Preliminary Engineering Report

January 22, 2024

FPID: 452074-1

DRAFT

PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

District 5

I-75 Improvements Project Development and Environment (PD&E) Study

From North of S.R. 200 to South of S.R. 326

Marion County, Florida

Financial Management Number: 452074-1

ETDM Number: 14542

DRAFT January 22, 2024

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

PROFESSIONAL ENGINEER CERTIFICATION

PRELIMINARY ENGINEERING REPORT

Project: I-75 Improvements Project Development and Environment (PD&E) Study

ETDM Number: 14542

Financial Project ID: 452074-1

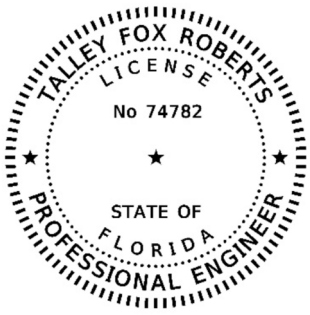
Federal Aid Project Number: NA

This preliminary engineering report contains engineering information that fulfills the purpose and need for the I-75 Improvements Project Development & Environment Study from north of S.R. 200 to south of S.R. 326 in Marion County, Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

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

[Only Sign and Seal the Final Report

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



This item has been digitally signed and sealed by Talley Fox Roberts 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.

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1.0 PROJECT SUMMARY

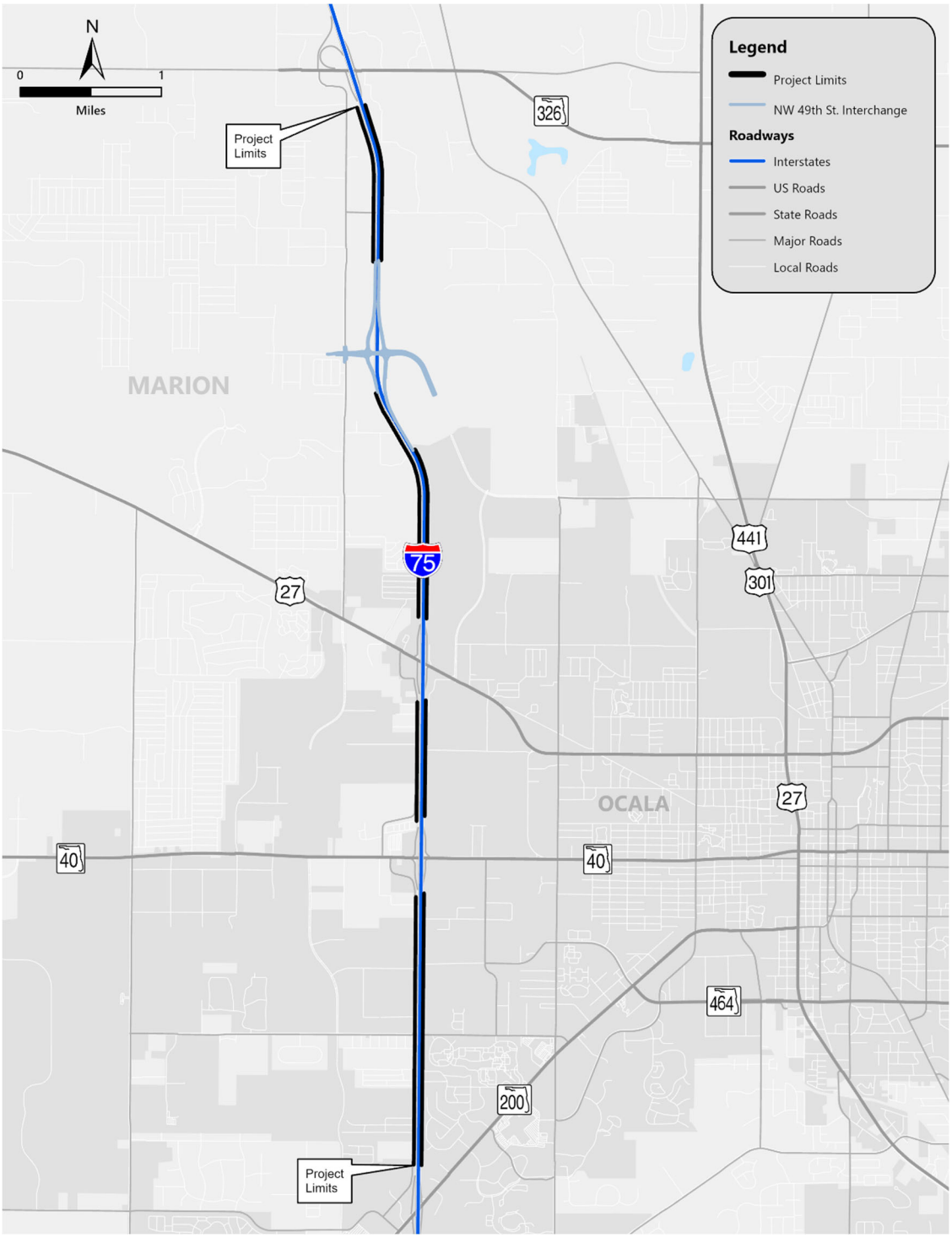
This introductory Section summarizes the PD&E study being conducted for the proposed project by defining the project, explaining why the project is needed, briefly describing the alternatives evaluation conducted, and providing a description of the Preferred Alternative.

1.1 Project Description

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for proposed operational improvements to the Interstate 75 (I-75) corridor in the City of Ocala and Marion County, Florida. These interim improvements were identified as part of Phase 1 of a master planning effort for the I-75 corridor between Florida's Turnpike (S.R. 91) and County Road (C.R.) 234. The operational improvements being evaluated by this PD&E Study include construction of auxiliary lanes between interchanges for an eight-mile segment of I-75 between State Road (S.R.) 200 and S.R. 326. Within the study limits, I-75 is an urban principal arterial interstate that runs generally in a north and south direction with a posted speed of 70 miles per hour. I-75 is part of the Florida Intrastate Highway System (FIHS), the Florida Strategic Intermodal System (SIS), and is designated by the Florida Department of Emergency Management (FDEM) as a critical link evacuation route. Within the study limits, I-75 is a six-lane limited access facility situated within approximately 300 feet of right-of-way. No transit facilities, frontage roads, or managed lanes are currently provided.

A project location map is shown in **Figure 1-1**.

Figure 1-1 | Project Location Map



1.2 Purpose & Need

1.2.1 Project Purpose

The purpose of this project is to evaluate operational improvements between existing interchanges for I-75 between S.R. 200 and S.R. 326.

1.2.2 Project Need

The primary needs for this project are to enhance current transportation safety and modal interrelationships while providing additional capacity between existing interchanges.

1.2.2.1 *Project Status*

The project is within the jurisdiction of the Ocala-Marion Transportation Planning Organization (TPO) boundaries. The Ocala-Marion TPO 2045 Long Range Transportation Plan (LRTP) includes adding auxiliary lanes to I-75 from S.R. 200 to S.R. 326. The I-75 improvements are included in the FDOT 2023-2028 Work Program and 2024-2028 Ocala-Marion TPO Transportation Improvement Program (TIP). The I-75 improvements are funded for design and right-of-way in the Department's Five-Year Work Program as part of the Moving Florida Forward Initiative. This project begins at S.R. 200, which is the northern terminus for the I-75 PD&E from South of S.R. 44 to S.R. 200, Efficient Transportation Decision-Making (ETDM) #14542.

1.2.2.2 Safety

I-75 experiences crash rates (1.85) greater than the statewide average (1.0) for similar facilities. Crash data analyzed between 2018 and 2022 indicates there was a total of 1,228 vehicle crashes between S.R. 200 and S.R. 326. Of these, 297 resulted in at least one injury and 7 resulted in a fatality. The number of crashes increased every year from 161 crashes in 2018 to 272 crashes in 2022 *(University of Florida's Signal Four crash database)*.

Based on the data, rear end collisions and sideswipes are cited as the primary types of crashes on I-75 mainline and the on/off-ramps. Contributing factors includes the closely spaced interchanges in the Ocala area that cause vehicles to "stack" in the right-hand lane with insufficient weaving distance between interchanges, weaving associated with vehicles entering and existing the I-75 mainline, and congestion at off-ramps that cause vehicles to queue from off-ramps onto the mainline.

1.2.2.3 Modal Interrelationships

Truck traffic on I-75 is substantial and accounts for over 20 percent of all daily vehicle trips within the study limits based on the FDOT, Traffic Characteristics Inventory. The segment of I-75 between U.S. 27 and S.R. 326 experiences the highest volume of trucks with more than 30 percent of the total trips made by trucks. Multiple existing and planned Intermodal Logistic Centers (ILC) and freight activity centers in Ocala contribute to the growth in truck volumes.

These facilities include the Ocala/Marion County Commerce Park (Ocala 489), Ocala 275 ILC, and the Ocala International Airport and Business Park.

The interaction between heavy freight vehicles and passenger vehicles between interchanges contributes to both operational congestion and safety concerns.

1.2.2.4 Capacity

Existing annual average daily traffic (AADT) on I-75 within the study limits ranges from 74,000 vehicles per day (vpd) to 97,500 vpd, with the highest volume of traffic occurring between S.R. 200 and S.R. 40. I-75 northbound and southbound operates at level of service (LOS) C or better during the average weekday AM and PM peak hours. The LOS target for I-75 is D. As early as 2030, the Opening Year, I-75 northbound from S.R. 200 to S.R. 40 and I-75 southbound from S.R. 326 to S.R. 40 is projected to operate at Level of Service (LOS) F in the no-build condition. By 2040, the Design Year, AADT's within the study limits is projected to range between 122,000 and 142,500, with the highest volumes of traffic continuing to occur between S.R. 200 and S.R. 40.

I-75 is a unique corridor that experiences substantial increases in traffic during holidays, peak tourism seasons, weekends, and special events and experiences frequent closures because of incidents leading to non-recurring congestion. I-75 is part of the emergency evacuation route network designated by the FDEM.

1.3 Commitments

This section will be completed after the Public Hearing.

1. FDOT will adhere to the U.S. Fish and Wildlife Service (USFWS) Standard Protection Measures for the Eastern Indigo Snake (2021) during construction and inspect potential eastern indigo snake refugia prior to construction.

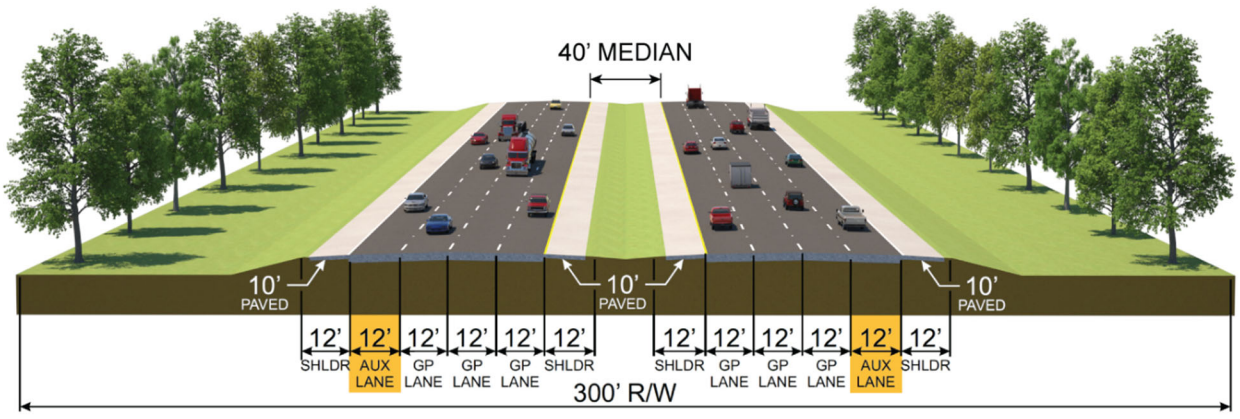
1.4 Alternatives Analysis Summary

The build alternative is based on recommendations from the *I-75 Interstate Master Plan and* proposes to add one 12-foot auxiliary lane between interchanges to the outside of the existing general-purpose lanes in each direction. The build alternative analysis included the evaluation of bridge widening concepts, bridge replacements concepts, stormwater drainage concepts and pond siting. The estimated total cost for this project is $172.1 million which includes a construction cost of $93.5 million along with estimated costs for right-of-way, utilities, design and construction, engineering, and inspection (CEI). Costs are further discussed in Sections 5.3.3. and 7.1.22.

1.5 Description of Preferred Alternative

The preferred alternative proposes to add one 12-foot wide auxiliary lane between interchanges to the outside of the existing general-purpose lanes in each direction. The auxiliary lanes will not impact the interchange bridges. To accommodate the auxiliary lanes, the existing I-75 bridge over SW 20th Street will be widened and the NW 63rd Street bridge over I-75 will be replaced. The preferred alternative typical section will be accommodated within the existing 300-foot wide roadway right-of-way and includes three 12-foot wide general purpose lanes in each direction, one 12-foot wide auxiliary lane in each direction, 12-foot wide (10-foot paved) inside and outside shoulders, and a depressed grassed median, as shown in **Figure 1-2.** The preferred alternative drainage improvements include eleven pond sites that will be constructed as dry retention systems, with full containment of the 100 year – 10 day storm due to the highly-developed nature of the corridor, and limited outfall opportunities. Additional right-of-way will be required to provide the necessary pond sites.

Figure 1-2 | Preferred Alternative Typical Section



1.6 List of Technical Documents

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

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

Table 1-1 | List of Technical Reports

Report Title	Date	Status
Project Traffic Analysis Report (PTAR)	Dec 2023	Final
Pond Siting Report (PSR)	Jan 2024	Draft
Location Hydraulics Report (LHR)	Jan 2024	Draft
Typical Section Package	Dec 2023	Draft
Utilities Technical Memorandum	Nov 2023	Draft
Level I Contamination Screening Evaluation Report (CSER)	Jan 2024	Draft
Cultural Resource Assessment Survey (CRAS)	Dec 2023	Draft
Noise Study Report (NSR)	Nov 2023	Draft
Natural Resources Evaluation (NRE)	Jan 2024	Draft
Conceptual Stage Relocation Plan (CSRP)	Jan 2024	Draft
Water Quality Impact Evaluation (WQIE)	Jan 2024	Draft
Type 2 Categorical Exclusion	Jan 2024	Draft

2.0 EXISTING CONDITIONS

The existing I-75 roadway is a limited access roadway located in the City of Ocala and Marion County, Florida. The project begins on the north side of the S.R. 200 interchange and ends on the south side of the S.R. 326 interchange. Two additional interchanges are located at S.R. 40 and U.S. 27. Six bridges are located within the project limits: I-75 over SW 20th Street, I-75 Northbound (NB) over S. R. 40, I-75 southbound (SB) over S.R. 40, I-75 NB over U.S. 27, I-75 SB over U.S. 27 and NW 63rd Street over I-75. The land surrounding I-75 is primarily zoned commercial and industrial with some vacant and agricultural lands to the north.

2.1 Previous Planning Studies

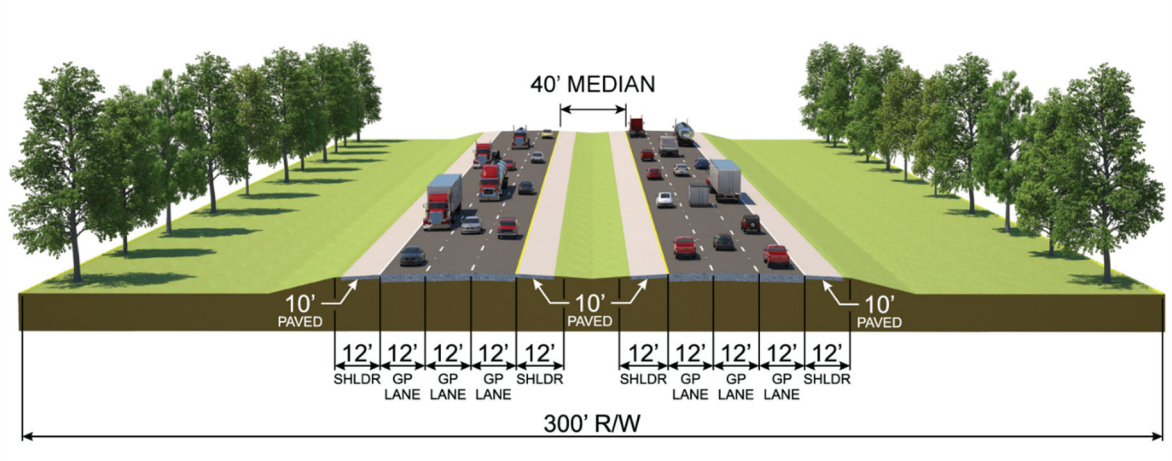
The I-75 Interstate Master Planning effort began in 2021 with the goal of creating a new long-term vision for I-75 with an implementation plan that involves phased improvements as funding and priorities allow. The I-75 Forward Interstate Master Plan study limits extend along I-75 from north of Florida's Turnpike (S.R. 91) to south of C.R. 234 near the Marion/Alachua County line. The master plan evaluated corridor needs and potential improvement strategies. Based on the traffic analysis, the master plan identified adding auxiliary lanes from north of S.R. 200 to south of S.R. 326 as a Phase 1 improvement strategy.

2.2 Existing Roadway Conditions

2.2.1 Roadway Typical Section

The existing I-75 typical section within the study limits consists of six 12-foot-wide general-purpose lanes, three in each direction, and 12-foot wide (10-foot paved) inside and outside shoulders. The southbound and northbound lanes are separated by a 40-foot-wide depressed grassed median that has double-face guardrail separating northbound and southbound traffic. Drainage swales run parallel to I-75 on the outside with high-fill sections and guardrail on bridge approaches. The existing I-75 typical section meets or exceeds the minimum American Association of State Highway and Transportation Officials (AASHTO) and FDOT criteria for lane width, shoulder width, median width, and border width. **Figure 2-1** displays the existing typical roadway section.

Figure 2-1 | Existing I-75 Roadway Typical Section – S.R. 200 to S.R. 326



2.2.2 Roadway Functional & Context Classifications

The functional classification for I-75 is an urban principal arterial interstate from S.R. 200 to S.R. 326. I-75 is part of the FIHS and the SIS. I-75 is designated as a primary hurricane evacuation route in the state by the FDEM. Context classification does not apply to limited access facilities and, therefore, does not apply to I-75.

2.2.3 Access Management Classification

The access management classification is limited access (Class I) throughout the study limits and I-75 meets all access management standards for this classification.

2.2.4 Right-of-Way

Within the project limits, the existing I-75 limited access right-of-way is typically 300 feet wide, with a maximum width of 550 feet at the interchanges per the as-built plans and survey data. The surveyed limited access right-of-way widths for I-75 throughout the project limits are shown in **Table 2-1**.

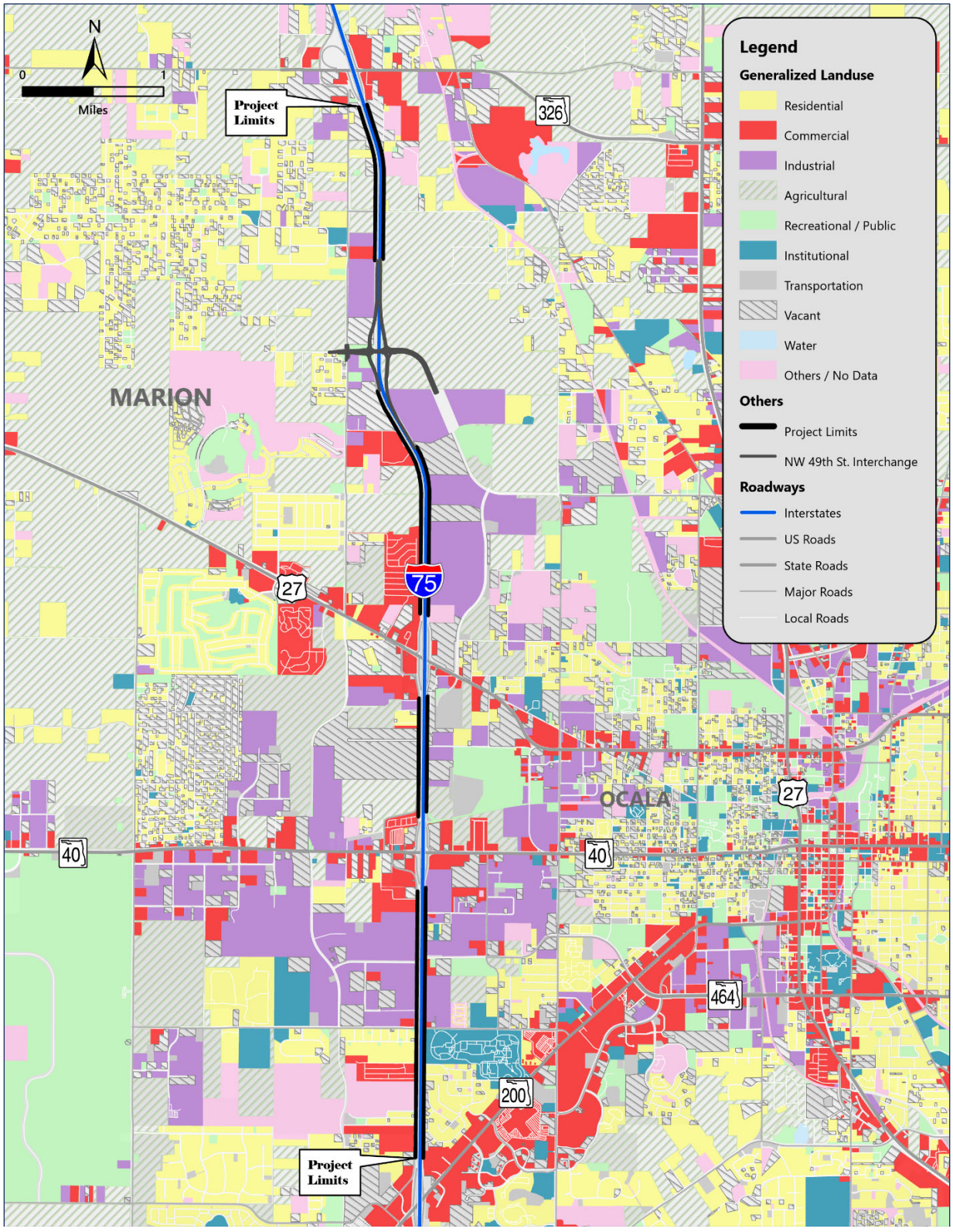
2.2.5 Adjacent Land Use

The Florida Department of Revenue (FDOR) generalized land use and Southwest Florida Water Management District (SWFWMD) and St. Johns River Water Management District (SJRWMD) Florida Land Use, Cover and Forms Classification System (FLUCCS) map and aerials were reviewed to identify the various land uses found within the I-75 corridor. The existing land uses adjacent to I-75 are predominately agricultural, commercial/retail, industrial, and residential. Within the agricultural land, there are several *farmlands of local importance*. Land uses are mapped in **Figure 2-2**.

