

I-75 North Corridor Master Plan

Master Plan Limits: I-75 from South of N River Road to North of Moccasin Wallow Road

Final Master Plan Summary Report

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PREPARED FOR:

FLORIDA DEPARTMENT OF TRANSPORTATION – DISTRICT 1

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The Florida Department of Transportation may adopt this planning product into the environmental review process, pursuant to Title 23 U.S.C. § 168(d), or to the state project development process.



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Appendix A | Concept Plans



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Acı	ronyms and Abbreviations	RRR	Resurfacing, Restoration, and Rehabilita
		SB	Southbound
AADT	Average Annual Daily Traffic	SR	State Road
CARS	Crash Analysis Reporting System	SIS	Strategic Intermodal System
CF	Cost Feasible	SWFWM	D Southwest Florida Water Management D
D1RPN	M District 1 Regional Planning Model	TL+LA	Through Lanes plus Local Access
DDHV	Directional Design Hour Volumes	TPO	Transportation Planning Organization
DDI	Diverging Diamond Interchange	LISACE	IIS Army Corps of Engineers
E+C	Existing Plus Committed		
ETDM	Efficient Transportation Decision Making	0000	
FDEP	Florida Department of Environmental Protection		
FDM	FDOT Design Manual		
FDOT	Florida Department of Transportation		
FHWA	Federal Highway Administration		
FWS	U.S. Fish and Wildlife Service		
GP	General Purpose		
HCM	Highway Capacity Manual		
IPO	Interstate Program Office		
ITS	Intelligent Transportation Systems		
LOS	Level of Service		
LRTP	Long-Range Transportation Plan		
ML	Managed Lane		
MOCF	Model Output Conversion Factors		
MOEs	Measures of Effectiveness		

- Mph Miles per Hour
- MPO Metropolitan Planning Organization
- NB Northbound
- NPS National Park Service
- OD Origin Destination
- PD&E Project Development and Environment



ation

District

I-75 NORTH CORRIDOR MASTER PLAN

1.0 Introduction

The Interstate 75 (I-75) North Corridor is part of the Southwest Connect™ Interstate Program. The Southwest Connect™ Interstate Program consists of multiple studies and projects within four corridors along I-75 and I-4 in Florida Department of Transportation (FDOT) District 1.



The I-75 and I-4 corridors are key facilities of the Strategic Intermodal System (SIS). Both have experienced increasing traffic as a result of population growth, additional tourism, and special events. FDOT, in partnership with the Sarasota/Manatee Metropolitan Planning Organization (MPO) and local communities, wants to be proactive in planning for a safe and efficient interstate highway network. The goals during the I-75 Master Plan phase were to identify and document (in a Master Plan) solutions that improve safety, operational capacity, functionality, efficiency, and connectivity along and across the corridor.

I-75 North, Central, and South Corridors are included in the Southwest Connect™ Interstate Program. A separate Master Plan study was prepared for each corridor.



1.1 Master Plan Purpose and Description

FDOT District 1 conducted a Master Plan Study, hereafter referred to as the Master Plan, 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, Florida, as shown in Figure 1.1. The I-75 North Corridor is approximately 40 miles in length and traverses the urban areas of Sarasota and Bradenton.

The primary purpose of the Master Plan is to identify long-term capacity needs along the I-75 mainline and develop strategies for the mainline and interchanges that will improve accessibility, mobility, and safety. The needs for improvements are based on traffic congestion and safety, as discussed in this document. Managed lanes, collector-distributor roadways, auxiliary lanes, and interchange operational improvements were evaluated in the Master Planning effort. This Master Plan document includes recommendations with phased implementation to optimize system performance, as well as to analyze alternatives and identify interim improvements to provide congestion relief within the corridor until completion of the long-term improvements. The recommendations will support scheduling for future Project Development and Environment (PD&E) studies, final design projects, and/or construction projects, as necessary and appropriate.

The Master Plan has been developed to meet the following objectives:

- for when improvements are needed.
- for, type of, and cost of improvements is defined in the Master Plan.
- construction.
- of improvements.

It should be noted that the forecasted traffic volumes, distributions, and operational analysis were developed under the assumption of no tolling.

Should tolling be implemented in the future, these forecasted traffic volumes, distributions, and operational analysis will likely change, which in turn may necessitate changes to the line diagrams, typical sections, ingress/egress points/types, and concept plans.

This Master Plan Summary Report summarizes the technical efforts documented in the following reports:

- Environmental Element
- Existing Conditions Traffic Technical Memorandum •
- Future Conditions Traffic Technical Memorandum •
- Facility Enhancements Element
- Public Involvement Summary Report •

• A comprehensive analysis identifying traffic operational deficiencies along the I-75 mainline from south of SR 777 (North River Road) to north of Moccasin Wallow Road, along with the timeframes(s)

Develop an ultimate capacity improvement plan for the corridor to improve the flow of traffic. The need

 Compare design constraints, construction costs, right of way impacts and external stakeholder support and recommend improvements for further evaluation during a PD&E study or for final design and

Define segmentation and a priority list for the I-75 North Corridor including the timing and sequencing



1.2 Project Development Process

The project development process begins with planning studies and ends with a constructed project. The FDOT Project Development process is a comprehensive process involving Planning, PD&E, Design, Right of Way, and Construction phases. A project begins with the analysis of existing conditions and identification of transportation needs and deficiencies through a planning process that includes continuing coordination with project partners to determine short- and long-range transportation improvements. Various studies may be performed during the Planning phase to define or refine project parameters; understand the components of purpose and need for a project; determine funding needs; identify alternatives, including alternative mode(s); and define the concept and scope of transportation improvements, including general location of the proposed improvement. Planning studies inform the development of the scope of work for PD&E studies. Figure 1.2 shows the Department's project development process, along with the building blocks of each phase. This Master Plan was prepared during the Planning phase of the project development process.



Figure 1.2: Project Development Process

Figure 1.1: Sarasota-Manatee Master Plan Area



Project Development & Environment Study

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2.0 Existing Conditions

The following sections summarize the Existing Conditions Report (covering roadway, structures and environmental features) and the Existing Conditions Traffic Technical Memorandum.

2.1 Existing Roadway Conditions

Within the study limits, I-75 is a six-lane divided facility with auxiliary lanes from SR 780 (Fruitville Road) to SR 64, as shown in Figure 2.1 and Figure 2.2. All travel lanes are 12 feet wide and the inside and outside shoulders are 12 feet wide total, with 10 feet paved. The median width is typically 64 feet within the nonbifurcated segments and is up to 405 feet in the bifurcated segments. Existing right of way along the corridor ranges from approximately 324 feet to 1124 feet in width.

The functional classifications of I-75 are Rural Principal Arterial - Interstate and Urban Principal Arterial -Interstate. The posted speed is 70 miles per hour. There are 43 horizontal curves, of which three do not meet the FDOT minimum curve length. There are 149 vertical curves, of which eight do not meet the criteria for vertical curve length, 12 do not meet the minimum K value, seven do not meet new construction criteria, and five do not meet resurfacing criteria.

By the opening year of 2025, the planned improvements at SR 72 (Clark Road) and US 301 will be constructed and will extend the limits of the auxiliary lanes as summarized below.

Existing Year 2022

- SR 777 (North River Road) to SR 780 (Fruitville Road) six-lane
- SR 780 (Fruitville Road) to SR 64 six-lane with auxiliary lanes
- SR 64 to Moccasin Wallow six-lane

Opening Year 2025

- SR 777 (North River Road) to SR 72 (Clark Road) six-lane
- SR 72 (Clark Road) to SR 758 (Bee Ridge Road) six-lane with auxiliary lanes
- SR 758 (Bee Ridge Road) to SR 780 (Fruitville Road) six-lane
- SR 780 (Fruitville Road) to US 301 six-lane with auxiliary lanes
- US 301 to Moccasin Wallow six-lane

I-75 crosses 24 roadways within the study limits and interchanges with 13 of them. There are several planned interchange modifications that will be constructed by the design year (2045) and are noted with red text in Table 2.1.

County	MP	Exit #	Interchange	Existing Interchange Type (2022)	Design Year Interchange Type (2045)
Manatee	16.2	229	Moccasin Wallow Road (CR 683)	Diamond	Diamond
Manatee	14.8	228	I-275	Direct Connect (System to System)	Direct Connect (System to System)
Manatee	11	224	US 301	Partial Cloverleaf (2- quadrant) / Partial Diamond	Tight Diamond
Manatee	7.3	220	SR 64	Partial Cloverleaf (1- quadrant)/Partial Diamond	Partial Cloverleaf (1- quadrant)/Partial Diamond
Manatee	3.7	217	SR 70 (Oneco-Myakka City Road)	Partial Cloverleaf (1- quadrant)/Partial Diamond	Partial Cloverleaf (1- quadrant)/Partial Diamond
Manatee	0	213	University Parkway	DDI	DDI
Sarasota	39.1	210	SR 780 (Fruitville Road)	Partial Cloverleaf (2- quadrant)/Partial Diamond	DDI (letting in 2026)
Sarasota	36.4	207	SR 758 (Bee Ridge Road)	Partial Cloverleaf (1- quadrant)/Partial Diamond	Hybrid Displaced Left Diamond (letting in 2029)
Sarasota	34.4	205	SR 72 (Clark Road)	Diamond	DDI
Sarasota	29	200	SR 681	Direct Connect (Half System)	Direct Connect (Half System)
Sarasota	24.7	195	Laurel Road	Diamond	Diamond
Sarasota	22.3	193	Jacaranda Boulevard	Partial Cloverleaf (1- quadrant)/Partial Diamond	Partial Cloverleaf (1- quadrant)/Partial Diamond
Sarasota	20.1	191	SR 777 (North River Road)	Diamond	Diamond

Planned interchange modifications are noted in red.



Table 2.1: Interchanges

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Figure 2.2: Existing Typical Section – Six Lane Divided with Auxiliary Lanes

From SR 780 (Fruitville Road) to SR 64



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Drainage along I-75 is accomplished by collecting stormwater runoff in open roadside ditches, which are present for the length of the project. Water in the ditches is conveyed by median drains, cross drains and depressional areas. Within the study limits, there are 78 cross drain locations serving as hydraulic crossings and 83 existing stormwater management sites, including 78 stormwater treatment pond sites and five floodplain mitigation sites.

Lighting is located at interchange locations. High mast lighting is used at all interchanges except at University Parkway, which uses conventional pole lighting.

There are 26 Utility Agency Owners in the Master Plan limits. Previous PD&E studies show multiple facilities present along the corridor; however, these will need to be updated during future project-level PD&E studies.

Pavement within the I-75 corridor is in a satisfactory condition. The pavement crack ratings and ride ratings are all above a satisfactory level for the project limits.

There are no multimodal facilities along I-75. Several crossing facilities have sidewalks, bicycle lanes and transit routes.

Existing interstate signing is primarily comprised of major guide signs both multi-post ground mounted and overhead cantilever/truss mounted methods of installation

Intelligent transportation systems (ITS) infrastructure exists from north of Kings Highway in Sarasota County to south of I-275 in Manatee County. The backbone is located on the east side limited access right of way line throughout the study limits.

Existing structures along I-75 in the study limits include 66 bridges located at 36 sites, consisting of local roads, railroad corridor, waterways, overpasses, and interchange layouts. A review of vertical clearances identified 10 with vertical clearances reported to be less than 16.0 feet. Four bridges (Bridge Nos. 170105, 170106, 170113, 130069) are classified as a roadway bridge over limited access roadway, which requires 16.0 feet for Resurfacing, Restoration, and Rehabilitation (RRR) projects and for new construction affecting existing bridges. These bridges do not meet minimum FDOT criteria as the vertical clearance is less than 16.0 feet. Six bridges (Bridge Nos. 170095, 170096, 170146, 170081, 130084, 130085) are classified as a roadway bridge over arterial or collector roadways where a minimum vertical clearance of 14.5 feet is allowed for RRR projects, but 16.0 feet is required for new construction affecting existing bridges. The bridges meet minimum FDOT criteria.

