No	0.46
Downstream	9647	60	6	4.4%	0.95	1.5	0.978	1.00	10379	13800	No	0.75

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6289	60	5	4.4%	0.95	1.5	0.978	1.00	6766	11500	No	0.59
Diverging	844	30	1	6.8%	0.95	1.5	0.967	1.00	919	2000	No	0.46
Downstream	7133	60	6	4.4%	0.95	1.5	0.978	1.00	7674	13800	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 826 - Alternative 2 #50	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7133	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1306
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 826 - Alternative 2 #50	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	51.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9647	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1767
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2219
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2219
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.0
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	51.9		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #1	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7883	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1444
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.5
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #1	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	10614	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1944
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.0
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #2	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	7883	647
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.935
Flow Rate (vi),pc/h	8662	728
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.63	0.36

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.429
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1627
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	52.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	63.4
Flow in Lanes 1 and 2 (v12), pc/h	3243	Ramp Junction Speed (S), mi/h	57.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.9

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #2	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	10614	1687
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.935
Flow Rate (vi),pc/h	11662	1899
Capacity (c), pc/h	13800	2000
Volume-to-Capacity Ratio (v/c)	0.85	0.95

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.534
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1931
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	62.2
Flow in Lanes 1 and 2 (v12), pc/h	4885	Ramp Junction Speed (S), mi/h	55.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	35.3
Level of Service (LOS)	E	Density in Ramp Influence Area (DR), pc/mi/ln	44.0

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #3	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7236	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1325
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #3	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8927	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1635
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.1
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #5	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (Ls), ft	2300	Number of Maneuver Lanes (NWL), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	6289	436	183	2638
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.70	2.70	3.80
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.974	0.974	0.963
Flow Rate (vi), pc/h	6910	471	198	2884
Weaving Flow Rate (vw), pc/h	3355	Freeway Max Capacity (cIFL), pc/h/ln		2300
Non-Weaving Flow Rate (vNW), pc/h	7108	Density-Based Capacity (cIWL), pc/h/ln		2151
Total Flow Rate (v), pc/h	10463	Demand Flow-Based Capacity (cIW), pc/h		10903
Volume Ratio (VR)	0.321	Weaving Segment Capacity (cW), veh/h		10472
Minimum Lane Change Rate (LCMIN), lc/h	471	Adjusted Weaving Area Capacity, pc/h		10904
Maximum Weaving Length (LMAX), ft	4244	Volume-to-Capacity Ratio (v/c)		0.96

Speed and Density

Non-Weaving Vehicle Index (INW)	545	Average Weaving Speed (SW), mi/h	50.4
Non-Weaving Lane Change Rate (LCNW), lc/h	1363	Average Non-Weaving Speed (SNW), mi/h	49.4
Weaving Lane Change Rate (LCW), lc/h	1547	Average Speed (S), mi/h	49.7
Weaving Lane Change Rate (LCAll), lc/h	2910	Density (D), pc/mi/ln	30.1
Weaving Intensity Factor (W)	0.272	Level of Service (LOS)	D

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Capacity Check for Major Merge:
On ramp from NW 25th St EB - Alternative 2 #4

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

AM VOLUME

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	8927	60	6	4.4%	0.95	1.5	0.978	1.00	9604	13800	No	0.70
Merging	619	30	2	2.7%	0.95	1.5	0.987	1.00	661	4000	No	0.17
Downstream	9546	60	7	4.4%	0.95	1.5	0.978	1.00	10270	13800	No	0.74

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	7236	60	6	4.4%	0.95	1.5	0.978	1.00	7785	13800	No	0.56
Diverging	1997	30	2	2.7%	0.95	1.5	0.987	1.00	2131	4000	No	0.53
Downstream	9233	60	7	4.4%	0.95	1.5	0.978	1.00	9933	13800	No	0.72

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #6	Unit	United States Customary

Geometric Data

Number of Lanes, ln	7	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9546	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1498
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.0
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #5	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	7	Segment Type	Freeway
Segment Length (L_s), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5786	1597	400	1450
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	4.40	2.70	2.70	3.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974	0.974	0.963
Flow Rate (v_i), pc/h	6358	1726	432	1585
Weaving Flow Rate (v_w), pc/h	3311	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	6790	Density-Based Capacity (c_{IWL}), pc/h/ln		2145
Total Flow Rate (v), pc/h	10101	Demand Flow-Based Capacity (c_{IW}), pc/h		10671
Volume Ratio (VR)	0.328	Weaving Segment Capacity (c_W), veh/h		10267
Minimum Lane Change Rate (LC_{MIN}), lc/h	1726	Adjusted Weaving Area Capacity, pc/h		10670
Maximum Weaving Length (L_{MAX}), ft	4320	Volume-to-Capacity Ratio (v/c)		0.95

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	521	Average Weaving Speed (S_W), mi/h	48.2
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1297	Average Non-Weaving Speed (S_{NW}), mi/h	40.6
Weaving Lane Change Rate (LC_W), lc/h	2802	Average Speed (S), mi/h	42.8
Weaving Lane Change Rate (LC_{All}), lc/h	4099	Density (D), pc/mi/ln	33.7
Weaving Intensity Factor (W)	0.357	Level of Service (LOS)	D

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #6	Unit	United States Customary

Geometric Data

Number of Lanes, ln	7	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	9233	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1449
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.1
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Diverge:

