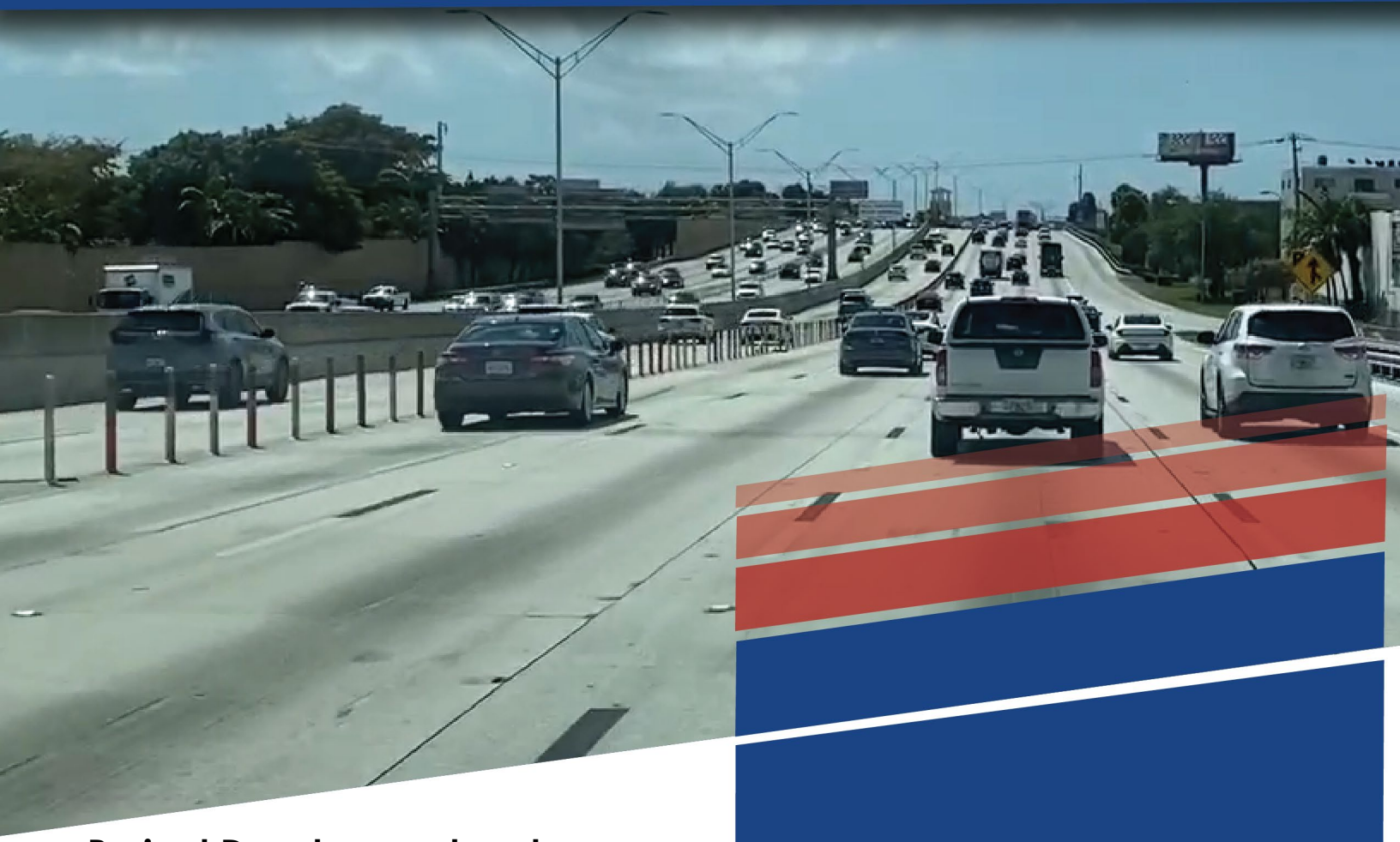
I-95/SR 9A

From South of NW 62nd Street to NW 143rd Street

Miami-Dade County, Florida



Project Development and Environment (PD&E) Scoping Report

FINAL

Financial Management No.: 414964-8-22-01
ETDM No.: 14484

Prepared for:
Florida Department of Transportation
District Six
1000 N.W. 111 Avenue
Miami, Florida 33172

August 2023

PPS1123210724ORL

Contents

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Acronyms and Abbreviations

AADT	annual average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
ACS	American Community Survey
ADA	Americans with Disabilities Act
COA	Class of Action
CRAS	Cultural Resources Assessment Survey
CRAVE	Cost Risk Assessment and Value Engineering
CZMA	Coastal Zone Management Act
DHW	design high water
DMS	dynamic message sign
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
EST	Environmental Screening Tool
ETDM	Efficient Transportation Decision Making
FDEP	Florida Department of Environmental Protection
FDHR	Florida Department of Historical Resources
FDM	FDOT Design Manual
FDOS	Florida Department of State
FDOT	Florida Department of Transportation
FM	Financial Management
FGDL	Florida Geographic Data Library
FHWA	Federal Highway Administration
FWC	Florida Fish and Wildlife Commission
FY	Fiscal Year
GGI	Golden Glade Interchange
GIS	geographic information system
HAPC	Habitat of Particular Concern
HPS	high-pressure sodium
ITS	intelligent transportation system
LOS	level of service
LRE	long range estimate
LRTP	Long Range Transportation Plan
MDT	Miami-Dade Transit
MDX	Miami Dade Expressway Authority
MP	mile post
mph	mile(s) per hour
NAAQS	National Ambient Air Quality Standards
NBI	National Bridge Inventory

NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OEM	Office of Environmental Management
OGT	Office of Greenways and Trails
NB	northbound
NW	northwest
NWI	National Wetland Inventory
PD&E	Project Development and Environment
PED	Preliminary Environmental Discussion
PLEMO	Planning and Environmental Management Office
PSEMP	Project System Engineering Management Plan
RMS	ramp-metering system
ROW	right-of-way
SB	southbound
SERPM	South East Regional Planning Model
SFRTA	South Florida Regional Transportation Authority
SFWMD	South Florida Water Management District
SHPO	State Historic Preservation Office
SIS	Strategic Intermodal System
SR	State Road
STIP	State Transportation Improvement Program
STOF	Seminole Tribe of Florida
SUN	shared-use nonmotorized
SWEPT	State-Wide Environmental Project Tracker
TMC	Transportation Management Center
TMDL	total daily maximum load
TIP	Transportation Improvement Program
TPO	Transportation Planning Organization (Miami-Dade)
TSM&O	Transportation System Management and Operations
TTC	temporary traffic control
UAO	utility agency owner
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VDS	vehicle detection stations

1. Project Introduction

The Florida Department of Transportation (FDOT) District Six prepared this Project Development and Environment (PD&E) Study Scoping Report to support programming a future PD&E Study to evaluate adding capacity (express lanes and/or general-use lanes) to Interstate 95 (I-95) from south of Northwest (NW) 62nd Street to NW 143rd Street in Miami-Dade County. The I-95 project corridor also is designated as State Road (SR) 9A within the project limits in Miami-Dade County. This segment of I-95 is south of the Golden Glade Interchange (GGI) in northern Miami-Dade County and traverses through the cities of Miami, Miami Shores, El Portal, and North Miami. Figure 1-1 presents the Regional Location Map.

Within the study corridor, there are eight interchanges along I-95, including: NW 62nd Street, NW 69th Street, NW 79th Street (SR 934) and NW 81st Street, NW 95th Street, NW 103rd Street (SR 932), NW 119th Street (SR 924), NW 125th Street, and NW 135th Street (SR 916) and Opa-Locka Boulevard (SR 916). Additionally, US 441/SR 7/NW 7th Avenue is parallel to I-95 approximately 0.25 mile to the west along the entire project corridor. The project study limits extend along I-95 from milepost (MP) 5.720 (south of NW 62nd Street) to MP 11.300 (NW 143rd Street), for a total distance of 5.45 miles. The Project Location Map is presented as Figure 1-2.

This PD&E Scoping Report includes the preliminary evaluation of the engineering and environmental impacts of potential alternatives associated with adding express lanes and/or general-use lanes, including a No-Action Alternative, as well as the draft Scope of Services (Appendix A) to complete the PD&E Study.

1.1 Project Background

Within the project limits, I-95/SR 9A is classified as an Urban Principal Arterial Interstate and consists of eight general-use lanes and four express lanes (reference Figure 3-1). It connects to SR 924/NW 119 Street, a major east-west facility in northern Miami-Dade County that connects to the Gratigny Parkway (owned and operated by Miami Dade Expressway Authority [MDX]) within the project limits, which further connects to SR 826/Palmetto Expressway, and Interstate 75 (I-75) outside the project limits. Within the project limits, I-95 also connects to SR 934/NW 79th Street, which carries eastbound traffic from northern Miami-Dade County over the intercoastal waterway to North Bay Village and the City of Miami Beach. Additionally, the I-95/SR 9A corridor is part of Florida's Strategic Intermodal System (SIS) highway network and is a designated state hurricane evacuation route.

In 2019, FDOT completed the *Interstate 95 Corridor Planning Study* from U.S. Highway 1 (US 1)/SR 5 to the Broward County Line (FDOT 2019). The purpose of this study was to develop and evaluate improvement concepts and perform a planning-level operational analysis for the I-95 corridor from SR 5/US 1/Dixie Highway/SW 16th Avenue to the Broward/Miami County Line north of Ives Dairy Road. The study identified deficiencies along the project corridor, focusing on recurring bottlenecks, and developed a series of improvements to address existing and future demand. The project corridor was divided into five segments for analysis and conceptual improvement development. The following presents the limits of each of the segments. Segment 3 (Central) encompasses the project limits for this PD&E Scoping Report.

1. SR 5/US 1/Dixie Highway to north of the SR 836/I-395 interchange (Central Business District)
2. North of the SR 836/Interstate 395 (I-395) interchange to north of the SR 112/Interstate 195 (I-195) interchange (South)
3. North of the SR 112/I-195 interchange to south of the GGI (Central)
4. Golden Glades Interchange (GGI)
5. North of the GGI to the Broward/Miami-Dade County line (North)

The project corridor also was split into three segments (refer to Figure 1-3) to support preliminary environmental review of the corridor for the Efficient Transportation Decision Making (ETDM) process, and for consistency with the limits of planned PD&E studies. The planning study noted that the limits of Segment 3 (Central) generally match Segment 2 of the PD&E segments. Two Build Concepts were developed for Segment 3 (Central)/PD&E Segment 2. In 2018, FDOT performed a Cost Risk Assessment

and Value Engineering (CRAVE) analysis on the Build Concepts to identify high-risk areas for delivering the project, to improve the value of the project through innovative measures aimed at improving the performance while reducing costs, and to perform a cost risk assessment on the baseline design (FDOT 2018). Upon completion of the CRAVE analysis, the Corridor Planning Study developed a third Build Concept, which was the Refined Build Concept for the segment.

Figure 1-1. Regional Location Map

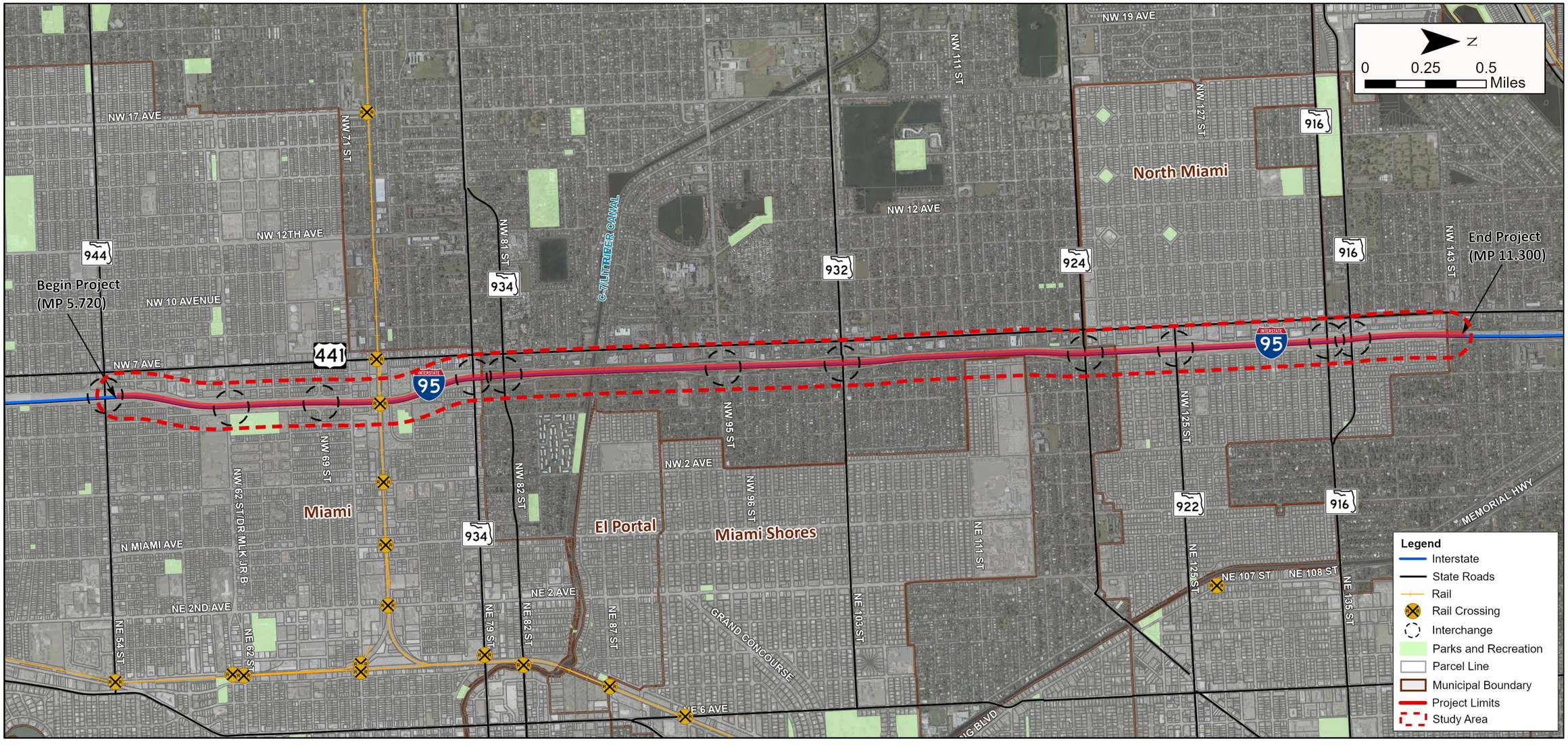


Figure 1-2. Project Location Map

Figure 1-3. ETDM/PD&E Segmentation Map

1.1.1 Project Justification and Study Objectives

As a result of the I-95 Corridor Planning Study, a PD&E Study is necessary to further evaluate the Build Concepts and Refined Build Concept alternatives to address the future travel demand increases anticipated.

The future PD&E Study further provides an opportunity to analyze other existing deficiencies (including multimodal and safety deficiencies), existing access issues, as well as additional concepts/alternatives for improvements and associated environmental and right-of-way (ROW) impacts. A PD&E Study is being programmed to fulfill FDOT objectives to address the project corridor's future transportation demand, improve the overall reliability and performance of the interstate system, increase the capacity of traffic that can be evacuated during an emergency event, and allow for enhanced emergency access and incident response times.

2. Project Description/Purpose and Need

The project ETDM Programming Screen (ETDM No. 14418), along with the Advanced Notification Package, were initiated on November 20, 2019. The Programming Screen was published on March 4, 2020. The information within this section includes a project description, logical termini, purpose and need, and status of the planning consistency. This information should evolve as the project progresses from the PD&E Scoping Report and ETDM Screening into the PD&E Study.

2.1 Project Description

The following preliminary project description was developed as part of the ETDM Programming Screen (ETDM No. 14418).

> *This roadway project entails potentially providing additional express and/or general use lanes on I-95/SR 9A from south of NW 62nd Street to NW 143rd Street and implementing interchange improvements at NW 62nd Street and SR 924/NW 119th Street, removing slip ramps at NW 69th Street, and constructing a Collector-Distributor (C-D) system from NW 95th Street to NW 103rd Street within Miami-Dade County.*
>
> *The improvements proposed as part of the project stem from the Refined Build Concept that was developed as part of the Interstate 95 Corridor Planning Study, conducted by the FDOT in May 2019 (Attachment 1 in the EST), that assessed enhancements along the length of the I-95/SR 9A corridor within Miami-Dade County from US 1/SR 5 (Mile Post 0.000) to the Broward County Line. As such, this project is part of a larger effort to improve the I-95/SR 9A corridor within Miami-Dade County and regionally within Broward and Palm Beach Counties. The proposed concept is recommended for further consideration in the Project Development phase as it provides additional capacity while minimizing modifications to programmed/planned improvements pertaining to other projects along the I-95/SR 9A corridor, as well as reduces right-of-way acquisition/impacts and construction costs. General design parameters for the corridor include minimum 11-foot-wide travel lanes, 10-foot-wide express lane inside shoulders, and 4-foot-wide buffers with express lane markers between the express lanes and general purpose lanes; 12-foot lanes are generally provided in segments that include more extensive reconstruction/widening, and 11-foot lanes are utilized in areas where modifications are less extensive or needed to match the existing/programmed/planned geometry.*
>
> *Within the project limits, I-95/SR 9A is classified as 'Urban Principal Arterial Interstate' and consists of eight general use lanes and four express lanes; the typical section varies throughout the project segment. This particular segment of the corridor is located south of the Golden Glades Interchange (GGI) in northern Miami-Dade County and traverses eight U.S. Census Designated Places, including North Miami, Miami Shores, Miami, El Portal, Gladeview, Golden Glades, Pinewood, and West Little River. Additionally, it connects to many important east-west facilities within northern Miami-Dade County, including SR 934, NW 95th Street, SR 932, SR 924, and SR 916. Existing right-of-way along the project segment ranges from approximately 200 feet to 450 feet in width. Right-of-way is expected to be required intermittently throughout the corridor to allow for the roadway expansion and construction of the C-D system, as well as reconstruction of interchange on/off ramps. Specific right-of-way requirements will be determined during the Project Development and Environment Study.*
>
> *It should be noted that the greater I-95/SR 9A corridor is part of Florida's Strategic Intermodal System (SIS) highway network and is a designated state hurricane evacuation route. In addition, I-95/SR 9A serves a critical role in facilitating the north-south movement of traffic in southeast Florida as one of two major expressways (Florida's Turnpike being the other) that connect the major employment centers and*

residential areas between Miami-Dade, Broward, and Palm Beach Counties. The corridor traverses dense urban areas composed predominantly of commercial and residential uses, including downtown Miami.

Overall, the project will offer enhanced mobility options for motorists and transit users as it will provide additional capacity along the I-95/SR 9A corridor throughout central Miami-Dade County. Consistent with the existing managed lanes system on I-95/SR 9A, the additional express lanes are anticipated to operate using variable toll pricing based on congestion to optimize traffic flow.

2.2 Purpose and Need

The purpose and need for a project provide the basis for developing, considering, evaluating, and eliminating alternatives. The following project purpose and need was developed as part of the ETDM Programming Screen (ETDM No. 14418) and updated (underlined) as part of this Scoping Report.

The purpose of this project is to address the deficient operational capacity and relieve existing/future congestion along the I-95/SR 9A corridor. Other goals of the project are to 1) preserve the operational integrity and regional functionality of I95/SR 9A (and, therefore, the regional transportation network) by complementing similar corridor improvements throughout Miami-Dade, Broward, and Palm Beach Counties and 2) enhance emergency evacuation and response times. The need for the project is based on the following criteria:

CAPACITY/TRANSPORTATION DEMAND:

I-95/SR 9A in Miami-Dade County is one of the most heavily traveled sections of urban interstate in the nation. According to data extracted from the Florida Department of Transportation (FDOT) 2021 Florida Traffic Online database and the South East Regional Planning Model (SERPM), the existing and future traffic conditions for the I-95/SR 9A project segment are as follows:

- *The 2021 Annual Average Daily Traffic (AADT) volume is projected to grow from between 205,000 vehicles per day (vpd) -281,000 vpd to between 307,600 vpd - 342,800 vpd in 2045.*

- *The 2021 Annual Average Daily Truck Traffic (AADTT) volume is projected to increase from between 7,218 truck trips per day – 10,116 truck trips per day to between 10,151 truck trips per day - 11,312 truck trips per day in 2045 [assuming the percentage of trucks on the road remains the same as the base year percentage (3.60%)].*

Accordingly, growth projected for Miami-Dade County, as identified in the Miami-Dade Transportation Planning Organization (TPO) 2045 Long Range Transportation Plan (LRTP), is as follows:

- *Population of the county is forecasted to increase from 2.6 million in 2015 to 3.5 million in 2045.*

- *Employment of the county is projected to grow from 1.3 million in 2015 to 1.8 million in 2045.*

Based on the traffic operations analysis for the Interstate 95 Corridor Planning Study conducted by the FDOT in May 2019 (Attachment 1 in the EST), sections of this I-95/SR 9A project segment operate at Level of Service (LOS) F in the peak periods of travel. It is important to note that the existing managed lanes along much of the corridor are also operating near capacity, negatively impacting their ability to provide

time savings to vehicles on I-95/SR 9A. As a result of the corridor being over capacity, travel demand is shifting vehicles onto less appropriate facilities. This, in turn, is reducing safety and increasing trip travel time. The regional roadway system is also close to build-out and the ability to add more traffic lanes is limited. Without improvements, the project corridor will continue to experience high delays and operate at LOS F in 2045; driving conditions for residents and commuters will also deteriorate well below acceptable LOS standards. The project is anticipated to meet the mobility needs of the area by alleviating current and future congestion on the corridor and surrounding roadway network. The additional capacity will allow I-95/SR 9A to continue to serve as an important arterial in facilitating the north-south movement of traffic in northern Miami-Dade County, thus improving access between communities of Miami-Dade, Broward, and Palm Beach Counties.

SYSTEM LINKAGE

I-95/SR 9A is the primary interstate route along the east coast of the United States extending from Maine to Florida and serving some of the most populated urban areas in the country. As part of Florida's Strategic Intermodal System (SIS) highway network, I-95/SR 9A plays a significant role in facilitating commuter and freight traffic within the state. Within the project limits, I-95/SR 9A connects to SR 916 and SR 924, which link I-95/SR 9A to both I-75 and SR 826/Palmetto Expressway (SIS facilities) to the west. Additionally, the project segment connects SR 932 and SR 934 to SR 826/Palmetto Expressway. Further, SR 826/Palmetto Expressway and Florida's Turnpike run parallel to the I-95/SR 9A project corridor.

The proposed project improvements are part of a larger, regional effort to provide additional express lane capacity/continuous managed lanes along the I-95/SR 9A corridor, both within Miami-Dade County and to the north in Broward and Palm Beach Counties. The other projects within the county include:

- *ETDM #14417: I-95/SR 9A from US 1/South Dixie Highway to South of NW 62nd Street [FM #414964-7];*

- *ETDM #14419: I-95/SR 9A from South of SR 860/Miami Gardens Drive to Broward County Line [FM #414964-1]; and*

- *ETDM TBD*: I-95/SR 9A from NW 143rd Street to South of SR 860/Miami Gardens Drive [FM #414964-9]. *This segment, which generally represents the area of the Golden Glades Interchange, is currently funded for PD&E in 2028 within the FDOT Five Year Work Program and will be screened at a later date.*

The intent is for these projects to collectively improve the overall reliability and performance of the interstate system in moving high volumes of goods and people at efficient speeds. Reduced congestion will serve to maintain and improve viable access to the major transportation facilities and businesses of the area (including connectors to freight activity centers/local distribution facilities or between the regional freight corridors) and create an opportunity to provide efficient and reliable transit service within the corridor. As such, these improvements are critical to enhancing regional mobility. They are also key in preserving the operational integrity and regional functionality of the I-95/SR 9A corridor as a whole.

EMERGENCY EVACUATION

I-95/SR 9A serves as part of the emergency evacuation route network designated by the Florida Division of Emergency Management. Also designated as a Miami-Dade County evacuation facility, I-95/SR 9A is critical in facilitating traffic during emergency

evacuation periods as it connects other major arterials and highways of the state evacuation route network (i.e., I-195, I-395 and Florida's Turnpike). Specifically, this project section of I-95/SR 9A connects to three designated evacuation routes [SR 934, SR 924, and SR 922]. The project is anticipated to:

- *Improve emergency evacuation capabilities by enhancing accessibility to other major arterials designated on the state evacuation route network.*
- *Increase the capacity of traffic that can be evacuated during an emergency event.*
- *Allow for enhanced emergency access and incident response times.*

2.3 Logical Termini

The proposed project improvements are part of a larger, regional effort to provide additional express lane capacity/continuous managed lanes along the I-95/SR 9A corridor, both within Miami-Dade County and to the north in Broward and Palm Beach Counties. The project's study limits fall within the cities of Miami, Miami Shores, El Portal, and North Miami, as well as within unincorporated Miami-Dade County. Outside the project limits, additional capacity is expected to be added to I-95 north and south of the project's proposed improvements. This project's logical termini are consistent with the limits of existing and planned PD&E studies north and south of this project, as presented on Figure 1-3. The logical termini for the proposed improvements also allow for full inclusion of interchange footprints.

2.4 ETDM Screening

The proposed project qualifies for ETDM screening because it is a roadway on the FDOT SIS Plan, and the project is adding capacity. The ETDM Programming Screen Summary Report #14418 is complete, and all agencies have commented. The degree of effect, particularly on cultural and physical resources, has been found to be moderate. Figure 2-1 presents a screenshot of the ETDM summary. The Programming Screen does not state a Class of Action (COA) determination but notes federal involvement through Federal Highway Administration (FHWA) funding and the need for a federal permit. In November 2019, FDOT submitted an Application for Federal Assistance, Form SF-424, for this project to FHWA. It is recommended that District Six coordinate with the FDOT Office of Environmental Management on a COA. For the purposes of scoping this PD&E Study, and assuming that future alternatives will be developed to minimize impacts to the surrounding businesses and residences, a Type 2 Categorical Exclusion is assumed.

#14418 I-95/SR 9A

District: District 6
County: Miami-Dade
Planning Organization: FDOT District 6
Plan ID: Not Available
Federal Involvement: FHWA Funding Other Federal Permit

Phase: Programming Screen
From: South of NW 62nd Street
To: NW 143rd Street
Financial Management No.: 414964-8-22-01

Contact Information: Curlene Thomas (305) 470-5408 Curlene.Thomas@dot.state.fl.us
Snapshot Data From: Project Published 3/04/2020
Topics and Categories are reflective of what was in place at the time of the screening event.

	Social and Economic							Cultural			Natural					Physical					
	Land Use Changes	Social	Relocation Potential	Farmlands	Aesthetic Effects	Economic	Mobility	Section 4(f) Potential	Historic and Archaeological Sites	Recreation Areas	Wetlands and Surface Waters	Water Quality and Quantity	Floodplains	Wildlife and Habitat	Coastal and Marine	Noise	Air Quality	Contamination	Infrastructure	Navigation	Special Designations
Alternative #1 From: South of NW 62nd Street To: NW 143rd Street *Published: 03/04/2020 Reviewed from 11/20/2019 to 01/04/2020)*	2	2	4	N/A	2	3	1	3	3	3	2	2	3	2	2	3	2	3	3	0	N/A

Figure 2-1. ETDM Screening Summary

2.5 Current Funding/Planning Consistency

Planning documents, including the local Long Range Transportation Plan (LRTP), local Transportation Improvement Plan (TIP), State Transportation Improvement Plan (STIP), corridor studies, and environmental documents, assist FDOT in developing a vision for the state of Florida's transportation system. For the purposes of this Scoping Report, a review of existing transportation plans was completed for the proposed project. Transportation plans reviewed include the FDOT Five Year Work Program (Fiscal Year [FY] 2023-2027) (FDOT 2022a), the FDOT STIP (dated July 1, 2022) (FDOT 2022b), the Miami-Dade Transportation Planning Organization (TPO) 2022 TIP (FY 2023–2027; approved June 2, 2022) (Miami-Dade TPO 2022), the adopted FDOT SIS First Five Year Plan (FY 2023-2027) (FDOT 2022c), the Miami-Dade TPO 2045 LRTP (dated September 26, 2019; amended February 23, 2023) (Miami-Dade TPO 2019), and the Miami-Dade County Comprehensive Development Plan Transportation Element (adopted July 22, 2020, amended April 21, 2022) (Miami-Dade County 2020). Projects requiring a federal action or that use federal aid funds must meet planning consistency requirements before submittal to the FDOT Office of Environmental Management. State-funded projects use planning documents as an information tool; however, there are no consistency requirements. These documents include the following information about the proposed project:

- FDOT Five Year Work Program (FM No.: 414964-8): PD&E phase programmed in FY 2024 ($3,500,000); preliminary engineering programmed in FY 2027 ($5,200,000)
- FDOT STIP: (FM No.: 414964-8): PD&E phase programmed in FY 2024 ($3,700,000); preliminary engineering programmed in FY 2027 ($5,720,000)
- FDOT SIS First Five Year Plan: (FM No.: 414964-8): PD&E phase programmed in FY 2024 ($3,700,000); preliminary engineering programmed in FY 2027 ($5,720,000)
- Miami-Dade TPO 2022 TIP: (TPO Project No. DT4149648): PD&E phase programmed in FY 2023-2024 ($3,700,000); preliminary engineering programmed in FY 2026-2027 ($5,720,000)
- Miami-Dade TPO 2045 LRTP: (Map ID 42): preliminary engineering (PD&E included) programmed in years 2020-2025 ($9,420,000)
- Miami-Dade County Comprehensive Development Plan: Not applicable since operations and maintenance projects typically are not listed

No action is required to proceed and develop the project in the PD&E phase. However, prior to submitting the PD&E environmental document to the FDOT Office of Environmental Management for Location Design Concept Acceptance, planning consistency will be coordinated.

2.6 Related Projects

Related projects with funding programmed were identified within the project area. Sources for identifying related projects include the FDOT Five Year Work Program (FY 2023-2027), the FDOT STIP (dated July 1, 2022), the Miami-Dade TPO 2022 TIP (FY 2023–2027; approved June 2, 2022), the adopted FDOT SIS First Five Year Plan (FY 2023-2027), the Miami-Dade TPO 2045 LRTP (dated September 26, 2019; Miami-Dade County 2021), and the Miami-Dade County Comprehensive Development Plan, Transportation Element (adopted July 22, 2020, amended April 21, 2022; Miami-Dade County 2020). Related projects are summarized in Table 2-1.

