PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

District 1

I-75 (SR 93) At Moccasin Wallow Road PD&E Study

From North of I-275 to North of Moccasin Wallow Road

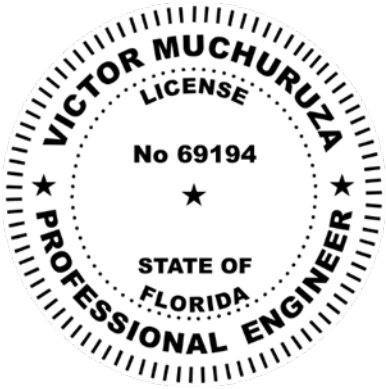
Manatee County, Florida

Financial Management Number: 454096-1-21-01

ETDM Number: 14552

Date: December 18, 2025

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 the Federal Highway Administration and FDOT.

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# 1.0 Project Summary

This introductory Section summarizes the Project Development and Environment (PD&E) study conducted by the Florida Department of Transportation (FDOT), District One for the proposed action by defining the project, explaining why the project is needed, briefly describing the alternative evaluation conducted, and providing a description of the Preferred Alternative.

## 1.1 Project Description

The Interstate 75 (I-75) (State Road 93) interchange at Moccasin Wallow Road (County Road 683) in Manatee County is proposed for modification to address travel demand, capacity and safety needs. **Figure 1.1** shows the project location. This project was identified from a needs assessment performed as part of the Southwest Connect I-75 North Corridor Master Plan (Master Plan), completed by FDOT in June 2023. Consistent with the Master Plan, this PD&E Study evaluated increasing capacity, improving traffic operations, and enhancing safety along the I-75 mainline, its ramps, and the Moccasin Wallow Road interchange.

Key elements of this project include construction of braided ramps between the I-275 interchange at Mile Post 229 and Moccasin Wallow Road interchange at Mile Post 230; conversion of the I-75 at Moccasin Wallow Road interchange from a traditional diamond interchange to a diverging diamond interchange (DDI); capacity improvements along Moccasin Wallow Road, extending from Gillette Drive to Buffalo Road; addition of bicycle lanes on both sides, a shared use path on the north side and a sidewalk on the south side of the Moccasin Wallow Road; and stormwater management features, including ponds and floodplain compensation (FPC) sites.

The project is 2.75 miles in length along I-75 from north of I-275 to north of Moccasin Wallow Road and 0.75 miles in length along Moccasin Wallow Road from Gillette Drive to Buffalo Road.

I-75 is a limited access facility that is part of Florida's Strategic Intermodal System (SIS), a statewide network of high priority facilities providing the highest degree of mobility for people and goods throughout Florida. I-75 is also a primary limited access highway of the National Highway Freight Network (NHFN) and an evacuation route designated by the Florida Division of Emergency Management (FDEM). The primary functions of I-75 are to facilitate high-speed traffic movements, accommodate longer distance travels, and serve as a critical freight route. The functional classifications of I-75 within the project limits are "Urban Principal Arterial - Interstate" south of Moccasin Wallow Road and "Rural Principal Arterial - Interstate" north of Moccasin Wallow Road. I-75 within the project limits includes six travel lanes (three 12-foot lanes in each direction separated by a grass median) with an additional 12-foot auxiliary lane in the northbound direction. The posted speed limit is 70 miles per hour (mph).

Within the project limits, Moccasin Wallow Road is classified as an Arterial based on Manatee County Comprehensive Plan. It consists of four 12-foot travel lanes (two in each direction) separated by a grass median and includes five-foot to 10-foot paved shoulders designated as bicycle lanes. This roadway serves as an important east-west roadway within northern unincorporated Manatee County, providing direct connections to US 41, I-75, and US 301, which are major north-south transportation corridors along Florida's west coast.

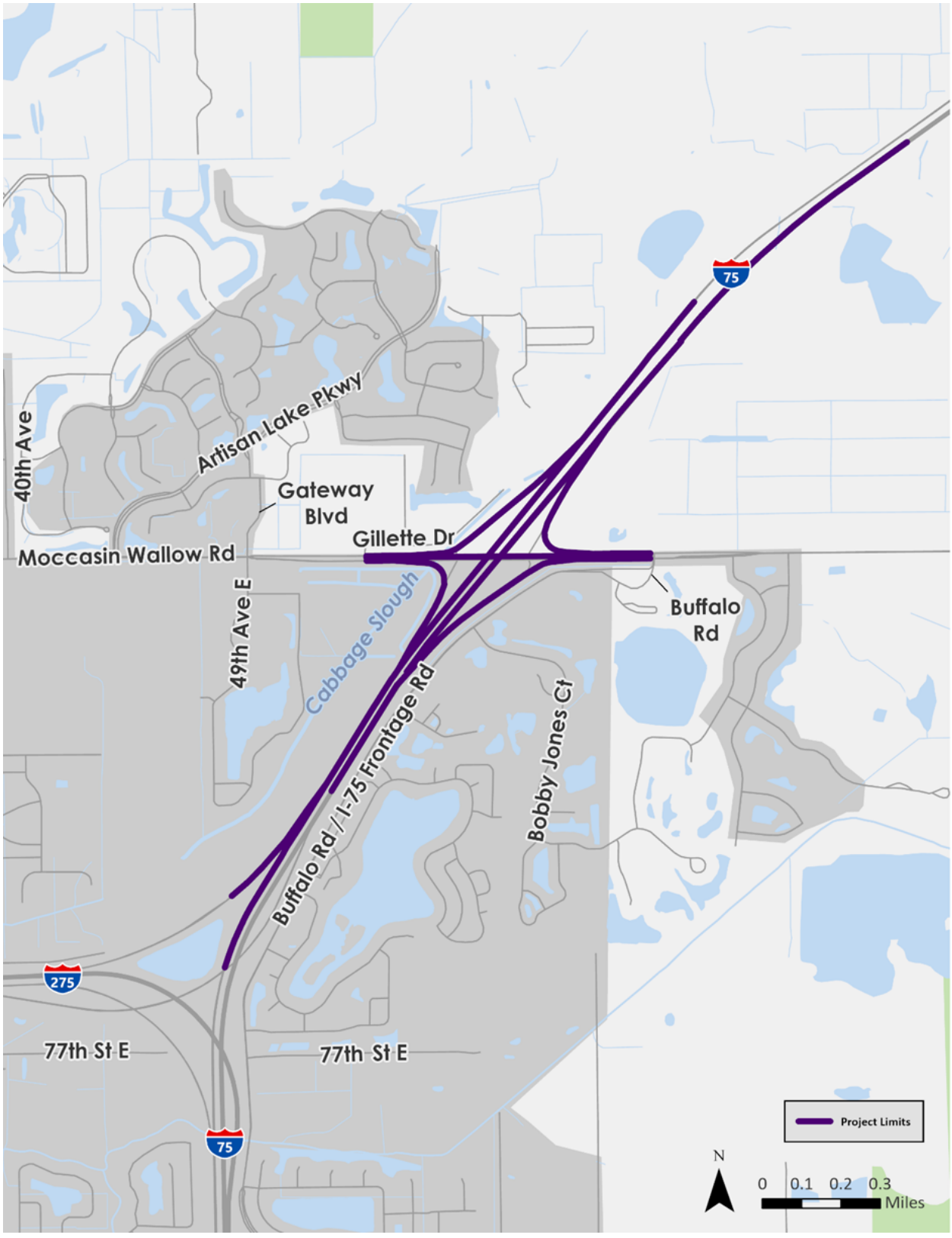



Figure 1.1. Project Location

The posted speed limits on Moccasin Wallow Road are 40 mph and 45 mph. There are no sidewalks along Moccasin Wallow Road within the project limits. Sidewalks and bicycle lanes also exist intermittently along Gillette Drive and Buffalo Road. No Manatee County Area Transit (MCAT) routes operate within the project limits.

Right-of-way (ROW) width along the I-75 project segment varies between 385 feet and 410 feet. The existing ROW width along the Moccasin Wallow Road segment is approximately 267 feet. The existing ROW is constrained by environmental and existing infrastructure features, including Cabbage Slough, a small creek located along the west side of the interchange underneath Moccasin Wallow Road, as well as existing stormwater ponds located adjacent to I-75 and Moccasin Wallow Road. Additional ROW acquisition will be required for stormwater management facilities and construction of the braided ramp system between I-275 and Moccasin Wallow Road.

## 1.2 Purpose and Need

The purpose of this project is to accommodate future traffic demand through capacity and operational improvements, as well as to enhance safety along I-75 mainline from north of I-275 to north of Moccasin Wallow Road, including at the I-75 and Moccasin Wallow Road interchange. The need for this project is based on the following factors:

### 1.2.1 Project Status

The FDOT Master Plan prepared for the entire I-75 corridor traversing Manatee and Sarasota Counties was finalized in June 2023. The Master Plan identified a need for capacity improvements along several mainline segments and subareas of I-75, including the segment between I-275 and Moccasin Wallow Road as well as the interchange at Moccasin Wallow Road.

The Efficient Transportation Decision Making (ETDM) Programming Screen (ETDM #14552) was completed with a publication of the Final Programming Screen on July 25, 2025 (see **Appendix A**).

The project is not listed in the FDOT 2025 - 2029 Five Year Work Program or the current FDOT State Transportation Improvement Program (STIP). The entire I-75 corridor traversing FDOT District One is included in the adopted FDOT SIS First Five Year Interstate Plan Fiscal Year (FY) 2024/2025 through FY 2028/2029 (as of July 1, 2024) with funding allocated for the PD&E phase. The I-75 at Moccasin Wallow Road interchange is identified in the FDOT SIS Cost Feasible Plan 2035 - 2050 with funding programmed for the Preliminary Engineering and Construction phases. The Sarasota/Manatee Metropolitan Planning Organization (MPO) 2045 Long Range Transportation Plan (LRTP) lists the I-75 managed lanes project from north of University Parkway to Moccasin Wallow Road as a cost feasible SIS project with funding programmed for the PD&E/Preliminary Engineering phase in FY 2029 - FY 2035 and ROW and Construction phases in FY 2036 - FY 2040. The Sarasota/Manatee MPO 2024/25 - 2028/29 Transportation Improvement Program (TIP) identifies the same project with the PD&E phase funded prior to FY 2025; the I-75 at Moccasin Wallow Road interchange is not specifically identified.

### 1.2.2 Transportation Demand

I-75 supports vital commerce and tourism of the state by connecting major employment centers, residential areas and tourist destinations along Florida's west coast. The 2024 Annual Average Daily Traffic (AADT) volumes along the I-75 project segment range between 96,000 and 101,000 vehicles per day (vpd). AADT volumes along Moccasin Wallow Road within the project limits range approximately 7,000 to 22,000 vpd. According to the FDOT District One Regional Planning Model, Manatee County's

population is projected to grow from 377,171 in 2015 to 558,820 in 2045, a 48.2% increase. Employment is expected to grow from 119,680 jobs in 2015 to 193,306 jobs in 2045, a 61.5% increase. Manatee County has the eighth highest growth rate among Florida's 67 counties according to the 2020 United States Census.

I-75 is an essential north-south freight corridor within Manatee County and Florida. In 2024, Annual Average Daily Truck Traffic (AADTT) along the I-75 project segment represented 11.1% to 17.7% of the total traffic volumes, while truck traffic along Moccasin Wallow Road segment comprised 5.4% to 5.6%. Truck volumes using the I-75 mainline and Moccasin Wallow Road interchange are expected to increase as freight distribution and logistics activities continue to expand throughout Southwest Florida and adjacent regions.

### 1.2.3 Capacity

As part of the Master Plan, a traffic operational analysis was performed for I-75, its ramps, and at each I-75 interchange within the Master Plan limits. Results of the 2045 No-Build condition analysis indicated that the I-75 at Moccasin Wallow Road interchange is expected to experience delays up to 10 minutes at the study intersection within the area of influence.

An operational analysis of existing conditions (2024) performed for the I-75 and Moccasin Wallow Road interchange using a calibrated Vissim model indicates that the southbound ramp terminal operates at Level of Service (LOS) F, with queues exceeding available storage during the AM peak hour. The I-75 southbound weaving segment between the Moccasin Wallow Road on-ramp and the I-275 off-ramp operates at 59 mph in the AM peak and 65 mph in the PM peak.

In the Design Year 2050 No-Build Alternative, off-ramp queues are projected to back up onto I-75, resulting in LOS F operations in both directions approaching the interchange, with speeds deteriorating to between 7 and 32 mph along I-75 segments within the analysis area of influence. Southbound bottlenecks and congestion on Moccasin Wallow Road would limit traffic flow, with only 57% to 61% of southbound demand reaching the weaving segment. In the northbound direction, queue spillback from the interchange would restrict traffic flow to only 68% and 52% of the traffic demand in the AM and PM peak hours, respectively.

### 1.2.4 Safety

An analysis of crash data collected from Signal 4 Analytics showed that between January 1, 2019, and June 30, 2024, 343 crashes were reported within the interchange analysis area of influence. Of 343 crashes, 205 occurred along the I-75 mainline, 55 occurred on the I-75 interchange ramps, 38 occurred at the I-75 ramp terminal intersections, seven occurred along Moccasin Wallow Road segments outside the intersection influence area (250 feet), and 38 occurred at Moccasin Wallow Road intersections at 49th Avenue East, Gillette Drive and Buffalo Road. With respect to severity levels, 23 were serious injury crashes, 108 were non-serious injury crashes, and 212 were no-injury crashes. There were no fatal crashes reported during this period.

The I-75 northbound off ramp to Moccasin Wallow Road had the highest number of reported crashes (14), followed by the I-75 southbound off ramp to I-275 westbound (13 crashes). The I-275 eastbound off ramp to I-75 northbound reported the fewest crashes (5).

An analysis of crash rates for roadway segments along I-75 mainlines and Moccasin Wallow Road (**Table 1.1**) indicated that all segments had crash rates lower than the statewide average of similar

facilities, except for the segment of I-75 north of Moccasin Wallow Road northern ramps, which exhibited a higher crash rate than the statewide average crash rate.

I-75 is critical in facilitating traffic during emergency evacuation periods, serving as the primary north-south route within Manatee County and along Florida's west coast and connecting to other major evacuation routes, including I-275 and US 301.

**Table 1.1. Crash Rate (2019-2023) Analysis Results**

| Location | Length (miles) | Total Crashes (2019-2023) | Crash Frequency | Average AADT | Crash Rate | 2018-2022 Statewide Average Crash Rate |
|---|---|---|---|---|---|---|
| I-75 between I-275 ramps and Moccasin Wallow Road southern ramps | 0.39 | 43 | 8.6 | 90,900 | 0.6646 | 0.8677 |
| I-75 between Moccasin Wallow Road ramps | 0.82 | 45 | 9.0 | 87,900 | 0.3421 | 0.8677 |
| I-75 north of Moccasin Wallow Road northern ramps | 0.22 | 33 | 6.6 | 84,900 | 0.9681 | 0.8677 |
| Moccasin Wallow Road | 1.20 | 7 | 1.4 | 11,912 | 0.2683 | 0.9972 |

## 1.3 Commitments

FDOT commits to implementing the following measures during the design, permitting and construction phases of this project:

Commitments

- FDOT will provide mitigation for impacts to wood stork Suitable Foraging Habitat within the Service Area of a Service-approved wetland mitigation bank or wood stork conservation bank.
- As the timeline for construction is better defined, FDOT will adhere to the applicable commitment below:
    - Upon listing of the tricolored bat, if the project contains suitable habitat and requires tree trimming and/or clearing, FDOT will not conduct tree trimming/clearing activities during the tricolored bat pup season (May 1st to July 15th) and when bats may be in torpor (when temperatures are below 45 degrees Fahrenheit).
    - Upon listing of the tricolored bat, if the project contains suitable habitat and FDOT needs to trim or clear trees or perform work on bridges/culverts during the maternity season and/or when the temperature is below 45 degrees Fahrenheit, then FDOT will survey the project area for evidence of the tricolored bat. The Indiana Bat and Northern Long-eared Bat Survey Guidance (USFWS), Appendix J acoustic survey protocol in the year-round range (mist netting is not being conducted in Florida at this time), will be used for areas with tree trimming/clearing. For bridges and culverts, the Indiana Bat and Northern Long-eared Bat Survey Guidance, Appendix K, Assessing Bridges and Culverts for Bats, will be used.
        - If the surveys result in no tricolored bats detected, then FDOT can proceed with the project activities. Negative results from bridge/culvert surveys are valid for

2 years. Negative results for acoustic surveys are valid for 5 years. However, negative results for either survey may be invalidated if additional tricolored bat survey data is submitted to USFWS showing presence of the species within the vicinity of the project area. Additional survey work by FDOT, or application of the avoidance and minimization measures noted above, may be required if updated detections are reported, and may result in reinitiation of consultation with USFWS.

  - If the surveys result in positive detections of the tricolored bat, FDOT will implement conservation measures such as: not conducting tree trimming/clearing activities during the tricolored bat pup season (May 1st to July 15th) when pups are not volant and not able to escape disturbance; similarly avoid tree trimming/clearing activities when the temperatures are below 45 degrees Fahrenheit when bats may be in torpor and unresponsive to disturbance.

- Section 7 coordination will be re-initiated with the USFWS during the design phase of the project.
- A survey will be conducted for the Audubon's crested caracara per USFWS protocol during the design phase.
- A survey for the giant airplant will be performed during the design phase and coordination with FDACS will occur if impacts to the species are anticipated.
- The most recent version of the USFWS Standard Protection Measures for the Eastern indigo snake will be utilized during construction.
- If the monarch butterfly is listed by USFWS as threatened or endangered and the project may affect the species, FDOT commits to re-initiating consultation with USFWS to determine appropriate avoidance and minimization measures for protection of the newly listed species.
- The FDOT is committed to the construction of the potentially feasible and reasonable noise abatement measures identified in **Table 7.6**, contingent upon the following conditions:
  - Final recommendations on the construction of abatement measures are determined during the project's final design and through the public involvement process; and
  - Detailed noise analyses during the final design process support the need, feasibility, and reasonableness of providing abatement; and
  - Cost analysis indicates that the cost of the noise barrier(s) will not exceed the cost reasonable criterion; and
  - Community input supporting types, heights, and locations of the noise barrier(s) is provided to FDOT; and
  - Safety and engineering aspects have been reviewed, and any conflicts or issues resolved.

## 1.4 Alternatives Analysis Summary

### 1.4.1 No-Build Alternative

The No-Build Alternative (No-Action Alternative) retains the existing roadway and diamond interchange configuration for Moccasin Wallow Road. Existing features for Moccasin Wallow Road under this alternative include two 12-foot lanes in each direction between Gillette Drive and Buffalo Road, a 40-

foot median, variable width paved shoulders (between five feet and 10 feet) in each direction, which are designated as bicycle lanes. Immediately outside the project limits the Manatee County Moccasin Wallow Road Improvements Project is under construction to the west of I-75 and in the Design Phase to the east of I-75. The Manatee County project consists of a 12-foot shared use path present to the west of the Gillette Drive intersection on the north side, while a five-foot sidewalk is present to the east of the Buffalo Road intersection on the south side. The ramp terminal intersections remain unsignalized. The intersection at Buffalo Road is signalized, while Gillette Drive intersection has a directional median opening.

Along I-75, the No-Build Alternative consists of a seven-lane freeway located within a minimum 385-foot right-of-way. The configuration includes three 12-foot lanes in the southbound direction and four 12-foot lanes in the northbound direction, separated by a grass median. The fourth northbound lane drops approximately 4,500 feet north of the Moccasin Wallow Road interchange. In the southbound direction, I-75 includes an auxiliary lane from Moccasin Wallow Road that directs traffic to the I-275 interchange. The No-Build Alternative does not address the projected travel demand and would fail to enhance safety or mobility for all users.

### 1.4.2 Build Alternative

The Build Alternative involves modifications to the I-75 at Moccasin Wallow Road interchange, to a DDI concept, see **Figure 1.2**. This design concept is proposed to accommodate high volumes of left-turning traffic to and from Moccasin Wallow Road. A DDI eliminates the need for traditional left turn signals at ramp terminals by shifting traffic to the opposite (left) side of the roadway within the interchange. This configuration allows vehicles, once on the left side of the road, to make a direct, unopposed left turn onto freeway ramps without a need for a left-turn signal. Because left turning vehicles no longer conflict with oncoming traffic at the freeway ramp, signal timing can be simplified, often requiring only two phases instead of three or more. This design improves both traffic flow and safety by reducing conflict points and enhancing operational efficiency.

Under the Build Alternative, Moccasin Wallow Road will be widened to three 12-foot through lanes in each direction between Gillette Drive and Buffalo Road. The design includes seven-foot buffered bicycle lanes on both sides and a variable-width median ranging from 24 feet to 70 feet. Within the interchange area, a turn lane will be added in each direction to accommodate traffic demand from turning vehicles. The Build Alternative also includes a 12-foot shared use path on the north side and a six-foot sidewalk on the south side.

Along I-75, the Build Alternative will retain four 12-foot lanes in the northbound direction and three 12-foot lanes in the southbound direction. Both on-ramps and the southbound off-ramp in the Build Alternative are proposed to include two lanes, while the northbound off-ramp will have one lane. The Build Alternative also incorporates a braided ramp system, providing grade-separated access for traffic from the I-75 southbound off-ramp to I-275, and from Moccasin Wallow Road to the I-75 southbound on-ramp. Additionally, both off-ramps will have emergency stopping sites.

Traffic and safety analyses conducted as part of this study indicated that the Build Alternative satisfies the project's purpose and need by accommodating anticipated future travel demand through capacity improvements. It also provides additional capacity to improve operational efficiency and enhance safety. Furthermore, the alternative supports multimodal mobility by incorporating facilities for pedestrians and bicyclists.

Potential impacts to wetlands, protected species, floodplain and water quality that may result from Build Alternative implementation have been minimized to the extent practicable through project design. Additional mitigation will be achieved through the use of best management practices (BMPs), compliance with permit conditions, and implementation of compensatory mitigation measures, as required by applicable federal and state environmental laws and regulations.

## 1.5 Description of the Preferred Alternative

The Preferred Alternative was selected based on an evaluation of the project's purpose and need, as well as environmental and engineering factors associated with both the No-Build and Build Alternatives. The decision also considered the results of the comparative alternatives analysis and input received throughout the PD&E Study development process.

The Preferred Alternative involves modifications to the I-75 at Moccasin Wallow Road interchange, implementing a DDI, see **Figure 1.2**. This innovative design concept accommodates high volumes of left-turning traffic to and from Moccasin Wallow Road by allowing vehicles to make left turns onto I-75 ramps from left side of the roadway. This design reduces conflict points, improves traffic flow, and enhances safety.

Key features of the Preferred Alternative along Moccasin Wallow Road include:

- Widening Moccasin Wallow Road to three 12-foot through lanes in each direction between Gillette Drive and Buffalo Road.
- Within the interchange area, an additional lane in each direction.
- Seven-foot buffered bicycle lanes on both sides.
- A 12-foot shared use path on the north side
- A six-foot sidewalk on the south side.

Along I-75, the Preferred Alternative retains four 12-foot lanes in the northbound direction and three 12-foot lanes in the southbound direction. The Preferred Alternative will reconstruct the two I-75 bridges. Proposed ramp configurations include:

- Two-lanes southbound off-ramp
- Two-lanes southbound on-ramp
- One-lane northbound off-ramp
- Two-lanes northbound on-ramp

A braided ramp system is proposed to separate traffic on the southbound off-ramp from I-75 to I-275 and the southbound on-ramp traffic from Moccasin Wallow Road to I-75, improving operational efficiency and enhancing safety. Additionally, emergency stopping sites are provided along both off-ramps.

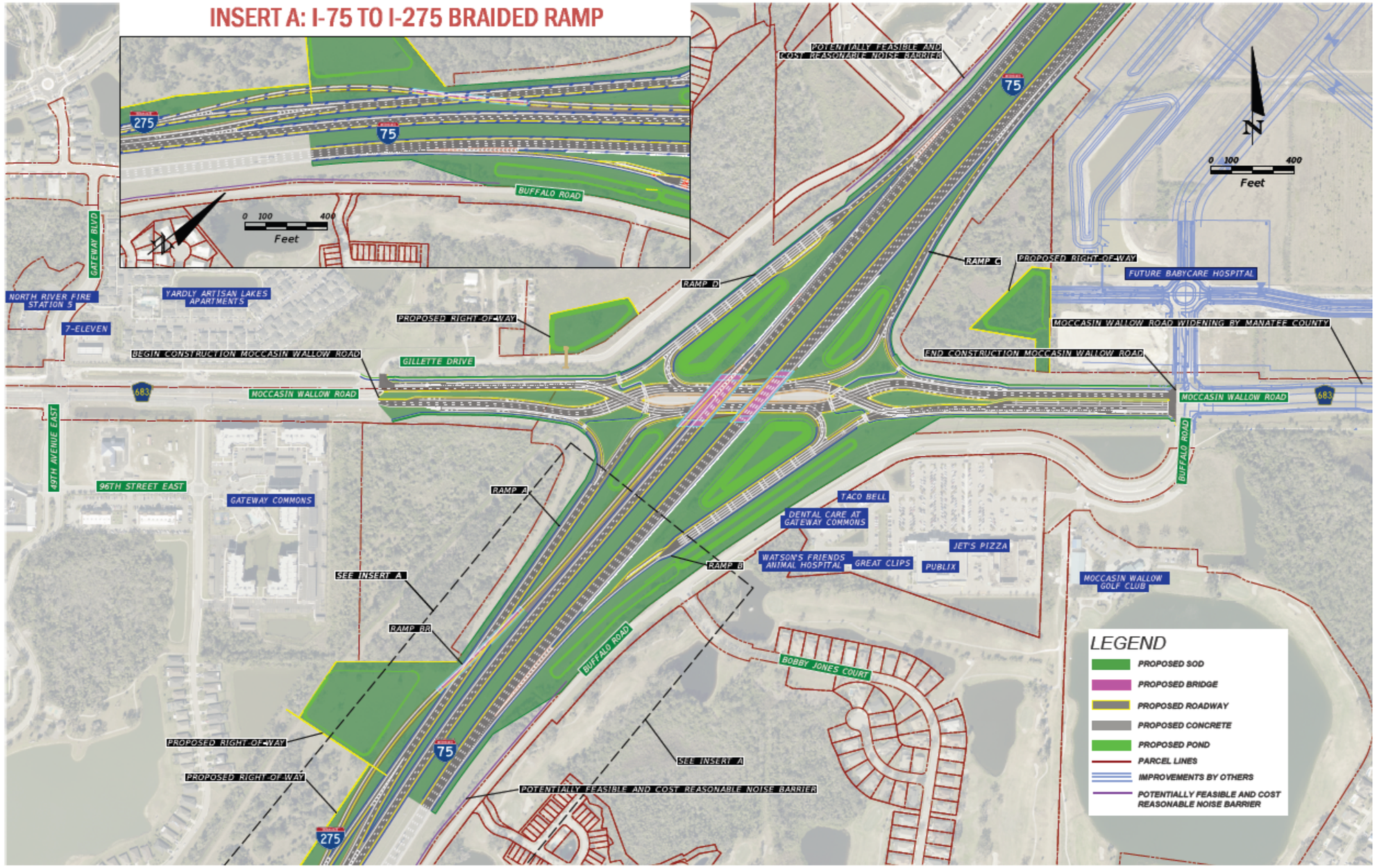



Figure 1.2. Proposed Diverging Diamond Concept

Implementation of the Preferred Alternative will require five stormwater pond sites for a total of 7.48 acres within existing ROW associated with the interchange in-field areas, and five FPC sites within existing and proposed ROW. Additionally, nine cross drains have been identified for replacement or extension. Approximately 10.98 acres of ROW from three parcels are required to accommodate FPC sites and the construction of the braided ramp system.

Implementation of the Preferred Alternative will require design variations for border width on ramps and the number of lanes slopped in one direction along I-75. Per Section 211.6.1 of the FDOT Design Manual (FDM), a design variation for border width is not necessary if no additional ROW is needed; however, since ROW acquisition is currently anticipated, a design variation will be required unless future project phases determine that ROW acquisition is unnecessary. Additionally, the proposed design includes four lanes sloped in one direction with a design speed of 70 mph to match existing conditions, but this configuration does not meet the cross slope requirements specified in FDM Figure 211.2.1 Note 4.

## 1.6 List of Technical Documents

Table 1.2 lists the technical documents that were prepared as part of this PD&E Study. These documents cover various topics pertinent to the PD&E Study evaluation and decision-making process and are intended to support environmental, engineering, and planning analyses. Documents that are in draft status are noted with a "Draft" and a date of the draft submittal is in parenthesis. This information is included to indicate the most recent version available and to distinguish between preliminary and finalized reports.

Table 1.2. Technical Documents Prepared for this Study

| Report | Date Completed |
|---|---|
| Public Involvement Plan-Final | 07/16/2024 |
| Methodology Letter of Understanding (MLOU)-Final | 10/29/2024 |
| Interchange Modification Report (IMR) | 11/06/2025 |
| Utility Assessment Package | 06/11/2025 |
| Pond Siting Report (PSR) | 05/29/2025 |
| Project Design Variation Memorandum | 08/05/2025 |
| TSM&O Opportunities Technical Report | 07/18/2025 |
| Location Hydraulics Report (LHR) | 05/29/2025 |
| Cultural Resource Assessment Survey (CRAS) | 05/07/2025 |
| Natural Resource Evaluation (NRE) | 08/26/2025 |
| Water Quality Impact Evaluation (WQIE) | 07/11/2025 |
| Noise Study Report (NSR) | 07/17/2025 |
| Contamination Screening Evaluation Report (CSER) | 05/19/2025 |
| Farmland Conversion Impact Rating Form | 07/02/2025 |
| Comments and Coordination Report | 08/05/2025 (Draft) |
| Categorical Exclusion (CE) Type 2 | 12/15/2025 (Draft) |

# 2.0 Existing Conditions

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

## 2.1 Previous Planning Studies

### 2.1.1 I-75 North Corridor Master Plan

FDOT District One conducted a Master Plan Study for the I-75 North Corridor from south of SR 777 (North River Road) to north of Moccasin Wallow Road in Sarasota and Manatee counties. The I-75 North Corridor is approximately 40 miles and traverses the urban areas of Sarasota and Bradenton. The goal of the Master Plan was to assess long-term capacity needs along the I-75 mainline and propose methods to improve accessibility, mobility, and safety on the mainline and at interchanges. The need for improvements arises from traffic congestion and safety concerns. The Master Planning effort included evaluations of managed lanes, collector-distributor roadways, auxiliary lanes, and interchange operational enhancements.

The I-75 Master Plan provides a long-term framework for funding and implementation of proposed improvements, promoting efficient use of resources for future infrastructure enhancements. The recommendations help FDOT District One prioritize future PD&E studies, final design projects, and/or construction projects, as appropriate. The recommendations include phased projects implementation and interim improvements to provide congestion relief along the corridor until the long-term improvements are complete.

The I-75 at Moccasin Wallow Road Interchange PD&E Study was recommended in the I-75 Master Plan and identified as Project 13. Based on the analysis conducted as part of the Master Plan, a DDI concept was proposed due to the high turning traffic volumes on Moccasin Wallow Road. The existing interchange configuration is a diamond, with existing and planned developments in all quadrants. Cabbage Slough runs along the west side of the interchange and crosses Moccasin Wallow Road, further constraining the site. These conditions limit the feasibility of other interchange configurations. The I-75 Master Plan also proposed modifications to the I-75 at I-275 system interchange as Project 12, which would be needed beyond year 2045.