SR826 Off Ramp to SR836 WB - Alternative 2 #7

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	9546	60	7	4.4%	0.95	1.5	0.978	1.00	10270	13800	No	0.74
Diverging	2820	45	3	3.8%	0.95	1.5	0.981	1.00	3025	5700	No	0.53
Downstream	6726	60	5	4.4%	0.95	1.5	0.978	1.00	7236	11500	No	0.63

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	9233	60	7	4.4%	0.95	1.5	0.978	1.00	9933	13800	No	0.72
Diverging	1849	45	3	3.8%	0.95	1.5	0.981	1.00	1984	4200	No	0.47
Downstream	7384	60	5	4.4%	0.95	1.5	0.978	1.00	7944	11500	No	0.69

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

	Major Diverge	
	Density	LOS
AM Peak	25.68	C
PM Peak	24.83	C

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #8	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7384	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1623
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.9
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #8	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	52.6
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6726	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1478
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2226
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2226
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.1
Total Ramp Density Adjustment	7.4	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	52.6		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #9	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	7384	124
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.974
Flow Rate (vi),pc/h	8113	134
Capacity (c), pc/h	11500	1900
Volume-to-Capacity Ratio (v/c)	0.71	0.07

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.505
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1793
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	2905	Ramp Junction Speed (S), mi/h	56.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.0

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #9	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Deceleration Length (LA),ft	1500	250
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	6726	570
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.974
Flow Rate (vi),pc/h	7390	616
Capacity (c), pc/h	11500	1900
Volume-to-Capacity Ratio (v/c)	0.64	0.32

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.548
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1494
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	50.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	63.9
Flow in Lanes 1 and 2 (v12), pc/h	2925	Ramp Junction Speed (S), mi/h	56.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	26.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.2

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #10	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7260	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1568
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.3
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #10	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6156	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1329
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.8
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #12	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4149	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1120
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.9
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Diverge:
SR826 Off Ramp to Flagler St WB - Alternative 2 #11

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

AM VOLUME

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	6156	60	5	2.6%	0.95	1.5	0.987	1.00	6565	11500	No	0.57
Diverging	2007	40	2	1.7%	0.95	1.5	0.992	1.00	2131	4200	No	0.51
Downstream	4149	60	4	2.6%	0.95	1.5	0.987	1.00	4425	9200	No	0.48

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	7260	60	5	2.6%	0.95	1.5	0.987	1.00	7742	11500	No	0.67
Diverging	1438	40	2	1.7%	0.95	1.5	0.992	1.00	1527	4200	No	0.36
Downstream	5822	60	4	2.6%	0.95	1.5	0.987	1.00	6209	9200	No	0.67

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	22.98	C
PM Peak	27.10	C

HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #13	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4149	642
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.958	0.974
Flow Rate (vi),pc/h	4559	694
Capacity (c), pc/h	9200	2200
Volume-to-Capacity Ratio (v/c)	0.50	0.32

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.230
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	971
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.9
Prop. Freeway Vehicles in Lane 3 and 4 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	65.8
Flow in Lanes 3 and 4 (v34), pc/h	2617	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (vR34), pc/h	-	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.2

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #12	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	5822	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1572
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	29.4
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #14	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	3507	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	946
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.7
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #13	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	5822	404
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	4.40	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.958	0.974
Flow Rate (v_i),pc/h	6397	437
Capacity (c), pc/h	9200	2200
Volume-to-Capacity Ratio (v/c)	0.70	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.207
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1529
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	56.3
Prop. Freeway Vehicles in Lane 3 and 4 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	63.8
Flow in Lanes 3 and 4 (v_{34}), pc/h	3339	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (v_{R34}), pc/h	-	Average Density (D), pc/mi/ln	26.8
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	29.4

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #14	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5418	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1462
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.3
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Merge:

On ramp from SR836 EB - Alternative 2 #15

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3507	60	4	2.6%	0.95	1.5	0.987	1.00	3740	9200	No	0.41
Merging	1546	40	2	2.7%	0.95	1.5	0.987	1.00	1650	4200	No	0.39
Downstream	5053	60	5	2.6%	0.95	1.5	0.987	1.00	5389	11500	No	0.47

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5418	60	4	2.6%	0.95	1.5	0.987	1.00	5778	9200	No	0.63
Diverging	1059	40	2	2.7%	0.95	1.5	0.987	1.00	1130	4200	No	0.27
Downstream	6477	60	5	2.6%	0.95	1.5	0.987	1.00	6907	11500	No	0.60

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #16	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6477	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1748
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.7
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #16	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5053	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1364
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.5
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #18	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	6077	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1312
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Merge:
On ramp from Flagler WB - Alternative 2 #17

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5053	60	4	2.6%	0.95	1.5	0.987	1.00	5389	9200	No	0.59
Merging	1024	40	2	3.0%	0.95	1.5	0.985	1.00	1095	4200	No	0.26
Downstream	6077	60	5	2.6%	0.95	1.5	0.987	1.00	6481	11500	No	0.56

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	6477	60	4	2.6%	0.95	1.5	0.987	1.00	6907	9200	No	0.75
Diverging	1112	40	2	3.0%	0.95	1.5	0.985	1.00	1189	4200	No	0.28
Downstream	7589	60	5	2.6%	0.95	1.5	0.987	1.00	8093	11500	No	0.70

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #19-21	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_S), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	5143	642	116	934
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.10	2.10	2.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.979	0.979	0.977
Flow Rate (v_i), pc/h	5552	690	125	1006
Weaving Flow Rate (v_w), pc/h	1696	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	5677	Density-Based Capacity (c_{IWL}), pc/h/ln		2225
Total Flow Rate (v), pc/h	7373	Demand Flow-Based Capacity (c_{IW}), pc/h		15217
Volume Ratio (VR)	0.230	Weaving Segment Capacity (c_W), veh/h		13026
Minimum Lane Change Rate (LC_{MIN}), lc/h	690	Adjusted Weaving Area Capacity, pc/h		13350
Maximum Weaving Length (L_{MAX}), ft	3279	Volume-to-Capacity Ratio (v/c)		0.55