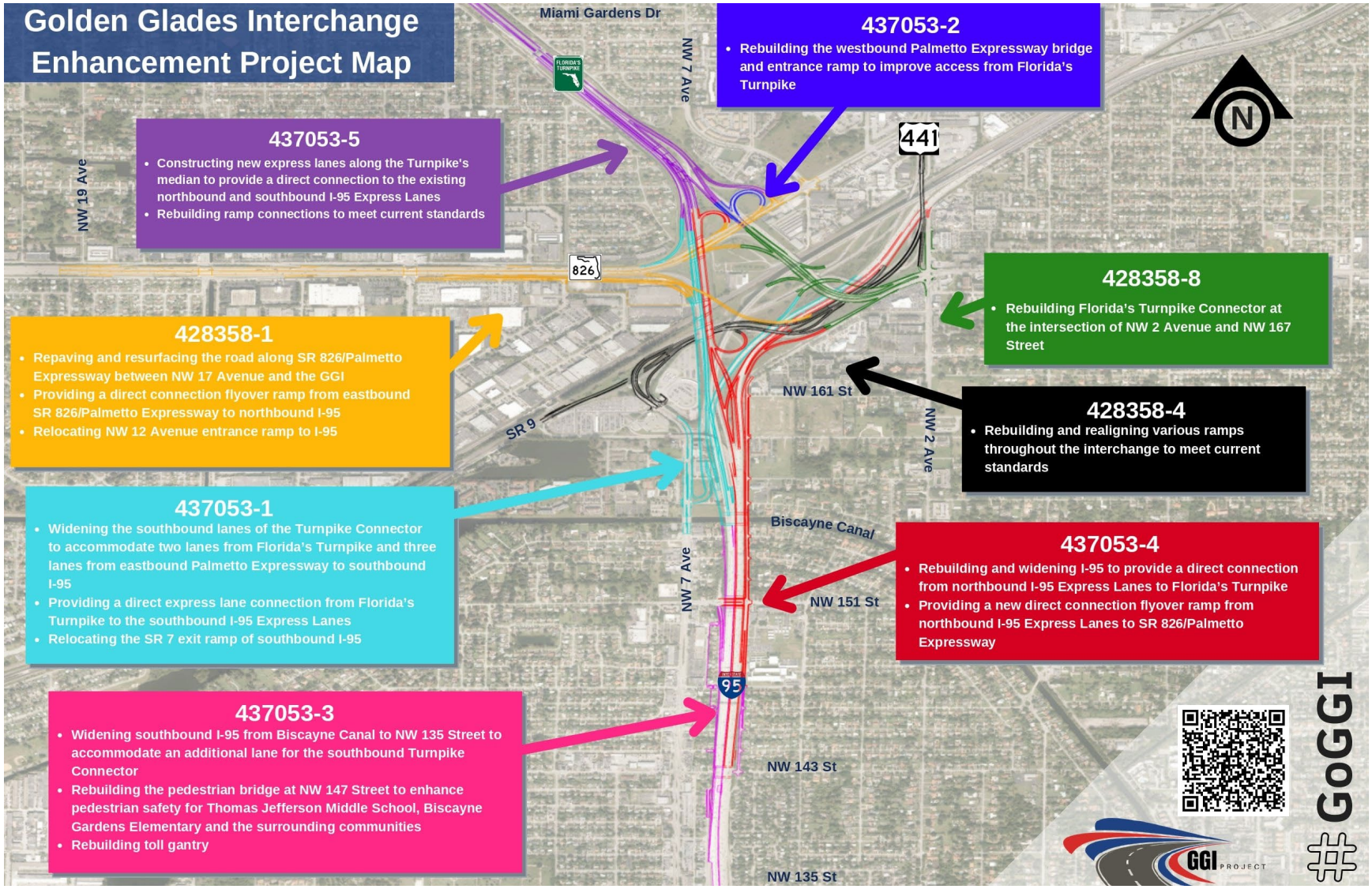
Table 2-1. Related Projects

Agency	FM No.	Description	Type of Work	Phase Funding (FY)
FDOT	428358-5[a]	SR 9A/I-95 from N. of Biscayne Canal to SR 860/Miami Garden Drive	Add 1 To 7 Lanes	Preliminary Engineering (2023) & Construction (2028-2030)
FDOT	437053-3[a]	SR 9A/I-95 Southbound from NW 135th Street to Biscayne Canal	Add Lanes & Reconstruct	Preliminary Engineering (2023) & Construction (2023-2028)
FDOT	437053-4[a]	SR 9A/I-95 Northbound from NW 143rd Street to just East of NW 2nd Avenue	Add Lanes & Reconstruct	Preliminary Engineering (2023) & Construction (2023-2028)
FDOT	414964-7	SR 9A/I-95 from US-1/South Dixie Highway to South of NW 62nd Street	Capacity	PD&E (2025) & Preliminary Engineering (2028)
FDOT	414964-9	SR 9A/I-95 from North of 143rd Street to South of SR 860/Miami Gardens Drive	Capacity	PD&E (2028)
FDOT	410646-5	SR 934/NW 79th Street from West of I-95 (13th Court) to end of SR 934	Add Lanes and Reconstruct	Preliminary Engineering (2023)
FDOT	410646-6	SR 934/NW 81st /82nd Street from West of I-95 (13th Court) to end of SR 934	Road Reconstruction	Preliminary Engineering (2023)
FDOT	410646-7	SR 934/NW 79th street from NW 27th Avenue to NW 1st Place	Safety Project	Preliminary Engineering (2023) & Construction (2025)
FDOT	439981-1	SR 924/NW 119 Street/Gratigny Road from West of NW 27th Avenue to West of NW 7th Avenue	Resurfacing	Construction Underway
MDX	92407	SR 924/Gratigny Parkway East Extension	PD&E Study	On Hold
FDOT	448829-1	SR 5 and SR 924 at Various Locations	Lighting Improvements	Preliminary Engineering (2023) & Construction (2023)
FDOT	414964-1	SR 9A/I-95 from South of Miami Gardens Drive to Broward County Line	Capacity	Preliminary Engineering (2024)
FDOT	440228-2	SR 112/I-195 from NW 12th Avenue to SR 907/Alton Road	Capacity	PD&E (2024)
FDOT	446947-1	I-95 Wrong Way Driving Initiative	Various Ramp Locations	Preliminary Engineering (2023) & Construction (2023)

[a] Included in the Golden Glades Interchange Enhancement Project

In addition to the projects summarized in Table 2-1, construction of the FDOT Golden Glades Interchange Enhancement Project[1], located just north of the project area, is anticipated to begin in 2024 and construction would last approximately 7 years. Total construction costs are estimated at $563 million. The improvements, which include enhancements to several miles of roadway and ramps, are anticipated to help increase the regional connectivity to this major interchange. Figure 2-2 presents the project map for the GGI Enhancement Project.

[1] https://www.fdotmiamidade.com/design-projects/expressways/golden-glades-interchange-enhancement-projects.html



Source: FDOT

Figure 2-2. GGI Enhancement Project Map

3. Engineering

3.1 Data Collection

The existing conditions described in the following sections were obtained through the analyses of previous plans and studies, as well as a field visit to the study location in March 2023.

3.1.1 Existing Roadway Typical Section

Appendix F of the I-95 Corridor Planning Study from 2019 provides the existing typical section for I-95/SR 9A from south of NW 62nd Street to NW 143rd Street (FDOT 2019). This segment of the study corridor is a north-south 12-lane divided facility with four general-purpose lanes and two express lanes in each direction, divided by a concrete median barrier. The existing typical section for each direction is described in the following sections. Figure 3-1, referenced from the I-95 Corridor Planning Study, presents the existing typical section, representative of the roadway and bridges within the project limits.

3.1.1.1 Existing Roadway – Southbound Typical Section

The southbound typical section consists of four general-purpose lanes varying in width from 11 feet to 12 feet, two 11-foot-wide managed express lanes, and shoulders varying from 6 feet wide to 10 feet wide on either side of the travel lanes. The inside shoulder ranges from 6 feet wide to 10 feet wide. The outside paved shoulder varies from 6 feet wide to 10 feet wide and is protected by a concrete barrier/noise wall.

3.1.1.2 Existing Roadway – Northbound Typical Section

The northbound typical section consists of four 11-foot-wide general-use lanes and two 11-foot-wide managed express lanes. The inside shoulder ranges from 6 feet wide to 15 feet wide. The outside paved shoulder varies from 4 feet wide to 12 feet wide and is protected by a concrete barrier/noise wall.

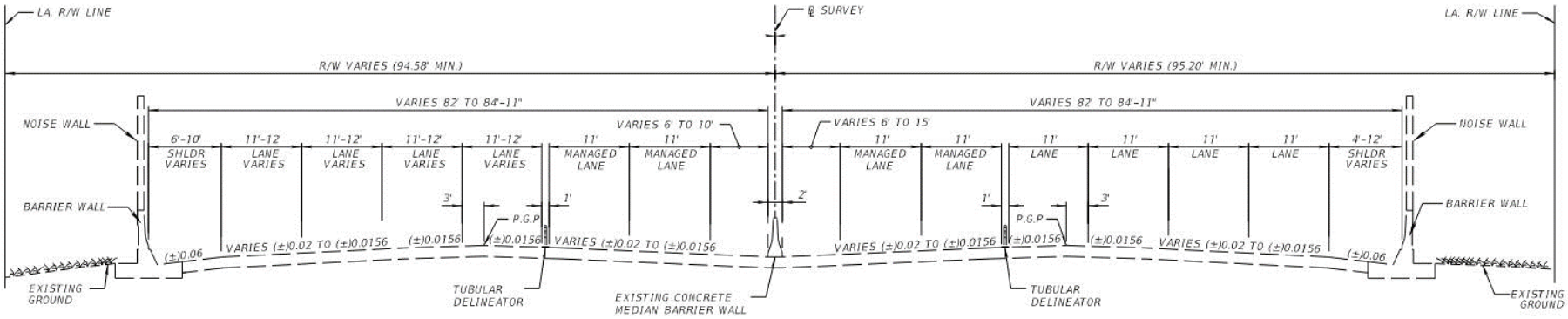


Figure 3-1. I-95/SR 9A Existing Typical Section South of Golden Glades Interchange

3.1.2 Existing Bridges

There are 22 existing bridges within the project limits. The existing typical section for each direction is described in the following sections. Table 3-1 includes a summary of the existing bridges within the project limits.

3.1.2.1 Existing Bridges – Southbound Typical Section

The southbound typical section consists of four general-use lanes varying from 11 feet wide to 12 feet wide, two 11-foot-wide managed express lanes, and shoulders varying from 6 feet wide to 10 feet wide on either side of the travel lanes. The inside and outside shoulders range from 6 feet wide to 10 feet wide.

3.1.2.2 Existing Bridges – Northbound Typical Section

The northbound typical section consists of four 11-foot-wide general-purpose lanes and two 11-foot-wide managed express lanes. The inside shoulder ranges from 6 feet wide to 15 feet wide and the outside shoulder varies from 4 feet wide to 12 feet wide.

Table 3-1. Bridge Inventory Summary

Bridge No.	Mile Post (MP)	Route Carried	Bridge Over	Sufficiency Rating (%)[a]	Health Index	Inspection Date	Year Built	Year Reconstructed
870308	MP 6.206	I-95 SB	NW 62nd ST	92.0	98.25	2021	1959	1993
870429		I-95 NB		83.8	98.88	2021	1961	1993
879007	MP 6.4	N/A	I-95	N/A	N/A	N/A	1978	N/A
870309	MP 6.846	I-95 SB	FEC RR, NW 71st ST – NW 75th ST	86.9	99.38	2021	1959	1995
870430		I-95 NB		91.1	99.44	2021	1959	1995
870315	MP 7.248	I-95 SB	NW 79th ST	91.0	98.01	2021	1961	1993
870431		I-95 NB		92.0	94.40	2021	1961	1993
870432	MP 7.371	I-95	NW 81st ST	87.7	99.38	2022	1961	1993
870317	MP 7.738	I-95 NB	LITTLE RIVER CANAL, C-7	89.5	87.88	2022	1961	1975
870433		I-95 SB		89.5	91.16	2022	1961	1975
870434	MP 8.266	I-95	NW 95th ST	85.6	99.90	2022	1961	1991
870435	MP 8.773	I-95	NW 103rd ST	96.0	98.30	2022	1961	1991
870436	MP 9.276	I-95	NW 111th ST	85.0	98.37	2022	1961	1991
870437	MP 9.769	I-95	NW 119th ST	92.0	97.38	2022	1962	1991
870322	MP 10.145	I-95 SB	NW 125th ST	92.8	99.17	2021	1962	1991
870438		I-95 NB		92.8	98.85	2021	1963	1991
870323	MP 10.536	I-95 SB	NW 131st ST	94.0	99.05	2022	1963	2008
870439		I-95 NB		91.0	99.48	2022	1962	1991
870344	MP 10.779	I-95 SB	NW 135th ST	96.0	99.25	2021	1963	1994
870443		I-95 NB		96.0	99.19	2021	1963	1995
870444	MP 10.869	I-95	OPA-LOCKA BLVD	82.5	99.42	2022	1963	2008
870445	MP 11.227	I-95	NW 143rd ST	96.8	98.45	2022	1963	1995

Source: FDOT District Six Structures Maintenance Office, Routine Bridge Inspection Reports (FDOT 2023)
NB = northbound
SB = southbound

3.1.3 Existing Right-of-Way

The existing ROW widths within the project limits were analyzed using the Miami-Dade Property Appraiser data and Appendix I of the I-95 Corridor Planning Study Overall Corridor Report from July 2019 (FDOT 2019). The limited access ROW width along the project corridor varies between 208 feet and 390 feet. Table 3-2 lists the typical ROW width between each interchange.

Table 3-2. Existing Limited Access ROW Width Along the Project Corridor

Location Description	Begin MP to End MP	ROW Width Range (feet)
South of NW 62nd Street to NW 69th Street	MP 5.720 to MP 6.610	216 feet – 301 feet
NW 69th Street to NW 79th Street	MP 6.610 to MP 7.100	215 feet – 361 feet
NW 79th Street and NW 81st Street	MP 7.100 to MP 7.498	260 feet – 283 feet
NW 81st Street to NW 95th Street	MP 7.498 to MP 8.263	232 feet – 345 feet
NW 95th Street to NW 103rd Street	MP 8.263 to MP 8.770	251 feet – 338 feet
NW 103rd Street to NW 119th Street	MP 8.770 to MP 9.612	208 feet – 390 feet
NW 119th Street to NW 125th Street	MP 9.612 to MP 10.136	269 feet – 337 feet
NW 125th Street to NW 135th Street	MP 10.136 to MP 10.648	220 feet – 314 feet
NW 135th Street to NW 143rd Street	MP 10.648 to MP 11.300	213 feet – 276 feet

3.1.4 Functional Class, Context Class, and Speed Limit

The project corridor has a functional classification of Urban Principal Arterial Interstate and, as a Limited Access Facility, has no context classification. The project corridor has an access management classification of 1. The existing speed limit throughout the project limits is 60 miles per hour (mph). From MP 5.720 to MP 6.270 and MP 6.783 to MP 7.618, the advisory speed limit is 50 mph.

3.1.5 Existing Interchanges

There are eight interchanges and 10 intersecting streets within the corridor limits. Interchanges within the project limits includes NW 62nd Street, NW 69th Street, NW 79th Street (SR 934) and NW 81st Street, NW 95th Street, NW 103rd Street (SR 932), NW 119th Street (SR 924), NW 125th Street, and NW 135th Street (SR 916) and Opa-Locka Boulevard (SR 916). Table 3-3 lists the interchanges, along with control type, location, and access configuration.

Table 3-3. Existing Interchanges

Interchange/Ramp Begin MP – End MP	Cross Street	Ramp Terminal Intersection Name	Control Type	Access
6.046 – 6.366	NW 62nd ST	Signalized Tight Diamond	Signal	Entrance/Exit – NB Ramp SB Ramp
6.610 – 6.610	NW 69th ST	Partial Diamond NB: All-way-stop control SB: 3-way-stop control, 1 approach uncontrolled	Stop	Entrance – NB Ramp Exit – SB Ramp
7.100 – 7.498	NW 79th ST	Signalized Tight Diamond	Signal	Entrance – SB Ramp Exit – NB Ramp
	NW 81st ST			Entrance – NB Ramp Exit – SB Ramp
8.101 – 8.425	NW 95th ST	Signalized Tight Diamond	Signal	Entrance/Exit – NB Ramp SB Ramp
8.624 – 8.916	NW 103rd ST	Signalized Tight Diamond	Signal	Entrance/Exit – NB Ramp SB Ramp
9.612 – 9.612	NW 119th ST	Signalized Tight Partial Diamond	Signal	Entrance – SB Ramp Exit – NB Ramp
9.989 – 10.283	NW 125th ST	Signalized Tight Diamond	Signal	Entrance/Exit – NB Ramp SB Ramp
10.648 – 11.003	NW 135th ST	Signalized Tight Diamond	Signal	Entrance – SB Ramp Exit – NB Ramp
	OPA-LOCKA BLVD			Entrance – NB Ramp Exit – SB Ramp

Source: FDOT Manual on Intersection Control Evaluation (January 2023)

3.1.6 Existing Crash Data

Crash data within the study limits were reviewed for a 5-year period (2016-2020) and revealed that, of the 7,803 crashes reported, 512 crashes resulted in nonincapacitating injuries and 241 crashes resulted in incapacitating injuries. There were 29 fatalities reported within the 4-year period, where 6 of the fatalities were not traffic related. Figure 3-2 presents a heatmap of crash density within the project limits. The data were reported with the following characteristics:

- 59% of crashes were reported as occurring in the northbound direction
- 35% of crashes were reported as occurring in low light conditions
- 4,632 crashes were reported as rear-end collisions
- 2,927 crashes were reported as lane departures
- 675 crashes were reported as distracted driver-related

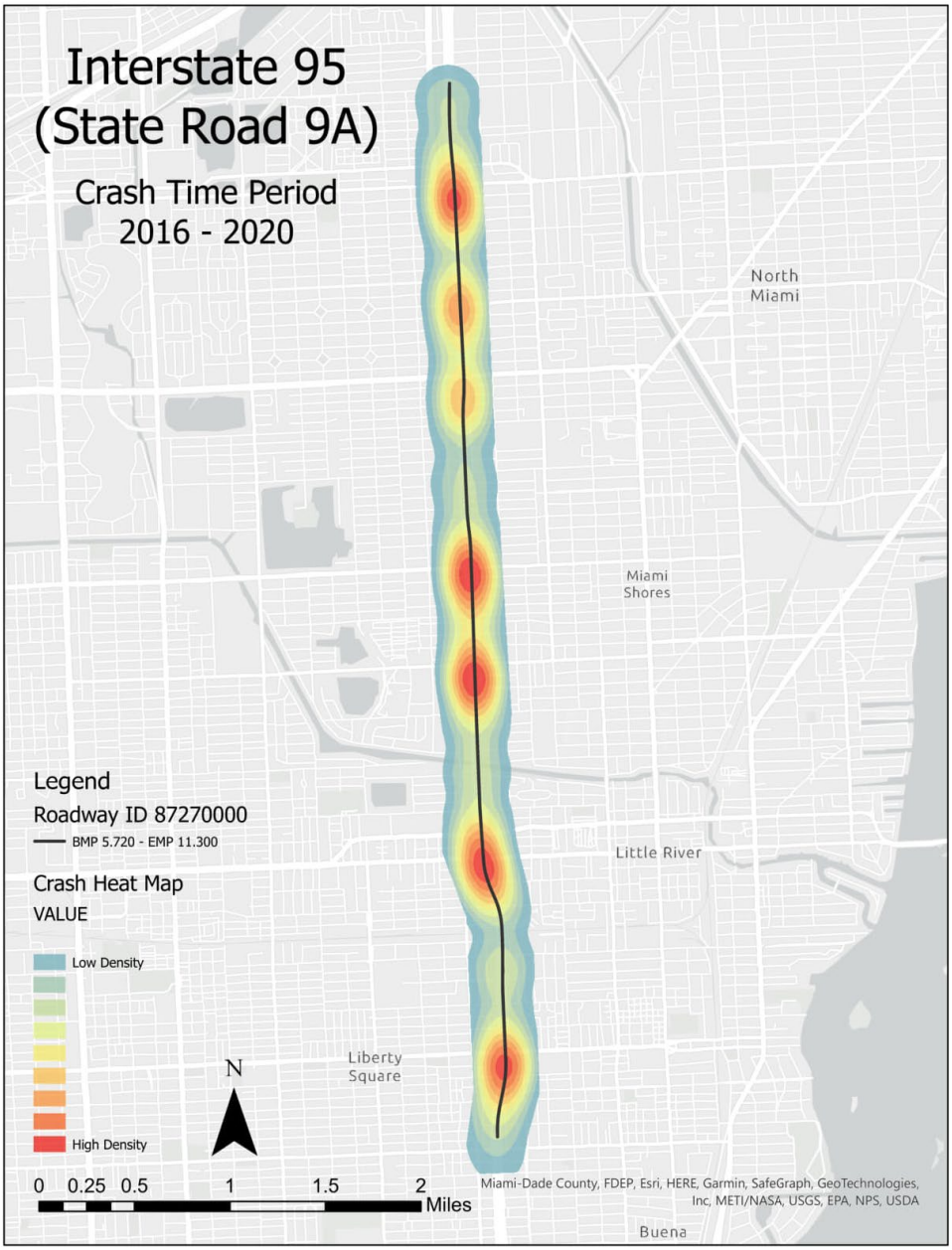


Figure 3-2. Crash Density and Locations (2016–2020)

3.1.7 Existing Drainage

Based on review of FDOT's Straight-Line Diagram for I-95/SR 9A within the project limits, there are 13 cross drains within the project corridor. The existing roadway crowns in each direction of travel moving stormwater runoff from the roadway pavement to the inside and outside shoulders to discharge into the barrier inlets. The I-95 Corridor Planning Study documented the following drainage elements within the project limits: 77 manholes, 300 catch basins, 195 curb inlets, 2.1 miles in length of roadside ditches, and 1,100 feet in length of outfall ditches. Table 3-4 lists the existing cross drains with their locations and details.

Table 3-4. Existing Cross Drains

Location (MP)	Type	Diameter (inches)	Length (feet)
MP 7.610	Unknown	15 in.	90 ft.
MP 7.980	Concrete Pipe	20 in.	90 ft.
MP 8.060	Concrete Pipe	15 in.	90 ft.
MP 8.120	Concrete Pipe	15 in.	90 ft.
MP 8.710	Concrete Pipe	20 in.	90 ft.
MP 9.450	Concrete Pipe	15 in.	90 ft.
MP 9.555	Concrete Pipe	20 in.	90 ft.
MP 9.660	Concrete Pipe	15 in.	90 ft.
MP 9.730	Concrete Pipe	15 in.	90 ft.
MP 9.750	Concrete Pipe	15 in.	90 ft.
MP 9.925	Concrete Pipe	20 in.	90 ft.
MP 10.035	Concrete Pipe	20 in.	90 ft.
MP 10.400	Concrete Pipe	15 in.	90 ft.

It should be noted that most of the project area is located in either Storm Surge Planning Zones D or E, which are at risk for storm surge for Category 4 and 5 storms, respectively. However, according to the FDOT District Six geographic information system (GIS) database[2] for uncertainty of 1-foot design high water (DHW) and 1-foot base clearance requirements in Miami-Dade County (because of sea level rise), the project corridor meets standard DHW and road base clearances.

3.1.8 Existing Signage

Existing signs were identified and verified during the field visit and review of the I-95 Complete Overall Corridor Report and supporting documentation. Throughout the northbound section of the project limits, there are 10 overhead trusses, 4 overhead/cantilever dynamic message sign (DMS) structures, 20 cantilever structure signs, 9 multipost signs, and 8 bridge or wall-mounted signs. The southbound section of the project limits features 11 overhead trusses, 2 overhead/cantilever DMS structures, 17 cantilever structure signs, 10 multipost signs, and 2 bridge-mounted signs.

3.1.9 Existing Intelligent Transportation Systems

The intelligent transportation system (ITS) technologies are operated and maintained from the FDOT District Six Transportation Management Center (TMC). ITS features along the corridor include closed circuit television (CCTV) cameras, vehicle detection stations (VDS), DMS, variable message signs, the Florida Advanced Traveler Information System, and the ramp-metering system (RMS) at all entrance ramps.

3.1.9.1 Closed Circuit Television Cameras

District Six TMC uses CCTV deployed along I-95 in Miami-Dade Country to monitor traffic; assist in incident detection and management, including verification of incident clearance; verify DMS messages;

monitor metered ramps; and monitor signal heads that are part of the RMS. Figure 3-3 presents the map of CCTV cameras along I-95.

3.1.9.2 Vehicle Detection System

District Six has VDS deployed on I-95 every 1/3 of a mile. VDS collect real-time traffic data (speed, volume, and occupancy) used to post travel times and to input into the algorithm used to calculate tolls in the I-95 express lanes. Figure 3-4 presents the map of roadway detectors along I-95.

3.1.9.3 Ramp-Metering System

FDOT District Six TMC uses the RMS to manage congestion during regular peak hours and to assist in managing traffic in the event of an incident. Existing RMS deployments are included at the following locations throughout the project limits:

- I-95 northbound ramp from NW 62nd Street
- 1-95 northbound ramp from NW 69th Street
- I-95 northbound ramp from NW 81 Street
- I-95 northbound ramp from NW 95 Street
- I-95 northbound ramp from NW 103 Street
- I-95 northbound ramp from NW 125 Street
- I-95 northbound ramp from Opa-Locka Boulevard
- I-95 southbound ramp from NW 135 Street
- I-95 southbound ramp from NW 125 Street
- I-95 southbound ramp from NW 119 Street
- I-95 southbound ramp from NW 103 Street
- I-95 southbound ramp from NW 95 Street
- I-95 southbound ramp from NW 79 Street
- I-95 southbound ramp from NW 62 Street

3.1.9.4 Dynamic Message Signs

The FDOT District Six TMC uses DMS for toll operations for I-95 express lanes and motorist information. Figure 3-5 features the map of DMS sign locations. The following list includes the motorist information DMS along the I-95 corridor:

- I-95 Mainline (4 DMS):
  - Northbound before NW 62 Street
  - Northbound beyond NW 103 Street
  - Southbound beyond NW 119 Street
  - Southbound beyond NW 62 Street
- 95 Express (4 DMS)
  - Northbound at NW 62 Street
  - Northbound at NW 125 Street
  - Southbound at NW 125 Street
  - Southbound at NW 62 Street

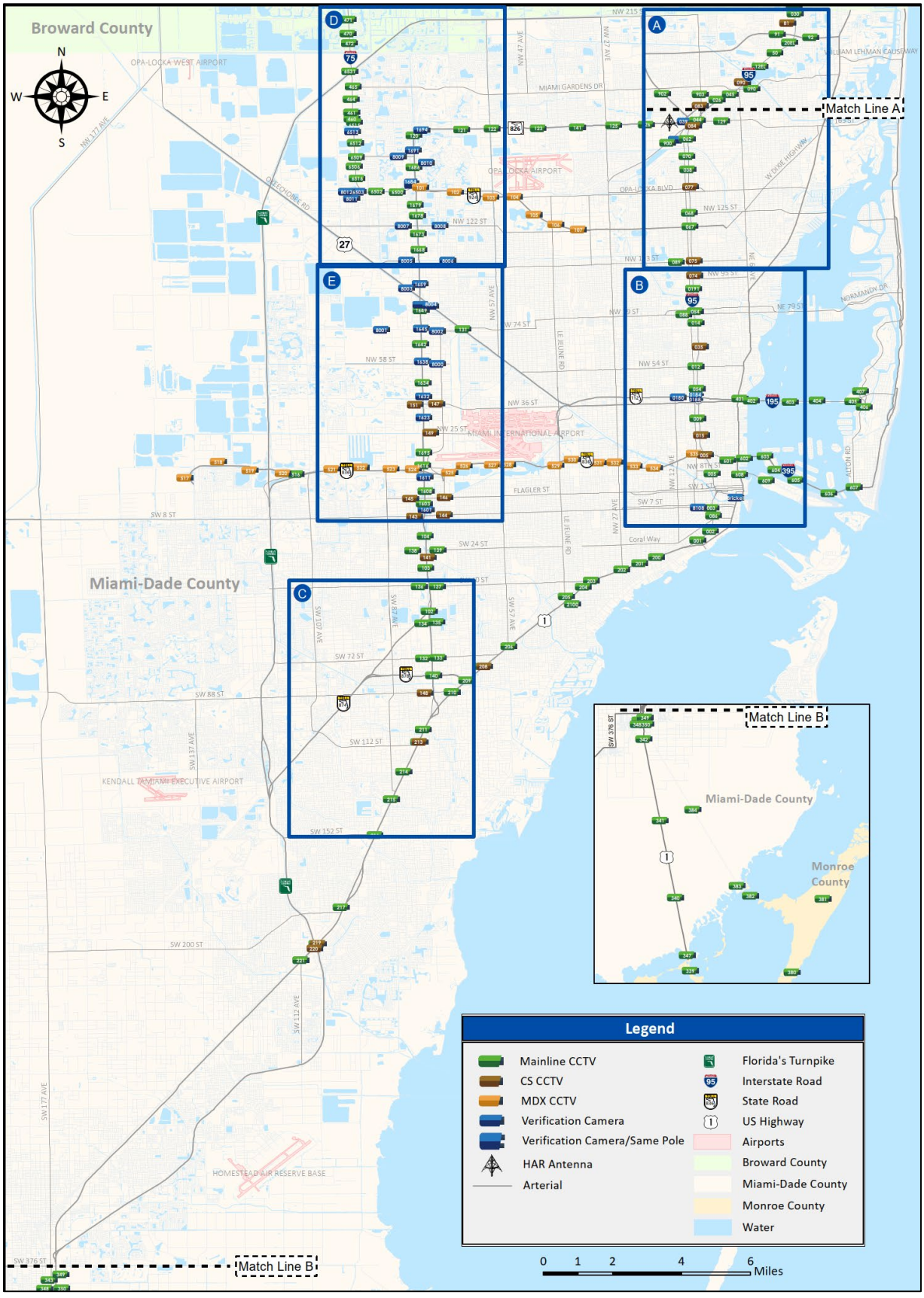


Figure 3-3. FDOT District Six CCTV Map

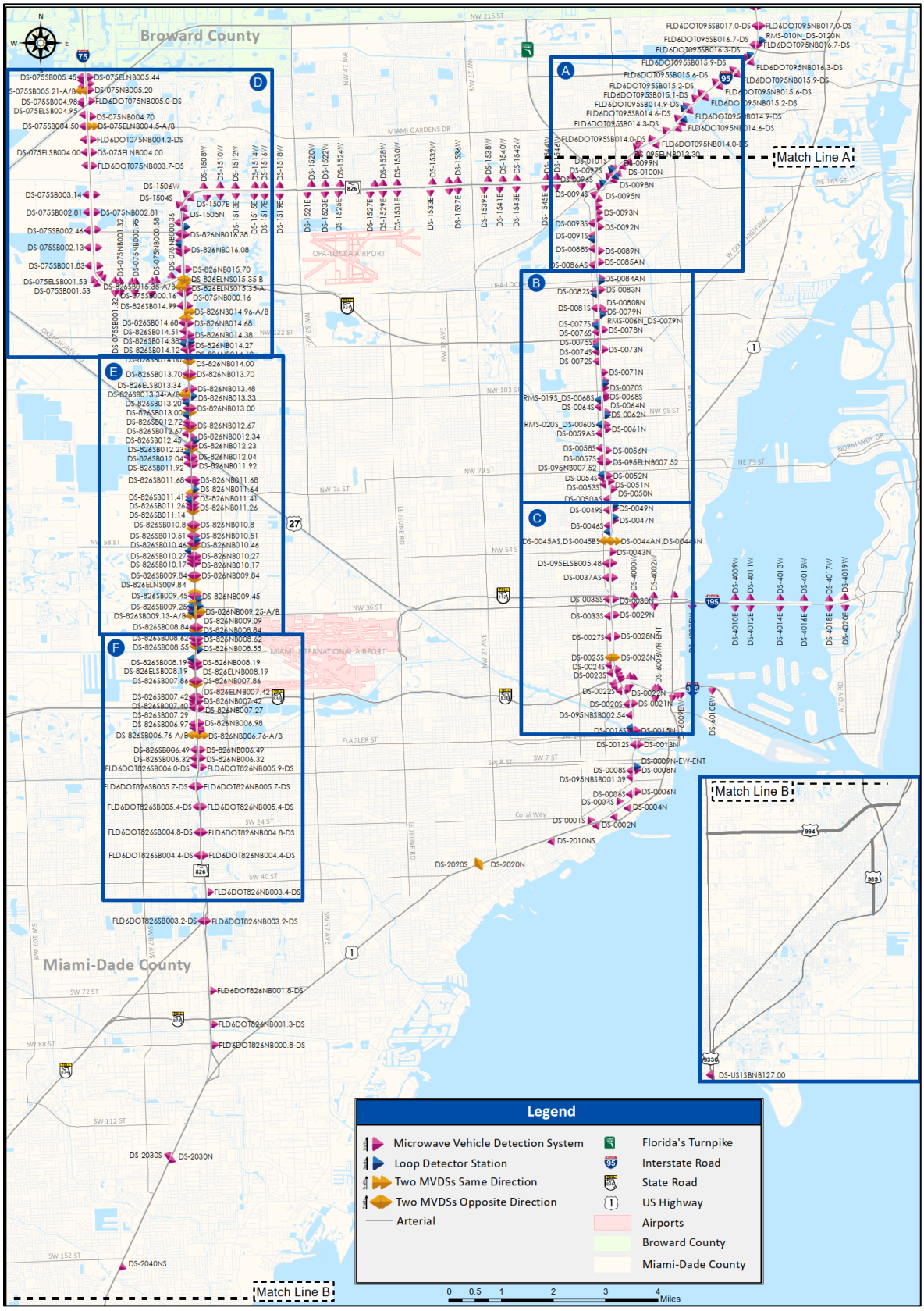


Figure 3-4. FDOT District Six VDS Map

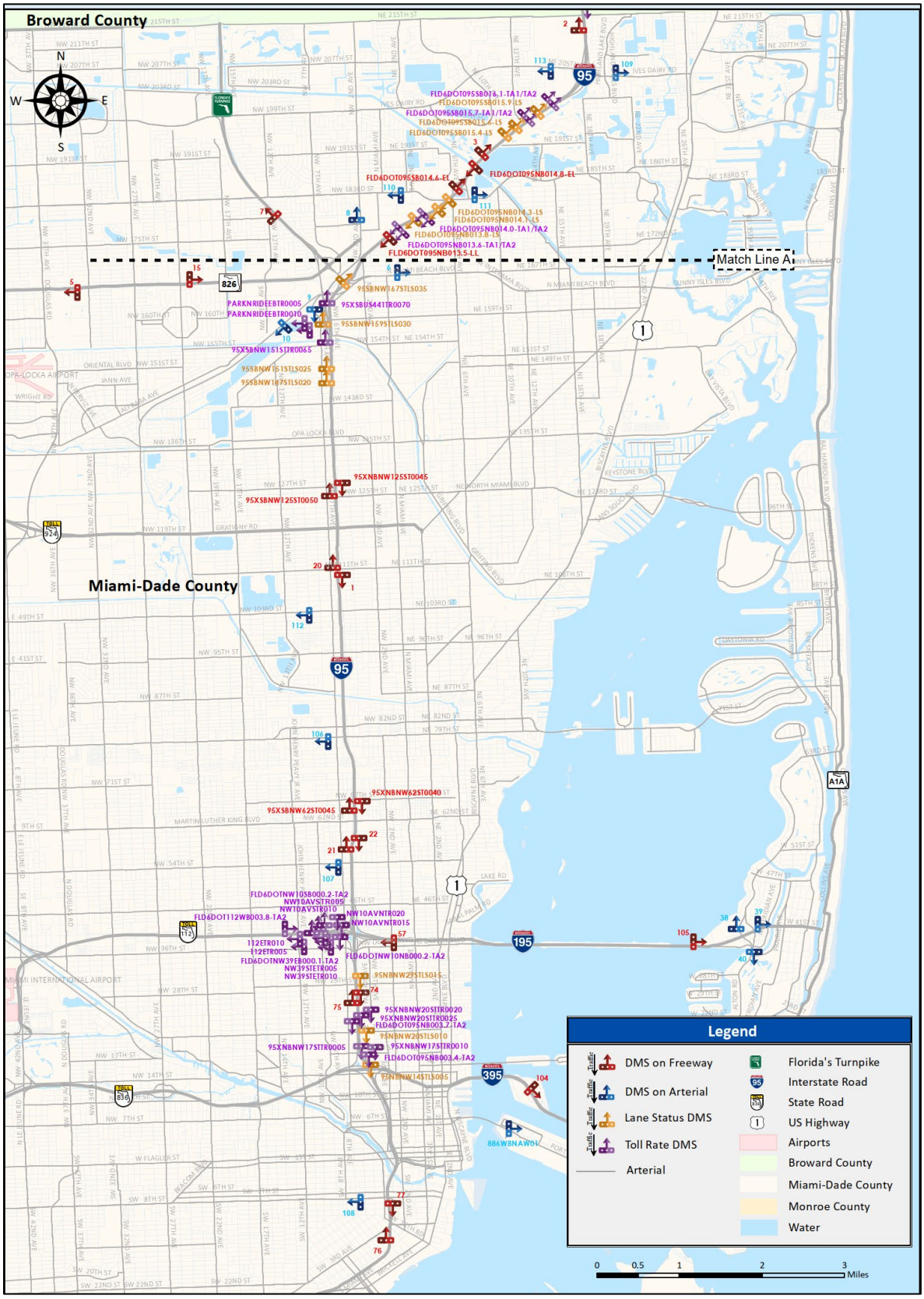


Figure 3-5. FDOT District Six DMS Map

3.1.10 Existing Lighting

Based on the field review, the lighting along the mainline section of the project limits consists of dual-arm median-barrier-mounted aluminum light poles with high-pressure sodium (HPS) fixtures. The on and off ramps include single-arm shoulder-mounted conventional metal light poles with HPS fixtures.

