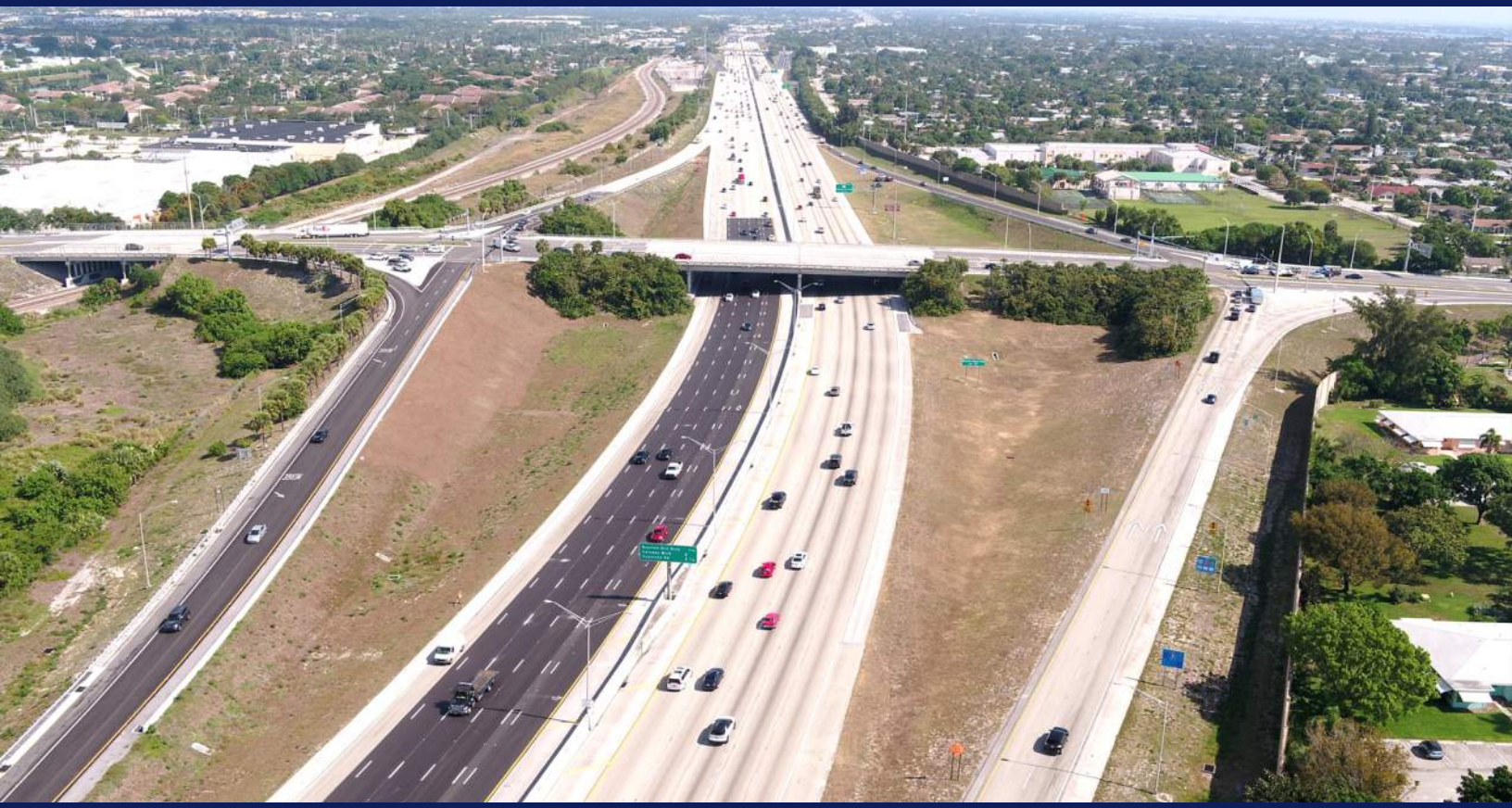
SR 9/I-95 Project Development and Environment (PD&E) Study from S. of Woolbright Road to N. of Woolbright Road Palm Beach County, Florida

FPID No.: 437279-1-22-02 | ETDM No.: 14341



PRELIMINARY ENGINEERING REPORT

December 2020

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

PRELIMINARY ENGINEERING REPORT

SR 9/I-95 Project Development and Environment Study
From S. of Woolbright Road to N. of Woolbright Road
Boynton Beach, Palm Beach County, Florida
(From Mile Post 13.560 to Mile Post 13.995)

FPID: 437279-1-22-02
ETDM No.: 14341

Prepared for:

Florida Department of Transportation
District Four

3400 West Commercial Boulevard
Fort Lauderdale, FL 33309

Prepared by:

Hanson Professional Services Inc.

December 2020

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Hanson Professional Services Inc., authorized under Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes, Certificate of Authorization (CA) No. 7961, by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I prepared or approved the evaluation, findings, opinions, conclusions, or technical advice herby reported for:

FPID No.:	437279-1-22-02
ETDM No.:	14341
Project:	SR 9/I-95 PD&E Study From S. of Woolbright Rd. to N. of Woolbright Rd.
County:	Palm Beach
FDOT Project Manager:	Humberto Arrieta, P.E.

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

Signature: _____

Name: Julieta Rivero Manso, P.E.

Florida P.E. No.: 72398

Firm: Hanson Professional Services Inc.
6303 Blue Lagoon Drive, Suite 280
Miami, Florida 33126

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1. SUMMARY OF PROJECT

This preliminary engineering report contains detailed engineering information that fulfills the purpose and need for the SR 9/I-95 from South of Woolbright Road to North of Woolbright Road Project Development and Environment (PD&E) Study (Mile Post 13.560 to Mile Post 13.995). This project has been developed in compliance with Title VI of the Civil Rights Act of 1964 and other related federal and state nondiscrimination authorities. Neither the Florida Department of Transportation (FDOT) nor this project will deny the benefits of, exclude from participation in, or subject to discrimination anyone on the basis of race, color, national origin, age, sex, disability, or family status.

This project has been screened through the Efficient Transportation Decision Making (ETDM) process. The Summary Report was published on December 7, 2017 and can be viewed under the ETDM # 14341. The Advance Notification (AN) was distributed on October 23, 2017.

1.1 Project Description

The FDOT, District Four is conducting a PD&E Study to identify long-term needs for I-95 and develop design concepts to address traffic spillback onto I-95, reduce congestion at the I-95 and Woolbright Road interchange, improve interchange operations, and improve safety at the study interchange through the 2045 design year horizon. This study is evaluating alternatives to improve the overall operating conditions and enhance safety within the interchange. This project is consistent with plans for the I-95 mainline, including the potential extension of I-95 Managed Lanes through Palm Beach County.

The improvements to the I-95 Interchange at Woolbright Road will provide additional capacity for vehicles travelling east-west as well as operational improvements north-south through the interchange. Local and network connectivity for the City of Boynton Beach will be improved.

The Interchange of I-95 at Woolbright Road is located in Palm Beach County within the City of Boynton Beach. The project limits along I-95 extend from just south of Woolbright Road at SW 23rd Avenue to just north of Woolbright Road about 2,000 feet north of the interchange. The project limits along Woolbright Road extend from SW 18th Street on the west to just east of I-95 at SW 2nd Street. The project area includes the signalized intersections at SW 8th Street, and the I-95 southbound and northbound ramps (***Figure 1-1***). The South Florida Rail Corridor (SFRC)/CSX Railroad is adjacent to the project corridor and runs parallel along the west side of I-95.

Tri-Rail operates along this rail corridor, with the nearest station, Boynton Beach Tri-Rail Station located 2.68 miles to the north of Woolbright Road, just north of the Gateway Boulevard interchange.

Within the project limits, I-95 is a ten-lane divided interstate freeway providing four general purpose lanes and one high occupancy vehicle (HOV) lane in each direction. The project will be designed to complement the I-95 interim interchange design-build project completed in 2019, which constructed one additional left-turn lane onto I-95 in both the eastbound and westbound directions; a free-flow right-turn lane from the southbound off-ramp; a free-flow right-turn lane from the northbound on-ramp; and designated bicycle lanes along Woolbright Road within the limits of the interchange.

Woolbright Road is currently a six-lane urban divided minor arterial to the west of I-95 and a four-lane urban divided minor arterial to the east of I-95. There is a raised median from SW 18th Street (west of I-95) to just west of SW 2nd Street (east of I-95). At SW 2nd Street, Woolbright Road transitions to a five-lane roadway section with a two-way left-turn lane in the middle. There are sidewalks on both sides of Woolbright Road throughout the project area and designated bicycle lanes within the limits of the interchange.

The land use adjacent to the interchange is zoned as Public Usage, Single Family, Duplex, Neighborhood Commercial, and Light Industrial. The area southeast of the interchange is zoned Recreation, Multi Family, Public Usage, and Planned Unit Development. Zoning northwest of the interchange consists of Planned Commercial Development, Planned Unit Development, Light Industrial, Office Professional, Neighborhood Commercial, and Single Family, and southwest of the interchange is zoned Community Commercial, Office Professional, Planned Industrial Development, and Single Family.

Improvements to the I-95 interchange at Woolbright Road are consistent with the Cost Feasible Plan of the Palm Beach County Transportation Planning Agency (TPA)'s 2045 Long Range Transportation Plan (LRTP). "The purpose is to improve interchange operations and reduce congestion, reduce potential for traffic spillback onto I-95, and increase safety. These improvements are needed to ensure that the I-95 interchange will meet FDOT Level-of-Service standards through year 2045."

1.2 Background

The FDOT made improvements to the I-95 mainline in Palm Beach County in the 1990s and 2000s, adding High Occupancy Vehicle (HOV) lanes and auxiliary lanes from south of Linton Boulevard to north of PGA Boulevard.

Minor interchange improvements were also made to eight of the existing 18 interchanges along this section of the corridor. At the time of the project, FDOT committed to re-examine the need for long-term improvements at those interchanges that were not improved during the I-95 mainline project. FDOT District Four also identified the need to re-examine the 2003 I-95 Master Plan Study for Palm Beach County to develop new improvements to interchanges based on changes in traffic volumes and updated design standards since the Master Plan was developed.

A Concept Development Report (CDR) was prepared by the FDOT District Four Office of Planning and Environmental Management in August of 2014. The following are the recommendations identified for short-term improvements that were completed in 2019 as part of a Design-Build project:

- One additional left-turn lane onto I-95 in both the eastbound and westbound directions;
- A free-flow right-turn lane from the southbound off-ramp;
- A free-flow right-turn lane to the northbound on-ramp; and
- Designated bicycle lanes along Woolbright Road within the limits of the interchange.

1.3 Purpose and Need

The purpose of this study is to identify long-term needs of I-95,develop concepts to address traffic spillback onto I-95, reduce congestion on I-95 and Woolbright Road, improve interchange operations, and improve safety at the I-95 and Woolbright Road interchange through the 2045 design year horizon. This project will also consider SIS connector improvements needed within the project area and will be consistent with plans for the I-95 mainline, including the potential extension of I-95 managed lanes through Palm Beach County.

Additional considerations for the purpose and need for this project are further described in the following sections that include System Linkage, Capacity, Transportation Demand, Social Demands/Economic Development, Modal Interrelationships, and Safety.

System Linkage: I-95 is a part of the state's Strategic Intermodal System (SIS) and the National Highway System (NHS). A need exists to ensure that I-95 continues to meet the minimum requirements as a component of those two systems. The project is not proposing to change system linkage; however, the interchange modifications would improve movements within the existing systems. The proposed project at I-95 and Woolbright Road will

help improve connectivity and capacity within the roadway network by addressing traffic spillback onto I-95 and improving interchange connections.

Capacity: Using field review data collected in 2018, A.M. and P.M. peak conditions were observed at all intersections in the study area. At the Corporate Drive/SW 8th Street intersection, during the P.M. peak hour, all approaches experienced minimal queues, except for the westbound and eastbound directions. The westbound left-turn queue experienced spillback into the through lanes and the eastbound direction experienced long queues. During the P.M. peak hour on the I-95 southbound ramp intersection, the eastbound approach experienced long queues, but all queues cleared the intersection during each signal cycle. The southbound approach experienced significant queues, with the queue not clearing during one signal cycle. During the P.M. peak hour at the I-95 northbound ramps intersection, the eastbound approach experienced minimal queue buildup and the northbound and westbound approaches experienced long queues; however, all queues cleared the intersection in one signal cycle for all approaches.

Transportation Demand: Interchange improvements to I-95 at Woolbright Road is included in the Palm Beach County TPA's 2045 LRTP under projects funded with SIS revenues, which includes federal funds. The project is consistent with the plans for the I-95 mainline, including the extension of express lanes into Palm Beach County.

Social Demands/Economic Development: Social and economic demands on the I-95 corridor will continue to increase as population and employment increase. The Palm Beach County TPA 2040 LRTP states that the population would grow 27 percent from 1.32 million in 2010 to 1.68 million in 2040. The employment was also forecasted to grow from 571,000 to 820,000 employees in the same 30-year period for an increase of nearly 44 percent. The predicted increase in population and employment will increase congestion in the study area.

Modal Interrelationships: Currently, sidewalks and crosswalks are provided on both sides of Woolbright Road. Palm Tran Route 70 services Seacrest Boulevard both north and south of Woolbright Road east of the interchange, as well as the Boynton Beach Tri-Rail station 2.68 miles north of Woolbright Road. The project proposes to provide designated bicycle lanes on both sides of Woolbright Road. Capacity improvements at the interchange will enhance the mobility of people and goods by alleviating current and future congestion at the interchange and the surrounding freight and transit networks. Reduced congestion will serve to maintain and improve viable access to the major transportation facilities and businesses in the area.

Safety: The crash data for the latest available five-year period (2012 to 2016) along Woolbright Road (93220000)

from SW 8 Street to S. Seacrest Boulevard was retrieved from FDOT's Crash Analysis Reporting System (CARS) on-line database and from Signal 4 Analytics database. The study corridor encompasses the I-95 Interchange. The crash data from both databases were summarized separately for the entire corridor and for the I-95 interchange.

Overall, there was a total of 680 crashes during the 5-year period. Based on crash severity, of the 680 crashes reported, 240 (35.5%) were injury type crashes, 437 (64.3%) were property damage only crashes, and three fatal crashes were reported. Two of the fatal crashes occurred in 2012 and were classified as overturn and collision with parked vehicle type and the third fatal crash occurred in 2016 and it was classified as angle collision. There were 150 wet pavement crashes (22.1%) reported. The frequency of wet pavement crashes was constant through the 5-year analysis period. This may indicate a crash pattern of wet pavement crashes. There were 171 nighttime/dusk/dawn/dark crashes (25.1%) reported. The leading crash type was rear-end with a total of 338 crashes (49.7%) followed by sideswipe with a total of 94 crashes (13.8%). Careless driving or negligent manner was the most predominate contributing causes of these crashes. Most of the crashes (178) occurred during the morning hours (6 AM to 9 AM), which correspond to the typical morning rush period.

1.4 Related Projects within the Study Area

Coordination with both state and local transportation agencies was maintained throughout the PD&E Study to ensure that recently completed, ongoing, and programmed study and design efforts affecting other components of the regional transportation network were incorporated into this study's findings. A great emphasis was placed on identifying those efforts undertaken by others that would be influenced by, or that could influence, the I-95 PD&E Study at Woolbright Road effort. This held true for both short-term and long-term transportation network improvements intersecting and/or influencing traffic volumes within the study corridor. There is one project improvement planned within the Study Area.

- FPID: 436576-1-2201 – I-95 Managed Lanes Master Plan: From South of Linton Boulevard to Palm Beach/Martin County Line.

1.5 Preferred Alternative

Based on a comprehensive comparative analysis, which considered impacts to the natural, physical, and social environment, input from the local community and local government, operational and engineering issues, and

construction cost, the project team selected Alternative 1, optimization of the Tight Diamond Interchange, as the Preferred Alternative. The preferred alternative will meet the purpose and need of the project, have minimal environmental impacts, and requires minimal amount of right-of-way. The construction cost for this alternative is approximately $12,000,000. The following describes the proposed improvements for the recommended alternative:

- Modify the existing Diamond Interchange by widening the existing Woolbright Road bridge over I-95 and the bridge over the South Florida Rail Corridor to accommodate one additional through lane in each direction through the interchange;
- Add one additional left-turn lane (triple lefts) at the northbound and southbound I-95 off-ramp intersections;
- Add one additional westbound through lane at the Corporate Drive/SW 8th Street intersection;
- Add one additional left-turn lane in the eastbound and westbound direction at the Corporate Drive/SW 8th Street intersection;
- Widen the existing bridge over the E-4 Canal to accommodate the additional westbound through lane and bicycle lanes; and
- Extend the bicycle lanes from the interchange to SW 18th Street.

Figure 1-2 depicts the preferred alternative. The Conceptual Plans for the Preferred Alternative are included in **Appendix A** and the Typical Section Package is included in **Appendix B.**

1.6 Implementation Measures and Commitments

1.6.1 Implementation Measures

FDOT commits to the following measures to minimize impacts to wetlands/surface waters, wildlife species and potential wildlife habitat:

- In order to avoid and/or minimize project impacts to the woodstock, FDOT will commit to follow the most current edition of the Habitat Management Guidelines for the woodstock in the Southeast Region and implement as applicable.

- In order to avoid and/or minimize project impacts to the west Indian manatee, FDOT will commit to follow the most current edition of the Standard Manatee Conditions for In-Water Work and implement as applicable.
- In order to avoid and/or minimize project impacts to the Eastern indigo snake, FDOT will commit to follow the most current edition of the Standard Protection Measures for the Eastern Indigo Snake and implement as applicable.

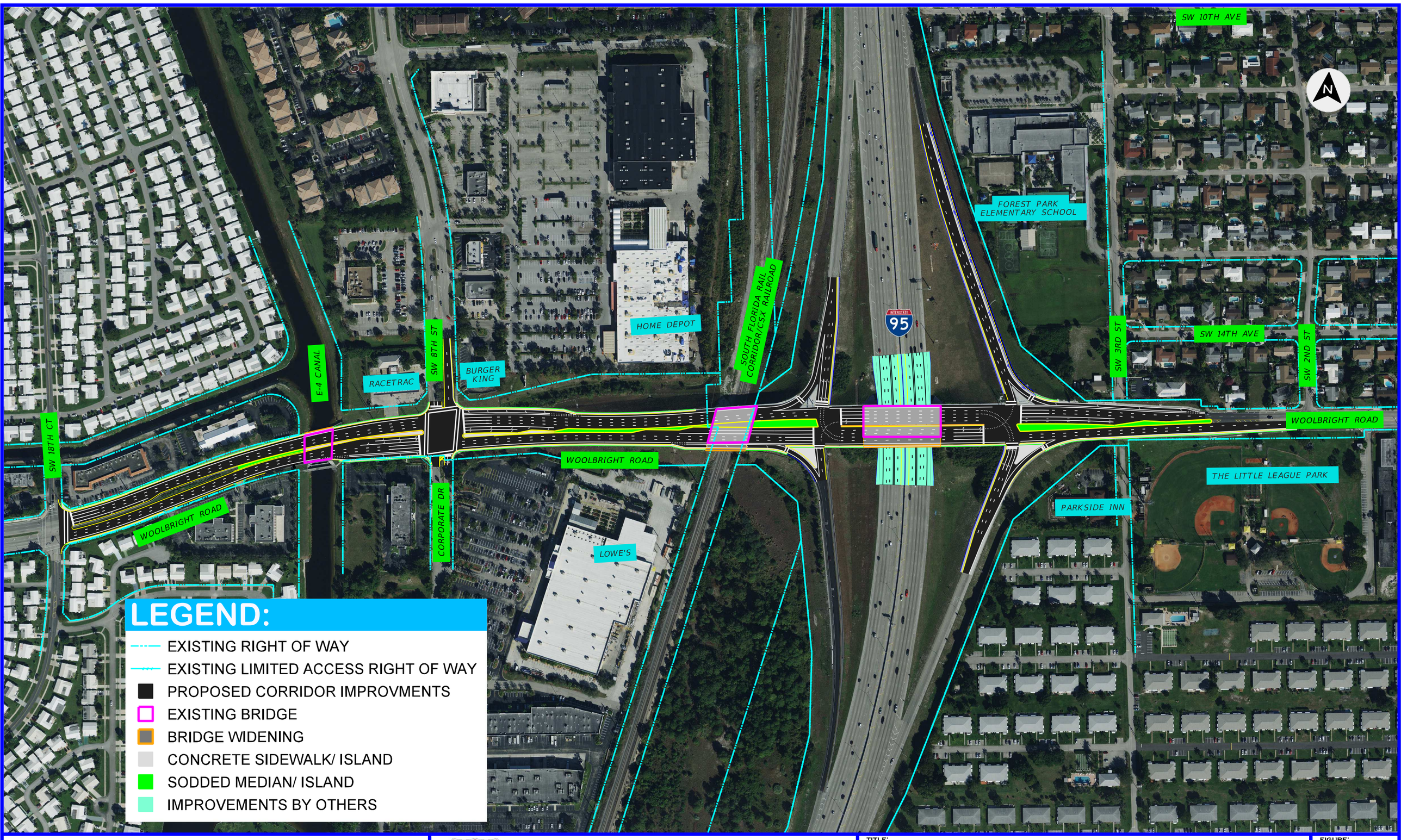
1.6.2 Commitments

There have been no commitments made at this time.

1.7 List of Technical Reports

The following documents have been submitted to FDOT as part of this project.

- Natural Resources Evaluation Report (NRE)
- Sociocultural Effects Evaluation Report (SCE)
- Contamination Screening Evaluation Report (CSER)
- Cultural Resource Assessment Survey (CRAS)
- Noise Study Report (NSR)
- Air Quality Technical Memorandum (AQTM)
- Project Traffic Analysis Report (PTAR)
- Interchange Modification Report (IMR)
- Concept Drainage Report (CDR)
- Location Hydraulics Report (LHR)



FDOT

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT FOUR
3200 WEST COMMERCIAL BLVD.
FORT LAUDERDALE, FL 33309

INTERSTATE 95

I-95/ SR 9 INTERCHANGE AT WOOLBRIGHT ROAD
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
FPID NO.: 437279-1-22-02
ETDM NO.: 14341

TITLE:

PREFERRED ALTERNATIVE

FIGURE:

1-2

2. EXISTING CONDITIONS

The following section summarizes the existing conditions within the project study limits.

2.1 Functional Classification

I-95 is a ten-lane divided interstate freeway from north of the Congress Avenue interchange (southern limit) to north of the PGA Boulevard interchange (northern limit). I-95 throughout the State of Florida is designated as a SIS highway corridor owned and maintained by the FDOT. Woolbright Road is a six-lane divided urban minor arterial west of the I-95 southbound ramps intersection and a four-lane divided urban minor arterial east of the I-95 southbound ramps intersection. A two-way left-turn lane is located along Woolbright Road from the I-95 northbound ramps to Seacrest Boulevard. Woolbright Road is maintained by Palm Beach County. Corporate Drive is a two-lane undivided local road that opens up to a four-lane divided section approximately 350 feet south of Woolbright Road. SW 8th Street is four-lane divided local road. Both Corporate Drive and SW 8th Street are maintained by the City of Boynton Beach.

2.2 Typical Sections

I-95 Typical Section: I-95 is a ten-lane divided interstate freeway providing four (4) general purpose lanes and one (1) HOV lane in each direction. The typical section consists of one 10-ft outside paved shoulder, four 12-ft lanes, one 12-ft HOV lane with a 4-ft delineated buffer, and one 12-ft inside shoulder in each direction.

Woolbright Road Typical Section: Woolbright Road is a six-lane curb and gutter divided roadway west of I-95, and a five-lane curb and gutter undivided roadway east of I-95 (two lanes in each direction with a two-way left-turn lane in the middle). The typical section along Woolbright Road west of I-95 consists of three 12-ft lanes in each direction with a landscaped curbed median. The eastbound and westbound lanes are separated by a concrete traffic separator along the bridge sections over the E-4 Canal, SFRC/CSX railroad, and I-95. There are two 12-ft through lanes and two 11-ft left-turn lane in each direction on the bridge over I-95. The typical section along Woolbright Road east of I-95 consists of two 11-ft lanes in each direction with a 12-ft two-way left-turn lane in the middle.

2.3 Right-of-Way

The existing limited assess right-of-way along I-95 mainline is typically 300-ft. The existing right-of-way along Woolbright Road varies between SW 18th Street and SW 2nd Street from 100-ft to 250-ft. Table 2-1 shows the existing right-of-way along the study corridor.

Table 2-1: Existing Right-of-Way

ROADWAY	SEGMENT	R/W WIDTH (FT)
I-95	Mainline	300
Woolbright Road	SW 18th Street to E-4 Canal	120
Woolbright Road	E-4 Canal to SW 8th Street	180
Woolbright Road	SW 8th Street to I-95 Southbound on/off ramps	200-250
Woolbright Road	I-95 Southbound on/off ramps to I-95 Northbound on/off ramps	N/A
Woolbright Road	I-95 Northbound on/off ramps to SW 2nd Street	100

2.4 Pedestrian Accommodations

Florida Statute Title XXIII, Chapter 316, Section 316.091, prohibits pedestrians and bicycles from operating and/or traveling on any limited access facilities. As such, there are no pedestrian or bicycle facilities along I-95 and ramp connectors within the interchange areas. However, the I-95 interchange at Woolbright Road accommodates east-west sidewalks on the north and south sides of Woolbright Road within the interchange and continuing both east and west.

Crosswalks are provided at the interchange between all east-west sidewalks crossing the I-95 northbound and southbound on- and off-ramps. Crosswalks at the northbound and southbound on- and off-ramps are two-stage, providing a travel way across the left-turn lanes to a raised concrete island and then across the right-turn lane to the sidewalk along Woolbright Road. Pedestrian signal heads are provided at the crosswalks across the left-turn lanes for both the on- and off-ramps.

The Corporate Drive/SW 8th Street intersection has crosswalks on all four approaches, but the sidewalk approaches to the crosswalks do not have tactile domes. Pedestrian signal heads without the countdown feature are provided at all crosswalks.

2.5 Bicycle Facilities

Woolbright Road provides designated bicycle lanes along the north side of Woolbright Road from SW 8th Street to the I-95 northbound on ramp, and along the south side from the southbound on ramp to the northbound on ramp. No designated bicycle facilities are provided along Woolbright Road west of SW 8th Street.

2.6 Geometric Elements

2.6.1 Horizontal Alignment

A review of the existing horizontal geometry for the major roadway segments and ramps was performed as part of this PD&E Study. The existing horizontal alignment was evaluated to determine if the existing facility meets the current design standards for horizontal curve and sight distance. The design elements evaluated included: curve length and curve radius. **Table 2-2** summarizes the geometric characteristics of the existing horizontal alignment.

Table 2-2: Existing Horizontal Alignment Characteristics

Location	Station (Pc)	Curve Length (Ft)	Radius (Ft)	Degree of Curve (D)	Deflection Angle (Δ)
I-95 within the Woolbright Road Interchange	685+45.28	1,463.33	5,729.58	1° 00' 00"	14° 38' 00.03" (RT)
	711+13.17	2,400.14	3,819.72	1° 30' 00"	36° 00' 07.65" (LT)
Woolbright Road from SW 18th Street to SW 2nd Street	325+70.91	627.57	1,909.86	3° 00' 00"	18° 49' 37.99" (LT)
	334+48.48	627.84	1,909.86	3° 00' 00"	18° 50' 06.84" (RT)

2.6.2 Vertical Alignment

The existing vertical alignment was evaluated to determine if the existing facilities meet the current design standards for vertical curve and sight distance. The design elements evaluated included: percent grade, change in grade, SSD, length of vertical curve, and K value.

2.7 Design and Posted Speed

According to FDOT roadway plans for the existing facility, the design speed along I-95 within the project limits is 70 MPH, and the existing posted speed limit is 65 MPH. The existing design speed for Woolbright Road is 45 MPH, with a posted speed limit of 30 MPH east of I-95 and 40 MPH west of I-95.

2.8 Lighting

Dual arm, conventional cobrahead lighting is provided in the median of the I-95 mainline. Conventional cobrahead lighting is provided along the outside shoulder of the on- and off-ramps. Additionally, conventional cobrahead lighting is provided on both sides of Woolbright Road within the interchange area and from Corporate Drive/SW 8th Street to the I-95 southbound ramp intersection; however, lighting is sparsely provided between the I-95 interchange and Seacrest Boulevard.

2.9 Existing Intersections and Traffic Signals

Three intersections were analyzed along Woolbright Road within the project limits. All Three intersection and signal controlled. The existing intersections within the corridor are listed below:

- Corporate Drive/SW 8th Street
- I-95 southbound ramps
- I-95 northbound ramps

2.10 Existing Roadway Signage

An existing corridor sign inventory was performed within the study limits. Signs are typically classified as guide signs, motorist information signs (general service signs), and Intelligent Transportation System (ITS) signs. As part of the documentation effort, each major roadway sign was photographed, inventoried, numbered, classified, and located on aerial photography. The sign structure numbers were also collected where available. The Existing Sign Inventory can be found on **Appendix D**.

2.11 Existing Geotechnical Characteristics

According to the SSURGO database provided by United States Department of Agriculture's National Resource Conservation Service; soils within the project area are primarily classified as urban land complexes consisting largely of Basinger, Myakka, and Pomello type map units consisting of low slope fine sands, with some organics and muck. The majority of the soils within the project area are classified as hydrologic soil group A.

2.12 Utilities

All Utility Agency/Owners (UAO) as listed on the design ticket obtained via Sunshine 811 have been contacted and have provided either marked plans, as-built/record information, or "no conflict" / "no facilities" letters. The involved utilities are listed in **Table 2-4**.

2.13 Railroads

The South Florida Rail Corridor (SFRC)/CSX Railroad is adjacent to the project corridor and runs parallel along the west side of I-95. Tri-Rail operates along this rail corridor, with the nearest station, Boynton Beach Tri-Rail Station located 2.68 miles to the north of Woolbright Road, just north of the Gateway Boulevard interchange. Woolbright Road crosses over the railroad just west of I-95.

2.14 Transit Service Network

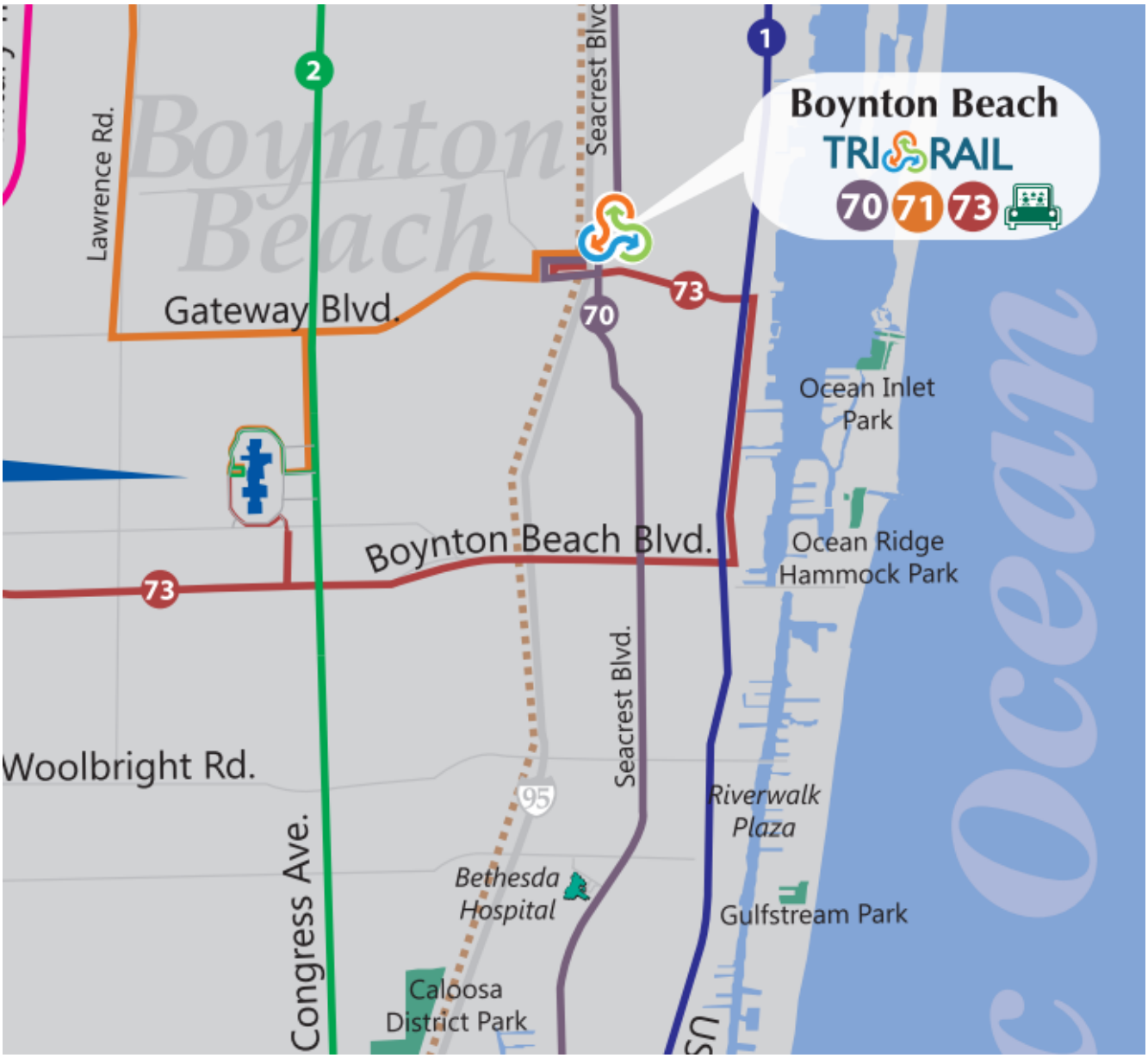
Boynton Beach Tri-Rail Station is located 2.68 miles to the north of Woolbright Road, just north of the Gateway Boulevard interchange. The Boynton Beach Tri-Rail Station is accessed by Palm Beach County Transit (Palm Tran) Routes 70, 71, and 73. (**Figure 2-5**)

Woolbright Road in the vicinity of the I-95 interchange is served by Palm Tran Route 70 east of the project area along Seacrest Boulevard from Lake Worth PHU to Lowson Boulevard; providing connectivity to the Boynton Beach Tri-Rail Station, located north of Gateway Boulevard. Within the study limits, there are no bus stops servicing Palm Tran Routes along Woolbright Road.

Table 2-4: Existing Utilities

Utility Company Contact Person	Address	Phone E-mail
AT&T / Distribution Dino Farruggio	1120 S Rogers Cir Boca Raton, FL 33487	561-997-0240 df1979@att.com
American Traffic Solutions Santiago Martinez	1150 N Alma School Rd Mesa, AZ 85201	480-596-4595 santiago.martinez@atsol.com designticket@verramobility.com
City of Boynton Beach Milot Emile/ Tookes Andres	124 E. Woolbright Rd. Boynton Beach, FL 33435	561-742-6407; 561-742-6432 tookesa@bbfl.us
Comcast John Scott Strahn	1495 NW Britt Rd Stuart, FL 34944	561-227-3417
Crown Castle Fiber Danny Haskett	6420 Congress Ave #2000 Boca Raton, FL 33487	786-610-7073 danny.haskett@crowncastle.com
Florida Public Utilities Co Brad Collins	209 N Sapodilla Ave West Palm Beach, FL 33401	561-252-3308 bcollins@chpk.com
FPL Palm Beach Joel Bray	810 Charlotte Ave. West Palm Beach, FL 33401	386-586-6403 joel.bray@fpl.com
Hotwire Communications Walter Davila	2100 W Cypress Creek Rd Fort Lauderdale, FL 33309	954-699-0900 walter.sancho-davila@hotwirecommunications.com
MCI MCIU01 Investigations	N/A	469-886-4091
Palm Beach County Traffic Operations Rod Friedel	2300 Jog Rd West Palm Beach, FL 33411	561-681-4371 rfriedel@pbcgov.org
Sprint John Baker	1660 S Congress Ave Ste 1 Boynton Beach, FL 33426	352-409-5095 jon.baker@sprint.com
Crown Castle NG FIBERDIG TEAM	N/A	888-632-0931
Eland Engineering David Bormann	N/A	954-847-2699

Figure 2-5: Existing Transit Routes along the Study Area



2.15 Existing Traffic Conditions

The existing traffic data was provided in the *Traffic Data Collection and Traffic Projections for I-95 Woolbright Road* report. The existing traffic data from the report was validated to the IMR Existing Year 2019 using additional counts collected in 2019. The final Existing Year 2019 volumes used for the IMR were checked for reasonableness and adjusted and balanced as needed.

Annual Average Daily Traffic (AADTs) along I-95 were adjusted to attain a balanced flow and depicted in **Figure 2-6.**

2.15.1 HCM Based Operational Analysis

A detailed operational analysis for the Existing Year 2019 performed for individual roadway elements, i.e., mainline segments, ramp junctions, weaving segments and study intersections. HCS 7 was used for the operational analysis of mainline segments and ramps. Synchro 10 was used for the analysis of study intersections.

Mainline Analysis

The Existing Year 2019 mainline capacity analysis results are summarized in **Table 2-5**. The results of the operational analysis show that all the mainline segments operate at LOS D or better except the following segments:

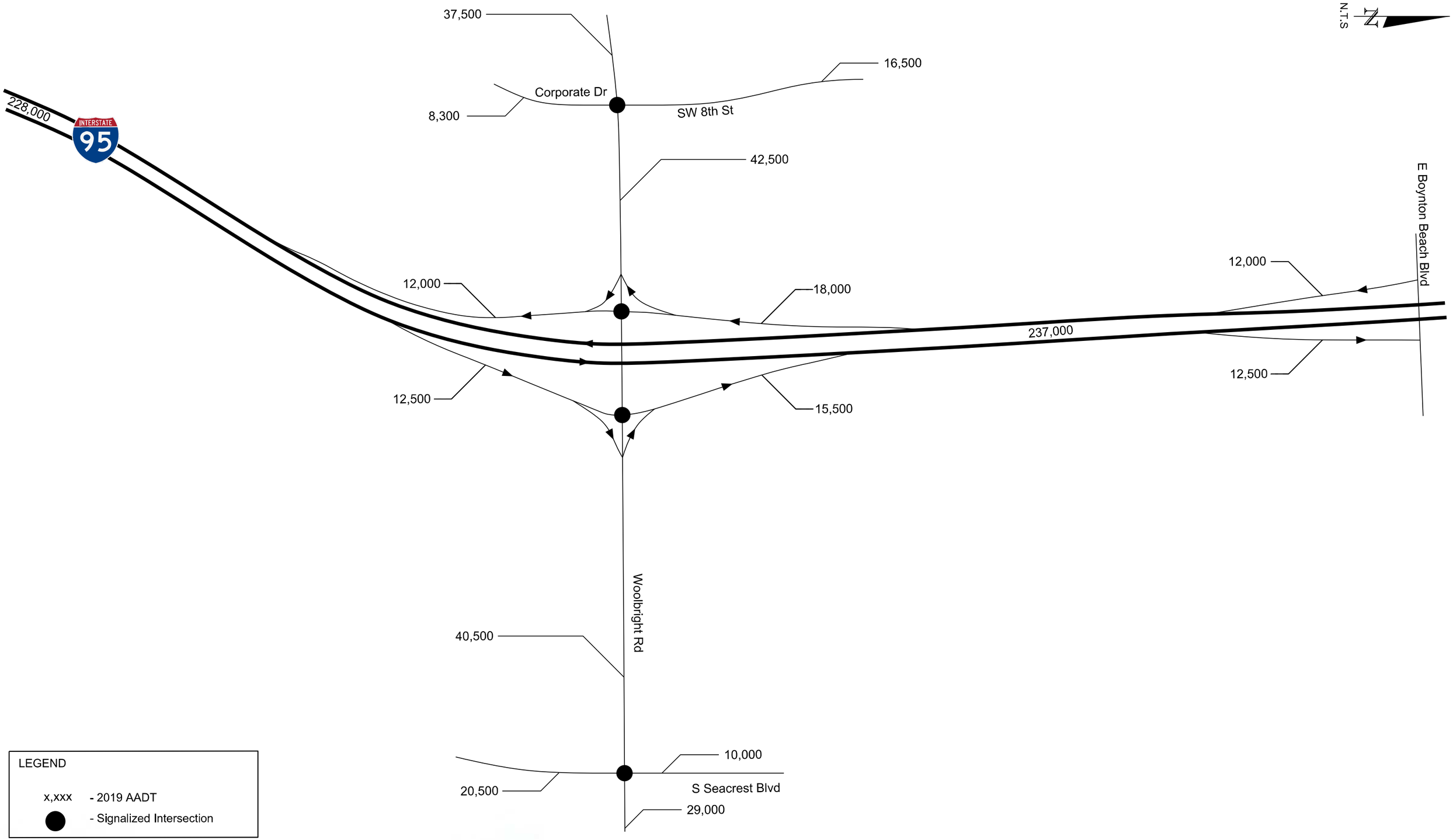
- I-95 NB south of Woolbright Road operates at LOS E during PM peak hour
- I-95 SB south of Woolbright Road operates at LOS E during AM peak hour

Figure 2-7 illustrates the peak hour volumes and LOS results for the Existing Year 2019 mainline analysis.

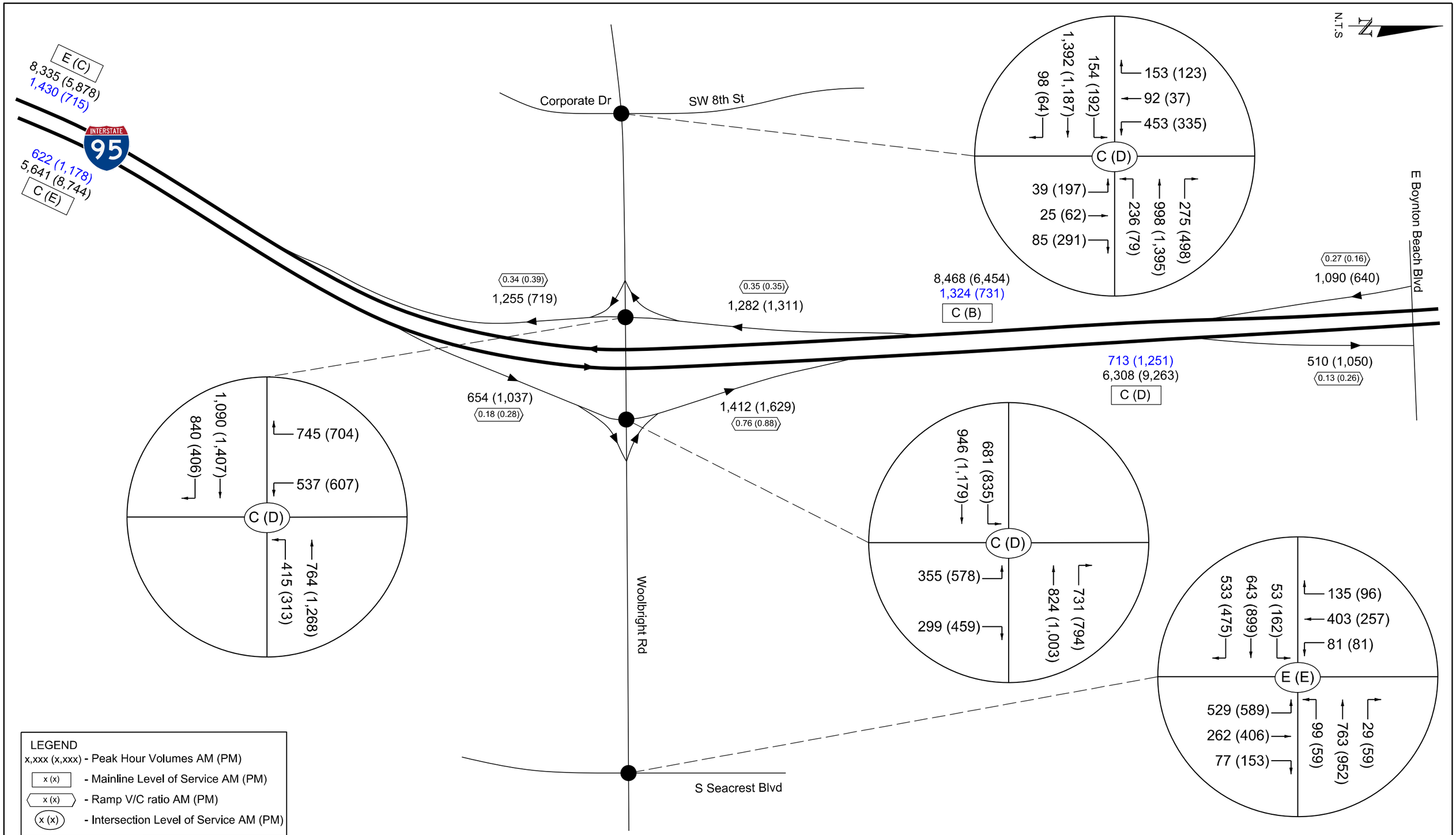
Table 2-5: Existing Year 2019 Mainline Capacity Analysis Summary

Freeway Segment	Direction	Number of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
I-95 South of Woolbright Road	NB	5	6,263	20.1	C	9,922	36.9	E
	SB	5	9,765	35.9	E	6,593	21.2	C
I-95 Between Woolbright Off-Ramp and On-Ramp	NB	5	5,609	23.2	C	8,885	31.3	D
	SB	5	8,510	23.9	C	5,874	19.7	C

1. Density = passenger cars/mile/lane



Florida Department of Transportation *District Four* *3400 West Commercial Boulevard* *Fort Lauderdale, FL 33309*	I-95/SR 9 Interchange at Woolbright Road Project Development & Environment Study FPID No.: 437279-1-22-02 ETDM No.: 14341	Title: Existing Year 2019 Annual Average Daily Traffic (AADT)	Figure: 2-6



LEGEND

x,xxx (x,xxx) - Peak Hour Volumes AM (PM)

x (x) - Mainline Level of Service AM (PM)

x (x) - Ramp V/C ratio AM (PM)

x (x) - Intersection Level of Service AM (PM)

Florida Department of Transportation
District Four
3400 West Commercial Boulevard
Fort Lauderdale, FL 33309

I-95/SR 9 Interchange at Woolbright Road
Project Development & Environment Study
FPID No.: 437279-1-22-02
ETDM No.: 14341

Title: Existing Year 2019 Peak Hour Volumes and LOS/VC Ratios

Figure: 2-7

Ramp Analysis

The Existing Year 2019 ramp analysis results are summarized in **Table 2-6**. The results of the operational analysis show that all study ramps have adequate capacity based on the volume. **Figure 2-7** illustrates the peak hour volumes and v/c ratios for the Existing Year 2019 ramp analysis.

Table 2-6: Existing Year 2019 Ramp Analysis Summary

Interchange	Ramp	Analysis Type	AM Peak Hour				PM Peak Hour			
			Volume	Density [1]	LOS	V/C	Volume	Density[1]	LOS	V/C
I-95 at Woolbright Road	NB Off	Diverge	654	10.6	B	0.18	1,037	20.4	C	0.28
	SB On	Merge	1,255	27.3	C	0.68	719	18.2	B	0.39

1. Density = passenger cars/mile/lane

Weaving Analysis

The Existing Year 2019 weaving analysis results are summarized in **Table 2-7**. The results of the weaving operational analysis show that all the weaving segments operate at acceptable LOS of D or better expect I-95 NB weave between Woolbright Road and Boynton Beach Boulevard during the PM Peak Hour. **Figure 2-7** illustrates the peak hour volumes and LOS results for the Existing Year 2019 weaving analysis.

Table 2-7: Existing Year 2019 Build Weaving Analysis Summary

Weaving Segment	Direction	AM Peak Hour				PM Peak Hour			
		Volume	Density[1]	LOS	V/C	Volume	Density[1]	LOS	V/C
I-95 between Woolbright Road and Boynton Beach Boulevard	NB	7,021	24.8	C	0.56	10,514		F	0.84
	SB	9,721	32.4	D	0.94	7,185	21.9	C	0.77

1. Density = passenger cars/mile/lane

Intersection Analysis

The Existing Year 2019 intersection analysis results are summarized in **Table 2-8**. All study intersections are signalized and were analyzed using field signal timing and phasing plans for AM and PM peak hours. No signal optimization was performed when analyzing Existing Year 2019 conditions. In Existing Year 2019, the results indicate several operational deficiencies along Woolbright Road within the study area. The following intersection operate at LOS E or worse during AM and PM peak hours:

- Woolbright Road at I-95 SB On/Off-Ramps
- Woolbright Road at I-95 NB On/Off-Ramps
- Woolbright Road at Seacrest Boulevard

There are several individual movements at these intersections that will operate at LOS F. These movements are listed below:

Woolbright Road at Corporate Drive/SW 8th Street

- NB through/right-turn (PM peak hour)

Woolbright Road at I-95 SB On/Off-Ramps

- EB right-turn (AM and PM peak hours)
- WB through (PM peak hour)
- SB left-turn (AM and PM peak hours)

Woolbright Road at I-95 NB On/Off-Ramps

- WB right-turn (AM and PM peak hours)
- NB left-turn (AM and PM peak hours)

Woolbright Road at Seacrest Boulevard

- EB through/right-turn (PM peak hour)

Figure 2-7 illustrates the peak hour volumes and LOS results for the Existing Year 2019 intersection analysis.