A copy of the Master Plan can be downloaded from I-75_North_Corridor_Final_Master_Plan. Traffic assumptions, including social and economic data used to inform development of traffic for the Master Plan were reviewed and updated based on the current information as documented in detail in the Interchange Modification Report (IMR) prepared for this project and submitted under a separate cover.

### 2.1.2 Related Projects

Manatee County is widening 6.5 miles of Moccasin Wallow Road to expand its capacity from a two-lane to a four-lane roadway, with provisions for future expansion to six lanes to accommodate increased traffic and regional growth (**Figure 2.1**). The Moccasin Wallow Road widening project consists of four (4) segments totaling 6.5 miles, between US 41 and US 301:

- Segment 1: From 115th Avenue East to US 301. Construction complete in Summer 2025.
- Segment 2: From Bay Winds Parkway to 115$^{t}$th Avenue East currently under construction, with completion expected in Summer 2025.

- Segment 3: From Buffalo Road to Bayside Community Church. Under construction, with completion expected in 2027.
- Segment 4: From US 41 to Gillette Drive. Construction completed in Spring 2025.

The widening improvements also include a 12-foot shared use path on the north side of Moccasin Wallow Road, a six-foot sidewalk on the south side, seven-foot buffered bicycle lanes in both directions, and stormwater management in terms of linear ponds along the corridor.

The goals of the project are to improve vehicular operations and functionality along the Moccasin Wallow Road corridor; reduce congestion and enhance traffic flow; provide local connectivity through new bicycle and pedestrian facilities; and offer safe, affordable, accessible, and sustainable mobility for all users.

Segments 3 and 4 are located east and west of the I-75 and Moccasin Wallow Road interchange, respectively. Segment 3 extends from Bayside Community Church to Buffalo Road, immediately east of I-75. Segment 4 extends from Gillette Drive (west of I-75) to US 41. Additionally, in the interim, the County plans to signalize both the northbound and southbound ramp terminals and extend the shared-use path between Gillette Drive and Buffalo Road. These improvements will be implemented as part of Segment 3 and are expected to address mobility and safety needs at the interchange as short term improvement. More information can be viewed from the project website: moccasinwallowroad.com.

The analysis and design for the interchange concept were developed in coordination with these segments.

## 2.2 Existing Roadway Conditions

The existing roadway typical sections for I-75, I-75 ramps, and Moccasin Wallow Road are discussed and presented in the following subsections.

### 2.2.1 Interstate 75

The existing typical section for I-75 is illustrated in **Figure 2.2**. At the Moccasin Wallow Road interchange, I-75 consists of a seven-lane divided interstate located within a minimum 385-foot ROW. The configuration includes three 12-foot lanes in the southbound direction and four 12-foot lanes in the northbound direction, separated by a grass median. The fourth northbound lane drops approximately 4,500 feet north of the Moccasin Wallow Road interchange. In the southbound direction, I-75 includes an auxiliary lane from Moccasin Wallow Road that directs traffic to I-275 overpass. The typical section also features a variable-width median (minimum 65 feet) and 12-foot inside and outside shoulders, with 10 feet of pavement. The design speed for I-75 is 70 mph and the posted speed is 70 mph.


Figure 2.1. Manatee County Moccasin Wallow Road Improvement Project

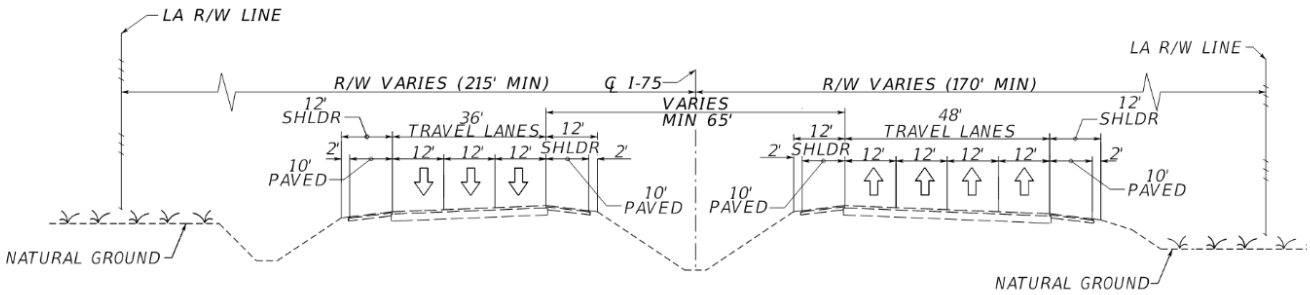



Figure 2.2. Existing I-75 Mainline Typical Section

### 2.2.2 Ramps

The existing typical section for the I-75 ramps is illustrated in **Figure 2.3**. The ramps connecting Moccasin Wallow Road to I-75 include a six-foot inside shoulder (2 feet paved), a single 15- to 16-foot travel lane, and a six-foot outside shoulder (four feet paved).

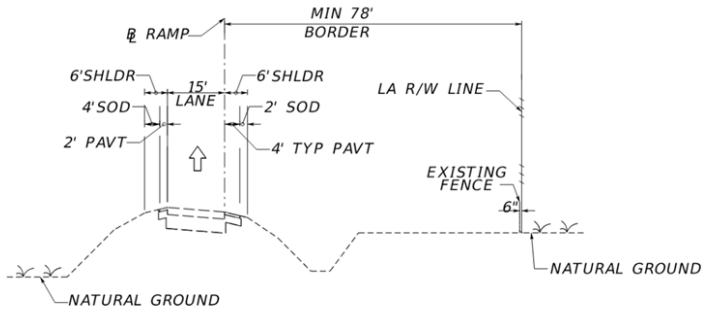



Figure 2.3. Existing I-75 Ramps Typical Section

### 2.2.3 Moccasin Wallow Road

Within the project limits, Moccasin Wallow Road consists of two 12-foot lanes in each direction (**Figure 2.4**). Paved shoulders are present on both sides of the roadway, with widths varying between 5 feet and 10 feet. This segment also includes a 40-foot median with left-turn pockets at access openings, as well as variable width bicycle lanes (on the paved shoulders) in each direction between the southbound and northbound ramp terminals. East and west of the ramp terminals, bicycle lanes are designated within the paved shoulders. There are no sidewalks along Moccasin Wallow Road within the project limits. The posted speed is 45 mph.

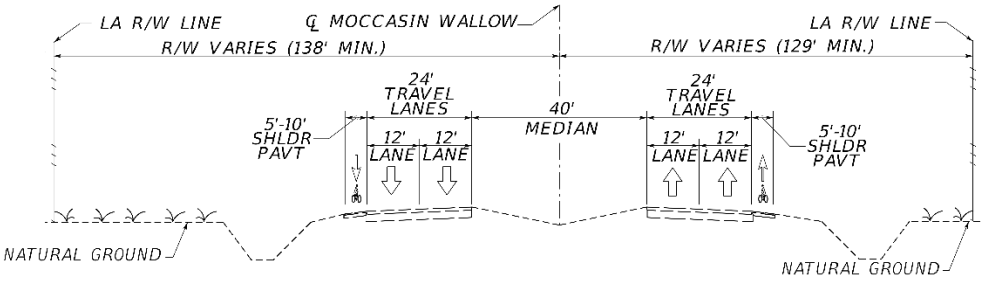



Figure 2.4. Existing Moccasin Wallow Road Typical Section

### 2.2.4 Roadway Functional & Context Classifications

I-75 is functionally classified as a Principal Arterial, supporting high-capacity regional and interstate travel as part of the National Highway System (NHS). Additionally, I-75 is designated as a SIS corridor and serves as a critical evacuation route during emergency events.

Manatee County Comprehensive Plan classifies Moccasin Wallow Road as an Arterial. The context classification for Moccasin Wallow Road, an off system roadway, is Suburban Commercial (C3C) reflecting the surrounding land uses, which include a mix of commercial, industrial, and residential developments. The limited roadway network in the area supports a suburban context designation. Several ongoing projects are located near the interchange, including the widening of the roadway from two to four lanes with associated pedestrian and bicyclist improvements. The typical sections for the current Manatee County widening project indicate an ultimate plan for six lanes, including a seven-foot buffered bicycle lane.

### 2.2.5 Access Management Classification

Based on the FDOT Design Manual (FDM) Section 201.4, access management is a regulation reserved for the SHS. The existing Access Classes are shown in **Table 2.1.** Moccasin Wallow Road is a designated county road, and as such, is governed by the Manual of Uniform Minimum Standards for Design, Construction and Maintenance (Florida Greenbook) which uses the title 'Access Control.' However, using FDM access management guidelines as a reference, Moccasin Wallow Road from Gillette Drive to Buffalo Road most closely resemble Access Class 3 (Restrictive Median Type). I-75 is classified as Access Class 1 (Area Type 2- existing urbanized area) based on the FDM Section 201.4.

Table 2.1. Access Management Classification

| Roadway | Existing Conditions |
|---|---|
| I-75 | Access Class 1 (Area Type 2) |
| Moccasin Wallow Road | Access Class 3 (Restrictive Median Type) |

### 2.2.6 Right-of-Way

Along I-75 the ROW width varies with minimum 385 feet.

The existing ROW widths is based on data gathered from Manatee County Property Appraiser. Along Moccasin Wallow Road the approximate ROW width ranges between 267 feet and 430 feet.

### 2.2.7 Adjacent Land Use

The surrounding area is characterized by a mix of land uses, primarily commercial, residential, and areas with agricultural or undeveloped/natural land use. Between 49th Avenue East and the I-75 interchange, the north side of Moccasin Wallow Road is predominantly commercial with some vacant parcels, while the south side is largely vacant. From the I-75 interchange to Buffalo Road on the northside, there is a mixed development under construction and an area that is zoned agricultural and remains vacant/natural/undeveloped whereas the south side is characterized by commercial development.. A map of the land use within the project limits is provided in **Figure 2.5.**

### 2.2.8 Pavement Type and Condition

FDOT conducts an annual survey of pavement conditions along the interstate system. The data collected is presented in the FDOT Interstate Pavement Condition Forecast, which includes a five-year estimated rating. Pavement conditions (crack and ride rankings) on I-75 are generally rated above the deficiency threshold (a score of 6.0 or below), with the lowest recorded rating being 7.6 in 2025.

### 2.2.9 Existing Design and Posted Speed

The design speed and posted speed limit along I-75 are 70 mph. Along Moccasin Wallow Road the design speed and posted speed limit are 45 mph from 49th Avenue East to Buffalo Road.

### 2.2.10 Horizontal Alignment

The horizontal alignment of I-75, from the I-275 interchange, generally runs in a north–south direction through the Moccasin Wallow Road area. Within the project limits, there are two horizontal curves, as summarized in **Table 2.2.** The horizontal geometry is based on centerline construction located at the inside edge of pavement for each direction independently. According to FDM Table 211.7.1, for a design speed of 70 mph, the minimum length of a horizontal curve is 1,050 feet, with a preferred length of 2,100 feet. Both curves within the project limits meet the minimum length requirements.

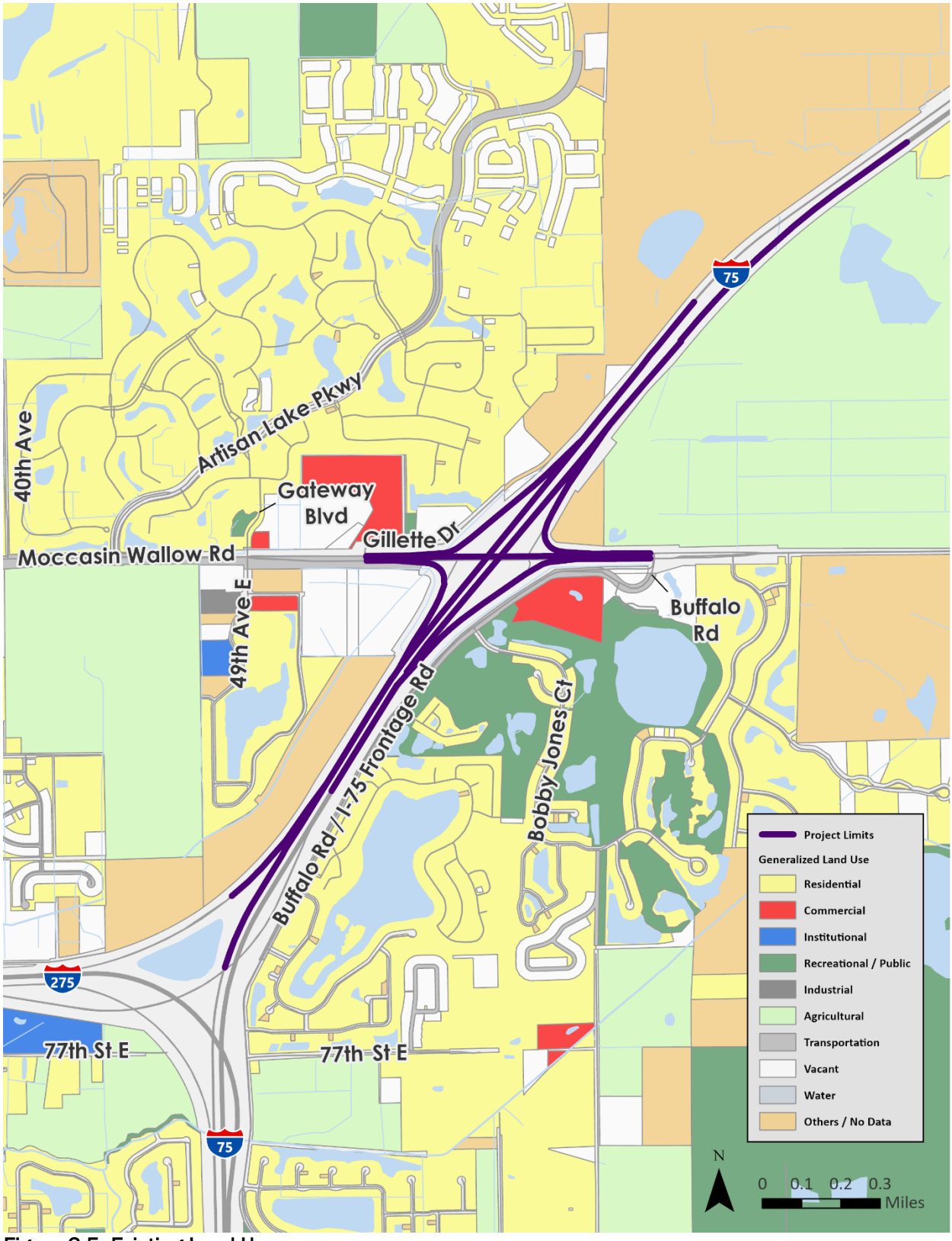



Figure 2.5: Existing Land Use

Table 2.2. Existing Horizontal Curves

| Curve No. | I-75 Northbound, I-75 Southbound, or Center | Location | Point on Curve Mile Post | Point on Tangent Mile Post | Radius (feet) | Length (feet) |
|---|---|---|---|---|---|---|
| 1 | Center | I-275 / I-75 | 12.520 | 12.796 | 3,820 | 2,196 |
| 2 | Center | South of Moccasin Wallow Road | 15.723 | 15.957 | 8,594 | 1,108 |

### 2.2.11 Vertical Alignment

The existing vertical curve information was compiled from recent construction plans, previous PD&E studies, and as-built drawings. **Table 2.3** summarizes the existing vertical curves on I-75 within the project limits.

The vertical alignment of I-75 was evaluated to assess compliance with current design standards for a 70 mph design speed. All vertical curves meet the maximum grade requirement of 3 percent, as specified in FDM Table 211.9.1. According to FDM Table 211.9.3, the minimum vertical curve lengths are 800 feet for sag curves, 1,000 feet for crest curves on open highway segments, and 1,800 feet for crest curves at interchanges where the mainline bridges over a side road. All existing curves meet these minimum length requirements.

FDM Table 211.9.2 establishes new construction minimum K values for vertical curvature on interstate facilities: 206 for sag curves, 506 for crest curves. Two crest curves—highlighted in orange in **Table 2.3**—do not meet the minimum K value requirement for new construction.

Table 2.3. Existing Vertical Curves

| VPI Station | Curve Type | Grade In | Grade Out | Length | K-Value |
|---|---|---|---|---|---|
| Left Roadway (I-75 Southbound) | | | | | |
| **800+27** | Crest | 0.37% | -2.22% | 1000 | 1676 |
| **831+95** | Sag | -0.22% | 0.00% | 800’ | 3561 |
| **853+07** | Crest | 2.20% | -2.20% | 2200’ | 500 |
| Right Roadway (I-75 Northbound) | | | | | |
| **784+43** | Sag | 0.20% | 0.39% | 800’ | 4303 |
| **805+55** | Crest | 0.39% | -0.22% | 1000’ | 1638 |
| **831+95** | Sag | -0.22% | 0.00% | 800’ | 3561 |
| **853+07** | Crest | 2.20% | -2.20% | 2200’ | 500 |

### 2.2.12 Multi-modal Facilities

The paved shoulders on Moccasin Wallow Road with the project limits are designated bicycle lanes with widths that vary from five to 10 feet extending from the Gillette Drive intersection to approximately 350 feet west of the Buffalo Road intersection. There are no pedestrian facilities currently located within project limits.

Additionally, the ongoing Manatee County's Moccasin Wallow Road Improvement project includes seven-foot buffered bicycle lanes on both sides of the roadway, a six-foot sidewalk on the south side, and a 12-foot shared use path on the north side.

No bus routes operate within the project limits.

### 2.2.13 Intersections

There are five intersections within the project's traffic and safety analysis area. The following section describes the existing intersection configurations, lane assignments, types of traffic control, technologies in use, and operational conditions within the project limits. Existing intersection lane configurations are illustrated in Figure 2.6.

#### Gateway Boulevard / 49th Avenue East

Gateway Boulevard/49th Avenue East is located west of I-75, outside of the western project limits. The intersection is signalized with strain pole assemblies. At the time of data collection in August 2024, this intersection was under construction with one through lane in each direction and exclusive left turn lanes along Moccasin Wallow Road. The eastbound direction had an exclusive right turn lane. Construction has since been completed and changed the configuration to two through lanes in eastbound and westbound directions with exclusive left turn lanes and exclusive right turn lane in the westbound direction. The lane configuration along Gateway Boulevard and 49th Avenue East remain unchanged after construction with single left turn, right turn, and through lanes in the northbound direction and left turn and a shared through/right lane in the southbound direction.

#### Gillette Drive

Gillette Drive is located 1,260 feet west of the I-75 and Moccasin Wallow Road interchange southbound ramp terminal. The T-intersection is stop controlled on Gillette Drive (minor street) and includes a directional median opening (implemented by the recently completed Manatee County project).

#### I-75 Southbound Ramps

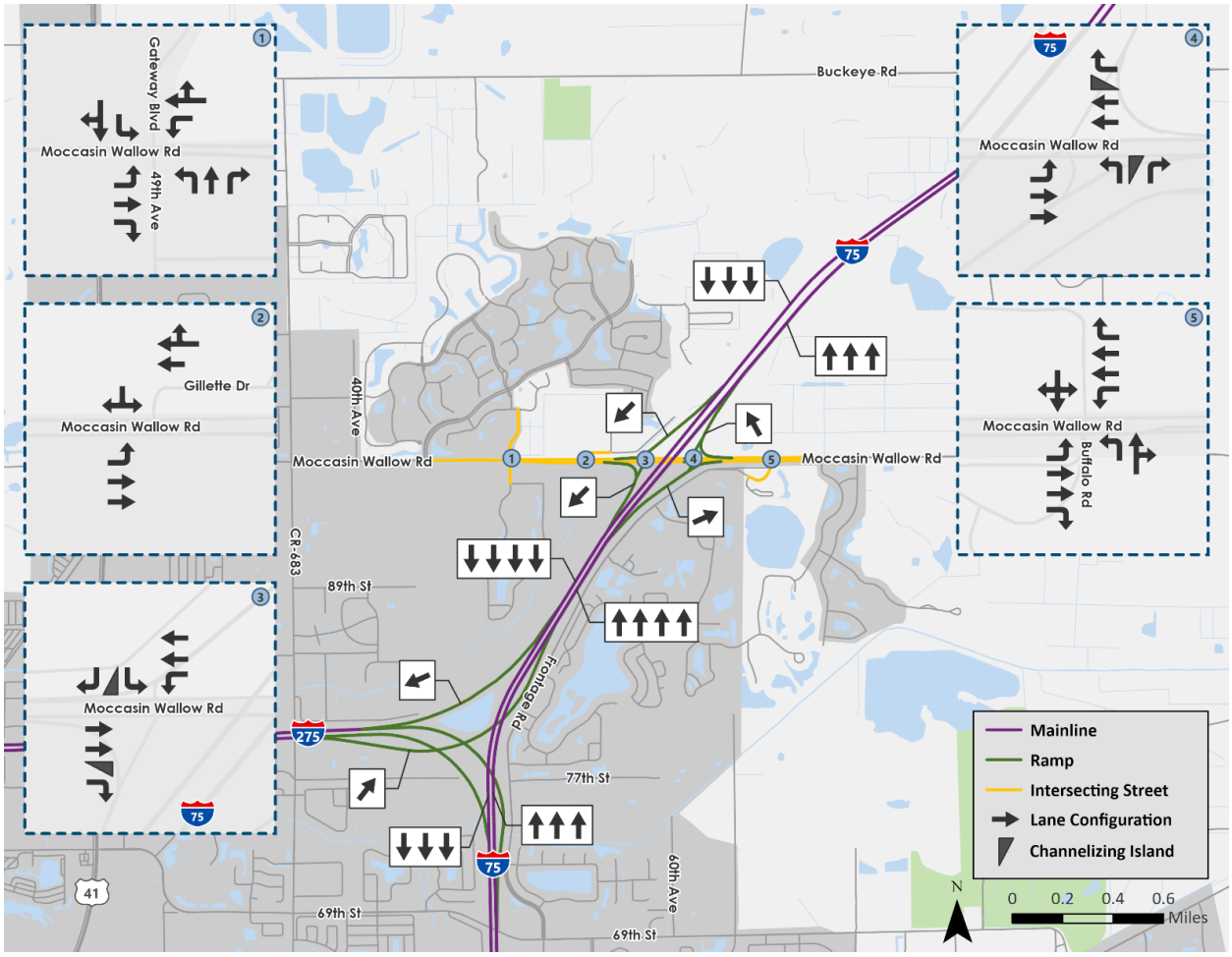
The intersection of the southbound I-75 ramps with Moccasin Wallow Road includes a single-lane off-ramp and a single-lane on-ramp. The right turn lane operates under yield conditions, with drivers required to yield to conflicting traffic on Moccasin Wallow Road. The intersection is currently unsignalized.

#### I-75 Northbound Ramps

The intersection of the northbound I-75 ramps with Moccasin Wallow Road includes a single-lane off-ramp and a single-lane on-ramp. The right turn lane operates under yield conditions, with drivers required to yield to conflicting traffic on Moccasin Wallow Road. This intersection is unsignalized.

### Buffalo Road

Buffalo Road functions as a frontage road for I-75. The intersection is located 1,700 feet east of the I-75 interchange northbound ramp terminal and is signalized with mast arms at all four corners. Moccasin Wallow Road has two through lanes in each direction, while Buffalo Road has one through lane in each direction.




*Note. Lane configuration at Gateway/49th Avenue East were observed in 2024, during construction*

**Figure 2.6 Existing Intersections**

### 2.2.14 Physical or Operational Restrictions

Cabbage Slough, located immediately west of the I-75 and Moccasin Wallow Road interchange, presents a physical constraint that may limit potential geometric improvements to the interchange. Additionally, the close proximity of existing intersections—Gillette Drive (approximately 500 feet west) and Buffalo Road (approximately 1,000 feet east)—may further constrain potential design enhancements at the interchange.

### 2.2.15 Traffic Data

The traffic data collection effort for this study included 8-hour intersection Turning Movement Counts (TMCs), 72-hour bi-directional vehicle classification counts, and 72-hour bi-directional volume counts

recorded in 15-minute intervals. The 72-hour vehicle classification and volume counts were collected from Tuesday, August 20, 2024, through Thursday, August 22, 2024. The 8-hour TMCs were conducted at the study intersections on Tuesday, August 20, 2024, from 6:00 AM to 10:00 AM and from 3:30 PM to 7:30 PM. Data collection was conducted in accordance with the Manual on Uniform Traffic Studies (MUTS) and the Project Traffic Forecasting Handbook. The TMCs included pedestrian, bicyclist, car, and truck volumes. The traffic count data is provided in the IMR included in the project file. Existing traffic factors estimated from traffic counts are summarized in **Table 2.4**.

**Table 2.4. Existing Traffic Factors**

| Roadway | Segment | K Factor | | D Factor | | T Factor | |
|---|---|---|---|---|---|---|---|
| | | AM | PM | AM | PM | Daily | DHT |
| **Moccasin Wallow Rd** | West of Gateway Blvd/49th Ave | 9.0% | 8.0% | 57.4% | 51.2% | ** | ** |
| | West of Gillette Drive | 9.0% | 8.0% | 55.6% | 51.0% | 5.6% | 2.8% |
| | West of I-75 Southbound Ramps | 9.0% | 8.5% | 54.8% | 55.5% | ** | ** |
| | East of I-75 Northbound Ramps | 9.0% | 9.0% | 62.7% | 56.2% | 5.4% | 2.7% |
| | East of Buffalo Rd | 9.0% | 9.0% | 58.7% | 58.3% | ** | ** |
| **I-75 Mainline** | North of Moccasin Wallow Rd | 8.5% | 8.5% | 54.2% | 54.2% | 11.1% | 5.6% |
| | South of Moccasin Wallow Rd | 7.5% | 8.5% | 61.2% | 60.8% | 15.4% | 7.7% |
| | Between I-275 Ramps | 7.5% | 8.5% | 58.2% | 58.5% | 17.7% | 8.9% |
| **Ramps** | I-75 Southbound Off Ramp to Moccasin Wallow Rd | 8.5% | 8.5% | 100.0% | 100.0% | 8.0% | 4.0% |
| | I-75 Southbound On Ramp from Moccasin Wallow Rd | 9.5% | 7.5% | 100.0% | 100.0% | 3.6% | 1.8% |
| | I-75 Northbound Off Ramp to Moccasin Wallow Rd | 7.5% | 9.5% | 100.0% | 100.0% | 3.3% | 1.6% |
| | I-75 Northbound On Ramp from Moccasin Wallow Rd | 8.5% | 8.5% | 100.0% | 100.0% | 4.2% | 2.1% |
| | I-75 Southbound Off Ramp to I-275 WB | 9.5% | 7.5% | 100.0% | 100.0% | ** | ** |
| | I-75 Northbound On Ramp from I-275 EB | 7.5% | 9.5% | 100.0% | 100.0% | ** | ** |
| **Gateway Blvd** | North of Moccasin Wallow Rd | 9.5% | 8.2% | 58.6% | 60.0% | ** | ** |
| **49th Ave** | South of Moccasin Wallow Rd | 9.5% | 8.2% | 64.9% | 57.8% | ** | ** |
| **Gillette Dr** | North of Moccasin Wallow Rd | 9.5% | 8.9% | 59.6% | 53.1% | ** | ** |
| **Buffalo Rd** | South of Moccasin Wallow Rd | 7.5% | 9.5% | 56.4% | 58.7% | ** | ** |

***Classification counts were not collected. Peak hour truck percentages from collected turning movement counts will be used in the analysis*

AADT and Directional Design Hour Volumes (DDHV) were developed as part of the IMR. The Existing Year 2024 AADTs and turning movement volumes (TMVs) are shown in **Figure 2.7**. Global peak hours for the study area were based on traffic counts from field collected data and were as follows:

- AM Peak – 7:00 AM to 8:00 AM
- PM Peak – 4:15 PM to 5:15 PM

The recommended growth rates for use in this study for the 2024 to 2045 period were based on an evaluation of Bureau of Economic and Business Research (BEBR) projections, historic trends, and model-based growth rates, as explained in the IMR. A BEBR medium growth rate of 1.47% was recommended for the 2045 to 2050 period.

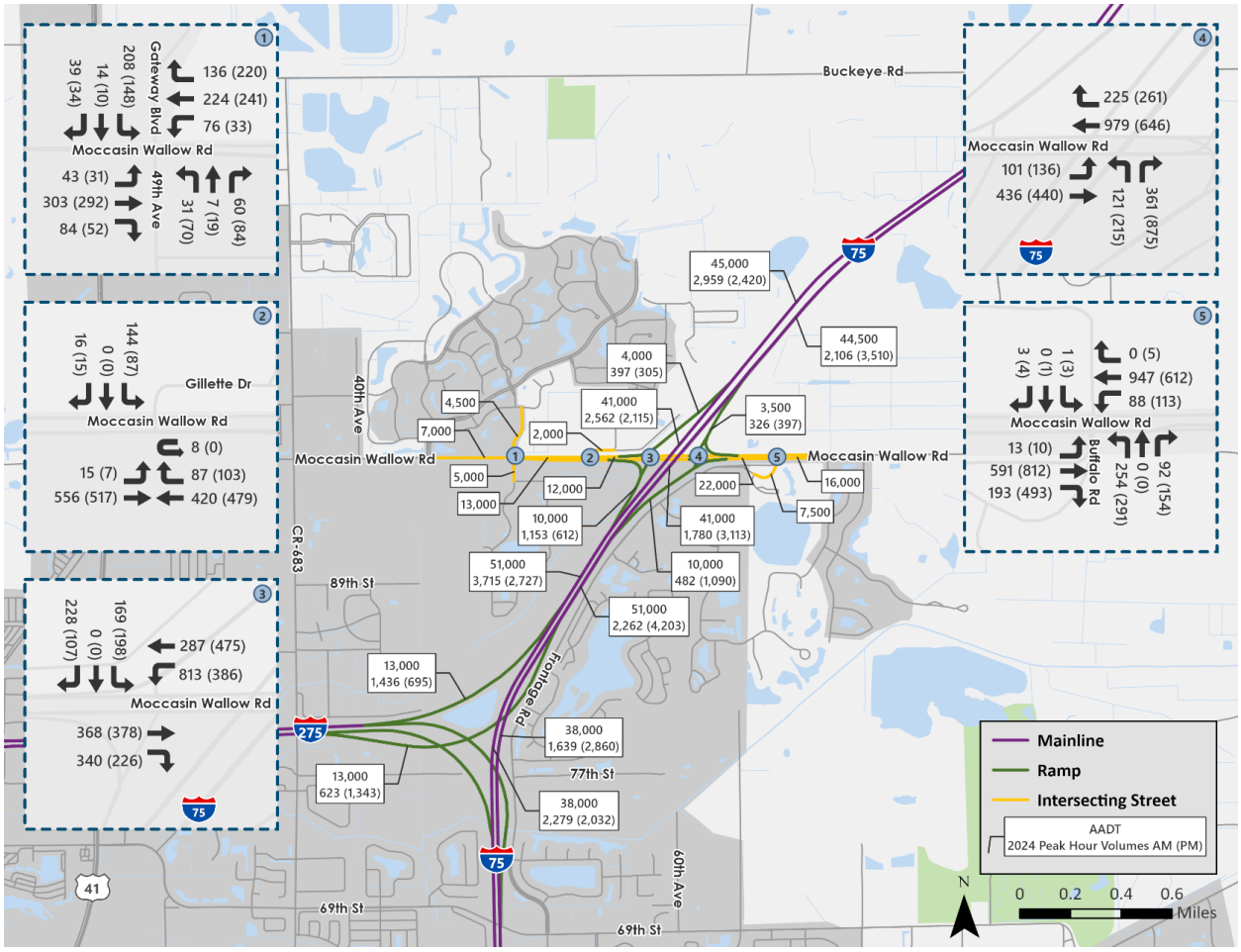



Figure 2.7 Existing AADT and Peak Hour Volumes

### 2.2.16 Roadway Operational Conditions

#### I-75 Mainline

A summary of I-75 mainline operations performance measures of effectiveness, including density, speed, level of service (LOS), and volume served for the existing AM and PM peak hour is provided in the IMR. I-75 operates at free flow speeds exceeding 70 mph in both directions, except for the southbound weaving segment between the Moccasin Wallow Road on-ramp and the I-275 off-ramp. This segment operates at 59 mph during the AM peak and 65 mph during the PM peak. During both peak periods, more than 100% of the traffic demand is accommodated, and I-75 operates at LOS B or better.