3.1.11 Existing Utilities

An inventory of the Utility Agency Owners (UAOs) within the project limits was obtained through Sunshine 811 on March 24, 2023. Utilities include electric, gas, water, sewer, and communications. Table 3-5 presents the UAOs that may be located within the project limits, their respective facilities, and contact information.

Table 3-5. Utility Agency Owners

No.	Utility Agency Owner	Facilities	Contact
1	AT&T	COMMUNICATION LINES, FIBER	KEVIN TALECKI 610-200-3365
2	COMCAST CABLE	CATV, FIBER	RICARDO DAVIDSON 786-856-8505
3	CITY OF NORTH MIAMI	FORCE MAIN, SEWER, WATER	CHUKS OKEREKE 305-895-9838
4	COUNTY PUBLIC WORKS AND TRAFFIC	STREETLIGHTS, TRAFFIC SIGNALS	OCTAVIO VIDAL 305-412-0891
5	FLORIDA DEPARTMENT OF TRANSPORTATION VI ITS	FIBER	THOMAS MILLER 305-470-5757
6	FLORIDA POWER & LIGHT – DADE	ELECTRIC	EDGAR AGUILAR 386-586-6403
7	FLORIDA POWER & LIGHT – TRANSMISSION	ELECTRIC	EDDIE FREAY 305-938-1936
8	HOTWIRE COMMUNICATIONS	CATV, FIBER, TELEPHONE	WALTER DAVILA 954-699-0900
9	SICE, INC.	FIBER	KATHERINE RICO 786-538-2039
10	CENTURYLINK	FIBER	NETWORK RELATIONS 877-366-8344
11	MCI	COMMUNICATION LINES, FIBER	INVESTIGATIONS TEAM 800-624-9675
12	MIAMI-DADE WATER & SEWER,	SEWER, WATER	MARIA CAPOTE 786-268-5329
13	CITY OF NORTH MIAMI BEACH	SEWER, WATER	CHRISTOPHER BARDO 305-948-2967
14	CROWN CASTLE NG	FIBER	FIBERDIG TEAM 888-632-0931
15	TECO PEOPLES GAS – SOUTH FLORIDA	GAS	JOAN DOMNING 813-275-3783
16	AT&T DISTRIBUTION	TELEPHONE	DINO FARRUGGIO G27896@ATT.COM

Coordination with the UAOs during the PD&E Study will aid in further identifying utilities and minimizing impacts during alternatives development.

3.1.12 Express Lanes

There are two express lanes in each direction within the project limits. There are no ingress and egress points along express lanes within the project limits, which should be reevaluated during the PD&E Study as new data becomes available. Miami-Dade Transit (MDT) offers express bus service, 95 Express, which operates in the express lanes and provides direct service to the Downtown Miami and Civic

Center/Health District. This express limited-stop service comprises three routes that operate during weekday peak periods.

3.2 Design Criteria and Standards

The design criteria and standards are based on design parameters outlined in the 2018 version of the American Association of State Highway and Transportation Officials (AASHTO) *Policy on Geometric Design of Highways and Streets* (commonly referred to as the "Green Book"; AASHTO 2018) and the 2023 version of the *FDOT Design Manual* (FDM) (FDOT 2023a). Applicable roadway design criteria for the project are presented in Table 3-6. Drainage and bridge design criteria will be developed during the PD&E Study.

Table 3-6. Roadway Design Criteria

Design Element	FDM Criteria (January 2023)	Reference	AASHTO Criteria (2018, 7th Edition)	Reference
Mainline Segments				
General				
Functional Classification	Urban Principal Arterial Interstate	FDOT Straight Line Diagram	Freeway	Section 8.1, pg. 8-1
Context Classification	N/A – LA Facility	FDM 200, Section 200.4	Urban	Section 8.1, pg. 8-1
Access Classification	1 (Area Type 2)	FDM 201, Table 201.4.1	-	-
Interchange Spacing	2 miles	FDM 201, Table 201.4.1	-	-
Design Speed	60 minimum	FDM 201, Table 201.5.1	50 minimum	Section 8.2.1 pg. 8-2
Design Vehicle	WB-62FL	FDM 201, Section 201.6	WB-67	Section 2.8.1, pg. 2-58
Structural Capacity	-	-	HL-93 Design Load	Section 8.2.8, pg. 8-5
Roadway Elements				
Lane Widths (ft)	12	FDM 211, Section 211.2	12	Section 8.2.4, pg. 8-3
Auxiliary Lane Width (ft)	12	FDM 211, Section 211.2	12	Section 8.2.4, pg. 8-3
Outside Shoulder Width (Full/Paved) (ft)	12/10	FDM 211, Table 211.4.1	min. 10' paved	Section 8.2.4, pg. 8-3
Median Shoulder Width (Full/Paved) (ft)	12/10 12/12 (managed lanes)	FDM 211, Table 211.4.1	8/4	Section 8.2.4, pg. 8-3
Managed Lane Buffer (ft)	4 w/ tubular markers	FDM 211.3.3	-	-
Median Widths (ft)	26 (with barrier)	FDM 211.6.1, Table 211.3.1	min 22' (with barrier)	Section 8.4.2, pg. 8-13
Border Width (ft)	94 10 when roadside barrier present	FDM 211, Section 211.6	80 – 150	Section 8.2.12, pg. 8-7
Cross Slope (travel lanes) (%)	2 – 3% standard. Up to 3.5% on outside lane when 5 lanes are sloped in one direction	FDM 211, Figure 211.2.1	1.5 – 2%	Section 8.2.4, pg. 8-3
Outside Shoulder Cross Slope (%)	6	FDM 211, Section 211.4.2	2 – 6	Section 8.2.4, pg. 8-4

Table 3-6. Roadway Design Criteria

Design Element	FDM Criteria (January 2023)	Reference	AASHTO Criteria (2018, 7th Edition)	Reference
Inside Shoulder Cross Slope (%)	5	FDM 211, Section 211.4.2	2 – 6	Section 8.2.4, pg. 8-4
Roadside Slopes				
Front Slope	1:6 for fills <5-ft 1:6 to edge of CZ then 1:4 for fills 5-ft-10-ft 1:6 to edge of CZ then 1:3 for fills 10-ft-20-ft 1:2 (with guardrail) for fills >20-ft	FDM 215, Table 215.2.3	1:6 or flatter	Section 4.8.4, pg. 4-30
Back Slope	1:4 or 1:3 with a standard width trapezoidal ditch and 1:6 front slope	FDM 215, Table 215.2.3	1:3 or flatter	Section 4.8.4, pg. 4-29
Transverse Slope	1:10 or flatter	FDM 215, Table 215.2.3	1:3 or flatter	Section 4.8.4, pg. 4-29
Horizontal Clearance				
Horizontal Clear Zones	36’ travel lanes (DS:60 mph) 24’ Aux. lanes (DS: 60 mph)	FDM 215, Table 215.2.1	-	-
Bridge Piers	Outside Clear Zone	FDM 215, Table 215.2.2	-	-
Above ground fixed objects (e.g., utility poles, ITS poles, and other obstacles)	Outside Clear Zone	FDM 215, Table 215.2.2	-	-
Light Poles	20 feet from Travel Lane, 14 feet from Auxiliary Lane, or Clear Zone width, whichever is less	FDM 215, Table 215.2.2	-	-
Drop-off and Canal Hazards	60’ from travel lanes	FDM 215, Figure 215.3.1	-	-
Horizontal Geometry				
Maximum Deflection in Alignment without Curve	0°45’00”	FDM 211, Section 211.7.1	-	-
Length of Horizontal Curves (ft)	Min = 15V = 900’ (DS: 60 mph) Preferred = 30V = 1800’ (DS: 60 mph)	FDM 211, Table 211.7.1	6V	Section 3.3.13, pg. 3-120
Horizontal Curve Radius (ft)	1091’ (DS: 60mph)	FDM 210, Section 210.8.2, Table 210.8.2	for e=0.10: 1090’ (DS: 60mph)	Table 3-7, pg. 3-35
Maximum Curvature of Horizontal Curves	05°15’00” (DS: 60mph)	FDM 210, Section 210.9.2.1, Table 210.9.1	-	-
e (max)	0.10	FDM 211, Section 211.8	0.06 – 0.12	Section 8.2.6, pg. 8-4
Superelevation Transition	80/20 to 50/50	FDM 210, Section 210.9.1	50/50	Section 3.3.8.2, pg. 3-62
Minimum Superelevation Transition Rate	1:170 (DS:60 mph)	FDM 210, Section 210.9.2, Table 210.9.3	1:200 (DS > 50 mph)	Section 3.3.8.2, pg. 3-62
Auxiliary Lane Length (ft)	-	-	minimum 2500’	Section 10.9.5.10, pg. 10-93

Table 3-6. Roadway Design Criteria

Design Element	FDM Criteria (January 2023)	Reference	AASHTO Criteria (2018, 7th Edition)	Reference
Vertical Geometry				
Grades (Maximum/ Minimum)	3%/0.3% (DS: 60mph)	FDM 211, Table 211.9.1	3% desirable up to 4%	Section 8.2.7, Table 8-1
Maximum Change in Grade Without a Vertical Curve	0.40% (DS: 60mph)	FDM 210, Section 210.10.1, Table 210.10.2	-	-
Minimum K value for Sag Vertical Curves	157 (DS: 60mph)	FDM 211, Table 211.9.2	136 (DS: 60mph)	Section 6.2.1, Table 6-3, pg. 6-5
Minimum K value for Crest Vertical Curves	313 (DS: 60mph)	FDM 211, Table 211.9.2	151 (DS: 60mph)	Section 6.2.1, Table 6-3, pg. 6-5
Minimum Lengths of Sag Vertical Curves (ft)	800’	FDM 211, Table 211.9.3	-	-
Minimum Lengths of Crest Vertical Curves (ft)	Open highway: 1000’ Within Interchanges: 1800’	FDM 211, Table 211.9.3	-	-
Vertical Clearance				
Ramp Over Roadway	16.5’	FDM 260, Table 260.6.1	16’	Section 8.2.9, pg. 8-5
Ramp Over Railroad	23.5’	FDM 260, Table 260.6.1		N/A
Pedestrian Bridge Over Roadway	17.5’	FDM 260, Table 260.6.1	17’	Section 8.2.9, pg. 8-5
Overhead Sign Structure	17.5’	FDM 210, Table 210.10.3	17’	Section 8.2.9, pg. 8-5
Roadway Over Canal	2’ above design flood stage elev. 6’ above normal high water in tidal waters or regulated / controlled lakes and canals	FDM 260, Section 260.8.1	-	-
Min. Base Clearance (ft)	3’	FDM 210, Section 210.10.3	-	-
Stopping Sight Distance (Grades ≤ 2%)	645’ (DS: 60mph) Other grades require adjustments	FDM 211, Table 211.10.1	Level surface: 570’ 3% Downgrade: 598’	Section 3.2.2, Table 3-2, pg. 3-6
Ramps & C-D Roads				
General				
Design Speed (MPH)	Taper Type: 50 mph minimum Parallel Type: 30 mph minimum, based on intersecting or frontage road connected to	FDM 201, Table 201.5.1, FDM 211, Section 211.13	minimum 30	Section 10.9.6.2.2, Table 10-1, pg. 10.105
Design Vehicle	WB-62FL	FDM 201, Section 201.6	WB-67	Section 2.8.1, pg. 2-58
Structural Capacity	-	-	HL-93 Design Load	Section 8.2.8, pg. 8-5
Roadway Elements				
Lane Width (ft)	Single Lane: 15’ Two Lane: 24’	FDM 211, Section 211.2.1	Single Lane:14’ on tangent sections Two Lane: 24’	Table 3-27, pg. 3-109

Table 3-6. Roadway Design Criteria

Design Element	FDM Criteria (January 2023)	Reference	AASHTO Criteria (2018, 7th Edition)	Reference
Single Lane Right Shoulder Width (Full/Paved) (ft)	6/4	FDM 211, Table 211.4.1	6' – 10' paved	Section 10.9.6.3.2, pg. 10-121
Single Lane Left Shoulder Width (Full/Paved) (ft)	6/2	FDM 211, Table 211.4.1	2' – 4' paved	Section 10.9.6.3.2, pg. 10-121
Two Lane Right Shoulder Width (Full/Paved) (ft)	12/10	FDM 211, Table 211.4.1	6' – 10' paved	Section 10.9.6.3.2, pg. 10-121
Two Lane Left Shoulder Width (Full/Paved) (ft)	8/4	FDM 211, Table 211.4.1	2' – 4' paved	Section 10.9.6.3.2, pg. 10-121
Border Width (ft)	94 from edge of travel way 10 when roadside barrier present	FDM 211, Section 211.6	80 – 150	Section 8.2.12, pg. 8-7
Cross Slope (travel lanes) (%)	2	FDM 211, Figure 211.2.1	1.5 – 2	Section 8.2.4, pg. 8-3
Outside Shoulder Cross Slope (%)	6	FDM 211, Section 211.4.2	2 – 6	Section 8.2.4, pg. 8-4
Inside Shoulder Cross Slope (%)	5	FDM 211, Section 211.4.2	2 – 6	Section 8.2.4, pg. 8-4
Maximum Algebraic Difference in Cross Slope at Crossover Line (%)	DS < 35 mph: 6% DS 35 mph or more: 5%	FDM 211, Table 211.2.2	-	-
Roadside Slopes				
Front Slope	1:6 for fills <5-ft 1:6 to edge of CZ then 1:4 for fills 5-ft-10-ft 1:6 to edge of CZ then 1:3 for fills 10-ft-20-ft 1:2 (with guardrail) for fills >20-ft	FDM 215, Table 215.2.3	1:6 or flatter	Section 4.8.4, pg. 4-30
Back Slope	1:4 or 1:3 with a standard width trapezoidal ditch and 1:6 front slope	FDM 215, Table 215.2.3	1:3 or flatter	Section 4.8.4, pg. 4-29
Transverse Slope	1:10 or flatter	FDM 215, Table 215.2.3	1:3 or flatter	Section 4.8.4, pg. 4-29
Horizontal Clearance				
Bridge Piers	The greater of the following: Inside or Outside Travel Lane: 16 feet from Edge of Travel Lane • Outside Auxiliary Lane: 4 feet from Face of Curb • Inside Auxiliary Lane (Median): 6 feet from Edge of Auxiliary Lane	FDM 215, Table 215.2.2	-	-
Above ground fixed objects (e.g., light poles, utility poles, ITS poles, and other obstacles)	DS = 25-35 mph: 1.5' DS = 40-45mph: 4' DS > 45mph: Outside Clear Zone	FDM 215, Table 215.2.2	-	-
Light Poles	DS = 25-35 mph: 1.5' DS = 40-45mph: 4'	FDM 215, Table 215.2.2	-	-

Table 3-6. Roadway Design Criteria

Design Element	FDM Criteria (January 2023)	Reference	AASHTO Criteria (2018, 7th Edition)	Reference
	DS > 45mph :20 feet from Travel Lane, 14 feet from Auxiliary Lane, or Clear Zone width, whichever is less			
Drop-off and Canal Hazards	50' from travel lanes	FDM 215, Figure 215.3.1	-	-
Horizontal Geometry				
Exit Ramp Taper Angle	4°+/-	FDM 211, Section 211.13	2° - 5°	Section 10.9.6.6.1, pg. 10-135
Maximum Deflection in Alignment without Curve	DS 45mph or more: 0°45'00" DS 40mph or less: 2°00'00"	FDM 211, Section 211.7.1	-	-
Length of Horizontal Curves (ft)	30mph: Minimum = 400', Preferred = 450' 50mph: Minimum = 750', Preferred = 1500'	FDM 211, Table 211.7.1	15V minimum	Section 3.3.13, pg. 3-120
Horizontal Curve Radius (ft)	559' (DS: 45mph)	FDM 210, Section 210.8.2, Table 210.8.2	for e=0.10: 540' (DS: 45mph)	Table 3-7, pg. 3-35
Maximum Curvature of Horizontal Curves	24°45'00" (DS: 30mph) 08°15'00" (DS: 50mph)	FDM 210, Section 210.9.2.1, Table 210.9.1	-	-
e (max)	0.10	FDM 211, Section 211.8	0.06 – 0.12	Section 8.2.6, pg. 8-4
Superelevation Transition	80/20 to 50/50	FDM 210, Section 210.9.1	50/50	Section 3.3.8.2, pg. 3-62
Minimum Superelevation Transition Rate	1:175 (DS < 50 mph) 1:200 (DS:50 mph) emax = 0.10 1:175 (DS 25-40 mph) 1:200 (DS:45-50 mph)	FDM 210, Section 210.9.2, Table 210.9.3	1:150 (DS = 30 mph) 1:175 (DS = 40 mph) 1:200 (DS = 50 mph)	Section 3.3.8.2, pg. 3-62
Ramp Terminal Spacing				
Entrance – Entrance or Exit – Exit	1000-ft for freeways 800-ft for C-D Road system	FDM 211, Figure 211.12.1	1000-ft for freeways 800-ft for C-D Road system	Section 10.9.6.4.6, Figure 10-70, pg. 10-127
Exit – Entrance	500-ft for freeways 400-ft for C-D Road system	FDM 211, Figure 211.12.1	500-ft for freeways 400-ft for C-D Road system	Section 10.9.6.4.6, Figure 10-70, pg. 10-127
Turning Roadways	600-ft for service interchange	FDM 211, Figure 211.12.1	600-ft for service interchange	Section 10.9.6.4.6, Figure 10-70, pg. 10-127
Entrance – Exit	1600-ft for service to service – freeways 1000-ft for service to service – C-D Road	FDM 211, Figure 211.12.1	1600-ft for service to service – freeways 1000-ft for service to service – C-D Road	Section 10.9.6.4.6, Figure 10-70, pg. 10-127

Table 3-6. Roadway Design Criteria

Design Element	FDM Criteria (January 2023)	Reference	AASHTO Criteria (2018, 7th Edition)	Reference
Vertical Geometry				
Grades (%)	Maximum 7 7 (DS: 25-30 mph) 6 (DS: 35-40 mph) 5 (DS: 45-50 mph)	FDM 211, Table 211.9.1	Maximum 7 3-5 (DS 45 mph or greater) 4-6 (DS: 35-40 mph 5-7 (DS: 25-30 mph)	Table 10-2, pg. 10-110
Maximum Change in Grade Without a Vertical Curve	1.00% (DS: 25-30 mph) 0.90% (DS: 35 mph) 0.80 (DS: 40 mph) 0.70% (DS: 45 mph) 0.60% (DS: 50mph)	FDM 210, Section 210.10.1, Table 210.10.2	-	-
Minimum K value for Sag Vertical Curves	37 (DS: 30mph) 49 (DS: 35 mph) 64 (DS: 40 mph) 79 (DS: 45 mph) 96 (DS: 50mph)	FDM 211, Table 211.9.2	37 (DS: 30mph) 49 (DS: 35 mph) 64 (DS: 40 mph) 79 (DS: 45 mph) 96 (DS: 50mph)	Section 6.2.1, Table 6-3, pg. 6-5
Minimum K value for Crest Vertical Curves	31 (DS: 30mph) 47 (DS: 35 mph) 70 (DS: 40 mph) 98 (DS: 45 mph) 136 (DS: 50mph)	FDM 211, Table 211.9.2	19 (DS: 30mph) 29 (DS: 35 mph) 44 (DS: 40 mph) 61 (DS: 45 mph) 84 (DS: 50mph)	Section 6.2.1, Table 6-3, pg. 6-5
Minimum Lengths of Sag Vertical Curves (ft)	90’ (DS: 30mph) 105’ (DS: 35 mph) 120’ (DS: 40 mph) 135’ (DS: 45 mph) 200’ (DS: 50mph)	FDM 211, Table 211.9.3	-	-
Minimum Lengths of Crest Vertical Curves (ft)	90’ (DS: 30mph) 105’ (DS: 35 mph) 120’ (DS: 40 mph) 135’ (DS: 45 mph) 300’ (DS: 50mph)	FDM 211, Table 211.9.3	-	-
Vertical Clearance				
Ramp Over Roadway	16.5’	FDM 260, Table 260.6.1	16’	Section 8.2.9, pg. 8-5
Ramp Over Railroad	23.5’	FDM 260, Table 260.6.1	-	-
Pedestrian Bridge Over Roadway	17.5’	FDM 260, Table 260.6.1	17’	Section 8.2.9, pg. 8-5
Overhead Sign Structure	17.5’	FDM 260, Table 260.6.1	17’	Section 8.2.9, pg. 8-5
Roadway Over Canal	2’ above design flood stage elev. 6’ above normal high water in tidal waters or regulated / controlled lakes and canals	FDM 260, Section 260.8.1	-	-
Min. Base Clearance (ft)	2’ – Ramp proper 1’ – Low point at crossroad	FDM 210, Section 210.10.3	-	-
Stopping Sight Distance (Grades ≤ 2%)	200’ (DS: 30mph) 250’ (DS: 35 mph) 305’ (DS: 40 mph) 360’ (DS: 45 mph) 425’ (DS: 50mph) Other grades require adjustments	FDM 211, Table 211.10.2	Level surface: 200’ (DS: 30mph) 250’ (DS: 35 mph) 305’ (DS: 40 mph) 360’ (DS: 45 mph) 425’ (DS: 50mph) 3% Downgrade: 205’ (DS: 30mph) 257’ (DS: 35 mph)	Section 3.2.2, Table 3-1 & 3-2, pg. 3-4, 3-6

Table 3-6. Roadway Design Criteria

Design Element	FDM Criteria (January 2023)	Reference	AASHTO Criteria (2018, 7th Edition)	Reference
			315' (DS: 40 mph) 378' (DS: 45 mph) 446' (DS: 50mph)	
Arterials				
General				
Functional Classification	Minor Arterial	FDOT Straight Line Diagram	Urban Arterial	Section 1.3, pg. 1-6
Context Classification	C4 Urban General	FDM 200, Section 200.4	Urban	Section 1.3, pg. 1-6
Access Classification	5	FDM 201, Table 201.4.2	-	-
Design Speed	25 - 45 max	FDM 201, Table 201.5.1	25 - 45	Section 7.2.2.1 pg. 7-3
Roadway Elements				
Lane Width (ft)	11 Thru & Aux. (DS: 40-45 mph) 12 TWLT (DS: 40 mph)	FDM 210, Table 210.2.1	11' desired 10' min	Section 7.2.11.2 pg. 7-15
Shoulder Width (Full/Paved) (ft)	N/A			
Border Width (ft)	14 desired 8 when R/W cannot be acquired	FDM 210, Table 210.7.1	12	Section 7.3.3.8, pg. 7-47
Cross Slope (travel lanes) (%)	2 – 4 (Ds 45 mph or less)	FDM 210, Figure 210.2.1	1.5 – 3	Section 7.3.2.8, pg. 7-39
Maximum Algebraic Difference in Cross Slope at Crossover Line (%)	DS < 35 mph: 6% DS 35 mph or more: 5%	FDM 210, Table 210.2.2	-	-
Lane Tapers	$L = (W*S^2)/60$ for DS <= 40 mph L = WS for DS >= 45 mph Merging Taper = L Shifting Taper = L/2	FDM 210, Section 210.2.5	-	-
Median Width	22 DS 40-45 May be reduced to 19.5 for 45 mph and 15.5 for 40 mph	FDM 210, Table 210.3.1	15	Section 7.2.11.10, pg. 7-25
Horizontal Clearance				
Bridge Piers	The greater of the following: Inside or Outside Travel Lane: 16 feet from Edge of Travel Lane • Outside Auxiliary Lane: 4 feet from Face of Curb • Inside Auxiliary Lane (Median): 6 feet from Edge of Auxiliary Lane	FDM 215, Table 215.2.2	-	-
Above ground fixed objects (e.g., light poles, utility poles, ITS poles, and other obstacles)	DS = 25-35 mph: 1.5' DS = 40-45mph: 4' DS > 45mph: Outside Clear Zone	FDM 215, Table 215.2.2	-	-

Table 3-6. Roadway Design Criteria

Design Element	FDM Criteria (January 2023)	Reference	AASHTO Criteria (2018, 7th Edition)	Reference
Light Poles	DS = 25-35 mph: 1.5' DS = 40-45mph: 4' DS > 45mph :20 feet from Travel Lane, 14 feet from Auxiliary Lane, or Clear Zone width, whichever is less	FDM 215, Table 215.2.2	-	-
Drop-off and Canal Hazards	50' from travel lanes	FDM 215, Figure 215.3.1	-	-
Horizontal Geometry				
Maximum Deflection in Alignment without Curve	DS 45mph: 1°00'00" DS 40mph or less: 2°00'00"	FDM 210, Section 210.8.1	-	-
Length of Horizontal Curves (ft)	40mph: 600', 45 mph: 675	FDM 210, Table 210.8.1	15V minimum	Section 3.3.13, pg. 3-120
Horizontal Curve Radius (ft)	694' (DS: 45mph)	FDM 210, Section 210.8.2, Table 210.8.2	for e=0.40: 711' (DS: 45mph)	Table 3-7, pg. 3-34
Maximum Curvature of Horizontal Curves	20°00'00" (DS: 25mph) 08°15'00" (DS: 50mph)	FDM 210, Section 210.9.2.1, Table 210.9.2	-	-
e (max)	0.05	FDM 210, Section 210.9	0.06 – 0.12	Section 8.2.6, pg. 8-4
Superelevation Transition	80/20 to 50/50	FDM 210, Section 210.9	50/50	Section 3.3.8.2, pg. 3-62
Minimum Superelevation Transition Rate	1:100 (DS 25-35 mph) 1:125 (DS 40 mph) 1:150 (DS 45 mph) emax = 0.05	FDM 210, Section 210.9.3, Table 210.9.3	1:150 (DS = 30 mph) 1:175 (DS = 40 mph) 1:200 (DS = 50 mph)	Section 3.3.8.2, pg. 3-62
Vertical Geometry				
Grades (%)	Maximum 8 8 (DS: 25-30 mph) 7 (DS: 35-40 mph) 6 (DS: 45-50 mph)	FDM 210, Table 210.10.1	Maximum 5 3 (DS 60 mph or greater) 4 (DS: 50-55 mph) 5 (DS: 20-45 mph)	Table 7-2, pg. 7-6
Maximum Change in Grade Without a Vertical Curve	1.00% (DS: 25-30 mph) 0.90% (DS: 35 mph) 0.80 (DS: 40 mph) 0.70% (DS: 45 mph) 0.60% (DS: 50mph)	FDM 210, Section 210.10.1, Table 210.10.2	-	-
Minimum K value for Sag Vertical Curves	37 (DS: 30mph) 49 (DS: 35 mph) 64 (DS: 40 mph) 79 (DS: 45 mph) 96 (DS: 50mph)	FDM 210, Table 210.10.3	37 (DS: 30mph) 49 (DS: 35 mph) 64 (DS: 40 mph) 79 (DS: 45 mph) 96 (DS: 50mph)	Section 6.2.1, Table 6-3, pg. 6-5
Minimum K value for Crest Vertical Curves	31 (DS: 30mph) 47 (DS: 35 mph) 70 (DS: 40 mph) 98 (DS: 45 mph) 136 (DS: 50mph)	FDM 210, Table 210.10.3	19 (DS: 30mph) 29 (DS: 35 mph) 44 (DS: 40 mph) 61 (DS: 45 mph) 84 (DS: 50mph)	Section 6.2.1, Table 6-3, pg. 6-5
Minimum Lengths of Sag Vertical Curves (ft)	90' (DS: 30mph) 105' (DS: 35 mph) 120' (DS: 40 mph) 135' (DS: 45 mph) 200' (DS: 50mph)	FDM 210, Table 210.10.4	-	-

Table 3-6. Roadway Design Criteria

Design Element	FDM Criteria (January 2023)	Reference	AASHTO Criteria (2018, 7th Edition)	Reference
Minimum Lengths of Crest Vertical Curves (ft)	90' (DS: 30mph) 105' (DS: 35 mph) 120' (DS: 40 mph) 135' (DS: 45 mph) 300' (DS: 50mph)	FDM 210, Table 210.10.4	-	-
Vertical Clearance				
Ramp Over Roadway	16.5'	FDM 260, Table 260.6.1	16'	Section 8.2.9, pg. 8-5
Ramp Over Railroad	23.5'	FDM 260, Table 260.6.1	-	-
Pedestrian Bridge Over Roadway	17.5'	FDM 260, Table 260.6.1	17'	Section 8.2.9, pg. 8-5
Overhead Sign Structure	17.5'	FDM 260, Table 260.6.1	17'	Section 8.2.9, pg. 8-5
Roadway Over Canal	2' above design flood stage elev. 6' above normal high water in tidal waters or regulated / controlled lakes and canals	FDM 260, Section 260.8.1	-	-
Min. Base Clearance (ft)	2' – Ramp proper 1' – Low point at crossroad	FDM 210, Section 210.10.3	-	-
Stopping Sight Distance (Grades ≤ 2%)	200' (DS: 30mph) 250' (DS: 35 mph) 305' (DS: 40 mph) 360' (DS: 45 mph) 425' (DS: 50mph) Other grades require adjustments	FDM 210, Table 210.11.1	Level surface: 200' (DS: 30mph) 250' (DS: 35 mph) 305' (DS: 40 mph) 360' (DS: 45 mph) 425' (DS: 50mph) 3% Downgrade: 205' (DS: 30mph) 257' (DS: 35 mph) 315' (DS: 40 mph) 378' (DS: 45 mph) 446' (DS: 50mph)	Section 3.2.2, Table 3-1 & 3-2, pg. 3-4, 3-6
Structures				
General				
Travel Lane Widths (ft)	Travel lane widths are to match the approach roadway lane widths. See Roadway Criteria.	FDM 260, Section 260.2	-	-
Bridge Width (ft)	3+ lanes in one direction: width of travel lanes + 10' outside and median shoulders 1 lane ramps: width of travel lane + 6' left and right shoulders 2 lane ramps: width of travel lane + 6' left and 10' right shoulder	FDM 260, Figure 260.1.1	-	-
Bridge Median (divided highways)	median > 20' = separate structures median < 10' = single structure median 10 – 20' = single structure	FDM 260, Section 260.5	-	-
Cross Slope (%)	2	FDM 260, Section 260.4	-	-
Vertical Clearance (drainage)	2' minimum between the design flood stage and the low member	FDM 260, Section 260.8.1	-	-

Table 3-6. Roadway Design Criteria

Design Element	FDM Criteria (January 2023)	Reference	AASHTO Criteria (2018, 7th Edition)	Reference
Vertical Clearance (navigation)	6' minimum above the Normal High Water or control elevation for canals	FDM 260, Section 260.8.1	-	-
Paving Under Bridge	12' Limited Access Facilities 8' Flush shoulder arterials & collectors DS 50 mph or greater 6' Flush shoulder arterials & collectors DS 45 mph or less	FDM 260, Section 260.7	-	-

3.3 Alternatives to be Considered

It is recommended that the PD&E Study review and refine the concepts developed for Segment 3 (Central)/PD&E Segment 2 from the Interstate 95 Corridor Planning Study in Miami-Dade County (FDOT 2019). As additional data and information becomes available during the PD&E Study, it will be used to refine, validate, and/or modify alternatives previously considered or introduce new alternatives. While the Refined Build Concept from the CRAVE analysis is the recommended concept from the planning study, it has significant sociocultural impacts that should be further studied during the PD&E Study phase. The planning study noted that construction costs are significantly higher for Build Concept 1; however, it did not account for costs associated with ROW acquisition. ROW needed for the Refined Build Concept is more than double that of Build Concept 1. Therefore, the PD&E Study should consider ROW acquisition costs as well as the sociocultural and other environmental impacts before an alternative is eliminated.