Table 2-1 | Surveyed I-75 Limited Access Right-of-Way Widths

Baseline Survey I-75 Station Limits	Location	Right-of-Way Width (in feet)
2177+30 to 2278+11	North of S.R. 200 to S.R. 40	300
2278+11 to 2303+07	S.R. 40 Interchange	Varies (550' max)
2303+07 to 2350+45	Between S.R. 40 and U.S. 27	300
2350+45 to 2377+75	U.S. 27 Interchange	Varies (500' max)
2377+75 to 2450+97	Between U.S. 27 and NW 63rd Street	300
2450+97 to 2459+62		336
2459+62 to 2485+96		315
2485+96 to 2489+96		310
2489+96 to 2533+64		300
2535+40 to 2574+33	NW 63rd Street to south of S.R. 326	300

Figure 2-2 | Existing Land Use



2.2.6 Pavement Type and Condition

The I-75 corridor in this area is classified as FC5M, or friction course 5, which is asphaltic concrete. Pavement condition is measured on a scale of Good to Fair to Poor based on an annual survey of the state highway system to measure the presence of cracks and ruts on the roadway as well as overall ride quality. According to the FDOT Flexible Pavement Design Manual Table 7.1, a "Good" crack rating means no cracking, a "Fair" crack rating has cracks rated 8 or higher, and a "Poor" crack rating is for a 7 or less. Crack ratings that are at or below 6.4 are considered deficient. The Ride and Crack Ratings from the 2023 Pavement Conditions Survey are summarized in **Table 2-2.** The results show that I-75 between S.R. 200 and U.S. 27 is nearing the crack deficiency level for the southbound direction.

Table 2-2 | I-75 Pavement Conditions

Limits	Begin Milepost	End Milepost	Side	Crack Rating	Ride Rating
S.R. 200 to North of U.S. 27	13.991	18.482	Right	7.5	8.5
			Left	6.5	8.4
North of U.S. 27 to Marion/Alachua County Line	18.482	38.282	Right	9.0	8.6
			Left	9.0	8.6

Right = I-75 Northbound

Left = I-75 Southbound

2.2.7 Existing Design and Posted Speed

The existing design speed of the I-75 corridor is 70 mph according to the 1993 as-built plans (interstate widening from four to six lanes). The existing posted speed for the I-75 corridor is 70 mph, which complies with the design speed criteria for a rural and urban limited access SIS facility per the Florida Design Manual (FDM) Table 201.4.1.

2.2.8 Horizontal Alignment

Existing horizontal alignment data was surveyed in September 2022 and is displayed on the concept plans as the Baseline of Survey I-75 (**Appendix A**). There are three horizontal curves within the study limits as summarized in **Table 2-3**.

All three horizontal curves meet the minimum curve length and superelevation requirements for a 70 mph design speed set forth in FDM Table 211.7.1 and Table 210.9.1, respectively.

Table 2-3 | Surveyed I-75 Horizontal Alignment

Location	Curve Name	PC Station	PT Station	Length	Radius	e
North of U.S. 27	I75-3	2424+70.35	2442+41.92	1,771.57'	3,278.11'	6.5%
South of NW 49th Street	I75-6	2459+64.01	2477+41.67	1,777.66'	3,274.13'	6.5%
South of S.R. 326	I75-9	2548+08.81	2560+13.29*	1,204.48'	3,819.83'	5.5%

PC = Point of Curvature
PT = Point of Tangency
e = superelevation
**Location of Station Equation – Sta. 2560+13.29 back = Sta. 2558+76.64 ahead*

2.2.9 Vertical Profile

The existing vertical alignment of I-75 was obtained through a combination of Lidar data and vertical geometry data provided in the as-built plans. This data was verified using the survey information received in December 2023 and is presented in **Table 2-4**.

Table 2-4 | Vertical Curves

Curve	Location	Type	Curve Length (feet)	Grade In	Grade Out	K-Value	Meets Criteria Y/N	Deficient Element
1	S.R. 200 Bridge	Crest (WI)	1,808	+3.00%	-3.00%	302	N	K-Value
2	N. of S.R. 200 Bridge	Sag	550	-3.00%	+0.52 %	157	N	Curve Length & K-Value
3	Between S.R. 200 and SW 20th St	Crest (OH)	700	+0.52%	0.09%	1140	N	Curve Length
4	S. of SW 20th St	Sag	500	-0.09%	+2.98 %	163	N	Curve Length & K-Value
5	Over SW 20th St	Crest (OH)	1,800	+2.98%	-2.93%	305	N	K-Value
6	N. of SW 20th St	Sag	500	-2.93%	-0.16%	162	N	Curve Length & K-Value
7	Between SW 20th St and S.R. 40	Sag	500*	-0.16%	-0.90%	673	N	Curve Length

Curve	Location	Type	Curve Length (feet)	Grade In	Grade Out	K-Value	Meets Criteria Y/N	Deficient Element
8	Between SW 20th St and S.R. 40	Crest (OH)	700*	-0.90%	+1.41 %	303	*N*	Curve Length & K-Value
9	Between SW 20th St and S.R. 40	Sag	800*	+1.41%	+0.06 %	589	Y	
10	Between SW 20th St and S.R. 40	Sag	500*	+0.06%	+2.29 %	223	N	Curve Length & K-Value
11	Over S.R. 40	Crest (WI)	1400	+2.00%	-3.00%	280	N	Curve Length & K-Value
12	Between S.R. 40 and U.S. 27	Sag	500*	-3.00%	+0.22 %	156	N	Curve Length & K-Value
13	Between S.R. 40 and U.S. 27	Sag	400*	+0.22%	+2.38 %	185	N	Curve Length & K-Value
14	Over U.S. 27	Crest (WI)	1500	+2.38%	-2.60%	301	N	Curve Length & K-Value
15	Between U.S. 27 and S.R. 326	Sag	500*	-2.60%	+0.02 %	191	N	Curve Length & K-Value
16	Between U.S. 27 and S.R. 326	Sag	500*	+0.30%	+1.10 %	621	N	Curve Length
17	Between U.S. 27 and S.R. 326	Crest (OH)	500*	+1.10%	-0.05%	434	N	Curve Length
18	Between U.S. 27 and S.R. 326	Sag	500*	-0.05%	+0.42 %	1060	N	Curve Length
19	Over S.R. 326	Crest (WI)	1450	+2.80%	-2.40%	279	N	Curve Length & K-Value

** Curve Data obtained by approximation of as-built profile using Lidar data.*

The existing vertical alignment of I-75 was evaluated to determine if the existing facility meets current design standards for vertical curvature with a design speed of 70 mph. The FDOT Design Manual (FDM) requires a maximum grade of 3 percent, and all existing vertical curves meet this criterion. The FDM requires a minimum vertical curve length of 800 feet for a sag, 1,000 feet for a crest (open highway - OH), and 1,800 feet for a crest (within interchange - WI). Out of the nineteen identified vertical curves, only three curves (Curves 1, 5 and 9) meet the criteria for vertical curve length. The FDM requires interstates to have a minimum K value of 206 for sag curves, 506 for new reconstruction crest curves and 312 for resurfacing crest curves. Only curves 3, 7, 9, 16, 17 and 18 meet the criteria for K value.

2.2.10 Multimodal Facilities

There are no existing bus or transit routes or paratransit services that utilize I-75 between S.R. 200 and S.R. 326 for daily operations. The City of Ocala SunTran fixed-route transit service has one route that crosses I-75 along S.R. 200, known as the Orange Route.

Truck traffic on I-75 is substantial and accounts for over 20 percent of all daily vehicle trips within the study limits based on the FDOT, Traffic Characteristics Inventory. The segment of I-75 between U.S. 27 and S.R. 326 experiences the highest volume of trucks with more than 30 percent of the total trips made by trucks. Multiple existing and planned Intermodal Logistic Centers (ILC) and freight activity centers in Ocala contribute to the growth in truck volumes. These facilities include the Ocala/Marion County Commerce Park (Ocala 489), Ocala 275 ILC, and the Ocala International Airport and Business Park.

2.2.11 Intersections

The focus of this project is the I-75 mainline; however, all the roadways that cross I-75 within the study limits are described here for continuity.

I-75 crosses four roadways within the project limits. The project limits extend from north of the S.R. 200 and south of the S.R. 326 interchanges; however, because of their proximity, these interchanges are described in this section as well. The typical section features of the six crossroads are summarized in **Table 2-5**.

Table 2-5 | Crossroad Typical Section Features

Crossroad	Number of Lanes	Divided or Undivided	Shoulder Treatment	Sidewalks	Bike Lanes
S.R. 200	6	Divided	Curb and Gutter	Provided on both sides	Provided on both sides
SW 20th Street	2	Undivided under I-75 and to the east; Divided to the west	Flush shoulder under I-75 and to the east; Curb and Gutter to the west	None under I-75 and to the east; Provided on both sides to the west	Provided on flush shoulder under I-75 and to the east; Not provided to the west
S.R. 40	4	Divided	Curb and Gutter	Provided on both sides	Not provided
U.S. 27 (S.R. 500)	4	Divided	Curb and Gutter	Provided on both sides	Provided on both sides
NW 63rd Street	2	Undivided	Flush Shoulder	Not provided	Not provided
S.R. 326	4	Divided	Curb and Gutter	Provided on south side	Not provided

The configuration and roadway classifications of each of these crossroads is summarized in **Table 2-6.**

Table 2-6 | Crossroad Classifications

Crossroad	Configuration	Functional Classification[1]	Context Classification	Access Management Classification	SIS[1]
S.R. 200	Interchange	Urban Principal Arterial	C3C	Class 3	No
SW 20th Street	Mainline Overpass	Collector	C3R	N/A	No
S.R. 40	Interchange	Urban Principal Arterial	CSC	Class 5	No
U.S. 27 (S.R. 500)	Interchange	Urban Principal Arterial	CSC	Class 5	Yes
NW 63rd Street	Crossroad Overpass	Local Road	C2T	N/A	No
S.R. 326	Interchange	Urban Principal Arterial	C2T	Class 3	Yes[1]

[1] *Roadway classification information of State Roads and U.S. Routes was obtained from the roadway's straight line diagram. All other roadway classification information was determined using the descriptions provided in FDM 200.*

The specific configurations of the interchanges are summarized as follows.

S.R. 200 Interchange:

- Three continuous through lanes along S.R. 200 in each direction
- Single exclusive left-turn lanes onto the I-75 on-ramps
- Single channelized right-turn lane onto the northbound or southbound I-75 on-ramps
- The northbound off-ramp approach consists of a single left-turn lane and a channelized right-turn lane under signal control
- The southbound off-ramp approach consists of dual left-turn lanes and dual channelized right-turn lanes under signal control

S.R. 40 Interchange:

- Two continuous through lanes along S.R. 40 in each direction
- Single left-turn lane from the arterial to both I-75 on-ramps
- Single exclusive right-turn lane onto both I-75 on-ramps
- Both the westbound and eastbound right-turn lanes are channelized with yield-control
- Both the off-ramp approaches consist of single shared left-turn and a yield-controlled channelized right-turn lane

U.S. 27 Interchange:

- Two continuous through lanes along U.S. 27 in each direction
- Single left-turn lane from the arterial to both I-75 on-ramps
- Single exclusive right-turn lane onto both I-75 on-ramps
- The northbound off-ramp approach consists of dual left-turn lanes and dual channelized right-turn lanes under signal control
- The southbound off-ramp approach consists of a single shared left-turn and a yield-controlled channelized right-turn lane

S.R. 326 Interchange:

- Two continuous through lanes along S.R. 326 in each direction
- Single left-turn lane from the arterial to the I-75 northbound on-ramp
- A free-flow right-turn lane from the arterial to the southbound loop on-ramp
- Single shared eastbound through/right-turn lane onto the I-75 southbound on-ramp

2.2.12 Physical or Operational Restrictions

There are no physical or operational restrictions within the project limits.

2.2.13 Traffic Data

Data was gathered from the telemetered count station in the study limit vicinity (Site 269904) for 2019 to review Average Daily Traffic (ADT) trends over the course of the year. The following summarizes the ADT peaking throughout the year and how that compares to the AADT observed at the station:

- Annual Average Daily Traffic (AADT) is approximately 71,000
- Peaking is observed around Spring Break (March to April) – approximately 113,000 ADT (~59% increase)
- Peaking is observed around the Thanksgiving and Winter Holidays (Christmas and New Years) – approximately 119,000 ADT (~68% increase)
- The peaking observed occurs primarily on the weekend as well as Fridays for long holiday weekends.
- I-75 northbound and southbound operates at level of service (LOS) C or better during the average weekday AM and PM peak hours.

I-75 is a unique corridor that experiences substantial increases in traffic during holidays, peak tourism seasons, weekends, and special events and experiences frequent closures because of incidents leading to non-recurring congestion.

2.2.14 Operational Conditions

As part of the *Project Traffic Analysis Report*, an existing conditions analysis was conducted. The existing conditions analysis evaluated typical recurring congestion patterns, the occurrence of nonrecurring congestion, and historical safety data in the study area. The results of the analysis included:

- The Highway Capacity Manual (HCM) Freeway Facilities analysis showed that on an average weekday, there is not recurring congestion along I-75 in each of the AM and PM peak periods. The analysis also showed acceptable operations along I-75 for the average weekend midday peak period.
- An evaluation of 2019 data obtained from the National Performance Management Research Data Set (NPMRDS) confirmed the findings of the HCM freeway analysis that the corridor congestion along I-75 is not a recurring congestion issue.

- The weekday Level of Travel Time Reliability (LoTTR) charts show that the corridor is reliable during the AM, midday, and PM peak periods in both directions.
- An evaluation of 2019 NPMRDS data showed that the weekend travel times in both directions are not as reliable as the weekdays. The spatial heat maps, which visualize travel time data over a calendar year, show breakdowns along the I-75 corridor for special event weekends such as Spring Break, July 4th, Thanksgiving, Christmas, and New Year's.
- The LoTTR charts show that the corridor is reliable in the northbound direction during the weekends. The southbound LoTTR charts show that the data indicates the corridor is nearing unreliable conditions on the weekends.

Traffic operational analyses were conducted for the freeway mainline No-Build conditions using HCM 7th Edition methodologies as implemented by Highway Capacity Software (HCS2023). The analysis results indicated the following:

- Northbound I-75
  - Opening Year (2030): Additional capacity will be needed from south of the S.R. 40 interchange (beginning of the study limits) to the U.S. 27 interchange. Congestion (defined as speeds lower than 30 mph) is expected to be present between the southern study limits and through the S.R. 40 interchange during the 2030 average weekend midday peak period. This is due to expected bottlenecks at the S.R. 40 interchange. The northbound travel time is expected to increase by up to 2.2 minutes (approximately a 28% increase) versus the 2019 existing condition.
  - Design Year (2040): Additional capacity will be needed from south of the S.R. 40 interchange (beginning of the study limits) through north of the S.R. 326 interchange (end of the study limits). The additional capacity is expected to be needed to accommodate average weekday AM, weekday PM, and weekend midday peak period traffic in 2040. Severe congestion (defined as speeds lower than 25 mph) is expected to be present between the southern study limits through the S.R. 40 interchange. This is due to expected bottlenecks at the S.R. 40 interchange. The northbound travel time is expected to increase by up to 4.1 minutes (approximately a 52% increase) versus the 2019 existing condition.
- Southbound I-75
  - Opening Year (2030): Additional capacity will be needed between the US 27 interchange through south of the S.R. 40 interchange (end of the study limits). The additional capacity is expected to be needed to accommodate average weekday PM peak period traffic in 2030. Severe congestion (defined as speeds

lower than 25 mph) is expected to be present from the S.R. 40 interchange through the S.R. 326 interchange during the 2030 PM peak period. The southbound travel time is expected to increase by up to 10.9 minutes (approximately a 136% increase) versus the 2019 existing condition.

- Design Year (2040): Additional capacity will be needed between north of S.R. 326 (beginning of the study limits) through south of the S.R. 40 interchange (end of the study limits). The additional capacity is expected to be needed to accommodate average weekday AM, weekday PM, and weekend midday peak period traffic in 2040. Severe congestion (defined as speeds lower than 20 mph) is expected to be present from north of S.R. 326 (beginning of the study limits) through the S.R. 40 interchange. The northbound travel time is expected to increase by up to 18.9 minutes (approximately a 236% increase) versus the 2019 existing condition.

2.2.15 Managed Lanes

There are no managed lanes on I-75 within the project study limits.

2.2.16 Crash Data and Safety Analysis

Crash records were obtained from the University of Florida's Signal Four (S4) crash database for I-75 and associated interchanges within the Area of Impact (AOI). The safety analysis was performed for the most recent five years of crash data (January 1, 2018 – December 31, 2022). Supplemental crash data from January 1, 2023, to March 31, 2023, were also analyzed to verify crash trends and patterns. A detailed crash analysis is provided in the *Project Traffic Analysis Report*.

2.2.16.1 I-75 Northbound Crash Statistics

Figure 2-3 displays a summary of crash frequency by year along with their respective severity for the study period along I-75 northbound. There was a total of 602 reported crashes during this period, 171 of which (28 percent) resulted in 341 injuries. Six fatal crashes were observed along I-75 northbound, which resulted in seven fatalities. There were 24 crashes in the first three months of 2023 when the crash data was obtained.

Figure 2-3 | Historical Crashes per Year – I-75 Northbound

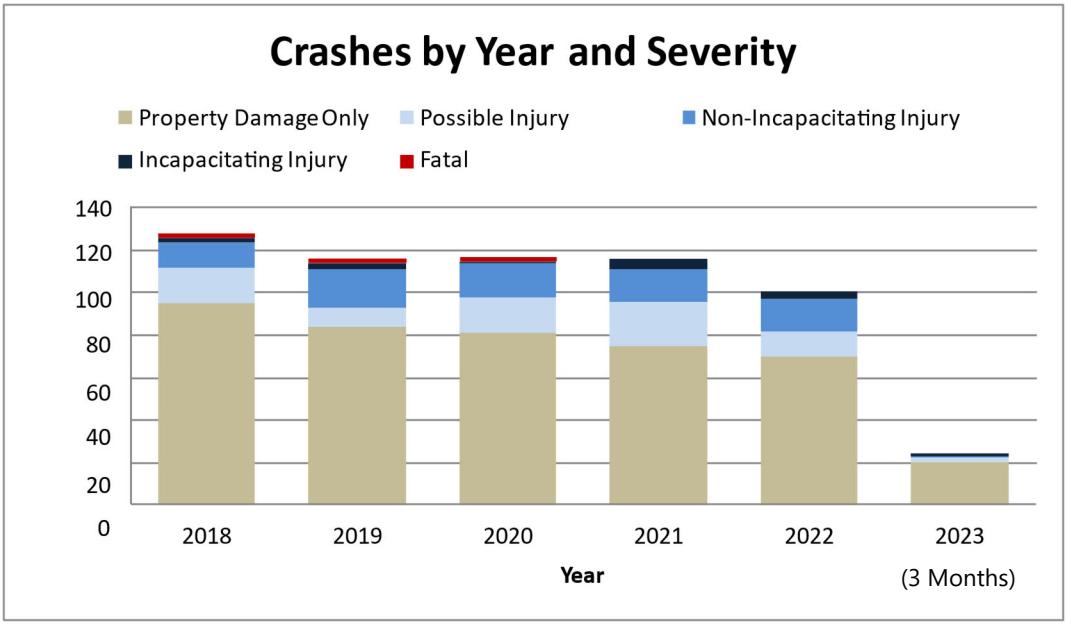
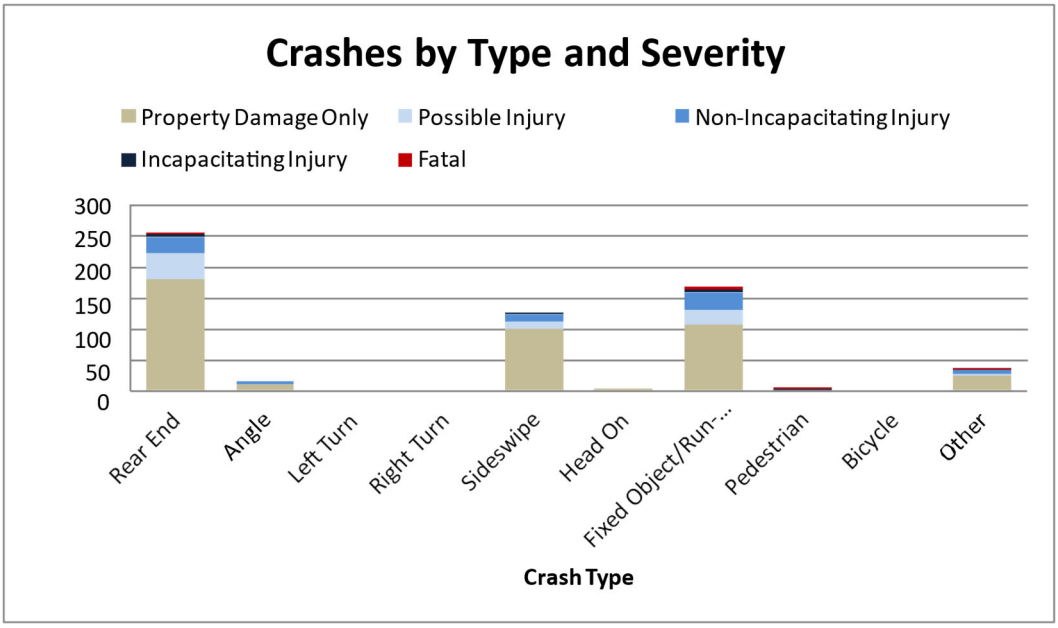


Figure 2-4 displays the crashes along I-75 northbound by type and severity for the study period. The highest crash type observed was rear end, comprising 43 percent of the total crashes. Fixed object/run-off road (28 percent) and sideswipe (21 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 77 percent of the injury crashes.

Figure 2-4 | Historical Crashes by Type and Severity – I-75 Northbound



2.2.16.2 I-75 Southbound Crash Statistics

Figure 2-5 displays a summary of crash frequency by year along with their respective severity for the study period along I-75 southbound. There was a total of 662 reported crashes, 170 of which (26 percent) resulted in 380 injuries. Four fatal crashes were observed along I-75 southbound, which resulted in five fatalities. The crashes per year along the corridor ranged between 135 and 151 crashes pre-COVID (2018-2019), but an approximate 44 percent reduction in crashes was observed in 2020 (80 crashes) largely due to the travel restrictions during COVID. Post-COVID crash frequency increased in 2021 (126 crashes) and in 2022 (127 crashes). There were 43 crashes in the first three months of 2023 when the crash data was obtained.