Table 2-8: Existing Year 2019 Intersection Analysis Summary

Intersection	Intersection Approach				Overall Intersection	
	Approach	Movement	Delay (sec)	LOS	Delay (sec)	LOS
			AM (PM)	AM (PM)	AM (PM)	AM (PM)
Woolbright Road at Corporate Drive/SW 8th Street	Eastbound	Left	17.7 (65.2)	B (E)	36.1 (46.3)	D (D)
		Through	32.6 (34.7)	C (C)		
		Right	22.9 (25.1)	C (C)		
	Westbound	Left	52.9 (40.2)	D (D)		
		Through	27.3 (53.9)	C (D)		
		Right	0.0 (7.3)	A (A)		
	Northbound	Left	56.8 (44.0)	E (D)		
		Through/Right	62.2 (80.0)	E (F)		
	Southbound	Left	69.7 (73.7)	E (E)		
		Through/Right	55.6 (46.9)	E (D)		
Woolbright Road at I-95 Southbound Ramps	Eastbound	Through	34.6 (46.3)	C (D)	62.1 (84.5)	E (F)
		Right	134.2 (90.8)	F (F)		
	Westbound	Left	26.3 (39.5)	C (D)		
		Through	30.9 (99.5)	C (F)		
	Southbound	Left	161.9 (257.3)	F (F)		
		Right	1.1 (1.2)	A (A)		
Woolbright Road at I-95 Northbound Ramps	Eastbound	Left	26.0 (34.1)	C (C)	70.2 (123.2)	E (F)
		Through	15.4 (15.0)	B (B)		
	Westbound	Through	53.5 (43.1)	D (D)		
		Right	122.8 (156.2)	F (F)		
	Northbound	Left	290.0 (663.4)	F (F)		
		Right	0.3 (0.6)	A (A)		
Woolbright Road at Seacrest Boulevard	Eastbound	Left	14.7 (73.2)	B (E)	50.2 (72.6)	D (E)
		Through/Right	48.1 (91.8)	D (F)		
	Westbound	Left	34.9 (39.2)	C (D)		
		Through/Right	34.5 (62.0)	C (E)		
	Northbound	Left	75.9 (73.1)	E (E)		
		Through/Right	39.5 (49.9)	D (D)		
	Southbound	Left	67.4 (73.0)	E (E)		
		Through/Right	63.1 (68.3)	E (E)		

In the existing year, the existing storage accommodates the 95th Percentile queue at all intersection approaches except the following (marked as red in Table 2-9):

- EB left turn at Woolbright Road and SW 8th Street intersection (PM peak hour)
- SB left turn at Woolbright Road and SW 8th Street intersection (AM peak hour)
- WB right-turn at Woolbright Road and I-95 NB ramp terminal (AM peak hour)
- EB through at Woolbright Road and Seacrest Boulevard intersection (AM and PM peak hours)

- EB left turn at Woolbright Road and Seacrest Boulevard intersection (PM peak hour)
- WB through at Woolbright Road and Seacrest Boulevard intersection (PM peak hour)
- SB through at Woolbright Road and Seacrest Boulevard intersection (AM peak hour)

Table 2-9 summarizes the queue analysis for Existing Year 2019

Table 2-9: 95th Intersection Percentile Queue Length Summary – Existing Year 2019

Intersection	Time Period	95th Percentile Queue Length (feet)											
		Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Woolbright Road at Corporate Drive /SW 8th Street	AM Peak	105	498	0	262	253	0	54	85	-	279	259	-
	PM Peak	255	503	0	m68	m#762	m6	186	342	-	237	103	-
	Existing Storage (feet)	250	1,300	200	300	1,250	350	400	>1,000		250	>1,000	
Woolbright Road at I-95 Southbound Ramps	AM Peak	-	295	#905	m72	m126	-	-	-	-	#436	-	0
	PM Peak	-	496	364	m84	m543	-	-	-	-	#573	-	0
	Existing Storage (feet)	-	1,250	1,350	900	3,150	-	-	-	-	1,700	-	150
Woolbright Road at I-95 Northbound Ramps	AM Peak	m133	m96	-	-	m268	m#702	#344	-	0	-	-	-
	PM Peak	m205	m106	-	-	m220	m#585	#645	-	0	-	-	-
	Existing Storage (feet)	900	2,150	-	-	2,250	650	1,300	-	350	-	-	-
Woolbright Road at Seacrest Boulevard	AM Peak	m57	#798	-	112	432	-	#356	166	-	131	301	-
	PM Peak	m218	#1090	-	70	#798	-	#397	324	-	144	230	-
	Existing Storage (feet)	150	615		150	530		450	775		150	250	

2.16 Safety Analysis

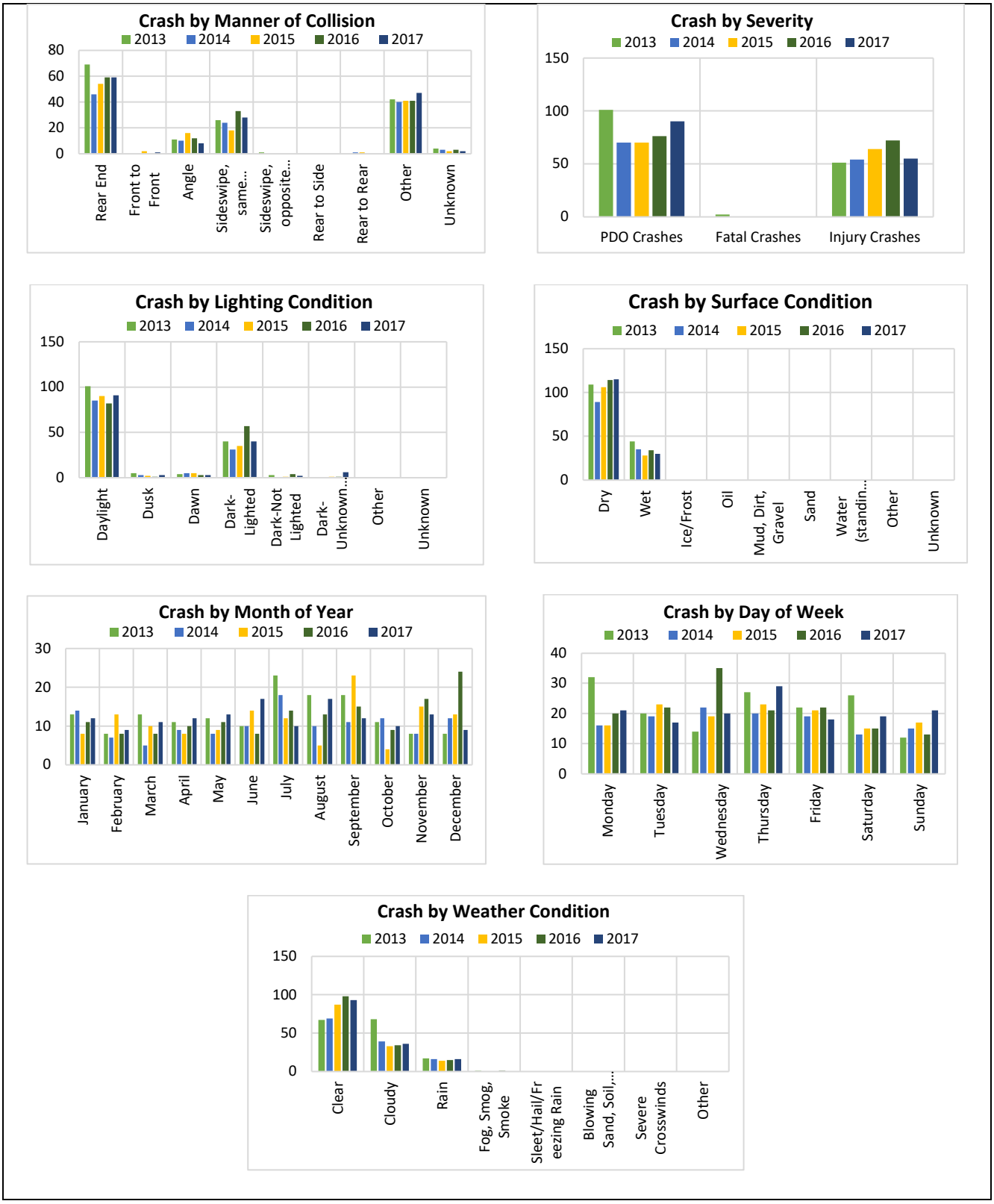
Vehicular crash data along I-95, Woolbright Road and at the interchange ramps were obtained from the FDOT SSOGis Tool. SSOGis is a database maintained annually by FDOT for crashes reported along the state highway facilities. The database provides information on various characteristics associated with each crash including: collision type, severity, weather conditions, road surface conditions and date/time information. The crash data was collected for the most recent five years available (2013-2017). The crashes were analyzed to assess safety conditions along I-95, Woolbright Road and at the interchange ramps within the project limits. A complete crash analysis was performed as part of the IMR and is consistent with the methods outlined in the Highway Safety Manual 1st Edition (HSM). The following section summarize the crash analysis performed.

2.16.1 I-95 Mainline

The crash analysis results reveal that there was a total of 704 crashes on I-95 within the project area during the five study years (2013-2017). Of these 704 crashes, front to rear (rear-end) crashes were the most common type of crash accounting for 287 (40.8%) of total crashes followed by 129 sideswipe crashes accounting for (18.3%), and 57 angle crashes (8.1%) of total crashes. Majority of the crashes (449 crashes 63.8%) occurred under daylight conditions with 221 crashes (31.4%) occurred during nighttime. The percentage of nighttime crashes is lower than the statewide percentage of 33%. Poor surface conditions contributed only marginally to the number of crashes recorded over the five-year period as 533 (75.7%) of the total crashes occurred during clear weather conditions and on dry pavement surface. 171 of crashes (24.3%) occurred on wet pavement. This is higher than the statewide average of 15%.

There were two (2) fatal crashes that occurred within the study limits on the I-95 mainline during the five-year period. Property Damage Only (PDO) crashes accounted for 407 (57.7%) of all crashes; 296 crashes resulted in Injury. Among the contributing causes documented in the crash data, “carelessness of negligent manner” (246 crashes, 34.9%), resulted in the most crashes. Other contributing causes included “drove too fast for conditions” (37 crashes, 5.3%), “failed to keep in proper lane” (28 crashes, 4.0%), “followed too closely” (26 crashes, 3.7%) “over-correcting/over-steering” (22 crashes, 3.1%), “swerved or avoided” (18 crashes, 2.6%), “improper passing” (13 crashes, 1.8%). A significant number of crashes were documented to have been the result of “no contributing action” (134 crashes, 19.0%) and “other contributing action” (85 crashes, 12.1%). **Figure 2-8** shows the crash summary along I-95 mainline within the study area.

Figure 2-8: I-95 Mainline Crash Summary Statistics Histograms (2013-2017)

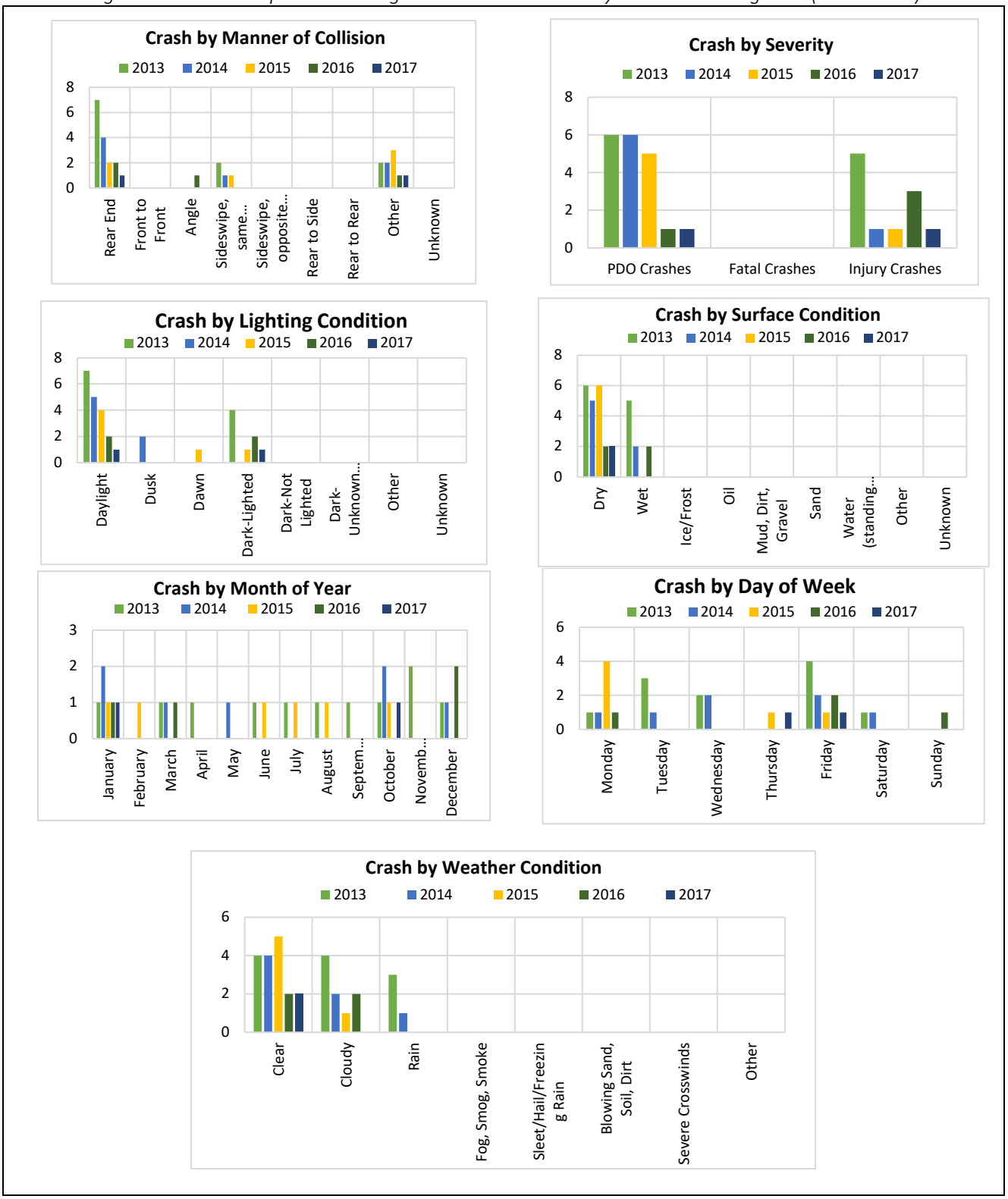


2.16.2 I-95 Ramps at Woolbright Road

The crash analysis results reveal that there was a total of 30 crashes on the I-95 ramps at Woolbright Road Interchange within the project area during the five study years (2013-2017). Of these 30 crashes, front to rear (rear-end) crashes were the most common type of crash accounting for 16 (53.3%) of total crashes followed by 4 sideswipe crashes accounting for (13.3%), and 1 angle crash (3.3%) of total crashes. Majority of the crashes (19 crashes 63.3%) occurred under daylight conditions with 8 crashes (26.7%) occurred during nighttime. The percentage of nighttime crashes is lower than the statewide percentage of 33%. Poor surface conditions contributed only marginally to the number of crashes recorded over the five-year period as 21 (70.0%) of the total crashes occurred during clear weather conditions and on dry pavement surface. 9 of crashes (30.0%) occurred on wet pavement, this is higher than the statewide average of 15%.

There were no fatal crashes that occurred within the study limits along the I-95 ramps during the five-year period. PDO crashes accounted for 19 (63.3%) of all crashes; 11 crashes resulted in Injury. Among the contributing causes documented in the crash data, “carelessness of negligent manner” (13 crashes, 43.3%) resulted in the most crashes. Other contributing causes included “failed to keep in proper lane” (3 crashes, 10.0%), “improper passing” (2 crashes, 6.7%). A significant number of crashes were documented to have been the result of “no contributing action” (2 crashes, 6.7%) and “other contributing action” (3 crashes, 10.0%). **Figure 2-9** shows the crash summary along I-95 ramps within the study area.

Figure 2-9: I-95 Ramps at Woolbright Road Crash Summary Statistics Histograms (2013-2017)



2.16.3 Woolbright Road

The crash analysis results reveal that there was a total of 341 crashes on Woolbright Road within the project area during the five study years (2013-2017). Of these 341 crashes, front to rear (rear-end) crashes were the most common type of crash accounting for 163 (47.8%) of total crashes followed by 76 angle crashes accounting for (22.3%), and 27 sideswipe crashes (7.9%), 2 pedestrian crashes (0.6%) of total crashes. Majority of the crashes (256 crashes 75.1%) occurred under daylight conditions with 73 crashes (21.4%) occurred during nighttime. The percentage of nighttime crashes is lower than the statewide percentage of 33%. Poor surface conditions contributed only marginally to the number of crashes recorded over the five-year period as 289 (84.8%) of the total crashes occurred during clear weather conditions and on dry pavement surface. 52 of crashes (15.2%) occurred on wet pavement. This is just above the statewide average of 15%.

One (1) fatal crash occurred along Woolbright Road within the study limits during the five-year period. Property Damage Only (PDO) crashes accounted for 192 (56.3%) of all crashes; 148 crashes resulted in Injury. Among the contributing causes documented in the crash data, “carelessness of negligent manner” (119 crashes, 34.9%), resulted in the most crashes. Other contributing causes included “failed to yield right-of-way” (45 crashes, 13.2%), “followed too closely” (22 crashes, 6.5%), “ran red light” (23 crashes, 6.7%). A significant number of crashes were documented to have been the result of “no contributing action” (21 crashes, 6.2%) and “other contributing action” (26 crashes, 7.6%). **Figure 2-10** shows the crash summary along Woolbright Road within the study area.

2.16.4 Crash Hotspots

A crash accumulation analysis was conducted along Woolbright Road to identify specific segments or intersections with high crash frequencies and identify possible roadway deficiencies that can be improved. The crash accumulation analysis is graphically illustrated in **Figure 2-11**. Based on analysis, the following locations were identified as high crash frequency locations with greater than 10 crashes for the five-year period.

SW 8th street provides access to the Lowe’s Home Improvement store, The Home Depot as well as several residential neighborhoods and businesses. Seacrest Boulevard provides access to Boynton Beach Utilities Department as well as residential neighborhoods and businesses.

Figure 2-10: Woolbright Road Crash Summary Statistics Histograms (2013-2017)

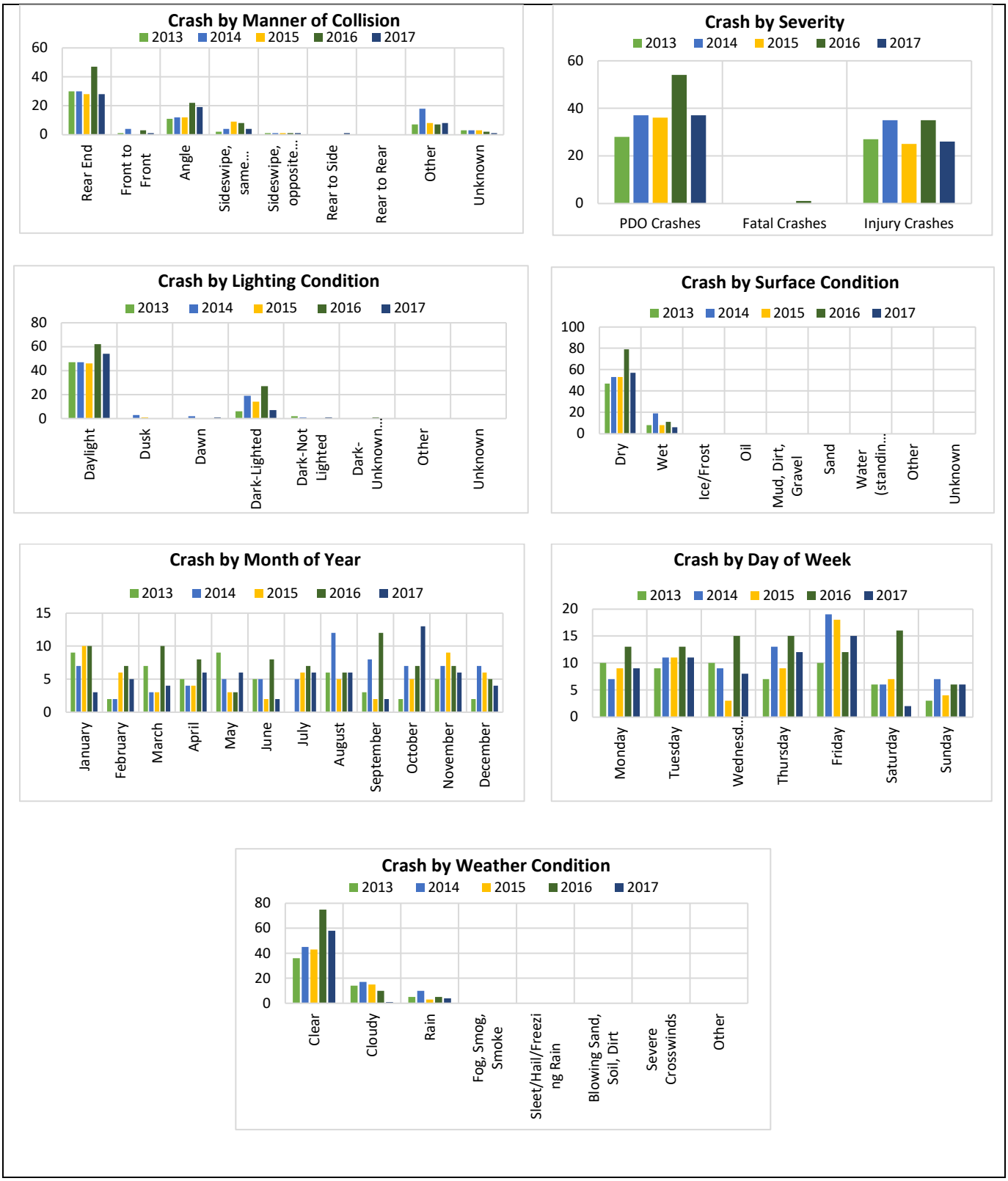
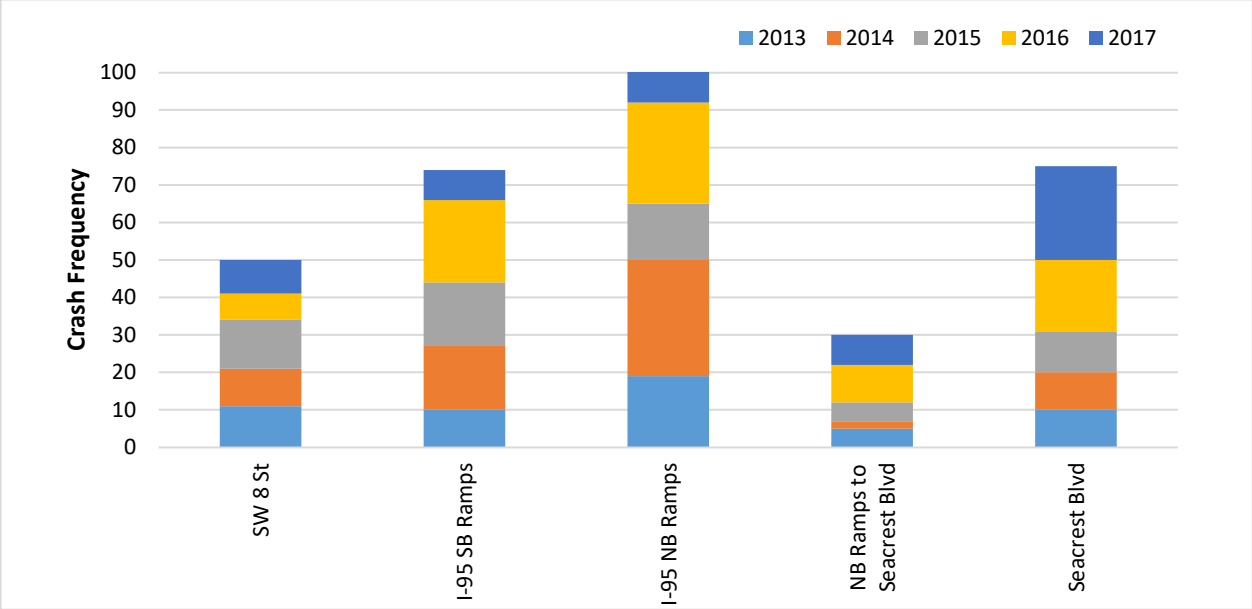


Figure 2-11: Safety Hotspots along Woolbright Road



Based on the crash analysis, a total of 332 crashes occurred within this hotspot areas identified from 2013 to 2017. Rear-end crashes were the predominant crash type accounting for 158 crashes (47.6%) of the total crashes followed by 76 angle crashes (22.9%), 24 sideswipe crashes (7.2%), and 25 fixed object crashes (7.5%). Among the contributing causes documented in the crash data, 'carelessness or negligent manner' (112 crashes, 33.7%), 'failed to yield right of way ' (45 crashes, 13.6%), 'no contributing action' (20 crashes, 6.0%), 'followed too closely' (22 crashes, 6.6%), 'improper turn' (2 crashes, 0.6%) and 'ran red light' (23 crashes, 6.9%) were among the highest.

Most of the rear-end crashes occurring at I-95 NB ramp terminal intersection were mainly due to drivers following too closely and failing to yield the right of way, which may be attributed to inadequate signal timing for the intersection. At Seacrest Boulevard intersection, most of the angle crashes were attributed to 'failed to yield right of way' which could also be due to difficulty in judging correctly adequate gaps for the Woolbright traffic stream in order to make left-turn maneuver at this intersection.

2.16.5 Fatal Crashes

Fatal crashes are major concern in roadway safety analysis. Based on the crash data, there were a total of 3 fatal crashes within the study area. Two fatal crashes occurred on I-95 and one fatal crash on Woolbright Road.

The SSOGIS crash data were reviewed to identify specific contributing factors that may have caused these fatal crashes. The two fatal crashes that occurred along I-95 NB S of Woolbright Road were caused when the vehicles lost control while driving careless. These fatal crashes occurred under dry surface conditions and during the daytime. The fatal crash on Woolbright Road between the NB ramp terminal and Seacrest Boulevard occurred under dry surface condition and during the nighttime.

2.17 Interchanges, Intersections and Signalization

The study interchange is a diamond interchange. The southbound/northbound on-ramps to I-95 are two-lane ramps that transition into a single-lane ramp before merging onto I-95. The on ramps become additional auxiliary lanes on I-95: in the NB direction it becomes a trap lane exit onto Boynton Beach Blvd, and in the SB direction, the lane merges approximately 2,600 feet south of the physical gore point.. The southbound/northbound off-ramps from I-95 are two lane ramps, that provide dual left and right turns to access Woolbright Road.

Corporate Drive/SW 8th Street: The intersection of Corporate Drive/SW 8th Street and Woolbright Road is a four-leg actuated-coordinated signalized intersection. The intersection utilizes a span wire assembly with strain poles located in all four corners of the intersection.

Southbound Ramp Terminal: The I-95 southbound ramps intersection is a four-leg actuated-coordinated signalized intersection. The intersection utilizes a span wire assembly with strain poles located in all four corners of the intersection. The intersection has the following lane configuration:

- Northbound Approach: I-95 On-Ramp
- Southbound Approach: dual left-turn lanes (1,900 feet of storage) and dual right-turn lanes (1,900 feet of storage)
- Eastbound Approach: four through lanes (two with 425 feet of storage) and one right-turn lane (750 feet of storage),
- Westbound Approach: dual left-turn lanes (340 feet of storage) and three through lanes.

Northbound Ramp Terminal: The I-95 northbound ramps intersection is a four-leg actuated-coordinated signalized intersection. The intersection utilizes a span wire assembly with strain poles located in the northeast, northwest, and southwest corners of the intersection. The intersection has the following lane configuration:

- Northbound Approach: dual left-turn lanes (2,100 feet of storage) and dual right-turn lanes (2,100 feet of storage),
- Southbound Approach: I-95 On-Ramp,
- Eastbound Approach: dual left-turn lanes (340 feet of storage) and two through lanes,
- Westbound Approach: four through lanes (two with 240 feet of storage) and one right-turn lane (315 feet of storage).

2.18 Structures

There are three existing bridges within this interchange, namely Woolbright Road over I-95 (Bridge # 930301), Woolbright Road over SFRC/CSX (Bridge # 930300) and Woolbright Road over the Lake Worth Drainage District E-4 Canal (Bridge # 934461). The Following was obtained from the Bridge Inspection Report (BIR) which was obtained from the District Structures and Facilities library for the structure.

The existing Woolbright Road Bridge over I-95 (Bridge # 930301), constructed in 1975, is a prestressed concrete – stringer/girder type structure (**Figure 2-12**). It is comprised of four (4) spans with maximum span length of 99'-10". The overall length of bridge is 271'-8". The total bridge width is 97'-9". The bridge currently carries two (2) through lanes and two left-turn lane in each direction, separated by a 4' wide traffic separator. It should be noted that this traffic separator has been streamlined, but 4' wide traffic separator was maintained by PBC under project number 2004510. The work by PBC entailed the modification of the traffic separator/median on the Woolbright Road overpass to extend the exclusive eastbound and westbound left-turn lanes onto I-95. The existing traffic railing is of concrete post and beam type. The minimum vertical clearance is 16'-5". The BIR also provided descriptions and pictures of the deficiencies that exist on these bridges. District IV Structures and Facility Maintenance Offices Bridge Inspection Reports indicate a very good to excellent overall NBI ratings for bridge # 930301. The sufficiency rating is 90.7 out of a possible 100, whereas the health index is 99.93 out of a possible 100.

Figure 2-12: View looking North – Woolbright Road over I-95 (Bridge # 930301)

The existing bridge over the SFRC/CSX Railroad (Bridge # 930300), constructed in 1975, is a prestressed concrete – stringer/girder type structure (**Figure 2-13**). It is comprised of three spans with maximum span length of 50'-4". The overall length of bridge is 142'-4". The total bridge width is 109'-9". The bridge currently carries three (3) through lanes and one (1) right-turn lane in the eastbound direction, and three (3) through lanes in the westbound direction. They are separated by a 14'-6" wide traffic separator. It should be noted that this traffic separator has been reduced to a minimum width of 4' by PBC under project number 2004510. The existing traffic railing is of concrete post and beam type. The minimum vertical clearance is 22'-7". The BIR also provided descriptions and pictures of the deficiencies that exist on these bridges. District IV Structures and Facility Maintenance Offices Bridge Inspection Reports indicate a good to very good overall NBI ratings for bridge # 930300. The sufficiency rating is 91.1 out of a possible 100, whereas the health index is 85.74 out of a possible 100.

Figure 2-13: View looking South – Woolbright Road over SFRC (Bridge # 930300)

The existing Woolbright Road bridge over the Lake Worth Drainage District E-4 Canal (Bridge # 934461), constructed in 1971, is a prestressed concrete – slab type structure (**Figure 2-14**). It is comprised of three (3) spans with maximum span length of 20'-8". The overall length of bridge is 60'-6". The total bridge width is 87'. The bridge currently carries three (3) through lanes in each direction, separated by a 5'-6" wide traffic separator. The BIR also provides descriptions and pictures of the deficiencies that exist on these bridges. District IV Structures and Facility Maintenance Offices Bridge Inspection Reports indicate a good overall NBI ratings for bridge # 934461. The sufficiency rating is 95.0 out of a possible 100, whereas the health index is 95.88 out of a possible 100.

Figure 2-14: View looking South – Woolbright Road over E-4 Canal (Bridge #934461)

2.18.1 Vertical Clearance

The primary purpose of having adequate vertical clearance to structures going over roadways and railroads consists of providing safe passage to tall design vehicles or rail cars beneath these structures. The January 2020 FDOT FDM specifies that the highest point on the roadway below a bridge structure has to measure a minimum of 16.5-ft to the lowest point (low member) beneath the structure. This includes provisions for a future underpass resurfacing of 6" over the existing pavement elevation. For railroad underpasses, a minimum 23.5-ft vertical clearance is recommended which includes allowance for 12" of railroad track adjustments. The South Florida Rail Corridor (SFRC) however, has a greater clearance requirement set at 24.25-ft.

AASHTO requires a minimum vertical clearance of 16-ft for structures passing over roadway including auxiliary lanes and the usable width of shoulders. Further guidance allows a minimum vertical clearance of 14-ft in highly urbanized areas provided there is an alternate facility with the minimum 16-ft clearance. For railroad underpasses, AASHTO recommends a minimum vertical clearance of 23-ft.

An evaluation of the existing bridges within the project limits indicates that the Woolbright Road Bridge over the SFRC (#930300) has 22'-8" vertical clearance & does not meet the FDOT vertical clearance requirements

over the SFRC and AASHTO vertical clearance requirements for railroad underpass; bridge over SR9/I-95 (#930301) has 16'-5" vertical clearance & meets FDOT vertical clearance requirements for roadways.

2.18.2 Horizontal Clearance

The horizontal clearance underneath the existing bridges is the lateral distance from the roadway edge of travel lane to the bridge abutment or piers. The horizontal clearance requirements for roadside features and objects are based on providing the required clear zone. Both the FDOT FDM and AASHTO require bridge piers and abutment walls to be placed outside the clear zone unless shielded by a crashworthy barrier. A field review of the project corridor indicated that bridges 930300, and 930301 are adequately protected by barrier wall and/or guardrail.

2.18.3 Historical Significance

The existing bridges within the project study area were reviewed to determine if any are considered historic or possess any substantial community value. As previously mentioned, the existing bridges were originally constructed in 1975 and were widened in 2014. As such, most of these bridges are either non-historic or have non-historic reconstruction dates and are not eligible for listing in the National Register of Historic Places (NRHP).

2.19 Existing ITS Infrastructure

The existing ITS infrastructure at the I-95 and Woolbright Road interchange consists of 144-strand single mode fiber optic cable running along the northbound portion of I-95 on the east side. The conduit for fiber consists of two (2) two-inch HDPE and the conduit for power consists of one (1) two-inch HDPE conduit. ITS devices consist of two (2) MVDS and two (2) CCTV. One MVDS is located on the east side of northbound I-95 south of the northbound Woolbright Road off-ramp and detects the northbound I-95 lanes. The second MVDS is located on the east side of northbound I-95 north of the northbound I-95 Woolbright Road on-ramp and detects the southbound I-95 lanes. One CCTV is located on the east side of northbound I-95 just north of the Woolbright Road bridge. This CCTV is owned and operated by FDOT District 4. The second CCTV is located on the corner of Woolbright Road and the northbound I-95 on-ramp. This CCTV is owned and operated by Palm Beach County. All four (4) of the ITS devices are provided with a splice vault adjacent to the device location, for a total of four (4) splice vaults.

2.20 Drainage

Generally, all the drainage within the study area enters the E-4 Canal. East of the railroad bridge runoff is piped directly to the canal. The four interchange infield ponds are interconnected and discharged to an FDOT ditch where it ultimately enters the E-4 Canal south of Woolbright Road. A Concept Drainage Report (CDR) was prepared as part of this project and outlines the drainage analysis conducted for this project.

The existing drainage basins for the project area are the 'Canal Basin', 'Interchange Basin', and 'East Basin'. Currently, drainage west of the SRFC rail bridge flows west into the canal, untreated. The Interchange Basin contains the stormwater management facilities that are responsible for collection and treatment of stormwater before it is discharged. There are four sub-basins within the interchange basin.

The project lies almost entirely within the E-4 Canal segment of the Lake Worth Lagoon, WBID# 3262. East of the interchange the project extends into the Intracoastal Waterway (ICWW) Waterbody Identification Number (WBID#) 3226F3. WBID# 3262 has been classified as impaired for Chlorophyll-a and WBID# 3226F3 is listed as impaired for Copper by the Florida Department of Environmental Protection (FDEP). A TMDL has NOT been established for the watershed.

In January 1997 FDEP and Palm Beach County formed the Lake Worth Lagoon Ecosystem Management Area team. A Surface Water Improvement and Management (SWIM) plan for the Lake Worth Lagoon was developed to identify goals and objectives for restoring the lagoon.

2.21 Existing Land Use

The interchange falls within Palm Beach County. According to the FDOT District Four Generalized Land Use Map, the primary land uses along I-95 and Woolbright Road is a mix of commercial, residential, and education etc. **Table 2-10** summarizes the existing Land Use within the study area.

Land use directly adjacent to the I-95 at Woolbright Road interchange between SW 8th Street and the interstate on the northwest and southwest quadrant are primary commercial. Residential uses are located behind the adjacent commercial uses on the northwest quadrant.

Educational uses with some residential uses are located at northeast quadrant of the interchange. More additional residential uses are located on the southeast quadrant of the interchange.

Table 2-10: Existing Land Use

Land Use Type	Acres	Percentage
Residential	230	40.23
Vacant Residential	1	0.17
Retail/Office	56	9.79
Public/Semi-Public	52	9.09
Industrial	19	3.32
Parcels with No Values	15	2.62
Institutional	13	2.27
Recreation	12	2.10
Right of Way	10	1.75
Water	5	0.87
Vacant Nonresidential	1	0.17

2.22 Environmental Features

2.22.1 Community Facilities

Community facilities provide information on the types of population groups present in the study area and facility staff and leaders can be sources of community information. **Table 2-11** identifies community facilities by type in the Sociocultural Effects (SCE) Study Area.

Table 2-11: Community Facilities

Name	Address	Type
Forest Park Elementary School	1201 SW 3rd Street	Public and Private Schools/ Group Care Facilities
Little League Park	SW 15th Avenue and SW 3rd Street	Florida Parks and Recreational Facilities
Parkside Inn	1613 SW 3rd Street	Group Care Facilities

2.22.2 Demographics

Demographic data was generated to assist in defining the community surrounding the project area, including population size, gender, age composition, race and ethnicity, income, disability, educational attainment, housing, and language trends of the affected community. Data presented below is from the American

Community Survey (ACS) 2014-2018 five-year estimates. Following are comparisons between the demographics within the Study Area and in Palm Beach County.

The total population in the study area is 3,418 persons, 1,526 of whom are males (44.65%) and 1,892 are female (55.35%). The median age in Palm Beach County is 44.6 years whereas within the Study Area it is 63 years. The distribution of age groups is shown in **Table 2-12**.

Minority is defined as people who are multi-racial, people who are any single race other than White, and Hispanic or Latino of Any Race. The study area has a lower percentage of Hispanics or Latinos of Any Race and a higher percentage of ethnicities that are Not Hispanic or Latino than Palm Beach County. The percentage of people in the Study Area that identify as White Alone is 69.02%. **Table 2-13** shows race and ethnicity comparison.

The language trends of people in the study area that are not native English speakers are presented in **Table 2-14**. It is estimated that 14.25% of the total population in the study area are not native English speakers. Of the total population, an estimated 7.77% speak English not well or not at all. This highlights the need for developing communication materials in languages other than English. Other languages spoken in the project area include Spanish, Indo-European languages, and Asian and Pacific Island languages.

The study area has lower median household and median family Incomes than in Palm Beach County and a higher percentage of the population is below the poverty level, as shown in **Table 2-15**. More than twice the percentage of households in the study area receive public assistance income than in Palm Beach County.

Based on the reviewed 2018 data, there are 1,674 housing units in the study area, or 4.34 units per acre. Of these, 1,081 are single-family units, 590 are multi-family units and three are mobile home units. There are 950 owner-occupied units, 398 renter-occupied units and 326 vacant units. In addition, the data indicates that 191 persons, or 10.07%, of the population ages 20 to 64 have a disability. Information on persons over 65 with a disability is not provided.

Table 2-12: Age Group Comparison

Age Group	Study Area (%)	Palm Beach County (%)
Under Age 5	4.68	5.13
Ages 5 -17	10.59	14.23
Ages 18-21	5.32	4.46
Ages 22-29	9.92	9.32
Ages 30-39	11.23	11.54
Ages 40-49	13.46	12.21
Ages 50-64	17.61	19.81
Age 65 and Over	27.03	23.29

Table 2-13: Race and Ethnicity Comparison

Race or Ethnicity	Study Area (#)	Study Area (%)	Palm Beach County (%)
White Alone	2,359	69.02	74.02
Black or African American Alone	872	25.51	18.56
Native Hawaiian or Pacific Islander	0	0.00	0.04
Asian Alone	59	1.73	2.69
American Indian or Alaska Native	0	0.00	0.17
Some Other Race Alone	29	0.85	2.43
Claimed 2 or More Races	97	2.84	2.09
Hispanic or Latino of Any Race	507	14.83	21.85
Not Hispanic or Latino	2,911	85.17	78.15
Minority	1,466	42.89	44.70

Table 2-14: SCE Study Area by Language

Description	Number	Percentage
Speaks English Well	211	6.48%
Speaks English Not Well	193	5.92%
Speaks English Not At All	60	1.84%
Speaks English Not Well or Not At All	253	7.77%

Table 2-15: Income Comparison

Description	Study Area	Palm Beach County
Median Household Income	$39,702	$59,943
Median Family Income	$59,680	$74,536
Population Below Poverty Level	14.39%	12.82%
Households Below Poverty Level	11.64%	11.77%
Households with Public Assistance Income	5.04%	2.16%

2.22.3 National Wetlands Inventory

Per review of the National Wetlands Inventory (NWI), no jurisdictional wetlands are present within 500 feet of the project limits. The E-4 Canal and feeder canals are located west of I-95 and west of SW 8th Street/Corporate Drive. These water bodies display relatively steep banks, too deep to support emergent wetland vegetation, and are therefore classified as Other Surface Waters.

2.22.4 Essential Fish Habitat

This project is located within the South Atlantic Fishery Management Council (SAFMC). However, the National Marine Fisheries Service (NMFS) provided comments in the Environmental Screening Tool (EST) on October 24, 2017 and assigned a degree of effect of no involvement. Per Part 2, Chapter 17 of the July 1, 2020 FDOT PD&E Manual, NMFS concluded that the proposed project would not directly impact areas that support Essential Fish Habitat (EFH) or National Oceanographic and Atmospheric Administration (NOAA) trust fishery resources and would not require an EFH Assessment.

2.22.5 Protected Species and Habitat

A summary of listed species and their Federal and/or State status is provided below in Table 2-16. The probability of occurrence was rated as High, Moderate or Low depending on the presence of preferred habitat in the project area and observations of records of occurrence.

A listed species assessment of the project corridor was conducted by E Sciences' biologists on May 27, 2020. Most of this highly urbanized project corridor consists of developed land (commercial and residential). Undeveloped areas that could provide habitat for wildlife were limited to the E-4 Canal and I-95 right-of-way. The wildlife field assessment consisted of visually inspecting vegetation for direct and secondary wildlife indicators via pedestrian survey. A detailed evaluation of the protected species and habitat is documented in the Natural Resources Evaluation (NRE) Report completed for this project. Continued coordination with natural resource and regulatory agencies regarding threatened and endangered species and Critical Habitat will be required during the design, permitting and construction phases of the project.

Table 2-16: Listed Species Potentially Present in the Project Area

Common Name	Scientific Name	Federal Status	State Status	Probability of Occurrence
BIRDS				
Florida Scrub Jay*	*Aphelocoma coerulescens*	T	T	Low
Wood stork**	*Mycteria americana*	T	T	Low
Burrowing owl	*Athene cunicularia*	N	T	Low
Little blue heron	*Egretta caerulea*	N	T	Low
Roseate spoonbill	*Platalea ajaja*	N	T	Low
Tricolor heron	*Egretta tricolor*	N	T	Low
MAMMALS				
West Indian manatee	*Trichechus manatus*	T	T	Low
PLANTS				
Tiny Polygala	*Polygala smallii*	E	E	Low
REPTILES				
Eastern indigo snake	*Drymarchon corais couperi*	T	T	Moderate
Gopher tortoise	*Gopherus polyphemus*	N	T	Moderate

Notes:

Species: *=Project falls within USFWS Consultation Area for this species; **=Project falls within Core Foraging Area of three wood stork nesting colonies (Lox NC-4, Solid Waste Authority and Wakodahatchee).

Status: T = Threatened, E = Endangered, N = Not Listed

Probability of Occurrence: High = preferred habitat exists within project limits and species have been observed or reported in the project areas; Moderate = some preferred habitat exists within the project limits and there is a potential for the species to be present, but has not been observed in the project area; Low = preferred habitat is limited or lacking within the project limits and species have not been observed in the project area.

2.22.6 Contamination

Based on evaluation of existing data and information collected, and the site reconnaissance conducted on June 11, 2020 a summary of information compiled for each site is provided in **Table 2-17**. No non-landfills solid waste sites were identified within 1,000 feet of the corridor, or Superfund CERCLA or landfill sites within 0.5 miles of the corridor. A detailed evaluation of the contamination sites within the project area is documented in the Contamination Screening Evaluation Report (CSER) completed for this project.

Table 2-17: Summary of Contamination Sites

ID	Name	Facility ID	Regulatory Database	Distance & Direction from Corridor (Feet)	Storage Tanks Present	Type	Risk Rating
1	BETHESDA COPY ENTER 3800 S CONGRESS AVE STE #15	CHAZ ID: FLD981932551	CHAZ RCRA	300 Northeast	None	None	No
2	LOWES OF BOYNTON BEACH FL #1111 1500 CORPORATE DR	CHAZ/CESQG ID: FLR000151035	CHAZ CESQG RCRA	110 South	None	None	No
3	HOME DEPOT #6309 1500-1520 SW 8TH ST	CHAZ ID: FLR000111914 STCM ID: 9810769	CHAZ STCM RCRA	165 North	1,320- Gal Diesel AST	None	No
4	BETTY SEINFELD CENTER 1501 CORPORATE DR	CHAZ ID: FLR000065573	CHAZ RCRA	90 South	None	None	No
5	FOREST PARK ELEMENTARY SCHOOL 1201 SW 3RD ST	CHAZ ID: FLD982158115	CHAZ RCRA	75 East	None	None	No
6	BOCA RATON ASSOCIATES 1501 CORPORATE DRIVE	SQG ID: 79738	SQG RCRA	90 South	None	None	No
7	DIRECT TRANSPORT-DELRAY SPILL ATLANTIC AVENUE & WOOLBRIGHT RD.	STCM ID: 9202780	SCTM	10 South	None	Petroleum	No
8	SAVE ON DRY CLEANERS 1859 W WOOLBRIGHT RD	CHAZ/SQG ID: FLR000103671 STCM ID: 9809009	CHAZ STCM SQG RCRA	75 North	None – Historical Tanks Removed	Solvents	Medium
9	BLESSED WOOLBRIGHT CLEANERS RDS OF BOYNTON INC 1869 SW 15TH AVE	CHAZ ID: FLR000050401	CHAZ RCRA	75 North	None	Solvents	Medium
10	RACETRAC #459 905 W WOOLBRIGHT RD	STCM ID: 9600708	SCTM	35 West	12,000-Gal Unleaded Gas UST 12,000-Gal e	Petroleum	Medium

Notes:

AST = Aboveground Storage Tank
CHAZ = FDEP Compliance & Enforcement Tracking for Hazardous Waste Facilities
EPA = United States Environmental Protection Agency
FDEP = Florida Department of Environmental Protection
RCRA = US EPA Resources Conservation and Recovery Action
SQG = Hazardous Waste Small Quantity Generator
STCM = Storage Tank Contamination Monitoring
UST = Underground Storage Tank

2.22.7 Cultural

A Cultural Resource Assessment Survey (CRAS) was completed as part of this study. The field survey and historical research resulted in the identification of three previously recorded resource groups and four newly identified resources within the Area of Potential Effect (APE).

The three previously recorded resource groups are:

- Seaboard Air Line (CSX) Railroad (8PB12917)
- E-4 Canal (8PB12918)
- Lake Worth Drainage District (LWDD) Resource Group (8PB13748)

The three previously recorded resources have not been documented or evaluated within the current project APE. Portions of the Seaboard Air Line (CSX) Railroad (8PB12917) within Palm Beach County have been evaluated as being eligible, and the railroad is typically considered National Register eligible. The portion of the resource within the current project APE maintains its historic association and integrity and is therefore considered eligible for the National Register.

The E-4 Canal (8PB12918) has been evaluated as ineligible south of the current project APE. The portion of the E-4 Canal within the current project APE is similar to the southern portion, historical research has not revealed any new information on the resource. Therefore, the current study finds that the portion of the E-4 Canal within the current project APE is ineligible for the National Register. The E-4 Canal within the APE is part of the larger LWDD (8PB13748) system of canals. Small portions of the LWDD have been previously recorded and evaluated as “insufficient information” based on the large expanse of the overall District. This system consists of hundreds of miles of canals and related infrastructure. Since the portion of the LWDD within the current APE is a small fraction of the entire resource, there is insufficient information to evaluate the entire resource in the current undertaking.

The four newly identified resources are all standing structures:

- 1401 SW 3rd Street (8PB19631)
- 313 W. Woolbright Road (8PB19632)
- 1515 SW 2nd Street (8PB19633)
- 455 North Boulevard (Units A-D) (8PB19634)

The four newly identified historic buildings within the current project APE are of a common style and type in South Florida and lack historical significance. Therefore, they are ineligible for individual listing in the National Register under Criteria A, B, C, or D.

FDOT Bridge No. 934461 (ca. 1971) is located within the project APE and meets the criteria for the 2012 Program Comment issued by the ACHP, Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges (ACHP 2012). Therefore, the bridge is exempt from Section 106 consideration and was not recorded on a Florida Master Site File (FMSF) form or evaluated.

During field review of the project APE, the surrounding area was also reviewed to identify any potential National Register-eligible historic districts. The two subdivision within the APE have been significantly altered with the construction of SR 9/I-95 on their boundaries and most buildings exhibit some form of exterior alteration that compromises historic integrity. Historic research also did not reveal any significant historic associations. Therefore, there are no potential historic districts within, or partially within, the current project APE.