Review of horizontal clearances identified two bridges (Bridge Nos. 170145 and 17016) that have minimum lateral underclearance (horizontal clearance) of 2.6 feet based on information provided in the inspection reports, which makes these bridges Functionally Obsolete per FHWA criteria.

Additional measures, such as installation of barriers, may be deemed appropriate for meeting the requirements provided in FDOT Design Manual (FDM) Table 215.2.2 – Minimum Lateral Offset Criteria with consideration given to crash histories, site conditions, shoulder widths, traffic counts, traffic mixes, design speed, etc. when reviewing existing or proposed bridge requirements for new construction projects.

Review of load factor ratings identified four bridges below the threshold for rehabilitation or widening of existing bridges – bridge numbers 130071 (I-75 NB over Foley Creek), 170108 (I-75 NB over Salt Creek), 170113 (SR 681 over I-75), and 170143 (Proctor Road over I-75). These bridges would require replacement or strengthening unless a Design Variation is approved.

2.2 Existing Environmental Conditions

Existing environmental features were reviewed to identify potential opportunities, impacts, and agency coordination required for projects along the corridor. Data for existing environmental features was collected using the Efficient Transportation Decision Making (ETDM) number 14399 Preliminary Programming Screen Report and other desktop resources. The Preliminary Programming Screen was published on October 11, 2019, when this project was expected to be a PD&E Study. It included the same limits as this Master Plan and is available at https://etdmpub.fla-etat.org/est/#.

The study area is mostly urban in nature. Land uses adjacent to the I-75 corridor predominantly consist of residential, agricultural, commercial/retail/office and vacant nonresidential, as shown in **Figure 2.3**. Of note, there are 69.77 acres of agricultural land use with soils classified as Farmlands of Unique Importance. According to the Future Land Use Maps of Sarasota and Manatee Counties, the area surrounding the project corridor is expected to continue to support current urban uses, particularly with the conversion of existing agricultural land. Some of these land use areas likely contain noise sensitive sites such as residences.

Within 500 feet of the corridor, there are two cultural centers, two emergency services facilities, one school, two religious centers, 11 recreational areas, seven existing recreational trails, and nine recreational trail opportunities. Recreational areas and trails are displayed on **Figure 2.4**.

There are 16 previously recorded historic resources within 500 feet of the corridor, including structures, resource groups and one 1912 historic cemetery. Most of these resources are either ineligible for listing in the National Register of Historic Places or have not been evaluated by the State Historic Preservation Officer. There are eight archaeological resources within 500 feet of the corridor.

Major surface water resources within the area include the Manatee River, Braden River, and Myakka River. The Manatee River is a navigable waterway. The Myakka River at I-75 will require a U.S. Coast Guard (USCG) navigable determination for future projects during the PD&E phase because it may not meet the interstate commerce standard nor be subject to bridge permit guidelines. It should be noted that the Braden River is not navigable around I-75 due to a flood control structure, located south of SR 70, that hinders access to open water. Additionally, there are numerous creeks, wetlands, and floodplains along the corridor. Surface waters and wetlands are shown in **Figure 2.5**.

Multiple protected species and habitat may be present along the corridor. The corridor occurs within U.S. Fish and Wildlife Service (FWS) Consultation Area and Service Area for the Florida scrub jay; Occasional Range for the Florida black bear; FWS Consultation Area for the Florida bonneted bat; critical habitat for the West Indian manatee (Manatee River); Rare and Imperiled Fish Habitat for the mangrove rivulus; and Core Foraging Area for the wood stork. According to the FWS Information for Planning and Consultation species lists, federally listed species potentially occurring in the two-county area include: two fish, three plants, one lichen, two mammals, eight birds, and four reptiles. There are also numerous state protected species.





Figure 2.3: Existing Land Use



Figure 2.4: Recreation Areas





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Figure 2.5: Wetlands and Other Surface Waters

2.3 Existing Traffic Conditions

The traffic analysis supporting this Master Plan Summary Report has been prepared in accordance with the approved Traffic Methodology Statement for this project submitted to FDOT in April, the Safety Methodology Statement for this project submitted to FDOT in August 2019, and the Traffic Analysis Memorandum of Agreement finalized with FDOT in June 2020. The traffic analysis study area and study interchanges are shown in Figure 2.6.

2.3.1 **Traffic Counts, Field Observations, and Crash Data**

Available existing traffic data for the I-75 mainline and ramps was obtained from FDOT District 1. Additional traffic data collection occurred primarily from August 2019 through December 2019. There were twenty-nine 72-hour bi-directional classification counts, one hundred and two 72-hour bi-directional volume counts, and 75 turning movement counts collected between 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on typical weekdays. The AM and PM peak hours were determined to occur from 7:30 AM to 8:30 AM and from 4:45 PM to 5:45 PM, respectively.

Field visits were also conducted to collect information on existing driver behavior, queuing, and congestion levels and to observe signal behavior, such as protected/permitted left-turn operations, right-turn-on-red restrictions, phasing, etc. Existing signal plans and timing information for signalized intersections were obtained from Sarasota County and Manatee County. Crash data was obtained from FDOT's Crash Analysis Reporting System (CARS) Online and the University of Florida's Signal Four crash database for the five-year analysis period from 2013 to 2017 within the study limits.





Figure 2.6: Traffic Study Area of Influence

2.3.2 **Historical Safety Analysis**

Safety analysis included review of the historical crash data for the I-75 North Corridor. There was a total of 5,314 crashes involving 36 fatalities and 3,109 injuries. Analysis of the study area was broken out into 66 interstate segments, 60 ramp segments, 57 arterial segments, and 66 arterial intersections. Of the 66 interstate segments, 19 (29 percent) have a crash rate that is significantly higher than the statewide average for similar roadway facilities. Additionally, two (3.5 percent) of the 57 arterial segments and 12 (18 percent) of the 66 arterial intersections contain a crash rate that is significantly higher than the statewide average.

High crash rate locations have been identified in Table 2.2 for all interchanges in the study area. Locations with a high crash confidence of 95 percent or higher were determined to have a crash rate that is statistically significantly higher than the statewide average. Among the driver contributing causes documented in the crash data, careless/negligent driving (1,426 crashes, 61.0 percent) was the highest.

2.3.2.1 Crash Types

In general, rear-end crashes were the most common crash type at the previously identified high crash locations. Only Creekwood Boulevard near the I-75/SR 70 interchange and US 41 showed different common crash types, with the most common crash types being angle and left-turn crashes, respectively.

2.3.2.2 Lighting, Weather, and Road Surface Conditions

Twenty percent of crashes at high crash locations took place in wet/slick/unpaved and standing water roadway conditions, accounting for 471 total crashes. Seven percent of crashes at high crash locations took place in dark conditions with no lighting, accounting for 154 total crashes.

2.3.2.3 Injury Severity

Of the 5,314 total crashes, there were 34 fatal crashes, 1,921 crashes involving personal injury, and 3,359 crashes that were property damage only. High crash locations accounted for 9 fatal crashes, 163 severe injury crashes, 174 moderate injury crashes, 466 minor injury crashes, and 1,524 property damage only crashes for a total of 2,336 crashes occurring at high crash locations. These crashes had an estimated comprehensive crash cost of \$329,775,878, which is an average of \$65,955,176 per year.



Table 2.2: Locations with High Crash Rates

Interchange	Total Crashes	5-Year Average AADT	Actual Crash Rate	Statewide Average Crash Rate	High Crash Confidence	Confidence Level (K)	
US 41	Northbound I-275 Ramp Terminal	19	13800	0.754	0.343	99.95%	3.69
US 301	Between Southbound and Northbound I-75 Ramp Terminal	93	35300	10.537	2.711	99.99%	14.22
	60th Ave East	110	42100	1.432	0.884	99.99%	5.17
SR 64	64th St Ct E-66th St Ct E	98	49500	1.085	0.749	99.99%	3.75
	Northbound I-75 at Off Ramp to Westbound SR 64	55	48600	2.176	0.976	99.99%	6.2
	Southbound I-75 at On Ramp from Westbound SR 64	36	47900	1.531	0.976	99.75%	2.83
	East of Northbound I-75 Ramp Terminal	89	43800	4.779	2.711	99.99%	5.49
SR 70	Southbound I-75 Ramp Terminal	81	76800	0.578	0.479	95.00%	1.75
	Southbound I-75 at On Ramp from Westbound SR 70	87	50100	3.193	0.976	99.99%	11.8
	Northbound I-75 at Off Ramp to Westbound SR 70	44	50300	1.608	0.976	99.95%	3.44
	Creekwood Blvd-52nd Place East	20	5500	1.993	0.623	99.99%	5.7
	Southbound I-75 at Off Ramp to University Pkwy	159	53900	2.754	0.976	99.99%	13.75
	Northbound I-75 at Off Ramp to University Pkwy	125	57200	2.05	0.976	99.99%	8.55
University Pkwy	Northbound I-75 at On Ramp from University Pkwy	105	52600	1.764	0.976	99.99%	6.22
	Southbound I-75 On Ramp from University Pkwy	102	56900	1.557	0.976	99.99%	4.82
	Cattlemen Rd/Cooper Creek Blvd	133	62900	1.159	0.884	99.90%	3.18
	Southbound I-75 Ramp Terminal	90	74600	0.661	0.343	99.99%	6.41
	Cattlemen Rd	135	66900	1.106	0.884	99.50%	2.66
SR 780 (Fruitville	Northbound I-75 at On Ramp from Eastbound Fruitville Rd	95	53000	3.41	0.976	99.99%	13.1
Ra)	Northbound I-75 at Off Ramp to Fruitville Rd	47	39700	1.523	0.976	99.90%	3.17
	Southbound I-75 at On Ramp from Westbound Fruitville Rd	34	48200	1.31	0.976	95.00%	1.82
SR 758	Southbound I-75 Ramp Terminal	84	51500	0.894	0.479	99.99%	5.89
Ridge Rd)	Northbound I-75 at On Ramp from Eastbound Bee Ridge Rd	34	49900	1.296	0.976	95.00%	1.76
SR 72 (Clark Rd)	Northbound I-75 Ramp Terminal	58	17900	1.775	0.343	99.99%	14.12



Interchange	e/Roadway Segment/Intersection	Total Crashes	5-Year Average AADT	Actual Crash Rate	Statewide Average Crash Rate	High Crash Confidence	Confidence Level (K)
	Southbound I-75 Ramp Terminal	97	60100	0.884	0.343	99.99%	9.76
	Northbound I-75 at On Ramp from Clark Rd	57	43100	1.31	0.976	97.50%	2.31
	Southbound I-75 at On Ramp from Clark Rd	26	19400	1.49	0.976	97.50%	2.29
Jacaranda Blvd	Northbound I-75 at Off Ramp to Jacaranda Blvd	29	21000	2.085	0.976	99.99%	4.32
N River Rd	E Venice Ave	13	19300	0.369	0.229	95.00%	1.91
	Southbound I-75 at On Ramp from N River Rd	61	29200	2.116	0.457	99.99%	13.32
	Southbound I-75 at Off Ramp to N River Rd	51	32900	1.576	0.457	99.99%	9.54
	Northbound I-75 at Off Ramp to N River Rd	38	30300	1.284	0.457	99.99%	6.79
	Northbound I-75 at On Ramp from N River Rd	31	33000	0.969	0.457	99.99%	4.41

Existing Year (2019) Volume Development 2.4

2.4.1 Existing Year (2019) AADT and DDHV Development Methodology

The existing year (2019) Average Annual Daily Traffic (AADT) and intersection turning movement volumes were used as the basis for the I-75 North Corridor Master Plan . Design traffic factors were based on the collected traffic data, historically observed factors, and forecasted factors from the D1RPM version 1.0.6, with base year 2015 and horizon year 2040. The factors were developed based on the procedures outlined in the 2019 FDOT Project Traffic Forecasting Handbook. Seasonal and axle correction factors were obtained from FDOT Florida Traffic Online (2019) and applied to the 48-hour and 72-hour counts to obtain existing year (2019) AADT for the surface streets. AADTs from FDOT Florida Traffic Online (2019) were directly used for the I-75 mainline.