Figure 2-5 | Historical Crashes per Year – I-75 Southbound

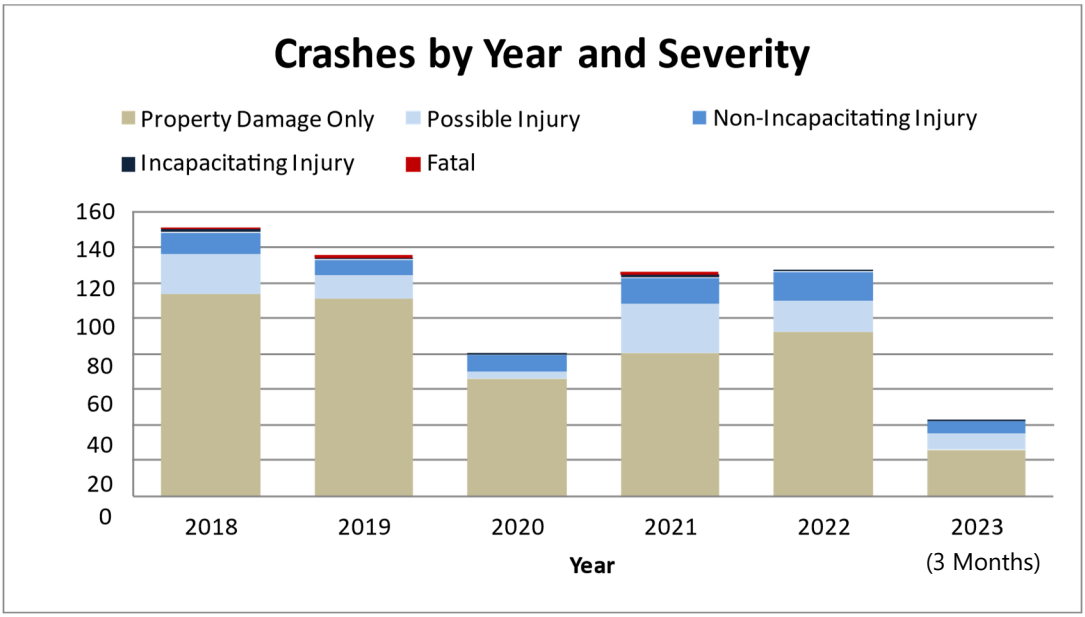
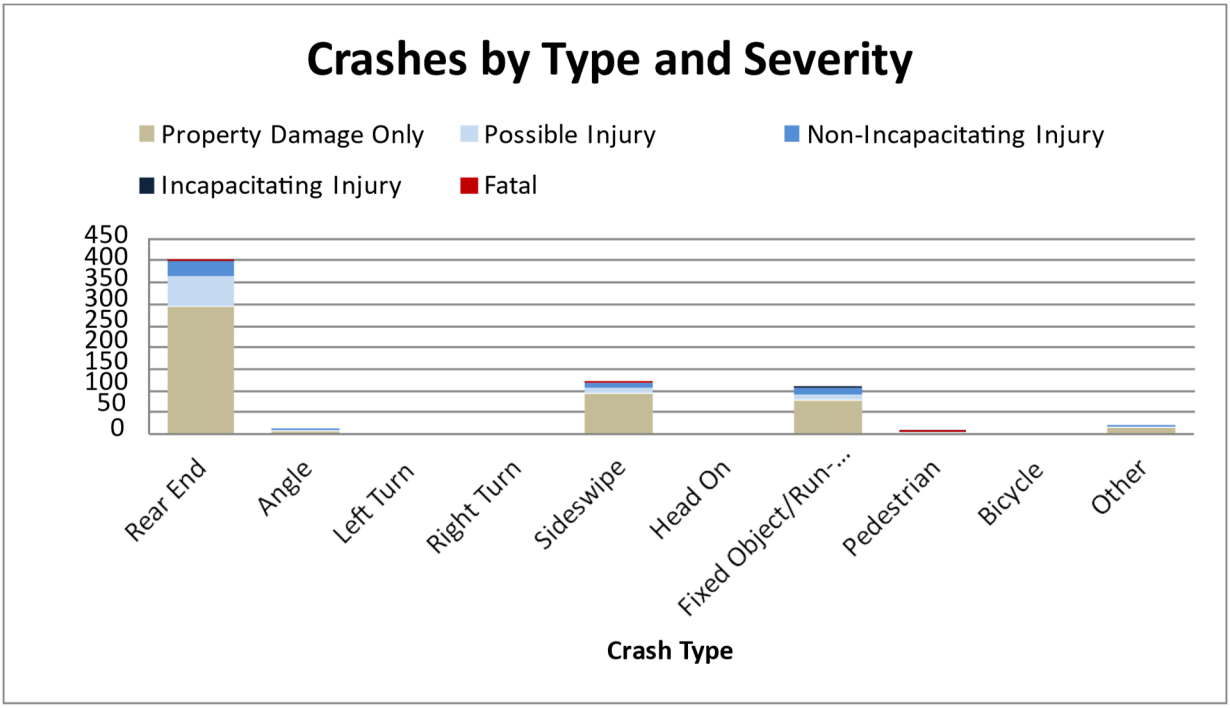


Figure 2-6 displays the crashes along I-75 southbound by type and severity for the study period. The highest crash type observed was rear end, comprising 60 percent of the total crashes. Sideswipe (18 percent) and fixed object/run-off road (17 percent) were the second and third highest crash types. Rear end and fixed object/run-off road were the highest injury crash types, accounting for 80 percent of the injury crashes.

Figure 2-6 | Historical Crashes Type and Severity – I-75 Southbound



2.2.16.3 Contributing Factors

For the I-75 mainline, rear end was the highest crash type for both I-75 northbound and southbound. Sideswipe and fixed object/run-off road were either the second or third highest crash type. Potential contributing factors relating to these crash types are discussed below:

- Rear End and Sideswipe
  - Reoccurring congestion related to AM and PM peak hour traffic volumes;
  - Non-reoccurring congestion related to crashes, disabled vehicles, etc.;
  - Abrupt speed changes and slow-downs related to the vertical curves from the bridges over S.R. 40, U.S. 27 and S.R. 326;
  - Near merge/diverge areas where vehicles traveling at different speeds are interacting.
- Fixed Object/Run-Off Road
  - Inadequate roadway lighting between interchanges;
  - Unexpected horizontal curves along long straight mainline segments causing disruption to driver expectations;
  - Vehicles traveling at high speeds not being able to recover within the paved/grass shoulder; and
  - Obstructions near the roadside (light poles) and no roadside guardrail.

2.2.16.4 Safety Analysis Summary

I-75 experiences crash rates (1.85) greater than the statewide average (1.0) for similar facilities. The safety data showed a total of 602 reported crashes along I-75 northbound during this period, 171 of which (28 percent) resulted in 341 injuries. Six fatal crashes were observed along I-75 northbound, which resulted in seven fatalities. The highest crash type observed was rear end, comprising 43 percent of the total crashes. Fixed object/run-off road (28 percent) and sideswipe (21 percent) were the second and third highest crash types. Rear end and fixed object/run-off road accounted for 77 percent of the injury crashes.

A total of 662 reported crashes were observed along I-75 southbound, 170 of which (26 percent) resulted in 380 injuries. Four fatal crashes were observed along I-75 southbound, which resulted in five fatalities. The highest crash type observed was rear end, comprising 60 percent of the total crashes. Sideswipe (18 percent) and fixed object/run- off road (17 percent) were the second and third highest crash types. Rear end and fixed object/run-off road were the highest injury crash types, accounting for 80 percent of the injury crashes.

Contributing factors includes the closely spaced interchanges in the Ocala area that cause vehicles to "stack" in the right-hand lane with insufficient weaving distance between interchanges, weaving associated with vehicles entering and existing the I-75 mainline, and congestion at off-ramps that cause vehicles to queue from off-ramps onto the mainline.

2.2.17 Railroad Crossings

There are no existing railroads within 1,000 feet of I-75 between S.R. 200 and S.R. 326 for daily operations.

2.2.18 Drainage

There are 15 basins delineated within the project corridor between S.R. 200 and S.R. 326. Basins are closed basins, and drainage conveyance within the corridor is a mix of open and closed conveyance, with cross-drains and median drains directing runoff to a series of linear treatment swales and/or infield ponds within the project corridor. There are no reported flooding problems within the corridor.

In Marion County, the I-75 corridor represents the boundary between two water management districts. The portion of the study area west of I-75 falls within the Southwest Florida Water Management District (SWFWMD) jurisdiction and the portion of the study area east of I-75 fall within the SJRWMD jurisdiction. By agreement, all FDOT District 5 improvements to I 75 will be permitted by the SJRWMD even though some preferred pond sites may overlay the SWFMWD boundary.

The project encompasses various permits within its defined limits, and **Table 2-7** provides a summary of these permits. The stormwater management plan involves multiple permitted facilities, such as retention/detention ditch systems with ditch blocks, infield ponds, and off-site ponds. Notably, the design of the retention/detention ditch systems ensures a capacity beyond the mandated volume for effective water retention. In accordance with the existing roadway profile and cross drains, the project is subdivided into fifteen drainage basins.

Table 2-7 | Permits within the Project Limits

Agency	Permit No	Basin Within Permit Limits
SJRWMD	19680-2	N/A (ITS Installation)
SJRWMD	19680-3	N/A (ITS Installation)
SJRWMD	19680-4	4-5
SJRWMD	19683-2	1
SJRWMD	19683-3	1
SJRWMD	26796-1	16
SJRWMD	26683-1	7-8

ITS = Intelligent Transportation Systems

The project area is located within the Ocklawaha Watershed and lies within the Silver River Drain (WBID 2772B). This watershed is not listed as impaired. While there is a Best Management Action Plan (BMAP) for Silver Springs, there are no direct discharges within the project limits, thus there are no supplementary treatment measures anticipated for the project.

The project area is located within the Sensitive Karst Area (SKA). All basins have been designed with dry ponds, adhering to the guidelines specified by the Water Management District (WMD). Analysis of historical and permit data indicates the predominance of deep groundwater conditions throughout most of the corridor, however geotechnical field exploration will be key for the project to ensure ponds are designed to accommodate any isolated areas of shallow limestone.

2.2.19 Lighting

Within the study limits, there are conventional light poles located along the outside shoulder on both the north and south side of I-75. Conventional lighting is also present along the on/off ramps associated with the S.R. 200, S.R. 40, and U.S. 27 interchanges. High mast lighting exists at the S.R. 326 interchange. FDOT is maintaining agency for the lighting provided along I-75 and the interchange ramps within the project limits.

2.2.20 Utilities

A *Utilities Technical Memorandum* was prepared and is in the project file. The existing utilities within the project area were identified through the Sunshine State 811 "IRTH One Call" system.

Utility owners were contacted to gather information regarding the nature of their facilities within the project limits. The utility owners identified to date are listed in **Table 2-8.**

Table 2-8 | Existing Utilities

Utility Type	Utility Owner
Telephone	Windstream Communication
Telephone	AT&T Distribution
Gas	Florida Gas Transmission
Gas, Natural Gas	TECO Peoples Gas
Sewer, Water	City Of Ocala Water And Sewer Department
Sewer, Water	Marion County Utilities
CATV	Cox Cable
Electric	Ocala Electric Utility
Electric	Clay Electric
Electric **(Distribution & Transmission)**	Duke Energy
Fiber	City Of Ocala Telecommunication
Fiber	Duke Energy
Fiber	Uniti Fiber LLC
Fiber, Telephone	Century Link
Fiber, Electric	Traffic Control Devices, Inc.
Communication Lines, Fiber	AT&T Corp.

2.2.21 Soils and Geotechnical Data

The project limits are shown on an excerpt of the United States Geological Survey (USGS) Ocala West (1991) and Reddick (1988), Florida Quadrangle maps (see **Appendix B**). According to the Quadrangle maps, a quarry pit is depicted along the east side of the roadway corridor, approximately 0.3 miles south of the I-75 and NW 49th Street intersection. Additionally, a historical railway line is shown on the USGS Quadrangle map crossing the project alignment, approximately 0.2 miles north of the future I-75 and NW 49th Street interchange.

2.2.21.1 Soils

The Natural Resources Conservation Service (NRCS) Soil Survey of Marion County was reviewed to obtain near-surface soils information along the project alignment. The NRCS Soil Survey soil types within the project limits are summarized in **Table 2-9**. Detailed soil maps are contained in **Appendix B**.

Table 2-9 | Project Soil Types

Soil Number	Soil Name
2	Adamsville, 0 to 5 percent slopes
9	Arredondo sand, 0 to 5 percent slopes
11	Pedro-Arredondo complex, 0 to 5 percent slopes
17	Blichton sand, 2 to 5 percent slopes
22	Candler sand, 0 to 5 percent slopes
35	Gainesville loamy sand, 0 to 5 percent slopes
37	Hague sand, 2 to 5 percent slopes
38	Hague sand, 5 to 8 percent slopes
43	Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes
44	Kendrick loamy sand, 0 to 5 percent slopes
50	Micanopy fine sand, 2 to 5 percent slopes
65	Sparr fine sand, 0 to 5 percent slopes
69	Tavares sand, 0 to 5 percent

The NRCS soil survey map generally depicts fine sands with varying silt content fines (A-3, A-2-4) along the roadway alignment. The NRCS estimates seasonal high groundwater levels from the ground surface to greater than 6 feet below the natural ground surface.

The NRCS soil survey indicates shallow groundwater, clay, limestone boulders and cemented sand are present along the project corridor.

Information contained in the NRCS Soil Survey is very general and may be outdated. It may not therefore be reflective of actual soil and groundwater conditions, particularly if recent development in the site vicinity has modified soil conditions or surface/subsurface drainage.

The NRCS seasonal high groundwater levels (**Appendix B**) do not account for changes in groundwater due to development and are only relevant for the natural, undisturbed condition of the soils.

2.2.21.2 Regional Geology

Based on review of the USGS Map entitled "Recharge and Discharge Areas of the Floridan Aquifer in the St. Johns River Water Management District and Vicinity, Florida," 1984, the project alignment lies in an area of high recharge and, therefore, the relative risk of sinkhole formation is high compared to the overall risk across Central Florida. Numerous sinkholes have been

documented throughout the alignment, and historical aerial photographs reveal I-75 crosses several relic sinkhole formations.

2.2.21.3 Potentiometric Surface

Artesian groundwater conditions can be predicted based on comparison of the Floridan aquifer potentiometric surface and ground surface elevations. According to the September 2019 FDEP Map, "Potentiometric Surface of the Upper Floridan Aquifer", the potentiometric surface of the Floridan Aquifer in the vicinity of the project alignment, is approximately +50 feet NGVD. According to the USGS Quadrangle Map, ground surface elevations at the project site range from approximately +70 to +95 feet NGVD. Since the existing ground surface elevations at the site are higher than the predicted potentiometric surface, artesian flow conditions are not anticipated at the site. However, artesian flow conditions are possible if excavations penetrate the Upper Florida Aquifer confining layer soils.

In addition to consulting the sources of information previously discussed for regional and site-specific soils data, subsurface exploration was conducted to evaluate soil and groundwater conditions along the roadway alignment. The subsurface exploration is detailed in the *Preliminary Geotechnical Data Report*.

2.2.22 Aesthetics Features

I-75 within the study limits has existing landscaping at multiple locations along the corridor within the FDOT right-of-way, primarily at the interchange infield areas. Existing landscaping can be seen at the interchanges with S.R. 200, S.R 40, U.S. 27, and S.R. 326. These areas consist primarily of planted palms, crepe myrtles, and/or natural vegetation. Planted palms and crepe myrtles are also evident immediately north and south of the SW 20th Street overpass. No wildflowers areas currently exist within the study limits.

2.2.23 Traffic Signs

Signing along I-75 within the project study limits consists primarily of standard ground mounted regulatory signage (e.g., speed limit) and standard ground mounted wayfinding signage at each interchange. These signs appear in good condition and have been maintained. There are seven overhead cantilever sign structures within the study limits as summarized in **Table 2-10.**

Table 2-10 | Overhead Sign Structures

Station	Side	Exit Number	Sign Information
2179+30	Left	350	S.R. 200 Hernando Dunnellon
2271+37	Right	352	S.R. 40 Ocala Silver Springs
2309+64	Right	352	S.R. 40 Ocala Silver Springs
2327+39	Left	352	S.R. 40 Ocala Silver Springs
2343+39	Left	354	U.S. 27 Ocala Williston
2385+03	Right	354	U.S. 27 Ocala Williston
2431+38	Left	354	U.S. 27 Ocala Silver Springs

2.2.24 Noise Walls and Perimeter Walls

There are no existing no noise walls or perimeter walls within the study limits.

2.2.25 Intelligent Transportation Systems/Transportation System Management and Operations Features

I-75 is part of District Five's Integrated Corridor Management System. Currently, there are transportation sensor systems throughout the corridor that transmit to the regional transportation management center. The I-75 Florida Regional Advanced Mobility Elements (I-FRAME) project is complete and uses connected vehicle (CV) technologies to disseminate real-time information to motorists during freeway emergencies and incidents on I-75 and to reroute traffic to U.S. 301/441 using east to west arterials, such as U.S. 27, S.R. 200, and S.R. 40. It includes Automated Traffic Signal Performance Measures; roadside units and on-board units; transit signal priority; pedestrian safety elements; and adding fiber optic cable on U.S. 301/441 gaps to better manage, operate, and maintain the multimodal system and create an integrated corridor management solution.

There are two dynamic message signs within the project limits – one for southbound traffic north of U.S. 27 and another for northbound traffic south of S.R. 326.

2.3 Existing Bridge Conditions

The existing structures along I-75 from S.R. 200 to S.R. 326 include six bridges. **Table 2-11** summarizes the existing bridges located within the project limits including route carried, facility crossed, year originally constructed, and year of widening or rehabilitation, if applicable.

Table 2-11 | Existing Bridges Summary

Bridge No.	Route Carried	Facility Crossed	Year Built	Year Modified
360064	I-75	SW 20th St.	1996	----
360018	I-75 SB	S.R. 40	1964	1995
360920	I-75 NB	S.R. 40	1964	1995
360022	I-75 SB	U.S. 27	1964	2000
360023	I-75 NB	U.S. 27	1964	2000
360049	NW 63rd St.	I-75	1964	----

The existing bridges have been evaluated in accordance with 2023 FDOT and AASHTO criteria. The evaluation of the existing bridges includes an assessment of characteristics such as bridge width, bridge lengths, type of bridge (prestressed concrete beam, steel girder, etc.), vertical and horizontal clearances, and load posting information. The evaluation also includes a condition assessment from the latest bridge inspection reports involving items such as National Bridge Institute (NBI) overall conditions, Health Index, and Sufficiency Ratings.

The "Health Index" is a tool that measures the overall condition of a bridge. The Health Index typically includes 10 to 12 different elements that are evaluated by the Department. A lower Health Index means that more work would be required to improve the bridge to an acceptable condition. A Health Index below 85.0 generally indicates that some repairs are needed; however, it does not necessarily mean the bridge is unsafe. A low Health Index may also indicate that it would be more economical to replace the bridge than to repair it.

The "Sufficiency Rating" is a tool that is used to help determine whether a bridge that is structurally deficient or functionally obsolete should be repaired or replaced. The Sufficiency Rating considers several factors, only about half of which relate to the condition of the bridge itself. A Sufficiency Rating below 80.0 generally indicates that a rehabilitation may be required while a rating below 50.0 indicates that the bridge is eligible for replacement.

The term "Structurally Deficient" used in the table below means that there are significant load carrying elements, specifically the deck, superstructure, and substructure, that were rated in poor or worse condition (a code of 4 or less) during the last inspection. The term "Functionally Obsolete" means that a bridge does not meet the current design standards for traffic operations.

Table 2-12 summarizes the existing bridge health data within the project limits. Key health information on the existing bridges within the project limits per the latest inspection reports are:

- The Health Index of all bridges is 94.53 or better.
- The Sufficiency Rating of all the bridges is 84.0 or better.
- None of the bridges have been designated as Structurally Deficient.
- Four bridges are considered Functionally Obsolete.

Table 2-12 | Existing Bridges Health Data

Bridge No.	Health Index	Sufficiency Rating	Functionally Obsolete	Structurally Deficient	NBI Deck	NBI Super.	NBI Sub.
360064	98.9	84.0	N	N	7-G	7-G	7-G
360018	96.3	90.1	Y	N	7-G	7-G	7-G
360920	95.6	90.1	Y	N	7-G	7-G	7-G
360022	98.0	87.8	Y	N	7-G	6-S	7-G
360023	94.5	89.7	Y	N	7-G	7-G	7-G
360049	96.5	86.2	N	N	7-G	7-G	7-G

Abbreviations: Super. = Superstructure, Sub. = Substructure, 7-G = 7 Good, 6-S = 6 Satisfactory

The four bridges being reported as Functionally Obsolete (360018, 360920, 360022 and 360023) per the latest bridge inspection reports were all marked with an appraisal rating of 3 for Item 69 – Underclearances. Per the FHWA Recording and Coding Guide (1995), a score of 3 on Item 69 – Underclearances, which refers to either horizontal or vertical clearances, states that a bridge is "basically intolerable requiring high priority of corrective action". Per the guidance of FHWA (https://www.fhwa.dot.gov/bridge/0650dsup.cfm), an appraisal rating of 3 or less for deck geometry, underclearances, approach roadway alignment, structural evaluation, or waterway adequacy would designate a bridge as Functionally Obsolete.

The FHWA Recording and Coding Guide provides minimum vertical and lateral underclearance requirements per Tables 3A and 3B. The FDM defines more stringent vertical clearances in Table 260.6.1 – Minimum Vertical Clearances for Bridges as well as lateral offset criteria in Table 215.4.2. The four bridges designated as Functionally Obsolete are all bridges carrying I-75 over an arterial or collector roadway and would be required per the FDM to have a minimum vertical clearance of 14.5 feet for a Resurfacing, Restoration, and Rehabilitation (RRR) project, 16.5 feet for new bridges, or 16.0 feet for construction affecting existing bridges. All four bridges have vertical clearances exceeding 14.5 feet as seen in **Table 2-13** with bridge 360022 having a controlling minimum vertical clearance of 14.9 feet.

Reviewing the remaining bridges against the FDM for vertical clearances shows that bridge 360049, which carries NW 63rd St over I-75, does not meet minimum FDM criteria with a minimum vertical clearance of 15.9 feet however it does exceed the 15 feet requirement of the

Coding Guide and, therefore, not labeled as Functionally Obsolete. Since I-75 is considered a Limited Access Roadway, Bridge 360049 would be required to have a clearance of 16.0 feet for RRR projects and 16.5 feet or 16.0 feet for new construction projects. Bridge 360049 does not appear to have any low clearance signs or markings per Google Earth images taken in 2023.