2.22.8 Air Quality

The project is located in an area currently designated as being in attainment for the following criteria air pollutant(s): ozone/nitrogen dioxide/particulate matter (2.5 microns in size and 10 microns in size)/sulfur dioxide/carbon monoxide/lead. An Air Quality Technical Memorandum was completed as part of this project.

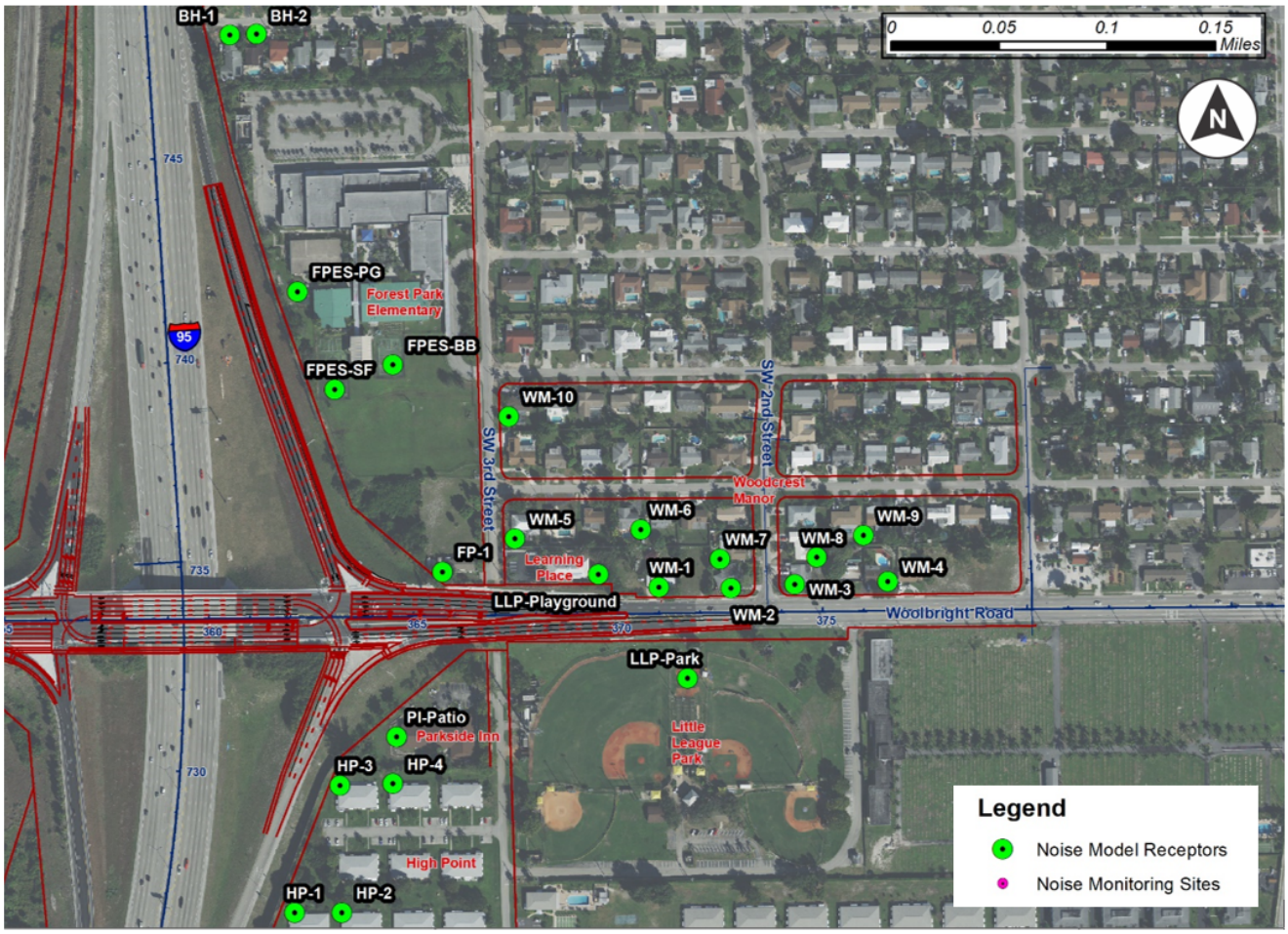
2.22.9 Existing Noise

A desk-top review of the project was performed to determine if noise levels will likely increase as a result of the proposed improvements, if noise sensitive receptor sites are located within the project area and/or if noise impacts are likely to occur. This desk-top review indicated that the proposed improvements associated with the project may cause design year (2045) traffic noise levels to approach or exceed the Federal Highway Administration (FHWA) Noise Abatement Criteria (NAC) at noise sensitive sites within the project limits. Therefore, in accordance with Part 2, Chapter 18 – *Highway Traffic Noise* of the FDOT PD&E Manual, a more detailed noise analysis was performed and completed as part of the Noise Study Report (NSR) completed for this project.

The developed lands along the project corridor were evaluated to identify the noise sensitive receptor sites that may be impacted by traffic noise associated with the proposed improvements. Noise sensitive receptor sites represent any property where frequent exterior human use occurs and where a lowered noise level would be of

benefit. This includes residential units (FHWA Noise Abatement Activity Category B), other noise sensitive areas including parks, playgrounds and schools (Category C) and certain commercial properties (Category E). Noise sensitive sites also include interior use areas where no exterior activities occur for facilities such as auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship. Noise sensitive sites along the project are shown on **Figure 2-15.**

Figure 2-15: View looking South – Woolbright Road over E-4 Canal (Bridge #934461)



3. FUTURE CHARACTERISTICS

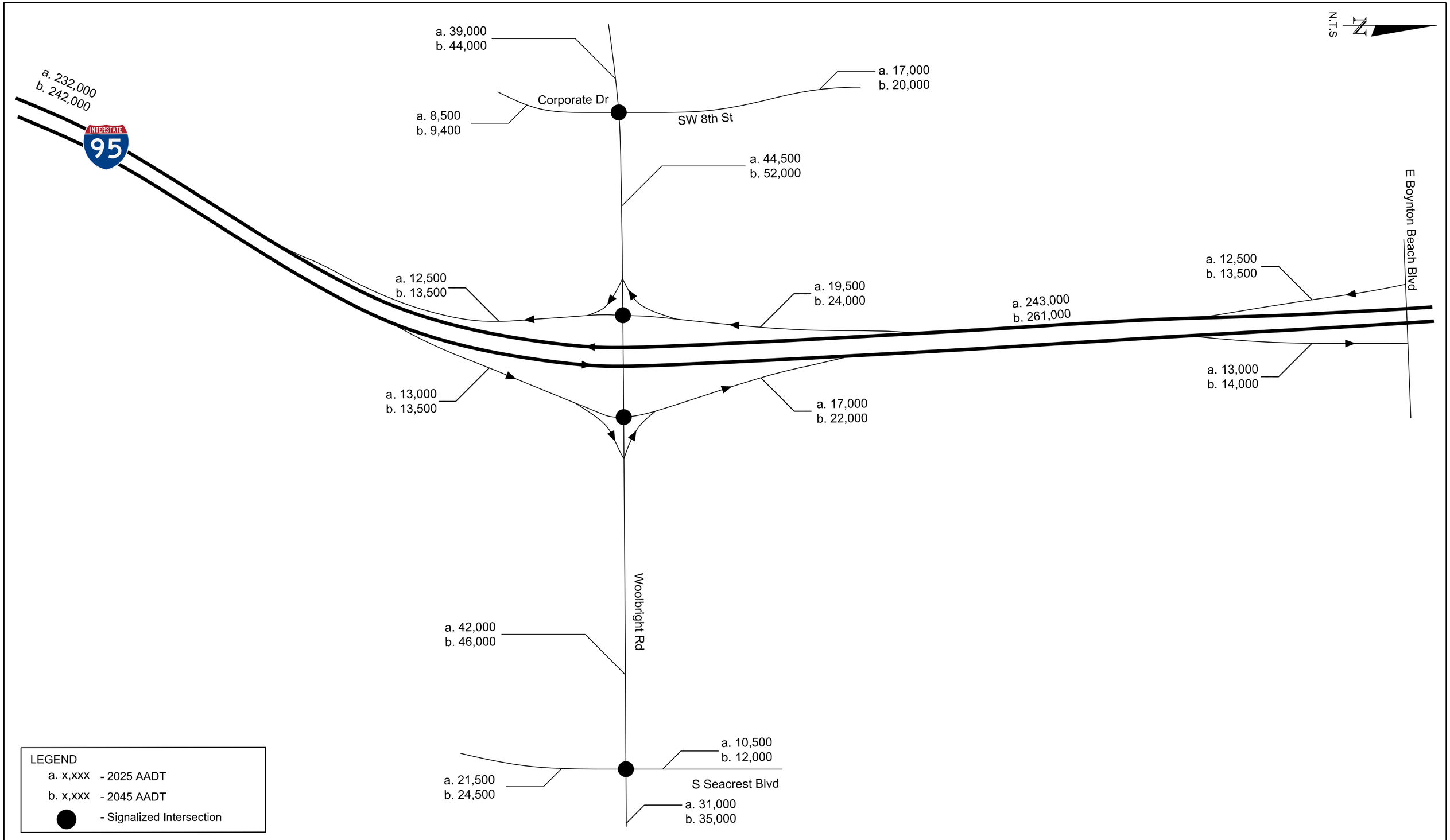
The future conditions identify the best approximation of land use, travel demand and known improvements in the corridor at the time of the study. The future growth in the surrounding corridor and the development of the future travel demand model is summarized in the following discussion. The development of future travel demand and traffic conditions is illustrated in detail in the Interchange Modification Report (IMR).

3.1 Travel Demand Forecasting/Development of AADTs

The AADT forecasting and development was performed in December 2017 as part of the Traffic Data Collection and Traffic Projections for I-95 at Woolbright Road report. A brief discussion of AADT development methodology is presented below.

The growth rates of historical counts, historical counts plus model projections, SERPM socioeconomic growth, and the comprehensive model to model projections methodology were summarized and compared with each other. Based on the comparison and discussions with FDOT Project Manager, the comprehensive traffic forecasting method was used to develop the AADT for this PD&E Study. The traffic forecasting methodology used for each approach of each intersection was based on the 2017 AADT (from field), and 2010 and 2040 SERPM 7.062 model volumes. The 2017 model volume was interpolated using 2010 and 2040 model volumes. Then the percent differences of 2017 AADT and interpolated 2017 forecasted AADT from model was calculated. The recommended 2040 AADT were calculated by applying this percent difference to the 2040 SERPM 7.062 model volumes. Then the 2020 and 2030 volumes were interpolated using 2017 AADT and recommended 2040 volumes. For the roadway segments where the SERPM 7.062 2040 model volumes are lower than the SERPM 7.062 2010 model volumes, or are not included in the SERPM 7 network, the future 2020, 2030, and 2040 AADTs were calculated using 2017 AADT and a compound growth factor of 0.5%. For all the roadway links, the 2017 and 2040 AADT has been compared, and a minimum compound growth rate of 0.5% has been adopted.

AADT volumes were developed by interpolation for Opening Year of the traffic analysis. The AADTs for 2025 and 2045 are presented in **Figure 3-1**.



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ETDM No.: 14341

Title:
Opening Year 2025 and Design Year 2045
Annual Average Daily Traffic

Figure:
3-1

3.2 Development of DDHV Volumes

The Opening Year 2025 and Design Year 2045 DDHVs were developed using a combination of K and D factors along with the FDOT's TMTool. The No-Build 2025 and 2045 future year I-95 mainline and ramps DDHVs were estimated by applying the study K and D factors. The K and D factors presented in Section 2.4 were entered in the TMTool for Design Year 2045. The Opening Year 2025 volumes were developed by interpolation between existing year and design year.

The No Build Alternative 2025 and 2045 future year turning movement volumes for intersections within the project study area were calculated using the FDOT's TMTool. The resulting projected traffic volumes were reviewed for reasonableness and adjustments were made as necessary to reflect growth rates consistent with the study area.

HOV lanes were accounted for in all ramp analysis. The percentage of HOV lanes compared to the total traffic on I-95 was provided via the District 4 I-95 Master Plan Study. The HOV percentage was different depending on the direction and peak hour. In the AM Peak Hour, the SB HOV percentage was between 13-18%, and in the NB direction, it was between 10-12%. In the PM Peak Hour, the SB HOV percentage was between 10-14%, and in the NB direction, it was between 12-14%. The GUL volume was calculated by subtracting the calculated HOV lane volume from the total volume. This methodology was also applied to the mainline volumes between the ramps at the interchanges.

The mainline and ramp DDHVs and intersection TMCs were then balanced and checked for reasonableness. **Figures 3-2** and **3-3** provide the future year No Build DDHVs for 2025 and 2045, respectively.

N.T.S

N

Corporate Dr

SW 8th St

Woolbright Rd

S Seacrest Blvd

E Boynton Beach Blvd

INTERSTATE 95

9,003 (6,273)
1,589 (774)

687 (1,300)
6,111 (9,442)

1,343 (829)

1,501 (1,442)

765 (1,186)

1,543 (1,772)

9,283 (6,877)
1,467 (783)

778 (1,374)
6,798 (9,953)

1,420 (870)

870 (1,420)

1,498 (1,210)
115 (74)
187 (216)
184 (148)
96 (42)
497 (357)

51 (202)
30 (65)
106 (294)
242 (99)
1,049 (1,505)
296 (536)

1,218 (1,415)
883 (446)
821 (791)
680 (651)
460 (383)
766 (1,349)

1,130 (1,181)
768 (885)
394 (667)
371 (519)
775 (887)
832 (1,065)

729 (1,024)
571 (506)
74 (185)
162 (108)
403 (259)
96 (91)

555 (603)
261 (406)
107 (195)
142 (86)
936 (1,062)
48 (72)

LEGEND

x,xxx (x,xxx) - Peak Hour Volumes AM (PM)

- Signalized Intersection

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Title: Opening Year 2025 No-Build and Build Peak Hour Volumes

Figure: 3-2

N.T.S

N

Corporate Dr

SW 8th St

Woolbright Rd

S Seacrest Blvd

E Boynton Beach Blvd

11,363 (7,509)
2,029 (924)

846 (1,610)
7,714 (11,891)

1,382 (864)

2,058 (1,638)

904 (1,309)

1,776 (1,918)

12,225 (8,279)
1,843 (928)

1,530 (940)

940 (1,530)

943 (1,693)
8,489 (12,417)

1,818 (1,437)
139 (112)
282 (277)
268 (222)
115 (68)
640 (468)

94 (205)
58 (68)
178 (346)
312 (168)
1,612 (1,935)
455 (720)

1,716 (1,801)
920 (450)
1,009 (983)
1,049 (655)
462 (414)
1,370 (1,840)

956 (896)
1,809 (1,560)
419 (786)
485 (523)
820 (1,022)
1,413 (1,468)

136 (211)
1,272 (1,487)
698 (595)
194 (150)
406 (262)
127 (111)

601 (665)
265 (410)
143 (279)
261 (112)
1,579 (1,514)
92 (90)

LEGEND

x,xxx (x,xxx) - Peak Hour Volumes AM (PM)

- Signalized Intersection

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Title: Design Year 2045 No-Build and Build Peak Hour Volumes

Figure: 3-3

4. DESIGN CONTROL AND CRITERIA

Design and operational standards are well defined for Florida's limited-access facilities. Design standards and criteria provide the essential structure for evaluating current geometric design attributes and deficiencies as well as future design requirements to meet traffic growth needs. These standards help to establish the roadway layout, typical section, and interchange configuration.

4.1 Design Criteria

Several design standards and manuals were evaluated to lay out the applicable design criteria for this PD&E study. The design criteria is based on the parameters outlined in the current edition of these publications:

- A Policy on Geometric Design of Highways and Streets, AASHTO, 2018
- CADD Manual, FDOT, 2020
- Design Manual, FDOT (FDM), 2020
- Drainage Manual, FDOT, January 2020
- Flexible Pavement Design Manual, FDOT, 2020
- Rigid Pavement Design Manual, FDOT, 2020
- Pavement Type Selection Manual, FDOT, 2019
- Highway Capacity Manual, Transportation Research Board, 2016
- Highway Safety Manual, AASHTO, 2010
- Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Florida Green Book), FDOT, 2016
- Manual of Uniform Traffic Control Devices (MUTCD), FHWA, 2009
- Project Development and Environment Manual, FDOT, 2020
- Project Traffic Forecasting Handbook, FDOT, 2019
- Roadside Design Guide, AASHTO, 2011
- Standard Plans for Road and Bridge Construction, FDOT, 2020-21
- Structures Manual, FDOT, 2020
- The Interchange Access Request User's Guide, FDOT, 2018
- Utility Accommodation Manual, FDOT, 2017

The design controls and standards used to develop the typical sections, horizontal and vertical alignment requirements, and other design features are summarized in the following section. The following tables summarize the criteria specified by the FDOT for state roadway, bridge, and drainage design.

Table 4-1 - Limited-Access Roadway Design Criteria

	FDM Design Criteria		
	Limited Access Facilities (Interstates, Freeways, and Expressways)		
	Design Vehicle	WB-62FL	FDM 201.6
	AADT	22,174 WB / 22,895 EB	Project Traffic Analysis Report
	Context Classification	Interstate	FDOT
	Access Classification	Limited Access	FDOT
	Design Year	2045	FDOT
Typical Section	Design Speed	70 mph	FDM Table 201.5.1
	Travel Lane Width	12-ft	FDM 211.2
	Auxiliary Lane Width	12-ft	FDM 211.2
	One Lane Ramp Width	15-ft	FDM 211.2.1
	Median Width (min)	26-ft (With Barrier)	FDM Table 211.3.1
	Border Width (min)	94-ft	FDM 211.6
	Pavement Cross Slope	0.02 - 0.035	FDM Figure 211.2.1
Horizontal	Minimum Stopping Sight Distance	Downgrade 2-9%: 820-981 Upgrade 2-9%: 820-721	FDM Table 211.10.1
	Maximum Deflection without Horizontal Curve	Design Speed $\leq$ 40 mph is 2°00'00" Design Speed $\geq$ 45 mph is 0°45'00"	FDM 211.7.1
	Length of Horizontal Curve	2100-ft (Desirable) / 1050-ft (Min.)	FDM Table 211.7.1
	Maximum Degree of Curve	3°30' (70 mph)	FDM Table 210.9.1
	Superelevation Transition: On Tangent On Curve	80% 20%	FDM 210.9.1
	Maximum Superlevation	10%	FDM 210.9
	Maximum Curvature without Superelevation	0°15'	FDM Table 210.9.1 & 210.9.2
Vertical	Maximum Change In Grade Without Vertical Curve	0.20%	FDM Table 210.10.2
	Max. Grades (Mainline and Ramp)	3%	FDM Table 211.9.1
	K Value (min) Sag	206	FDM Table 211.9.2
	K Value (min) Crest	506	FDM Table 211.9.2
	Curve Length (min)- Sag	800-ft	FDM Table 211.9.3
	Curve Length (min) - Crest	1000-ft/ 1800-ft at interchanges	FDM Table 211.9.3
	Curve Length Ramp (min) - Sag	400-ft	FDM Table 211.9.3
	Curve Length Ramp (min) - Crest	500-ft	FDM Table 211.9.3

Table 4-2 - Minimum Shoulder Widths

FDM Design Criteria									
FDM Table 211.4.1 Minimum Shoulder Widths									
Lane Type	# Lanes (One Direction)	Without Shoulder Gutter				With Shoulder Gutter			
		Outside or Right		Median Or Left on Divided Roadways		Outside or Right		Median Or Left on Divided Roadways	
		Full Width	Paved Width	Full Width	Paved Width	Full Width	Paved Width	Full Width	Paved Width
Travel Lanes	3-Lane or More	12 ft	10 ft	12 ft	10 ft	15.5 ft	8 ft	15.5 ft	8 ft
Ramps	1-Lane Ramp	6 ft	4 ft	6 ft	2 ft	11.5 ft	4 ft	11.5 ft	4 ft
	2-Lane Ramp Interstate	12 ft	10 ft	8 ft	4 ft	15.5 ft	8 ft	13.5 ft	6 ft
Aux. Lanes	ALL	12 ft	10 ft	8 ft	4 ft	15.5 ft	8 ft	8 ft	4 ft

Table 4-3 - Structures Design Criteria

Structures Design Criteria		
Limited Access Facilities (Interstates, Freeways, and Expressways)		
Travel Lane Width (min)	12 ft	FDM 260.2; FDM 211.2
Shoulder Width (min) (Inside and outside shoulders)	10 ft	FDM 260; FDM Fig. 260.1.1
Traffic Railing Width	1.33 ft	Standard Plans Index 521-427
Median Traffic Railing Width	2 ft	Standard Plans Index 521-426
Vertical Clearance (Over Roadway)	16.5 ft	FDM Table 260.6.1
Bridge Cross Slope	0.02	FDM 260.4

5. ALTERNATIVES ANALYSIS

The purpose of this section is to discuss all alternatives developed during the PD&E study. Alternative concepts were evaluated and analyzed in order to select a recommended alternative. The concepts developed were further refined with the objective to eliminate and/or reduce impacts. The engineering and environmental decisions to achieve this objective are documented in this report as well as in the Categorical Exclusion-Type 2 (CE2) prepared for this project.

As part of this report four alternatives have been considered:

- No Build Alternative
- Build Alternative 1 – Tight Diamond Interchange
- Build Alternative 2 – Diverging Diamond Interchange
- Build Alternative 3 – Single Point Urban Interchange

5.1 Alternative Description

5.1.1 No Build Alternative

The No Build Alternative proposes to keep the existing interchange roadway network into the future without improvements as described in Section 2. This alternative is considered to be a viable alternative during the public hearing and final selection phase to serve as a comparison to the study alternatives.

The No Build Alternative has a number of positive aspects, since it would not require expenditure of public funds for design, right-of-way acquisition, construction, or utility relocation. Traffic would not be disrupted due to construction, therefore, avoiding inconveniences to local residents and businesses. Also, there would be no direct or secondary impacts to the environment, the socio-economic characteristics, or community cohesion of the area. However, the No Build Alternative fails to fulfill the purpose and need of the project. Operational and safety conditions within the interchange area will become progressively worse as traffic volumes continue to increase, thereby increasing the number of crashes and deteriorating access of this interchange.

5.1.2 Alternative 1 – Tight Diamond Interchange (TDI)

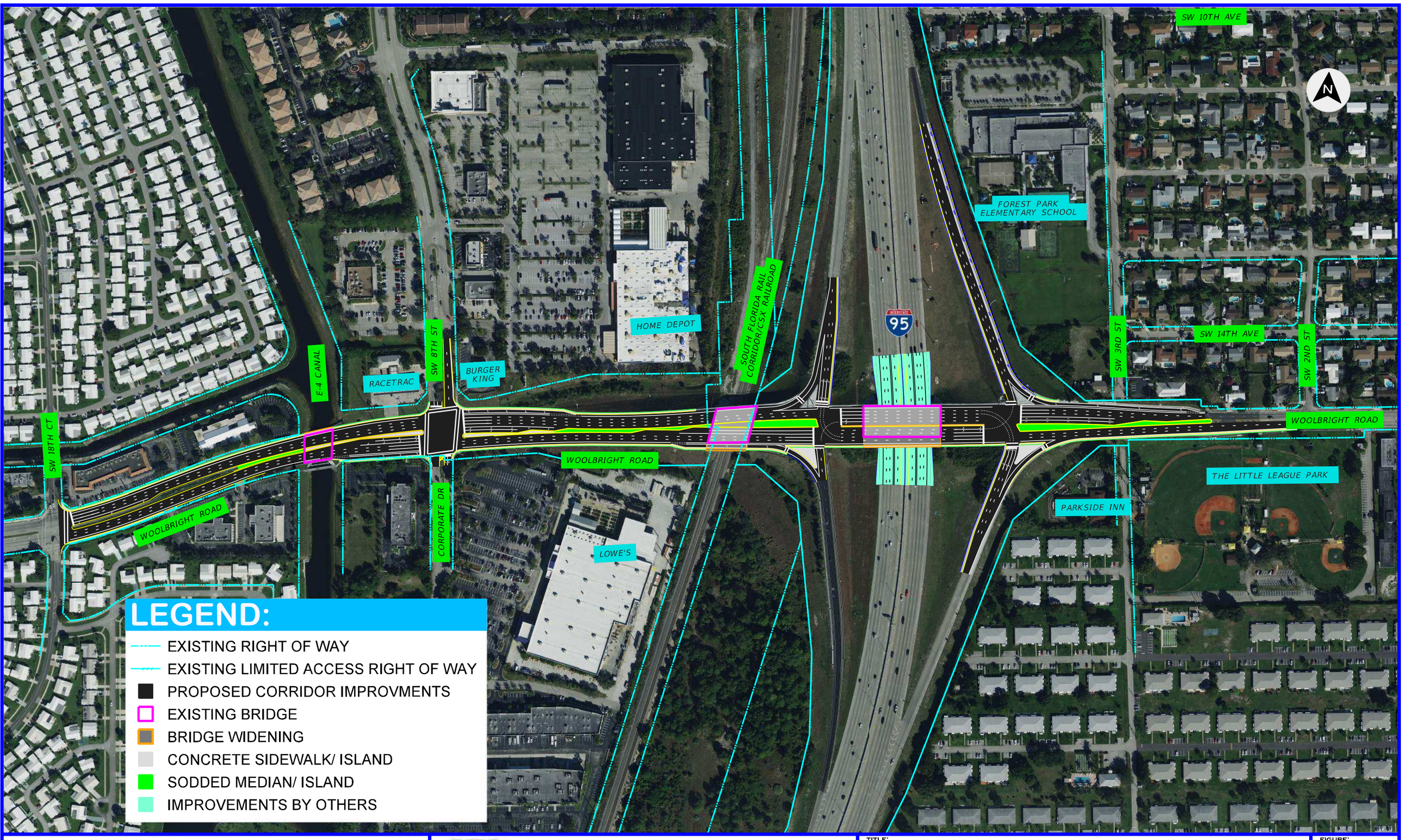
The following describes the improvements associated with Alternative 1 – TDI (Refer to **Figure 5-1**).

- Modify the existing Diamond Interchange by widening the existing Woolbright Road bridge over I-95 and the bridge over the South Florida Rail Corridor to accommodate one additional through lane in each direction through the interchange;
- Add one additional left-turn lane (triple lefts) at the northbound and southbound I-95 off-ramp intersections;
- Add one additional westbound through lane at the Corporate Drive/SW 8th Street intersection;
- Add one additional left-turn lane in the eastbound and westbound direction at the Corporate Drive/SW 8th Street intersection;
- Widen the existing bridge over the E-4 Canal to accommodate the additional westbound through lane, left turn lanes, and bicycle lanes; and
- Extend the bicycle lanes from the interchange to SW 18th Street.

5.1.3 Alternative 2 – Diverging Diamond Interchange (DDI)

The following describes the improvements associated with Alternative 2 – DDI (Refer to **Figure 5-2**).

- Reconstruct the existing Diamond Interchange to a Diverging Diamond Interchange (DDI) configuration, which provides three continuous through lanes through the interchange with two free flow left-turn lanes into the I-95 on-ramps;
- Add one additional westbound through lane at the Corporate Drive/SW 8th Street intersection;
- Add one additional left-turn lane in the eastbound and westbound direction at the Corporate Drive/SW 8th Street intersection;
- Widen the existing bridge over the E-4 Canal to accommodate the additional westbound through lane, left turn lanes, and bicycle lanes; and
- Extend the bicycle lanes from the interchange to SW 18th Street.



LEGEND:

- EXISTING RIGHT OF WAY
- EXISTING LIMITED ACCESS RIGHT OF WAY
- PROPOSED CORRIDOR IMPROVMENTS
- EXISTING BRIDGE
- BRIDGE WIDENING
- CONCRETE SIDEWALK/ ISLAND
- SODDED MEDIAN/ ISLAND
- IMPROVEMENTS BY OTHERS

FDOT

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DISTRICT FOUR
3200 WEST COMMERCIAL BLVD.
FORT LAUDERDALE, FL 33309

INTERSTATE 95

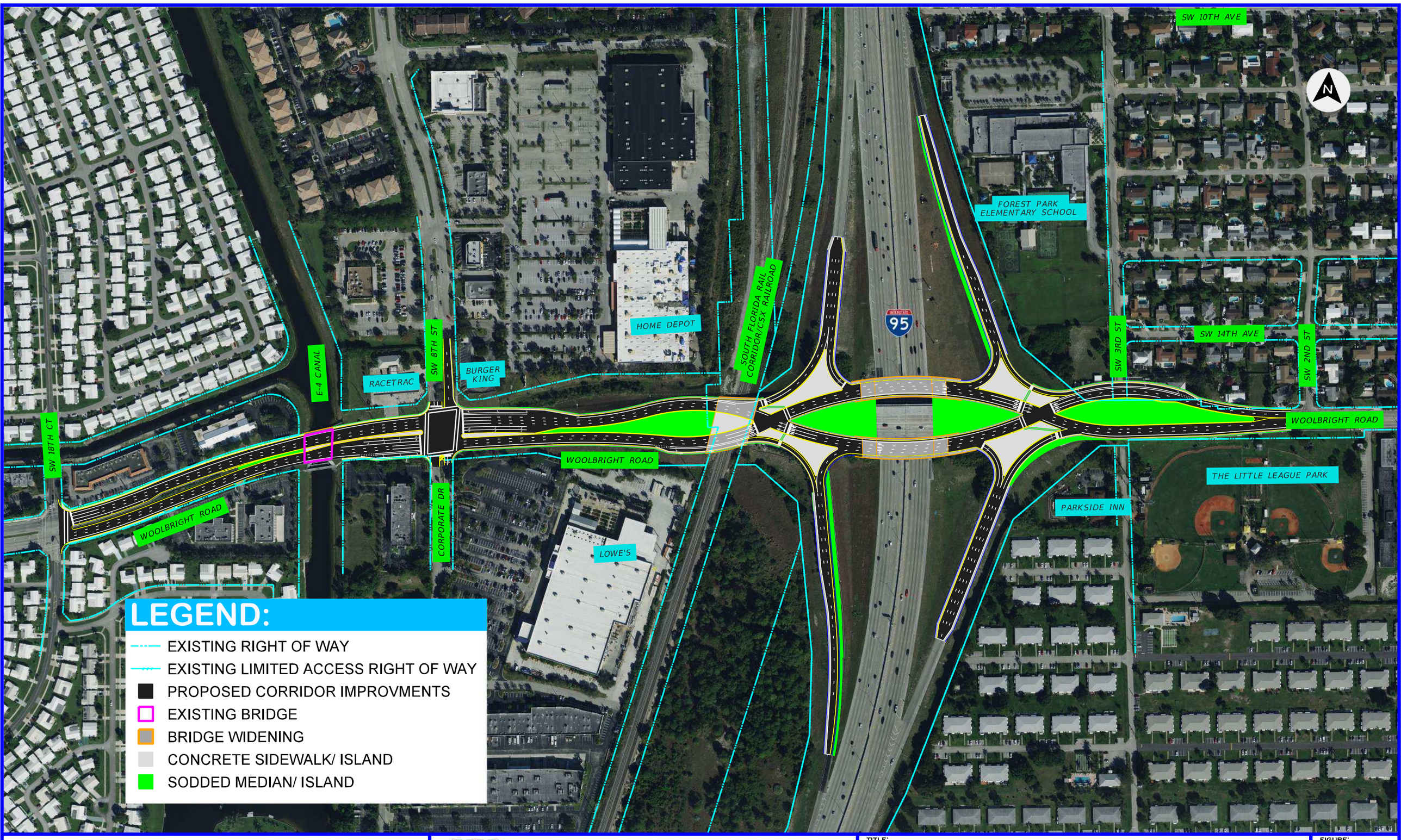
I-95/ SR 9 INTERCHANGE AT WOOLBRIGHT ROAD
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
FPID NO.: 437279-1-22-02
ETDM NO.: 14341

TITLE:

ALTERNATIVE 1
TIGHT DIAMOND INTERCHANGE (TDI)

FIGURE:

5-1



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DISTRICT FOUR
3200 WEST COMMERCIAL BLVD.
FORT LAUDERDALE, FL 33309

INTERSTATE 95

I-95/ SR 9 INTERCHANGE AT WOOLBRIGHT ROAD
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
FPID NO.: 437279-1-22-02
ETDM NO.: 14341

TITLE:

ALTERNATIVE 2
DIVERGING DIAMOND INTERCHANGE (DDI)

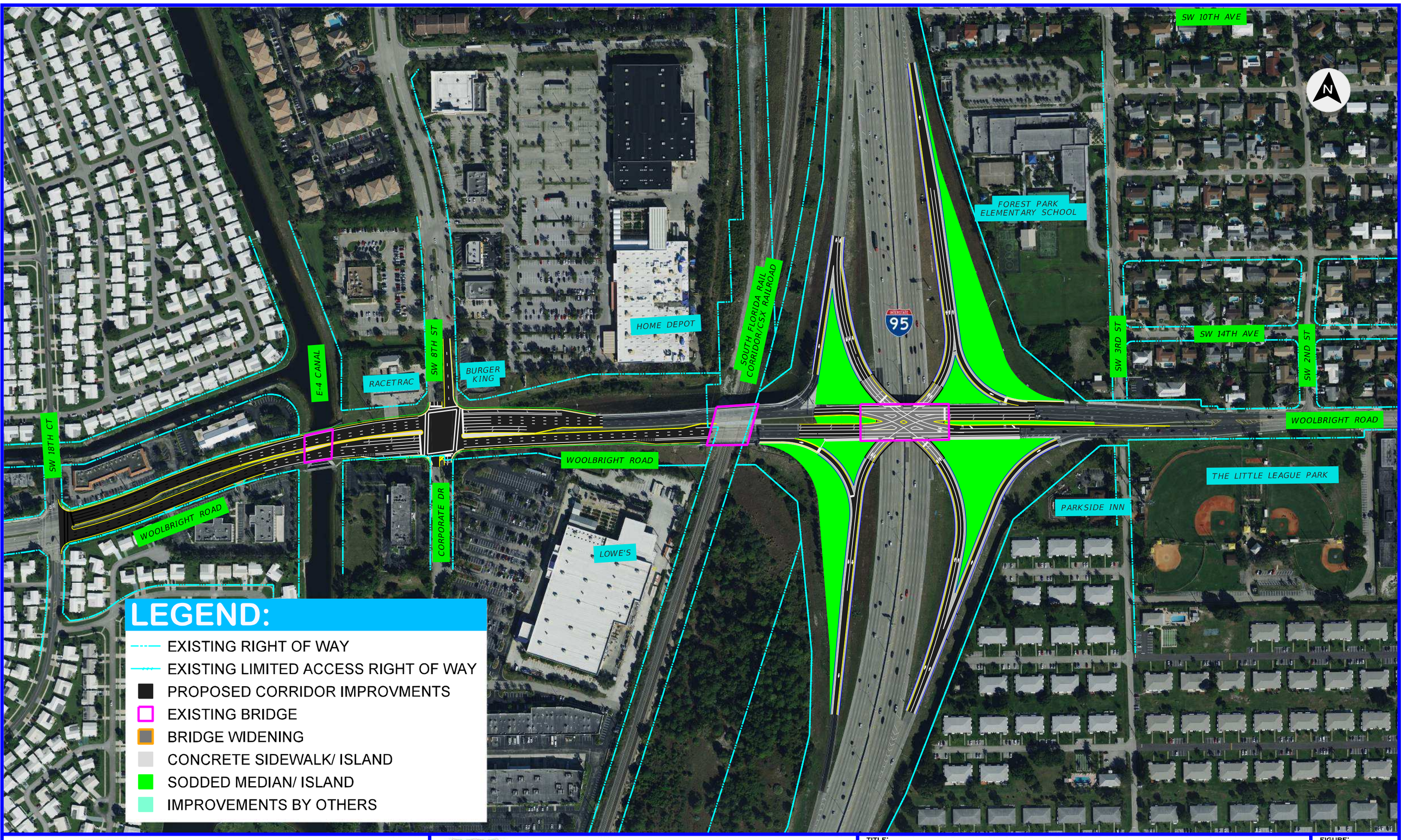
FIGURE:

5-2

5.1.4 Alternative 3 – Single Point Urban Interchange (SPUI)

The following describes the improvements associated with Alternative 3 – SPUI (Refer to **Figure 5-3**).

- Reconstruct the existing Diamond Interchange to a Single Point Urban Interchange (SPUI) configuration, which provides two continuous through lanes through the interchange;
- Add one additional left-turn lane (triple lefts) at the southbound I-95 off-ramp intersection;
- Add one additional westbound through lane at the Corporate Drive/SW 8th Street intersection;
- Add one additional left-turn lane in the eastbound and westbound direction at the Corporate Drive/SW
- 8th Street intersection;
- Widen the existing bridge over the E-4 Canal to accommodate the additional westbound through lane, left turn lanes, and bicycle lanes; and
- Extend the bicycle lanes from the interchange to SW 18th Street.



FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT FOUR
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FORT LAUDERDALE, FL 33309

I-95/ SR 9 INTERCHANGE AT WOOLBRIGHT ROAD
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
FPID NO.: 437279-1-22-02
ETDM NO.: 14341

TITLE:

ALTERNATIVE 3
SINGLE POINT URBAN INTERCHANGE (SPUI)

FIGURE:

5-3

5.2 Future Traffic Operational Analysis

5.2.1 Opening Year 2025 – No Build Analysis

Mainline Analysis

The Opening Year 2025 No-Build mainline analysis is summarized in **Table 5-1**. **Figure 5-4** illustrates the peak hour volumes and LOS results for the 2025 No-Build mainline analysis. The results of the operational analysis show that all the mainline segments operate at an acceptable LOS in both the AM and PM peak hours except the following segments:

- I-95 NB south of Woolbright Road which will operate at LOS E during PM peak hour
- I-95 SB south of Woolbright Road which will operate at LOS E during AM peak hour
- I-95 NB between Woolbright Off-Ramp and On-Ramp which will operate at LOS E during PM peak hour

Table 5-1: Opening Year 2025 No-Build Mainline Capacity Analysis Summary

Freeway Segment	Direction	Number of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
I-95 South of Woolbright Road	NB	5	6,798	21.9	C	10,742	43.1	E
	SB	5	10,592	41.9	E	7,047	22.8	C
I-95 Between Woolbright Off-Ramp and On-Ramp	NB	5	6,033	19.7	C	9,556	35.3	E
	SB	5	9,249	33.9	D	6,218	20.9	C

1. Density = passenger cars/mile/lane

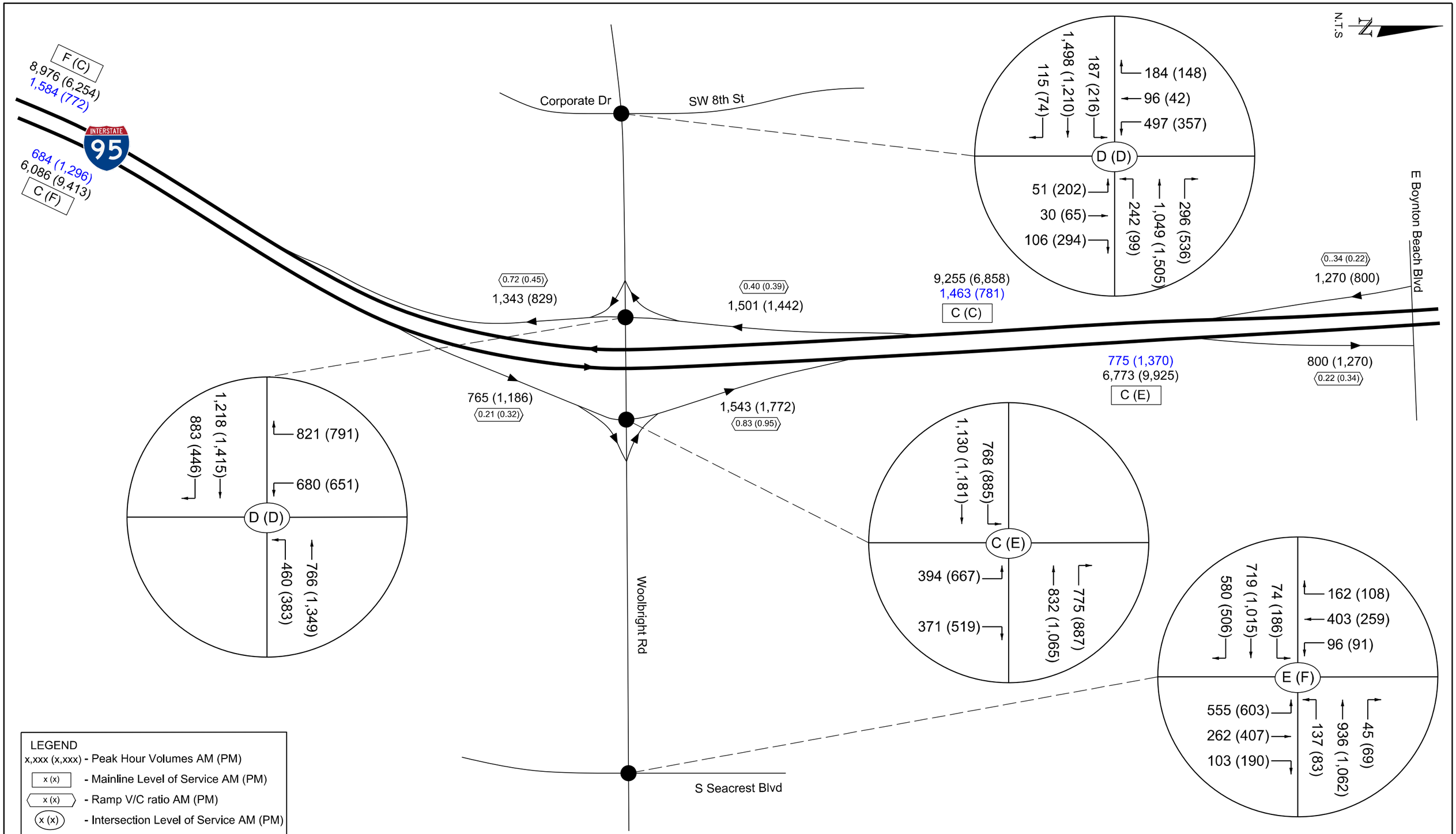
Ramp Analysis

The Opening Year 2025 ramp analysis results are summarized in **Table 5-2**. The results of the operational analysis show that all study ramps have adequate capacity based on the volume. **Figure 5-4** illustrates the peak hour volumes and ramp analysis results for the Opening Year 2025 No-Build ramp analysis.

Table 5-2: Opening Year 2025 No-Build Ramp Analysis Summary

Interchange	Ramp	Analysis Type	AM Peak Hour				PM Peak Hour			
			Volume	Density[1]	LOS	V/C	Volume	Density[1]	LOS	V/C
I-95 at Woolbright Road	NB Off	Diverge	765	11.1	B	0.21	1,186	24.5	C	0.32
	SB On	Merge	1,343	30.5	D	0.72	829	18.2	B	0.45

1. Density = passenger cars/mile/lane



LEGEND

x,xxx (x,xxx) - Peak Hour Volumes AM (PM)

x (x) - Mainline Level of Service AM (PM)

x (x) - Ramp V/C ratio AM (PM)

x (x) - Intersection Level of Service AM (PM)

Florida Department of Transportation District Four 3400 West Commercial Boulevard Fort Lauderdale, FL 33309	I-95/SR 9 Interchange at Woolbright Road Project Development & Environment Study FPID No.: 437279-1-22-02 ETDM No.: 14341	Title: Opening Year 2025 No-Build Alternative Peak Hour Volumes and LOS/V/C Ratio	Figure: 5-4

Weaving Analysis

The Opening Year 2025 weaving analysis results are summarized in **Table 5-3**. **Figure 5-4** illustrates the peak hour volumes and LOS results for the Opening Year 2025 weaving analysis.

The results of the operational analysis show that the I-95 SB and NB weave segments operate at acceptable LOS in AM and PM peak hours expect the following:

- I-95 NB weave between Woolbright Road and Boynton Beach Boulevard operate at LOS F during PM peak hour
- I-95 SB weave between Woolbright Road and Boynton Beach Boulevard operate at LOS F during AM peak hour

Table 5-3: Opening Year 2025 No-Build Weaving Analysis Summary

Weaving Segment	Direction	AM Peak Hour				PM Peak Hour			
		Volume	Density[1]	LOS	V/C	Volume	Density[1]	LOS	V/C
I-95 between Woolbright Road and Boynton Beach Boulevard	NB	7,576	28.1	D	0.63	11,328	--	F	0.91
	SB	10,750	--	F	1.13	7,660	24.2	C	0.89

1. Density = passenger cars/mile/lane

Intersection Analysis

The Opening Year 2025 No-Build intersection analysis results are summarized in **Table 5-4**. **Figure 5-4** illustrates the peak hour volumes and LOS results for the Opening Year 2025 intersections analysis. In Opening Year 2025, all the study intersections operate at LOS E or worse in the AM and PM peak hours. In addition, there are several individual movements that operate at LOS F in the Opening Year 2025 No-Build. These movements are listed below:

Woolbright Road at Corporate Drive/SW 8th Street

- SB left turn (AM peak hour)

Woolbright Road at I-95 SB On/Off-Ramps

- EB right turn (AM and PM peak hours)
- WB through (PM peak hour)
- SB left turn (AM and PM peak hours)

Woolbright Road at I-95 NB On/Off-Ramps

- WB right turn (AM and PM peak hours)
- NB left turn (AM and PM peak hours)

Woolbright Road at Seacrest Boulevard

- EB left turn (PM peak hour)
- EB through/right turn (AM and PM peak hours)
- NB left turn (PM peak hour)
- SB left turn (PM peak hour)

Table 5-4: Opening Year 2025 No-Build Intersection Analysis Summary

Intersection	Intersection Approach				Overall Intersection	
	Approach	Movement	Delay (sec)	LOS	Delay (sec)	LOS
			AM (PM)	AM (PM)	AM (PM)	AM (PM)
Woolbright Road at Corporate Drive/SW 8th Street	Eastbound	Left	40.9 (71.5)	D (E)	55.8 (56.2)	E (E)
		Through	41.2 (36.7)	D (D)		
		Right	27.1 (26.4)	C (C)		
	Westbound	Left	57.2 (45.1)	E (D)		
		Through	47.9 (72.5)	D (E)		
		Right	93.7 (32.2)	F (C)		
	Northbound	Left	52.9 (42.7)	D (D)		
		Through/Right	58.7 (79.9)	E (E)		
	Southbound	Left	103.7 (77.8)	F (E)		
		Through/Right	57.5 (48.1)	E (D)		
Woolbright Road at I-95 Southbound Ramps	Eastbound	Through	28.8 (50.1)	C (D)	78.7 (95.4)	E (F)
		Right	147.9 (106.2)	F (F)		
	Westbound	Left	27.5 (41.7)	C (D)		
		Through	28.2 (124.1)	C (F)		
	Southbound	Left	262.9 (272.5)	F (F)		
		Right	1.4 (1.5)	A (A)		
Woolbright Road at I-95 Northbound Ramps	Eastbound	Left	30.3 (36.5)	C (D)	71.7 (137.7)	E (F)
		Through	16.8 (13.9)	B (B)		
	Westbound	Through	55.9 (41.9)	E (D)		
		Right	156.4 (302.8)	F (F)		
	Northbound	Left	244.0 (530.8)	F (F)		
		Right	0.4 (0.7)	A (A)		
Woolbright Road at Seacrest Boulevard	Eastbound	Left	18.4 (81.1)	B (F)	67.0 (88.2)	E (F)
		Through/Right	94.6 (93.6)	F (F)		
	Westbound	Left	50.1 (43.0)	D (D)		
		Through/Right	42.9 (48.5)	D (D)		
	Northbound	Left	75.2 (201.2)	E (F)		
		Through/Right	39.6 (60.2)	D (E)		
	Southbound	Left	69.0 (82.2)	E (F)		
		Through/Right	65.6 (63.7)	E (E)		

Table 5-5 summarizes the queue analysis for Opening Year 2025 No-Build Alternative. In the Opening Year, the 95th Percentile queue length exceeds the storage at the following intersection approaches marked as red in **Table 5-5**:

- EB left turn at Woolbright Road and SW 8th Street intersection (PM peak hour)
- WB right-turn at Woolbright Road and I-95 NB ramp terminal (AM peak hour)
- EB through at Woolbright Road and Seacrest Boulevard intersection (AM and PM peak hours)
- EB left turn at Woolbright Road and Seacrest Boulevard intersection (PM peak hour)
- WB left turn at Woolbright Road and Seacrest Boulevard intersection (AM and PM peak hours)
- WB through at Woolbright Road and Seacrest Boulevard intersection (AM and PM peak hours)
- NB left turn at Woolbright Road and Seacrest Boulevard intersection (PM peak hour)
- SB left turn at Woolbright Road and Seacrest Boulevard intersection (PM peak hour)
- SB through at Woolbright Road and Seacrest Boulevard intersection (AM peak hour)

Table 5-5: 95th Intersection Percentile Queue Length Summary – Opening Year 2025 No Build

Intersection	Time Period	95th Percentile Queue Length (feet)											
		Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Woolbright Road at Corporate Drive /SW 8th Street	AM Peak	#219	#668	35	295	385	173	63	90	-	#375	288	-
	PM Peak	#290	514	5	m97	m#807	m78	191	353	-	255	136	-
	Existing Storage (feet)	250	1,300	200	300	1,250	350	400	>1,000	250	>1,000		
Woolbright Road at I-95 Southbound Ramps	AM Peak	-	m310	m#968	m86	m117	-	-	-	-	#578	-	0
	PM Peak	-	489	411	m109	m201	-	-	-	-	#613	-	0
	Existing Storage (feet)	-	1,250	1,350	900	2,650	-	-	-	-	1,700	-	300
Woolbright Road at I-95 Northbound Ramps	AM Peak	m155	m111	-	-	m269	m#797	#363	-	0	-	-	-
	PM Peak	m271	m106	-	-	m274	m#484	#704	-	0	-	-	-
	Existing Storage (feet)	900	1,750	-	-	2,250	650	1,300	-	350	-	-	-
Woolbright Road at Seacrest Boulevard	AM Peak	m68	#926	-	#183	#607	-	#372	180	-	149	321	-
	PM Peak	m#293	#1136	-	#160	#795	-	#542	356	-	#169	228	-
	Existing Storage (feet)	150	615		150	530		450	775		150	250	

95th percentile volume exceeds capacity, queue maybe longer
m: Volume for 95th percentile queue is metered by upstream signal
Storage length noted above is turn pocket length or link distance per lane to adjacent signalized intersection

5.2.2 Design Year 2045 – No Build Analysis

Mainline Analysis

The Design Year 2045 No-Build mainline analysis is summarized in **Table 5-6**. The results of the operational analysis show that half of the mainline segments operate at an acceptable LOS in both the 2045 No-Build AM and PM peak hours. I-95 NB south of Woolbright Road operates at LOF F in the PM peak hour. I-95 SB south of Woolbright Road operates at LOS F in the AM peak hour. Lastly, I-95 NB between Woolbright Road Off-Ramp and On-Ramp operates at LOS F in the PM peak hour and I-95 SB between Woolbright Off-Ramp and On-Ramp operates at LOS F in the AM peak hour. **Figure 5-5** illustrates the peak hour volumes and LOS results for the 2045 No-Build mainline analysis.