Existing year (2019) measured K factors, known as peak-to-daily ratios, were used for interchange subarea minor streets and driveways. Measured K factors were determined to be more suitable for these segments due to the atypical peaking characteristics that were observed during the count program. Measured directional factors (D factors) from the turning movement counts and tube counts were used for the I-75 mainline and interchange subarea arterials, minor streets, and driveways. K-factors and D-factors were then applied to the AADTs to determine directional design hour volumes (DDHVs) for each of the external nodes of the study area. Based on a review of the field data, a standard K-factor of 0.09 was used on I-75 and arterial roadways. Field collected peak-to-daily ratios were used for driveways and minor non-arterial roads. The D-factors are generally constrained to the maximum values provided in the 2019 FDOT Project Traffic Forecasting Handbook, however field collected counts exceeding these maximum values are used for driveways and minor non-arterial roads.

The external DDHVs, seasonally-adjusted field collected turning movement counts, and a base OD matrix from the Base Year 2015 D1RPM and Streetlight, were used to determine the balanced existing year (2019) turning movement volumes.

2.5 Simulation Model Development

The existing conditions simulation models for the study area were developed using Vissim. For the microsimulation of the I-75 North Corridor Master Plan study area, three hours of traffic simulation were modeled for each AM and PM peak period, as well as a one-hour network loading interval. The three-hour simulation periods were broken up into 15-minute intervals, consisting of one hour for startup, one hour for the peak, and one hour for dissipation of the peak. The network loading, startup, and dissipation volumes were determined as a proportion of the peak hour volumes based on the collected 72-hour approach counts.

Given the size of the study area and the number of interchanges included for analysis, subarea Vissim models were developed and calibrated for each interchange area and the I-75 mainline and ramps. The calibrated subarea models were merged into a single model by combining the individual interchange models with the I-75 mainline model. The combined model was verified for calibration and then used for the analysis of existing conditions.

2.6 Existing Year (2019) Traffic Analysis

An operational analysis of the existing conditions on the I-75 mainline was performed using the calibrated combined Vissim model. While a peak period analysis was performed using one shoulder hour each before and after the peak hour, the travel time and LOS results discussed in the following subsections are for the peak hour only. The analysis results discussed below are based on the average of ten simulation runs.

2.6.1 Existing Year (2019) Intersection Analysis

Overall, the existing conditions analysis indicates that the I-75 ramp terminal intersections and adjacent signalized intersections are operating at LOS D or better in the AM and PM peak hours with a few exceptions where they are operating at LOS E or F. Multiple unsignalized intersections or driveways are operating at LOS E or F, but the side street/driveway delays do not impact interchange operations. Various individual movements at the interchange ramp terminal intersections operate at LOS E or F in the AM or PM peak hours.

2.6.2 Existing Year (2019) Ramp Queue Analysis

A summary of the AM and PM peak hour queue lengths for the I-75 interchange off-ramps is provided in **Table 2.3**. The storage lengths for the off-ramps were measured from the stop bar to the end of the turn lanes, including taper, and were compared to the maximum queue lengths recorded in Vissim. The ramp length from the stop bar to the I-75 gore point has also been provided for reference. As shown below, there are ten off-ramps that exceed the available turn lane storage during the AM or PM peak hours. Two of these ramps have maximum queue lengths that exceed the length of the ramp in the AM peak hour, including the Bee Ridge Road northbound off-ramp and the Clark Road northbound off-ramp. Queuing at the Bee Ridge Road interchange results in minor slowdowns in the right-most lane of I-75. It should be noted that the Bee Ridge Road southbound off-ramp queue length nearly exceeds the length of the ramp during the AM peak hour and exceeds the ramp length in the third hour of the AM peak period, resulting in moderate congestion north of the interchange. The Clark Road off-ramp queuing causes more significant breakdown in the right-most lane and minor slowdowns in the middle lane of I-75.

2.6.3 Existing Year (2019) Mainline Analysis

The average speeds along I-75 from south of River Road to north of Moccasin Wallow Road are at or near free flow (greater than 65 mph) for most of the corridor, with some areas experiencing minor slowdowns between 55 and 65 mph, particularly at or near interchanges, as shown in **Figure 2.7** through **Figure 2.10**. Locations that experience more moderate congestion (speeds between 35 and 45 mph) include I-75 northbound south of Bee Ridge Road and I-75 southbound between Bee Ridge Road and Fruitville Road in the AM peak period due to off-ramp queuing at Bee Ridge Road that spills back onto the I-75 mainline. Queuing on the I-75



southbound off-ramp approaches the end of the ramp during the peak hour, causing minor congestion, but eventually extends onto I-75 resulting in more significant slowdowns. More significant congestion (speeds between 25 and 35 mph) is present at the off-ramp to the Clark Road interchange during the AM peak period due to queuing that spills back onto the I-75 mainline.

Excluding impacts caused by existing construction, the corridor is operating at an estimated LOS of D or better in both peak hours. During the AM peak hour, the LOS D operations are localized to the I-75 northbound diverges at Clark Road and Fruitville Road. It should be noted that the I-75 northbound diverge to Clark Road is operating at LOS F at the end of the AM peak period due to off-ramp queuing that spills back onto the I-75 mainline. Additionally, I-75 southbound between Fruitville Road and Bee Ridge Road is operating at LOS D at the end of the AM peak period, compared to LOS C during the peak hour, due to queuing on the Bee Ridge Road off-ramp that eventually spills back onto the I-75 mainline. During the PM peak hour, the LOS D operations are localized to I-75 northbound at the Fruitville Road on-ramps, I-75 northbound between University Parkway and SR 70, I-75 northbound north of SR 70, and I-75 northbound between SR 64 and US 301.

Table 2.3: 2019 Existing Peak-Hour Vissim Ramp Queue Analysis Summary

Interchange	Ramp	Storage (ft)	Ramp Length (ft)	AM Peak Max Queue (ft)	PM Peak Max Queue (ft)	Exceeds Storage?	Exceeds Ramp?
Moccasin Wallow	I-75 NB Off-Ramp	375	2280	119	80	No	No
Road	I-75 SB Off-Ramp	275	2130	111	133	No	No
US 301	I-75 NB Off-Ramp	460	1060	263	888	Yes	No
	I-75 SB Off-Ramp	340	1865	170	504	Yes	No
00.04	I-75 NB Off-Ramp	640	1780	305	398	No	No
SR 64	I-75 SB Off-Ramp	810	2230	493	450	No	No
SR 70	I-75 NB Off-Ramp	990	1705	285	299	No	No
	I-75 SB Off-Ramp	400	1790	597	638	Yes	No
University Parkway	I-75 NB Off-Ramp	845	1850	1635	578	Yes	No
University Parkway	I-75 SB Off-Ramp	950	2095	762	460	No	No
SR 780	I-75 NB Off-Ramp	930	2245	917	489	No	No
(Fruitville Road)	I-75 SB Off-Ramp	1215	2335	659	575	No	No
SR 758	I-75 NB Off-Ramp	700	2090	2347	1008	Yes	Yes
(Bee Ridge Road)	I-75 SB Off-Ramp	1180	1670	1627	749	Yes	No
SR 72	I-75 NB Off-Ramp	560	1760	1947	929	Yes	Yes
(Clark Road)	I-75 SB Off-Ramp	415	1810	791	910	Yes	No
Lours Dood	I-75 NB Off-Ramp	940	1360	260	197	No	No
	I-75 SB Off-Ramp	720	1930	306	183	No	No
Jacorondo Poulovord	I-75 NB Off-Ramp	900	2580	2418	234	Yes	No
Jacaranua Doulevaru	I-75 SB Off-Ramp	1070	2340	251	349	No	No
SR 777 (N River	I-75 NB Off-Ramp	1035	1630	207	129	No	No
Road)	I-75 SB Off-Ramp	1220	1725	249	628	No	No

I-75 NORTH CORRIDOR MASTER PLAN





Figure 2.8: I-75 Northbound Speeds – AM Peak Period

I-75 NORTH CORRIDOR MASTER PLAN



Figure 2.9: I-75 Southbound Speeds – PM Peak Period

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3.0 Traffic Forecasting and Analysis

The following sections summarize the Future Conditions Traffic Technical Memorandum, including design year (2045) volume development, traffic operations analysis and alternatives development.

3.1 Design Year (2045) Volume Development

The FDOT approved forecasting methodology that was deployed for both the design year (2045) No Build and Build volume cases were accepted by FDOT District 1 in December 2021. The methodology and procedure, as it pertains to future volume development, are paraphrased in the following sections.

3.1.1 Travel Demand Modeling

The Southwest Connect District 1 Regional Planning Model (D1RPM) version 1.0.6, herein referred to as the D1RPM, that was calibrated and validated for the I-75 North Corridor by FDOT District 1 was obtained and used as the primary source to forecast design year (2045) AADT volumes. The Model's validated base year is 2015 and the Cost-Feasible (CF) Model has a horizon year of 2040.

The FDOT District 1 Systems Planning Office coordinated with the Collier County MPO, Lee County MPO, Charlotte County-Punta Gorda MPO, Sarasota/Manatee MPO, and the Heartland Regional Transportation Planning Organization (TPO) regarding long term future projects and growth that should be reflected in the Model for its use in travel demand forecasting for the Southwest Connect projects. Network coding and socioeconomic data were revised accordingly to better reflect the expected 2040 conditions, based on the coordination with the MPOs and TPO.

The 2040 CF Model with the network and SE data revisions implemented serves as the No Build Model for the I-75 North Corridor Master Plan travel demand forecasting efforts. This 2040 CF Model was also used as the base for modifications to produce the unconstrained capacity Build Model scenario. After post-model adjustments and grow consistency checks were made, the horizon year (2040) AADT volumes were grown to design year (2045) AADT volumes and smoothed to balance.

3.1.2 Project Traffic Forecasting

The design year (2045) DDHVs were calculated by applying the K and D factors to the design year (2045) AADT volumes. A standard design-hour factor (K factor) of 0.09 was used for the I-75 mainline, its ramps, and interchange arterials to develop DDHVs, consistent with the FDOT Project Traffic Forecasting Handbook. Existing year (2019) measured K factors, known as peak-to-daily ratios, were used for interchange subarea minor streets and driveways. Measured K factors were determined to be more suitable for these segments due to the atypical peaking characteristics that were observed during the count program.

Measured directional factors (D factors) from the turning movement counts and tube counts were used for the I-75 mainline and interchange subarea arterials, minor streets, and driveways. A D factor of 0.60 was used to develop ramp DDHVs. The peak direction for all segments in the existing year (2019) was maintained as the peak direction in the design year (2045) unless there was a logical explanation for a change in the peak direction of traffic flow.

The existing year (2019) origin-destination (OD) patterns, which were based on Streetlight OD data, were used as the basis for the design year (2045) OD patterns to generate AM and PM peak-period turning movement volumes. The design year (2045) AM and PM peak-period turning movement volumes were then smoothed to balance by proportion. The I-75 mainline and its ramps were held as close to the original DDHVs as possible, as they are the highest priority segments in the system.



Various checks were made for consistency and reasonableness, including checking the balanced DDHVs to see that there was positive growth from the existing year (2019) to the design year (2045), unless there was a logical explanation for negative growth. The design year (2045) turning movement volumes were checked to see that the amount of deviation from the original OD patterns and turning movement proportions was not too high or low as a result of the balancing procedure.

The *Future Conditions Traffic Technical Memorandum*, dated November 2022, contains the AM and PM DDHV and peak-hour turning movement volume calculations for the I-75 mainline, its ramps, and each individual interchange subarea within the project area.