Alternatives recommended for further consideration in the PD&E Study phase include the No-Action, Transportation Systems Management and Operations (TSM&O), and the following alternatives:

- Interstate 95 Corridor Planning Study Refined Build Concept (At-grade Widening Alternative)
- Interstate 95 Corridor Planning Study Build Concept 1 (Elevated Alternative)
- Combination At-grade/Elevated Alternative

The PD&E Study will evaluate typical section and alignment alternatives based on design criteria, safety, operational needs, and the goal to minimize environmental effects and ROW needs. The following sections summarize the development of concepts during the Interstate 95 Corridor Planning Study for Segment 3 (Central)/PD&E Segment 2.

3.3.1 Interstate 95 Corridor Planning Study (FM# 414964-6-22-01)

During the Corridor Planning Study, initial build concepts for the study corridor were developed using a two-tier process. Tier 1 identified all potential alternative cross sections for the corridor and performed a qualitative evaluation/fatal flaw analysis to identify a set of Tier 2 alternatives. For purposes of conducting a qualitative evaluation, each alternative was categorized into one of six alternative groupings. The following presents the categories and the fatal flaws identified:

- No-Build
- At-Grade Center Express Lanes/Non-Reversible
  - At-Grade Widening, Asymmetrical Express Lane/Non-Reversible, Delineators or Virtual Barrier – this concept placed both directions of the express lanes on one side of the corridor and both directions of the general-purpose lanes on the opposite side. As a result, vehicles traveling in opposing flows would be adjacent to each other and separated only by a

delineator/virtual barrier. Although the use of a non-hard barrier would reduce the need for widening, the use may result in unsafe conditions because it would not provide rigid, physical separation of opposing, high-speed traffic flows.

- At-Grade Center Express Lanes/Fully or Unbalanced Reversible
  - Fully Reversible Express Lanes – directional split of traffic does not support the use of peak-hour fully reversible express lanes.
  - Asymmetrical Express Lanes – access/interchange ramp design for the general-purpose lanes adjacent to the opposing express lane was considered a fatal flaw.
  - At-Grade, Partial Reversible General-Purpose Lanes – the current directional split of traffic does not support use of an unbalanced general-purpose lane concept.
- Elevated Express Lanes/At-Grade General-Purpose Lanes
  - Elevated One-Way General-Purpose Lanes/At-Grade One-Way General-Purpose Lanes – interchange access is considered a fatal flaw with each direction of the general-purpose lanes at different levels.
  - Over SR 7/US 441 Express Lanes – concept would significantly impact the community along the west side of the corridor.
- Tunnel (Express or General-Purpose Lanes)
  - Difficulty providing access between the underground general-purpose lanes and each interchange was considered a fatal flaw.
- Combinations of Each

Tier 2 alternatives were evaluated using a more detailed qualitative evaluation, including macroscopic quantitative assessment. The highest-ranked Tier 2 alternatives were developed as Build Concepts 1 and 2. Interchange improvements were developed for each Build Concept to provide a basis for a detailed evaluation and operational analyses. Build Concepts 1 and 2 also were evaluated to determine estimated construction costs and potential ROW needs as well as other impacts.

The Corridor Planning Study also noted existing geometric deficiencies related to lane widths, shoulder widths, horizontal curve lengths, gore-to-gore ramp spacings, vertical curve lengths, vertical clearances, cross slopes, border widths, stopping sight distances, and superelevation across all segments studied. It further noted that most of the corridor (for all segments) consists of 11-foot-wide lanes with varying inside and outside shoulder widths that are generally less than 12 feet (10 feet paved for travel lanes/12 feet paved for managed lanes), which is the minimum shoulder width per FDM standards (FDOT 2023a). Horizontal curve deficiencies also were noted throughout the corridor. The PD&E Study will consider and correct existing geometric deficiencies as alternatives are developed.

The following goals (related to Segment 3 (Central)/PD&E Segment 2) were identified during the planning study and should be considered during the PD&E Study:

- I-95 Mainline Improvement Goals
  - Upgrade corridor to AASHTO standards, where feasible.
  - Construct new, elevated express lanes on each side of corridor (outside the general-purpose lanes) along Segment 3/PD&E Segment 2 to provide three lanes in each direction, per the CRAVE analysis recommendation.
    - It was subsequently determined that at-grade widening to provide three express lanes in each direction can be accomplished at lower costs while not requiring more ROW than the CRAVE analysis concept. Therefore, the goal was revised to provide at-grade expansion to add express lanes in this segment.
  - Minimize ROW acquisition.
- Express Lane Network Goals

  - Complete the express lanes network connections between the I-95 express lanes and Miami Beach north of the SR 112/I-195 interchange (southbound to eastbound/ westbound to northbound).
  - Minimize ROW acquisition.
- Interchange Improvement Goals
  - Match programmed/planned improvements at the following locations:
    - SR 924 East – MDX improvements proposed SR 924/Gratigny Parkway East Extension PD&E Study.
    - Improve interchanges from NW 62nd Street to NW 151st Street.
    - Eliminate/consolidate the NW 69th Street slip ramps.
  - Minimize ROW acquisition.

3.4 Engineering Analysis

At minimum, the PD&E Study alternatives analysis should consider geometric considerations, ROW needs, cost, maintenance of traffic considerations, utility relocations, aesthetics, bicycle and pedestrian facilities, and avoidance/minimization of environmental impacts. Additionally access management along the mainline should be evaluated given the corridor serves a highly populated area in central Miami-Dade County, as well as potential shifts in traffic modes subsequent to post-pandemic remote work.

The following sections describe the Build Alternatives and potential engineering considerations in comparison to the No-Action Alternative.

3.4.1 No-Action Alternative

The No-Action Alternative serves as a baseline against which the Build Alternatives are evaluated. The No-Action Alternative is defined as the alternative in which the proposed action would not take place and it remains under consideration throughout the PD&E Study. The following lists describe advantages and disadvantages of the No-Action Alternative.

Advantages

- No construction cost
- No noise impact from construction
- No changes to access management
- No disruption of travel patterns
- No ROW acquisitions
- No environmental impacts from construction

Disadvantages

- Does not address the project's primary purpose and need to improve capacity deficiencies
- Does not address additional project goals to preserve the operational integrity and regional functionality of I-95 to maintain emergency evacuation and enhance emergency evacuation and response times

3.4.2 Interstate 95 Corridor Planning Study Refined Build Concept (At-grade Widening Alternative)

The PD&E Study will review and refine the concepts developed for the Segment 3 (Central)/PD&E Segment 2 At-grade Widening Alternative (Refined Build Concept). This concept provides three express

lanes with a 4-foot separator along the center of the project corridor. Figure 3-6 presents the Refined Build Concept typical section. Additionally, the slip ramps at NW 69th Street are proposed to be removed because they do not meet gore spacing standards and have substandard geometry. Collector-distributor (C-D) systems are proposed from NW 95th Street to NW 103rd Street in the northbound and southbound directions to improve interchange spacing. Interchange improvements are proposed at SR 924/NW 119th Street to match MDX's planned improvements in the SR 924/Gratigny Parkway East Extension PD&E Study. During the PD&E Study, coordination between MDX and FDOT is necessary to confirm the SR 924 PD&E Study and the proposed I-95 improvements are compatible.

The goal for the concept was to provide additional mainline and interchange capacity while minimizing ROW acquisition/impacts and construction costs. Design parameters include minimum 11-foot-wide travel lanes, 10-foot-wide express lane inside shoulders, and 4-foot-wide buffers with express lane markers between the express lanes and general-purpose lanes. In segments with more extensive reconstruction/ widening, 12-foot-wide travel lanes are provided, whereas 11-foot-wide travel lanes are only provided in areas where modifications are less extensive or to match the existing/programmed/planned geometry. Variances will be required where substandard lane and shoulder widths are being provided. The following lists describe advantages and disadvantages of an at-grade widening alternative.

Advantages

- Minimizes impacts to residential parcels
- Includes all movements to/from SR 924
- Construction costs are estimated to be half of an elevated alternative
- Addresses the project's primary purpose and need to improve capacity deficiencies
- Addresses additional project goals to preserve the operational integrity and regional functionality of I-95 to maintain emergency evacuation and enhance emergency evacuation and response times

Disadvantages

- Significant ROW acquisitions and costs
- Significant impacts to business parcels
- Significant community impacts to sensitive populations
- Impacts to potential cultural resources
- Some realignment of ramps from SR 924 required
- Schedule delays associated with ROW acquisition

3.4.3 Interstate 95 Corridor Planning Study Build Concept 1 (Elevated Alternative)

The PD&E Study will review and refine the concept developed for the Segment 3 (Central)/PD&E Segment 2 Elevated Alternative (Build Concept 1). This concept provides four elevated express lanes in each direction above the existing-level general-purpose lanes and modifies the interchange at NW 62nd Street to provide additional operational capacity at the interchange. Twelve-foot-wide travel lanes are proposed for both the elevated lanes and the general-purpose lanes, as well as C-D system lanes. Figure 3-7 presents the Build Concept 1 typical section. Similar to the Refined Build Concept, the existing NW 69th Street is proposed to be removed. A C-D system is proposed in both directions between NW 95th Street and Opa-Locka Boulevard/NW 135th Street. This C-D system consolidates several closely spaced interchanges to reduce I-95 mainline turbulence.

Modifications are required to the improvements at the SR 924/NW 119th Street interchange that were previously identified in the SR 924/Gratigny Parkway East Extension PD&E Study prepared by MDX. Coordination between MDX and FDOT is necessary to confirm the SR 924 PD&E Study and the proposed I-95 improvements are compatible. South of the GGI, the elevated express lanes descend to

the same level as the general-purpose lanes. Coordination is required to ensure the proposed improvements for Segment 3 (Central)/PD&E Segment 2 and the planned improvements for the GGI and I-95 mainline north of the project limits align. The following lists describe advantages and disadvantages of an elevated alternative.

Advantages

- Minimizes ROW acquisitions and costs
- Minimizes impacts to business parcels
- Minimizes impacts to residential parcels
- Minimizes impacts to sensitive populations
- Minimizes impacts to potential cultural resources
- Includes some movements to/from SR 924
- Addresses the project's primary purpose and need to improve capacity deficiencies
- Addresses additional project goals to preserve the operational integrity and regional functionality of I-95 to maintain emergency evacuation and enhance emergency evacuation and response times

Disadvantages

- Some realignment of ramps from SR 924 is required
- Construction costs are estimated to be double the costs of an at-grade alternative

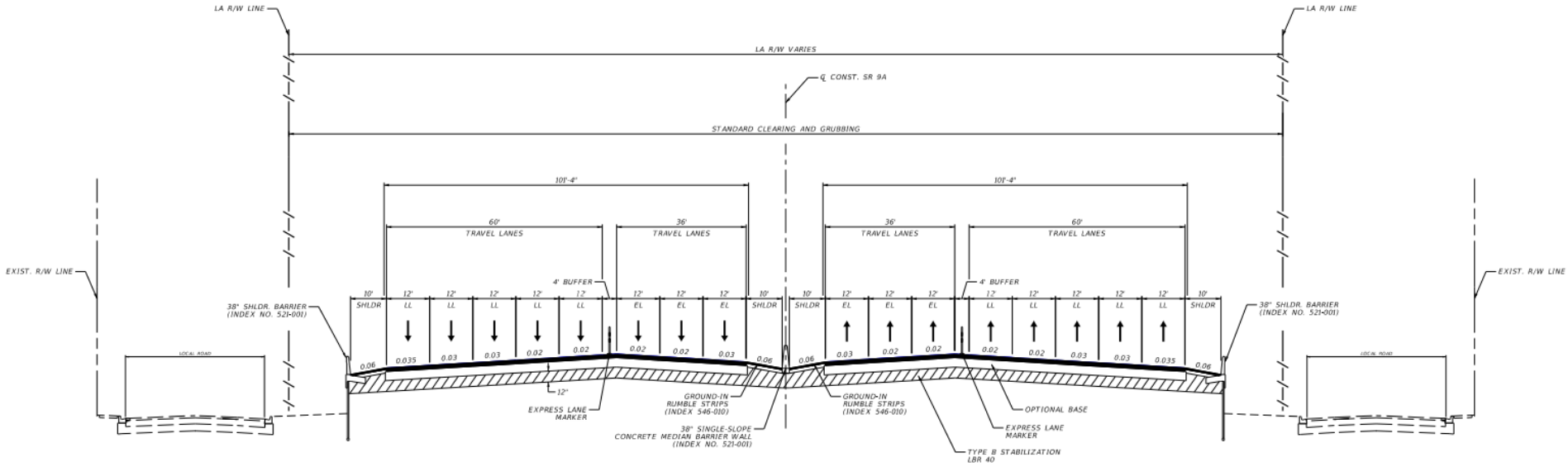


Figure 3-6. Proposed Typical Section for Refined Build Concept (At-grade Widening Alternative)

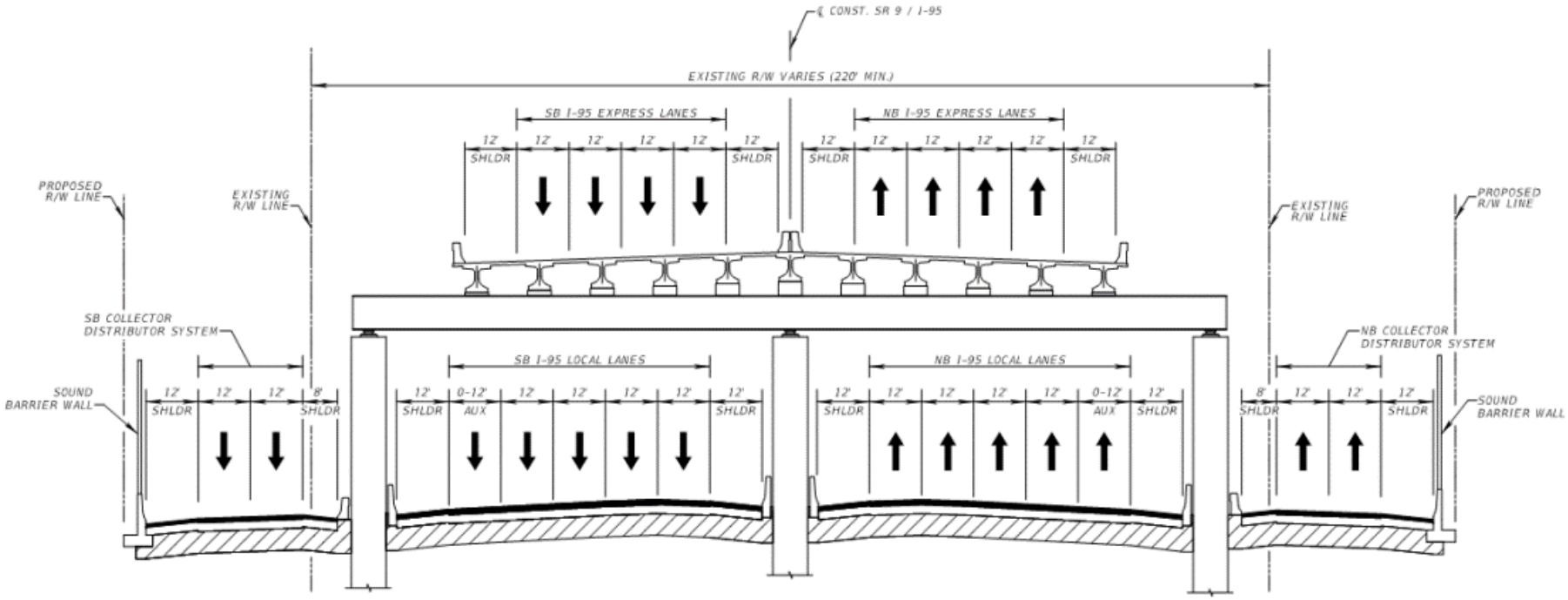


Figure 3-7. Proposed Typical Section for Build Concept 1 (Elevated Alternative)

3.4.4 Combination At-grade/Elevated Alternative

The PD&E Study will develop a hybrid concept that combines elements of both the at-grade and elevated alternatives. The advantage to a combined alternative is that it could minimize temporary traffic control (TTC) impacts, benefit constructability, and provide cost savings. Furthermore, it may reduce the overall environmental impacts associated with the At-grade Widening Alternative (Refined Build Concept) to an acceptable level. The disadvantage is that traffic operations, including connections to existing interchanges, may suffer.

A possible alternative is that which was recommended in the CRAVE as VE Recommendation No. 4 (Constructability Concept No. 2). This recommendation proposes temporary roadway be acquired to maintain temporary traffic used as permanent roadway. The new mainline general-purpose lanes could be shifted along the alignment so that the construction of stacked express lanes could occur to the opposite side of the alignment as presented in Figure 3-8. The result is a hybrid between the At-grade Widening Alternative and the Elevated Alternative, with half the mainline express lanes on elevated structures. Additionally, construction duration and maintenance of traffic is simplified because the elevated structures can be completed in one phase rather than two separate phases.

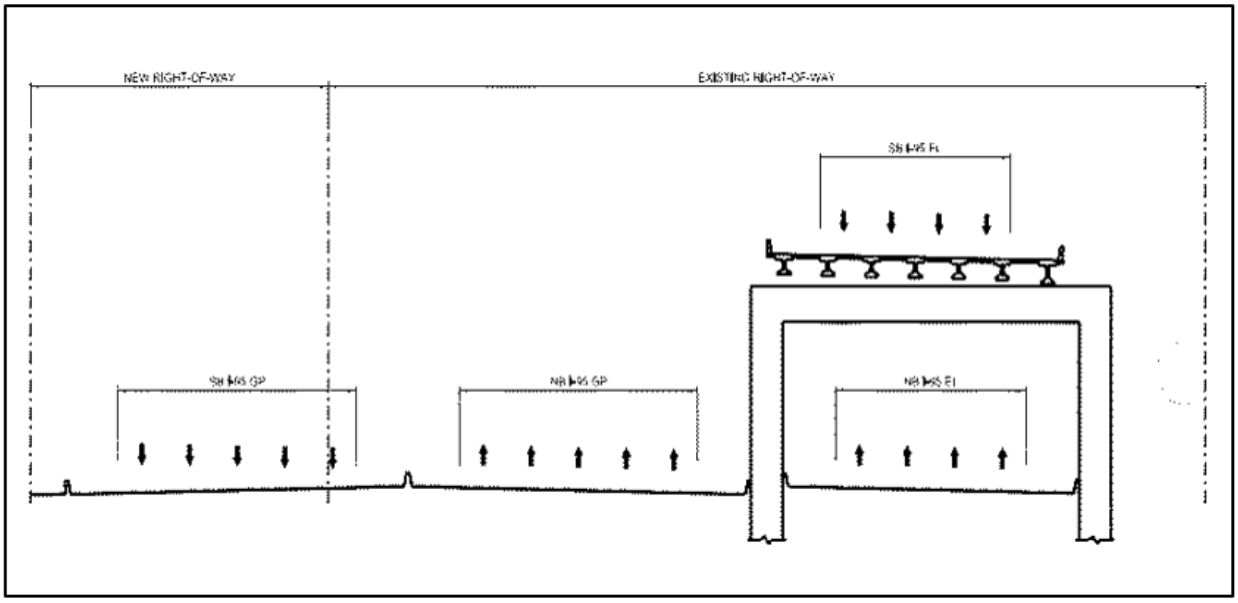


Figure 3-8. Potential Typical Section for Hybrid Concept

3.4.5 Temporary Traffic Control

Review of the FDM*, Temporary Traffic Control Plan* indicates that the level of complexity is anticipated to be Level III for all alternatives.

The CRAVE analysis proposed that, for the At-grade Widening Alternative (Refined Build Concept), the temporary roadway required to maintain temporary traffic be designed and used as a permanent roadway. The CRAVE analysis also noted that TTC for the Elevated Alternative (Build Concept 1), particularly for Segment 3/PD&E Segment 2, occupies the same footprint as the existing I-95 mainline. Therefore, there is not enough room within the existing mainline footprint to shift and maintain traffic sufficiently for a reasonable construction schedule. The following list presents the options provided in the CRAVE to construct and maintain traffic for the Elevated Alternative (Build Concept 1):

- Acquire ROW to maintain traffic while under construction

- Construct an alternative that is a hybrid of the At-grade and Elevated Alternatives with one direction of express lanes stacked
- Build an alternative with elevated express lanes to the outside of general-purpose lanes and salvage most of existing I-95 for general-purpose lanes

The acquisition of ROW for TTC could have significant sociocultural impacts. However, there may be opportunities to provide green spaces, parks, and other amenities for the impacted community when construction is complete. This would benefit a community with sensitive populations that was separated by the original construction of I-95.

3.4.6 Construction and Right-of-Way Cost Estimates

During the PD&E Study, construction cost estimates for the Build Alternatives are required. Construction cost estimates will be developed based on FDOT's Long Range Estimate (LRE) System. Design and construction engineering and inspection costs may be developed based on a fixed percentage of construction cost. The construction cost estimate also should include mitigation costs and utility relocation costs.

ROW estimates also should be developed using FDOT's LRE System to estimate ROW costs. ROW is needed for all concepts. However, as noted previously, significant ROW is anticipated for the At-grade Widening Alternative (Refined Build Concept).

3.4.7 Transportation Systems Management and Operations Considerations

Per the *FDOT PD&E Manual* (FDOT 2020), the PD&E Study will consider TSM&O alternatives and strategies. A TSM&O alternative alone will likely not meet the project's purpose and need but various TSM&O alternatives should be evaluated in relation to the alternatives being considered. The planning study included a Corridor-Level Concept of Operations (ConOps), and a Project System Engineering Management Plan (PSEMP) was completed for the Refined Build Concept. The plan recommends expanding the existing TSM&O strategies, which currently include express lanes, RMS, DMS, CCTV, and VDS. The planning study recommended the following new TSM&O strategies for further evaluation during the PD&E and design phases:

- Arterial Dynamic Message Signs
- Dynamic trailblazers
- Active Arterial Management
- Integrated Corridor Management
- Transit Signal Priority
- Enhanced ramp signal system with vehicle classification detectors to allow truck traffic a green phase to continue accelerating to the mainline

These expanded systems will be managed by the District Six TMC; however, the arterial systems will need to be managed by Miami-Dade County Traffic Division in coordination with the TMC.

The PD&E Study will evaluate the proposed strategies listed and prepare updates to the ConOps and PSEMP.

3.4.8 Structures Considerations

The CRAVE analysis identified several recommendations related to structures for both the at-grade and elevated alternatives. The CRAVE VE Recommendation No. 2 recommended that for the Elevated Alternative all mainline I-95 bridges should be replaced because of clearance criteria.

The CRAVE VE Recommendation No. 2 recommended that for the At-grade Alternative, life cycle cost analyses should be conducted for all bridges and only replace those that need to be replaced. The recommendation further noted that, when evaluating bridge replacement or widening, the following should be considered:

- Cost of replacing the existing bridge with a wider bridge designed to new bridge criteria
- Cost of widening the existing bridge (if widening is practical), including life cycle costs of maintaining a widened bridge
- The number of crashes that would be eliminated by replacement or widening
- The hydraulic sufficiency and the risk of failure from scour and/or ship impact (where applicable) as well as the consequences of failure

The disadvantage to these recommendations is that some bridges may require redecking, bridge life cycles are shorter, it may cost more to replace the bridge in the future, and constructability in the future may be more difficult.

The PD&E Study will further evaluate alternatives for bridge structures and consider the recommendations from the CRAVE analysis. A bridge analysis will be done in accordance with Part 2, Chapter 3 of the *FDOT PD&E Manual*, and be documented in a Bridge Analysis Report.

3.4.9 Traffic Analyses

Traffic analyses were conducted for all segments along the entire corridor (from US 1 to the Broward/ Miami-Dade County Line) during the planning study and documented in the Existing Conditions Operational Analysis, July 2017, and a Design Traffic Technical Memorandum for Base and Future Year Models, in April 2016. It is recommended to update the traffic analyses during the PD&E Study because the data collected during the planning study was before the pandemic and the subsequent remote-work modality may have affected demand and altered origin-destination patterns.

Along with developing a Project Traffic Analysis Report according to Part 2, Chapter 2 of the *FDOT PD&E Manual* (FDOT 2020), the PD&E Study will require a Systems Interchange Modification Report (SIMR) – Interchange Access Request Users Guide.

The PD&E Study will further evaluate alternatives for constructability and the ability to maintain traffic during construction according to Part 2, Chapter 3 of the *FDOT PD&E Manual* (FDOT 2020). The study will evaluate the estimated cost to maintain traffic during all phases as part of the construction cost estimates for the Build Alternatives.

Intersection alternatives at interchange ramp terminals will be further evaluated during the PD&E Study. FDOT's *Manual on Intersection Control Evaluation* and required processes will be followed during the PD&E Study.

4. Environmental Analysis

A desktop review of existing environmental resources was conducted using a 500-foot buffer area from the centerline of the roadway project limits. The environmental analysis performed for this Scoping Report identifies existing environmental features of potential concern within the project buffer area. The Preliminary Environmental Discussion (PED) from the project's ETDM Programming Screen also was referenced to confirm existing environmental features within the project area. In addition, a field review was conducted in March 2023 within the project limits.

Resources used to identify natural, social, cultural, and physical environmental issues included:

- GIS review of natural, social, cultural, and physical environmental issues using the FDOT ETDM Environmental Screening Tool (EST) (FDOT 2023b)
- Review of aerials using GIS, ETDM EST maps, and Google Earth Pro
- National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) (NOAA 2023a)
- NOAA's Essential Fish Habitat (EFH) Mapper (NOAA 2023b)
- NOAA Map and GIS Data
- Miami-Dade County Regulatory and Economic Resources Environmental Services Online Records System (Miami-Dade County 2023)
- Miami-Dade County's Open Data Hub
- Florida Geographic Data Library (FGDL) (FGDL 2023)
- U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) Mapper (USFWS 2023)
- U.S. Environmental Protection Agency (EPA) Geospatial Download Service (EPA 2023)
- Florida Fish and Wildlife Conservation Commission (FWC) GIS and Mapping Data Downloads (FWC 2023)
- Miami-Dade County Community Dashboard
- U.S. Census Bureau 2017-2021 American Community Survey (ACS) (U.S. Census 2022)
- U.S. Department of Transportation's Equitable Transportation Community Explorer (USDOT 2023)
- Florida Department of Environmental Protection (FDEP) Contamination Locator (FDEP 2023)

4.1 Social and Economic

The sociocultural effects study area includes communities immediately adjacent to the project corridor. The standard sociocultural effects buffer of 500 feet was used to identify the community characteristics and demographics near the project area.

4.1.1 Socioeconomic Characteristics

Demographic information was obtained from the U.S. Census Bureau, 2017-2021 ACS 5-Year Estimates (U.S. Census 2022). Thirty-two census block groups are located within the 500-foot project buffer. Table 4-1 summarizes the demographics block groups and compares them to the overall demographics of Miami-Dade County. It should be noted that block groups may not be representative of the specific neighborhoods or businesses affected by the project based on the larger size of the block groups compared to the 500-foot project buffer.

Table 4-1. 500-foot Project Buffer Block Groups 2017-2021 ACS Census Data

Census Tract	Block Group	Area (acres)	% of Block Group in Buffer Area	Total Population	% Minority	% Without Vehicle	% Age 65 and Up	% Below Poverty	% Limited English	% Youth	% Disabled
413	3	107	26.22%	316	100.00%[a]	0.00%	18.04%[a]	0.00%	13.29%	7.28%	0%
413	4	230	1.81%	2,543	96.78%[a]	0.55%	17.34%[a]	18.29%[a]	11.80%	21.00%[a]	1.81%
302	1	277	1.65%	2,151	93.63%[a]	0.46%	14.50%	14.74%	9.53%	21.34%[a]	8.18%[a]
405	2	109	25.47%	1,048	99.52%[a]	4.01%[a]	17.37%[a]	26.34%[a]	9.26%	12.40%	20.61%[a]
408	4	109	25.53%	1,793	100.00%[a]	7.53%[a]	5.97%	19.46%[a]	18.91%	32.29%[a]	4.25%[a]
409	3	105	26.38%	1,158	98.19%[a]	0.78%	7.69%	22.28%[a]	16.58%	31.69%[a]	6.12%[a]
410	1	108	24.40%	732	100.00%[a]	0.00%	14.62%	3.14%	9.56%	12.30%	4.56%[a]
411	1	106	25.28%	1,553	100.00%[a]	5.02%[a]	21.44%[a]	9.72%	42.95%[a]	16.81%	7.72%[a]
411	2	81	1.39%	968	100.00%[a]	2.07%	9.09%	48.35%[a]	22.83%[a]	40.50%[a]	4.51%[a]
1904	1	97	13.97%	1,593	93.09%[a]	12.93%[a]	9.92%	45.76%[a]	9.73%	31.58%[a]	7.65%[a]
2001	4	58	28.89%	788	100.00%[a]	20.69%[a]	7.49%	26.52%[a]	24.37%[a]	34.90%[a]	10.35%[a]
2003	2	125	26.83%	624	98.08%[a]	14.74%[a]	34.78%[a]	52.40%[a]	30.29%[a]	18.11%	5.78%[a]
1401	3	107	16.54%	2,935	99.69%[a]	11.41%[a]	11.86%	45.52%[a]	12.91%	26.20%[a]	9.71%[a]
1006	2	109	26.97%	1,824	98.36%[a]	10.25%[a]	8.28%	29.11%[a]	19.30%[a]	27.14%[a]	3.57%
1103	3	92	59.43%	1,447	87.21% [a]	0.97%	5.87%	35.80%[a]	9.74%	35.80%[a]	2.45%
2202	1	87	1.41%	1,338	99.25% [a]	4.41%[a]	23.02%[a]	22.05%[a]	37.74%[a]	10.84%	4.3%[a]
1401	1	98	17.21%	2,833	100.00% [a]	5.68%[a]	10.77%	32.16%[a]	13.84%	39.85%[a]	10.18%[a]
1401	2	98	16.95%	1,103	98.28% [a]	12.78%[a]	7.62%	47.78%[a]	10.52%	28.01%[a]	20.89%[a]
1901	1	108	12.82%	1578	100.00% [a]	5.64%[a]	3.55%	73.64%[a]	7.98%	45.37%[a]	5.76%[a]
1904	2	93	0.87%	714	98.04% [a]	3.50%[a]	21.71%[a]	38.94%[a]	9.52%	17.51%	6.91%[a]
1901	2	67	21.60%	766	94.26% [a]	11.23%[a]	3.79%	16.45%[a]	10.31%	30.16%[a]	6.72%[a]
1901	3	64	22.10%	1,692	99.65% [a]	9.75%[a]	21.34%[a]	29.91%[a]	19.86%[a]	16.96%	12.04%[a]
307	2	203	24.30%	1,412	89.31% [a]	0.00%	19.12%[a]	4.82%	11.12%	20.04%[a]	4.45%[a]

Census Tract	Block Group	Area (acres)	% of Block Group in Buffer Area	Total Population	% Minority	% Without Vehicle	% Age 65 and Up	% Below Poverty	% Limited English	% Youth	% Disabled
307	3	101	25.65%	1,066	94.37% [a]	4.50%[a]	15.38%	21.48%[a]	15.38%	21.11%[a]	10.34%[a]
1005	1	248	11.54%	1,687	96.80% [a]	16.89%[a]	39.83%[a]	38.29%[a]	11.68%	13.93%	20.33%[a]
1101	3	150	11.09%	1,883	97.88% [a]	1.33%	15.61%	15.61%[a]	12.96%	19.28%	11.79%[a]
1006	1	152	10.91%	684	83.19%	1.46%	8.48%	13.89%	4.82%	19.30%	0.83%
1102	4	85	57.97%	1,242	98.07% [a]	3.86%[a]	22.71%[a]	38.00%[a]	14.09%	21.26%[a]	7.38%[a]
307	1	100	25.01%	1,704	95.54% [a]	2.46%	17.61%[a]	10.68%	14.96%	16.96%	4.39%[a]
1008	1	79	8.90%	941	89.16% [a]	3.72%[a]	3.61%	10.84%	11.05%	9.56%	12.48%[a]
1008	2	234	8.81%	1,772	100.00% [a]	3.33%	12.02%	23.59%[a]	17.27%	29.23%[a]	5%
1004	1	87	33.18%	1,041	100.00% [a]	4.42%[a]	8.55%	29.59%[a]	5.86%	34.58%[a]	2.61%
Miami-Dade County		5,225,851	N/A	2,752,132	86.63%	3.34%	16.09%	15.46%	19.11%	19.56%	4.04%

[a]Block group demographic percentage is considered higher than that of Miami-Dade County.