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	435	Average Weaving Speed (S_W), mi/h	50.7
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1260	Average Non-Weaving Speed (S_{NW}), mi/h	49.1
Weaving Lane Change Rate (LC_W), lc/h	1480	Average Speed (S), mi/h	49.5
Weaving Lane Change Rate (LC_{All}), lc/h	2740	Density (D), pc/mi/ln	24.8
Weaving Intensity Factor (W)	0.259	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #18	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7589	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1639
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #22	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5785	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1249
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #19-21	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_s), ft	2300	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	6255	1045	223	1334
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.10	2.10	2.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.979	0.979	0.977
Flow Rate (v_i), pc/h	6753	1124	240	1437
Weaving Flow Rate (v_w), pc/h	2561	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	6993	Density-Based Capacity (c_{IWL}), pc/h/ln		2195
Total Flow Rate (v), pc/h	9554	Demand Flow-Based Capacity (c_{IW}), pc/h		13060
Volume Ratio (VR)	0.268	Weaving Segment Capacity (c_W), veh/h		12745
Minimum Lane Change Rate (LC_{MIN}), lc/h	1124	Adjusted Weaving Area Capacity, pc/h		13060
Maximum Weaving Length (L_{MAX}), ft	3677	Volume-to-Capacity Ratio (v/c)		0.73

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	536	Average Weaving Speed (S_W), mi/h	49.3
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1532	Average Non-Weaving Speed (S_{NW}), mi/h	44.3
Weaving Lane Change Rate (LC_W), lc/h	1914	Average Speed (S), mi/h	45.5
Weaving Lane Change Rate (LC_{All}), lc/h	3446	Density (D), pc/mi/ln	35.0
Weaving Intensity Factor (W)	0.311	Level of Service (LOS)	D

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #22	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	7301	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1576
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2242
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2242
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.1
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.2		

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Capacity Check for Major Merge:

On ramp from Bird Rd EB - Alternative 2 #23

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

PM VOLUME

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	7301	60	5	2.6%	0.95	1.5	0.987	1.00	7786	11500	No	0.68
Diverging	886	25	1	2.7%	0.95	1.5	0.987	1.00	946	1900	No	0.50
Downstream	8187	60	6	2.6%	0.95	1.5	0.987	1.00	8730	13800	No	0.63

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #24	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	8187	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1473
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	12/10/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #24	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	6	Segment Type	Freeway
Segment Length (L_s), ft	3700	Number of Maneuver Lanes (N_{WL}), ln	3
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	0
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.33	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	4395	475	150	1390
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	2.70	2.70	3.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.974	0.974	0.967
Flow Rate (v_i), pc/h	4745	513	162	1513
Weaving Flow Rate (v_w), pc/h	2026	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	4907	Density-Based Capacity (c_{IWL}), pc/h/ln		2282
Total Flow Rate (v), pc/h	6933	Demand Flow-Based Capacity (c_{IW}), pc/h		11986
Volume Ratio (VR)	0.292	Weaving Segment Capacity (c_W), veh/h		11665
Minimum Lane Change Rate (LC_{MIN}), lc/h	513	Adjusted Weaving Area Capacity, pc/h		11987
Maximum Weaving Length (L_{MAX}), ft	3932	Volume-to-Capacity Ratio (v/c)		0.58

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	605	Average Weaving Speed (S_W), mi/h	52.1
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1861	Average Non-Weaving Speed (S_{NW}), mi/h	50.8
Weaving Lane Change Rate (LC_W), lc/h	1544	Average Speed (S), mi/h	51.2
Weaving Lane Change Rate (LC_{All}), lc/h	3405	Density (D), pc/mi/ln	22.6
Weaving Intensity Factor (W)	0.212	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #26	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4871	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1052
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.7
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.5		

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Capacity Check for Major Diverge:
SR826 Off Ramp to Bird Rd WB - Alternative 2 #25

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

PM VOLUME

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	8187	60	6	2.6%	0.95	1.5	0.987	1.00	8730	13800	No	0.63
Diverging	1594	50	2	3.4%	0.95	1.5	0.983	1.00	1707	4400	No	0.39
Downstream	6593	60	5	2.6%	0.95	1.5	0.987	1.00	7031	11500	No	0.61

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
PM Peak	25.46	C

HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #27	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (LA),ft	1500	1160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4871	760
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	1.80
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.975	0.982
Flow Rate (vi),pc/h	5259	815
Capacity (c), pc/h	11500	4200
Volume-to-Capacity Ratio (v/c)	0.46	0.19

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.306
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1420
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	64.2
Flow in Lanes 1 and 2 (v12), pc/h	1893	Ramp Junction Speed (S), mi/h	59.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.1

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #26	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.30
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	6593	Heavy Vehicle Adjustment Factor (fHV)	0.975
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1424
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2235
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2235
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	6.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	53.5		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #28	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	4111	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	888
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.40
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #27	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	60.0	50.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	1160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	6593	1240
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.60	1.80
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.982
Flow Rate (v_i),pc/h	7118	1329
Capacity (c), pc/h	11500	4200
Volume-to-Capacity Ratio (v/c)	0.62	0.32