Table 5-6: Design Year 2045 No Build Mainline Capacity Analysis Summary

Freeway Segment	Direction	Number of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
I-95 South of Woolbright Road	NB	5	8,560	29.2	D	13,502		F
	SB	5	13,393		F	8,433	28.6	D
I-95 Between Woolbright Off-Ramp and On-Ramp	NB	5	7,656	25.6	C	12,193		F
	SB	5	12,011		F	7,569	25.8	C

1. Density = passenger cars/mile/lane

Ramp Analysis

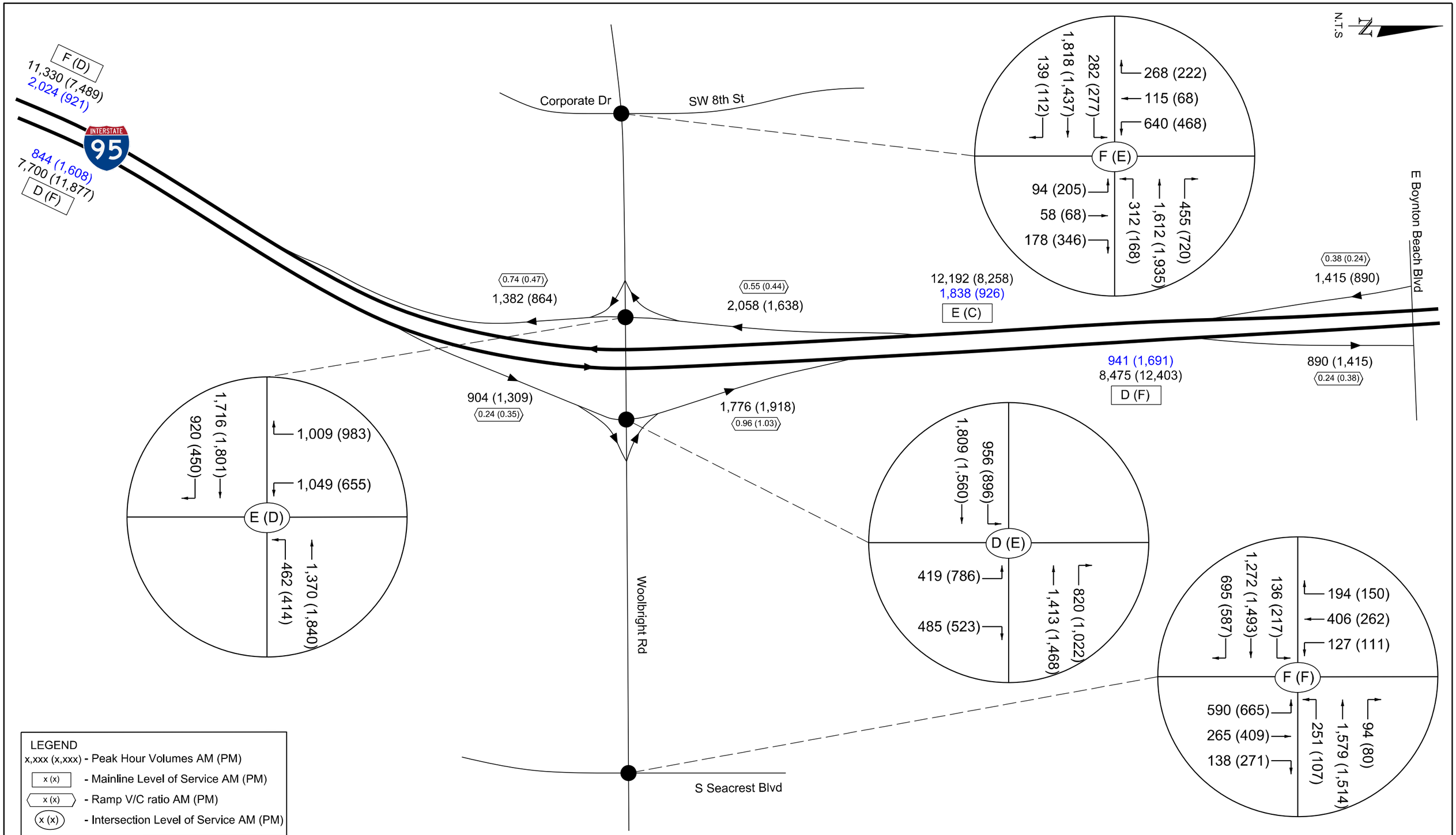
The Design Year 2045 No-Build ramp analysis results are summarized in **Table 5-7**. **Figure 5-5** illustrates the peak hour volumes and the results for the Design Year 2045 No-Build ramp analysis. The results of the operational analysis show that all study ramps have adequate capacity based on the volume except the following ramps where the volume will exceed capacity:

- I-95 NB Off-Ramp at Woolbright Road during the PM peak hour
- I-95 SB On-Ramp at Woolbright Road during the AM peak hour

Table 5-7: Design Year 2045 No Build Ramp Analysis Summary

Interchange	Ramp	Analysis Type	AM Peak Hour				PM Peak Hour			
			Volume	Density[1]	LOS	V/C	Volume	Density[1]	LOS	V/C
I-95 at Woolbright Road	NB Off	Diverge	904	16.3	B	0.24	1,309	45.1	F	0.35
	SB On	Merge	1,382	47.7	F	0.74	864	21.4	C	0.47

1. Density = passenger cars/mile/lane



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District Four
3400 West Commercial Boulevard
Fort Lauderdale, FL 33309

I-95/SR 9 Interchange at Woolbright Road
Project Development & Environment Study
FPID No.: 437279-1-22-02
ETDM No.: 14341

Title:

Design Year 2045 No-Build Peak Hour Volumes and LOS/V/C Ratio

Figure: 5-5

Weaving Analysis

The Design Year 2045 weaving analysis results are summarized in **Table 5-8**. **Figure 5-2** illustrates the peak hour volumes and LOS results for the Design Year 2045 weaving analysis. The results of the operational analysis show that all the weave segments operate at an LOS E or worse in both the AM and PM peak hours.

Table 5-8: Design Year 2045 No Build Weaving Analysis Summary

Weaving Segment	Direction	AM Peak Hour				PM Peak Hour			
		Volume	Density[1]	LOS	V/C	Volume	Density[1]	LOS	V/C
I-95 between Woolbright Road and Boynton Beach Boulevard	NB	9,432	37.8	E	0.76	14,111	--	F	1.12
	SB	14,069	--	F	1.41	9,207	--	F	1.01

1. Density = passenger cars/mile/lane

Intersection Analysis

The Design Year 2045 No-Build intersection analysis results are summarized in **Table 5-9**. In Design Year 2045, all the intersections operate at LOS E or F except Woolbright Road at I-95 NB Ramp terminal which will operate at LOS D in the AM peak hour. In addition, there are several individual movements at the adjacent ramp intersections operating at LOS F which are marked as red in **Table 5-9**. **Figure 5-5** illustrates the peak hour volumes and LOS results for the Design Year 2045 intersections analysis.

Table 5-9: Design Year 2045 No Build Intersection Analysis Summary

Intersection	Intersection Approach				Overall Intersection	
	Approach	Movement	Delay (sec)	LOS	Delay (sec)	LOS
			AM (PM)	AM (PM)	AM (PM)	AM (PM)
Woolbright Road at Corporate Drive/SW 8th Street	Eastbound	Left	357.5 (316.3)	F (F)	117.6 (95.4)	F (F)
		Through	156.2 (58.6)	F (E)		
		Right	35.0 (33.5)	C (C)		
	Westbound	Left	408.8 (52.9)	F (D)		
		Through	73.9 (140.0)	E (F)		
		Right	0.0 (9.7)	A (A)		
	Northbound	Left	58.3 (75.6)	E (E)		
		Through/Right	72.7 (81.6)	E (F)		
	Southbound	Left	43.7 (104.5)	D (F)		
		Through/Right	39.1 (49.8)	D (D)		
Woolbright Road at I-95 Southbound Ramps	Eastbound	Through	30.3 (55.3)	C (E)	120.1 (140.2)	F (F)
		Right	98.6 (17.3)	F (B)		
	Westbound	Left	37.4 (54.2)	D (D)		
		Through	88.1 (307.8)	F (F)		
	Southbound	Left	477.2 (248.0)	F (F)		
		Right	2.3 (2.7)	A (A)		
Woolbright Road at I-95 Northbound Ramps	Eastbound	Left	61.3 (47.9)	E (D)	82.3(188.1)	D (F)
		Through	99.6 (56.9)	F(E)		
	Westbound	Through	50.6 (84.9)	D (F)		
		Right	95.0 (458.7)	F (F)		
	Northbound	Left	232.1 (573.7)	F (F)		
		Right	0.5 (0.7)	A (A)		
Woolbright Road at Seacrest Boulevard	Eastbound	Left	114.3 (206.2)	F (F)	170.8 (186.5)	F (F)
		Through/Right	233.5 (270.0)	F (F)		
	Westbound	Left	338.1 (162.6)	F (F)		
		Through/Right	115.2 (174.7)	F (F)		
	Northbound	Left	266.7 (170.9)	F (F)		
		Through/Right	46.4 (60.2)	D (E)		
	Southbound	Left	85.1 (96.1)	F (F)		
		Through/Right	66.4 (67.7)	E (E)		

Table 5-10 summarizes the queue analysis for Design Year 2045 No-Build Alternative. In the Design Year 2045, the 95th Percentile queue length exceeds the storage at the following intersection approaches marked as red in **Table 5-10**:

- EB left turn at Woolbright Road and SW 8th Street intersection (AM and PM peak hours)
- WB left turn at Woolbright Road and SW 8th Street intersection (AM peak hour)
- WB right turn at Woolbright Road and I-95 NB ramp terminal (PM peak hour)
- EB through at Woolbright Road and Seacrest Boulevard intersection (AM and PM peak hours)
- EB left turn at Woolbright Road and Seacrest Boulevard intersection (PM peak hour)
- WB left turn at Woolbright Road and Seacrest Boulevard intersection (AM and PM peak hours)
- WB through at Woolbright Road and Seacrest Boulevard intersection (AM and PM peak hours)
- NB left turn at Woolbright Road and Seacrest Boulevard intersection (AM and PM peak hours)
- SB left turn at Woolbright Road and Seacrest Boulevard intersection (AM and PM peak hours)
- SB through at Woolbright Road and Seacrest Boulevard intersection (AM peak hour)

Table 5-10: 95th Intersection Percentile Queue Length Summary – Design Year 2045 No-Build

Intersection	Time Period	95th Percentile Queue Length (feet)											
		Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Woolbright Road at Corporate Drive /SW 8th Street	AM Peak	#537	#923	15	m#504	m#732	m0	135	210	-	366	351	-
	PM Peak	#559	613	5	m129	m#681	m0	#290	425	-	#469	300	-
	Existing Storage (feet)	250	1,300	200	300	1,250	350	400	>1,000	250	>1,000		
Woolbright Road at I-95 Southbound Ramps	AM Peak	-	m210	m214	m118	m#732	-	-	-	-	#929	-	0
	PM Peak	-	m#661	m190	m107	m#920	-	-	-	-	#605	-	0
	Existing Storage (feet)	-	1,250	1,350	900	2,650	-	-	-	-	1,700	-	300
Woolbright Road at I-95 Northbound Ramps	AM Peak	m258	m147	-	-	m276	m155	#378	-	0	-	-	-
	PM Peak	m230	m106	-	-	m352	m#712	#822	-	0	-	-	-
	Existing Storage (feet)	900	1,750	-	-	2,250	650	1,300	-	350	-	-	-
Woolbright Road at Seacrest Boulevard	AM Peak	m#120	m#1285	-	#495	#1130	-	#565	211	-	#220	338	-
	PM Peak	m#302	m#1720	-	#226	#1277	-	#653	411	-	#224	246	-
	Existing Storage (feet)	150	615		150	530		450	775		150	250	

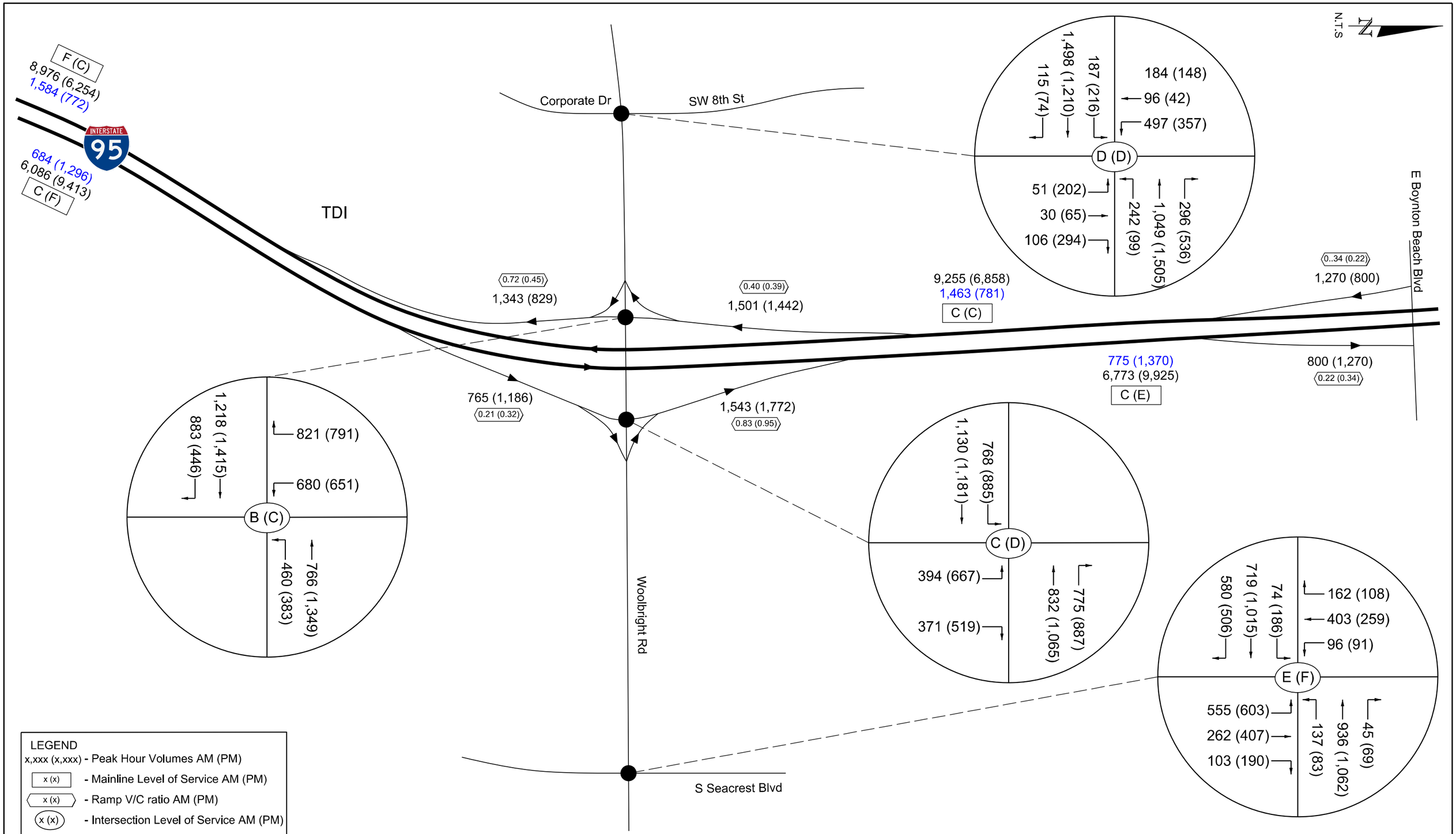
5.2.3 Opening Year 2025 – Alternative 1 – TDI Analysis

Intersection Analysis

The Opening Year 2025 Build Alternative 1 – TDI intersection analysis results are summarized in **Table 5-11**. In Opening Year 2025, all the study intersections with proposed improvements operate at an acceptable LOS D or better with exception of few minor approach movements which will operate at LOS F as marked red in **Table 5-11**. **Figure 5-6** illustrates the peak hour volumes and LOS results for the Opening Year 2025 Build Alternative 1 – TDI intersections analysis.

Table 5-11: Opening Year 2025 Build Alt 1 – TDI Intersection Analysis Summary

Intersection	Intersection Approach				Overall Intersection	
	Approach	Movement	Delay (sec)	LOS	Delay (sec)	LOS
			AM (PM)	AM (PM)	AM (PM)	AM (PM)
Woolbright Road at Corporate Drive/SW 8th Street	Eastbound	Left	50.8 (70.8)	D (E)	35.7 (47.0)	D (D)
		Through	37.4 (37.7)	D (D)		
		Right	23.5 (27.8)	C (C)		
	Westbound	Left	51.2 (47.2)	D (D)		
		Through	26.4 (21.1)	C (C)		
		Right	11.5 (70.1)	B (E)		
	Northbound	Left	44.5 (101.7)	D (F)		
		Through/Right	48.6 (83.4)	D (F)		
	Southbound	Left	47.9 (73.4)	D (E)		
		Through/Right	39.4 (49.8)	D (D)		
Woolbright Road at I-95 Southbound Ramps	Eastbound	Through	34.7 (36.4)	C (D)	16.2 (21.5)	B (C)
		Right	1.6 (0.3)	A (A)		
	Westbound	Left	9.8 (8.1)	A (A)		
		Through	3.4 (11.9)	A (B)		
	Southbound	Left	38.8 (55.5)	D (E)		
		Right	1.4 (1.3)	A (A)		
Woolbright Road at I-95 Northbound Ramps	Eastbound	Left	23.9 (62.8)	C (E)	23.0 (36.1)	C (D)
		Through	9.6 (7.8)	A (A)		
	Westbound	Through	40.8 (50.5)	D (D)		
		Right	0.1 (0.7)	A (A)		
	Northbound	Left	41.0 (41.6)	D (D)		
		Right	50.3 (79.4)	D (E)		



LEGEND

x,xxx (x,xxx) - Peak Hour Volumes AM (PM)

x (x) - Mainline Level of Service AM (PM)

x (x) - Ramp V/C ratio AM (PM)

x (x) - Intersection Level of Service AM (PM)

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ETDM No.: 14341

Title: Opening Year 2025 Build Alternative - 1 TDI Peak Hour Volumes and LOS/VC Ratios

Figure: 5-6

Table 5-12 summarizes the queue analysis for Opening Year 2025 Build Alternative 1 – TDI. In the Opening Year 2025, the 95th Percentile queue length exceeds the storage at the following intersection approaches marked as red in **Table 5-12**:

- Westbound right at Woolbright Road at Corporate Drive/SW 8th Street (PM peak hour)
- Southbound left at Woolbright Road at Corporate Drive /SW 8th Street (AM/PM peak hour)
- Northbound right at Woolbright Road at I-95 Northbound Ramp terminal (PM peak hour; however it should be noted that there are three northbound left turn ramp lanes with short queues and right most lane can contain the northbound queues without spill back onto mainline).

Table 5-12: 95th Intersection Percentile Queue Length Summary – Opening Year 2025 Build Alt 1 – TDI

Intersection	Time Period	95th Percentile Queue Length (feet)											
		Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Woolbright Road at Corporate Drive /SW 8th Street	AM Peak	112	#495	8	138	223	35	57	89	-	#280	250	-
	PM Peak	154	447	0	85	481	457	#303	347	-	#297	144	-
	Proposed Storage (feet)	250	1,300	250	300	1,250	350	400	>1,000		250	>1,000	
Woolbright Road at I-95 Southbound Ramps	AM Peak	-	249	0	61	54	-	-	-	-	212	-	0
	PM Peak	-	400	m0	121	460	-	-	-	-	260	-	0
	Proposed Storage (feet)	-	1,250	500	900	2,650	-	-	-	-	1,700	-	350
Woolbright Road at I-95 Northbound Ramps	AM Peak	152	143	-	-	m135	m99	73	-	145	-	-	-
	PM Peak	#610	190	-	-	m235	m105	114	-	#536	-	-	-
	Proposed Storage (feet)	900	1,750	-	-	2,250	650	1,300	-	300	-	-	-

#: 95th percentile volume exceeds capacity, queue maybe longer
m: Volume for 95th percentile queue is metered by upstream signal
Storage length noted above is turn pocket length or link distance per lane to adjacent signalized intersection

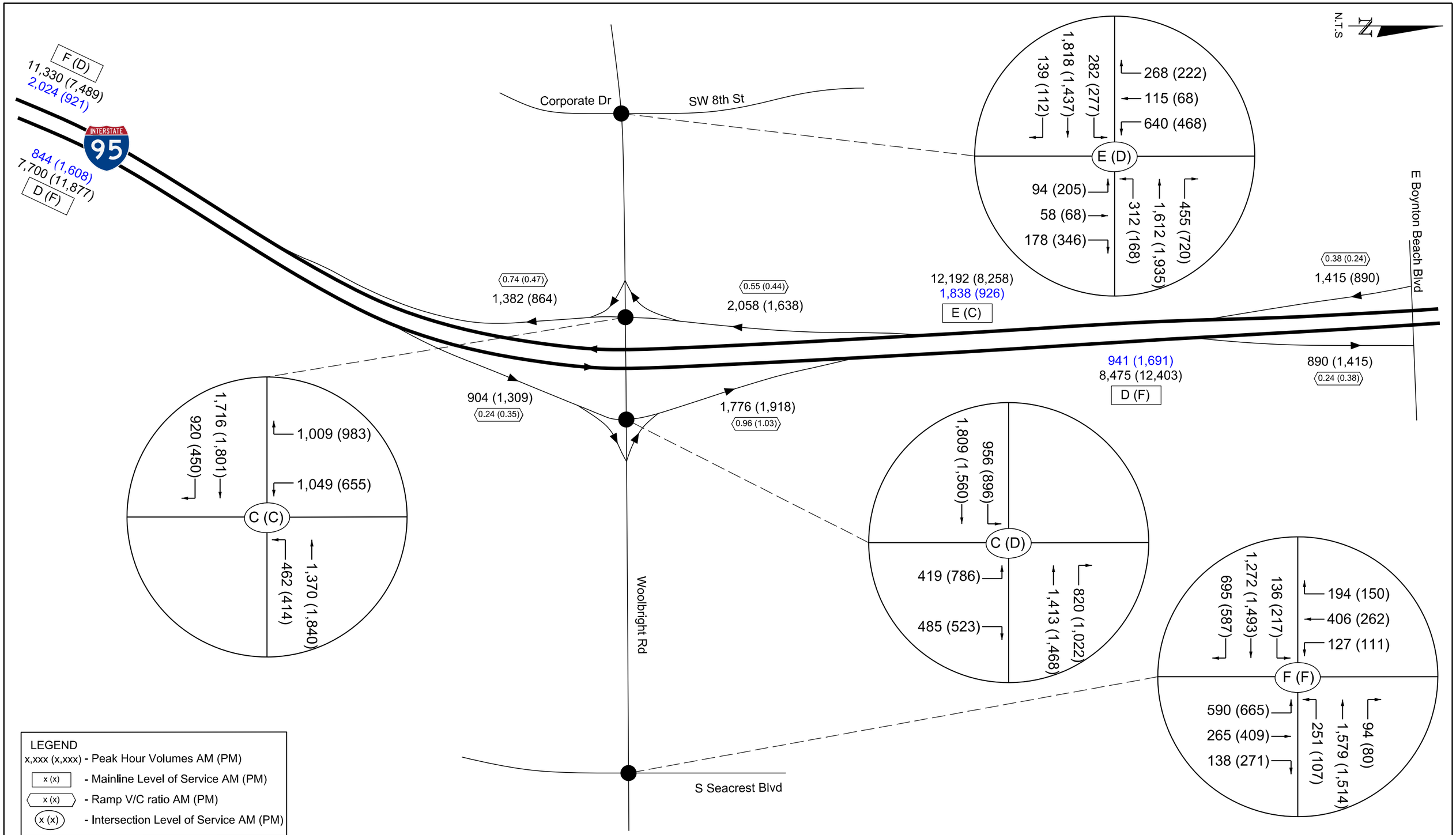
5.2.4 Design Year 2045 – Alternative 1 – TDI Analysis

Intersection Analysis

The Design Year 2045 Build Alternative 1 – TDI intersection analysis results are summarized in **Table 5-13**. In Design Year 2045, all the study intersections with proposed improvements operate at an acceptable LOS D or better with exception of Woolbright Road at Corporate Drive/SW 8th Street intersection which will operate at LOS E in the AM peak hour. Also, there are few approach movements which will operate at LOS F as marked red in **Table 5-13** at the Woolbright Road at Corporate Drive/SW 8th Street intersection. **Figure 5-7** illustrates the peak hour volumes and LOS results for the Design Year 2045 Build Alternative 1 – TDI intersections analysis.

Table 5-13: Design Year 2045 Build Alt 1 – TDI Intersection Analysis Summary

Intersection	Intersection Approach				Overall Intersection	
	Approach	Movement	Delay (sec)	LOS	Delay (sec)	LOS
			AM (PM)	AM (PM)	AM (PM)	AM (PM)
Woolbright Road at Corporate Drive/SW 8th Street	Eastbound	Left	58.2 (71.0)	E (E)	66.9 (53.2)	E (D)
		Through	102.9 (48.9)	F (D)		
		Right	27.6 (32.1)	C (C)		
	Westbound	Left	58.3 (44.3)	E (D)		
		Through	37.1 (34.3)	D (C)		
		Right	16.2 (53.4)	B (D)		
	Northbound	Left	44.1 (102.0)	D (F)		
		Through/Right	62.4 (86.4)	E (F)		
	Southbound	Left	107.9 (93.6)	F (F)		
		Through/Right	48.4 (48.8)	D (D)		
Woolbright Road at I-95 Southbound Ramps	Eastbound	Through	47.0 (43.4)	D (D)	21.7 (24.1)	C (C)
		Right	1.8 (0.2)	A (A)		
	Westbound	Left	4.1 (6.6)	A (A)		
		Through	4.0 (15.5)	A (B)		
	Southbound	Left	47.0 (55.5)	D (E)		
		Right	2.3 (2.1)	A (A)		
Woolbright Road at I-95 Northbound Ramps	Eastbound	Left	29.8 (75.7)	C (E)	28.0 (38.0)	C (D)
		Through	12.4 (16.8)	B (B)		
	Westbound	Through	45.0 (47.6)	D (D)		
		Right	0.1 (0.2)	A (A)		
	Northbound	Left	37.6 (42.3)	D (D)		
		Right	71.8 (77.5)	E (E)		



LEGEND

x,xxx (x,xxx) - Peak Hour Volumes AM (PM)

x (x) - Mainline Level of Service AM (PM)

x (x) - Ramp V/C ratio AM (PM)

x (x) - Intersection Level of Service AM (PM)

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Title: Design Year 2045 Build Alternative - 1 TDI Peak Hour Volumes and LOS/VC Ratios

Figure: 5-7

Table 5-14 summarizes the queue analysis for Design Year 2045 Build Alternative 1 – TDI. In the Design Year 2045, the 95th Percentile queue length exceeds the storage at the following intersection approaches marked as red in **Table 5-14**:

- Westbound right at Woolbright Road at Corporate Drive/SW 8th Street (PM peak hour)
- Southbound left at Woolbright Road at Corporate Drive /SW 8th Street (AM/PM peak hour)
- Northbound right at Woolbright Road at I-95 Northbound Ramp terminal (PM peak hour; PM peak hour; however it should be noted that there are three northbound left turn ramp lanes with short queues and right most lane can contain the northbound queues without spill back onto mainline)

Table 5-14: 95th Intersection Percentile Queue Length Summary – Design Year 2045 Build Alt 1 – TDI

Intersection	Time Period	95th Percentile Queue Length (feet)											
		Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Woolbright Road at Corporate Drive /SW 8th Street	AM Peak	178	#826	26	#196	438	51	91	208	-	#473	356	-
	PM Peak	191	558	0	128	#688	693	#292	#453	-	#429	282	-
	Proposed Storage (feet)	250	1,300	250	300	1,250	350	400	>1,000		250	>1,000	
Woolbright Road at I-95 Southbound Ramps	AM Peak	-	372	0	m37	m58	-	-	-	-	345	-	0
	PM Peak	-	m#537	m0	m96	757	-	-	-	-	262	-	0
	Proposed Storage (feet)	-	1,250	500	900	2,650	-	-	-	-	1,700	-	350
Woolbright Road at I-95 Northbound Ramps	AM Peak	m208	266	-	-	m186	m5	77	-	#338	-	-	-
	PM Peak	m#544	m294	-	-	m279	m48	136	-	#546	-	-	-
	Proposed Storage (feet)	900	1,750	-	-	2,250	650	1,300	-	300	-	-	-

#: 95th percentile volume exceeds capacity, queue maybe longer
m: Volume for 95th percentile queue is metered by upstream signal
Storage length noted above is turn pocket length or link distance per lane to adjacent signalized intersection

5.2.5 Opening Year 2025 – Alternative 2 – DDI Analysis

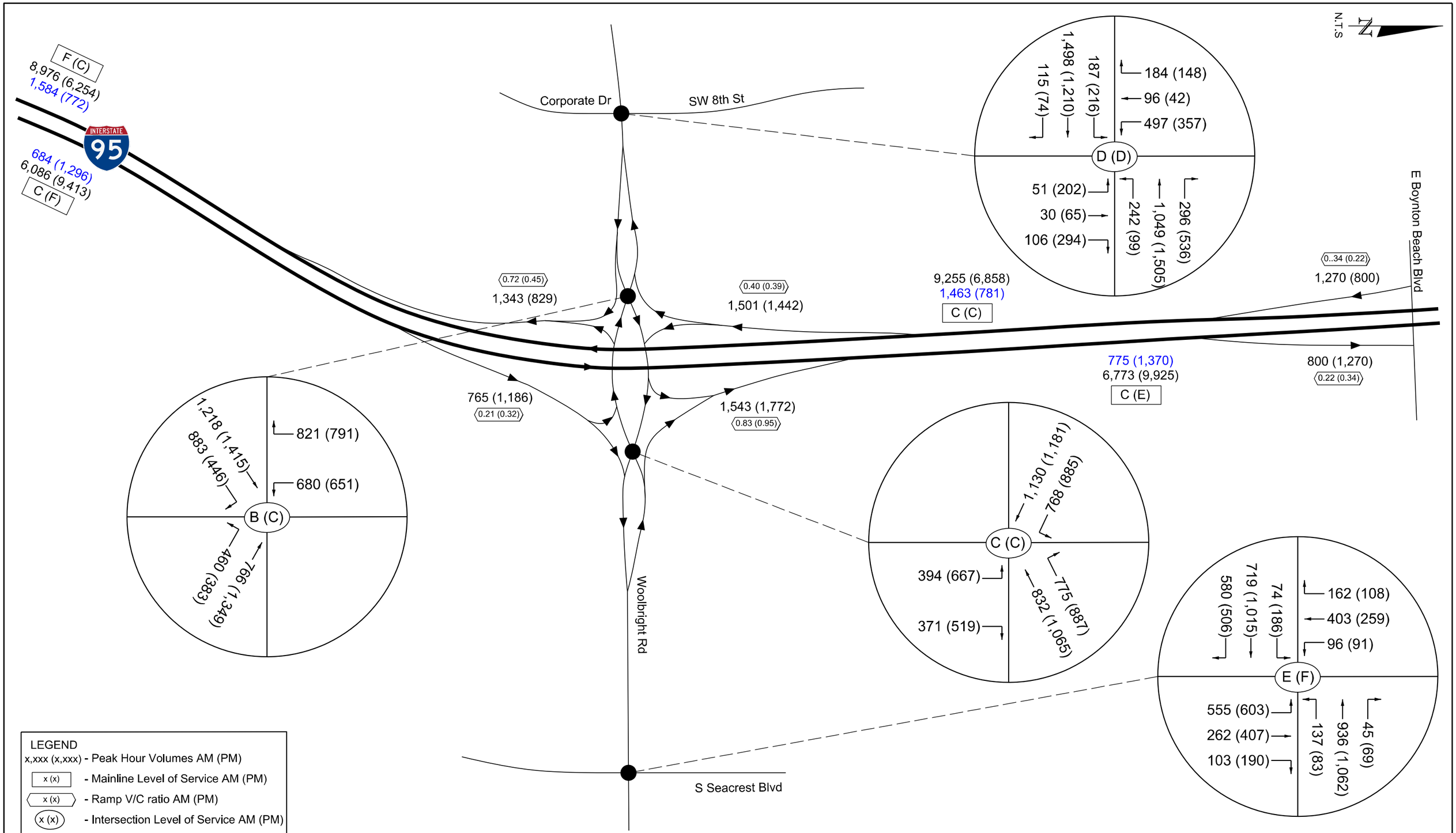
Intersection Analysis

The Opening Year 2025 Build Alternative 2 – DDI intersection analysis results are summarized in **Table 5-15**. In Opening Year 2025, both ramp terminal intersections will operate at an acceptable LOS C or better. **Figure 5-8** illustrates the peak hour volumes and LOS results for the Opening Year 2025 Build Alternative 2 – DDI intersections analysis.

Table 5-15: Opening Year 2025 Build Alt 2 – DDI Intersection Analysis Summary

Intersection	Intersection Approach				Overall Intersection	
	Approach	Movement	Delay (sec)	LOS	Delay (sec)	LOS
			AM (PM)	AM (PM)	AM (PM)	AM (PM)
Woolbright Road at I-95 Southbound Ramps	Eastbound	Through	17.4 (30.4)	B (C)	16.8 (23.5)	B (C)
		Right	0 (0)	A (A)		
	Westbound	Left	0 (0)	A (A)		
		Through	15.8 (16.3)	B (B)		
	Southbound	Left	26.0 (18.0)	C (B)		
		Right	20.2 (32.9)	C (C)		
Woolbright Road at I-95 Northbound Ramps	Eastbound	Left	0 (0)	A (A)	21.8 (23.2)	C (C)
		Through	20.2 (27.5)	C (C)		
	Westbound	Through	24.0 (18.4)	C (B)		
		Right	0 (0)	A (A)		
	Northbound	Left	14.6 (26.3)	B (C)		
		Right	23.3 (17.9)	C (B)		

Note: Improvements at Woolbright Rd/SW 8th St are same as Build Alternative 1 – TDI, so Delay/LOS will be same as TDI Alternative.



LEGEND

x,xxx (x,xxx) - Peak Hour Volumes AM (PM)

x (x) - Mainline Level of Service AM (PM)

x (x) - Ramp V/C ratio AM (PM)

x (x) - Intersection Level of Service AM (PM)

Florida Department of Transportation *District Four* *3400 West Commercial Boulevard* *Fort Lauderdate, FL 33309*	I-95/SR 9 Interchange at Woolbright Road Project Development & Environment Study FPID No.: 437279-1-22-02 ETDM No.: 14341	Title: Opening Year 2025 Build Alternative - 2 DDI Peak Hour Volumes and LOS/VC Ratios	Figure: 5-8

Table 5-16 summarizes the queue analysis for Opening Year 2025 Build Alternative 2 – DDI and shows both terminal intersections will have queues contained within available storage.

Table 5-16: 95th Intersection Percentile Queue Length Summary – Opening Year 2025 – DDI

Intersection	Time Period	95th Percentile Queue Length (feet)											
		Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Woolbright Road at I-95 Southbound Ramps	AM Peak	-	231	0	0	94	-	-	-	-	238	-	288
	PM Peak	-	378	0	0	197	-	-	-	-	198	-	366
	Proposed Storage (feet)	-	1,250	600	1,050	3,050	-	-	-	-	1,700	-	1,700
Woolbright Road at I-95 Northbound Ramps	AM Peak	0	230	-	-	189	0	104	-	143	-	-	-
	PM Peak	0	257	-	-	220	0	244	-	180	-	-	-
	Proposed Storage (feet)	800	2,050	-	-	2,250	800	1,300	-	1,300	-	-	-

Storage length noted above is turn pocket length or link distance per lane to adjacent signalized intersection

5.2.6 Design Year 2045 – Alternative 2 – DDI Analysis

Intersection Analysis

The Design Year 2045 Build Alternative 2 – DDI intersection analysis results are summarized in **Table 5-17**. In Design Year 2045, both ramp terminal intersections will operate at an acceptable LOS C or better. **Figure 5-9** illustrates the peak hour volumes and LOS results for the Design Year 2045 Build Alternative 2 – DDI intersections analysis.

Table 5-17: Design Year 2045 Build Alt 2 – DDI Intersection Analysis Summary

Intersection	Intersection Approach				Overall Intersection	
	Approach	Movement	Delay (sec) AM (PM)	LOS AM (PM)	Delay (sec) AM (PM)	LOS AM (PM)
Woolbright Road at I-95 Southbound Ramps	Eastbound	Through	21.1 (40.9)	C (D)	19.9 (29.5)	B (C)
		Right	0 (0)	A (A)		
	Westbound	Left	0 (0)	A (A)		
		Through	18.3 (18.3)	B (B)		
	Southbound	Left	35.3 (18.6)	D (B)		
		Right	24.2 (46.1)	C (D)		
Woolbright Road at I-95 Northbound Ramps	Eastbound	Left	0 (0)	A (A)	25.4 (25.6)	C (C)
		Through	21.7 (29.3)	C (C)		
	Westbound	Through	30.2 (21.6)	C (C)		
		Right	0 (0)	A (A)		
	Northbound	Left	14.7 (28.0)	B (C)		
		Right	25.1 (18.7)	C (B)		

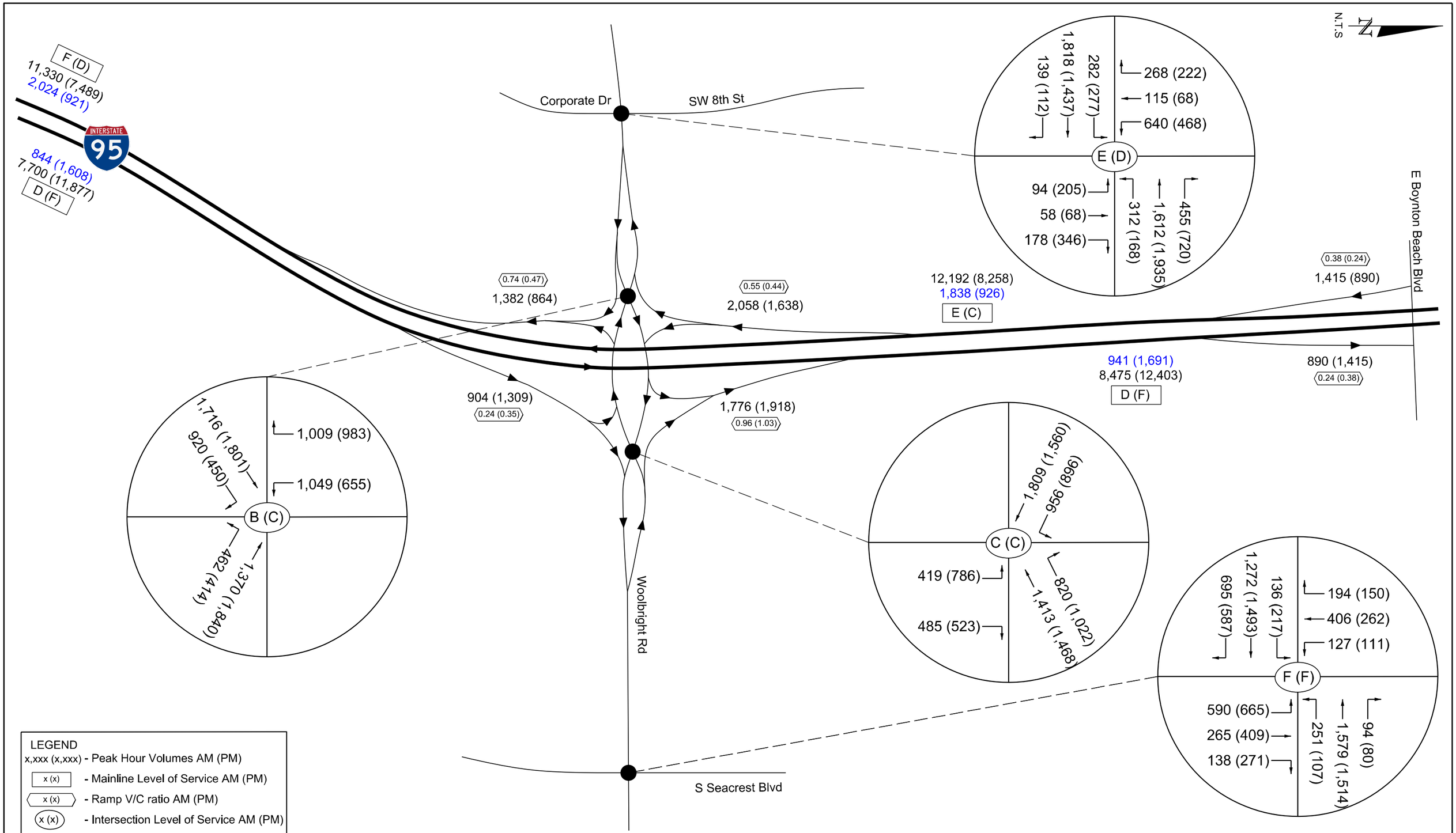
Note: Improvements at Woolbright Rd/SW 8th St are same as Build Alternative 1 – TDI, so Delay/LOS will be same as TDI Alternative.

Table 5-18 summarizes the queue analysis for Design Year 2045 Build Alternative 2 – DDI and shows both terminal intersections will have queues contained within available storage.

Table 5-18: 95th Intersection Percentile Queue Length Summary – Design Year 2045 Build Alt 2 - DDI

Intersection	Time Period	95th Percentile Queue Length (feet)											
		Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Woolbright Road at I-95 Southbound Ramps	AM Peak	-	370	0	0	179	-	-	-	-	413	-	391
	PM Peak	-	#570	0	0	265	-	-	-	-	199	-	#540
	Proposed Storage (feet)	-	1,250	600	1,050	3,050	-	-	-	-	1,700	-	1,700
Woolbright Road at I-95 Northbound Ramps	AM Peak	0	404	-	-	358	0	110	-	191	-	-	-
	PM Peak	0	m346	-	-	331	0	297	-	182	-	-	-
	Proposed Storage (feet)	800	2,050	-	-	2,250	800	1,300	-	1,300	-	-	-

#: 95th percentile volume exceeds capacity, queue maybe longer
m: Volume for 95th percentile queue is metered by upstream signal
Storage length noted above is turn pocket length or link distance per lane to adjacent signalized intersection



LEGEND

x,xxx (x,xxx) - Peak Hour Volumes AM (PM)

x (x) - Mainline Level of Service AM (PM)

x (x) - Ramp V/C ratio AM (PM)

x (x) - Intersection Level of Service AM (PM)

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Title: Design Year 2045 Build Alternative - 2 DDI Peak Hour Volumes and LOS/VC Ratios

Figure: 5-9

5.2.7 Opening Year 2025 – Alternative 3 – SPUI Analysis

Intersection Analysis

The Opening Year 2025 Build Alternative 3 – SPUI intersection analysis results are summarized in **Table 5-19**. In Opening Year 2025, both ramp terminal intersections will converge as one junction and will operate at an acceptable LOS C or better. **Figure 5-10** illustrates the peak hour volumes and LOS results for the Opening Year 2025 Build Alternative 3 – SPUI intersections analysis.

Table 5-19: Opening Year 2025 Build Alt 3 – SPUI Intersection Analysis Summary

Intersection	Intersection Approach				Overall Intersection	
	Approach	Movement	Delay (sec)	LOS	Delay (sec)	LOS
			AM (PM)	AM (PM)	AM (PM)	AM (PM)
Woolbright Road at I-95 Southbound/Northbound Ramps	Eastbound	Left	38.5 (44.4)	D (D)	18.2 (23.4)	B (C)
		Through	31.8 (21.8)	C (C)		
		Right	1.6 (0.5)	A (A)		
	Westbound	Left	41.9 (44.0)	D (D)		
		Through	41.5 (41.5)	D (D)		
		Right	1.2 (1.6)	A (A)		
	Southbound	Left	24.7 (34.0)	C (C)		
		Right	1.4 (1.3)	A (A)		
	Northbound	Left	24.2 (42.5)	C (D)		
		Right	0.4 (0.6)	A (A)		

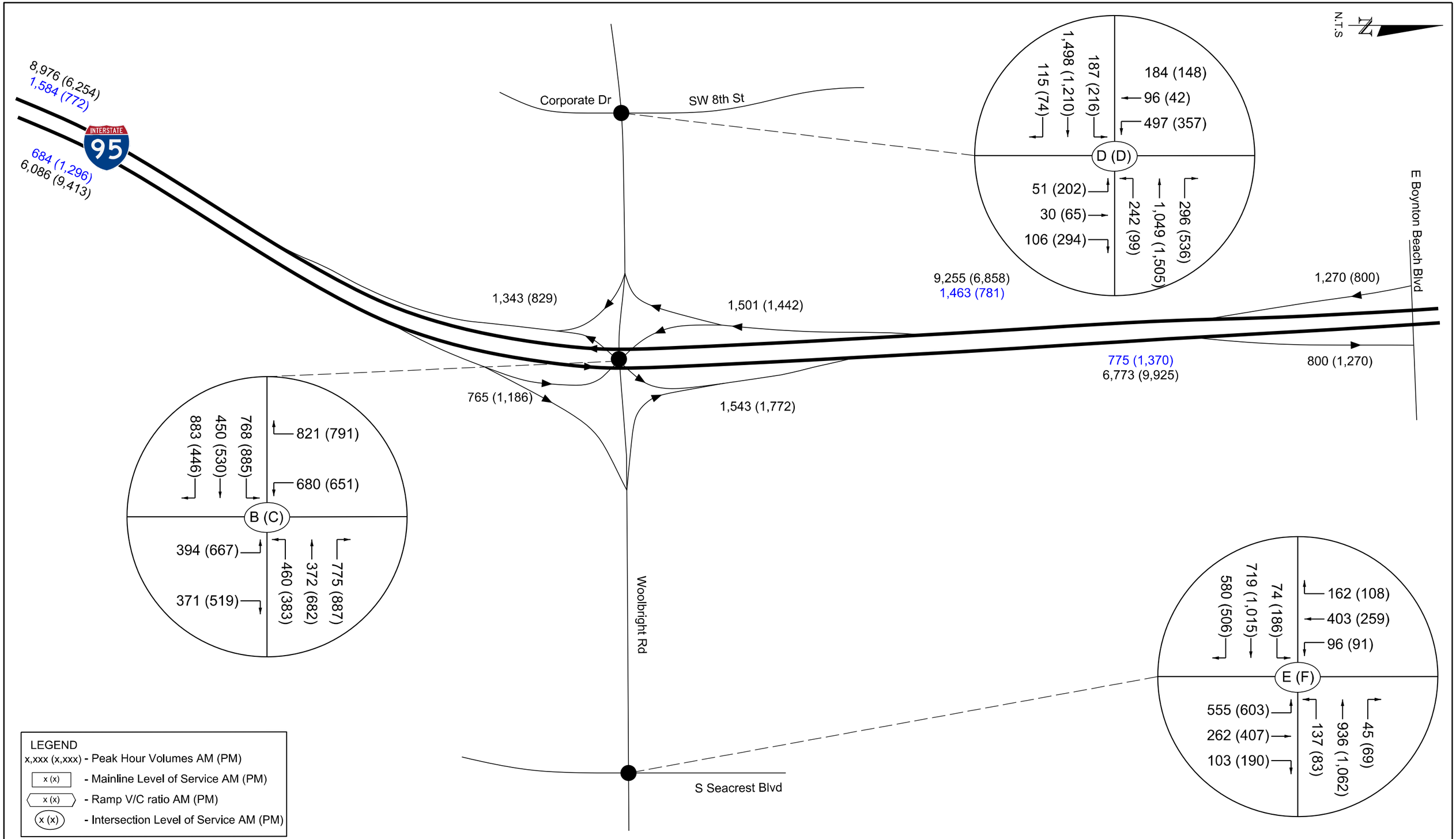
Note: Improvements at Woolbright Rd/SW 8th St are same as Build Alternative 1 – TDI, so Delay/LOS will be same as TDI Alternative.

