

Draft Preliminary Engineering Report

January 2024

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PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

District 6

SR-934/ NE 79th Street Project Development and Environment (PD&E) Study

From Pelican Harbor Drive to Adventure Avenue

Miami-Dade County, Florida

Financial Management Number: 449007-1-22-01

ETDM Number: 14484

DRAFT January 10, 2024

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated May 26, 2022, and executed by Federal Highway Administration and FDOT.

PROFESSIONAL ENGINEER CERTIFICATION

PRELIMINARY ENGINEERING REPORT

Project: SR-934/ NE 79th Street PD&E Study

ETDM Number: 14484

Financial Project ID: 449007-1-22-01

Federal Aid Project Number: N/A

This preliminary engineering report contains engineering information that fulfills the purpose and need for the SR-934/ NE 79th Street Project Development & Environment Study from west of Pelican Harbor Drive to east of Adventure Avenue in Miami Dade County, Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

I hereby certify that I am a registered professional engineer in the State of Florida practicing with HDR Inc., and that I have prepared or approved the evaluation, findings, opinions, conclusions, or technical advice for this project.

[Only Sign and Seal the Final Report]

Include "DRAFT" and Date on the Cover of the Draft Report]



This item has been digitally signed and sealed by *[Insert P.E. Name]* on the date adjacent to the seal.

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ACRONYMS AND ABBREVIATIONS

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
CFRP	Carbon Fiber Reinforced Polymer
ERP	Environmental Resource Permit
ETDM	Efficient Transportation Decision Making
FDEM	Florida Division of Emergency Management
FDM	Florida Design Manual
FDOT	Florida Department of Transportation
FLUCCS	Florida Land Cover Classifications System
FM	Financial Management
FSB	Flat Slab Beam
ITS	Intelligent Transportation Systems
LOS	Level of Service
LRE	Long Range Estimate
MDT	Miami-Dade Transit
MHW	Mean High Water
MHL	Mean Low Water
MP	Milepost
mph	Miles per hour
NBI	National Bridge Inventory
NRCS	Natural Resources Conservation Service
MSL	Mean Sea Level
MUTCD	Manual on Uniform Traffic Control Devices
NPDES	National Pollutant Discharge Elimination System

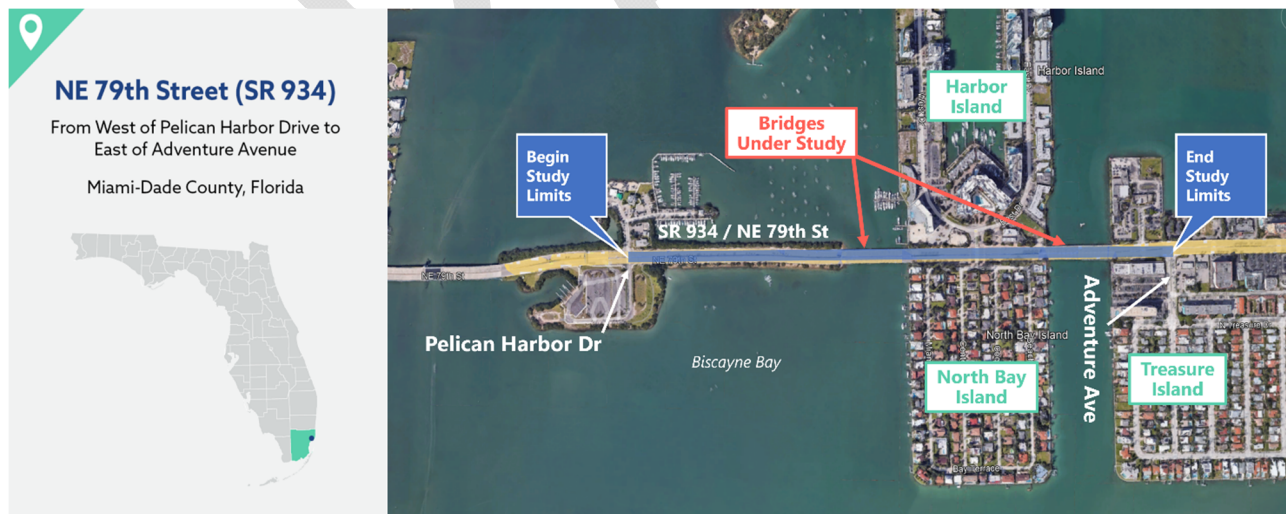
OFW	Outstanding Florida Waters
PD&E	Project Development and Environment
ROW	Right of Way
SDG	Structure Design Guidelines
SFWMD	South Florida Water Management District
SR	State Road
SWPPP	Storm Water Pollution Prevention Plan
TSM&O	Transportation System Management and Operations
UAO	Utility Agency Owner
USCG	United States Coast Guard

1 Project Summary

1.1 Project Description

This project involves the potential rehabilitation or replacement of four prestressed concrete slab (Sonovoid) bridges (two bridge pairs) connecting three islands within the City of Miami and North Bay Village in Miami-Dade County. The bridges are part of SR 934/NE 79th Street (John F. Kennedy Causeway), a roadway classified as "Urban Principal Arterial - Other", which connects mainland Miami to Miami Beach and North Bay Village. The specific limits of the project extend from milepost (MP) 1.077 (west of Pelican Harbor Drive) to MP 1.947 (east of Adventure Avenue), as shown in **Figure 1.1**. The project's western study limits fall within the City of Miami, while the eastern study limits fall within the North Bay Village. Outside the project limits, NE 79th Street is expected to remain as a six-lane urban principal arterial. Therefore, to align with the existing configuration and accommodate additional lanes being dropped or added at the intersections, the logical termini for this project along NE 79th Street are from west of Pelican Harbor Drive (western terminus) to east of Adventure Avenue (eastern terminus). These logical termini also allow for full inclusion of the intersection footprints. The western bridge pair, comprised of Bridge Identification (ID) Numbers 870083 (westbound) and 870549 (eastbound), is located just west of North Bay Island/Harbor Island. The eastern bridge pair, comprised of Bridge ID Numbers 870084 (westbound) and 870550 (eastbound), is located between North Bay Island/Harbor Island and Treasure Island. The project is approximately 0.87 miles in length.

Figure 1.1 | Study Area



The existing western bridge pair consists of six lanes, including four 11-foot-wide inside travel lanes and two 13.5-foot-wide outside travel lanes, and a raised median connecting the two bridge structures. The outside travel lanes include bicycle shared lane markings. In addition, a 5-foot-wide raised sidewalk is present on each side of the bridge pair. The existing eastern bridge pair consists of six 10-foot-wide travel lanes with a raised median connecting the two

bridge structures, as well as a 5.5-foot-wide dedicated bicycle lane and a 4.4-foot wide sidewalk separated by metal railing on each side of the bridge pair. The bridge approaches are generally consistent with the typical section of the bridges, except for east of the western bridge pair which includes dedicated bicycle lanes. Crossing over the Biscayne Bay, the bridges have a maximum vertical clearance of 6.78 feet at Mean Low Water (MLW) and a minimum vertical clearance of 3.05 feet at Mean High Water (MHW). Biscayne Bay at the bridge crossings is not deemed a navigable waterway by the United States Coast Guard (USCG).

The existing bridges were constructed in the early 1970s and have been determined to be Structurally Deficient given the condition of each bridge's superstructure (beams), which is referred to as "Sonovoid" design. Due to the structure type, the number of structural deficiencies, and the low clearance from the water, the bridge structures cannot properly be repaired and must be replaced. Therefore, the Project Development and Environment (PD&E) Study will evaluate bridge replacement alternatives that are anticipated to be generally within the same footprint of the existing bridges. Future bridge concepts may also include potential provisions for new and/or improved paved shoulders/marked bicycle lanes and sidewalks. The existing right-of-way varies along the project segment and ranges from approximately 100 to 130 feet.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of this project is to evaluate bridge replacement alternatives to address the structural deficiencies of four existing bridges (two bridge pairs) along State Road 934 (SR 934)/NE 79th Street (John F. Kennedy Causeway). The project limits extend from Pelican Harbor Drive to Adventure Avenue within the City of Miami and North Bay Village in Miami-Dade County. The western bridge pair, comprised of Bridge Identification (ID) Numbers 870083 (westbound) and 870549 (eastbound), is located just west of North Bay Island/Harbor Island. The eastern bridge pair, comprised of Bridge ID Numbers 870084 (westbound) and 870550 (eastbound), is located between North Bay Island/Harbor Island and Treasure Island.

Additional project goals are to maintain emergency evacuation capabilities.

1.2.2 Need

The need for the project is based on the following criteria:

1.2.2.1 Bridge Deficiencies: Address Substandard Structural Elements

The existing bridges were constructed in the early 1970s and have been determined to be Structurally Deficient given the condition of each bridge's superstructure (beams), which is referred to as "Sonovoid" design. Due to the structure type, the number of structural deficiencies, and the low clearance from the water, the bridge superstructures cannot properly be repaired.

Based on Florida Department of Transportation (FDOT) Bridge Inspection Reports prepared in October 2020, each of the four bridges received a Sufficiency Rating of 48.7 (on a scale of 0-

100). The Sufficiency Rating is an overall rating of a bridge's fitness to remain in service. A Sufficiency Rating below 50.0 may qualify a bridge for federal bridge replacement funds.

As part of the inspection process, several structural components were evaluated and assigned a rank or condition based on the National Bridge Inventory (NBI) system. The ranks/conditions were based on a scale of zero through nine. A rank of zero generally means that the bridge is out of service, beyond corrective action, and in need of replacement; a rank of nine means the bridge is in excellent condition and no deficiencies have been identified. The ranks/conditions for the structural components examined in the reports are as follows:

Bridge ID Numbers 870083 (westbound) and 870549 (eastbound)

- Deck: 4 (Poor)
- Superstructure: 4 (Poor)
- Substructure: 6 (Satisfactory)

Bridge ID Numbers 870084 (westbound) and 870550 (eastbound)

- Deck: 4 (Poor)
- Superstructure: 4 (Poor)
- Substructure: 7 (Good)

1.2.2.2 Safety: Maintain Evacuation and Emergency Response Times

Serving as part of the emergency evacuation route network designated by the Florida Division of Emergency Management (FDEM) and Miami-Dade County, NE 79th Street (including the bridges) plays a critical role in facilitating traffic between the beaches and the mainland of Miami during emergency evacuation periods. The project area is located in Storm Surge Planning Zone B, which is at risk for storm surge for Category 2 and higher storms. There is a need for the bridges to continue meeting emergency evacuation requirements.

1.3 Commitments

To be added following the public hearing.

1.4 Alternatives Analysis Summary

Two bridge replacement alternatives were developed and compared, Alternative 2A: Replacement (Profile #1) and Alternative 2B: Replacement (Profile #2). Alternative 2A: Replacement (Profile #1) replaces the bridges and keeps the same vertical profile. Alternative 2B: Replacement (Profile #2) replaces the bridges and raises the profile by approximately 3.6 feet to meet the FDOT minimum vertical clearance requirement (6 feet above Mean High Water) considering future sea level rise. The replacement alternatives both accommodate the preferred typical section. Alternative 2A is estimated to cost \$43.7 million and Alternative 2B is estimated to cost \$45.4 million. Both replacement alternatives have comparable potential environmental impacts.

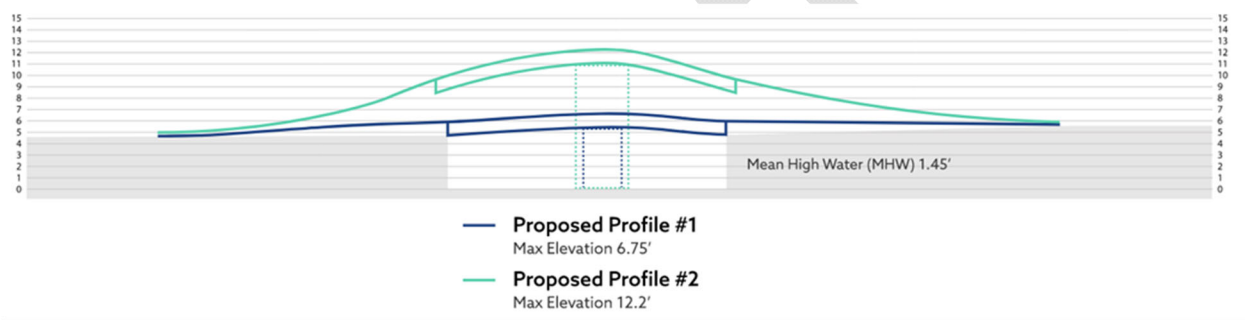
Bridge rehabilitation alternatives were eliminated early in the PD&E study because they do not meet the need to address structural deficiencies, they do not address all substandard geometric

conditions, their life cycle costs outweigh the benefits, and the existing structures are at the end of their design life.

1.5 Preferred Alternative

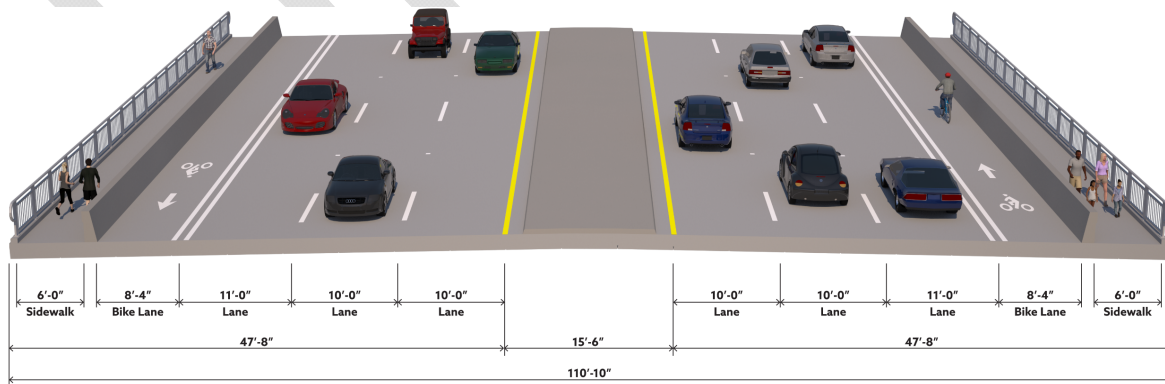
Alternative 2B: Replacement (Profile #2) is the preferred alternative. With Alternative 2B, the four existing bridges are removed and replaced. The bridge profile (Profile #2) is raised approximately 3.6 feet above the existing bridges, to meet the FDOT minimum vertical clearance (6 feet above Mean High Water) considering future sea level rise. The profile is shown in **Figure 1.2**. Due to the rise in elevation, driveway reconstructions and construction of gravity walls are necessary east and west of the bridge limits.

Figure 1.2 | Bridge Profile



The Preferred Typical Section is shown in **Figure 1.3**. The preferred bridge typical section upgrades the facility to meet current FDOT design criteria, including providing a raised median, six travel lanes (two 10-foot inside lanes and one 11-foot outside lane in each direction), buffered bicycle lanes (8-foot 4-inches), and barrier-separated sidewalks (6-foot wide) on both sides.

Figure 1.3 | Preferred Typical Section



Alternative 2B is the preferred alternative because it meets the purpose which is to replace the bridges; addresses the needs of structural deficiency and safety; and meets minimum vertical clearance requirement considering future sea level rise.

The preferred roadway typical section at the bridge approaches and Harbor Island/North Bay Island upgrades the facility to meet current FDOT design criteria, including providing a raised median, six travel lanes (two 10-foot inside lanes and one 11-foot outside lane), buffered bicycle lanes (7-foot wide), Type F curb & gutter, and sidewalks (6-foot wide) in each direction. In the constrained segment along Pelican Harbor, west of the west bridge pair, the preferred roadway typical section provides bicycle lanes (4.25-foot wide), guardrail at the face of curb to shield the canal hazard (Biscayne Bay), and sidewalks (6-foot wide).

1.6 List of Technical Documents

The purpose of the PD&E Study is to evaluate engineering and environmental data and record information that will help the FDOT Office of Environmental Management (OEM) in determining the type, preliminary design, and location of the proposed improvements.

The technical reports that have been completed during this study are listed in **Table 1-2**.

Table 1-1 | List of Technical Reports

Report Title	Date	Status
Public Involvement Plan	Dec 2021	Final
Conceptual Drainage Design Report	Oct 2023	Draft
Location Hydraulics Report	Oct 2023	Draft
Utility Assessment Package	Oct 2023	Final
Cultural Resource Assessment Survey (CRAS)	Oct 2023	Final
Bridge Analysis Report	Nov 2023	Draft
Noise Study Report (NSR)	Nov 2023	Draft
Project Traffic Analysis Report (PTAR)	Dec 2023	Final
Sea Level Rise Memorandum	Dec 2023	Final
Sociocultural Effects Evaluation Report (SCER)	Dec 2023	Draft
Level I Contamination Screening Evaluation Report (CSER)	Dec 2023	Draft
Natural Resources Evaluation (NRE)	Jan 2024	Draft
Water Quality Impact Evaluation (WQIE)	Jan 2024	Draft
Typical Section Package	Jan 2024	Final
Type 2 Categorical Exclusion	Jan 2024	Draft

2 Existing Conditions

This Section summarizes the existing roadway, bridge, and environmental characteristics for the project study area.

2.1 Previous Planning Studies

North Bay Village published a visioning Master Plan, NBV100 Report, in April 2020. This Master Plan includes transforming NE 79th Street within the municipal limits of North Bay Village to a Complete Streets design that would reduce the number of existing travel lanes from six to four. Potential improvements include repurposing the outside travel lanes on NE 79th Street to on-street parking, with designated buffer space separating the bicycle lane from the proposed adjacent parking lane. The outside travel lanes on the project's eastern bridges (Bridge ID Numbers 870084 and 870550) are proposed as 10-foot-wide buffered bicycle lanes. The Master Plan states that, since NE 79th Street is an emergency evacuation route, all six lanes (three lanes westbound and three lanes eastbound) would be available for emergency evacuation. The Master Plan notes that several meetings took place with FDOT District Six regional leadership during the plan development.

2.1.1 Related Projects

FDOT is currently in progress of rehabilitating the bridges east (Bridge ID Numbers 870082 and 870554) and west (Bridge ID Numbers 870085 and 870551) of the NE 79th Street PD&E study's logical termini under FPID 436526-1-52-01. The scope of work for the rehabilitation includes replacement of some of the structural and mechanical components (generator, hydraulic span pumps, cylinders, PLC, locks, drives, fender ladder, sewage system, relay backup system and bike treatment). The bridge rehabilitation project is currently under construction and scheduled to be completed in the summer of 2024. The rehabilitation project has no impact on this PD&E study.

2.2 Existing Roadway Conditions

2.2.1 Roadway Typical Sections

The existing typical section from Pelican Harbor Drive (MP 1.077) to west of Bridge ID Numbers 870083 and 870549 (MP 1.428) consists of six general purpose lanes divided by a 15.5-foot-wide raised median, with two 11-foot-wide inside travel lanes and a 13.5-foot-wide outside travel lane that shares its use with bicycle traffic. Type F curb and gutters exist on the outside of both outside travel lanes. A 5-foot-wide concrete sidewalk is located behind the back of the curb.

The existing typical section from east of Bridge ID Numbers 870083 and 870549 (MP 1.530) to west of Bridge ID Numbers 870084 and 870550 (MP 1.728), spanning North Bay Island/Harbor Island, consists of six general purpose lanes divided by a 15.5-foot-wide raised median, with two 10-foot-wide inside travel lanes and an 11-foot-wide outside travel lane. A 4-foot-wide designated bicycle lane is adjacent to the outside travel lanes. Type F curb and gutters exist on the outside of both outside travel lanes. A 5-foot-wide concrete sidewalk is located behind the back of the curb.

The existing typical section from east of Bridge ID Numbers 870084 and 870550 (MP 1.827) to Adventure Avenue (MP 1.947) consists of six general purpose lanes separated by a 15.5-foot-wide raised median, with 10-foot-wide travel lanes and a 5-foot-wide designated bicycle lane adjacent to the outside travel lanes. Type F curb and gutter exist on the outside of both directions of travel. A 5-foot-wide concrete sidewalk is located behind the back of the curb.

2.2.2 Roadway Functional and Context Classifications

FDOT categorizes roadways by the nature and character of their usage. The role of a specific route in servicing the flow of vehicular traffic across the network is defined by Functional Classification. The project corridor has a Functional Classification of Urban Principal Arterial. The context classification is C5 Urban Center for the entire project limits from west of Pelican Harbor Drive (MP 1.077) to east of Adventure Avenue (MP 1.947).

Key design criteria for all non-limited-access state roadways will be determined by the FDOT Context Classification in conjunction with the Transportation Characteristics of a roadway. The Context Classification method defines the overall features of land use, development patterns, and roadway connectivity, offering insights as to the sorts of uses and user groups that would most likely use the route. The Transportation Characteristics identify the sort of access provided by the highway, as well as the types of journeys and people served.

2.2.3 Access Management Classification

SR 934/NE 79th Street Causeway is designated Access Class 5 within the project limits.

2.2.4 Right-of-Way

The existing right-of-way information is based on data gathered from FDOT, the Miami-Dade County Property Appraiser, and the existing milling and resurfacing as-built plans from 2015. The existing right-of-way along the project limits varies between 100 feet and 200 feet. The typical right-of-way widths along with the nearest intersection are noted below.

- West of Pelican Harbor Drive: 165 – 200 feet
- East of Pelican Harbor Drive: 100 feet
- West of Bridge ID Numbers 870083 and 870549 (western bridge pair): 110 – 126 feet
- Western Bridge Pair: 105 feet
- West of Harbor Island Drive: 150 feet
- East of Harbor Island Drive: 150 feet
- East of Bridge ID Numbers 870084 and 870550 (eastern bridge pair): 110 – 125 feet
- East of Adventure Avenue: 100 feet

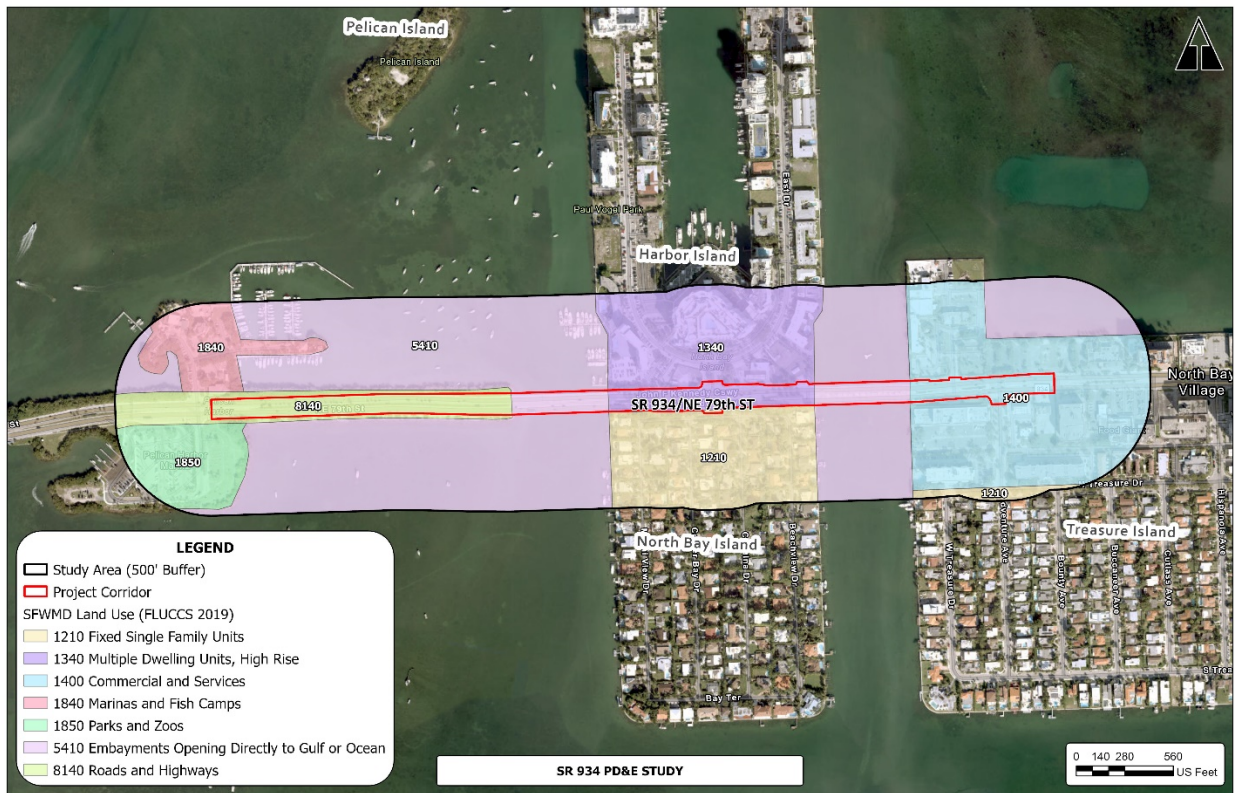
2.2.5 Adjacent Land Use

Land use cover descriptions provided for both uplands and wetlands are classified utilizing the Florida Land Cover Classifications System (FLUCCS) designations. Previous and existing land uses in the project area were initially determined utilizing US Geological Survey maps, historical images, aerial photographs, and land use mapping from the South Florida Water Management District (SFWMD) (2017-2019). Land use categories in the project area reported by SFWMD

were verified in the field. Field reviews generally confirmed the SFWMD land use mapping with no major adjustments or corrections. Land use categories in the project area as mapped by SFWMD are shown in **Figure 2.1**.

The predominant land uses in the project area are Residential and Commercial and Services, including condominiums and vacation rentals, retail strip malls, restaurants, and gas stations. The project area includes North Bay Island/Harbor Island, a private gated community. Commercial services, including shopping centers, condominiums, and a gas station are located north of NE 79th Street along East Drive and West Drive. The southern end of North Bay Island/Harbor Island includes a residential neighborhood with single-family homes. Within the eastern portion of the project area are a preschool, a television station, and a gas station.

Figure 2.1 | Existing Land Use



2.2.6 Pavement Type and Condition

The project segment was last resurfaced by project FPID 431180-1-52-01 in fiscal year 2014. The pavement was milled 2 inches and resurfaced with 1" friction course FC-9.5 (Traffic C, PG 76-22) and 1" Type SP structural course (Traffic 3). **Table 2.1** lists the current pavement conditions.

Table 2.1 | Existing Pavement Composition

Pavement Layer	
Friction Course	1" FC-9.5
Structural Courses	1" Type SP, 1.7-2.4" Type S, T-1 or Binder
Base	8.6-10" Limerock
Sub-Base	12" Stabilization

2.2.7 Existing Posted Speed

The posted speed limit within the project limits is 35 miles per hour (mph) from MP 1.077 to MP 1.530 and 30 mph from MP 1.530 to MP 1.947.

2.2.8 Horizontal Alignment

The existing geometry of NE 79th Street is linear from the study's begin limit at MP 1.077, which is approximately 230 feet west of Pelican Harbor Road, until a point about 530 feet east from the begin limit where the alignment deflects approximately 0°12'45". This is followed by a 665-foot linear segment that meets a reverse curve of 3,165 feet and 3,270-foot radii, respectively. The reverse curve is followed by a 536-foot linear segment, Bridges 870083 and 870549. As the west bridges end, the alignment deflects approximately 0°03'14". After deflection, a 1,610-foot linear segment passes through the east bridges, Bridges 870084 and 870549, and meets a reverse curve of 2,700 feet and 2,759-foot radii, respectively. The reverse curve is followed by a 37-foot linear segment to the study's end limit at MP 1.947.

2.2.9 Vertical Alignment

The existing vertical profile of NE 79th Street was obtained from FPID 431180-1-52-01. The cross slopes for the eastbound and westbound lanes are shown in **Table 2.2** and **Table 2.3**.

Table 2.2 | NE 79th Street Cross Slopes (Westbound Lanes)

MP	WB Outside Lane			WB Middle Lane			WB Inside Lane		
	Left Elev.	Right Elev.	Slope	Left Elev.	Right Elev.	Slope	Left Elev.	Right Elev.	Slope
1.074	3.4	3.81	-3.71%	3.81	4.18	-3.34%	4.18	4.38	-1.61%
1.093	3.49	3.98	-4.50%	3.98	4.29	-2.75%	4.29	4.49	-1.61%
1.112	3.81	4.17	-3.34%	4.17	4.434	-2.32%	4.43	4.68	-2.03%
1.131	3.95	4.43	-4.53%	4.43	4.78	-2.99%	4.78	4.91	-1.08%
1.149	4.22	4.6	-3.53%	4.6	4.97	-3.24%	4.97	5.19	-1.86%
1.168	4.28	4.78	-4.52%	4.78	5.16	-3.43%	5.16	5.37	-1.73%
1.187	4.52	4.97	-4.00%	4.97	5.34	-3.36%	5.34	5.61	-2.18%
1.206	4.47	4.97	-4.57%	4.97	5.32	-3.18%	5.32	5.59	-2.16%
1.225	4.17	4.67	-4.54%	4.67	5.02	-3.08%	5.02	5.29	-2.22%
1.244	3.97	4.52	-4.89%	4.52	4.88	-3.27%	4.88	5.11	-1.87%
1.263	4.16	4.59	-3.98%	4.59	4.97	-3.27%	4.97	5.17	-1.67%
1.282	4.44	4.87	-4.00%	4.87	5.17	-2.66%	5.17	5.36	-1.54%
1.301	4.51	5.03	-4.67%	5.03	5.31	-2.55%	5.31	5.56	-2.01%
1.320	4.52	4.95	-3.89%	4.95	5.26	-2.75%	5.26	5.46	-1.63%
1.339	4.3	4.78	-4.29%	4.78	5.11	-2.94%	5.11	5.25	-1.20%
1.358	4.09	4.58	-4.29%	4.58	4.86	-2.52%	4.86	5.1	-2.04%
1.377	4.35	4.75	-3.53%	4.75	5.04	-2.65%	5.04	5.34	-2.47%
1.396	4.84	5.21	-3.21%	5.21	5.43	-1.91%	5.43	5.62	-1.66%
1.415	5.18	5.52	-3.04%	5.52	5.75	-1.90%	5.75	5.92	-1.47%
1.434	5.73	6	-2.32%	6	6.24	-2.01%	6.24	6.49	-2.12%
1.453	6.06	6.34	-2.39%	6.34	6.57	-1.92%	6.57	6.88	-2.63%
1.471	6.22	6.46	-2.06%	6.46	6.66	-1.68%	6.66	7	-2.90%
1.490	6.12	6.37	-2.11%	6.37	6.61	-2.04%	6.61	6.91	-2.54%
1.509	5.81	6.08	-2.29%	6.08	6.34	-2.21%	6.34	6.61	-2.30%
1.528	5.32	5.59	-2.22%	5.59	5.79	-1.84%	5.79	5.96	-1.43%
1.547	4.55	4.9	-3.16%	4.9	5.16	-2.38%	5.16	5.42	-2.10%
1.566	3.89	4.26	-3.36%	4.26	4.55	-2.65%	4.55	4.68	-1.05%
1.585	3.51	4	-4.43%	4	4.23	-2.12%	4.23	4.49	-2.08%
1.604	3.7	4.12	-3.68%	4.12	4.41	-2.62%	4.41	4.64	-1.87%
1.623	4.13	4.34	-1.62%	4.34	4.53	-1.68%	4.71	4.71	0.00%
1.642	3.97	4.2	-2.04%	4.2	4.43	-1.97%	4.43	4.68	-2.14%
1.661	3.66	3.95	-2.46%	3.95	4.17	-1.98%	4.17	4.44	-2.23%
1.680	3.74	4.1	-3.08%	4.1	4.3	-1.80%	4.3	4.63	-2.70%
1.699	4.6	5	-3.34%	5	5.18	-1.52%	5.18	5.22	-0.35%
1.718	5.36	5.54	-1.48%	5.54	5.77	-1.95%	5.77	5.98	-1.85%
1.737	5.74	5.99	-2.04%	5.99	6.23	-2.08%	6.23	6.48	-2.18%
1.756	6.03	6.27	-1.95%	6.27	6.5	-1.93%	6.5	6.76	-2.29%
1.774	6.1	6.34	-1.98%	6.34	6.58	-2.04%	6.58	6.83	-2.18%

MP	WB Outside Lane			WB Middle Lane			WB Inside Lane		
	Left Elev.	Right Elev.	Slope	Left Elev.	Right Elev.	Slope	Left Elev.	Right Elev.	Slope
1.793	5.92	6.18	-2.13%	6.18	6.41	-1.94%	6.41	6.7	-2.53%
1.812	5.57	5.85	-2.30%	5.85	6.1	-2.12%	6.1	6.33	-2.02%
1.831	5.07	5.32	-2.11%	5.32	5.61	-2.70%	5.61	5.89	-2.35%
1.850	4.44	4.79	-3.22%	4.79	5.16	-3.25%	5.16	5.39	-1.93%
1.869	3.79	4.31	-4.55%	4.31	4.6	-2.64%	4.6	4.79	-1.58%
1.888	3.79	4.26	-3.97%	4.26	4.52	-2.25%	4.52	4.65	-1.13%
1.907	4.09	4.42	-2.82%	4.42	4.73	-2.71%	4.73	4.59	1.22%
1.926	4.16	4.58	-3.74%	4.58	4.86	-2.48%	4.86	5.04	-1.55%
1.945	3.81	4.3	-4.32%	4.3	4.62	-2.96%	4.62	4.83	-1.76%
1.964	3.57	4.04	-4.16%	4.04	4.34	-2.67%	4.34	4.34	0.00%
1.983	3.33	3.82	-4.39%	3.82	4.14	-2.89%	4.14	4.45	-2.57%

Table 2.3 | NE 79th Street Cross Slopes (Eastbound Lanes)

MP	EB Outside Lane			EB Middle Lane			EB Inside Lane		
	Left Elev.	Right Elev.	Slope	Left Elev.	Right Elev.	Slope	Left Elev.	Right Elev.	Slope
1.074	3.87	3.36	-4.46%	4.23	3.87	-3.25%	4.42	4.23	-1.60%
1.093	4.07	3.52	-4.91%	4.44	4.07	-3.25%	4.63	4.44	-1.58%
1.112	4.31	3.8	-3.86%	4.73	4.31	-3.71%	4.88	4.73	-1.23%
1.131	4.49	3.99	-4.57%	4.85	4.49	-3.29%	4.98	4.85	-1.04%
1.149	4.58	4.15	-3.85%	4.98	4.58	-3.74%	5.24	4.98	-2.11%
1.168	4.85	4.3	-4.83%	5.23	4.85	-3.47%	5.45	5.23	-1.81%
1.187	4.98	4.49	-4.20%	5.35	4.98	-3.48%	5.6	5.35	-2.01%
1.206	5.02	4.45	-5.04%	5.38	5.02	-3.25%	5.56	5.38	-1.50%
1.225	4.79	4.31	-4.24%	5.14	4.79	-3.21%	5.34	5.14	-1.67%
1.244	4.61	4.1	-4.53%	4.95	4.61	-3.08%	5.16	4.95	-1.74%
1.263	4.71	4.22	-4.35%	5.06	4.71	-3.20%	5.18	5.06	-0.98%
1.282	4.86	4.41	-3.99%	5.23	4.86	-3.44%	5.42	5.23	-1.56%
1.301	4.98	4.52	-3.77%	5.34	4.98	-3.63%	5.63	5.34	-2.38%
1.320	4.87	4.39	-4.21%	5.25	4.87	-3.49%	5.46	5.25	-1.77%
1.339	4.64	4.07	-4.90%	5.03	4.64	-3.51%	5.22	5.03	-1.64%
1.358	4.34	3.84	-4.35%	4.71	4.34	-3.35%	5.04	4.71	-2.83%
1.377	4.63	4.15	-4.29%	4.97	4.63	-3.11%	5.18	4.97	-1.75%
1.396	5.09	4.63	-4.04%	5.47	5.09	-3.45%	5.62	5.47	-1.26%
1.415	5.42	5	-3.87%	5.71	5.42	-2.56%	5.88	5.71	-1.41%
1.434	5.95	5.81	-1.34%	6.21	5.95	-2.18%	6.44	6.21	-1.90%
1.453	6.29	6.12	-1.67%	6.54	6.29	-2.08%	6.82	6.54	-2.30%
1.471	6.39	6.22	-1.66%	6.67	6.39	-2.32%	6.92	6.67	-2.04%

MP	EB Outside Lane			EB Middle Lane			EB Inside Lane		
	Left Elev.	Right Elev.	Slope	Left Elev.	Right Elev.	Slope	Left Elev.	Right Elev.	Slope
1.490	6.31	6.13	-1.73%	6.58	6.31	-2.24%	6.87	6.58	-2.38%
1.509	6.03	5.85	-1.72%	6.28	6.03	-2.11%	6.53	6.28	-2.00%
1.528	5.49	5.2	-2.76%	5.76	5.49	-2.31%	5.99	5.76	-1.82%
1.547	4.93	4.56	-3.39%	5.29	4.93	-3.19%	5.55	5.29	-2.08%
1.566	4.29	3.85	-3.74%	4.62	4.29	-2.96%	4.78	4.62	-1.33%
1.585	4.03	3.79	-2.07%	4.28	4.03	-2.26%	4.55	4.28	-2.24%
1.604	4.24	3.93	-2.61%	4.46	4.24	-2.07%	4.68	4.46	-1.80%
1.623	4.39	4.02	-3.09%	4.62	4.39	-2.22%	4.82	4.62	-1.63%
1.642	4.21	3.77	-3.86%	4.48	4.21	-2.44%	4.66	4.48	-1.48%
1.661	4	3.6	-3.52%	4.27	4	-2.56%	4.45	4.27	-1.43%
1.680	4.2	3.71	-4.32%	4.5	4.2	-2.76%	4.72	4.5	-1.79%
1.699	4.83	4.35	-4.40%	5.12	4.83	-2.56%	5.35	5.12	-1.87%
1.718	5.33	5.03	-2.87%	5.59	5.33	-2.16%	5.83	5.58	-1.99%
1.737	5.91	5.75	-1.53%	6.17	5.91	-2.15%	6.42	6.17	-2.01%
1.756	6.23	6.02	-2.03%	6.49	6.23	-2.10%	6.72	6.49	-1.86%
1.774	6.26	6.1	-1.56%	6.54	6.26	-2.32%	6.82	6.54	-2.22%
1.793	6.13	5.9	-2.20%	6.4	6.13	-2.27%	6.64	6.4	-1.89%
1.812	5.72	5.58	-1.36%	5.99	5.72	-2.28%	6.29	5.99	-2.36%
1.831	5.3	4.88	-3.71%	5.63	5.3	-3.07%	5.84	5.63	-1.70%
1.850	4.74	4.44	-2.66%	5.12	4.74	-3.37%	5.29	5.12	-1.49%
1.869	4.29	3.89	-3.45%	4.62	4.29	-3.06%	4.78	4.62	-1.36%
1.888	3.82	3.8	-2.50%	4.15	4.13	-1.47%	4.27	4.15	-1.13%
1.907	3.66	3.29	-3.01%	3.99	3.66	-2.78%	4.22	3.99	-2.23%
1.926	3.91	3.4	-4.42%	4.3	3.91	-3.52%	4.43	4.3	-1.26%
1.945	4.16	3.71	-4.00%	4.51	4.16	-3.10%	4.64	4.51	-1.17%
1.964	4.07	3.63	-3.80%	4.37	4.07	-2.78%	4.36	4.37	0.08%
1.983	3.85	3.31	-4.73%	4.15	3.85	-2.76%	4.3	4.15	-1.23%

2.2.10 Multi-modal Facilities

NE 79th Street within the project limits has bicycle, pedestrian, and transit facilities. There are 5-foot-wide sidewalks in both directions throughout the project corridor. They are generally located immediately adjacent to the curb and gutter, except over Bridge ID Numbers 870083 and 870549 (western bridge pair) they are separated from travel lanes by a barrier. Between Pelican Harbor Drive and North Bay Island/Harbor Island, the outside lanes are 13.5 feet and share their use with bicycle traffic. On North Bay Island/Harbor Island and on Bridge ID Numbers 870084 and 870550 (eastern bridge pair), there are 4-foot-wide designated bicycle lanes adjacent to the outside travel lanes in both directions. The bicycle lanes on the Treasure Island portion of the corridor are 5 feet wide in both directions.