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.353
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1615
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	53.6
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.260	Outer Lanes Freeway Speed (S_O), mi/h	63.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2464	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	15.0

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #28	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5353	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1156
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Diverge:
SR826 Off Ramp to SR874 - Alternative 2 #29

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

Segment Free-Flow Speed (mph)	Capacity (pc/h)			
	2-Lanes	3-Lanes	4-Lanes	5-Lanes
≥ 70	4800	7200	9600	12000
65	4700	7050	9400	11750
60	4600	6900	9200	11500
55	4500	6750	9000	11250

6-Lanes
14400
14100
13800
13500

AM VOLUME

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	4111	60	5	2.6%	0.95	1.5	0.987	1.00	4384	11500	No	0.38
Diverging	868	65	3	2.7%	0.95	1.5	0.987	1.00	927	6600	No	0.14
Downstream	3243	60	3	2.6%	0.95	1.5	0.987	1.00	3459	6900	No	0.50

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5353	60	5	2.6%	0.95	1.5	0.987	1.00	5708	11500	No	0.50
Diverging	1387	65	3	2.7%	0.95	1.5	0.987	1.00	1480	6600	No	0.22
Downstream	3966	60	3	2.6%	0.95	1.5	0.987	1.00	4230	6900	No	0.61

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

	Major Diverge	
	Density	LOS
AM Peak	15.34	B
PM Peak	19.98	B

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #30	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3966	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1427
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #30	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3243	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1167
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #32	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Segment Length (L_S), ft	2600	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.20	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	2308	605	245	935
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	1.60	1.60	1.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.984	0.984	0.982
Flow Rate (v_i), pc/h	2492	647	262	1002
Weaving Flow Rate (v_W), pc/h	1649	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	2754	Density-Based Capacity (c_{IWL}), pc/h/ln		2009
Total Flow Rate (v), pc/h	4403	Demand Flow-Based Capacity (c_{IW}), pc/h		6400
Volume Ratio (VR)	0.375	Weaving Segment Capacity (c_W), veh/h		6262
Minimum Lane Change Rate (LC_{MIN}), lc/h	1649	Adjusted Weaving Area Capacity, pc/h		6400
Maximum Weaving Length (L_{MAX}), ft	6402	Volume-to-Capacity Ratio (v/c)		0.69

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	859	Average Weaving Speed (S_W), mi/h	49.9
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1014	Average Non-Weaving Speed (S_{NW}), mi/h	43.9
Weaving Lane Change Rate (LC_W), lc/h	2528	Average Speed (S), mi/h	46.0
Weaving Lane Change Rate (LC_{All}), lc/h	3542	Density (D), pc/mi/ln	19.1
Weaving Intensity Factor (W)	0.288	Level of Service (LOS)	B

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Capacity Check for Major Merge:
On ramp from Bird Rd EB - Alternative 2 #31

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3243	60	3	2.6%	0.95	1.5	0.987	1.00	3459	6900	No	0.50
Merging	537	40	1	1.6%	0.95	1.5	0.992	1.00	570	2100	No	0.27
Diverging												
Downstream	3780	60	4	2.6%	0.95	1.5	0.987	1.00	4031	9200	No	0.44

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	3966	60	3	2.6%	0.95	1.5	0.987	1.00	4230	6900	No	0.61
Merging	717	40	1	1.6%	0.95	1.5	0.992	1.00	761	2100	No	0.36
Diverging												
Downstream	4683	60	4	2.6%	0.95	1.5	0.987	1.00	4994	9200	No	0.54

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #33	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3780	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1020
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Weaving Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #32	Unit	United States Customary

Geometric Data

Number of Lanes (N), ln	5	Segment Type	Freeway
Segment Length (L_S), ft	2600	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	1.20	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3025	879	273	941
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95
Total Trucks, %	2.60	1.60	1.60	1.80
Heavy Vehicle Adjustment Factor (f_{HV})	0.975	0.984	0.984	0.982
Flow Rate (v_i), pc/h	3266	940	292	1009
Weaving Flow Rate (v_w), pc/h	1949	Freeway Max Capacity (c_{IFL}), pc/h/ln		2300
Non-Weaving Flow Rate (v_{NW}), pc/h	3558	Density-Based Capacity (c_{IWL}), pc/h/ln		2027
Total Flow Rate (v), pc/h	5507	Demand Flow-Based Capacity (c_{IW}), pc/h		6780
Volume Ratio (VR)	0.354	Weaving Segment Capacity (c_W), veh/h		6633
Minimum Lane Change Rate (LC_{MIN}), lc/h	1949	Adjusted Weaving Area Capacity, pc/h		6780
Maximum Weaving Length (L_{MAX}), ft	6170	Volume-to-Capacity Ratio (v/c)		0.81

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	1110	Average Weaving Speed (S_W), mi/h	49.1
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	1179	Average Non-Weaving Speed (S_{NW}), mi/h	40.7
Weaving Lane Change Rate (LC_W), lc/h	2828	Average Speed (S), mi/h	43.3
Weaving Lane Change Rate (LC_{All}), lc/h	4007	Density (D), pc/mi/ln	25.4
Weaving Intensity Factor (W)	0.318	Level of Service (LOS)	C

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #33	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	4683	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1264
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Merge:

On ramp from Miller Rd EB - Alternative 2 #34

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3780	60	4	2.6%	0.95	1.5	0.987	1.00	4031	9200	No	0.44
Merging	313	30	1	1.8%	0.95	1.5	0.991	1.00	333	2000	No	0.17
Downstream	4093	60	5	2.6%	0.95	1.5	0.987	1.00	4365	11500	No	0.38