### Moccasin Wallow Road

A summary of overall intersection delay and LOS for the existing AM and PM peak hour conditions along Moccasin Wallow Road is provided in the IMR. The estimated LOS for existing conditions is based on HCM criteria and thresholds for signalized and unsignalized intersections. The I-75 ramp terminal intersections operate at LOS C or better, except for the southbound ramp terminal during the AM peak hour, which operates at LOS F. Both ramp terminals are currently unsignalized and the intersection LOS reflects the worst performing stop-controlled movements, specifically, the left turn movement for the off-ramp. During the AM peak hour, the southbound ramp terminal also experiences queuing that exceeds the available storage capacity. All adjacent intersections operate at LOS C or better during both peak periods. Detailed operational results for each intersection—including volume served, delay, LOS, and queuing by movement—are provided in the Interchange Modification Report, available in the project file.

## 2.2.17 Managed Lanes

Managed lanes are not present within the project limits.

## 2.2.18 Crash Data

A five-year safety analysis was completed for crashes reported between January 1, 2019, and December 31, 2023 plus the available crash data from January 1, 2024 to June 20, 2024. The analysis was consistent with the 2022 Interchange Access Request Users Guide (IARUG).

Within the area of influence there were 343 crashes reported between January 1, 2019 and June 20, 2024. Of 343 crashes, 205 occurred along the I-75 mainline, 55 occurred along the I-75 interchange ramps, 38 occurred at the I-75 ramp terminals, seven occurred along Moccasin Wallow Road, and 38 occurred at the intersections. With respect to severity levels, 23 were serious injury crashes, 108 were non-serious injury crashes, and 212 were no-injury crashes. There were no fatal crashes reported during this timeframe. The most frequent crash types reported is rear end crashes (27%), off road crashes (21%), and sideswipe crashes (18%). **Figure 2.8** depicts the crash density map of the study area. Detail crash analysis is presented in the IMR, available in the project file.

### I-75 Mainline

Of the 205 crashes on the I-75 mainline, 10 were serious injury crashes, 55 were non-serious injury crashes, and 140 were no-injury crashes. The most frequent crash type reported were rear end crashes (30%), off road crashes (28%), and sideswipe crashes (23%). The segment crash rates were calculated for the mainline and compared to the statewide average crash rate for similar facilities. The segment crash rates were calculated based on the number of crashes within the five-year period, the length of the segment, and the 2024 AADTs. The crash rate for I-75 north of Moccasin Wallow Road and the northern ramps is higher than the statewide average crash rate.

### I-75 Interchange Ramps

The I-75 northbound off-ramp to Moccasin Wallow Road had the highest number of reported crashes within the study area with 14 total crashes. This ramp had two serious injury crashes, six non-serious injury crashes, and six no-injury crashes. The ramp had four off road, three angle, three left turn, two other, one rollover, and one sideswipe crash reported. The I-75 southbound off-ramp to I-275 westbound had the second highest number of reported crashes with 13 total crashes. This ramp had

six non-serious injury crashes and seven no-injury crashes. The ramp had four rear end, four off road, three sideswipe, one rollover, and one other crash reported.

The I-275 eastbound off-ramp to I-75 northbound had the lowest number of reported crashes with five total crashes. This ramp had one serious injury crash, two non-serious injury crashes, and two no-injury crashes. The ramp had three sideswipe and two off road crashes reported.

The crash rates for the I-75 on/off ramps from/to Moccasin Wallow Road and the I-75 southbound Off-Ramp to I-275 westbound are higher than the statewide average crash rate, which is 0.5114.

### I-75 Interchange Ramp Terminal Intersections

The analysis includes the crashes that occurred at the I-75 ramp terminal intersections. The intersection crash rates were calculated for the interchange ramp terminals and compared to the statewide average crash rate for similar facilities. The intersection crash rates were calculated based on the number of crashes within the five-year period and the 2024 AADTs.

The I-75 northbound ramp terminal intersection had the highest number of crashes with a total of 20 reported crashes. There were two serious injury crashes, eight non-serious injury crashes, and ten no-injury crashes. There were 13 left turn, three rear end, two sideswipe, one angle, and one rollover crash reported. The crash rate was 0.24, which is lower than the statewide average crash rate.

The I-75 southbound ramp terminal intersection had 18 total crashes. There was one serious injury crash, six non-serious injury crashes, and 11 no-injury crashes. There were 11 left turn, five rear end, and two angle crashes reported at this ramp terminal. The crash rate was 0.48, which is lower than the statewide average crash rate.

### Moccasin Wallow Road

The crash data reported seven crashes along Moccasin Wallow Road within the project traffic and safety analysis area. Of the seven crashes, three were non-serious injury crashes and four were no-injury crashes. There were two left turn, two rear end, one sideswipe, one angle, and one rollover crash reported. The segment crash rate was calculated for Moccasin Wallow Road and compared to the statewide average crash rate for similar facilities. The segment crash rate was calculated based on the number of crashes within the five-year period, the length of the segment, and the 2024 AADTs. The actual crash rate was 0.23, which is lower than the statewide average crash rate.

The intersection crash rates were for the intersections along Moccasin Wallow Road were lower than the statewide average crash rate for similar facilities.

The Moccasin Wallow Road at Buffalo Road intersection had 16 total crashes. This intersection had one serious injury crash, six non-serious injury crashes, and nine no-injury crashes. The intersection had nine rear end, five left turn, one off road, and one unknown crash reported. The actual crash rate was 0.36, which is higher than the statewide average crash rate.

The Moccasin Wallow Road at Gateway Boulevard/49$^{th}$ Avenue East intersection had 13 total crashes. This intersection had one serious injury crash, five non-serious injury crashes, and seven no-injury crashes. The intersection had five left turn, three rear end, two sideswipe, one angle, one off road, and one head on crash reported. The actual crash rate was 0.52, which is lower than the statewide average crash rate.

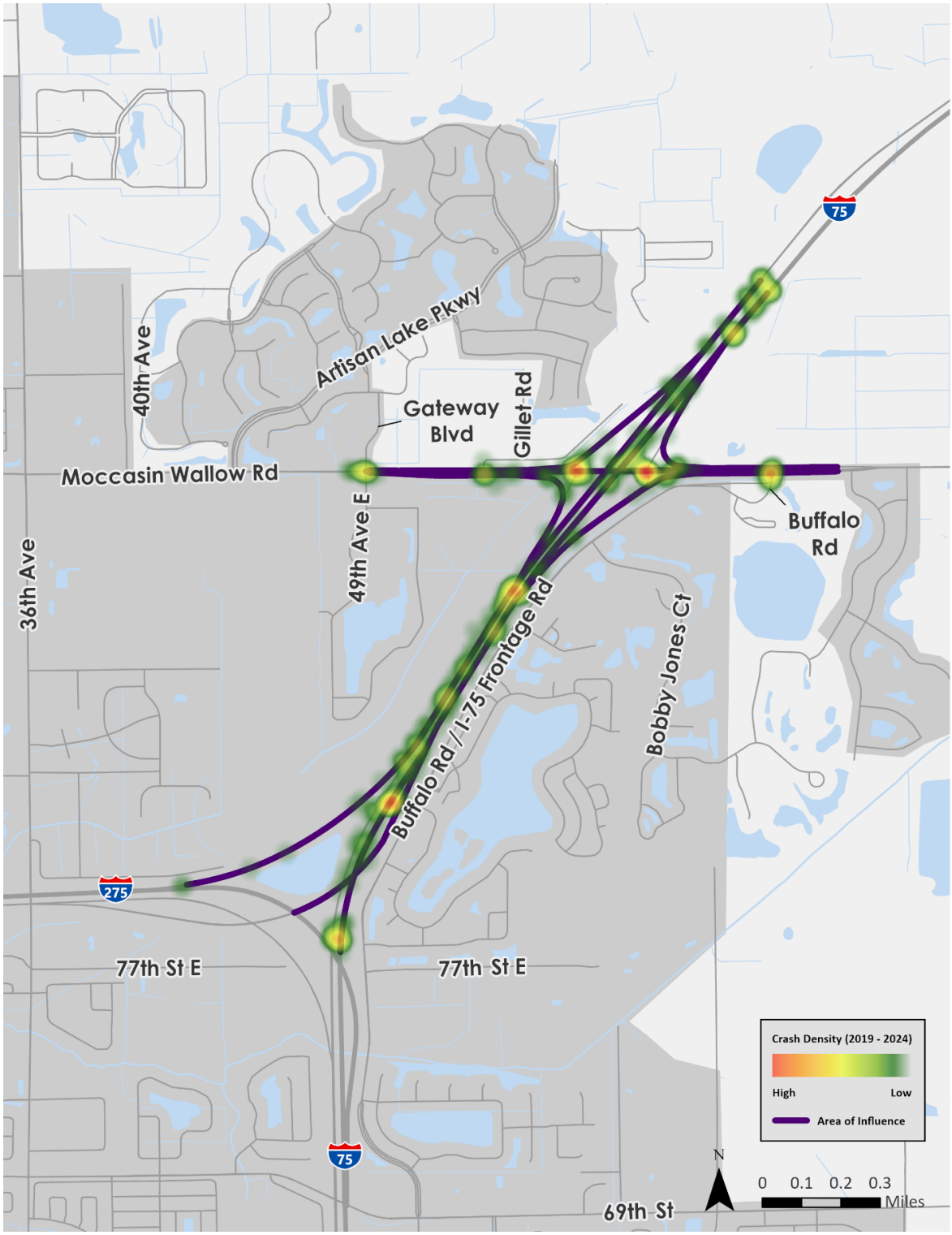



Figure 2.8 Study Area Crash Density

The Moccasin Wallow Road at Gillette Road intersection had nine total crashes. This intersection had five non-serious injury crashes and four no-injury crashes. The intersection had two left turn, two other,

one angle, one animal, one off road, one rollover, and one sideswipe crash reported. The actual crash rate was 0.28, which is higher than the statewide average crash rate.

### 2.2.19 Railroad Crossings

Railroad is not present within project limits.

### 2.2.20 Drainage

## Topography and Hydrologic Features

The topography, based on publicly available LiDAR, throughout the study area is relatively flat, with elevations ranging from 14.0 to 33.0 feet. All elevations cited in this report are in reference to the North American Vertical Datum of 1988 (NAVD88). The predominant hydrologic feature within the study area is Cabbage Slough, a minor waterway approximately 2.6 miles in length, associated with Water Body Identification (WBID) 1816. Cabbage Slough is located within the Coastal Lower Tampa Bay Watershed. Although WBID 1816 is not classified as an impaired water body, it is located within the Tampa Bay Estuary Program (TBEP) Reasonable Assurance Plan (RAP) area. The headwaters of Cabbage Slough originate in the surrounding areas north of the Moccasin Wallow Road and I-75 intersection, within unincorporated Manatee County.

## Existing Drainage Patterns

The study area was divided into six drainage sub basins, basins A through F (**Figure 2.9**). Five sub basins (basins A-E) discharge directly to the Cabbage Slough system. The remaining basin discharges to an existing stormwater pond that serves I-75 at the southern limit of the project area. This SMF discharges to the Frog Creek/Buffalo Canal after being conveyed via roadside ditches along I-75, approximately 0.55 miles south of the project limits. Cabbage Slough converges with the Frog Creek/Buffalo Canal approximately 1.25 mi west of the project limits. The Frog Creek/Cabbage Slough system ultimately discharges to Terra Ceia Bay.

There are nine existing cross drains within the study area. Eight cross drains convey onsite and offsite runoff beneath I-75 and one cross drain conveys Cabbage Slough and offsite runoff beneath Moccasin Wallow Road.

FDOT District One completed a Wet Weather Crash Analysis Report in 2021. Hot Spot #17, identified in the report, is located within the study limits (see Pond Siting Report in the project file). Both northbound and southbound lanes at this location experienced multiple incidents involving hydroplaning, standing water, or loss of control consistent with wet pavement conditions, occurring just south of the Moccasin Wallow Road interchange. The report also notes that this hotspot is near a sag in the roadway profile.

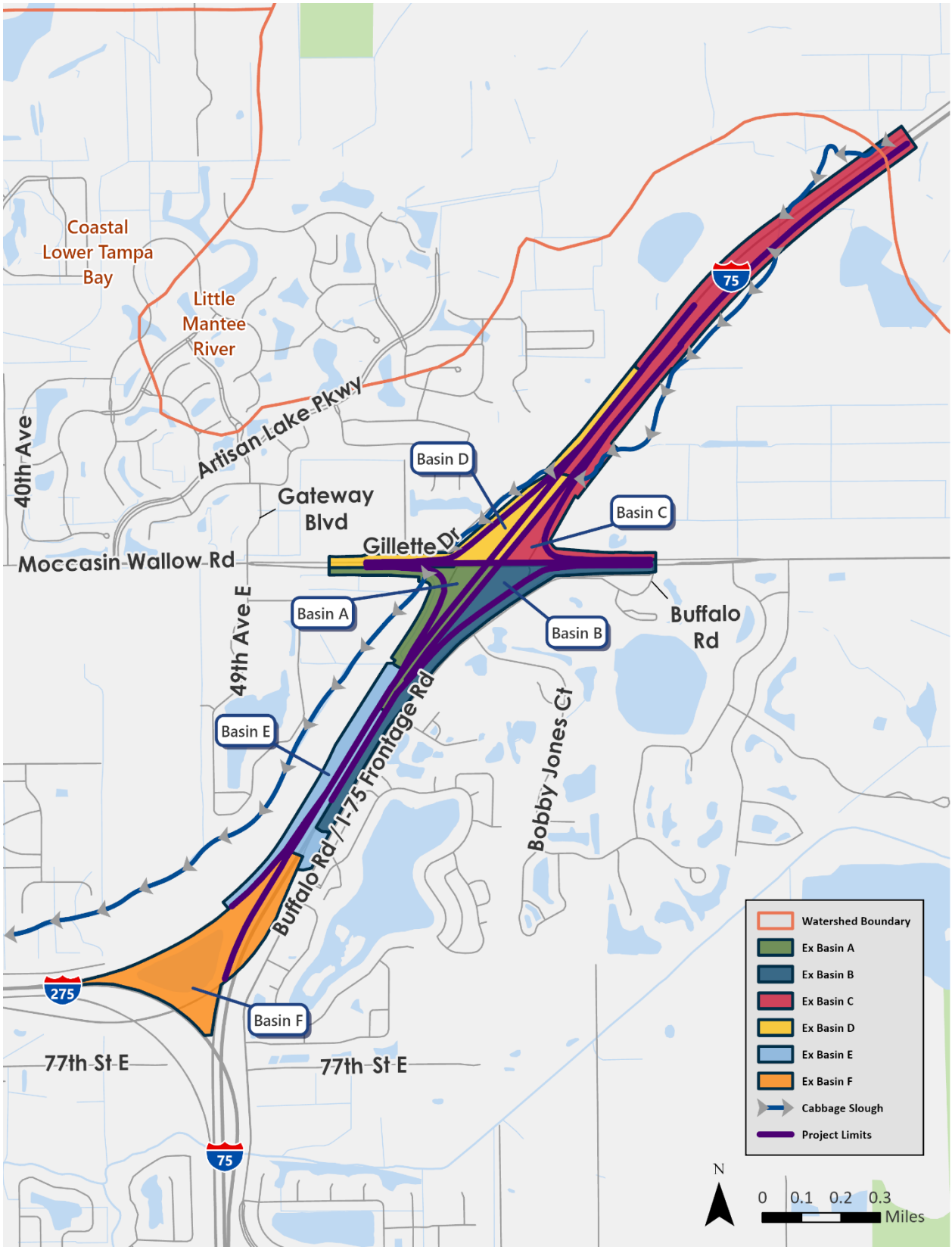



Figure 2.9 Existing Drainage Patterns

### 2.2.21 Floodplains

The study limits are located within Federal Emergency Management Agency (FEMA)-designated Flood Zones A and AE, with ground elevations varying throughout the project area. FEMA Flood Insurance Rate Map (FIRM) panels relevant to the project are provided in the Pond Siting Report. The proposed widening and reconstruction activities will result in encroachments into the 100-year floodplain at several locations. For more information, refer to the Location Hydraulic Report, available in the project file.

### 2.2.22 Lighting

High-mast lighting is present along the I-75 median at about 690 feet apart. The light poles are also present on all interchange ramps. Along Moccasin Wallow Road high-mast light poles are located on both sides. Detailed information on the existing lighting infrastructure, including specific locations and specifications of high-mast lights will be evaluated in the Design Phase for this project.

### 2.2.23 Utilities

Existing Utility Agency/Owners (UAOs) within the project limits are listed in **Table 2.5**, along with their respective contact information. Preliminary utility coordination was initiated through written correspondence. In this communication, FDOT informed the UAOs of the I-75 at Moccasin Wallow Road PD&E Study and requested documentation showing existing and proposed facilities within the project limits. UAOs were also invited to submit any general concerns or comments relevant to the project evaluation process.

**Table 2.5. Utility Contact**

| Utility Agency/Owner | Facility Type | Contact Person | Phone Number | Email |
|---|---|---|---|---|
| **Florida Power & Light Distribution** | Electric | Brian Garver | (941) 723-4442 | Brian.Garver@fpl.com |
| **Florida Power & Light Transmission** | Electric | Craig Ledbetter | (561) 803-7942 | Craig.Ledbetter@fpl.com |
| **Frontier Florida LLC** | Communication Lines, Fiber | Denise Hutton | (941) 504-9652 | Denise.Hutton@ftr.com |
| **Hotwire Communications** | Communication Lines, Fiber | Junior Adams | (239) 784-6821 | Junior.Adams@hotwiremail.com |
| **Manatee County Transportation** | Communication Lines, Fiber | Neil Byrne | (941) 749-3500 | Neil.Byrne@mymanatee.org |
| **Manatee County Utilities** | Water and Sewer | Lorenzo Duarte | (941) 708-7450, Ext. 7373 | Lorenzo.Duarte@mymanatee.org |
| **MCI** | Communication Lines, Fiber | Michael Krol | (813) 410-4803 | Michael.krol@verizon.com |
| **Peace River Electric Coop.** | Electric | David McClintock | (863) 767-4621 | David.mcclintock@preco.com |
| **Spectrum Sunshine State, LLC** | Communication Lines, Fiber | James (Alex) Fleming | (941) 213-0877 | James.Fleming1@charter.com |
| **TECO Peoples Gas** | Gas | Alex McFarlane | (813) 275-3762 | AMcFarlane@tecoenergy.com |

Six UAOs responded and provided as-builts, marked plans, or a letter indicating they have no facilities in the area. Four UAOs—Frontier, Hotwire, Manatee County Transportation, and Peace River Electric—did not respond to the green line request.

All six UAOs that responded have potential conflicts between their facilities and the proposed FDOT project. Potential conflicts include fiber, buried copper, water mains, wastewater mains, gas mains, and power poles.

If Florida Power & Light (FPL) or Peace River Electric facilities are in conflict, any joint users on those poles would also be affected. If utility relocation is required, FPL Transmission may be eligible for reimbursement due to potential easement and property rights. The remaining UAOs, which have facilities installed within FDOT ROW under permit, would be responsible for their own relocation costs.

### 2.2.24 Soils and Geotechnical

Soil information was collected from the Natural Resource Conservation Service (NRCS) and USDA Soil Conservation Service (SCS) web soil survey for Manatee County. A detailed soil survey report and map can be found in the Pond Siting Report. **Figure 2.10** illustrates the soil characteristics found within and adjacent to the study limits.

The soils within the study limits and surrounding areas are generally poor, draining with high potential for runoff when thoroughly wet, partially due to the proximity of the estimated seasonal high groundwater table to the ground surface. Soils within the study area have smooth slopes ranging from 0 to 2 percent.

It should be noted that information contained in the USDA/NRCS Soil Survey may not be reflective of current subsurface conditions, particularly if recent development in the project vicinity has modified existing soils or surface/subsurface drainage.

### 2.2.25 Aesthetics Features

The four in-field areas of the interchange have mature trees on slopes with medium density, and a few trees are located next to the slope on the flat area (**Figure 2.11**). The trees on the slope are grouped in clusters of around 15-30 trees, consisting of a mix of sabal palms and ornamental trees. The trees on the slope are grouped in clusters of around 15-30 trees, consisting of a mix of sabal palms and ornamental trees. There is a grass median along Moccasin Wallow Road that ranges in width from 25 ft to 42 ft. There are large trees at the edge of the limited access ROW limits. Maintenance of these facilities is overseen by Manatee County.

### 2.2.26 Traffic Signs

An inventory of the existing roadway guide signage was performed within the study area. **Figure 2.12** shows locations of the existing roadway guide signs within the project limits.

### 2.2.27 Noise Walls and Perimeter Walls

Noise walls are not present within the project limits. A privacy /perimeter wall has recently been constructed at Artisan Lakes Apartments, located in the northwest quadrant of the I-75 interchange.

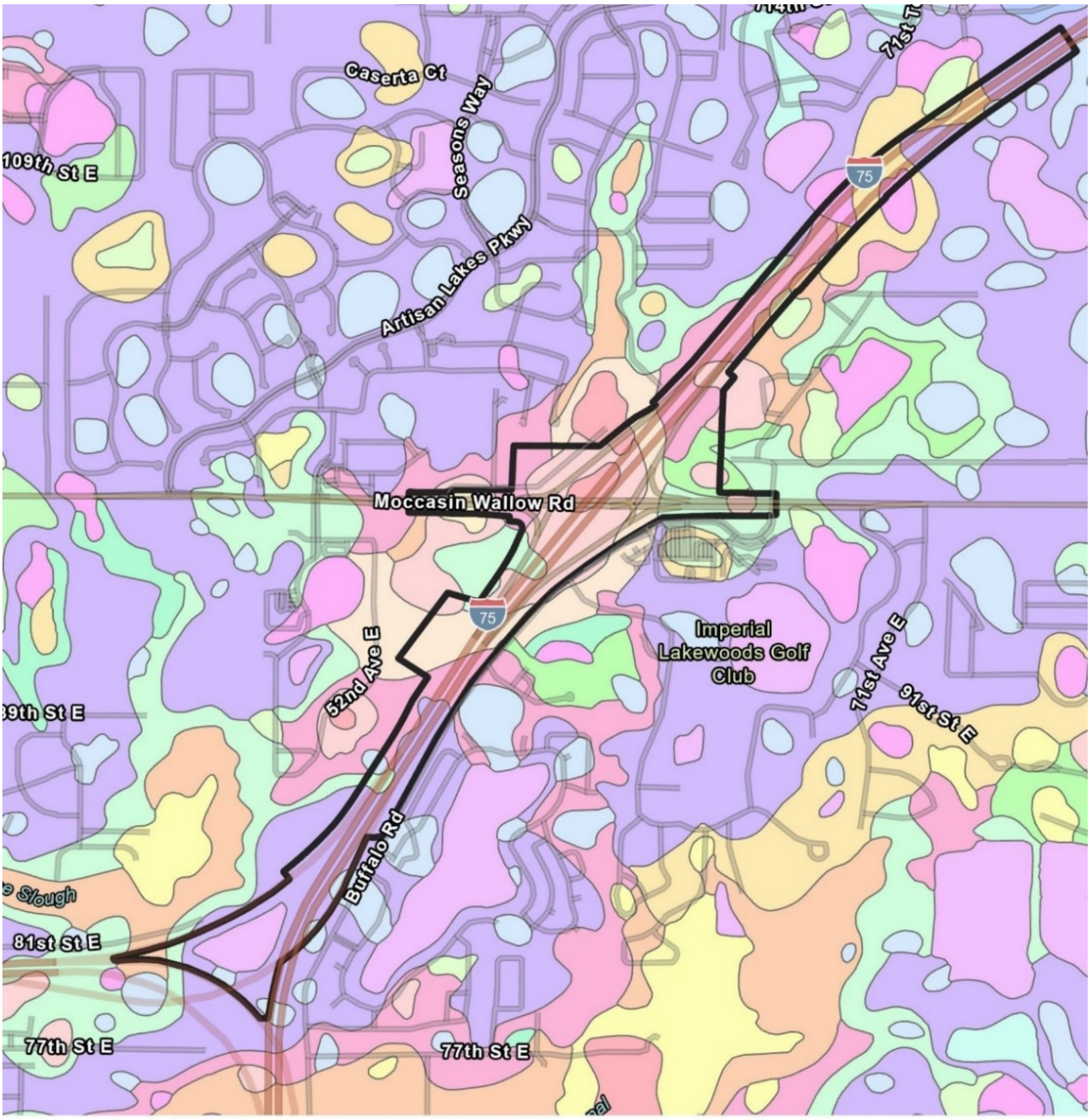
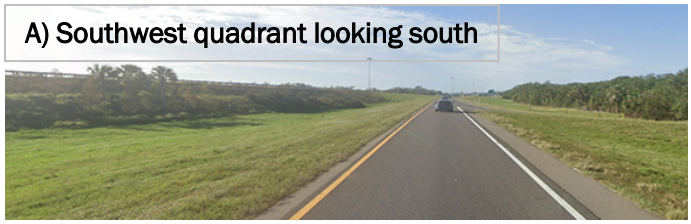




Figure 2.10 NRCS Soil Map



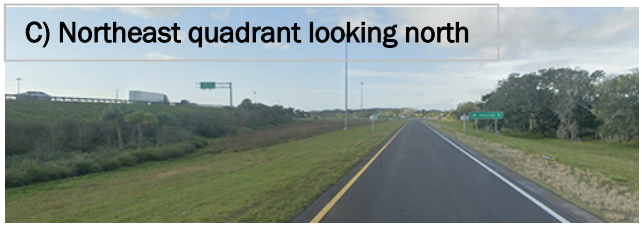




Figure 2.11 Existing Interchange Landscape Features


Figure 2.12 Existing Guide Signs

### 2.2.28 Intelligent Transportation Systems/Transportation System Management and Operations Features

The existing Intelligent Transportation Systems (ITS) infrastructure along I-75 and Moccasin Wallow Road within the project area is owned by FDOT District One and Manatee County.

## FDOT

The FDOT ITS Strategic Plan includes the deployment of fiber optic cable (FOC) trunklines for data communications, four Dynamic Messaging Signs (DMS) to convey real-time information to motorists, and numerous Closed-Circuit Television (CCTV) cameras to monitor traffic flow and congestion. These planned deployments are intended to enhance operations, expand coverage, and support Wide Area Network (WAN) integration with local partner agencies.

The Southwest Inter-Agency Facilities for Transportation (SWIFT) Center, located in Fort Myers, serves as FDOT District One's primary Transportation Management Center (TMC). The SWIFT Center manages CCTV, DMS, Highway Advisory Radio (HAR), and Road Weather Information Systems (RWIS) along I-75 and throughout District One. Additionally, it functions as the backup TMC for the I-75 Satellite Center located in Manatee County and operates that center's systems during nights and weekends.

## Manatee County

In May 2005, FDOT, Manatee County, Sarasota County, the City of Sarasota, and the City of Bradenton entered an Interlocal Agreement to support cooperation and coordination in the operation of a unified regional Advanced Traffic Management System (ATMS). Under this agreement, each participating agency is responsible for a proportional share of the ongoing operational costs of the Regional Traffic Management Center (RTMC), based on population figures from the most recent available census data. As a result, the Sarasota-Manatee Regional Traffic Management Center (RTMC), located within Manatee County's Public Safety Complex, was created in 2011. The RTMC is co-located with Manatee County's Emergency Operations Center (EOC), 911 dispatch and Emergency Medical Services (EMS) teams.

In November 2014, FDOT completed the deployment of a freeway management system along Interstate 75, which included center-to-center connectivity between FDOT District One's Transportation Management Center (TMC) and the Sarasota-Manatee RTMC. Consequently, the RTMC also serves as FDOT's satellite SWIFT SunGuide Center.

RTMC staff work alongside FDOT freeway management personnel to mitigate the impacts of increased traffic volumes on regional arterials during incidents on the interstate system. Together, they actively manage the multimodal transportation network and make real-time operational decisions to improve overall system mobility.

The RTMC also provides a central hub for collection and dissemination, planning operational strategies, and operating the ATMS central software, video monitoring system, vehicle detection system and the traveler information system. Numerous ATMS projects within the region have deployed state-of-the-art technologies to mitigate or reduce traffic congestion, improve traffic operations and

management, and enhance safety in Manatee County, City of Bradenton, City of Palmetto, Sarasota County, City of Sarasota and the City of Venice.

Manatee County maintains over 220 signals and operates 115 of them. Increasing safety for all traffic modes, with a focus on most vulnerable users, to improve safety for all modes of transportation, especially the most vulnerable users, the County has adopted the use of Rectangular Rapid Flashing Beacons (RRFBs) and Leading Pedestrian Intervals (LPIs) as standard features at major pedestrian crossings and selected signalized intersections.

The Regional ITS Master Plan identified opportunities for improved network architecture configurations with FDOT and regional MPO subsidiaries. However, challenges remain in enabling effective data transmission among stakeholder agencies. Currently, agencies are unable to share CCTV camera footage with one another, limiting partnering management functions such as coordinated traffic management and incident management capabilities. Additionally, data that could be mined to support effective management of congestion and leveraged for initiatives aimed at enhancing driver safety is underutilized due to these interoperability limitations.

## 2.3 Existing Bridges and Structures

The I-75 corridor within the project area includes two existing bridge structures (**Figure 2.13** thru **Figure 2.15**) located at a single site where the interstate crosses over Moccasin Wallow Road. These structures, identified as Bridge Nos. 130079 (northbound) and 130078 (southbound), function as part of the interchange and are constructed of prestressed concrete.

Originally built in 1980, both bridges underwent rehabilitation in 2003. Detailed bridge data, including the route carried, location type, structural classification, and construction history, are provided in **Table 2.6**. This information has been compiled from current bridge inspection reports, as-built plans, and available maintenance records. No additional construction activities at this location have been completed beyond the last rehabilitation.

**Table 2.6. Summary of Existing Bridges**

| Bridge Number | Location Description | Classification | Bridge Type | Year Built | Year Rehab |
|---|---|---|---|---|---|
| 130079 | I-75 Northboundover Moccasin Wallow Road | Interchange | Prestressed Concrete | 1980 | 2003 |
| 130078 | I-75 Southboundover Moccasin Wallow Road | Interchange | Prestressed Concrete | 1980 | 2003 |

### 2.3.1 Environmental Classifications

The existing plans for Bridge Nos. 130078 and 130079 carrying I-75 over Moccasin Wallow Road dated 1976 specify the environment for the bridge as Non-Coastal. A moderately aggressive environment was assumed for both bridges with an inland location in the Bridge Deck replacement plans dated 2002. Both sets of existing plans do not distinguish the classification for superstructure and substructure nor for steel or concrete.