Miami-Dade Transit (MDT), the public transit authority in Miami-Dade County, has two routes that utilize NE 79th Street: Route 79 and 112 Route L. Route 79 is a limited-stop weekday morning and afternoon service with a stop at Harbor Island Drive. 112 Route L is a local bus service with stops at the Pelican Harbor Drive intersection, Harbor Island Drive, and Adventure Avenue. The MDT Technical Report dated July of 2022 outlined that Route 79 had 5,351 monthly boardings and 112 Route L had 168,588 boardings. **Figure 2.2** shows the detailed map of Route 79 and **Figure 2.3** shows the detailed map of 112 Route L.

Additionally, North Bay Village operates the North Bay Village Shuttle, which serves local destinations within the jurisdiction of North Bay Village. It has stops at Harbor Island Drive and Adventure Avenue. **Figure 2.4** shows the detailed map of North Bay Village Shuttle.

Figure 2.2 | Route 79

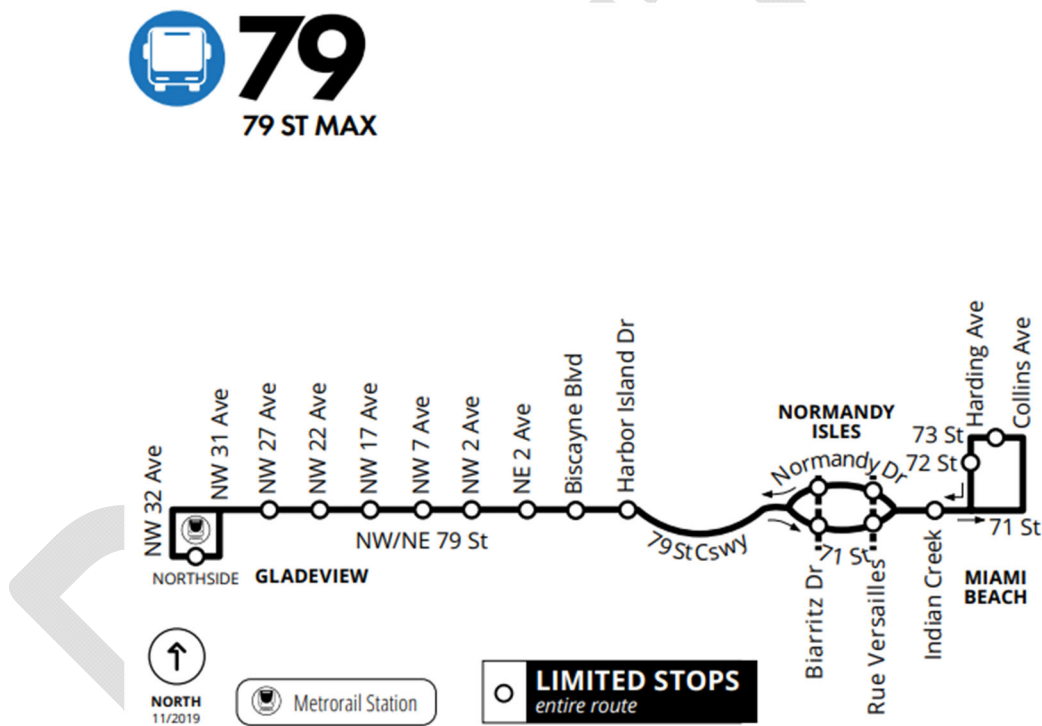
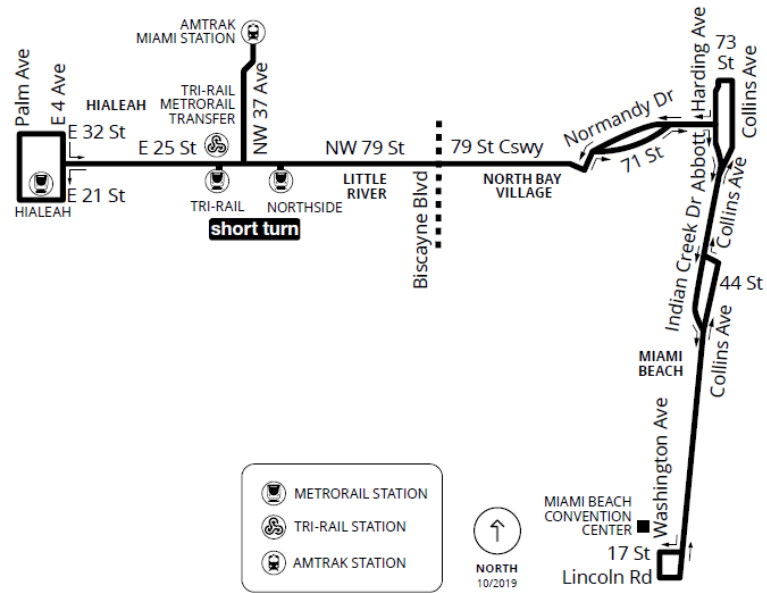
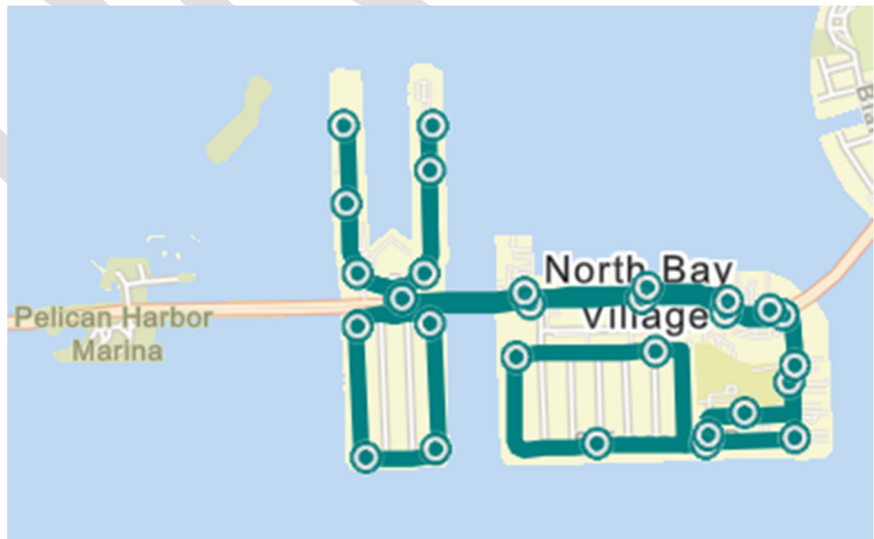


Figure 2.3 | 112 Route L



06.2020 [@GoMiamiDade](https://www.facebook.com/GoMiamiDade) [Go Miami-Dade Transit](https://www.instagram.com/GoMiamiDade)
[miamidade.gov/transit](https://www.miamidade.gov/transit) 311 or 305.468.5900 TTY/Fla Relay: 711

Figure 2.4 | North Bay Village Shuttle



2.2.11 Intersections

There are three intersections and five driveways within the corridor limits. **Table 2.4** lists the intersections and driveways, along with the control type.

Table 2.4 | Intersections and Driveways

MP	Intersection Name (Asset Number) or Parcel Address (Driveways)	Intersection Type	Control Type	Signalized (Y/N)
1.115	Pelican Harbor Drive (Asset 3785)	Intersection	Signal	Yes
1.571	North Bay Village, Safety Complex Site (1335 79 th St. Cswy.)	Driveway (Enter Only)	Yield	No
1.624	Harbor Island Drive/ North Bay Island (Asset 3015)	Intersection	Signal	Yes
1.653, 1.680	Shell Gas Station (1345 John F Kennedy Causeway)	Driveway (Enter/Exit)	Stop (Right-turn Only)	No
1.712	North Bay Village, Civic Park Site (7903 East Drive) (Asset 3919)	Driveway (Enter/Exit)	Signal (Emergency)	Yes (Inactive Signal Heads)
1.862	WSVN/Channel 7 property (1401 NE 79 St.), and Grove by the Bay property (1401 79 Street Cswy.)	Driveway (Enter/Exit)	Stop (Full median opening)	No
1.909	Adventure Avenue (Asset 3014)	Intersection	Signal	Yes
1.939	Speedway Gas Station (1508 79 St.)	Driveway (Enter/Exit)	Stop (Right-turn Only)	No

2.2.12 Physical or Operational Restrictions

The study bridges have a traffic railing to the outside of the sidewalks in both directions. The eastern bridge pair (Bridge ID Numbers 870084 & 870550) also have a barrier between the sidewalks and bicycle lanes.

2.2.13 Traffic Data

A series of traffic volume data was collected for this PD&E Study in October 2022, and approved via the *Traffic Data Collection Summary Memorandum* dated November 8, 2022. Hourly traffic volume data was collected during a 72-hour period from Tuesday, October 4, 2022, through Thursday, October 6, 2022. This data was collected at all signalized intersection approaches.

Figure 2.5 shows the Existing Year (2022) Average Annual Daily Traffic (AADT) volumes along NE 79th Street are between 38,400 vehicles per day and 42,100 vehicles per day. Daily volumes on the minor cross streets are varied. Volumes on Pelican Harbor Drive north and south of NE 79th Street are less than 1,000 vehicles per day. At Harbor Island Drive north of NE 79th Street, the recorded daily volume was 7,200 vehicles per day, while south of the corridor it was only 1,200 vehicles per day. Finally, near the eastern terminus of the study area, the daily traffic

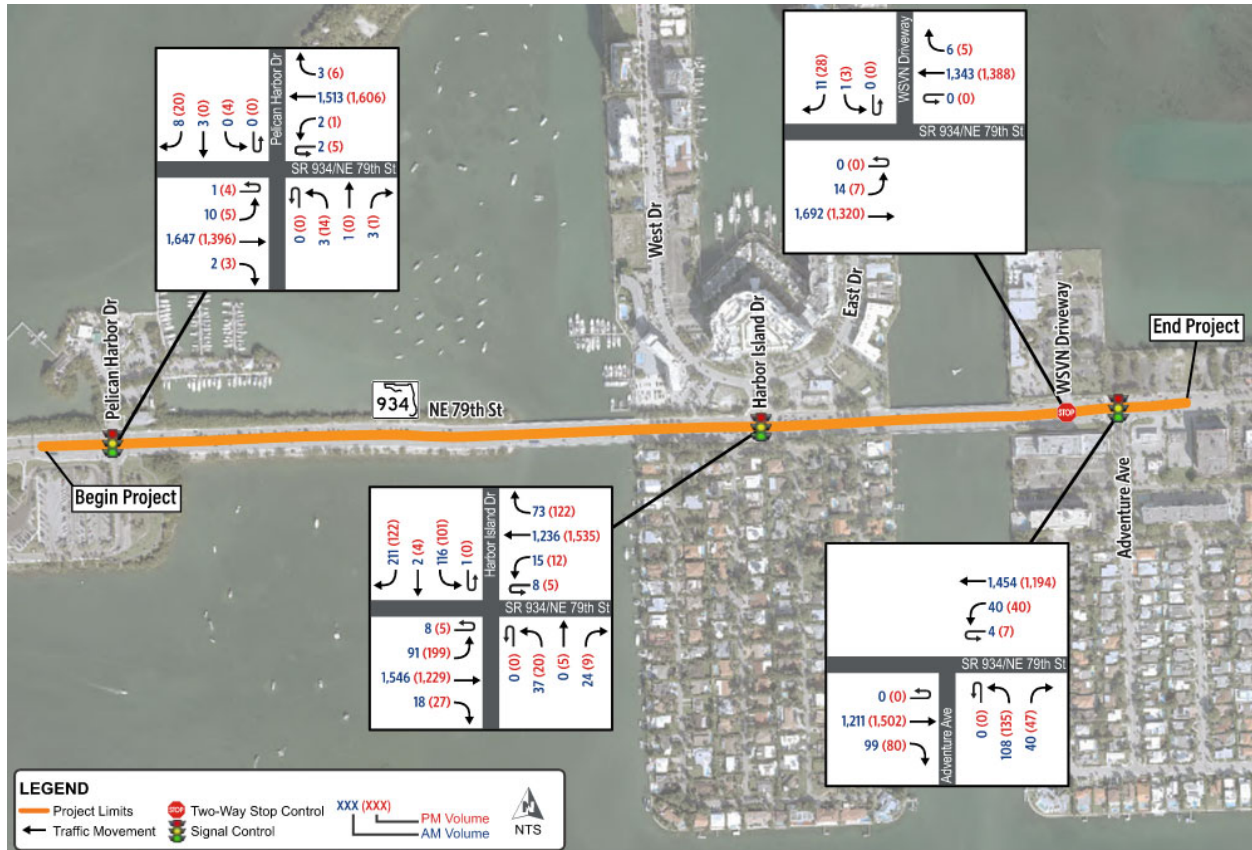
volume on the WSVN driveway was approximately 650 vehicles per day, while the daily traffic volume on Adventure Avenue south of NE 79th Street was 3,500 vehicles per day.

Figure 2.5 | Existing Year (2022) AADT Volumes



Further, AM and PM peak hour turning movement counts were collected at the four study intersections on Tuesday, October 4, 2022, and on Thursday, October 6, 2022. These intersection turning movement counts include pedestrian and bicyclist activity at each intersection. Finally, vehicle classification data was gathered on NE 79th Street between Pelican Harbor Drive and Harbor Island Drive from Tuesday, October 4, 2022, through Thursday, October 6, 2022. Based on the collected data, system-wide AM and PM peak hours were determined to be 8:00 AM and 5:00 PM, respectively. **Figure 2.6** graphically depicts the approved peak hour turning movement data at each intersection.

Figure 2.6 | Existing Year (2022) Intersection Turning Movement Volumes



Refer to the *Project Traffic Analysis Report* for more details regarding traffic data.

2.2.14 Roadway Operational Conditions

Traffic operational analysis was performed for the NE 79th Street corridor and four intersections. Analysis was consistent with Synchro 11 and Highway Capacity Manual 6th Edition methodologies. Traffic operations analyses were based on current signal timings as obtained from the Traffic Signals and Signs Division of the Miami-Dade County Department of Transportation and Public Works.

Corridor analysis performed from Pelican Harbor Drive to Adventure Avenue revealed that eastbound NE 79th Street operates at Level of Service (LOS) C during AM and PM peak hours. Overall corridor speeds in the eastbound direction are estimated to be 23.7 and 23.9 miles during the AM and PM peak hours, respectively. Westbound NE 79th Street operates at LOS B during the current AM peak hour, and LOS C during the PM peak hour. Travel speeds for westbound traffic are approximately 24.3 mph and 21.8 mph during the AM and PM peak hours, respectively. **Table 2.5** shows the peak hour speed and LOS for each segment and the NE 79th Street corridor overall.

Table 2.5 | NE 79th Street Peak Hour Travel Time and Level of Service Summary

Cross Street	Approach	AM Peak Hour		PM Peak Hour	
		Speed (mph)	LOS	Speed (mph)	LOS
Pelican Harbor Drive	Eastbound	26.4	B	25.6	B
Harbor Island Drive		23.1	C	24.2	B
Adventure Avenue		22.9	C	22.3	C
Total		23.7	C	23.9	C
Pelican Harbor Drive	Westbound	24.6	B	24.6	B
Harbor Island Drive		19.8	C	15.0	D
Adventure Avenue		27.6	B	27.0	B
Total		24.3	B	21.8	C

Intersection LOS analysis showed that all intersections operate at overall LOS C or better during the peak hours. **Table 2.6** shows the overall LOS and delay at each intersection.

Several individual intersection turn movements in the northbound and southbound directions operate at LOS E or F. Movements operating at LOS E or F include all northbound and southbound movements at Harbor Island Drive except for the southbound right turn during the PM peak hour; the southbound left turn at WSVN Driveway during both peak hours; and all northbound movements at Adventure Avenue.

Table 2.6 | Peak Hour Intersection Delay and Level of Service Summary

Intersection Name	AM Peak Hour		PM Peak Hour	
	Overall Delay (seconds / vehicle)	Overall LOS	Overall Delay (seconds / vehicle)	Overall LOS
Pelican Harbor Drive	4.0	A	4.8	A
Harbor Island Drive	19.6	B	27.6	C
WSVN Driveway*	n/a	n/a	n/a	n/a
Adventure Avenue	10.6	B	8.7	A

*Overall Delay and LOS were not reported for this intersection.

For additional details, refer to the *Project Traffic Analysis Report*.

2.2.15 Managed Lanes

There are no managed lanes within the project limits.

2.2.16 Crash Data

Crash data from Signal Four Analytics were reviewed for a five-year period from January 1, 2018, through December 31, 2022. The three signalized intersections and corresponding roadway segments were evaluated. A total of 170 crashes were identified in the project limits during the five-year period. There were 45 crashes reported in 2018, 45 crashes in 2019, 13 crashes in 2020, 33 crashes in 2021 and 34 crashes in 2022. The low crash frequency identified in 2020 can likely be attributed to the effects of the Covid-19 Pandemic.

There were 139 crashes involving property damage only, 30 crashes involving injuries, and 1 fatal crash (which occurred in 2022). The sole fatal crash within the study area occurred in 2022. It was a single vehicle crash where the vehicle left the roadway between Pelican Harbor Drive and Harbor Island Drive and crashed into the rocks and water.

Rear-end crashes were the most reported crash type accounting for 92 crashes (54.1% of all crashes). Sideswipe crashes were the second highest crash type accounting for 37 crashes (21.8% of all crashes). Most of the crashes (81.8%) occurred during the daytime.

In addition to the five-year crash summaries, crash rates, statewide average crash rates and High Crash Location lists were reviewed to identify high crash locations. No intersection or roadway segment within the project limits has been identified as a high crash location by FDOT.

For further information, refer to the *Existing Safety Analysis Memorandum*, located in the project file.

2.2.17 Railroad Crossings

There are no railroad crossings within the project limits.

2.2.18 Drainage

Based on survey information, as-builts, aerial photos and a site visit completed on August 29th, 2023, the current stormwater system is divided into six systems. All six systems currently directly discharge without water quality treatment to Biscayne Bay, which is considered an Outstanding Florida Water (OFW) system. The six system limits are as follows:

The **First System** is located on the west side of the project between Pelican Harbor Drive and the beginning of Bridge No. 870083 (westbound) and Bridge No. 870549 (eastbound). The stormwater runoff is collected via curb inlets along both sides of the roadway.

The **Second System** corresponds to the existing limits of Bridge No. 870083 (westbound)/Bridge No. 870549 (eastbound). Along this system, the stormwater is collected via scuppers which have a direct discharge into Biscayne Bay.

The **Third and Fourth Systems** are located on North Bay/Harbor Island and divided at Harbor Island Drive. These systems collect stormwater via curb inlets and directly discharge to

Biscayne Bay. Per as-builts, the outfalls are located under the southeast side of Bridge No. 870549 and the southwest side of Bridge No. 870550.

The **Fifth System** corresponds to the existing limits of Bridge No. 870084 (westbound)/Bridge No. 870550 (eastbound). Along this system the stormwater is collected via scuppers which have a direct discharge into Biscayne Bay.

The **Sixth System** is located at the east of the project between the end of Bridge No. 870084 (westbound)/Bridge No. 870550 (eastbound) and east of Adventure Avenue. Along this system, stormwater is collected via curb inlets which directly discharge to Biscayne Bay. Per as-builts, the outfall is located on the southeast side of Bridge No. 870550.

Existing outfalls are tabulated in **Table 2.7**.

Table 2.7 | Outfall Summary Table

Drainage System	Outfall ID	Station	Offset	Side	Pipe Diameter
					Inches
1	Ext. Outfall 1-1	43+88.37	N/A	Left	15
	Ext. Outfall 1-2	49+00.00	N/A	Left	15
	Ext. Outfall 1-3	55+02.16	N/A	Left	15
	Ext. Outfall 1-4	43+00.00	N/A	Right	15
	Ext. Outfall 1-5	49+00.00	N/A	Right	15
	Ext. Outfall 1-6	54+93.19	N/A	Right	15
2	Ext. Scuppers	N/A	N/A	Right / Left	N/A
3	Ext. Outfall 3-1	N/A	N/A	Right	24
4	Ext. Outfall 4-1	N/A	N/A	Right	24
5	Ext. Scuppers	N/A	N/A	Right / Left	N/A
6	Ext. Outfall 6-1	N/A	N/A	Right	30

There are three cross drains within the project corridor, according to the FDOT's Straight-Line Diagram for NE 79th Street. Cross drains are tabulated in **Table 2.8**.

Table 2.8 | Existing Cross Drains

Location	Type	Diameter (inches)	Length (feet)
MP 1.145	Concrete Pipe	18	140
MP 1.255	Concrete Pipe	18	140
MP 1.366	Concrete Pipe	18	140

There are no current treatment facilities in the project area.

For more detailed information on the existing drainage system, refer to the *Conceptual Design Drainage Report*, located in the project file.

2.2.19 Lighting

Based on the field review performed in November 2021, the lighting along the corridor consists of standard roadway, single-arm aluminum light poles. The lighting is located along both sides of the roadway. **Figure 2.7** is a photograph of an existing light pole taken at the southwest corner of the intersection of NE 79th Street and Pelican Harbor Drive.

Figure 2.7 | Existing Lighting (SW Corner of NE 79th Street and Pelican Harbor Drive)



2.2.20 Utilities

An inventory of the Utility Agency Owners (UAOs) within the project limits were obtained through Sunshine 811. Utilities include electric, gas, water, sewer, and communications. **Table 2.9** presents the UAOs that were contacted and provided either marked plans, as-built/record information, or “no facilities” responses.

Table 2.9 | Utility Agency Owners

No.	Utility Agency Owner	Facilities	Contact
1	AT&T Distribution	Telephone	Steve Low 305-341-0968
2	Breezeline		Javares Hall 305-213-9908
7	Florida Power & Light-Distribution	Electric	Gabriel Rodriguez 305-281-9847

11	Miami-Dade Water & Sewer	Sewer, Water	Patrick Chong 786-552-4416
	North Bay Village	Sewer, Water	Brian Kowalski 734-548-3422
12	TECO Peoples Gas South Florida	Gas	Joan Domning 813-275-3783
	Verizon	Fiber	Jason Matthews 954-298-5606

2.2.21 Soils and Geotechnical Data

A geotechnical evaluation was performed to obtain preliminary information concerning the site and subsurface conditions in the area of the existing bridges. Geotechnical exploration was also performed along the existing roadway to provide an evaluation of the suitability of the in-situ materials. A summary of the geotechnical investigation is presented in the *Report of a Geotechnical Exploration – Bridge Structures* and *Report of a Geotechnical Exploration – Roadway Soils Survey*.

Prior to the subsurface explorations, the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) (2017) Web Soil Survey tool was used to determine soils that could exist in the area. Based on the NRCS tool, only one soil type occurs in the project area as presented in **Table 2.10**. This soil type is urban land, which consists of residential, industrial, commercial, and institutional land; construction sites; public administration sites; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures and spillways; other land used for such purposes; small parks within urban and built-up areas; and highways, railroads, and other transportation facilities if they are surrounded by urban areas.

Table 2.10 | Soils in the Project Area

Soil Type	Environmental Association	Approximate Percent of Project Area
Urban Land	This soil type is for residential, industrial, commercial, and institutional land; construction sites; public administration sites; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures and spillways; other land used for such purposes; small parks within urban and built-up areas; and highways, railroads, and other transportation facilities.	48%
Water		52%

2.2.22 Aesthetic Features

As one drives through the boundaries of this project, the main view to the north and south of the roadway is Biscayne Bay. On the west end of the project limits is the Pelican Harbor Marina, the Pelican Harbor Boat ramp, and Pelican Harbor Park which can be seen as one passes the Pelican Harbor Drive intersection moving east along the corridor. From east of Pelican Harbor Drive to the western bridge pair (Bridge ID Numbers 870083 and 870549), the median is tree lined and there are shrubs adjacent to both sides of the right-of-way. The bridges themselves do not have any landscaping. On North Bay Island/Harbor Island, a sign with “Welcome to North Bay Village” is in the median. Landscaping is in the median where there are no turn lanes and between the sidewalks and perimeter walls. The median of the eastern bridge pair (Bridge ID Numbers 870084 and 870550) is lined with decorative planters. At the eastern end of the eastern bridge pair, the John F. Kennedy monument is in the median. There are also several palm trees on the north side of NE 79th Street between the road and sidewalk on Treasure Island.

2.2.23 Traffic Signs

Signage within the project limits consists primarily of regulatory signage and minimal wayfinding signage. These signs are in good condition and seem to have been routinely maintained throughout the corridor. **Table 2.11** and **Table 2.12** document the existing sign inventory in the east and west directions.

Table 2.11 | Existing Sign Inventory (East)

Sign Description	MUTCD Sign Designation
1 John F Kennedy Causeway Street Name Sign	Guide Sign (Street Name Sign)
2 Pelican Harbor Dr Street Name Sign	Guide Sign (Street Name Sign)
3 No Standing Any Time Sign	R7-4
4 Bus Stop Sign	RS-031
5 Speed Limit Sign (35)	R2-1
6 Speed Limit Sign (35)	R2-1
7 No Standing Any Time Sign	R7-4
8 No Standing Any Time Sign	R7-4
9 No Standing Any Time Sign	R7-4
10 Speed Limit Sign (30)	R2-1
11 Speed Limit Sign (30)	R2-1
12 No Standing Any Time Sign	R7-4
13 Bike Lane Ahead Sign	R3-17, R3-17a
14 Littering Prohibited Sign	N/A
15 Speed Limit Sign (30)	R2-1
16 Speed Limit Sign (30)	R2-1
17 Begin Right Turn Lane	R3-20R
18 Speed Limit Sign (30)	R2-1

Sign Description		MUTCD Sign Designation
19	Welcome to North Bay Village Sign	N/A
20	No Stopping or Standing Any Time Sign	R7-4
21	Bus Stop Sign	RS-031
22	No Stopping or Standing Any Time Sign	R7-4
23	North Bay Island, Larry Paskow Way, Harbor Island Dr Street Name Sign	Guide Sign (Street Name Sign)
24	U-turn Yield to Right Turn Sign	R10-16
25	John F Kennedy Causeway Street Name Sign	Guide Sign (Street Name Sign)
26	U-turn Yield to Right Turn Sign	R10-16
27	North Bay Island, Larry Paskow Way, Harbor Island Dr Street Name Sign	Guide Sign (Street Name Sign)
28	No Stopping or Standing Any Time Sign	R7-4
29	No U-turn Sign	R3-4
30	No Fishing Sign	N/A
31	Speed Limit Sign (30)	R2-1
32	Bus Stop Sign	RS-031
33	No Left/U-Turn Sign	R3-18

Table 2.12 | Existing Sign Inventory (West)

Sign Description		MUTCD Sign Designation
1	Speed Limit Sign (30)	R2-1
2	Bus Stop Sign	RS-031
3	No Left/No U-turn Sign	R3-18
4	No Fishing Sign	N/A
5	No U-turn Sign	R3-4
6	Begin Right Turn Lane; Yield to Bikes	R4-4
7	Do Not Block Intersection Sign	R10-7
8	Bus Stop Sign	RS-031
9	North Bay Island, Larry Paskow Way, Harbor Island Dr Street Name Sign	Guide Sign (Street Name Sign)
10	John F Kennedy Causeway Street Name Sign	Guide Sign (Street Name Sign)
11	U-turn Yield to Right Turn Sign	R10-16
12	U-turn Yield to Right Turn Sign	R10-16
13	Bike Lane Ends	R3-17/R3-17b
14	Speed Limit Sign (35)	R2-1
15	Speed Limit Sign (35)	R2-1
16	No Fishing Sign	N/A
17	BellSouth Cable Route Sign	N/A
18	No Parking On Right of Way	R8-1
19	No Trucks Right Lanes Next ¾ Mile	R5-2

Sign Description		MUTCD Sign Designation
20	No Trucks Right Lanes Next ¾ Mile	R5-2
21	Bike May Use Full Lane	R4-11
22	No Trucks Right Lanes Next ¾ Mile	R5-2
23	No Trucks Right Lanes Next ¾ Mile	R5-2
24	No Standing Any Time Sign	R7-4
25	All Trucks Use NE 79 th St Keep Left	N/A
26	No Parking On Right of Way	R8-1
27	No Standing Any Time Sign	R7-4
28	No Standing Any Time Sign	R7-4
29	Bike May Use Full Lane	R4-11
30	All Trucks Use NE 79 th St Keep Left	N/A
31	All Trucks Use NE 79 th St Keep Left	N/A
32	No Standing Any Time Sign	R7-4
33	Pedestrians Ahead Sign	W11-2/W16-9P
34	No Standing Any Time Sign	R7-4
35	Bus Stop Sign	RS-031
36	Pedestrians Sign (left arrow)	W11-2/W16-7P
37	John F Kennedy Causeway Street Name Sign	Guide Sign (Street Name Sign)
38	Pelican Harbor Dr Street Name Sign	Guide Sign (Street Name Sign)

2.2.24 Noise Walls and Perimeter Walls

There are no noise walls in the project limits.

There are decorative perimeter walls within the right-of-way on both sides of NE 79th Street on North Bay Island/Harbor Island, maintained by North Bay Village. The perimeter walls appear to range from three feet to seven feet in height. The perimeter walls are located outside of the sidewalks with landscaping between the sidewalks and perimeter walls.

2.2.25 Intelligent Transportation Systems (ITS)/

Transportation System Management and Operations (TSM&O) Features

There are no existing Intelligent Transportation System (ITS) components within the project limits.

2.3 Existing Bridges and Structures

Within the project limits, there are four existing bridges, three of which were built in 1971 (Bridges ID Numbers 870083, 870084, and 870550) and one built in 1974 (870549). All four bridges span Biscayne Bay and link the City of Miami Beach to North Miami Beach through North Bay Village. The four bridges are the same type. The superstructures consist of prestressed concrete slab units (Sonovoid). The substructures consist of reinforced concrete pier caps supported by prestressed concrete piles. The concrete bridges are divided into two eastbound structures (Bridges 870549 and 870550) and two westbound structures (Bridges 870083 and 870084). All four bridges have similar geometry characteristics. The bridges west of

North Bay Island/Harbor Island (Bridge ID Numbers 870083 and 870549) are 510 feet long with 17 spans that are 30 feet long each. The bridges east of North Bay Island/Harbor Island (Bridge ID Numbers 870084 and 870550) are 509 feet long with 16 spans that are 30 feet long each and one span that is 29 feet long. Each pair of parallel bridges are 101 feet and 3 inches wide combined. The approach slabs are 20 feet long. Maximum vertical clearance at MLW is 6.78 feet and minimum vertical clearance at MHW is 3.05 feet.

There are two typical bridge sections. The typical section of the western bridges consists of six lanes separated by a 15-foot and 6-inch raised median, with two 11-foot inside travel lanes, one 13-foot and 5-inch outside travel lane shared with bicycle traffic (sharrow), Type F curb and gutter, and a 5-foot sidewalk (see **Figure 2.8**). The typical section of the eastern bridges consists of six lanes separated by a 15-foot and 6-inch raised median, with 10-foot travel lanes, a designated 5-foot and 6-inch bike lane with curb and gutter, and a 4-foot and 5-inch walkway with a pedestrian railing (see **Figure 2.9**).

Figure 2.8 | Western Pair Existing Bridge Configuration (Bridge ID Numbers 870083 and 870549)

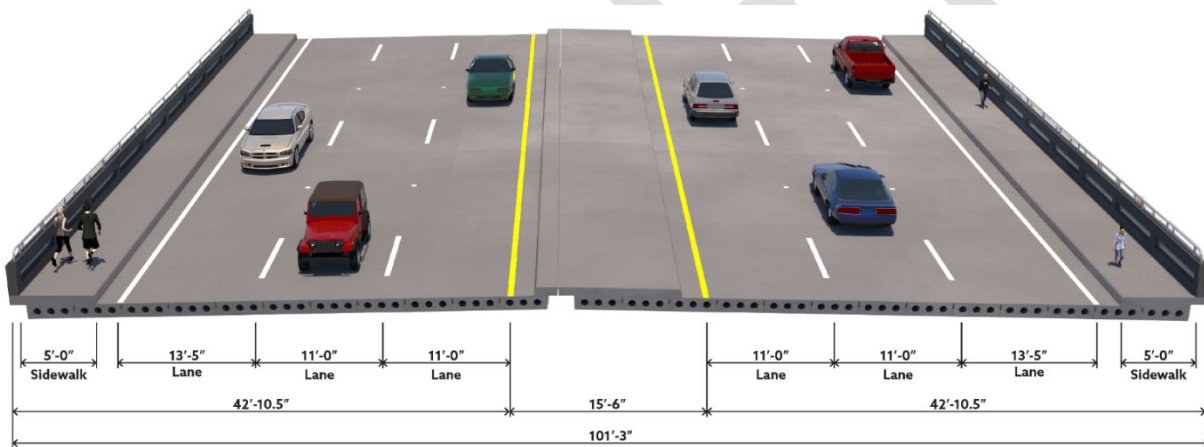
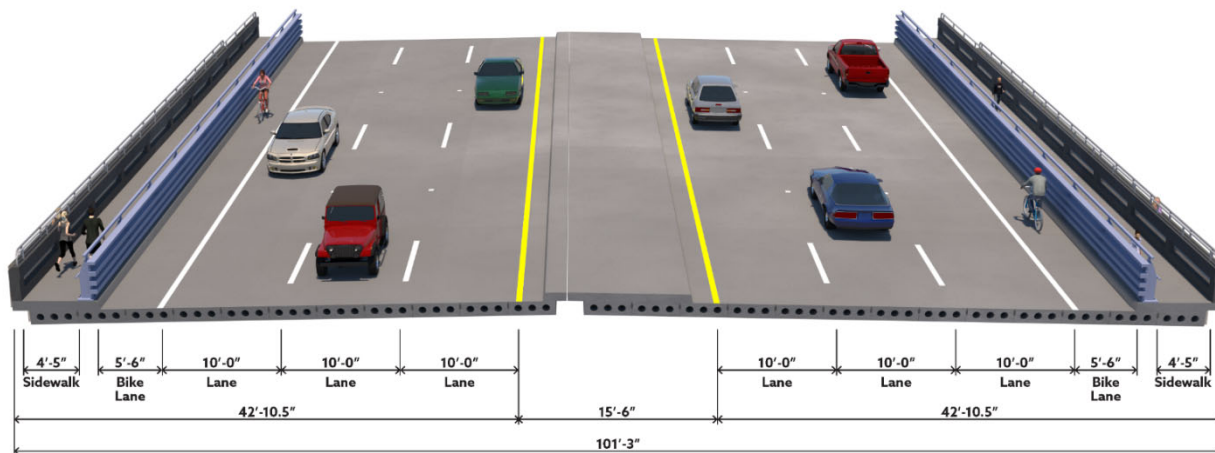


Figure 2.9 | Eastern Pair Existing Bridge Configuration (Bridge ID Numbers 870084 and 870550)



In general, the bridge superstructures are in poor condition while the substructures are in satisfactory or good condition. Typical deficiencies include sidewalk map cracking, joint spalling, slab delamination and spalling, and pier cap cracks. The spalling concrete with exposed corroded reinforcement on the deck underside is particularly extensive on the bridges east of North Bay Island/Harbor Island. **Table 2.13** summarizes the bridges' conditions per the latest bridge inspection reports.