3.2 No Build (E+C) Alternative

Long-Range Transportation Plans (LRTPs), previous studies, and design plans were obtained to identify known, funded improvements affecting the I-75 North Corridor study area. The improvements that were included in the No Build Alternative, also known as the Existing Plus Committed (E+C) Alternative, were determined based on coordination with FDOT District 1.

3.3 No Build Design Year (2045) Traffic Analysis

The design year (2045) No Build simulation models for the study area were developed using the calibrated existing conditions Vissim models for the interchange and I-75 mainline subareas. Model development and calibration methodology is provided in the I-75 North Corridor Existing Conditions Traffic Technical Memorandum, dated December 2021. The same freeway and arterial calibration parameters were used for the future conditions Vissim models, with minor changes to link behavior types if the No Build E+C improvements warranted modifications.

The operational analysis of the design year (2045) No Build conditions along I-75 and its ramps and at each interchange area were performed using the subarea Vissim models, rather than combining all of the subarea models into one model, as was done for the existing conditions analysis. Using a combined model for the future No Build condition was expected to unrealistically prevent the traffic demand from reaching all areas of the model beyond the first point of breakdown along the freeway by virtue of how traffic enters the model; from the north and south endpoints of the I-75 study area and from arterial endpoints and arterial cross street endpoints for interchange study areas within the I-75 study limits.

The operational analysis of the design year (2045) No Build conditions on the I-75 mainline was performed using the I-75 subarea Vissim model. While a peak-period analysis was performed using one shoulder hour each before and after the peak hour, the results discussed in the following subsections are for the peak hour only. The analysis results discussed below are based on the average of ten simulation runs. The No Build interchange subarea model off ramp queuing results were used to determine the year of need of each interchange as part of the volume sensitivity analysis.

3.3.1 No Build Design Year (2045) Intersection Analysis

The design year (2045) No Build analysis indicates that 12 of the 22 I-75 ramp terminal intersections are expected to operate at LOS E or worse, with 9 operating at LOS F in at least one of the AM or PM peak periods. Out of the 9 operating at LOS F or worse in at least one of the peak periods, 5 of them are unsignalized. These five intersections include both I-75/Moccasin Wallow Road ramp terminals, the I-75/Jacaranda Boulevard northbound ramp terminal, and both I-75/N River Road ramp terminals. Both I-75/Fruitville Road ramp terminal intersections and the I-75 southbound ramp terminal intersection at Jacaranda Boulevard operate at LOS E in their worst-case period. **Table 3.1** shows the I-75 interchange ramp terminal intersections that are operating at LOS E or worse in at least one of the peak periods.

Table 3.1: I-75 Ramp Terminal 2045 No Build Peak-Hour Vissim Analysis Summary (LOS E and F)

	Traffic Control	AM I	Peak	PM Peak	
Intersection		Delay (sec/veh)	Estimated LOS	Delay (sec/veh)	Estimated LOS
Moccasin Wallow Rd & I-75 SB Ramps	Unsignalized	>500	F	>500	F
Moccasin Wallow Rd & I-75 NB Ramps	Unsignalized	>500	F	>500	F
SR 64 & I-75 SB Ramps	Signalized	62.1	E	120.4	F
SR 64 & I-75 NB Ramps	Signalized	71.5	E	131.0	F
University Pkwy & I-75 SB Ramps	Signalized	92.4	F	32.7	С
University Pkwy & I-75 NB Ramps	Signalized	102.6	F	36.7	D
Fruitville Rd & I-75 SB Ramps	Signalized	56.4	E	34.4	С
Fruitville Rd & I-75 NB Ramps	Signalized	62.3	E	17.3	В
Jacaranda Blvd & I-75 NB Ramps	Unsignalized	320.1	F	50.8	F
Jacaranda Blvd & I-75 SB Ramps	Signalized	38.2	D	55.2	E
River Rd & I-75 NB Ramps	Unsignalized	>500	F	42.1	E
River Rd & I-75 SB Ramps	Unsignalized	35.1	E	370.3	F

Out of the 20 signalized intersections immediately adjacent to an I-75 ramp terminal intersection within the study area, 14 are expected to operate at LOS E or worse, with 9 operating at LOS F in at least one of the AM or PM peak periods. The signalized intersection of US 41/73rd Street immediately adjacent to the I-275/US 41 southbound ramp terminal intersection is also expected to operate at LOS F in at least one of the AM or PM peak periods. Table 3.2 shows the signalized intersections immediately adjacent to an I-75 ramp terminal intersection within the study area that are operating at LOS E or worse in at least one of the peak periods.

(LOS E and F)

		AM I	Peak	PM Peak		
Intersection	Traffic Control	Delay (sec/veh)	Estimated LOS	Delay (sec/veh)	Estimated LOS	
Moccasin Wallow Rd & Gateway Blvd	Signalized	61.6	Е	48.5	D	
Moccasin Wallow Rd & Buffalo Rd	Signalized	88.2	F	123.4	F	
SR 64 & 66th St	Signalized	44.1	D	69.2	E	
SR 64 & Grand Harbour Pkwy	Signalized	139.7	F	139.6	F	
SR 70 & Creekwood Blvd	Signalized	43.6	D	60.6	E	
SR 70 & 87th St	Signalized	32.2	С	60.6	E	
University Pkwy & Cattlemen Rd	Signalized	141.4	F	110.8	F	
University Pkwy & Market St	Signalized	77.8	E	107.7	F	
Fruitville Rd & Cattlemen Rd	Signalized	87.8	F	96.8	F	
Fruitville Rd & Coburn Rd E	Signalized	53.7	D	141.3	F	
Bee Ridge Rd & Mauna Loa Blvd	Signalized	84.8	F	36.9	D	
Laurel Rd & Pinebrook Rd	Signalized	85.8	F	95.6	F	
Jacaranda Blvd & Executive Dr	Signalized	64.4	E	64.1	E	
River Rd & Venice Ave	Signalized	61.6	E	48.5	D	

Out of the 72 intersections that were analyzed in the 13 interchange subareas, 38 and 33 operate at LOS D or better in the AM and PM peak period, respectively. Out of these 72 intersections, 34 and 39 operate at LOS E or worse in the AM and PM peak period, respectively. In the AM peak period, 41 intersections experience less than 1 minute of delay and 10 intersections experience over 5 minutes of delay. In the PM peak period, 39 intersections experience less than 1 minute of delay and 13 intersections experience over 5 minutes of delay.

3.3.2 No Build Design Year (2045) Ramp Queue Analysis

A summary of the design year (2045) No Build AM and PM peak-hour queue lengths for the I-75 interchange off-ramps is provided in Table 3.3. The storage lengths for the off-ramps were measured from the stop bar to the end of the turn lanes, including taper, and were compared to the maximum queue lengths recorded in Vissim. The ramp length from the stop bar to the freeway gore point has also been provided for reference. As shown below, there are 12 off-ramps that are expected to exceed the available turn lane storage during the AM or PM peak hours. Eleven of these ramps have maximum queue lengths that are expected to exceed the length of the ramp in the AM or PM peak hour, including all off ramps at the I-75 interchanges with Moccasin Wallow Road, SR 64, University Parkway, and N River Road.



Table 3.2: I-75 Ramp Terminal Signalized Adjacent Intersections 2045 No Build Peak-Hour Vissim Analysis Summary

Interchange	Ramp	Storage (ft)	Ramp Length (ft)	AM Peak Max Queue (ft)	PM Peak Max Queue (ft)	Exceeds Storage?	Exceeds Ramp?
Moccasin Wallow	I-75 NB Off-Ramp	375	2280	2380*	2367*	Yes	Yes
Road	I-75 SB Off-Ramp	275	2130	2184*	2184*	Yes	Yes
	I-75 NB Off-Ramp	1005	4420	613	798	No	No
05 301	I-75 SB Off-Ramp	1235	2105	263	461	No	No
CD 64	I-75 NB Off-Ramp	690	1825	422	1853*	Yes	Yes
SK 04	I-75 SB Off-Ramp	760	2050	2116*	2119*	Yes	Yes
CD 70	I-75 NB Off-Ramp	955	2065	391	333	No	No
SR 70	I-75 SB Off-Ramp	375	1795	1825*	1586	Yes	Yes
Haller Mar Dealerson	I-75 NB Off-Ramp	770	1775	2903*	1332	Yes	Yes
University Parkway	I-75 SB Off-Ramp	845	2000	2841*	461	Yes	Yes
SR 780	I-75 NB Off-Ramp	1300	2225	2267*	246	Yes	Yes
(Fruitville Road)	I-75 SB Off-Ramp	1200	2165	1240	353	Yes	No
SR 758	I-75 NB Off-Ramp	955	2285	762	350	No	No
(Bee Ridge Road)	I-75 SB Off-Ramp	650	2820	525	226	No	No
SR 72	I-75 NB Off-Ramp	1100	2460	234	160	No	No
(Clark Road)	I-75 SB Off-Ramp	1205	2545	590	309	No	No
Lourol Bood	I-75 NB Off-Ramp	940	1360	340	235	No	No
	I-75 SB Off-Ramp	720	1930	330	313	No	No
lacaranda Paulovard	I-75 NB Off-Ramp	900	2580	2683*	697	Yes	Yes
Jacaranua Doulevaru	I-75 SB Off-Ramp	1070	2340	339	577	No	No
N River Reed	I-75 NB Off-Ramp	1035	1630	1778*	534	Yes	Yes
N River Road	I-75 SB Off-Ramp	1220	1725	853	1795*	Yes	Yes

*Ramp queues extend to the limits of the Vissim network and could be longer than reported.

3.3.3 No Build Design Year (2045) Mainline Analysis

The posted speed for the I-75 corridor within the study area is 70 mph. The average speeds along I-75 from south of N River Road to north of Moccasin Wallow Road show various pockets where speeds are between 55 and 65 mph, as well as some locations with more substantial speed reductions in both peak periods, as shown in Figure 3.1 to Figure 3.4. This happens particularly at or near interchanges where the capacity limitations of the I-75 mainline cause queue spillback that propagates back to upstream interchanges. The resulting bottlenecks affect upstream interchanges, preventing traffic from continuing through to downstream destinations. Locations with moderate to more substantial congestion include the following:

- I-75 northbound experiences moderate congestion (speeds between 35 and 45 mph) in the US 301 interchange area in the PM peak period.
- I-75 northbound experiences substantial congestion (speeds between 15 and 35 mph) from the south end of the study area (south of N River Road) to the Jacaranda Boulevard interchange during the AM peak period caused by capacity constraints on I-75 north of the interchange. The resulting queueing acts as a bottleneck for traffic originating from the south end of the I-75 study area, thereby allowing downstream segments of I-75 to operate at higher speeds.



- speeds north of SR 70.
- segment between US 301 and I-275.
- congestion does not dissipate before the simulation period ends.

The heavy congestion and bottlenecks between SR 64 and University Parkway interchanges prevent the full traffic demand from reaching the southern end of the study area. Therefore, the I-75 corridor is expected to operate at an estimated LOS C or better in the southbound direction from Fruitville Road to the south end of the study area in the AM peak hour. In the northbound direction, heavy congestion and bottlenecks in the vicinity of the N River Road and Jacaranda Boulevard interchanges prevents mainline traffic from entering the model and moving through the system. Thus, all segments north of Jacaranda Boulevard show estimated LOS D or better in the AM peak hour.

The I-75 southbound corridor is expected to experience congestion at the Bee Ridge Road and Clark Road interchange areas as well as the Laurel Road and SR 681 interchange areas in the PM peak hour, which are generally expected to operate at an estimated LOS E and F. All other segments operate at an estimated LOS D or better. In the northbound direction, the I-75 corridor is expected to generally operate at an estimated LOS D or better, except for the segment between the Bee Ridge Road and SR 70 interchanges. Heavy congestion and capacity constraints along this segment result in LOS F operations and bottlenecks that prevent traffic demand from reaching the northern end of the study area. There is also some congestion between the US 301 and I-275 interchanges that results in estimated LOS E and F operations.