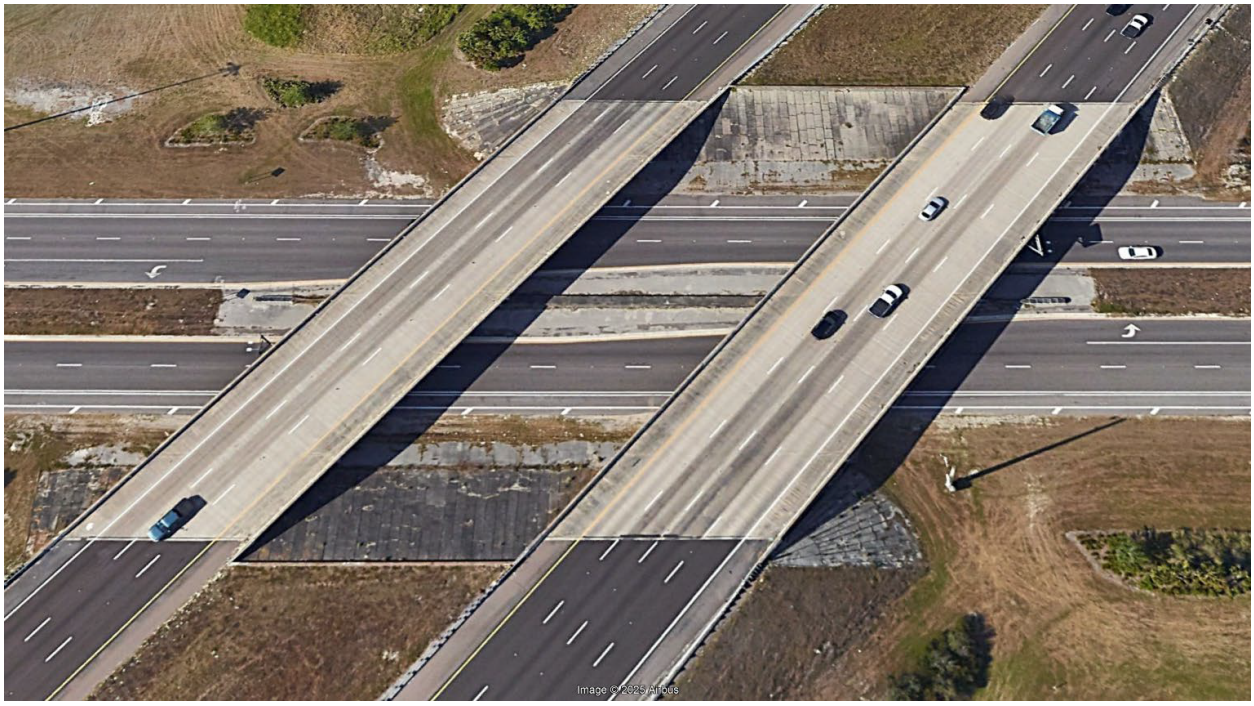



Figure 2.13 Aerial View of Existing I-75 Bridges

Figure 2.14 Moccasin Wallow Road Looking West Showing Bridge Spans and Piers

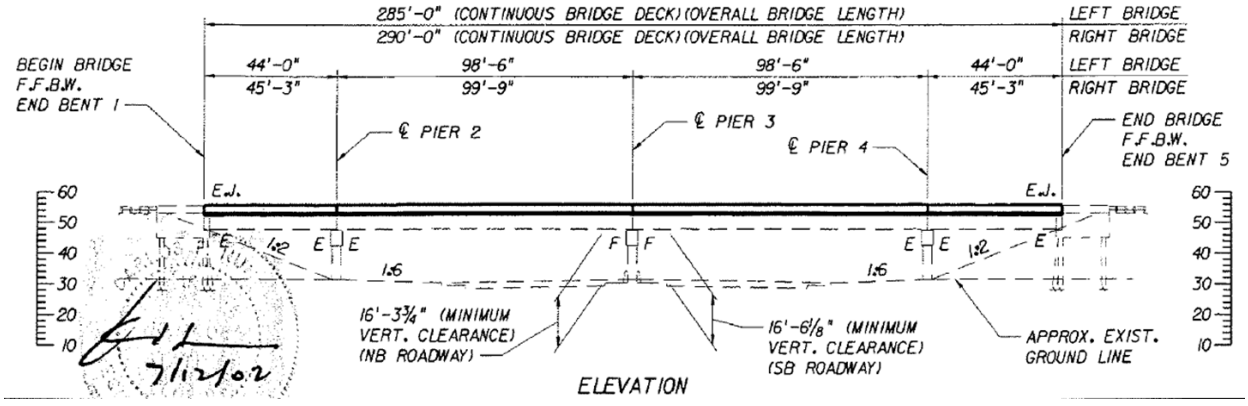



Figure 2.15 Existing Bridges Profile

### 2.3.2 Existing Health Data

As shown in Table 2.7, both bridge structures exhibit high structural health with Health Index values of 98.27 for both bridges. Each has a sufficiency rating of 98 and is not considered functionally obsolete or structurally deficient, based on current National Bridge Inventory (NBI) criteria. The NBI component ratings for superstructure for Bridge No. 130079 is classified as “7- Good” and Bridge No. 130078 is “6-Satisfactory”, indicating satisfactory condition and no major concerns requiring immediate action. The rating for the deck and substructure for each bridge is classified as “7-Good”.

**Table 2.7. Existing Bridges Health Data**

| Bridge Number | Health Index | Sufficiency Rating | Functionally Obsolete | Structurally Deficient | NBI Deck | NBI Superstructure | NBI Substructure |
|---|---|---|---|---|---|---|---|
| 130079 | 98.27 | 98 | No | No | 7 Good | 7 Good | 7 Good |
| 130078 | 98.27 | 98 | No | No | 7 Good | 6 Satisfactory | 7 Good |

### 2.3.3 Existing Bridges – Typical Section Characteristics

**Table 2.8** and **Figure 2.16** present the typical section elements for each structure. Bridge No. 130079 accommodates four northbound lanes with a clear roadway width of 68 feet, including standard 12-foot lane widths and 10-foot shoulders on both sides. Bridge No. 130078 has three southbound lanes, also with 12-foot lanes and 10-foot shoulders, yielding a clear roadway width of 56 feet. These dimensions support the operational demands of interstate travel and meet the design standards for high-volume, high-speed facilities.

**Table 2.8. Existing Bridges Typical Section Characteristics**

| Bridge Number | No. of Lanes | Lane Width (feet) | Inside Shoulder Width (feet) | Outside Shoulder Width (feet) | Clear Roadway Width (feet) |
|---|---|---|---|---|---|
| 130079 | 4 | 12 | 10 | 10 | 68 |
| 130078 | 3 | 12 | 10 | 10 | 56 |

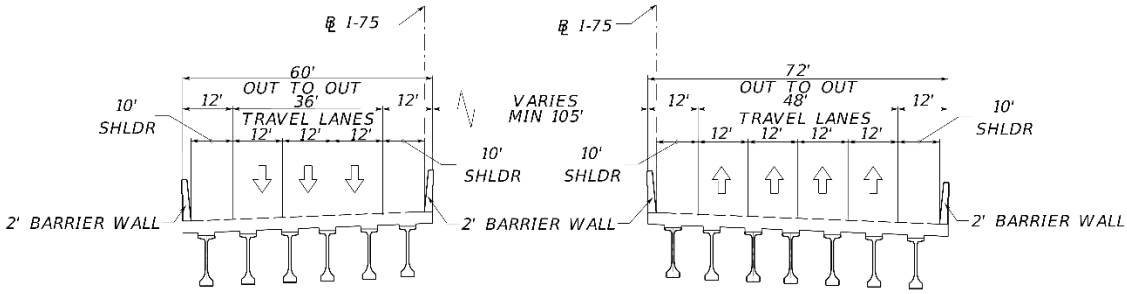



**Figure 2.16 Existing Bridges Typical Sections**

### 2.3.4 Existing Bridges – Geometric Characteristics

Geometric details of the two bridges are summarized in **Table 2.9**. Bridge No. 130079 is 290 feet in length and 72 feet in width, while Bridge No. 130078 is slightly shorter and narrower, 285 feet long and 60 feet wide. Each bridge has four spans, with maximum span lengths of 100.1 feet (northbound) and 98.1 feet (southbound).

Table 2.9. Existing Bridges Geometric Characteristics

| Bridge Number | Structure Length (feet) | Structure Width (feet) | Number of Spans | Maximum Span Length (feet) |
|---|---|---|---|---|
| 130079 | 290 | 70.5 | 4 | 100.1 |
| 130078 | 285 | 59.7 | 4 | 98.1 |

### 2.3.5 Existing Clearances

#### I-75 Northbound Bridge

The minimum horizontal clearance at the inside of the roadway is 12.4 feet. The existing pier is shielded with roadway barriers at this location. The minimum horizontal clearance on the outside of the roadway is 32.9 feet from the lane line to the pier. Pier protection is not required per FDM Table 215.2.2. The minimum vertical clearance as stated in the Inspection Report is 16.3 feet. The provided vertical clearance of the existing structure is less than the current FDOT requirement of 16.5 feet, as stated in the FDM Table 260.6.1.

#### I-75 Southbound Bridge

The minimum horizontal clearance at the inside of the roadway is 10.6 feet. The existing pier is shielded with roadway barriers at this location. The minimum horizontal clearance on the outside of the roadway is 35 feet from the lane line to the pier. Pier protection is not required per FDM Table 215.2.2. The minimum vertical clearance as stated in the Inspection Report is 16.2 feet. The provided vertical clearance of the existing structure is less than the current FDOT requirement of 16.5 feet, as stated in the FDM Table 260.6.1.

### 2.3.6 Existing Bridges Load Rating and Posting

As presented in **Table 2.10**, both bridges were originally designed for HS20 loading and evaluated using the Load Factor Rating (LFR) methodology. The Bridge Load Rating information is included with the Inspection Reports dated March 15, 2023. The bridges were last load rated in June 2009. The rating indicates an HS-20 Inventory Rating of 36 tons and an HS-20 Operating Rating of 60.1 tons. These values confirm that both structures are capable of supporting modern vehicular loads without the need for load posting, assuming continued compliance with routine inspection and maintenance protocols.

There are no load restrictions posted on either bridge.

Table 2.10. Existing Bridges Load Rating and Posting

| Bridge Number | Original Design Load | Load Rating Design Vehicle | Load Rating Procedure Used | Inventory Rating (tons) | Operating Rating (Tons) | Load Rating Date |
|---|---|---|---|---|---|---|
| 130079 | HS20 | HS20 | LFR | 36 | 60.1 | 6/2/2009 |
| 130078 | HS20 | HS20 | LFR | 36 | 60.1 | 6/2/2009 |

*HS20: Standard HS20; LFR: Load Factor Rating*

### 2.3.7 Historical Significance

The I-75 northbound and southbound bridges over Moccasin Wallow Road are excluded from Section 106 consideration under the National Historic Preservation Act. Please refer to the Cultural Resource Assessment Survey (CRAS) located in the project file for additional information.

## 2.4 Existing Environmental Features

An analysis of cultural, natural, and physical environmental resources was conducted as part of the existing conditions analysis.

### 2.4.1 Public Lands and Section 4(f) Resources

There are no parks or recreational properties located adjacent to the project.

### 2.4.2 Historic and Archeological Resources

A thorough field survey, including visual inspection and shovel testing, was conducted in accordance with 36 CFR § 800.4(b)(1). Twenty shovel tests were completed in areas of elevated ground and prior disturbance, confirming the presence of non-native fill and a lack of intact cultural deposits. No archaeological sites were identified within the Area of Potential Effects (APE).

The historic/architectural survey identified and evaluated two resources within the APE, a 1965 Masonry Vernacular building and a segment of Cabbage Slough constructed in 1912. The building was found to lack architectural integrity and historical significance and remains ineligible for listing in the National Register of Historic Places (NRHP). The segment of Cabbage Slough was also deemed not eligible for NRHP listing, as it lacks historical associations and represents a common infrastructure type.

### 2.4.3 Wetlands

The project area includes a variety of wetland and surface water features that contribute to the ecological character of I-75 and Moccasin Wallow Road. Wetlands were identified through a combination of field reconnaissance, the US Fish and Wildlife Service National Wetlands Inventory (NWI), Southwest Florida Water Management District (SWFWMD) Land Use/Land Cover mapping, and the Natural Resources Conservation Service (NRCS) hydric soils data. These data sources were used to delineate wetland boundaries within the roadway study area, pond sites, and FPC sites.

Wetlands in the study area encompass both forested and non-forested types. According to SWFWMD mapping, approximately 22 acres of wetlands are located within the roadway study area. These include wetland forested mixed communities (e.g., cypress or hardwood swamps) and various herbaceous systems such as freshwater marshes, wet prairies, and emergent aquatic vegetation. NWI data identified approximately 16.83 acres of wetlands, the majority of which are evergreen forested types (PFO3A), with smaller areas of deciduous and emergent wetlands. Wetlands are generally associated with low-lying areas, drainage features, and natural depressions, including those near Cabbage Slough. Many of the mapped wetlands correspond with NRCS-identified hydric soils, which comprise roughly 64% of the roadway study area. These hydrologically influenced environments support wetland vegetation communities and provide habitat for aquatic and semi-aquatic species. Overall, the study area contains a mosaic of wetland types that reflect both natural systems and areas influenced by roadway development and maintenance.

### 2.4.4 Protected Species

The existing conditions assessment for protected species showed that within the project study area there is a mix of upland, wetland, and modified habitats that may support a variety of state and federally protected species. The project study area encompasses the existing roadway ROW with a 75-foot buffer, as well as proposed stormwater pond and FPC sites. Land cover within this area includes maintained transportation corridors, disturbed, and developed areas, as well as remnant natural habitats such as forested wetlands, freshwater marshes, shrub and brushland, and upland margins. These habitat types vary in their suitability for supporting protected species, but several areas exhibit characteristics consistent with known habitat preferences of listed species.

A total of 23 listed species and 2 species proposed for federal listing were identified as potentially occurring within the project area, based on desktop analysis, field reconnaissance (conducted in December 2024 and February 2025), and data from the Florida Natural Areas Inventory (FNAI) and the US Fish and Wildlife Service (USFWS) IPaC (Information for Planning and Consultation) system. These species include representatives from multiple taxonomic groups—mammals, birds, reptiles, insects, plants, and lichens. The presence of forest canopy, culverts, shallow water features, and open sandy soils within the project corridor may provide suitable roosting, foraging, and sheltering opportunities for species such as the tricolored bat, wood stork, eastern indigo snake, and various rare plants. Additionally, the study area overlaps with USFWS consultation areas for the crested caracara and Florida scrub-jay, though some species are excluded based on the absence of suitable habitat. No designated critical habitat exists within the study area, but the diversity of land cover types suggests a landscape capable of supporting protected species under existing conditions.

### 2.4.5 Essential Fish and Habitat

There are no essential fish and habitat (EFH) resources within the project limits. This was confirmed during coordination with the National Marine Fisheries Service (NMFS) conducted as part of ETDM screening.

### 2.4.6 Noise

Within the project limits, 354 receptors (i.e., a discrete or representative location of a noise sensitive area or areas) were modeled using the FHWA Traffic Noise Model (TNM) to represent 484 noise sensitive uses. Of the 484 uses, there are 474 residences, evaluated as Activity Category B of the Noise Abatement Criteria (NAC) and 10 recreation uses evaluated as Activity Category C of the NAC.

### 2.4.7 Contamination

Nine potential contamination sites were identified within 500 feet of the project area, posing potential environmental and health concerns. These sites, summarized in **Table 2.11**, involve a range of contaminants including petroleum, arsenic, benzo(a)pyrene toxic equivalents (B[a]P TEQs), lead, asbestos, pesticides, herbicides, construction debris, and waste tires. The proximity of these sites to

Table 2.11. Potential Contamination Sites

| Site # | Site Information | Data Source | Distance from ROW | Proximal Pond Sites (Within 500 feet) | Contaminants of Concern |
|---|---|---|---|---|---|
| 1 | **McKenzie Tanker Spill** I-75 & SR 683 Manatee County, FL Property Owner: FDOT | LUST/TANKS: 9102221 | Within | Pond A1, Pond B1-A | Petroleum |
| 2 | **Manatee County – Artisan Lakes Master Pump Station** 9760 Gillet Road Palmetto, FL Property Owner: Manatee County, NCBOT LLC | TANKS: 9809731 | Within | FPC D1 | Petroleum |
| 3 | **Pursley Inc #2-Pioneer/Former Moccasin Wallow Tree Farm** 6750 Moccasin Wallow Road Palmetto, FL Property Owner: MW Gateway Development LLC | LUST/STCERC/ TANKS/VOLCLNUP: 9103607, ERIC_18578 | Adjoining | FPC C1, Pond B1-B, Pond C1 | Arsenic, B(a)P TEQs, lead, petroleum |
| 4 | **G&S Construction Services Inc/Captain Jack's Hauling, LLC/Commodity's Resources, LLC** 11315 Carter Road Palmetto, FL Property Owner: Gary D Parks | SLDWST_NLF: 106330, 97546, 98907 | Adjoining | N/A | Construction debris, waste tires |
| 5 | **Publix Supermarket #1666** 9520 Buffalo Road Palmetto, FL Property Owner: Gateway Commons of Manatee LLC | MapDirect: 9816994 | Approx. 80 feet southeast | Pond B1-A, Pond B1- B | Petroleum |
| 6 | **Imperial Lakes Golf Club Inc** 6807 Buffalo Road Palmetto, FL Property Owner: Kinlez Golf LLC | MapDirect: 9047265 | Approx. 420 feet south | N/A | Petroleum |
| 7 | **Bridges** I-75, 1-275 Property Owner: FDOT | Aerial/Topographic Review | Within | Pond A1, Pond B1-A, Pond B1-B, Pond C1, Pond D1 | Asbestos, metal based coatings |
| 8 | **Agricultural Land/Citrus Groves** No Address/Property Owner | Aerial/Topographic Review | Within/ adjoining | Pond A1, Pond B1-A, Pond B1-B, Pond C1, FPC A1, FPC C1 | Pesticides, herbicides |
| 9 | Railroad Corridor No Address/Property Owner | Aerial/Topographic Review | Within | N/A | Herbicides, petroleum |

project ROW limits and adjacent stormwater ponds may raise concerns about potential contaminant migration.

Risk ratings for these sites range from low to medium, with the most significant hazards associated with petroleum-related spills, former agricultural use, and industrial operations involving hazardous materials. The contamination sources include leaking underground storage tanks (LUST), solid waste facilities, and legacy land uses such as tree farming and railroad corridors.

# 3.0 Future Conditions

This Section provides information about the future conditions, including how future demand volumes and design traffic were developed. IMR, located in the project file, contains more detailed technical analysis.

## 3.1 Future Land Use

The future land use for the project was extracted from the Manatee County future land use GIS file. Similar to the existing land use, the future land use within the project limits is predominantly mixed use and residential. **Figure 3.1** shows the future land use in the study area. The project will not change the future land use.

Implementation of the project will not change the existing C3C roadway context classification.

## 3.2 Design Year Traffic

Future forecasted volumes were developed based on procedures identified in the *2024 FDOT Project Traffic Forecasting Handbook* using the District One Regional Planning Model, version 2.1 (D1RPM, v2.1), historical traffic volumes, and the BEBR population data. D1RPM v2.1 has a base year of 2015 and planning horizon of 2045 and has been adopted by the Sarasota-Manatee MPO for use in developing traffic forecasts within the region.

A subarea model validation was conducted for the D1RPM, v2.1 base year to confirm the study area closely replicates traffic conditions and counts. Several network refinements were made to the base year model to match local conditions and meet validation criteria. These include changes to facility type and area types. Several centroid connector loadings were also modified to reflect traffic loading through the subarea. The 2045 No-Build condition included the planned and programmed roadway improvement projects and the following on-going projects:

- Moccasin Wallow Road Expansion, Segment 3 between Bayside Community Church and Buffalo Road / I-75 Frontage Road (Project number 6071262/FPID No. 447300-3)
- Moccasin Wallow Road Expansion, Segment 4 between Gillette Drive and US 41 (Project number 6092560)
- BayCare Manatee-North leg improvements for Moccasin Wallow Road and Buffalo Road/I-75 Frontage Road intersection.

Other refinements in the subarea model included time penalties and truck percentage corrections. Socioeconomic data in the future year (2045) model was refined to include the intensity of planned developments surrounding the study area, from US 41 to east of US 301. Through coordination with FDOT District One, future development information for the study area was obtained and included in the model development.

The future year volumes were developed for the Opening Year 2030 and Design Year 2050 analyses. Only the No-Build Alternative was modeled with its traffic volumes reassigned to the Build Alternative given the origin destination (OD) patterns remain unchanged between the No-Build Alternative and the Build Alternative. Refer to the IMR for more detailed information about design traffic development.

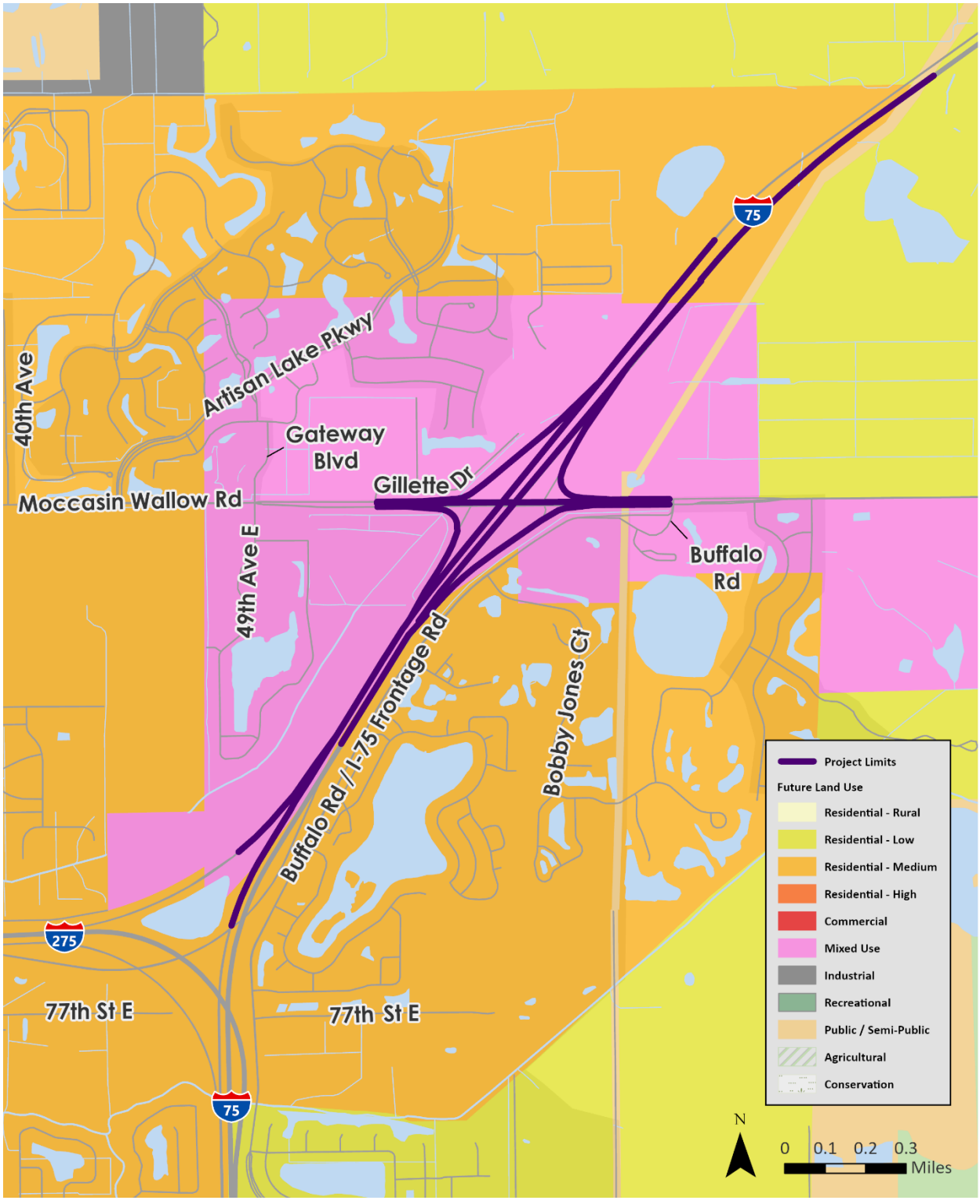



Figure 3.1. Moccasin Wallow Road Interchange Area Future Land Use

# 4.0 Design Controls and Criteria

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

## 4.1 Design Controls

### 4.1.1 Roadway Context Classification

The roadway context classification for Moccasin Wallow Road with the project limits is C3C because the land use is predominantly mixed between commercial, industrial, and residential and there is limited roadway network, creating a suburban context.

### 4.1.2 Target Speed and Design Speed

The land adjacent to the project area is predominantly suburban residential and suburban commercial. Based on a review of existing and future land uses as well as future roadway context classifications the target speed (which matches the design speed) for Moccasin Wallow Road is between 35 mph and 45 mph. The target speed and design speed for I-75 is 70 mph.

### 4.1.3 Functional Classification and SIS Designation

I-75 is a SIS facility. The functional classifications of I-75 within the project limits are "Urban Principal Arterial - Interstate" south of Moccasin Wallow Road and "Rural Principal Arterial - Interstate" north of Moccasin Wallow Road. Within the project limits, Moccasin Wallow Road is classified as "Arterial" by the Manatee County Comprehensive Plan

### 4.1.4 Access Management Classification

I-75 is a limited access facility designated as Access Class 1 (Area Type 2). Moccasin Wallow Road is a County-maintained roadway and most closely resembles Access Class 3. The proposed improvements will maintain the access management classification.

### 4.1.5 Capacity and LOS Target

Improvements are necessary to address unacceptable levels of service (LOS) below the Manatee County LOS Standard and FDOT LOS Target of LOS D. Detailed traffic operational analyses for the Existing Year 2024, Opening Year 2030, and Design Year 2050 conditions were conducted to study the impacts of the Build Alternative within the interchange analysis area of influence as defined in the IMR.

### 4.1.6 Design Vehicle

The design vehicle for I-75 and Moccasin Wallow Road is a WB-62FL.

### 4.1.7 Pedestrian and Bicycle Requirements

Pedestrian and bicycle facilities are needed to match the C3C context classification. Proposed facilities matched pedestrian and bicycle features implemented by the on-going Moccasin Wallow Road Improvement project by Manatee County.

#### 4.1.8 Right of Way Constraints

The existing ROW widths are based on data gathered from Manatee County Property Appraiser. Along I-75 the ROW width is at least 385 feet. Along Moccasin Wallow Road the approximate ROW width ranges between 267 feet and 430 feet.

#### 4.1.9 Environmental Constraints

Cabbage Slough, located immediately west of the I-75 at Moccasin Wallow Road interchange, presents physical constraints that may limit potential geometric improvement to the interchange.

#### 4.1.10 Stormwater Management Facilities

The project is located within the authority of the SWFWMD, and as such the improvements will be designed to meet the environmental permit requirements of the SWFWMD, as well as the drainage requirements contained in the FDOT Drainage Manual.

#### 4.1.11 Design High Water

The pre-development seasonal high groundwater table (SHGWT) levels within the project limits are reported to range from above natural grade to 1½ feet below natural grade. Roadway base clearance to SHGWT will need to be analyzed further during design. Drainage design will need to incorporate the high groundwater conditions, where present.

#### 4.1.12 Design Wave Heights

Not applicable for this project.

## 4.2 Design Criteria

The design criteria for interstate highway, interchange ramps, and arterial street are listed in **Table 4.1**, **Table 4.2**, and **Table 4.3**, respectively. They are based primarily on the FDM (2025), FDOT Structures Manual (2025), and the American Association of State Highway and Transportation Officials' (AASHTO's) A Policy of Geometric Design of Highways and Streets, AASHTO's A Policy on Highways Design Interstate System (2016), AASHTO Load and Resistance Factor Design (LRFD) specifications, and FDOT 2025-26 Standard Plans for Road Construction.

Stormwater ponds are required to provide water quality treatment and peak attenuation of stormwater runoff prior to outfalling to receiving waters and ensure the proposed improvements will not adversely impact offsite areas. SWFWMD and FDOT state agency criteria control the design of the stormwater ponds as discussed in detail in the Pond Siting Report, available in the project file. Drainage design criteria is summarized in **Table 4.4**. The study area does not discharge to a waterbody that is classified as impaired however, as previously mentioned, this project falls within the Tampa Bay Estuary Program (TBEP) Reasonable Assurance Plan (RAP) area. A net improvement analysis was performed using BMP Trains 2020 version 5.3.2.

The following standards and specifications guided the analysis and preliminary selection process of the general attributes for the proposed replacements of the SB I-75 Bridge over MWR (Bridge No. 130078), the NB I-75 Bridge over MWR (Bridge No. 130079) and the new proposed Braided Ramp Bridge (Weave) over Ramp A to SB I-75.