Table 2.13 | Bridge Inspection Report Summary

Bridge No.	MP	Deck Rating	Super-structure Rating	Sub-structure Rating	Sufficiency Ratings (%)	Inspection Date	Year Built
870083	1.428-1.530	4- Poor	4- Poor	6- Satisfactory	48.8	10/28/2021	1971
870549		4- Poor	4- Poor	6- Satisfactory	48.8	10/28/2021	1974
870084	1.728-1.827	4-Poor	4-Poor	7-Good	48.8	10/28/2021	1971
870550		4-Poor	4-Poor	7-Good	48.8	10/28/2021	1971

The bridges are non-navigable, but the waterway itself is navigable by recreational and commercial traffic. Consideration for vessel collision shall be in accordance with FDOT Structure Design Guidelines (SDG) 2.11.

The following issues are not applicable: channel data, security, movable spans, load posting, and historical significance. No security issues have been noted. The bridges are not movable and are not eligible for listing in the National Register of Historic Places. Based on the load rating analysis dated January 27, 2021, posting is not required and the structures are currently not posted.

2.4 Existing Environmental Features

An environmental resources review was performed as part of the PD&E Study to identify resources early in the process to avoid fatal flaws and to consider sensitive environmental resources during the development and evaluation of alternatives. The environmental resources review is summarized in this Section. Additionally, the Efficient Transportation Decision Making (ETDM) Programming Screen Summary Report for this project (ETDM project number 14484) was consulted.

2.4.1 Social and Economic

As the project is within an urban area, sociocultural resources are a primary consideration. Seven census block groups intersect the project limits, as shown in **Figure 2.10**, and are the study area for purposes of sociocultural analysis. U.S. Census Bureau 2020 and American Community Survey 2021 data were used in the analysis. The study area has a total population of 10,243 people and contains 4,566 households. Minorities comprise approximately 74% of the population. The study area has a lower percentage of residents living below the poverty line than Miami-Dade County; however, there are two census block groups with a higher percentage

than the county (Tract 13.01, Block Group 2 and Tract 39.17, Block Group 1). Approximately 25% of residents speak English “less than very well”. Approximately 5.11% percent of residents have a disability.

Figure 2.10 | Census Block Groups



Community facilities and emergency services in the study are documented in **Table 2.14**. Further information on sociocultural resources is contained in the *Sociocultural Effects Evaluation*, located in the project file.

Table 2.14 | Community Facilities and Emergency Services

Facility Type	Facility Name	Address
Community Center	American Institute of Polish Culture	1440 79 th St. Causeway #117
	Foreign Consulate	Miami Consulate General of Poland
Government	North Bay Village City Hall	1666 John F Kennedy Causeway #3
	Harbor West Marina	7910 West Dr.
Marinas	Pelican Harbor Marina and Park	1275 NE 79 th St.
Park and Recreational Facilities	Civic Pocket Park	East Drive City Hall Plaza
	Paul Vogel Park	7920 West Dr.
	Pelican Harbor Park Boat Ramp	1275 NE 79 th St.

Facility Type	Facility Name	Address
Religious Centers	Chabad of North Bay Village – Kolel Harambam Congregation	1580 79 th St. Causeway
Schools	Treasure Island Elementary School	7540 East Treasure Dr.
Fire Stations	North Bay Village Fire Department Station 27	7903 East Dr.
	Miami Fire Rescue Station 13	990 NE 79 th St.
Police Stations	Miami-Dade Police Department – Marine Patrol Unit	1841 Galleon St.
	North Bay Village Police Department	1841 Galleon St.

2.4.2 Recreation Areas and Section 4(f) Resources

There are two potential recreational resources protected by Section 4(f) U.S. Department of Transportation Act of 1966 that are adjacent to the project right of way: Pelican Harbor Marina and the North Bay Village Dog Park.

Pelican Harbor Park and Marina is a recreational resource owned and operated by Miami-Dade County. Pelican Harbor Park and Marina (1265 NE 79th Street Causeway, Miami, FL) is located on the north and south sides of the 79th Street Causeway on an island in Biscayne Bay immediately east of North Bay Island. This approximately 10-acre park and marina includes amenities such as a public boat ramp and parking facilities for vehicles and trailers, picnic tables, docks and wet slips for boat storage, fueling station, sand volleyball court, restrooms, a pavilion, park office and dockmaster building, public art installations, natural resources and a paved trail for pedestrian use.

The North Bay Village Dog Park (7903 East Drive, North Bay Village, FL) occupies a parcel of land immediately north of NE 79th Street and south of East Drive on the former site of a fire station. It is now a dog park that contains perimeter and interior fencing, trash cans and dog-waste stations, shade structures, benches, and drinking-water fountains.

2.4.3 Wetlands and Other Surface Water

According to the USFWS NWI and confirmed through field surveys, no wetlands occur in the project area. The upland portions of the project area are urbanized and the shorelines in the project corridor are either armored or covered in rip-rap. The marine portions of the project area are considered an Other Surface Water and are part of Biscayne Bay. Biscayne Bay is classified as an Outstanding Florida Water and Aquatic Preserve. Upland portions of the causeway in Pelican Harbor Park contain buttonwood (*Conocarpus erectus*), black mangrove (*Avicennia germinans*), red mangrove (*Rhizophora mangle*), and white mangrove (*Laguncularia racemosa*).

2.4.4 Floodplains

The project is partially located within areas identified as Flood Hazard Zone AE.

To determine the flooding history in the project area, FDOT construction plans, United States Geological Survey (USGS) Quadrangle maps, South Florida Water Management District (SFWMD) information, and FEMA Flood Insurance Rate Maps (FIRM) were used for areas within the corridor. A field inspection was conducted to identify obvious drainage problems. Additionally, FDOT District Six North Dade Maintenance staff members were contacted to obtain information about local drainage conditions. One minor flooding event was identified that occurred on 10/1/2022 within FDOT right-of-way, which was caused by a clogged drain, and it was confirmed that the existing cross drains have adequate hydraulic capacity.

2.4.5 Protected Species and Habitats

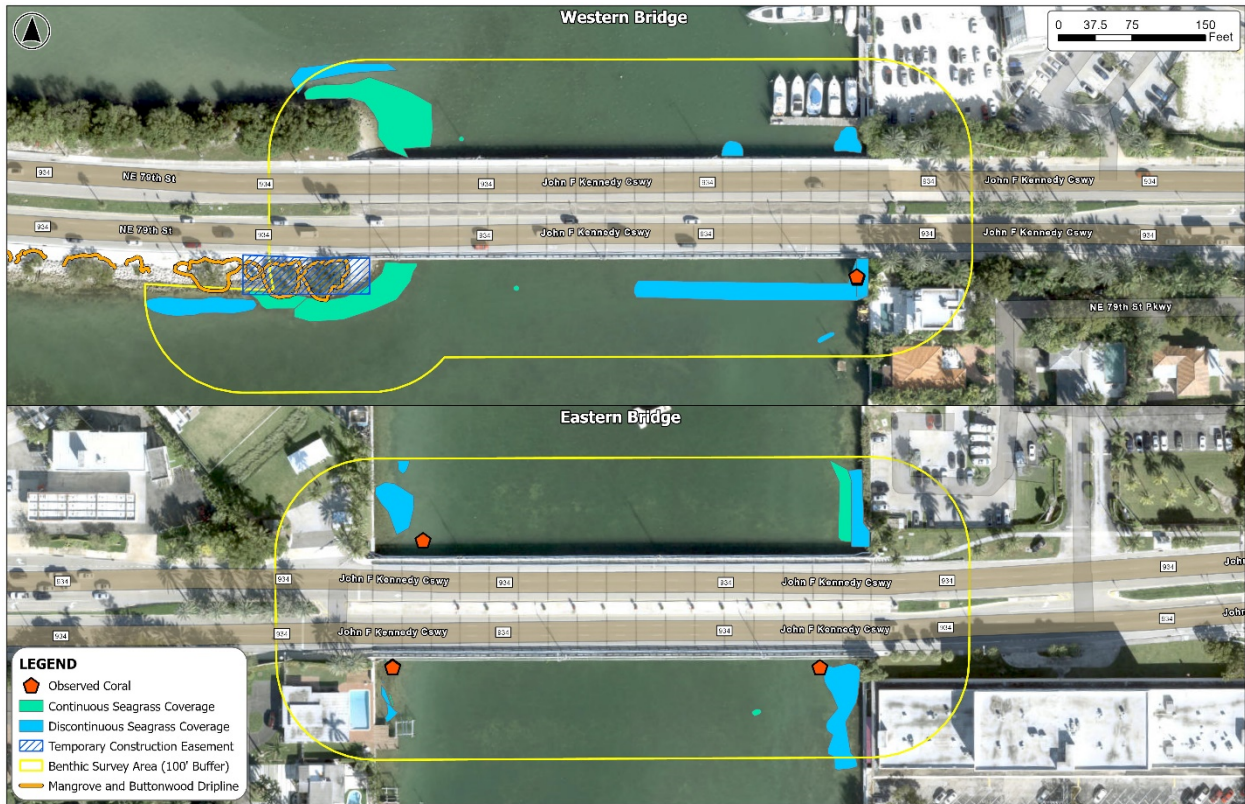
Thirteen (13) federal and state listed species have the potential to occur within the project area. Eleven of the listed species have a moderate or high potential of occurrence.

The project is within the USFWS consultation areas for American crocodile (*Crocodylus acutus*), Florida bonneted bat (*Eumops floridanus*), Florida manatee (*Trichechus manatus latirostris*), piping plover (*Charadrius melodus*), and Atlantic Coast plants. The waters in the project area are part of Biscayne Bay, an Outstanding Florida Water, Aquatic Preserve, and designated Critical Habitat for the Florida manatee. The nearest wading bird colony, as mapped by FWC, is 0.84 miles to the south of the project, on Bird Key, a small island in Biscayne Bay.

During the ETDM process, the National Marine Fisheries Service (NMFS) provided comments stating that Essential Fish Habitat (EFH) occurs within the project area. GIS and database research as well as multiple field surveys were conducted to determine the presence, location, and status of NMFS-regulated resources. EFH types that were identified in the project area include corals, hardbottom, macroalgae, mangroves, seagrass, and unconsolidated bottom. Biscayne Bay and Seagrass are Habitat Areas of Particular Concern (HAPCs) that occur in the project area. Seagrass bed and coral locations mapped during field surveys are shown in **Figure 2.11**.

Further information on natural resources is contained in the *Natural Resources Evaluation*, located in the project file.

Figure 2.11 | Seagrass Coverage



2.4.6 Contamination Sites

A contamination screening was prepared through an environmental database search which identified sites, facilities, or listings within the study area containing documented or suspected petroleum contamination or other hazardous materials. The database search utilized the 500' search distance as requested by the District Contamination Impact Coordinator (DCIC). Historical aerial photographs and United States Geological Survey (USGS) topographic maps were reviewed to understand previous land uses that may indicate contamination concerns.

Seven (7) potential contamination sites were identified within the 500' buffer area. The potential level of impacts with respect to the project area was evaluated and the sites were assigned low and medium levels. Of the seven potentially contamination sites, five were assigned as medium risk and two as low risk. Further information on potential contamination sites is contained in the *Contamination Screening Evaluation Report*, located in the project file.

3 Future Conditions

3.1 Land Use

According to the City of Miami and the North Bay Village Future Land Use Maps, and Miami-Dade County’s Adopted 2030 and 2040 Land Use Plan, the project corridor will continue to support the existing land uses at existing or higher densities.

3.2 Traffic

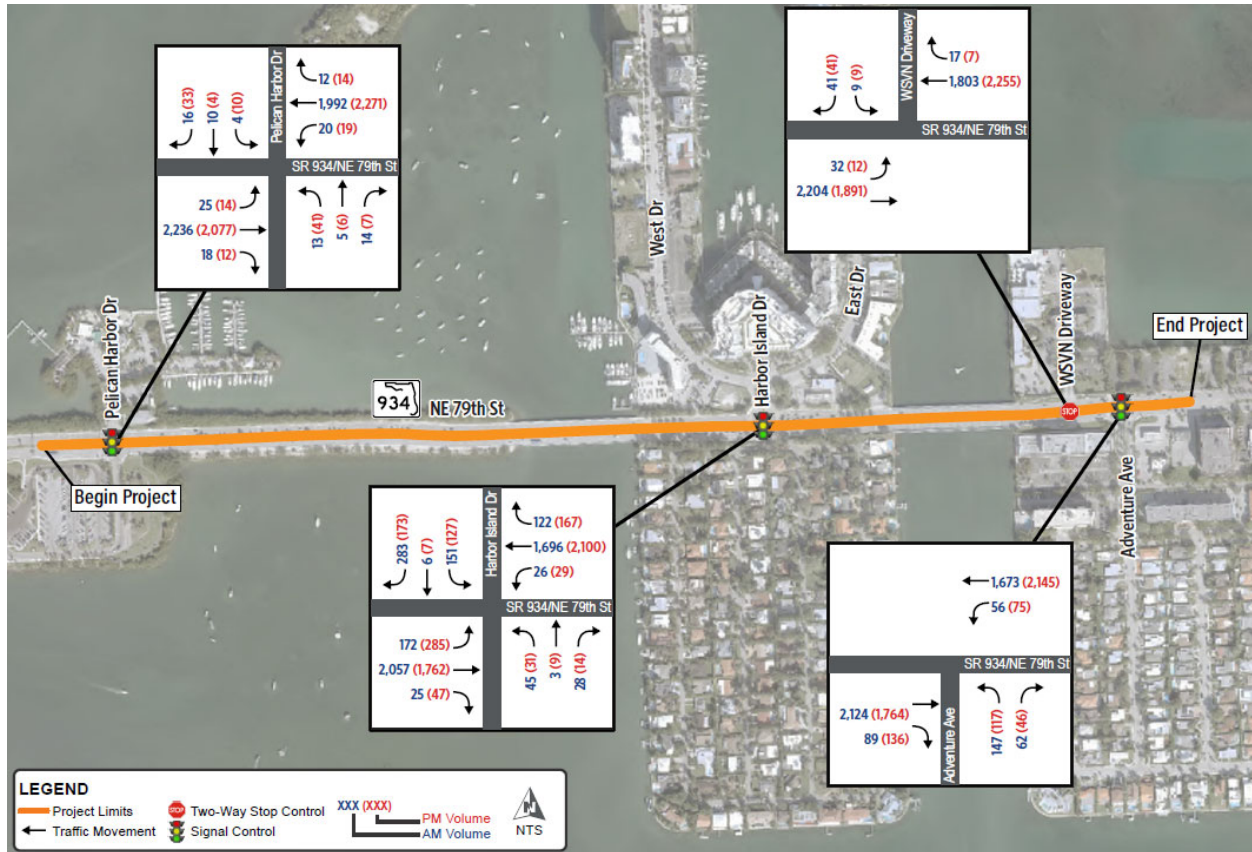
Future year traffic analysis was performed using the approved *Traffic Forecasting Memorandum*, located in the project file. Because the build alternatives do not include roadway or intersection capacity improvements, the roadway and intersection conditions under the No Build and Build Alternatives are the same.

Future design year (2050) AADT volumes along NE 79th Street are projected to be between 44,500 vehicles per day and 48,500 vehicles per day, as shown in **Figure 3.1**. Future design year (2050) intersection turning movement volumes for the AM and PM peak hour are shown in **Figure 3.2**.

Figure 3.1 | Design Year (2050) AADT Volumes



Figure 3.2 | Design Year (2050) Intersection Turning Movement Volumes



Future design year (2050) corridor analysis performed from Pelican Harbor Drive to Adventure Avenue revealed that eastbound NE 79th Street is projected to operate at LOS C during AM and PM peak hours. Overall corridor speeds in the eastbound direction are estimated to be 22.8 and 21.7 miles during the AM and PM peak hours, respectively. Westbound NE 79th Street is projected to operate at LOS C during AM and PM peak hours. Travel speeds for westbound traffic are approximately 22.8 mph and 18.6 mph during the AM and PM peak hours, respectively. It is noted that the westbound segment of NE 79th Street between Adventure Avenue and Harbor Island Drive is projected to operate at LOS E with travel speeds of about 11 miles per hour during the 2050 PM peak period. All remaining individual roadway segments will operate at LOS D or better during both the 2050 AM and PM peak hours. **Table 3.1** shows the peak hour speed and LOS for each segment and the NE 79th Street corridor overall.

Intersection LOS analysis showed that all intersections operate at overall LOS D or better during the peak hours. **Table 3.2** summarizes the overall intersection delay and LOS for future design year (2050).

Table 3.1 | NE 79th Street Peak Hour Travel Time and LOS Summary (Future 2050 Conditions)

Cross Street	Approach	AM Peak Hour		PM Peak Hour	
		Speed (mph)	LOS	Speed (mph)	LOS
Pelican Harbor Drive	Eastbound	23.8	C	22.8	C
Harbor Island Drive		22.0	C	22.9	C
Adventure Avenue		23.7	C	19.3	C
Total		22.8	C	21.7	C
Pelican Harbor Drive	Westbound	23.9	C	23.8	C
Harbor Island Drive		16.8	D	11.0	E
Adventure Avenue		26.2	B	25.6	B
Total		22.3	C	18.6	C

Several individual intersection turn movements in the northbound and southbound directions are projected to continue to operate at LOS E or F during one or both peak periods. Movements operating at LOS E or F include all northbound and southbound movements at Harbor Island Drive except for the southbound right turn during both peak hours; the southbound left turn at WSVN Driveway during both peak hours; and all northbound movements at Adventure Avenue. No additional individual movements are projected to operate at LOS E or F when compared to the existing condition.

Table 3.2 | Peak Hour Intersection Delay and LOS Summary (Future 2050 Conditions)

Intersection Name	AM Peak Hour		PM Peak Hour	
	Overall Delay (seconds / vehicle)	Overall LOS	Overall Delay (seconds / vehicle)	Overall LOS
Pelican Harbor Drive	6.9	A	7.6	A
Harbor Island Drive	24.8	C	41.7	D
WSVN Driveway*	n/a	n/a	n/a	n/a
Adventure Avenue	11.8	B	9.3	A

*Overall Delay and LOS were not reported for this intersection.

Refer to the *Project Traffic Analysis Report* for more details regarding future traffic conditions.

4 Design Controls and Criteria

This Section provides information about design controls and criteria used to develop the Build Alternative.

4.1 Design Controls

A summary of the design controls is provided below and listed in **Table 4.1**.

4.1.1 Roadway Functional and Context Classifications

As discussed in **Section 2.2.2**, the project corridor has an urban principal arterial functional classification. The context classification is C5 Urban Center for the entire project limits from west of Pelican Harbor Drive (MP 1.077) to east of Adventure Avenue (MP 1.947).

4.1.2 Existing Design and Posted Speed

As discussed in **Section 2.2.7**, the design speed for the corridor is 35 mph. The posted speed limit within the project limits is 35 miles per hour (mph) from MP 1.077 to MP 1.530 and 30 mph from MP 1.530 to MP 1.947.

4.1.3 Target Speed

FDOT has set the target speed (which matches the design speed) for NE 79th Street as 35 mph. In a memo dated February 28, 2022, FDOT noted driveway access onto the corridor is infrequent throughout most of the corridor. Many driveways are channeled into signalized intersection, minimizing scenarios where vehicles moving through the corridor encounter vehicles turning on and off the roadway. Most homes are located within a few streets of the project corridor and will likely have frequent interaction with the project corridor as the uses along SR-934 provide important resources for the residents of the North Bay Islands. Many pedestrians are likely to cross SR-934 from the Pelican Harbor parking lot (south of SR-934) to access the Pelican Harbor Marina (north of SR-934). FDOT noted the roadway should be designed to ensure that vehicle speeds are lower and there is adequate sight distance for motorists to account for the frequent pedestrian activity. Speed and sight distance accommodations should also be made for bicyclists as they also frequently use the corridor and are made to travel in the roadway on the western portion of the project limits.

4.1.4 Access Management Classification

As noted in **Section 2.2.3**, SR 934/NE 79th Street Causeway is designated Access Class 5 within the project limits.

Table 4.1 | Roadway Design Controls

Design Control	Value	Source
Functional Classification	Urban Principal Arterial	FDOT Straight Line Diagram
Context Classification	C5	Roadway Characteristics Inventory, FDOT KMZ file
Design Speed	35 mph	2023 FDM (Table 201.5.1)
Posted Speed	30 and 35 mph	Field Review, RCI
Target Speed	35 mph	PLCC Memo
Access Management	Access Class 5	FDOT Access Management Classification KMZ file

4.2 Design Criteria

Several design manuals and standards were reviewed to establish the final design criteria for this study. The design criteria are based on design parameters outlined in the current editions of the following publications:

- Florida Design Manual (2024), FDOT
- Standard Plans (FY 2024-25), FDOT
- Project Development and Environment Manual (July 2023, FDOT)
- Standard Specifications for Road and Bridge Construction (FY 2024-25), FDOT
- Structures Design Manual (2024), FDOT
- AASHTO LRFD Bridge Design Specifications 8th Edition (November 2021)
- Utility Accommodation Manual (2017), FDOT

Table 4.2 | Roadway Design Criteria

Design Criteria	Value	Source/Remark
Lane Width	10 feet (Min.)	FDM Table 210.2.1
Pavement Cross Slopes (Standard)	2% (inside lanes), 3% (outside lane)	FDM Figure 210.2.1
Median Width	15.5 feet (Min.)	FDM Table 210.3.1
Superelevation	5% (Max.)	FDM Section 210.9
Border Width	12 feet, 8 feet (Min.)*	FDM Section 210.7.1 *When right of way is not being acquired, modified existing Border Width must

Design Criteria	Value	Source/Remark
		not be less than 8 feet
Stopping Sight Distance	Grade $\leq 2\%$ = 250 feet (Min.), Downgrade 5% = 266 feet, Upgrade 5% = 231 feet	FDM Table 210.11.1
Clear Zone Width	14 feet (travel lanes), 10 feet (auxiliary lanes)	FDM Table 215.2.1
Horizontal Clearance/ Lateral Offset	1.5 feet from face of curb, 4.0 feet (pedestrian railing)	FDM Table 215.2.2
Roadside Slope (Front Slope)	1:2	FDM Table 215.2.3
Canal Hazard	40 feet	FDM Figure 215.3.2
Drop-off Hazard	22 feet	FDM Section 215.3.3
Lateral Offset to Guardrail	0 or 5 inches, 4-12 feet	FDM Figure 215.4.6
Turn Lane Deceleration Length	145 feet	FDM Exhibit 212-1
Horizontal Alignment	-	-
Deflection Without Curve	2°00'00" (Max.)	FDM Section 210.8.1
Deflection Through Intersection	6°00'00", 6 feet (Max.)	FDM Table 212.7.1
Length of Horizontal Curves	525 feet (Desired), 400 feet (Min.)	FDM Table 210.8.1
Merging Taper	$L = (W*S^2)/60$	FDM Section 210.2.5
Vertical Alignment	-	-
Grades	0.3% Min., 8% Max. 5% for ADA	FDM Section 210.10.1.1, Table 210.10.1
Change in Grade Without Curve	0.90% (Max.)	FDM Table 210.10.2
K-value for Vertical Curves	47 (Crest, Min.) 49 (Sag, Min.)	FDM Table 210.10.3
Length of Vertical Curve	105 feet (Min.)	FDM Table 210.10.4
Distance between VPIs on Curbed Roadways (Minimum)	250 feet	FDM Section 210.10.1.1
Min. Base Clearance	1 foot	FDM Section 210.10.3

Design Criteria	Value	Source/Remark
Pedestrian and Bicycle Facilities	-	-
Sidewalk Width	10 feet, 6 feet*	FDM Table 222.2.1, *For C5 and C6, when standard sidewalk width cannot be attained, provide the greatest attainable width possible, but not less than 6 feet
Bicycle Lane Width	7-foot buffered bicycle lane, 8 feet 4 inches at bridge traffic barrier	FDM Section 223.2.1.1, Figure 260.1.4

There are several vertical clearance requirements and criteria relevant for these bridges.

- In accordance with FDM 260.8.1, the minimum vertical clearance between the design flood stage and all superstructure elements shall be 2 feet. Also, the minimum vertical clearance above the mean high water shall be 6 feet for navigational purposes.
- In accordance with SDG 1.4.3, the splash zone is 12-feet above the mean high water. If all superstructure elements are located above this zone, the superstructure can be classified as moderately aggressive if the water chloride content is less than 6,000 ppm.

Table 4.3 | Bridge Design Criteria

Design Criteria	Value	Source
Vertical Clearance Over Water	2 feet over design flood stage 6 feet over MHW	FDM (Section 260.8.1)
Splash Zone	12 feet above MHW	SDG 1.4.3
Span-to-Depth Ratio	≤ 33	SDG 1.2
Environmental Classification	TBD	SDG 1.3
Concrete Class Requirements	CIP Bridge Deck: Class IV Precast Deck/Beam: Class IV, V, VI, or VII CIP Columns: Class IV Other CIP Substructure Elements: Class IV or V Piling: Class V, VI, or VII	SDG Table 1.4.3-1

Design Criteria	Value	Source
Concrete Strength	Class IV (excluding drilled shafts): 5.5 ksi Class V: 6.5 ksi Class VI: 8.5 ksi Class VII: 10.0 ksi	SDG Table 1.4.3-2
Loads and Load Factors	Varies	LRFD SDG Chapter 2
Minimum Prestressed Concrete Pile Size	24" (Carbon steel) 18" (CFRP or Stainless Steel)	SDG Table 3.5.1-1
Minimum Pile Spacing	3.0 pile diameters	SDG 3.5.4
Maximum Pile Driving Resistance	450 tons (24-inch) 300 tons (18-inch)	SDG Table 3.5.13-1
Minimum Deck Thickness	8 ½ inches	SDG 4.2.2

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5 Alternatives Analysis

The PD&E Study evaluated multiple alternatives for addressing the existing bridge conditions. Alternatives evaluated include No-Build, minor and major rehabilitation, and full replacement. In addition, the PD&E Study also evaluated roadway typical section alternatives for improving pedestrian and bicycle facilities from Pelican Harbor Drive to the western bridge pair. The bridge analysis and roadway typical section evaluation is summarized in the following sections.

5.1 No-Build (No-Action) Alternative

The No-Build Alternative assumes that no improvements would be implemented within the project corridor. It serves as a baseline for comparison against the build alternatives. It will, however, include on-going construction projects and all funded or programmed improvements scheduled to be opened to traffic in the analysis years being considered. These improvements must be part of the FDOT's adopted Five-Year Work Program, Long Range Transportation Plan, transportation elements of Local Government Comprehensive Plans, or developer-funded transportation improvements specified in approved development orders. This alternative is a viable alternative to serve as a comparison to the study's proposed Build Alternatives. The advantage of the No-Build Alternative is that it requires no expenditure of public funds for design, right-of-way acquisition, construction, or utility relocation. In addition, there would be no disruptions due to construction from the project and no direct or indirect impacts to the environment and/or the socio-economic characteristics of the project area. However, the No-Build Alternative does not address the purpose and need of the project and operational and safety conditions within the project area will become progressively worse.

5.2 Alternatives Considered but Eliminated

5.2.1 Transportation Systems Management and Operations (TSM&O) Alternative

The Transportation System Management and Operations (TSM&O) alternative intends to enhance the efficiency of the current transportation network by implementing established strategies that could be applied to address capacity and operational issues that exist today. The goal of TSM&O strategies is to preserve existing capacity, enhance safety, and improve reliability of the transportation network by establishing systems, services, and programs that optimize utilization of the existing infrastructure and show improvements in the transportation network performance. Typical TSM&O improvements include arterial traffic management systems, traffic incident management, work zone traffic management, road weather management, traveler information services, congestion pricing, parking management, traffic control, commercial vehicle operations, transit signal priority systems, and freight management. These TSM&O strategies are generally applied without any right-of-way acquisition and minimal disruption to the traveling public. While the capital costs associated with TSM&O applications are generally low, these systems do require operations and maintenance funding to deliver the expected outcomes over their useable life. While some increased efficiency might be realized through minor improvements, the stated project needs would not be resolved.

5.2.2 Multi-modal Alternatives

The corridor currently has bike lanes, sidewalks, and multiple transit stops in both directions. All build alternatives include bike lanes and sidewalks and take into consideration facilities to accommodate transit. The typical section analysis (Section 5.4.1) considers various combinations of widths for the travel lanes, bike lanes, and sidewalks. A multi-modal alternative alone does not meet the stated project purpose and need.

5.2.3 Bridge Rehabilitation Alternatives

Alternatives for minor rehabilitation (Alternative 1A) and major rehabilitation (Alternative 1B) were developed then screened at a high level with consideration of costs and ability to meet the purpose and need. The rehabilitation alternatives are summarized in the following sections. It was determined that rehabilitation is not a practical solution.

5.2.3.1 Alternative 1A: Minor Rehabilitation

In Alternative 1A, the bridges' current deficiencies per the latest bridge inspection reports are remediated. Deficiencies include clogged drainage scuppers, delamination on the underside of deck panels and joint headers, map cracking through previously repaired sidewalk areas, and corroded sidewalk cover plates. Specifically, the scope of work for the minor rehabilitation would include the quantity of concrete spall repairs as listed in the latest inspection report, replacement of the entire expansion joint and headers at each joint, epoxy overlay for the sidewalks, cleaning/coating of the structural steel sidewalk joint cover plates as needed, and crack injection on the bent caps as needed in accordance with the latest inspection report. This alternative does not require any new construction and the bridges' geometric and roadway components, including the typical section, remain as existing meaning the roadway geometric, operational, and safety concerns are not addressed. Alternative 1A does not address structural deficiencies and therefore does not meet the purpose and need.

Alternative 1A is the lowest cost build alternative at \$2.9 million; however, this type of work has been performed in the recent past and has proved to be ineffective long-term as the issues reoccurred. A life-cycle cost analysis showed that if the minor rehabilitation alternative was pursued then a second minor rehabilitation would be needed in 2028 and a replacement in 2031. The life cycle cost is estimated to be \$37,462,234. The costs of rehabilitation and continued maintenance out-weigh the benefit and service life of the bridges. Additionally, rehabilitating the existing bridges is not considered feasible because the structures are at the end of their 50-year design life.

5.2.3.2 Alternative 1B: Major Rehabilitation

In Alternative 1B, the bridges' superstructures are replaced while their substructures remain as existing. A major rehabilitation may also include installation of pile jackets or cathodic protection and bridge widening to improve barrier and sidewalk conditions. The new typical section is placed on the newly constructed superstructures. Benefits to this alternative include replacing the heavily deteriorated superstructure, making the substructure more resilient via pile jackets and cathodic protection, and having the ability to address some of the roadway's geometric deficiencies. However, the elements on the bridge that are not replaced (e.g., pier caps and

other substructural components) will continue to deteriorate and need routine maintenance. A major rehabilitation will extend the life of the structure, but it is unknown how much more the lifespan is extended. Because Alternative 1B does not address the structural deficiencies in the long-term, it does not meet the purpose and need.

Alternative 1B is estimated to cost \$27 million. A life-cycle cost analysis showed that if the major rehabilitation alternative was pursued then a minor rehabilitation would be needed in 2037 and a replacement in 2051. The lifecycle cost is estimated to be \$46,567,574. The costs of rehabilitation and continued maintenance out-weigh the benefit and service life of the bridges. Additionally, rehabilitating the existing bridges is not considered feasible because the structures are at the end of their 50-year design life.

5.2.3.3 Recommendation

Based on an evaluation of a minor and major rehabilitation solution, Alternative 1A and Alternative 1B are determined to be impractical alternatives for the following reasons.

- Structurally deficient – The bridges are currently classified as “structurally deficient” due to the Poor rating of the superstructure. Minor and major rehabilitation solutions would not effectively address structural deficiency issues long-term.
- Design Life – Rehabilitating the existing bridges is not considered feasible because the structures are at the end of their 50-year design life. Poor corrosion resistance has contributed to the degradation and shortened design life of the bridges.
- Bridge typical section – The existing bridge typical sections do not meet current FDOT standards. Geometric substandard conditions would remain.
- Life-cycle costs – The costs of rehabilitation and continued maintenance outweigh the benefit and service life of the bridges. A life cycle cost analysis shows that replacement is less expensive than rehabilitation (Rehabilitation costs are shown in Section 5.5).

5.3 Build Alternatives

A tiered approach was used to develop the build alternatives. The steps taken in this tiered approach are summarized in the following sections.

5.3.1 Bridge Typical Section

Five bridge typical sections that maintain the existing lane counts were evaluated. This includes three travel lanes, bicycle lanes, and sidewalks in each direction. The following are criteria that apply to all bridge typical section options:

1. The design speed is 35 MPH.
2. Provide barrier separation between pedestrians and traffic.

3. For purposes of this analysis, typical section features requiring a Design Variations are considered.
4. For purposes of this analysis, bridges are symmetrical. However, the preferred typical section does not have to have symmetrical bridges.
5. 10-foot sidewalks for the C5 context classification were not considered as it would require a wider bridge outside the right of way. Six-foot wide sidewalk are the greatest attainable width.

Table 5.1 provides details of each typical section considered, determines whether it meets FDOT standards, and determines whether it requires a design variation.

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Table 5.1 | Bridge Typical Section Matrix

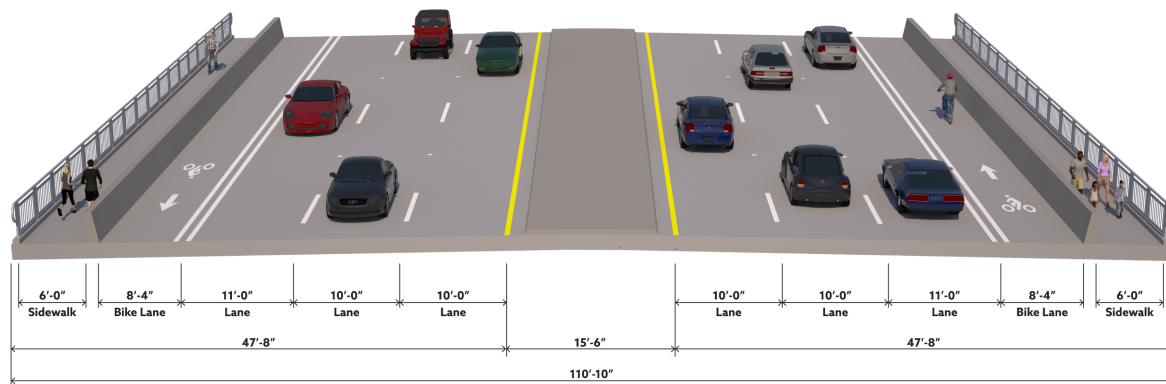
No.	Description	WB Parapet Railing (ft)	WB Sidewalk (ft)	WB Traffic Railing between Sidewalk and Roadway (ft)	WB Bicycle Lane (ft)	WB Travel Lanes (ft)	WB Offset from travel lane to raised median (ft)	Raised Median(ft)	EB Offset from travel lane to raised median (ft))	EB Travel Lanes (ft)	EB Bicycle Lane (ft)	EB Traffic Railing between Sidewalk and Roadway (ft)	EB Sidewalk (ft)	EB Parapet Railing (ft)	Total Bridge Width (ft)	Meets FDOT Criteria	Design Variation Needed
1	2 10' lanes/ 1 11' lane/ 8.33' bike lanes/ 6' sidewalks	1	6	1.333	8.333	31	1.5	12.5	1.5	31	8.333	1.333	6	1	110.832	Yes	No
2	3 11' lanes/ 6.33' bike lanes/ 6' sidewalks	1	6	1.333	6.333	33	1.5	12.5	1.5	33	6.333	1.333	6	1	110.832	No	Yes
3	3 11' lanes/ 8.33' bike lanes/ 6' sidewalks/ 11.5' median	1	6	1.333	8.333	33	1.5	8.5	1.5	33	8.333	1.333	6	1	110.832	No	Yes
4	1 10' lane/ 2 11' lanes/ 7.33' bike lanes/ 6' sidewalks	1	6	1.333	7.333	32	1.5	12.5	1.5	32	7.333	1.333	6	1	110.832	No	Yes
5	1 10' lane/ 2 11' lanes/ 8.33' bike lanes/ 5' sidewalks	1	5	1.333	8.333	32	1.5	12.5	1.5	32	8.333	1.333	5	1	110.832	No	Yes

Bridge typical sections 2 through 5 were eliminated from further consideration.