Traffic demand being served in the No Build condition is as low as 74 and 81 percent in the AM and PM peak hours, respectively. Comparatively, more than 93 percent of the traffic demand was served in both peak hours of the existing year (2019).

 I-75 northbound experiences substantial congestion (speeds between 15 and 35 mph) from south of the Clark Road interchange to the SR 70 interchange during the PM peak period with speeds generally greater than 25 mph north of University Parkway. The congestion propagates back from the SR 70 interchange area due to capacity constraints on the I-75 mainline and speeds drop to the 0-to-15 mph range between Clark Road and Bee Ridge Road for the second half of the peak period. The resulting queueing acts as a bottleneck, thereby allowing downstream segments of I-75 to operate at higher

• I-75 southbound experiences substantial congestion (speeds between 15 and 35 mph) at the SR 70 interchange during the AM peak period that propagates back through the SR 64 interchange. The congestion builds steadily starting at about 7:00 AM and does not dissipate before the simulation period ends. This spillback stems from capacity constraints on the I-75 mainline, which creates a bottleneck and allows downstream segments of I-75 to operate at higher speeds. There is similar congestion at the University Parkway and Moccasin Wallow Road interchange areas, as well as the

• I-75 southbound experiences moderate congestion (speeds between 35 and 55 mph) in the Clark Road and Bee Ridge Road interchange areas during the PM peak period. Speeds at these locations temporarily decrease to the ranges between 25 and 45 mph between 4:30 PM and 6:00 PM. Congestion at these locations recovers almost completely before the end of the simulation period.

• I-75 southbound experiences substantial congestion (speeds between 15 and 35 mph) at the Laurel Road interchange during the PM peak period that builds steadily as the simulation progresses until it eventually reaches back to the SR 681 interchange at about 5:45 PM. The congestion propagates back from the Laurel Road interchange area due to capacity constraints on the I-75 mainline. The



Figure 3.1: I-75 Southbound Speeds – 2045 No Build AM Peak Period

Figure 3.2: I-75 Northbound Speeds – 2045 No Build AM Peak Period



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Figure 3.3: I-75 Southbound Speeds – 2045 No Build PM Peak Period



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Figure 3.4: I-75 Northbound Speeds – 2045 No Build PM Peak Period

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3.4 Ramp Capacity Analysis

A ramp capacity analysis was performed using HCM Exhibit 14-12 to determine if additional on- or off-ramp lanes are needed to accommodate future volumes. Based on a default ramp free flow speed of 30-40 mph, HCM Exhibit 14-12 specifies a capacity of 2,000 and 4,000 passenger cars per hour (pc/hr) for one-lane and two-lane ramps, respectively. A summary of the design year (2045) No Build AM and PM peak-hour ramp capacity analysis is provided in **Table 3.4** for the I-75 interchange on-ramps and in **Table 3.5** for the I-75 interchange off-ramps.

As shown in **Table 3.4**, the existing I-75 northbound on-ramp at SR 64 exceeds the HCM capacity threshold for a single lane ramp. A two-lane northbound on ramp is proposed in the Build condition at this location, along with a two-lane southbound on ramp, to accommodate future interchange improvements. At the SR 70 interchange, the Build condition reflects the elimination of the existing loop ramp and retrofit to a DDI. A two-lane southbound on ramp is therefore provided to accommodate the combined ramp volumes, which are approaching the HCM capacity threshold in the No-Build condition.

Table 3.5 indicates that all I-75 off-ramps meet HCM capacity thresholds for the No Build condition. Note that the proposed Build condition includes the addition of two-lane off-ramps at multiple locations that have single-lane off ramps in the No Build condition. These two-lane off-ramps have been included in the Build condition to improve weaving operations or at the request of FDOT staff. Two-lane off ramps are included at locations where volumes are approaching or exceeding 800 vph to minimize impacts of trucks blocking existing single lane off-ramps.

Table 3.4: 2045 No	Build Peak-Hour	On-Ramp Cap	pacity Anal	lysis Summary

Interchange	Ramp	Peak Fl (pc)	ow Rate /hr)	No. of	Lanes	HCM No Build	Exceeds No Build
interentinge	namp	AM Peak	PM Peak	No Build	Build	Capacity	Capacity?
Massasin Wallow Bood	I-75 NB On-Ramp	1271	1029	1	1	2000	No
	I-75 SB On-Ramp	1678	943	1	1	2000	No
	I-75 NB On-Ramp	697	653	1	1	2000	No
05 301	I-75 SB On-Ramp	2314	1531	2	2	4000	No
00.04	I-75 NB On-Ramp	1665	2390	1	2	2000	Yes
SK 04	I-75 SB On-Ramp	1090	891	1	2	2000	No
	I-75 NB On-Ramp	1243	1724	2	2	4000	No
SR 70	I-75 SB On-Ramp (Loop)	664	698	1	N/A	2000	No
	I-75 SB On-Ramp	1236	945	1	2	2000	No
CR 610	I-75 NB On-Ramp	1479	2275	2	2	4000	No
(University Parkway)	I-75 SB On-Ramp	2727	2778	2	2	4000	No
SR 780	I-75 NB On-Ramp	1994	2941	2	2	4000	No
(Fruitville Road)	I-75 SB On-Ramp	1660	2562	3	2	4000	No
SR 758	I-75 NB On-Ramp	1696	1522	2	2	4000	No
(Bee Ridge Road)	I-75 SB On-Ramp	995	1488	2	1	4000	No
SR 72	I-75 NB On-Ramp	1758	2184	2	2	4000	No
(Clark Road)	I-75 SB On-Ramp	879	1147	2	1	4000	No



Interchange	Ramp	Peak Flo (pc,	ow Rate /hr)	No. of	Lanes	HCM No Build	Exceeds No Build
		AM Peak	PM Peak	No Build	Build	Capacity	Capacity?
SR 681	I-75 NB On-Ramp	922	1204	1	1	2000	No
	I-75 NB On-Ramp	855	563	1	1	2000	No
Laurei Road	I-75 SB On-Ramp	901	1326	1	1	2000	No
	I-75 NB On-Ramp (Loop)	1382	877	1	N/A	2000	No
Jacaranda Boulevard	I-75 NB On-Ramp	134	120	1	1	2000	No
	I-75 SB On-Ramp	693	1064	1	1	2000	No
N Divor Dood	I-75 NB On-Ramp	1163	709	1	1	2000	No
N River Road	I-75 SB On-Ramp	459	626	1	1	2000	No

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Table 3.5: 2045 No Build Peak-Hour Off-Ramp Capacity Analysis Summary

Intorobondo	Pamp	Peak Flow Rate (pc/hr)		No. of	Lanes	HCM No	Exceeds
interchange	καπρ	AM Peak	PM Peak	No Build	Build	Capacity	Capacity?
Magazain Wallow Boad	I-75 NB Off-Ramp	914	1417	1	2	2000	No
	I-75 SB Off-Ramp	750	764	1	1	2000	No
110.004	I-75 NB Off-Ramp	1539	2362	2	2	4000	No
05 301	I-75 SB Off-Ramp	938	968	1	2	2000	No
5D 64	I-75 NB Off-Ramp	1552	2313	2	2	4000	No
SK 04	I-75 SB Off-Ramp	2496	1643	2	2	4000	No
60 70	I-75 NB Off-Ramp	1328	1307	2	2	4000	No
SR 70	I-75 SB Off-Ramp	1740	1287	1	2	2000	No
CR 610	I-75 NB Off-Ramp	3002	2595	2	2	4000	No
(University Parkway)	I-75 SB Off-Ramp	2320	1551	2	2	4000	No
SR 780	I-75 NB Off-Ramp	2676	1687	2	2	4000	No
(Fruitville Road)	I-75 SB Off-Ramp	3086	2049	2	2	4000	No
SR 758	I-75 NB Off-Ramp	1320	945	2	2	4000	No
(Bee Ridge Road)	I-75 SB Off-Ramp	1917	1818	2	2	4000	No
SR 72	I-75 NB Off-Ramp	1291	811	2	2	4000	No
(Clark Road)	I-75 SB Off-Ramp	2299	1742	2	2	4000	No
SR 681	I-75 SB Off-Ramp	1185	920	2	2	4000	No
Lourol Pood	I-75 NB Off-Ramp	1332	734	2	2	4000	No
	I-75 SB Off-Ramp	578	747	1	2	2000	No
Jacaranda	I-75 NB Off-Ramp	1058	673	1	2	2000	No
Boulevard	I-75 SB Off-Ramp	1027	1400	1	2	2000	No
N Piver Pood	I-75 NB Off-Ramp	747	460	1	1	2000	No
N River Road	I-75 SB Off-Ramp	791	1164	1	2	2000	No

3.5 Sensitivity Analysis

The No Build Alternative network was used for a congestion sensitivity and year of need analysis to give insight on where and when the need for Build improvements may be expected. The I-75 freeway sensitivity analysis was performed using the HCM 6 methodology and LOS thresholds. This allows the demand to be directly analyzed, whereas the Vissim models were expected to meter traffic in the oversaturated conditions that are anticipated in future years. Merge, diverge, and weave segments were also analyzed for sensitivity using the HCM 6 methodology. Conversely, the Vissim subarea models were used to perform the interchange sensitivity analyses, since Vissim is able to replicate complex signal timing schemes and account for queue build up and dissipation. The interchange sensitivity analysis was conducted because it is suspected that interchange off ramps may be the first point of breakdown along I-75 within the study limits rather than insufficient lane capacity on the freeway itself. Volume cases were developed for a twenty-year span starting at 2025 and ending at the design year (2045) by linearly interpolating volumes between the existing year (2019) and the design year (2045) for both the AM and PM peak periods.



HCM 6 basic freeway segment analysis was conducted starting with the highest of the AM or PM 2025 volume cases and continuing for successive years until the year of need was discovered, which is defined as the first year that the segment operates at LOS E for the purposes of this sensitivity analysis. LOS E is achieved when the density of the segment exceeds 35 passenger cars per mile per lane (pc/mi/ln) or when the volume-to-capacity ratio (v/c) exceeds 1.00. HCM 6 merge, diverge, and weave segment analysis was also conducted in a similar manner to adequately analyze all potential points of breakdown along the I-75 mainline. Note that there are only two weave segments along this corridor as defined by the HCM 6 due to the long spacing between the remaining interchanges, which makes HCM 6 weave analysis inapplicable. Default HCM 6 values were used for unknown parameters or those to be determined in the future, such as acceleration or deceleration lane lengths at on and off ramps, respectively.

Table 3.6 and **Table 3.7** show the failure years, and Measures of Effectiveness (MOEs), including LOS and density, for the basic and weave segments and the merge and diverge segments, along I-75, respectively. **Figure 3.5** shows the year of need and the HCM 6 design year (2045) LOS for the northbound and southbound I-75 mainline, respectively.