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	4683	60	4	2.6%	0.95	1.5	0.987	1.00	4994	9200	No	0.54
Diverging	435	30	1	1.8%	0.95	1.5	0.991	1.00	463	2000	No	0.23
Downstream	5118	60	5	2.6%	0.95	1.5	0.987	1.00	5458	11500	No	0.47

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #36	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5118	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1105
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #36	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4093	Heavy Vehicle Adjustment Factor (f_{HV})	0.975
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	884
Total Trucks, %	2.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #38	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2914	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1039
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Diverge:
SR826 Off Ramp to Sunset Dr WB - Alternative 2 #37

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

AM VOLUME

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	4093	60	5	2.6%	0.95	1.5	0.987	1.00	4365	11500	No	0.38
Diverging	1179	40	2	1.8%	0.95	1.5	0.991	1.00	1253	4200	No	0.30
Downstream	2914	60	3	1.6%	0.95	1.5	0.992	1.00	3092	6900	No	0.45

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5118	60	5	2.6%	0.95	1.5	0.987	1.00	5458	11500	No	0.47
Diverging	1213	40	2	1.8%	0.95	1.5	0.991	1.00	1289	4200	No	0.31
Downstream	3905	60	3	1.6%	0.95	1.5	0.992	1.00	4144	6900	No	0.60

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	15.28	B
PM Peak	19.10	B

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/06/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #38	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3905	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1392
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Merge:

SR 826 SB EL Merge between Sunset Dr Interchange - Alternative 2 #39

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

Segment Free-Flow Speed (mph)	Capacity (pc/h)			
	2-Lanes	3-Lanes	4-Lanes	5-Lanes
≥ 70	4800	7200	9600	12000
65	4700	7050	9400	11750
60	4600	6900	9200	11500
55	4500	6750	9000	11250

Segment Free-Flow Speed (mph)	Capacity (pc/h)	
	5-Lanes	6-Lanes
≥ 70	12000	14400
65	11750	14100
60	11500	13800
55	11250	13500

AM VOLUME

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	2914	60	3	1.6%	0.95	1.5	0.992	1.00	3092	6900	No	0.45
Merging	963	50	1	1.6%	0.95	1.5	0.992	1.00	1022	2200	No	0.46
Downstream	3877	60	4	1.6%	0.95	1.5	0.992	1.00	4114	9200	No	0.45

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	3905	60	3	1.6%	0.95	1.5	0.992	1.00	4144	6900	No	0.60
Diverging	563	50	1	1.6%	0.95	1.5	0.992	1.00	598	2200	No	0.27
Downstream	4468	60	4	1.6%	0.95	1.5	0.992	1.00	4741	9200	No	0.52

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #40	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4468	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1195
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #40	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3877	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1037
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #41	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4468	325
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.975
Flow Rate (vi),pc/h	4780	351
Capacity (c), pc/h	9200	2000
Volume-to-Capacity Ratio (v/c)	0.56	0.18

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.326
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1434
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	54.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.174	Outer Lanes Freeway Speed (SO), mi/h	56.6
Flow in Lanes 1 and 2 (v12), pc/h	1912	Ramp Junction Speed (S), mi/h	55.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	2263	Average Density (D), pc/mi/ln	23.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.5

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #41	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3877	302
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.975
Flow Rate (vi),pc/h	4147	326
Capacity (c), pc/h	9200	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.16

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.317
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1244
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	54.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.177	Outer Lanes Freeway Speed (SO), mi/h	57.3
Flow in Lanes 1 and 2 (v12), pc/h	1659	Ramp Junction Speed (S), mi/h	55.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	1985	Average Density (D), pc/mi/ln	20.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.4

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #42	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.10
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4793	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1282
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2240
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2240
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.7
Total Ramp Density Adjustment	6.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #42	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.10
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4179	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1118
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2240
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2240
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.7
Total Ramp Density Adjustment	6.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #44	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2264	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	807
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	53.8		

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Capacity Check for Major Diverge:
SR826 Off Ramp to SW 88th St WB - Alternative 2 #43

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

AM VOLUME

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	4179	60	4	1.6%	0.95	1.5	0.992	1.00	4435	9200	No	0.48
Diverging	1915	40	2	2.4%	0.95	1.5	0.988	1.00	2040	4200	No	0.49
Downstream	2264	60	3	1.6%	0.95	1.5	0.992	1.00	2403	6900	No	0.35

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4793	60	4	1.6%	0.95	1.5	0.992	1.00	5086	9200	No	0.55
Diverging	1918	40	2	2.4%	0.95	1.5	0.988	1.00	2044	4200	No	0.49
Downstream	2875	60	3	1.6%	0.95	1.5	0.992	1.00	3051	6900	No	0.44

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	19.40	B
PM Peak	22.25	C

HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #45	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2264	89
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.974
Flow Rate (vi),pc/h	2422	96
Capacity (c), pc/h	6900	1900
Volume-to-Capacity Ratio (v/c)	0.36	0.05

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.280
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	954
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	58.4
Flow in Lanes 1 and 2 (v12), pc/h	1468	Ramp Junction Speed (S), mi/h	56.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	1564	Average Density (D), pc/mi/ln	14.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.4