Table 5-20 summarizes the queue analysis for Opening Year 2025 Build Alternative 3 – SPUI and shows that ramp terminal intersection will have queues contained within available storage.

Table 5-20: 95th Intersection Percentile Queue Length Summary – Opening Year 2025 – SPUI

Intersection	Time Period	95th Percentile Queue Length (feet)									
		Eastbound			Westbound			Northbound		Southbound	
		L	T	R	L	T	R	L	R	L	R
Woolbright Road at I-95 Southbound/ Northbound Ramps	AM Peak	336	204	0	221	196	0	186	0	166	0
	PM Peak	#477	188	0	187	307	0	193	0	#341	0
	Proposed Storage (feet)	700	1400	600	750	2600	800	1300	800	1,800	1,800

#: 95th percentile volume exceeds capacity, queue maybe longer
m: Volume for 95th percentile queue is metered by upstream signal
Storage length noted above is turn pocket length or link distance per lane to adjacent signalized intersection



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ETDM No.: 14341

Title: Opening Year 2025 Build Alternative - 3 SPUI Peak Hour Volumes and LOS/VC Ratios

Figure: 5-10

5.2.8 Design Year 2045 – Alternative 3 – SPUI Analysis

Intersection Analysis

The Design Year 2045 Build Alternative 3 – SPUI intersection analysis results are summarized in **Table 5-21**. In Design Year 2045, both ramp terminal intersections will converge as one junction and will operate at an acceptable LOS C or better. **Figure 5-11** illustrates the peak hour volumes and LOS results for the Design Year 2045 Build Alternative 3 – SPUI intersections analysis.

Table 5-21: Design Year 2045 Build Alt 3 – SPUI Intersection Analysis Summary

Intersection	Intersection Approach				Overall Intersection	
	Approach	Movement	Delay (sec)	LOS	Delay (sec)	LOS
			AM (PM)	AM (PM)	AM (PM)	AM (PM)
Woolbright Road at I-95 Southbound/Northbound Ramps	Eastbound	Left	75.1 (61.2)	E (E)	34.1 (35.9)	C (D)
		Through	30.1 (25.0)	C (C)		
		Right	1.8 (0.5)	A (A)		
	Westbound	Left	59.1 (49.2)	E (D)		
		Through	74.0 (78.8)	E (E)		
		Right	1.4 (2.4)	A (A)		
	Southbound	Left	48.6 (39.3)	D (D)		
		Right	2.3 (2.1)	A (A)		
	Northbound	Left	40.6 (78.7)	D (E)		
		Right	0.5 (0.6)	A (A)		

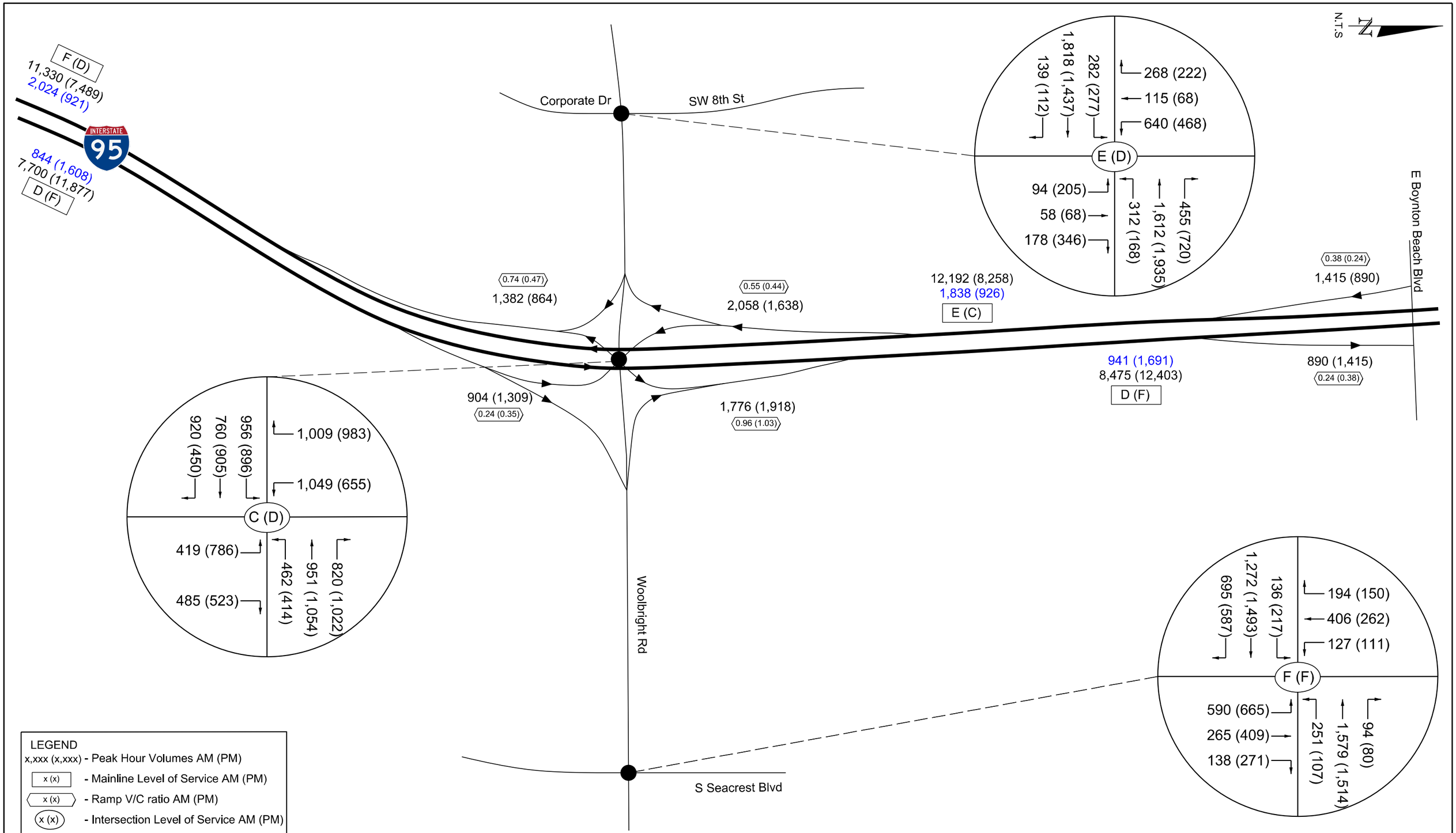
Note: Improvements at Woolbright Rd/SW 8th St are same as Build Alternative 1 – TDI, so Delay/LOS will be same as TDI Alternative.

Table 5-22 summarizes the queue analysis for Design Year 2045 Build Alternative 3 – SPUI and shows that ramp terminal intersection will have queues contained within available storage.

Table 5-22: 95th Intersection Percentile Queue Length Summary – Design Year 2045 Build Alt 3 – SPUI

Intersection	Time Period	95th Percentile Queue Length (feet)									
		Eastbound			Westbound			Northbound		Southbound	
		L	T	R	L	T	R	L	R	L	R
Woolbright Road at I-95 Southbound/ Northbound Ramps	AM Peak	#587	360	0	259	#611	0	362	0	211	0
	PM Peak	#487	353	0	203	#598	0	194	0	#442	0
	Proposed Storage (feet)	700	1400	600	750	2600	800	1300	800	2,300	2,300

#: 95th percentile volume exceeds capacity, queue maybe longer
m: Volume for 95th percentile queue is metered by upstream signal
Storage length noted above is turn pocket length or link distance per lane to adjacent signalized intersection



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ETDM No.: 14341

Title:
Design Year 2045 Build Alternative - 3 SPUI Peak Hour Volumes and LOS/VC Ratios

Figure:
5-11

5.3 Alternatives Safety Analysis

In order to quantify the safety benefits associated with each alternative, a predictive crash frequency analysis consistent with the Highway Safety Manual was performed using Enhanced Interchange Safety Analysis Tool (ISATe). ISATe predicts the number of crashes by applying the safety performance functions using traffic and geometric characteristics. Adjustment factors called Crash Modification Factors (CMF) are then applied to predict the number of crashes based on specific site conditions. Documentation of the predictive crash analysis is provided in the IMR prepared for this project.

This section discusses the results by comparing the percentage change in crashes between the No-Build and Build Alternatives. This was done to understand the quantitative benefits of the proposed Alternatives.

5.3.1 No Build and Build Alternative 1 – TDI

A summary of comparison between the No Build Alternative and Build Alternative 1 is presented in **Table 5-23**. The result shows that the Build Alternative is expected to decrease the predicted total crashes by 13% in the Opening Year and 18% in the Design Year. The percentage decrease is smaller for fatal and injury crashes than for property damage only crashes. The total expected crashes for the TDI during the study period (2025-2045) is 1375.2 crashes.

Table 5-23: No Build & Build Alternative 1- TDI Crash Average Frequency Predictions for 2025 and 2045

Analysis Year	Alternative	Estimated Number of Crashes		
		FI Crashes	PDO Crashes	Total Crashes
2025	No Build	19.6	32.6	52.3
	Build Alternative 1	19.6	39.8	59.3
	Change	0	-7.2	-7
	Percentage Change	0%	-22%	-13%
2045	No Build	23.2	37.6	60.8
	Build Alternative 1	23.6	48.1	71.7
	Change	-0.4	-10.5	-10.9
	Percentage Change	-2%	-28%	-18%

5.3.2 No Build and Build Alternative 2 – DDI

Table 5-24 show a comparison between the No Build Alternative and Build Alternative 2 results. In the Opening Year 2025, the Build Alternative is expected to decrease the predicted total crashes by 13% compared with the No-Build Alternative. Furthermore, a decrease of 18% of the predicted total crashes is expected for the Build Alternative 2 by the Design Year 2045. The percentage decrease is smaller for fatal and injury crashes than for property damage only crashes. The total expected crashes for the DDI during the study period (2025-2045) is 1371.6 crashes.

Table 5-24: No Build & Build Alternative 2- DDI Crash Average Frequency Predictions for 2025 and 2045

Analysis Year	Alternative	Estimated Number of Crashes		
		FI Crashes	PDO Crashes	Total Crashes
2025	No-Build	19.6	32.6	52.3
	Build Alternative 2	19.8	39.1	58.9
	Change	-0.2	-6.5	-6.6
	Percentage Change	-1%	-20%	-13%
2045	No-Build	23.2	37.6	60.8
	Build Alternative 2	24	47.8	71.9
	Change	-0.8	-10.2	-11.1
	Percentage Change	-3%	-27%	-18%

5.3.3 No Build and Build Alternative 3 – SPUI

A summary of comparison between the No Build Alternative and Build Alternative 3 is presented in **Table 5-25**. The result shows that the Build Alternative is expected to decrease the predicted total crashes by 2% in the Opening Year and 2% in the Design Year. The total estimated crashes for the SPUI during the study period (2025-2045) is 1215.7 crashes.

Table 5-25: No Build & Build Alternative 3- SPUI Crash Average Frequency Predictions for 2025 and 2045

Analysis Year	Alternative	Estimated Number of Crashes		
		FI Crashes	PDO Crashes	Total Crashes
2025	No-Build	19.6	32.6	52.3
	Build Alternative 3	20	33.6	53.6
	Change	-0.4	-1	-1.3
	Percentage Change	-2%	-3%	-2%
2045	No-Build	23.2	37.6	60.8
	Build Alternative 3	23.6	38.6	62.2
	Change	-0.4	-1	-1.4
	Percentage Change	-2%	-3%	-2%

5.4 Benefit/Cost Analysis

A Benefit Cost Analysis was also performed to quantify the reduction of crashes into a cost-saving. Only Build Alternative 2 requires the use of Clearinghouse CMF. The CMF for this analysis were determined using the CMF clearinghouse funded by FHWA. The CMF used to quantify the benefit of changing a diamond interchange to DDI include:

- Clearinghouse CMF 8258: Convert Diamond Interchange to Diverging Diamond Interchange (DDI) = 0.67

By implementing the proposed modification, the total expected crash reduction during 2025 to 2045 is 452.63 crashes (see **Table 5-26**). **Table 5-27** summarizes the crash comparison for all the Build Alternatives.

Table 5-26: No Build vs Build (DDI) Expected Crashes

	Total expected Crashes for 2025-2045	CMF	Total Adjusted Expected Crashes	Reduction in Crashes
Build Alternative 2 - DDI	1371.60	0.67	918.97	452.63

Table 5-27: KABCO Crash Analysis

Type of Crash	Cost [a] ($)	Crash Severity Distribution				Cost of Crashes ($)			
		No Build Alternative	Build Alternative			No Build Alternative	Build Alternative		
			1	2	3		1	2	3
Fatal (K)	10,670,000	8.3	9.6	6.4	8.5	88,694,375	102,713,688	68,638,019	90,800,633
Severe Injury (A)	872,612	48.7	56.4	37.7	49.8	42,485,297	49,200,657	32,878,146	43,494,211
Moderate Injury (B)	174,018	147.3	170.5	114.0	150.7	25,624,151	29,674,385	19,829,791	26,232,657
Minor Injury (C)	106,215	257.7	298.4	199.4	263.8	27,370,278	31,696,510	21,181,069	28,020,250
Property Damage Only (O)	7,700	725.6	840.2	561.5	742.8	5,586,831	6,469,903	4,323,488	5,719,504
Total		**1187.5**	**1375.2**	**919.0**	**1215.7**	**189,760,931**	**219,755,143**	**146,850,512**	**194,267,254**

5.5 Drainage Analysis

5.5.1 Alternative 1 – Post Development Conditions

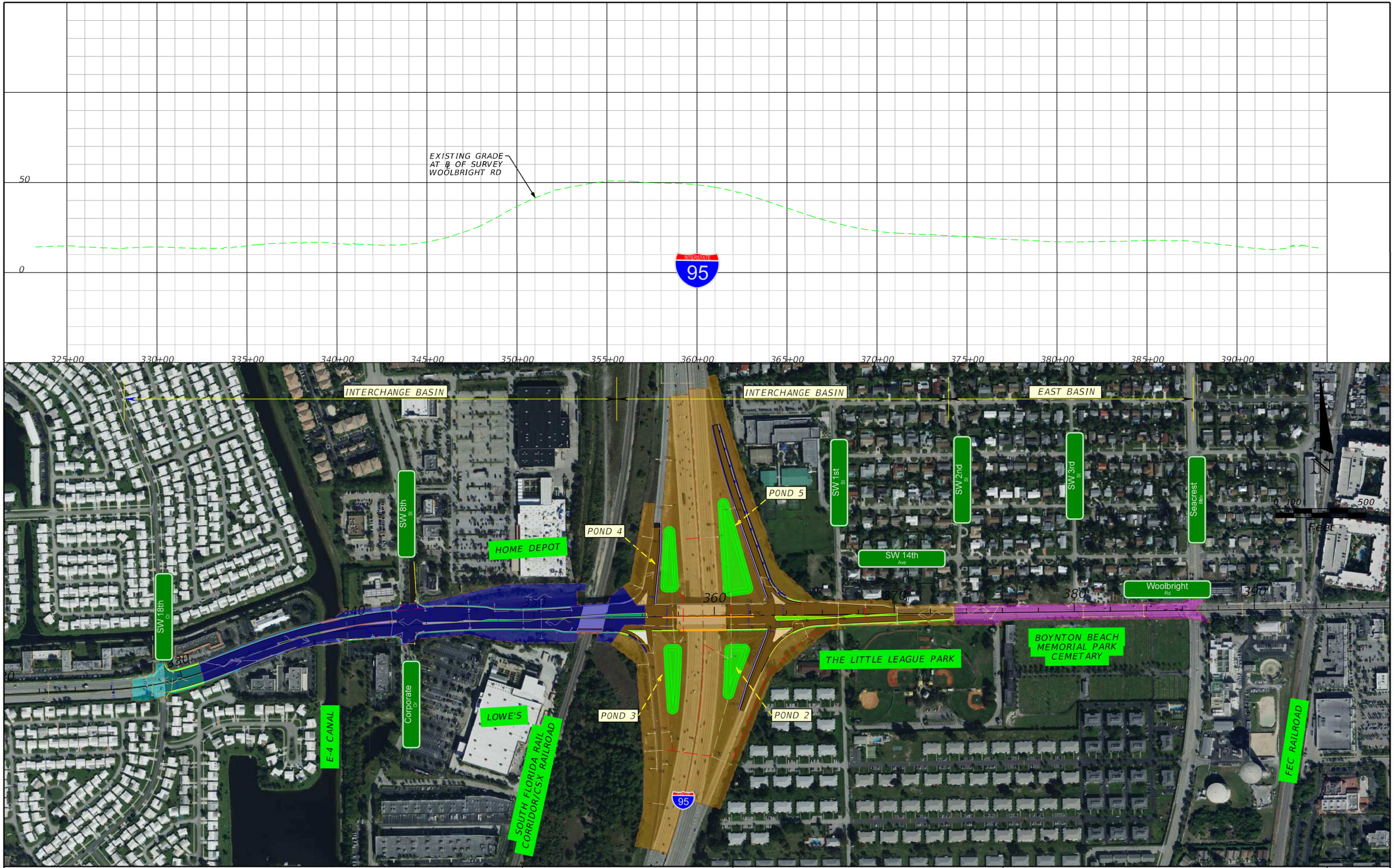
Alternative 1 will widen Woolbright Road and add turn lanes. Total area of new impervious area is 3.1 Ac, which will require 4.01 Ac-ft of pond volume in dry detention. The proposed widening will enlarge the existing ponds in the diamond infield areas. Based on depths and stages presented in the previous permitting effort and our current analysis, modifications to the pond grading and/or control structures will provide treatment and attenuation that meets SFWMD and FDOT requirements. The proposed drainage for Alternative 1 is shown in **Figure 5-12**.

5.5.2 Alternative 2 – Post Development Conditions

Alternative 2 will reconfigure the existing interchange into a DDI with spacious median areas. This alternative will also widen the southbound I-95 off ramp which will impact the existing pond in the northwest quadrant of the interchange (Pond 4). 3.31 Ac of new impervious will be added and 1.64 Ac removed, resulting in only 2.33 Ac-ft of required pond volume. Like Alternative 1, treatment and attenuation will likely be satisfied using minor modifications to the remaining infield ponds. Additionally, this alternative will impact three residential and one commercial parcel on the northeast side of the interchange. If there are remainder portions of those parcels as a result of the right-of-way acquisition, those areas could also be used for stormwater management. This alternative is shown in **Figure 5-13**.

5.5.3 Alternative 3 – Post Development Conditions

Alternative 3 will reconfigure the existing interchange into a SPUI, which will impact all the existing infield ponds. Treatment and attenuation volume in the existing ponds will need to be added to account for the 2.40 Ac of added impervious area needing treatment. This will require relocation of the infield ponds. Since the existing ramps will be removed, these areas provide some opportunity to provide ponds within the existing right-of-way. However, the Southbound I-95 on ramp is proposed to be on bridge for longer distance to allow for a pond underneath it. This alternative is shown in **Figure 5-14**.



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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

HANSON PROFESSIONAL SERVICES INC.
8075 GATE PARKWAY WEST, SUITE 204
JACKSONVILLE, FLORIDA 32216
CERTIFICATE OF AUTHORIZATION 00007961

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	PALM BEACH	437279-1-22-02

DRAINAGE MAP ALTERNATIVE 1

SHEET NO. 5-12

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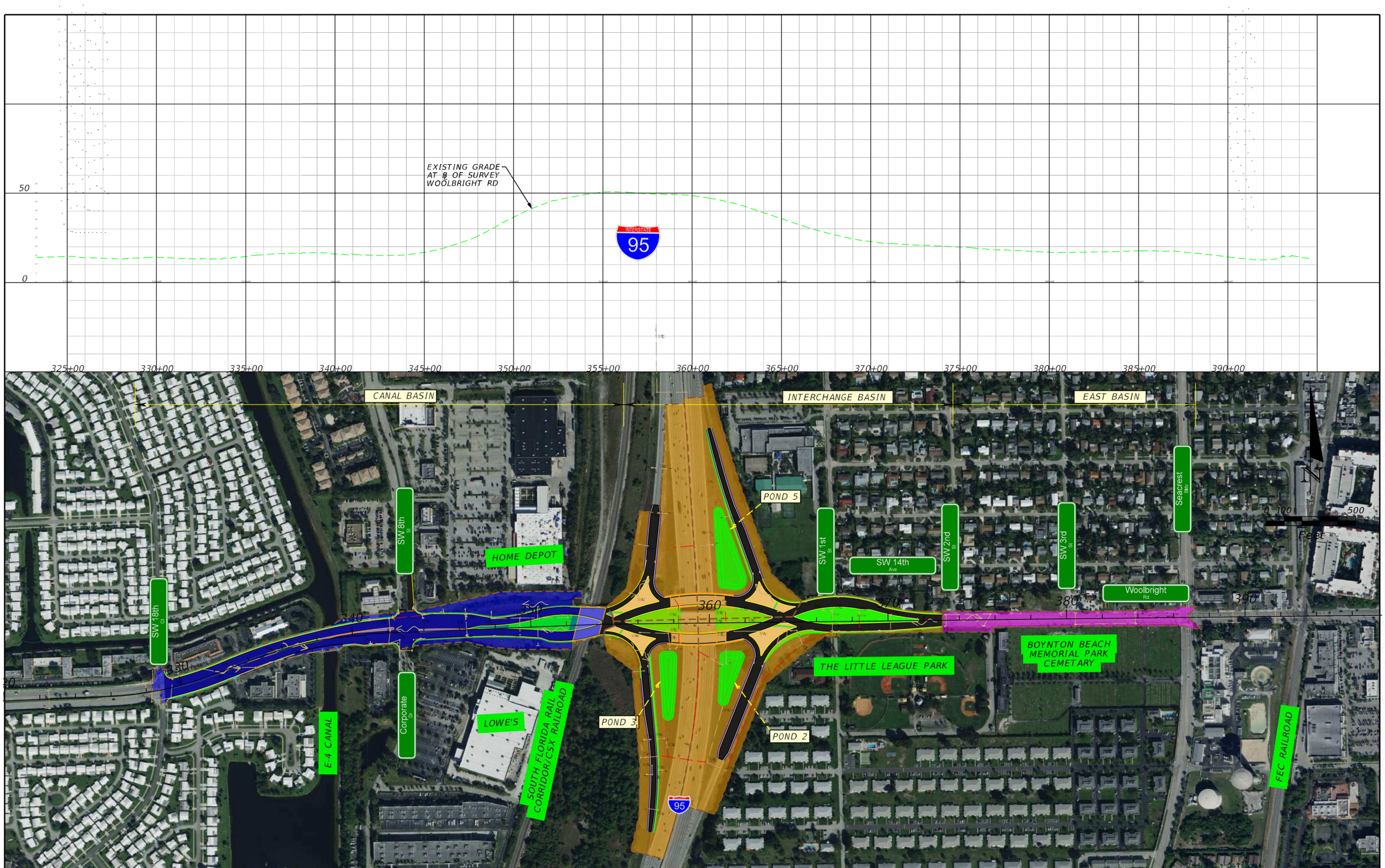

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	PALM BEACH	437279-1-22-02

DRAINAGE MAP ALTERNATIVE 2

SHEET NO. 5-13

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325+00 330+00 335+00 340+00 345+00 350+00 355+00 360+00 365+00 370+00 375+00 380+00 385+00 390+00

CANAL BASIN

INTERCHANGE BASIN

EAST BASIN

INTERSTATE 95

SW 8th St

SW 18th Ct

Corporate Dr

SW 1st St

SW 2nd St

SW 3rd St

Seacrest Blvd

SW 14th Ave

Woolbright Rd

HOME DEPOT

POND 4

POND 5

POND 3

POND 2A

POND 2B

LOWE'S

THE LITTLE LEAGUE PARK

BOYNTON BEACH MEMORIAL PARK CEMETARY

E-4 CANAL

SOUTH FLORIDA RAIL CORRIDOR/CSX RAILROAD

FEC RAILROAD

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Feet

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	PALM BEACH	437279-1-22-02

DRAINAGE MAP ALTERNATIVE 3

SHEET NO. 5-14

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5.6 Right-of-Way Impacts

Each of the build alternatives were developed to avoid or minimize right-of-way impacts. **Table 5-28** summarizes the right-of-way impacts associated to each build alternative.

Table 5-28: Right-of-Way Impacts

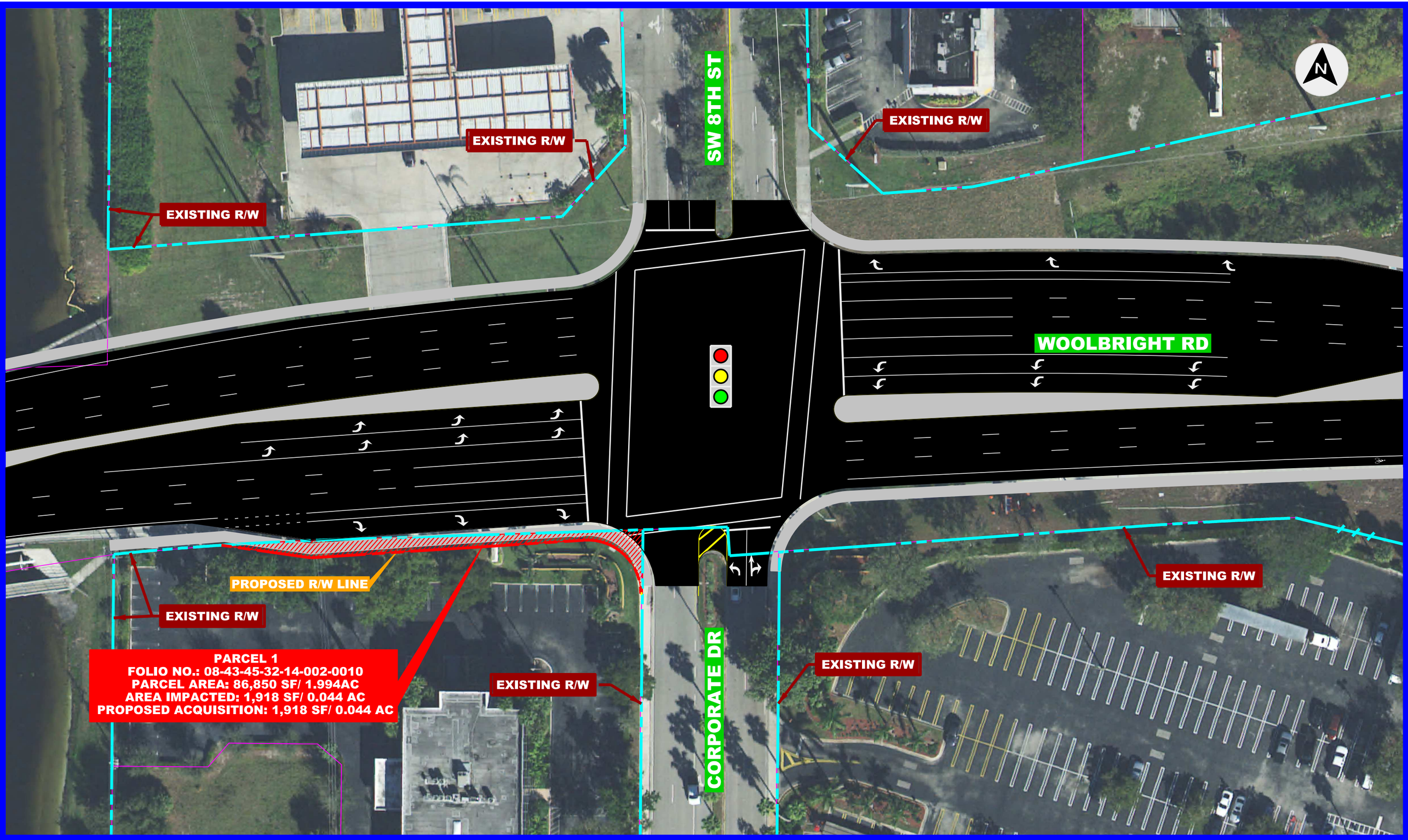
Component	Alternative 1 TDI	Alternative 2 DDI	Alternative 3 SPUI
Residential Properties	0	3	0
Business Properties	1	2	1
Vacant Land	0	1	0
Total Properties impacted	**1**	**6**	**1**
Total Relocations	**0**	**2**	**0**

5.6.1 Alternative 1 – TDI Right-of-Way Impacts

One business property has been identified as part of the right-of-way impacts associated with Alternative 1. Improvements at the Woolbright Road and SW 8th Street/Corporate Drive intersection will require additional right-of-way at the southwest quadrant of the intersection due to widening along Woolbright Road to provide one additional eastbound lane and one additional westbound left turn lane at the intersection (See **Figure 5-15**).

5.6.2 Alternative 2 – DDI Right-of-Way Impacts

Three residential properties, two business property, and one vacant land have been identified as part of the right-of-way impacts associated with Alternative 2. Improvements at the Woolbright Road and SW 8th Street/Corporate Drive intersection will require additional right-of-way at the southwest quadrant of the intersection due to widening along Woolbright Road to provide one additional eastbound lane and one additional westbound left turn lane at the intersection (See **Figure 5-15**). Improvements associated with the implementation of the DDI will required additional right-of-way at the northeast quadrant of the interchange requiring 2 full relocations (See **Figure 5-16**).



FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT FOUR
3200 WEST COMMERCIAL BLVD.
FORT LAUDERDALE, FL 33309

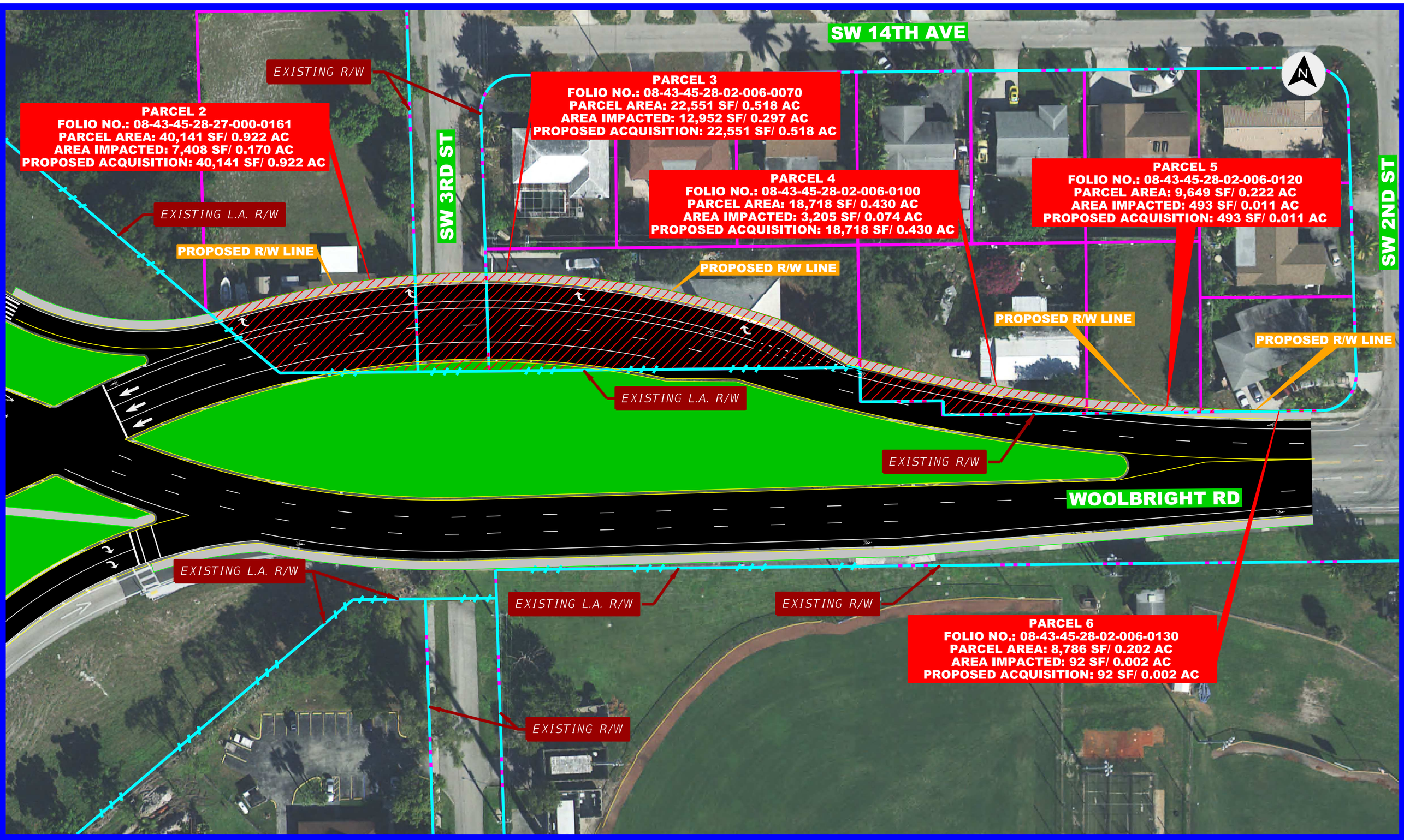
I-95/ SR 9 INTERCHANGE AT WOOLBRIGHT ROAD
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
FPID NO.: 437279-1-22-02
ETDM NO.: 14341

TITLE:

PROPOSED RIGHT-OF-WAY IMPACTS (IMPACTS ASSOCIATED TO ALTERNATIVES 1, 2, AND 3)

FIGURE:

5-15



FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT FOUR
3200 WEST COMMERCIAL BLVD.
FORT LAUDERDALE, FL 33309

I-95/ SR 9 INTERCHANGE AT WOOLBRIGHT ROAD
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
FPID NO.: 437279-1-22-02
ETDM NO.: 14341

TITLE:

PROPOSED RIGHT-OF-WAY IMPACTS (IMPACTS ASSOCIATED TO ALTERNATIVES 2)

FIGURE:

5-16

5.6.3 Alternative 3 – SPUI Right-of-Way Impacts

One business property has been identified as part of the right-of-way impacts associated with Alternative 3. Improvements at the Woolbright Road and SW 8th Street/Corporate Drive intersection will require additional right-of-way at the southwest quadrant of the intersection due to widening along Woolbright Road to provide one additional eastbound lane and one additional westbound left turn lane at the intersection (See **Figure 5-15**).

5.7 Preliminary Cost Estimate

A comparison for the cost of the three Build Alternatives is provided in **Table 5-29**. Construction cost estimates for all the alternatives were developed for the preliminary concepts prepared for each alternative as part of this study.

Table 5-29: Preliminary Cost Estimate

Component	Alternative 1 TDI	Alternative 2 DDI	Alternative 3 SPUI
Roadway Construction	$12,000,000	$19,000,000	$22,000,000
Engineering Design & CEI	$3,600,000	$5,130,000	$5,940,000
Right-of-Way Acquisition	$1,500,000	$5,200,000	$1,500,000
Total Cost	**$17,100,000**	**$29,330,000**	**$29,440,000**

5.8 Alternatives Evaluation

An Alternatives Evaluation Matrix was developed to facilitate comparison of engineering, social-economic, and environmental criteria as well as preliminary project cost. A qualitative scoring system was used to evaluate the criteria. **Table 5-30** summarizes the results from the Alternatives Evaluation Matrix.

Table 5-30: Preliminary Cost Estimate

CRITERIA		NO ACTION	ALTERNATIVE 1 TDI	ALTERNATIVE 2 DDI	ALTERNATIVE 3 SPUI
TRAFFIC OPERATIONS & SAFETY	Operational Performance (Year 2045)	Does not satisfy Level of Service Target	Satisfies Level of Service Target	Satisfies Level of Service Target	Satisfies Level of Service Target
	Reduction in delay at Ramp Terminals	None	39% Reduction	39% Reduction	42% Reduction
	Reduction in queues at Ramp Terminals	None	49% Reduction	39% Reduction	30% Reduction
	Potential Crash Reduction	None	22% Crash Reduction	35% Crash Reduction	15% Crash Reduction
ENGINEERING	Meets Purpose & Need	No	Yes	Yes	Yes
	Meets Geometric Design Criteria	Yes	Yes	Yes	Yes
	Utility Impacts and Relocations	None	Low	Medium	Low
	Impacts to the SFRC Bridge	None	Widening	Widening	None
	Multimodal Improvements (Pedestrian/Bicycle/Transit)	None	Yes	Yes	Yes
	Maintenance of Traffic	N/A	Bridge over I-95 Widening and Bridge over SFRC Widening	New Bridge over I-95 and Bridge over SFRC Widening	New Bridge over I-95
	Access Modifications	None	None	None	None
	Compatibility with Future I-95 widening project	No	No	Yes	Yes
SOCIAL-ECONOMIC	Relocation Potential	None	None	2 Relocations	None
	Economic and Employment Impacts	None	None	1 Business Impact	None
	Social & Neighborhood Impacts	None	Low	Medium	Low
	Lost of Parking	None	None	None	None
PHYSICAL & NATURAL ENVIRONMENT	Protected Species and Habitat	None	3 potential species within the area	3 potential species within the area	3 potential species within the area
	Wetland & Surface Waters Impacted	None	None	None	None
	Water Quality	None	Minimal	Minimal	Minimal
	Contamination Sites Impacted	None	Minimal	Minimal	Minimal
	Cultural/Historical/Archeological	None	None	None	None
	Noise Impacts	None	None	None	None
COST	Right-of-Way	$0	$1,500,000	$5,200,000	$1,500,000
	Construction	$0	$8,000,000	$19,000,000	$22,000,000
	Engineering Design & CEI	$0	$2,400,000	$5,130,000	$5,940,000
	Benefit Cost Ratio	**0.00**	**5.61**	**3.26**	**1.98**

6. PUBLIC INVOLVEMENT

Florida Department of Transportation (FDOT), District Four recognizes that the success of any transportation improvement is dependent upon a proactive and consistent successful public outreach effort. As such, FDOT is committed to conducting a Public Involvement Program that focuses on soliciting community interaction and incorporates an extensive evaluation of community impacts and opinions throughout the public involvement process. The positive value of implementing a strong and proactive public involvement effort generally results in public awareness of the project, as well as support for the project.

The Public Involvement Program is a working document which will be updated and amended throughout the project development process to incorporate the latest public involvement policies and techniques as they evolve during the life of the project. The Program outlines the public involvement approach and activities required to be undertaken with the project, including lists of the contact persons, such as concern citizens, private groups (residential/business), officials, agencies, and media, and the means used to involve them in the process. The collection of public input occurs throughout the entire project duration.

The program is in compliance with the FDOT's, PD&E Manual, Part I, Chapter 11, Section 339.155, Florida Statutes, Executive Orders 11990 & 11988, Council on Environmental Quality Regulation for implementing the procedural provisions of the National Environmental Policy Act (NEPA) and 23 Code of Federal Regulation Part 771. FDOT is dedicated to implementing a Public Involvement Program that will successfully obtain community input and at the time is flexible to change during the PD&E process if warranted by the community's changing needs.

6.1. Advanced Notification and Program Screening

To ensure early, open communication and agency and public input, an Advanced Notification (AN) Package was prepared defining the project and anticipated issues and impacts. The AN Package was sent to the Florida State Clearing house on October 23, 2017, where it was distributed to the appropriate state agencies for review. The AN Package was also distributed to appropriate non-state agencies and tribal nations.

In addition, a Programming Screen Summary Report was generated by the ETDM Coordinator for the I-95 PD&E Study and published on December 7, 2017. The purpose of this report is to summarize the results of the Environmental Technical Advisory Team (ETAT) Programming Screen review of the project, providing details

concerning agency comments about potential effects to natural, cultural, and community resources, and provide additional documentation of activities related to the Programming Phase of this project.

6.2. Elected Officials/Agency and Public Kick-Off Meetings

An Elected Officials/Agency Kick-Off Meeting was conducted on May 16, 2019, from 2:30 p.m. to 4:30 p.m. at the Inn at Boynton Beach located at 480 W. Boynton Beach Boulevard, Boynton Beach, Florida 33435. Invitations were sent to all elected officials within the project area as well as municipalities and permitting agencies. In addition, a newspaper ad with the meeting invitation was placed in the local newspaper, The Palm Beach Post. The project website also contained information about the meeting. The purpose of the meeting was to introduce the project and project team to the local agencies and municipalities within the project area, discuss the purpose and need and the scope of work for the project, and to solicit input on needed improvements. A project fact sheet was available as a handout. A brief presentation along with a questions and answers period was conducted at the end of the meeting.

A Public Kick-Off Meeting was conducted the same day at the same location from 5:30 p.m. to 7:30 p.m. Invitation letters were sent to all property owners within 500 feet of the study area limits. In addition, a newspaper ad with the meeting invitation was placed in the local newspaper, The Palm Beach Post. The project website also contained information about the meeting. The purpose of the meeting was to introduce the project and project team, discuss the purpose and need and the scope of work for the project, and to solicit public input on needed improvements. A project fact sheet was available as a handout. Comments cards were available for the public to leave behind or mail in. A brief presentation along with a questions and answers period was conducted at the end of the meeting.

6.3. Alternatives Public Workshop – Virtual Open House

An Alternatives Public Workshop was conducted online on July 22, 2020, from 5:00 p.m. to 7:00 p.m. A Virtual Open House with the project boards and a copy to the scripted presentation was also available on the project website from July 20, 2020 through July 31, 2020 at https://www.fdot.gov/projects/95atwoolbright/. Invitation letters were sent to all property owners within 500 feet of the study area limits. In addition, a newspaper ad with the meeting invitation was placed in the local newspaper, The Palm Beach Post. The project website also contained information about the meeting. The purpose of the meeting was to present the preliminary Build Alternatives developed for the project. Color aerials for each Build Alternatives were available for review on the

project website's Virtual Open House. A virtual comments panel was available for the public to leave comments during the virtual meeting and at the project website. A brief presentation along with a questions and answer period was conducted at the end of the meeting.

6.4. Public Hearing

A Public Hearing was not conducted for this project.

6.5. Additional Meetings and Coordination

A summary of all the project coordination meetings conducted as part of this project are included in **Table 6-1**.

Table 6-1: Public Involvement Summary

Date	Meeting
May 8, 2019	Project Briefing with the City of Boynton Beach
May 16, 2019	Elected Officials/Agency and Public Kick-Off Meeting
June 25, 2020	Project Briefing with the City of Boynton Beach
July 21, 2020	Project Update to Palm Beach TPA Staff
July 22, 2020	Alternatives Public Workshop

7. PREFERRED ALTERNATIVE

The conceptual layout for the Preferred Alternative that details the typical sections, bridge widening, and roadway reconstruction area for the recommended alternative are provided in the PD&E Conceptual Design Plans prepared for this study included in **Appendix A** and the Typical Section Package included in **Appendix B**.

The following describes the improvements associated with the Preferred Alternative:

- Modify the existing Diamond Interchange by widening the existing Woolbright Road bridge over I-95 and the bridge over the South Florida Rail Corridor to accommodate one additional through lane in each direction through the interchange;
- Add one additional left-turn lane (triple lefts) at the northbound and southbound I-95 off-ramp intersections;
- Add one additional westbound through lane at the Corporate Drive/SW 8th Street intersection;
- Add one additional left-turn lane in the eastbound and westbound direction at the Corporate Drive/SW 8th Street intersection;
- Widen the existing bridge over the E-4 Canal to accommodate the additional westbound through lane and bicycle lanes; and
- Extend the bicycle lanes from the interchange to SW 18th Street.

7.1. Design Variations and Exceptions

The proposed horizontal and vertical alignment for the recommended improvements would satisfy FDOT standards. In addition, the proposed typical sections would satisfy all FDOT design criteria. Therefore, no design variations nor exceptions are anticipated for this project.

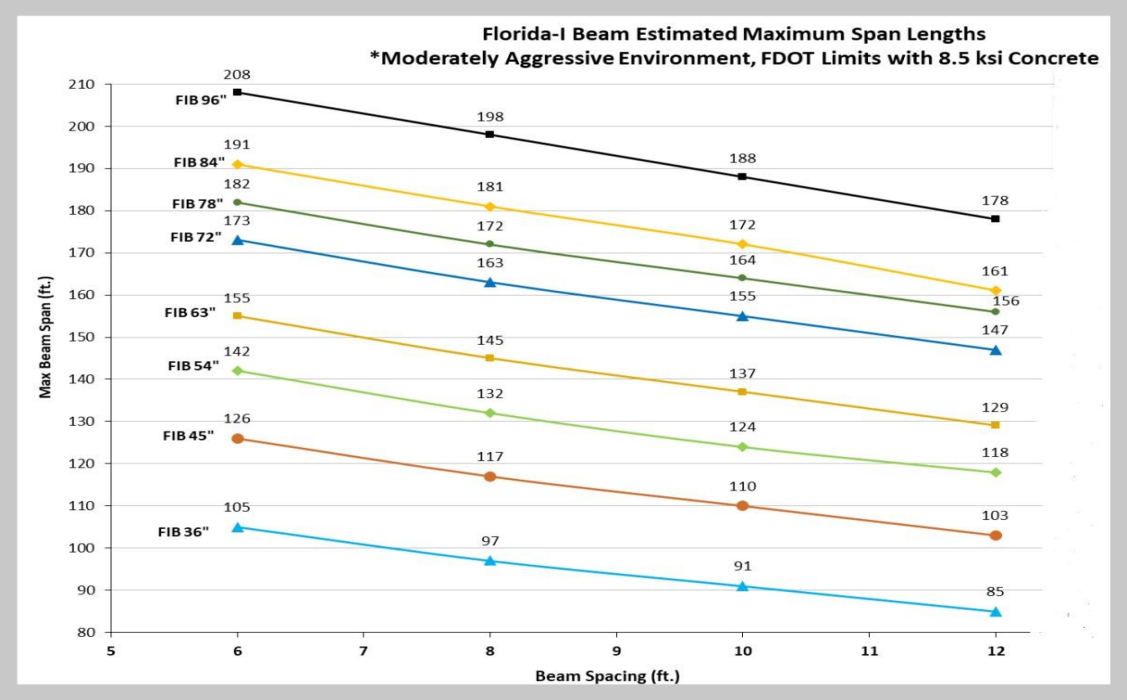
7.2. Bridge Analysis

7.2.1. Superstructure

The superstructure options for the proposed widening are limited to Florida I-Girders (FIB) per Structures Design Guidelines (SDG) section 7.6. Two lines of FIB-45 spaced at 7’-3”will be required on the south side to accommodate the proposed widening. The depth of a FIB-45 beam is 9 inches shallower than the existing

AASHTO and therefore enables the widening without further reducing the existing minimum vertical clearance under the bridge. While FIB-36 beams are also a feasible option, FIB-45 beams were selected to limit the difference in height between the existing and proposed girders because of aesthetics concerns. Using only one line of girders would either result in a large overhang or a tributary spacing for the existing exterior beam that would exceed the existing beam spacing and therefore this option was eliminated.

The existing deck will be saw cut along the center line of the exterior beam. The concrete will be removed without damaging the existing reinforcement to allow for lapping of the transverse reinforcement.



7.2.2. Substructure

Three additional 18” SQ prestressed concrete piles or steel H-piles will be required in order to extend the existing end bents. One independent hammer head column will be proposed at the intermediate pier. Because of the space constraints in the roadway below I-95, the diameter of the proposed columns will be kept at 3’-0”. The new columns will require design for Vehicle Collision Forces in accordance with the American Association of State Highway and Transportation Officials (AASHTO) LRFD Section 3.5.6. Similarly, the existing piers, which are

only 36 in diameter and are not shielded, will have to be analyzed for vehicle collision forces. Shielding of the existing columns may be required. 36" single slope traffic railings will be provided on the widened portions.

No need for retaining wall is identified at this location. Existing slope embankment in front of the end bents will be extended. Temporary sheet piling might be required to accommodate the end bent widening & I-95 median pier.

7.3. Drainage Analysis

The Preferred Alternative will widen Woolbright Road within the interchange area. Total area of new impervious area is 3.1 Ac which will require 4.01 Ac-ft of pond volume in dry detention. The proposed widening will enlarge the existing ponds in the diamond infield areas. Based on depths and stages presented in the previous permitting effort and our current analysis, modifications to the pond grading and/or control structures will provide treatment and attenuation that meets SFWMD and FDOT requirements.

Based on early coordination with SFWMD, modifications to the stormwater management systems within this impaired waterbody will require an additional 50% water quality treatment volume as well as nutrient loading analysis demonstrating no increase in nutrient loading over the existing condition. It was stated by SFWMD that regardless of the listed impairment the project must meet net improvement criteria for total nitrogen and total phosphorus.

There are several treatment approaches that can be used to retrofit the dry detention basins to provide additional nutrient removal. For example, providing retention in the bottom of the existing ponds, or adding a Biosorption Activated Media (BAM) filter, or nutrient separating baffle box could be added to create a "treatment train" that would be capable of meeting the additional nutrient removal goals. Based on nutrient removal calculations performed using version 4.1.0 of BMP Trains, using additional retention volume in Ponds 2 and 5 along with exfiltration trench in the canal basin, the project can meet net reduction goals for TN and TP.