Notes:

Limited English refers to the percentage of households with limited English-speaking status.

Minority refers to the percentage of population that is non-white.

Poverty refers to the percentage of the population of whom poverty status is determined.

Youth refers to the percentage of population under 18 years of age in households.

Disability refers to the percentage of population age 20 to 64 years with a disability.

When comparing the social characteristics of the project area to that of Miami-Dade County, 31 of the 32 block groups in the project area appear to contain higher minority populations. Twenty-four block groups near the project area may include higher percentages of determined poverty status populations than that of Miami-Dade County. All block groups within the project area may contain populations that do not speak English well or not at all. Twenty block groups may contain higher percentages of populations without a vehicle than that of Miami-Dade County. Twenty-five block groups in the project area have higher percentages of populations with a disability than that of Miami-Dade County. Most of the block groups in the project area also may contain higher populations of youth and higher populations of people 65 years and older, when compared to Miami-Dade County. The PD&E Study must consider effects to minorities and other groups under the Civil Rights Acts of 1964, Environmental Justice, and other nondiscrimination laws and regulations.

Public outreach in coordination with the Miami-Dade TPO, Miami-Dade County, and municipalities in the project area will be required to ensure that both the sociocultural and transportation needs of the affected surrounding communities are addressed through the project.

Public involvement for this project must comply with Title VI of the Civil Rights Act and Executive Order 13166, *Improving Access to Services for Persons with Limited English Proficiency*, and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. The methods and level of community outreach should be tailored to the specific community, the nature of the project, and the potential for project effects.

A review of the U.S. Department of Transportation's Equitable Transportation Community Explorer reveals that approximately 92% of the census tracts within the project area are considered transportation disadvantaged (USDOT 2023). Specifically, the Community Explorer defines these census tracts as having high social and health vulnerabilities, as well as potential climate and disaster risk burdens. During the ETDM Programming Screen, the EPA noted that because relocations could occur as part of this project, ROW acquisition of homes, businesses, and other community features may affect these communities' quality of life, because the existing environmental features and community elements may help individuals maintain health and well-being. Because of the existing sensitive populations, ROW acquisition of community businesses, residences, and/or cultural resources may negatively affect the overall economic health of the adjacent communities. This community was separated by the original construction of I-95 and the PD&E Study should consider community benefits such as cohesion through improved multimodal connections that were previously broken by the construction of I-95.

A Sociocultural Effects Evaluation will be completed during the PD&E Study.

4.1.2 Land Use Changes

A review of land uses in and adjacent to the 500-foot project buffer indicates that the project area primarily consists of residential, commercial/retail, and industrial land uses. The project area is located within seven U.S. Census Bureau designated places (Golden Glades, El Portal Village, West Little River, Pinewood, Miami, Miami Shores Village, and North Miami), as well as one Enterprise Zone (Miami-Dade County, EZ. 1301).

Within the 500-foot-wide project buffer, there are eight schools (public and private), one community center, three assisted-living complexes, one library, one fire station, one public law enforcement facility, six religious centers, one homeowner's association, and two healthcare facilities. Parks and recreation facilities within the project buffer include Athalie Range Park, Athalie Range Park #2, and Oak Park. Community focal points within the 500-foot project buffer are summarized in Table 4-2.

In addition, 19 schools (public and private) are located either directly adjacent to the project area or may be indirectly affected by the project. These schools include the following:

- Thena Crowder Early Childhood Diagnostic Special Education Center
- Doctors Charter School of Miami Shores
- Miami Dade College, North Campus, Carrie P. Meek Entrepreneurial Education Center
- Clara Mohammed School of Miami Florida
- Providence School
- Northwest Christian Academy
- New Jerusalem Christian Academy
- Miami Union Academy
- Bright Future School of Excellence
- B. Wright Leadership Academy
- Horace Mann Middle School
- Dr. Marvin Dunn Academy for Community Education
- Saint Mary Cathedral School
- Miami Northwestern Senior High School
- Holmes Elementary School
- Arcola Lake Elementary School
- Van E. Blanton Elementary School
- Thomas Jefferson Middle School
- Biscayne Gardens Elementary School

Table 4-2. Community Focal Points within 500-foot Buffer

Facility	Address	City
Community Centers		
VFW Post 4530 – North Miami Memorial	665 NW 130th St	Miami
Assisted Housing		
Edison Terraces I	675 NW 56th St	Miami
Edison Terraces II	675 NW 56th St	Miami
Pinnacle Park	7901 NW 7th Ave	Miami
Cultural Centers		
Edison Center Branch Library	531 NW 62nd St	Miami
Fire Stations		
Miami-Dade County Fire Department and Rescue Station 19 (North Miami West)	650 NW 131st St	North Miami
Law Enforcement		
U.S. Department Of Homeland Security – USCIS Miami Field Office	8801 NW 7th Ave	Miami
Parks		
Athalie Range Park	525 NW 62nd St	Miami
Athalie Range Park #2	530 NW 75th St	Miami
Oak Park	620 NW 117th St	Miami
Religious Centers		
Church of Perfection	585 NW 71st St # 30s	Miami

Facility	Address	City
Full Gospel Tabernacle	9701 NW 7th Avenue	Miami
Miami Seventh Day Baptist Church	10185 NW 7th Avenue	Miami
Apostolic Faith Church	11606 NW 7th Avenue	Miami
Trinity Church	655 NW 125th Street	Miami
Saint James Catholic Church	540 NW 132nd Street	North Miami
Public Schools		
Miami Edison Senior High School	6161 NW 5th Ct	Miami
Edison Park K-8 Center	500 NW 67th St	Miami
Barry University – Main Campus	11300 NE 2nd Ave	Miami
Jesse J. McCrary, Jr. Elementary School	514 NW 77th St	Miami
Private Schools		
Saint James Catholic School	601 NW 131st St	North Miami
American Worldwide Academy	13215 NW 7th Ave	North Miami
Trinity Christian Academy South	655 NW 125th Street	Miami
Worshippers House of Prayers	8350 NW 7th Avenue	Miami
Health Care Facilities		
7th Avenue Medical Plaza Inc.	10071 NW 7th Avenue	Miami
Comprehensive Health Center Inc.	671 NW 119th Street	Miami
Homeowner's Associations		
6719-6721 Condo	6719-6721 NW 5th Ave	Miami

A review of future land use from Miami-Dade County, City of Miami, City of North Miami, and Miami Shores Village indicates that land uses within the 500-foot project buffer area are expected to remain similar to existing land uses. Within the project area, the City of North Miami's *Downtown Development and Major Corridor Master Plan* (May 2013) recommends portions of US 441/NW 7th Avenue for redevelopment and reconstruction. Specifically, North Miami recommends reconstructing US 441 with reduced median widths, outside lanes with shared lane markings, decorative hardscapes, mid-block crossings and refuge islands, shade structures along sidewalks, and enhanced lighting. Further analysis on potential impacts to community features and services will be coordinated during the PD&E Study.

4.1.3 Mobility

As part of the SIS highway network, I-95/SR 9A serves a critical role in facilitating the north-south movement of traffic in southeast Florida as one of two major expressways (Florida's Turnpike being the other) that connect the major employment centers and residential areas between Miami-Dade, Broward, and Palm Beach Counties. Within the project area, the Florida East Coast (FEC) railroad crosses beneath I-95 north of NW 71st Street, which is also designated as a SIS corridor. Review of FDOT's Traffic Online web application (FDOT 2023c) indicates that, in 2021, the annual average daily traffic (AADT) along the I-95 mainline between 62nd Street and 143rd Street was between 229,000 and 255,000, while the express lanes AADT ranged between 31,500 and 35,500.

Along I-95, MDT Metrobus System operates the I-95 Golden Glades Express bus route within the project area, with key connections to Downtown Miami, Aventura, Carol City, and the Golden Glades Park and Ride (north of the project area). In addition, the 500-foot buffer area contains 55 bus stops, with most of those locations located along US 441.

The CRAVE analysis identified several recommendations and design suggestions to improve transit operations and ridership throughout Miami-Dade County. These recommendations and suggestions have the potential to remove traffic from I-95, reduce the project footprint, reduce cost to users, improve travel time for users, increase the life cycle of roadway facilities, and improve overall operations.

As part of the CRAVE analysis resolution meeting (held October 23, 2018), the *Value Engineering Recommendation No. 16: Enhance Transit – Commuter Railroad* was approved by FDOT District Six for implementation into this project. Overall, this recommendation is anticipated to provide approximately $41.2 million of cost avoidance/value added for the project. Recommendation No.16 includes the following:

- Reduce Headway on Tri-Rail Commuter Railroad to accommodate additional ridership. South Florida Regional Transportation Authority (SFRTA) is already pursuing this goal with Tri-Rail Coastal Link, which has completed the study phase and is ready to proceed with the PD&E impact phase. Project construction funding is not currently programmed. FDOT could take the lead in funding the construction of this project, which could quadruple the average peak hour railroad capacity through the I-95 corridor to 6,768 passengers per hour (equal to four roadway express lanes).
- Improve the commuter rail user experience by modernizing FDOT's website for ride share/transit options. FDOT would assist SFRTA in developing smart phone apps to schedule and pay for train tickets.
- Partner with private industries/companies to incentivize transit use and subsidize the Tri-Rail train ticket cost during the I-95 construction period.
- Educate the traveling public about Brightline Express Railroad as an alternative transportation method during construction by advertising through broadcast, print, and social media.

In the acceptance of this recommendation, FDOT further noted, "*the recommendation will be implemented to include bus services, increasing capacity, bus stops, park & rides, new routes, etc. also, consideration will be given during PD&E and Design on "last-mile" pickups and deliveries, bus rides increase, make transit more appealing to riders and increase ridership. Closer coordination with District 4 is required for transit opportunities to provide inter-county services*" (CRAVE 2018).

According to Miami-Dade and FDOT GIS data, contiguous sidewalks are present along local and state roads within the project area that cross under I-95. Bicycle lanes are only present intermittently along cross streets and roadways within the project area, with a majority of the bicycle lanes in the form of sharrows (shared bicycle and vehicle lanes). In addition, the project area includes a pedestrian overpass at NW 65th street, connecting neighborhoods on the west side of I-95 to Athalie Range Park on the east side of I-95. It should be noted that the presence of existing bicycle lanes and sidewalks is based on existing GIS data and desktop review of aerial imagery. Existing bicycle and pedestrian facilities should be confirmed during the PD&E Study. Figure 4-1 presents known existing bicycle and pedestrian facilities within and adjacent to the project area.

In addition, Unity Trail (located along the existing FEC railroad within the project area) is designated by the Office of Greenways and Trails (OGT) as a Hiking and Multi-Use Trail Opportunity. Unity Trail is also a part of Florida's Shared-use Nonmotorized (SUN) Trail Network.

With consideration of all transportation modes, alternatives should be evaluated based on their ability to maintain connections to existing communities, as well as enhance regional connectivity, safety, and mobility for all users.

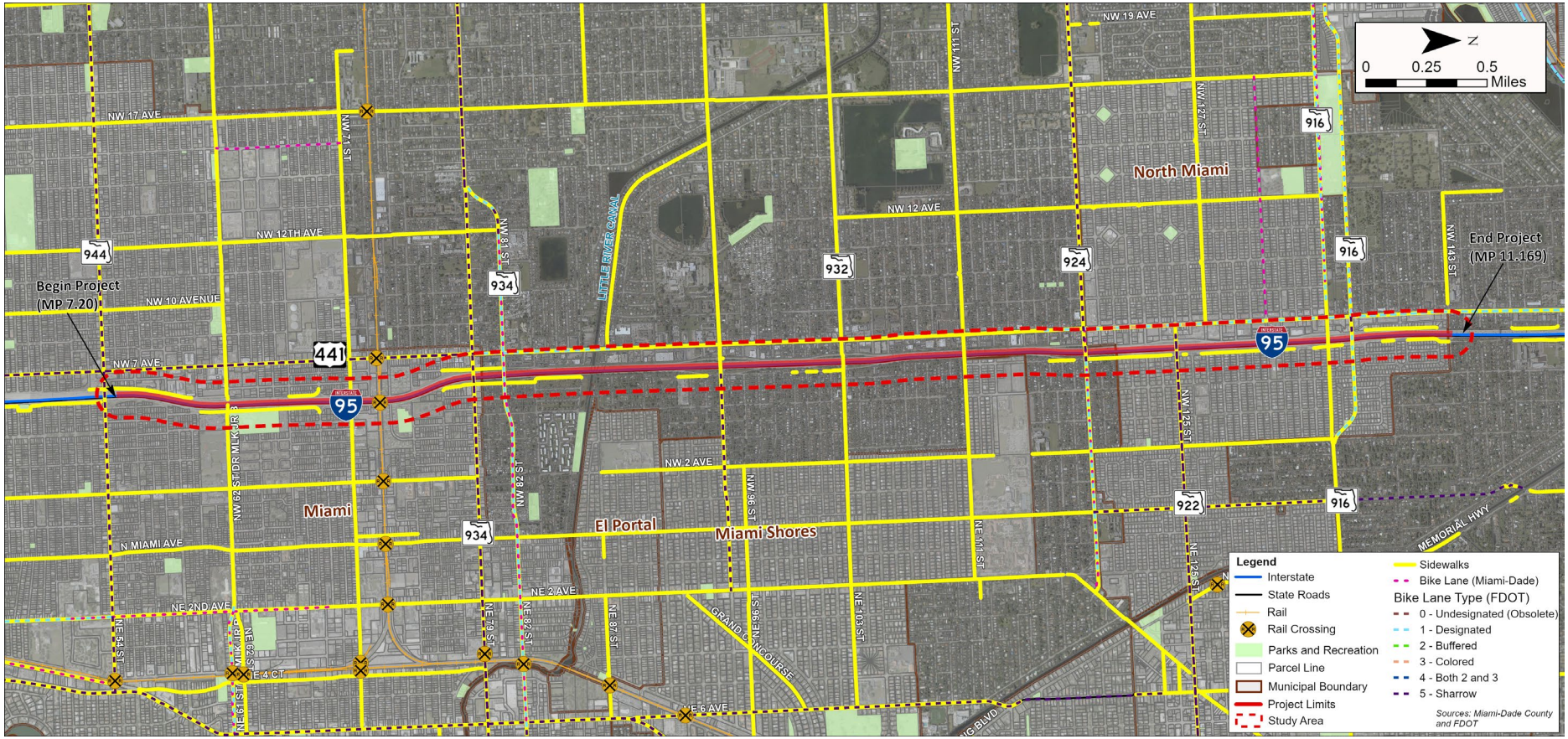


Figure 4-1. Existing Bicycle and Pedestrian Facilities

4.1.4 Aesthetic Effects

The project area is primarily a built-up urban environment and consists of residential, commercial/office, and industrial land uses. Community features associated with aesthetics include one homeowner association, three assisted-living housing complexes, three public parks, one OGT multi-use and hiking trail opportunity, and several cultural resources. During the PD&E Study, coordination with Miami-Dade TPO, local municipalities, and FDOT District Six will be conducted to solicit input on potential project effects as well as opinions and preferences regarding general design concepts related to corridor aesthetics. Access to residences, businesses, and community features could temporarily be affected during project construction. Potential visual impacts to surrounding communities could occur if an additional elevated structures is needed to accommodate the proposed project improvements. Per the *FDOT PD&E Manual*, landscaping opportunities will be documented in the aesthetics portion of the study's environmental document, Preliminary Engineering Report, and Pond Siting Report, as applicable (FDOT 2020).

Aesthetic effects are to be considered during the PD&E Study based on their effect on community cohesion, community values, and travel experience. North Miami's *Downtown Development and Major Corridor Master Plan* (City of North Miami 2013) includes proposed landscaping and aesthetic enhancements along US 441/NE 7th Avenue, including increased landscaping along the median, tree canopies, decorative hardscapes, sidewalk canopies, and enhanced lighting. Viewsheds may be affected by minor changes to the width and height profiles resulting from the proposed improvements. Aesthetic effects resulting from this project will be documented as part of the Sociocultural Effects Evaluation and coordinated with the local municipalities during the PD&E Study.

4.1.5 Relocation Potential

The existing I-95/SR 9A ROW within the project limits varies between 208 and 390 feet in width. The proposed improvements include widening portions of I-95 and, therefore, require additional ROW. Access to existing residential and nonresidential properties may be temporarily or permanently impacted during the construction of the project improvements. Encroachment into surrounding parcels will be coordinated with the property owners affected by the project. Specific ROW impacts will be determined during the PD&E Study. Proposed alternatives are to be evaluated based on their ability to minimize ROW impacts. Additionally, both a Sociocultural Effects Evaluation and Conceptual Stage Relocation Plan will be developed in accordance with Part 2, Chapter 4 of the *FDOT PD&E Manual* (FDOT 2020).

4.2 Cultural Resources

4.2.1 Section 106 of the National Historic Preservation Act

A review of the Florida Master Site File historic resource groups indicates that the 500-foot-wide buffer includes one linear resource group (Little River Canal/ DA06352), which has been evaluated by the State Historic Preservation Officer (SHPO) and determined ineligible for acceptance into the National Register of Historic Places (NRHP). The 500-foot-wide buffer also contains two resource groups (Bay Vista Park Historic District/ DA06692 and El Portal Residential Historic District/ DA11614). The Bay Vista Park Historic District has been evaluated by SHPO and determined to be eligible for listing in the NRHP. The El Portal Residential Historic District has not yet been evaluated by SHPO. In addition, one historic bridge (Bridge No. 870073) and 86 historic structures are located within the project buffer and have been determined to be ineligible for acceptance into the NRHP by SHPO. One historic structure (Arnold's Royal Castle/DA12368) was originally evaluated by the SHPO and determined to be NRHP eligible, but then was determined to be NRHP ineligible in 2020. The SHPO concurred with this determination on October 14, 2020. The dataset indicating that this particular building is eligible is incorrect, and the SHPO has been notified.

Although multiple cultural resource surveys have been completed between 1980 and 2018, only one cultural resource review for the entire project length occurred in 2007 as part of the *Historic Resources Reconnaissance Survey and Archaeological Desktop Analysis I-95 Managed Lanes Pilot Project: 95*

Express From: I-395 To: I-595 (Survey No. 14376). During the review of the ETDM screening for this project, the Florida Department of State (FDOS), which includes the Division of Historical Resources and the State Historic Preservation Office, noted the presence of an unevaluated resource group and requested that special care be taken to look for cultural deposits related to a former Native American Village. Seminole Tribe of Florida (STOF) and FDOS stated that the project has the potential to impact cultural resources and requested to review the completed Cultural Resources Assessment Survey (CRAS) resulting from the PD&E Study.

Because of the presence of cultural resources within the 500-foot project buffer, moderate involvement regarding cultural resources is anticipated. A CRAS will be conducted during the PD&E Study. Numerous unevaluated parcels with potential to contain historic buildings are located within the 500-foot-wide buffer. Historic buildings within the area of potential effect (APE) will be evaluated and documented in the CRAS. Upon review by the District Six Planning and Environmental Management Office (PLEMO), the CRAS will be submitted to the FDOT Office of Environmental Management (OEM) for consultation with STOF and FDOS (including SHPO). It should be noted that the City of Miami and Miami-Dade County are National Historic Preservation Act Florida Certified Local Governments. Cultural resources eligible for listing in the NRHP will be identified during the CRAS. Should a cultural resource be determined eligible for listing in the NRHP, a Section 106 Determination of Effects/Case Study will be prepared and submitted to FDOT OEM for their consultation and coordination with SHPO.

4.2.2 Section 4(f) of the U.S. Department of Transportation Act of 1966

Within the 500-foot project buffer, potential Section 4(f) properties include three neighborhood parks (Oak Park, Athalie Range Park, and Athalie Range Park #2), one OGT multi-use and hiking trail (Unity Trail, part of the SUN Trail Network), and outdoor recreational areas associated with four public schools (Miami Edison Senior High School, Edison Park K-8 Center, Jerry J. McCrary, Jr. Elementary School, and Barry University – Main Campus).

The 500-foot project buffer also includes one NRHP-eligible resource group (Bay Vista Park Historic District/DA06692), as well as one unevaluated cultural resource group (El Portal Residential Historic District/DA11614). As mentioned previously, Arnold's Royal Castle (DA12368) is an NRHP-eligible historic structure located just west of the 500-foot project buffer.

Moderate Section 4(f) involvement is anticipated resulting from potential temporary impacts to access and enjoyment of recreational features during construction of the project, as well as potential impacts to known and unknown NRHP-eligible resources within and adjacent to the project area. Potential impacts to Athalie Range Park may occur if there are modifications to the existing pedestrian walkway over I-95 near NW 65th Street.

Additionally, if it is determined through consultation with SHPO that NRHP-eligible resources are present within the project Area of Potential Effect, resources would need to be evaluated for Section 4(f) applicability. Section 4(f) applies to all FDOT transportation projects that use federal aid funds or require the approval of a U.S. Department of Transportation agency and involve the "use" of a Section 4(f) property or resource. A Section 4(f) determination will be made when project funding is confirmed and when "applicability" and "use" are further evaluated during the PD&E Study.

4.3 Natural Resources

4.3.1 Protected Species and Habitat

The 500-foot project buffer occurs wholly within USFWS Consultation Areas for the American crocodile (*Crocodylus acutus*), Florida bonneted bat (*Eumops floridanus*) (Urban Bat Area), and Snail Kite (*Rostrhamus sociabilis*). Southern portions of the project buffer also contain USFWS Consultation Areas for the Piping Plover (*Charadrius melodus*). The Little River Canal located within the project buffer is designated as critical habitat for the West Indian Manatee (*Trichechus manatus*). The northern portion of the project buffer is designated as rare and imperiled fish habitat for the opossum pipefish (*Microphis brachyurus*). However, this habitat is associated with the Biscayne Canal, which is located outside the

project area. The 500-foot project buffer also falls within the rare range for the Florida black bear (*Ursus americanus floridanus*) and an FWC State Manatee Protection Zone. Although within the rare range for Florida black bear, the project buffer contains no black bear habitat, and the FWC reports no sightings within or near the project area.

According to the USFWS Information for Planning and Consultation web application, several state-listed birds, wading birds, and birds protected by the Migratory Bird Treaty Act of 1918 have the potential to occur within the project buffer, including the American Kestrel (*Falco sparverius Paulus*), Bald Eagle (*Haliaeetus leucocephalus*), Black Skimmer (*Rynchops niger*), Chimney Swift (*Chaetura pelagica*), Great Blue Heron (*Ardea 4-11erodias occidentalis*), Lesser Yellowlegs (*Tringa flavipes*), Magnificent Frigatebird (*Fregata magnificens*), Painted Bunting (*Passerina ciris*), Prairie Warbler (*Dendroica discolor*), Ruddy Turnstone (*Arenaria interpres morinella*), Swallow-tailed Kite (*Elanoides forficatus*), and the White-crowned Pigeon (*Patagioenas leucocephala*). The 500-foot project buffer also is located within the Wood Stork (*Mycteria americana*) Core Foraging Area.

The FWC's Fish and Wildlife Research Institute reports nine Environmentally Sensitive Shorelines of two classes (8B: Sheltered Solid Man-Made Structures and 9B: Vegetated Low Banks).

During the review of the ETDM screening results, the USFWS added that the Eastern indigo snake (*Drymarchon couperi*) and federally listed plants have the potential to occur in or near the project site. USFWS recommended the use of native wildflowers, plants, trees, and shrubs in the landscaping within the center and outside ROWs of the project, and that wetlands be avoided to the greatest extent practicable or compensated for if impacts are unavoidable.

In addition to bridges, large trees and palms are present within the project buffer and may require a foraging and roosting habitat survey for the Florida bonneted bat using visual and/or acoustic monitoring methods.

Minimal involvement of protected species and habitat is anticipated based on the existing urban environment, although numerous landscaped trees/shrubs exist in close proximity within and directly adjacent to the existing ROW. Avoidance and minimization measures should be implemented during design and construction to the greatest extent practicable, and agency coordination will take place to address potential project impacts to the noted species and habitat. A Natural Resources Evaluation will be prepared to determine potential effects to protected species and habitat from the proposed improvements as part of the PD&E Study.

4.3.2 Wetlands and Other Surface Waters

The NWI database (USFWS 2023) reports 2.2 acres of riverine wetlands within the 500-foot project buffer, associated with the C7/Little River Canal that intersects the project corridor.

During this project's ETDM screening, NMFS noted that the identified wetlands appear to be of low to moderate quality and that the project crosses the C-7/Little River Canal, which is hydrologically connected to Biscayne Bay and the Atlantic Ocean, west of the salinity control structures. The U.S. Army Corps of Engineers (USACE) stated the project also will require a Section 408 review, since the project crosses C7/Little River Canal, a federal project. This portion of C-7/Little River Canal falls upstream of the S-27 control structure and is not navigable or tidally influenced.

The proposed improvements include a stormwater management system that is anticipated to meet the design and performance criteria established in the South Florida Water Management District (SFWMD) *Environmental Resource Permit Applicant's Handbook,* Volumes I and II, for the treatment and attenuation of discharges to nearby waterbodies. Minimal involvement regarding wetland resources is anticipated since the project area is mostly urban in nature. However, there are roadside ditches and outfall ditches which may contain jurisdictional wetlands or other surface waters that will require assessment if impacted. A Natural Resources Evaluation will be included in the PD&E Study to document wetland and other surface water impacts. A Conceptual Drainage Report also will be developed during the PD&E Study to document any impacts to water quality and stormwater management options.

4.3.3 Coastal and Marine Resources

Review of the NOAA NMFS EFH mapper (NOAA 2022b) indicates no EFH within the 500-foot project buffer, including no EFH for any federally managed fish species and their prey. However, the project does traverse the Little River Canal, which is accessible to the West Indian Manatee. As part of this project's ETDM screening, the SFWMD noted that manatee exclusion grates will be required on all existing and proposed outfalls associated with any proposed stormwater management systems. In addition, wetlands associated with the Little River Canal are hydrologically connected to the Biscayne Bay and the Atlantic Ocean. Impacts to the Little River Canal may affect ecologically important species within downstream estuaries. Impacts to the Little River Canal and its associated wetlands would require minimization and mitigation measures.

Involvement of coastal and marine resources is anticipated to be minimal. The project is located within a coastal county pursuant to the Coastal Zone Management Act (CZMA); therefore, additional interagency coordination associated with the CZMA noticing requirements is expected. Further, a Coastal Zone Consistency Determination is required, and the project is subject to a consistency review as required by 15 Code of Federal Regulations (CFR) 930. The Natural Resources Evaluation will include assessment of potential impacts to sensitive coastal and marine resources from the proposed improvements.

4.3.4 Floodplains

According to Digital Flood Insurance Rate Map 100-Year Flood Zones data, 76 acres of the 500-foot project buffer occur within the 100-year floodplain (Flood Zone AE and AH). The majority of the 100-year floodplain is associated with the Little River Canal and areas south of the canal. Floodplain compensation will be required should any of the proposed improvements encroach within the Little River Canal floodplain. Based on the extent of the 100-year floodplain within the project vicinity and potential issues associated with providing floodplain compensation, moderate involvement regarding floodplains is anticipated. A Location Hydraulic Report and potentially a Bridge Hydraulic Report will be prepared during the PD&E Study to determine floodplain effects from the proposed improvements.

4.3.5 Water Resources

The project area crosses the Little River Canal (WBID: 3287) and is located near Biscayne Canal (WBID: 3285). Both canals have adopted total daily maximum loads (TMDLs). The project also is within both the Biscayne Aquifer, a sole source aquifer and principal aquifer, and a recharge area for the Floridan Aquifer.

The proposed improvements include potentially increasing the impervious surface area and could impact water quality and quantity. During review of this project's ETDM screening, SFWMD stated that a water quality volume greater than 150% of 1.0 inch over the total project area, or 150% of 2.5 inches times the percentage of impervious surfaces over the entire project area, would be required to demonstrate that the project meets the adopted TMDL associated with the Little River Canal basin.

In addition, the EPA noted in the ETDM that the project area contains highly porous and permeable Miami limestone related to the Biscayne Sole Source Aquifer and an increase in impervious surface area may impact surface and groundwater quality. The stormwater management system for this project is anticipated to meet and enhance water quality by adhering to all treatment requirements and meet the design and performance criteria established in the SFWMD *Environmental Resource Permit Applicant's Handbook*, Volumes I and II, for the treatment and attenuation of discharges to impaired waters.

A Stormwater Pollution Prevention Program will be implemented (as required by National Pollutant Discharge Elimination System [NPDES] permits) to control the effects of stormwater runoff during construction. A Water Quality Impact Evaluation and Sole Source Aquifer Checklist will be prepared during the PD&E Study to document impacts to water quality and treatment options.

4.4 Physical Resources

4.4.1 Highway Traffic Noise

According to the planning study and the ETDM screening report, there are approximately 632 noise sensitive sites near the project area. Noise sensitive sites in the project area include residences, schools, religious facilities, assisted-living complexes, parks, cultural centers, and trails. Within the 500-foot project buffer, 54 existing cast-in-place/precast concrete noise barriers are present along the corridor. No laser facilities are reported within the project area. Because additional capacity and higher traffic volumes/ enhanced flow is associated with the proposed improvements, traffic noise is presumed to increase along the corridor.

The project is considered a Type II project in accordance with the *FDOT PD&E Manual*. A Noise Study Report will be prepared during the PD&E Study to further evaluate and document potential noise effects. The noise evaluation will include the existing noise barriers to determine if modifications are needed and if new noise abatement structures are reasonable and feasible.

4.4.2 Air Quality

The proposed project is in an area that is designated as “in attainment” for all National Ambient Air Quality Standards (NAAQS) under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to this project. The project is anticipated to result in additional capacity and higher traffic volumes. During the review of the ETDM screening report for this project, EPA noted that while air quality within the project area can possibly be affected by airborne dust and other ambient air pollutants from project construction, the proposed project is in an attainment area so criteria pollutants under the NAAQS are considered to be at an acceptable level. The EPA also recommended the use of diesel controls, cleaner fuel, and cleaner construction practices to maintain healthy air quality. This project may result in minimal, localized impacts to air quality during project construction. However, no permanent effects to air quality are anticipated. Based on the criteria in the *FDOT PD&E Manual*, an Air Quality Technical Memorandum will be prepared during the PD&E Study.

4.4.3 Contamination

Potential sources of contamination reported within the 500-foot project buffer include 40 petroleum contamination monitoring sites, 18 Miami-Dade County Department of Environmental Resources Management contaminated sites, 44 EPA Resource Conservation and Recovery Act regulated facilities, 40 storage tank contamination monitoring sites, one active Environmental Restoration and Integrated Cleanup site, 25 Compliance and Enforcement Tracking for Hazardous Waste facilities, and 20 State Underground Petroleum Environmental Response Act risk sources. Note that some of the identified sources may overlap categories. The 500-foot project buffer also falls within four brownfield areas (Miami EZ Expansion Area, Dade-Opa-Locka Area, Model City/Brownsville Area, and Miami Area).

Considering the proximity of these sources to the project corridor and the potential for unreported sources of subsurface contamination, impacts to the proposed project from existing contamination may exist. A Level 1 Contamination Screening Evaluation Report will be prepared during the PD&E Study to document potential sources of contamination and their risk to the project construction. If drainage or other subsurface features that require excavation and dewatering are included as part of this project, additional evaluation for contamination impacts may be required during the design phase. During this project’s ETDM screening, SFWMD stated that a SFWMD Water Use Permit may be required if dewatering is necessary.

4.5 Permits

During the PD&E Study, potential permits that will be required during the design phase will be identified and documented for the preferred alternative. Roadway projects that occur wholly within State Highway System ROW are exempt from local and county environmental permitting requirements pursuant to Section 335.02, Florida Statutes. However, work proposed outside the FDOT ROW will be subject to the

local permitting requirements. Because this portion of the C-7/Little River Canal falls upstream of the S-27 control structure and is not tidal or navigable, the project falls outside the jurisdiction Section 404 federal-retained waters of the United States (WOTUS) and federal jurisdiction will revert to the FDEP State 404 Program for state-assumed WOTUS. The following agency permits/approvals are anticipated be required during the design and/or construction phases of the project:

- SFWMD Individual Environmental Resource Permit (ERP) – roadway capacity, drainage improvements, and work within the C-7/Little River Canal
- SFWMD ROW Occupancy Use/Temporary Access Permit – work within the SFWMD C-7/Little River Canal ROW
- USACE Section 408 Approval – work within the SFWMD C-7/Little River Canal ROW (canal falls under the Central and Southern Florida federal project
- FDEP State 404 Individual Permit – in-water work within the C-7/Little River Canal (below the controlled water elevation)
- FDEP NPDES Construction Generic Permit – stormwater discharge from construction activities
- SFWMD Water Use Permit – dewatering activities

A final determination on the environmental permitting requirements will be provided during the design phase of the project.

4.6 Cumulative Effects

According to 40 CFR Sections 1508.7 and 1508.8, cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects are not a different kind of environmental effect; they are the summation of direct and indirect impacts to resources that have occurred over time or will occur in the foreseeable future.