The four bridges designated as Functionally Obsolete all have minimum lateral underclearances (horizontal clearance) of 5 feet or less per the bridge inspection reports. Per Table 3B of the FHWA Recording and Coding Guide, other principle and minor arterial 2-way traffic roadways should, at a minimum, have a 1.8 meter (5.9 feet) minimum lateral clearance to score a 4 for Item 69 – Underclearances. Due to the lateral clearance provided, these four bridges were rated at a 3 thus making them Functionally Obsolete per FHWA criteria.

Pier protection in the form of Jersey shape traffic barriers or W-beam guardrails are used along the corridor for all six of the existing bridges. Where Jersey shape barriers are used to protect arterial and collector roadways with design speeds of less than or equal to 45 mph, no setback distance is required per FDM Table 215.4.2. The NW 63rd Street Bridge 360049 traversing I-75 does not provide any setback distance along the outside shoulders where concrete barriers are used and, therefore, does not meet the 1.5-foot setback requirements for concrete barriers on roadways with design speeds greater than 45 mph. For the I-75 median bent protection on bridge 360049, the 5-foot setback distance for W-beam guardrails (possibly TL-3 based on post spacing) appears to be utilized along the inside shoulders judging by 2023 Google Earth images. Per FDM Figure 215.4.5 and Structures Design Guide (SDG) 2.6.3, the use of W-beam guardrails no longer meets the criteria for pier protection along roadways with Design Speeds exceeding 35 mph. Based on the flowchart, a 56-inch Pier Protection Barrier (PPB) should be utilized due to offset requirements if the bridge were to remain under a new project.

All bridges were built using prestressed concrete beams; either AASHTO Type II, Type III, Type IV, or a combination of Type II and Type III beams. Where material properties are not explicitly stated in the plans, bridges should be evaluated using concrete and reinforcing strengths as shown in Table 6A.5.2.1-1 – Minimum Strength of Concrete by Year of Construction and Table 6A.5.2.2-1 – Yield Strength of Reinforcing Steel of the FDOT Bridge Load Rating Manual. Prestressing strength will be derived from Table 6A.5.2.3-1 – Tensile Strength of Prestressing Strand from the AASHTO Manual for Bridge Evaluation.

With the exception of bridge 360064, the existing typical section of the I-75 mainline bridges consist of three 12-foot wide lanes with 10-foot wide inside and outside shoulders (**Figure 2-7**). Bridge 360064 carries both northbound and southbound I-75 over SW 20th Street and consists of three 12-foot wide lanes in each direction, 10-foot wide outside shoulders and 19-foot wide

inside shoulders separated by a 2-foot wide median barrier (**Figure 2-8**). The existing typical section of the crossroad bridge 360049 carrying NW 63rd St. over I-75 consist of one 12-foot wide lane in each direction with 2-foot wide outside shoulders (**Figure 2-9**).

Figure 2-7 | Existing Bridge Typical Section – I-75 over S.R. 40 (360018 or 360920) or U.S. 27 (360022 or 360023)

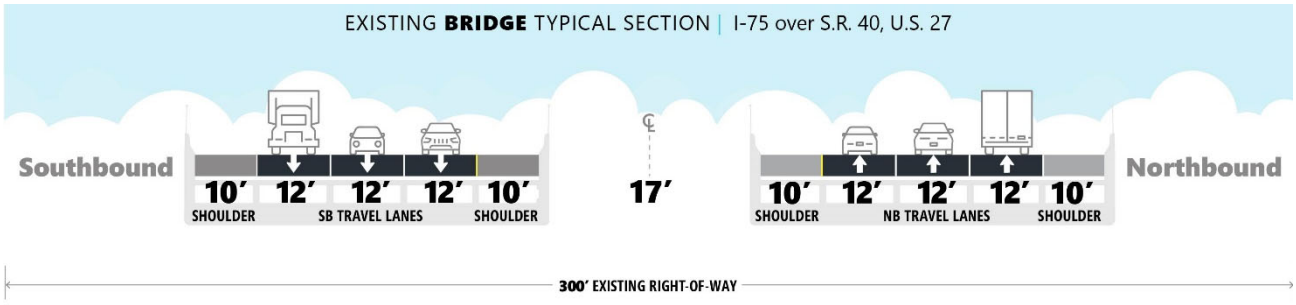


Figure 2-8 | Existing Bridge Typical Section – I-75 over SW 20th Street (360064)

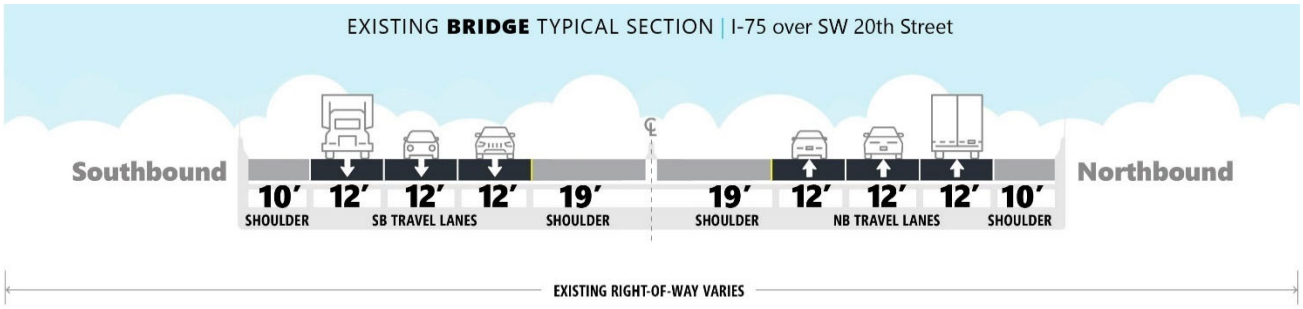
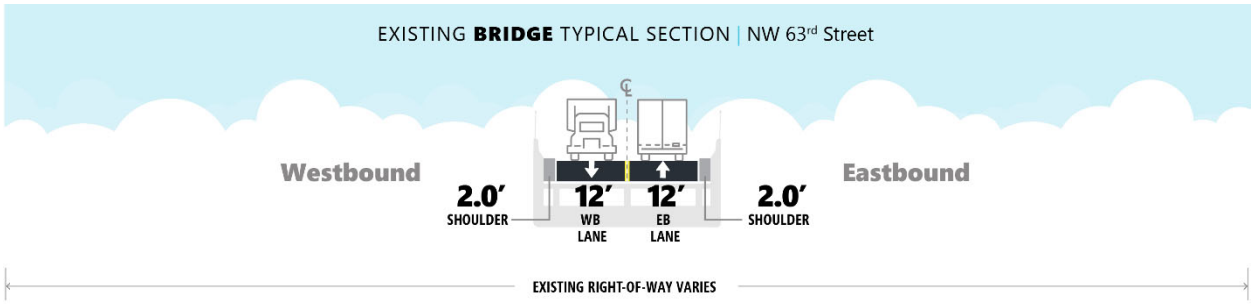


Figure 2-9 | Existing Bridge Typical Section – NW 63rd St. over I-75 (360049)



Further bridge geometric information can be found in **Table 2-13** including structure width and length, number of spans, and max span length in addition to the bridge clearances. All information except for the bridge clearances were compiled from existing plans while the clearances were taken from the latest bridge inspection reports.

Table 2-13 | Existing Bridges Geometry Characteristics

Bridge No.	Structure Length (ft)	Structure Width (ft)	Number of Spans	Max Span (ft)	Horiz. Clear. (ft)	Vert. Clear. (ft)
360064	100.4	135.1	1	100.4	28.0	16.1
360018	193.5	59.1	3	78.5	**5.0**	16.3
360920	193.5	59.1	3	78.5	**5.0**	16.0
360022	190.0	59.1	4	53.0	**3.4**	14.9
360023	190.0	59.1	4	53.0	**3.4**	15.5
360049	215.0	34.2	4	69.5	10.0	**15.9 ***

*Note: Minimum clearances shown in **BOLD** do not meet FDOT or AASHTO requirements. Minimum vertical clearances denoted by an asterisk (*) signify a roadway bridge over a Limited Access Roadway (I-75). See FDM Table 260.6.1 for minimum vertical clearance requirements.*

Current FDOT Bridge Load Rating procedures for rehabilitation or widening of existing bridges as defined by Chapter 2 of the FDOT Load Rating Manual requires a Load Resistance Factor Rating factor exceeding 1.0 for HL-93 Inventory and FL120 Permit loads, which is a Load Rating of 36 tons and 60 tons respectively. Alternatively, for Load Factor Rating (LFR) ratings, HS20 – Inventory ratings must exceed 1.0, or 36 tons, and HS20 – Operating ratings must exceed 1.67, or 60 tons. Per FDOT Structures Design Guidelines 7.1.1.A, if any LFR inventory rating factors remain less than 1.0, replacement or strengthening is required unless a Design Variation is approved.

The bridges that exist within the project limits were all rated using the LFR methodology between 1999 and 2000. Of these, four bridges had LFR Inventory ratings of less than 36 tons with bridges 360018 and 360920 rating at 35.9 tons each and bridges 360022 and 360023 rating at 34.6 tons each. These same four bridges do not have LFR Operating factors greater than 60 tons with bridges 360018 and 360920 rating at 59.9 tons and bridges 360022 and 360023 rating at 57.7 tons.

Per the bridge inspection reports, all bridges rate at or above 1.0 for the seven Florida Legal Loads vehicles and as such do not require posting. Since the time that these bridges were load rated, two Emergency Vehicles have been added to the rating procedure. All but bridge 360049 either carries interstate traffic or is State-owned and is located within one mile driving distance of an interstate interchange and would thus require to be additionally rated with these two new Emergency Vehicles.

For a review of the existing bridge load rating summaries per the latest bridge inspection reports see **Table 2-14**. Inventory and Operating ratings are reported in tons and must be divided by 36 tons to achieve an LFR rating factor.

No soil boring information was obtained for bridge assessment purposes of this report. The existing soil boring information at the bridge sites can be found in the existing bridge plans.

None of the bridges existing within the project limits are located over a waterway; therefore, channel and ship impact data are not required. Furthermore, none of the bridges have been assigned as eligible for historical significance as shown in their respective bridge inspection reports. Per FDM 121.3, all bridges fall in the Category 1 Structures classification and as such a refined bridge security evaluation is not required per FDM 121.9.6. Per Section 3.2.3.4.2 of the FDOT PD&E manual, existing wildlife crossings should be identified and evaluated, however none exist, nor are any proposed, within the project limits.

Table 2-14 | Existing Bridges Load Rating and Posting

Bridge No.	Original Design Load	Load Rating Design Vehicle	Load Rating Procedure Used	Inventory Rating (tons)	Operating Rating (tons)	Load Rating Date
360064	HS20+mod	HS20	LFR	53.0	85.3	01/26/2000
360018	HS20+mod	HS20	LFR	35.9	59.9	01/21/2000
360920	HS20+mod	HS20	LFR	35.9	59.9	01/21/2000
360022	HS20+mod	HS20	LFR	34.6	57.7	01/21/2000
360023	HS20+mod	HS20	LFR	34.6	57.7	01/21/2000
360049	H20	HS20	LFR	41.1	67.0	11/23/1999

Abbreviations: LFR = Load Factor Rating, LT = Load Testing, HS20+mod = Standard HS20 plus the inclusion of the Alterative Military Load (Interstate Load)

2.4 Existing Environmental Features

An environmental resources review was performed as part of the PD&E Study to identify resources early in the process to avoid fatal flaws and to consider sensitive environmental resources during the development and evaluation of alternatives. The environmental resources review is summarized in this Section. Additionally, the Efficient Transportation Decision Making (ETDM) Programming Screen Summary Report for this project (ETDM project number 14542) was consulted.

The following resources are not present in the project area and are therefore not discussed: aquatic preserves, recreational resources, coastal barrier resources, essential fish habitat, wild and scenic rivers, and railroads.

2.4.1 Social and Economic

The Environmental Screening Tool (EST) Sociocultural Data Report (SDR) (Clipping) was used to identify demographic data in the project area. The SDR uses the Census 2017 - 2021 American

Community Survey (ACS) data and reflects the approximation of the population based on the portion of a quarter-mile project buffer area (project area) intersecting the census block groups along the project corridor.

The SDR identified 331 households with a population of 964 people. The median household income is $46,750 for the study area compared to $50,808 in Marion County. Approximately 12.39% of the households are below poverty level compared to 13.41% in Marion County. Within the project area, 3.32% of households receive public assistance, compared to 2.42% in Marion County. A further review of the US Environmental Protection Agency (USEPA) EJSCREEN Mapping Tool identified census tracts with 6% to 39% of the population below poverty level. The census tracts with higher percentages are located on the east side of I-75 from U.S. 27 to S.R. 326 which is also an Opportunity Zone explained further under the Economic topic.

The project area has a higher than county average minority population. The project area has 40.35% minority population, compared to 31.14% in Marion County. The project area is also lower in age than the county. In the project area, the median age is 37 and persons age 65 and over comprise 19.92% of the population. In Marion County, the median age is 48.3 and persons age 65 and over comprise 28.47% of the populations. There are 60 people in the project area (13.45%) between the ages of 20 and 64 who have a disability, which is a similar percentage to the county at 12.68%.

Table 2-15 provides a summary comparison of demographics for the project area and Marion County.

Table 2-15 | Demographic Characteristics

Geography	Median Household Income	Below Poverty	Minority	Avg. Median Age	With Disability
Study Area	$46,750	12.39%	40.35%	37	13.45%
Marion County	$50,808	13.41%	31.14%	48.3	12.68%

Source: ACS 2019 5-Year Estimates

2.4.2 Cultural Resources

The project archaeological Area of Potential Effect (APE) was defined to include the existing right-of-way where improvements are proposed. The architectural history APE included the existing right-of-way and was extended to the back or side property lines of parcels adjacent to the right-of-way or a distance of no more than 100 meters (328 feet) from the right-of-way line at the I-75 interchanges with S.R. 326, Northwest Blitchton Road, and West Silver Springs Boulevard. As all improvements outside of the interchanges will be ground surface level and

should not introduce any significant changes to the viewshed, no buffer was utilized for sections of corridor outside of the interchanges.

The archaeological survey consisted of the excavation of 262 shovel tests within the APE, 33 of which contained artifacts. Additionally, 345 no-dig points were recorded where disturbances and subsurface conditions (e.g., steep roadway berms, buried utilities, drainage features) precluded shovel testing. Five new archaeological sites (8MR04470–8MR04474) and three archaeological occurrences were recorded as a result of the survey.

The architectural survey resulted in the identification and evaluation of 31 historic resources, including four previously recorded resources and 27 newly recorded resources. The previously recorded historic resources include two linear resources (8MR03271 and 8MR03403) and two buildings (8MR03847 and 8MR04312). The 27 newly recorded historic resources include 24 buildings (8MR04437–8MR04460) and three resource groups (8MR04466–8MR04468).

Further information on cultural resources is contained in the *Cultural Resources Assessment Survey*, located in the project file.

2.4.3 Wetlands and Other Surface Water

According to the USFWS National Wetlands Inventory (NWI), there are 0.23 acres of wetlands within the right-of-way. **Table 2-16** summarizes the NWI mapping within the right-of-way. The total acreage of each classification is also provided. One additional wetland area was identified within the project area, consisting of a small (<0.5 acre) isolated herbaceous wetland located within the right-of-way of northbound I-75 north of S.R. 40. The wetland is located in a depressional area along the right-of-way fence line and consists primarily of grasses with an edge of Carolina willow.

There are no mapped NWI wetlands within the preferred ponds sites.

Table 2-16 | National Wetlands Inventory Mapping of Mainline Study Area

NWI Code	Description	Acreage in Mainline Study Area
PUB	Palustrine, Freshwater Pond, Unconsolidated Bottom	0.05
RUB	Riverine, Unconsolidated Bottom	0.18
	Total Acres in **Mainline Study Area**	**0.23**

2.4.4 Floodplains

The project limits are located within Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panels listed in **Table 2-17** below. FEMA floodplains are present throughout the corridor. Zone A and Zone AE floodplains are located adjacent to the corridor throughout the project limits, with several floodplains that traverse the roadway. There are no FEMA regulatory floodways within the project limits. Floodplain maps are shown in **Appendix C**.

Table 2-17 | FEMA FIRM Panels

FEMA Map Number	County	Map Revision Date
12083C0314E	Marion	4/19/2017
12083C0502E	Marion	4/19/2017
12083C0506E	Marion	4/19/2017
12083C0508E	Marion	4/19/2017
12083C0516E	Marion	4/19/2017
12083C0518E	Marion	4/19/2017

2.4.5 Protected Species and Habitats

Federal listed and protected species and state-listed wildlife were reviewed for their potential to occur within the study area. Nine federally listed species and one candidate species potentially occur within the study area including four birds (Florida scrub-jay, red-cockaded woodpecker, Eastern black rail, and wood stork), one reptile (Eastern indigo snake), one insect (monarch butterfly) and three plants (longspurred mint, scrub buckwheat and Lewton's polygala). Nine state listed wildlife could potentially occur within the study area including five birds (Florida sandhill crane, Florida burrowing owl, little blue heron, tricolored heron, and southeastern American kestrel), and four reptiles/amphibians (gopher tortoise, short-tailed snake, striped newt, and Florida pine snake). In addition, 15 state listed plants could potentially occur within the study area. No federal or state listed species were observed during preliminary field surveys, except for gopher tortoise burrows observed within the right-of-way and two of the preferred pond sites. Additionally, the project area does not contain designated critical habitat.

The USFWS has de-listed the bald eagle; however, protection continues under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) (BGEPA), as amended, and the Migratory Bird Treaty Act (MBTA). Construction activities are restricted within 330 feet of active nest trees and the USFWS Eagle Management Guidelines are required if construction occurs within 660 feet of an active eagle nest during the nesting season (October 1 through May 15). The closest documented bald eagle nest (MR190) is approximately 2.8 miles to the southeast of the project area.

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

2.4.6 Contamination Sites

A Level I contamination screening evaluation was conducted for the project in accordance with Part 2, Chapter 20 (revised July 1, 2023) of the FDOT PD&E Manual. A preliminary evaluation of the study area was conducted to evaluate potential contamination from properties or operations located within the vicinity of the study area. Potentially contaminated sites within a 500-foot buffer from the right-of-way line were identified and evaluated. Contaminants include petroleum products, dry-cleaning solvents, and other regulated and/or hazardous materials. Non-landfill solid waste facilities were evaluated within 1,000 feet and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), National Priorities List (NPL) Superfund sites and landfills were evaluated within ½-mile.

Forty-five (45) potential contamination sites were identified within the buffer area along the I-75 mainline (**Figure 2-10**). The potential level of impacts with respect to the project area was evaluated and the sites were assigned no, low, medium, and high risk ratings. Of the 45 potentially contamination sites, seven were assigned as high risk, 10 were assigned as medium risk, 26 were assigned as low risk and two were assigned as no risk.

Seven (7) additional known or potentially contaminated sites were identified near or within an alternative pond site boundary (**Figure 2-11**). Of the seven potentially contaminated sites, one was assigned as high risk, one was assigned as medium risk, four were assigned as low risk, and one was assigned as no risk.

Further information on potential contamination sites is contained in the *Contamination Screening Evaluation Report*, located in the project file.

2.4.7 Noise

Several noise-sensitive land uses exist within the study corridor. FHWA Noise Abatement Criteria (NAC) categorizes land uses into activity categories that have similar sensitivity levels. Most noise-sensitive land uses within the study corridor fall under Activity Category B - Residential. The Activity Category C land uses within the study corridor pertain to recreation areas within the Ocala RV Camp Resort, Oaktree Village, and the Sweetwater Oaks. The Activity Category E land uses within the study corridor include several motels with on-site resources consisting of swimming pools, a mini-golf course, and ball courts. The remainder of the corridor consists of Activity Category G - Undeveloped land that are not permitted.

The *Noise Study Report*, located in the project file, documented a total of 165 properties for which the existing land use has a FHWA/FDOT established NAC. The 165 properties are comprised of 427 residences (Activity Category B), three special land use (Activity Category C) receptors, and five special land use (Activity Category E) receptors.