Table 3.6: 2045 No Build Basic and Weave Segment Year of Need and Design Year (2045) HCM MOEs

			Northboun	d	Southbound			
I-75 Segment	Analysis Type	Year of Need	2045 LOS	2045 Density (pc/mi/ln)	Year of Need	2045 LOS	2045 Density (pc/mi/ln)	
North of Moccasin Wallow Road	Basic	2043	E	37.0	> 2045	D	31.7	
Magazzin Wallow Bood to 1975	Basic	> 2045	С	25.6	> 2045	С	25.9	
	Weave	> 2045	D	31.8	2045	F	-	
I-275 to US 301	Basic	2031	F	61.7	2033	F	68.4	
US 301 to SR 64	Basic	2035	F	49.3	2038	F	47.7	
SR 64 to SR 70	Basic	2035	F	49.2	2040	E	42.4	
SR 70 to University Parkway	Basic	2037	E	43.7	2038	F	45.2	
University Parkway to SR 780 (Fruitville Road)	Basic	2034	F	49.3	2034	F	50.8	
SR 780 (Fruitville Road) to SR 758 (Bee Ridge Road)	Basic	2038	Е	43.4	2040	Е	41.0	
SR 758 (Bee Ridge Road) to SR 72 (Clark	Basic	2042	E	39.1	2043	E	37.3	
Road)	Weave	2019	F	-	2022	F	-	
SR 72 (Clark Road) to SR 681	Basic	2026	F	74.4	2030	F	64.4	
SR 681 to Laurel Road	Basic	2036	F	48.2	2039	E	42.9	
Laurel Road to Jacaranda Boulevard	Basic	2031	F	57.2	2034	F	52.9	
Jacaranda Boulevard to N River Road	Basic	2035	F	45.9	2037	F	45.6	
South of N River Road	Basic	2043	E	37.7	2044	E	36.9	

Table 3.7: No Build Merge and Diverge Segment Year of Need and Design Year (2045) HCM MOEs

			Northbound	d b	Southbound			
I-75 Ramp	Analysis Type	Year of Need	2045 LOS	2045 Density (pc/mi/ln)	Year of Need	2045 LOS	2045 Density (pc/mi/ln)	
Moccasin Wallow Road Off Ramp	Diverge	2044	E	35.7	> 2045	D	31.7	
Moccasin Wallow Road On Ramp	Merge	> 2045	D	30.8	> 2045	D	33.8	
I-275 Off Ramp	Diverge	2038	F	34.3	> 2045	D	28.8	
I-275 On Ramp	Merge	> 2045	D	33.1	2039	F	40.1	
US 301 Off Ramp	Diverge	2043	F	23.8	2036	F	45.8	
US 301 On Ramp	Merge	2038	F	35.2	2045	F	35.6	
SR 64 Off Ramp	Diverge	2043	F	23.8	2044	F	28.5	
SR 64 On Ramp	Merge	2038	F	39.7	> 2045	D	29.2	
SR 70 Off Ramp	Diverge	> 2045	D	32.0	2036	E	41.5	
SR 70 On Ramp	Merge	2039	F	38.1	> 2045	D	32.2	
SR 70 On Ramp (Loop)	Merge	-	-	-	> 2045	С	25.4	
University Parkway Off Ramp	Diverge	2023	F	50.3	2029	F	47.6	
University Parkway On Ramp	Merge	2026	F	45.0	2023	F	49.0	
SR 780 (Fruitville Road) Off Ramp	Diverge	2027	F	46.3	2023	F	51.2	
SR 780 (Fruitville Road) On Ramp	Merge	2024	F	47.7	2019	F	64.5	
SR 758 (Bee Ridge Road) Off Ramp	Diverge	> 2045	С	20.8	2034	F	44.3	
SR 758 (Bee Ridge Road) On Ramp	Merge	2027	F	45.1	> 2045	D	29.3	
SR 72 (Clark Road) Off Ramp	Diverge	2034	F	37.6	> 2045	С	22.3	
SR 72 (Clark Road) On Ramp	Merge	> 2045	D	31.1	2027	F	48.8	
SR 681 Off Ramp	Diverge	-	-	-	2037	F	35.1	
SR 681 On Ramp	Merge	2034	F	37.9	-	-	-	
Laurel Road Off Ramp	Diverge	2039	F	32.7	> 2045	D	33.4	
Laurel Road On Ramp	Merge	2044	F	32.8	2042	F	35.0	
Jacaranda Boulevard Off Ramp	Diverge	2039	F	37.4	2041	F	33.2	
Jacaranda Boulevard On Ramp	Merge	2039	F	37.5	> 2045	D	33.5	
Jacaranda Boulevard On Ramp (Loop)	Merge	2041	F	35.4	-	-	-	
N River Road Off Ramp	Diverge	> 2045	D	32.7	2044	F	35.7	
N River Road On Ramp	Merge	2045	E	35.3	> 2045	D	29.9	

The failure year of each interchange was determined iteratively using Vissim. Interchange failure is defined by the presence of off-ramp spillback onto the I-75 mainline, which is signified by off-ramp latent demand in the Vissim models. The Vissim No Build subarea models were run for each volume case, starting from 2025 and going forward until the failure year was identified for both the AM and PM peak periods. Then, the earliest failure year of the AM and PM Vissim model runs was taken as the failure year of the interchange. This iterative process was not necessary for subareas that did not show off-ramp latent demand in the design year (2045) in either the AM or PM peak periods. **Table 3.8** shows the failure year and main contributing cause of the failure of each interchange in the study area that showed spillback onto the freeway before the design year (2045).

The failure years identified for the I-75 mainline and its off ramps are estimates for planning and project programming purposes. The actual year of need may deviate from these estimates due to unknown factors or unforeseeable future events.

Table 3.8: No Build Interchange Year of Need

		DIAN		
Interchange	AM Year of Breakdown	PM Year of Breakdown	Failure Year	Failure Mode
Moccasin Wallow Road	2029	2030	2029	Stop-controlled ramp terminals and Moccasin Wallow Rd capacity constraints
SR 64	-	2041	2041	Interchange configuration
University Parkway	2029	2035	2029	I-75 northbound off-ramp right-turn capacity and adjacent intersection capacity constraints
SR 780 (Fruitville Rd)	2044	-	2044	Fruitville Rd capacity constraints
Jacaranda Boulevard	2032	-	2032	Stop-controlled I-75 northbound ramp terminal
N River Road	2032	2025	2025	Stop-controlled ramp terminals





Figure 3.5: I-75 Mainline No Build Alternative Years of Need and Design Year (2045) LOS



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3.6 Build Alternatives Development

Three build alternatives were considered for the I-75 north corridor: Managed Lanes (ML), General-Purpose (GP) Lanes, and Through Lanes plus Local Access Lanes (TL+LA) and no tolling. The Master Plan originally envisioned a ML Alternative (tolled express lanes) based on recommendations from previous PD&E studies. The ML Alternative was developed based on guidance from the recent revision of the FDOT Managed Lane Handbook, which included consideration for direct connect ramps to and from the managed lanes system where directional hourly volumes for a movement between a managed lane access and any general-purpose ramp exceeds 400 vehicles per hour. The ML Alternative also assumed only those traveling three or more interchanges would pay to access the Managed Lanes, in line with guidance from the FDOT Managed Lanes Handbook for ingress/egress. **Figure 3.6** and **Figure 3.7** show the typical sections associated with the ML Alternative.

Empirical information for existing tolled facilities in Florida and around the country showed that, on average approximately 25 percent of eligible users, which are those users whose route is physically served by the MLs, would opt to pay for the use of the MLs. The empirical information also showed that a 40 percent utilization from eligible users was generally the highest observed on tolled facilities. Using an assumed 30 percent utilization rate, along with the origin-destination information developed for the design year (2045) build volumes (contained in the *Future Conditions Traffic Technical Memorandum*), the heavy local traffic patterns (high amount of short haul trips) result in an overall low usage of the MLs. Despite having ingress/egress or direct connect opportunities for most interchanges, the ML Alternative was dismissed due to underutilized trips as well as right of way impacts and anticipated project costs driven by the extensive ingress/egress structural requirements.

The lack of utilization under the ML Alternative led to the consideration of a GP Alternative, which would add lanes along I-75 in a non-separated manner. Compared to the ML Alternative, the GP Alternative has lower expected project costs, limited to no anticipated right of way impacts, simpler construction staging, and is simplified to facilitate more intuitive driver expectations. The GP Alternative was ultimately dismissed due to a possible perceived safety concern with a typical section having five or more GP lanes and because it did not meet FDOT District 1's desire to promote regional mobility by preserving acceptable operations for certain lanes for users, including public transportation, making longer distance trips along I-75. Figure 3.8 to Figure 3.10 show the typical sections associated with the GP Alternative.

The shortcomings of the ML and GP Alternatives led to the consideration of the TL+LA Alternative. The TL+LA Alternative keeps the turbulence of the shorter distance trips (those entering I-75 and exiting a few ramps downstream) to the outside lanes while three separated inside lanes are carried continuously through and can be accessed via weaving sections within multiple interchanges. These three inside lanes are not tolled, which addresses the utilization concerns that were associated with the ML Alternative.

In reality, some motorists may choose to remain in the local access lanes for long-haul trips, rather than using the separated through lanes, depending on the current levels of congestion or other factors. Similarly, although likely to a lesser extent, some motorists making short-haul trips may use the through lanes. This flexibility in driver route choice adds efficiency and redundancy to the network for better utilization of residual capacity. This dynamic routing phenomenon strengthens the durability of the concept by allowing the drivers a chance to achieve system equilibrium and not overload either the through or local access lanes. For analysis purposes, a base assumption was made that 100 percent of eligible through trips would use the separated lanes. Then, both local and through lane routes were iteratively shifted on segments where congestion was observed to better balance flows across all lanes and utilize the available capacity more efficiently. Unlike the GP Alternative, the TL+LA Alternative provides for system redundancy and trip separation. Under this concept, there are weaving segments within the interchanges and, through discussions with FDOT District 1 and Central Office staff, it was decided that ingress and egress to and from the Through Lanes would occur via slip ramps, rather than an open weaving segment to eliminate the possibility of lane diving (i.e. drivers weaving between managed lanes and general purpose lanes as if there is no difference). Figure 3.11 shows the typical section associated with the TL+LA Alternative.

The three build alternatives were evaluated with consideration given to cost, environmental impacts, traffic operations, safety, and engineering considerations. The planning phase evaluation matrix is shown in **Table 3.9**.

Based on the discussion above, the TL+LA Alternative is the Master Plan Recommended Alternative, herein referred to as Recommended Alternative, for the I-75 North Corridor Master Plan because it mitigates congestion, promotes a better distribution of traffic across all lanes, and offers an option for users to travel longer distances on the freeway while avoiding the ramp-to-ramp turbulence of those using the freeway for shorter distance trips.





Figure 3.6: Two Managed Lanes Plus Four General Purpose Lanes plus One Auxiliary Lane (From SR 72 (Clark Road) to SR 64 and from US 301 to I-275)



Figure 3.7: Two Managed Lanes Plus Four General Purpose Lanes, and Two Collector Distributor Lanes (From SR 64 to US 301)



AUX - AUXILIARY LANE



LEGEND ML - MANAGED LANE GP - GENERAL PURPOSE LANE AXX - AUXILIARY LANE CD - COLLECTOR DISTRIBUTOR ROADWAY

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Figure 3.8: Four General Purpose Lanes Plus One Auxiliary Lane (From SR 777 (River Road) to SR 780 (Fruitville Road) and from I-275 to Moccasin Wallow Road)



Figure 3.9: Five General Purpose Lanes Plus One Auxiliary Lane (From SR 780 (Fruitville Road) to SR 64 and from US 301 to I-275)



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LEGEND GP – GENERAL PURPOSE LANE AUX – AUXILIARY LANE

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Figure 3.10: Five General Purpose Lanes Plus Two Collector Distributor Lanes (From SR 64 to US 301)