Based on the guidance from the *FDOT Cumulative Effects Evaluation Handbook*, a cumulative effects evaluation may be necessary because this project may result in substantial direct or indirect impacts on environmental resources, and the project may cause direct or indirect impacts on resources that have a protected status or are in poor or declining health. If significant impacts seem likely, a higher level of documentation may be warranted during the PD&E Study (FDOT 2012).

During the PD&E Study, the level of analysis for the cumulative effects evaluation will be reviewed based on the proposed action and the anticipated effects. Additionally, the project's Final Programming Screen Summary Report should be reviewed for cumulative impact concerns raised by contributing agencies.

4.7 Potential Class of Action

As noted previously, the ETDM Programming Screen does not state a COA determination but notes federal involvement through FHWA funding. For the purposes of this report and the associated PD&E Scope of Services (Appendix A), the environmental document is assumed to be a Type 2 Categorical Exclusion (federal National Environmental Policy Act document) based on the alternatives defined in this Scoping Report. The COA will need to be confirmed during the PD&E Study. Any major changes to the scope of the proposed improvements will require reconsideration of the COA. Additionally, a Project Commitments Record will be developed as part of the Study.

A 30-month schedule is assumed for this PD&E Study. The schedule duration was based on the critical-path items, such as public involvement (two public meetings and a Public Hearing), engineering analysis (traffic studies, typical section analysis, safety analysis, geotechnical analysis, sea level rise analysis, alignment analysis [as applicable], and bridge analysis), and environmental analysis (sociocultural evaluation, natural resource evaluation, contamination screening evaluation, noise effects, Section 106, Section 4(f) applicability, and CRAS). If NRHP-eligible cultural resources are identified as part of the

CRAS and Florida Department of Historical Resources (FDHR)/SHPO coordination, additional project activities may impact the schedule. Both early FDHR/SHPO coordination and the development of the CRAS should be considered critical-path activities to maintain the 30-month schedule. Similarly, any Section 4(f) evaluations required would be critical-path activities. The project schedule will be confirmed and approved by FDOT prior to the PD&E Study.

5. PD&E Study Submittals

The following submittals have been identified for the PD&E Study. FDOT will review the following list and determine which submittals are required for the project and indicate if and how many hard copies of the reports are required.

5.1 PD&E Provisions for Work

- Quality Control Plan
- Project Schedule
- Project Management Plan

5.2 Public Involvement

- Public Involvement Plan
- Public Hearing Transcript
- Comments and Coordination Report

5.3 Engineering

- Alternatives Analysis Memorandum
- Draft Preliminary Engineering Report
- Final Preliminary Engineering Report (Signed and Sealed)
- Traffic Analysis Methodology Technical Memorandum
- Systems Interchange Modification Report (SIMR)
- Project Traffic Forecasting Memorandum
- Project Traffic Analysis Report
- Safety Analysis Memorandum
- Location Hydraulics Report
- Conceptual Drainage Report
- Conceptual Design Plans
- Crash Data Analysis Report
- Project-level Concept of Operations
- Preliminary Systems Engineering Management Plan
- Geotechnical Report
- Typical Section Package
- Bridge Analysis Report
- Bridge Hydraulic Report (if applicable)
- Value Engineering Information Report
- Risk Analysis Report
- Design Variations and Exceptions Package (if applicable)
- Utility Request Package

- Utilities Assessment Package

5.4 Environmental

- Type 2 Categorical Exclusion (COA to be confirmed during PD&E Study)
- Sociocultural Effects Evaluation
- Conceptual Stage Relocation Plan (if applicable)
- Cultural Resource Assessment Survey
- Section 4(f) Determination of Applicability (if applicable)
- Section 4(f) “de minimis” Documentation (if applicable)
- Section 4(f) Evaluation (if applicable)
- Section 106 Determination of Effects/Case Study (if applicable)
- Natural Resources Evaluation Report
- Water Quality Impact Evaluation
- Sole Source Aquifer Checklist
- Agency coordination letter(s)
- Conceptual Mitigation Plan (if applicable, included in Environmental Document)
- Noise Study Report
- Air Quality Technical Memorandum
- Level 1 Contamination Screening Evaluation Report

5.5 General

- Project Commitments Record
- Planning Consistency Form

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Appendix A
Scope of Services

EXHIBIT A

DRAFT SCOPE OF SERVICES

FOR

PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDIES

This Scope of Services is an attachment which is incorporated into the agreement between the State of Florida Department of Transportation (hereinafter referred to as the DEPARTMENT or FDOT) and _____ (hereinafter referred to as the CONSULTANT) relative to the transportation facility described as follows:

Financial Project ID:	414964-8-22-01
Federal Aid Project No.:	TBD
County Section No.:	Miami-Dade County
Project Description:	PD&E Study for Interstate 95 (I-95) from South of NW 62nd Street to NW 143rd Street in Miami-Dade County
Bridge No(s).:	870308, 870429, 870309, 870430, 870315, 870431, 870432, 870317, 870433, 870434, 870435, 870436, 870437, 870322, 870438, 870323, 870439, 870344, 870443, 870444, 870445, and Pedestrian Overpass at 65th Street 879007
Railroad Crossing No.:	N/A
Project Type:	Highway
Lead Agency:	FDOT, Office of Environmental Management
Federal Funding:	FHWA Funding, Other Federal Permit
Anticipated Class of Action:	Type 2 Categorical Exclusion

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1.0 SCOPE OF SERVICES PURPOSE

The Scope of Services describes the responsibilities of the CONSULTANT and the Florida Department of Transportation (FDOT or DEPARTMENT) when conducting Project Development and Environment (PD&E) Studies necessary to comply with DEPARTMENT procedures and underlying laws and regulations and to obtain approval of the Environmental Document.

All activities encompassed by this Scope of Services include:

- Major work groups include:
  - 2.0 – Project Development & Environmental (PD&E) Studies
- Minor work groups include:
  - 3.1 – Highway Design – Roadway
  - 3.2 – Major Highway Design
  - 3.3 – Controlled Access Highway Design
  - 4.1.1 – Miscellaneous Structures
  - 4.1.2 – Minor Bridge Design
  - 4.2.1 – Major Bridge Design - Concrete
  - 4.2.2 – Major Bridge Design - Steel
  - 6.1 – Traffic Engineering Studies
  - 6.2 – Traffic Signal Timing
  - 6.3.1 – Intelligent Trans Systems Analysis & Design
  - 7.1 – Signing, Pavement Marking & Channelization
  - 7.2 – Lighting
  - 7.3 – Signalization
  - 8.1 – Control Surveying
  - 8.2 – Design, Right of Way, Construction Surveying
  - 9.1 – Soil Exploration
  - 9.2 – Geotechnical Classification Lab Testing
  - 9.4.1 – Standard Foundation Studies
  - 15.0 – Landscape Architect
  - 24.0 – Acquisition Relocation Assistance

The Project development process and all tasks identified in this Scope of Services must follow the guidance provided in the DEPARTMENT's current version of the **PD&E Manual and FDOT Design Manual (FDM)**. As discussed in **Part 1, Chapter 1**, of the **PD&E Manual**, the PD&E Manual satisfies state and federal processes and incorporates the requirements of the National Environmental Policy Act (NEPA); federal law, regulations, and Executive Orders included in the FHWA Federal-Aid Policy Guide; and applicable state laws and regulations including Section 339.155 of the Florida Statutes and Rule Chapter 14 of the Florida Administrative Code. As such, Project documents prepared by the CONSULTANT must comply with all applicable state and federal laws, regulations, and Executive Orders.

The Scope of Services defines the Project tasks to be performed consistent with the PD&E Manual and other pertinent manuals as specifically prescribed in Section 2. The Scope of Services also outlines work activities that will be the responsibility of the CONSULTANT and / or the DEPARTMENT.

The CONSULTANT must demonstrate good project management practices while working on this Project, including effective communication with the DEPARTMENT and others as necessary, effective management of time and resources, and quality of documentation. Throughout the PD&E Study, the CONSULTANT shall set up and maintain a contract file in accordance with DEPARTMENT procedures. The CONSULTANT and any sub-CONSULTANTS are expected to know the laws and rules governing their profession and are expected to provide professional services in accordance with current and applicable regulations, codes, ordinances, and standards.

The DEPARTMENT will provide contract administration and management, as well as technical reviews of all work associated with the development of this Project and performed under this Scope of Services. The DEPARTMENT's technical reviews will focus on high-level conformance and are not meant to substitute CONSULTANT quality reviews of deliverables. The CONSULTANT is fully responsible for all work performed and work products developed under this Scope of Services. The DEPARTMENT may provide task-specific information as outlined in this Scope of Services.

2.0 PROJECT DESCRIPTION AND OBJECTIVES

This roadway project entails potentially providing additional express and/or general use lanes on I-95/SR 9A from south of NW 62nd Street to NW 143rd Street and implementing interchange improvements at NW 62nd Street and SR 924/NW 119th Street, removing slip ramps at NW 69th Street, and constructing a Collector-Distributor (C-D) system from NW 95th Street to NW 103rd Street within Miami-Dade County.

The improvements proposed as part of the project stem from the Refined Build Concept that was developed as part of the Interstate 95 Corridor Planning Study, conducted by the FDOT in May 2019 that assessed enhancements along the length of the I-95/SR 9A corridor within Miami-Dade County from US 1/SR 5 (Mile Post 0.000) to the Broward County Line. As such, this project is part of a larger effort to improve the I-95/SR 9A corridor within Miami-Dade County and regionally within Broward and Palm Beach Counties. The proposed concept is recommended for further consideration in the Project Development phase as it provides additional capacity while minimizing modifications to programmed/planned improvements pertaining to other projects along the I-95/SR 9A corridor, as well as reduces right-of-way acquisition/impacts and construction costs. General design parameters for the corridor include minimum 11-foot-wide travel lanes, 10-foot-wide express lane inside shoulders, and 4-foot-wide buffers with express lane markers between the express lanes and general purpose lanes; 12-foot-wide lanes are generally provided in segments that include more extensive reconstruction/widening, and 11-foot-wide lanes are utilized in areas where modifications are less extensive or needed to match the existing/programmed/planned geometry.

Within the project limits, I-95/SR 9A is classified as 'Urban Principal Arterial Interstate' and consists of eight general use lanes and four express lanes; the typical section varies throughout the project segment. This segment of the corridor is located south of the Golden Glades Interchange (GGI) in northern Miami-Dade County and traverses eight U.S. Census Designated Places, including North Miami, Miami Shores, Miami, El Portal, Gladeview, Golden Glades, Pinewood, and West Little River. Additionally, it connects to many important east-west facilities within northern Miami-Dade County, including SR 934, NW 95th Street, SR 932, SR 924, and SR 916. Existing right-of-way along the project segment ranges from approximately 200 feet to 450 feet in width. Right-of-way is expected to be required intermittently throughout the corridor to allow for the roadway expansion and construction of the C-D system, as well as reconstruction of interchange on/off ramps. Specific right-of-way requirements will be determined during the Project Development and Environment Study.

It should be noted that the greater I-95/SR 9A corridor is part of Florida's Strategic Intermodal System (SIS) highway network and is a designated state hurricane evacuation route. In addition, I-95/SR 9A serves a critical role in facilitating the north-south movement of traffic in southeast Florida as one of two major expressways (Florida's Turnpike being the other) that connect the major employment centers and residential areas between Miami-Dade, Broward, and Palm Beach Counties. The corridor traverses dense urban areas composed predominantly of commercial and residential uses, including downtown Miami.

Overall, the project will offer enhanced mobility options for motorists and transit users as it will provide additional capacity along the I-95/SR 9A corridor throughout central Miami-Dade County. Consistent with the existing managed lanes system on I-95/SR 9A, the additional express lanes are anticipated to operate using variable toll pricing based on congestion to optimize traffic flow.

2.1 Project Objectives

The PD&E Study has the following project objectives:

- Address the deficient operational capacity and relieve existing/future congestion along the I-95/SR 9A corridor.
- Preserve the operational integrity and regional functionality of I-95/SR 9A (and, therefore, the regional transportation network) by complementing similar corridor improvements throughout Miami-Dade, Broward, and Palm Beach Counties.
- Enhance emergency evacuation capabilities.

The CONSULTANT will analyze and assess the Project's impact on the social, economic, cultural, natural, and physical environment, in order to develop the location and design concept of the Project in accordance with FDOT policy, procedures, and requirements.

The CONSULTANT shall review and become familiar with Project documents and materials that have been prepared prior to the PD&E phase. The CONSULTANT will review the Efficient Transportation Decision Making Process (ETDM) Programming Screen Summary Report, including comments received from the Environmental Technical Advisory Team (ETAT), Lead Agency, and / or any responses from the District pertaining to this Project. The CONSULTANT shall also review concepts and reports (e.g., typical sections, alignments, planning reports) developed from prior planning studies. The CONSULTANT shall use resource agencies' comments to assess the level of effort for work activities required to adequately address potential resources of concern to this Project.

2.2 Project Requirements and Provisions for Work

The CONSULTANT will conduct the appropriate level of engineering and environmental analyses related to the anticipated Class of Action for this Project, as outlined in **the PD&E Manual**, the **FDM**, and directed by the Project objectives. The level of analysis depends on complexity of the Project, level of controversy, potential for significant impacts, and degree and quality of information / data available. If the Class of Action for the Project was not determined during ETDM screening, the Lead Agency will determine it after completion of the environmental analyses.

CONSULTANT upon direction from DEPARTMENT will assist with updating data, technical studies or environmental document to ensure compliance with NEPA, other federal laws, regulations and Executive Orders.

The CONSULTANT will maximize the use of existing information available from State, regional, local agencies, private sources, and its own files. Examples include the Programming Screen Summary Report, Concept Reports, previously completed planning products, listed species reports, Florida Department of Environmental Protection OCULUS Electronic Document Management System, and other sources as appropriate.

The DEPARTMENT will allow the CONSULTANT to use the DEPARTMENT's computer facilities upon proper authorization as described in DEPARTMENT Procedure No. 325-060-401;

The CONSULTANT will review the following planning and design studies:

- Interstate 95 Corridor Planning Study, Overall Corridor Report, US 1/SR 5 to Broward County Line, July 2019 (FM # 414964-6-22-01)
- Interstate 95 Corridor Planning Study, Cost Risk Assessment and Value Engineering Report, US 1/SR 5 to Broward County Line, May 2018 (FM # 414964-6-22-01)

2.2.1 Governing Regulations

Services performed by the CONSULTANT must comply with all applicable DEPARTMENT Manuals and Guidelines. The CONSULTANT will use the latest editions of the following Manuals and Guidelines to perform work for this Project.

- Florida Statutes
- Florida Administrative Codes
- Applicable Federal Regulations, U.S. Codes and Technical Advisories

- PD&E Manual
- ETDM Manual
- Sociocultural Effects Evaluation Handbook
- Public Involvement Handbook
- FDOT Design Manual (FDM)
- FDOT District Six Design Handbook
- FDOT Standard Specifications
- FDOT Utility Accommodation Manual
- Highway Capacity Manual
- Manual on Uniform Traffic Studies (MUTS)
- Manual of Uniform Traffic Control Devices (MUTCD)
- Minimum Standards for Design, Construction, and Maintenance Streets and Highways (Florida Greenbook)
- A Policy on Geometric Design of Highways and Streets
- AASHTO Guide for the Development of Bicycle Facilities
- AASHTO Guide for the Development of Pedestrian Facilities
- Highway Safety Manual (HSM)
- Public Right of Way Accessibility Guidelines (PROWAG)
- Americans with Disabilities Accessibility Guidelines (ADAAG)
- Right of Way Mapping Handbook
- Right of Way Procedures Manual
- Survey ad Mapping Handbook
- Soils and Foundation Handbook
- Electronic Field Book (EFB) User Handbook
- FDOT Drainage Manual
- FDOT Drainage Design Guide
- Structures Manual
- CADD Manual
- Quality / Level of Service Handbook
- Project Traffic Forecasting Handbook & Project Traffic Forecasting Procedure 525-030-120
- Traffic Analysis Handbook
- Florida Highway Landscape Guide
- Basis of Estimates Manual
- Project Management Handbook
- FDOT Traffic Engineering Manual

2.2.2 Liaison Office

The DEPARTMENT and the CONSULTANT will designate their respective Liaison Offices for this Project.

2.2.3 Personnel

The DEPARTMENT will designate a Project Manager to represent the DEPARTMENT for this Project. The DEPARTMENT Project Manager shall be responsible for coordination with the CONSULTANT pertaining to all contractual matters, invoicing and reporting. The DEPARTMENT Project Manager shall also be responsible for approval of any additional staffing to be provided including additional consultant staff (approval must be coordinated with the Procurement Office) and shall give approval of all products and services. The CONSULTANT will assign a Project Manager who will communicate regularly with the DEPARTMENT Project Manager regarding development of this Project. Final direction on all matters of this Project remains with the DEPARTMENT Project Manager.

The CONSULTANT must maintain staffing levels and personnel qualifications necessary to complete the required activities for this Scope of Services. The CONSULTANT's work must be performed to DEPARTMENT standards and procedures by personnel identified in the contract. Any changes in the identified personnel will be subject to review and approval by the DEPARTMENT. To the extent possible, the CONSULTANT must minimize the DEPARTMENT's need to apply its own resources to the Scope of Services activities unless otherwise identified.

The CONSULTANT shall assign only competent technical and professional personnel qualified by the necessary experience and education to perform assigned work. The CONSULTANT is responsible for ensuring that staff assigned to work under this Agreement has the training established by the DEPARTMENT as a prerequisite for CONSULTANT staff to perform work. If the required training is such that it can be applied by the trainee to work on other contracts, (regardless of whether or not the trainee would work on other agreements), the cost of the trainee's time and expenses associated with the training is not directly billable to the DEPARTMENT on this contract and shall only be recoverable thru overhead for the CONSULTANT firm.

The CONSULTANT must request approval from the DEPARTMENT's Project Manager and Procurement for any modifications or additions to the list of available staff prior to the initiation of any work by that individual. If applicable, new job classifications may be added to the contract via contract amendment. The CONSULTANT shall submit a copy of the resume and payroll register before new staff can be added.

The CONSULTANT must have a Licensed Professional Engineer in the State of Florida to sign and seal all engineering reports, documents, technical special provisions, and plans as required by DEPARTMENT standards.

The CONSULTANT and its employees, agents, representatives, or sub-CONSULTANTS are not employees of the DEPARTMENT and are not entitled to the benefits of State of Florida employees. Except to the extent expressly authorized herein, CONSULTANT and its employees, agents, representatives, or sub-CONSULTANTS are not agents of the DEPARTMENT or the State for any purpose or authority such as to bind or represent the interests thereof and shall not represent that it is an agent or that it is acting on the behalf of the DEPARTMENT or the State. The DEPARTMENT shall not be bound by any unauthorized acts or conduct of CONSULTANT.

2.2.4 Subconsultants

Services assigned to any subconsultants must be approved in writing and in advance by the DEPARTMENT Project Manager, Procurement Office, and the CONSULTANT Project Manager in accordance with this Scope of Services. All subconsultants must be technically qualified by the DEPARTMENT to perform all work assigned to them. Additional subconsultants with specialized areas of expertise may be required to complete specific assignments. Any subconsultants to be hired and all work assignments to be performed, and all rates of compensation shall be agreed to by the DEPARTMENT Project Manager, Procurement Office and the CONSULTANT Project Manager and documented in the contract file prior to any work being performed by the subconsultants.

2.2.5 Lead Agency, Cooperating Agencies and Participating Agencies

The CONSULTANT Project Manager will support The DEPARTMENT Project Manager coordination with the Lead Agency, Cooperating Agencies and Participating Agencies.

The Lead Agency for this Project is the FDOT Office of Environmental Management.

2.2.6 Meetings and Presentations

Led by the DEPARTMENT Project Manager, the CONSULTANT will attend the Notice to Proceed Meeting, where DEPARTMENT representatives will outline relevant contract and Project information provided by the DEPARTMENT Project Manager.

The CONSULTANT shall attend meetings necessary to undertake the activities of this Scope of Services. This includes meetings with DEPARTMENT staff and /or resources agency staff, other consultants, or other miscellaneous meetings. It is anticipated that ***120*** progress and miscellaneous review meetings will be needed.

The CONSULTANT will attend meetings or make presentations at the request of the DEPARTMENT with at least five (5) business days' notice. The CONSULTANT will prepare meeting notes for all meetings identified in this Exhibit and submit within five (5) working days to the DEPARTMENT's Project Manager for review.

2.2.7 Communication

The DEPARTMENT Project Manager will be the representative of the DEPARTMENT for the Project. The CONSULTANT must regularly communicate with the DEPARTMENT Project Manager to discuss and resolve issues or solicit opinions regarding this Project. The CONSULTANT must include the DEPARTMENT when seeking and receiving advice from various State, regional, local agencies, and citizen groups. The final direction on all matters for this Project remains with the DEPARTMENT Project Manager.

All written correspondence between the CONSULTANT and any party pertaining specifically to this Project must be reviewed and approved by the DEPARTMENT. The CONSULTANT must respond to information requests relative to the PD&E Study from third parties at the direction, and with the approval, of the DEPARTMENT. The CONSULTANT will assist the DEPARTMENT in preparing the content of the letters from DEPARTMENT personnel to other agencies, public officials, and others as needed or requested.

2.2.8 Quality Control

The DEPARTMENT requires that all Project documents, technical studies, calculations, maps, reports, conceptual plans, design, and the Environmental Document are correct and complete, appropriate for the intended purposes, and conform to requirements of this Scope of Services. The CONSULTANT is responsible for the quality of all (including the sub-CONSULTANTS) deliverables. The CONSULTANT will independently and continually review deliverables for accuracy and completeness. The CONSULTANT must develop and follow an internal Quality Control (QC) process. The QC process is intended to ensure that quality is achieved through checking, reviewing, and verifying work activities and deliverables by qualified individuals who were not directly responsible for performing the initial work.

Within twenty (20) business days from the Notice to Proceed, the CONSULTANT must submit its QC Plan to the DEPARTMENT Project Manager for approval. The QC Plan will identify the deliverables, the personnel to perform the reviews, and the method of documentation. The QC Plan will be signed by the CONSULTANT Project Manager and the CONSULTANT QC Manager.

The CONSULTANT must include document reviews and written resolution of comments with each submittal or deliverable to show the QC process was followed. At a minimum, a quality review checklist must be provided and should include letters, exhibits, technical studies, reports, design calculations, Environmental Document or any documents used or referenced in the QC Plan. The CONSULTANT must maintain documentation which show the QC Plan process was followed. The DEPARTMENT Project Manager may request from the CONSULTANT document reviews and written resolution of comments at any time during the PD&E Study.

2.2.9 Schedule

Within ten (10) business days after the Notice to Proceed, and prior to the CONSULTANT beginning work, the CONSULTANT shall submit a detailed Project activity / event schedule to the DEPARTMENT. The schedule must indicate all required submittals, critical path activities, and key project milestones / activity codes. When applicable, the CONSULTANT Project Manager will receive a Statewide Acceleration and Transformation (SWAT) preliminary Project schedule from the DEPARTMENT Project Manager during the Notice to Proceed meeting. The Project schedule shall contain at a minimum, the following information for each schedule activity: FDOT activity id with correct Project Schedule Management (PSM) codes, activity description, original duration, remaining duration, start date, finish date, activity percent complete and total float. Only two open-ended activities (the first and the last) are allowed. The project schedule must include a column displaying each activity's Predecessor and Successor. The schedule must be based on the DEPARTMENT's expected production date and must be approved by the DEPARTMENT. The schedule must be based upon consideration of the Project's environmental issues (social, cultural, natural and physical resources) and regulatory requirements, and in coordination with the DEPARTMENT's District Environmental Management Office (DEMO).

The schedule must be accompanied by an anticipated payout and fiscal progress curve. For the purpose of scheduling, the CONSULTANT shall allow for a review period of at least ***20 Days*** for each draft technical report or memorandum submitted for District reviews.

In developing the schedule for this Project, the CONSULTANT, in coordination with the DEPARTMENT, must include adequate time to meet regulatory reviews and formal consultation timeframes.

Periodically throughout the life of the contract, the CONSULTANT must review the project schedule, payout, and fiscal progress curves to monitor the progress of the project. The CONSULTANT shall submit monthly progress reports with the approved schedule and schedule status report, which includes critical-path review and progress and payout curves, to the Department Project Manager. Any adjustments or changes to the approved schedule must be approved by the DEPARTMENT Project Manager.

2.2.10 Submittals

The CONSULTANT will compile and transmit draft documents identified in this Scope of Services to the DEPARTMENT for review. For each submittal, the CONSULTANT will include a Transmittal Cover Letter that includes, at a minimum, the file name and format of each electronic file and the number of hardcopies (if any) as directed by the DEPARTMENT Project Manager.

The DEPARTMENT will review draft submittals and provide the CONSULTANT with review comments. The CONSULTANT will address comments, prepare a matrix of comments and responses as applicable, and submit revised documents. The CONSULTANT will assist the DEPARTMENT in resolving the comments received from the Lead Agency, Cooperating Agencies, resource agencies and the public, including preparation of individual responses.

PD&E Provisions for Work

Quality Control Plan
Project Schedule
Project Management Plan

Public Involvement:

Public Involvement Plan
Public Involvement Comment Database
Comments and Coordination Report

PD&E Engineering:

Alternatives Analysis Memorandum
Draft Preliminary Engineering Report
Final Preliminary Engineering Report (Signed and Sealed)
Traffic Analysis Methodology Technical Memorandum
Systems Interchange Modification Report (SIMR)
Project Traffic Forecasting Memorandum
Project Traffic Analysis Report
Safety Analysis Memorandum
Location Hydraulics Report
Conceptual Drainage Report
Conceptual Design Plans
Crash Data Analysis Report
Project-level Concept of Operations
Preliminary Systems Engineering Management Plan
Geotechnical Report
Typical Section Package
Bridge Analysis Report
Bridge Hydraulic Report (if applicable)
Value Engineering Information Report
Risk Analysis Report
Design Variations and Exceptions Package (if applicable)
Utility Request Package
Utilities Assessment Package

Environment:

Draft Type 2 Categorical Exclusion in SWEPT (COA to be confirmed during PD&E Study)
Final Type 2 Categorical Exclusion in SWEPT
Sociocultural Effects Evaluation
Conceptual Stage Relocation Plan
Cultural Resource Assessment Survey
Section 4(f) Determination of Applicability
Section 4(f) "de minimis" Documentation (if applicable)
Section 4(f) Evaluation (if applicable)
Section 106 Determination of Effects/Case Study (if applicable)
Natural Resources Evaluation Report
Water Quality Impact Evaluation
Sole Source Aquifer Checklist
Conceptual Mitigation Plan (if applicable)
Noise Study Report
Air Quality Technical Memorandum
Level 1 Contamination Screening Evaluation Report

General:

Project Commitments Record
Planning Consistency Form

Other Submittals:

None

The CONSULTANT will submit to the DEPARTMENT final reports and other deliverables identified in this section. The CONSULTANT will submit to the DEPARTMENT two (2) sets of CDs/DVDs or other portable storage drives such as flash drives or USB drives containing PDFs of all submittals outlined in this section.

Upon completion of the Project, the CONSULTANT will transfer to the DEPARTMENT, in an organized manner, all project electronic files, data, maps, sketches, worksheets, and other materials used or generated during the PD&E Study in an acceptable portable storage drive.

Additionally, the CONSULTANT will upload all final submittals and appropriate supporting project files to the StateWide Environmental Project Tracker (SWEPT) upon completion of technical studies and Environmental Document and as directed by the DEPARTMENT.

2.2.11 Computer Automation

The CONSULTANT shall develop concept plans and alternatives designs utilizing Computer Aided Drafting and Design (CADD) systems. The DEPARTMENT makes software available to help assure quality and conformance with the policy and procedures regarding CADD. It is the responsibility of the CONSULTANT to meet the CADD production requirements in the FDOT CADD Manual. The CONSULTANT must submit final documents and files as described in the CADD Manual. Additional related information is found in the FDM. Concept plans and alternatives designs shall also be displayed using Google Earth-ready KMZ files. The concept plans must have both existing and proposed engineering and environmental features.

Upon DEPARTMENT approval, the CONSULTANT may also use computer tools and software to conduct some of the engineering and environmental analyses. Prior to using these tools, the CONSULTANT must agree to provide original electronic files in a format and standard consistent with the DEPARTMENT's policies and procedures.

All electronic files must be scanned for viruses prior to submitting to the DEPARTMENT. Failure to scan for viruses may result in a lower CONSULTANT work performance evaluation.

2.2.12 Conflict of Interest

The CONSULTANT or any affiliate is not eligible to pursue advertised work in the CONSULTANT's area of oversight for any project for which the CONSULTANT developed the Scope of Services. Subconsultants are also ineligible to pursue projects where they participated in the development of the Scope of Services or have an oversight responsibility. The term "affiliate" is defined in **FDOT Procedure No. 375- 030-006, Conflict of Interest Procedure for Department Contracts**.

The CONSULTANT and its subconsultants will not enter into another contract during the term of the Contract for this Project which would create or involve a conflict of interest with the services herein. The CONSULTANT and its subconsultants must comply with **FDOT Procedure No. 375-030-006, Conflict of Interest Procedure for Department Contracts**.

2.3 Coordination with Other Consultants and Entities

The CONSULTANT will coordinate work activities with any ongoing and / or planned DEPARTMENT projects that may affect this Project. The DEPARTMENT and CONSULTANT shall coordinate with local governmental entities to ensure Project concepts are compatible with local improvements and right of way activities. The CONSULTANT will inform the DEPARTMENT Project Manager of all coordination activities with other agencies or entities prior to holding such activities. The DEPARTMENT Project Manager shall be included in all such coordination activities.

The CONSULTANT shall coordinate with the following pertinent projects and studies:

- Golden Glade Interchange Enhancement Project (Design - underway), encompasses SR 826/Palmetto Expressway from NW 27th Avenue to the Golden Glades Interchange, and I-95 from SR 916/NW 135 Street/Opa-Locka Boulevard to Florida's Turnpike Spur, (FM #s 428358-

1-52-01, 428358-4-52-01 & 428358-8-52-01, 437053-1-52-01, 437053-2-52-01, 437053-3-52-01, 437053-4-52-01 & 437053-5-52-01)

- 410646-5: Add and Reconstruct Lanes, SR 934/NW 79th Street from West of I-95 (13th Court) to end of SR 934 Preliminary Engineering
- 410646-6: Road Reconstruction, SR 934/NW 81st /82nd Street from West of I-95 (13th Court) to end of SR 934 Preliminary Engineering
- 439981-1: Resurfacing, SR 924/NW 119 Street/Gratigny Road from West of NW 27th Avenue to West of NW 7th Avenue Construction
- MDX 92407: SR 924/Gratigny Parkway East Extension PD&E Study
- 410646-7: Safety Project, SR 934/NW 79th Street from NW 27th Avenue to NW 1st Place Preliminary Engineering
- 448829-1: Lighting Improvements, SR 5 and SR 924 at Various Locations, Preliminary Engineering and Construction
- 446947-1: I-95 Wrong Way Driving Initiative, Preliminary Engineering and Construction

2.4 Contract Management

The CONSULTANT is responsible for maintaining Project files, including copies of submittals and underlying data, calculations, information and supporting project documentation. The CONSULTANT is responsible for preparing monthly progress reports and schedule updates. Progress reports will be delivered to the DEPARTMENT in a format prescribed by the DEPARTMENT Project Manager with the corresponding invoice.

The CONSULTANT will regularly communicate the status of the project with the DEPARTMENT while managing subconsultant efforts and executing subconsultants agreements.

2.5 Additional Services

The CONSULTANT will be requested to provide the following additional services for this Project.

2.5.1 Alternative Corridor Evaluation (Not applicable)

2.5.2 Advance Notification (Not applicable)

2.5.3 Scoping (Not applicable)

2.5.4 Notice of Intent (Not applicable)

2.5.5 Transit Coordination Plan (Not applicable)

2.5.6 Miscellaneous Services (Not applicable)

2.6 Services to be Performed by the Department

The DEPARTMENT will provide the following services and materials:

- Lead and participate in coordination efforts with the Public Transit Office, Office of Environmental Management, environmental resource and regulatory agencies, the public, and other stakeholders, as appropriate.
- Provide project data currently on file and available from study partners, such as:
- Planned new development or redevelopment including Developments of Regional Impact (DRIs) data, Community Reinvestment Act (CRA) plans, streetscape, landscape, road diet, or context sensitive design efforts;
- ACER, planning studies, environmental evaluations;
- Efficient Transportation Decision Making (ETDM) Programming Summary Report
- Recently completed roadway studies for the study area including PD&E studies, access management, intersection plans, design files, and capacity improvements;
- Multimodal or small area studies including freight, interchange, intersection, transit, pedestrian, bicycle, land use and signal priority;
- Transportation Management Plan;

- Traffic analyses for the study area/corridors;
- Previously conducted transit vision plans, transit feasibility studies, comprehensive operations analyses, transit development plans, etc.;
- All information in the possession of the DEPARTMENT pertaining to prior and on-going studies that may affect the project such as existing construction and as-built plans, bridge inspection reports and load ratings, prior environmental studies, existing permit information, existing drainage and geotechnical reports and any agreements with third parties related to the Project corridor;
- All available information in the possession of the DEPARTMENT pertaining to utility companies whose facilities may be affected by the proposed construction;
- All future information that is in possession or may become available to the DEPARTMENT pertaining to subdivision plans, so that the CONSULTANT may take advantage of additional areas that can be utilized as part of the existing right of way;
- Advance Notification and all environmental and engineering documents including the Permit Coordination Packages;
- Coordination with the State Historic Preservation Officer;
- Existing FDOT right of way maps and information on existing surplus right of way under ownership by the DEPARTMENT or participating local agency (counties and cities partnering with FDOT for the PD&E Study);
- Existing Horizontal Network Control;
- FDOT crash data;
- Available traffic and planning data;
- Proposed right of way cost data;
- Construction cost database, as applicable;
- Project Electronic File Root Directory Structure for delivery of project design files to the DEPARTMENT;
- All applicable DEPARTMENT agreements with Utility Agency Owners;
- Letters of authorization designating the CONSULTANT as an agent of the DEPARTMENT to enter lands, waters, and premises of another in the performance of duties in accordance with Section 337.274, F.S.;
- Reviews of technical reports and Environmental Documents.