Early in the design phase, it is recommended to meet with SFWMD to document and coordinate the design criteria and identify any other concerns of SFWMD that may need to be addressed during the final design. Most of the modifications associated with the alternatives lie outside of FEMA Flood Zones. However, there are some areas within the project limits where flood zone impacts are possible. Encroachments into the floodplain will be transverse and primarily confined within the existing right-of-way. In accordance with Executive Order 11988, FHWA Technical Advisory Team 6640.8A, 23 CFR 771, and Chapter 24 of the PD&E manual, the Department must

take the appropriate measures to protect floodplains and minimize impacts. For this reason, compensating storage will be provided to offset any fill within the floodplain. As a result, the project will result in no increased risks associated with flooding. The project will also result in no adverse impacts to water quality, groundwater recharge, fish and wildlife habitat, plants, open spaces or natural beauty, recreation, agriculture and aquaculture, or forestry. Floodplain and land use development plans are not necessary since the project is a modification to an existing road.

7.4. Utility and Facility Impacts

Existing utilities within the project area include overhead power lines, underground ITS fiber optic, fiber, phone, cable, water, sewer, and sanitary. Relocation of these utilities may be required to accommodate the proposed improvements based on the location and depth of these utilities. Further refinement of the proposed design and utility field verification will be carried out during the final design phase. Special construction equipment and techniques may be utilized to avoid utility conflicts. In unique locations, where the special construction equipment and techniques cannot avoid utility relocations, the need for relocation of the particular utility and the cost will be determined during the design phase.

7.5. Pedestrian and Bicycle Accommodations

The existing bicycle lanes withing the interchange area will be extended to the west to SW 18th Street to provide designated 5-foot bicycle lanes within the project limits.

7.6. Intelligent Transportation System

Two potential locations along Woolbright Road have been identified for installation of arterial Dynamic Message Signs (DMS): one on the eastbound direction west of I-95, and another one on the westbound direction east of I-95.

- **Woolbright Road West of I-95:** Due to ROW constraints, the only feasible location for the installation of a DMS is located just west of the E-4 Canal on the south side of Woolbright Road. However, there is a large wet utility pipe that is located in the same area and would need to be relocated to install the DMS foundation.
- **Woolbright Road East of I-95:** It does not appear to be feasible to install a DMS on westbound

Woolbright Road and meet the FDOT guidelines due to ROW constraints. The ROW is located at the back of the sidewalk on the north side of the roadway and the DMS would need to be installed on the sidewalk, conflicting with ADA requirements.

7.7. Environmental Impacts

7.7.1. Wetland and Surface Water Impacts and Mitigation

A review of the project area was conducted on May 27, 2020. There are no jurisdictional wetlands within the proposed areas of construction. Per the improvements related to the Preferred Alternative, minor fill impacts are anticipated to the northern side of the E-4 Canal due to the widening of Woolbright Road. This canal has steep banks, is approximately 75 feet wide and 10 to 15 feet deep and is classified as Other Surface Waters by the regulatory agencies. No submerged aquatic vegetation was observed in this portion of the canal during the field review. Therefore, no impacts to wetlands or submerged aquatic vegetation are anticipated that would require mitigation from the regulatory agencies.

7.7.2. Contamination Impacts

The contamination analysis revealed the presence of seven sites of no risk (Site 1 to Site 7) and three medium risk rating sites (Site 8 through Site 10), as displayed in Section 2. No additional assessment (Level II or Level III) is recommended for no risk sites based on the absence of contamination expected for those sites based on current or historic operations and regulatory information reviewed during this evaluation.

Site 10 (Racetrack Station located at 905 W Woolbright Rd.) has been assigned a medium risk rating based on the current operation of a gasoline station housing three USTs. However, no records of discharges or outstanding violations were identified for this facility. Therefore, based on the absence of contamination records associated with this facility, no additional assessment (Level II or Level III) is deemed necessary. The proposed work in the vicinity of Site 10 is limited to lane widening and the facility is at a lower elevation than the adjacent project corridor. The elevation gradient would be expected to promote groundwater flow away from the corridor; additionally, the presence of the C-4 canal may influence the groundwater to flow to the east. Due to fact that actual contamination has not been documented at this site, the distance between the USTs and the ROW, the elevation difference and the minimally invasive work anticipated for this portion of the project, additional assessment is not recommended. If invasive work that requires dewatering is proposed, then

groundwater assessment would be recommended.

7.7.3. Air Quality Impacts

Based on the results from the screening model, the highest project-related CO one-hour and eight-hour levels are not predicted to meet or exceed the one-hour or eight-hour NAAQS for this pollutant with the Preferred Alternative. As such, the project passes the screening model.

The construction of the planned improvements could cause short-term impacts to air quality through airborne dust and other ambient air pollutants. These impacts will be minimized by adherence to all applicable State and local regulations and to the FDOT's Standard Specifications for Road and Bridge Construction.

7.7.4. Noise Impacts

Traffic noise levels were predicted for noise sensitive locations along the project corridor for the existing conditions and the design year (2045) No-Build and recommended Build Alternatives. Build Alternative traffic noise levels at the residences are expected to range from approximately 57.0 to 70.7 dB(A) during the project's design year. Build Alternative traffic noise levels at the non-residential/special-use sites are expected to range from approximately 59.7 dB(A) at the Parkside Inn patio to 67.7 dB(A) at the Learning Place Preschool playground. The worst-case design year traffic noise levels with the Build Alternative are predicted to be no more than 1.8 dB(A) greater than existing levels and no more than 0.8 dB(A) greater than the design year No Build noise levels.

Woolbright Road: The improvements planned with this project are focused along Woolbright Road. Capacity improvements along Woolbright Road are only planned east of SW 8th Street; the roadway remains in its current six-lane configuration west of SW 8th Street. Alignment modifications are also primarily occurring east of SW 8th Street; although minor realignment of the westbound lanes over the canal just west of SW 8th Street is planned to accommodate a new eastbound left-turn lane onto northbound SW 8th Street. The noise sensitive sites closest to this alignment shift are homes that are located over 300 feet to the north, and the realignment will only bring the roadway less than approximately 20 feet closer. Thus, noise sensitive sites adjacent to Woolbright Road with the potential to be impacted due to the planned improvements are only found east of I-95. These noise sensitive sites include approximately 18 single-family homes in the first two rows of homes and a playground north of this segment of Woolbright Road. Baseball fields at the City of Boynton Beach Little League Park are

found to the south of this segment of Woolbright Road. This corridor also includes commercial properties and offices that are not considered noise sensitive (i.e., Activity Category F).

I-95: As the improvements planned with this project are focused along Woolbright Road, only minor ramp improvements are planned along I-95. Within approximately 500 feet of the planned improvements on the ramps, a mixture of approximately 39 single-family and multi-family residences are found along I-95. These include 32 residences in the High Point multi-family home community, three homes in the Woodcrest Manor single-family home neighborhood and four homes in the Bellamy Heights single-family home neighborhood. A patio at the Parkside Inn Assisted Living Facility, and sports fields and a playground at the Forest Park Elementary School are also found within approximately 500 feet of the planned improvements along I-95. This segment of the project also includes commercial properties that are not considered noise sensitive (i.e., Activity Category F). Two (2) existing noise barriers are found along the east side of I-95 within the limits of this project, one north and one south of Woolbright Road. These noise barriers are as follows:

- **1042** – Eastern limited-access R/W line, SW 23rd Avenue to Woolbright Road, 2,264 feet long, 20 to 22 feet tall.
- **1043** – Eastern limited-access R/W line, Woolbright Road to SR 804/West Boynton Beach Boulevard, 4,380 feet long, 13 to 14 feet tall.

Build Alternative traffic noise levels at the residences are expected to range from approximately 57.0 to 70.7 dB(A) during the project's design year. Build Alternative traffic noise levels at the non-residential/special-use sites are expected to range from approximately 59.7 dB(A) at the Parkside Inn patio to 67.7 dB(A) at the Learning Place Preschool playground. The worst-case design year traffic noise levels with the Build Alternative are predicted to be no more than 1.8 dB(A) greater than existing levels and no more than 0.8 dB(A) greater than the design year No Build noise levels. Build Alternative traffic noise levels are predicted to approach or exceed the FHWA NAC - 67 dB(A) at a total of six residences along the north side of Woolbright Road as a result of the planned improvements. For the non-residential noise sensitive sites, Build Alternative traffic noise levels are predicted to approach or exceed the correlating FHWA NAC [NAC = 67 dB(A)] at only the Learning Place playground. Therefore, based on the FHWA and FDOT methodologies used to evaluate traffic noise levels in this study, modifications proposed with this project were determined to generate noise impacts at noise sensitive sites within the project study area and consideration of noise abatement is required to mitigate these impacts. An analysis of noise abatement measures considered for the sites that approach or exceed the NAC is included in the NSR. Although a number of sites approach or exceed the NAC, the proposed improvements do not result

in any substantial noise increases [i.e., greater than 15 dB(A) over existing levels]. The only possible location for constructing a noise barrier for these homes would be behind the sidewalk along the westbound lanes. However, there is no available FDOT ROW behind the sidewalk and overhead lighting is also located in this space. Also, along the approximately 660-foot-long segment north of Woolbright Road adjacent to these impacted sites (between Station 370+80 and 377+40) there are five driveway openings and one opening for SW 2nd Street. In order to provide adequate safety for vehicles entering Woolbright Road from these driveways and from SW 2nd Street, each gap in the noise barrier would be required to be wide enough to provide adequate sight-distance onto Woolbright Road. Given the unavailability of ROW and the numerous openings required, it is not possible to construct an effective noise barrier for these homes. Therefore, based on this analysis, a noise barrier is not recommended for further consideration.

7.7.5. Permitting Requirements

It is anticipated that the following permits will be required for the project relative to natural resource impacts:

- USACE NWP 14
- SFWMD Environmental Resource Permit modification to existing "No Notice General Permit for Activities in Uplands for Woolbright Road and I-95 Intersection Improvement" (Application Number 090831-14).
- SFWMD Right-of-Way Permit
- Florida Department of Environmental Protection (FDEP) National Pollutant Discharge Elimination System (NPDES) General Construction Permit authorization

7.8. Cost Estimate

Preliminary construction cost estimates were established using the FDOT Long Range Estimate (LRE) program. **Table 7-1** presents a summary of the estimated costs for the Preferred Alternative. The LRE was completed for this project and is provided in **Appendix C**. An estimate right-of-way cost estimate was prepared by the District's Right-of-Way Office.

Table 7-1: Preliminary Cost Estimate

Component	Alternative 1 TDI
Roadway Construction	$12,000,000
Engineering Design & CEI	$3,600,000
Right-of-Way Acquisition	$1,500,000
Total Cost	**$17,100,000**

7.9. Schedule

The funding for project phases in the FDOT Work Program for FY 2021 – FY 2025 Financial Project Identification Number (FPID) 437279-1 is shown in **Table 7-2**. This project is currently funded for design.

Table 7-2: Funding for FPID 437279-1 – Broward County

Fiscal Year	2021	2022	2023	2024	2025
Highways/PD&E				*(On-Going)*	
Amount:	$4,453				
Highways/Preliminary Engineering					
Amount:	$1,181,200				
Highways/Right-of-Way					
Amount:		$19,697,887	$5,109,727		
Highways/Railroad & Utilities					
Amount:					$200,000
Highways/Environmental				(On-Going)	
Amount:		$30,000			
Item Total:	**$1,185,653**	**$19,727,887**	**$5,109,727**		**$200,000**

List of Appendices

Appendix A: Conceptual Plans

Appendix B: Typical Section Package

Appendix C: Long Range Estimate (LRE)

Appendix D: Existing Sign Inventory

Appendix A

Conceptual Plans

A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	PROJECT LAYOUT
3 - 7	TYPICAL SECTIONS
8 - 13	ROADWAY PLANS

STATE OF FLORIDA

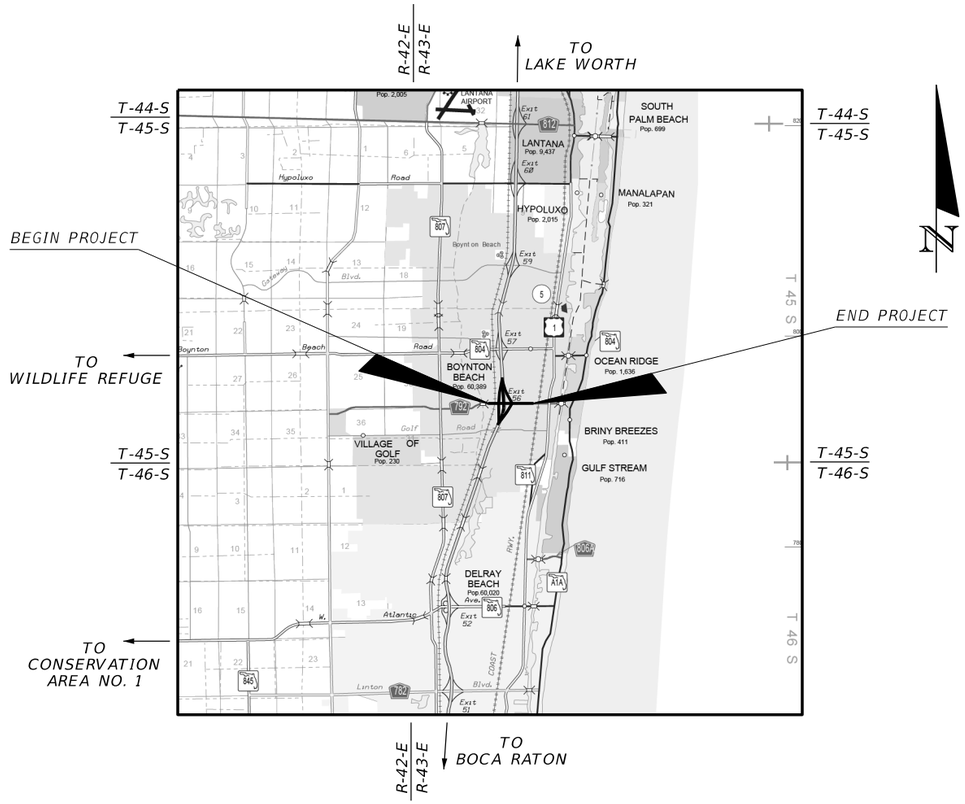
DEPARTMENT OF TRANSPORTATION

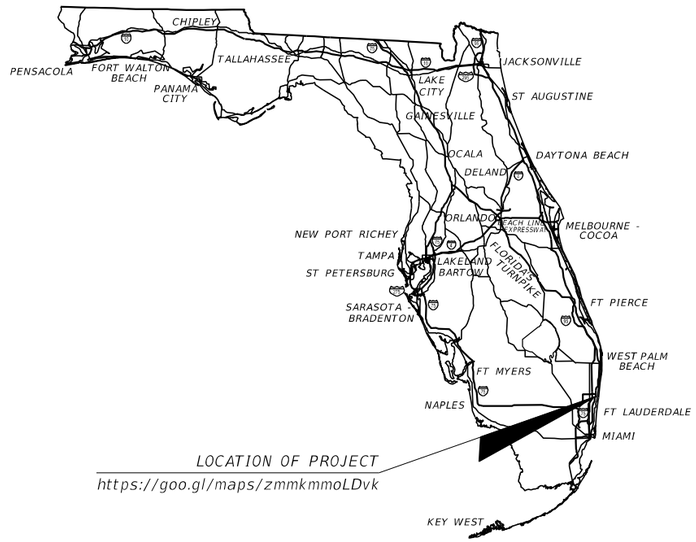
CONTRACT PLANS

FINANCIAL PROJECT ID 437279-1-22-01

PALM BEACH COUNTY

SR-9/I-95 FROM SOUTH OF WOOLBRIGHT ROAD TO NORTH OF WOOLBRIGHT ROAD





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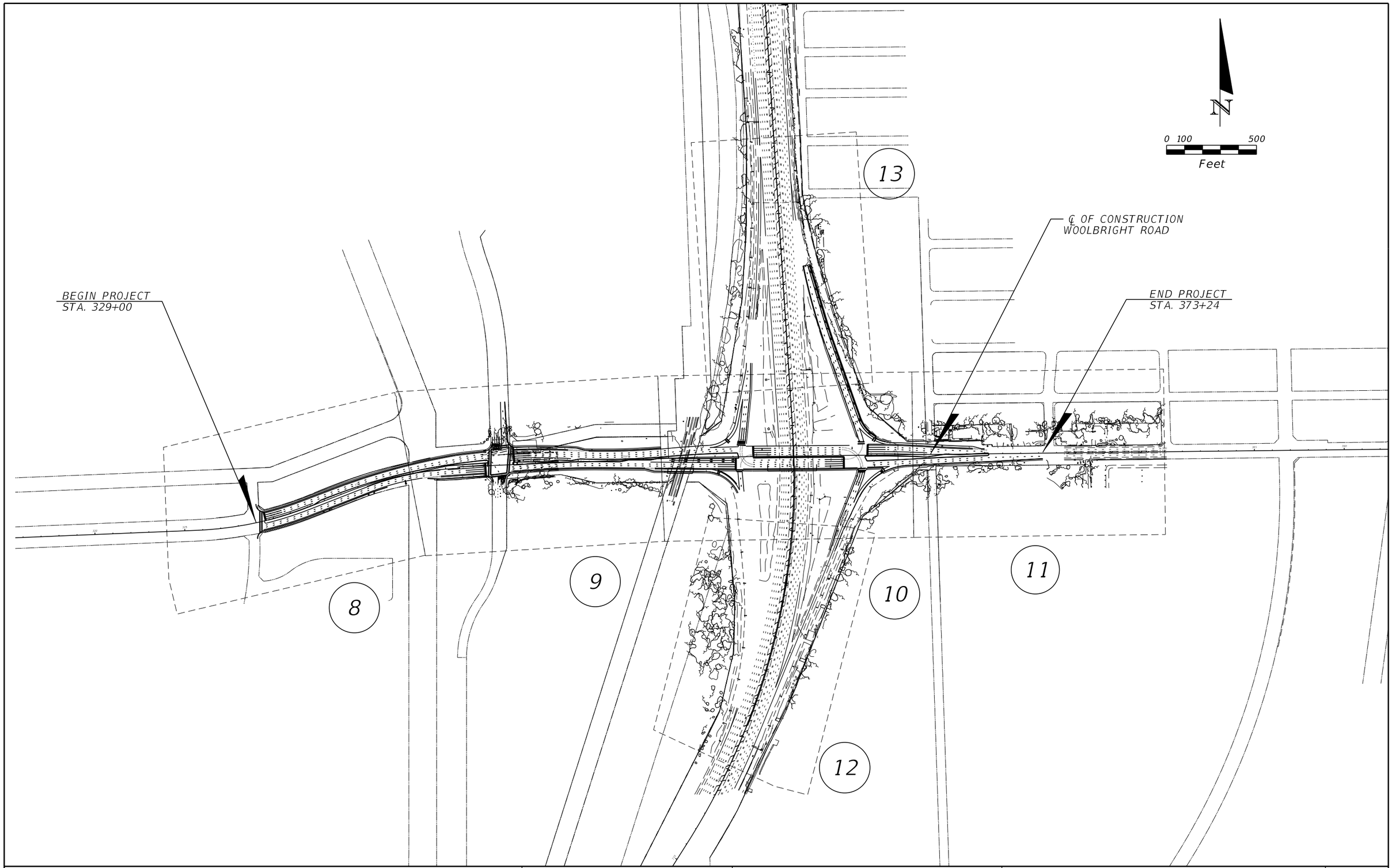
ROADWAY PLANS ENGINEER OF RECORD:

JEFF V. EASLEY, P.E.
FLORIDA P.E. 45199
HANSON PROFESSIONAL SERVICES INC.
6303 BLUE LAGOON DRIVE, SUITE 280
MIAMI, FLORIDA 33126
TEL. (305) 428-4350
CONTRACT NO. CA170
VENDOR # F370844717
CERTIFICATE OF AUTHORIZATION 7961

FDOT PROJECT MANAGER:

HUMBERTO ARRIETA, P.E.

FISCAL YEAR	SHEET NO.
26	1



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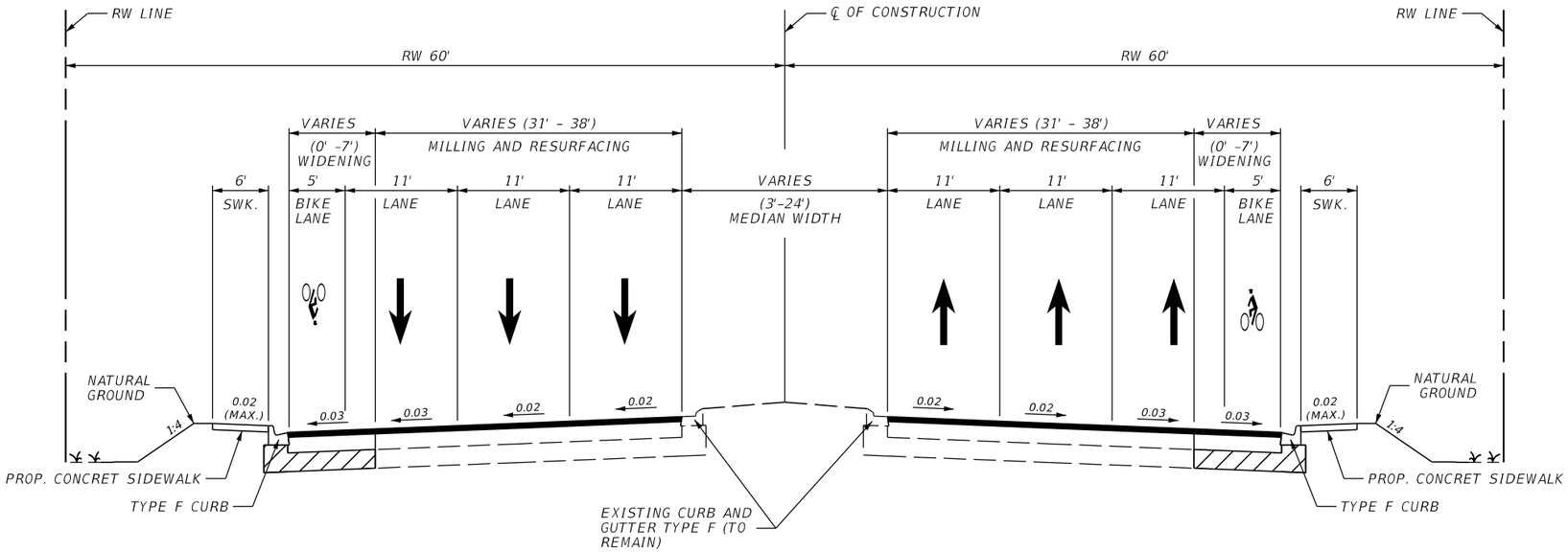
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	PALM BEACH	437279-1-22-01

PROJECT LAYOUT

SHEET NO. 2



TYPICAL SECTION
WOOLBRIDGHT ROAD
FROM SW 18TH STREET TO E-4 CANAL

REVISIONS			
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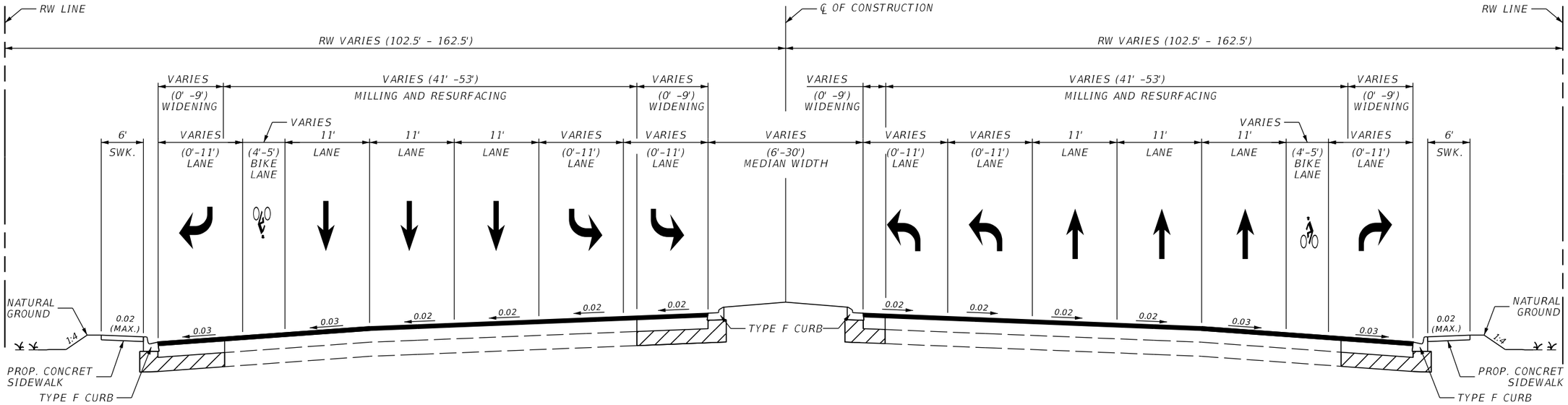
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	PALM BEACH	437279-1-22-01

TYPICAL SECTIONS

SHEET NO. 3



TYPICAL SECTION
WOOLBRIDGHT ROAD
FROM SW 8TH STREET TO SFRC BRIDGE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	PALM BEACH	437279-1-22-01

TYPICAL SECTIONS

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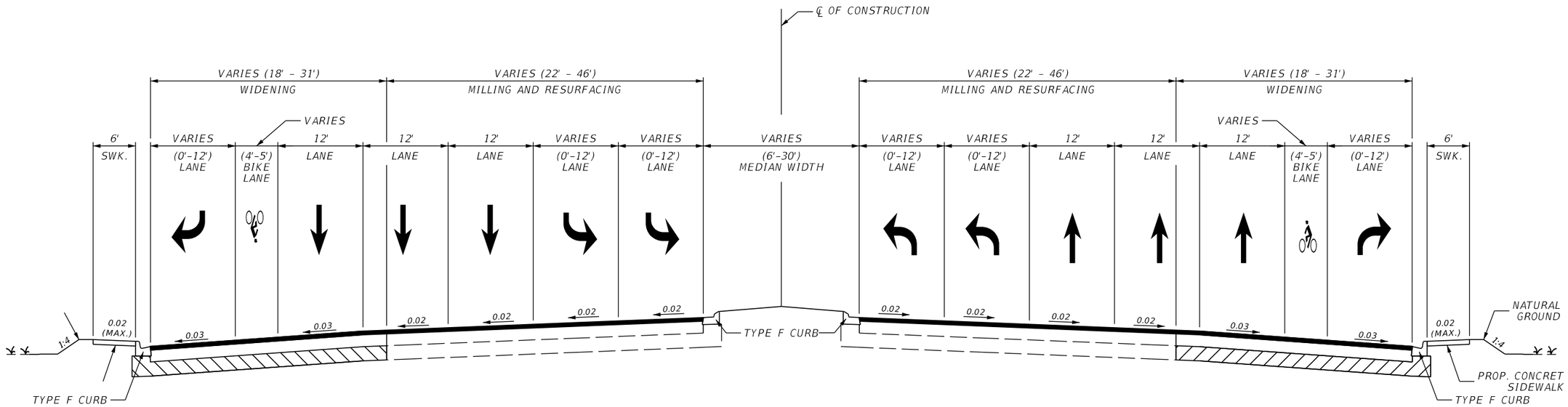

TYPICAL SECTION
WOOLBRIGHT ROAD
FROM SFRC TO EAST OF I-95

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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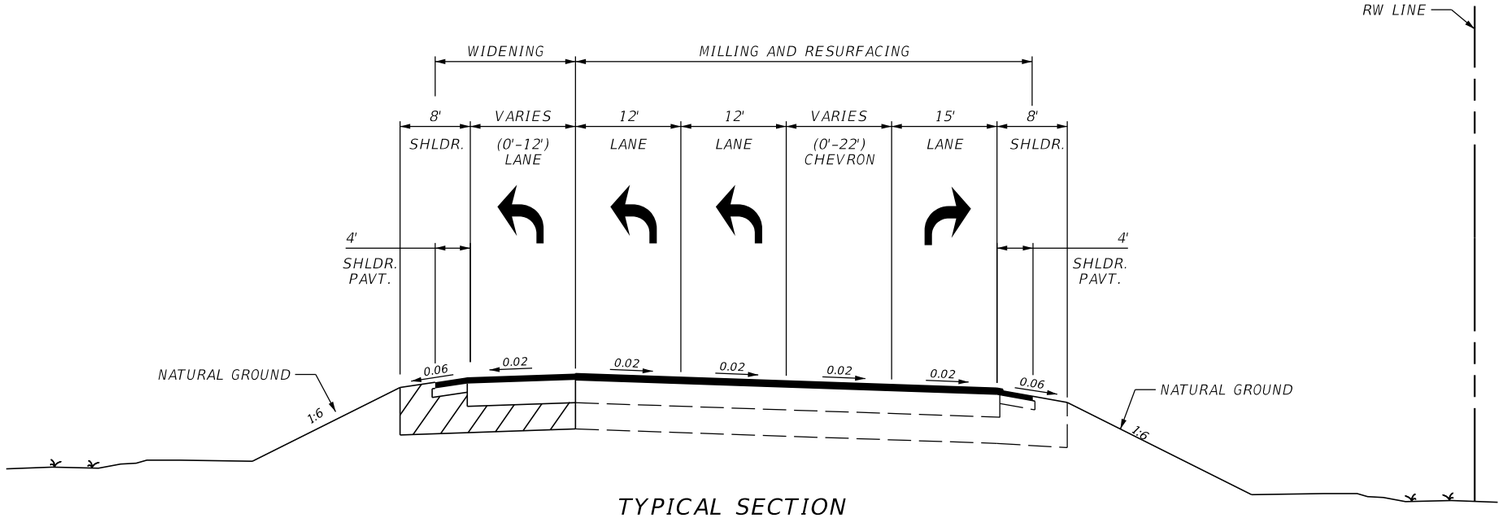
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

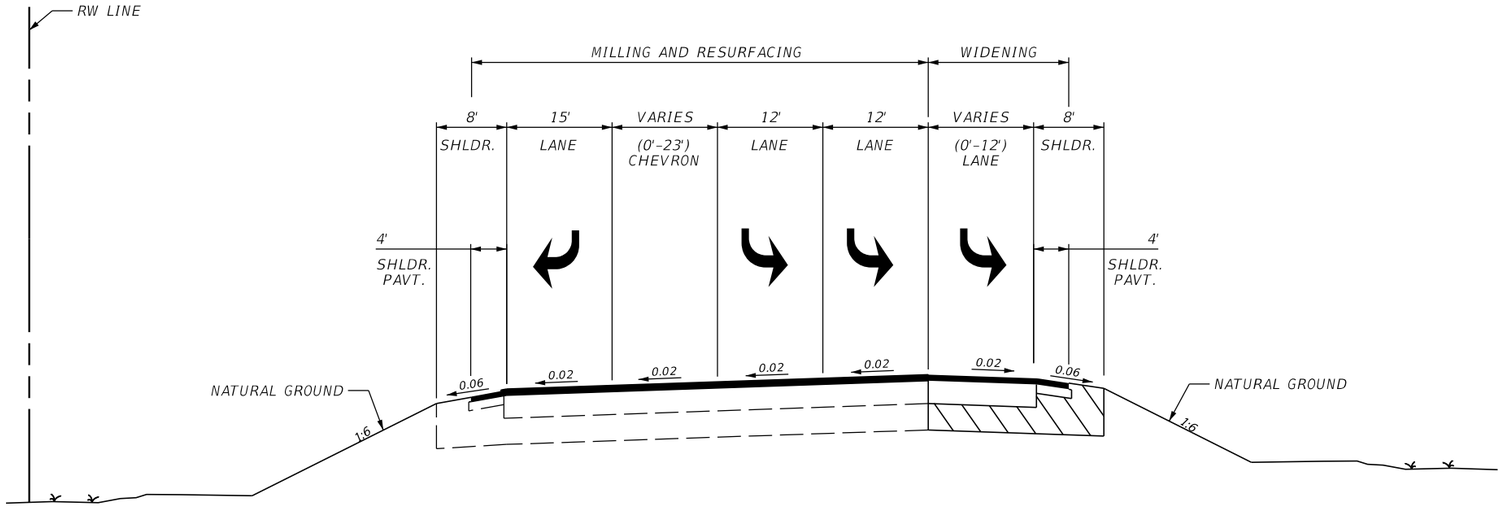
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	PALM BEACH	437279-1-22-01

TYPICAL SECTIONS

SHEET NO. 5



TYPICAL SECTION
NORTHBOUND
EXIT RAMP



TYPICAL SECTION
SOUTHBOUND
EXIT RAMP

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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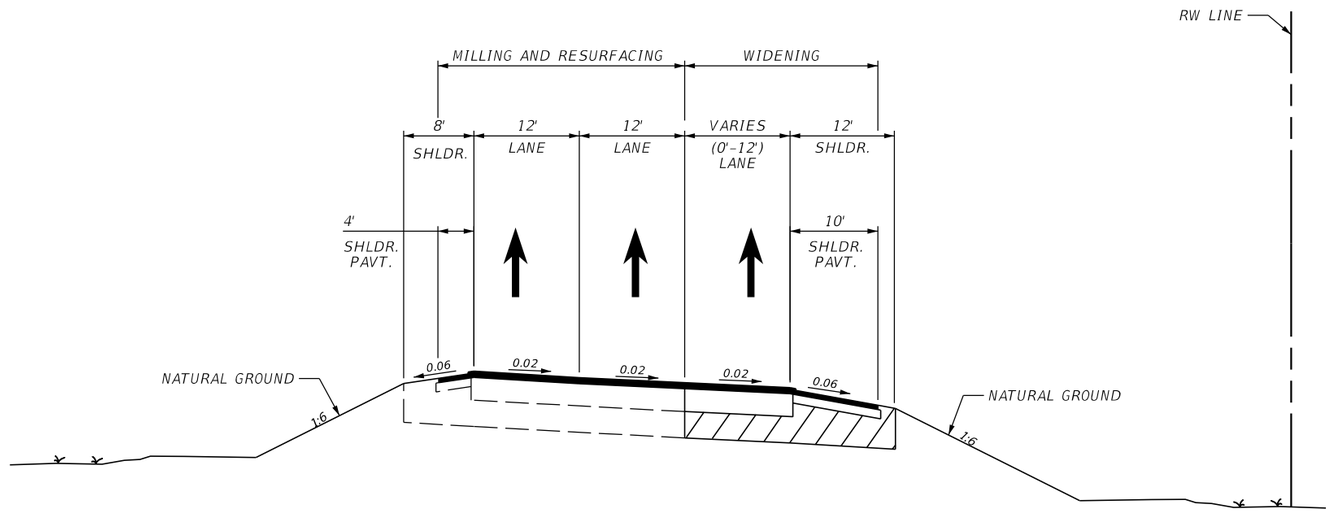
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	PALM BEACH	437279-1-22-01

TYPICAL SECTIONS

SHEET NO. 6



TYPICAL SECTION
NORTHBOUND ENTRANCE RAMP

TYPICAL SECTION
NORTHBOUND ENTRANCE RAMP

REVISIONS			
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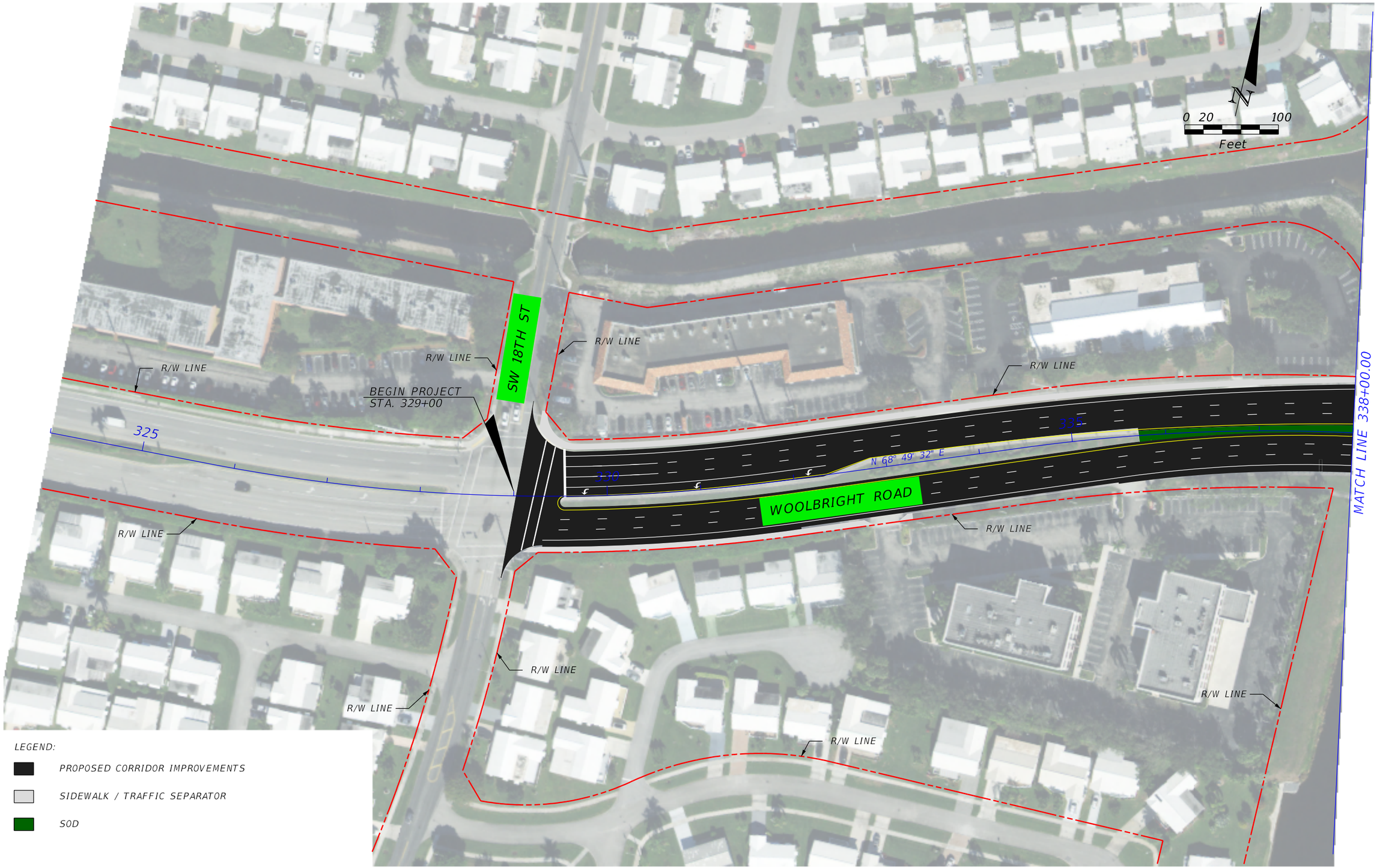
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	PALM BEACH	437279-1-22-01

TYPICAL SECTIONS

SHEET NO. 7



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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	PALM BEACH	437279-1-22-01

ROADWAY PLANS

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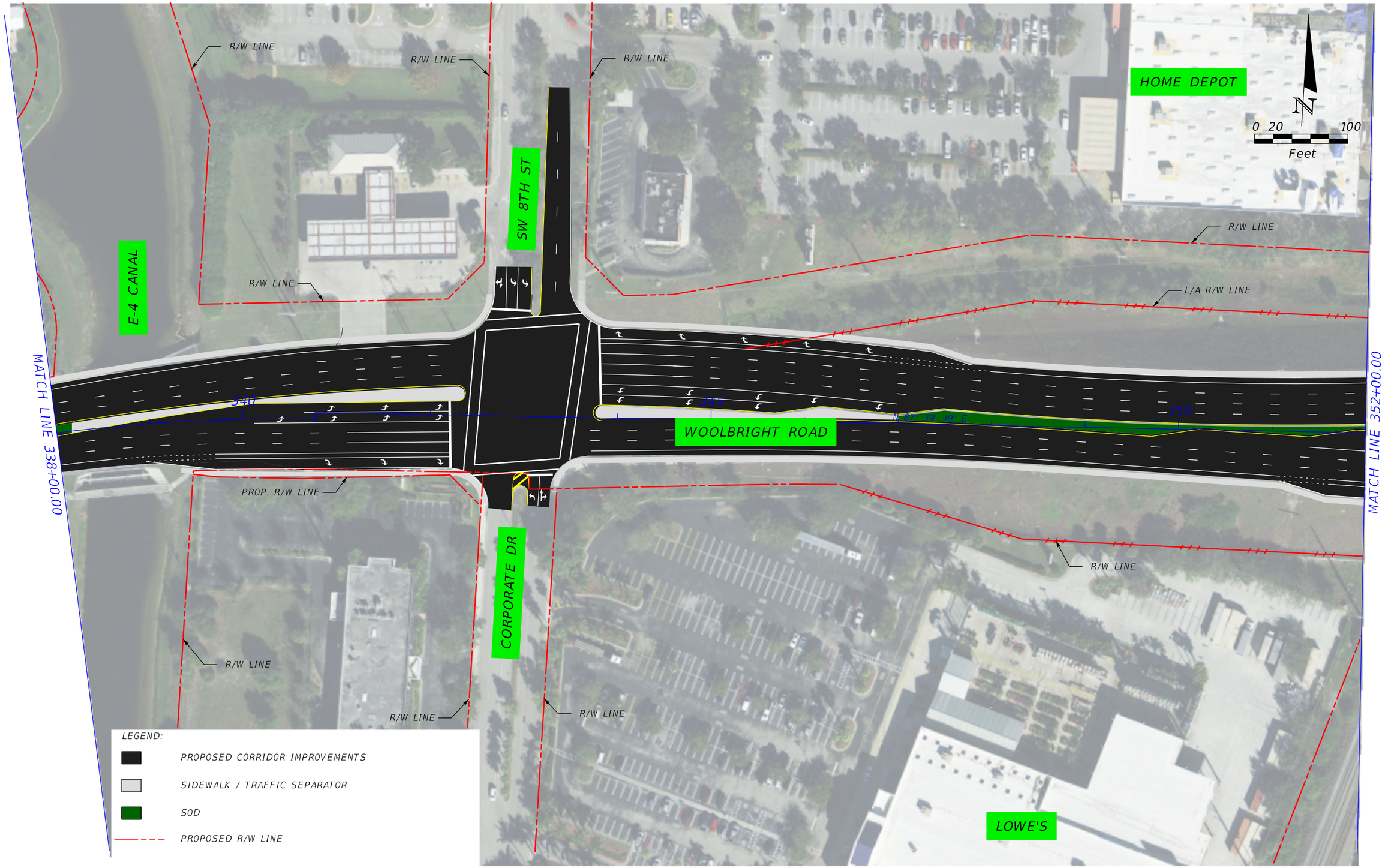

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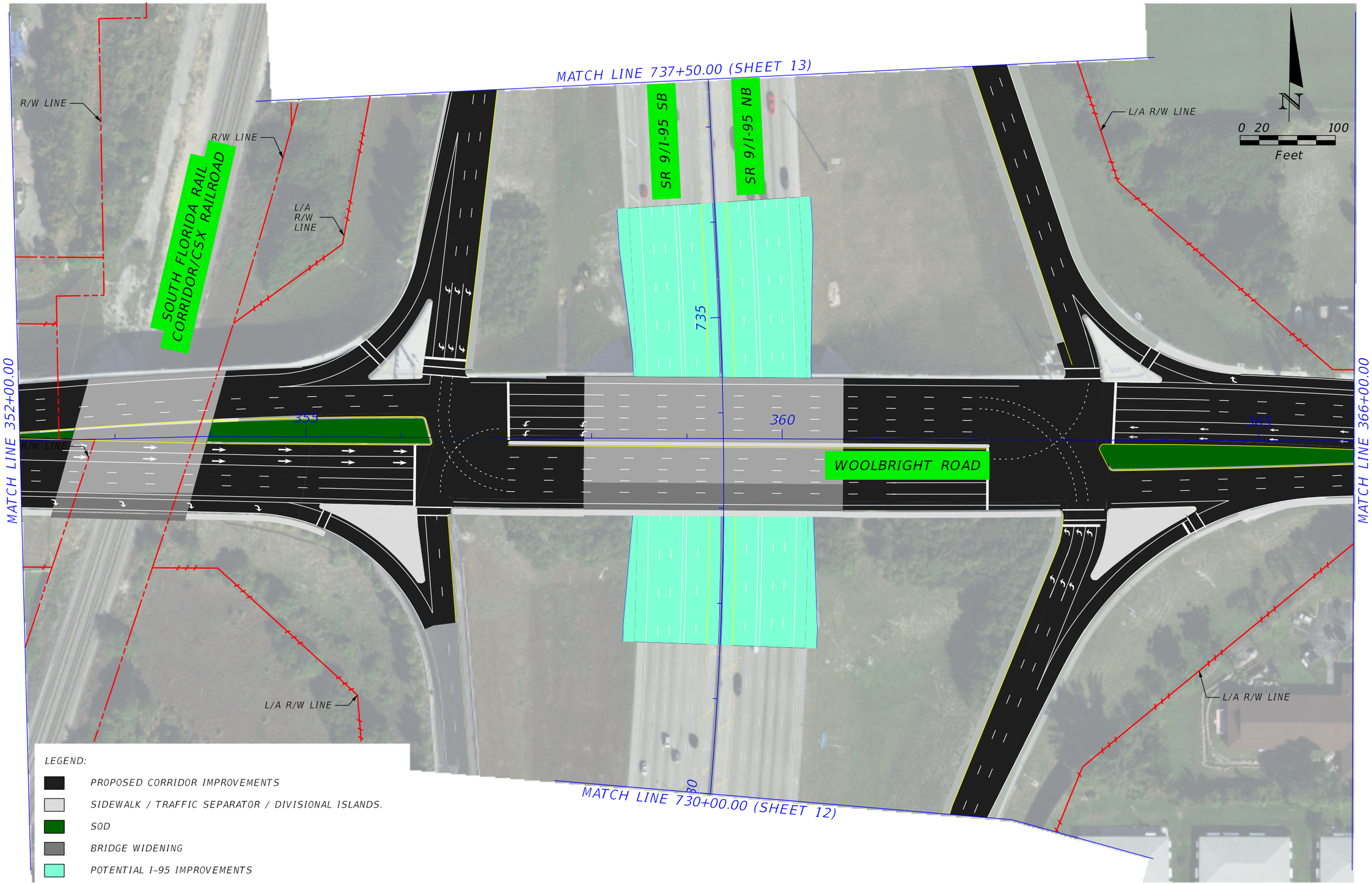
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	PALM BEACH	437279-1-22-01

ROADWAY PLANS

SHEET NO. 9



LEGEND:

- PROPOSED CORRIDOR IMPROVEMENTS
- SIDEWALK / TRAFFIC SEPARATOR / DIVISIONAL ISLANDS.
- SOD
- BRIDGE WIDENING
- POTENTIAL I-95 IMPROVEMENTS

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ROADWAY PLANS

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STATE OF FLORIDA
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ROADWAY PLANS

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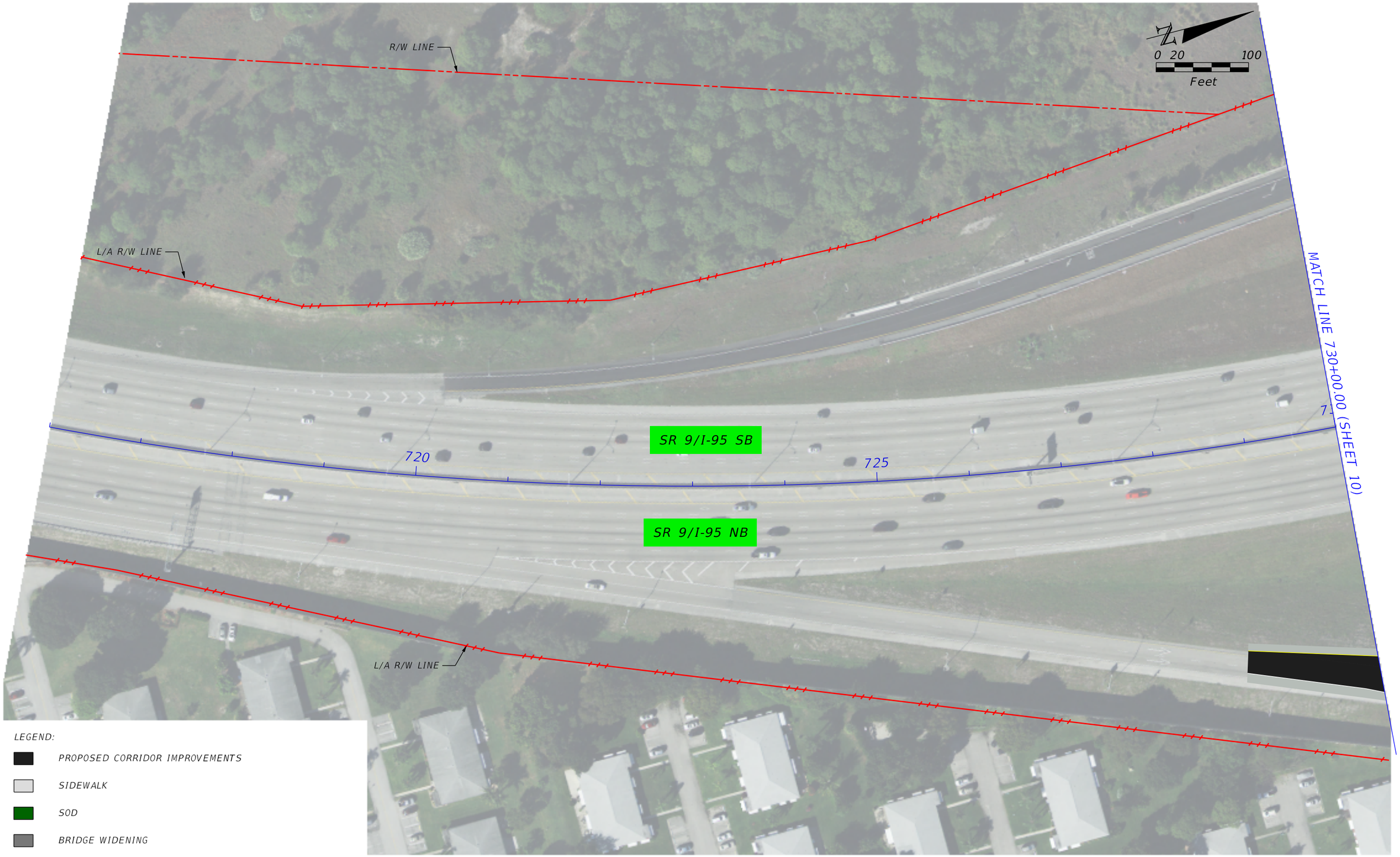