- American Association of State Highway and Transportation Officials (AASHTO) LRFD Bridge Design Specifications (9th Edition-2020) and Interims
- FDOT Structures Manual (January 2025 Edition)
- FDOT Standard Specifications for Road and Bridge Construction (January 2025 Edition)
- FDOT Standard Plans for Road and Bridge Construction (2025-2026 Edition)
- FDOT Design Manual (January 2025 Edition)

The most current edition of these documents available during the PD&E phase were used. Note that during subsequent phases revised versions of these documents may have been issued and amended criteria may be required to be incorporated

**Table 4.1. Interstate Design Criteria**

| Design Elements | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| Design Year | 2050 | | |
| Functional Classification | Urban Principal Arterial Interstate | FDOT Straight Line Diagram | |
| Access Classification | Class 1 (Area Type 2) | FDM, Table 201.4.1 | |
| Interchange Spacing | 2.0 mile (Area Type 2) | FDM, Table 201.4.1 | |
| Design Vehicle | WB-62FL | FDM, Section 201.6 | |
| Design Speed | 70 mph | FDM, Table 201.5.1 | AASHTO pg. 8-1, 8-2 |
| Lane Widths | 12-ft | FDM, Section 211.2 | AASHTO pg.8-2, 10-76 |
| **Shoulder Width** | | | |
| Outside / Right Shoulder Width | Mainline sections with 3 or More Lanes:<br>Without Shoulder Gutter: 12-ft (10-ft paved)<br>- Consider 12-ft outside paved width shoulders adjacent to travel lanes with high AADT or greater than 10% trucks.<br>- Pave the entire width of shoulders adjacent to concrete barriers.<br>With shoulder Gutter: 15.5-ft (8-ft paved)<br>AASHTO: 4 lanes - Median or Left (4 ft paved); Right (10 ft paved)<br>>= 6 lanes - Median or Left (10 ft paved); Right (10 ft paved) | FDM, Table 211.4.1 | AASHTO pg.8-3 |
| Inside / Left Shoulder Width | Mainline sections with 3 or More Lanes:<br>Without Shoulder Gutter: 12-ft (10-ft paved)<br>- Consider 12-ft outside paved width shoulders adjacent to travel lanes with high AADT or greater than 10% trucks.<br>- Pave the entire width of shoulders adjacent to concrete barriers.<br>With shoulder Gutter: 15.5-ft (8-ft paved) | | |

| Design Elements | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| | AASHTO: 4 lanes - Median or Left (4 ft paved); Right (10 ft paved)<br>>= 6 lanes - Median or Left (10 ft paved); Right (10 ft paved) | | |
| Bridge Width | Partial Bridge Sections: Travel Lanes + Shoulder Width (Varies) | FDM, 260.1.1 and Table 122.5.4 (AASHTO) | |
| Structural Capacity | HL-93 Design Load | AASHTO LRFD | AASHTO LRFD |
| **Vertical Clearance** | | | |
| Roadway over Limited Access Roadway | Construct affecting existing bridge 16.0 ft New bridge 16.5 ft<br>AASHTO:16 ft (freeway)<br>(14 ft. allowed in highly developed urban areas if alternate route has 16 ft.)<br>Arterials (New Structures) - rural and urban - 16 ft.<br>Arterials (Exist. Structures) - rural and urban – 14.5 ft | FDM, Table 260.6.1 | AASHTO, pg.8-5, 10-24 |
| Roadway Over Arterial | New bridge 16.5 ft construct affecting existing bridge 16.0 ft | FDM, Table 260.6.1 | |
| Overhead Sign Structure | 17.5-ft | FDM, Section 210.10.3 | AASHTO, pg.7-9, 8-4 |
| DMS Structure | 19.5-ft<br>AASHTO: 16 ft (Sign Trusses) | | |
| **Grades** | | | |
| Maximum | 3% (70 mph) | FDM, Table 211.9.1 | |
| **Cross Slopes** | | | |
| Travel Lanes | With 3 lanes (70 mph), the two inside travel lanes slope towards the outside @ 0.02 and the third lane slopes towards the outside @ 0.03.<br>AASHTO: Min 0.015 - Max 0.025 (freeways)<br>Min .0.015 - Max 0.020<br>(divided highways for up to 2 lanes in one direction; Additional outside lanes may have cross slopes of 0.030 | FDM, Figure 211.2.1 | AASHTO, pg.8-3 |
| Outside / Right Shoulder Width | 6% | FDM, Section 211.4.2<br>FDM, Figure 211.4.1 | |
| Inside / Left Shoulder Width | 5%<br>- If the inside travel lane is sloped toward the median, then the inside shoulder cross slope may be increased to 0.06. | | |
| Bridge Deck | 2% in each direction with no break in slope | FDM, Section 211.2.2 | |
| Max algebraic difference between adjacent through lanes | 4% | FDM, Section 211.2.2 | |
| Max algebraic | 5% for 35 mph or more ramp speed | FDM, Table | |

| Design Elements | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| difference at turning road terminals | | 211.2.2 | |
| Maximum Shoulder Cross Slope Break | 7% with adjacent travel lane | FDM, Figure 210.4.2 | |
| **Superelevation** | | | |
| Maximum Superelevation | emax = 10% | FDM, 211.8 | AASHTO, pg.3-32 |
| Superelevation Transition Rate | 1:200 for 3 lanes<br>100 ft. min. | FDM, Table 210.9.3 | AASHTO, pg.3-62 |
| Superelevation Ratio | 20:80 preferred,<br>50:50 minimum. | FDM, Section 210.9.1 | AASHTO, pg.3-71 |
| **Horizontal Alignment** | | | |
| Min. Length of Horizontal Curves | 15V minimum = 1050-ft 30V desirable = 2100-ft | FDM, Section 211.7.1 | |
| Maximum deflection | 0° 45' 00" | FDM, Section 211.7.1 | |
| Maximum curvature | 3º 30' | FDM, Table 210.9.1 | |
| Auxiliary lane length | Min 2500-ft in advance of the exit or after entry<br>FDOT Radius: 1637 ft<br>AASHTO Radius: 1630 ft | | AASHTO 2018 Table 3-7<br>Figure 10-53 (B1 and B2) |
| **Vertical Alignment** | | | |
| Maximum Grade | 3.00%<br>AASHTO:3.00% | FDM, Table 211.9.1 | AASHTO, pg.8-4, Table 8-1 |
| Max Change in Grade w/o Curve | 0.20% | FDM, Table 210.10.2 | |
| Min. Length of Crest Curve | Crest (Open Highway): L=KA but not < 1000- ft<br>Crest (Within Interchanges): L=KA but not < 1800-ft | FDM, Table 211.9.3 | |
| Minimum Length of Sag Curve | L=KA but not < 800-ft | FDM, Section 211.9.3 | |
| Minimum Crest K-Value | New Construction; K = 506<br>Resurfacing; K = 312<br>AASHTO: based on 2' object height<br>K = 247 | FDM, Table 211.9.2 | AASHTO, Table 3-35,<br>Table 3-36, Table 6-3 |
| Minimum Sag K-Value | K = 206<br>AASHTO: based on 2' object height<br>K = 181 | FDM, Table 211.9.2 | AASHTO, Table 3-37,<br>Table 3-36, Table 6-3 |
| Stopping Sight Distance | Interstate: <= 2 percent grade = 820-ft<br>AASHTO: 730 ft (70 mph) | FDM, Table 211.10.1 (adjustments for grades will be required) | AASHTO, pg.3-4, Table 3-1 |
| Recoverable Terrain/Clear Zone Widths (min. from edge of travel way) | 36-ft | FDM, Table 215.2.1 | |
| **Lateral Offset** | | | |

| Design Elements | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| Bridge Piers | Outside Clear Zone | FDM, Table 215.2.2 | |
| Above ground fixed objects (e.g. utility poles, ITS poles and other obstacles) | Outside Clear Zone | FDM, Table 215.2.2 | |
| Light Poles | Conventional = 20-ft from travel lanes, 14-ft from auxiliary lanes, or Clear Zone width, whichever is less<br>High Mast = Outside Clear Zone | FDM, Table 215.2.2 | |
| Drop-off and Canal Hazards | Canal Hazards:<br>60-ft from travel lanes (≥50 mph);<br>Drop-off:<br>- Clear zone | FDM, Section 215.3.2<br>FDM, Section 215.3.3 | |
| Median Width | Without Barrier = 64-ft<br>With Barrier = 26-ft | FDM, Table 211.3.1 | |
| Border Width | 94-ft.*<br>* This width may be reduced in the area of a crossroad terminal, as long as the design meets the requirements for clear zone, lateral offsets, drainage, and maintenance access.<br>If barrier is present; 10 ft from back of barrier | FDM, Section 211.6 | |
| Roadway Base Clearance | 3.0-ft above SHGW Elev. | FDM, Section 210.10.3 | |
| **Roadside Slopes** | | | |
| Front Slope | 1:6 for fills <5-ft<br>1:6 to edge of CZ then 1:4 for fills 5-ft-10-ft 1:6 to edge of CZ then 1:3 for fills 10-ft-20-ft 1:2 (with guardrail) for fills >20-ft | FDM, Table 215.2.3 | |
| Back Slope | 1:4 or 1:3 with a standard width trapezoidal<br>ditch and 1:6 front slope | | |
| Transverse Slope | 1:10 or Flatter | | |

Table 4.2. Interstate Interchange Ramp Design Criteria

| Design Elements | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| **Design Speed/Posted Speed** | | | |
| Ramps | Loops and Semi-Direct: 30 mph<br>Intermediate portion of Long Ramps: 40 mph<br>Direct Connection: 50 mph<br>AASHTO: Highway Design Speed / Min. Ramp Design Speed 70/35 mph | FDM, Table 201.5.2 | AASHTO, pg. 10-105,<br>Table 10-1 |
| **Lane Widths** | | | |
| One-Lane Ramps | 15-ft | FDM, Section 211.2.1<br>FDM, Table 211.2.1 | |
| Two-Lane Ramps | 24-ft (12-ft each) | | |
| **Shoulder Width** | | | |
| Outside / Right Shoulder Width | One-Lane Ramps: 6-ft (4-ft paved) Two-Lane Ramps: 12-ft (10-ft paved)<br>AASHTO: 2-4 ft paved inside<br>6-10 ft paved outside | FDM, Table 211.4.1 | AASHTO, pg. 10-121 |
| Inside / Left Shoulder Width | One-Lane Ramps: 6-ft (2-ft paved) Two-Lane Ramps: 8-ft (4-ft paved)<br>AASHTO: 2-4 ft paved inside<br>6-10 ft paved outside | | |
| **Bridge Width** | | | |
| One-Lane Ramps | Travel Lanes + 6-ft Shoulders | FDM, Figure 260.1.1 | AASHTO, pg. 8-4 |
| Multi-Lane Ramps | Travel Lanes + 10-ft Outside and 6-ft Inside Shoulders<br>AASHTO: Freeway - New Bridges - Approach Roadway Width | | |
| **Vertical Clearance** | | | |
| Ramp over Roadway | 16-ft –6-inch<br>AASHTO: 16 ft (freeway)<br>(14 ft. allowed in highly developed urban areas if alternate route has 16 ft.)<br>Arterials (New Structures) - rural and urban - 16 ft.<br>Arterials (Exist. Structures) - rural and urban – 14.5 ft. | FDM, Table 260.6.1 | AASHTO, pg.8-5, 10-24 |
| Ramp Over Railroad | 23-ft – 6-inch | FDM, Table 260.6.1 | |
| Overhead Sign Structure | 17-ft – 6-inch | FDM, Section 210.10.3 | |
| Ramp Over Canal | 2-ft Min from Design Flood Stage and Bridge Low Member Elev. & 6-ft above Normal High Elevation or control elevation | FDM, Section 260.8.1 | |

| Design Elements | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| Grades | | | |
| Grades | Design Speed 25 - 30 mph 7% Max<br>Design Speed 35 - 40 mph 6% Max<br>Design Speed 45 - 50 mph 5% Max<br>Design Speed 55 - 60 mph 4% Max<br>Design Speed 65 - 70 mph 3% Max<br>AASHTO: Design speed 15-20 mph 6-8% Max<br>Design speed 25-30 mph 5-7% Max<br>Design speed 35-40 mph 4-6% Max<br>Design speed 45 or Greater mph 3-5% Max | FDM, Table 211.9.1 | AASHTO, Table 10-2 |
| **Cross Slopes** | | | |
| Travel Lanes | 1 lane: slopes towards the outside @ 0.02;<br>2 lanes: both lanes slope towards the outside @ 0.02; lanes: the two inside travel lanes slope towards the outside @ 0.02 and the third lane slopes towards the outside @ 0.03.<br>AASHTO: Min .0.015 - Max 0.020 | FDM, Figure 211.2.1 | AASHTO, pg.10-111 |
| Outside / Right Shoulder Cross Slope | 6%<br>Figure 211.4.1 illustrates shoulder cross slopes in relationship to roadway cross slopes and superelevated sections | FDM, Section 211.4.2;<br>FDM, Figure 211.4.2 | |
| Inside / Left Shoulder Cross Slope | 5%<br>Figure 211.4.1 illustrates shoulder cross slopes in relationship to roadway cross slopes and superelevated sections<br>When the inside travel lane is sloping toward the median, the inside shoulder cross slope may be increased to 6% | | |
| Maximum Shoulder Cross Slope Break | 7% with adjacent travel lane | FDM, Figure 210.4.2 | |
| **Superelevation (e)** | | | |
| Maximum Superelevation Rate | emax = 10% | FDM Section 210.9 and 211.8 | |
| Superelevation Transition Rate | <u>Transition/Min L</u><br>Directional Ramps (25-40 mph): 1:175 ft.<br>Directional Ramps (45-50 mph): 1:200/100 ft.<br>Directional Ramps (55-60 mph): 1:225/100 ft. Loop Ramps: 1:175/100 ft.<br>For ramp design speeds less than 35 mph see AASHTO Exhibit 3-30 | FDM, Section 210.9.1<br>FDM, Table 210.9.3 | |
| Superelevation Ratio | 20:80 preferred<br>50:50 minimum | FDM, Section 210.9.1 | AASHTO, pg. 3-71 |

| Design Elements | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| **Horizontal Alignment** | | | |
| Superelevation (Maximum) | emax = 10%<br>AASHTO: Highways (Rural) = 10% | FDM Section 210.9 and 211.8<br>AASHTO, pg. 3-32, Table 3-7 | AASHTO, pg. 3-31 |
| Min. Radius with Superelevation | emax = 10% (radii varies by design speed)<br>AASHTO: emax = 10% (radii varies by design speed) | FDM Table 210.9.1<br>AASHTO, pg. 3-32, Table 3-7 | AASHTO, pg. 3-35, Table 3-7 |
| Min. Length of Horizontal Curves | Desirable (Low Speed) = 15V min<br>Desirable (High Speed) = 30V Minimum<br>25-45mph: 400ft<br>50mph: 750ft<br>55mph: 825ft | FDM, Table 211.7.1 | |
| Maximum deflection without curve | DS <= 40 MPH: 2°00'00"<br>DS >= 45 MPH: 0°45'00" | FDM, Section 211.7.1 | |
| Maximum Curvature | Mainline (70 MPH) = 3°30' 00"<br>Flyover/Diamond Ramps (50 MPH) = 8° 15' 00"<br>Loop Ramps (30 MPH) = 24° 45' 00" | FDM, Table 210.9.1 | AASHTO: Table 3-7 |
| Exit Ramp Taper Angle | $4^{o}\pm$<br>AASHTO: (Between 2 and 5) | Standard Plans Index 000-525 | AASHTO pg. 10-135 |
| Entrance Acceleration Lengths | 50 MPH to 70 MPH =<br>580 ft. + Taper (Single Lane)<br>30 MPH to 70 MPH =<br>1350 ft. +Taper (Single Lane)<br>All Speeds =<br>(Two Lane Entrance) - First lane drop, treat as a single lane entrance with single lane taper. Second lane drop has an auxiliary lane taper and a tangent length that makes the total two-lane entrance length 2500 ft. min. (including a 300 ft. taper)<br>Single lane (Parallel Design) - 300 ft. min.<br>FDM: Table 10-4 | | *all acceleration lengths will be adjusted according to AASHTO Table 10-4, 10-143, Figure 10-72 |
| Exit Deceleration Lengths | 70 MPH to 50 MPH =<br>340 ft. + Taper(Single Lane)*<br>700 MPH to 30 MPH =<br>520 ft. +Taper (Single Lane)*<br>All Speeds<br>(Two Lane Exit) - 1500 ft. min. (including a 300 ft. taper)<br>Tapered Design, Single Lane: deflection angle between 2 degrees to 5 degrees Parallel Design, Single Lane: 250 ft. min (15:1 to 25:1) | | AASHTO,<br>*all deceleration lengths will be adjusted according to AASHTO Table 10-6, figure 10-73, 10-146<br><br>FDM Figure 211.13.3<br>Table 211.13.1 |
| **Ramp Terminal Spacing** | | | |
| Entrance - Entrance or Exit - Exit | 1000-ft for freeways<br>800-ft for C-D Road system | FDM Figure 211.12.1 | FDM: Figure 10-70 |
| Exit - Entrance | 500-ft for freeways<br>400-ft for C-D Road system | | |

| Design Elements | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| Turning Roadways | 800-ft for system interchange 600-ft for service interchange | | |
| Entrance - Exit | 2000-ft for system to service – freeways<br>1600-ft for service to service – freeways | | |
| **Vertical Alignment / Stopping Sight Distance** | | | |
| Max Change in Grade w/o Curve | 55 MPH = 0.50%<br>50 MPH = 0.60%<br>45 MPH = 0.70%<br>40 MPH = 0.80%<br>35 MPH = 0.90%<br>30 MPH = 1.00% | FDM, Table 210.10.2 | |
| Min. Length of Crest Curve | 55 MPH = 350-ft<br>50 MPH = 300-ft<br>45 MPH = 135-ft<br>40 MPH = 120-ft<br>35 MPH = 105-ft<br>30 MPH = 90-ft | FDM, Table 211.9.3 | |
| Minimum Length of Sag Curve | 55 MPH = 250-ft<br>50 MPH = 200-ft<br>45 MPH = 135-ft<br>40 MPH = 120-ft<br>35 MPH = 105-ft<br>30 MPH = 90-ft | FDM, Table 211.9.3 | |
| Minimum Crest K-Value | 55 MPH; K = 185<br>50 MPH; K = 136<br>45 MPH; K = 98<br>40 MPH; K = 70<br>35 MPH; K = 47<br>30 MPH; K = 31<br>AASHTO: based on 2' object height<br>30 MPH; K = 19<br>35 MPH; K = 29<br>40 MPH; K = 44<br>45 MPH; K = 61<br>50 MPH; K = 84<br>55 MPH; K = 114 | FDM, Table 211.9.2 | AASHTO, Table 3-35 |
| Minimum Sag K-Value | 55 MPH; K = 115<br>50 MPH; K = 96<br>45 MPH; K = 79<br>40 MPH; K = 64<br>35 MPH; K = 49<br>30 MPH; K = 37<br>AASHTO: based on 2' object height<br>30 MPH; K = 37<br>35 MPH; K = 49<br>40 MPH; K = 64<br>45 MPH; K = 79<br>50 MPH; K = 96<br>55 MPH; K = 115 | FDM, Table 211.9.2 | AASHTO, Table 3-37 |
| Stopping Sight Distance | <= 2 percent grade (Downgrade & Upgrade)<br>55 MPH = 495-ft | FDM, Table 211.10.2 (adjustments for | AASHTO, Table 3-37 |

| Design Elements | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| | 50 MPH = 425-ft<br>45 MPH = 360-ft<br>40 MPH = 305-ft<br>35 MPH = 250-ft<br>30 MPH = 200-ft<br>AASHTO:<br>30 MPH; K = 200<br>35 MPH; K = 250<br>40 MPH; K = 305<br>45 MPH; K = 360<br>50 MPH; K = 425<br>55 MPH; K = 495 | grades will be required) | |
| **Horizontal Clearance** | | | |
| Recoverable Terrain/Clear Zone Widths (min. from edge of travel way) | Single Lane Ramp: 55 MPH = 18-ft<br>45 - 50 MPH = 14-ft<br>30 - 40 MPH = 10-ft<br><br>Multilane Ramp: 55 MPH = 30-ft<br>45 - 50 MPH = 24-ft<br>40 MPH = 18-ft<br>35 MPH = 14-ft<br>30 MPH = 12-ft | FDM, Table 215.2.1 | |
| Bridge Piers | Outside Clear Zone | FDM, Table 215.2.2 | |
| Above ground fixed objects (e.g. utility poles, ITS poles and other) | Outside Clear Zone | FDM, Table 215.2.2 | |
| Light Poles | 20-ft from travel lanes, 14-ft from auxiliary lanes, or Clear Zone width, whichever is less | FDM, Table 215.2.2 | |
| Canal Hazards | 50-ft from travel lanes (Flush shoulder) 40- ft from travel lanes (Curbed Shoulder)<br>Design speeds less than 45 mph | FDM, Section 215.3.2<br>FDM, Section 215.3.3 | |
| Border Width | 94-ft.*<br>* This width may be reduced in the area of a crossroad terminal, as long as the design meets the requirements for clear zone, lateral offsets, drainage, and maintenance access. If barrier present; 10 ft from back of barrier | FDM, Section 211.6 | |
| Limited Access R/W at Interchanges | 300 ft. min. beyond end of Accel/Decel. Taper<br>Where no taper, a minimum distance of 300 ft. beyond radius point of return.<br>100 ft. min. beyond end of taper or radius point of return in urban areas. | FDM, Section 211.15 | |

**Table 4.3. Arterial Street Design Criteria**

| Design Element | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| Functional Classification | Urban Principal Arterial (Other) | Manatee County Comprehensive Plan- Existing Roadways Functional Classification | |
| Access Management Classification | Class 3 | | |
| Design Vehicle | WB-62FL, Florida Interstate Semitrailer | FDM 201.6 | |
| Design Speed | 35 - 45 mph<br>25 mph min (interchange configuration-DDI)<br>AASHTO: 20-35 mph | FDM Table 201.5.1<br>Existing Speed limit 45 mph | AASHTO pg. 2-55 |
| Lane Width (Through) | 11-ft Minimum<br>AASHTO: 12-15-ft | FDM Table 210.2.1 | AASHTO pg. 10-56 |
| Cross Slopes | 2% (two inside lanes) 3% (outside lanes)<br>AASHTO: +/- 2% | FDM Figure 210.2.1 | AASHTO pg. 10-55 |
| Turn Lane Width | 11-ft Minimum | FDM Table 210.2.1 | |
| Bike Lane Width | 7-ft Buffered Bike Lane preferred Standard | FDM 223.2.1.1 | |
| Shared Use Path | 12 ft standard | FDM 224.4 | |
| Sidewalk | 6-ft Standard | FDM Table 222.2.1 | |
| Shoulder Width | Outside/Right: 10-ft (5 ft paved)<br>Median/Left: 10- ft (4ft paved)<br>AASHTO: 10-ft | FDM Table 210.4.1 | AASHTO pg, 4-10 |
| Median Width | 22-ft | FDM Table 210.3.1 | |
| Shoulder Cross Slopes | 6% (Outside shoulders)<br>5% (Median shoulders) | FDM 210.4.1 | AASHTO pg. 4-1 2-6% |
| Border Width | 12' (design speed 25 - 40 mph)<br>14' (design speed 45 mph) | FDM Table 210.7.1 | |
| Grades | 7% max (35-40 mph)<br>6% max (45 mph)<br>AASHTO: 6% (45 mph) -7% (30 mph) | FDM Table 210.10.1 | AASHTO pg. 7-29, Table 7-4 |
| Overhead Sign Structure (Vertical Clearance) | 17.5-ft<br>AASHTO: Sign Trusses, 16-ft. | FDM 210.10.3 | AASHTO pg. 7-9, 7.2.5.1 8-4, |
| Overhead Dynamic Message Sign Structures | 19.5-ft<br>AASHTO: Sign Trusses, 16-ft. | FDM 210.10.3 | AASHTO pg. 7-9, 7.2.5.1 8-4, |
| Superelevation | emax = 5% | FDM Table 210.9.3 | AASHTO Horiz. Alignment, pg. 3-31, emax = 6% (urban) |
| Maximum curvature | 20°00' (25-30 mph)<br>14°15' (35 mph)<br>10°5' (40 mph)<br>8°15' (45 mph) | FDM Table 210.9.2 | |
| Max. deflection without curve | Flush shoulder and curbed roadways with design speed 40 | FDM 210.8.1 | |

| Design Element | Criteria | Sources/Notes | AASHTO Critical Element |
|---|---|---|---|
| | mph and less is 2°00'00" Curbed roadways with design speed of 45 mph is 1°00'00" | | |
| Min. Length of Horizontal Curves | 400-ft (minimum)-25 mph<br>675-ft (45 mph) | FDM Table 210.8.1 | |
| Max Change in Grade w/o Curve | 1.00% (25-30 mph)<br>0.9% (35 mph)<br>0.80% (40 mph)<br>0.7% (45 mph) | FDM Table 210.10.2 | |
| Min. Length of Crest Curve | 75-ft (25 mph)<br>90-ft (30 mph)<br>105-ft (35 mph)<br>120-ft (40 mph)<br>135-ft (45 mph) | FDM Table 210.10.4 | |
| Min. Length of Sag Curve | 75-ft (25 mph)<br>90-ft (30 mph)<br>105-ft (35 mph)<br>120-ft (40 mph)<br>135-ft (45 mph) | FDM Table 210.10.4 | |

**Table 4.4. Drainage Design Criteria**

| Category | Criteria | Description | Agency |
|---|---|---|---|
| **Water Quality** | Presumptive Treatment Volume | Either 1.0 or 0.5 inches of runoff from the proposed directly connected impervious area addition must be treated for wet detention / retention and dry retention ponds, respectively | **SWFWMD** |
| | Treatment Volume Recovery | For dry retention: Total treatment volume shall be available within 72 hours; only the volume recovered within 36 hours can be used for water quantity storage.<br>For wet detention: total treatment volume shall be discharge in no less than 120 hours, with no more than one-half the total volume being discharged within the first 60 hours. | **SWFWMD** |
| **Water Quantity** | Discharge Rate Limitation<br>(Open Basin) | Off-site discharges must be attenuated such that the peak discharge rate does not exceed the historical rate for the 25-yr, 24-year SWFWMD Type-II rainfall event | **SWFWMD** |

| Category | Criteria | Description | Agency |
|---|---|---|---|
| | Floodplain Compensation | Any impacts / fill within the FEMA 100-year floodplain must be compensated for on a cup-for-cup basis. | **SWFWMD** |
| **Pond Design** | Pond Maintenance Berm | A minimum 15-feet berm is required around FDOT stormwater management facilities for maintenance. A minimum radius of 30 feet is required for the inside edge of the maintenance berm. | **FDOT** |
| | Freeboard | A minimum 1 ft of freeboard between the design high water and berm elevation. | **FDOT** |
| | Pond Slopes | For the maintenance berm, the slope shall not exceed 1:8 (V:H). For pond side slopes, the slope shall not exceed 1:4 or 1:2 starting 2 feet below the Normal Water Level. A fence may be required if the above-water pond slope is exceeded within 5-feet of the Normal Water Level, or if a hazard exists. | **FDOT** |

# 5.0 Alternatives Analysis

This Section describes the PD&E Study's alternatives analysis, including how the alternatives were compared and why the Preferred Alternative was selected.

## 5.1 No-Build (No-Action) Alternative

The No-Build (No-Action) Alternative includes several ongoing and programmed improvements that are included in both the Opening Year 2030 and Design Year 2050. Unless noted, the existing roadway and ramp configurations are maintained in the No-Build. The programmed improvements included in the No-Build are noted below and shown in **Figure 5.1**.

- Signalization of both the northbound and southbound ramp terminals.
- Roadway widening on Moccasin Wallow Road, west and east of the interchange, from 1 lane in each direction to 2 lanes in each direction.
- Geometric improvements at the intersection of Moccasin Wallow Road at Buffalo Road.

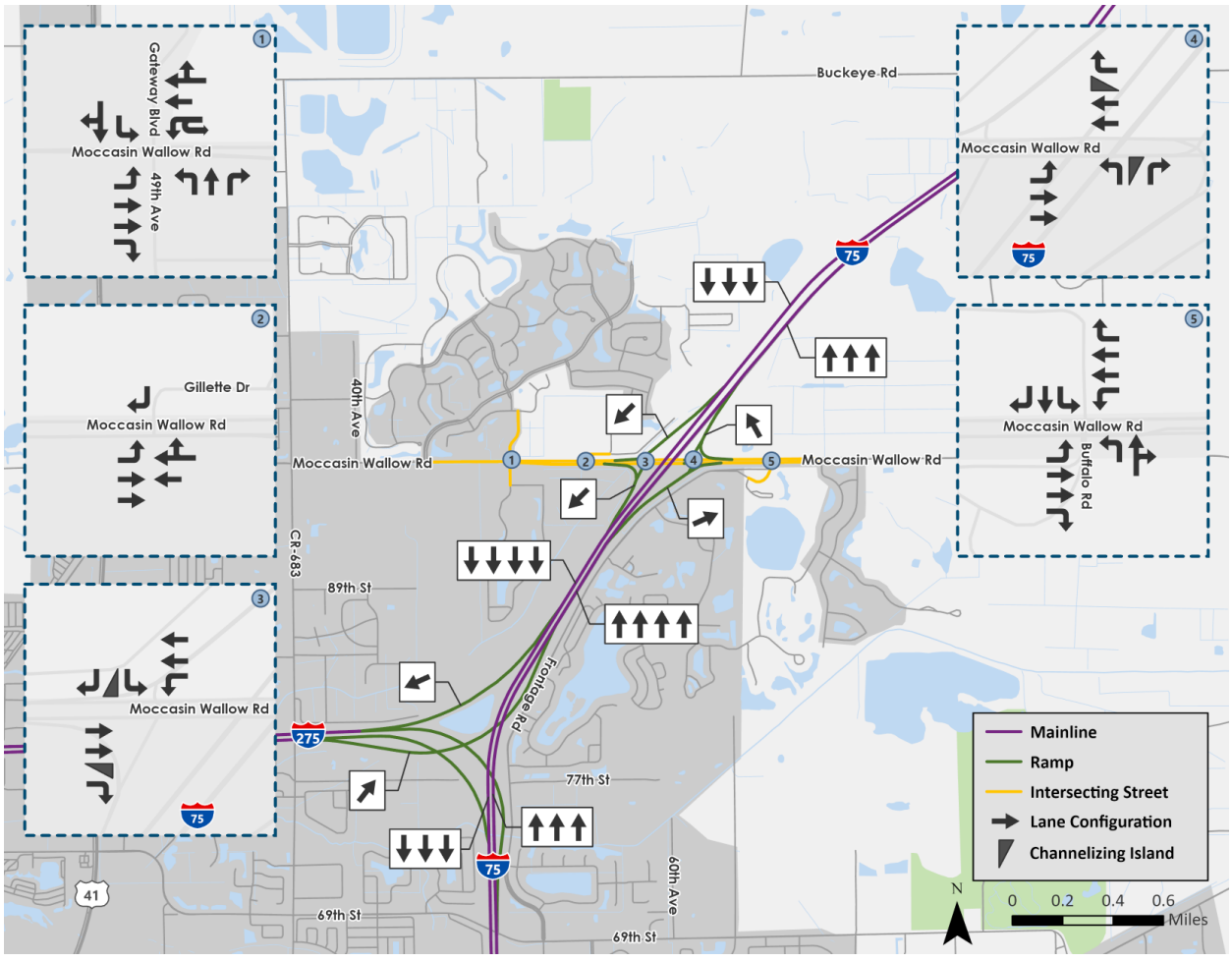



Figure 5.1 No-Build Alternative Lane Configuration

Advantages of the No-Build Alternative include avoiding short-term disruptions such as traffic detours, noise, air quality impacts, and business access restrictions typically associated with construction activities. Additionally, because no new construction would occur, there will be no immediate capital costs for ROW acquisition, construction, or environmental mitigation associated with the No-Build Alternative.

Disadvantages of the No-Build Alternatives include inability to provide additional capacity needed to accommodate projected growth in traffic volumes, which will continue to increase congestion. Additionally, without improvements, existing safety and operational deficiencies such as high crash rates or inefficient traffic flow will remain unaddressed and worsen safety concerns.

The No-Build Alternative does address the project's purpose and need; however, it was evaluated as a baseline condition in the evaluation of alternatives for the PD&E Study.

## 5.2 Transportation Systems Management and Operations Alternative

Transportation Systems Management and Operations (TSM&O) strategies for safety and congestion management, such as addition of turn lanes and storage lengths, signal timing optimization, auxiliary lanes, premium transit, and technology improvements were considered. However, these improvements by themselves do not address the levels of traffic demand projected to use Moccasin Wallow Road and the I-75 interchange in the design year (2050). As part of the design and operational optimization of the proposed improvements, applicable TSM&O strategies will be evaluated and included in the Build Alternative during the Design Phase of this project.

Additionally, installation of Wrong-Way Driving (WWD) detection systems is now required at all off-ramps within the state in support of the Target Zero Program and it is proposed to be constructed at both off-ramps of the I-75 service interchange. This along with the increased connectivity between stakeholders shall decrease the number of wrong-way collisions at the interchange. WWD systems is a newer subsystem of ITS. District One has design guidance that has been developed through regional-partner coordination with enhancements that are under consideration based on lessons learned to further increase its proven beneficial functionality.