2.7 Optional Services

At the DEPARTMENT'S option, the CONSULTANT may be requested to provide professional services not explicitly outlined in this Exhibit. These services may include but not limited to re-evaluation of previous PD&E Studies, environmental analysis not specifically listed in this Scope of Services, final design services, expert witness services for right of way acquisition, additional design analysis, and design plan preparation for utilities review. CONSULTANT may also be requested to provide services for Request for Proposal (RFP) development for Design-Build Procurement and / or support the DEPARTMENT in the acquisition of a Design-Build contract. The fee for such services shall be negotiated in accordance with the terms detailed in **Exhibit B**, method of compensation, for a fair, competitive and reasonable cost, considering the scope and complexity of the project. A supplemental agreement for the optional services shall be executed in accordance with Section 2 of the Standard Professional Services Agreement Terms.

3.0 PUBLIC INVOLVEMENT

Public involvement includes communicating to and receiving input from all interested and affected persons, groups, business owners, and government organizations regarding the development of the Project. The CONSULTANT will coordinate and perform the appropriate level of public involvement for this Project as outlined in **Part 1, Chapter 11,** and **Part 2, Chapter 4** of the **PD&E Manual**, and the **FDOT Public Involvement Handbook**.

The CONSULTANT will provide the DEPARTMENT drafts of all public involvement materials (e.g., newsletters, property owner letters, advertisements, handouts, exhibits) associated with the following tasks for review and approval at least ***10*** business days prior to printing and / or distribution.

3.1 Public Involvement

3.1.1 Public Involvement Plan

The ***CONSULTANT*** is responsible for creating the PIP using existing work developed by the DEPARTMENT as a starting reference. The PIP must include a public involvement schedule and identify potentially affected stakeholders and communities in the vicinity of the project to establish the appropriate outreach methods. This includes consideration of the demographics of the Study Area and any reasonable accommodations including, but not limited to, disabled, transit-dependent, limited English proficient (LEP), elderly, low income, or minority. The CONSULTANT will review and attach the Sociocultural Data Report (SDR) to the PIP. A sample template for the PIP is located in **Part 1**, **Chapter 11** of the **PD&E Manual**. At a minimum, the PIP must include the following:

- Project background
- Project goals
- Identification of elected officials and agencies
- Identification of affected communities and stakeholders
- Identification of media (e.g., television, radio, newspaper) for news and/or advertisement
- Proposed involvement activities
- Anticipated schedule of involvement activities
- Methodology for collecting and responding to public comments

As part of the Project's PIP the CONSULTANT will develop public involvement materials using the DEPARTMENT's approved template and submit the information to be uploaded to the DEPARTMENT's project website. The website will be created and maintained by the DEPARTMENT. The CONSULTANT will provide content using the standard DEPARTMENT website template. The website must meet FDOT requirements.

In addition, the CONSULTANT will develop virtual rooms in support of the 3 major meetings which shall be accessed through the project website.

3.1.2 Public Involvement Data Collection

The CONSULTANT will assist the DEPARTMENT with collecting data specific to the public involvement process and preparing responses to any public inquiries received throughout the Project**.** The CONSULTANT will maintain and regularly update both an electronic and paper public involvement project file, which will document a record of all public involvement activities for this project.

The CONSULTANT is responsible for identifying and maintaining the Project mailing list that may include, officials and interested parties (any person or institution expressing an interest in the project), affected parties, and potential permit and review agencies.

The CONSULTANT will work with the DEPARTMENT to generate or obtain mailing labels of property owners using the ETDM Environmental Screening Tool (EST) or the County Property Appraisers' Offices.

The CONSULTANT will investigate potential meeting locations to advise the DEPARTMENT of their suitability. The DEPARTMENT will ultimately approve the meeting location. The CONSULTANT will pay all costs for the meeting location, rental and insurance (if required). The CONSULTANT will be responsible for logistics associated with setting up the meeting.

3.2 Scheduled Public Meetings

The CONSULTANT will actively support the DEPARTMENT in conducting various public meetings, which may be conducted during weekends or after normal working hours. The CONSULTANT will support the DEPARTMENT in preparation, scheduling, attendance, note taking, documentation, and follow-up services for each meeting, which may include:

- 1 Public Kick-off Meeting (hybrid format, one virtual meeting, and in-person meeting at two physical locations on different days)
- 10 total presentations to Miami-Dade TPO Board and advisory committees, before the Alternatives Public Information Meeting and the Public Hearing. Advisory committees include Miami-Dade TPO Board, Citizens Transportation Advisory Committee (CTAC), Bicycle and Pedestrian Advisory Committee (BPAC), Freight Transportation Advisory Committee (FTAC) and Transportation Aesthetics Review Committee (TARC).
- 10 total presentations with municipalities before the Alternatives Public Information Meeting and the Public Hearing, including the Village of Miami Shores, Village of El Portal, City North Miami, City of Miami, and Miami-Dade BCC
- 1 Public Information Meeting (hybrid format, one virtual meeting, and in-person meeting at two physical locations on different days)
- 3 Project Advisory Team Meetings (kick-off meeting, review meeting of alternatives before the Alternatives Public Information Meeting, project summary meeting before Public Hearing
- 14 Other Public and Agency Meetings (miscellaneous meetings)

For any of the listed meetings, the CONSULTANT will prepare and/or be responsible for the following:

- Agenda
- Presentation scripts
- Handouts
- Graphics for presentation
- Meeting equipment set-up and tear-down
- Display advertisements (the CONSULTANT will pay the cost of publishing)
- Letters for notification of elected and appointed officials, property owners, and other interested parties (the CONSULTANT will pay the cost of first-class postage)
- News releases or project fact sheets. The DEPARTMENT must review new releases and fact sheets at least two (2) weeks before the meeting or mail out
- Meeting summaries provided to the DEPARTMENT no later than five (5) business days after the meeting
- Preparation of response letters for DEPARTMENT signature on public comments

Any materials prepared by the CONSULTANT for such meetings as listed above are subject to review and approval by the DEPARTMENT. The CONSULTANT shall provide the DEPARTMENT with a draft of any proposed materials at least two weeks prior to the meeting.

The CONSULTANT will assist the DEPARTMENT when facilitating the public information meeting / workshop to present Project results and obtain comments related to the Project and / or Project alternatives.

The meeting format will be developed by the CONSULTANT and approved by the DEPARTMENT upon review. The CONSULTANT will participate in briefing and debriefing meetings with the DEPARTMENT staff related to the public meeting.

The CONSULTANT will attend the meetings with a suitable number of personnel with appropriate technical expertise (based on project issues), as authorized by the DEPARTMENT Project Manager, to assist the DEPARTMENT in such meetings.

The DEPARTMENT may request the CONSULTANT to identify the effect of the Project to individual properties on aerial maps or plans in response to requests from property owners. The DEPARTMENT may also request the CONSULTANT to meet with individual property owners.

3.3 Public Hearing

The CONSULTANT will actively support the DEPARTMENT in conducting the public hearing which will be conducted in a hybrid format, virtual and in-person.

The CONSULTANT will send notifications to the Lead Agency, local governments, and regulatory agencies at least 25 but no more than 30 calendar days prior to the public hearing date.

The CONSULTANT will prepare the public hearing notifications on the DEPARTMENT's letterhead for DEPARTMENT review and signature 15 days prior to mailing or as directed by the DEPARTMENT. The CONSULTANT will first prepare an initial sample draft notification for review and approval by the DEPARTMENT prior to submitting all notifications for review.

Notifications to elected officials will be signed by the District Secretary. All other notifications may be signed by the DEPARTMENT Project Manager. The notification letters must have the DEPARTMENT'S return mailing address. After the DEPARTMENT signs the notifications, the CONSULTANT will send them by First Class US Mail. The DEPARTMENT Project Manager will also send the notification letters by email.

The CONSULTANT will prepare the public hearing notifications to property owners on the DEPARTMENT's letterhead for DEPARTMENT review and signature 15 days prior to mailing or as directed by the DEPARTMENT. After the DEPARTMENT Project Manager signs the letters, the CONSULTANT will send them by First Class US Mail. The CONSULTANT will obtain a list of names and addresses of property owners from the Environmental Screening Tool (EST) and/or Property Appraisers' Offices. The letters must have the DEPARTMENT's return address. The CONSULTANT will send notification letters to property owners at least 17 to 24 calendar days prior to the public hearing.

The CONSULTANT will provide the following:

- Public Hearing Notice and publication in the Florida Administrative Register (FAR)
- Notification on the Department's Public Notice webpages through the District Public Information Officer (PIO)
- Identification of the website(s) and/or locations where the technical reports and Environmental Documents will be available for public view
- Presentation with script
- Proposed typical sections and aerials depicting alternative corridors and alternative alignments, as specified by the DEPARTMENT
- Hard copies of technical reports and Environmental Documents
- Meeting location signs
- Brochures or handouts

- Title VI compliance signs
- NEPA Assignment compliance signs
- Security (off-duty law enforcement), if needed
- Display advertisements; any press releases and / or advertisements will indicate that the meeting is a DEPARTMENT activity; the CONSULTANT will pay the cost of publishing
- Expenses associated with arranging for a court reporter to be present and obtaining transcripts of comments made during the Public Hearing
- Response to public comments

The CONSULTANT will participate in briefing and debriefing meetings with the DEPARTMENT related to the Public Hearing. The CONSULTANT will prepare response letters for DEPARTMENT signature for all public comments. Any such response letters would need to be reviewed and approved by the DEPARTMENT Project Manager.

3.4 Comments and Coordination Report

The CONSULTANT will prepare Comments and Coordination Report containing transcript, errata, and signed certification, as well as documentation for all public involvement activities conducted throughout the project in accordance with **Part 1, Chapter 11** of the **PD&E Manual**.

3.5 Notification of Approved Environmental Document

The CONSULTANT shall prepare a display advertisement for the notification of the Approved Environmental Document. The CONSULTANT will pay for the cost of publishing. The DEPARTMENT must review and approve the notice prior to publication.

3.6 Additional Public Involvement Requirements

The DEPARTMENT will identify and list any special or additional public involvement requirements.

- General Public Correspondence
- Newsletters, Fact Sheet, Preparation/Distribution
- Frequently Asked Questions (FAQs)
- Videos, Rendering, Fly-Through, 3-Dimensional Visualization

4.0 ENGINEERING ANALYSIS AND CONSIDERATIONS

CONSULTANT activities to conduct and prepare engineering analyses and reports shall be done under the direction of the DEPARTMENT Project Manager. The CONSULTANT shall perform engineering activities essential to developing Project alternatives as outlined in **Part 2, Chapter 3** of the **PD&E Manual** and as specified in this section. The CONSULTANT will gather and review existing data from the DEPARTMENT, such as transportation planning data developed for long range plans or any previously completed technical studies within the project area. The CONSULTANT will collect additional data necessary to supplement existing data. The CONSULTANT will use data to evaluate the Location and Design Concept for this project.

The CONSULTANT will verify the purpose and need statement for the Project based on the information obtained from the existing data, safety analysis, evaluation of existing conditions, evaluation of traffic projections, input received through the public involvement process and from the Programming Screen Summary Report.

The CONSULTANT shall develop and analyze conceptual design alternatives to address the Project needs and objectives. Development of the conceptual design alternatives will follow Context Sensitive Solution and Complete Streets approaches. Based on engineering analysis, the public involvement

process, and environmental analysis, the DEPARTMENT will recommend a proposed design concept to advance to the design phase.

4.1 Review of Previous Studies

The CONSULTANT shall review and summarize previously completed (or concurrent) planning studies and other studies that are related to this Project and appropriately incorporate their results in the analysis of the Project as described in the **PD&E Manual**. The following studies were conducted for this Project:

- Interstate 95 Corridor Planning Study, US 1/SR 5 to Broward County Line, July 2019 (FM # 414964-6-22-01)

4.2 Existing Conditions Analysis

The CONSULTANT will conduct field observations to review existing field conditions, verify desktop data, and obtain additional data required to understand the Project area, assess Project needs, identify physical and environmental constraints, develop and analyze Project alternatives, and assess constructability issues.

The CONSULTANT will collect data describing existing conditions and characteristics of the Project including roadway geometrics, typical section elements, signalization and other operational features, access features, right of way requirements, and other data applicable to modes and sub-modes of transportation, including walking/pedestrians, bicyclists, public transit users (including transit vehicles and riders), paratransit users (carpools, vanpools, taxis, shuttles, jitneys, school buses, coach buses), and freight (including loading/unloading and parking, emergency response vehicles, service vehicles, and freight handler vehicles).

The CONSULTANT will analyze existing conditions to identify and verify current transportation deficiencies as they relate to the needs and objectives of this Project.

The Consultant will furnish necessary exhibits for use in this Project, such as a Project Location Map, Corridor Maps, and Concept Plans.

4.3 Survey

The DEPARTMENT will provide topographic survey and existing project controls such as benchmarks and reference points for Project baseline of survey. The CONSULTANT will review survey data for completeness and coordinate with the DEPARTMENT Project Manager if additional design survey is needed.

The CONSULTANT will coordinate with the DEPARTMENT Project Manager and Surveying and Mapping Office staff regarding Project survey requirements, review of existing survey data, and scheduling of additional survey efforts. The CONSULTANT will request existing project control, benchmarks and reference points for the Project baseline from the DEPARTMENT's Surveying and Mapping Office. The CONSULTANT will also collect elevation data required to perform the noise study for this Project.

4.3.1 Survey Design

The DEPARTMENT will provide topographic survey and existing project controls such as benchmarks and reference points for Project baseline of survey. The CONSULTANT will review survey data for completeness and coordinate with the DEPARTMENT Project Manager if additional design survey is needed.

4.3.2 Photogrammetry (Not applicable)

The CONSULTANT will conduct design photogrammetric services for this project. All surveying and mapping activities will be done in accordance with the Surveying and Mapping Procedure 550-030-101 and the Surveying and Mapping Handbook.

The CONSULTANT will coordinate with the DEPARTMENT Project Manager and Surveying and Mapping Office staff regarding Project survey requirements, review of existing survey data, and

scheduling of additional survey efforts. The CONSULTANT will request existing project control, benchmarks and reference points for the Project baseline from the DEPARTMENT's Surveying and Mapping Office. The CONSULTANT will also collect elevation data required to perform the noise study for this Project.

4.4 Geotechnical Investigation

The CONSULTANT shall coordinate with the DEPARTMENT's geotechnical staff regarding Project requirements, review of existing geotechnical data, and need for additional data. The CONSULTANT will review the US Department of Agriculture soil data, Geological Survey, and Natural Resource Conservation Service (NCRS) maps, US Coast and Geodetic Survey (USGS) maps, and summarize the findings.

The CONSULTANT will perform a review of previously completed geotechnical surveys and compile available boring data from previous projects within the project limits. The CONSULTANT will perform field reconnaissance of the Project area to determine conditions that may affect development of Project alternatives. The CONSULTANT will prepare a Geotechnical Technical Memorandum summarizing the geotechnical investigation that will be used to facilitate the data for final design.

4.5 Traffic Analysis

The CONSULTANT will review existing traffic data from planning studies to carry out traffic analysis for this Project and determine whether additional data may be needed. The CONSULTANT must collect additional data for the Study Area if data gaps are identified and if the data is outdated. The CONSULTANT will review all relevant recent Traffic Reports and Planning studies including the following:

- Interstate 95 Corridor Planning Study, US 1/SR 5 to Broward County Line, July 2019 (FM # 414964-6-22-01)

4.5.1 Traffic Analysis Methodology

The CONSULTANT will perform traffic analysis in accordance with guidance from the **PD&E Manual, Traffic Analysis Handbook**, and **Project Traffic Forecasting Handbook**. The CONSULTANT will prepare a forecast and analysis methodology which must be agreed upon by the DEPARTMENT prior to beginning any analysis. The methodology must state the type of documentation, Project Study Area to be analyzed, and method and assumptions that will be used to analyze existing and future traffic conditions. The development of future forecast data must use the currently adopted version of the Transportation Planning Organization (TPO) Long Range Transportation Plan (LRTP) travel demand model: ***Southeast Florida Regional Planning Model Version 8.0***, if available. If the TPO does not use the regional travel demand model, then a rationale must be provided, and future travel data will be developed in accordance with guidance from **Chapter 4 of the Project Traffic Forecasting Handbook**. Otherwise, the CONSULTANT will validate the travel demand model at a subarea level.

Capacity analysis will be based on the latest Highway Capacity Manual procedures. Use of micro- simulation traffic analysis software such as CORSIM, VISSIM, or AIMSUM **is** anticipated for this Project. Calibration and validation are required when a microscopic simulation approach is used. Data should be gathered in accordance with the **Traffic Analysis Handbook**.

Traffic analysis methodology will include an approach or procedure to evaluate safety performance of the project alternatives.

All traffic analysis documentation must be written in plain language and in a format that can be easily followed. The CONSULTANT must submit all traffic analysis files for assumptions, inputs, outputs, network data, calculations, and results to the DEPARTMENT.

4.5.2 Traffic Counts

The CONSULTANT will provide the following traffic data.

- Current corridor traffic counts
- 72-hour traffic machine counts (approach volumes and departure volumes at 15-minute increments) at the following intersections/ramp locations:
    - NW 62nd Street and US 441/NW 7th Avenue intersection
    - NW 62nd Street and I-95 ramp terminal/frontage road intersections
    - NW 69th Street and I-95 ramp terminal intersections
    - NW 79th Street and US 441/NW 7th Avenue intersection
    - NW 79th Street and I-95 ramp terminal/frontage road intersections
    - NW 81st Street and US 441/NW 7th Avenue intersection
    - NW 81st Street and I-95 ramp terminal/frontage road intersections
    - NW 95th Street and US 441/NW 7th Avenue intersection
    - NW 95th Street and I-95 ramp terminal/frontage road intersections
    - NW 103rd Street and US 441/NW 7th Avenue intersection
    - NW 103rd Street and I-95 ramp terminal/frontage road intersections
    - NW 103rd Street and NW 5th Avenue intersection
    - NW 119th Street and US 441/NW 7th Avenue intersection
    - NW 119th Street and I-95 ramp terminal/frontage road intersections
    - NW 119th Street and NW 5th Avenue intersection
    - NW 125th Street and US 441/NW 7th Avenue intersection
    - NW 125th Street and I-95 ramp terminal/frontage road intersections
    - NW 135th Street and US 441/NW 7th Avenue intersection
    - NW 135th Street and I-95 ramp terminal/frontage road intersections
    - Opa-locka Boulevard and US 441/NW 7th Avenue intersection
    - Opa-locka Boulevard and I-95 ramp terminal/frontage road intersections
    - NW 151st Street and US 441/NW 7th Avenue intersection
    - NW 151st Street and I-95 ramp terminal/frontage road intersections
    - I-95 NB off-ramp to NW 62nd Street
    - I-95 NB on-ramp from NW 62nd Street
    - I-95 SB on-ramp from NW 62nd Street
    - I-95 NB on-ramp from NW 69th Street
    - I-95 SB off-ramp to NW 69th Street
    - I-95 NB off-ramp to NW 79th/81st Street
    - I-95 NB on-ramp from NW 79th/81st Street
    - I-95 SB off-ramp to NW 79th/81st Street
    - I-95 SB on-ramp from NW 79th/81st Street

- I-95 NB off-ramp to NW 95th Street
- I-95 NB on-ramp from NW 95th Street
- I-95 NB off-ramp to NW 103rd Street
- I-95 NB off-ramp to NW 119th Street
- I-95 NB off-ramp to NW 125th Street
- I-95 NB on-ramp from NW 125th Street
- I-95 NB off-ramp to NW 135th Street/Opa-Locka Boulevard
- I-95 NB on-ramp from NW 135th Street/Opa-Locka Boulevard
- I-95 SB off-ramp to NW 135th Street/Opa-Locka Boulevard
- I-95 on/off-ramps to/from I-195

- 4-hour vehicle turning movement counts for peak hours at the following intersections:
  - I-95 on/off-ramps to/from I-195
  - NW 62nd Street at US 441/NW 7th Avenue
  - NW 62nd Street at I-95 SB frontage road
  - NW 62nd Street at I-95 NB frontage road
  - NW 69th Street at I-95 SB off-ramp terminal
  - NW 69th Street at I-95 NB on-ramp terminal
  - NW 79th Street at US 441/NW 7th Avenue
  - NW 79th Street at NW 6th Court
  - NW 79th Street at NW 6th Ave
  - NW 81st Street at US 441/NW 7th Avenue
  - NW 81st Street at NW 6th Court
  - NW 81st Street at NW 6th Avenue
  - NW 95th Street at US 441/NW 7th Avenue
  - NW 95th Street at I-95 SB ramp terminal
  - NW 95th Street at NW 6th Avenue
  - NW 103rd Street at US 441/NW 7th Avenue
  - NW 103rd Street at I-95 SB ramp terminal
  - NW 103rd Street at I-95 NB ramp terminal/NW 6th Avenue
  - NW 103rd Street at NW 5th Avenue
  - NW 119th Street at US 441/NW 7th Avenue
  - NW 119th Street at I-95 SB ramp terminal
  - NW 119th Street at NW 6th Avenue
  - NW 119th Street at NW 5th Avenue
  - NW 125th Street at US 441/NW 7th Avenue
  - NW 125th Street at I-95 SB ramp terminal

- NW 125th Street at NW 6th Avenue
- NW 135th Street at US 441/NW 7th Avenue
- NW 135th Street at NW 6th Court
- NW 135th Street at NW 6th Avenue
- Opa-locka Boulevard at US 441/NW 7th Avenue
- Opa-locka Boulevard at NW 6th Court
- Opa-locka Boulevard at NW 6th Avenue
- NW 151st Street and US 441/NW 7th Avenue
- NW 151st Street and I-95 SB ramp terminal

- Traffic counts as necessary for the microsimulation effort
- Travel patterns and origin-destination data

4.5.3 Vehicle Classification Counts on Roadway Segments and Ramps

The CONSULTANT will collect the following existing classification data.

- Current corridor traffic counts
- 72-hour bi-directional traffic counts at the following locations:
  - I-95 Mainline: Express lanes and general-purpose lanes
    - South of SR 112 Interchange
    - Between SR 112 Interchange and NW 62nd Street Interchange
    - Between NW 62nd Street Interchange and NW 69th Street Interchange
    - Between NW 69th Street Interchange and NW 79th/81st Street Interchange
    - Between NW 79th/81st Street Interchange and NW 95th Street Interchange
    - Between NW 95th Street Interchange and NW 103rd Street Interchange
    - Between NW 103rd Street Interchange and NW 119th Street Interchange
    - Between NW 119th Street Interchange and NW 125th Stret Interchange
    - Between NW 125th Street Interchange and NW 135th Street/Opa-Locka Boulevard Interchange
    - Between NW 135th Street/Opa-Locka Boulevard Interchange and NW 151st Street Interchange
    - North of NW 115th Street Interchange
  - NW 62nd Street west of US 441/NW 7th Avenue and east of I-95 NB frontage road
  - NW 79th Street west of US 441/NW 7th Avenue and east of NW 6th Avenue
  - NW 81st Street west of US 441/NW 7th Avenue and east of NW 6th Avenue
  - NW 95th Street west of US 441/NW 7th Avenue and east of NW 6th Avenue
  - NW 103rd Street west of US 441/NW 7th Avenue and east of NW 5th Avenue
  - NW 119th Street west of US 441/NW 7th Avenue and east of NW 5th Avenue
  - NW 125th Street west of US 441/NW 7th Avenue and east of NW 6th Avenue

- NW 135th Street west of US 441/NW 7th Avenue and east of NW 6th Avenue
- Opa-locka Boulevard west of US 441/NW 7th Avenue and east of NW 6th Avenue
- US 441/NW 7th Avenue:
  - South of NW 62nd Street
  - Between NW 62nd Street and NW 79th Street
  - Between NW 81st Street and NW 95th Street
  - Between NW 95th Street and NW 103rd Street
  - Between NW 103rd Street and NW 119th Street
  - Between NW 119th Street and NW 125th Street
  - Between NW 125th Street and 135th Street
  - North of Opa-Locka Boulevard

4.5.4 Pedestrian, Bicycle and Other Multimodal Data

The CONSULTANT will collect the following additional existing traffic data.

- Pedestrian counts
- Bicycle counts
- Travel patterns or origin-destination (OD) survey
- Transit data
- Freight movement

4.5.5 Calibration and Validation Data

The CONSULTANT will collect calibration and validation data for the Project analysis in accordance with the **PD&E Manual** and the **Traffic Analysis Handbook.**

4.5.6 Existing Traffic Operational Analysis

The CONSULTANT will conduct existing (base year) traffic operational analysis and report the operational performance measures as agreed upon in the analysis methodology. The analysis must include bicycle, pedestrian, and transit (if applicable) operations. The manual count data will be used to obtain the existing design hourly volumes using historical and seasonal adjustments as appropriate. All existing design hourly volumes must be balanced before being used in the analysis. Oversaturated conditions and locations with complex geometry or operations might require microsimulation.

4.5.7 Calibration and Validation

The CONSULTANT will calibrate and validate the microsimulation model using data and methodology as agreed upon in the analysis methodology.

4.5.8 Future Demand Forecasting

No-Build Volumes: The CONSULTANT will develop opening year and design year design hourly volumes for the No-Build Alternative in accordance with the **Project Traffic Forecasting Procedure, Topic No. 525-030-120**. The need for interim year analysis will be determined in the traffic analysis methodology.

Build Alternatives Volumes: The CONSULTANT will develop opening year and design year design hour volumes only for viable or feasible Build Alternatives. The CONSULTANT must make sure the future year turning movement volumes are reasonably balanced at each intersection.

4.5.9 No-Build Analysis

The CONSULTANT will analyze the operational performance of the No-Build Alternative for the analysis years to identify deficiencies related to the purpose and need for the project. The CONSULTANT will evaluate the operational effectiveness of the No-Build Alternative using agreed upon performance measures of effectiveness (MOEs). The analysis should include multimodal evaluation for pedestrian, bicycle, freight, and transit modes, as appropriate.

4.5.10 Development and Screening of Alternatives

The CONSULTANT will identify, develop, assess, and screen preliminary potential Project alternatives that would meet the purpose and need for this Project in accordance with **Part 2, Chapter 3** of the **PD&E Manual**. Development of alternatives will consider previously completed planning products.

By considering project goals and objectives, purpose and need, and results of ETDM Programming screen event, the CONSULTANT in consultation with the DEPARTMENT will identify and document alternatives to be eliminated from further detailed study. Only viable or feasible alternatives should be carried forward for detailed study.

4.5.11 Operational Evaluation of Build Alternatives

The CONSULTANT will analyze the operational performance of viable or feasible alternative(s) for opening and design years and any interim years as appropriate. The analysis must include multimodal evaluation for pedestrian, bicycle, and transit modes as appropriate. The analysis will also include evaluation of access management in relation to traffic safety and operational efficiency within the Study Area. The CONSULTANT will evaluate the operational effectiveness of Build Alternatives using agreed upon performance MOEs.

4.5.12 Project Traffic Analysis Report

The CONSULTANT will prepare a Project Traffic Analysis Report. This report will document the methodology used in developing the traffic demand and multi-modal splits. The report shall also identify the design traffic volumes for each build alternative, which shall include combinations with other modes of transportation. The PTAR may also serve as the Interchange Modification Report if agreed by FDOT Project Manager and the District Interchange Review Committee (DIRC). The Consultant shall initiate the coordination with FDOT Project Manager and the DIRC early in the process to avoid impacting the schedule of the project. If not, the CONSULTANT shall prepare a standalone interchange modification report as discussed in the section below.

4.5.13 Interchange Access Request

The CONSULTANT will prepare an interstate access request to modify the following interchanges in accordance with the Interchange Access Request User's Guide.

- I-95 at NW 62nd Street
- I-95 at NW 69th Street
- I-95 at NW 79th/81st Street
- I-95 at 95th Street
- I-95 at 103rd Street
- I-95 at 119th Street
- I-95 at 125th Street
- I-95 at 135th Street/Opa-Locka Boulevard

The CONSULTANT will include the results of the System Interchange modification Report (SIMR) to the engineering analysis according to Part 1, Chapter 4 and Part 2, Chapter 3 of the PD&E Manual.

4.5.14 Traffic Data for Noise Study

The CONSULTANT will provide traffic data required for the noise study and will include the following data for each road segment (i.e., intersection to intersection), ramps, cross streets, and frontage roads, for the existing year, opening year, and the design year for Build and No-Build alternatives:

- LOS C directional hourly volumes
- Demand peak hourly volumes (peak and off-peak directions)
- Existing and proposed posted speed
- Percentage of heavy trucks (HT) in the design hour
- Percentage of medium trucks (MT) in the design hour
- Percentage of buses in the design hour
- Percentage of motorcycles (MC) in the design hour

4.5.15 Traffic Data for Air Quality Analysis

The CONSULTANT will collect traffic data required for the air quality analysis which will include the following:

- Intersection type and approach speed
- Intersections – peak hour volumes for each approach
- Interchanges - peak hour volumes for each ramp (on or off) regardless of percent turning volumes

4.5.16 Signalization Analysis

The CONSULTANT shall perform an Intersection Control Evaluation for the 8 interchange locations as required by the ICE handbook: “For service interchanges, an ICE is recommended for ramp terminal intersections. For example, if a diamond form is selected, an ICE may be used to consider and recommend a control strategy at the ramp terminal intersections, with options including stop control, signalized, or yield (roundabouts)”.

4.6 Signage

The CONSULTANT will evaluate existing signing and signage requirements for the project. The CONSULTANT will prepare a conceptual signing plan for this project.

4.7 Tolling Concepts (Not applicable)

The CONSULTANT shall coordinate tolling issues and concepts with the Department Traffic Ops.

4.8 Safety

4.8.1 Crash Data

The CONSULTANT will obtain the most recent five (5) years of available data from the DEPARTMENT's crash database and other local sources for this Project. The crash data will include the number and type of crashes, crash locations, number of fatalities and injuries, and estimates of property damage and economic loss.

4.8.2 Safety Analysis

The CONSULTANT will perform safety analysis in accordance with **Part 1, Chapter 2** of the **PD&E Manual**. Based on the information obtained from the crash data, the CONSULTANT will identify project safety needs associated with the existing and future conditions. The

CONSULTANT will use the Highway Safety Manual (HSM) procedures to estimate the safety performance of the Project alternatives as agreed upon in the Traffic Analysis Methodology.

4.8.3 Documentation of Safety Analysis

The CONSULTANT will document the results of the safety analysis in the PTAR or a standalone Safety Analysis Memorandum.

4.9 Utilities and Railroad

The CONSULTANT will obtain information regarding utilities and railroad in accordance with **Part 2, Chapter 21** of the **PD&E Manual**.

4.9.1 Utilities

Prior to starting utility coordination, the CONSULTANT and the DEPARTMENT Project Manager shall meet with the District Utility Office (DUO) for guidance to ensure that all necessary utility coordination will be accomplished in accordance with DEPARTMENT procedures.

It is anticipated that the following Utility Agency Owners (UAOs) are within or adjacent to the Project, but it is the responsibility of the CONSULTANT to determine the final list of UAOs within the project area:

- AT&T
- Comcast Cable
- City of North Miami
- Dade County Public Works and Traffic
- Florida Power & Light-Dade
- Florida Power & Light- Transmission
- Hotwire Communications
- Sice, Inc.
- Centurylink
- MCI
- Miami-Dade Water & Sewer
- City of North Miami Beach
- Crown Castle NG
- Teco Peoples Gas South Florida
- AT&T/Distribution

The CONSULTANT will prepare a Utility Assessment Package. The Utility Assessment Package must contain items specified in **Part 2, Chapter 21** of the **PD&E Manual**. The CONSULTANT will provide a PD&E Request Package to the District Utility Office.

The CONSULTANT will notify the UAOs within the Project and request existing and planned utility information for major above ground and subsurface facilities within the Project.