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	PALM BEACH	437279-1-22-01

ROADWAY PLANS

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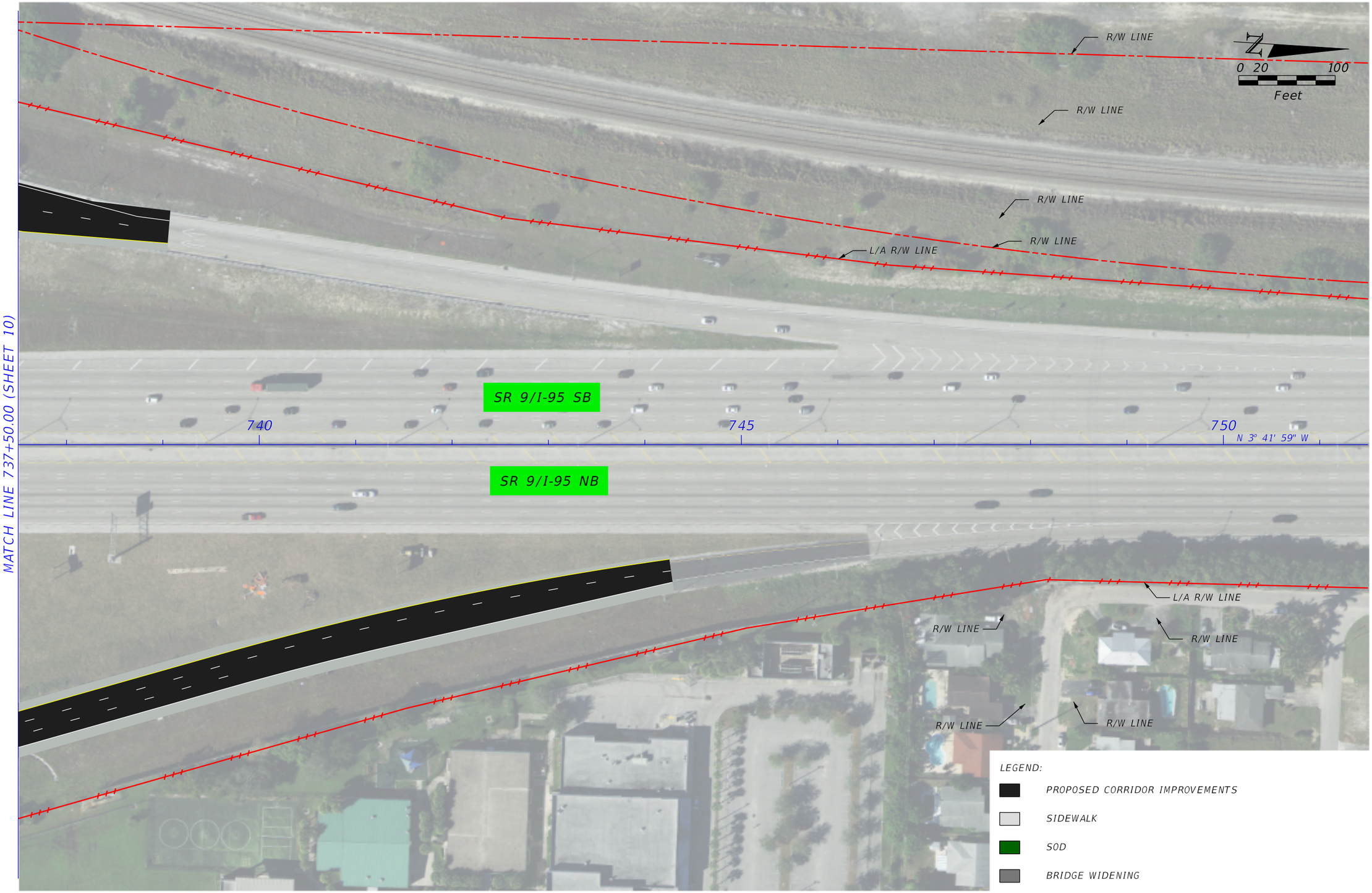

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CERTIFICATE OF AUTHORIZATION 7961

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	PALM BEACH	437279-1-22-01

ROADWAY PLANS

SHEET NO. 13

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Appendix B

Typical Section Package

STATE OF FLORIDA

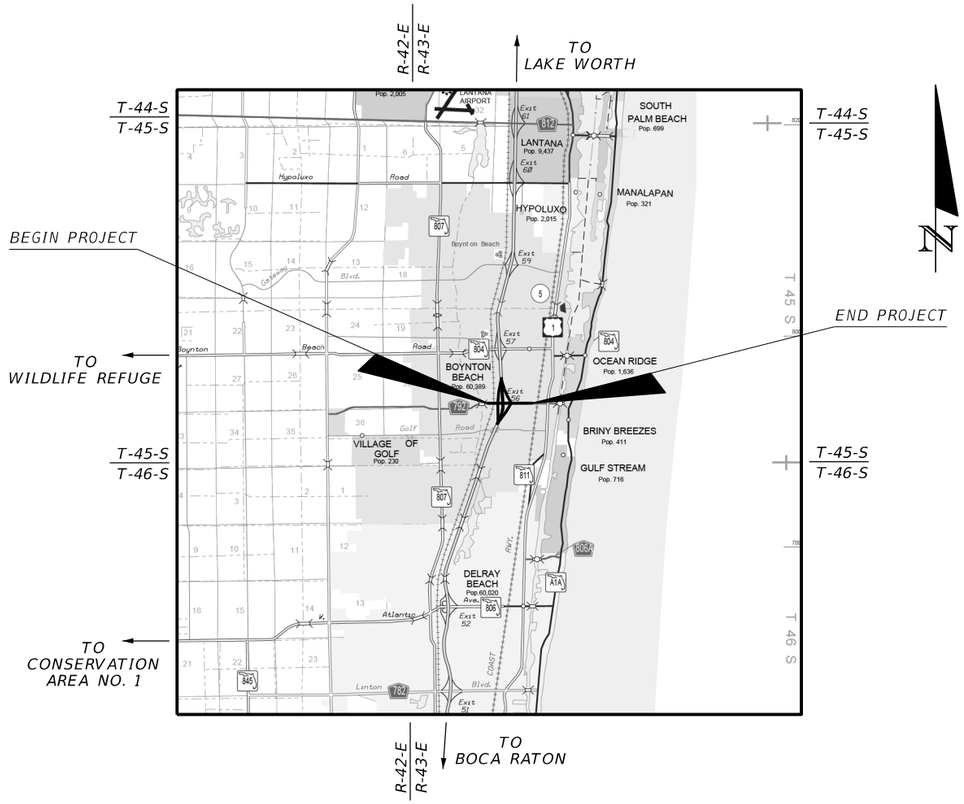
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 437279-1-22-01

PALM BEACH COUNTY

SR-9/I-95 FROM SOUTH OF WOOLBRIGHT ROAD
TO NORTH OF WOOLBRIGHT ROAD



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APPROVED BY:

JEFF V. EASLEY
LICENSE
No 45199
STATE OF FLORIDA
PROFESSIONAL ENGINEER

ON THE DATE ADJACENT TO THE SEAL

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6303 BLUE LAGOON DRIVE, SUITE 280
MIAMI, FLORIDA 33126
CERTIFICATE OF AUTHORIZATION 7961
JEFF V. EASLEY, P.E. NO. 45199

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

TYPICAL SECTION PACKAGE

TYPICAL SECTION CONCURRENCE

	N/A	N/A
JOHN OLSON, P.E. FDOT DISTRICT DESIGN ENGINEER	FDOT DISTRICT STRUCTURES DESIGN ENGINEER	FHWA TRANSPORTATION ENGINEER

DESIGN SPEED AND POSTED SPEED CONCURRENCE:

MARK PLASS, P.E.
FDOT DISTRICT TRAFFIC OPERATIONS ENGINEER

JOHN OLSON, P.E.
FDOT DISTRICT DESIGN ENGINEER

CONTEXT CLASSIFICATION CONCURRENCE:

SHEET NO.
1

8/19/2020 10:31:46 AM

PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

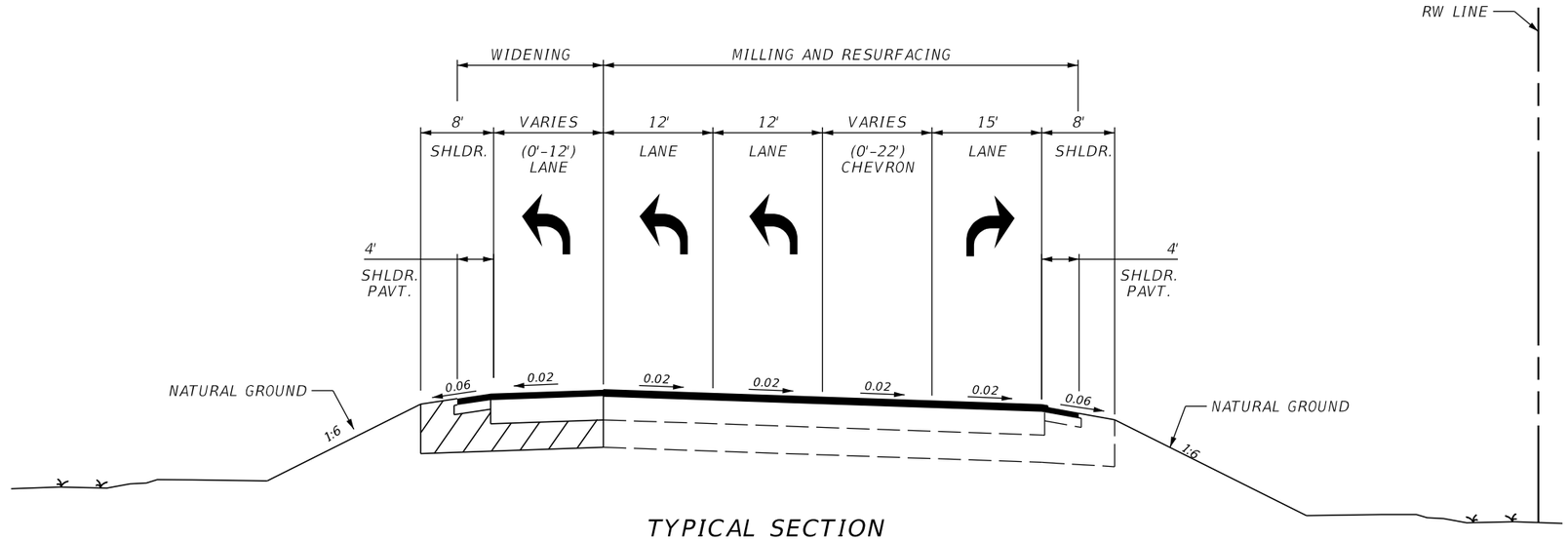
(X) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 1



TYPICAL SECTION
NORTHBOUND
EXIT RAMP

TRAFFIC DATA

CURRENT YEAR = 2019 AADT =
ESTIMATED OPENING YEAR = 2025 AADT =
ESTIMATED DESIGN YEAR = 2045 AADT =
K = 9% D = 99.9% T = 4.6% (24 HOUR)
DESIGN HOUR T = 2.3 %
DESIGN SPEED = 30 -50 MPH

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	2

8/19/2020 10:32:01 AM

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

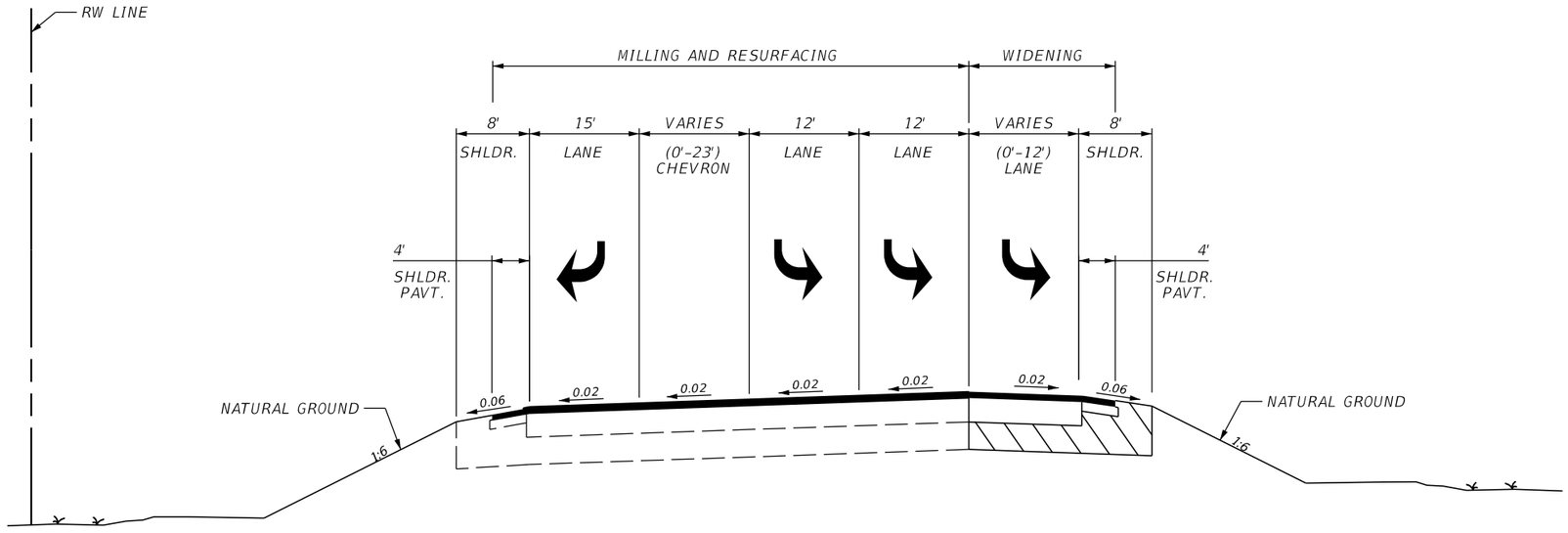
(X)	1 - FREEWAY
( )	2 - RESTRICTIVE w/Service Roads
( )	3 - RESTRICTIVE w/660 ft. Connection Spacing
( )	4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( )	5 - RESTRICTIVE w/440 ft. Connection Spacing
( )	6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( )	7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 2



TYPICAL SECTION
SOUTHBOUND
EXIT RAMP

TRAFFIC DATA

CURRENT YEAR = 2019 AADT =
ESTIMATED OPENING YEAR = 2025 AADT =
ESTIMATED DESIGN YEAR = 2045 AADT =
K = 9% D = 99.9% T = 4.6% (24 HOUR)
DESIGN HOUR T = 2.3 %
DESIGN SPEED = 30 -50 MPH

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	3

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8/19/2020 10:32:01 AM

PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

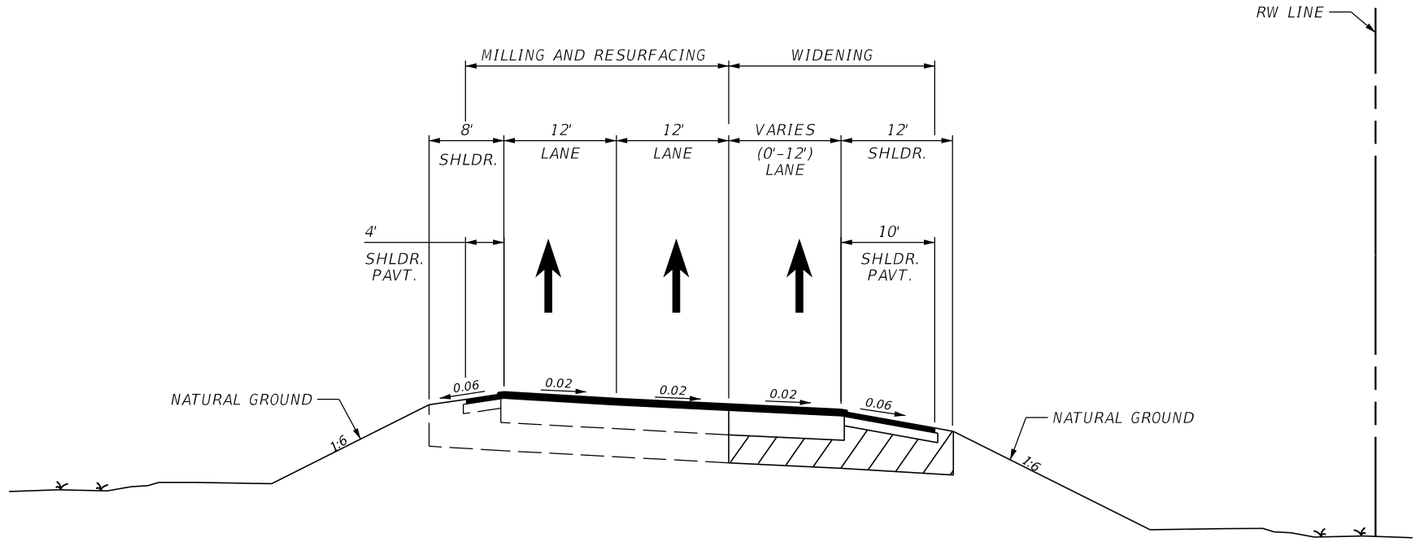
( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 3



TYPICAL SECTION
NORTHBOUND ENTRANCE RAMP

TRAFFIC DATA

CURRENT YEAR = 2019 AADT =
ESTIMATED OPENING YEAR = 2025 AADT =
ESTIMATED DESIGN YEAR = 2045 AADT =
K = 9% D = 99.9% T = 4.6% (24 HOUR)
DESIGN HOUR T = 2.3 %
DESIGN SPEED = 30 -50 MPH

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	4

PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

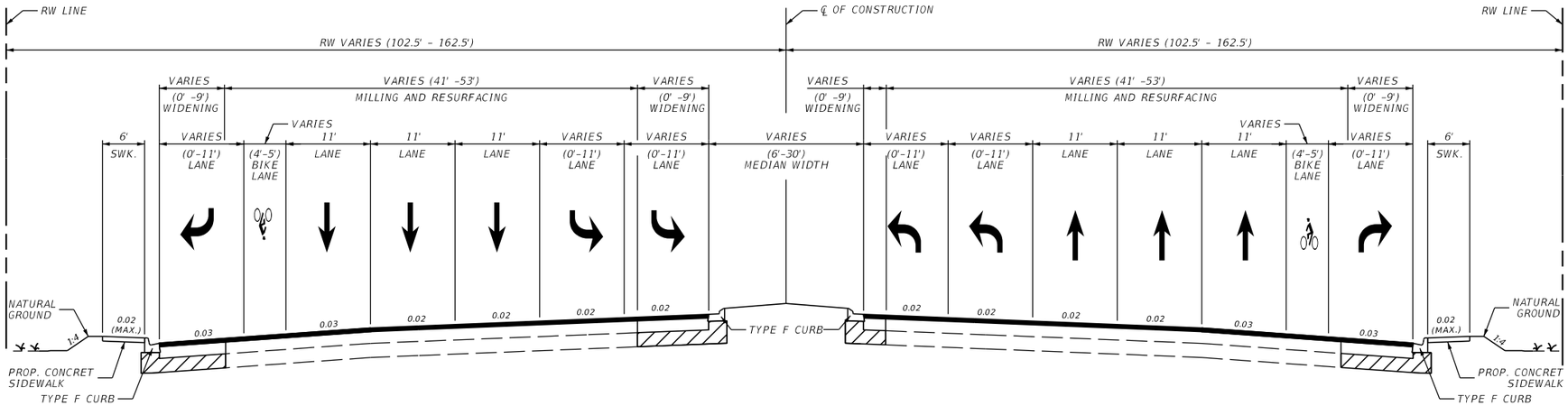
( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No.



TYPICAL SECTION
FROM SW 8TH STREET TO SFRC BRIDGE

TRAFFIC DATA

CURRENT YEAR = AADT =
ESTIMATED OPENING YEAR = AADT =
ESTIMATED DESIGN YEAR = AADT =
K = % D = % T = % (24 HOUR)
DESIGN HOUR T = %
DESIGN SPEED = MPH

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	

$DATE$ $TIME$

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

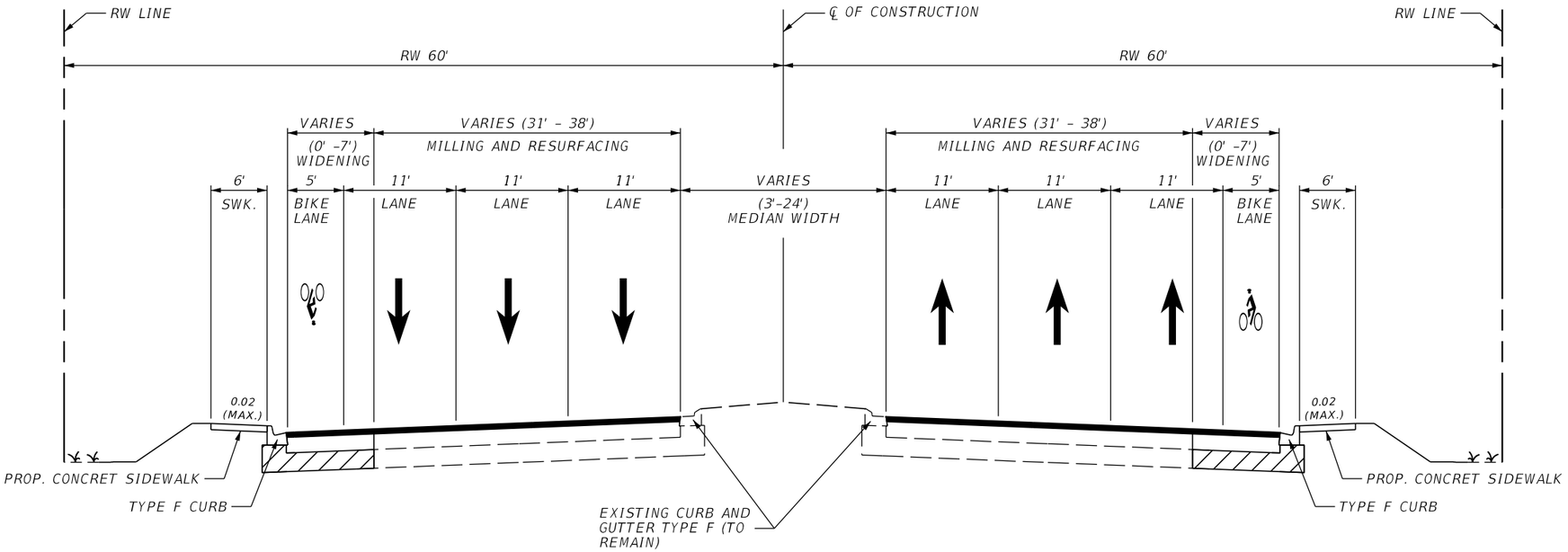
( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No.



TYPICAL SECTION
FROM SW 18TH STREET TO E-4 CANAL

TRAFFIC DATA

CURRENT YEAR = AADT =
ESTIMATED OPENING YEAR = AADT =
ESTIMATED DESIGN YEAR = AADT =
K = % D = % T = % (24 HOUR)
DESIGN HOUR T = %
DESIGN SPEED = MPH

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	

$DATE$ $TIME$

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STATE OF FLORIDA

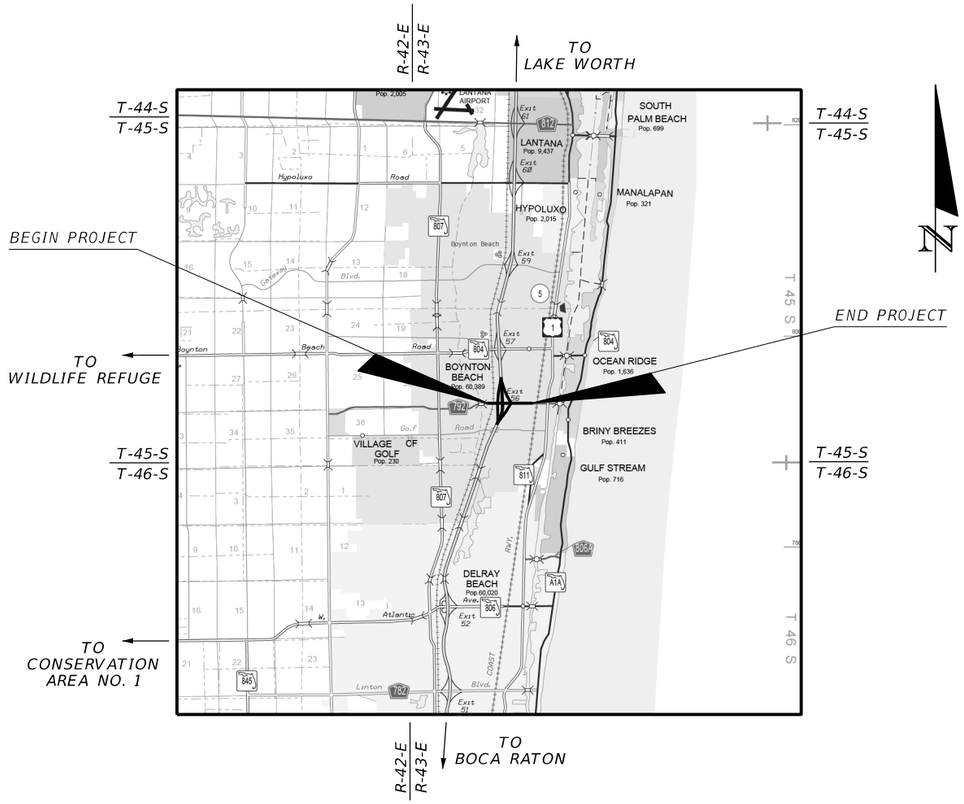
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 437279-1-22-01

PALM BEACH COUNTY

SR-9/I-95 FROM SOUTH OF WOOLBRIGHT ROAD
TO NORTH OF WOOLBRIGHT ROAD



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

APPROVED BY:

JEFF V. EASLEY
LICENSE
No 45199
STATE OF FLORIDA
PROFESSIONAL ENGINEER

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

HANSON PROFESSIONAL SERVICES INC.
6303 BLUE LAGOON DRIVE, SUITE 280
MIAMI, FLORIDA 33126
CERTIFICATE OF AUTHORIZATION 7961
JEFF V. EASLEY, P.E. NO. 45199

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

TYPICAL SECTION PACKAGE

APPROVED BY: JEFF V. EASLEY	FDOT CONCURRENCE	LOCAL MUNICIPALITY CONCURRENCE
Engineer Of Record Signature and Date	John Olson, P.E. FDOT District Design Engineer Date	Omelio A. Fernandez, P.E. PBC, Director, Roadway Production Division Date

SHEET NO. 1

PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

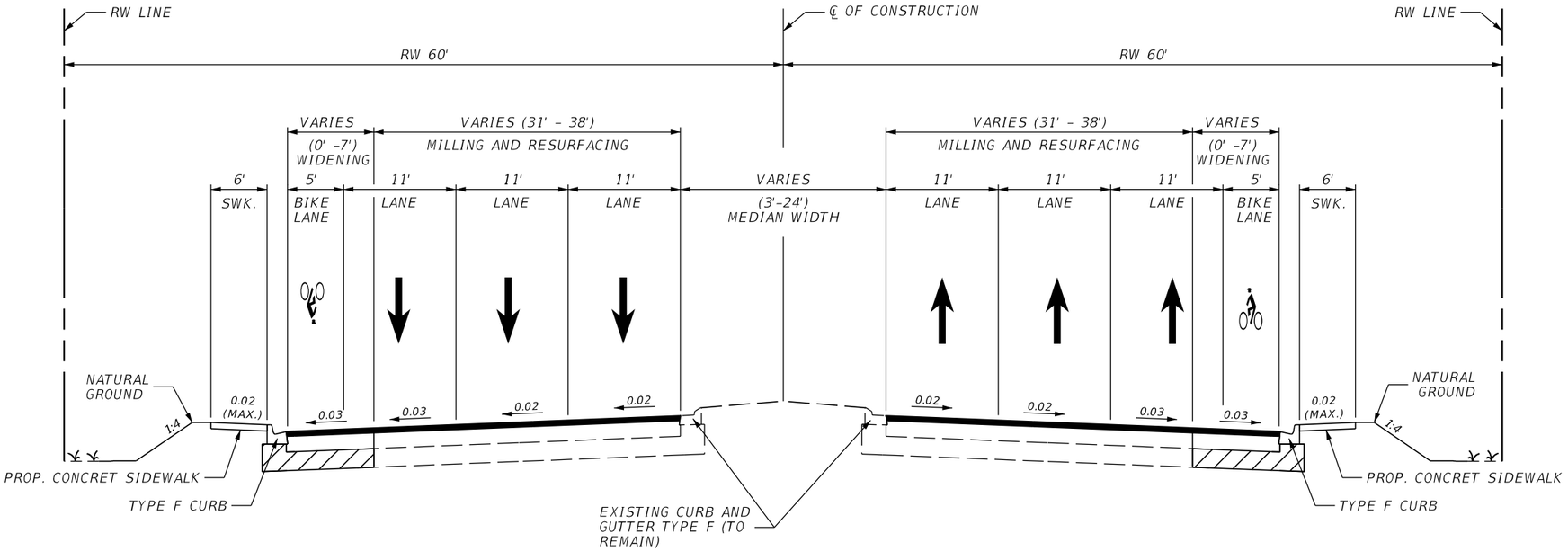
( )	1 - FREEWAY
( )	2 - RESTRICTIVE w/Service Roads
( )	3 - RESTRICTIVE w/660 ft. Connection Spacing
( )	4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( )	5 - RESTRICTIVE w/440 ft. Connection Spacing
( )	6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( )	7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 1



TYPICAL SECTION
WOOLBRIGHT ROAD
FROM SW 18TH STREET TO E-4 CANAL

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 42,500
ESTIMATED OPENING YEAR = 2025 AADT = 44,500
ESTIMATED DESIGN YEAR = 2045 AADT = 52,000
K = 9% D = 67% T = 3.3% (24 HOUR)
DESIGN HOUR T = 1.7%
DESIGN SPEED = 45 MPH
POSTED SPEED = 40 MPH

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	2

PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

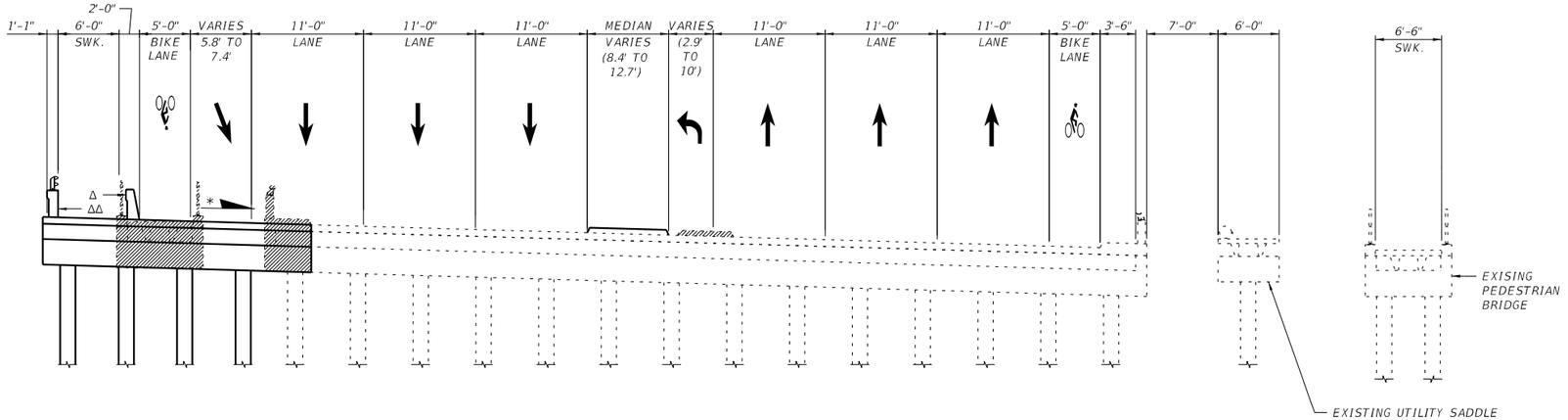
( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 2



TYPICAL SECTION
WOOLBRIGHT ROAD
BRIDGE OVER E-4 CANAL

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	3

8/19/2020 10:51:03 AM

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

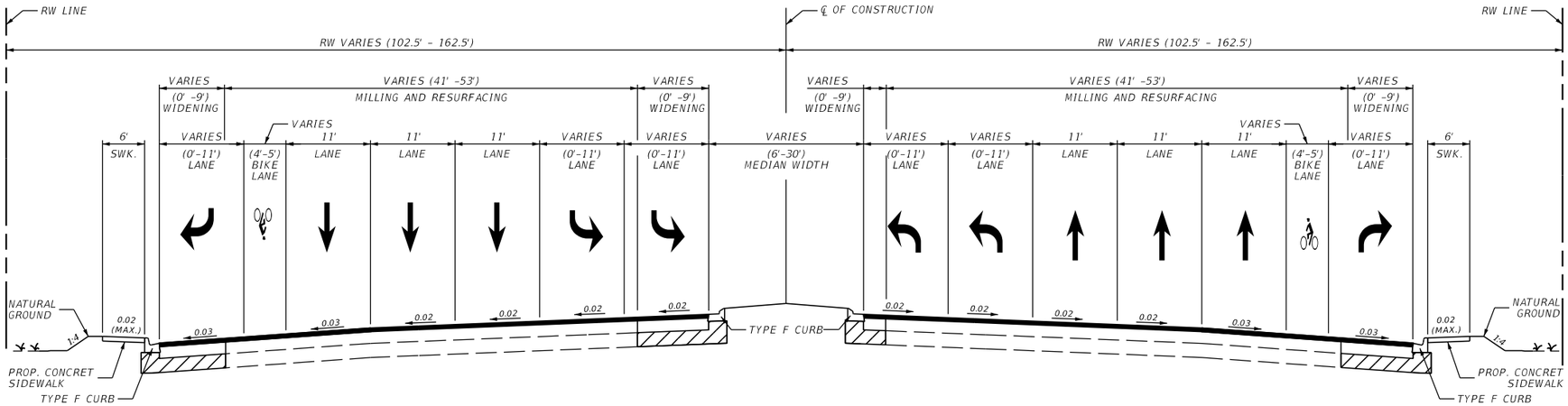
( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 3



TYPICAL SECTION
WOOLBRIGHT ROAD
FROM SW 8TH STREET TO SFRC BRIDGE

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 42,500
ESTIMATED OPENING YEAR = 2025 AADT = 44,500
ESTIMATED DESIGN YEAR = 2045 AADT = 52,000
K = 9% D = 67% T = 3.3% (24 HOUR)
DESIGN HOUR T = 1.7%
DESIGN SPEED = 45 MPH
POSTED SPEED = 40 MPH

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	4

8/19/2020 10:51:03 AM

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

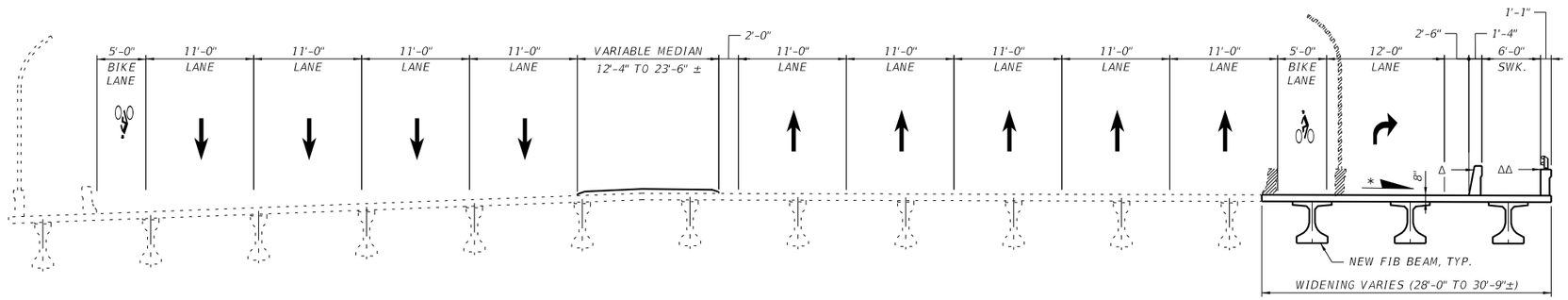
( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 4



TYPICAL SECTION
WOOLBRIGHT ROAD
BRIDGE OVER SOUTH FLORIDA RAIL CORRIDOR

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	5

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

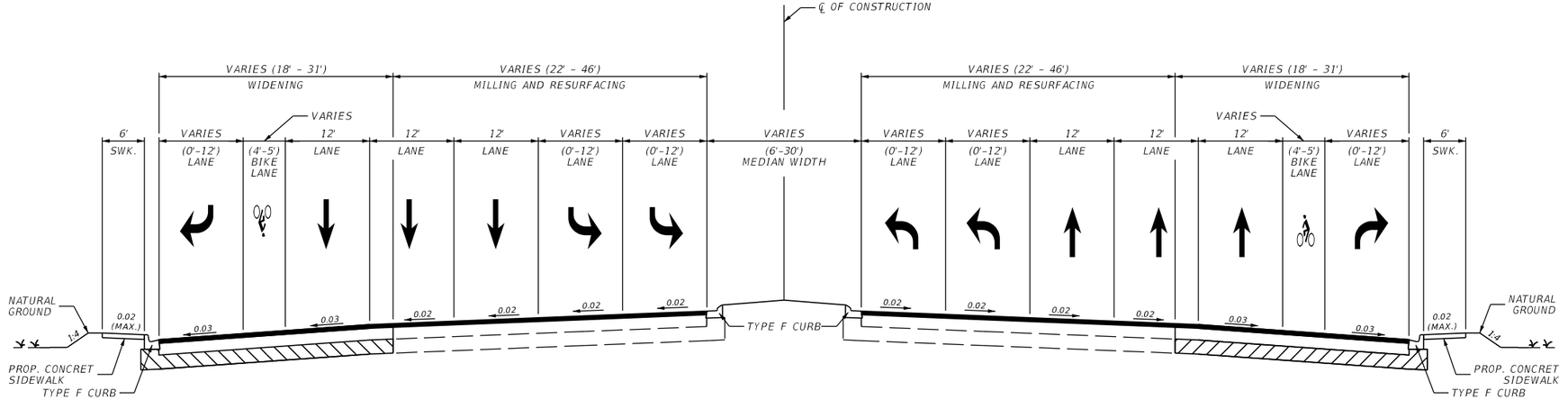
( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 5



TYPICAL SECTION
WOOLBRIGHT ROAD
FROM SFRC BRIDGE TO EAST OF I-95

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 42,500
ESTIMATED OPENING YEAR = 2025 AADT = 44,500
ESTIMATED DESIGN YEAR = 2045 AADT = 52,000
K = 9% D = 67% T = 3.3% (24 HOUR)
DESIGN HOUR T = 1.7%
DESIGN SPEED = 45 MPH
POSTED SPEED = 40 MPH

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	6

8/19/2020 10:51:03 AM

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

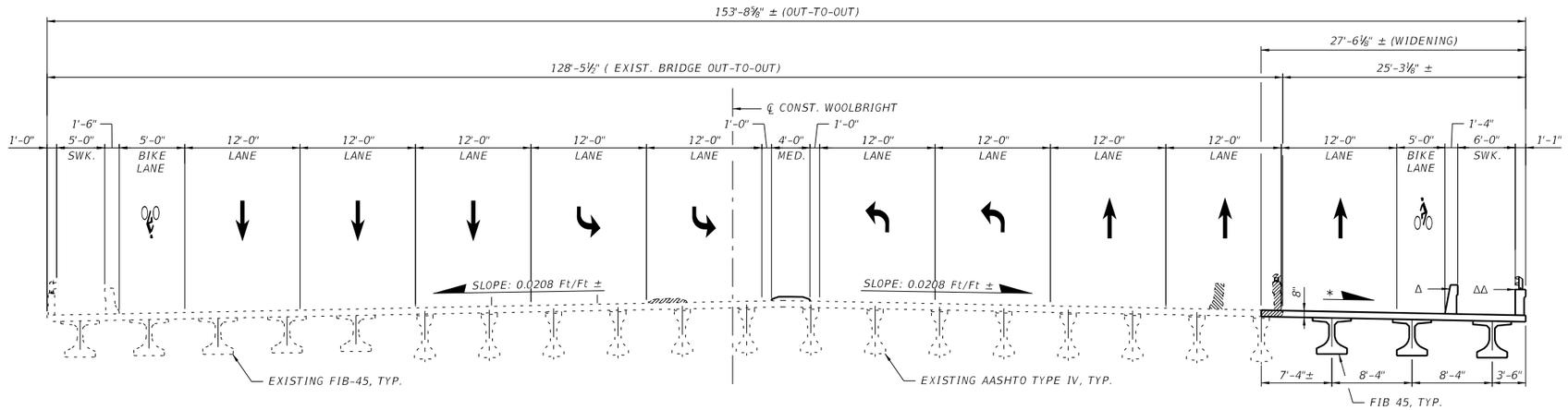
( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 6



TYPICAL SECTION
WOOLBRIGHT ROAD
BRIDGE OVER I-95

FINANCIAL PROJECT ID	SHEET NO.
437279-1-22-01	7

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

8/19/2020 10:51:04 AM

Appendix C

Long Range Estimate (LRE)

Date: 8/26/2020 2:13:14 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 437279-1-52-01 **Letting Date:** 07/2025

Description: SR-9/I-95 FROM SOUTH OF WOOLBRIGHT ROAD TO NORTH OF WOOLBRIGHT ROAD

District: 04 **County:** 93 PALM BEACH **Market Area:** 12 **Units:** English
Contract Class: 1 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 3.214 MI

Project Manager: ARRIETA

Version 8 Project Grand Total **$12,002,390.82**
Description: 2020 2nd Update

Sequence: 1 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.189 MI
1,000 LF

Description: Woolbright Road from SW 18th Ct to west of Bridge #934461 (Woolbright Road over LWDD E-4 Canal)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 20.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.189
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.15	AC	$25,000.00	$28,750.00
120-1	REGULAR EXCAVATION	273.50	CY	$18.75	$5,128.12
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	3,222.91	CY	$22.00	$70,904.02
	Earthwork Component Total				$104,782.15

ROADWAY COMPONENT

User Input Data

Description	Value

Number of Lanes	6
Existing Roadway Pavement Width L/R	42.00 / 38.00
Structural Spread Rate	110
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	7.00 / 1.00
Widened Inside Pavement Width L/R	1.00 / 1.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,257.85	SY	$6.50	$14,676.03
285-709	OPTIONAL BASE,BASE GROUP 09	1,257.82	SY	$23.00	$28,929.86
327-70-8	MILLING EXIST ASPH PAVT,2 1/2" AVG DEPTH	8,889.17	SY	$3.25	$28,889.80
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	488.90	TN	$120.00	$58,668.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	183.34	TN	$120.00	$22,000.80
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	733.36	TN	$135.00	$99,003.60
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	91.67	TN	$135.00	$12,375.45

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-4-10	REMOVAL OF EXIST CONC	2,052.00	SY	$21.00	$43,092.00
	Comment: C&G + Median conc. Removal = 535 SY C&G RT -Removal = 176 SY C&G LT - Removal = 209 SY Sidewalk Removal = 1132 SY				

EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	512.00	LF	$23.72	$12,144.64
	Comment: Median				

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	128.00	EA	$4.25	$544.00
710-11-101		0.38	GM	$975.00	$370.50

	PAINTED PAVT MARK,STD,WHITE,SOLID,6"			
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.76 GM	$400.00	$304.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.38 GM	$4,300.00	$1,634.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.76 GM	$1,250.00	$950.00
711-16-201	THERMOPLASTIC, STD-OTH,YELLOW, SOLID, 6"	0.38 GM	$4,300.00	$1,634.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Roadway Component Total $325,216.68

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	0.00 / 0.00
New Total Outside Shoulder Width L/R	4.25 / 4.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	444.46	SY	$2.00	$888.92

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,731.00	LF	$27.00	$46,737.00
	Comment: 791' (RT) + 940' (LT)				
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	928.00	SY	$44.00	$40,832.00
	Comment: 300 SY (RT) + 628 SY (LT)				
527-2	DETECTABLE WARNINGS	48.00	SF	$30.00	$1,440.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,000.06	LF	$1.80	$3,600.11
104-11	FLOATING TURBIDITY BARRIER	18.94	LF	$15.00	$284.10
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	18.94	LF	$6.00	$113.64

104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$2,700.00	$2,700.00
104-18	INLET PROTECTION SYSTEM	9.00 EA	$105.00	$945.00
107-1	LITTER REMOVAL	1.65 AC	$40.00	$66.00
107-2	MOWING	1.65 AC	$60.00	$99.00
	Shoulder Component Total			$97,705.77

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	1.30

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	144.45	SY	$2.00	$288.90

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F **Comment:** 68' (RT) + 304' (LT)	372.00	LF	$27.00	$10,044.00
	Median Component Total				$10,332.90

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.41	CY	$1,600.00	$5,456.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	7.00	EA	$5,200.00	$36,400.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$6,500.00	$13,000.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	104.00	LF	$120.00	$12,480.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	32.00	LF	$150.00	$4,800.00
570-1-1	PERFORMANCE TURF	57.58	SY	$2.00	$115.16
	Drainage Component Total				$72,251.16

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	5.00	AS	$340.00	$1,700.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,100.00	$1,100.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$215.00	$215.00

700-1-60	SINGLE POST SIGN, REMOVE	5.00 AS	$25.00	$125.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	$4,500.00	$4,500.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	$625.00	$625.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-8-113	FRONT ACC DYN MESS SIGN, F&I, MONO,21-31	1.00	EA	$40,000.00	$40,000.00
	Comment: Florida Department of Transportation Item Average Unit Cost From 2012/01/01 to 2012/12/31				
700-10-122	DMS SUPPORT STRUCTURE, CANT, 21-30 FT	1.00	EA	$58,000.00	$58,000.00
	Comment: Florida Department of Transportation Item Average Unit Cost From 2012/01/01 to 2012/12/31				
	Signing Component Total				$106,265.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,000.03	LF	$8.00	$8,000.24
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	198.49	LF	$20.00	$3,969.80
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	7.00	EA	$650.00	$4,550.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,652.39	LF	$2.00	$7,304.78
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	7.00	EA	$5,700.00	$39,900.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	7.00	EA	$580.00	$4,060.00
	Subcomponent Total				$67,784.82
	Lighting Component Total				$67,784.82

Sequence 1 Total $784,338.48

Sequence: 2 MIS - Miscellaneous Construction **Net Length:** 0.019 MI
101 LF

Description: Bridge #934461 (Woolbright Road over LWDD E-4 Canal)

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-4-10	REMOVAL OF EXIST CONC	61.00	SY	$21.00	$1,281.00
	Comment: Median Conc. Traff. Separator				
520-70	CONCRETE TRAFFIC SEPARATOR, SP- VAR WIDT	95.00	SY	$90.00	$8,550.00
	Roadway Component Total				$9,831.00

BRIDGES COMPONENT

Bridge 934461

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	60.40
Width (LF)	39.00
Type	Overpass Widening
Cost Factor	3.07
Structure No.	
Removal of Existing Structures area	860.00
Default Cost per SF	$75.00
Factored Cost per SF	$230.25
Final Cost per SF	**$252.14**
Basic Bridge Cost	**$542,376.90**
Description	WIDENING BRIDGE # 934461, WOOLBRIGHT ROAD OVER THE E-4 CANAL, TO THE NORTH TO ACCOMODATE THE ADDITION OF 2ND EB LEFT TURN LANE AT SW 8TH STREET.