- Typical section 2 was eliminated because the area has a lot of bicycle traffic and cyclists should have the most space possible when crossing the bridges.
- Typical section 3 was eliminated because the existing median width would be shortened to a substandard width and then would need to be widened to accommodate turn lanes.
- Typical section 4 was eliminated because the area has a lot of bicycle traffic and cyclists should have the most space possible when crossing the bridges. Additionally, the shoulder/bicycle lane width is substandard.
- Typical section 5 was eliminated because pedestrians should have the most space possible when crossing the bridges and the sidewalk width is substandard.

Typical section 1 is the preferred bridge typical section. It gives pedestrians and cyclists the most space possible while ensuring vehicle traffic is not hindered. The preferred bridge typical section upgrades the facility to FDOT standards, including providing a raised median, six travel lanes (two 10-foot inside lanes and one 11-foot outside lane), buffered bicycle lanes (8-foot 4-inches), and barrier-separated sidewalks (6-feet wide) in each direction. **Figure 5.1** illustrates the preferred bridge typical section. The typical section package is contained in **Appendix A**.

Figure 5.1 | Proposed Bridge Typical Section

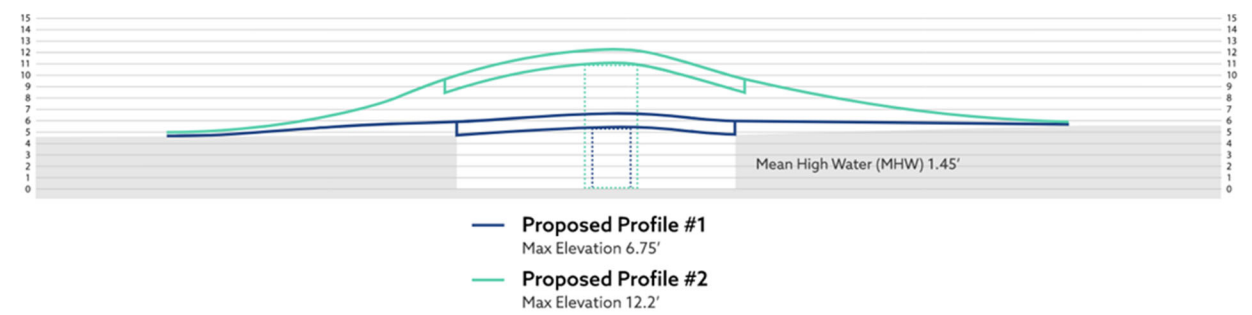


5.3.2 Bridge Build Alternatives

Two bridge replacement alternatives were developed and compared, Alternative 2A: Replacement (Profile #1) and Alternative 2B: Replacement (Profile #2). Alternative 2A: Replacement (Profile #1) replaces the bridges and keeps the same vertical profile. Alternative 2B: Replacement (Profile #2) replaces the bridges and raises the profile by approximately 3.6 feet to meet the FDOT minimum vertical clearance requirement (6 feet above Mean High Water) considering future sea level rise. Both replacement alternatives consider the same typical section and same structure type and differ only in the vertical profile. The bridge typical section consists of two 10-foot wide travel lanes, one 11-foot wide travel lane, an 8-foot 4-inch wide bicycle lane, and a 6-foot wide sidewalk in each direction. There is a concrete traffic barrier

between the bicycle lane and sidewalk. The replacement alternatives are further discussed below.

Figure 5.2 | Proposed Bridge Profiles



5.3.2.1 Alternative 2A: Replacement (Profile #1)

In Alternative 2A, the four existing bridges are removed and replaced with bridge structures that have similar profiles to the existing bridges. The Proposed Profile #1 (**Figure 5.2**) is kept close to the existing profile with a maximum elevation of 6.75 feet NAVD to limit impacts to the surrounding roadway sections and driveways while minimally improving the existing substandard bridge vertical clearance. The proposed typical section (**Figure 5.1**) is placed on the newly constructed structures. Alternative 2A proposes bridges that meet most FDOT standards neglecting the minimum vertical clearance requirement. Due to this alternative not meeting the minimum vertical clearance requirement, a future full replacement would be necessary for the bridges to fully comply with the minimum FDOT standards. Concept plans for Alternative 2A are contained in **Appendix B**.

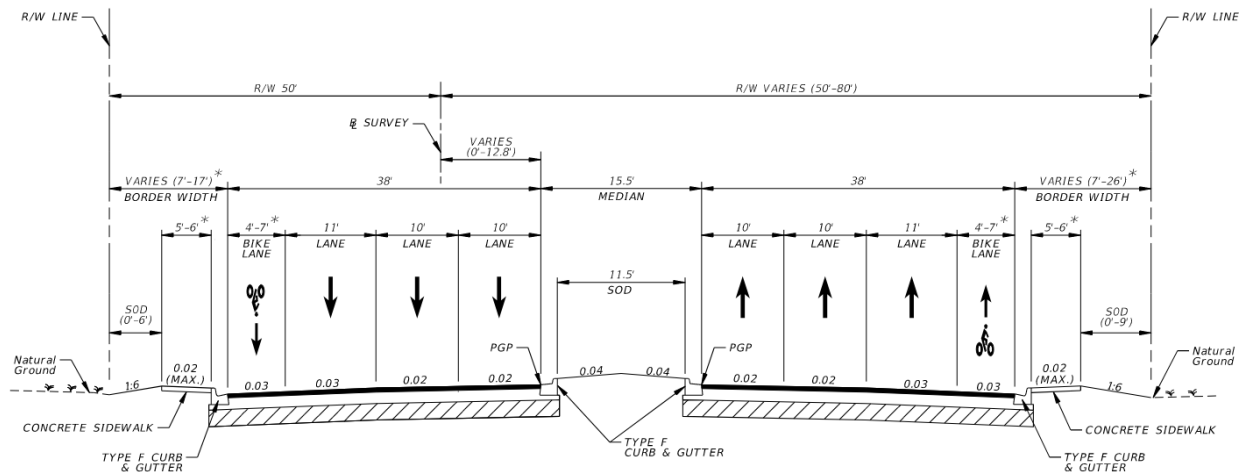
5.3.2.2 Alternative 2B: Replacement (Profile 2)

In Alternative 2B, the four existing bridges are removed and replaced. The Proposed Profile #2 (**Figure 5.2**) is raised approximately 3.6 feet, for a maximum elevation of 12.2 feet NAVD and minimum bridge low member elevation of 7.3 feet NAVD. The proposed bridge low member height provides a minimum vertical clearance of 6 feet above the projected Mean High Water (MHW) +1.3 feet NAVD for the bridge design year 2105. Due to the rise in elevation, driveway reconstructions and construction of gravity walls are necessary east and west of the bridge limits. This impacts surrounding businesses' and facilities' entrances/exit areas as driveways need to be reconstructed to meet the grade of the proposed profile. The proposed typical section (**Figure 5.1**) is placed on the newly constructed structures. Alternative 2B proposes bridges that fully comply with the minimum FDOT standards and would maximize the design life of the bridges. In the future, only regular bridge maintenance and potential rehabilitation may be necessary. Concept plans for Alternative 2B are contained in **Appendix B**.

5.3.3 Roadway Typical Section

The preferred roadway typical section upgrades the facility to FDOT standards at the bridge approaches and the roadway segment at North Bay Island/Harbor Island, including providing a raised median, six travel lanes (two 10-foot inside lanes and one 11-foot outside lane), buffered bicycle lanes (7-foot wide), and sidewalks (6-foot wide) in each direction, shown in **Figure 5.3**. The proposed roadway segment at Treasure Island transitions from preferred roadway typical section at the bridge approaches to the existing typical section at the east project limit (4-foot wide bicycle lanes, 5-foot wide sidewalks), identified with an asterisk in the typical section.

Figure 5.3 | Preferred Roadway Typical Section



Following the Public Alternatives Meeting, several typical section options were evaluated for the roadway segment from Pelican Harbor Drive to the western bridge pair to provide continuity of the bicycle lanes, upgrade the pedestrian facilities, and address roadside safety while minimizing right of way and environmental impacts. Options to add a Shared Use Path, Urban Side Path, or Separate Bicycle Lanes were considered and eliminated, because there are no existing paths along SR 934/NE 79th Street Causeway corridor outside the project limits and the on-street bicycle lanes provide continuity along the corridor. Based on the typical section evaluation, the preferred roadway typical section provides a raised median (15.5-foot wide) with Type F curb & gutter, six travel lanes (two 10-foot wide inside lanes and one 11-foot wide outside lane), bicycle lanes (4.25-foot wide), Type F curb & gutter, guardrail at the face of curb to shield the canal hazard (Biscayne Bay), and sidewalks (6-foot wide) in each direction. The various roadway typical section options evaluated, and their comparison are provided in **Appendix D**.

5.4 Comparative Alternatives Evaluation

Bridge replacement Alternatives 2A and 2B were studied further to compare their costs and benefits. Alternatives 2A and 2B and the No-Build Alternative were compared using evaluation criteria related to planning and standards, bridge life and design, costs, and environmental impacts. The comparisons are summarized as follows and in **Table 5.2**.

Planning and Standards

Alternatives 2A and 2B meet the purpose and need and FDOT standards while the No-Build Alternative does not.

Bridge

Bridge considerations included service life, resistance to hurricanes and vehicle collisions, vertical clearance and sea level rise, maintenance of traffic and construction impacts. Under the No-Build Alternative, the service life of the bridges would be 5 – 10 years based on the design life and recent inspections, while the bridges constructed under Alternatives 2A and 2B would be designed to serve for 75 years. All alternatives have been designed for hurricane resistance. None of the alternatives are resistant to vessel collision because they are not over navigable waters (FDOT SDG 2.11).

Alternative 2B is the only alternative with an increase in vertical clearance (an increase of approximately 3.6 feet) and that addresses projected sea level rise. *The Sea Level Rise Calculation Method to meet FDOT Design Criteria for Bridge Vertical Clearance and Roadway Base Clearance* Memorandum, located in the project file, documents the design criteria and calculation method used to estimate sea level rise and establish the proposed profile for Alternative 2B.

During construction, four lanes of traffic would be maintained during construction of either bridge replacement alternative; bridge closures and/or detours would not be required. Construction of either bridge replacement alternative may result in relocation of up to eight utilities. Alternative 2B would require driveway/access reconstruction at six properties due to the change in profile or proposed widening.

Costs

Construction cost estimates were prepared for each alternative using FDOT's Long Range Estimating (LRE) system. Detailed reports of each LRE are included in **Appendix C**. Right of way acquisition is not necessary for either alternative. Alternative 2A costs approximately \$9 million less than Alternative 2B.

Environmental

The bridge replacement alternatives would have similar environmental impacts while the No-Build Alternative would have no environmental impacts. The bridge replacement alternatives would require a temporary construction easement immediately adjacent to the bridge and within Pelican Harbor Park, which is a temporary section 4(f) impact. There are no potential impacts to historic properties and/or archaeological sites per the *Cultural Resources Assessment Survey*, located in the project file. A *Natural Resources Evaluation*, located in the project file, shows potential for 0.056 acres of wetland impact, minor impacts to essential fish habitat, minimal floodplain impacts, and an improvement to water quality. A *Contamination Screening Evaluation Report*, located in the project file, shows potential involvement with five medium risk and two low risk sites.

5.5 Preferred Alternative

The bridge replacement alternatives both meet the purpose and need; both are comparable in most criteria except for height and cost. Alternative 2B meets the FDOT minimum vertical clearance requirement considering future sea level rise; therefore, it is the preferred alternative.

Table 5.2 | Comparative Alternatives Matrix

Evaluation Criteria		No-Build Alternative	Bridge Replacement Alternatives	
			2A	2B
Planning & Standards	Meets Project Purpose and Need	No	Yes	Yes
	Meets FDOT Standards for Bicycle/Ped. Facilities	No	Yes	Yes
	Meets FDOT Standards for Roadway and Bridge	No	Yes	Yes
Bridge	Estimated Service Life	5 – 10 years	75 years	75 years
	Hurricane Resistance	Yes	Yes	Yes
	Vessel Collision Resistance	No	No	No
	Increase in Bridge Vertical Clearance	No	No	Yes
	Maintains 4 Lanes of Traffic During Construction	No	Yes	Yes
	Bridge Closure or Detour During Construction	No	No	No
	Meets Vertical Clearance Requirements considering sea level rise	No	No	Yes
	Driveway / Access Reconstruction (number)	0	0	5
	Existing Utilities Impacted (number)	0	Moderate – 8 Potential Utilities	
	Costs	Estimated Construction Cost (\$ million)	\$0	\$42.4
Estimated Right-of-Way Cost (\$ million)		\$0	\$0	\$0
Environmental	Potential Section 4(f) Impacts	None	Temporary, construction phase impacts to Pelican Harbor Park	
	Historic Properties and/or Sites Potentially Impacted	None	None	
	Wetland Impacts	None	Potential impacts (0.056 acres) to mangroves/buttonwood	
	Protected Species and Habitat Impacts	None	Minor impacts to Essential Fish Habitat; Not likely to adversely affect listed species	
	Floodplain Impacts	None	Minimal	
	Water Quality Impacts	None	Improvement over current conditions	
	Contamination Sites Impacted (number within 500')	0	5 Medium Risk Sites and 2 Low Risk Sites	

6 Agency Coordination and Public Involvement

This Section provides information on how the agency coordination and public and stakeholder engagement are being conducted for the NE 79th Street PD&E Study.

6.1 Agency Coordination

Agency coordination was conducted throughout the PD&E Study. Several coordination meetings between FDOT, North Bay Village, and Miami-Dade County were conducted to discuss the proposed improvements and project status.

Presentations were also given to local officials and agencies to share the project status, specific location, and design concepts, and to receive feedback.

6.1.1 Advance Notification and Efficient Transportation Decision Making

The project was screened through FDOT's Efficient Transportation Decision Making (ETDM) process as ETDM number 14484. Advance notification was sent on November 12, 2021, and the Environmental Technical Advisory Team review concluded on December 27, 2021.

Comments were received from the following federal and state agencies: Florida Department of Agriculture and Consumer Services, Florida Department of Economic Opportunity, Florida Department of Environmental Protection, Florida Department of State, Florida Fish and Wildlife Conservation Commission, National Marine Fisheries Service, National Park Service, SFWMD, U.S. Army Corps of Engineers (USACE), U.S. Coast Guard (USCG), U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service. Various departments within Miami-Dade County also commented. The project team followed up on comments, as needed. A programming screen summary report was published on February 11, 2022, and republished on August 26, 2022.

6.1.2 Interagency Meeting

An interagency meeting was conducted on September 21, 2003. In addition to FDOT, attendees included staff from the SFWMD, USACE and NMFS. The purpose of the meeting was to discuss the project and any concerns with the environmental permitting and/or reviewing agencies. Meeting minutes are on file and included in the *Natural Resources Evaluation Report*.

6.1.3 Project Advisory Group

At the beginning of the project a Project Advisory Group (PAG) was formed with assistance from local governments within the project area. The PAG is composed of local citizens having an active role in the community, such as representatives from impacted/interested cities, county, regional agencies, committees, and neighborhood associations or other groups within the project area.

Two PAG meetings were conducted:

- Meeting #1 – October 25, 2022, Virtual. The purpose of the meeting was to introduce Project Advisory Team (PAT) members to the project and the team, highlight the project

purpose and considerations, discuss the needs for the project, and begin dialogue with PAT members.

- Meeting #2 – April 20, 2023. The purpose of the meeting was to discuss proposed improvements including the preferred alternative, project schedule, and next steps after the Alternatives Public Meeting.

The project team will continue to engage the PAT during the Design phase.

6.2 Public Involvement

Three public meetings were conducted for this project. Meetings included a Public Kickoff Meeting in a hybrid format and Alternatives Public Information Meetings (one virtual meetings and one in-person meeting on a different day). Public notification of the meetings was accomplished via the media, hand-delivered factsheets to businesses and residences located directly along the corridor, press releases, public notices in local newspapers, and public announcements. Direct mailing invitations were sent to property owners and tenants within 300 feet of the project centerline, local and elected officials, and those who requested to be placed on the mailing list.

The Public Kickoff Meeting was held on November 29, 2022. The Alternatives Public Information Virtual Meeting was held on October 2, 2023, and the In-Person Meeting was held on October 5, 2023. Meeting notifications, materials, and comments are provided in the *Comments and Coordination Report*, located in the project file.

6.3 Public Hearing

To be completed following the Public Hearing.

7 Preferred Alternative

The preferred alternative for the bridge replacement is Alternative 2B: Replacement (Profile #2), with additional bicycle, pedestrian, and guardrail improvements from Pelican Harbor Drive to the western bridge pair. This Section describes design features and potential impacts associated with the Preferred Alternative. Refer to **Appendix B** for the Preferred Alternative concept plans.

7.1 Typical Sections

The preferred bridge typical section upgrades the facility to FDOT standards, providing a raised median, six travel lanes (two 10-foot wide inside lanes and one 11-foot wide outside lane), bicycle lanes, and barrier-separated sidewalks in each direction. The total bridge width is 110 feet 10 inches. **Figure 7.1** illustrates the preferred typical section and **Table 7.1** lists detailed the proposed dimensions. The typical section package is contained in **Appendix A**.

Figure 7.1 | Preferred Bridge Typical Section

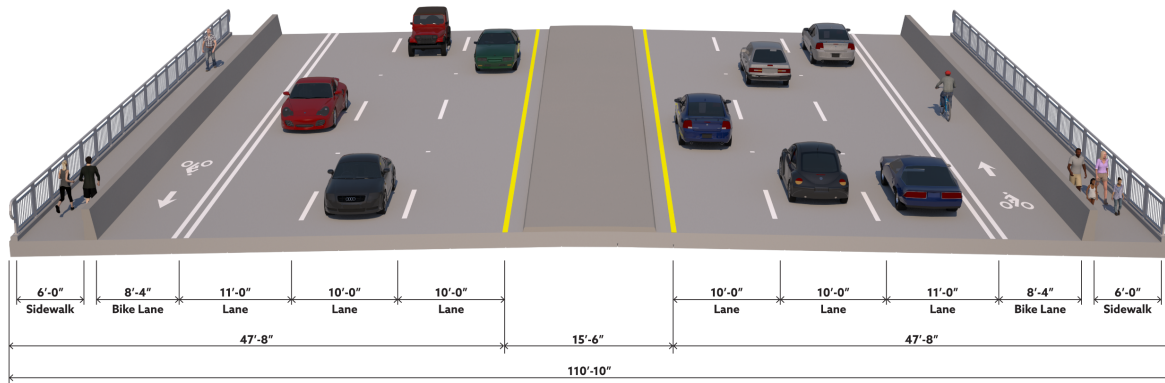
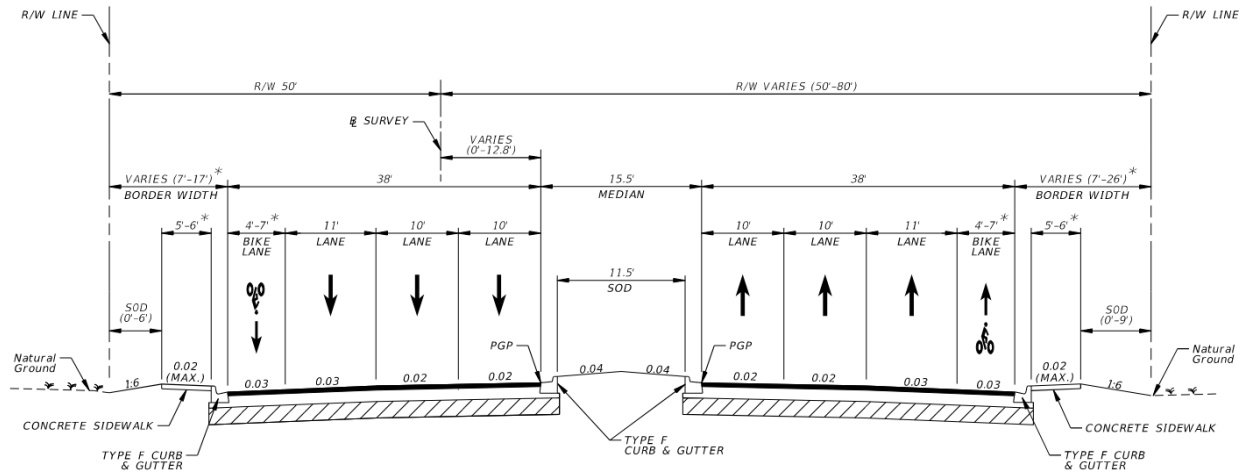


Table 7.1 | Preferred Bridge Typical Section Elements

Side/ Direction	Bridge Typical Section Element	Width (ft)
Left/ Westbound	Concrete Parapet Railing (Index 521-820)	1.0
	Sidewalk	6.0
	Traffic Railing (Index 521-427) between Sidewalk and Roadway	1.333
	Bicycle Lane	8.333
	Travel Lanes (Two 10' inside lanes, One 11' outside lane)	31
Median (15.5 ft total)	Offset from WB Inside Travel Lane to raised median	1.5
	Raised Median	12.5
	Offset from EB Inside Travel Lane to raised median	1.5
Right/ Eastbound	Travel Lanes (Two 10' inside lanes, One 11' outside lane)	31
	Bicycle Lane	8.333
	Traffic Railing (Index 521-427) between Sidewalk and Roadway	1.333
	Sidewalk	6.0
	Concrete Parapet Railing (Index 521-820)	1.0
Total Bridge Width (out-to-out)		110.832

The preferred roadway typical section at the bridge approaches and Harbor Island/North Bay Island upgrades the facility to meet current FDOT design criteria, including providing a raised median, six travel lanes (two 10-foot inside lanes and one 11-foot outside lane), buffered bicycle lanes (7 feet), Type F curb & gutter, and sidewalks (6-foot wide) in each direction, shown in **Figure 7.2**. The proposed roadway segment at Treasure Island transitions from preferred roadway typical section at the bridge approaches to the existing typical section at the east project limit (4-foot wide bicycle lanes, 5-foot wide sidewalks). In the constrained segment along Pelican Harbor, west of the west bridge pair, the preferred roadway typical section provides bicycle lanes (4.25 feet wide), guardrail at the face of curb to shield the canal hazard (Biscayne Bay), and sidewalk (6' wide).

Figure 7.2 | Preferred Roadway Typical Section



7.2 Access Management

The existing Access Class 5 will remain along the SR 934/NE 79th Street Causeway; the existing access management controls and access points are to remain, including signalized intersections, median openings, and driveway connections. The Preferred Alternative roadway profile or widening requires driveway reconstruction at the locations listed below. The locations of driveway reconstruction are shown in the concept plans contained in **Appendix B**.

- North Bay Village, Safety Complex Site (1335 79th St. Causeway, future development) – West of Harbor Island Drive, one existing one-lane ingress driveway (15 feet wide) to be removed (sta. 65+78 LT) and one proposed one-lane ingress driveway (36 feet wide) to be constructed at the future fire station entrance (sta. 64+92 LT).
- Shell Gas Station (1345 John F Kennedy Causeway) – East of Harbor Island Drive, two existing two-lane driveways (30 feet wide) to be reconstructed (sta. 70+26 LT, sta. 71+57 LT).
- North Bay Village, Civic Park Site (7903 East Drive, future development) – East of Harbor Island Drive, one existing two-lane driveway to be reconstructed (sta. 73+22 LT) and reduce width from 42 feet to 24 feet.
- WSVN/Channel 7 property (1415 NE 79 St.) – West of Adventure Avenue, one existing two-lane driveway (46 feet wide) to be reconstructed (sta. 81+24 LT).
- Grove by the Bay property (1401 79 Street Cswy.) – West of Adventure Avenue, two existing one-lane driveways (38-40 feet wide) to be reconstructed (sta. 80+52 RT, sta. 81+35 RT).
- Speedway Gas Station (1508 79 St.) – East of Adventure Avenue, one existing two-lane driveway (35 feet wide) to be reconstructed (sta. 85+05 RT).

7.3 Right of Way

The preferred alternative requires right of way impacts at the following locations listed in **Table 7.2**, including Fee Simple Purchase at three parcels, Temporary Construction Easements at two parcels, and License Agreement at one property.

Table 7.2 | Right of Way Impacts for Preferred Alternative

Parcel Reference Number	Property Name (Address)	Owner Type	Owner	Folio Number	Proposed Right of Way Impact	Purpose	Impact Area	
							(sf)	(ac)
1	Pelican Harbor Marina (1265 NE 79 St. Cswy.)	Public	Miami-Dade County, Parks, Recreation and Open Space Dept.	01-3208-031-0010, 01-3208-031-0020	Fee Simple Purchase	Sidewalk and Lighting	5,927	0.136
					Temporary Construction Easement	Slope Harmonization and Bridge Construction	10,641	0.244
3	Grove by the Bay (1400 79 St. Cswy.)	Private	Sunbeam Properties Inc.	23-3209-000-0161	Temporary Construction Easement	Bridge Construction and Driveway Harmonization	3,113	0.071
4					Fee Simple Purchase	Sidewalk and Lighting	84	0.002
5	Speedway Gas Station (1508 79 St.)	Private	Hess Realty LLC	23-3209-010-0140	Fee Simple Purchase	Sidewalk	300	0.007
License Agreement	Civic Park	Public	North Bay Village	23-3209-001-0070	License Agreement	Driveway Harmonization	516	0.012

7.4 Horizontal and Vertical Geometry

The proposed horizontal and vertical geometry are shown in the concept plans contained in **Appendix B** and summarized below.

Horizontal Geometry

The proposed horizontal alignment introduces two deflections (2°00'00") west of the west bridge pair and two deflections (2°00'00") east of the east bridge pair, to replace the existing sub-standard horizontal curves and match the existing alignment at the project limits. At North Bay Island/Harbor Island, the proposed centerline is shifted to the north 5.75 feet to fit the proposed bridges within the right of way and minimize impacts to the existing decorative landscape wall along the south side of the roadway.

Vertical Geometry

The proposed vertical alignment provides crest vertical curves at the two bridges and sag vertical curves with roadway reconstruction at the bridge approaches. See **Section 7.16.1** for proposed bridge vertical clearance. The proposed vertical alignment provides a minimum base clearance of 1.0 feet from the Design High Water (DHW) for the Design Year 2050 to the

proposed bottom of roadway base for reconstruction and widening segments. The proposed vertical alignment provides a minimum longitudinal grade of 0.3% and minimum distance between VPIS of 250 feet with milling, overbuild, and resurfacing of the existing roadway segments along Pelican Harbor, North Bay Island/Harbor Island, and Treasure Island.

7.5 Design Variations and Design Exceptions

The preferred alternative requires design variations for Border Width, Bicycle Facilities, and Sidewalk Width at the following locations. These variations are necessary to minimize environmental impacts and right of way acquisition, while meeting the project purpose and need.

- Border Width
 - Existing Border Width 7' from sta. 42+52 to sta. 43+74 LT
 - Proposed Border Width 10'-12' from sta. 43+74 to sta. 53+11 LT, and from sta. 42+62 to sta. 54+96 RT
 - Proposed Border Width 7'-8' from sta. 82+22 to sta. 82+87 RT, from sta. 84+13 to sta. 85+75 RT, and from sta. 84+15 to sta. 85+75 LT.
- Bicycle Facilities
 - Proposed Bicycle Lanes 4.25'-7' from sta. 42+52 to sta. 54+50
 - Proposed Bicycle Lanes 4.25'-7' from sta. 81+50 to sta. 85+75 RT and from sta. 84+00 to sta. 85+75 LT
- Sidewalk Width
 - Existing Sidewalk Width 5' from sta. 42+52 to sta. 43+74 LT, from sta. 84+00 to sta. 85+75 LT, and from sta. 85+38 to sta. 85+75 RT.

7.6 Multimodal Accommodations

Pedestrian and Bicycle Facilities

The preferred typical section includes upgrades to provide wider sidewalks (6-feet) and buffered bicycle lanes (7 feet) where feasible. The preferred alternative includes bicycle lanes (4-feet to 4.25-feet wide) in the constrained roadway segment at Pelican Harbor and the transition to the existing roadway near Adventure Avenue. Options to add a Shared Use Path, Urban Side Path, or Separate Bicycle Lanes were considered and eliminated, because there are no existing paths along SR 934/NE 79th Street Causeway corridor outside the project limits and the on-street bicycle lanes provide continuity along the corridor.

Transit Facilities

Bus stops will be replaced at their current location. The existing bus shelter at the NE corner of NE 79th Street and Harbor Island Drive requires relocation due to the proposed roadway widening. The preferred alternative will not impact the existing transit routes.

7.7 Intersection/Interchange Concepts and Signal Analysis

The preferred alternative proposes the replacement of the signalized intersections at Harbor Island Drive/North Bay Island and Adventure Avenue. The existing signalized intersection at

Pelican Harbor Drive is to remain. The existing signalization features at the Emergency Signal east of Harbor Island Drive are to be removed.

7.8 Tolled Projects

The preferred alternative does not include tolling.

7.9 Intelligent Transportation System and TSM&O Strategies

The preferred alternative does not add any new ITS facilities or TSMO strategies within the project limits.

7.10 Landscape

The preferred alternative impacts existing landscaping in the median and roadside for the proposed bridge construction and pavement widening. Impacted landscaping will be replaced in-kind. The preferred alternative does not propose any new landscaping.

7.11 Lighting

The project requires replacement of the existing lighting system in the areas of bridge construction, pavement widening, and sidewalk widening to meet current FDM criteria. A Lighting Justification Study for the entire corridor will be conducted during the Design phase.

7.12 Wildlife Crossings

The project is in an urban area; wildlife crossings are not proposed.

7.13 Permits

The implementation of the Preferred Alternative will require the following permits:

- USACE Section 10 or Section 404 Permit
- SFWMD Environmental Resource Permit (ERP) and Sovereign Submerged Lands Easement
- DEP National Pollutant Discharge Elimination System Permit
- Miami-Dade County Class I and Class III Permits

7.14 Drainage and Stormwater Management Facilities

The proposed drainage system is divided into four systems that will comply with all water quality and quantity requirements required by the permitting agencies having jurisdiction along the corridor. The four system limits are as follows:

- Proposed System 1: from the western project limit (Pelican Harbor Drive) to the high point at Bridge No. 870083 (westbound) and Bridge No. 870549 (eastbound) at Sta. 60+79.25

- Proposed System 2: from the high point at Bridge No. 870083 (westbound) and Bridge No. 870549 (eastbound) at Sta. 60+79.25 to Harbor Island Drive
- Proposed System 3: from Harbor Island Drive to the high point of Bridge No. 870084 (westbound)/Bridge No. 870550 (eastbound) at Sta. 76+94.80
- Proposed System 4: from the high point of Bridge No. 870084 (westbound)/Bridge No. 870550 (eastbound) at Sta. 76+94.80 to east of Adventure Avenue at Sta. 93+00.00

The stormwater runoff within each proposed system will be collected via curb inlets along both sides of the road and will be treated before discharging into Biscayne Bay. Due to right of way limitations, the use of dry retention swales, drainage wells and pump stations is limited. With these considerations and based on the existing permits available adjacent to the study area, the use of exfiltration trenches along the median of the project is being proposed. This method is the most widely used stormwater management system in South Florida that meets the stormwater quality and quantity criteria applicable to roadway projects and is preferred due to cost and maintenance. The exfiltration trenches are proposed at locations avoiding as much as possible conflicts with the existing underground utilities along the corridor.

For more detailed information on the proposed drainage system, refer to the *Conceptual Design Drainage Report*, located in the project file.

7.15 Floodplain Analysis

The Florida Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) of Miami Dade County were used to evaluate the 100-year floodplain encroachment. SR 934/NE 79th Street falls within the limits of two FEMA Firm Panels (Community Panel 12086C0306L and 12086C0307L). The project is within FEMA flood zone AE where Base Flood is determined as EL 10.0 NGVD (10.00-1.54 = 8.46 NAVD) at the west end of the project and EL 9.0 NGVD (9.00- 1.54 = 7.46 NAVD) at the east end of the project.

Floodplain encroachment is estimated using as-built roadway cross-sections and proposed roadway improvements. The proposed roadway area is below the FEMA floodplain elevation except the proposed two bridge structures. The proposed structures will perform hydraulically in a manner equal to or greater than the existing structures, and backwater surface elevations are not expected to increase. As a result, there will be no significant adverse impacts on natural and beneficial floodplain values. There will be no significant change in flood risk, and there will not be a significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Also proposed improvements within the roadway are below FEMA flood elevation. Therefore, it has been determined that the floodplain encroachment for this project is not significant and mitigation for the floodplain encroachment is not required.

7.16 Bridge and Structure Analysis

The preferred alternative involves the replacement of Bridge Numbers 870083 (westbound) and 870549 (eastbound), located just west of North Bay Island/Harbor Island (western bridge pair), and Bridge Numbers 870084 (westbound) and 870550 (eastbound) located just east of North

Bay Island/Harbor Island (eastern bridge pair). The typical section for the replacement bridges is described in **Section 7.1**.

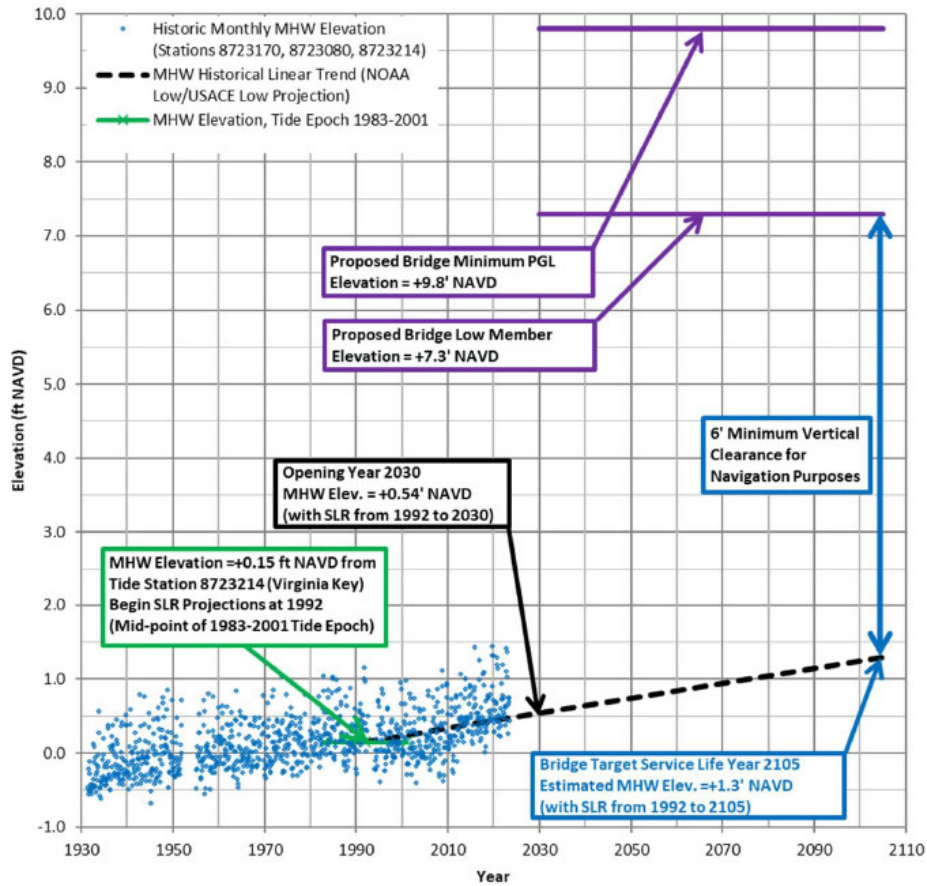
7.16.1 Bridge Vertical Clearance

The preferred alternative raises the profile approximately 3.6 feet at the bridges, for a maximum elevation of 12.2 feet NAVD and a minimum bridge low member elevation of 7.3 feet NAVD. The proposed bridge low member height provides a minimum vertical clearance of 6 feet above the projected Mean High Water (MHW) +1.3 feet NAVD for the bridge design year 2105. The vertical clearance calculations from the *Sea Level Rise Memorandum* are summarized in **Table 7.3** and shown in **Figure 7.3**.