The CONSULTANT, DEPARTMENT Project Manager and DUO will meet with each UAO as necessary, separately or together, to understand utility conflicts and project potential impacts on utilities. The CONSULTANT will evaluate and consider potentially significant utility conflicts as they may affect the chosen corridor and/or alignment. While evaluating potential impacts and recommending mitigation strategies, the CONSULTANT should refrain from making any compensability determinations in any of the documentation/assessments that they create.

4.9.2 Railroads

The DEPARTMENT Project Manager will initiate coordination with the District Railroad Coordinator (DRC). The DEPARTMENT will coordinate with the Railroad Company and local

government regarding highway-railroad grade crossing in accordance with **Part 2, Chapter 21** of the **PD&E Manual**.

The CONSULTANT will address impacts to existing and proposed railroad crossings.

The CONSULTANT will analyze elevated crossings to determine clearance envelopes and intersection constraints. The CONSULTANT will develop generic roadway and transit railroad crossings appropriate for the Project.

4.10 Roadway Analysis

4.10.1 Design Controls and Criteria

The CONSULTANT will prepare design controls and criteria for developing Project alternatives and designing initial geometrics and other roadway elements according to the DEPARTMENT standards.

4.10.2 Typical Section Analysis

The CONSULTANT will develop conceptual typical sections for the Project alternatives which address transportation needs and context. Development of typical sections must consider Context Sensitive Solutions and Complete Streets approaches and the needs of all Project users.

4.10.3 Geometric Design

The CONSULTANT will perform geometric design using the established Project design controls and criteria. The CONSULTANT will also use Project traffic data and results of traffic analysis to design appropriate roadway elements. The CONSULTANT will establish both preliminary vertical profile and horizontal alignments of the mainline. The design of Project alternatives must consider environmental constraints, physical constraints, Context Sensitive Solutions, Complete Streets, and any additional information, as required. See **Part 2, Chapter 3** of the **PD&E Manual** for more engineering and design considerations.

For each alternative evaluated in detail, the CONSULTANT shall prepare sketches of plan, profile, and typical sections as appropriate to show existing features, proposed geometry, and location of any environmental and geometric design constraints.

4.10.4 Intersections and Interchange Evaluation

The CONSULTANT will evaluate intersection alternatives based on FDOT's Manual on Intersection Control Evaluation (ICE) and required ICE processes will be followed during the PD&E study.

The CONSULTANT will propose appropriate intersection control based on the results of project traffic analysis to establish an overall intersection footprint at the following intersections:

- I-95/SR 9A and NW 62nd Street
- I-95/SR 9A and NW 79th / NW 81st Street
- I-95/SR 9A and NW 95th Street
- I-95/SR 9A and NW 103rd Street
- I-95/SR 9A and NW 119th Street
- I-95/SR 91 and NW 125th Street
- I-95/SR 91 and NW 135th Street / Opa-Locka Boulevard

The CONSULTANT will perform up to a level 2 roundabout evaluation in accordance with the **FDM**, Florida Intersection Design Guide, and **Part 2, Chapter 3** of the **PD&E Manual**. The roundabout evaluation must include evaluation of operation and geometrics with respect to safety, design year traffic, access management, physical and right of way constraints, design vehicle, posted speed limit and transit operations. Roundabout evaluation will be documented in the Roundabout Evaluation Technical Memorandum.

The CONSULTANT will develop intersection and interchange concepts/layouts based on the results of traffic operational analysis. The layouts will include turn lanes, ramp, auxiliary lanes, storage lengths, ramp terminals, ramp junctions, and other geometric details.

4.10.5 Access Management

The CONSULTANT will review the DEPARTMENT'S State Highway System Access Management Classification System and Standards and evaluate their application to the project. The CONSULTANT will recommend the proper access classification and standard to be applied to the Project.

The proposed access management plan will be presented as part of the public involvement process. If an Access Management Classification / Reclassification Public Hearing is required, it will be combined with the PD&E Study Public Hearing.

4.10.6 Multimodal Accommodations

The CONSULTANT will review, evaluate, and document the location and condition of existing pedestrian, bicycle, and public transit accommodations and freight services in the study area. This activity includes reviewing existing plans, reports, and studies that outline strategies or define projects associated with alternative modes of travel.

The CONSULTANT will consider freight, pedestrian, bicycle, and transit in the development and evaluation of Project alternatives commensurate with the context with a goal of improving overall mobility, access, connectivity, safety and efficiency. Multimodal accommodation may include analysis of on-street parking and loading zone modifications and/or removal, park and ride needs, as necessary. The CONSULTANT will consider and evaluate the existing and anticipated future use of the Project by bicyclists and pedestrians, the potential impacts of the Project alternatives on bicycle and pedestrian travel and propose measures to avoid or reduce adverse impacts to bicyclists and pedestrians that would use the Project.

The CONSULTANT will also consider supportive Transportation Demand Management and parking management strategies consistent with the transportation context and the needs of all users of the project. The CONSULTANT will assist the DEPARTMENT with coordination with local agencies, transit operators and Metropolitan Planning Organizations (MPOs) as appropriate.

4.10.7 Maintenance of Traffic

The CONSULTANT will evaluate alternatives for constructability and the ability to maintain traffic during construction according to **Part 2, Chapter 3** of the **PD&E Manual**. The CONSULTANT will include the estimated cost to maintain traffic in the construction cost estimate for the Project alternative.

4.10.8 Lighting

The CONSULTANT will evaluate the need for lighting in accordance with applicable manuals, guidelines, standards and current design memorandums. The CONSULTANT will include the estimated cost for lighting in the construction cost estimate for the Project alternative.

4.11 Identify Construction Segments (Not applicable)

4.12 Transportation Systems Management and Operations

CONSULTANT will study or investigate a broader range of systems as it relates to the PD&E study such as traffic signal system, communication system, travel time systems, Transit Signal Priority (TSP), Adaptive Traffic Control System (ATCS) and other systems referenced in the ITS Architecture. The CONSULTANT will use a Systems Engineering approach for determining the Transportation System Management and Operations (TSM&O) Systems and required systems engineering documents for the Project.

The CONSULTANT will develop a Preliminary Systems Engineering Management Plan (PSEMP) and a high-level Project ConOps according to **Part 2, Chapter 3** of the **PD&E Manual**. The ConOps must be reviewed by the District TSM&O engineer.

The CONSULTANT will evaluate the need for improvements, preservations, or modifications to the existing TSM&O system in relation to the alternatives being considered. This includes reviewing the existing as-built information provided by the DEPARTMENT, identifying impacts to the existing TSM&O infrastructure due to the other project work, identifying opportunities to preserve or enhance TSM&O infrastructure, and developing a high-level cost estimate for the changes necessary to the infrastructure in order to meet project TSM&O needs and goals. These items will be documented in the ConOps.

The CONSULTANT will identify the delivery method for both equipment and technology and prepare an implementation schedule that includes engineering, design, construction, and Project activation (testing and start-up).

The CONSULTANT will coordinate with both the District TSM&O Engineer and the County Traffic Engineer concerning existing and proposed Intelligent Transportation Systems (ITS) and Advanced Traffic Management System (ATMS) infrastructure. The CONSULTANT will consider the presence of the ITS infrastructure when analyzing the traffic for the corridor, as well as any proposed improvements that may impact the underground fiber optic cable infrastructure and associated roadside devices.

4.13 Structures

4.13.1 Existing Structures

The CONSULTANT will collect the existing structures data as identified in **Part 2, Chapter 3** of the **PD&E Manual**.

4.13.2 Structure Typical Sections

The CONSULTANT will develop typical sections options for the bridges. These will include the DEPARTMENT's standard typical sections, and any typical sections that may result in minimizing right of way and environmental impacts. Coordination with the District's Structures Design Engineer is required.

4.13.3 Structure Design Alternatives

The CONSULTANT will evaluate conceptual vertical and horizontal geometry and clearance requirements for the bridges. The CONSULTANT will document structural design calculations and design assumptions used in the analysis.

- *In addition to the FDM Bridge Analysis requirements the CONSULTANT will evaluate locations, bridge lengths, span arrangements, structural type, and costs. The CONSULTANT shall summarize all findings and recommendations in a Bridge Analysis Report. The CONSULTANT shall develop all appropriate structural typical section alternatives for the project. These will include the DEPARTMENT'S standard typical sections, and any typical sections that may result in minimizing right of way, environmental impacts and incorporating context sensitive solutions.*

4.14 Drainage

The CONSULTANT will perform Drainage analysis in accordance with **Part 2, Chapters 11 and 13** of the **PD&E Manual** and **Drainage Manual**. The CONSULTANT shall incorporate/consider the Contamination Screening Evaluation Report and any other related report findings into the Drainage Reports.

4.14.1 Floodplain and Environmental Permit Data Collection

The CONSULTANT will gather floodplain data from FEMA Flood Insurance Rate Maps, and other drainage related data needed to obtain permits from relevant sources including local government, local agencies, and regulatory agencies.

4.14.2 Drainage Analysis

The CONSULTANT will perform drainage analysis by delineating the basin boundaries by using LiDAR information, existing survey data, and field observations. The CONSULTANT will analyze and determine high water elevations in each basin and use the information to establish the preliminary roadway profile. Drainage analysis will also include checking the capacity and structural adequacy of existing cross drains, preliminary design of potential cross drain and outfall structures and identifying the recommended conceptual drainage design for the Project.

4.14.3 Floodplain Compensation Analysis

For each roadway alternative, the CONSULTANT will determine base floodplain elevations and estimate encroachments and appropriate compensation provisions, including incorporating floodplain compensation site requirements into the Pond Siting Report.

4.14.4 Stormwater Management Analysis

The CONSULTANT will calculate the stormwater quality and attenuation requirements and estimate the stormwater management facility needs for each roadway alternative.

The CONSULTANT will schedule an Environmental Look-Around (ELA) meeting (See **Part 2, Chapter 3 and 11 of the PD&E Manual**) with DEPARTMENT staff, regulatory agencies, local governments, and other stakeholders to discuss regional stormwater needs and design and permitting approaches that benefit the watershed as a whole. During the meeting, the CONSULTANT will document the meeting notes in the project file.

If the ELA reveals no regional pond sites within the Study Area, the CONSULTANT will identify practical pond sites in each basin for each project alternative, estimate construction cost, compare the sites, and identify (in coordination with the DEPARTMENT) a preferred pond site for each basin. Additionally, the CONSULTANT will identify inflow or outfall easement requirements for each pond site. If additional pond sites are revealed, they will be used as a potential option.

The CONSULTANT will prepare a Pond Siting Report or Conceptual Drainage Report in accordance with the **Drainage Manual** and the FDOT Drainage Design Guide.

4.14.5 Drainage Design (Not applicable)

4.14.6 Location Hydraulics Report

The CONSULTANT will prepare a Location Hydraulics Report for the project in accordance with **Part 2, Chapter 13** of the **PD&E Manual**.

4.14.7 Bridge Hydraulic Evaluation

The CONSULTANT will evaluate bridge hydraulics to determine the hydraulic length of the bridge or the length necessary to meet the hydraulic requirement and document in the Bridge Hydraulic report. The Consultant will coordinate with the District's Structures Design Engineer and District Drainage Engineer.

4.15 Landscaping Analysis

The CONSULTANT will research and collect data necessary to complete initial landscaping design and analysis of the preferred alternative. The research and data collection must include identification of opportunities and constraints of the proposed Project based on existing site conditions.

4.16 Construction and Right of Way Cost Estimates

4.16.1 Construction Cost Estimates

The CONSULTANT will develop construction cost estimates using the Department's Long Range Estimate (LRE) program. The CONSULTANT will be responsible for reviewing and updating the cost estimate when scope changes occur, at project milestones, and during the DEPARTMENT's annual Work Program update cycle. Construction costs must include traffic management and right of way costs.

4.16.2 Right of Way Cost Estimates

Based on typical section analysis and DEPARTMENT design standards, the CONSULTANT will establish construction limits and determine the minimum (proposed) right of way requirements throughout the limits of the Project. Establishment of construction limits will consider location drainage features, the transportation management plan, utility relocations, stormwater pond requirements, and identified environmental issues, among other factors.

The CONSULTANT will compare the existing right of way width with the proposed right of way requirements to estimate the amount of right of way that the DEPARTMENT must acquire.

The DEPARTMENT will estimate the cost for right of way acquisition, and cost estimates for relocations and business damages, if any. The CONSULTANT will submit concept plans for the Build Alternative that include the parcel identification number, existing right of way lines, proposed right of way lines and acreage of property required. Additionally, the CONSULTANT will provide a spreadsheet with the following parcel information: owner, address, acreage of parent parcel and required amount of property for the Project, estimated business damages and right of way property costs.

The DEPARTMENT's Right of Way Office staff and CONSULTANT will conduct an interactive field trip to review conditions in the corridor as they pertain to actual conditions that might impact the cost of right of way acquisition for the Project.

The CONSULTANT will jointly meet with the District Roadway Engineer, Traffic Operations staff, Right of Way Office staff, and DEPARTMENT's Office of General Counsel staff prior to the development of right of way cost estimates. The purpose of the meeting is to jointly review the proposed design parameters, the proposed alternative alignments to identify those alternatives for which right of way cost estimates will be developed by the DEPARTMENT. The goal is to evaluate the alternatives necessary to comply with PD&E requirements and to satisfy the evaluation needed for eminent domain considerations for each alternative.

The DEPARTMENT's Right of Way Office will estimate the cost for right of way acquisition, as well as cost estimates for relocations and business damages, if any.

4.17 Alternatives Evaluation

4.17.1 Comparative Alternatives Evaluation

The CONSULTANT will establish evaluation criteria at the beginning of the Project, which must be agreed upon with the DEPARTMENT before use in the comparative evaluation of alternatives. After developing the viable alternatives, analyzing alternatives and estimating costs, the CONSULTANT will prepare a matrix which compares the impacts, performance, and costs of the alternatives evaluated in detail in the PD&E Study. The matrix will include the performance of the No-Build Alternative as the baseline for comparison.

4.17.2 Selection of Recommended Alternative

The DEPARTMENT will select a recommended alternative based on review and analysis of engineering, environmental, and public involvement issues related to this Project.

4.17.3 Value Engineering

The DEPARTMENT will conduct a Value Engineering (VE) study for the Project according to **Value Engineering Program, Topic No. 625-030-002**. The CONSULTANT will prepare relevant project information and submit to the VE team. The information will be logically organized to facilitate the VE team's understanding of the Project development.

The CONSULTANT will submit to the VE team the following minimum information, if available:

- Project traffic report
- Environmental studies reports
- Environmental document
- Engineering analysis documentation
- Copies of all alternative concept plans/drawings
- Drainage analysis documentation
- Bridge hydraulics report and location hydraulics report
- Typical section package
- Other miscellaneous reports prepared for this project

At the request of the DEPARTMENT, the CONSULTANT will meet with the VE team to explain development of Project alternatives and rationale of selecting the recommended alternative. The CONSULTANT will be available to the VE team for clarification of the information used during the VE study. The CONSULTANT will respond to questions or proposals developed as part of the VE and recommend inclusion or denial of the VE proposals into the project.

The CONSULTANT will include VE study recommendations concerning modified or additional concepts, into the comparative evaluation of the alternatives.

4.18 Concept Plans

The CONSULTANT will prepare concept plans for all viable Project alternatives in appropriate scales overlaid on the base map.

4.18.1 Base Map

The CONSULTANT will produce a base map of the project area using DEPARTMENT's CADD standards. The base map will contain an aerial photo and existing characteristics for the project. The base map must show environmental issues that are specific to the Study Area such as cemeteries, wetlands, historic properties, high-risk contamination sites, public parks, and property lines.

The CONSULTANT will prepare base maps for the following uses (at noted scales):

- Corridor Maps (Roll Plots) ***1" = 100'***

4.18.2 Alternatives Concept Plans

The CONSULTANT will prepare and overlay alternative concept plans on the base map. The concept plan must show potential location for bridges, culverts, retaining walls, right of way lines (existing and proposed), major utility facilities, intersection, critical driveways, and median openings, among other roadway elements, at appropriate scale according to the DEPARTMENT **CADD Manual**.

4.18.3 Preferred Alternative

The CONSULTANT will finalize the preferred alternative concept plans by incorporating comments received from the Public Hearing as directed by the DEPARTMENT.

4.18.4 Typical Section Package

The CONSULTANT will prepare the Typical Section Package (excluding pavement design) in accordance with the **FDM.**

4.18.5 Design Exceptions and Design Variations

The CONSULTANT will prepare Design Exceptions and Design Variations Package for the preferred alternative for approval in accordance with the **FDM**.

4.19 Transportation Management Plan (Not applicable)

4.20 Risk Management

The DEPARTMENT Project Manager will coordinate with the Cost Risk Assessment (CRA) regional team and a representative from that team lead the Risk Assessment for this Project. The CONSULTANT and key SUBCONSULTANTS may be asked to attend and participate in the Risk Assessment Workshop for this Project. The CONSULTANT will support the Risk Assessment Workshop by providing materials requested by the DEPARTMENT Project Manager to conduct the Workshop and associated meetings.

4.21 Engineering Analysis Documentation

The CONSULTANT will prepare a Preliminary Engineering Report (PER) as per **Part 2, Chapter 3** of the **PD&E Manual**.

4.22 Planning Consistency

The CONSULTANT will coordinate with the DEPARTMENT to obtain and review transportation plans throughout the life of the Project for all modes of transportation including freight, transit, and non-motorized. The following plans or studies should be reviewed as appropriate:

- MPO's adopted Long Range Transportation Plan (LRTP) Cost Feasible and Needs Plans
- Local Government Transportation Improvement Plans (TIP)
- State Transportation Improvement Program (STIP)
- Urban Area Transportation Studies
- Local Government Comprehensive Plans (LGCP)
- Local Transit Development Plans (TDP) for bus, rail, or other services
- Non-motorized (bicycle and pedestrian) Plans

4.22.1 Planning Consistency Form

The CONSULTANT will assist the DEPARTMENT's finalization of Planning Requirements for Environmental Document approval in the appropriate form.

4.23 Transit Systems and Services (Not applicable)

5.0 ENVIRONMENTAL ANALYSIS AND REPORTS

Tasks described within this section direct work efforts applicable to the environmental analysis and documentation for this Project. Prior to beginning environmental work, the CONSULTANT must review the ETDM Programming Screen Summary Report, summary degree of effect, resource agencies' comments, permits that may be required, and GIS information from the Environmental Screening Tool (EST). This review will support the CONSULTANT's ability to adequately assess the potential for Project alternatives to affect known environmental resource issues.

CONSULTANT activities to conduct and prepare environmental analysis and reports shall be done under the direction of the DEPARTMENT Project Manager. The CONSULTANT will collect pertinent environmental data, conduct analyses, and document the results of this analysis within technical reports or memoranda. The analyses and reporting will be performed and presented in accordance with the procedures in the **PD&E Manual**. The CONSULTANT will analyze all Build Alternatives and the No Build Alternative with respect to impacts to natural, cultural, social and physical resources and document all analyses in the reports. Wherever appropriate the CONSULTANT will describe proposed measures to avoid, minimize, or mitigate project impacts on the environmental issues. Additionally, the CONSULTANT will summarize results of the environmental analysis in the Environmental Document. The CONSULTANT must verify and record in the Environmental Document any environmental resource that is identified as "No Involvement". The consultant will summarize in the Environmental Document the results of analysis of environmental resources that were completed as part of another study or performed by others concurrent with this project.

5.1 Sociocultural Effects

THE CONSULTANT will conduct a Sociocultural Effects (SCE) evaluation in accordance with **Part 2, Chapter 4** of the **PD&E Manual**. The CONSULTANT will document the results of the SCE Evaluation in the Environmental Document and in the Project file and / or complete a stand-alone SCE report if required. If no involvement for a particular issue is indicated, then standard statements to that effect from **Part 2, Chapter 4** of the **PD&E Manual** will be included in the Environmental Document.

5.1.1 Social

- **Community Cohesion:** The CONSULTANT will identify and assess potential Project impacts on physical barriers, traffic pattern changes, social pattern changes, and loss of connectivity to community features and facilities.

- **Special Community Designation:** The CONSULTANT will identify and assess potential Project impacts on schools, churches, parks, emergency facilities, social services, daycare facilities, retirement centers, community centers, and retail locations.

- **Safety / Emergency Response:** The CONSULTANT will identify and assess potential Project impacts on the creation of isolated areas; emergency response time changes; and location of police, fire, emergency medical services, healthcare facilities, and government offices.

- **Demographics:** The CONSULTANT will identify and assess potential Project impacts on minority, LEP persons, disabled persons, low-income populations, and/or special populations within the Project area.

- **Community Goals and Quality of Life:** The CONSULTANT will identify and assess potential Project impacts on social value changes and compatibility with community goals and vision.

5.1.2 Economic

- **Business and Employment:** The CONSULTANT will assess potential Project impacts to business and employment activity in the project area, including industries with special needs (e.g., freight distributor) or significance (e.g., regional employer), economic– oriented

land use, economic development plans, special designations, and community development priorities. Assessment will also include identification of changes to routes, access, parking, or visibility that could benefit or impair businesses, employment centers, community facilities, or population.

- **Property Values and Tax Base:** The CONSULTANT will assess potential Project impacts on the tax base, employment opportunities, and property values.

5.1.3 Land Use Changes

The CONSULTANT will evaluate the Project's consistency with the physical character of the area and applicable community plans.

5.1.4 Mobility

The CONSULTANT will evaluate potential Project impact on mobility and accessibility with regard to all transportation modes (i.e., pedestrian, bicycle, transit and vehicles) in the Study Area.

5.1.5 Aesthetics

The CONSULTANT will evaluate and summarize the Project's effect on viewshed and vista, community focal points, historic structures, landmarks, and community character, in accordance with the **PD&E Manual**.

5.1.6 Relocation Potential

The CONSULTANT will identify residences, businesses, and institutional or community facilities that may require relocation to accommodate the Project. The CONSULTANT will obtain additional site-specific information needed to evaluate the effect of each Project alternative on the displacement of residences and businesses.

The CONSULTANT will collect the data and perform the analysis necessary to complete a Conceptual Stage Relocation Plan (CSRP) for the proposed alternatives according to **Chapter 9** of the **Right-of-Way Procedures Manual**.

5.2 Cultural Resources

The CONSULTANT will prepare a Research Design and Survey Methodology for the project, to be submitted to the DEPARTMENT for approval prior to the initiation of field work. The CONSULTANT shall identify and map out the zones of probability for the Project study area and identify any previously recorded resources. The Area of Potential Effect (APE) will be determined (including pond sites). The CONSULTANT will summarize each of the cultural resource issues in the Environmental Document. If noninvolvement for a particular issue is indicated, then a statement to that effect will be included. The CONSULTANT will use a professional qualified under the provisions of **36 CFR 61** in compliance with the **National Historic Preservation Act of 1966** (**Public Law 89-665**, as amended) and the implementing regulations **(36 CFR 800),** as well as with the provisions contained in **Chapter 267, Florida Statutes,** to perform all work in this task.

The CONSULTANT will assess the direct and indirect effects and will document the severity of the following items in the Environmental Document and Project file:

5.2.1 Archaeological and Historic Resources

The CONSULTANT will identify and analyze impacts to archaeological sites and historic resources within the Project's Area of Potential Effects (APE). The APE must include potential pond sites. The CONSULTANT will prepare a research design methodology and perform a Cultural Resources Assessment Survey in accordance with **Part 2, Chapter 8** of the **PD&E Manual**. All work will be documented and coordinated with appropriate agencies as per **Part 2, Chapter 8** of the **PD&E Manual**, and the DEPARTMENT's **Cultural Resource Management Handbook**. During their review of the ETDM screening for this project, the Florida Department

of State (FDOS), which includes the Division of Historical Resources and the State Historic Preservation Office, noted the presence of an unevaluated resource group and requested that special care be taken to look for cultural deposits related to a former Native American Village.

In addition, attendance at public meetings may be required. The CONSULTANT will review and address any resources issues or comments by the State Historic Preservation Office (SHPO) listed in the Programming Screen Summary Report.

The CONSULTANT will assist the DEPARTMENT in meetings by providing technical support in Section 106 Meetings, such as Cultural Resource Committee Meeting.

The CONSULTANT will prepare Cultural Resources Assessment Survey (CRAS) documentation detailing the results of the survey and assessments of resource significance, including a Florida Master Site File (FMSF) form. The Research Design and Survey Methodology and the Conceptual Drainage Report will be included in the CRAS appendix.

The CRAS will be submitted to the Planning and Environmental Management Office (PLEMO) for their review and coordination with the Florida Department of Historical Resources (FDHR) and the State Historic Preservation Officer (SHPO). Cultural resources eligible for listing in the National Register of Historic Places (NRHP) will be identified during the CRAS. Should a cultural resource be determined eligible for listing in the NRHP, a Section 106 Determination of Effects (DOE)/Case Study will be prepared by the CONSULTANT as an Optional Service and submitted to the District PLEMO for their coordination with FDHR/SHPO.

5.2.2 Recreational, Section 4(f)

- **Section 4(f) Determination of Applicability:** The CONSULTANT will complete the documentation and coordination required for a Section 4(f) Determination of Applicability in accordance with **Part 2, Chapter 7** of the **PD&E Manual**. Within the 500-foot project buffer, potential Section 4(f) properties include three neighborhood parks (Oak Park, Athalie Range Park, and Athalie Range Park #2), one OGT multi-use and hiking trail priority (Unity Trail - part of the Shared-Use Nonmotorized (SUN) Trail Network), and outdoor recreational areas associated with four public schools (Miami Edison Senior High School, Edison Park K-8 Center, Jerry J. McCrary, Jr. Elementary School, and Barry University – Main Campus).

- **Section 4(f) "de minimis" Documentation:** The CONSULTANT will prepare Section 4(f) "de minimis" documentation in accordance with **Part 2, Chapter 7** of the **PD&E Manual**.

- **Section 4(f) Evaluation:** The CONSULTANT will complete the documentation for Section 4(f) requirements in accordance with **Part 2, Chapter 7** of the **PD&E Manual**.

5.3 Natural Resources

The CONSULTANT will assess and summarize each of the natural resource issues in the Environmental Document. If no involvement for a particular issue is indicated, then a statement to that effect will be included.

The CONSULTANT will identify the natural resource evaluation area. The CONSULTANT will assess the direct, and indirect effects and will document the severity of the following items in the Environmental Document and project file:

5.3.1 Wetlands

Wetlands and Surface Waters: The CONSULTANT will identify the type, quality, and function of wetlands, or reference previously completed documentation relevant to the Project. The CONSULTANT will establish Uniform Mitigation Assessment Method (UMAM) for representative wetlands in accordance with **Part 2, Chapter 9** of the **PD&E Manual**. The CONSULTANT will evaluate alternatives that avoid wetland impacts and, where unavoidable, identify practicable measures to minimize impacts. Any impact to wetlands requires development

of a Conceptual Mitigation Plan. The CONSULTANT will document the results of Wetlands Evaluation in the Natural Resources Evaluation (NRE) Report to document all coordination activities with resource agencies, wetland impact assessment, and mitigation analysis.

5.3.2 Essential Fish Habitat

The CONSULTANT will conduct field reviews, surveys, and appropriate coordination with resource agencies to assess impacts to Essential Fish Habitat (EFH) in accordance with **Part 2, Chapter 17** of the **PD&E Manual**. The CONSULTANT will prepare the EFH Assessment as a component of the NRE to document potential adverse effects to EFH and measures to address those effects. The CONSULTANT will assist the DEPARTMENT in consultation, if required.

5.3.3 Wildlife and Habitat

Analysis and Report: The CONSULTANT will perform research, field reviews, survey, and coordination necessary to determine Project involvement with and potential impacts to federal and state protected, threatened or endangered species and their habitats. Additionally, the CONSULTANT will develop a study design (which will be approved by the DEPARTMENT) to evaluate the magnitude of Project involvement with wildlife and their habitat. If required, the CONSULTANT will prepare the Biological Assessment as a part of the NRE.

The CONSULTANT will assess the project's potential impacts to wildlife and habitat in accordance with **Part 2, Chapter 16** of the **PD&E Manual**. The CONSULTANT will assist the DEPARTMENT in consultations, if required.

Conservation Measures and Mitigation Plan: The DEPARTMENT Project Manager will provide a description of the habitat conservation measures to be considered. The CONSULTANT will provide an analysis of wildlife and habitat conservation measures.

5.3.4 Natural Resource Evaluation Report

The CONSULTANT will document the results of the Wetlands, Wildlife and Habitat evaluations in a NRE report in accordance with **Part 2, Chapter 16** of the **PD&E Manual**.

5.3.5 Water Quality

The CONSULTANT will evaluate the data for and document water quality in the Water Quality Impact Evaluation (WQIE) Checklist in accordance with **Part 2, Chapter 11** of the **PD&E Manual.**

5.3.6 Special Designations

The CONSULTANT will evaluate the data for and document the following special designations if applicable: Outstanding Florida Waters, Wild and Scenic Rivers, Aquatic Preserves, Coastal Barrier Resource, and Scenic Highways, in accordance with **Part 2, Chapters 5, 10, 12, and 15** of the **PD&E Manual,** respectively.

5.3.7 Identify Permit Needs

The CONSULTANT will review the Programming Screen Summary Report and identify permits required for the project. The CONSULTANT will perform activities that will inform and accelerate the permitting process, including activities to acquire permits during PD&E (as required by the DEPARTMENT).

5.3.8 Farmland

This resource is not present or will not be impacted by the project. The CONSULTANT must verify and record in the Environmental Document.

5.4 Physical Effects

The CONSULTANT will summarize each of the physical effect issues in the Environmental Document. If no involvement for a particular issue is indicated, then a statement to that effect will be included. The

CONSULTANT will identify the physical effect evaluation area. The CONSULTANT will assess the direct and indirect effects and will document the severity of the following:

5.4.1 Noise

The CONSULTANT will perform the noise analysis, noise abatement evaluation, and assessment of construction noise and vibration in accordance with the **Part 2, Chapter 18** of the **PD&E Manual** and the current version of FDOT's Traffic Noise Modeling and Analysis Practitioner's Handbook. The CONSULTANT will attend a noise study methodology meeting with the DEPARTMENT prior to beginning analysis.

The CONSULTANT will document methodology and results of noise analysis and noise abatement evaluation in the Noise Study Report (NSR). The CONSULTANT will provide an electronic copy of the NSR, in PDF format, as well as all TNM input/output files, and "readme" file that support the information documented in the report.

If the Project is determined to be a Type III project, the CONSULTANT will document that in the Project File.

5.4.2 Transit Noise and Vibration Analysis

This resource is not present or will not be impacted by the project. The CONSULTANT must verify and record in the Environmental Document.

5.4.3 Air Quality

The CONSULTANT will gather data, perform the air quality screening analysis, and prepare the Air Quality Technical Memorandum to document the results of the screening analysis in accordance with **Part 2, Chapter 19** of the **PD&E Manual**. Traffic data shall be prepared by the project's Traffic Engineer.

The CONSULTANT will coordinate air quality monitoring if the project fails the Screening Analysis**.**

5.4.4 Construction Impact Analysis

The CONSULTANT will evaluate and document the potential impacts of construction of the Project alternatives in accordance with **Part 2, Chapter 3** of the **PD&E Manual**.

5.4.5 Contamination

The CONSULTANT will gather data, review data, and investigate contamination issues within the limits of the project and identify potentially contaminated sites in accordance with **Part 2, Chapter 20** of the **PD&E Manual**.

The CONSULTANT will document data reviewed, findings, risk rating of potential contamination sites, and recommendation for additional assessment actions in the Contamination Screening Evaluation Report.

5.5 Cumulative Effects Evaluation

The CONSULTANT will perform and document cumulative effects evaluation of each resource of concern identified based on context and in consultation with the DEPARTMENT as per the process outlined in the **Cumulative Effects Evaluation Handbook.** The cumulative effects evaluation should build upon information derived from the direct and indirect effects analyses.

5.6 Project Commitments Record

The CONSULTANT will assist the DEPARTMENT in filling out **Form No. 700-011-35 Project Commitments Record (PCR)** to document project commitments in the Commitments section of the Environmental Document. DEPARTMENT **Procedure 700-011-035** will be used by the CONSULTANT for recording the project commitments. The CONSULTANT will forward the completed PCR form to the DEPARTMENT Project Manager.

6.0 ENVIRONMENTAL DOCUMENT

The CONSULTANT will assist the department in preparing a Type 2 Categorical Exclusion in accordance with **Part 1, Chapter 5** of the **PD&E Manual**.

7.0 METHOD OF COMPENSATION

Payment for the work accomplished will be in accordance with **Exhibit B** of this contract. The DEPARTMENT's Project Manager and the CONSULTANT will monitor the cumulative invoiced billings to ensure the reasonableness of the billings compared to the study schedule and the work accomplished and accepted by the DEPARTMENT. The DEPARTMENT Project Manager will decide whether work of sufficient quality and quantity has been accomplished by comparing the reported Scope of Services percent complete against actual work accomplished.

Payments will not be made that exceed the percentage of work identified in the approved payout curve and schedule provided. The CONSULTANT shall provide a list of key events and the associated total percentage of work considered to be complete at each event. This list shall be used to control invoicing. Payments will not be made that exceed the percentage of work for any event until those events have actually occurred and the results are acceptable to the DEPARTMENT.