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #44	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	53.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2875	Heavy Vehicle Adjustment Factor (fHV)	0.984
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1025
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2238
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2238
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	19.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	53.8		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 826 - Alternative 2 #46	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	44.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2353	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	862
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	44.2		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	05/21/2019
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #45	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	30.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	2875	221
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.974
Flow Rate (v_i),pc/h	3076	239
Capacity (c), pc/h	6900	1900
Volume-to-Capacity Ratio (v/c)	0.48	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.293
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1212
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.606	Outer Lanes Freeway Speed (S_O), mi/h	57.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1864	Ramp Junction Speed (S), mi/h	55.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2103	Average Density (D), pc/mi/ln	19.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	15.6

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/13/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 826 - Alternative 2 #46	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	50.0	Total Ramp Density (TRD), ramps/mi	2.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	44.2
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	3096	Heavy Vehicle Adjustment Factor (f_{HV})	0.958
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1134
Total Trucks, %	4.40	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	44.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.7
Total Ramp Density Adjustment	5.8	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	44.2		

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APPENDIX M

2025 Preferred Alternative Output HCS Reports (SR 874 and SR 836)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4491	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1201
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.0
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5444	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1456
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3153	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1124
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.5
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	54.7		

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Capacity Check for Major Diverge:
SR836 Off Ramp to SR826

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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	

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

AM VOLUME

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	5444	60	4	1.6%	0.95	1.5	0.992	1.00	5777	9200	No	0.63
Diverging	2291	40	2	7.0%	0.95	1.5	0.966	1.00	2496	4200	No	0.59
Downstream	3153	60	3	1.6%	0.95	1.5	0.992	1.00	3346	6900	No	0.48

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	4491	60	4	1.6%	0.95	1.5	0.992	1.00	4766	9200	No	0.52
Diverging	1789	40	2	7.0%	0.95	1.5	0.966	1.00	1950	4200	No	0.46
Downstream	2702	60	3	1.6%	0.95	1.5	0.992	1.00	2867	6900	No	0.42

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	25.27	C
PM Peak	20.85	C

HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3153	585
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.962
Flow Rate (vi),pc/h	3373	640
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.32

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.421
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	967
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	52.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.646	Outer Lanes Freeway Speed (SO), mi/h	65.8
Flow in Lanes 1 and 2 (v12), pc/h	2406	Ramp Junction Speed (S), mi/h	55.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.1

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.80
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	54.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2702	Heavy Vehicle Adjustment Factor (fHV)	0.984
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	963
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2247
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2247
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	5.3	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFSadj), mi/h	54.7		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2568	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	687
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.31
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	12.5
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/20/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	40.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	2702	616
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.962
Flow Rate (v_i),pc/h	2890	674
Capacity (c), pc/h	6900	2000
Volume-to-Capacity Ratio (v/c)	0.42	0.34

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.424
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	760
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	52.4
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.657	Outer Lanes Freeway Speed (S_O), mi/h	65.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2130	Ramp Junction Speed (S), mi/h	55.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	17.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	20.8

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2568	1152
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.975
Flow Rate (vi),pc/h	2747	1244
Capacity (c), pc/h	9200	2200
Volume-to-Capacity Ratio (v/c)	0.43	0.57

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.230
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	824
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	55.9
Prop. Freeway Vehicles in Lane 3 and 4 (PFM)	0.306	Outer Lanes Freeway Speed (SO), mi/h	58.8
Flow in Lanes 3 and 4 (v34), pc/h	1099	Ramp Junction Speed (S), mi/h	57.1
Flow Entering Ramp-Infl. Area (vR34), pc/h	2343	Average Density (D), pc/mi/ln	17.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.7

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2086	Heavy Vehicle Adjustment Factor (fHV)	0.984
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	558
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	10.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFSadj), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	3720	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1326
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	1200
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	2086	1190
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.975
Flow Rate (v_i),pc/h	2231	1285
Capacity (c), pc/h	9200	2200
Volume-to-Capacity Ratio (v/c)	0.38	0.58

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.223
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	670
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.0
Prop. Freeway Vehicles in Lane 3 and 4 (P_{FM})	0.300	Outer Lanes Freeway Speed (S_O), mi/h	59.4
Flow in Lanes 3 and 4 (v_{34}), pc/h	892	Ramp Junction Speed (S), mi/h	57.2
Flow Entering Ramp-Infl. Area (v_{R34}), pc/h	2177	Average Density (D), pc/mi/ln	15.4
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.4

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	3276	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1168
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.2
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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Capacity Check for Major Merge:
On ramp from SR826

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	3720	60	3	1.6%	0.95	1.5	0.992	1.00	3948	6900	No	0.57
Merging	1749	50	3	3.7%	0.95	1.5	0.982	1.00	1876	6000	No	0.31
Downstream	5469	60	6	1.6%	0.95	1.5	0.992	1.00	5803	13800	No	0.42

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3276	60	3	1.6%	0.95	1.5	0.992	1.00	3477	6900	No	0.50
Diverging	1632	50	3	3.7%	0.95	1.5	0.982	1.00	1750	6000	No	0.29
Downstream	4908	60	6	1.6%	0.95	1.5	0.992	1.00	5208	13800	No	0.38

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4908	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	875
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.9
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/25/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK EB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.70
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5469	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	975
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.7
Total Ramp Density Adjustment	5.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5964	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1276
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5217	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1116
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.1
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2393	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	640
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.28
Passenger Car Equivalent (ET)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	11.5
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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Capacity Check for Major Diverge:
SR836 Off Ramp to SR826

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	5217	60	5	1.6%	0.95	1.5	0.992	1.00	5536	11500	No	0.48
Diverging	2824	45	3	4.3%	0.95	1.5	0.979	1.00	3037	5700	No	0.53
Downstream	2393	60	4	1.6%	0.95	1.5	0.992	1.00	2540	9200	No	0.28