Figure 2-10 | Potential Contamination Sites

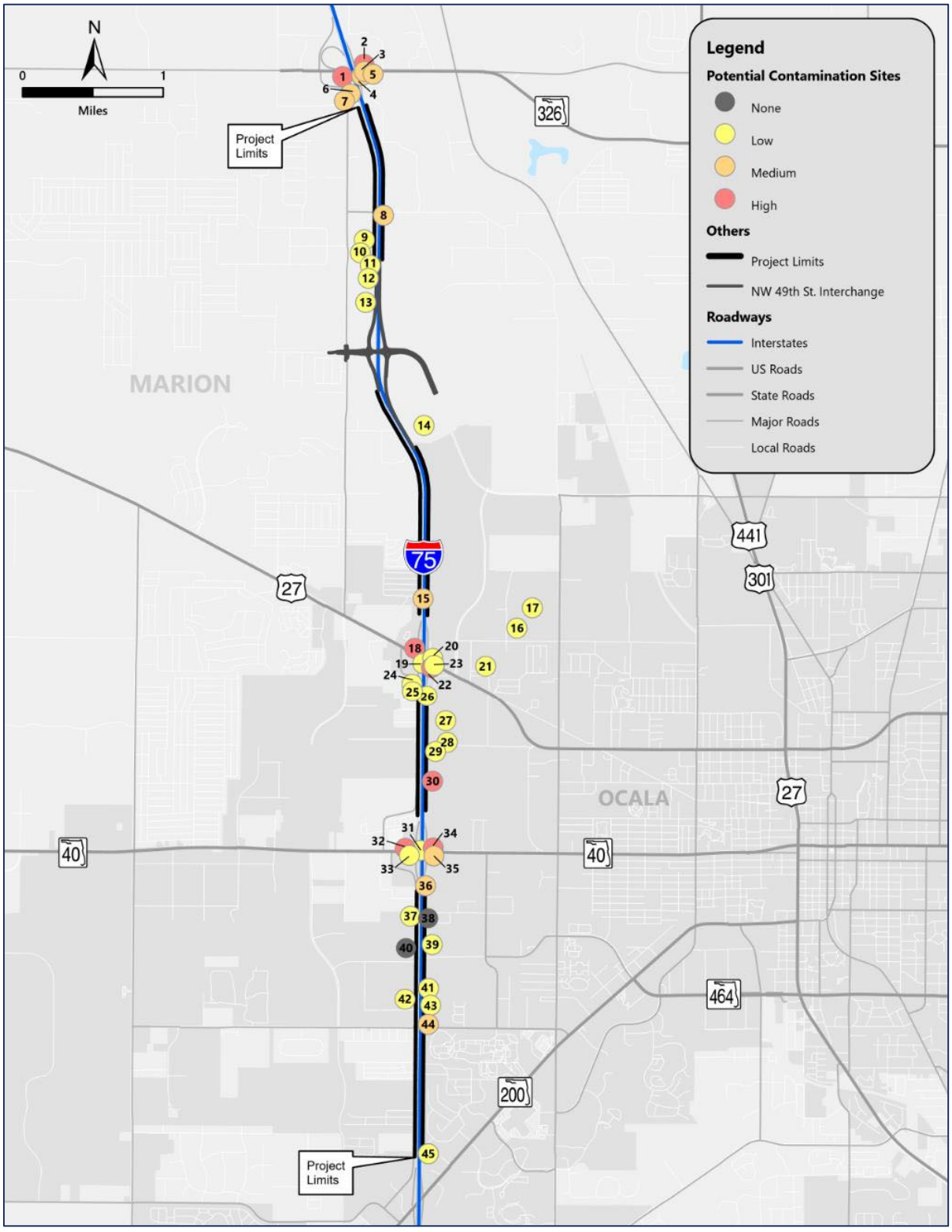
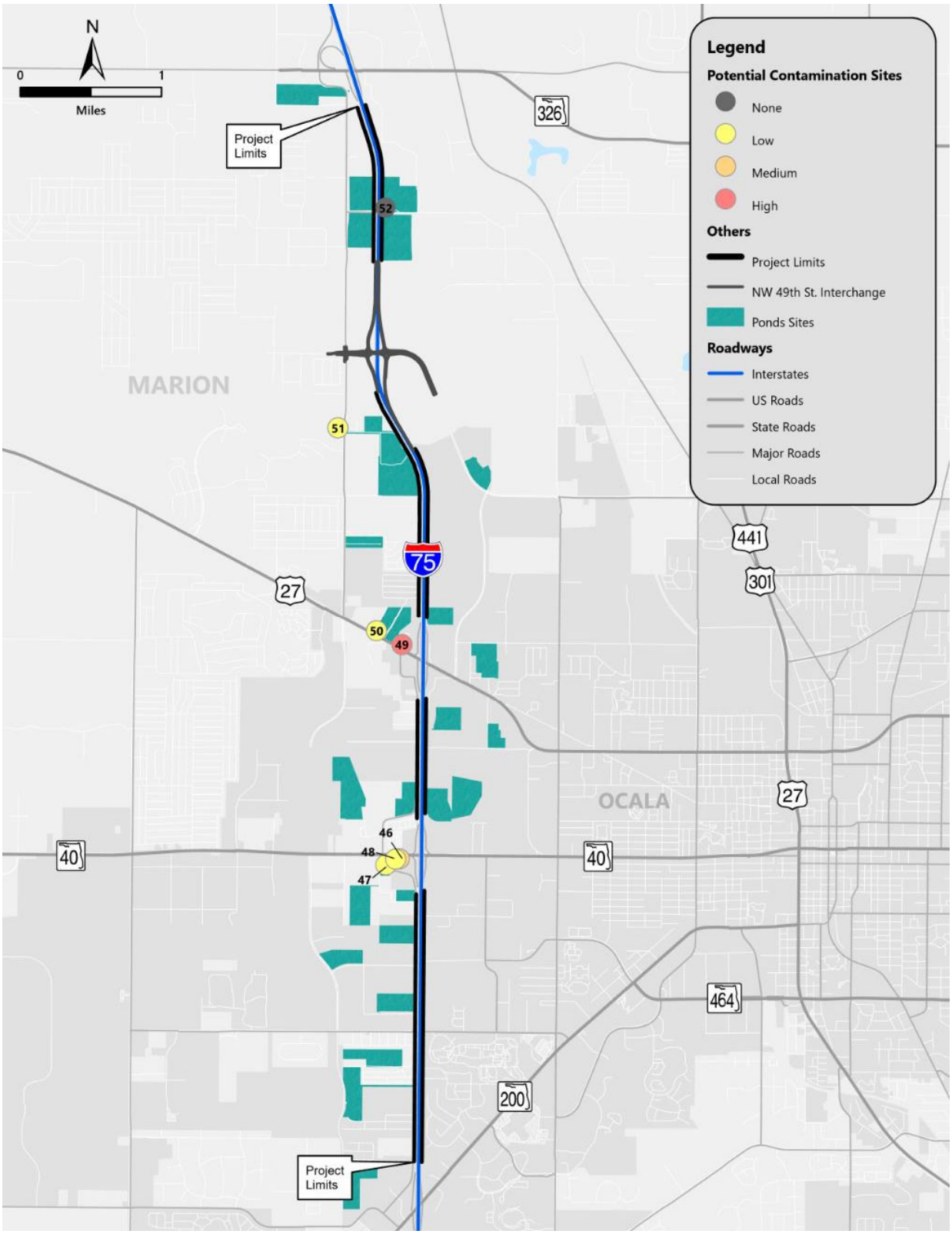


Figure 2-11 | Potential Contamination Sites – Alternative Pond Sites



3.0 FUTURE CONDITIONS

This Section provides information about the future conditions, including how future demand volumes and design traffic were developed. The *Project Traffic Analysis Report (PTAR)* and Interchange Access Request documents should be consulted for more detailed technical analysis.

3.1 Future Traffic Considerations

To support the design year traffic analysis and forecasts, a future year (2045) subarea model was developed based on the TSM 2045 scenario. Two future model scenarios, No Build and Build, were developed.

Reviews of network geometry were conducted along the I-75 study corridor for the future year. Network modifications made for the model base year (2015) were applied in the model future year (2045) scenarios. The 2045 TSM included two new interchanges along I-75 at SW 95th Street and at NW 49th Street. A review of the FDOT Five Year Work Program (2020-2025) indicated that there is no current funding for the proposed interchange at I-75/SW 95th Street. Per discussions with FDOT District 5 and the Project Teams, it was decided to remove the interchange of I-75 and SW 95th Street from the 2045 TSM.

Development of project traffic volumes involved the following:

- The volume projections from the previously completed I-75 Master Plan were used in the PTAR to support the ongoing auxiliary lane PD&E.
- Recommended growth rates were determined based on a comprehensive evaluation of historic, University of Florida's Bureau of Business and Economic Research (BEBR), and model growth rates. Generally, the model growth per year was applied to the existing year counts. The determination between model slope and model growth rate was made based on the impacts each has on the future AADT. Due to differences in the magnitude of existing AADT versus the base year AADT in the model, use of the model growth rate or model slope may result in an unrealistically low or high future year AADT projection. These AADT projections using both methods were reviewed prior to selecting one approach over another. For instances where the model growth and slope result in unreasonable AADT projections, the historical growth rates were considered and used.

- Design Year design-hour turning movement volumes were developed for three peak hour scenarios (i.e., AM, PM, and weekend midday). Standard K and D factors were applied to the Design Year AADTs to estimate Directional Design Hour Volumes (DDHVs). A methodology that follows the iterative, growth-factoring procedures described in the NCHRP Report 765, which is a method consistent with the acceptable tools described in FDOT's Project Traffic Forecasting Handbook (2019), was used to convert future segment DDHVs into intersection turning movement volumes for the year 2050 AM, PM, and weekend midday peak hours in the approved Master Plan. Year 2030 and year 2040 peak hour volumes were developed based on an interpolation of year 2019 existing and year 2050 Master Plan volumes.

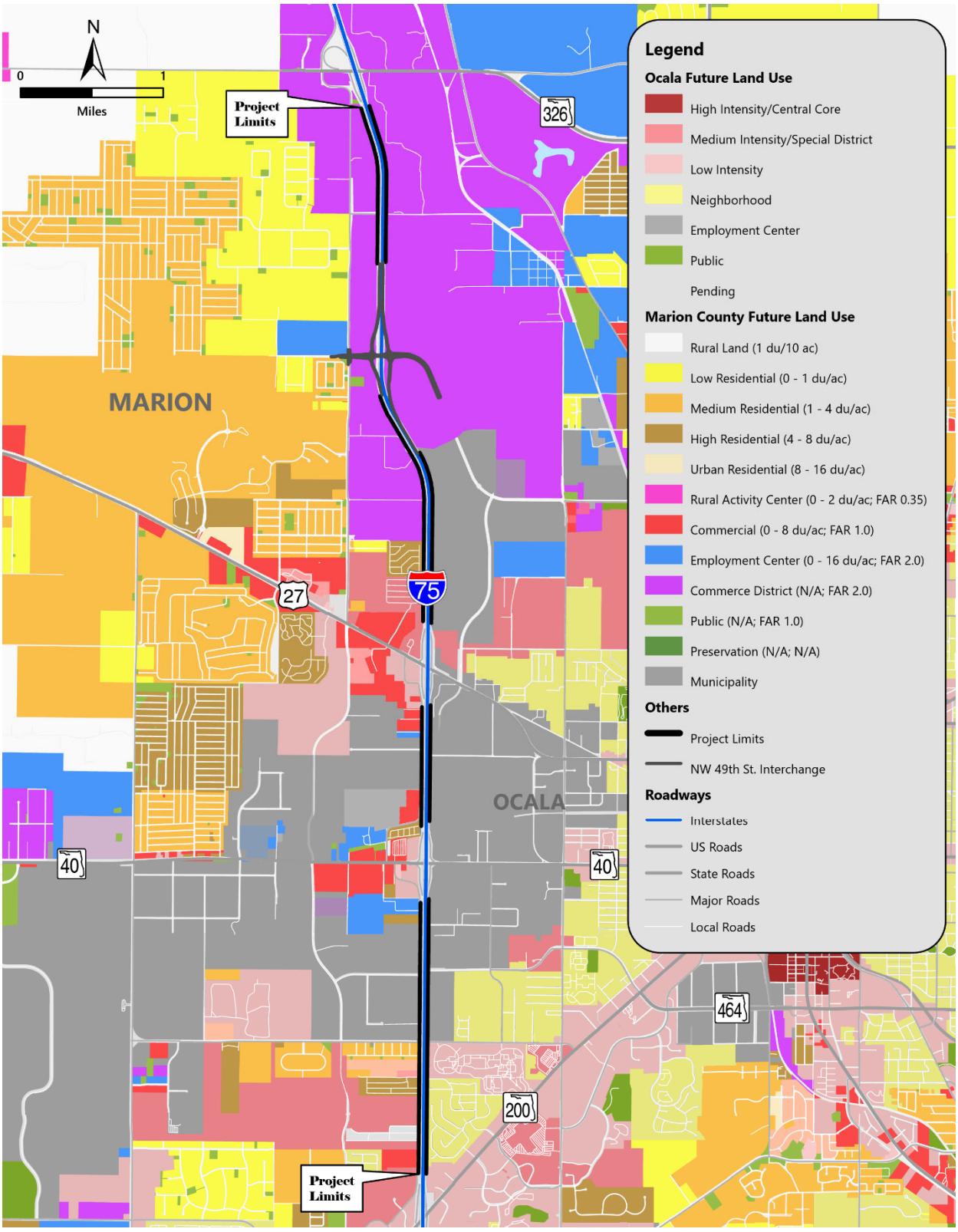
3.2 Future Land Use

The anticipated future land uses in the study area are consistent with the existing uses. The Marion County future land use map classifies the portion of the study area within the unincorporated county as Rural Land. The study area within the City of Ocala has future land use designations of Low Intensity, Medium Intensity/Special, and Employment Center.

The City of Ocala's 2035 future land use designations within the study area are low intensity land use, medium intensity/special land use, and employment centers. An excerpt from the City of Ocala future land use map can be seen in **Figure 3-1.**

The Environmental Technical Advisory Team (ETAT) expects that the project is not anticipated to impact future land use patterns.

Figure 3-1 | Marion County 2045 Future Land Use Map



4.0 DESIGN CONTROLS & CRITERIA

4.1 Design Controls

The design controls that were used in the I-75 alternatives development are shown in **Table 4-1.**

Table 4-1 | I-75 Design Controls

Design Control	Value	Source
Functional Classification	Urban Principal Arterial Interstate	Straight Line Diagram
Design Speed	70 mph	FDM Table 201.5.1

The SW 63rd Street overpass will be replaced to accommodate the auxiliary lane widening. The design controls that were used in the SW 63rd Street alternatives development are shown in **Table 4-2**.

Table 4-2 | SW 63rd Street Design Controls

Design Control	Value	Source
Functional Classification	Local Collector	N/A
Context Classification	C2T Rural Town	FDM Table 200.4.1
Design Speed	35 mph	FDM Table 201.5.1

4.2 Design Criteria

4.2.1 Roadway Design Criteria

The roadway design criteria used in the I-75 alternatives development are listed in **Table 4-3.**

Table 4-3 | I-75 Roadway Design Criteria

Design Element	Design Criteria	Source
Lane Width	12 feet	FDM (Section 211.2)
Cross Slopes	0.02 to 0.03	FDM (Figure 211.2.1)
Median Width	64 feet (Without Barrier) 26 feet (With Barrier)	FDM (Table 211.3.1)
Shoulder Width	12 feet (10 feet paved)	FDM (Table 211.4.1)
Superelevation	5% Max.	FDM (Table 210.9.1)
Border Width (Min.)	94 feet	FDM (Section 211.6)

Design Element	Design Criteria	Source
Clear Zone Width Recoverable Terrain (Min.)	36 feet	FDM (Table 215.2.1)
Stopping Sight Distance	861 feet	FDM (Table 211.10.1)
Horizontal Alignment		
Maximum Deflection w/o HC	0° 45′	FDM (Section 211.7.1)
Maximum Curvature	3° 00′	FDM (Table 210.9.1)
Maximum Degree w/o SE	0° 23′ 21″	FDM (Table 210.9.1)
Desirable Length of Curve	2,100 feet	FDM (Table 211.7.1)
Minimum Length of Curve	1,050 feet	FDM (Table 211.7.1)
Vertical Alignment		
Vertical Grade	3% Max.	FDM (Table 211.9.1)
Vertical Clearance	16.5 feet (Over Roadway)	FDM (Table 260.6.1)
Min. K, Crest Curve	506	FDM (Table 211.9.2)
Minimum Length (Crest)	1,000 feet – Open Highway 1,800 feet – Within Interchanges	FDM (Table 211.9.3)
Min. K, Sag Curve	206	FDM (Table 211.9.2)
Minimum Length (Sag)	800	FDM (Table 211.9.3)

HC = horizontal curve
SE = superelevation

The roadway design criteria used to develop the SW 63rd Street preliminary alternatives are listed in **Table 4-4**.

Table 4-4 | SW 63rd Street Roadway Design Criteria

Design Element	Design Criteria	Source
Lane Width	12 feet	FDM (Table 210.2.1 Note 2)
Cross Slopes	0.02	FDM (Figure 210.2.1)
Shoulder Width on Bridge	8 feet (low volume)	FDM (Figure 260.1.2)
Superelevation	5% Max.	FDM (Table 210.9.2)
Border Width (Min.)	12 feet	FDM (Table 210.7.1)
Clear Zone Width Recoverable Terrain (Min.)	36 feet	FDM (Table 215.2.1)
Stopping Sight Distance	250 feet	FDM (Table 210.11.1)
Horizontal Alignment		
Maximum Deflection w/o HC	2° 00′	FDM (Section 210.8.1)
Maximum Curvature	14° 15′	FDM (Table 210.9.2)
Maximum Degree w/o SE	5° 00′	FDM (Table 210.9.2)

Design Element	Design Criteria	Source
Desirable Length of Curve	525 feet	FDM (Table 210.8.1)
Minimum Length of Curve	400 feet	FDM (Table 210.8.1)
Vertical Alignment		
Vertical Grade	7% Max.	FDM (Table 210.10.1)
Vertical Clearance	16.5 feet (Over Roadway)	FDM (Table 260.6.1)
Min. K, Crest Curve	47	FDM (Table 210.10.3)
Minimum Length (Crest)	105′	FDM (Table 210.10.4)
Min. K, Sag Curve	49	FDM (Table 210.10.3)
Minimum Length (Sag)	105′	FDM (Table 210.10.4)

HC = horizontal curve
SE = superelevation

4.2.2 Drainage Design Criteria

4.2.2.1 Presumptive Water Quality

The project lies within the jurisdiction of the Southwest Florida Water Management District (SWFWMD) and St. John's River Water Management District (SJRWMD). I-75 forms the boundary between the two water management districts, with west of I-75 falling under the jurisdiction of SWFWMD and east of I-75 falling under the jurisdiction of SJRWMD. The 2022 PD&E *Drainage Technical Memorandum* sized the ponds based on SJRWMD criteria because the entire project corridor for the I-75 Master Plan was originally permitted by SJRWMD and other permits for projects along I-75 within this corridor were also processed by SJRWMD. Hence, the Environmental Resource Permit Applicant's Handbook (AH) Volume II for SJRWMD and the FDOT Stormwater Management Facility Handbook are the primary guides used for the analysis. The SJRWMD criteria for the design of dry retention ponds for on-line systems requires the treatment volume to be the greater of 1.0 inch of runoff over the drainage area or 1.75 inches of runoff times the percentage of imperiousness. The treatment volume and pond sizing calculations can be found in the *Pond Siting Report*, located in the project file.

4.2.2.2 Impaired Water Body Rule

Chapter 62-303, F.A.C describes impaired water bodies. Water bodies that have been assessed and determined to be impaired by the FDEP due to pollutant discharges are included on the "Verified List" adopted by FDEP Secretarial Order. WBID 2772B is not nutrient impaired and therefore, net improvement is not required.

4.2.2.3 Water Quantity

The off-site discharge rates are computed using the 96-hour duration, 25-year return frequency and the 240-hour, 100-year return frequency. The 96-hour duration, 25-year return frequency is based on SJRWMD closed basin criteria. The 240-hour, 100-year return frequency is the controlling event to meet the critical duration criteria associated with Chapter 14-86, F.A.C. A rainfall depth of 10.8 inches is used in pond sizing calculations, based on the 96-hour duration, 25-year return frequency and a rainfall depth of 16.6 inches is used in the pond sizing calculations for the 240-hour, 100-year return frequency. Since a part of the project site falls within the Ocklawaha River Hydrologic Basin, ponds are required to provide attenuation for the 10-year/24-hour storm during the design and permitting phase. Due to the closed basins and the nature of the project corridor, the FDOT has directed that ponds be sized for full containment of the 100 year – 10 day volume, thus the Ocklawaha River criteria will be met by default.

4.2.2.4 Floodplain Compensation

The proposed auxiliary lane project includes widening within isolated floodplains. These floodplains are primarily relatively shallow localized depressions, with limited offsite contributing area. Many of these depressions are associated with the existing linear stormwater management facilities within the Limited Access right-of-way. There are no floodways associated with the project area. All floodplain impacts are estimated from the FEMA floodplain GIS layers and 2' contour maps, and volumes will be replaced by balancing cut/fill either within the R/W, or by the addition of equivalent compensatory volume within the proposed stormwater management facilities.

A *Location Hydraulics Report* was prepared under separate cover and can be found in the project files. Modifications to existing drainage structures such as extending cross drains and median drains included in this project will result in an insignificant change in their capacity to carry floodwater. These modifications will cause minimal increases in flood heights and flood limits which will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes as the result of modifications to existing drainage structures. Therefore, it has been determined that this encroachment is not significant.

5.0 ALTERNATIVES ANALYSIS

5.1 No-Build (No-Action) Alternative

The No-Build Alternative considers what would happen in the future if the proposed project were not built. It includes the routine maintenance improvements of the existing roadway and assumes no improvements beyond any other currently programmed, committed, and funded roadway projects. While the No-Build Alternative does not meet the project needs, it provides a baseline condition against which to compare and measure the effects of all the Build Alternatives.

5.2 Transportation Systems Management and Operations Alternative

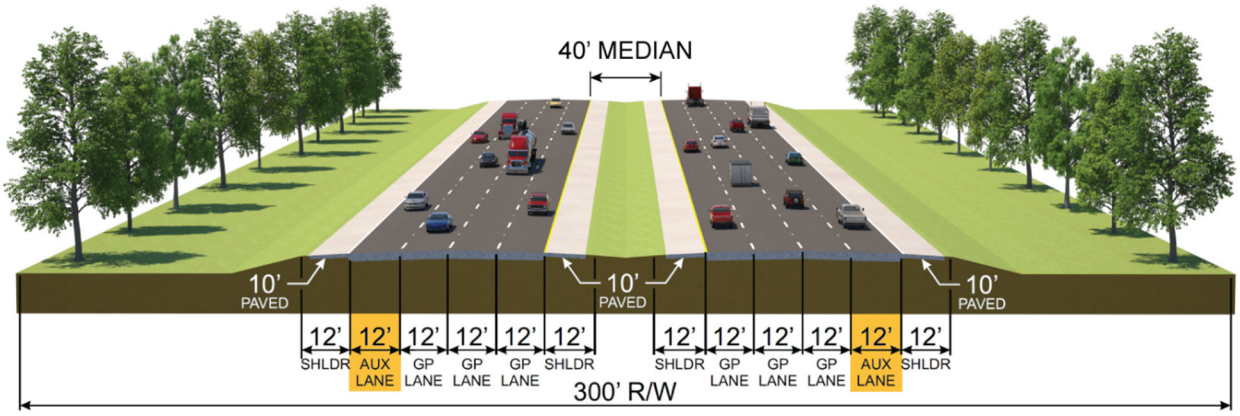
Transportation Systems Management and Operations (TSM&O) alternatives focus on maximizing the capacity, safety, security, and reliability of the existing transportation facility by implementing a variety of short-term projects and services. FDOT District 5 already employs or will be deploying several TSM&O strategies along the I-75 corridor such as traffic incident management, mainline weigh-in-motion (WIM), and smart work zones (SWZ). Traffic analysis indicated that TSM&O strategies alone would not be enough to address the corridor needs but could be implemented with future roadway and interchange improvement strategies. Therefore, a TSM&O alternative was not evaluated as part of this PD&E.

5.3 Build Alternatives

The build alternative (auxiliary lanes) is based on recommendations from the *I-75 Interstate Master Plan*. The build alternative analysis included the evaluation of bridge widening concepts, bridge replacements concepts, stormwater drainage concepts and pond siting.

The Auxiliary Lanes Alternative proposes to add one 12-foot auxiliary lane between interchanges to the outside of the general-purpose lanes in each direction. The auxiliary lanes would not impact the interchange bridges. To accommodate the auxiliary lanes, the existing I-75 bridge over SW 20th Street will need to be widened and the NW 63rd Street bridge over I-75 will need to be replaced. The preferred alternative typical section would be accommodated within the existing 300-foot wide right-of-way and include three 12-foot wide general purpose lanes in each direction, one 12-foot wide (10-foot paved) auxiliary lane in each direction, 12-foot wide inside and outside shoulders), and a depressed grassed median, as shown in **Figure 5-1.** The preferred alternative drainage improvements include eleven pond sites that will be constructed as dry retention systems, with full containment of the 100 year – 10 day storm due to the highly-developed nature of the corridor, and limited outfall opportunities. Additional right-of-way will be required to provide the necessary pond sites.