Table 7.3 | Bridge Vertical Clearance Calculations with Estimated Sea Level Rise

		Tide Station 8723214 (Virginia Key)
Tide Datums (1983- 2001, Mid-Point Year 1992)	Mean Sea Level (MSL)	-0.89 ft NAVD
	Mean High Water (MHW)	+0.15 ft NAVD
Historic Linear Sea Level Rise Rate (1931 – 2022)		0.0102 ±0.00072 ft/yr
Opening Year		2030
Design Year		2105 (Bridges)
Estimated MHW Elevation for Opening Year 2030		+0.54 ft NAVD
Estimated Sea Level Rise from 1992 to 2105		1.15 ft
Estimated MHW Elevation for Bridge Design Year 2105		+1.3 ft NAVD
Proposed Minimum Bridge Vertical Clearance for Navigation above MHW		6.0 ft
Existing Bridge Low Member Elevation		+3.8 ft NAVD
Minimum Bridge Low Member Elevation		+7.3 ft NAVD
Proposed Structure Depth (12"x59" CFRP Florida Slab Beams and 6" topping)		1.5 ft
Proposed Elevation Difference from PGL to edge of bridge deck		0.95 ft
Proposed Bridge Minimum Profile Grade Line Elevation		+9.8 ft NAVD

Figure 7.3 | MHW Elevation with Estimated Sea Level Rise Linear Projection



7.16.2 Superstructure Considerations

The FDOT Structures Manual (2023), Volume 1 - SDG Section 1.4.3 states the splash zone applies to marine structures and is defined as the vertical distance from 4 feet below MLW to 12 feet above MHW and/or areas subject to wetting by personal watercraft (e.g., jet skis) or other activities and features. The proposed new bridges for all alternatives will be within the splash zone and the corrosive effects require mitigation through the use of non-corrosive pre-stressing in the superstructure.

There are three viable superstructure types: Florida-I 36 Beams, 12-inch Florida Flat Slab Beam (FSB), or 12-inch Florida FSB with carbon fiber reinforced polymer (CFRP) prestressing strands. There are benefits and drawbacks to each of the options, but the 12-inch FSB with CFRP provides the most resiliency and a relatively shallow structural depth. It has a shallow section depth compared to the Florida-I 36 beams to improve vertical clearance without major impacts to the vertical roadway profile. Also, the CFRP prestressing is resistant to corrosion because it doesn't utilize conventional steel prestressing strands. The primary drawback to using this structure type is the higher construction cost. However, this is offset by the low maintenance costs over time.

7.16.3 Substructure Considerations

The substructure may consist of driven piles or drilled shafts and there are advantages and disadvantages for each option. Driven piles are less expensive. However, there are a few existing structures in the vicinity of these bridges, and they may be impacted by the vibrations during pile installation. Low vibration foundation like Auger Cast Pile should be considered during design, especially at end bents.

Also, due to phased construction, the existing bridge itself can be impacted by pile driving operations. According to the pile driving records available, existing end bent piles are between approximately 14 feet and 20 feet in length, and piles at interior bents vary from approximately 37 feet to 47 feet long. Vibration monitoring will need to be employed and/or foundation elements adjacent to existing sensitive structures may require drilled shafts instead of driven piles.

The pier caps would typically consist of traditional reinforced concrete. However, to make the structure more resilient, stainless-steel reinforcement can be used. Similarly, the piles can be made with conventional carbon steel prestressing steel or be made more resilient with FRP/stainless steel strands and reinforcing.

Wave Analysis

Preliminary calculations were performed to assess the vulnerability of proposed alternatives to Wave Forces. Wave height and wave period were determined using analytical methods including the Coastal Engineering Design and Analysis System (CEDAS) Automated Coastal Engineering System (ACES) and methods documented in the Coastal Engineering Manual (CEM). Design water levels were determined using the FEMA Flood Insurance Study (FIS 12086CV001B) and relative sea level rise (RSLR) was determined based on the NOAA 2022 RLSR Intermediate level predictions at the Virginia Key NOAA Gauge. The calculated wave parameters were applied to the loading calculations in AASHTO Guide for design of Bridges Vulnerable to Coastal storms (BVCS). Results are presented in the table below. As a result, we conclude that the wave forces can be resisted with nominal structural connectivity between the superstructure and substructure and that wave forces do not prevent the advancement of Replacement Alternatives 2a and 2b.

Note that the analysis performed to determine wave conditions was high level (referred to as Level I in BVCS) and did not include 2-dimensional wave or hydrodynamic modeling. This analysis is appropriate for assessing feasibility, but 2-dimensional modeling should be performed during final design.

Table 7.4 | Wave Analysis Results Summary

	AASHTO BVCS
Vertical Force	1048 kip
Horizontal Force	16 kip
Moment	87,500 kip-ft

7.16.4 Aesthetic Considerations

Aesthetic elements of the bridges won't be significantly altered by this project. Exceptions include the pedestrian railings and bridge color. Both of which can be modified from the existing condition. Details regarding the bridge railing aesthetics will be further coordinated during the Design phase.

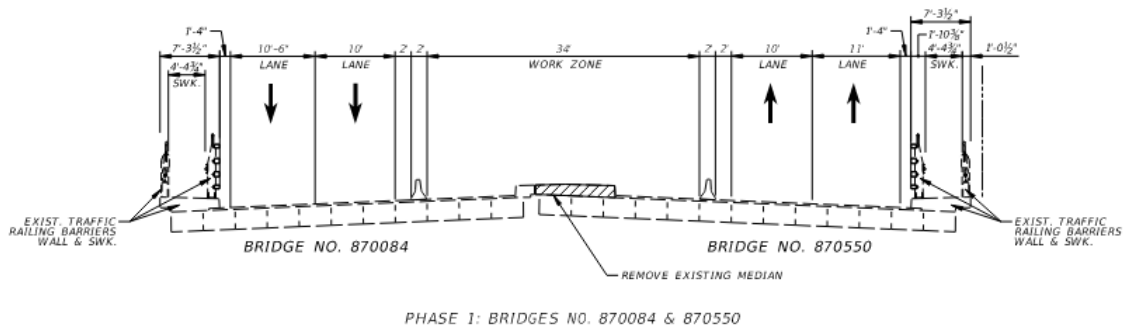
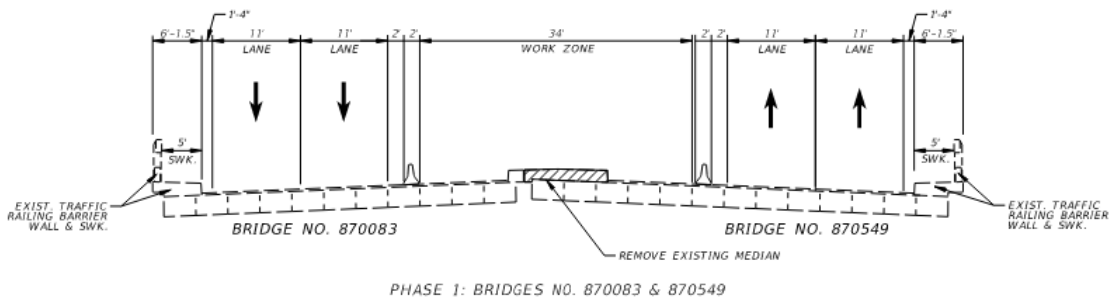
7.17 Transportation Management Plan

A transportation management plan was developed to maintain traffic on the SR-934/NE 79th Street corridor during the construction phase of the project. The maintenance of traffic plan for the project contains 4 phases in which a minimum of 2 lanes in each travel direction and one sidewalk remains open for use.

7.17.1 Phase 1- EB/WB Lane Reduction

The intent of Phase 1 is to provide a work zone for the removal of the median on Bridge Nos. 870549 and 870550. The work zone for this phase closes one travel lane in each direction leaving 2 travel lanes in each direction open while the work in the median is completed. The existing sidewalks remain open for pedestrian use. For Bridge Nos. 870083 and 870549, the lane configuration consists of two 11 ft. travel lanes in each direction. For Bridge Nos. 870084 and 870550, the lane configuration consists of an inside 10 ft. travel lane and an outside 10.5 ft. travel lane for the westbound travel lanes and an inside 10 ft. travel lane and an outside 11 ft. travel lane for the eastbound travel lanes. The outside travel lanes are protected by temporary traffic barriers in accordance with FDOT Standard Plans Indexes 102-100 and 102-110. The Phase 1 temporary traffic control typical section is depicted below in **Figure 7.4**.

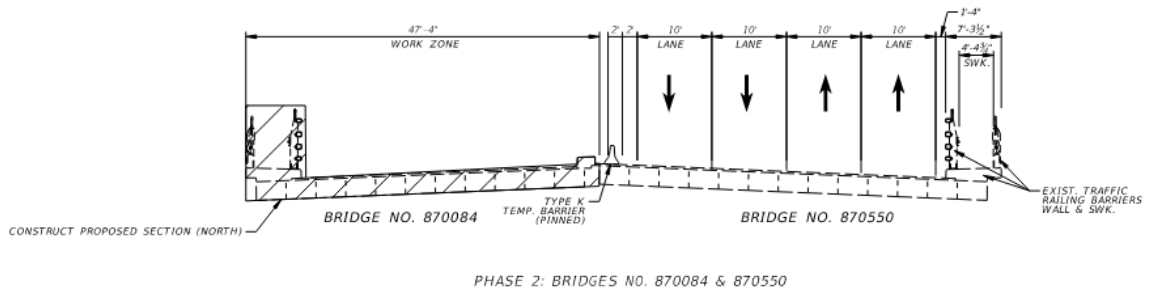
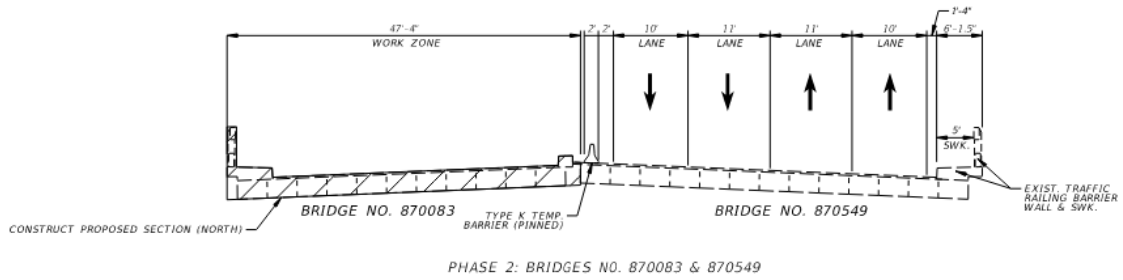
Figure 7.4 | Phase 1 Temporary Traffic Control Typical Section



7.17.2 Phase 2- Shift EB traffic to Bridge Nos. 870549 and 870550

The intent of Phase 2 is to provide a work zone for the removal of the existing Bridge Nos. 870083 and 870084 and construction of the proposed Bridge Nos. 870083 and 870084. All traffic is shifted to the Bridges Nos. 870549 and 870550 and the existing sidewalks remain open for pedestrian use during this phase. The lane configuration for Phase 2 consists of an inside 11 ft. lane and an outside 10 ft. lane in each direction for Bridge No. 870549 and two 10 ft. travel lanes in each direction for Bridge No. 870550. The outside travel lanes adjacent to the work zones are protected by pinned temporary traffic barriers in accordance with FDOT Standard Plans Indexes 102-100 and 102-110. The Phase 2 temporary traffic control typical section is depicted below in **Figure 7.5**.

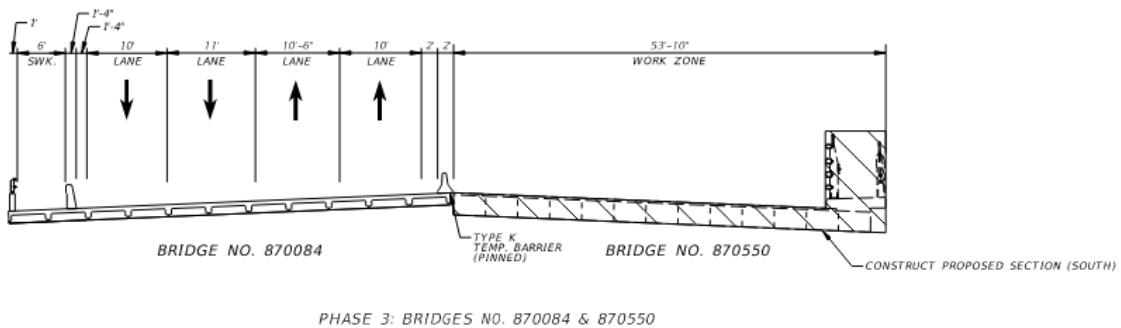
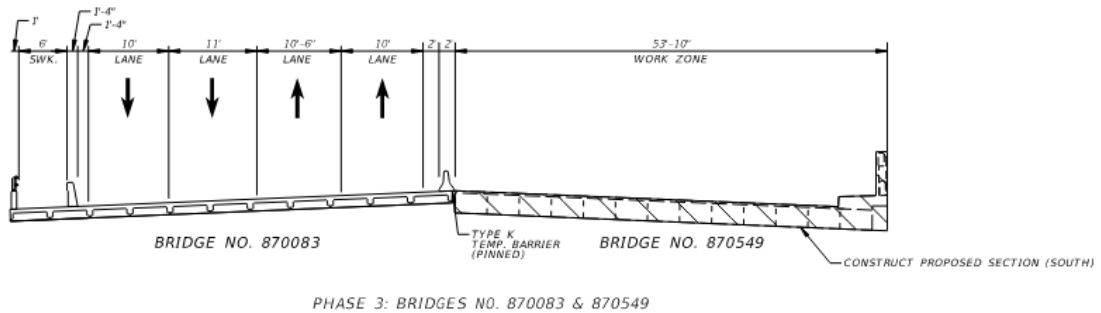
Figure 7.5 | Phase 2 Temporary Traffic Control Typical Section



7.17.3 Phase 3- Shift WB traffic to Bridge Nos. 870549 and 870550

The intent of Phase 3 is to provide a work zone for the removal of the existing Bridge Nos. 870549 and 870550 and construction of the proposed Bridge Nos. 870549 and 870550. All traffic is shifted to the newly constructed Bridge Nos. 870083 and 870084 and a 6 ft. sidewalk is provided for pedestrian use during this phase. The lane configuration for Phase 3 consists of an inside 11 ft. lane (eastbound), an inside 10.5 ft. lane (westbound) and two outside 10 ft. lanes in each direction for both bridges. The outside travel lanes adjacent to the work zones are protected by pinned temporary traffic barriers in accordance with FDOT Standard Plans Indexes 102-100 and 102-110. The Phase 3 temporary traffic control typical section is depicted below in Figure 7.6.

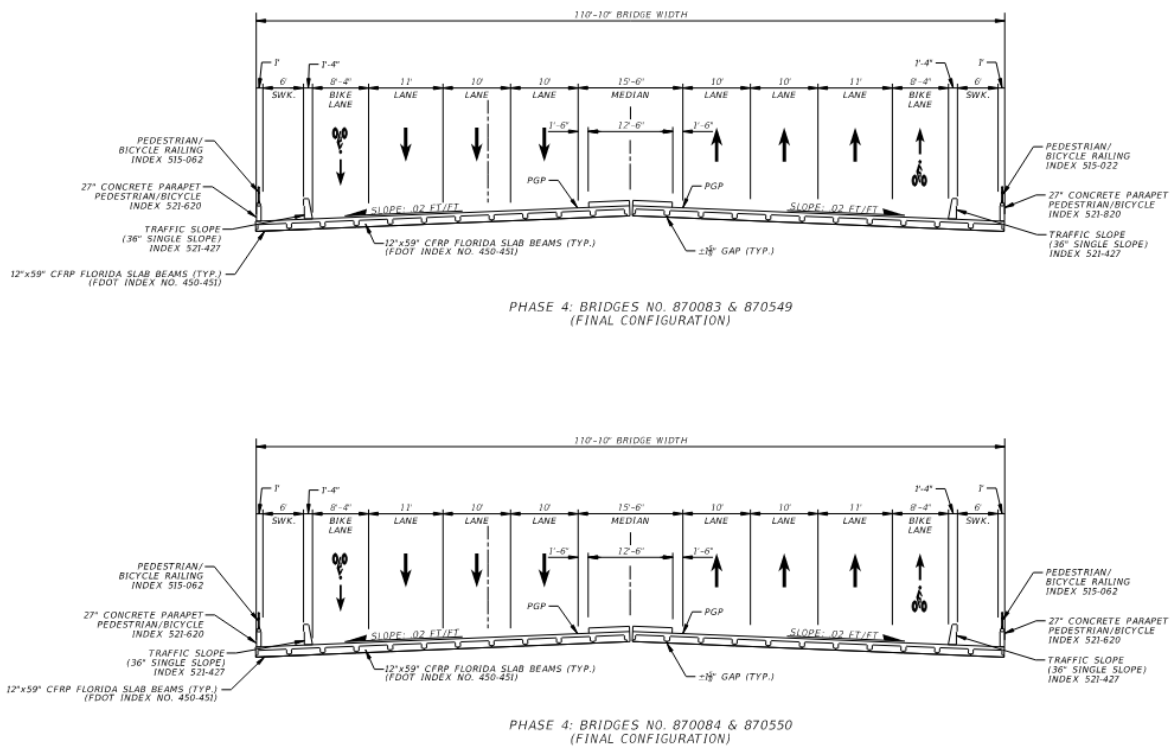
Figure 7.6 | Phase 3 Temporary Traffic Control Typical Section



7.17.4 Phase 4- Final Configuration

The intent of Phase 4 is for the newly constructed bridges to be placed in the proposed final configuration. This phase entails construction of the raised median and striping the travel lanes on the bridges. The final configurations for both bridge pairs consist of a 15.5 ft. median, four 10 ft. travel lanes, two outside 11 ft. travel lanes, two 8 ft. 4 in. bicycle lanes, a traffic barrier, and 6 ft. sidewalks with pedestrian railings. The Phase 4 temporary traffic control typical section is depicted below in **Figure 7.7**.

Figure 7.7 | Phase 4 Temporary Traffic Control Typical Section



7.18 Constructability

Bridge replacement will need to occur in phases while maintaining pedestrian and vehicular traffic during construction. There are six lanes of traffic on the existing bridges, three in each direction. Throughout construction, a minimum of two lanes will be maintained in each direction. Pedestrian accommodations will be maintained on at least one side of the bridges throughout construction.

Due to the rise in elevation, driveway reconstructions and construction of gravity walls are necessary east and west of the bridge limits, as shown in the concept plans in **Appendix B**.

7.19 Construction Impacts

During construction, impacts to natural and physical environmental elements, such as air quality, noise levels, vibration impacts, water quality, species and habitat disruption, along with traffic disruptions will occur. FDOT maintains standard construction practices that will assist in reducing the impacts during construction, shown in **Table 7.5**.

Although they are not noted in any contamination databases, the existing bridges that would be replaced by the proposed project represent sources of contamination risk due to the potential presence of asbestos or metal-based coatings. These materials were commonly applied to bridges in Florida and require worker protections and appropriate disposal during construction.

Table 7.5 | Construction Impacts

Construction Impact	Disruptive or Beneficial	Measures to Reduce Impact
Air Quality	Disruptive	FDOT Standard Specifications for Road and Bridge Construction (110-9 & 204-6) and Stormwater Pollution Prevention Plan (SWPPP)
Noise and Vibration (construction related)	Disruptive	FDOT Standard Specifications for Road and Bridge Construction (100-2 & 108)
Water Quality (erosion control)	Beneficial	FDOT Standard Specifications for Road and Bridge Construction (104), SWPPP and State of Florida Erosion and Sediment Control Manual
Species and Habitat (construction related)	Disruptive	Follow Commitments in NRE / Section 1.3 of this PER and Environmental Permit Conditions
Maintenance of Traffic and Detour Routing	Disruptive	FDOT Standard Specifications for Road and Bridge Construction (102) and Standard Plans
Maintenance of Access to Businesses and Residents	Disruptive	FDOT Standard Specifications for Road and Bridge Construction (102) and Standard Plans
Safety Considerations (Vehicular, Pedestrian, Bicyclist, and Construction Personnel)	Beneficial	FDOT Standard Specifications for Road and Bridge Construction (7 & 102) and Standard Plans
Public Involvement (Communication of Impacts/ Changes to Driving Conditions)	Beneficial	FDOT PD&E Manual, FDM Chapter 104
Disposal of Construction Materials	Disruptive	FDOT Standard Specifications for Road and Bridge Construction (7, 104 & 107) and SWPPP
Stockpiling of Construction Materials and Fill	Disruptive	FDOT Standard Specifications for Road and Bridge Construction (110)
Use of Borrow Areas	Disruptive	FDOT Standard Specifications for Road and Bridge Construction (110), SWPPP and Commitments

Construction Impact	Disruptive or Beneficial	Measures to Reduce Impact
Mitigation Measures Proposed to Reduce Dredge and Fill-Related Impacts	Beneficial	FDOT Standard Specifications for Road and Bridge Construction (7-2.2 & 7-21), SWPPP and Environmental Permit Conditions
Landscape in Temporary Construction Easement	Disruptive	Replace in kind

7.20 Special Features

No special features are anticipated.

7.21 Utilities

The Preferred Alternative may require relocation of utilities currently located within the right of way or on mounted on the replacement bridges. Potential impacts are summarized in **Table 7.6** and the details of utility locations are marked up in the *Utility Assessment Package* (included in the project file). Most of the UAOs have the capability to adjust their facilities without causing major inconvenience to their customers. Mitigation measures will include minimizing service disruptions, allowing service disruptions only during periods of minimum usage, and installing an alternative or new service before disconnecting the existing service. The cost of utility relocations will be developed as part of the Design phase for this project.

Table 7.6 | Utility Owners/Agencies Dispositions

UAO Company	Disposition
AT&T Distribution	Relocation/Manhole Covers Adjustment
Breezeline	Relocation/Hand-holes Replacement
North Bay Village	Relocation to be verified/Valve Boxes Adjustment
FPL Distribution	Manhole Covers Adjustment
Miami-Dade County WASD	Valve Boxes and Manhole Cover Adjustments
TECO	Valve Boxes Adjustment
Verizon	Relocation/Hand-holes Replacement

7.22 Cost Estimates

The engineer's opinion of the project costs is summarized in

Table 7.7. The Preferred Alternative LRE estimates are included in **Appendix C.**

Table 7.7 | Preferred Alternative Cost Estimate

Phase	Amount	Notes
Construction	\$38,064,675	LRE Costs
MOT	\$3,806,467	10% of Construction
Mobilization	\$3,349,691	8% of Construction
Unknowns	\$202,800	Field Review, RCI
Construction Total	\$45,423,634	Construction + MOT + Mobilization + Unknowns
Right of Way	\$2,114,800	

7.23 Summary of Potential Environmental Impacts

This section provides a summary of environmental issues and features that may affect the development of the Preferred Alternative. Detailed descriptions of the impacts discussed in individual subsections are contained in the corresponding technical reports.

7.23.1 Social and Economic

7.23.1.1 Community Resources

Throughout the project development process community outreach and engagement was conducted to listen and understand community needs and discuss how the proposed improvements would address those needs. The Preferred Alternative will not impact any community facility within the project study area.

7.23.1.2 Future Land Use

The Preferred Alternative does not propose any change to future land use. Implementation of the Preferred Alternative would neither conflict with the local land use plans.

7.23.1.3 Mobility

The Preferred Alternative will not add capacity; however, improved bicycle and pedestrian facilities will enhance accessibility and connectivity for users who are walking and biking within the project limits.

7.23.1.4 Aesthetics Effects

The Preferred Alternative has been developed to match the context classification. The context classification is C5 Urban Center for the entire project limits from west of Pelican Harbor Drive (MP 1.077) to east of Adventure Avenue (MP 1.947). Landscape opportunities will continue to be coordinated with the local community during the Design phase.

7.23.1.5 Relocation Potential

No residences, businesses, or institutional/community facilities will require relocation to accommodate the Preferred Alternative.

7.24 Cultural Resources

Both archaeological and architectural surveys conducted for this project and documented in the CRAS did not recommend sites for listing in the NRHP. The Florida State Historic Preservation Officer concurred with the CRAS recommendations and findings on October 24, 2023.

7.24.1.1 Section 4(f) Resources

Determinations of applicability were prepared for each resource discussed in **Section 2.4.2** and approved by the FDOT Office of Environmental Management. Additional details about each property are contained in the determinations of applicability and in the Type 2 Categorical Exclusion (CE), located in the project file. All properties were determined to have “No Involvement” or “No Use.”

7.24.2 Natural Resources

7.24.2.1 Wetlands and Other Surface Waters

No wetlands are present so there would be no impacts to wetlands. The Preferred Alternative would result in approximately 0.054 acres of impacts from the temporary construction easement from a barge in Biscayne Bay, which is an Other Surface Water.

EFH is present in the form of corals, hardbottom, macroalgae, mangroves, seagrass, and unconsolidated bottom. Biscayne Bay and Seagrass are HAPCs that occur in the project area. Only Minimal impacts to EFH and HAPCs are anticipated under the Preferred Alternative. Avoidance and minimization has been incorporated into alternative development and will be further achieved through special construction conditions and a barge plan. Additional in-water surveys are anticipated prior to construction. Under the Preferred Alternative, the widened bridges would result in the additional shading of approximately 0.0109 acre of seagrass beds. The temporary construction easement would result in a total of 0.0148 acre of impacts to seagrass beds. Unavoidable impacts to seagrass will be mitigated in accordance with NMFS requirements.

7.24.2.2 Protected Species

As discussed in **2.4.5**, the Preferred Alternative has a low potential to impact federal and state listed species that were identified as having the potential to occur within the study area.

7.24.3 Physical Resources

7.24.3.1 Noise

The implementation of the Preferred Alternative would not cause substantial noise level increases that may require consideration of noise abatement measures.

7.24.3.2 Contamination

The Preferred Alternative has a potential to impact three active retail gas stations and a historical railroad location (no evidence of railroad grade, rails, ties, or associated items were observed onsite) which were assigned a medium rating in accordance with the PD&E Manual. The three active retail gas stations that received a medium rating will be further considered for a Level II assessment during the Design phase.

APPENDIX A

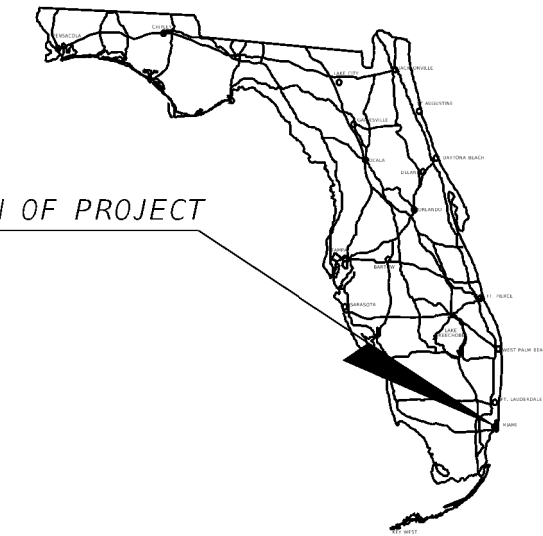
Typical Section Package

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 449007-1-22-01
(FEDERAL FUNDS)

MIAMI-DADE COUNTY (87080000)
STATE ROAD NO. 934
NE 79TH ST FROM W OF PELICAN HARBOR DR
TO E OF ADVENTURE AVE
BRIDGE NOS. 870083, 870084, 870549, 870550



LOCATION OF PROJECT

FDOT DISTRICT DESIGN ENGINEER

FDOT DISTRICT TRAFFIC OPERATIONS ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS
TARGET SPEED
DESIGN & POSTED SPEED

CONCURRING WITH:
TARGET SPEED
DESIGN & POSTED SPEED

FDOT DISTRICT PLANNING AND ENVIRONMENTAL ADMINISTRATOR

FDOT DISTRICT STRUCTURES DESIGN ENGINEER

CONCURRING WITH:
CONTEXT CLASSIFICATION
TARGET SPEED

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

PROJECT LOCATION URL: <https://tinyurl.com/yc856yyr>

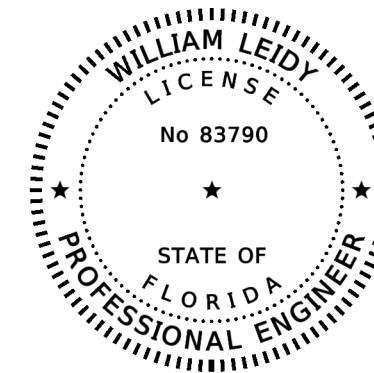
PROJECT LIMITS: BEGIN MP 1.077 - END MP 1.947

EXCEPTIONS: NONE

BRIDGE LIMITS: BR #870083 & 870549 MP 1.431 - MP 1.529
BR #870084 & 870550 MP 1.727 - MP 1.826

RAILROAD CROSSING: NONE

APPROVED BY:



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ON THE DATE ADJACENT TO THE SEAL
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HDR ENGINEERING, INC.
3250 W. COMMERCIAL BLVD., SUITE 100
FORT LAUDERDALE, FLORIDA 33309-3459
WILLIAM W. LEIDY, P.E. NO. 83790

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

INDEX OF SHEETS

SHEET NO.	SHEET DESCRIPTION
1	COVER SHEET
2	TYPICAL SECTION NO. 1 ROADWAY TYPICAL SECTION
3	TYPICAL SECTION NO. 2 ROADWAY TYPICAL SECTION
4	TYPICAL SECTION NO. 3 BRIDGE TYPICAL SECTION

SHEET NO.

01

PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL () C3C : SUBURBAN COMM.
- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN (X) C5 : URBAN CENTER
- () C3R : SUBURBAN RES. () C6 : URBAN CORE
- () N/A : L.A. FACILITY

FUNCTIONAL CLASSIFICATION

- () INTERSTATE () MAJOR COLLECTOR
- () FREEWAY/EXPWY. () MINOR COLLECTOR
- (X) PRINCIPAL ARTERIAL () LOCAL
- () MINOR ARTERIAL

HIGHWAY SYSTEM

- (X) NATIONAL HIGHWAY SYSTEM
- () STRATEGIC INTERMODAL SYSTEM
- (X) STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

- () 1 - FREEWAY
- () 2 - RESTRICTIVE w/Service Roads
- () 3 - RESTRICTIVE w/660 ft. Connection Spacing
- () 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
- (X) 5 - RESTRICTIVE w/440 ft. Connection Spacing
- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
- () 7 - BOTH MEDIAN TYPES

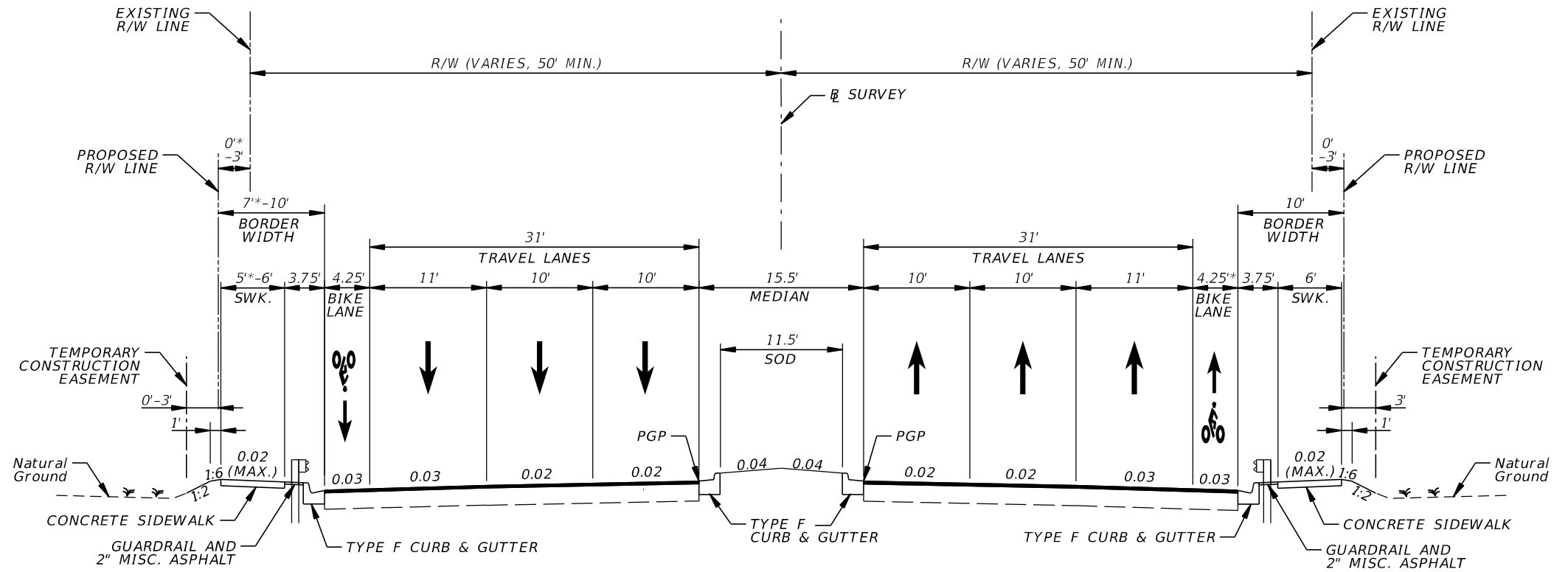
CRITERIA

- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

1. BORDER WIDTH
2. BICYCLE FACILITIES
3. SIDEWALK WIDTH

TYPICAL SECTION No. 1



**TYPICAL SECTION
SR 934 / NE 79th STREET
STA. 42+52.00 TO STA. 56+20.00**

* NOTE:
 - 0' RIGHT OF WAY ACQUISITION, 5' SIDEWALK, AND 7' BORDER WIDTH FROM STA. 52+00 TO STA. 43+74 LT.
 - BICYCLE LANE (VARIES 4'-7') FROM STA. 53+50 TO STA. 54+50.

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 42,000
 ESTIMATED OPENING YEAR = 2030 AADT = 44,000
 ESTIMATED DESIGN YEAR = 2050 AADT = 48,500
 K = 9.0 % D = 53.7% T = 2.4% (24 HOUR)
 TARGET SPEED = 35 MPH
 DESIGN SPEED = 35 MPH
 POSTED SPEED = 35 MPH (MP 1.077-1.386 RT, MP 1.077-1.555 LT),
 30 MPH (MP 1.386-1.947 RT, MP 1.555-1.947 LT)

FINANCIAL PROJECT ID	SHEET NO.
449007-1-22-01	2

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL () C3C : SUBURBAN COMM.
- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN (X) C5 : URBAN CENTER
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- () FREEWAY/EXPWY. () MINOR COLLECTOR
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- () MINOR ARTERIAL

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- (X) NATIONAL HIGHWAY SYSTEM
- () STRATEGIC INTERMODAL SYSTEM
- (X) STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

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- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
- () 7 - BOTH MEDIAN TYPES

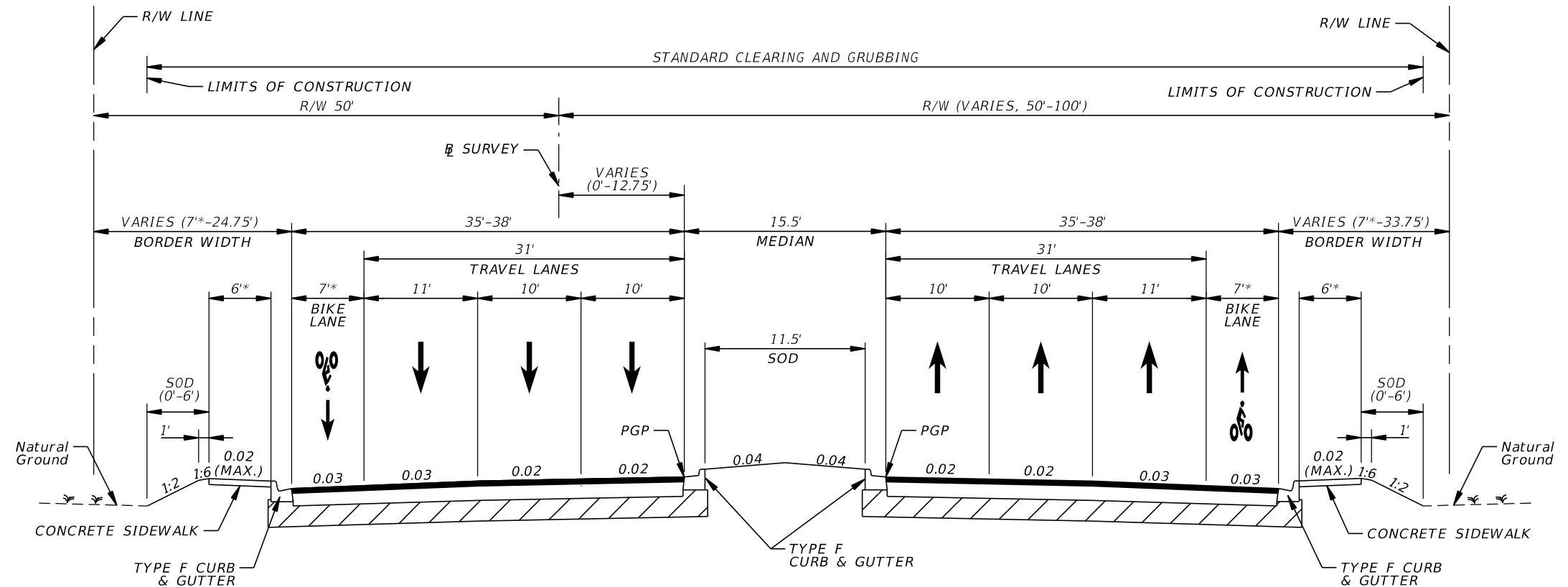
CRITERIA

- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

1. BORDER WIDTH
2. BICYCLE FACILITIES
3. SIDEWALK WIDTH

TYPICAL SECTION No. 2



**TYPICAL SECTION
SR 934 / NE 79th STREET
STA. 56+20.00 TO STA. 58+19.25
STA. 63+39.25 TO STA. 73+85.00
STA. 79+05.00 TO STA. 85+45.00**

*** NOTE:**
 - 4' BICYCLE LANE FROM STA. 81+50 TO STA. 85+45 RT AND FROM STA. 84+00 TO STA. 85+45 LT.
 - 5' SIDEWALK AND 7' BORDER WIDTH FROM STA. 85+35 TO STA. 85+45 RT AND FROM STA. 84+00 TO STA. 85+45 LT.