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	5964	60	5	1.6%	0.95	1.5	0.992	1.00	6329	11500	No	0.55
Diverging	1040	45	3	4.3%	0.95	1.5	0.979	1.00	1119	4200	No	0.27
Downstream	4924	60	4	1.6%	0.95	1.5	0.992	1.00	5225	9200	No	0.57

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

	Major Diverge	
	Density	LOS
AM Peak	19.38	B
PM Peak	22.15	C

HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/20/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2393	1038
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.975
Flow Rate (vi),pc/h	2560	1121
Capacity (c), pc/h	9200	2200
Volume-to-Capacity Ratio (v/c)	0.28	0.51

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.269
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	319
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.2
Prop. Freeway Vehicles in Lane 3 and 4 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	65.8
Flow in Lanes 3 and 4 (v34), pc/h	1923	Ramp Junction Speed (S), mi/h	57.5
Flow Entering Ramp-Infl. Area (vR34), pc/h	-	Average Density (D), pc/mi/ln	11.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.3

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	4924	Heavy Vehicle Adjustment Factor (fHV)	0.984
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	1317
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	23.7
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	55.5		

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	1355	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	483
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.7
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	4	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	4924	1133
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	1.60	2.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.984	0.975
Flow Rate (v_i),pc/h	5267	1223
Capacity (c), pc/h	9200	2200
Volume-to-Capacity Ratio (v/c)	0.57	0.56

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	2
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.278
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	991
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.0
Prop. Freeway Vehicles in Lane 3 and 4 (P_{FD})	0.436	Outer Lanes Freeway Speed (S_O), mi/h	65.8
Flow in Lanes 3 and 4 (v_{34}), pc/h	3285	Ramp Junction Speed (S), mi/h	58.6
Flow Entering Ramp-Infl. Area (v_{R34}), pc/h	-	Average Density (D), pc/mi/ln	22.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	28.0

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	3791	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1352
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2255
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2255
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.4
Total Ramp Density Adjustment	4.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.5		

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Capacity Check for Major Merge:
On ramp from SR826

Assumed Major Merge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

AM VOLUME

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	1355	60	3	1.6%	0.95	1.5	0.992	1.00	1438	6900	No	0.21
Merging	1837	45	2	2.5%	0.95	1.5	0.988	1.00	1958	4200	No	0.47
Downstream	3192	60	4	1.6%	0.95	1.5	0.992	1.00	3387	9200	No	0.37

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

PM VOLUME

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	3791	60	3	1.6%	0.95	1.5	0.992	1.00	4023	6900	No	0.58
Diverging	1326	45	2	2.5%	0.95	1.5	0.988	1.00	1414	4200	No	0.34
Downstream	5117	60	4	1.6%	0.95	1.5	0.992	1.00	5430	9200	No	0.59

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

*Capacity of high-speed ramp junction on multilane highway and C-D roadways based on the Exhibit 13-9 (HCM2010)

HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5117	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1368
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/26/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK WB
Project Description	SR 836	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3192	Heavy Vehicle Adjustment Factor (f_{HV})	0.984
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	854
Total Trucks, %	1.60	Capacity (c), pc/h/ln	2268
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2268
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.0
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1387	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	500
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	868	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	313
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.14
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	5.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	1387	946
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	1.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.974	0.984
Flow Rate (vi),pc/h	1499	1012
Capacity (c), pc/h	7050	2100
Volume-to-Capacity Ratio (v/c)	0.36	0.48

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.302
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	612
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.592	Outer Lanes Freeway Speed (SO), mi/h	64.6
Flow in Lanes 1 and 2 (v12), pc/h	887	Ramp Junction Speed (S), mi/h	59.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	1899	Average Density (D), pc/mi/ln	14.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.8

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	45.0
Segment Length (L) / Acceleration Length (LA),ft	1500	500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	868	571
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	1.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.974	0.984
Flow Rate (vi),pc/h	938	611
Capacity (c), pc/h	7050	2100
Volume-to-Capacity Ratio (v/c)	0.22	0.29

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.289
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	383
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.592	Outer Lanes Freeway Speed (SO), mi/h	65.0
Flow in Lanes 1 and 2 (v12), pc/h	555	Ramp Junction Speed (S), mi/h	59.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	1166	Average Density (D), pc/mi/ln	8.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.2

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2333	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	840
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1439	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	518
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	8.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	1439	976
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.974	0.974
Flow Rate (vi),pc/h	1555	1055
Capacity (c), pc/h	7050	2200
Volume-to-Capacity Ratio (v/c)	0.37	0.48

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.265
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	510
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.9
Prop. Freeway Vehicles in Lane 2 and 3 (PFM)	0.600	Outer Lanes Freeway Speed (SO), mi/h	65.0
Flow in Lanes 2 and 3 (v23), pc/h	1045	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR23), pc/h	2100	Average Density (D), pc/mi/ln	14.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.4

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Capacity Check for Major Diverge:
SR874 Off Ramp to Bird Rd EB

Assumed Major Diverge Capacity per Segment (based on HCM 6 Exhibit 14-10):

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

HCM 6th Edition LOS/Density (Exhibit 14-3)

LOS	Density (pm/mi/ln)
A	<=10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand Exceeds Capacity

AM VOLUME

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	2416	65	3	2.7%	0.95	1.5	0.987	1.00	2578	7050	No	0.37
Diverging	800	50	1	1.6%	0.95	1.5	0.992	1.00	849	2200	No	0.39
Downstream	1616	65	2	2.7%	0.95	1.5	0.987	1.00	1725	4700	No	0.37