## 5.3 Multimodal Alternative

Multimodal features in terms of shared use path, sidewalk and bicycle lanes were added on the Moccasin Wallow Road corridor throughout the limits of the PD&E Study. Since the Sarasota/Manatee MPO 2045 LRTP does not have any transit service planned along Moccasin Wallow Road, transit alternatives were not evaluated as part of this project. Additionally, multimodal alternative will not address the project's purpose and need as it lacks the capacity to accommodate projected traffic volumes on I-75 and Moccasin Wallow Road.

## 5.4 Build Alternatives

The PD&E Study evaluated one Build Alternative against the No Build Alternative. Initial concept development was conducted during the Master Plan process.

### 5.4.1 Alternatives Development

#### 5.4.1.1 Master Plan Interchange Recommendation

The Master Plan evaluated the existing I-75 at Moccasin Wallow Road interchange to identify feasible improvements that would prevent ramp traffic from backing up onto the I-75 mainline. Proposed improvements were assessed under the No-Build existing plus committed improvements condition for the design year. The westbound left-turn movement is expected to carry a heavy volume, which presents operational concerns for a conventional diamond interchange. Therefore, widening the existing configuration was ruled out as a viable solution. To address these operational concerns, FDOT identified and recommended a DDI as a Build Alternative for detailed evaluation in the subsequent PD&E Study. The Master Plan evaluation is documented in the Final Master Plan Summary Report, dated June 2023.

#### 5.4.1.2 Diverging Diamond Interchange

The DDI was selected based on its ability to efficiently accommodate high turning volumes while maintaining a relatively compact footprint similar to the existing diamond interchange. Notable benefits of the DDI include reduced conflict points (thereby enhancing intersection safety), improving signal timing and traffic progression along Moccasin Wallow Road. These benefits directly address the project's purpose and need.

The DDI involves fully replacing the existing four-span bridge, enabling an optimized alignment of the concept, notably its crossover intersections (**Figure 5.2**). This approach removes the geometric constraints imposed by the existing bridge piers, eliminating the need to shift intersections or acquire additional ROW.

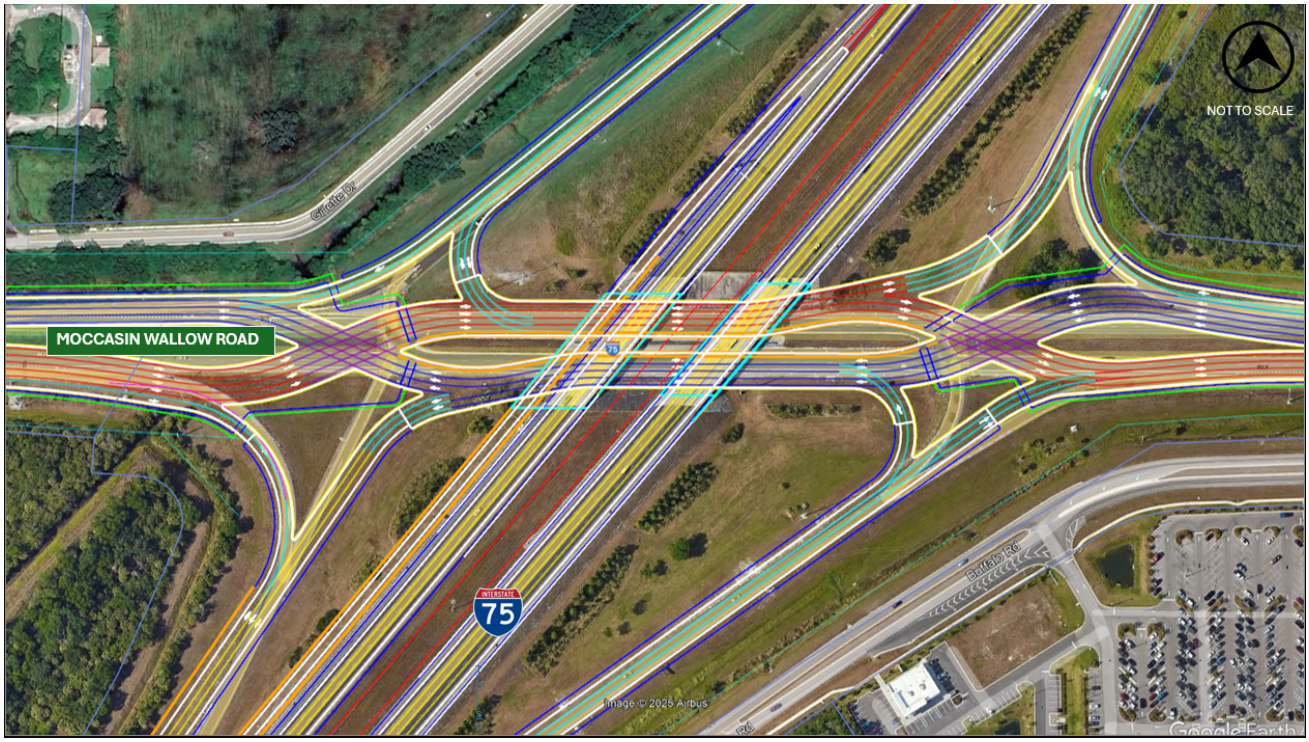



**Figure 5.2 Bridge Replacement DDI Concept**

#### 5.4.1.3 Bridge Replacement Versus Bridge Retrofit

The Master Plan recommended bridge replacement to implement the DDI. However, a bridge retrofit option (**Figure 5.3**) was initially evaluated at the beginning of the PD&E Study as a cost saving measure. The retrofit option would modify the existing bridges (130078 and 130079), potentially requiring minor ROW acquisitions, in the form of corner clips, to relocate the crossover intersections away from impacting the bridge piers. This option would modify the current four-span structure to accommodate the DDI configuration while maintaining existing structural elements. Additionally, a new bridge would be needed to accommodate I-75 southbound off-ramp traffic to I-275.

The bridge retrofit option would further integrate pedestrian and bicycle facilities while addressing spatial constraints created by center piers. Span 2 and Span 3 of both bridges are wide enough to accommodate four 12-foot travel lanes and seven-foot buffered bicycle lanes. Spans 1 and 4 can accommodate a sidewalk and a shared use path following modifications to the sloped abutments.

Upon further evaluation of the bridge retrofit, it was determined that this option has sight distance issues which may affect the safety of both vehicles and non-motorized traffic. Therefore, it was eliminated from further considerations.

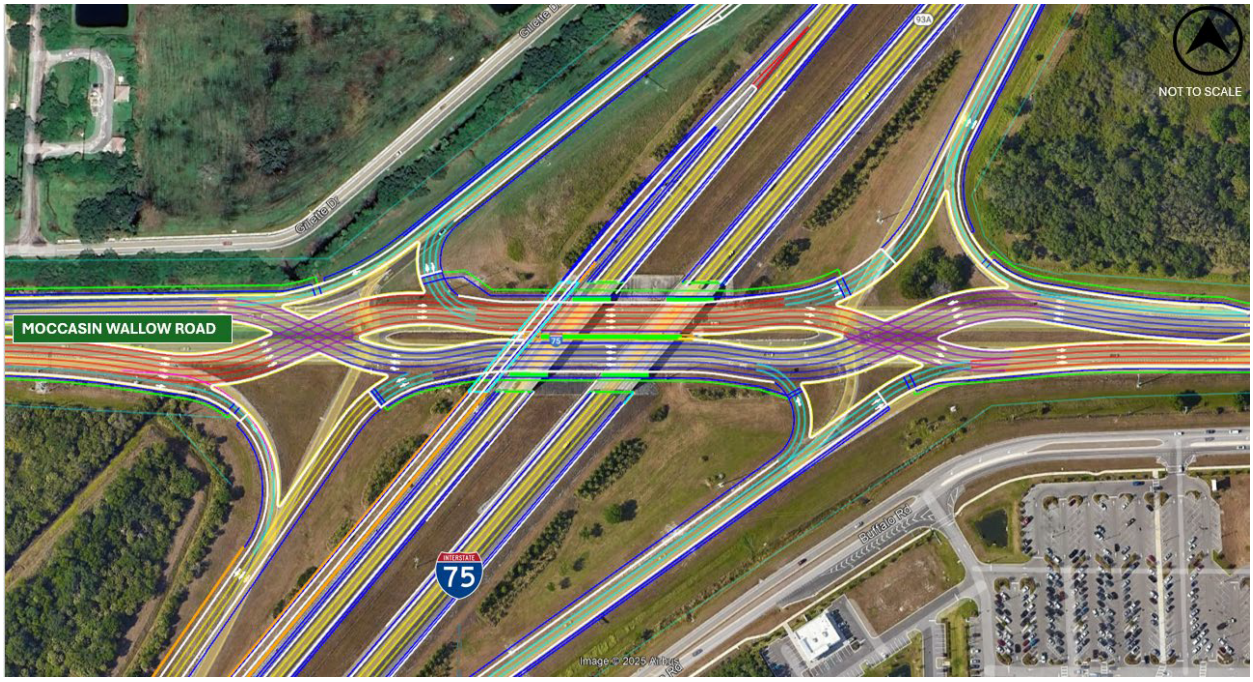



**Figure 5.3 Bridge Retrofit DDI Concept**

#### 5.4.1.4 Moccasin Wallow Road Widening

As part of the Build Alternative, Moccasin Wallow Road will be widened to three lanes in each direction within the project limits, extending from Gillette Drive to Buffalo Road. The Build Alternative includes bicycle and pedestrian enhancements which would improve both bicycle and pedestrian levels of traffic stress (BLTS and PLTS) along Moccasin Wallow Road. Multimodal enhancements consist of

buffered bicycle lanes on both sides of Moccasin Wallow Road, a sidewalk along the south side, and a shared use path on the north side. These features support improved connectivity and accessibility for non-motorized users.

#### 5.4.1.5 Braided Ramps

To address the complex operational challenges created by the closely spaced interchanges of I-75 and I-275, the Build Alternative also incorporates a braided ramp system. This system separates I-75 southbound on-ramp traffic from Moccasin Wallow Road and I-75 southbound off-ramp traffic to I-275, mitigating weaving conflicts that cannot be effectively resolved through auxiliary lane implementation due to spatial limitation and high traffic volumes. Details of traffic and safety analyses of the Build Alternative are documented in the IMR.

#### 5.4.1.6 Engineering Considerations

During the development of the Build Alternative, several engineering elements were considered consistent with the guidance provided in Part 2, Chapter 3 of the PD&E Manual. These included geometric design constraints, traffic operations and projections, safety considerations, ROW impacts, environmental features such as Cabbage Slough, and multimodal accommodation. Drainage and utility coordination, constructability, and compatibility with future planned improvements were also reviewed to ensure long-term viability of the project.

**Figure 5.4** presents the Build Alternative lane configuration and concept plans are presented in **Appendix B**.

### 5.4.2 Operational and Safety Analyses

The operational analysis conducted for this IMR confirmed that the proposed modifications under the Build Alternative are expected to improve traffic operations compared to the No-Build Alternative, without introducing significant adverse impacts on safety or traffic operations.

In the Design Year 2050, the Build Alternative is projected to accommodate 84% and 89% more latent demand during the AM and PM peak hours, respectively. This increase in latent demand under the Build Alternative is primarily attributed to capacity constraints at the I-75 northbound weaving segment between I-275 and Moccasin Wallow Road, as well as along Moccasin Wallow Road east of Buffalo Road. Additionally, I-75 in both directions is expected to operate at LOS D or better during the AM peak hour, with average speeds ranging from 66 to 74 mph. In the PM peak hour, higher traffic volumes result in LOS F conditions at the I-75 northbound weaving segment between I-275 and the I-75 off-ramp, and along southbound I-75 approaching the interchange, with average speeds ranging from 35 to 38 mph. The remainder of the I-75 corridor in both directions is projected to operate at LOS D or better during the PM peak hour, with average speeds ranging from 57 to 73 mph.

In the Design Year 2050, improvements proposed along Moccasin Wallow Road under the Build Alternative are expected to increase average speeds to between 17 and 23 mph, compared to a range of 9 to 11 mph under the No-Build Alternative.

The results of safety analysis showed that implementation of the Build Alternative is anticipated to produce a total crash reduction of 15.8% for I-75 facilities (freeway segments, ramps and collector-distributor system, ramp terminal intersections) compared to No Build Alternative. Along Moccasin Wallow Road, proposed improvements would result in a total crash reduction of 13.4%.

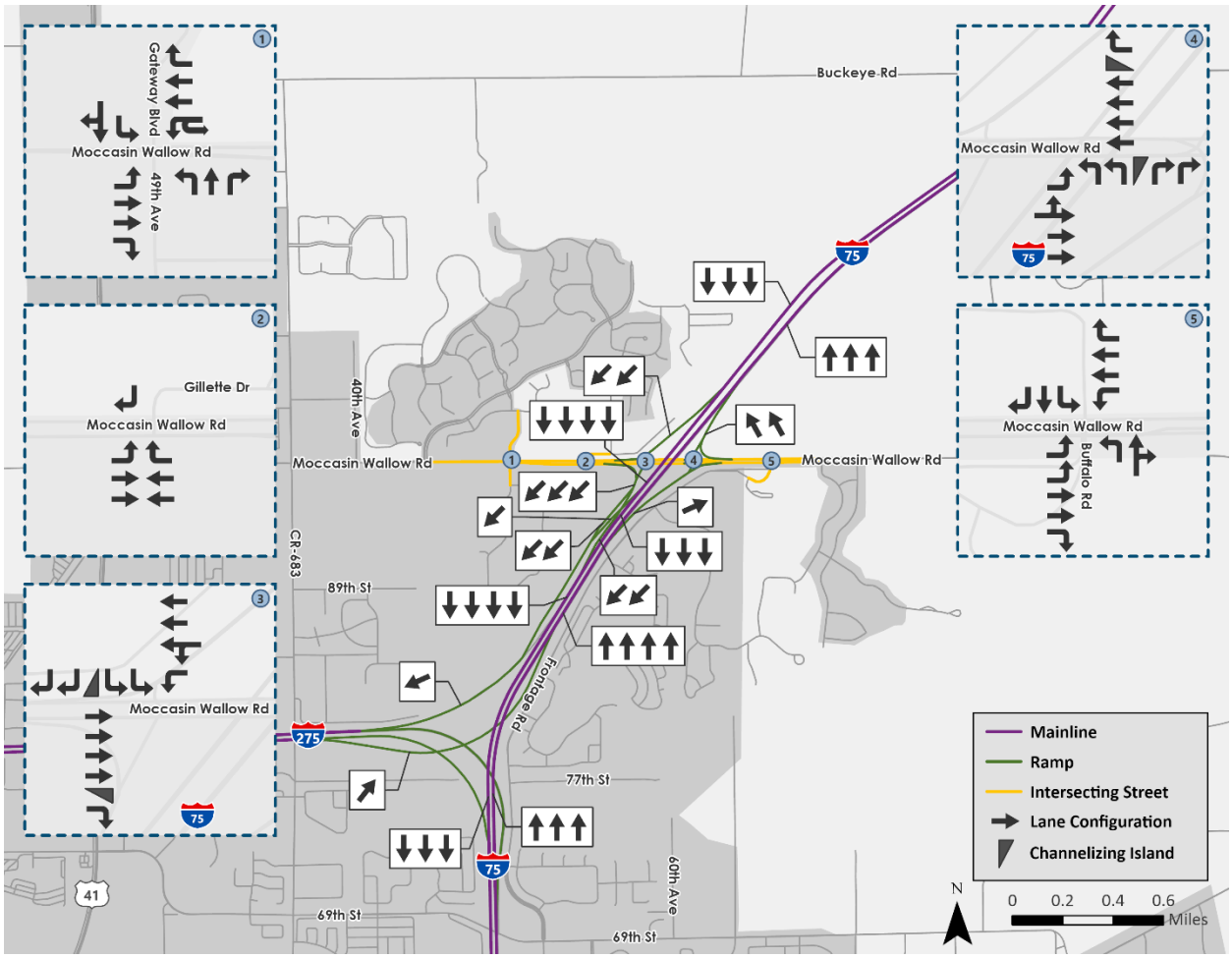



Figure 5.4 Build Alternative Lane Configuration

## 5.5 Comparative Alternatives Evaluation

The No-Build and Build Alternatives were evaluated based on their performance with respect to project's purpose and need, as well as environmental, engineering, and cost factors. A summary of the comparative evaluation presented in **Table 5.1**.

### 5.5.1 Purpose and Need

While the Build Alternative meets the purpose and need of accommodating projected future travel demand and incorporating enhancements for pedestrian and bicyclist facilities, the No-Build Alternative fail to address projected travel demand and does not enhance safety or mobility for all users.

### 5.5.2 Social and Economic Impacts

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 ROW. Additional ROW will be needed for stormwater management facilities and floodplain compensation sites. The Build Alternative is estimated to result in impacts to three parcels, totaling approximately 11 Acres.

The Build Alternative will not cause any business or residential relocation. Based on the sociocultural analysis for this PD&E Study, proposed improvements will not affect any minority or low-income populations.

**Table 5.1. Comparative Evaluation Matrix**

| Evaluation Criteria | No-Build Alternative | Build Alternative |
|---|---|---|
| **Purpose and Need** | | |
| Accommodate Future Travel Demand | No | Yes |
| Accommodate Pedestrians and Bicyclists | No | Yes |
| Improve Safety | No | Yes |
| **Social and Economic** | | |
| Number of Parcels Impacted | 0 | 3 |
| Number of Residential Relocations | 0 | 0 |
| Number of Business Relocations | 0 | 0 |
| **Cultural Resources** | | |
| Archaeological Potential | None | None |
| Historic Sites | 0 | 0 |
| Public Lands (Acres) | 0 | 0 |
| **Natural Resources** | | |
| Wetlands and Other Surface Waters (Acres) | 0 | 18.63 |
| Number of Protected Species | 0 | 25 |
| Floodplains Impact (Acre-feet) | 0 | 7.89 |
| **Physical Resources** | | |
| Contamination Sites (Medium or High Rank) | 0 | 4 |
| Noise Sensitive Sites | 94 | 100 |
| Utility Conflicts | None | Minor |
| **Estimated Costs (Present Day Cost)** | | |
| ROW ($ Million) | 0 | 14.5 |
| Wetland Mitigation ($ Million) | 0 | 1.9 |
| Construction Costs ($ Million) | 0 | 205.5 |
| Design ($ Million) | 0 | 14.4 |
| Construction Engineering Inspection ($ Million) | 0 | 14.4 |
| Total Estimated Project Cost ($ Million) | 0 | 250.7 |

### 5.5.3 Cultural Resources

There are no potential historic sites or public lands within the study area.

### 5.5.4 Natural Resources

#### Wetlands

Implementation of the Build Alternative is anticipated to result in direct impacts to approximately 14.64 acres of wetlands and other surface waters. This includes 4.75 acres of forested wetlands, 9.89 acres of herbaceous (non-forested) wetlands, and 4.03 acres of other surface waters. A total of 42 wetland areas and one surface water feature were identified as being directly affected by project construction activities.

#### Protected Species

Implementation of the Build Alternative is anticipated to result in limited impacts to protected species, with effect determinations guided by habitat suitability, species presence data, and regulatory consultation. 23 listed species and two species proposed federal listing under the Endangered Species Act (ESA) have the potential to occur in the project area. Most of these species are expected to experience either no effect or no adverse effect due to the implementation of avoidance, minimization, and mitigation measures. Occurrence of giant airplant within Manatee County and it was identified within the study area during field reconnaissance, Therefore, it has been determined that there is potential for adverse effect on this species. Natural Resources Evaluation (NRE), available in the project file, contains more information about protected species.

#### Floodplain

A total floodplain impact volume of 7.89 acre-feet (ac-ft) is estimated from implementation of the Build Alternative. Five floodplain compensation sites are proposed to compensate for 9 areas of impact to the 100-year FEMA floodplain. Impact areas were determined by estimating limits of construction based on the proposed typical sections. Refer to the Location Hydraulic Report available in the project file.

### 5.5.5 Physical Resources

#### Noise

No-Build Alternative and Build Alternative have the potential to impact 94 and 100 noise sensitive sites, respectively. More information about noise within the project area is located in the Noise Study Report, available in the project file

#### Contamination

Of the nine identified potential contamination sites, four were ranked medium, with the most significant hazards associated with petroleum-related spills, asbestos, former agricultural use, and industrial operations involving hazardous materials (**Table 5.2**). None were ranked as high contamination site. More information on contamination sites in the area can be found in the Contamination Screening Evaluation Report (CSER), available in the project file. The four medium ranked sites will undergo Level II Impact to Construction Assessment during Design phase of the project.

Table 5.2. Medium Contamination Sites

| Site # | Site Information | Distance from ROW | Proximal Pond Sites (Within 500 feet) | Contaminants of Concern | Risk Rating |
|---|---|---|---|---|---|
| 1 | McKenzie Tanker Spill I-75 | Within | Pond A1, Pond B1-A | Petroleum | Medium |
| 3 | Pursley Inc #2-Pioneer/Former Moccasin Wallow Tree Farm | Adjoining | FPC C1, Pond B1-B, Pond C1 | Arsenic, B(a)P TEQs, lead, petroleum | Medium |
| 7 | I-75 Bridges | Within | Pond A1, Pond B1-A, Pond B1-B, Pond C1, Pond D1 | Asbestos, metal based coatings | Medium |
| 9 | Railroad Corridor | Within | N/A | Herbicides, petroleum | Medium |

#### Utilities

The Utility Assessment Package, available in the project file, identified several utilities that may be impacted by the Build Alternative. Actual utility impacts will be confirmed during the Design Phase, following the completion of detailed survey and subsurface utility information is prepared and further coordination with UAOs. The Build Alternative is not expected to result in significant utility impacts as sufficient space exists to accommodate potential utility relocations.

### 5.5.6 Cost Estimates

The FDOT Long Range Estimates (LRE) application was used to determine construction costs. A summary of the costs for the Build Alternatives is included in **Table 5.1.** Detailed LRE costs are included in **Appendix C**.

The construction engineering and inspection (CEI) costs are estimated as 7% of construction costs. The costs do not include the cost of relocating utilities. Determination of which utilities will require relocation will be determined with detailed survey information during the Design Phase of this project.

Based on the evaluation documented in the NRE, there are currently no mitigation banks in the area with available state credits. Therefore, the implementation of the Build Alternative may require obtain credits from a mitigation bank outside of the basin. Assuming 50 percent more credits will be needed and factored into the 6.21 state mitigation credits and an estimated cost of $200K per credit would result in approximately $1,864,000 for wetland mitigation.

## 5.6 Selection of the Preferred Alternative

The Build Alternative was selected as the Preferred Alternative based on an evaluation of the project's purpose and need, as well as environmental and engineering factors associated with both the No-Build and Build Alternatives. The decision also considered the results of the comparative alternatives analysis and input received throughout the PD&E Study development process.

The No-Build Alternative fails to address the project's purpose and need and therefore was not selected.

# 6.0 Agency Coordination & Public Involvement

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

## 6.1 Agency Coordination

### 6.1.1 Advanced Notification

An Advance Notification package for this project was completed and mailed on August 28, 2024, to the Florida State Clearinghouse, as well as to local and federal agencies, in accordance with Governor's Executive Order 95-359 (Florida State Clearinghouse) and President's Executive Order 12372 (Intergovernmental Review of Federal Programs). Any comments received have been addressed in the final environmental document.

### 6.1.2 ETDM Screening

The project was screened through the ETDM process with project number 14552. This process provided resource agencies and other stakeholders with the opportunity for early input, involvement, and coordination, so as to identify early potential project effects before the project advancing further in the PD&E phase. The ETDM Final Programming Screen Summary Report is available in **Appendix A**.

The programming screen for this project identified a range of effects across social, cultural, natural, and physical resource categories. The project is anticipated to result in enhanced mobility, which suggests it will address the purpose and need. Most environmental resources were assigned a minimal to moderate degree of effect, with moderate impacts noted for relocation potential, wetlands and surface waters, floodplains, water resources, air quality, contamination, and infrastructure—indicating the need for further evaluation or mitigation measures during subsequent project phases. Effects on cultural and natural resources, including wetlands and protected species, are generally expected to be minimal, while no involvement is anticipated with coastal and marine resources, navigation, or special designations. Overall, the screening results support the advancement of the project with focused attention on areas of moderate concern.

Coordination with NRCS was conducted by filling the Farmland Conversion Impact Rating Form for corridor projects [NRCS-CPA-106], available in the project file. NRCS understands that the project is anticipated to be constructed within the existing right-of-way to the greatest extent practicable and the surrounding area is expected to support future urban development. SHPO concurred with the no-adverse effects determination made in the CRAS prepared during the PD&E Study. Coordination with USFWS regarding potential impacts to wetlands and protection species is being done during the PD&E Study and will continue through the design and permitting phase of the project.

## 6.2 Public Involvement

Public engagement for this study continued the outreach efforts initiated during the Master Plan development phase.

### 6.2.1 2021 Master Plan Public Meeting

A virtual public meeting for the Master Plan was held from June 15 through June 25, 2021, with a live Q&A session conducted via GoToWebinar on June 15. FDOT provided project information and collected public comments during this period.

### 6.2.2 2021 Master Plan Public Meeting

A hybrid public meeting (virtual and in-person) for the Master Plan was held from February 20 through March 6, 2023. This included a live online session on February 21, 2023, and an in-person open house on February 22, 2023. Information shared during these meetings included Master Plan recommendations such as proposed typical sections, the identified year of need, and planned projects—including this PD&E Study which was presented as Project 13. The in-person open house featured 18 exhibit boards, with staff available to answer questions. A video explaining the managed lanes concept played continuously throughout the event.

### 6.2.3 PD&E Study Kickoff Newsletter

FDOT initiated the I-75 at Moccasin Wallow Road PD&E Study with a kickoff newsletter in September 2024. The newsletter was sent to elected and public officials, ETAT members, business and residents within the project area, and other interested parties. The newsletter outlined project objectives, scope, schedule, and the importance of public participation.

A project website was available at https://www.swflinterstates.com/i75-north-corridor/454096-1/. The website was routinely updated to keep the public informed about the project's progress. It featured a project location map, project goals, schedule, key documents, and public meeting materials. The site also included a form for submitting comments and an option to join the project contact list.

### 6.2.4 Public Comments During the Study

During the PD&E Study, public comments were received through the project website, by mail, and via email throughout the course of the study.

Public comments received were reviewed, responded, and considered in the development and refinement of the Build Alternative. Refer to the project's Comments and Coordination Report, available in the project file, for details. Generally, the public is in favor of the proposed improvements. A common theme among the comments received is the need to signalize the I-75 ramp terminals at Moccasin Wallow Road due to ongoing delays experienced by left turn vehicles at the interchange. Feedback from the public helped the project team to understand community concerns and clarify local priorities. This feedback informed refinements to build alternative and design elements to better address stakeholder needs while maintaining consistency with project goals.

## 6.3 Public Hearing

*To be completed after the public hearing.*

# 7.0 Preferred Alternative

This Section describes design features of the Preferred Alternative whose concept plans are shown in **Appendix B** and **Figure 7.1**. Based on the safety and operational analysis of the study area, the Build Alternative is expected to perform better than the No-Build Alternative and is therefore the preferred alternative.

The Preferred Alternative includes a DDI and braided ramp system on I-75 southbound between Moccasin Wallow Road and I-275 interchanges and widening of Moccasin Wallow Road from four lanes to six lanes between Gillette Drive and Buffalo Road. The Build Alternative alleviates congestion by increasing the interchange capacity and enhancing the efficiency of the interchange using a series of two-phase signals. Additionally, the Build Alternative improves three of the four interchange ramps by adding a second lane.

The safety analysis shows the improvements proposed in the Build Alternative are expected to enhance the overall safety of the I-75 interchange area and Moccasin Wallow Road. Implementation of the Build Alternative would result in 15.8% and 13.5% reduction in predicted total crashes and fatalities, respectively, compared to the No-Build Alternative in the Design Year (2050).

## 7.1 Engineering Details of the Preferred Alternative

### 7.1.1 Typical Sections

The typical sections for I-75 and Moccasin Wallow Road associated with the Preferred Alternative are summarized below, providing an overview of the planned improvements, including roadway configurations, lane arrangements, shoulder widths, pedestrian and bicycle accommodations, and median treatments. The typical sections of the Preferred Alternative are presented with detailed design information in the Typical Section Package (**Appendix E**). **Appendix B** includes a plan view of the Preferred Alternative, showing construction baseline stationing corresponding to each typical section.

#### 7.1.1.1 Typical Section No. 1

Limits: I-75 from Station 788+50.00 to Station 839+62.21.

This segment includes four northbound travel lanes and three southbound travel lanes, with up to two southbound auxiliary lanes. Two southbound ramps to I-275 are also present. All travel lanes are 12 feet wide. Shoulder widths range from 10 to 12 feet.

#### 7.1.1.2 Typical Section No. 2

Limits: I-75 from Station 839+62.21 to Station 851+64.15 Southbound; Station 853+48.04 Northbound).

This section consists of four northbound travel lanes and three southbound travel lanes, along with up to two auxiliary lanes. A 15-foot-wide single-lane ramp from southbound I-75 to I-275 is included. Mainline travel lanes are 12 feet wide, with shoulders ranging from 10 to 12 feet. Ramp shoulders are six feet wide.

7.1.1.3 Typical Section No. 3

Limits: I-75 from Station 855+03.64 to Station 897+91.56 Southbound; and Station 856+61.29 to Station 933+50.00 Northbound.

The northbound direction includes four travel lanes and up to two auxiliary lanes; the southbound direction includes three travel lanes and up to two auxiliary lanes. All travel lanes are 12 feet wide. Shoulders are 12 feet wide, with 10 feet paved.

7.1.1.4 Typical Section No. 4

Limits: I-75 Bridges over Moccasin Wallow Road from Station 851+64.15 to Station 855+03.64 Southbound; and Station 853+48.04 to Station 856+61.29 Northbound.

These bridge sections include four northbound travel lanes and three southbound travel lanes. The southbound bridge also carries a separate 15-foot-wide ramp to I-275, divided by a barrier wall. All mainline travel lanes are 12 feet wide. Bridge shoulders are 10 feet wide on both inside and outside. The ramp includes a six-foot inside shoulder.

7.1.1.5 Typical Section No. 5

Limits: I-75 Single-Lane Ramp.

Consists of a single 15-foot travel lane with a six-foot outside shoulder (four feet paved) and a six-foot inside shoulder (two feet paved).

7.1.1.6 Typical Section No. 6

Limits: I-75 Two-Lane Ramp.

Features two 12-foot travel lanes sloped in one direction, with a 12-foot outside shoulder (10 feet paved) and an eight-foot inside shoulder (four feet paved).

7.1.1.7 Typical Section No. 7

Limits: I-75 Three-Lane Ramp.

Consists of three 12-foot travel lanes sloped in one direction, with 12-foot shoulders (10 feet paved).

7.1.1.8 Typical Section No. 8

Limits: I-75 Four-Lane Ramp.

Includes four 12-foot travel lanes with a pavement break between the center two lanes. Shoulders are 12 feet wide, with 10 feet paved.

7.1.1.9 Typical Section No. 9

Limits: Ramp BR Bridge over Moccasin Wallow Road from Station 8037+78.89 to Station 5042+90.44.

Includes a single 15-foot travel lane and six-foot shoulders on both sides.

7.1.1.10 Typical Section No. 10

Limits: Moccasin Wallow Road from Station 401+11.97 to Station 413+00.00 and from Station 424+00.00 to Station 439+59.67.