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 42,000
 ESTIMATED OPENING YEAR = 2030 AADT = 44,000
 ESTIMATED DESIGN YEAR = 2050 AADT = 48,500
 K = 9.0 % D = 53.7% T = 2.4% (24 HOUR)
 TARGET SPEED = 35 MPH
 DESIGN SPEED = 35 MPH
 POSTED SPEED = 35 MPH (MP 1.077-1.386 RT, MP 1.077-1.555 LT),
 30 MPH (MP 1.386-1.947 RT, MP 1.555-1.947 LT)

FINANCIAL PROJECT ID	SHEET NO.
449007-1-22-01	3

PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL () C3C : SUBURBAN COMM.
- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN (X) C5 : URBAN CENTER
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- () FREEWAY/EXPWY. () MINOR COLLECTOR
- (X) PRINCIPAL ARTERIAL () LOCAL
- () MINOR ARTERIAL

HIGHWAY SYSTEM

- (X) NATIONAL HIGHWAY SYSTEM
- () STRATEGIC INTERMODAL SYSTEM
- (X) STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

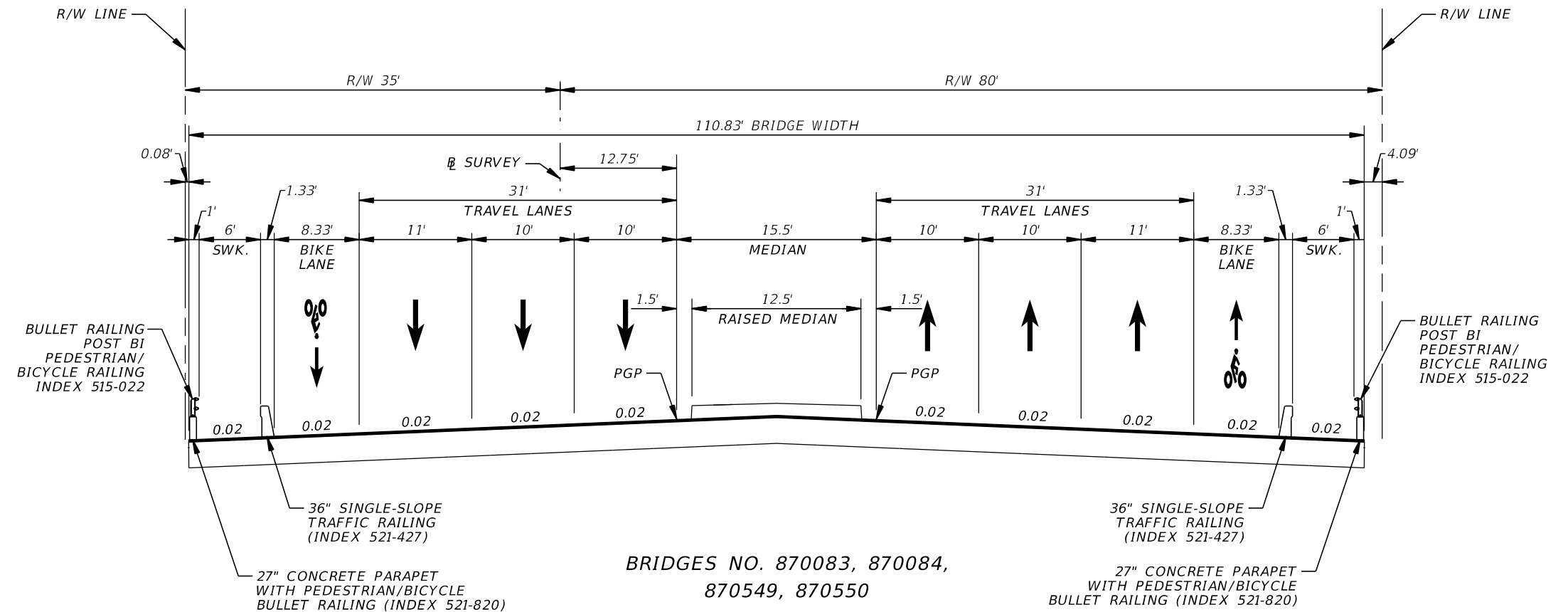
- () 1 - FREEWAY
- () 2 - RESTRICTIVE w/Service Roads
- () 3 - RESTRICTIVE w/660 ft. Connection Spacing
- () 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
- (X) 5 - RESTRICTIVE w/440 ft. Connection Spacing
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- () 7 - BOTH MEDIAN TYPES

CRITERIA

- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 3



**BRIDGES NO. 870083, 870084,
870549, 870550**

**BRIDGE TYPICAL SECTION
SR 934 / NE 79th STREET
STA. 58+19.25 TO STA. 63+39.25
STA. 73+85.00 TO STA. 79+05.00**

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 42,000
 ESTIMATED OPENING YEAR = 2030 AADT = 44,000
 ESTIMATED DESIGN YEAR = 2050 AADT = 48,500
 K = 9.0 % D = 53.7% T = 2.4% (24 HOUR)
 TARGET SPEED = 35 MPH
 DESIGN SPEED = 35 MPH
 POSTED SPEED = 35 MPH (MP 1.077-1.386 RT, MP 1.077-1.555 LT),
 30 MPH (MP 1.386-1.947 RT, MP 1.555-1.947 LT)

FINANCIAL PROJECT ID	SHEET NO.
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APPENDIX B

Concept Plans

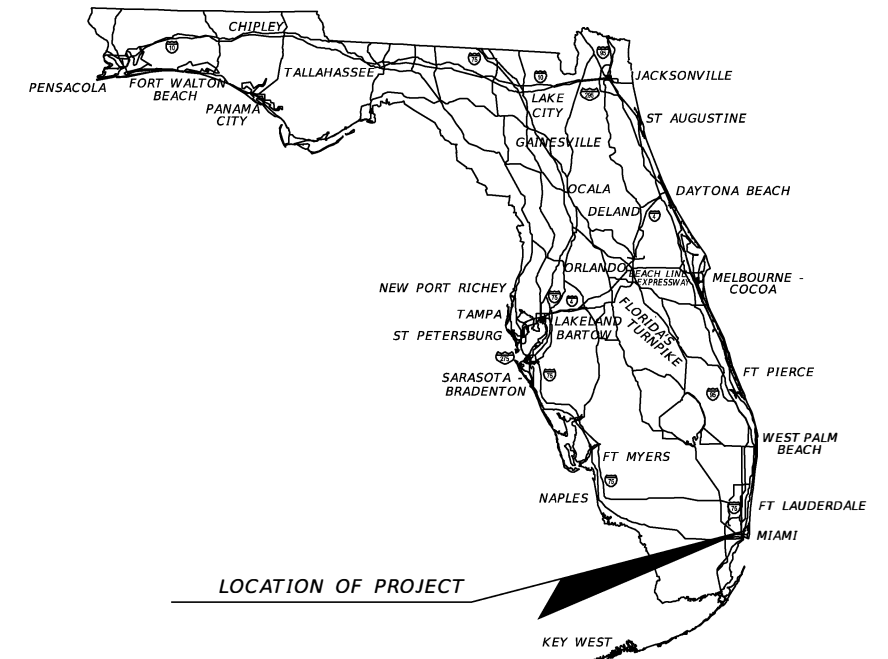
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONCEPT PLANS

INDEX OF PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2-4	TYPICAL SECTIONS
5-11	PRELIMINARY CONCEPT PLANS
12-14	ROADWAY PROFILE (ALTERNATIVE 2B: PROFILE 2)

FINANCIAL PROJECT ID 449007-1-22-01
 MIAMI-DADE COUNTY (87080)
 STATE ROAD NO. 934
 NE 79TH ST FROM W OF PELICAN
 HARBOR DR TO E OF ADVENTURE AVE
 BRIDGE NO. 870083, 870084, 870549, 870550



PROJECT LOCATION URL: <https://goo.gl/maps/tkciyG4LZiep5CFy5>

PROJECT LIMITS: BEGIN MP 1.077 - END MP 1.947

EXCEPTIONS: NONE

BRIDGE LIMITS:
 BR #870083 & 870459 MP 1.426 - MP 1.525
 BR #870084 & 870550 MP 1.723 - MP 1.821

RAILROAD CROSSING: NONE

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY 2023-2024 Standard Plans for Road and Bridge Construction and applicable Interim Reviews (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: <http://www.fdot.gov/design/standardplans>

Standard Plans for Bridge Construction are included in the Structures Plan Component.

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, FY 2023-2024 Standard Specifications for Road and Bridge Construction at the following website: <http://www.fdot.gov/programmanagement/Implemented/SpecBooks>

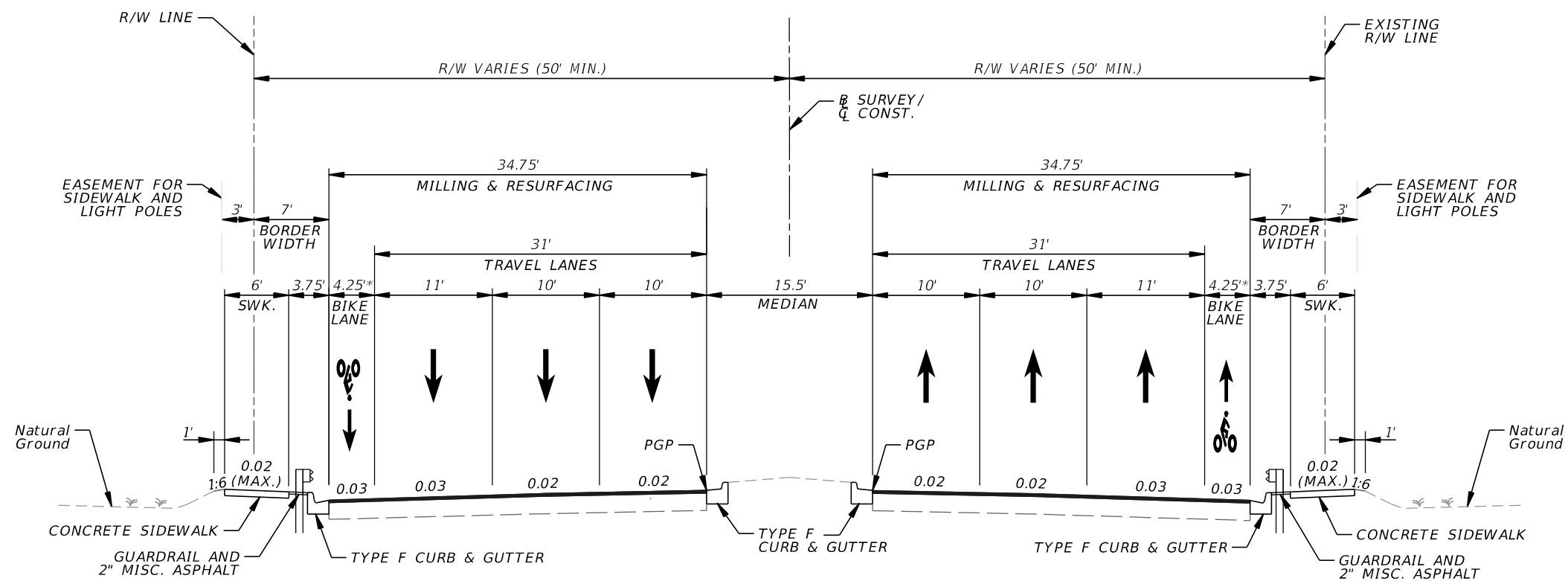
CONCEPT PLANS
ENGINEER OF RECORD:

WILLIAM W. LEIDY, P.E.
 P.E. NO.: 83790
 HDR ENGINEERING, INC.
 3250 W. COMMERCIAL BLVD., SUITE 100
 FORT LAUDERDALE, FL 33309-3459
 (954) 233-4941
 CONTRACT NO: CAJ46
 VENDOR NO: 5-470-680-568-006

FDOT PROJECT MANAGER:

PAOLA MARTINEZ, P.E.

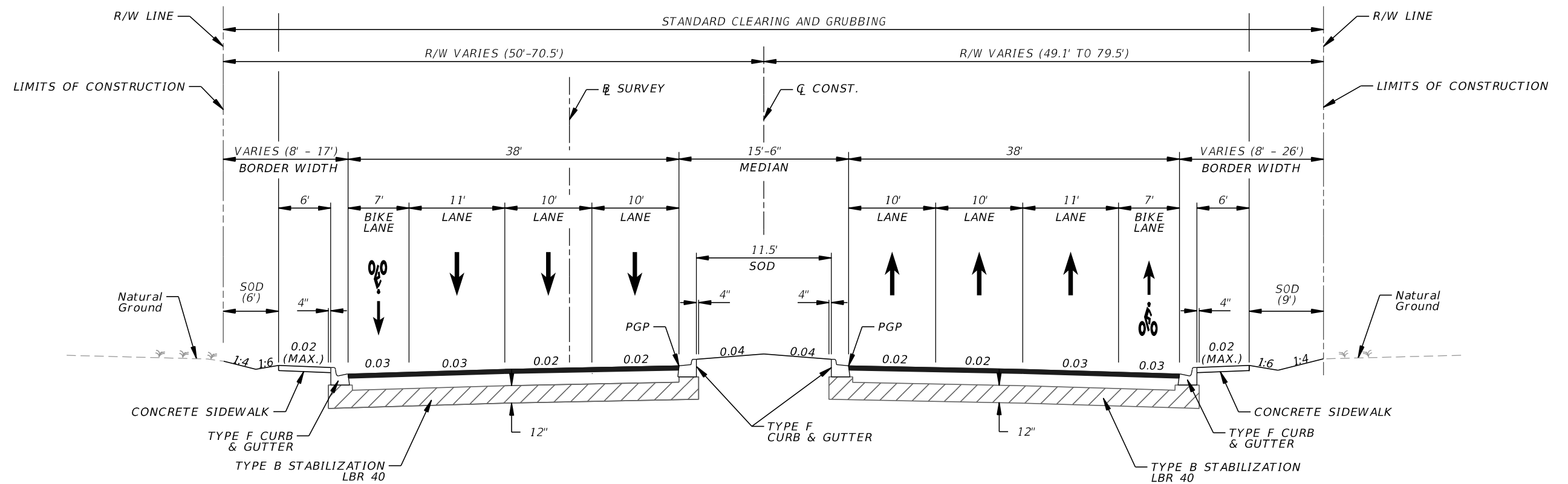
CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
		1



TYPICAL SECTION
 SR 934 / NE 79th STREET / JOHN F. KENNEDY CAUSEWAY
 STA. 42+52.00 TO STA. 54+00.00

CURRENT YEAR: 2023 AADT = 81700
 ESTIMATED OPENING YEAR: 2030 AADT = 85400
 ESTIMATED DESIGN YEAR: 2050 AADT = 95600
 K= 7.3% D=54.2% T= 2.4% (24 HOUR)
 DESIGN SPEED= 35 MPH
 TARGET SPEED= 35 MPH
 POSTED SPEED= 30, 35 MPH
 CONTEXT CLASSIFICATION= C5

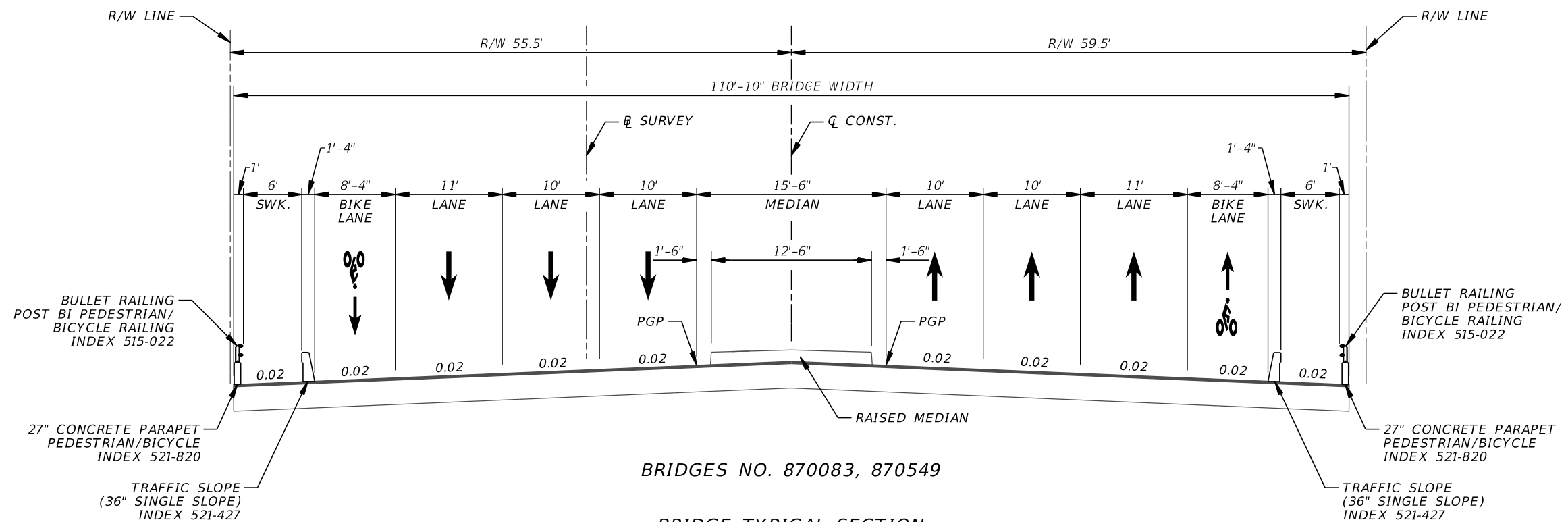
REVISIONS				WILLIAM W. LEIDY, P.E. P.E. LICENSE NUMBER 83790 HDR ENGINEERING, INC. 3250 W. COMMERCIAL BLVD., SUITE 100 FORT LAUDERDALE, FL 33309-3451	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		2
					SR 934	MIAMI-DADE	449007-1-22-01		



TYPICAL SECTION
 SR 934 / NE 79th STREET / JOHN F. KENNEDY CAUSEWAY
 STA. 54+00.00 TO STA. 58+19.25
 STA. 63+39.25 TO STA. 73+85.00
 STA. 79+05.00 TO STA. 85+45.00

CURRENT YEAR: 2023 AADT = 81700
 ESTIMATED OPENING YEAR: 2030 AADT = 85400
 ESTIMATED DESIGN YEAR: 2050 AADT = 95600
 K= 7.3% D=54.2% T= 2.4% (24 HOUR)
 DESIGN SPEED= 35 MPH
 TARGET SPEED= 35 MPH
 POSTED SPEED= 30, 35 MPH
 CONTEXT CLASSIFICATION= C5

REVISIONS				WILLIAM W. LEIDY, P.E. P.E. LICENSE NUMBER 83790 HDR ENGINEERING, INC. 3250 W. COMMERCIAL BLVD., SUITE 100 FORT LAUDERDALE, FL 33309-3451	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. 3
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
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BRIDGES NO. 870083, 870549

BRIDGE TYPICAL SECTION
 STA. 58+19.25 TO STA. 63+39.25
 STA. 73+85.00 TO STA. 79+05.00



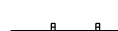
CURRENT YEAR: 2023 AADT = 81700
 ESTIMATED OPENING YEAR: 2030 AADT = 85400
 ESTIMATED DESIGN YEAR: 2050 AADT = 95600
 K= 7.3% D=54.2% T= 2.4% (24 HOUR)
 DESIGN SPEED= 35 MPH
 TARGET SPEED= 35 MPH
 POSTED SPEED= 30, 35 MPH
 CONTEXT CLASSIFICATION= C5

REVISIONS				WILLIAM W. LEIDY, P.E. P.E. LICENSE NUMBER 83790 HDR ENGINEERING, INC. 3250 W. COMMERCIAL BLVD., SUITE 100 FORT LAUDERDALE, FL 33309-3451	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
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MATCHLINE 45+00.00

LEGEND:

	ROADWAY PAVEMENT
	PROPOSED SOD
	PROPOSED GUARDRAIL

REVISIONS		REVISIONS	
DATE	DESCRIPTION	DATE	DESCRIPTION

WILLIAM W. LEIDY, P.E.
 P.E. LICENSE NUMBER 83790
 HDR ENGINEERING, INC.
 3250 W. COMMERCIAL BLVD., SUITE 100
 FORT LAUDERDALE, FL 33309-3451

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 934	MIAMI-DADE	449007-1-22-01

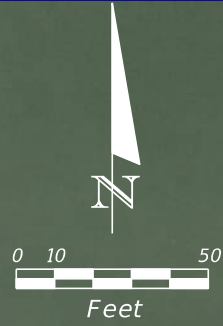
**PRELIMINARY CONCEPT
PLANS**

SHEET NO.
5



PELICAN HARBOR
MARINA

BISCAYNE BAY
(OUTSTANDING
FLORIDA WATERS)



R/W LINE

@ SURVEY




SR 934/ NE 79TH STREET/
JOHN F. KENNEDY CAUSEWAY

R/W LINE

PELICAN HARBOR
BOAT RAMP

BISCAYNE BAY
(OUTSTANDING
FLORIDA WATERS)

LEGEND:

	ROADWAY PAVEMENT
	PROPOSED SOD
	PROPOSED GUARDRAIL

MATCHLINE 45+00.00

MATCHLINE 52+00.00

REVISIONS				WILLIAM W. LEIDY, P.E. P.E. LICENSE NUMBER 83790 HDR ENGINEERING, INC. 3250 W. COMMERCIAL BLVD., SUITE 100 FORT LAUDERDALE, FL 33309-3451	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PRELIMINARY CONCEPT PLANS	SHEET NO.
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					SR 934	MIAMI-DADE	449007-1-22-01		6

BISCAYNE BAY
(OUTSTANDING
FLORIDA WATERS)



MATCHLINE 52+00.00

MATCHLINE 59+00.00



SR 934/ NE 79TH STREET/
JOHN F KENNEDY CAUSEWAY

934

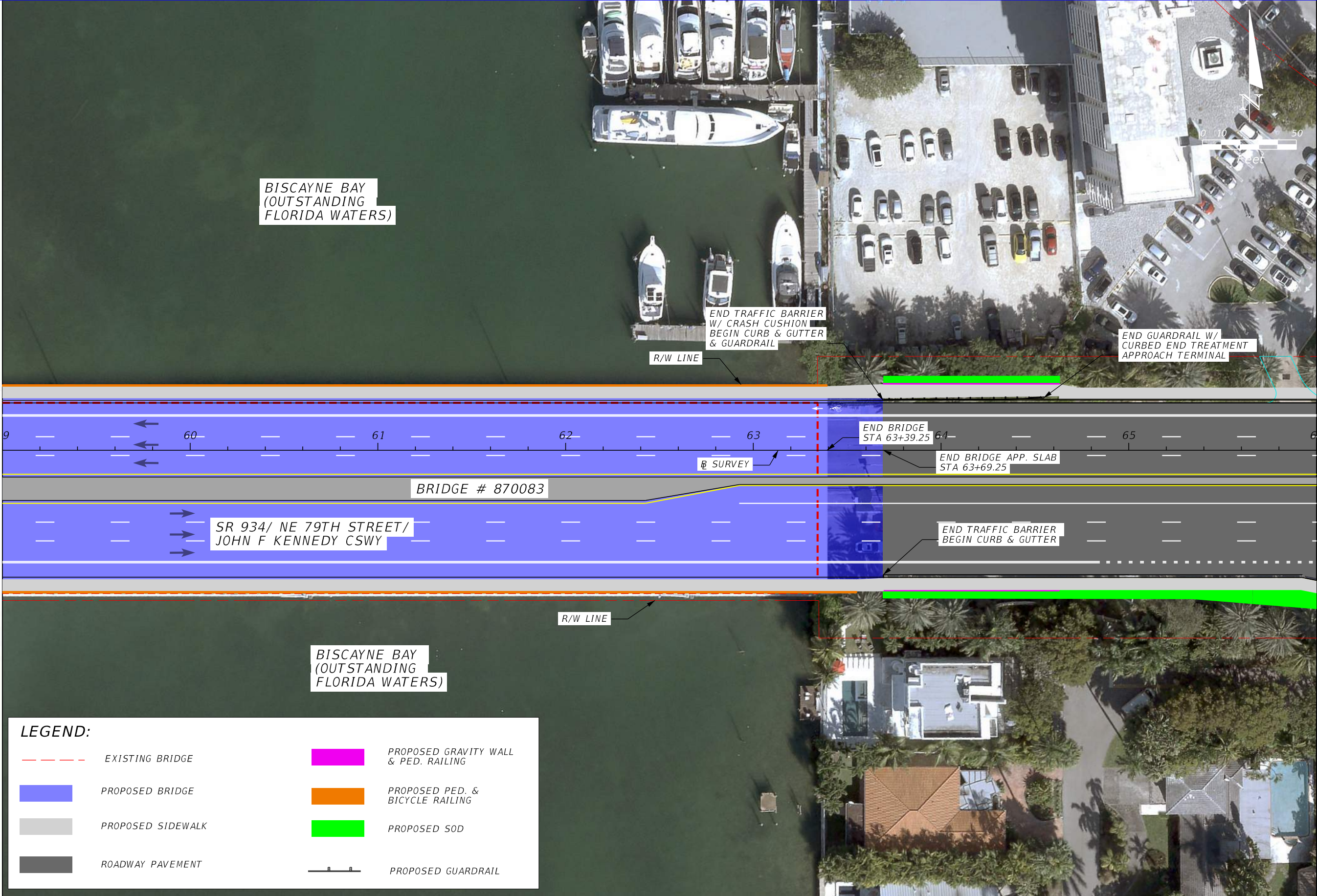
BRIDGE #870083

BISCAYNE BAY
(OUTSTANDING
FLORIDA WATERS)

LEGEND:

- EXISTING BRIDGE
- PROPOSED BRIDGE
- PROPOSED SIDEWALK
- ROADWAY PAVEMENT
- PROPOSED SOD
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED GRAVITY WALL & PED. RAILING
- PROPOSED PED. & BICYCLE RAILING
- PROPOSED GUARDRAIL

REVISIONS				WILLIAM W. LEIDY, P.E. P.E. LICENSE NUMBER 83790 HDR ENGINEERING, INC. 3250 W. COMMERCIAL BLVD., SUITE 100 FORT LAUDERDALE, FL 33309-3451	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PRELIMINARY CONCEPT PLANS	SHEET NO.
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					SR 934	MIAMI-DADE	449007-1-22-01		



BISCAYNE BAY
(OUTSTANDING
FLORIDA WATERS)

END TRAFFIC BARRIER
W/ CRASH CUSHION
BEGIN CURB & GUTTER
& GUARDRAIL

END GUARDRAIL W/
CURBED END TREATMENT
APPROACH TERMINAL

R/W LINE

END BRIDGE
STA 63+39.25

END BRIDGE APP. SLAB
STA 63+69.25

Ⓢ SURVEY

BRIDGE # 870083

SR 934/ NE 79TH STREET/
JOHN F KENNEDY CSWY

END TRAFFIC BARRIER
BEGIN CURB & GUTTER

R/W LINE

BISCAYNE BAY
(OUTSTANDING
FLORIDA WATERS)

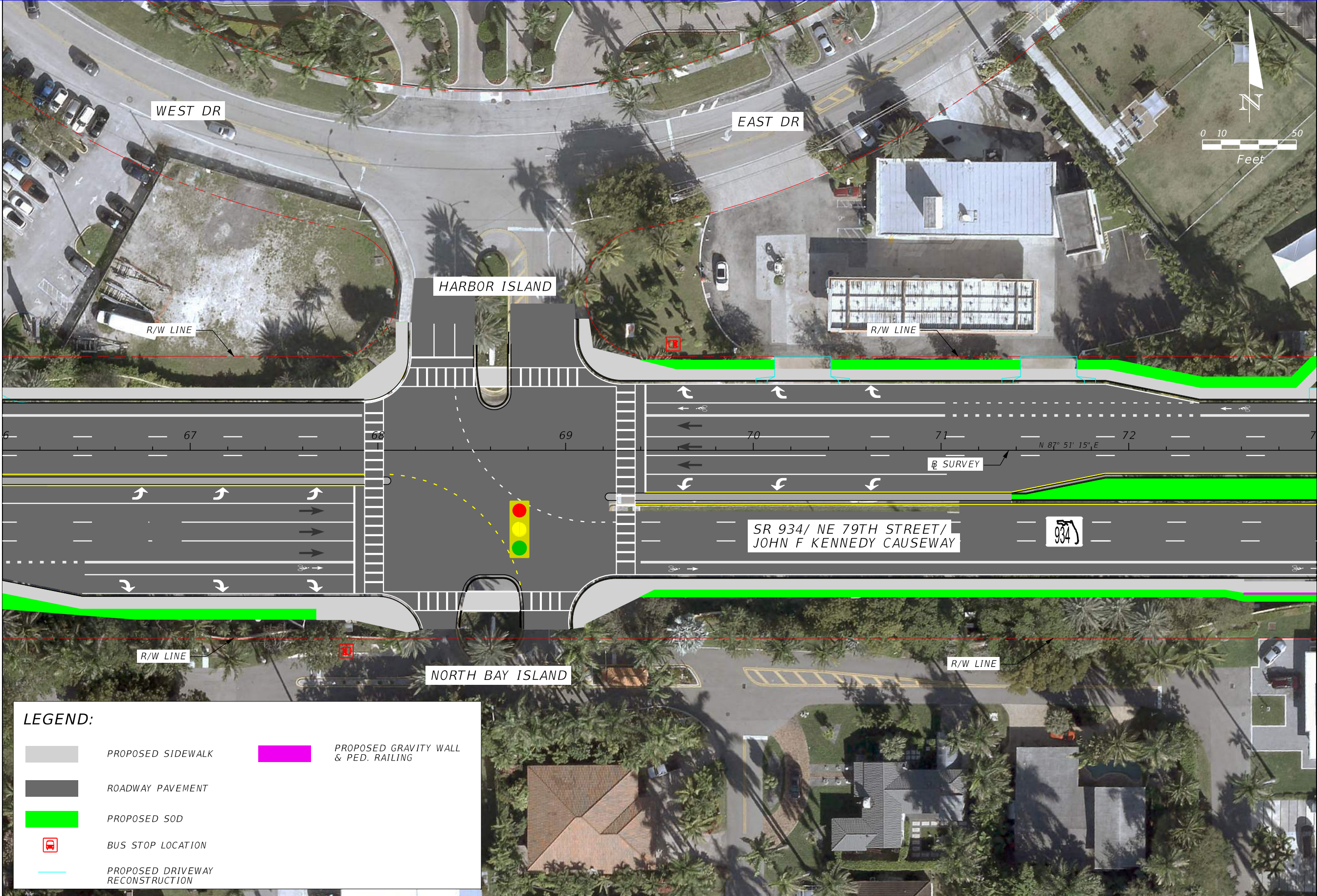
LEGEND:

- - - EXISTING BRIDGE
- PROPOSED BRIDGE
- PROPOSED SIDEWALK
- ROADWAY PAVEMENT
- PROPOSED GRAVITY WALL & PED. RAILING
- PROPOSED PED. & BICYCLE RAILING
- PROPOSED SOD
- PROPOSED GUARDRAIL

MATCHLINE 59+00.00

MATCHLINE 66+00.00

REVISIONS				WILLIAM W. LEIDY, P.E. P.E. LICENSE NUMBER 83790 HDR ENGINEERING, INC. 3250 W. COMMERCIAL BLVD., SUITE 100 FORT LAUDERDALE, FL 33309-3451	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PRELIMINARY CONCEPT PLANS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		8
					SR 934	MIAMI-DADE	449007-1-22-01		



MATCHLINE 66+00.00

MATCHLINE 73+00.00

LEGEND:

	PROPOSED SIDEWALK		PROPOSED GRAVITY WALL & PED. RAILING
	ROADWAY PAVEMENT		
	PROPOSED SOD		
	BUS STOP LOCATION		
	PROPOSED DRIVEWAY RECONSTRUCTION		

REVISIONS	
DATE	DESCRIPTION

WILLIAM W. LEIDY, P.E.
 P.E. LICENSE NUMBER 83790
 HDR ENGINEERING, INC.
 3250 W. COMMERCIAL BLVD., SUITE 100
 FORT LAUDERDALE, FL 33309-3451

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 934	MIAMI-DADE	449007-1-22-01

**PRELIMINARY CONCEPT
PLANS**






SHEET NO.
9



MATCHLINE 73+00.00

MATCHLINE 80+00.00

LEGEND:

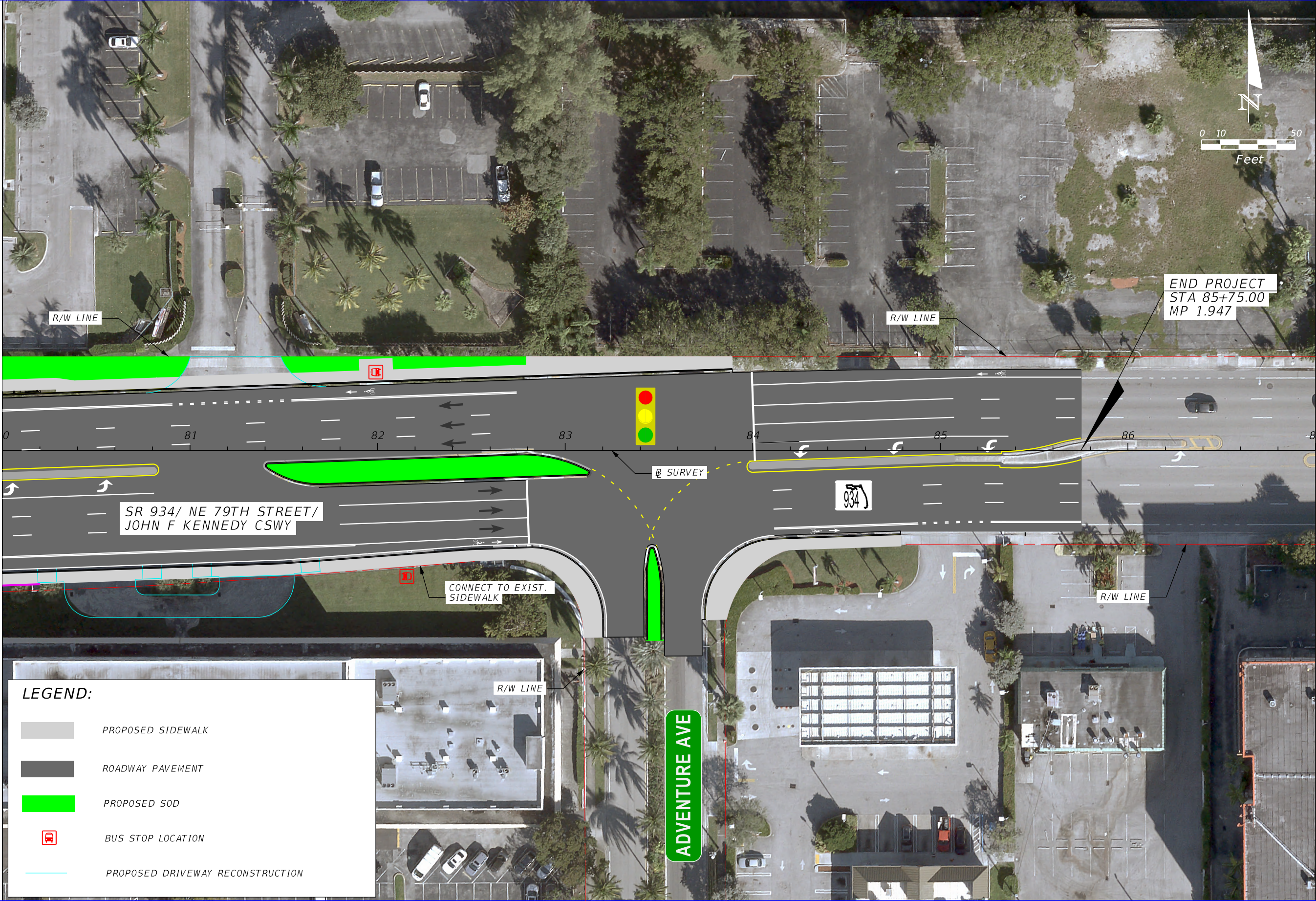
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	PROPOSED BRIDGE		PROPOSED PED. & BICYCLE RAILING
	PROPOSED SIDEWALK		PROPOSED SOD
	ROADWAY PAVEMENT		TEMPORARY CONSTRUCTION EASEMENT