I-75 FROM CLARK ROAD TO US 301

Figure 3.11: Through Lanes plus Local Access Lanes







NATURAL GROUND --*-*-*

LEGEND AUX - AUXILIARY LANE THRU - THROUGH LANE LOCAL - LOCAL LANE

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	Evolution Oritoria		Alternatives	;	Demonto
Evaluation Criteria		ML	GP	TL+LA	Remarks
				Rating S	cale: 1 – Less Beneficial, 2 – Neutral, 3 – More Beneficial
1	Project Cost	1.33	3	2	This item is an average of items 1.1 to 1.3.
	1.1 Construction Cost	1	3	2	 ML - 270 Lane Miles and 13 Braided Ramp Bridges GP - 138 Lane Miles and 3 Braided Ramp Bridges TL+LA - 470 Lane Miles and 1 Braided Ramp Bridge
	1.2 Right of Way Acquisition Cost*	2	3	2	 ML - More right of way acquisition expected due to increased pavement and resulting inc GP - Least right of way acquisition requirements TL+LA - More right of way acquisition expected due to increased pavement and resulting
	1.3 Engineering Cost (Design and CEI)	1	3	2	 ML - More complex design due to barrier separation, braided ramp, ingress/egress and c GP - Less complex to design and construct, but does have 3 braided ramps TL+LA - Complex design due to barrier separation and one braided ramp
2	Environmental Impacts**	2	3	2	 ML - More right of way acquisition expected due to increased pavement and resulting inc GP - Least right of way acquisition requirements TL+LA - More right of way acquisition expected due to increased pavement and resulting
3	Traffic Operations	2.5	1.75	3	This item is an average of items 3.1 to 3.4.
	3.1 Traffic Operations	2	2	3	 ML - Less managed lane usage due to design and driver behavior GP - Full access, but additional friction given 5 adjacent lanes TL+LA - Better access to through lanes and therefore better system capacity than ML
	3.2 Throughput and ROI	2	3	3	 ML- Not fully utilized GP - Good throughput TL+LA - Good access to/from through lanes
	3.3 System Flexibility	3	1	3	 ML - Provides a supplemental system for regional or intrastate express bus as well as fut GP - Least flexible TL+LA - Provides a supplemental system for regional or intrastate express bus as well as
	3.4 Incident Management/ Emergency Evacuation	3	1	3	 ML - Two systems in same right of way footprint that provide a bypass alternative for seve GP - Least redundancy for incidents TL+LA - Two systems in same right of way footprint that provide a bypass alternative for several sev
4	Safety	3	1	3	 ML - Provides spatial separation GP - Wider typical section encourages less safe weave "darting", no spatial separation TL+LA - Provides spatial separation
5	Engineering Considerations	1.66	3	2.33	This item is an average of items 5.1 to 5.3.
	5.1 TMP / Constructability	1	3	2	 ML - Most complex work associated with ingress/egress and overall system braids GP - Least complex work with no barrier separation and only 3 braided ramp bridges TL+LA - Less complex than ML but more complex than GP
	5.2 Drainage	2	3	2	 ML - Requires storm sewer trunk lines along the corridor requiring more drainage structu GP - Less complex drainage design TL+LA - Require storm sewer trunk lines along the corridor requiring more drainage structure
	5.3 Design Exceptions and Variations	2	3	3	 ML - More pinch points and potential shoulder width variations to achieve Managed Lane GP - Minimal design exceptions and variations TL+LA - Minimal design exceptions and variations
	TOTALS	10.5	11.75	12.33	Rating Scale: 1 – Less Beneficial, 2 – Neutral, 3 – Mo

Table 3.9: Mainline Alternatives Comparison

* Right of way Acquisition on this project is mostly for stormwater drainage and retention ponds. Roadway work will not typically require right of way acquisition, except for interchanges. ** Environmental considerations include social/economic, cultural, natural, and physical environments that may be impacted by this typical section analysis.



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3.7 Build Design Year (2045) Traffic Analysis

The design year (2045) Build simulation models for the I-75 mainline and its ramps within the study area were developed using the No Build subarea Vissim models with E+C improvements as the basis. The same calibration parameters from the existing conditions models were used in the Build models, but with changes to link behavior types to reflect the Build configuration. The model included truck restriction from the left lane of the through lanes. Trucks can access the left-most lane of the separated local access lanes to facilitate access to the ingress/egress areas within the interchanges. It was also assumed that 100 percent of all eligible regional trips (those trips traveling from one end of I-75 to the other, or trips originating from an interchange and staying on I-75) would use the Through Lanes.

The operational analysis of the design year (2045) Build condition included the I-75 mainline and ramps but did not include the interchange subareas. While the Master Plan includes the operational analysis of the No Build interchanges, which will aid in the segmentation and prioritization of improvements, the analysis required to determine a preferred Build alternative for each interchange, intersections adjacent to ramp terminals, and interchange arterials will be performed in the PD&E study phase for the I-75 north corridor.

The operational analysis of the design year (2045) Build conditions on the I-75 mainline was performed using the I-75 subarea Vissim model. While a peak-period analysis was performed using one shoulder hour each before and after the peak hour, the travel time and LOS results discussed in the following subsections reflect the peak-hour results. The analysis results discussed below are based on the average of ten simulation runs.

3.7.1 Build Design Year (2045) Mainline Analysis

Average speeds along northbound and southbound I-75 for the design year (2045) Build conditions is provided in **Figure 3.12** through **Figure 3.15** for the AM peak period and **Figure 3.16** through **Figure 3.19** for the PM peak period for the through and local access lanes. The through lanes are barrier-separated from the local access lanes and run from Clark Road to US 301. The posted speed for the I-75 corridor within the study area is 70 mph. Operating speeds are generally expected to be 65 mph or higher in both the through and local access lanes based on the simulation results. There are short segments in both directions of I-75 with speeds that reach the 55-to-65 mph range that are generally attributed to high volume on- and off-ramp areas or near the weaving areas between the through and local access lanes. The Moccasin Wallow Road and Laurel Road interchange areas experience speeds in the 55-to-65 mph range, as well as the section of I-75 between University Parkway and Fruitville Road. Overall, the Build Alternative is expected to operate in a free-flowing manner during both the AM and PM peak periods.

More than 95 and 98 percent of the traffic demand in both the local and through lanes is being served in the AM and PM peak hours, respectively. The percent served in the hour following the peak hour is 100 percent or higher, indicating that all AM and PM peak-period demand is adequately processed under the Build Alternative by the end of simulation. Comparatively, traffic demand served in the design year (2045) No Build Alternative was as low as 74 percent in the AM peak hour and 81 percent in the PM peak hour.

The I-75 corridor is expected to operate at an estimated LOS D or better in both the AM and PM peak hours, with most of the corridor expected to operate at an estimated LOS B or LOS C.

3.8 Design Year (2045) Comparison of No Build and Build I-75 Mainline Traffic Analysis

The design year (2045) No Build and Build network travel times and network-wide performance measures are compared in this section to quantify the expected magnitude of operational benefits. The I-75 mainline is expected to experience substantial increases in speed under the Build Alternative, complemented with



decreases in density and improvements in estimated LOS across various segments in both directions. The Build Alternative improvement in operations over the No Build Alternative is attributed to the additional capacity provided under the Build Alternative, coupled with less turbulence and weaving action between merging and diverging ramp traffic and long-haul through traffic due to the separated lanes for through and local trips. Congestion and bottlenecks are expected to be resolved on I-75 under the Build Alternative. Interchange, arterial, and intersection improvements may be needed for the full benefit of the I-75 Build Alternative to be realized and will be evaluated in the PD&E phase for the I-75 north corridor.

3.8.1 Design Year (2045) No Build and Build Comparison of I-75 Mainline Speed/Travel Time

A comparison of the No Build and Build Alternative AM and PM peak-hour travel times on northbound and southbound I-75 is provided in **Table 3.10** and **Table 3.11**. The AM peak-hour average travel time along I-75 from south of N River Road to north of Moccasin Wallow Road is expected to improve by over 7 minutes in the northbound direction under the Build Alternative, with most of the travel time savings happening on the segment from south of N River Road to SR 681. During the PM peak hour, the average travel time along I-75 from south of N River Road to north of Moccasin Wallow Road is expected to improve by over 16 minutes in the northbound direction under the Build Alternative, with over 14 minutes of this travel time savings happening on the segment from Bee Ridge Road to SR 70. Average speeds on various segments are expected to improve by over 35 mph and 45 mph, in the AM and PM peak hours, respectively. This demonstrates the operational advantages associated with the Build Alternative.



Figure 3.12: I-75 Northbound Speeds – 2045 Build AM Peak Period (Local Access Lanes)





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Figure 3.13: I-75 Northbound Speeds – 2045 Build AM Peak Period (Through Lanes)

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Figure 3.14: I-75 Southbound Speeds – 2045 Build AM Peak Period (Local Access Lanes)





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Figure 3.16: I-75 Northbound Speeds – 2045 Build PM Peak Period (Local Access Lanes)



Figure 3.17: I-75 Northbound Speeds – 2045 Build PM Peak Period (Through Lanes)

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Figure 3.18: I-75 Southbound Speeds – 2045 Build PM Peak Period (Local Access Lanes)





Figure 3.19: I-75 Southbound Speeds – 2045 Build PM Peak Period (Through Lanes)

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Segment	Length (miles)	2045 No Build Travel Time (min)	2045 Build Travel Time (min)	Difference in Travel Time (min)	Percent Change in Travel Time (min)	2045 No Build Average Speed (mph)	2045 Build Average Speed (mph)	Difference in Average Speed (mph)	Percent Change in Average Speed (mph)
I-75 Northbound - South of N River Rd to North of Moccasin Wallow Rd	40.6	40.2	33.2	-7.0	-17.5%	61	74	13	20.6%
I-75 Northbound - South of N River Rd to SR 681	9.7	15.6	8.1	-7.5	-47.8%	37	72	35	93.6%
I-75 Northbound - SR 681 to Bee Ridge Rd	7.5	6.9	6.5	-0.4	-5.9%	66	70	4	5.5%
I-75 Northbound - Bee Ridge Rd to SR 70	9.9	8.6	8.1	-0.5	-5.8%	69	73	4	6.1%
I-75 Northbound - SR 70 to US 301	7.3	6.2	6.0	-0.2	-3.3%	71	73	2	2.9%
I-75 Northbound - US 301 to North of Moccasin Wallow Rd	6.2	5.2	5.0	-0.2	-3.4%	72	74	2	2.5%
I-75 Southbound - North of Moccasin Wallow Rd to South of N River Rd	40.6	39.1	33.1	-6.0	-15.4%	62	74	12	19.0%
I-75 Southbound - North of Moccasin Wallow Rd to US 301	6.2	7.1	5.1	-2.0	-28.9%	52	73	21	40.5%
I-75 Southbound - US 301 to SR 70	7.3	9.9	6.3	-3.6	-36.7%	44	70	26	58.2%
I-75 Southbound - SR 70 to Bee Ridge Rd	9.9	10.2	8.2	-2.0	-19.6%	58	72	14	25.0%
I-75 Southbound - Bee Ridge Rd to SR 681	7.6	6.7	6.4	-0.3	-5.2%	68	72	4	5.8%
I-75 Southbound - SR 681 to South of N River Rd	9.7	8.3	8.0	-0.3	-3.4%	70	73	3	3.8%

Table 3.10: Comparison of 2045 No Build and Build I-75 Mainline Travel Time – AM Peak Hour

Table 3.11: Comparison of 2045 No Build and Build I-75 Mainline Travel Time – PM Peak Hour

Segment	Length (miles)	2045 No Build Travel Time (min)	2045 Build Travel Time (min)	Difference in Travel Time (min)	Percent Change in Travel Time (min)	2045 No Build Average Speed (mph)	2045 Build Average Speed (mph)	Difference in Average Speed (mph)	Percent Change in Average Speed (mph)
I-75 Northbound - South of N River Rd to North of Moccasin Wallow Rd	40.6	49.4	33.5	-15.9	-32.2%	49	73	24	48.7%
I-75 Northbound - South of N River Rd to SR 681	9.7	8.1	7.8	-0.3	-3.9%	72	75	3	4.1%
I-75 Northbound - SR 681 to Bee Ridge Rd	7.5	9.5	6.2	-3.3	-34.3%	47	72	25	54.1%
I-75 Northbound - Bee Ridge Rd to SR 70	9.9	22.5	8.2	-14.3	-63.4%	26	72	46	176.9%
I-75 Northbound - SR 70 to US 301	7.3	7.5	6.3	-1.2	-16.6%	58	70	12	20.6%
I-75 Northbound - US 301 to North of Moccasin Wallow Rd	6.2	6.3	5.3	-1.0	-16.0%	59	70	11	18.7%
I-75 Southbound - North of Moccasin Wallow Rd to South of N River Rd	40.6	40.8	33.8	-7.0	-17.1%	60	72	12	20.1%
I-75 Southbound - North of Moccasin Wallow Rd to US 301	6.2	5.1	4.8	-0.3	-5.6%	72	77	5	6.4%
I-75 Southbound - US 301 to SR 70	7.3	6.1	5.9	-0.2	-3.0%	72	74	2	2.3%
I-75 Southbound - SR 70 to Bee Ridge Rd	9.9	8.9	8.1	-0.8	-8.5%	66	73	7	10.6%
I-75 Southbound - Bee Ridge Rd to SR 681	7.6	8.6	6.8	-1.8	-20.9%	53	67	14	26.8%
I-75 Southbound - SR 681 to South of N River Rd	9.7	12.1	8.5	-3.6	-29.4%	48	68	20	42.0%



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3.8.2 Design Year (2045) No Build and Build Comparison Network Performance Summary

The network performance results comparison for the overall design year (2045) No Build and Build AM and PM peak-hour operations are shown in **Table 3.12**. Latent demand and latent delay apply to vehicles that cannot enter the network due to queuing and indicate capacity constraints within the model. Latent demand was essentially eliminated under the Build Alternative, being reduced from about 2,000-2,800 vehicles in the No Build network to negligible amounts in the Build network. Networkwide average speed increases by 20-22 mph under the Build Alternative, and average delay per vehicle is reduced by about 85 percent in both the AM and PM peak hours. These improvements are attributed to the additional capacity provided under the Build Alternative, coupled with less turbulence and weaving action between merging and diverging ramp traffic and long-haul through traffic due to the separated lanes for through and local trips. Congestion and bottlenecks are expected to be resolved on I-75 under the Build Alternative.