Comprises three eastbound travel lanes and an inside auxiliary lane, as well as three westbound travel lanes. All travel lanes are 12 feet wide. Both directions include a seven-foot buffered bicycle lane. The north side features a 12-foot shared use path, while the south side includes a six-foot sidewalk. Type F curb and gutter is provided on the outside, and Manatee County Type AB curb and gutter is used on the inside. A four-foot inside shoulder is provided.

7.1.1.11 Typical Section No. 11

Limits: Moccasin Wallow Road within the DDI from Station 413+00.00 to Station 424+00.00

This segment includes three travel lanes and an outside auxiliary lane in each direction. All lanes are 12 feet wide. Each direction includes a five-foot physically separated bicycle lane located within the median. A two-foot traffic separator separates travel lanes from the bicycle lanes. Barrier walls are installed adjacent to the median. Outside curb and gutter is Type F, and outside shoulders are four feet wide.

### 7.1.2 Access Management

I-75 is a limited access facility designated as Access Class 1. Moccasin Wallow Road is a County-maintained roadway and most closely resembles Access Class 3. The proposed improvements will not change the access management classification.

### 7.1.3 Right-of-Way

Although the proposed improvements are expected to be constructed primarily within the existing ROW, acquisition will be required for the southbound braided ramp from I-75 to I-275. Additionally, two parcels will be impacted to accommodate stormwater ponds/ FPC sites. A summary of additional ROW needs is provided in **Table 7.1**.

**Table 7.1. Right-of-Way Impacts**

| Parcel ID | Purpose | Parcel Size (Acres) | New ROW Needed (Acres) |
|---|---|---|---|
| 612100008 | Pond | 11.27 | 1.97 |
| 611500109 | Pond | 6.28 | 1.74 |
| 647300269 | Pond and Ramp | 50.62 | 7.27 |

### 7.1.4 Horizontal and Vertical Geometry

The Preferred Alternative consists of reconstruction of Moccasin Wallow Road and I-75. **Appendix B** contains the proposed concept plan and profile of Moccasin Wallow Road, I-75, and the associated ramps.

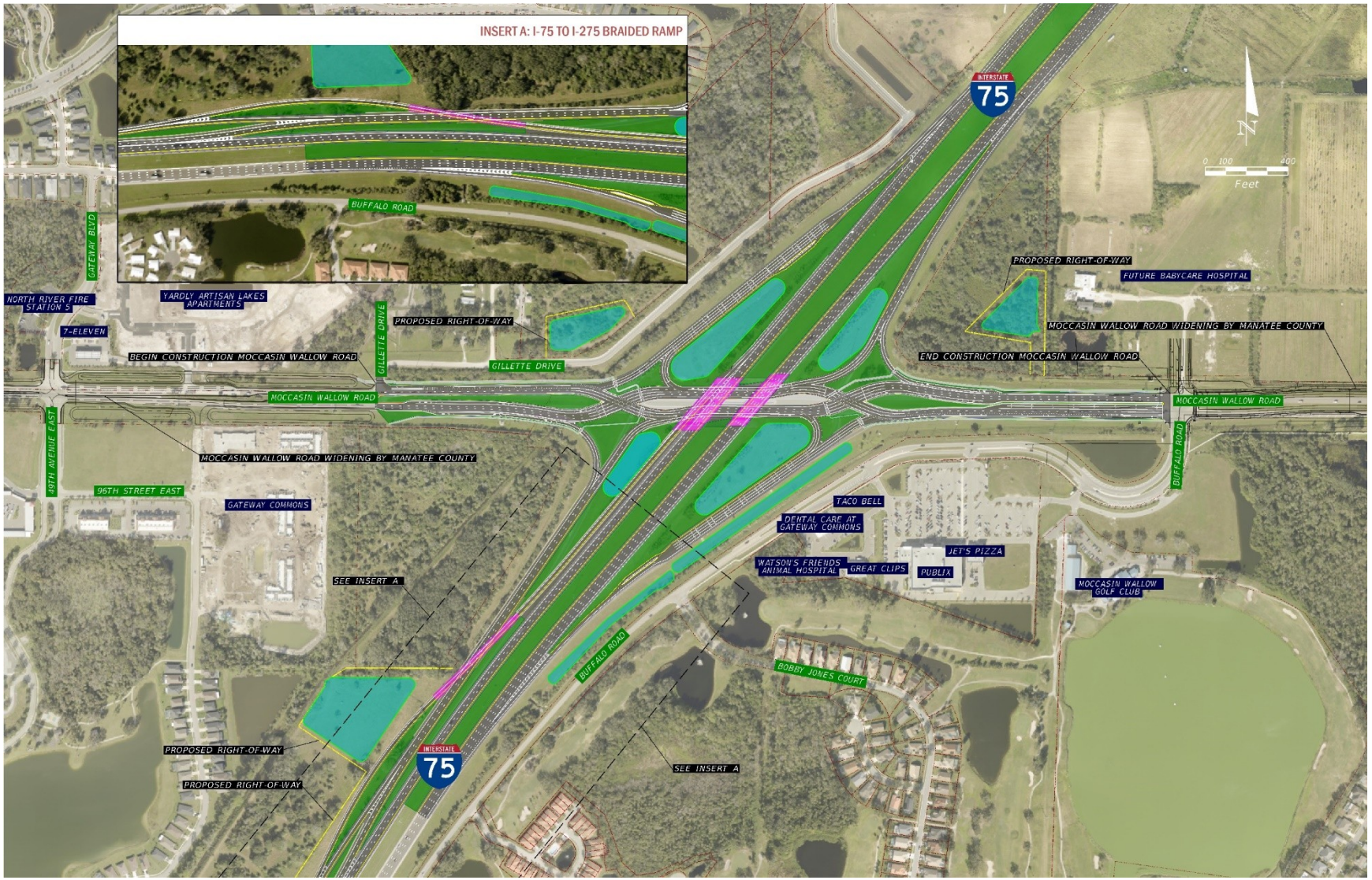



Figure 7.1. Preferred Alternative Concept

#### 7.1.4.1 I-75 Mainline

The improvements along I-75 begin at I-275 and extends approximately 1.5 miles north of the bridges over Moccasin Wallow Road.

From Station 788+50.00 to 839+62.21, I-75 will be widened to provide four northbound travel lanes and three southbound travel lanes, and up to two southbound auxiliary lanes. Between Station 839+62.21 and 851+64.15 (southbound), and Station 853+48.04 (northbound), I-75 will be reconstructed to provide four northbound travel lanes and three southbound travel lanes, and up to two auxiliary lanes. From Station 855+03.64 to 897+91.56 (southbound) and Station 856+61.29 to 933+50.00 (northbound), I-75 will again be widened to provide four northbound travel lanes, and up to two auxiliary lanes, as well as three southbound travel lanes and up to two auxiliary lanes.

The I-75 bridges over Moccasin Wallow Road, from Stations 851+64.15 to 855+03.64 (southbound) and Stations 853+48.04 to 856+61.29 (northbound) will be reconstructed to carry four northbound lanes and three southbound lanes. The southbound bridge will also include a 15-foot-wide, single-lane ramp to I-275, separated by a barrier wall.

The existing profile of the I-75 mainline in both directions will be raised to accommodate the increased span length required for the widened bridge structures over Moccasin Wallow Road.

#### 7.1.4.2 I-75 Ramps

The improvements in the Preferred Alternative include the reconstruction of all ramps at the I-75 and Moccasin Wallow Road interchange.

- Ramp A (southwest quadrant) is a three-lane southbound on-ramp to I-75, which also provides a connection to I-275. This ramp passes beneath the braided ramp from I-75 to I-275. Additionally, the proposed braided ramp from I-75 to I-275 begins north of the Moccasin Wallow Road bridges. The profile of this ramp is designed to span over Ramp A.
- Ramp B (southeast quadrant) is a single-lane northbound off-ramp that widens to three lanes as it approaches Moccasin Wallow Road.
- Ramp C (northeast quadrant) is a three-lane northbound on-ramp to I-75, which tapers to two lanes as it merges onto the mainline.
- Ramp D (northwest quadrant) is a two-lane southbound off-ramp from I-75 that expands to four lanes near Moccasin Wallow Road.

Both off-ramps (Ramps B and D) include emergency stopping sites.

#### 7.1.4.3 Moccasin Wallow Road

The Preferred Alternative includes reconstruction of Moccasin Wallow Road from Gillette Drive intersection to Buffalo Road intersection. The reconstruction will include three through lanes and one auxiliary lane in each direction. A shared use path is proposed on the north side of the roadway and a sidewalk is proposed on the south side.

As part of the proposed DDI interchange, traffic will shift to the opposite side of the roadway within the interchange area to eliminate left-turn conflict points to and from the ramps. New traffic signals are proposed at the crossover points where eastbound and westbound Moccasin Wallow Road traffic intersect. Proper alignment of eastbound and westbound travel lanes is critical in a DDI configuration to effectively guide drivers through the interchange and reduce the risk of wrong-way movements.

The existing profile of Moccasin Wallow Road is relatively flat. The proposed profile of the Preferred Alternative incorporates 0.30% grades and VPIs spaced at no less than 250 feet apart.

### 7.1.5 Design Variations and Design Exceptions

The Preferred Alternative does not include any Design Exceptions.

While no design variations are anticipated that warrant a formal Design Variation submittal, a Project Design Variation Memorandum (available in the project file) has been prepared to document the following deviations from standard criteria for border width and cross slopes in one direction.

- Border Width (on the ramps): Per FDM Section 211.6.1, a design variation is not required for border width if additional ROW is not required. At this time, ROW acquisition is anticipated. Therefore, the proposed condition requires a design variation unless ROW acquisition is determined to not be needed at a future phase of the project.
- Number lanes cross sloped in one direction (on I-75): Given the design speed is proposed for 70 mph (match existing), and the proposed design has four lanes sloped in one direction, this condition requires a design variation. This is because the design would not meet the cross-slope requirements of FDM Figure 211.2.1 Note 4.

### 7.1.6 Multimodal Accommodations

The proposed conditions for Moccasin Wallow Road will provide seven-foot buffered bicycle lanes in each direction and a 12-foot shared use path on the north side of the roadway within the areas east and west of the interchange. Within the DDI, five-foot physically separated bicycle lanes are provided for continuity, and the median area provides continuity of the shared use path and sidewalk.

No transit features proposed in the Preferred Alternative.

### 7.1.7 Intersection/Interchange Concepts and Signal Analysis

The DDI reduces conflict points, enhancing intersection safety while improving signal timing and traffic progression along Moccasin Wallow Road. This alternative includes widening Moccasin Wallow Road to three lanes in each direction within the project limits (from Gillette Drive to Buffalo Road). Additionally, the Build Alternative incorporates a braided ramp system that separates the I-75 southbound on-ramp traffic from Moccasin Wallow Road and I-75 southbound off-ramp traffic to I-275. Due to the high volume of southbound weaving traffic between Moccasin Wallow Road and I-275, as well as the proximity of these interchanges, an auxiliary lane was not a feasible design solution. See IMR, available in the project file, for more information.

A signal timing plan for a DDI and adjacent intersection has been designed to optimize traffic flow by maximizing safety and efficiency through a two-phase signal operation plan (SOP) at each crossover intersection, where opposing through movements briefly swap sides to facilitate unimpeded left turns onto freeway ramps. Moccasin Wallow Road at Buffalo is designed with a four-phase SOP. Refer to

Appendix F for details of the link node diagram and timing plans. The SOP coordinates these phases to minimize delay, support high-turning volumes, and allow for pedestrian and bicycle movements where applicable. In addition to the geometric layout, the design of SOP considered factors such as approach volumes, queue storage between crossovers, and ramp demands, and time-of-day timing and coordination strategies.

### 7.1.8 Tolled Projects

Tolls are not present within the project limits.

### 7.1.9 Intelligent Transportation System and TSM&O Strategies

The Preferred Alternative includes WWD detection system. During Design Phase, additional TSM&O strategies will be evaluated. Potential strategies may include Network Integration, Advanced Traffic Signal Performance Measures (ATSPM) and Smart Signals, Route Notification and Diversion, Connected and Automated Vehicles (CAV) applications, Dynamic Message Signs (DMS).

Additional details are provided in the TSM&O Opportunities Technical Report, available in the project file.

### 7.1.10 Landscape

While the PD&E Study focuses on evaluating potential environmental impacts of the proposed improvements, landscape opportunity and aesthetic enhancements will be evaluated in the subsequent Design Phase, after the completion of the PD&E Study.

### 7.1.11 Lighting

The roadway widening and modification to the I-75 interchange will cause the relocation of the existing lighting system where currently present. Additionally, the project may require new lighting systems which will be designed to conform with the latest FDM requirements. A lighting justification study for the entire project limits will be conducted during the Design Phase. FDOT is responsible for maintaining lighting within the interstate ROW, while Manatee County maintains lighting along Moccasin Wallow Road.

### 7.1.12 Wildlife Crossings

No wildlife crossings are proposed in the Preferred Alternative.

### 7.1.13 Permits

The stormwater evaluation recommended a combination of dry retention and wet detention ponds to meet the stormwater management requirements for this project. Due to encroachment into the 100-year floodplain, offsite floodplain compensation sites are required. The study limits are within the TBEP Reasonable Assurance Plan (RAP) area and require net nutrient improvement. The design of the stormwater management facilities complies with the standards set forth in the FDOT Drainage Manual and the SWFWMD Environmental Resource Permit (ERP) Handbook.

The Preferred Alternative would require permits from state regulatory agencies for impacts to wetlands, other surface waters, water quality, and gopher tortoise burrows. **Table 7.2** lists the anticipated permits associated with the construction of the Preferred Alternative.

**Table 7.2. Anticipated Permits for the Preferred Alternative**

| Permit Type | Agency |
|---|---|
| Individual Environmental Resource Permit (ERP) | SWFWMD |
| Section 404 Dredge and Fill Permit | USACE |
| National Pollutant Discharge Elimination System (NPDES)[1] | FDEP |

[1] This permit would be obtained by the selected construction contractor.

### 7.1.14 Drainage and Stormwater Management Facilities

The recommended stormwater management for the Preferred Alternative was approached by utilizing the infield areas of the proposed interchange. This approach demonstrates a net nutrient load improvement from pre to post conditions in accordance with the Tampa Bay Estuary Program Reasonable Assurance Plan.

The proposed stormwater management system associated with the project are being developed to meet the design and performance criteria established in the SWFWMD ERP Applicant's Handbook Volumes I and II. Drainage and water quality impact evaluation are documented in the Pond Siting Report and Water Quality Impact Evaluation (WQIE), available in the project file.

Two wet detention ponds serve Basins B and D, providing attenuation upstream of major cross drains CD-02 and CD-03. Three dry retention ponds serving Basins A, B and C provide sufficient water quality removal to meet presumptive criteria as well as net nutrient improvement. Basin E's increase in runoff volume is compensated for with attenuation provided upstream; existing drainage conditions will be maintained in this basin therefore no stormwater management is proposed for Basin E. See **Figure 7.2**. Basin F total area remains unchanged from the existing conditions; however, the impervious area slightly increases in the proposed conditions due to shoulder widening. Drainage patterns remain consistent with existing conditions; runoff from the interstate is directed into an existing stormwater management facility. Additional runoff generated from the increase in the impervious area was found to be 0.12 ac-ft. This volume of runoff added to existing SMF servicing this basin would produce a negligible 0.01' increase in stages. Due to the minor increase in pavement area and low impact to the existing SMF in Basin F, no stormwater management is proposed for this Basin.

This alternative relies on the use of infield dry ponds and one linear dry treatment pond to meet net nutrient removal requirements. Estimates for seasonal high-water elevations were used based on NRCS Soil Survey values and existing permitted plans and field observations.

### 7.1.15 Floodplain Analysis

FEMA flood maps show nine instances of floodplain encroachment throughout the limits of this project. These include flood zones A and AE, see **Figure 7.3**. Each instance of encroachment was analyzed using a foot-by-foot volumetric subtraction tool. The limit of construction was estimated using typical sections and assumed back of sidewalk elevations. The areas shown in **Figure 7.3** are assumed to be fully impacted up to the base flood elevation associated with each impact area, resulting in moderate conservatism in this analysis. A detailed breakdown of impacts on a per foot basis is provided in the Location Hydraulic Report, available in the project file.

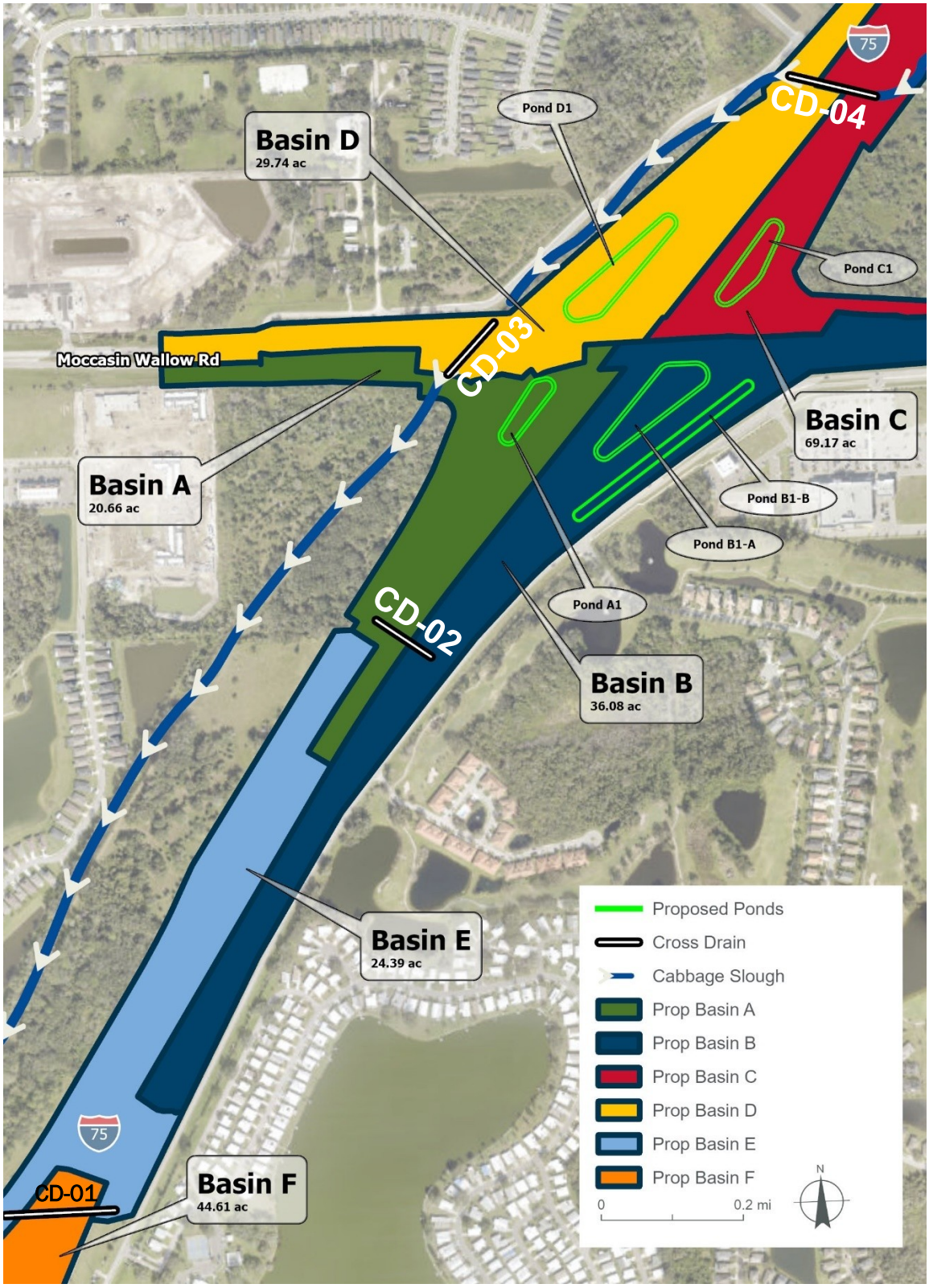



Figure 7.2 Recommended Stormwater Basin Map

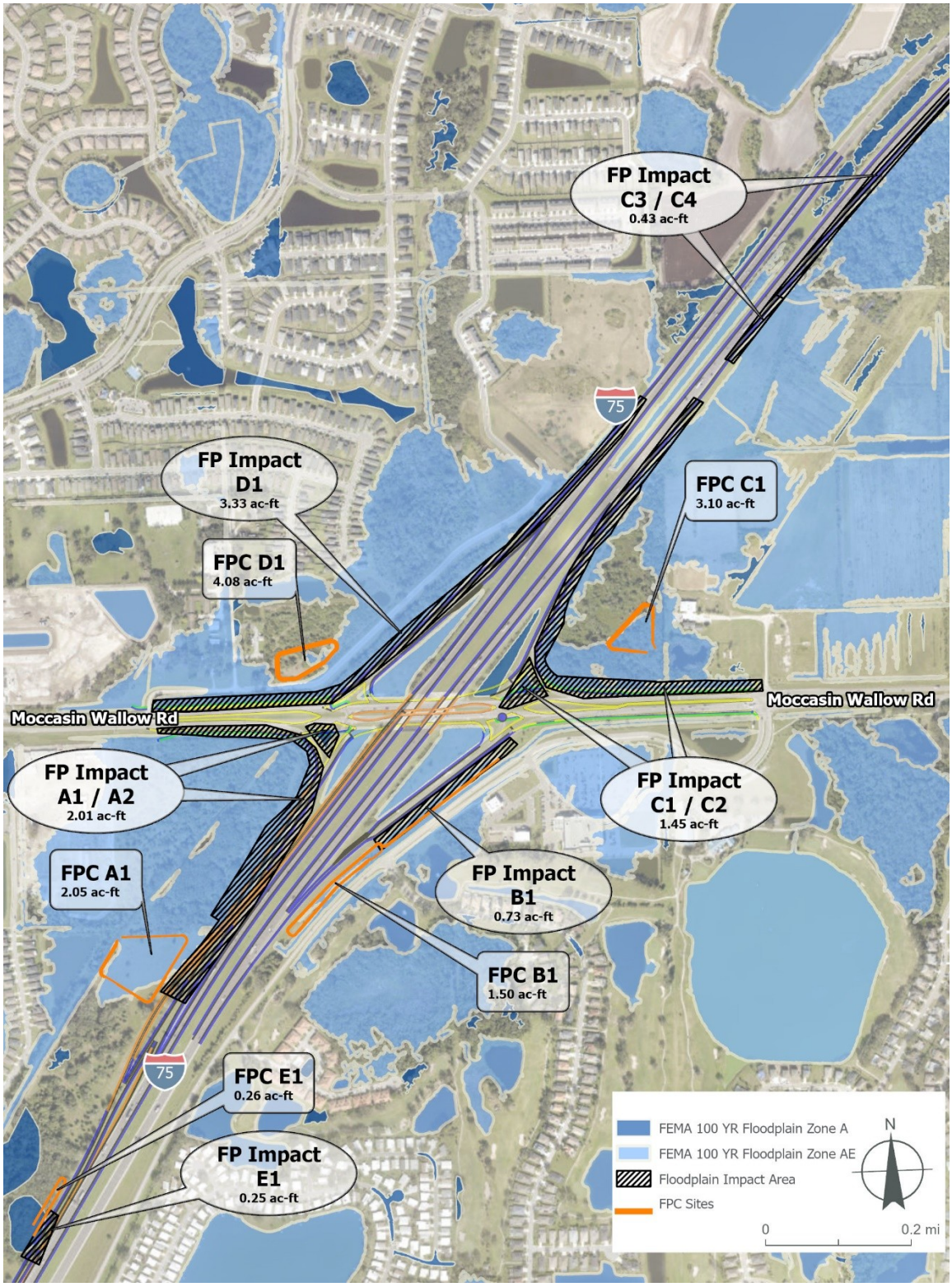



Figure 7.3 Floodplain Impact Areas and Compensation Sites

Five floodplain compensation sites are proposed to compensate for the nine areas of impact to the 100-year FEMA floodplain. A total impact volume of 7.89 ac-ft is estimated for this project. Impact areas were determined by estimating limits of construction based on the proposed typical section package. Volume of fill was determined using a tool created for ArcGIS Pro in which the existing ground surface is subtracted from the base flood elevation associated with each impact area; volumes are reported on a foot-by-foot increment. It is assumed that the entire volume between the existing ground and the base flood elevation will be fully impacted and does not account for a tie down slope. This methodology results in a slightly conservative value for potential impacts to the 100-year floodplain and leaves room for refinement of the profile during the Design Phase.

Two impact areas in Basin C (FP Impact C3 and C4, shown on **Figure 7.3**) do not have an associated floodplain compensation site, as volume will be recovered from re-grading of roadside ditches. Refer to the Pond Siting Report available in the project file.

While floodplain exists within the infield areas of the interchange, it was determined that the Preferred Alternative would not impact floodplain volumes in these areas; any infield area with a proposed pond has the capacity to store the floodplain volume within the pond footprint.

As discussed in the WQIE, there are two private wells in the vicinity of the project. The FPC site located in the northeast quadrant of the interchange, appears to be within 500 of a well. Since FPC do not take roadway runoff, the well is not expected to be impacted. Additionally, permitting conditions stipulated in Subsection 4.2, A.H.V II will be followed, which prevent stormwater treatment facilities to be constructed within 75 feet of an existing private drinking water well.

### 7.1.16 Bridge and Structure Analysis

#### 7.1.16.1 Environmental Classification

The environmental classifications for the proposed braided ramp bridge and I-75 bridges over Moccasin Wallow Road will be determined in later phases of the project upon the completion of the Geotechnical Report.

#### 7.1.16.2 Environmental Considerations

Based on the environmental analysis conducted as part of the PD&E Study the locations of the proposed bridges do not directly impact wetlands and surface waters.

Noise barriers are not anticipated on any of the project bridges. Refer to the Noise Study Report (NSR) for more information.

#### 7.1.16.3 Proposed Clearances

The minimum vertical and horizontal clearances of the proposed structures are set at the FDOT's minimum requirements as stated in the FDM. A roadway alignment and profile were developed in combination with a superstructure depth to create a profile to meet the clearance requirements.

The minimum horizontal clearances provided under the proposed I-75 Bridges are 5.5 feet (min.) from the face of curb (along outside auxiliary lane) to the MSE wall and 19.25 feet from the face of the pier column to the inside lanes. The new piers are to be protected by providing structural resistance. The provided horizontal clearances will accommodate the four feet (from face of curb for outside auxiliary lane) and 16 feet (from edge of travel lane from inside travel lane) required for the minimum lateral

offset in FDM Table 215.2.2. A roadway barrier is provided alongside the inside to protect the pedestrians.

Roadway barrier walls are proposed under the new proposed Braided Ramp Bridge (Weave) along both sides of Ramp A instead of providing the 14 to 24 feet required for the clear zone in FDM Table 215.2.1. The new piers are to be protected by providing structural resistance.

The minimum vertical clearance of the proposed bridges is 16.5 feet. This dimension is the minimum vertical clearance requirement as defined by FDM Table 260.6.1.

7.1.16.4 Vertical and Horizontal Geometry

Plan and profile sheets for proposed bridges are presented in **Appendix D**.

### I-75 Bridges over Moccasin Wallow Road

A vertical profile using a crest vertical curve is proposed to be used for the replacement bridges of the I-75 Bridges over Moccasin Wallow Road. The vertical profile will accommodate the 16.5-foot vertical clearance as required by FDM Table 260.6.1 and the superstructure depth. The proposed end bents, piers and retaining walls will be parallel to Moccasin Wallow Road. The proposed placement of the bridges' substructure and walls provide for the minimum lateral offset defined in FDM Table 215.2.2. Refer to the Plan in **Figure 7.4** for the preliminary horizontal geometry.

The proposed I-75 Bridges have a normal cross-slope with the low point at the outside of the bridges.

### Braided Ramp Bridge over Ramp A

A vertical profile using a crest vertical curve is proposed to be used for the Braided Ramp Bridge over Ramp A. The vertical profile will accommodate the 16.5-foot vertical clearance as required by FDM Table 260.6.1. Due to the horizontal geometries of the Braided Ramp Bridge and Ramp A, the substructure of the bridge will require straddle piers and C-piers. The proposed placement of the bridge's pier columns and walls are behind the barriers along Ramp A. Refer to the bridge plan view in **Figure 7.5** for preliminary horizontal geometry.

The horizontal curvature of the proposed Braided Ramp Bridge is within the acceptable limits for the use of straight, chorded Florida I-Beams (FIBs). The superelevation of the proposed Braided Ramp Bridge varies due to the reverse curvature.

7.1.16.5 Typical Sections

### Northbound I-75 over Moccasin Wallow Road Bridge

The proposed I-75 northbound Bridge over Moccasin Wallow Road has an out-to-out width of 70'-8". This accommodates a clear width of 68'-0". Standard 1'-4" single-slope traffic railings flank each side of the roadway. The typical section features four (4) 12'-0" through lanes, and 10'-0" inside and outside shoulders. The 10'-0" inside shoulder meets the requirements for Emergency Shoulder Use defined in FDM 211.4.6. Refer to the Typical Section in **Figure 7.6** for additional details.

### Southbound I-75 over Moccasin Wallow Road Bridge

The proposed southbound I-75 bridge over Moccasin Wallow Road has an out-to-out width of 101'-8". The typical section is governed by the construction sequence associated with replacing the two existing I-75 bridges. Refer to **Section 7.1.16.9** for further information.