WILLIAM W. LEIDY, P.E.
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 FORT LAUDERDALE, FL 33309-3451

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 934	MIAMI-DADE	449007-1-22-01

**PRELIMINARY CONCEPT
PLANS**

SHEET NO.
10



MATCHLINE 80+00.00

END PROJECT
STA 85+75.00
MP 1.947

LEGEND:

- PROPOSED SIDEWALK
- ROADWAY PAVEMENT
- PROPOSED SOD
- BUS STOP LOCATION
- PROPOSED DRIVEWAY RECONSTRUCTION

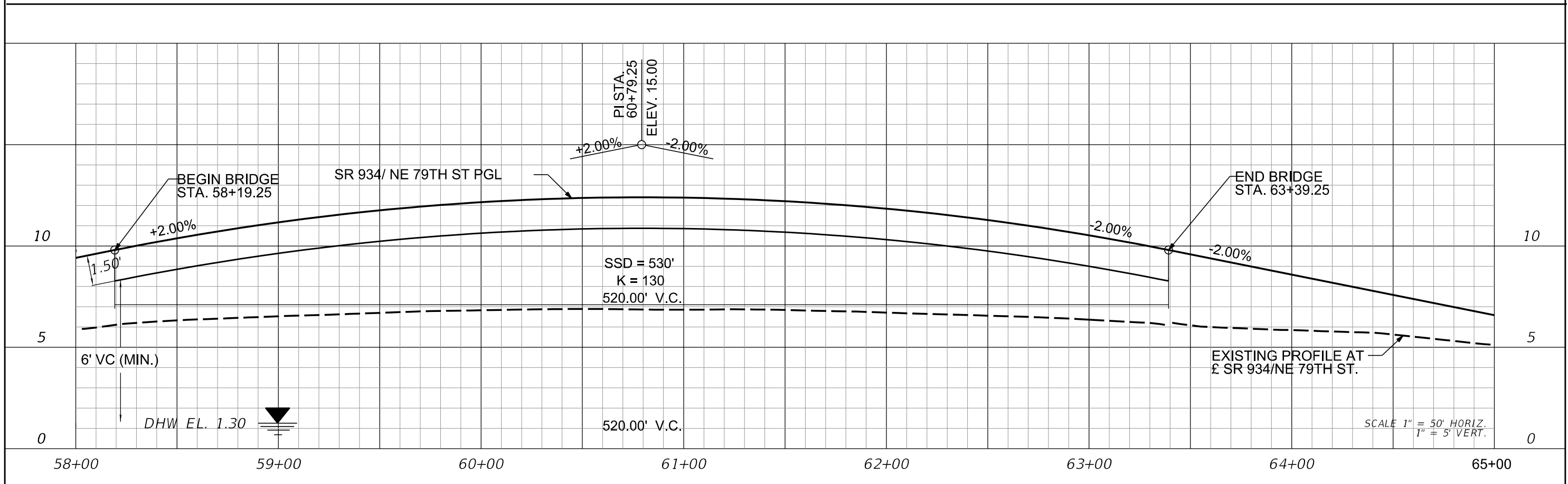
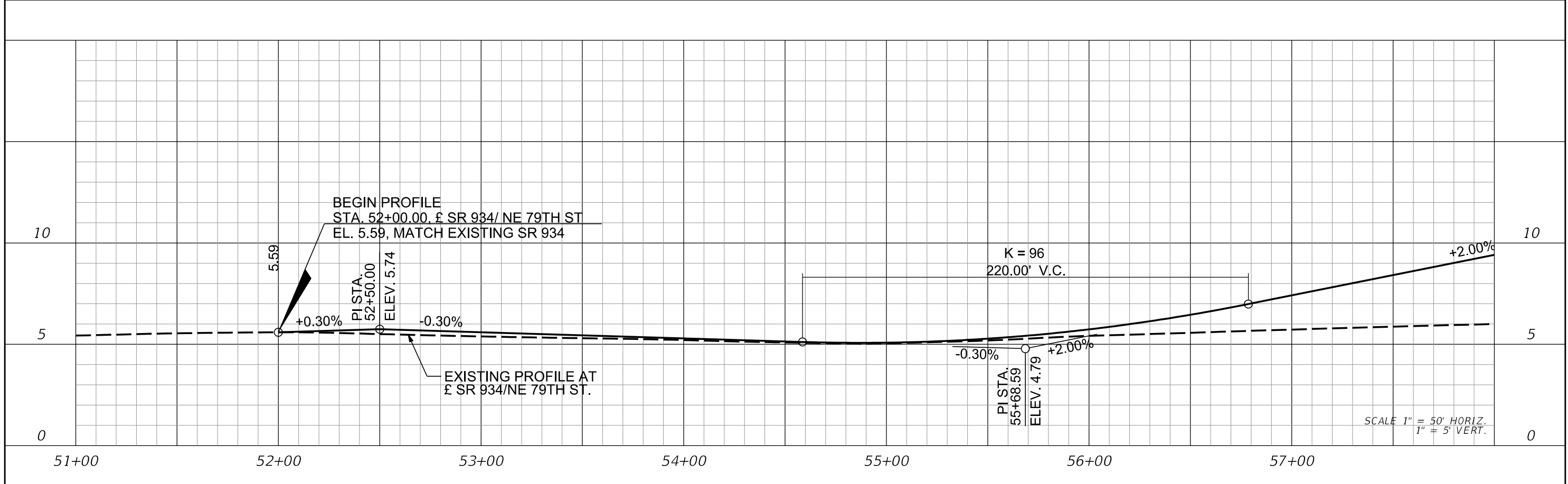
REVISIONS		REVISIONS	
DATE	DESCRIPTION	DATE	DESCRIPTION

WILLIAM W. LEIDY, P.E.
P.E. LICENSE NUMBER 83790
HDR ENGINEERING, INC.
3250 W. COMMERCIAL BLVD., SUITE 100
FORT LAUDERDALE, FL 33309-3451

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 934	MIAMI-DADE	449007-1-22-01

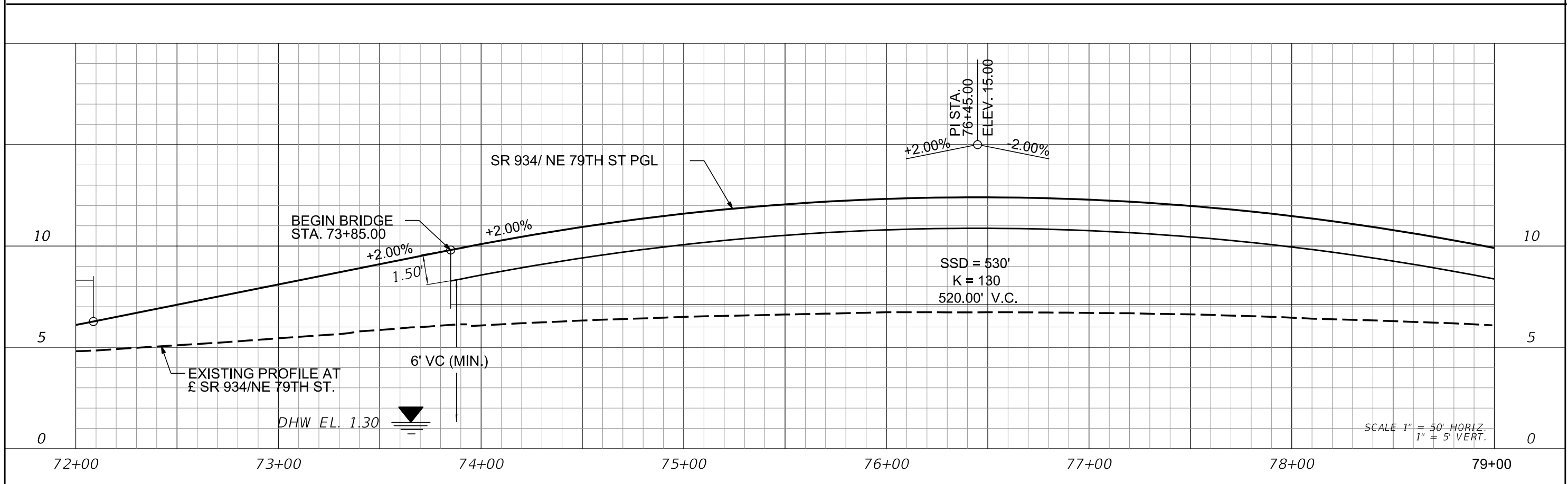
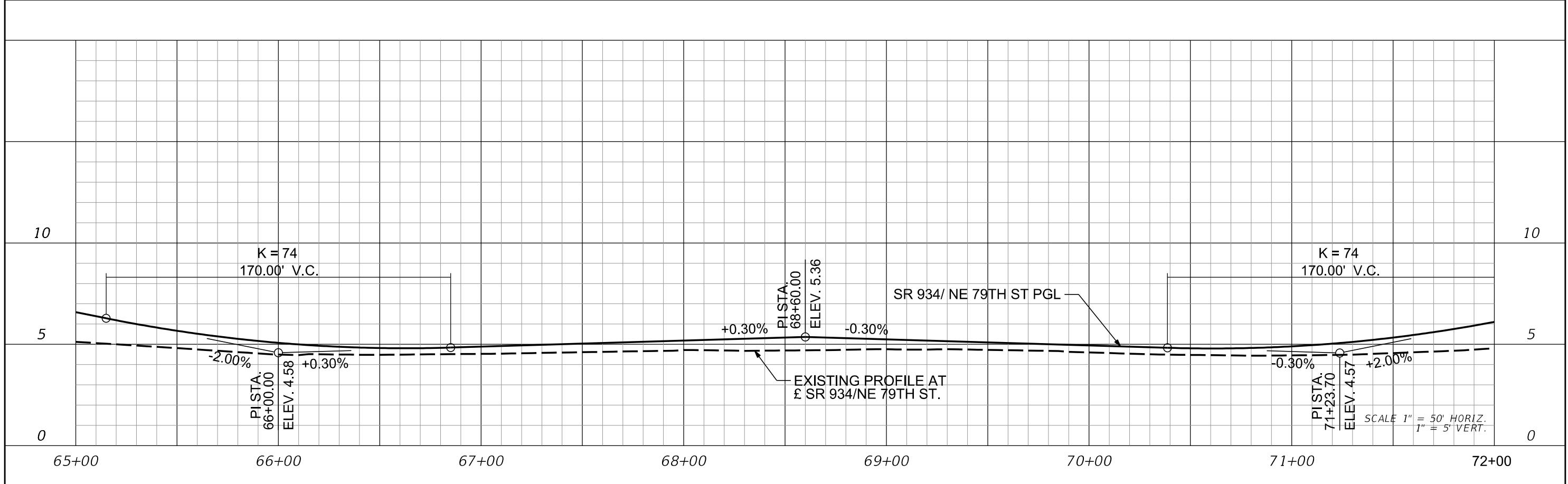
**PRELIMINARY CONCEPT
PLANS**

SHEET NO.
11



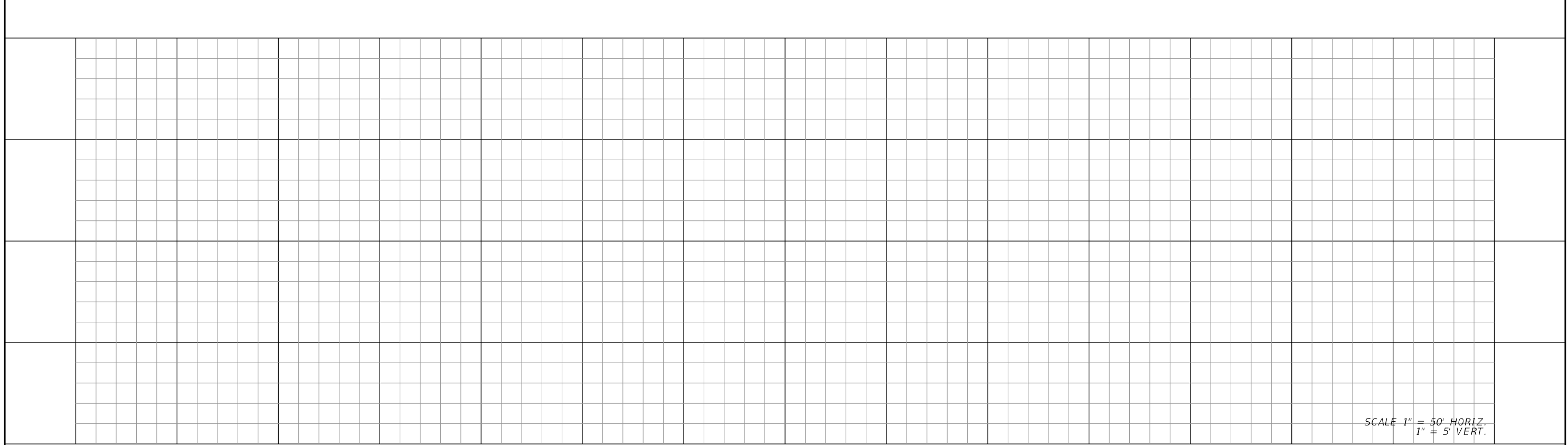
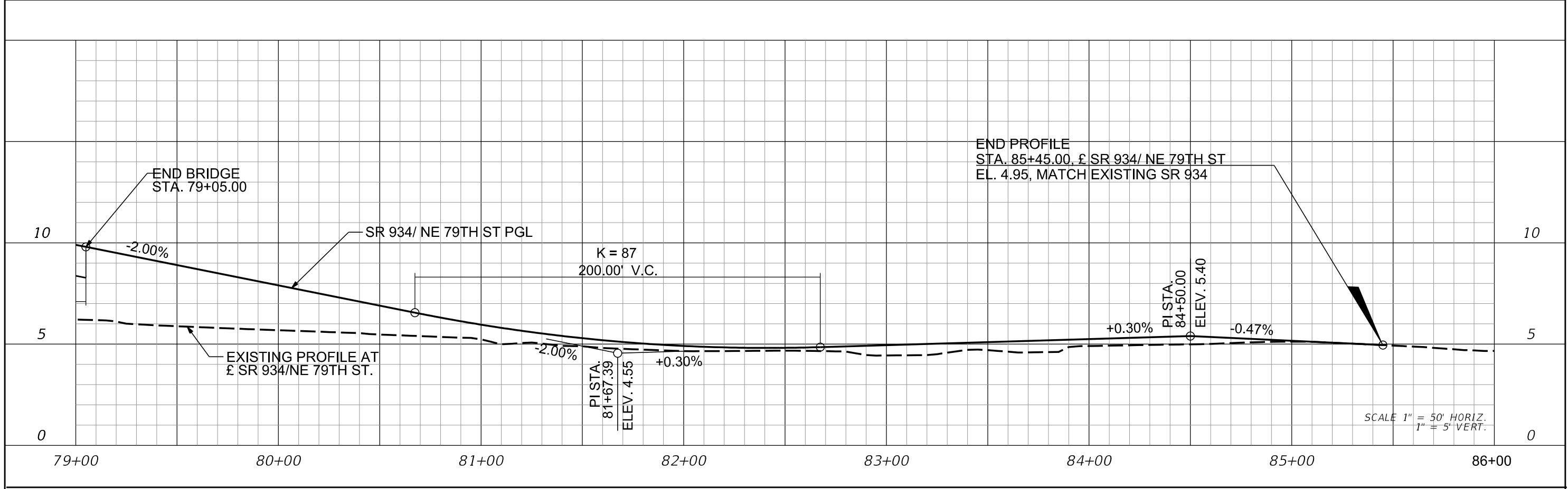
REVISIONS				WILLIAM W. LEIDY, P.E. P.E. LICENSE NUMBER 83790 HDR ENGINEERING, INC. 3250 W. COMMERCIAL BLVD., SUITE 100 FORT LAUDERDALE, FL 33309-3451	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ROADWAY PROFILE (ALTERNATIVE 2B: PROFILE 2)	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 934	MIAMI-DADE	449007-1-22-01		12

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



REVISIONS				WILLIAM W. LEIDY, P.E. P.E. LICENSE NUMBER 83790 HDR ENGINEERING, INC. 3250 W. COMMERCIAL BLVD., SUITE 100 FORT LAUDERDALE, FL 33309-3451	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ROADWAY PROFILE (ALTERNATIVE 2B: PROFILE 2)	SHEET NO. 13
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 934	MIAMI-DADE	449007-1-22-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



REVISIONS				WILLIAM W. LEIDY, P.E. P.E. LICENSE NUMBER 83790 HDR ENGINEERING, INC. 3250 W. COMMERCIAL BLVD., SUITE 100 FORT LAUDERDALE, FL 33309-3451	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ROADWAY PROFILE (ALTERNATIVE 2B: PROFILE 2)	SHEET NO. 14
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 934	MIAMI-DADE	449007-1-22-01		

APPENDIX C

Cost Long Range Estimates

Date: 10/26/2023 8:52:24 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 449007-2-52-01 **Letting Date:** 02/2028

Description: SR 934/NE 79 ST FROM W OF PELICAN HARBOR DR TO E OF ADVENTURE AVE

District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English
Contract Class: 1 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.740 MI

Project Manager: Paola Martinez

Version 4 Project Grand Total **\$43,678,038.02**

Description: LRE 2023 Work Program Update (Estimate for Alternative 2A)

Sequence: 1 MIS - Miscellaneous Construction **Net Length:** 0.870 MI
4,594 LF

Description: Bridge replacements for bridge ids #870083, 870084, 870549 & 870550

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX
Pay Items	
Pay item Description	Quantity Unit Unit Price Extended Amount
630-2-12 CONDUIT, F& I, DIRECTIONAL BORE	600.00 LF \$29.80 \$17,880.00
715-500-1 POLE CABLE DIST SYS, CONVENTIONAL	9.00 EA \$1,002.56 \$9,023.04
Subcomponent Total	\$26,903.04

X-Items

Pay item Description	Quantity Unit Unit Price Extended Amount
630-2-15 CONDUIT, F& I, BRIDGE MOUNT	2,080.00 LF \$53.36 \$110,988.80
630-2-65 CONDUIT, REMOVE, BRIDGE MOUNT	2,080.00 LF \$11.18 \$23,254.40
715-1-60 LIGHTING CONDUCTORS,R&D, CONT OWNS	2,080.00 LF \$0.44 \$915.20
715-61-142 LIGHT POLE CMPLT,STD,F&I, 30'MH,12'ARM L	9.00 EA \$8,341.82 \$75,076.38
Comment: Replace the existing 9 light poles within bridge limit. Cost for the foundation included in Bridge cost sequence.	
Lighting Component Total	\$237,137.82

BRIDGES COMPONENT

Bridge 870083

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	520.00
Width (LF)	55.42
Type	Elevated Roadway
Cost Factor	1.40
Structure No.	870083
Removal of Existing Structures area	26,010.00
Default Cost per SF	\$165.00
Factored Cost per SF	\$231.00
Final Cost per SF	\$238.27
Basic Bridge Cost	\$6,657,050.40
Description	UTILIZING STANDARD PRESTRESSED PILES.

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	26,010.00	SF	\$45.96	\$1,195,419.60
400-2-10	CONC CLASS II, APPROACH SLABS	123.16	CY	\$1,463.48	\$180,242.20
415-1-9	REINF STEEL- APPROACH SLABS	21,553.00	LB	\$1.36	\$29,312.08
Bridge 870083 Total					\$8,062,024.28

Bridge 870084

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	520.00
Width (LF)	55.42
Type	Elevated Roadway
Cost Factor	1.40
Structure No.	870084
Removal of Existing Structures area	26,010.00
Default Cost per SF	\$165.00
Factored Cost per SF	\$231.00
Final Cost per SF	\$238.27
Basic Bridge Cost	\$6,657,050.40
Description	UTILIZING STANDARD PRESTRESSED PILES.

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	26,010.00	SF	\$45.96	\$1,195,419.60
400-2-10	CONC CLASS II, APPROACH SLABS	123.16	CY	\$1,463.48	\$180,242.20
415-1-9	REINF STEEL- APPROACH SLABS	21,553.00	LB	\$1.36	\$29,312.08
Bridge 870084 Total					\$8,062,024.28

Bridge 870549

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	520.00
Width (LF)	55.42
Type	Elevated Roadway
Cost Factor	1.40
Structure No.	870549
Removal of Existing Structures area	26,010.00
Default Cost per SF	\$165.00
Factored Cost per SF	\$231.00
Final Cost per SF	\$238.27
Basic Bridge Cost	\$6,657,050.40
Description	UTILIZING STANDARD PRESTRESSED PILES.

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	26,010.00	SF	\$45.96	\$1,195,419.60
400-2-10	CONC CLASS II, APPROACH SLABS	123.16	CY	\$1,463.48	\$180,242.20
415-1-9	REINF STEEL- APPROACH SLABS	21,553.00	LB	\$1.36	\$29,312.08
Bridge 870549 Total					\$8,062,024.28

Bridge 870550

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	520.00
Width (LF)	55.42
Type	Elevated Roadway
Cost Factor	1.40
Structure No.	870550
Removal of Existing Structures area	26,010.00
Default Cost per SF	\$165.00
Factored Cost per SF	\$231.00
Final Cost per SF	\$238.27
Basic Bridge Cost	\$6,657,050.40
Description	UTILIZING STANDARD PRESTRESSED PILES.

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	26,010.00	SF	\$45.96	\$1,195,419.60
400-2-10	CONC CLASS II, APPROACH SLABS	123.16	CY	\$1,463.48	\$180,242.20
415-1-9	REINF STEEL- APPROACH SLABS	21,553.00	LB	\$1.36	\$29,312.08
Bridge 870550 Total					\$8,062,024.28
Bridges Component Total					\$32,248,097.12

Sequence 1 Total	\$32,485,234.94
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Sequence: 5 NDU - New Construction, Divided, Urban	Net Length: 0.155 MI 820 LF
Description: Roadway reconstruction within the station - sta. 56+20 to 57+89 - sta. 63+69 to 65+80 - sta. 71+10 to 73+55 - sta. 79+35 to 81+30	

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	65.00 / 65.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.155
Top of Structural Course For Begin Section	6.00
Top of Structural Course For End Section	6.00
Horizontal Elevation For Begin Section	5.00
Horizontal Elevation For End Section	5.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.44	AC	\$78,750.71	\$192,151.73
120-6	EMBANKMENT	350.70	CY	\$31.42	\$11,018.99

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-4-10	REMOVAL OF EXIST CONC	1,828.00	SY	\$22.62	\$41,349.36
Comment: Includes removal of existing C&G, Sidewalk & traffic separators					

Earthwork Component Total \$244,520.09

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	38.00 / 38.00
Structural Spread Rate	330
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	7,864.56	SY	\$8.54	\$67,163.34
285-711	OPTIONAL BASE,BASE GROUP 11	6,924.31	SY	\$31.87	\$220,677.76
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,142.51	TN	\$187.74	\$214,494.83
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	571.26	TN	\$192.37	\$109,893.29

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	716.92	SY	\$8.54	\$6,122.50
Comment: Roadway segments over 38'are accounted as extra pavement.					
285-711	OPTIONAL BASE,BASE GROUP 11	716.92	SY	\$31.87	\$22,848.24
Comment: Roadway segments over 38'are accounted as extra pavement.					
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	118.29	TN	\$187.74	\$22,207.76

	Comment: Roadway segments over 38'are accounted as extra pavement.			
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	59.15 TN	\$192.37	\$11,378.69
	Comment: Roadway segments over 38'are accounted as extra pavement.			
339-1	MISCELLANEOUS ASPHALT PAVEMENT	12.64 TN	\$368.08	\$4,652.53
	Comment: pavement under guardrail (1.75' wide & 2" thick)			
400-0-11	CONC CLASS NS, GRAVITY WALL	138.28 CY	\$792.57	\$109,596.58
	Comment: Assume 40% reduction from total reconstruction (Alt 2B)			
415-1-1	REINF STEEL- ROADWAY	2,251.20 LB	\$1.80	\$4,052.16
	Comment: Reinforcement steel for the gravity wall calculated and unit price adjusted to match the pay-item difference (415-1-3)			
515-1-1	PIPE HANDRAIL - GUIDERAIL, STEEL	322.00 LF	\$100.77	\$32,447.94
	Comment: Pipe handrail along the gravity wall.			
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	591.00 LF	\$27.46	\$16,228.86
	Comment: Guardrail (TL-3) with misc. asphalt - sta. 56+20 to 57+89 LT - sta. 56+20 to 57+89 RT - sta. 63+69 to 64+53 LT - sta. 72+70 to 73+55 RT - sta. 79+35 to 80+19 LT			
536-8-112	GUARDRA CONN TO RIGID BA, F&I, N APPR 3	7.00 EA	\$3,409.11	\$23,863.77
	Comment: Rigid barrier (RB) connections - sta. 56+20 to 57+89 LT - 2 RBs - sta. 56+20 to 57+89 RT - 2 RBs - sta. 63+69 to 64+53 LT - 1 RB - sta. 72+70 to 73+55 RT - 1 RB - sta. 79+35 to 80+19 LT - 1 RB			
536-85-24	GUARDRAIL END TREATMENT-PARA APP TERM	3.00 EA	\$3,301.92	\$9,905.76
	Comment: Parallel Approach (PA) connections - sta. 63+69 to 64+53 LT - 1 PA - sta. 72+70 to 73+55 RT - 1 PA - sta. 79+35 to 80+19 LT - 1 PA			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	105.00	EA	\$3.86	\$405.30
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.24	GM	\$950.90	\$1,179.12
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.24	GM	\$376.81	\$467.24

Roadway Component Total \$877,585.67

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	14.25 / 17.25
Total Outside Shoulder Perf. Turf Width L/R	6.00 / 9.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
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520-1-10	CONCRETE CURB & GUTTER, TYPE F	819.98 LF	\$35.03	\$28,723.90
520-1-10	CONCRETE CURB & GUTTER, TYPE F	819.98 LF	\$35.03	\$28,723.90
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,093.31 SY	\$57.56	\$62,930.92
570-1-1	PERFORMANCE TURF	1,366.64 SY	\$3.19	\$4,359.58

Erosion Control**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,639.97 LF	\$2.36	\$3,870.33
104-11	FLOATING TURBIDITY BARRIER	38.82 LF	\$14.39	\$558.62
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	38.82 LF	\$15.46	\$600.16
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$3,207.31	\$3,207.31
104-18	INLET PROTECTION SYSTEM	8.00 EA	\$117.15	\$937.20
107-1	LITTER REMOVAL	3.95 AC	\$15.14	\$59.80
107-2	MOWING	3.95 AC	\$33.60	\$132.72
Shoulder Component Total				\$134,104.44

MEDIAN COMPONENT**User Input Data**

Description	Value
Total Median Width	15.50
Performance Turf Width	11.50

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,639.97 LF	\$35.03	\$57,448.15
570-1-2	PERFORMANCE TURF, SOD	1,047.76 SY	\$7.06	\$7,397.19

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	385.00 LF	\$64.85	\$24,967.25
Comment: Median Traffic Separators with left-turn lanes - sta. 63+69 to 65+80 - sta. 71+10 to 71+37 - sta. 79+35 to 80+82				
Median Component Total				\$89,812.59

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00 EA	\$7,526.22	\$37,631.10
425-2-41	MANHOLES, P-7, <10'	2.00 EA	\$6,354.05	\$12,708.10
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	416.00 LF	\$126.36	\$52,565.76
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	320.00 LF	\$271.56	\$86,899.20
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	320.00 LF	\$574.49	\$183,836.80
570-1-1	PERFORMANCE TURF	47.21 SY	\$3.19	\$150.60
Drainage Component Total				\$373,791.56

SIGNING COMPONENT

Pay Items					
Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	\$395.75	\$1,583.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	\$1,196.93	\$1,196.93
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	\$7,518.77	\$7,518.77
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	1.00	AS	\$11,412.63	\$11,412.63
Signing Component Total					\$21,711.33

LIGHTING COMPONENT

Conventional Lighting Subcomponent					
Description					Value
Spacing					MIN
Pay Items	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	819.98	LF	\$19.35	\$15,866.61
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	162.75	LF	\$29.80	\$4,849.95
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	\$948.98	\$5,693.88
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,994.81	LF	\$5.00	\$14,974.05
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	6.00	EA	\$9,528.90	\$57,173.40
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	6.00	EA	\$1,002.56	\$6,015.36
Subcomponent Total					\$104,573.25
X-Items					
Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-1-60	LIGHTING CONDUCTORS,R&D, CONT OWNS	3,197.00	LF	\$0.44	\$1,406.68
715-69-000	LIGHT POLE COMPLETE, REMV POLE AND FND	7.00	EA	\$1,245.53	\$8,718.71
Lighting Component Total					\$114,698.64
Sequence 5 Total					\$1,856,224.32

Sequence: 7 WDU - Widen/Resurface, Divided, Urban	Net Length: 0.080 MI 420 LF
Description: Milling, Overbuild, Resurfacing, & Widening. Signalization at two intersections are included. - sta. 52+00 to 56+20	

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	65.00 / 65.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.189
Top of Structural Course For Begin Section	5.00
Top of Structural Course For End Section	5.00
Horizontal Elevation For Begin Section	5.00
Horizontal Elevation For End Section	5.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.26	AC	\$78,750.71	\$99,225.89

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-4-10	REMOVAL OF EXIST CONC	2,801.00	SY	\$22.62	\$63,358.62
	Comment: Include removal of existing C&G, sidewalk and approach slabs.				

Earthwork Component Total \$162,584.51

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Existing Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 0.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	275
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	2,238.72	SY	\$10.74	\$24,043.85
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	184.69	TN	\$187.74	\$34,673.70
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 76-22	184.69	TN	\$192.37	\$35,528.82

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,700.33	SY	\$8.54	\$14,520.82
	Comment: Widening at two intersections including the turn lanes and extra wide pavement near begin project.				

285-711	OPTIONAL BASE,BASE GROUP 11	1,700.33 SY	\$31.87	\$54,189.52
	Comment: Widening at two intersections including the turn lanes and extra wide pavement near begin project.			
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	10,004.67 SY	\$10.74	\$107,450.16
	Comment: Milling and resurfacing at Harbor Island Intersection: 47335 SF, Adventure Ave Intersection: 36852 SF, from begin project to reconstruction limit: 5855 SF			
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,327.13 TN	\$187.74	\$249,155.39
	Comment: Paving at two intersections including the turn lanes and extra wide pavement near begin project. Quantity increased by 20% to account for overbuild.			
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	965.66 TN	\$192.37	\$185,764.01
	Comment: Paving at two intersections including the turn lanes and extra wide pavement near begin project.			
339-1	MISCELLANEOUS ASPHALT PAVEMENT	11.55 TN	\$368.08	\$4,251.32
	Comment: Pavement under guardrail (1.75' wide & 2" thick)			
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	540.00 LF	\$27.46	\$14,828.40
	Comment: End treatments are included under roadway reconstruction sequence.			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	32.00	EA	\$3.86	\$123.52
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.64	GM	\$950.90	\$608.58
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.32	GM	\$376.81	\$120.58
Roadway Component Total					\$725,258.67

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	0.00 / 0.00
New Total Outside Shoulder Width L/R	8.25 / 8.25
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	419.76	LF	\$35.03	\$14,704.19
520-1-10	CONCRETE CURB & GUTTER, TYPE F	419.76	LF	\$35.03	\$14,704.19
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	559.68	SY	\$57.56	\$32,215.18

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
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104-10-3	SEDIMENT BARRIER	839.52 LF	\$2.36	\$1,981.27
104-11	FLOATING TURBIDITY BARRIER	7.95 LF	\$14.39	\$114.40
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	7.95 LF	\$15.46	\$122.91
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$3,207.31	\$3,207.31
104-18	INLET PROTECTION SYSTEM	4.00 EA	\$117.15	\$468.60
107-1	LITTER REMOVAL	0.69 AC	\$15.14	\$10.45
107-2	MOWING	0.69 AC	\$33.60	\$23.18
Shoulder Component Total				\$67,551.68

MEDIAN COMPONENT**User Input Data**

Description	Value
Total Median Width	15.50
Performance Turf Width	11.50

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	839.52	LF	\$35.03	\$29,408.39
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	526.00	LF	\$64.85	\$34,111.10
521-72-43	SHLDR CONC BARRIER, CURB AND GUTTER BARR	300.00	LF	\$463.77	\$139,131.00
570-1-2	PERFORMANCE TURF, SOD	536.36	SY	\$7.06	\$3,786.70
Median Component Total					\$206,437.19

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	48.00	LF	\$126.36	\$6,065.28
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	\$271.56	\$4,344.96
570-1-1	PERFORMANCE TURF	24.17	SY	\$3.19	\$77.10

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-205	INLETS, CURB, TYPE 9, PARTIAL	7.00	EA	\$5,641.56	\$39,490.92
425-5	MANHOLE, ADJUST	13.00	EA	\$709.02	\$9,217.26
Drainage Component Total					\$59,195.52

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00	AS	\$395.75	\$791.50
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	\$1,196.93	\$1,196.93
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	\$304.81	\$304.81
700-1-60	SINGLE POST SIGN, REMOVE	2.00	AS	\$29.29	\$58.58
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	\$5,449.66	\$5,449.66
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	\$651.19	\$651.19
Signing Component Total					\$8,452.67

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane Mast Arm
Multiplier	4
Description	Replace with new signalization at 79th Street and Harbor Island Dr/Larry Paskow Way

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,800.00	LF	\$19.35	\$54,180.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,200.00	LF	\$29.80	\$35,760.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	4.00	PI	\$8,267.59	\$33,070.36
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	32.00	EA	\$948.98	\$30,367.36
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	4.00	AS	\$5,611.86	\$22,447.44
639-2-1	ELECTRICAL SERVICE WIRE, F&I	240.00	LF	\$8.50	\$2,040.00
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	4.00	EA	\$3,440.00	\$13,760.00
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00	EA	\$1,884.60	\$15,076.80
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	16.00	AS	\$1,231.64	\$19,706.24
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	\$974.32	\$7,794.56
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	\$321.36	\$2,570.88
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	4.00	AS	\$39,208.20	\$156,832.80
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	16.00	EA	\$318.83	\$5,101.28
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00	EA	\$3,613.02	\$14,452.08

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	4.00	EA	\$5,060.35	\$20,241.40
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	4.00	EA	\$2,515.48	\$10,061.92
663-1-111	SIGNAL PRIO & PREEMP, F&I, OPT,CAB E	4.00	EA	\$7,898.97	\$31,595.88

Signalization 2

Description	Value
Type	6 Lane Mast Arm
Multiplier	3
Description	Replace with new signalization at 79th Street and Adventure Avenue

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,100.00	LF	\$19.35	\$40,635.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	900.00	LF	\$29.80	\$26,820.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	3.00	PI	\$8,267.59	\$24,802.77
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	24.00	EA	\$948.98	\$22,775.52
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	3.00	AS	\$5,611.86	\$16,835.58
639-2-1	ELECTRICAL SERVICE WIRE, F&I	180.00	LF	\$8.50	\$1,530.00

641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	3.00 EA	\$3,440.00	\$10,320.00
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	6.00 EA	\$1,884.60	\$11,307.60
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00 AS	\$1,231.64	\$14,779.68
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	6.00 AS	\$974.32	\$5,845.92
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	6.00 EA	\$321.36	\$1,928.16
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	3.00 AS	\$39,208.20	\$117,624.60
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	12.00 EA	\$318.83	\$3,825.96
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	3.00 EA	\$3,613.02	\$10,839.06

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	3.00	EA	\$5,060.35	\$15,181.05
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	3.00	EA	\$2,515.48	\$7,546.44
663-1-111	SIGNAL PRIO & PREEMP, F&I, OPT,CAB E	3.00	EA	\$7,898.97	\$23,696.91
Signalizations Component Total					\$831,353.25

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value				
Spacing	MIN				
Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,959.00	LF	\$19.35	\$37,906.65
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	389.00	LF	\$29.80	\$11,592.20
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	14.00	EA	\$948.98	\$13,285.72
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	7,154.00	LF	\$5.00	\$35,770.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	14.00	EA	\$1,002.56	\$14,035.84
Subcomponent Total					\$112,590.41

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-1-60	LIGHTING CONDUCTORS,R&D, CONT OWNS	7,154.00	LF	\$0.44	\$3,147.76
715-5-21	LUMINAIRE & BRACKET ARM, REPLACE L & ARM	14.00	EA	\$5,520.52	\$77,287.28
Comment: Replace and retrofit existing luminaires.					
Lighting Component Total					\$193,025.45

Sequence 7 Total					\$2,253,858.94
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FDOT Long Range Estimating System - Production R3: Project Details by Sequence Report

Project: 449007-2-52-01 **Letting Date:** 02/2028

Description: SR 934/NE 79 ST FROM W OF PELICAN HARBOR DR TO E OF ADVENTURE AVE

District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English
Contract Class: 1 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.740 MI

Project Manager: Paola Martinez

Version 4 Project Grand Total **\$43,678,038.02**

Description: LRE 2023 Work Program Update (Estimate for Alternative 2A)

Project Sequences Subtotal **\$36,595,318.20**

102-1	Maintenance of Traffic	10.00 %	\$3,659,531.82
101-1	Mobilization	8.00 %	\$3,220,388.00

Project Sequences Total **\$43,475,238.02**

Project Unknowns	0.00 %	\$0.00
Design/Build	0.00 %	\$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-16	PARTNERING (DO NOT BID)	2.00	LS	\$3,000.00	\$6,000.00
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	\$150,000.00	\$150,000.00
999-20-1	DISPUTES REVIEW BD, MEETING- DO NOT BID	12	DA	\$3,900.00	\$46,800.00

Project Non-Bid Subtotal **\$202,800.00**

Version 4 Project Grand Total **\$43,678,038.02**

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 449007-2-52-01 **Letting Date:** 02/2028
Description: SR 934/NE 79 ST FROM W OF PELICAN HARBOR DR TO E OF ADVENTURE AVE
District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English
Contract Class: 1 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.740 MI
Project Manager: Paola Martinez

Version 5 Project Grand Total **\$45,423,634.27**
Description: LRE 2023 Work Program Update (Estimate for Alternative 2B)

Sequence: 1 MIS - Miscellaneous Construction **Net Length:** 0.870 MI
4,594 LF
Description: Bridge replacements for bridge ids #870083, 870084, 870549 & 870550

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX
Pay Items	
Pay item Description	Quantity Unit Unit Price Extended Amount
630-2-11 CONDUIT, F& I, OPEN TRENCH	4,593.60 LF \$19.35 \$88,886.16
630-2-12 CONDUIT, F& I, DIRECTIONAL BORE	599.43 LF \$29.80 \$17,863.01
635-2-11 PULL & SPLICE BOX, F&I, 13" x 24"	19.00 EA \$948.98 \$18,030.62
715-1-13 LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	15,579.09 LF \$5.00 \$77,895.45
715-61-342 LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	19.00 EA \$9,528.90 \$181,049.10
715-500-1 POLE CABLE DIST SYS, CONVENTIONAL	19.00 EA \$1,002.56 \$19,048.64
Subcomponent Total	\$402,772.98

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-15	CONDUIT, F& I, BRIDGE MOUNT	2,080.00 LF	\$53.36	\$110,988.80
630-2-65	CONDUIT, REMOVE, BRIDGE MOUNT	2,080.00 LF	\$11.18	\$23,254.40
715-1-60	LIGHTING CONDUCTORS,R&D, CONT OWNS	2,080.00 LF	\$0.44	\$915.20
715-61-142	LIGHT POLE CMPLT,STD,F&I, 30'MH,12'ARM L	9.00 EA	\$8,341.82	\$75,076.38
Comment: Replace the existing 9 light poles within bridge limit. Cost for the foundation included in Bridge cost sequence.				