Figure 5-1 | Build Alternative Typical Section



5.4 Traffic Analysis

5.4.1 Traffic Results

A traffic analysis was conducted using FREEVAL software to evaluate the Build Alternative (auxiliary lane concept) versus the No-Build scenario. The analysis was conducted using the traffic projections developed and documented as part of the Project Traffic Analysis Report (PTAR). The projected traffic volumes used in the analysis were created by following the guidance in the FDOT Project Traffic Forecasting Handbook and reflect an average condition. The forecasts do not account for volume spikes due to non-recurring congestion events. The analysis summarized in the following sections focuses on the opening (2030) and interim (2040) years. Additional capacity needs beyond the Build Alternative and evaluation of design (2050) year conditions are included in the *I-75 Interstate Master Plan*. A comparison of I-75 northbound and southbound network performance metrics for the Build Alternative versus the No-Build scenario is summarized in **Table 5-1** and **Table 5-2**, respectively.

Table 5-1 | I-75 Northbound Peak Period Freeway Operational Comparison

Analysis Year	Performance Metric	I-75 Northbound								
		AM Peak Hour 6:15 - 9:15 AM			PM Peak Hour 3:30 - 6:30 PM			Weekend Midday Peak Hour 12:00 - 3:00 PM		
		No-Build	Aux Lane	% Benefit over No-Build	No-Build	Aux Lane	% Benefit over No-Build	No-Build	Aux Lane	% Benefit over No-Build
2030	Average Travel Time (min)	22.2	**21.8**	**2%**	21.7	**21.5**	**1%**	24.6	**22.0**	**11%**
	Vehicle Hours of Delay (delay / interval (hrs))	371	**285**	**23%**	214	**175**	**18%**	3,932	**342**	**91%**
	Average Speed (mph)	67.8	**69.4**	-	69.5	**70.5**	-	59.3	**68.7**	-
	Max D/C Ratio	0.98	**0.77**	-	0.85	**0.67**	-	1.03	**0.83**	-
2040	Average Travel Time (min)	25.0	28.5	-14%	26.0	**22.1**	**15%**	26.2	26.4	-1%
	Vehicle Hours of Delay (delay / interval (hrs))	21,329	**4,264**	**80%**	8,306	**370**	**96%**	36,381	**10,582**	**71%**
	Average Speed (mph)	59.9	53.0	-	55.6	**68.3**	-	56.1	55.4	-
	Max D/C Ratio	1.35	**1.09**	-	1.12	**0.88**	-	1.34	**1.08**	-

D/C = demand to capacity ratio

Table 5-2 | I-75 Southbound Peak Period Freeway Operational Comparison

Analysis Year	Performance Metric	I-75 Southbound								
		AM Peak Hour 6:15 - 9:15 AM			PM Peak Hour 3:30 - 6:30 PM			Weekend Midday Peak Hour 12:00 - 3:00 PM		
		No-Build	Aux Lane	% Benefit over No-Build	No-Build	Aux Lane	% Benefit over No-Build	No-Build	Aux Lane	% Benefit over No-Build
2030	Average Travel Time (min)	21.6	**21.5**	**0.5%**	35.1	**22.2**	**37%**	22.2	**21.8**	**2%**
	Vehicle Hours of Delay (delay / interval (hrs))	157	**133**	**15%**	3,398	**399**	**88%**	387	**286**	**26%**
	Average Speed (mph)	69.8	**70.6**	-	42.4	**68.1**	-	67.8	**69.5**	-
	Max D/C Ratio	0.77	**0.60**	-	1.09	**0.86**	-	0.89	**0.73**	-
2040	Average Travel Time (min)	23.3	**21.8**	**6%**	74.1	**34.9**	**53%**	47.9	**23.8**	**50%**
	Vehicle Hours of Delay (delay / interval (hrs))	838	**265**	**68%**	28,306	**6,717**	**76%**	7,568	**889**	**88%**
	Average Speed (mph)	63.5	**69.3**	-	20.9	**43.8**	-	31.8	**63.4**	-
	Max D/C Ratio	1.06	**0.83**	-	1.42	**1.12**	-	1.14	**0.97**	-

D/C = demand to capacity ratio

Based on the traffic analysis conducted for the 2030 and 2040 peak periods using FREEVAL software, the Build Alternative provides several network travel time and average network delay savings versus the No-Build scenario. The travel time and delay improvements can be attributed to the additional capacity added as part of the Build Alternative which releases the bottlenecks along I-75 that are expected to occur under the No-Build scenario.

- I-75 Northbound
    - In 2030, the auxiliary lane provides average travel time savings of 2% in the AM peak period, 1% in the PM peak period, and 11% during the weekend midday peak period.
    - In 2030, the auxiliary lane provides average delay savings of 23% in the AM peak period, 18% in the PM peak period, and 91% during the weekend midday peak period.
        - The high delay savings in the weekend midday peak period is a result of the additional capacity provided by the auxiliary lane releasing bottlenecks along I-75 at the S.R. 40 diverge, S.R. 40 merge, and U.S. 27 diverge.
    - In 2040, the auxiliary lane provides average travel time savings of 15% in the PM peak period. While travel times may be longer in the AM and weekend midday peak periods, more vehicles are being processed in the auxiliary lane concept and experience congestion at hidden bottleneck locations versus the No-Build where there is a bottleneck at the beginning of the study network metering traffic downstream.
    - In 2040, the auxiliary lane provides average delay savings of 80% in the AM peak period, 96% in the PM peak period, and 71% during the weekend midday peak period.
        - The high delay savings in the weekend midday peak period is a result of the additional capacity provided by the auxiliary lane releasing bottlenecks along I-75 at the S.R. 40 diverge, S.R. 40 merge, U.S. 27 diverge, U.S. 27 merge, and NW 49th Street diverge. [The future interchange with NW 49th Street is planned for construction in 2025.]
- I-75 Southbound
    - In 2030, the auxiliary lane provides average travel time savings of 0.5% in the AM peak period, 37% in the PM peak period, and 2% during the weekend midday peak period.

- In 2030, the auxiliary lane provides average delay savings of 15% in the AM peak period, 88% in the PM peak period, and 26% during the weekend midday peak period.
    - The high delay savings in the PM peak period is a result of the additional capacity provided by the auxiliary lane releasing bottlenecks along I-75 at the U.S. 27 merge, S.R. 40 diverge, and S.R. 40 merge.
- In 2040, the auxiliary lane provides average travel time savings of 6% in the AM peak period, 53% in the PM peak period, and 50% during the weekend midday peak period.
- In 2040, the auxiliary lane provides average delay savings of 68% in the AM peak period, 76% in the PM peak period, and 88% during the weekend midday peak period.
    - The high delay savings in the PM peak period is a result of the additional capacity provided by the auxiliary lane releasing bottlenecks along I-75 at the NW 49th Street, U.S. 27, and S.R. 40 interchanges.

The traffic analysis indicates that additional capacity beyond the auxiliary lane will be needed between 2030 and 2040. This is shown in **Table 5-1** and **Table 5-2** where demand to capacity (D/C) values are greater than 1.0.

5.4.2 Reliability Results

A corridor reliability analysis of the existing condition (2019) was conducted using FREEVAL software to evaluate a "widening option" (similar to the auxiliary lane concept) versus the No-Build scenario. The reliability analysis accounts for non-recurring congestion events such as incidents, special events (demand spikes), and weather. Due to the limitations of the current analysis models and the unique conditions on I-75, the analysis results are best used to make relative comparisons between alternatives as opposed to a detailed evaluation of absolute values. The planning level reliability analysis results indicate several improvements over the existing (No-Build) scenario including:

- A reduction in annual heavily congested days from approximately 20 days in the existing condition to 3 days (an approximately 85% change); and
- A reduction in average delay by approximately 58% (assuming no incidents or adverse weather).

5.5 Comparative Alternatives Evaluation

The No-Build and Build Alternative were evaluated on several elements including the purpose and need for the project; social, cultural, physical, and natural and social environment; and cost. A summary of the findings is presented in **Table 5-3** and discussed in the following sections.

5.5.1 Purpose and Need

While the Build Alternative meets the purpose and need of accommodating future travel demand providing operational improvement between existing interchanges, enhancing modal interrelationships and improving safety; the No-Build Alternative does not address these future traffic and safety needs.

5.5.2 Environmental Considerations

An analysis of the social and economic, cultural, natural, and physical environmental issues/resources was performed as part of this PD&E study and is summarized in the *Type II Categorical Exclusion*. The purpose of environmental analysis was to determine the effects associated with the Build and No Build Alternative.

The proposed project improvements would result in minimal impacts to social and economic resources and would enhance mobility. Roadway improvements for the Build Alternative will be implemented within the existing right of way; however, additional right of way will be needed for stormwater management facilities and Floodplain Compensation (FPC) sites which will result in three business relocations and five residential relocations. The project will not result in disproportionately high and adverse effects to minority and/or low-income populations.

There are no NRHP eligible or listed archaeological or historic properties in the project Area of Potential Effect (APE), and there are no Section 4(f) resources. The State Historic Preservation Officer (SHPO) concurred that no further cultural resources work is required.

The proposed project would result in 0.1 acres of direct wetland impact and 0.2 acres of secondary wetland impact. No wetland impacts are anticipated from the proposed stormwater ponds. The Uniform Mitigation Assessment Method (UMAM) functional loss that would result from the project for the herbaceous wetland impact totals 0.06.

A determination of "May Affect, Not Likely to Adversely Affect" was assigned to the Eastern indigo snake and the wood stork. A "No Effect" determination was made for all other federal and state listed species. No designated critical habitat is located within the Build Alternative limits.

Noise levels were predicted at 165 noise sensitive sites representing 427 residences [Noise Abatement Criteria (NAC) B], three special land use (SLU) NAC C receptors, and five SLU NAC E receptors. Overall, 214 noise receptors are currently affected by I-75 traffic noise. Under the No-

Build Alternative, noise levels are predicted to meet or exceed the NAC for 313 noise receptors. By comparison, predicted noise levels for the Build Alternative are predicted to meet or exceed the NAC at 357 noise receptors with an average 2.8 dB(A) increase in noise over the existing condition. The greatest increase, 5.0 dB(A), occurs in NSA SB4 at receptor SB4-07. None of the noise increases are considered substantial (defined as 15 dB(A) or higher) compared to existing conditions. Four noise barriers are proposed and are discussed in Section 7.2.4.

Forty-five potentially contaminated sites were identified. The contamination risk rating system incorporates four levels of risk: No, Low, Medium, and High. The project study area contains 8 high risk sites, 11 medium risk sites, 30 low risk sites, and 3 no risk sites.

Table 5-3 | Comparative Evaluation Matrix

Evaluation Criteria	No-Build Alternative	Build Alternative
Purpose and Need		
Accommodate Future Travel Demand	No	Yes
Enhance Modal Interrelationships	No	Yes
Improve Safety	No	Yes
Social and Economic		
Number of Parcels Impacted	0	25
Number of Residential Relocations	0	5
Number of Business Relocations	0	3
Cultural Resources		
Archaeological Potential	None	Low
Historic Sites	None	None
Public Lands (Acres)	No	0
Natural Resource		
Wetlands (Acres)	None	0.1
Protected Species	None	Low
Floodplains (Acres)	None	2.42
Physical Resources		
Contamination Sites (Medium or High)	None	19
Noise Sensitive Sites	None	165
Utility Conflicts	None	Medium
Estimated Costs in Millions (Present Day Costs)		
Roadway Right of Way	$0	$37.0 M
Utilities	$0	$15.8 M
Construction Costs	$0	$93.5 M
Design	$0	$16.0 M
Construction Engineering Inspection	$0	$9.8 M
Total Estimated Project Cost	**$0**	**$172.1 M**

5.5.3 Cost Estimates

During the development of the build alternative, preliminary construction costs were prepared using FDOT cost per mile models, the FDOT Long Range Estimate (LRE) tool, costs from recent projects of similar scope around the state, and the 12-month Statewide and Market Area 6 average unit costs (April 2021 through March 2022). Initial concept drawings were used to quantify the length (mileage and or linear feet) of widened roadway, milled/resurfaced roadway, widened shoulder, milled/resurfaced shoulder, barrier wall, and pavement markings. The concepts were also used to estimate quantities for the noise wall, bridge, drainage, signing, lighting, and intelligent transportation systems (ITS) components in each segment. FDOT also estimated costs for right of way, utilities, design, and construction, engineering, and inspection. Costs are shown in **Table 5-3**. Project costs will continue to be refined as the project advances into the Design phase.

5.6 Selection of the Preferred Alternative

Based on the overall analysis for the study area, the Build Alternative is the Preferred Alternative. The Build Alternative is consistent with the purpose and need and the traffic operational and safety analysis results were considered to select the preferred Build Alternative.

6.0 AGENCY COORDINATION & PUBLIC INVOLVEMENT

This Section provides information on how the agency coordination and public and stakeholder engagement are being conducted for the I-75 Project Development & Environment Study from S.R. 200 to S.R. 326.

6.1 Agency Coordination

Agency coordination was conducted throughout the PD&E Study. Coordination meetings between FDOT, Marion County, the City of Ocala, Town of Reddick, Town of McIntosh, City of Belleview, Ocala Metro Chamber and Economic Partnership, and the East Central Florida Regional Planning Council were conducted to discuss the proposed improvements and project status. Presentations were also given to local officials and agencies to share the project status, specific location, and design concepts, and to receive feedback.

6.1.1 Advanced Notification and Efficient Transportation Decision Making

This project was reviewed through the ETDM process where stakeholders provided input that informed the scope of the PD&E Study and assisted FDOT with early identification of potential project effects as well as avoidance, minimization, and mitigation opportunities. The Advanced Notification Package was published on November 8, 2023, and the ETDM Programming Screen Summary Report was published on X, 2024, and can be found at https://etdmpub.fla-etat.org/est/ (under ETDM project number 14542). ETDM comments helped FDOT to determine the feasibility of a proposed alternative, focus issues to be addressed during the PD&E phase, allow for early identification of potential avoidance, minimization, and mitigation opportunities, and promote efficiency and consistency during project development.

6.1.2 Environmental Look Around Meeting

An Environmental Look Around (ELA) meeting was held on December 12, 2023, with the local agencies identified within the I-75 project corridor to explore the potential for joint-use opportunities. This was a joint meeting between this project (the "North project") and the adjacent auxiliary lanes project (the "South Project"). There was one opportunity identified as a potential partnership with Marion County for the South project, but no opportunities identified for this portion of the corridor at this time.

6.2 Public Involvement

6.2.1 Stakeholder Outreach

FDOT conducted an extensive public outreach program to listen to the community, business owners, and corridor-wide stakeholders to better understand the public's concerns regarding I-75. Outreach efforts included one-on-one meetings with stakeholders, attending and

presenting at the scheduled community meetings, discussing the project with elected officials, and conducting virtual meetings with concerned citizens, business owners, and property owners.

FDOT also conducted a two-month effort from mid-October through mid-December 2023 to meet with local government staff and elected officials, interested communities and community groups, business chambers, civic organizations, and individual businesses and travelers along the study corridor. The general consensus was that this project is much needed, and the focus should be on minimal disruption to the community in accomplishing the project goals.

Two public meetings are being conducted for this study: a Public Information Meeting and a Public Hearing. The following sections provide summaries of these meetings. The *Comments and Coordination Report*, available under separate cover, contains a more detailed summary of each meeting and includes the public comments from each meeting.

6.2.2 Public Information Meeting

In-person meetings were held in the Savannah Center at the Villages on Monday, December 11, 2023, and at the Hilton Ocala hotel on December 13, 2023. Meeting times for both in-person events were 5:30 p.m. – 7:30 p.m. A virtual meeting was held on December 14 at 5:30 p.m.

The in-person meeting events operated as a traditional open house, where attendees could view a continuously looping presentation view, project exhibits, speak with project team members and provide comments. Staff members facilitated the sign-in, provided handouts and directed attendees to the exhibit areas. Individual project display boards were placed around the hall where project team members were available for one-on-one dialogue. Staff at the in-person comment station engaged with attendees and encouraged them to submit comment forms. Tables were placed within the exhibit area with additional comment tables in the hallway/lobby.

The content of the online presentation mirrored the in-person meeting presentation and was made available through the end of the comment period. The online meetings included meeting materials available to download including the exhibit boards, comment form, presentation and one-page handout. Comments received through the online meeting using the "Chat" or "Questions" function were sent directly to the project manager for response.

The notice of the meeting was advertised in the Ocala Star Banner, The Villages Daily Sun, Florida Administrative Register (FAR), press release, and the FDOT Public Notices Website and project website. Meeting notifications were sent to 768 people including property owners, tenants, elected officials, government officials, environmental resource agencies, and other interested parties.

Twenty-nine (29) members of the public participated in the December 11th event and two public comments were received. One comment was positive for the project overall and suggested improvements for additional interchanges in the project area and another population projection. The second comment noted heavy traffic along S.R. 484 Westbound, asking FDOT to consider improvements. Forty-five (45) members of the public participated in the December 13th event and 19 comments were received. The comments were positive overall and suggested improvements for additional interchanges in the project area. A majority of the comments expressed concerns about construction related noise and pond placements. Thirty (30) members of the public participated in the December 14th virtual event and four public comments were received. Comments included inquiries about the project schedule, concerns about noise, and future improvements. Two comments were received during the public comment period concerning potential property impacts and noise impacts.

6.3 Public Hearing

This section will be completed after the Public Hearing.

7.0 PREFERRED ALTERNATIVE

This section describes design features of the Preferred Alternative (concept plans provided in **Appendix A**)**.** The preferred alternative involves adding one 12-foot auxiliary lane in each direction. The lane would be added to the outside with no permanent construction required on the inside. The auxiliary lanes would not impact the existing interchange bridges at S.R. 40, U.S. 27, and S.R. 326. The I-75 mainline bridge over SW 20th Street (bridge no. 360064) requires widening and the NW 63rd Street bridge over I-75 (bridge no. 360049) requires replacement to accommodate the auxiliary lanes.

7.1 Engineering Details of the Preferred Alternative

7.1.1 Typical Sections

The typical section is a six-lane divided facility consisting of general-purpose lanes with one auxiliary lane to the outside in each direction located within the existing 300 foot wide right of way (refer to **Figure 5-1**). The typical section includes three 12-foot wide general purpose lanes in each direction, one 12-foot wide auxiliary lane in each direction, 12-foot wide inside and outside shoulders (10-foot paved), and a depressed grassed median as shown in the Typical Section Package in **Appendix E**.

7.1.2 Access Management

There are no proposed changes to Access Management with the proposed improvements.

7.1.3 Right-of-Way and Relocations

The project will require right-of-way for proposed stormwater ponds. The preferred alternative stormwater ponds have the potential to impact a total of 25 parcels for a total of 212.54 acres. Three business and five residential relocations are anticipated as follows:

- Pond B3-D: One Business (Car Quest Parts Store and Car Quest Distribution Center)
- Pond B10-B: Four Residences
- Pond B9-C: One Business
- Pond B11-C, B12-C & B13 A Combined: Business (Flea Market)
- Pond B14-A: One Residence

In order to minimize the unavoidable effects of right-of-way acquisition and displacement of people, a Right of Way and Relocation Assistance Program will be carried out in accordance with Florida Statute 421.55, Relocation of displaced persons, and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646 as amended by Public Law

100-17). A *Conceptual Stage Relocation Plan (CSRP)* was prepared for the project to evaluate the right-of-way required for pond sites.

7.1.4 Horizontal and Vertical Geometry

The proposed improvements maintain the existing horizontal and vertical geometry of I-75 as listed in Sections 2.2.8 and 2.2.9.

7.1.5 Design Variations and Design Exceptions

The preferred alternative requires two design variations within the project limits. The design variations are:

- Vertical alignment (length and K-value) - The FDM requires a minimum vertical curve length of 800 feet for a sag, 1,000 feet for a crest (open highway - OH), and 1,800 feet for a crest (within interchange - WI). As noted in Section 2.2.10, out of the nineteen identified vertical curves, only three curves meet the criteria for vertical curve length.
- Vertical clearance at the SW 20th Street bridge

7.1.6 Multimodal Accommodations

I-75 is a limited access facility. No multimodal accommodations are proposed.

7.1.7 Intersection/ Interchange Concepts

No intersection or interchange improvements are proposed with the preferred alternative. Interchange improvements within the project limits are being conducted under separate projects include the following:

- I-75 at S.R. 40 (FPID: 443624-6)
- NW 49th Street Planned Interchange (FPID: 435209-1)
- I-75 at S.R. 326 (FPID: 443624-7)

7.1.8 Toll Lane Projects

There are no toll lanes proposed for this project.

7.1.9 Intelligent Transportation System and TSM&O Strategies

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

7.1.10 Landscaping

The preferred alternative does not impact any existing landscaping and does not propose any new landscaping. Landscaping opportunities will be reviewed and identified in the Design phase.

7.1.11 Lighting

The current conventional and high mast lighting described in Section 2.2.19 will be maintained with the proposed improvements. The improvements are limited to the areas impacted by construction. A Lighting Justification Study for the entire corridor will be conducted during the Design phase.

7.1.12 Wildlife Crossings

No wildlife crossings are proposed within the project limits. Currently, are no opportunities for wildlife connections or corridors.

7.1.13 Permits

The following agency permits are anticipated for this project:

- DEP or WMD Environmental Resource Permit (ERP)
- DEP National Pollutant Discharge Elimination System Permit
- FWC Gopher Tortoise Relocation Permit
- FDEP State 404 Permit

The proposed project would require permits from state regulatory agencies for impacts to wetlands, water quality protection, and gopher tortoises, if necessary. As noted in Section 2.2.18, improvements to I-75 will be permitted by the SJRWMD.

An FDEP 404 permit is required for impacts to waters of the U.S., including wetlands. The location of Wetland 1 is contained within the existing I-75 right-of-way and may be isolated and potentially not considered a jurisdictional water of the U.S. by the state. A determination by FDEP may be necessary during design and permitting to confirm whether the wetland is jurisdictional under Section 404 and whether the proposed impact would therefore require a 404 permit.

7.1.14 Drainage and Stormwater Management Facilities

The proposed auxiliary lanes will be constructed along flush shoulder sections, and the existing conveyance patterns will be maintained in the proposed condition. Extensions will be required for crossdrains and median drains affected by the pavement widening, but no other changes to existing closed conveyance systems are proposed.

Stormwater management facilities are proposed, and will be constructed as dry retention systems, with full containment of the 100 year – 10 day storm due to the highly-developed nature of the corridor, and limited outfall opportunities. There will be minor impacts to permitted swales due to the widening. While it is anticipated that the impacts to the swales associated with the auxiliary lanes can generally be accommodated through balancing of cut

and fill operations adjacent to the mainline facility, the proposed stormwater management facilities will be designed for an "ultimate" condition that assumes the right-of-way is fully built-out with 90% impervious (270-foot total pavement width) and all linear treatment facilities are fully impacted.