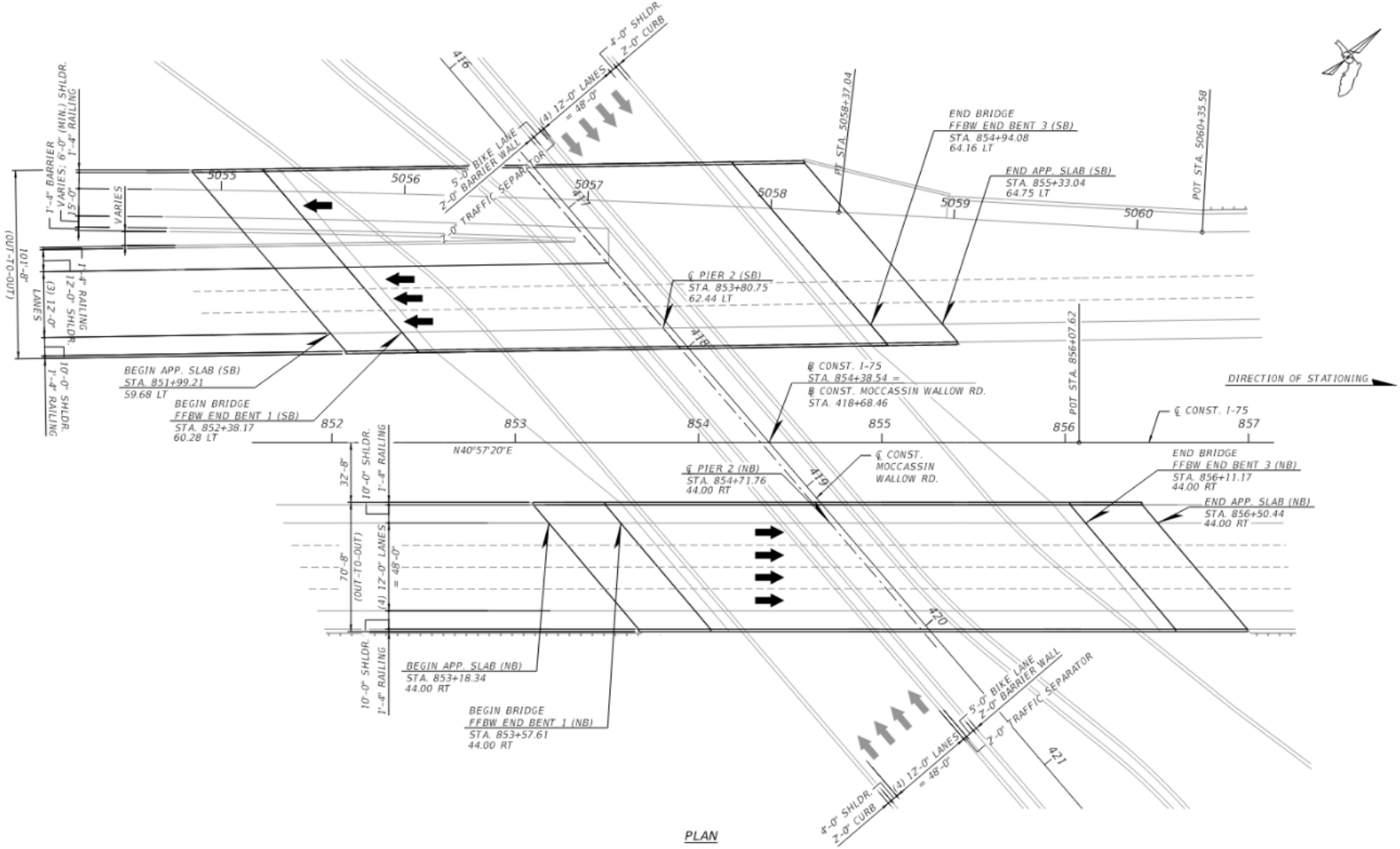



Figure 7.4 Proposed Northbound and Southbound I-75 over Moccasin Wallow Road Bridges Horizontal Geometry

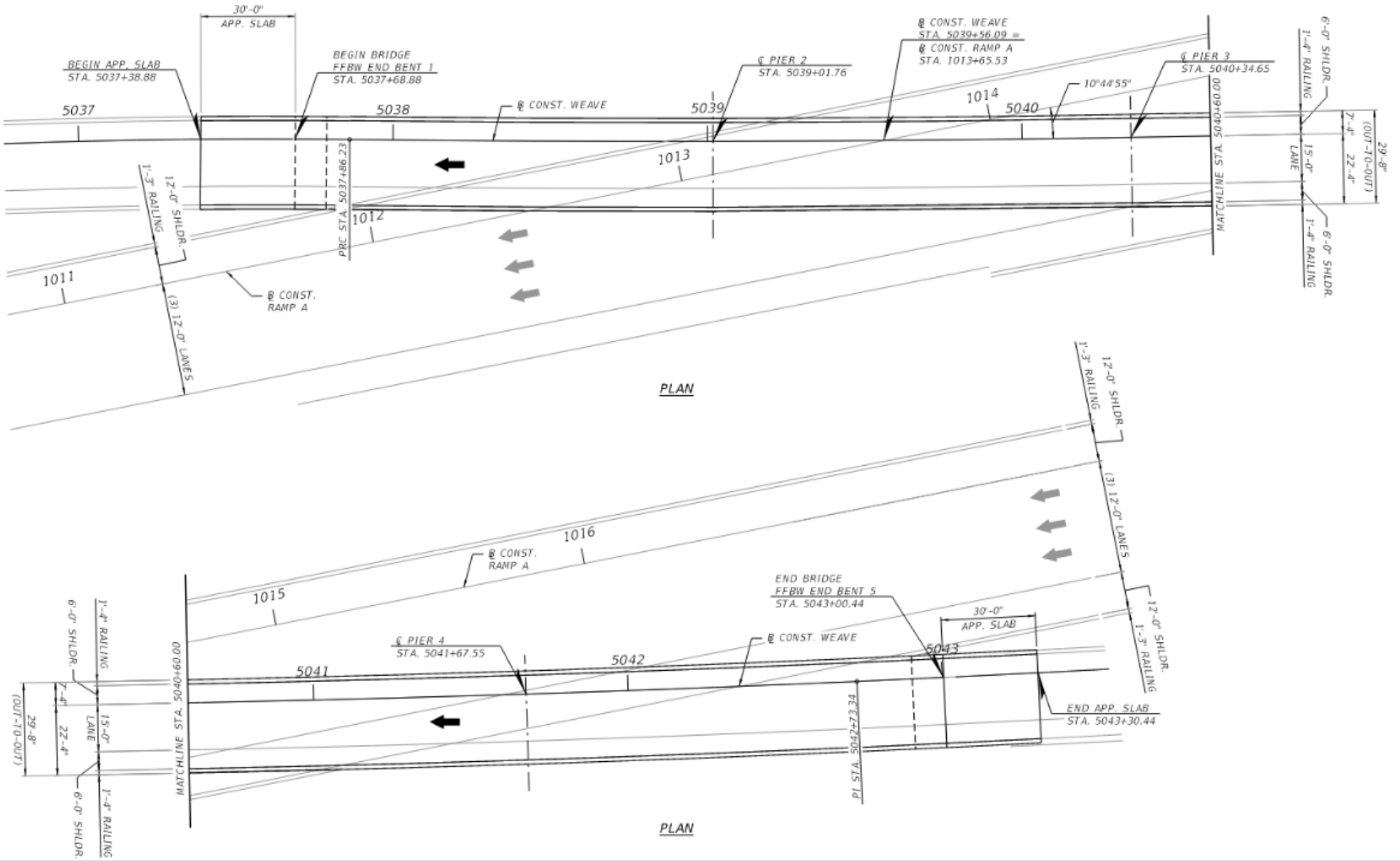



Figure 7.5 Proposed Braided Ramp Bridge over Ramp A Horizontal Geometry

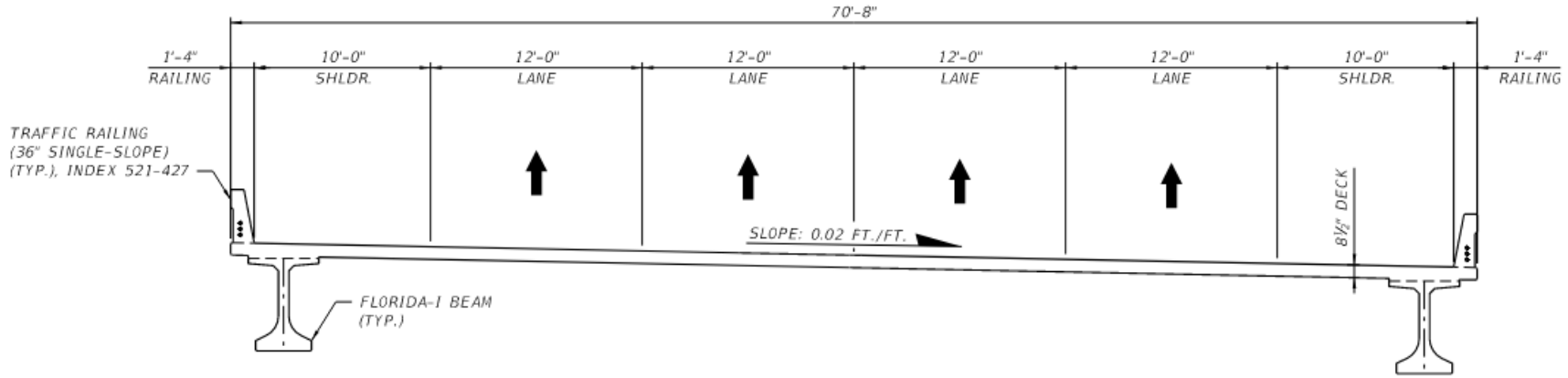



Figure 7.6 Proposed Northbound I-75 over Moccasin Wallow Road Bridge Typical Section

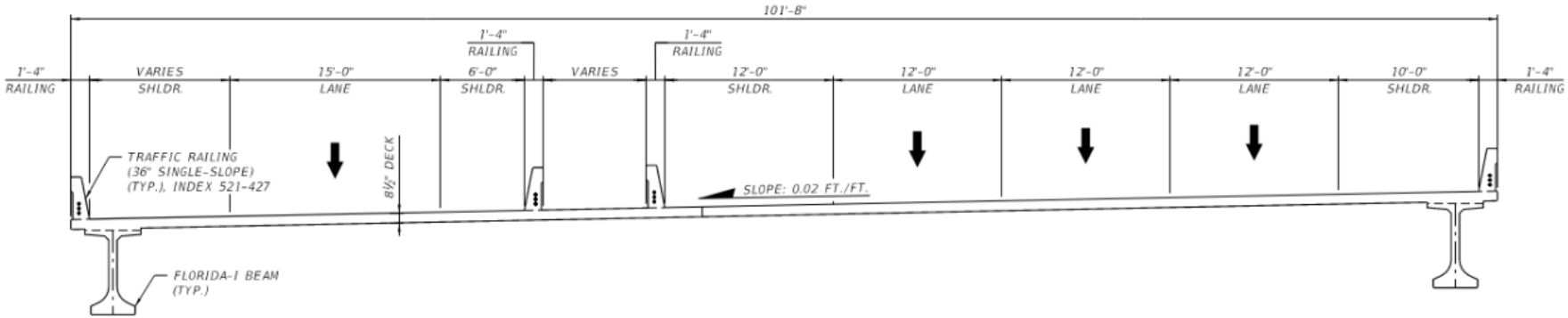



Figure 7.7 Proposed Southbound I-75 over Moccasin Wallow Road Bridge Typical Section

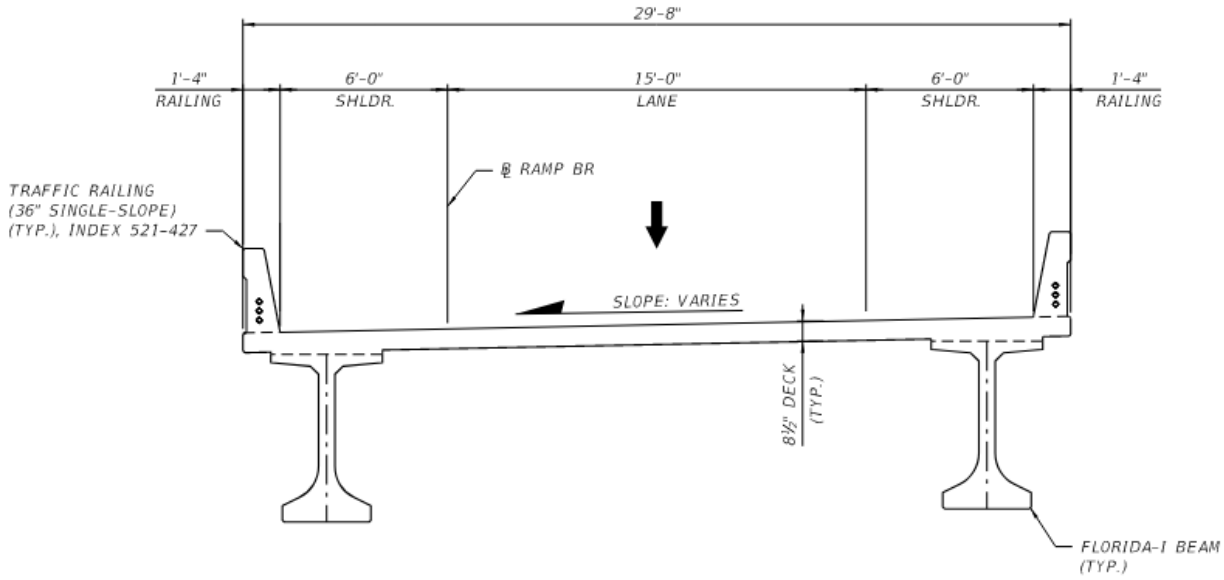



Figure 7.8 Braided Ramp over Ramp A Bridge Typical Section

The proposed width accommodates both the I-75 southbound mainline and the single-lane weave ramp to southbound I-275. Two traffic railings, with variable spacing between them, separate the mainline and ramp traffic. Standard 1'-4" single-slope traffic railings are provided on the outside edges of the bridge. The mainline section includes three (3) 12'-0" through lanes, a 10'-0" inside shoulder, and a 12'-0" outside shoulder. The ramp section includes one 15'-0" lane, a 6'-0" inside shoulder, and an outside shoulder that varies in width from 10'-6" to 23'-0". Refer to the Typical Section in **Figure 7.7** for additional details.

### Braided Ramp Bridge Over Ramp A

The proposed braided ramp bridge over Ramp A has a total out-to-out width of 29'-8", accommodating a clear width of 27'-0". Standard 1'-4" single-slope traffic railings are provided on both sides of the bridge. The typical section includes one 15'-0" ramp lane, a 6'-0" inside shoulder, and a 6'-0" outside shoulder. Refer to the Typical Section in **Figure 7.5** and **Figure 7.8** for more details.

7.1.16.6 Aesthetic Level

There are no designated Florida Scenic Highways in the project vicinity. Due to these identifications the project's bridges are to be considered "Level One", per the classifications given in FDM Section 121.9.3 "Aesthetics". Aesthetic requirements will be coordinated with FDOT District One, Sarasota/Manatee Metropolitan Planning Organization and Manatee County during later phases of the project.

7.1.16.7 Bridge Deck Drainage

The use of inlets is not expected to be required due to the vertical profile of the bridges. Bridge deck drainage and the potential use of deck drains will be investigated during the Bridge Development Report (BDR) phase. For more information, see Drainage and Stormwater Management.

#### 7.1.16.8 Conceptual Geotechnical Data

The geotechnical data will be investigated in the BDR during the Design Phase after completion of the Geotechnical Report.

#### 7.1.16.9 Phase Construction Impacts

**I-75 Bridges over Moccasin Wallow Road**

The I-75 southbound bridge will be constructed in phases to maintain the existing number of northbound and southbound I-75 lanes and provide access for the contractor for construction and staging.

The existing I-75 bridges contain four northbound lanes, and three southbound lanes. The left portion of the proposed southbound bridge will be constructed first while southbound traffic is maintained on the existing bridge. The southbound traffic will be shifted to the newly constructed portion in the next phase. The existing southbound bridge will be removed, and the remainder of the southbound bridge will be constructed. The northbound traffic will be shifted to the right portion of the new southbound bridge in the following phase and the existing northbound bridge will be removed to allow for construction of the proposed northbound bridge. In the final phase, northbound traffic will be moved to the new northbound bridge and southbound traffic will be shifted to its final configuration on the southbound bridge. After construction of the interior traffic railings on the southbound bridge, the ramp traffic can be accommodated.

Other phased construction alternatives, such as the use of a temporary ACROW bridge within the median of I-75, will be investigated in the BDR phase.

**Braided Ramp Bridge over Ramp A**

The proposed Braided Ramp Bridge will not require phased construction. The ramp traffic will be shifted to the new bridge in the final condition. Existing southbound on-ramp traffic will be shifted and detoured as needed to allow for the construction of the proposed bridge over the existing southbound on-ramp roadway.

#### 7.1.16.10 Construction Time

Construction of the I-75 Bridges over Moccasin Wallow Road is estimated to take 24 to 30 months due to the required phasing to construct the southbound bridge and the reconstruction, and associated maintenance of traffic of Moccasin Wallow Road. Construction of the Braided Ramp Bridge is expected to take 12 to 18 months due to the required maintenance of traffic of the southbound on-ramp roadway. These estimates are preliminary and will be determined more precisely in later phases of the project.

### 7.1.17 Transportation Management Plan

The project involves full reconstruction of Moccasin Wallow Road between Gillette Drive and Buffalo Road, along with a complete rebuild of the I-75 interchange into a DDI. The preliminary temporary traffic control phasing plan is discussed below. The phasing plans will be refined during the Design Phase for this project. Pedestrian facilities on the corridor are limited. Pedestrian and bicycle crossings on Moccasin Wallow Road will be maintained throughout construction activities by following guidance provided in the FDM Section 240.2.1.9.

Implementation of transportation operations strategies, including event management, will follow FDM Table 240.3.1. A key component of the transportation operations strategies is coordinating with Manatee County the monitoring and closing of intersections. As part of the PIP for this project, public outreach activities will continue by communicating affected residents, businesses, and stakeholders before and during construction.

**Phase 1 – I-75 Resurfacing and Widening (Outside Reconstruction Areas)**

- Use nightly lane closures to mill and resurface I-75. Widen both northbound and southbound I-75 outside the interchange limits by shifting traffic to the inside shoulder.

**Phase 2 - Begin Bridge Construction over Moccasin Wallow Road**

- Stage 1 - Construct the braided ramp portion of the southbound I-75 bridge. Reduce lane widths on Moccasin Wallow Road and build out the outer portions using temporary pavement to keep two lanes open in each direction.
- Stage 2 - Shift southbound I-75 traffic onto temporary lanes and the new ramp bridge. Shift northbound traffic onto the old southbound bridge and lanes while the new I-75 northbound bridge is constructed.

**Phase 3 – Complete Southbound Bridge and On-Ramp**

- Stage 1 - Southbound traffic remains on the temporary alignment. Northbound traffic is shifted onto the new northbound bridge, while the remaining work on the southbound bridge is completed.
- Stage 2 - Southbound traffic moves to its newly completed bridge. The southbound on-ramp is built with temporary pavement connecting to I-75.

**Phase 4 – Complete Braided Ramp, Southbound Mainline, and Remaining Ramps**

- Stage 1 - Traffic is shifted onto the new southbound on-ramp using temporary pavement while the braided ramp to I-275 is built.
- Stage 2 - Final traffic patterns are implemented for the southbound on-ramp and braided ramp. Shoulders and barrier walls are completed.
- Stage 3 - Remaining ramps are rebuilt in segments. Traffic is rerouted to newly completed portions while the old ramp sections are reconstructed.

**Phase 5 – Convert Moccasin Wallow Road to DDI**

- Shift traffic to the newly built outer lanes so the inner sections can be reconstructed. The full DDI configuration at the terminals is expected to be implemented within a 24-hour window.

### 7.1.18 Constructability

The maintenance of traffic for the reconstruction of I-75 through the Moccasin Wall Road interchange will require traffic shifts, temporary pavement, and off-peak lane closures. No complete road closure is expected. The new I-75 bridges over Moccasin Wallow Road will need to be constructed prior to the final phase of Moccasin Wallow Road.

The maintenance of traffic for the reconstruction of Moccasin Wallow Road will require close coordination with the phasing of improvements on the I-75 mainline and ramps. The I-75 bridges and embankments must be modified prior to constructing the DDI layout.

### 7.1.19 Construction Impacts

The construction of the Preferred Alternative would result in temporary noise and vibration increases within the project area. The noise and vibration would be generated primarily from heavy equipment used in hauling materials and building roadway improvements. Sensitive areas located close to the construction area may temporarily experience increased noise and vibration levels.

Construction and demolition noise will be minimized to the greatest extent practicable through the adherence to controls listed in the latest edition of the FDOT's Standard Specifications for Road and Bridge Construction.

Potential impacts resulting from the actual construction of the Preferred Alternative with respect to water resources, access to businesses and residences, stockpiling of construction materials, disposal of debris will be avoided or minimized by following the standard construction practices and the FDOT Standard Specifications for Road and Bridge Construction and obtaining and adhering to relevant environmental permits.

Construction activities may cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to applicable state regulations and to applicable FDOT Standard Specifications for Road and Bridge Construction.

### 7.1.20 Special Features

Emergency Stopping Sites/Emergency Refuge Areas are provided along the I-75 exit ramps and designed with the following features. Deceleration length from the mainline gore to the begin point of the Emergency Stopping Site is based on a vehicle's ability to decelerate from 70 mph to 0 mph (desired), but no less than 70 mph to 20 mph. The Emergency Stopping Site shall be 12 feet wide by 170 feet long. Tapers of 5:1 or less into and out of the site are to be used. The site shall be offset eight feet from the travel lane creating a paved flush island on either the left or right side of the ramp. The width (12-foot typical) can vary, depending upon location, from a minimum of 12 feet to a maximum of 36 feet. The area of storage for vehicles should be desirably 3,000 square feet, but no less than 1,000 square feet. The eight-foot wide flush island shall be striped (18 inches wide/45°/10' C-C). Place tubular markers at 10-foot centers along the centerline of the flush island.

The pavement design for the Emergency Stopping Sites and Refuge Areas, including the flush island, is to be the same as new I-75 ramp shoulder construction. Mainline and ramp signs are required to identify the Emergency Stopping Sites. The site also requires signs identifying it as an Emergency Stopping Site.

### 7.1.21 Utilities

The Preferred Alternative may require relocation of utility lines currently located within the roadway ROW. The details of utility locations are marked up in the Utility Assessment Package (included in the project file). Most of the UAOs have the capability to adjust their facilities without causing major inconvenience to their customers. Mitigation measures will include minimizing service disruptions, allowing service disruptions only during periods of minimum usage, and installing an alternative or

new service before disconnecting the existing service. The cost of utility relocations will be developed as part of the Design Phase for this project.

Additional conflicts may be identified during the final design due to proposed drainage, lighting, sound walls, signals, structural foundation (bridge, signs, etc.), MOT, etc. Subsurface Utility Engineering (SUE) for 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 it is practical to reduce potential utility relocations.

### 7.1.22 Cost Estimates

The engineer's opinion of the project costs is summarized in **Table 7.3**. The Preferred Alternative LRE estimates are included in **Appendix C**.

**Table 7.3. Estimated Project Costs**

| Phase | Amount | Notes |
|---|---|---|
| **Construction** | $113.0M | LRE costs |
| **Maintenance of Traffic** | $16.9M | 10% of Construction |
| **Mobilization** | $13.0M | 10% of Construction + MOT |
| **Project Unknowns** | $35.7M | 25% of Construction + MOT + Mobilization |
| **Design/Build** | $26.8M | 15% of Construction + MOT + Mobilization+ Project Unknowns |
| **Initial Contingency** | $0.2M | |
| **Construction Total** | $205.5M | Construction + MOT + Mobilization + Unknowns + Design/Bid+ Initial Contingency |
| **ROW** | $14.5 M | Roadway and stormwater ponds |
| **Wetland Mitigation** | $1.9M | Derived from the total UMAM functional loss |
| **Desing Phase** | $14.4M | 7% of Construction Total |
| **Construction Engineering and Inspection** | $14.4M | 7% of Construction Total |
| **Total Project** | $250.7M | Sum of All Future Phases |

## 7.2 Summary of Environmental Impacts

This section provides a summary of the anticipated environmental impacts associated with the implementation of the Preferred Alternative. The summary is based on the technical studies conducted as part of the PD&E Study.

### 7.2.1 Future Land Use

The Preferred Alternative will not disrupt study area land use patterns. The project will maintain a critical existing link in the regional transportation network, supporting both current and future population growth while accommodating existing and proposed developments in the area. The project supports residential and mixed-use development, according to the Manatee County Future Land Use Plan.

### 7.2.2 Section 4(f)

There are no Section 4(f) protected resources in the project area. Therefore, the Preferred Alternative has no use or involvement with Section 4(f) resources.

### 7.2.3 Cultural Resources

The proposed improvement within the APE along Cabbage Slough is limited to the interchange reconfiguration and minor widening of the existing Moccasin Wallow Road and I-75 interchange which the linear resource flows beneath. Additionally, the improvements will not impact the 1965 Masonry Vernacular building. Therefore, the Preferred will not adversely result in physical destruction, damage, or alteration of all or part of the historic resource. CRAS was prepared and documented this finding. The State Historic Preservation Officer (SHPO) reviewed and concurred with CRAS on August 5, 2025.

### 7.2.4 Wetlands

Implementation of the Preferred Alternative will result into unavoidable impacts to wetlands and surface waters as there is no practicable alternative that avoids construction within wetlands. The functional loss for wetlands, calculated using the Uniform Mitigation Assessment Method (UMAM), is 2.46 forested units and 3.75 herbaceous units. The Preferred Alternative would require 2.46 state-permitted mitigation bank credits for forested wetlands and 3.75 state-permitted mitigation bank credits for herbaceous (non-forested) wetlands. Impacts to wetlands will be mitigated pursuant to Section 373.4137 and U.S.C. Section 1344 through either the purchase of federal and state mitigation bank credits from an appropriate mitigation bank or other mitigation options that satisfy federal and state requirements. Since there are no mitigation banks within the SWFWMD Tampa Bay Drainage watershed with forested and non-forested state credits available, mitigation banks outside of the project area will be investigated during design and permitting phases of the project.

### 7.2.5 Protected Species and Habitat

Twenty-three listed species and two proposed species for listing under the ESA have the potential to occur within the project area and their effects determination as related to the Preferred Alternative are summarized in **Table 7.4** (federal listed) and **Table 7.5** (state listed). An effect determination of may affect was assigned for one federal listed species, the crested caracara. FDOT commits to performing surveys for the crested caracara during the required survey window of January to March (nesting season) prior to the construction phase. In addition, one state listed species, the giant airplant, was assigned an effect determination of potential for adverse effect. FDOT will survey the presence of the giant airplant within the project area prior to the construction phase and coordinate the results with the Florida Department of Agriculture and Consumer Services (FDACS) regarding this species to identify opportunities to conduct conservation measures for this plant and reduce impacts to it.

Table 7.4. Federal Listed Species with Effect Determinations for the Preferred Alternative

| Scientific Name | Common Name | Status | Effect Determination |
|---|---|---|---|
| ***Perimyotis subflavus*** | Tricolored bat | Proposed Endangered | NA[1] |
| ***Aphelocoma coerulescens*** | Florida scrub-jay | Threatened | No Effect |
| ***Caracara plancus*** | Crested caracara | Threatened | May Affect |
| ***Laterallus jamaicensis jamaicensis*** | Eastern black rail | Threatened | No Effect |
| ***Rostrhamus sociabilis plumbeus*** | Everglade snail kite | Endangered | No Effect |
| ***Mycteria americana*** | Wood stork | Threatened | May Affect, Not Likely to Adversely Affect |
| ***Drymarchon couperi*** | Eastern indigo snake | Threatened | May Affect, Not Likely to Adversely Affect |
| ***Danaus plexippus*** | Monarch butterfly | Proposed Threatened | NA[1] |
| ***Chionanthus pygmaeus*** | Pygmy fringe-tree | Endangered | No Effect |
| ***Cladonia perforata*** | Florida perforate cladonia | Endangered | No Effect |

Notes:

[1] Effect determinations are typically not applicable to species proposed for listing.

Table 7.5. State Listed Species with Effect Determinations for the Preferred Alternative

| Scientific Name | Common Name | Status | Effect Determination |
|---|---|---|---|
| ***Gopherus polyphemus*** | Gopher tortoise | Threatened | No effect anticipated |
| ***Egretta caerulea*** | Little blue heron | Threatened | No adverse effect anticipated |
| ***Egretta tricolor*** | Tricolored heron | Threatened | No adverse effect anticipated |
| ***Andropogon arctatus*** | Pinewoods bluestem | Threatened | No effect anticipated |
| ***Bonamia grandiflora*** | Florida bonamia | Endangered | No effect anticipated |
| ***Calopogon multiforus*** | Many-flowered grass-pink | Threatened | No effect anticipated |
| ***Centrosema arenicola*** | Sand butterfly pea | Endangered | No effect anticipated |
| ***Chrysopsis floridana*** | Florida goldenaster | Endangered | No effect anticipated |
| ***Lechea cernua*** | Nodding pinweed | Threatened | No effect anticipated |
| ***Matelea floridana*** | Florida spiny-pod | Endangered | No effect anticipated |
| ***Nemastylis floridana*** | Celestial lily | Endangered | No effect anticipated |
| ***Pteroglossaspis ecristata*** | Giant orchid | Threatened | No effect anticipated |

| Scientific Name | Common Name | Status | Effect Determination |
|---|---|---|---|
| ***Rhynchospora megaplumosa*** | Large-plumed beaksedge | Endangered | No effect anticipated |
| ***Tillandsia utriculata*** | Giant airplant | Endangered | Potential for adverse effect |
| ***Zephyranthes simpsonii*** | Redmargin zephyrlily | Threatened | No adverse effect anticipated |

### 7.2.6 Essential Fish Habitat

Based on the location of the project, the Preferred Alternative is anticipated to have no involvement with EFH resources.

### 7.2.7 Highway Traffic Noise

Noise analysis presented in the NSR (available in the project file) showed that the Build alternative results in slightly less noise impacts than the No-Build Alternative, primarily due to the presence of the braided ramp along southbound I-75, south of Moccasin Wallow Road. The portion of the ramp that will be constructed on fill/retaining wall will act as a partial barrier for noise coming from the mainline. With the Preferred Alternative, 97 residences and portions of one recreation use, the Moccasin Wallow Golf Club golf course, are predicted to experience future traffic noise levels that would approach, meet, or exceed the NAC for their respective Activity Category. When compared to existing traffic noise levels, the largest increase in traffic noise in the design year with the Preferred Alternative is predicted to be 1.9 dB(A). No noise sensitive land uses are predicted to experience a substantial increase (15 dB(A) or more) in traffic noise as a result of the Preferred Alternative. Noise barriers are a potentially feasible and reasonable abatement measure for up to 70 of the impacted residential receptors and one recreation use. An additional 46 residential receptors, not impacted by the Preferred Alternative, may also benefit from the potential noise barriers. **Table 7.6** provides a summary of potentially feasible and reasonable noise barriers. More information about noise analysis can be found in the NSR.

### 7.2.8 Contamination

The preferred Alternative has potential to impact four contamination sites that was assigned a risk rating of "Medium", see **Table 5.2** and documented in detail in the CSER, available in the project file. These sites present a potential contamination concern that could affect the project, either due to their characteristics or the type of facility. Once final design plans are available, additional investigation will be conducted to determine Level II Impact to Construction Assessment recommendations and identify any necessary construction support during the Design Phase.

Table 7.6. Summary of Potentially Feasible and Reasonable Noise Barriers[1]

| Barrier ID | Adjacent Community / Communities | Evaluated Location | Maximum Number of Benefited Receptors[2] | | | Maximum Number of Receptors Achieving Noise Reduction Design Goal | Maximum Average Noise Reduction – Leq (dB(A))[4] | Total Estimated Cost | Cost Per Benefited Receptor |
|---|---|---|---|---|---|---|---|---|---|
| | | | Impacted | Other[3] | Total | | | | |
| 1 (North) | Imperial Lakes, Spanish Point Villas, Moccasin Wallow Golf Club | 12' Inside ROW | 26.575 | 20 | 46.575 | 18.495 | 7.4 | $2,793,120 | $59,977 |
| 2 | Stafford at Artisan Lakes Apartments | 12' Inside ROW | 54 | 26 | 80 | 38 | 7.8 | $1,936,880 | $24,211 |

[1] The location of the potentially feasible and cost reasonable noise barriers are provided on NSR

[2] This table provides the maximum number of benefited receptors predicted to occur with a 22-foot maximum height noise barrier. Please refer to individual barrier results tables for benefited receptors provided by barrier heights lower than 22 feet.

[3] Other = Receptors determined to not be impacted by the project (traffic noise levels less than 66 dB(A)) but benefited by the noise barrier.

[4] Average noise reduction applies only to "impacted" receptors that would receive at least a five dB(A) benefit from the barrier.

[5] Includes "equivalent receptors" evaluated at Moccasin Wallow Golf Club golf course.

# Appendix

Appendix A Final Programming Screen Summary Report

Appendix B Preferred Alternative Concept Plan and Profile

Appendix C Long Range Estimates (LRE) Cost

Appendix D Structures Plan and Profile Views

Appendix E Typical Section Package

Appendix F Traffic Signal Operations Plan

**Appendices are available upon request.**

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