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

PM VOLUME

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	1726	65	3	2.7%	0.95	1.5	0.987	1.00	1842	7050	No	0.26
Diverging	595	50	1	2.2%	0.95	1.5	0.989	1.00	634	2200	No	0.29
Downstream	1131	65	2	2.7%	0.95	1.5	0.987	1.00	1207	4700	No	0.26

*Capacity based on Exhibit 14-10 and Exhibit 14-12 (HCM 6)

	Major Diverge	
	Density	LOS
AM Peak	15.04	B
PM Peak	10.75	B

HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2415	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	870
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	55.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	2333	1304
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.974
Flow Rate (v_i),pc/h	2521	1409
Capacity (c), pc/h	7050	2200
Volume-to-Capacity Ratio (v/c)	0.56	0.64

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.320
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	826
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.6
Prop. Freeway Vehicles in Lane 2 and 3 (P_{FM})	0.600	Outer Lanes Freeway Speed (S_O), mi/h	63.8
Flow in Lanes 2 and 3 (v_{23}), pc/h	1695	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (v_{R23}), pc/h	3104	Average Density (D), pc/mi/ln	22.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.1

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Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3718	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1339
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

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Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3637	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	1310
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
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Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK NB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Deceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3718	1302
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.974	0.974
Flow Rate (vi),pc/h	4018	1407
Capacity (c), pc/h	6900	2200
Volume-to-Capacity Ratio (v/c)	0.58	0.64

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.295
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	909
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.7
Prop. Freeway Vehicles in Lane 2 and 3 (PFD)	0.595	Outer Lanes Freeway Speed (SO), mi/h	65.8
Flow in Lanes 2 and 3 (v23), pc/h	3109	Ramp Junction Speed (S), mi/h	56.9
Flow Entering Ramp-Infl. Area (vR23), pc/h	-	Average Density (D), pc/mi/ln	23.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.4

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Project Information			
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Project Description	SR 874	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2586	Heavy Vehicle Adjustment Factor (fHV)	0.974
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	932
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	15.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFSadj), mi/h	58.8		

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Project Description	SR 874	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	2416	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	870
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Diverge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	60.0	55.0
Segment Length (L) / Deceleration Length (L_A),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	2586	860
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.974
Flow Rate (v_i),pc/h	2795	929
Capacity (c), pc/h	6900	2200
Volume-to-Capacity Ratio (v/c)	0.41	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.252
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	552
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.5
Prop. Freeway Vehicles in Lane 2 and 3 (P_{FD})	0.647	Outer Lanes Freeway Speed (S_O), mi/h	65.8
Flow in Lanes 2 and 3 (v_{23}), pc/h	2243	Ramp Junction Speed (S), mi/h	57.3
Flow Entering Ramp-Infl. Area (v_{R23}), pc/h	-	Average Density (D), pc/mi/ln	16.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.9

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Jurisdiction	DISTRICT6	Time Period Analyzed	AM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	55.0
Segment Length (L) / Acceleration Length (LA),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	1439	976
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.974	0.974
Flow Rate (vi),pc/h	1555	1055
Capacity (c), pc/h	7050	2200
Volume-to-Capacity Ratio (v/c)	0.37	0.48

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.265
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	510
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.9
Prop. Freeway Vehicles in Lane 2 and 3 (PFM)	0.600	Outer Lanes Freeway Speed (SO), mi/h	65.0
Flow in Lanes 2 and 3 (v23), pc/h	1045	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR23), pc/h	2100	Average Density (D), pc/mi/ln	14.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.4

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Project Description	SR 874	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	1726	Heavy Vehicle Adjustment Factor (fHV)	0.974
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	622
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.27
Passenger Car Equivalent (ET)	2.000		

Speed and Density			
Lane Width Adjustment (fLW)	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (fRLC)	0.0	Density (D), pc/mi/ln	10.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFSadj), mi/h	58.8		

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Project Description	SR 874	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	1616	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	873
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Freeway Merge Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT6	Time Period Analyzed	PM PEAK SB
Project Description	SR 874	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	55.0
Segment Length (L) / Acceleration Length (L_A),ft	1500	800
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Left

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i)	2333	1304
Peak Hour Factor (PHF)	0.95	0.95
Total Trucks, %	2.70	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.974	0.974
Flow Rate (v_i),pc/h	2521	1409
Capacity (c), pc/h	7050	2200
Volume-to-Capacity Ratio (v/c)	0.56	0.64

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_S)	0.320
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	826
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.6
Prop. Freeway Vehicles in Lane 2 and 3 (P_{FM})	0.600	Outer Lanes Freeway Speed (S_O), mi/h	63.8
Flow in Lanes 2 and 3 (v_{23}), pc/h	1695	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (v_{R23}), pc/h	3104	Average Density (D), pc/mi/ln	22.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.1

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HCS7 Basic Freeway Report

Project Information			
Analyst	AECOM	Date	12/19/2018
Agency		Analysis Year	2025
Jurisdiction	DISTRICT 6	Time Period Analyzed	PM PEAK NB
Project Description	SR 874	Unit	United States Customary

Geometric Data			
Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.20
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity			
Demand Volume veh/h	1131	Heavy Vehicle Adjustment Factor (f_{HV})	0.974
Peak Hour Factor	0.95	Flow Rate (V_p), pc/h/ln	611
Total Trucks, %	2.70	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.27
Passenger Car Equivalent (E_T)	2.000		

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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APPENDIX N

2025 Preferred Alternative Output Synchro Reports