The ponds identified as the "Preferred Ponds" (along with current size) for this PD&E are listed in **Table 7-1** below and shown on the roll plots in **Appendix F**. Detailed discussion of the design approach, criteria for site selection, per basin pond options, and pond selection methodology can be found in the *Pond Siting Report,* included in the project file. Geotechnical exploration is currently underway, and pond sizes and locations will be finalized during the design phase of the project.

Table 7-1 | Preferred Ponds

Basin	Pond Name	Preferred Pond Size (ac.)
1, 2	B1-B & B2-A Combined	28.61
3	B3-D	20.59
4	B4-B2	5.92
5, 6	B5-E	7.32
7	B7-A	18.90
8	B8-B	14.84
9	B9-C	11.66
10	B10-B	13.46
11, 12, 13	B11-C, B12-C & B13-A Combined	33.75
14, 15	B14-A & B15-C Combined	34.68
Total:		**189.73**

7.1.15 Floodplain Analysis

The proposed auxiliary lane project includes widening within isolated 100-year floodplains. These floodplains are primarily relatively shallow localized depressions, with limited offsite contributing area. Many of these depressions are associated with the existing linear stormwater management facilities within the Limited Access right-of-way. There are no floodways associated with the project area. All floodplain impacts are estimated from the FEMA floodplain GIS layers and 2-foot contour maps, and volumes will be replaced by balancing cut/fill either within the right-of-way, or by the addition of equivalent compensatory volume within the proposed stormwater management facilities.

A Location Hydraulics Report was prepared under separate cover and can be found in the project files. Modifications to existing drainage structures such as extending cross drains and

median drains included in this project will result in an insignificant change in their capacity to carry floodwater. These modifications will cause minimal increases in flood heights and flood limits which will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes as the result of modifications to existing drainage structures. Therefore, it has been determined that this encroachment is not significant.

A summary of floodplain impact volumes has been included in the **Table 7-2** below, with compensation approach noted for each.

Table 7-2 | Floodplain Impacts

Basin	Floodplain Area ID	Side	Floodplain Elevation (FT)	Total floodplain within R/W (AC)	Floodplain Impact (AC)	Impact Volume (AC-FT)	Approach to Compensation
1	*No floodplain present within area of proposed improvements.*						
2	2-1	East	77	0.33	0	0	N/A
3	3-1	East	76	0.28	0.02		Balance cut/fill
	3-2	East	70	1.49	0.24		
	3-3	West	68	0.91	0.03		
4	*No floodplain present within area of proposed improvements.*						
5	5-1	East	66	0.99	0	0	N/A
	5-2	West	65	1.12	0.01	0.01	Balance cut/fill
6	*Basin overlap - Floodplain accounted for in Basin 7.*						
7	7-1	East	70	0.88	0.13	0.13	Balance cut/fill
	7-2	West	70	1.05	0.03	0.03	
8	*No floodplain present within area of proposed improvements.*						
9	*No floodplain present within area of proposed improvements.*						
10	10-1	West	72	0.59	0	0	NA
	10-2	East	78	0.11	0	0	N/A
11	*No floodplain present within area of proposed improvements.*						
12	*No floodplain present within area of proposed improvements.*						
13	*Floodplain within R/W fully impacted by the future NW 49th Street Interchange. No impacts from this project.*						
14	14-1	East	68	0.92	0.22	0.27	Balance cut/fill
	14-3		60	0.30	0.02	0.02	
	14-2	West	68	0.74	0.19	0.21	
	14-4		66	1.23	0	0	N/A
15	15-2	East	64	2.18	0.55	0.55	Balance cut/fill

7.1.16 Bridge and Structure Analysis

The following sections discuss the general attributes for the bridges that are being affected by the Preferred Alternative which consists of:

- Widening of Bridge 360064 (I-75 over SW 20th St.)
- Replacement of Bridge 360049 (NW 63rd St. over I-75)

The remaining four bridges along the project corridor do not require any changes from the existing condition as discussed in Section 2.3.

7.1.16.1 Widening of Bridge 360064 (I-75 over SW 20th St.)

Bridge number 360064 carries both northbound and southbound I-75 over SW 20th Street (CR-A225) at milepost 15.180 in Marion County. The bridge was originally built in 1996 and consists of a single 100-foot +/- span with no skew utilizing nineteen AASHTO Type IV beams with variable spacing and 2′-10½″ overhangs giving an out-to-out deck width of 135′-1″. The existing configuration of the bridge is symmetrical about the centerline and utilizes an existing 32″ F-Shape median barrier, 19-ft wide paved inside shoulders, three 12-ft wide travel lanes, 10-ft wide outside shoulders, and F-Shape traffic barriers along the copings. Each end of the bridge has 20-ft long approach slabs.

7.1.16.1.1 Environmental and Site Considerations

The environmental impacts for the widening of bridge number 360064 should be minimal as the outside widening occurs within the limits of the existing right-of-way. The need for wildlife connectivity is not anticipated at this site location.

7.1.16.1.2 Vertical and Horizontal Clearance

The minimum horizontal and vertical clearances of the existing bridge are 16.1-ft vertical and 28.0-ft horizontal per the Inspection Report dated 5/20/2019. The widening of the bridge shall maintain existing bridge clearances. The minimum clear zone requirement for RRR projects for SW 20th Street with a design speed of 45 MPH is 14-ft per FDM Table 215.2.1. The minimum vertical clearance for construction affecting existing bridges over arterial or collector roadways is 16.0-ft per FDM Table 260.6.1.

7.1.16.1.3 Load Rating of Existing Bridge

The existing bridge was evaluated using Load and Resistance Factor Rating Method (LRFR) using LEAP Bridge Concrete v20.00.00.53. Using LRFR Approximate Distribution method, the controlling member was found to be the interior beams 2 & 18 with a Strength I Inventory – Shear rating factor (RF) of 1.19 at 0.2L for the HL93 Design Load, a Strength I Operating – Shear RF of 1.96 at 0.1L for the HL93 Design Load, and a Strength II – Shear RF of 1.29 at 0.3L for the FL120 Permit Truck. The overall controlling Operating RF was 1.52 for Service III at 0.5L; however,

since the Inspection Report from 5/20/2019 does not report the existing beams as under distress, Service III can be ignored per FDOT Load Rating Manual 6A.4.2.2.

7.1.16.1.4 Vertical and Horizontal Geometry

The existing bridge vertical geometry sits nearly centered on an 1800-ft long vertical curve with a grade of +2.984% rise and -2.925% fall while aligned on a horizontal tangent of N 0°31'19" E per the existing bridge plans. The outside widening of the bridge will maintain existing vertical and horizontal geometry.

7.1.16.1.5 Typical Section

The proposed outside widening of bridge 360064 will increase the out-to-out width of the bridge from 135'-1" to 158'-8". It is anticipated that the deck will be widened 14'-8" as taken from the centerline of the existing exterior AASHTO Type IV beams which will require removal of the current deck overhang. The outside widening will expand the typical section of the bridge to now include a 12-ft wide auxiliary lane while maintaining 10-ft wide outside shoulders and utilizing 36" Single-slope traffic railings along the copings. See **Appendix E** for proposed Bridge 360064 typical section, located in the *Typical Section Package*.

7.1.16.1.6 Identification of Historical Significance

As discussed in Section 2.3, the existing bridge is not eligible for 1) historical significance by the NRHP, 2) cultural significance by the NRHP, or 3) cultural significance according to the 2019 Inspection Report.

7.1.16.1.7 Aesthetics

The widening of bridge 360064 is to maintain current Level One aesthetics per FDM 121.9.3 with the existing bridge. Extensions to the existing MSE wall should match paneling type to the existing panels.

7.1.16.1.8 Bridge Deck Drainage Considerations

The use of inlets is not expected to be required based on the absence of deck drainage on the existing bridge. Bridge deck drainage and the potential use of deck drains will be investigated during the BDR phase. For more information, see Section 7.1.14, Drainage and Stormwater Management.

7.1.16.1.9 Conceptual Geotechnical Data

Based on existing plans, existing bridge borings indicated an Extremely Aggressive substructure and Slightly Aggressive superstructure environmental classification. The use of 18" square prestressed concrete piles were used on the existing bridge.

7.1.16.1.10 Phase Construction Impacts

Phased construction is not anticipated for the outside widenings of the existing bridge. Utilizing a Type K Temporary Concrete Barrier System within the existing outside shoulder will provide the necessary work zone for removal the existing outside barrier and deck overhang. However; temporary sheet pile walls will be needed at each corner of the bridge widening to excavate for the proposed widening of the MSE walls and their respective strap fields.

7.1.16.1.11 Construction Time

Construction of the widening of bridge 360064 is estimated to take approximately 6 to 12 months to complete. A more precise construction time estimate will be determined during the design phase.

7.1.16.2 Replacement of Bridge 360049 (NW 63rd St. over I-75)

Bridge number 360049 carries NW 63rd Street (Leroy Baldwin Road) over I-75 at milepost 0.206 in Marion County. The bridge was originally built in 1964 and consists of two 38'-0" spans and two 69'-6" interior spans for an overall bridge length of 215'-0". Each end of the bridge has 20-ft long approach slabs. The existing bridge has no skew and utilizes a combination of AASHTO Type II and Type III beams. The bridge typical section is an undivided roadway with two 12-ft wide travel lanes, 2-ft wide shoulders, and a 3'-1" wide raised sidewalk with concrete parapet for an out-to-out width of 34'-2". In addition to the clearance and crash protection deficiencies as discussed in Section 2.3, the existing bridge conflicts with the I-75 preferred alternative typical section due to the proposed shoulders encroaching into existing piers 1 and 3. To accommodate the preferred alternative typical section while allowing for a future "ultimate" condition on I-75, the proposed bridge will be a 2-span arrangement with bridge ends outside of the FDOT right-of-way and will utilize the existing median for its center pier. The plan and elevation for Bridge 360064 is provided in **Appendix A**.

7.1.16.2.1 Environmental and Site Considerations

The environmental impacts for the replacement of bridge number 360049 should be minimal as it will be constructed within the limits of the existing limited access right-of-way of NW 63rd Street and span over the I-75 right-of-way. The need for wildlife connectivity is not anticipated at this site location. Depending on the final determination of whether NW 63rd Street will be detoured to allow for the bridge replacement along the existing roadway horizontal alignment or if phased construction will need to be utilized to maintain an opened roadway; the battered and plum 14" square precast concrete piles at existing Pier 2 (C/L of I-75 median) will need to be avoided during design of proposed Pier 2 if the contractor is unable to pull them out.

7.1.16.2.2 Vertical and Horizontal Clearance

The replacement bridge will need to adhere to FDM requirements for new construction. The minimum clear zone requirement for I-75 with a design speed of greater than 60 MPH is 36-ft from edge of Travel Lane or 24-ft from edge of Auxiliary Lane per FDM Table 215.2.1. The horizontal clear zone should be based on the final I-75 Master Plan typical section as discussed in Section 3.1. The minimum vertical clearance for new bridge construction over a limited access roadway is 16.5-ft per FDM Table 260.6.1. Per FDM Figure 215.4.5 and based on the existing/ proposed alternative typical section of I-75, any proposed pier that falls within the I-75 median will require structural resistance per SDG 2.6.2 and a pier protection barrier (see FDOT Index 536-001).

7.1.16.2.3 Disposition of Existing Structure

Existing bridge 360049 has an approximate deck surface area of 7,346 square feet and will be demolished. The approximate volume of debris and the estimated timeframe in which the material will be provided will be investigated during the BDR phase in accordance with FDM 110.5.2.3.

7.1.16.2.4 Vertical and Horizontal Geometry

Depending on the final determination of whether NW 63rd Street will be detoured to allow for the bridge replacement along the existing roadway horizontal alignment or if phased construction will need to be utilized to maintain an opened roadway will have a direct effect on the horizontal alignment of NW 63rd Street over I-75. Based on the existing plans, NW 63rd Street runs along a horizontal tangent of S 89° 4′ 18 E. If NW 63rd is to be detoured it is likely that the proposed bridge will match the existing roadway alignment; otherwise, a bend in the roadway alignment will need to occur before and after the proposed bridge to allow for a phased or side-by-side construction of the proposed bridge alongside the existing bridge. The vertical alignment of NW 63rd Street will need to be raised above the existing roadway to provide adequate minimum vertical clearance and assist with drainage on the bridge. An overall bridge length of 314′-0″ with two 157′-0″ spans would provide a bridge profile that extends outside of the proposed I-75 Master Plan future condition. It is assumed that the I-75 Master Plan would fall within the existing I-75 right-of-way corridor while providing adequate clear zone distance to the right-of-way. The plan and elevation for Bridge 360049 is provided in **Appendix A**.

7.1.16.2.5 Typical Section

The proposed bridge will maintain an undivided roadway section with a crowned surface providing two 12-ft wide lanes and 8-ft wide outside shoulders per FDM Figure 260.1.2 “Bridge Section for Undivided Arterials and Collectors” for Low Volume roads; and 36” Single-slope

traffic railings along the copings for an out-to-out width of 42′-8″. The proposed Bridge 360049 typical section is shown in the *Typical Section Package* located in **Appendix E.**

7.1.16.2.6 Identification of Historical Significance

As discussed in Section 2.3, the existing bridge is 1) not eligible for historical significance by the NRHP, 2) cultural significance by the NRHP, or 3) cultural significance according to the 2019 Inspection Report.

7.1.16.2.7 Aesthetics

The replacement of bridge 360049 is to provide Level One aesthetics per FDM 121.9.3.

7.1.16.2.8 Bridge Deck Drainage Considerations

The use of inlets may be required based on the increased length of the proposed bridge compared to the existing bridge and as to what vertical curve alignment is utilized, if any. Bridge deck drainage and the potential use of deck drains will be investigated during the BDR phase. For more information, see Section 7.1.14, Drainage and Stormwater Management.

7.1.16.2.9 Conceptual Geotechnical Data

Preliminary geotechnical data has not yet been collected at the bridge location. Based on existing plans, the use of 14″ square precast concrete piles driven both plumb and battered were used on the existing bridge.

7.1.16.2.10 Phase Construction Impacts

The requirements of phase construction will depend on whether NW 63rd Street will be required to remain open during construction of the bridge replacement or if a detoured route will be allowed. If NW 63rd Street can be detoured during construction, phase construction will not be necessary as the existing bridge can be demolished, the approaching NW 63rd Street roadway profile raised, and construction of the bridge replacement followed. If a detour is not permissible, temporary walls along NW 63rd Street approaching both ends of the existing bridge will need to be utilized to both excavate to construct the strap field for a phased constructed wrap-around permanent MSE wall and to then raise the profile of NW 63rd up to the proposed bridge alignment. Based on the width of the proposed bridge and the location of the limited access right-of-way along NW 63rd Street, phased construction of the proposed bridge itself may not be necessary.

7.1.16.2.11 Construction Time

Construction of the bridge 360049 replacement is expected to take approximately 9 to 15 months due to the potential phasing to construct the bridge. A more precise construction time will be determined during the design phase.

7.1.17 Transportation Management Plan

A preliminary Transportation Management Plan (TMP) has been developed to determine how the proposed improvements can be incorporated. This includes developing preliminary Temporary Traffic Control Phasing for I-75 and reconstruction of the NW 63rd Street bridge over I-75. The analysis included coordination with the local government agencies to determine the feasibility of closing NW 63rd Street and detouring traffic during reconstruction of the bridge. Additional details regarding the Temporary Traffic Control Phasing are provided in Section 7.1.18.

7.1.18 Constructability

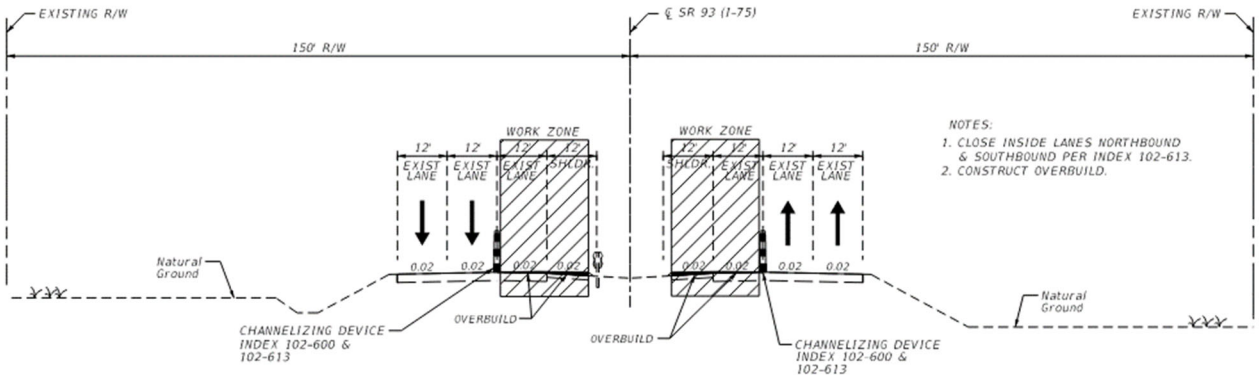
7.1.18.1 I-75 Mainline

The Temporary Traffic Control Plan (TTCP) for the I-75 mainline will consist of two phases. Phase 1 will require overbuilding the inside shoulder and constructing temporary pavement in the median of the northbound travel lanes to shift traffic. This will require removal of the existing median double-faced guardrail that runs primarily on the northbound side of the median. To prevent crossover incidents, temporary concrete barrier wall will be placed in the median to separate northbound and southbound traffic. Emergency Shoulder Use (ESU) is required for the northbound direction. A 10-ft minimum outside shoulder width will be provided during the phase for constructing the outside widening. The travel lanes will be 12-ft wide in the first phase and 11-ft to 12-ft wide in the second phase as shown below in **Figure 7-1.**

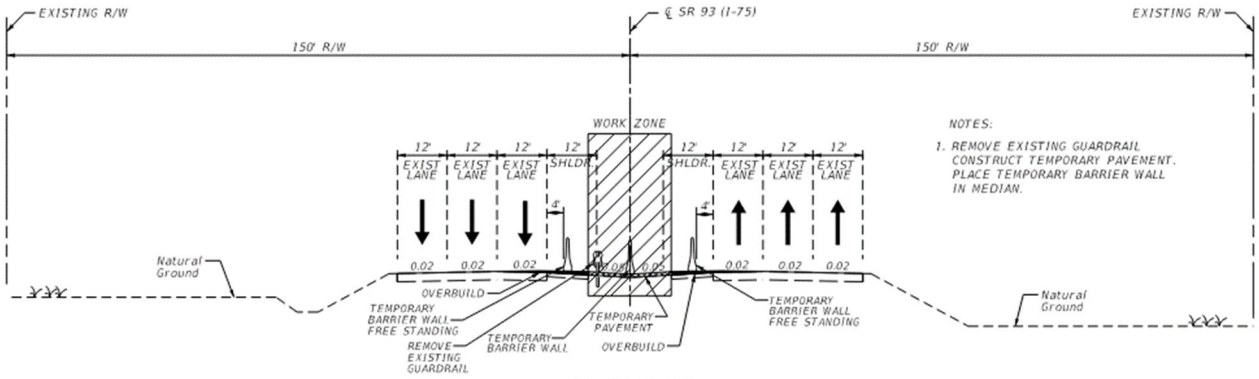
7.1.18.2 NW 63rd Street

To facilitate future four-laning of NW 63rd Street, the design will utilize an alignment shift approaching the bridge of approx. 30-ft in order to partially construct enough of the proposed bridge to continuously maintain two lanes of traffic. The first phase will consist of constructing enough bridge to maintain one lane of traffic adjacent to the existing bridge while maintaining two lanes of traffic on the existing bridge (**Figure 7-2**). Once the partial proposed bridge is completed, the second phase will shift one lane of traffic to the proposed bridge while maintaining the opposite direction traffic on the existing bridge. The existing bridge is then partially demolished, and the remainder of the proposed bridge completed. The third phase shifts all traffic to the new bridge while the approach roadway and existing bridge are removed.