Lighting Component Total **\$613,007.76**

BRIDGES COMPONENT

Bridge 870083

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	520.00
Width (LF)	55.42
Type	Elevated Roadway
Cost Factor	1.40
Structure No.	870083
Removal of Existing Structures area	26,010.00
Default Cost per SF	\$165.00
Factored Cost per SF	\$231.00
Final Cost per SF	\$238.27
Basic Bridge Cost	\$6,657,050.40
Description	UTILIZING STANDARD PRESTRESSED PILES.

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	26,010.00 SF	\$45.96	\$1,195,419.60
400-2-10	CONC CLASS II, APPROACH SLABS	123.16 CY	\$1,463.48	\$180,242.20
415-1-9	REINF STEEL- APPROACH SLABS	21,553.00 LB	\$1.36	\$29,312.08
Bridge 870083 Total				\$8,062,024.28

Bridge 870084

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	520.00
Width (LF)	55.42
Type	Elevated Roadway
Cost Factor	1.40
Structure No.	870084
Removal of Existing Structures area	26,010.00
Default Cost per SF	\$165.00
Factored Cost per SF	\$231.00
Final Cost per SF	\$238.27
Basic Bridge Cost	\$6,657,050.40
Description	UTILIZING STANDARD PRESTRESSED PILES.

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	26,010.00 SF	\$45.96	\$1,195,419.60
400-2-10	CONC CLASS II, APPROACH SLABS	123.16 CY	\$1,463.48	\$180,242.20
415-1-9	REINF STEEL- APPROACH SLABS	21,553.00 LB	\$1.36	\$29,312.08
Bridge 870084 Total				\$8,062,024.28

Bridge 870549

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	520.00

Width (LF)	55.42
Type	Elevated Roadway
Cost Factor	1.40
Structure No.	870549
Removal of Existing Structures area	26,010.00
Default Cost per SF	\$165.00
Factored Cost per SF	\$231.00
Final Cost per SF	\$238.27
Basic Bridge Cost	\$6,657,050.40
Description	UTILIZING STANDARD PRESTRESSED PILES.

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	26,010.00 SF	\$45.96	\$1,195,419.60
400-2-10	CONC CLASS II, APPROACH SLABS	123.16 CY	\$1,463.48	\$180,242.20
415-1-9	REINF STEEL- APPROACH SLABS	21,553.00 LB	\$1.36	\$29,312.08
Bridge 870549 Total				\$8,062,024.28

Bridge 870550

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	520.00
Width (LF)	55.42
Type	Elevated Roadway
Cost Factor	1.40
Structure No.	870550
Removal of Existing Structures area	26,010.00
Default Cost per SF	\$165.00
Factored Cost per SF	\$231.00
Final Cost per SF	\$238.27
Basic Bridge Cost	\$6,657,050.40
Description	UTILIZING STANDARD PRESTRESSED PILES.

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	26,010.00 SF	\$45.96	\$1,195,419.60
400-2-10	CONC CLASS II, APPROACH SLABS	123.16 CY	\$1,463.48	\$180,242.20
415-1-9	REINF STEEL- APPROACH SLABS	21,553.00 LB	\$1.36	\$29,312.08
Bridge 870550 Total				\$8,062,024.28
Bridges Component Total				\$32,248,097.12

Sequence 1 Total **\$32,861,104.88**

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION Comment: Widening at two intersections including the turn lanes and extra wide pavement near begin project.	1,700.33 SY	\$8.54	\$14,520.82
285-711	OPTIONAL BASE,BASE GROUP 11 Comment: Widening at two intersections including the turn lanes and extra wide pavement near begin project.	1,700.33 SY	\$31.87	\$54,189.52
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH Comment: Milling and resurfacing at Harbor Island Intersection: 47335 SF, Adventure Ave Intersection: 36852 SF, from begin project to reconstruction limit: 5855 SF	10,004.67 SY	\$10.74	\$107,450.16
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C Comment: Paving at two intersections including the turn lanes and extra wide pavement near begin project. Quantity increased by 20% to account for overbuild.	1,327.13 TN	\$187.74	\$249,155.39
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22 Comment: Paving at two intersections including the turn lanes and extra wide pavement near begin project.	965.66 TN	\$192.37	\$185,764.01
339-1	MISCELLANEOUS ASPHALT PAVEMENT Comment: Pavement under guardrail (1.75' wide & 2" thick)	11.55 TN	\$368.08	\$4,251.32
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3 Comment: End treatments are included under roadway reconstruction sequence.	540.00 LF	\$27.46	\$14,828.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	32.00 EA	\$3.86	\$123.52
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.64 GM	\$950.90	\$608.58
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.32 GM	\$376.81	\$120.58
Roadway Component Total				\$725,258.67

SHOULDER COMPONENT**User Input Data**

Description	Value
Existing Total Outside Shoulder Width L/R	0.00 / 0.00
New Total Outside Shoulder Width L/R	8.25 / 8.25
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	419.76	LF	\$35.03	\$14,704.19
520-1-10	CONCRETE CURB & GUTTER, TYPE F	419.76	LF	\$35.03	\$14,704.19
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	559.68	SY	\$57.56	\$32,215.18

Erosion Control**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	839.52	LF	\$2.36	\$1,981.27
104-11	FLOATING TURBIDITY BARRIER	7.95	LF	\$14.39	\$114.40
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	7.95	LF	\$15.46	\$122.91
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$3,207.31	\$3,207.31
104-18	INLET PROTECTION SYSTEM	4.00	EA	\$117.15	\$468.60
107-1	LITTER REMOVAL	0.69	AC	\$15.14	\$10.45
107-2	MOWING	0.69	AC	\$33.60	\$23.18
Shoulder Component Total					\$67,551.68

MEDIAN COMPONENT**User Input Data**

Description	Value
Total Median Width	15.50
Performance Turf Width	11.50

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	839.52	LF	\$35.03	\$29,408.39
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	526.00	LF	\$64.85	\$34,111.10
521-72-43	SHLDR CONC BARRIER, CURB AND GUTTER BARR	300.00	LF	\$463.77	\$139,131.00
570-1-2	PERFORMANCE TURF, SOD	536.36	SY	\$7.06	\$3,786.70
Median Component Total					\$206,437.19

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	7.00	EA	\$7,526.22	\$52,683.54
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	48.00	LF	\$126.36	\$6,065.28
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	\$271.56	\$4,344.96
570-1-1	PERFORMANCE TURF	24.17	SY	\$3.19	\$77.10

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
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425-2-61	MANHOLES, P-8, <10'	7.00 EA	\$5,695.19	\$39,866.33
425-5	MANHOLE, ADJUST	6.00 EA	\$709.02	\$4,254.12
Drainage Component Total				\$107,291.33

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00	AS	\$395.75	\$791.50
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	\$1,196.93	\$1,196.93
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	\$304.81	\$304.81
700-1-60	SINGLE POST SIGN, REMOVE	2.00	AS	\$29.29	\$58.58
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	\$5,449.66	\$5,449.66
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	\$651.19	\$651.19
Signing Component Total				\$8,452.67	

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane Mast Arm
Multiplier	4
Description	Replace with new signalization at 79th Street and Harbor Island Dr/Larry Paskow Way

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,800.00	LF	\$19.35	\$54,180.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,200.00	LF	\$29.80	\$35,760.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	4.00	PI	\$8,267.59	\$33,070.36
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	32.00	EA	\$948.98	\$30,367.36
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	4.00	AS	\$5,611.86	\$22,447.44
639-2-1	ELECTRICAL SERVICE WIRE, F&I	240.00	LF	\$8.50	\$2,040.00
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	4.00	EA	\$3,440.00	\$13,760.00
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00	EA	\$1,884.60	\$15,076.80
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	4.00	EA	\$65,017.28	\$260,069.12
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	16.00	AS	\$1,231.64	\$19,706.24
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	\$974.32	\$7,794.56
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	\$321.36	\$2,570.88
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	4.00	AS	\$39,208.20	\$156,832.80
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	16.00	EA	\$318.83	\$5,101.28

700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00 EA	\$3,613.02	\$14,452.08
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X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
649-26-1	STEEL MAST ARM ASSEMBLY, REM POLE Comment: Removal of existing mast-arm	4.00 EA	\$2,612.00	\$10,448.00
660-4-11	VEHICLE DETECTION SYSTEM- VIDEO, CABINET	4.00 EA	\$5,060.35	\$20,241.40
660-4-12	VEHICLE DETECTION SYSTEM- VIDEO, ABOVE G	4.00 EA	\$2,515.48	\$10,061.92
663-1-111	SIGNAL PRIO & PREEMP, F&I, OPT,CAB E	4.00 EA	\$7,898.97	\$31,595.88

Signalization 2

Description	Value
Type	6 Lane Mast Arm
Multiplier	3
Description	Replace with new signalization at 79th Street and Adventure Avenue

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,100.00 LF	\$19.35	\$40,635.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	900.00 LF	\$29.80	\$26,820.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	3.00 PI	\$8,267.59	\$24,802.77
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	24.00 EA	\$948.98	\$22,775.52
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	3.00 AS	\$5,611.86	\$16,835.58
639-2-1	ELECTRICAL SERVICE WIRE, F&I	180.00 LF	\$8.50	\$1,530.00
641-2-11	PREST CNC POLE,F&I,TYP P- II,PEDESTAL	3.00 EA	\$3,440.00	\$10,320.00
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	6.00 EA	\$1,884.60	\$11,307.60
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	3.00 EA	\$65,017.28	\$195,051.84
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00 AS	\$1,231.64	\$14,779.68
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	6.00 AS	\$974.32	\$5,845.92
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	6.00 EA	\$321.36	\$1,928.16
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	3.00 AS	\$39,208.20	\$117,624.60
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	12.00 EA	\$318.83	\$3,825.96
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	3.00 EA	\$3,613.02	\$10,839.06

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
649-26-1	STEEL MAST ARM ASSEMBLY, REM POLE Comment: Removal of existing mast-arm	3.00 EA	\$2,612.00	\$7,836.00
660-4-11	VEHICLE DETECTION SYSTEM- VIDEO, CABINET	3.00 EA	\$5,060.35	\$15,181.05

660-4-12	VEHICLE DETECTION SYSTEM- VIDEO, ABOVE G	3.00 EA	\$2,515.48	\$7,546.44
663-1-111	SIGNAL PRIO & PREEMP, F&I, OPT,CAB E	3.00 EA	\$7,898.97	\$23,696.91

Interconnect Subcomponent

Description	Value
Type	U
Length of Fiber Run	1,486.00
Number of Intersections	2
Percentage of Underpavement Conduit	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
633-1-122	FIBER OPTIC CABLE, F&I, UG, 13-48	1,486.00	LF	\$6.97	\$10,357.42
660-2-102	LOOP ASSEMBLY, F&I, TYPE B	8.00	AS	\$1,722.50	\$13,780.00
Signalizations Component Total					\$1,328,895.63

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value				
Spacing	MIN				
Pay Items					
Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,959.00	LF	\$19.35	\$37,906.65
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	389.00	LF	\$29.80	\$11,592.20
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	14.00	EA	\$948.98	\$13,285.72
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	7,154.00	LF	\$5.00	\$35,770.00
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	14.00	EA	\$9,528.90	\$133,404.60
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	14.00	EA	\$1,002.56	\$14,035.84
Subcomponent Total					\$245,995.01

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
639-6-111	ELEC POWER SERV-TRANSF, F&I, <5KVA, 1P,CU	3.00	EA	\$7,500.00	\$22,500.00
715-1-60	LIGHTING CONDUCTORS,R&D, CONT OWNS	7,154.00	LF	\$0.44	\$3,147.76
715-69-000	LIGHT POLE COMPLETE, REMV POLE AND FND	14.00	EA	\$1,245.53	\$17,437.42
715-516-115	LIGHT POLE COMP,F&I,POLE TOP MNT, AL, 15'	4.00	EA	\$6,844.91	\$27,379.64
Comment: Pole top mount luminaires near Harbor Island Drive and SR 934/79th Street					

Lighting Component Total **\$316,459.83**

Sequence 3 Total **\$2,922,931.51**

Sequence: 5 NDU - New Construction, Divided, Urban

Net Length: 0.155 MI
820 LF

Description: Roadway reconstruction within the station - sta. 56+20 to 57+89 - sta. 63+69 to 65+80 - sta. 71+10 to 73+55 - sta. 79+35 to 81+30

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	65.00 / 65.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.155
Top of Structural Course For Begin Section	8.00
Top of Structural Course For End Section	8.00
Horizontal Elevation For Begin Section	5.00
Horizontal Elevation For End Section	5.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.44	AC	\$78,750.71	\$192,151.73
120-6	EMBANKMENT	9,269.44	CY	\$31.42	\$291,245.80

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-4-10	REMOVAL OF EXIST CONC	1,828.00	SY	\$22.62	\$41,349.36
	Comment: Includes removal of existing C&G, Sidewalk & traffic separators				

Earthwork Component Total \$524,746.89

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	38.00 / 38.00
Structural Spread Rate	330
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	7,864.56	SY	\$8.54	\$67,163.34
285-711	OPTIONAL BASE,BASE GROUP 11	6,924.31	SY	\$31.87	\$220,677.76
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,142.51	TN	\$187.74	\$214,494.83
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	571.26	TN	\$192.37	\$109,893.29

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	716.92	SY	\$8.54	\$6,122.50

	Comment: Roadway segments over 38'are accounted as extra pavement.			
285-711	OPTIONAL BASE,BASE GROUP 11	716.92 SY	\$31.87	\$22,848.24
	Comment: Roadway segments over 38'are accounted as extra pavement.			
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	118.29 TN	\$187.74	\$22,207.76
	Comment: Roadway segments over 38'are accounted as extra pavement.			
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	59.15 TN	\$192.37	\$11,378.69
	Comment: Roadway segments over 38'are accounted as extra pavement.			
339-1	MISCELLANEOUS ASPHALT PAVEMENT	12.64 TN	\$368.08	\$4,652.53
	Comment: pavement under guardrail (1.75' wide & 2" thick)			
400-0-11	CONC CLASS NS, GRAVITY WALL	230.48 CY	\$792.57	\$182,671.53
415-1-1	REINF STEEL- ROADWAY	3,752.00 LB	\$1.80	\$6,753.60
	Comment: Reinforcement steel for the gravity wall calculated and unit price adjusted to match the pay-item difference (415-1-3)			
515-1-1	PIPE HANDRAIL - GUIDERAIL, STEEL	536.00 LF	\$100.77	\$54,012.72
	Comment: Pipe handrail along the gravity wall.			
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	591.00 LF	\$27.46	\$16,228.86
	Comment: Guardrail (TL-3) with misc. asphalt - sta. 56+20 to 57+89 LT - sta. 56+20 to 57+89 RT - sta. 63+69 to 64+53 LT - sta. 72+70 to 73+55 RT - sta. 79+35 to 80+19 LT			
536-8-112	GUARDRA CONN TO RIGID BA, F&I, N APPR 3	7.00 EA	\$3,409.11	\$23,863.77
	Comment: Rigid barrier (RB) connections - sta. 56+20 to 57+89 LT - 2 RBs - sta. 56+20 to 57+89 RT - 2 RBs - sta. 63+69 to 64+53 LT - 1 RB - sta. 72+70 to 73+55 RT - 1 RB - sta. 79+35 to 80+19 LT - 1 RB			
536-85-24	GUARDRAIL END TREATMENT- PARA APP TERM	3.00 EA	\$3,301.92	\$9,905.76
	Comment: Parallel Approach (PA) connections - sta. 63+69 to 64+53 LT - 1 PA - sta. 72+70 to 73+55 RT - 1 PA - sta. 79+35 to 80+19 LT - 1 PA			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	105.00 EA	\$3.86	\$405.30
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.24 GM	\$950.90	\$1,179.12
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.24 GM	\$376.81	\$467.24

Roadway Component Total

\$974,926.84

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	14.25 / 17.25
Total Outside Shoulder Perf. Turf Width L/R	6.00 / 9.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	819.98	LF	\$35.03	\$28,723.90
520-1-10	CONCRETE CURB & GUTTER, TYPE F	819.98	LF	\$35.03	\$28,723.90
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,093.31	SY	\$57.56	\$62,930.92
570-1-1	PERFORMANCE TURF	1,366.64	SY	\$3.19	\$4,359.58

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6"	732.78	SY	\$63.93	\$46,846.63
Comment: All driveway Reconstruction within the project limit accounted in the reconstruction sequence.					

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,639.97	LF	\$2.36	\$3,870.33
104-11	FLOATING TURBIDITY BARRIER	38.82	LF	\$14.39	\$558.62
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	38.82	LF	\$15.46	\$600.16
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$3,207.31	\$3,207.31
104-18	INLET PROTECTION SYSTEM	8.00	EA	\$117.15	\$937.20
107-1	LITTER REMOVAL	3.95	AC	\$15.14	\$59.80
107-2	MOWING	3.95	AC	\$33.60	\$132.72

Shoulder Component Total \$180,951.07

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	15.50
Performance Turf Width	11.50

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,639.97	LF	\$35.03	\$57,448.15
570-1-2	PERFORMANCE TURF, SOD	1,047.76	SY	\$7.06	\$7,397.19

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
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520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	385.00 LF	\$64.85	\$24,967.25
	Comment: Median Traffic Separators with left-turn lanes - sta. 63+69 to 65+80 - sta. 71+10 to 71+37 - sta. 79+35 to 80+82			
	Median Component Total			\$89,812.59

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00 EA	\$7,526.22	\$37,631.10
425-2-41	MANHOLES, P-7, <10'	2.00 EA	\$6,354.05	\$12,708.10
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	416.00 LF	\$126.36	\$52,565.76
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	320.00 LF	\$271.56	\$86,899.20
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	320.00 LF	\$574.49	\$183,836.80
570-1-1	PERFORMANCE TURF	47.21 SY	\$3.19	\$150.60
	Drainage Component Total			\$373,791.56

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00 AS	\$395.75	\$1,583.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	\$1,196.93	\$1,196.93
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00 AS	\$7,518.77	\$7,518.77
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	1.00 AS	\$11,412.63	\$11,412.63
	Signing Component Total			\$21,711.33

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value			
Spacing	MIN			
Pay Items				
Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	819.98 LF	\$19.35	\$15,866.61
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	162.75 LF	\$29.80	\$4,849.95
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00 EA	\$948.98	\$5,693.88
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,994.81 LF	\$5.00	\$14,974.05
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	6.00 EA	\$9,528.90	\$57,173.40
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	6.00 EA	\$1,002.56	\$6,015.36
	Subcomponent Total			\$104,573.25

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-1-60	LIGHTING CONDUCTORS,R&D, CONT OWNS	3,197.00	LF	\$0.44	\$1,406.68
715-69-000	LIGHT POLE COMPLETE, REMV POLE AND FND	7.00	EA	\$1,245.53	\$8,718.71
Lighting Component Total					\$114,698.64

Sequence 5 Total \$2,280,638.92

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 449007-2-52-01

Letting Date: 02/2028

Description: SR 934/NE 79 ST FROM W OF PELICAN HARBOR DR TO E OF ADVENTURE AVE

District: 06

County: 87 MIAMI-DADE

Market Area: 13

Units: English

Contract Class: 1 **Lump Sum Project:** N

Design/Build: N

Project Length: 1.740 MI

Project Manager: Paola Martinez

Version 5 Project Grand Total

\$45,423,634.27

Description: LRE 2023 Work Program Update (Estimate for Alternative 2B)

Project Sequences Subtotal

\$38,064,675.31

102-1	Maintenance of Traffic	10.00 %	\$3,806,467.53
101-1	Mobilization	8.00 %	\$3,349,691.43

Project Sequences Total

\$45,220,834.27

Project Unknowns	0.00 %	\$0.00
Design/Build	0.00 %	\$0.00

Non-Bid Components:

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
999-16	PARTNERING (DO NOT BID)	2.00 LS	\$3,000.00	\$6,000.00
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)	LS	\$150,000.00	\$150,000.00
999-20-1	DISPUTES REVIEW BD, MEETING- DO NOT BID	12 DA	\$3,900.00	\$46,800.00

Project Non-Bid Subtotal

\$202,800.00

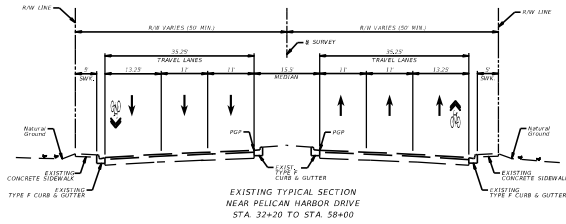
Version 5 Project Grand Total

\$45,423,634.27

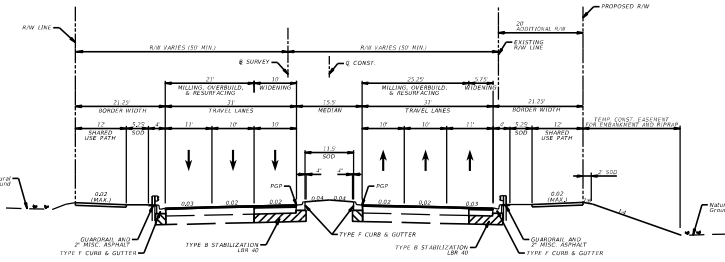
APPENDIX D

Roadway Typical Section Evaluation

ROADWAY TYPICAL SECTION OPTIONS FOR SIDEWALK, BICYCLE LANES, OR SHARED-USE PATHS AT PELICAN HARBOR PARK
 (Section 87080000 MP 0.933-1.428, BL Survey Sta. 32+20 to Sta. 58+00)



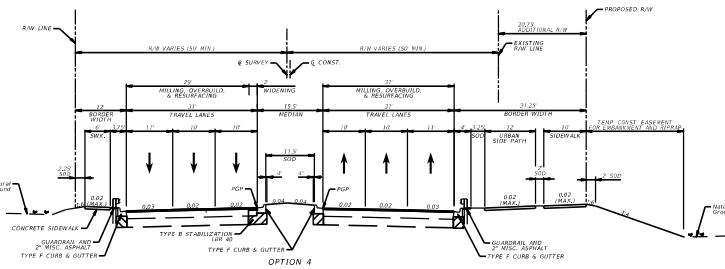
OPTIONS WITH SHARED USE PATHS



OPTION 3

No bicycle lanes; provide Shared-Use Paths on both sides.

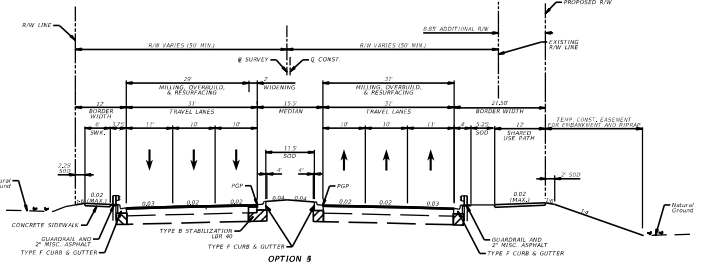
Requires right of way acquisition, impacts to Section 4(f) park property, environment along shoreline and fill into the bay.



OPTION 4

No bicycle lanes; provide minimum sidewalk on the north side and separated Urban Side Path and sidewalk on the south side.

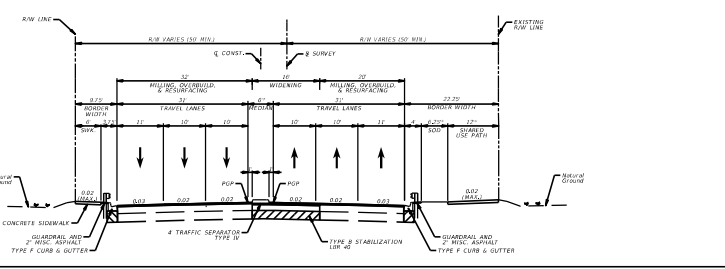
Requires right of way acquisition, impacts to Section 4(f) park property, environment along shoreline and fill into the bay.



OPTION 5

No bicycle lanes; provide a minimum sidewalk on the north side and a Shared-Use Path on the south side.

Requires right of way acquisition, impacts to Section 4(f) park property, environment along shoreline and fill into the bay.

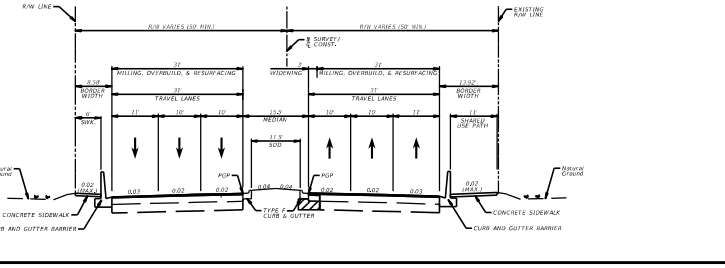


OPTION 6

Constrained typical section option to fit roadway within the existing right of way width, with a Shared-Use Path (12') on the south side and a standard sidewalk (6') on the north side.

* At the Pelican Harbor Drive intersection (Sta. 38+00 to Sta. 45+50), transition the 6' median to an 11' undivided median with left-turn lane no traffic separator, and 3.5' Sod & 10' Path at outside.

Design Variations required for Median Width (<15.5' with left-turn lanes) and for Shared-Use Path (Horizontal Clearance <4' at sign posts).



OPTION 10

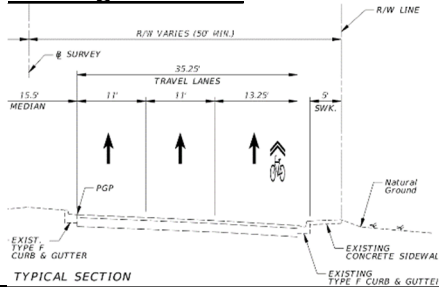
Constrained typical section option, using existing roadway pavement width with sub-standard bicycle lanes (4'), sub-standard sidewalks (5.5'), and add curb & gutter barrier within the right of way.

- Match existing pavement width and existing profile.
- Provide three 10' lanes, 4' bike lane on existing pavement.
- * - Construct curb & gutter barrier to shield the water hazards.
- Reconstruct 5.5' sidewalks.
- Milling, overbuild & resurfacing to correct profile grade to 0.3% minimum.

Design Variation for Shared-Use Path (Horizontal Clearance <4' at sign posts & light poles) and for Minimum Grade (existing profile with 0.2% grades).

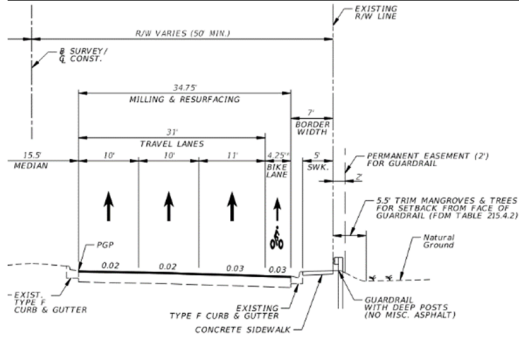
FM 449007-1, SR 934/NE 79th Street Causeway, from west of Pelican Harbor Drive to east of Adventure Avenue
Typical Section Options at Pelican Harbor Marina Park (87080000 MP 1.077-1.428)
 Context Class = C5, Design Speed = 35 mph, Target Speed = 35 mph, Posted Speed = 30, 35 mph

Existing Condition



- No bicycle lane
- No shielding of canal hazard (Biscayne Bay)
- Existing sub-standard sidewalk width (5') with light poles at back of sidewalk (<4' unobstructed width)
- Existing mangroves near back of sidewalk on both sides
- Existing rubble rip-rap shoreline protection on south side constructed in 2020 (FPID 443966-1-52-01)

Option 9A – Guardrail at back of sidewalk



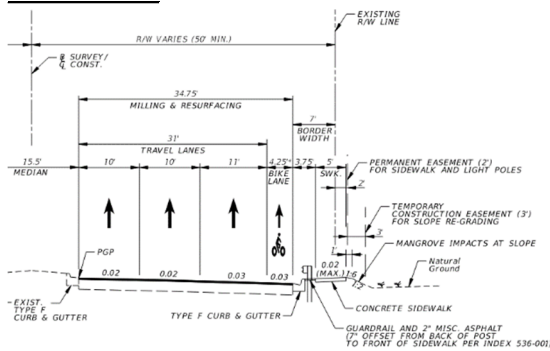
Advantage

- Mill & resurface pavement to add bike lane (4.25')
- Existing curb & gutter to remain
- Existing light poles and drainage inlets to remain
- Construct guardrail at the back of sidewalk to shield canal hazard
- Construct guardrail with deep posts to minimize slope re-grading and no miscellaneous asphalt strip to minimize additional impervious area in the park property

Disadvantage

- Section 4(f) impacts outside the right of way in park property:
 - o Permanent Easement (~0.1 ac, 2' both sides for guardrail)
 - o Mangroves trimmed to maintain 5.5' horizontal clearance behind guardrail per FDM Table 215.4.2.
- Reconstruct sidewalk (5')
- Guardrail at back of sidewalk does not align with bridge barrier along front of sidewalk, requires guardrail overlap at bridge approach
- Design Variations:
 - o Bicycle Lane Width (<7')
 - o Sidewalk Width (<6')
 - o Unobstructed Sidewalk Width (<4' at light poles)
 - o Existing Profile Grade (0.2%)
- Potential underground utility impacts on north side

Option 9B – Guardrail at front of sidewalk/ face of curb



Advantage

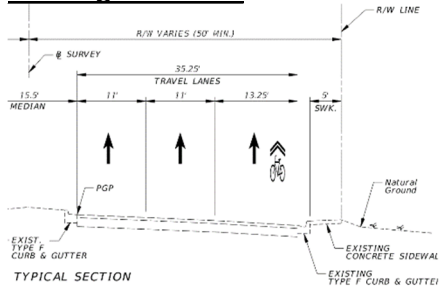
- Mill & resurface pavement to add bike lane (4.25')
- Existing drainage inlets to remain
- Construct guardrail at face of curb to shield canal hazard.
- Guardrail also shields pedestrians on sidewalk and aligns with the bridge barrier at the front of sidewalk.

Disadvantage

- Section 4(f) impacts outside the right of way in park property:
 - o Permanent Easement (~0.1 ac, 2' both sides for sidewalk & light poles)
 - o Temporary Construction Easement (~0.15 ac for slope re-grading, 3' from Permanent Easement, 5' from R/W)
- Mangroves impacted by fill slope re-grading (5' from R/W)
- Reconstruct curb & gutter
- Reconstruct sidewalk (5')
- Replace light poles at back of sidewalk
- Design Variations:
 - o Bicycle Lane Width (<7')
 - o Sidewalk Width (<6')
 - o Unobstructed Sidewalk Width (<4' at light poles)
 - o Existing Profile Grade (0.2%)

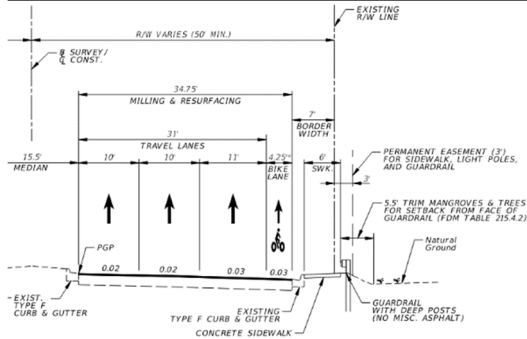
FM 449007-1, SR 934/NE 79th Street Causeway, from west of Pelican Harbor Drive to east of Adventure Avenue
Typical Section Options at Pelican Harbor Marina Park (87080000 MP 1.077-1.428)
 Context Class = C5, Design Speed = 35 mph, Target Speed = 35 mph, Posted Speed = 30, 35 mph

Existing Condition



- No bicycle lane
- No shielding of canal hazard (Biscayne Bay)
- Existing sub-standard sidewalk width (5') with light poles at back of sidewalk (<4' unobstructed width)
- Existing mangroves near back of sidewalk on both sides
- Existing rubble rip-rap shoreline protection on south side constructed in 2020 (FPID 443966-1-52-01)

Option 9A – Guardrail at back of sidewalk



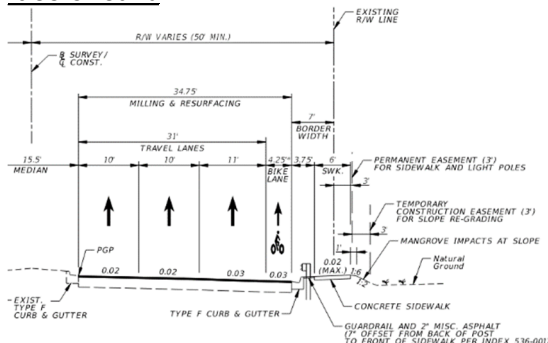
Advantage

- Mill & resurface pavement to add bike lane (4.25')
- Existing curb & gutter to remain
- Existing light poles and drainage inlets to remain
- Construct guardrail at the back of sidewalk to shield canal hazard
- Construct guardrail with deep posts to minimize slope re-grading and no miscellaneous asphalt strip to minimize additional impervious area in the park property
- Reconstruct standard sidewalk (6')

Disadvantage

- Section 4(f) impacts outside the right of way in park property:
 - o Permanent Easement (~0.15 ac, 3' both sides for sidewalk and guardrail)
- Mangroves trimmed to maintain 5.5' horizontal clearance behind guardrail per FDM Table 215.4.2.
- Guardrail at back of sidewalk does not align with bridge barrier along front of sidewalk, requires guardrail overlap at bridge approach
- Design Variations:
 - o Bicycle Lane Width (<7')
 - o Existing Profile Grade (0.2%)
- Potential underground utility impacts on north side

Option 9B – Guardrail at front of sidewalk/ face of curb



Advantage

- Mill & resurface pavement to add bike lane (4.25')
- Existing drainage inlets to remain
- Construct guardrail at face of curb to shield canal hazard.
- Guardrail also shields pedestrians on sidewalk and aligns with the bridge barrier at the front of sidewalk.
- Reconstruct standard sidewalk (6')

Disadvantage

- Section 4(f) impacts outside the right of way in park property:
 - o Permanent Easement (~0.15 ac, 3' both sides for sidewalk & light poles)
 - o Temporary Construction Easement (~0.15 ac for slope re-grading, 3' from Permanent Easement, 6' from R/W)
- Mangroves impacted by fill slope re-grading (6' from R/W)
- Reconstruct curb & gutter
- Replace light poles at back of sidewalk
- Design Variations:
 - o Bicycle Lane Width (<7')
 - o Existing Profile Grade (0.2%)