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	860.00	SF	$50.00	$43,000.00
400-2-10	CONC CLASS II, APPROACH SLABS	86.67	CY	$420.00	$36,401.40
415-1-9	REINF STEEL- APPROACH SLABS	15,167.25	LB	$1.00	$15,167.25
	Bridge 934461 Total				$636,945.55
	Bridges Component Total				$636,945.55

Sequence 2 Total $646,776.55

Sequence: 3 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.258 MI
1,360 LF

Description: Woolbright Road east of Bridge #934461 (Woolbright Road over LWDD E-4 Canal)to west of Bridge # 930300 (Woolbright Road over CSX)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.258
Top of Structural Course For Begin Section	104.00
Top of Structural Course For End Section	104.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.72	AC	$25,000.00	$43,000.00
120-1	REGULAR EXCAVATION	1,596.34	CY	$18.75	$29,931.38
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	7,772.84	CY	$22.00	$171,002.48
	Earthwork Component Total				$243,933.86

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	44.00 / 40.00
Structural Spread Rate	110
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	14.00 / 2.00
Widened Inside Pavement Width L/R	0.00 / 9.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	4,947.84	SY	$6.50	$32,160.96
285-709	OPTIONAL BASE,BASE GROUP 09	3,927.75	SY	$23.00	$90,338.25
327-70-8	MILLING EXIST ASPH PAVT,2 1/2" AVG DEPTH	12,694.53	SY	$3.25	$41,257.22
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	698.20	TN	$120.00	$83,784.00
334-1-13		623.39	TN	$120.00	$74,806.80

	SUPERPAVE ASPHALTIC CONC, TRAFFIC C			
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,047.30 TN	$135.00	$141,385.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	311.70 TN	$135.00	$42,079.50

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-4-10	REMOVAL OF EXIST CONC	2,555.00 SY	$21.00	$53,655.00
	Comment: Traff. separator removal = 399 SY C&G RT removal = 288 SY C&G LT removal = 318 SY Sidewalk Removal = 1550 SY			
339-1	MISCELLANEOUS ASPHALT PAVEMENT	37.73 TN	$235.00	$8,866.55
515-3-2	PIPE HANDRAIL- RETROFIT EXIST, ALUMINUM	613.00 LF	$50.00	$30,650.00
520-70	CONCRETE TRAFFIC SEPARATOR, SP- VAR WIDT	294.00 SY	$90.00	$26,460.00
536-73	GUARDRAIL REMOVAL	984.00 LF	$3.00	$2,952.00

EX-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,727.00 LF	$23.72	$40,964.44
	Comment: median			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	174.00 EA	$4.25	$739.50
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.52 GM	$975.00	$507.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.03 GM	$400.00	$412.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.52 GM	$4,300.00	$2,236.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.03 GM	$1,250.00	$1,287.50

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00

Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	44.33	TN	$235.00	$10,417.55
536-6	PIPE RAIL FOR GUARDRAIL	1,290.00	LF	$15.00	$19,350.00
536-8-11	APPR TRANS TO RIGID BARR CONNECT, F&I	4.00	EA	$2,900.00	$11,600.00
536-85-24	GUARDRAIL END TREATMENT-PARA APP TERM	4.00	EA	$2,900.00	$11,600.00
	Roadway Component Total				$727,509.77

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	0.00 / 0.00
New Total Outside Shoulder Width L/R	4.25 / 4.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	604.50	SY	$2.00	$1,209.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,522.00	LF	$27.00	$68,094.00
	Comment: 1145' (RT) + 822' (LT)				
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,642.00	SY	$44.00	$72,248.00
	Comment: 824 SY (RT) + 818 SY (LT)				
527-2	DETECTABLE WARNINGS	12.00	SF	$30.00	$360.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,720.26	LF	$1.80	$4,896.47
104-11	FLOATING TURBIDITY BARRIER	25.76	LF	$15.00	$386.40
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	25.76	LF	$6.00	$154.56
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,700.00	$2,700.00
104-18	INLET PROTECTION SYSTEM	12.00	EA	$105.00	$1,260.00
107-1	LITTER REMOVAL	2.25	AC	$40.00	$90.00
107-2	MOWING	2.25	AC	$60.00	$135.00
	Shoulder Component Total				$151,533.43

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	2.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	750.00	LF	$48.00	$36,000.00
570-1-2	PERFORMANCE TURF, SOD	302.25	SY	$3.50	$1,057.88

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F **Comment:** 858' (RT) + 107' (LT)	965.00	LF	$27.00	$26,055.00
	Median Component Total				$63,112.88

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.64	CY	$1,600.00	$7,424.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	10.00	EA	$5,200.00	$52,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$6,500.00	$19,500.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	144.00	LF	$120.00	$17,280.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00	LF	$150.00	$7,200.00
570-1-1	PERFORMANCE TURF	78.31	SY	$2.00	$156.62
	Drainage Component Total				$103,560.62

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	6.00	AS	$340.00	$2,040.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,100.00	$1,100.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$215.00	$215.00
700-1-60	SINGLE POST SIGN, REMOVE	6.00	AS	$25.00	$150.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$4,500.00	$4,500.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$625.00	$625.00
	Signing Component Total				$8,630.00

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value

Type	6 Lane Mast Arm
Multiplier	1
Description	Woolbright EB mast arm at Corporate Dr/ SW 8th Street

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$8.00	$5,600.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$20.00	$6,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$4,484.06	$4,484.06
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$650.00	$14,300.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,012.13	$3,012.13
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$5.18	$310.80
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,085.17	$1,085.17
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$44,514.29	$44,514.29
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$1,012.96	$20,259.20
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$655.44	$5,243.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00	EA	$320.96	$6,419.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00	AS	$1,059.75	$21,195.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$190.31	$1,522.48
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$32,659.41	$32,659.41
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$242.01	$968.04

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	1.00	EA	$7,010.82	$7,010.82
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	1.00	EA	$3,172.10	$3,172.10

Signalization 2

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	Woolbright WB mast arm at Corporate Dr/ SW 8th Street

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$8.00	$5,600.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$20.00	$6,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$4,484.06	$4,484.06
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$650.00	$14,300.00

639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$3,012.13	$3,012.13
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$5.18	$310.80
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00 EA	$1,085.17	$1,085.17
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00 EA	$44,514.29	$44,514.29
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00 AS	$1,012.96	$20,259.20
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$655.44	$5,243.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00 EA	$320.96	$6,419.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00 AS	$1,059.75	$21,195.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$190.31	$1,522.48
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$32,659.41	$32,659.41
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$242.01	$968.04

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	1.00	EA	$7,010.82	$7,010.82
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	1.00	EA	$3,172.10	$3,172.10

Signalization 3

Description	Value
Type	2 Lane Mast Arm
Multiplier	1
Description	Corporate Dr/ SW 8th Street NB mast arm at Woolbright Rd

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$8.00	$6,400.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	200.00	LF	$20.00	$4,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$4,484.06	$4,484.06
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	$650.00	$7,800.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,012.13	$3,012.13
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$5.18	$310.80
649-21-4	STEEL MAST ARM ASSEMBLY, F&I, 40'- 30'	1.00	EA	$46,698.68	$46,698.68
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00	AS	$1,012.96	$8,103.68
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$655.44	$5,243.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00	EA	$320.96	$2,567.68
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00	AS	$1,059.75	$8,478.00
665-1-11		8.00	EA	$190.31	$1,522.48

	PEDESTRIAN DETECTOR, F&I, STANDARD			
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$32,659.41	$32,659.41
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$242.01	$968.04

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	1.00 EA	$7,010.82	$7,010.82
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	1.00 EA	$3,172.10	$3,172.10

Signalization 4

Description	Value
Type	2 Lane Mast Arm
Multiplier	1
Description	Corporate Dr/ SW 8th Street SB mast arm at Woolbright Rd

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00 LF	$8.00	$6,400.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	200.00 LF	$20.00	$4,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$4,484.06	$4,484.06
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00 EA	$650.00	$7,800.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$3,012.13	$3,012.13
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$5.18	$310.80
649-21-4	STEEL MAST ARM ASSEMBLY, F&I, 40'- 30'	1.00 EA	$46,698.68	$46,698.68
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00 AS	$1,012.96	$8,103.68
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$655.44	$5,243.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00 EA	$320.96	$2,567.68
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00 AS	$1,059.75	$8,478.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$190.31	$1,522.48
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$32,659.41	$32,659.41
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$242.01	$968.04

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	1.00 EA	$7,010.82	$7,010.82
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	1.00 EA	$3,172.10	$3,172.10

Signalizations Component Total $640,375.24

Sequence 3 Total	$1,938,655.80

Sequence: 4 MIS - Miscellaneous Construction **Net Length:** 0.027 MI
142 LF

Description: Bridge #930300 (Woolbright Road over CSX RR)

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-4-10	REMOVAL OF EXIST CONC **Comment:** Median C&G	83.00	SY	$21.00	$1,743.00

EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	935.00	LF	$23.72	$22,178.20
	Roadway Component Total				$23,921.20

BRIDGES COMPONENT

Bridge 930300

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	142.00
Width (LF)	29.00
Type	Overpass Widening
Cost Factor	3.07
Structure No.	
Removal of Existing Structures area	1,250.00
Default Cost per SF	$75.00
Factored Cost per SF	$230.25
Final Cost per SF	**$239.56**
Basic Bridge Cost	**$948,169.50**
Description	WIDENING BRIDGE # 930300, WOOLBRIGHT ROAD OVER CSX RR

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	1,250.00	SF	$50.00	$62,500.00
400-2-10	CONC CLASS II, APPROACH SLABS	64.44	CY	$420.00	$27,064.80
415-1-9	REINF STEEL- APPROACH SLABS	11,277.00	LB	$1.00	$11,277.00
	Bridge 930300 Total				$1,049,011.30
	Bridges Component Total				$1,049,011.30
Sequence 4 Total					$1,072,932.50

Sequence: 5 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.306 MI 1,615 LF

Description: Woolbright Road east of Bridge #930300 (Excluding Bridge # 930301)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 15.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.677
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.67	AC	$25,000.00	$41,750.00
120-1	REGULAR EXCAVATION	7,183.54	CY	$18.75	$134,691.38
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	3,227.70	CY	$22.00	$71,009.40
	Earthwork Component Total				$247,450.78

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	44.00 / 44.00
Structural Spread Rate	110
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 1.00
Widened Inside Pavement Width L/R	0.00 / 15.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,797.40	SY	$6.50	$24,683.10
285-709	OPTIONAL BASE,BASE GROUP 09	2,989.83	SY	$23.00	$68,766.09
327-70-8	MILLING EXIST ASPH PAVT,2 1/2" AVG DEPTH	15,792.60	SY	$3.25	$51,325.95
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	868.59	TN	$120.00	$104,230.80
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	473.78	TN	$120.00	$56,853.60

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,302.89 TN	$135.00	$175,890.15
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	236.89 TN	$135.00	$31,980.15

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-4-10	REMOVAL OF EXIST CONC	1,668.00 SY	$21.00	$35,028.00
	Comment: Traffic sep. removal = 91 SY C&G removal (median) = 405 SY C&G removal = 202 SY Sidewalk removal = 970 SY			

EX-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,827.00 LF	$23.72	$43,336.44
	Comment: Median			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	206.00 EA	$4.25	$875.50
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.61 GM	$975.00	$594.75
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.22 GM	$400.00	$488.00
711-15-201	THERMOPLASTIC, STD-OP,YELLOW, SOLID, 6"	0.61 GM	$4,900.00	$2,989.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.61 GM	$4,300.00	$2,623.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.22 GM	$1,250.00	$1,525.00
	Roadway Component Total			$601,189.53

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	0.00 / 0.00
New Total Outside Shoulder Width L/R	4.25 / 4.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount

570-1-1	PERFORMANCE TURF	717.85 SY	$2.00	$1,435.70

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,723.00 LF	$27.00	$46,521.00
	Comment: 1723' RT			
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	926.00 SY	$44.00	$40,744.00
	Comment: 926 SY RT			
527-2	DETECTABLE WARNINGS	72.00 SF	$30.00	$2,160.00

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,230.30 LF	$1.80	$5,814.54
104-11	FLOATING TURBIDITY BARRIER	30.59 LF	$15.00	$458.85
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	30.59 LF	$6.00	$183.54
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$2,700.00	$2,700.00
104-18	INLET PROTECTION SYSTEM	15.00 EA	$105.00	$1,575.00
107-1	LITTER REMOVAL	2.67 AC	$40.00	$106.80
107-2	MOWING	2.67 AC	$60.00	$160.20

Shoulder Component Total $101,859.63

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	340.00 LF	$48.00	$16,320.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,624.00 LF	$27.00	$70,848.00
	Comment: 1470' (RT) + 1154' (LT)			

Median Component Total $87,168.00

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	5.51 CY	$1,600.00	$8,816.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	12.00 EA	$5,200.00	$62,400.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00 EA	$6,500.00	$26,000.00
430-175-124		168.00 LF	$120.00	$20,160.00

	PIPE CULV, OPT MATL, ROUND, 24"S/CD			
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00 LF	$150.00	$7,200.00
570-1-1	PERFORMANCE TURF	92.99 SY	$2.00	$185.98
	Drainage Component Total			$124,761.98

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00 AS	$340.00	$2,380.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	$1,100.00	$1,100.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	$215.00	$215.00
700-1-60	SINGLE POST SIGN, REMOVE	7.00 AS	$25.00	$175.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	$4,500.00	$4,500.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	$625.00	$625.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-3-107	SIGN PANEL, F&I GM, 201-300 SF	1.00 EA	$6,676.21	$6,676.21
	Comment: Woolbright EB sign structure at SB on ramp			
700-4-112	OH STATIC SIGN STR, F&I, C 21-30 FT	1.00 EA	$61,328.28	$61,328.28
	Comment: Woolbright EB sign structure at SB on ramp			
	Signing Component Total			$76,999.49

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	Woolbright Road EB at SB on Ramp

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00 LF	$8.00	$5,600.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00 LF	$20.00	$6,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$4,484.06	$4,484.06
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00 EA	$650.00	$14,300.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$3,012.13	$3,012.13
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$5.18	$310.80
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00 EA	$1,085.17	$1,085.17
649-21-21		1.00 EA	$44,514.29	$44,514.29

	STEEL MAST ARM ASSEMBLY, F&I, 78'			
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00 AS	$1,012.96	$20,259.20
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$655.44	$5,243.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00 EA	$320.96	$6,419.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00 AS	$1,059.75	$21,195.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$190.31	$1,522.48
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$32,659.41	$32,659.41
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$242.01	$968.04

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	1.00 EA	$7,010.82	$7,010.82
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	1.00 EA	$3,172.10	$3,172.10

Signalization 2

Description	Value
Type	2 Lane Mast Arm
Multiplier	1
Description	SB off ramp at Woolbright Rd

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00 LF	$8.00	$6,400.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	200.00 LF	$20.00	$4,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$4,484.06	$4,484.06
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00 EA	$650.00	$7,800.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$3,012.13	$3,012.13
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$5.18	$310.80
649-21-4	STEEL MAST ARM ASSEMBLY, F&I, 40'- 30'	1.00 EA	$46,698.68	$46,698.68
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00 AS	$1,012.96	$8,103.68
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$655.44	$5,243.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00 EA	$320.96	$2,567.68
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00 AS	$1,059.75	$8,478.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$190.31	$1,522.48
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$32,659.41	$32,659.41
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$242.01	$968.04

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	1.00	EA	$7,010.82	$7,010.82
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	1.00	EA	$3,172.10	$3,172.10

Signalization 3

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	Woolbright Road WB at SB off Ramp

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$8.00	$5,600.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$20.00	$6,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$4,484.06	$4,484.06
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$650.00	$14,300.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,012.13	$3,012.13
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$5.18	$310.80
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,085.17	$1,085.17
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$44,514.29	$44,514.29
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$1,012.96	$20,259.20
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$655.44	$5,243.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00	EA	$320.96	$6,419.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00	AS	$1,059.75	$21,195.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$190.31	$1,522.48
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$32,659.41	$32,659.41
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$242.01	$968.04

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	1.00	EA	$7,010.82	$7,010.82
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	1.00	EA	$3,172.10	$3,172.10

Signalization 4

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	Woolbright Road EB at NB off Ramp

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$8.00	$5,600.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$20.00	$6,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$4,484.06	$4,484.06
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$650.00	$14,300.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,012.13	$3,012.13
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$5.18	$310.80
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,085.17	$1,085.17
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$44,514.29	$44,514.29
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$1,012.96	$20,259.20
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$655.44	$5,243.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00	EA	$320.96	$6,419.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00	AS	$1,059.75	$21,195.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$190.31	$1,522.48
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$32,659.41	$32,659.41
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$242.01	$968.04

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	1.00	EA	$7,010.82	$7,010.82
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	1.00	EA	$3,172.10	$3,172.10

Signalization 5

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	Woolbright Road WB at NB on Ramp

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$8.00	$5,600.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$20.00	$6,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$4,484.06	$4,484.06
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$650.00	$14,300.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,012.13	$3,012.13
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$5.18	$310.80
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,085.17	$1,085.17

649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$44,514.29	$44,514.29
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$1,012.96	$20,259.20
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$655.44	$5,243.52
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00	EA	$320.96	$6,419.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00	AS	$1,059.75	$21,195.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$190.31	$1,522.48
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$32,659.41	$32,659.41
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$242.01	$968.04

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	1.00	EA	$7,010.82	$7,010.82
660-4-12	VEHICLE DETECTION SYSTEM-VIDEO, ABOVE G	1.00	EA	$3,172.10	$3,172.10

Signalizations Component Total $853,456.28

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,615.15	LF	$8.00	$12,921.20
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	320.58	LF	$20.00	$6,411.60
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	11.00	EA	$650.00	$7,150.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	5,898.98	LF	$2.00	$11,797.96
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	11.00	EA	$5,700.00	$62,700.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	11.00	EA	$580.00	$6,380.00
	Subcomponent Total				$107,360.76

Lighting Component Total $107,360.76

Sequence 5 Total $2,200,246.45

Sequence: 6 MIS - Miscellaneous Construction **Net Length:** 0.052 MI
272 LF

Description: Bridge #930301 (Woolbright Road over SR9/ I-95)

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-4-10	REMOVAL OF EXIST CONC	143.00	SY	$21.00	$3,003.00
	Comment: Traffic separator				
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	311.00	LF	$40.00	$12,440.00

EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	935.00	LF	$23.72	$22,178.20
	Roadway Component Total				$37,621.20

BRIDGES COMPONENT

Bridge 930301

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	272.00
Width (LF)	35.00
Type	Overpass Widening
Cost Factor	3.07
Structure No.	
Removal of Existing Structures area	2,570.00
Default Cost per SF	$75.00
Factored Cost per SF	$230.25
Final Cost per SF	**$235.11**
Basic Bridge Cost	**$2,191,980.00**
Description	WIDENING BRIDGE # 930301, WOOLBRIGHT ROAD OVER SR-9/ I-95

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	2,570.00	SF	$50.00	$128,500.00
400-2-10	CONC CLASS II, APPROACH SLABS	77.78	CY	$420.00	$32,667.60
415-1-9	REINF STEEL- APPROACH SLABS	13,611.50	LB	$1.00	$13,611.50
	Bridge 930301 Total				$2,366,759.10
	Bridges Component Total				$2,366,759.10

Sequence 6 Total $2,404,380.30

Sequence: 7 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.189 MI
1,000 LF

Description: NB On Ramp

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.170
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.69	AC	$25,000.00	$17,250.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	2,349.72	CY	$22.00	$51,693.84
	Earthwork Component Total				$68,943.84

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 24.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,777.90	SY	$6.50	$24,556.35
285-709	OPTIONAL BASE,BASE GROUP 09	2,703.42	SY	$23.00	$62,178.66
327-70-8	MILLING EXIST ASPH PAVT,2 1/2" AVG DEPTH	2,666.75	SY	$3.25	$8,666.94
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	220.01	TN	$120.00	$26,401.20
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	440.01	TN	$120.00	$52,801.20
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	220.01	TN	$135.00	$29,701.35

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	220.01 TN	$135.00	$29,701.35

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-6	SHOULDER GUTTER- CONCRETE	900.00 LF	$24.00	$21,600.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	102.00 EA	$4.25	$433.50
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.38 NM	$4,100.00	$1,558.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.38 GM	$400.00	$152.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.38 GM	$4,800.00	$1,824.00
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.38 GM	$1,500.00	$570.00
711-16-201	THERMOPLASTIC, STD-OTH,YELLOW, SOLID, 6"	0.38 GM	$4,300.00	$1,634.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	34.80 TN	$235.00	$8,178.00
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	1,034.00 LF	$20.00	$20,680.00
536-85-24	GUARDRAIL END TREATMENT-PARA APP TERM	1.00 EA	$2,900.00	$2,900.00
536-85-24	GUARDRAIL END TREATMENT-PARA APP TERM	1.00 EA	$2,900.00	$2,900.00
	Roadway Component Total			$296,436.55

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	10.00 / 10.00
New Total Outside Shoulder Width L/R	0.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 2.00
Existing Paved Outside Shoulder Width L/R	8.00 / 8.00
New Paved Outside Shoulder Width L/R	0.00 / 8.00
Structural Spread Rate	110
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	925.59	SY	$15.00	$13,883.85
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	1,777.83	SY	$3.50	$6,222.41
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	48.89	TN	$120.00	$5,866.80
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	73.34	TN	$135.00	$9,900.90
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.19	GM	$1,945.00	$369.55
570-1-1	PERFORMANCE TURF	222.23	SY	$2.00	$444.46

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,300.07	LF	$1.80	$4,140.13
104-11	FLOATING TURBIDITY BARRIER	18.94	LF	$15.00	$284.10
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	18.94	LF	$6.00	$113.64
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,700.00	$2,700.00
104-18	INLET PROTECTION SYSTEM	1.00	EA	$105.00	$105.00
107-1	LITTER REMOVAL	0.46	AC	$40.00	$18.40
107-2	MOWING	0.46	AC	$60.00	$27.60
	Shoulder Component Total				$44,076.84

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.41	CY	$1,600.00	$5,456.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	32.00	LF	$200.00	$6,400.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$150.00	$2,400.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	$1,944.00	$3,888.00

570-1-1	PERFORMANCE TURF	76.52 SY	$2.00	$153.04
	Drainage Component Total			$18,297.04

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$340.00	$340.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	4.00	AS	$1,100.00	$4,400.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$215.00	$215.00
700-1-60	SINGLE POST SIGN, REMOVE	4.00	AS	$25.00	$100.00
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00	AS	$4,300.00	$4,300.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$625.00	$625.00
	Signing Component Total				$9,980.00

Sequence 7 Total $437,734.27

Sequence: 8 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.091 MI
480 LF

Description: NB OFF Ramp

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.170
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.33	AC	$25,000.00	$8,250.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	1,347.06	CY	$22.00	$29,635.32
	Earthwork Component Total				$37,885.32

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	12.00 / 0.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,173.22	SY	$6.50	$7,625.93
285-709	OPTIONAL BASE,BASE GROUP 09	657.53	SY	$23.00	$15,123.19
327-70-8	MILLING EXIST ASPH PAVT,2 1/2" AVG DEPTH	1,919.81	SY	$3.25	$6,239.38
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	158.38	TN	$120.00	$19,005.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	105.59	TN	$120.00	$12,670.80
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	158.38	TN	$135.00	$21,381.30

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	52.79 TN	$135.00	$7,126.65

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	49.00	EA	$4.25	$208.25
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.18	NM	$4,100.00	$738.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.18	GM	$400.00	$72.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.18	GM	$4,800.00	$864.00
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.18	GM	$1,500.00	$270.00
711-16-201	THERMOPLASTIC, STD-OTH,YELLOW, SOLID, 6"	0.18	GM	$4,300.00	$774.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	0.33	TN	$235.00	$77.55
536-85-24	GUARDRAIL END TREATMENT-PARA APP TERM	1.00	EA	$2,900.00	$2,900.00
536-85-24	GUARDRAIL END TREATMENT-PARA APP TERM	1.00	EA	$2,900.00	$2,900.00
	Roadway Component Total				$97,976.65

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	8.00 / 10.00
New Total Outside Shoulder Width L/R	10.00 / 0.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 0.00

Existing Paved Outside Shoulder Width L/R	4.00 / 8.00
New Paved Outside Shoulder Width L/R	8.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	444.22	SY	$15.00	$6,663.30
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	639.94	SY	$3.50	$2,239.79
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	23.46	TN	$120.00	$2,815.20
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	35.20	TN	$135.00	$4,752.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.09	GM	$1,945.00	$175.05
570-1-1	PERFORMANCE TURF	106.66	SY	$2.00	$213.32

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,103.89	LF	$1.80	$1,987.00
104-11	FLOATING TURBIDITY BARRIER	9.09	LF	$15.00	$136.35
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	9.09	LF	$6.00	$54.54
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,700.00	$2,700.00
104-18	INLET PROTECTION SYSTEM	1.00	EA	$105.00	$105.00
107-1	LITTER REMOVAL	0.22	AC	$40.00	$8.80
107-2	MOWING	0.22	AC	$60.00	$13.20
	Shoulder Component Total				$21,863.55

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.64	CY	$1,600.00	$2,624.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	16.00	LF	$200.00	$3,200.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	8.00	LF	$150.00	$1,200.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	1.00	EA	$1,944.00	$1,944.00
570-1-1	PERFORMANCE TURF	36.72	SY	$2.00	$73.44
	Drainage Component Total				$9,041.44

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$340.00	$340.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,100.00	$2,200.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$215.00	$215.00
700-1-60	SINGLE POST SIGN, REMOVE	2.00	AS	$25.00	$50.00
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00	AS	$4,300.00	$4,300.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$625.00	$625.00
	Signing Component Total				$7,730.00
Sequence 8 Total					$174,496.96

Sequence: 9 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.085 MI 450 LF

Description: SB OFF Ramp

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.170
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.31	AC	$25,000.00	$7,750.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	219.08	CY	$22.00	$4,819.76
	Earthwork Component Total				$12,569.76

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	12.00 / 0.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,099.65	SY	$6.50	$7,147.72
285-709	OPTIONAL BASE,BASE GROUP 09	616.30	SY	$23.00	$14,174.90
327-70-8	MILLING EXIST ASPH PAVT,2 1/2" AVG DEPTH	1,799.42	SY	$3.25	$5,848.12
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	148.45	TN	$120.00	$17,814.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	98.97	TN	$120.00	$11,876.40
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	148.45	TN	$135.00	$20,040.75

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	49.48 TN	$135.00	$6,679.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	46.00 EA	$4.25	$195.50
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.17 NM	$4,100.00	$697.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.17 GM	$400.00	$68.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.17 GM	$4,800.00	$816.00
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.17 GM	$1,500.00	$255.00
711-16-201	THERMOPLASTIC, STD-OTH,YELLOW, SOLID, 6"	0.17 GM	$4,300.00	$731.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	15.33 TN	$235.00	$3,602.55
536-1-1	GUARDRAIL- ROADWAY, GEN TL-3	450.00 LF	$20.00	$9,000.00
536-85-24	GUARDRAIL END TREATMENT-PARA APP TERM	1.00 EA	$2,900.00	$2,900.00
536-85-24	GUARDRAIL END TREATMENT-PARA APP TERM	1.00 EA	$2,900.00	$2,900.00
	Roadway Component Total			$104,746.75

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.00 / 10.00

New Total Outside Shoulder Width L/R	0.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 2.00
Existing Paved Outside Shoulder Width L/R	10.00 / 8.00
New Paved Outside Shoulder Width L/R	0.00 / 8.00
Structural Spread Rate	110
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	416.37	SY	$15.00	$6,245.55
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	899.71	SY	$3.50	$3,148.98
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	21.99	TN	$120.00	$2,638.80
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	32.99	TN	$135.00	$4,453.65
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.09	GM	$1,945.00	$175.05
570-1-1	PERFORMANCE TURF	99.97	SY	$2.00	$199.94

EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
536-73	GUARDRAIL REMOVAL	450.00	LF	$2.25	$1,012.50

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,034.67	LF	$1.80	$1,862.41
104-11	FLOATING TURBIDITY BARRIER	8.52	LF	$15.00	$127.80
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	8.52	LF	$6.00	$51.12
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,700.00	$2,700.00
104-18	INLET PROTECTION SYSTEM	1.00	EA	$105.00	$105.00
107-1	LITTER REMOVAL	0.21	AC	$40.00	$8.40
107-2	MOWING	0.21	AC	$60.00	$12.60

Shoulder Component Total $22,741.81

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.53	CY	$1,600.00	$2,448.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	16.00	LF	$200.00	$3,200.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	8.00	LF	$150.00	$1,200.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	1.00	EA	$1,944.00	$1,944.00

570-1-1	PERFORMANCE TURF	34.42 SY	$2.00	$68.84
	Drainage Component Total			$8,860.84

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$340.00	$340.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,100.00	$2,200.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$215.00	$215.00
700-1-60	SINGLE POST SIGN, REMOVE	2.00	AS	$25.00	$50.00
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00	AS	$4,300.00	$4,300.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$625.00	$625.00
	Signing Component Total				$7,730.00

Sequence 9 Total $156,649.16

Sequence: 10 MIS - Miscellaneous Construction **Net Length:** 1.998 MI
10,549 LF

Description: To match PSEE project length

Sequence 10 Total	$0.00

Date: 8/26/2020 2:13:16 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 437279-1-52-01 **Letting Date:** 07/2025

Description: SR-9/I-95 FROM SOUTH OF WOOLBRIGHT ROAD TO NORTH OF WOOLBRIGHT ROAD

District: 04 **County:** 93 PALM BEACH **Market Area:** 12 **Units:** English
Contract Class: 1 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 3.214 MI

Project Manager: ARRIETA

Version 8 Project Grand Total **$12,002,390.82**
Description: 2020 2nd Update

Project Sequences Subtotal **$9,816,210.47**

102-1	Maintenance of Traffic	10.00 %	$981,621.05
101-1	Mobilization	10.00 %	$1,079,783.15

Project Sequences Total **$11,877,614.67**

Project Unknowns		0.00 %	$0.00
Justification for high %:	For mobilization, special equipment (cranes) will be needed to construct bridge under transmission lines.		
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-16	PARTNERING (DO NOT BID)	2.00	LS	$3,000.00	$6,000.00
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$118,776.15	$118,776.15

Project Non-Bid Subtotal **$124,776.15**

Version 8 Project Grand Total **$12,002,390.82**

Appendix D

Existing Sign Inventory

N.T.S.

SEE PAGE 2

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FDOT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SIGN INVENTORY
PD&E FOR SERVICES FOR SR 9/I 95
FROM SOUTH OF WOOLBRIGHT RD.
TO NORTH OF WOOLBRIGHT RD.

SHEET NO.
1

$USERS $DATES $TIMES $FILES

N.T.S.

SEE PAGE 2

SEE PAGE 3

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FDOT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

$USER$

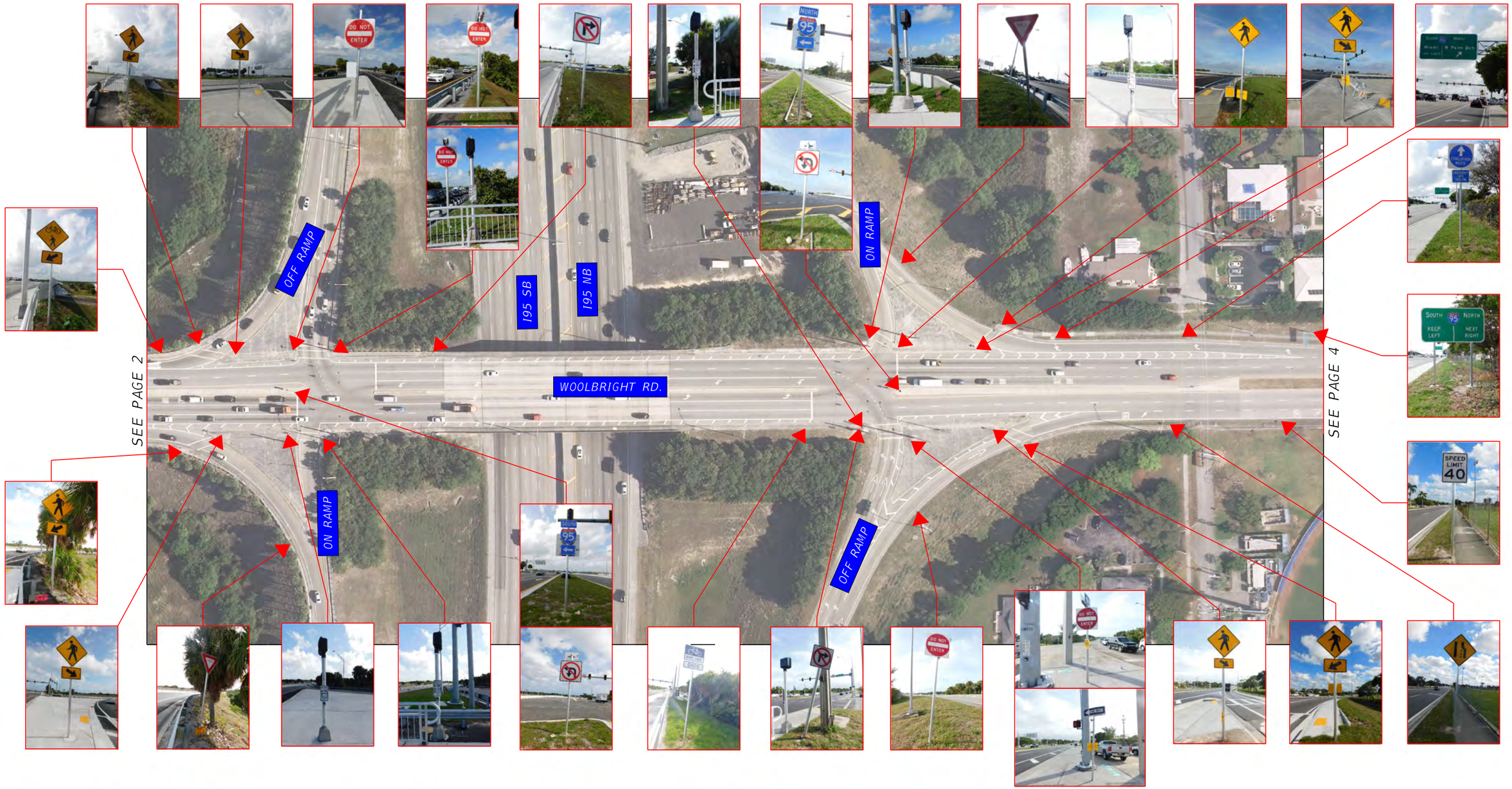
SIGN INVENTORY
PD&E FOR SERVICES FOR SR 9/I 95 FROM SOUTH OF WOOLBRIGHT RD. TO NORTH OF WOOLBRIGHT RD.

$DATE$ $TIME$ $FILE$

SHEET NO. 2

N

N.T.S.



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FDOT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

$USER$ $DATE$ $TIME$ $FILE$

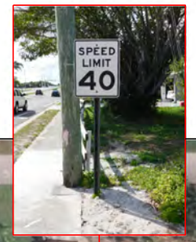
SIGN INVENTORY
PD&E FOR SERVICES FOR SR 9/I 95
FROM SOUTH OF WOOLBRIGHT RD.
TO NORTH OF WOOLBRIGHT RD.

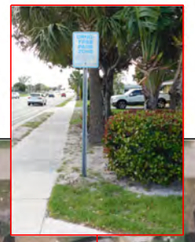
SHEET NO.
3

N.T.S.

SEE PAGE 3

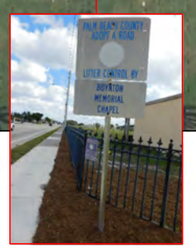
SEE PAGE 5





WOOLBRIGHT RD.

LITTLE LEAGUE RD.



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FDOT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SIGN INVENTORY
PD&E FOR SERVICES FOR SR 9/I 95
FROM SOUTH OF WOOLBRIGHT RD.
TO NORTH OF WOOLBRIGHT RD.

SHEET NO.
4

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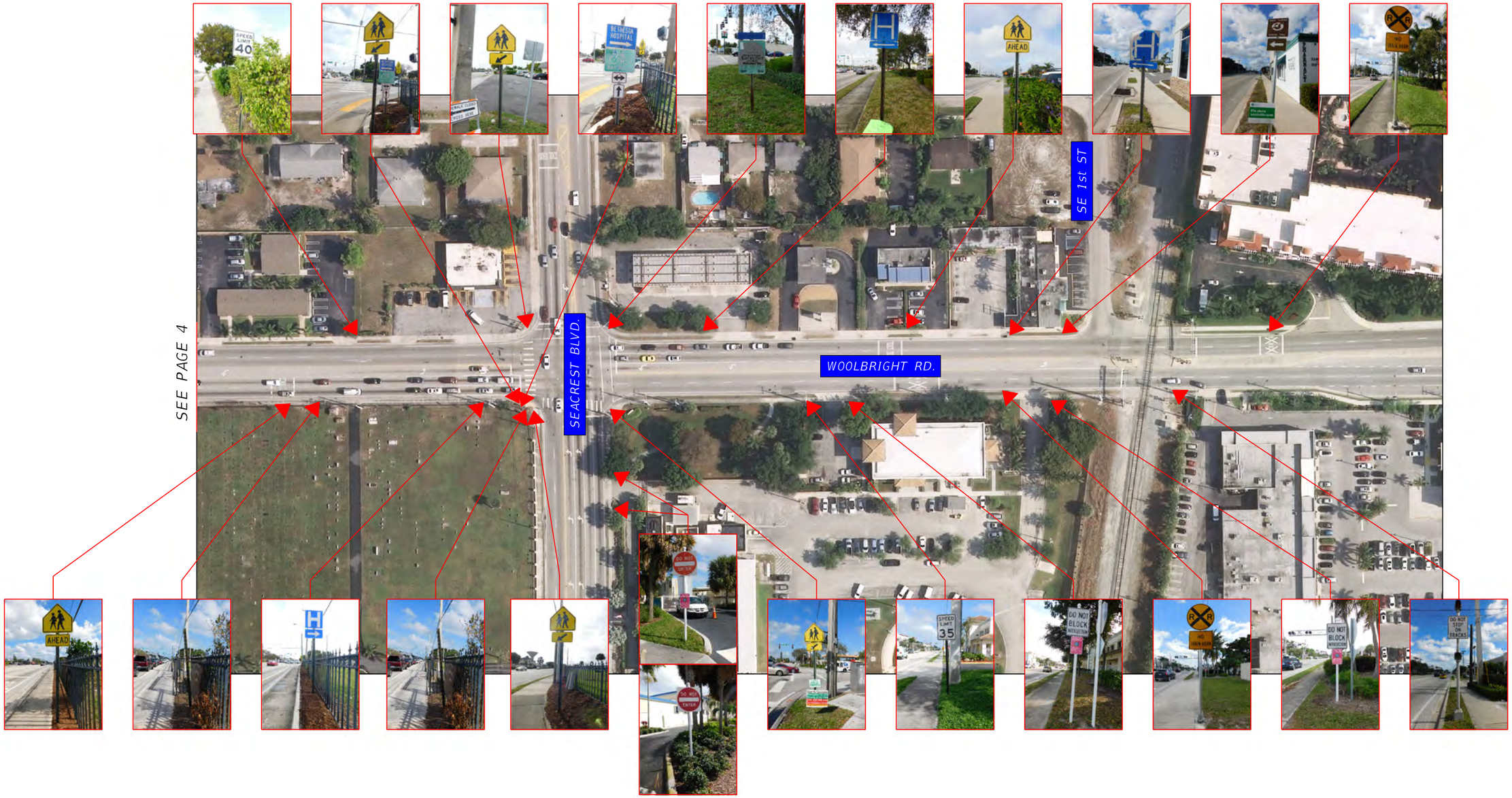

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FDOT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SIGN INVENTORY
PD&E FOR SERVICES FOR SR 9/I 95 FROM SOUTH OF WOOLBRIGHT RD. TO NORTH OF WOOLBRIGHT RD.

SHEET NO. 5

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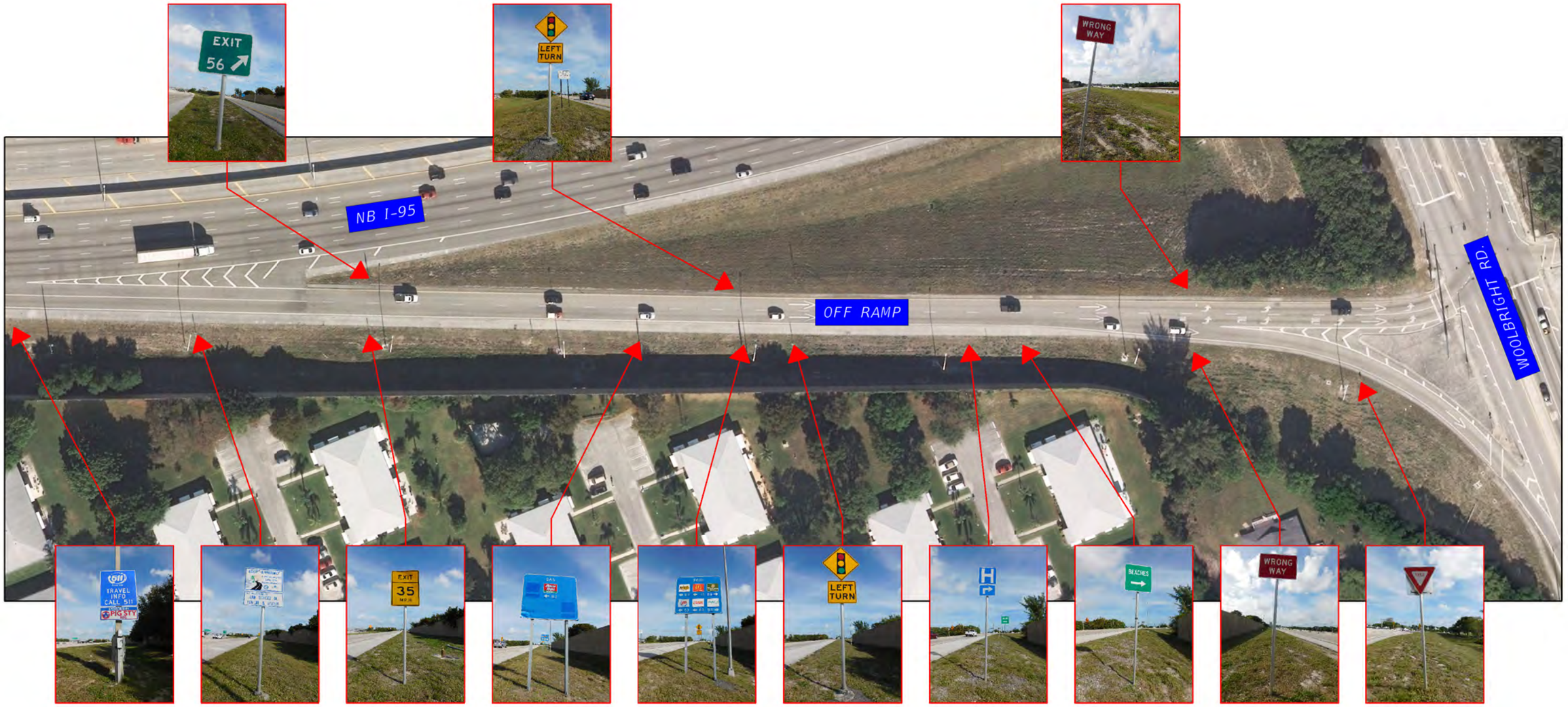

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FDOT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SIGN INVENTORY
PD&E FOR SERVICES FOR SR 9/I 95
FROM SOUTH OF WOOLBRIGHT RD.
TO NORTH OF WOOLBRIGHT RD.

SHEET NO.
6

$USERS $DATES $TIMES $FILES

N.T.S.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FDOT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SIGN INVENTORY
PD&E FOR SERVICES FOR SR 9/I 95
FROM SOUTH OF WOOLBRIGHT RD.
TO NORTH OF WOOLBRIGHT RD.

SHEET NO.
7

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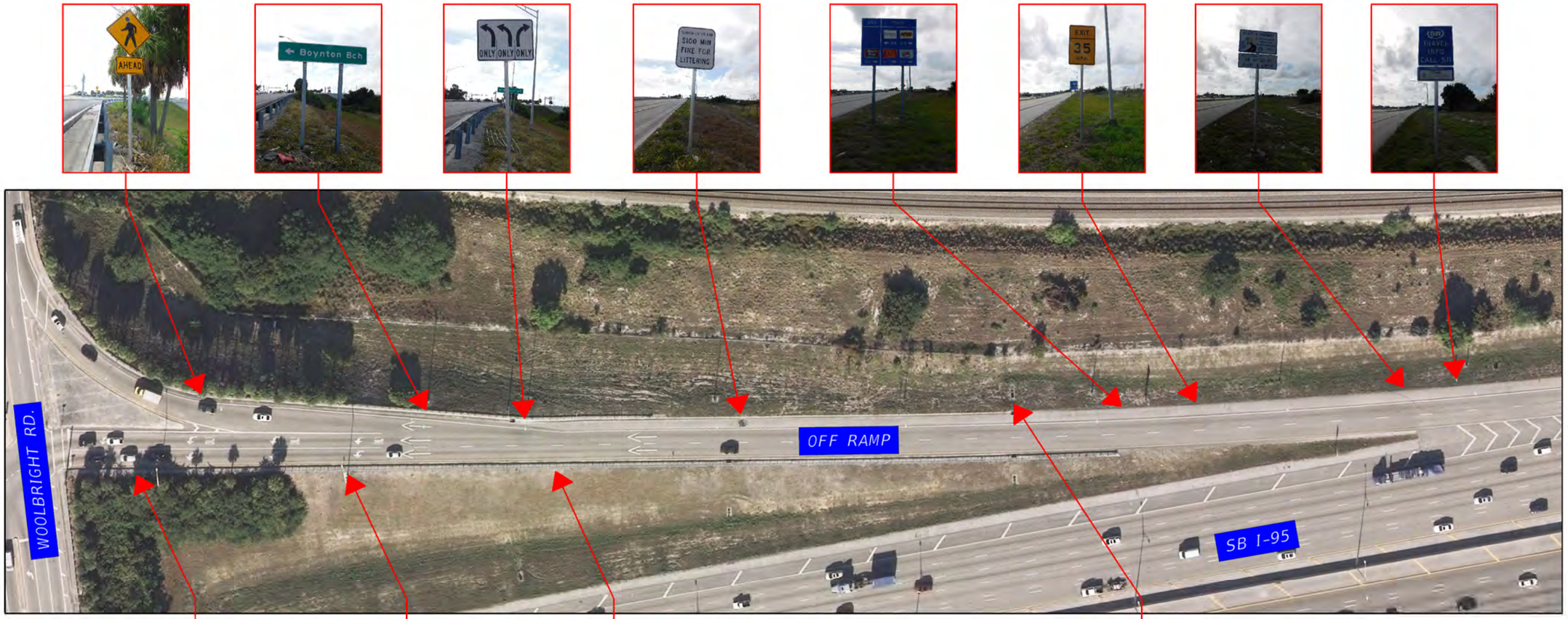

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FDOT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SIGN INVENTORY
PD&E FOR SERVICES FOR SR 9/I 95
FROM SOUTH OF WOOLBRIGHT RD.
TO NORTH OF WOOLBRIGHT RD.

SHEET NO.
8

$USERS $DATE$ $TIME$ $FILE$

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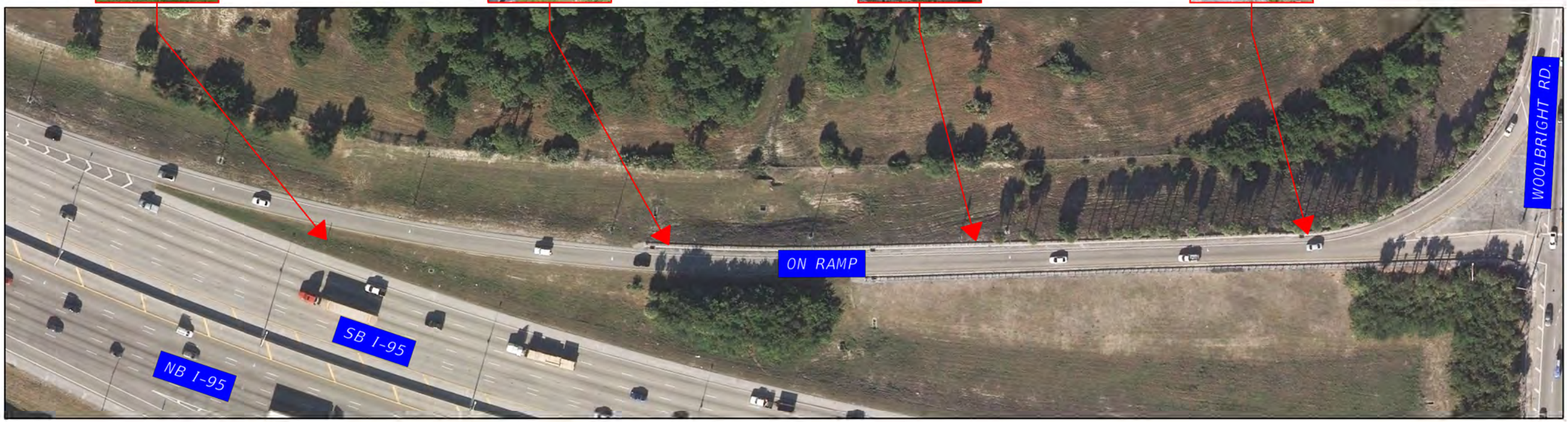

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FDOT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

SIGN INVENTORY
PD&E FOR SERVICES FOR SR 9/I 95
FROM SOUTH OF WOOLBRIGHT RD.
TO NORTH OF WOOLBRIGHT RD.

SHEET NO.
9

$USERS $DATES $TIMES $FILES

N.T.S.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

FDOT

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID

$USER$ $DATE$ $TIME$ $FILE$

SIGN INVENTORY
PD&E FOR SERVICES FOR SR 9/I 95 FROM SOUTH OF WOOLBRIGHT RD. TO NORTH OF WOOLBRIGHT RD.

SHEET NO.
10