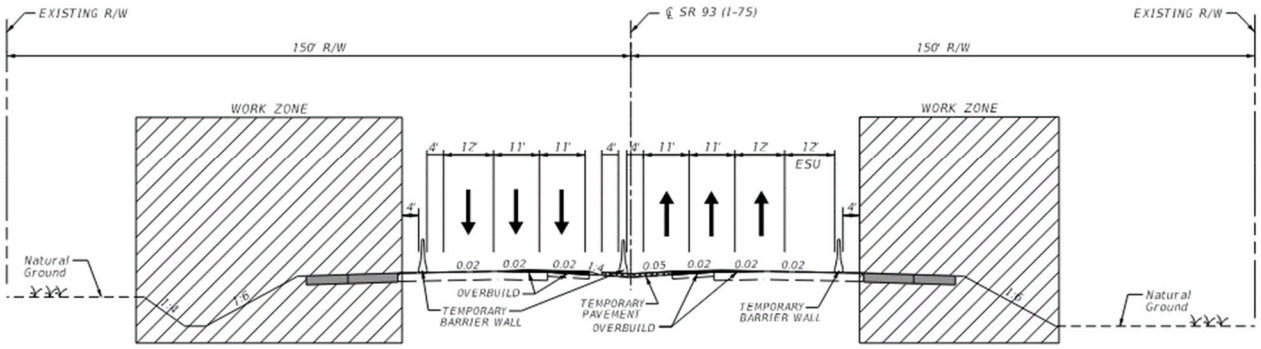
Figure 7-1 | I-75 Mainline Construction Phasing



SR 93 (I-75)
STA. 2388+00.00 TO STA. 2440+80.00
PHASE 1A

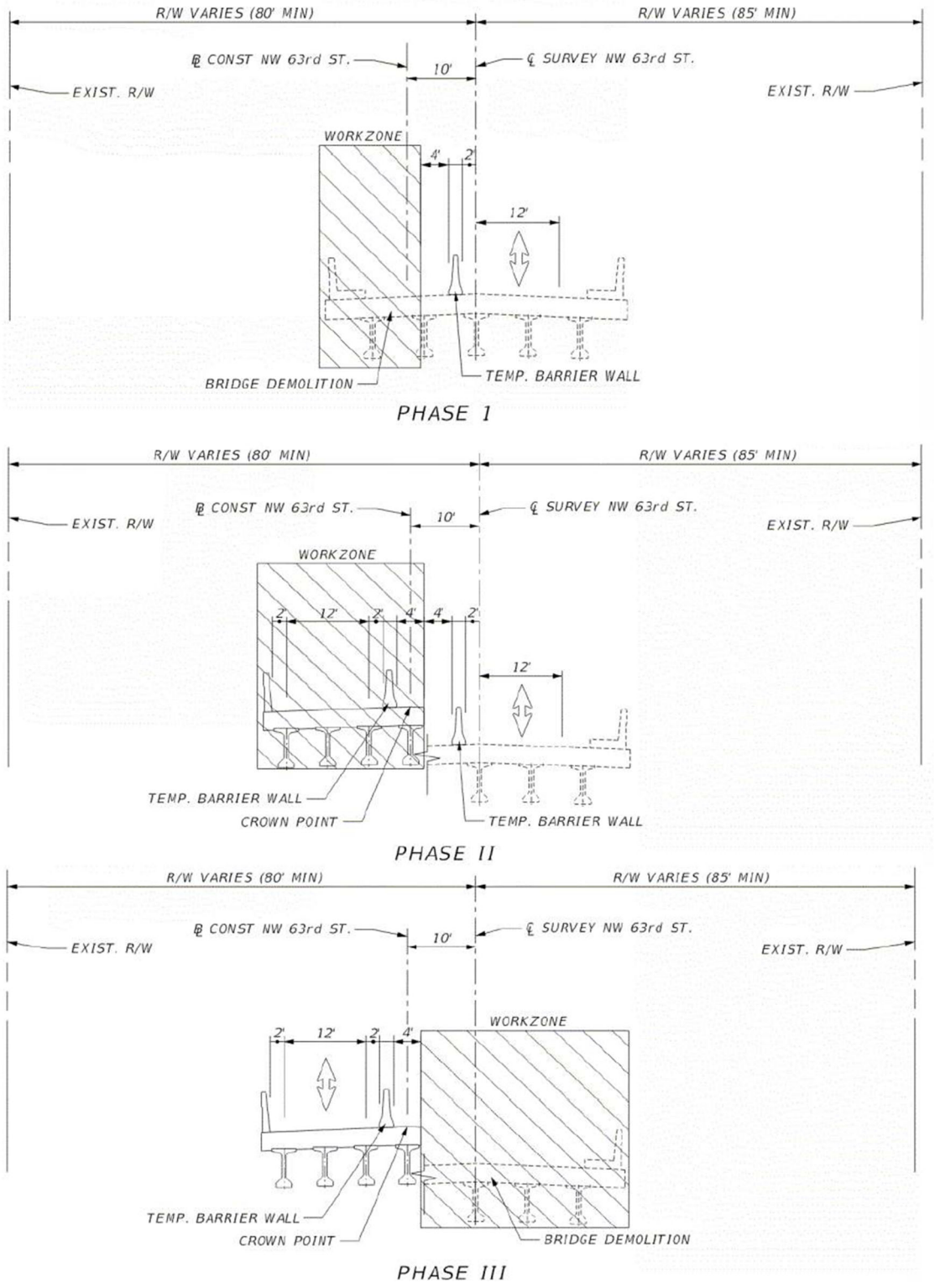


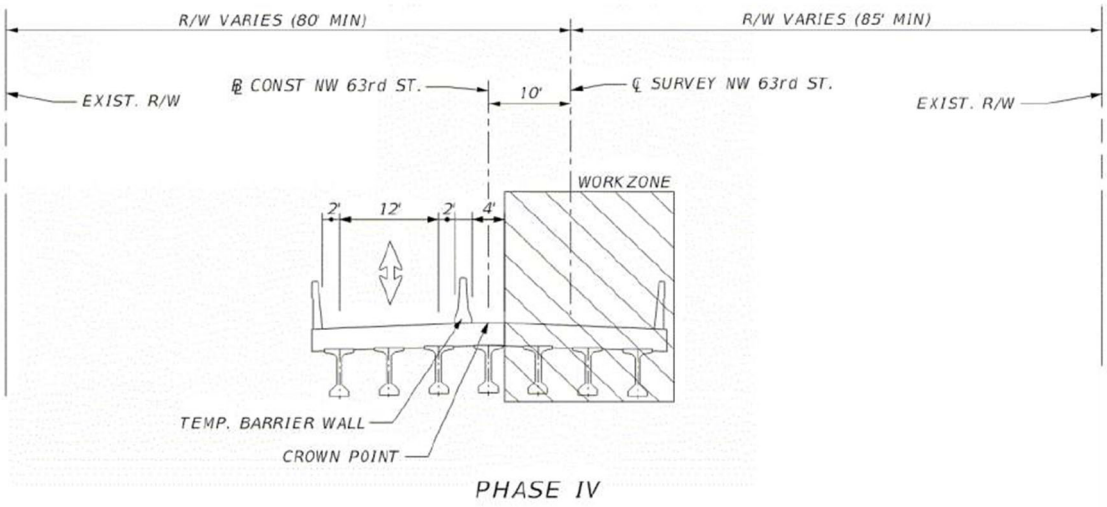
SR 93 (I-75)
STA. 2388+00.00 TO STA. 2440+80.00
PHASE 1B



SR 93 (I-75)
STA. 2388+00.00 TO STA. 2440+80.00
PHASE 2

Figure 7-2 | SW 63rd Street Construction Phasing





7.1.19 Construction Impacts

Noise and vibration impacts may be generated by heavy equipment and construction activities such as pile driving and vibratory compaction of embankments. Adherence to local construction noise and/or construction vibration ordinances by the construction contractor will also be required where applicable.

Visual impacts associated with the storage of construction materials and establishment of temporary construction facilities will occur but are temporary and short-term in nature.

Water quality impacts resulting from erosion and sedimentation will be controlled in accordance with FDOT's Standard Specifications for Road and Bridge Construction and using Best Management Practices (BMPs). Erosion and sedimentation will be treated in accordance with the FDEP's NPDES permit and the SWPPP.

Maintenance of traffic and sequence of construction will be planned and scheduled to minimize traffic delays during project construction. Signs will be used as appropriate to provide sufficient notice of road closures and other pertinent information to the traveling public. The local news media will be notified in advance of road closings and other construction-related activities which could inconvenience the community so that pedestrians, motorists, and property owners can plan travel routes in advance. Access to all businesses and residences will be maintained to the extent practical through controlled construction scheduling.

7.1.20 Special Features

Currently there are no special features associated with this project.

7.1.21 Utilities

Table 7-3 provides a list of the Utility Agency Owners (UAOs) with a description of their potential conflict with the proposed improvements. This is a preliminary evaluation of potential utility conflicts within the project corridor based on proposed improvements under the Build Alternative. Additional conflicts may be identified during the final design. Subsurface Utility Engineering (SUE) locates verified vertical and horizontal (vvh) information on existing utilities is required to advance the utility coordination efforts. Obtaining vvh information will also help to guide the Design phase to ensure that informed and intelligent decisions are made where practical to reduce potential utility relocations.

Table 7-3 | Potential Utility Impacts

Utility Type	Utility Agency Owner	Potential Conflicts
Telephone	Windstream Communication	No conflict anticipated.
Communication Lines, Fiber	AT&T Corp.	No conflict anticipated.
Electric	Clay Electric	No conflict anticipated.
Fiber, Telephone	Century Link	No response received.
Fiber	City Of Ocala Telecommunication	Existing utility conflicts impacted: • Underground fiber located on the north side of I-75 and SW 20th Street intersection. Aerial fiber crossing near SW 7th Street.
Sewer, Water	City Of Ocala Water And Sewer Department	Existing utility conflicts impacted: • 8-inch PVC pipe crossing I-75 perpendicularly from east to west at milepost 16.7597 • 36-inch French drain and an 18-inch storm drain run parallel with I-75 below the centerline. • Bore and jack of 340 feet of 18-inch D.I.P. force main with a 36-inch steel casting and a minimum cover of 36 inches from the ground crossing I-75 from east to west 2,217 feet north of S.R. 200. • Two 18-inch CMP pipes and a 6-inch gas pipeline run parallel to the centerline of I-75.
CATV	Cox Cable	No conflict anticipated.
Gas	Florida Gas Transmission	Existing utility conflicts impacted: • Natural gas transmission pipeline (FLBLO) crossing approximately 1 mile north of US 27.

Utility Type	Utility Agency Owner	Potential Conflicts
Electric (Distribution & Transmission)	Duke Energy	No conflict anticipated.
	Marion County Utilities	No response received.
Electric	Ocala Electric Utility	No response received.
Fiber	Duke Energy	No conflict anticipated.
Telephone	AT&T Distribution	No conflict anticipated.
Fiber	Uniti Fiber LLC.	Potential new conflicts: • Potential new conflict with ISP underground fiber cable that is located along SW 20th Street and turns south along I-75. Underground fiber cable at NW 10 St. is near the right-of-way.
Electric, Fiber	Traffic Control Devices, Inc.	No response received.
Gas, Natural Gas	TECO Peoples Gas	No response received.

7.1.22 Cost Estimates

As noted in Section 5.5.3, during the development of the build alternative, preliminary construction costs were prepared using FDOT cost per mile models, the FDOT Long Range Estimate (LRE) tool, costs from recent projects of similar scope around the state, and the 12-month Statewide and Market Area 6 average unit costs (April 2021 through March 2022). The estimated total cost for this 8-mile project is $172.1 million which includes a construction cost of $93.5 million along with estimates for right-of-way, utility relocations, design and CEI. A summary of the project cost is provided in **Table 7-4**. The details and reference information used to develop the construction cost is included in **Appendix D**. Project costs will continue to be refined as the project advances into the design phase.

Table 7-4 | Summary of Estimated Project Cost

Component	Reference or Assumption	Cost (million)
Right-of-Way	FDOT	$37.0
Utility Relocation	FDOT	$15.8
Construction Cost Subtotal	See Appendix D "North Corridor Subtotal"	$50.9
MOT	15% of Subtotal	$7.6
MOB	15% of Subtotal + MOT	$8.8
Contingency	(25% of Subtotal + MOT + MOB)	$16.8
Project Unknowns	(10% of Subtotal + MOT + MOB + Contingency)	$9.4
Design and RFP Package	FDOT	$16.0
CEI	FDOT	$9.8
TOTAL:		$172.1

MOT = Maintenance of Traffic
MOB = Mobilization

7.2 Summary of Environmental Impacts of the Preferred Alternative

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

7.2.1 Social and Economic

No changes to population or demographic characteristics of the study area are anticipated from the implementation of the Build Alternative. Roadway improvements for the Build Alternative will be implemented within the existing right of way. Additional right of way will be needed for stormwater management facilities and Floodplain Compensation (FPC) sites which will result in several business or residential relocations as noted below. Based on the sociocultural analysis for this PD&E Study, proposed improvements will not affect any minority or low-income populations.

7.2.2 Cultural Resources

The project archaeological Area of Potential Effect (APE) was defined to include the existing right-of-way where improvements are proposed. The architectural history APE included the existing right-of-way and was extended to the back or side property lines of parcels adjacent to the right-of-way or a distance of no more than 100 meters (328 feet) from the right-of-way line at the I-75 interchanges with S.R. 40, U.S. 27, and S.R. 326.

The archaeological survey consisted of the excavation of 262 shovel tests within the APE, 33 of which contained artifacts. Additionally, 345 no-dig points were recorded where disturbances and subsurface conditions (e.g., steep roadway berms, buried utilities, drainage features) precluded shovel testing. Five new archaeological sites and three archaeological occurrences were recorded as a result of the survey. Archaeological occurrences are by definition ineligible for listing in the National Register of Historic Places (NRHP); therefore, no further testing for the archaeological occurrences is required.

Phase II evaluative testing began on August 1, 2023 with auger testing between Sites MR04471 and MR04472. All three auger tests were positive for cultural material, demonstrating that the two sites (8MR04471 and 8MR04472) existed as one contiguous site. The newly defined single site was referred to as 8MR04471 (Palm Lake Site 2).

The Phase II evaluation, located in the project file, included the excavation of six 1.0 2.0 m (3.3 6.6 ft) test units within the boundary of the newly defined Site 8MR04471. As a result of the Phase I survey and Phase II testing, Site 8MR04471 is identified as a dense artifact scatter with several Native American cultural components dating to the Transitional Paleoindian/Early Archaic, Middle to Late Archaic, Woodland, and Mississippian periods (8500 BC-AD 1500+). The type and quantity of artifacts recovered suggest that the site was primarily used for late-stage lithic tool production and refinement. The presence of precontact ceramic sherds indicates that food preparation, production, and storage also occurred on site. Site 8MR04471 was utilized intermittently over a 10,000-year period as a temporary encampment for lithic tool production and refinement using raw materials extracted from nearby Coastal Plain chert quarry clusters.

The upland landform on which the site is situated has been significantly disturbed within and outside the site boundary. The artifact assemblage lacks diversity and is predominantly late-stage, lithic debitage. The assemblage of temporally diagnostic artifacts is typical of many similar sites in Marion County and the Central Florida region. Based on the paucity of diagnostic artifacts, a lack of cultural features, and the absence of stratigraphically discrete cultural components, it is unlikely that further excavation at Site 8MR04471 would yield information that would add to the current understanding of the precontact history of the region.

Based on the results of Phase II evaluation, FDOT recommended that Site 8MR04471, as expressed within the I-75 PD&E study corridor, is ineligible for listing in the NRHP in its letter to SHPO dated DATE. No further work is recommended. SHPO concurred with this finding on January 11, 2024.

The architectural survey resulted in the identification and evaluation of 31 historic resources, including four previously recorded resources and 27 newly recorded resources. The previously recorded historic resources and all 27 newly recorded resources, lack the significant historical

associations and architectural distinctions necessary for NRHP listing and are recommended not eligible for the NRHP.

No NRHP-listed or eligible cultural resources were identified within the project APE. The State Historic Preservation Officer (SHPO) concurred that no further cultural resources work is required.

As documented in the *Cultural Resources Assessment Report,* the Build Alternative will have no impact on historical and archaeological resources.

7.2.3 Natural Resources

7.2.3.1 Wetlands

A single wetland was identified in the study area and is a 0.37-acre isolated herbaceous wetland located within the right-of-way on the east side I-75 north of S.R. 40. It is in a depressional area between the right-of-way fence line and roadway embankment. The wetland is expected to be considered a jurisdictional feature that will require permitting.

The proposed northbound auxiliary lane and required embankment slope would result in direct permanent impact to the wetland totaling approximately 0.1 acre. There were no wetland or jurisdictional surface waters identified within the preferred pond sites. The Uniform Mitigation Assessment Method (UMAM) per Chapter 62-330.345, FAC, was used to assess the potential wetland impact area to provide a preliminary estimate of total wetland functional loss resulting from the project. UMAM functional loss equates to mitigation bank credits that can be purchased to satisfy wetland mitigation requirements. The UMAM functional loss that would result from the project for the direct herbaceous wetland impact totals 0.04. It is estimated that an additional 0.2 acres would be impacted due to secondary impacts and require about 0.01 additional credits for mitigation.

Short-term and long-term impacts to water quality, and the resultant effects on wetland resources caused by construction and the resultant project are anticipated to be low with the use of Best Management Practices (BMPs) during construction. The proposed addition of auxiliary lanes was determined to be necessary to enhance current transportation safety and modal interrelationships while providing additional capacity between existing interchanges. Every effort has been made during the preliminary design to minimize and restrict impacts to within the existing FDOT right-of-way where wetland and upland habitats provide minimal habitat values. Impacts to wetlands are anticipated to be mitigated within the one mitigation bank within the basin and therefore cumulative impacts are not expected. However, if impacts to wetlands require mitigation outside the basin, assessment of cumulative impacts will be required to determine additional mitigation.

7.2.3.2 Protected Species

A total of thirty-two (32) listed species and one candidate species were identified as having the potential to occur within the study area. Nine of the listed species have a moderate or high potential of occurrence. With the exception of gopher tortoise burrows observed within the existing right-of-way (ROW), and two of the preferred pond sites, none of the species were observed within the study areas. No designated critical habitat is located within the Build Alternative. **Table 7-5** and **Table 7-6** provide the list of Federal and State listed species that were identified as having the potential to occur within the study area and their corresponding effect determination.

Table 7-5 | Federal Listed Species Potentially Occurring within the Study Area

Scientific Name	Common Name	Status	Probability of Occurrence in Project Area	Effect Determination
Birds				
Aphelocoma coerulescens	Florida scrub-jay[1]	Threatened	Low	No Effect
Dryobates borealis	Red-cockaded woodpecker[2]	Endangered	Low	No Effect
Laterallus jamaicensis jamaicensis	Eastern black rail[3]	Threatened	Low	No Effect
Mycteria americana	Wood stork[4]	Threatened	Moderate	May Affect, Not Likely to Adversely Affect
Reptiles				
Drymarchon corais couperi	Eastern indigo snake[3]	Threatened	Moderate	May Affect, Not Likely to Adversely Affect
Insects				
Danaus plexippus	Monarch butterfly[3]	Candidate	Moderate	NA[5]
Plants				
Dicerandra cornutissima	Longspurred mint[1]	Endangered	Low	No Effect
Eriogonum longifolium var. gnaphalifolium	Scrub buckwheat[1]	Threatened	Low	No Effect
Polygala lewtonii	Lewton's polygala[3]	Endangered	Low	No Effect

Notes:

[1] This federally listed species was identified by the FNAI Standard Data Report.

[2] This species was identified in FNAI Standard Data Report for the Pond Sites Study Area only.

[3] This federally listed species was identified by the USFWS IPaC.

[4] Included since there are a few areas with suitable foraging habitat within the study areas.
[5] Effect determinations are not applicable to species proposed for listing or candidate species.

Table 7-6 | State Listed Species Potentially Occurring within the Study Area

Scientific Name	Common Name	Status	Probability of Occurrence in Project Area	Effect Determination
Birds				
Antigone canadensis pratensis	Florida sandhill crane	Threatened	Moderate	No Adverse Effect Anticipated
Athene cunicularia floridana	Florida burrowing owl	Threatened	Low	No Adverse Effect Anticipated
Egretta caerulea	Little blue heron[3]	Threatened	Moderate	No Effect Anticipated
Egretta tricolor	Tricolored heron[3]	Threatened	Moderate	No Effect Anticipated
Falco sparverius paulus	Southeastern American kestrel[4]	Threatened	Moderate	No Effect Anticipated
Reptiles and Amphibians				
Gopherus polyphemus	Gopher tortoise	Threatened	High (Observed)	No Adverse Effect Anticipated
Lampropeltis extenuata	Short-tailed snake	Threatened	Low	No Effect Anticipated
Notophthalmus perstriatus	Striped newt	Threatened	Low	No Effect Anticipated
Pituophis melanoleucus mugitus	Florida pine snake[4]	Threatened	Moderate	No Adverse Effect Anticipated
Plants				
Agrimonia incisa	Incised groove-bur	Threatened	Low	No Effect Anticipated
Arnoglossum diversifolium	Variable-leaved Indian-plantain[1]	Threatened	Low	No Effect Anticipated
Calopogon multiflorus	Many-flowered grass-pink	Threatened	Low	No Effect Anticipated
Centrosema arenicola	Sand butterfly pea	Endangered	Low	No Effect Anticipated
Forestiera godfreyi	Godfrey's swampprivet	Endangered	Low	No Effect Anticipated
Litsea aestivalis	Pondspice	Endangered	Low	No Effect Anticipated

Scientific Name	Common Name	Status	Probability of Occurrence in Project Area	Effect Determination
Matelea floridana	Florida spiny-pod	Endangered	Low	No Effect Anticipated
Monotropsis reynoldsiae	Pygmy pipes	Endangered	Low	No Effect Anticipated
Nemastylis floridana	Celestial lily[1]	Endangered	Low	No Effect Anticipated
Nolina atopocarpa	Florida beargrass[2]	Threatened	Low	No Effect Anticipated
Pteroglossaspis ecristata	Giant orchid	Threatened	Low	No Effect Anticipated
Pycnanthemum floridanum	Florida mountain-mint	Threatened	Moderate	No Adverse Effect Anticipated
Salix floridana	Florida willow	Endangered	Low	No Effect Anticipated
Sideroxylon alachuense	Silver buckthorn	Endangered	Low	No Effect Anticipated
Spigelia loganioides	Pinkroot	Endangered	Low	No Effect Anticipated

Notes:

[1] This species was identified in FNAI Standard Data Report for the Pond Sites Study Area only.

[2] This species was identified in FNAI Standard Data Report for the Mainline Study Area only.

[3] Although not observed these species could forage in the wetland identified within the Mainline Study Area, described in Section 7.2.3.

[4] The study areas fall within the range identified by the FWC for this species. In addition, habitat for this species was observed within the Pond Sites Study Area.

7.2.4 Physical Resources

7.2.4.1 Noise

Noise levels were predicted at 165 noise sensitive sites representing 427 residences [Noise Abatement Criteria (NAC) B], three special land use (SLU) NAC C receptors, and five SLU NAC E receptors. Due to the number of receptors, the analysis divided the study corridor into Noise Study Areas (NSA).

Overall, 214 noise receptors are currently affected by I-75 traffic noise. Under the No-Build Alternative, noise levels are predicted to meet or exceed the NAC for 313 noise receptors. By comparison, predicted noise levels for the Build Alternative are predicted to meet or exceed the NAC at 357 noise receptors with an average 2.8 dB(A) increase in noise over the existing condition. The greatest increase, 5.0 dB(A), occurs in NSA SB4 at receptor SB4-07. None of the

noise increases are considered substantial (defined as 15 dB(A) or higher) compared to existing conditions.

Noise levels at 357 residences and four special-use sites are predicted to approach or exceed the NAC for the design year 2050 Build Alternative. Noise barriers were considered for all impacted sites identified in the noise modeling. The noise analysis indicates that three noise barriers could potentially provide reasonable and feasible noise abatement for 277 of the 297 impacted residences in NSAs SB1, SB4, NB1 and provide a benefit to 32 non-impacted residences. These three noise barriers are potentially feasible and reasonable and summarized in (**Table 7-7**).

Additional information regarding the noise analysis is provided in the *Noise Study Report*.

Table 7-7 | Potential Noise Wall Locations

Station Limits	Side	NSA	Wall Type
2178+00 to 2213+00	SB	SB1	Ground Mount
2212+00 to 2231+00	SB	SB1	Barrier Wall
2176+00 to 2217+00	NB	NB1	Ground Mount
2375+00 to 2419+00	SB	SB4	Ground Mount

NSA = Noise Study Area

Additional information regarding the noise analysis is provided in the *Noise Study Report*.

7.2.4.2 Contamination

A Level I *Contamination Screening Evaluation Report (CSER)* was prepared to evaluate the potential for contamination within or adjacent to the mainline study area and within the alternative pond sites. The CSER is in the project file.

The CSER identified 45 contamination sites near the Mainline Study Area and 7 additional sites near or within the preferred pond sites. The contamination risk rating system incorporates four levels of risk: No, Low, Medium, and High. The project study area contains 8 high risk sites, 11 medium risk sites, 30 low risk sites, and 3 no risk sites. Of the 19 alternative pond sites, none were assigned as high risk, three were assigned as medium risk, seven were assigned as low risk and nine were assigned as no risk.

For sites assigned a risk rating of “Medium” or “High”, a Level II Assessment is recommended. These sites have documented contamination, which may impact the proposed project. A soil and groundwater sampling plan should be developed for each site, as applicable. Based on the findings of a future review and Level II Assessment, the design engineers may be required to avoid areas of concern or include special provisions with the plans to require that construction

activities performed in areas of concern be conducted or supervised by a contamination assessment and remediation contractor specified by FDOT.