Analysis Case	Average Speed (mph)	Average Delay (sec)	Total Travel Time (hr)	Total Delay (hr)	Arrived Vehicles (veh)	Latent Demand (veh)	Latent Delay (hr)	Total Delay + Latent Delay (hr)
2045 No Build AM	50	215	10,062	3,150	41,907	2,772	1,309	4,459
2045 Build AM	69	37	10,528	658	52,662	3	4	662
Difference AM	19	-178	466	-2,492	10,755	-2,769	-1,305	-3,797
Percent Change AM	37.2%	-82.6%	4.6%	-79.1%	25.7%	-99.9%	-99.7%	-85.1%
2045 No Build PM	48	244	10,983	3,697	42,733	1,975	1,217	4,914
2045 Build PM	69	38	10,664	665	53,164	3	4	669
Difference PM	21	-206	-319	-3,032	10,431	-1,972	-1,213	-4,245
Percent Change PM	43.0%	-84.6%	-2.9%	-82.0%	24.4%	-99.9%	-99.6%	-86.4%

Table 3.12: Comparison of 2045 No Build and Build Vissim Network Performance Summary



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4.0 Facility Enhancements

4.1 Typical Section Considerations

This section discusses the consideration of the multimodal corridor and separation type. The multimodal corridor required consideration per previous planning efforts and at the direction of FDOT District 1. Separation type was evaluated due to the possibility of adding managed lanes.

4.1.1 Multimodal Corridor Analysis

The *I*-75 *Multi-Modal Master Plan* (August 1998) recommended typical sections that included a minimum median width of 64 feet for a potential future transit or multimodal system improvement project. The 64-foot median provides for 12-foot inside shoulders (10-foot paved) and a 40-foot multimodal envelope, for the potential future project. Subsequent PD&E studies and design studies have maintained these minimum widths for the median and multimodal envelope. The build alternatives developed for this Master Plan accommodate the minimum median width of 64 feet for the 40-foot multimodal envelope. There are no current plans to develop the multimodal corridor.

4.1.2 Separation Type

In evaluating the possibility of managed lanes per the prior PD&E Studies, separation methods were evaluated early in the Master Plan. Separation methods evaluated in the Master Plan phase included buffer and rigid barrier separation options. The buffer-separated typical section would include full-width shoulders and the 4-foot buffer area that includes installation of supplemental separation devices within the buffer space called tubular markers at 5-foot spacing. The rigid barrier typical section would include a concrete barrier separation and full-width shoulders on either side. A comparative evaluation of the two separation methods is presented in the *I*-75 Managed Lane Separation Memorandum.

The buffer-separation method rated higher than the rigid barrier method. However, FDOT District 1 provided guidance on July 28, 2021 to complete the Master Plan with a determination to implement the rigid barrier separation method for the Master Plan typical section alternatives. FDOT District 1 advised that FDOT's Central Office was working on a research study with a Florida university to evaluate the two primary alternatives for Express Lanes and General Purpose Lanes, and that this research project would not be completed prior to completion of the Master Plan. As such, any further evaluation by FDOT District 1 related to the separation method would be picked up by the PD&E studies, following completion of the Master Plan.

4.1.3 Incident Management

Incident management is one of the most utilized tools in an advanced traffic management system. Managed lanes typically require enhanced/additional incident management resources to meet operational performance requirements. Access to managed lanes for incident management personnel such as service patrol (Road Rangers), Florida Highway Patrol, fire rescue, emergency vehicles, etc. is critical for safe and quick clearance of disabled vehicles.

The rigid barrier separation method does not provide continual access to and from the managed lanes facility. Outside of the access points provided to the general motoring public, emergency access crossovers can be constructed at strategic points along the managed lanes facility. The emergency access crossovers are openings in the rigid barrier that provide same direction access for incident management and emergency vehicles. These crossovers are designed with specific signing and pavement marking that restrict and deter the general motoring public from accessing the managed lanes facility.



Advance coordination with law enforcement and incident management agencies is key to providing a managed lanes facility with quick clearance to improve safety and mobility. This is a critical item to consider with the limited access of rigid barrier separation. Inter-agency response plans organize all responding agencies to determine which agency can access the incident location as quickly as possible. Advance coordination can help avoid unnecessary use of additional emergency resources when responding. This coordination may result in a change of dispatch protocol to ensure the right agency is sent to clear the scene.

4.2 Recommended Alternative

4.2.1 Mainline Recommended Alternative

The Recommended Alternative is TL+LA. The TL+LA typical section, shown in **Figure 4.1**, consists of three through lanes (inside), three local access lanes (outside), and an auxiliary lane in each direction. The through lanes and local access lanes are separated by a barrier wall and 12-foot shoulders on both sides of the barrier wall. Twelve-foot shoulders (10-foot paved) are provided to the inside and outside. A minimum 64-foot median with a 40-foot multimodal envelope is maintained.

The TL+LA typical section is proposed from Clark Road to US 301, a distance of approximately 18 miles. The remainder of the corridor consists of four GP lanes in each direction plus Auxiliary Lanes as shown in the line diagram (**Figure 4.2**).

Concept plans are included in Appendix A.

4.2.2 Access Modification

No changes are anticipated for the access classification for I-75 within the Master Plan study limits. Moreover, no additional interchange access points are contemplated for I-75 within the study limits as part of this Master Plan. Improvements will be required for many of the interchanges within the project limits to reduce congestion to and from I-75. Interchange improvements will be studied in greater detail during subsequent PD&E phases. Any access modifications to adjacent property at the interchanges will be in compliance with FS 335.199.

The Recommended Alternative proposes a new typical cross section from Clark Road north to US 301 that provides three through lanes in each direction. These through lanes are barrier-separated from the existing and/or improved interstate lanes on the outside of the mainline typical section as described previously and depicted in **Figure 4.1**. Access to and from these three through lanes is provided by a series of slip ramps strategically positioned along the corridor, to allow movement into and out of the through lanes. The through lanes provide vehicles traveling through this segment an opportunity to travel in lanes that are less impacted by expected interstate interchange merge and diverge congestion and should be attractive to vehicles with longer trip destinations beyond the Clark Road to US 301 segment. Placement of the slip ramps was determined by interchange location, traffic demand volumes, and geometric requirements for transitions to physically provide the slip ramps. Examples of the proposed slip ramp access design concept in the vicinity of the University Parkway Interchange can be found in **Figure 4.3** through **Figure 4.6**.



I-75 FROM CLARK ROAD TO US 301

Figure 4.1: Through Lanes with Local Access Lanes Typical Section





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GEND

RIER

AL LANE

ERAL PURPOSE LANE

NLINE THROUGH LANE

VICE RAMP LANE

RAMP LANE



Figure 4.2: Recommended Alternative Line Diagram

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Figure 4.3: Slip Ramp at University Parkway



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Figure 4.4: Slip Ramp at University Parkway



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Figure 4.5: Slip Ramp at University Parkway - Egress



Figure 4.6: Slip Ramp at University Parkway - Ingress



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4.2.3 Interchanges

This Master Plan evaluated each of the following existing I-75 interchange locations in the study limits to determine feasible improvements that would prevent traffic on the associated ramps from spilling back onto the I-75 mainline. Proposed improvements considered the No Build Existing plus Committed (E+C) condition for the design year. Table 4.1 provides the existing, planned (No Build E+C), and proposed interchange configurations. These potential improvements will need to be further analyzed and refined during the subsequent PD&E phase. Unless otherwise noted, the timing of the improvements is to be determined.

Moccasin Wallow Road (CR 683)

The interchange at Moccasin Wallow Road is a diamond with some development in the southwest and northeast guadrants. There is also a small creek running along the west side of the interchange underneath Moccasin Wallow Road. While most of the projected volumes at the interchange are low, the westbound left is high enough to be a concern at a diamond interchange with almost 1,400 vehicles vph. This removes simply widening the existing interchange as an option. A DDI is one of the best interchange options at processing turning volumes. Because the concern at Moccasin Wallow Road is high turning traffic volumes, a DDI would be a good option that would also have a small footprint similar to the existing diamond.

Note that significant capacity improvements need to be made to Moccasin Wallow Road that are likely tied to expansion of port facilities. Without additional capacity on Moccasin Wallow Road, the forecasted traffic volumes cannot reach or depart from the interchange area. Improvements will be needed at the adjacent intersections when the overall area is developed.

Proposed Interchange: Diverging Diamond Interchange (DDI)

US 301

The US 301 and I-75 Interchange is immediately north of the Manatee River, with the I-75 bridge beginning as part of the interchange. Currently, the interchange has loop ramps in the northeast and northwest guadrants. Due to the proximity to the river, the existing mainline structures, and the ramp bridges that are currently proposed for construction, significant changes to interchange geometry or interchange concept will be difficult. The currently proposed tight diamond interchange will function at this location with the projected volumes. Planned improvements are to be completed by 2025. Capacity improvements at 60th Avenue to the east of the interchange ramp terminals may be required to keep the interchange working properly.

Proposed Interchange: No changes to E+C proposal

SR 64

SR 64 is one of the few crossings of the Braden River to the west of I-75. Currently it has a loop ramp in the northwest quadrant. The projected traffic volumes indicate that this existing loop ramp might not have the capacity required for the design year. The future volumes show that the turning traffic at this interchange will be quite high, with multiple left turns over 1,000 vehicles per hour. These high turning volumes make a DDI an excellent interchange option at this location as it will have a higher turning capacity than other interchanges and allow for expansion in the future which options such as a SPUI would not.

Proposed Interchange: Diverging Diamond Interchange (DDI)

SR 70 (Oneco-Myakka City Road)

The SR 70 interchange is a diamond interchange with a single loop ramp in the northwest quadrant serving the westbound to southbound movement. This is a similar design to the existing SR 64 interchange



immediately to the north. The area around the interchange is highly developed with both commercial and residential areas. Widening of the I-75 mainline will require removal or reconstruction of the loop ramp. A DDI was selected to allow for an interchange compatible with a wider I-75 typical section while maintaining the existing interchange footprint.

Proposed Interchange: Diverging Diamond Interchange (DDI)

University Parkway

University Parkway is currently a large DDI, with twelve total lanes in the core of the interchange. To the west of the interchange is extensive commercial development with its main entrance as the first intersection to the west of the interchange. The area east of I-75 continues to develop and an additional northbound right-turn lane is needed from the DDI. Improvements are also needed at the Market Street intersection, 1,600 feet east of I-75, and the Cattlemen Road intersection, 1,600 feet west of I-75. At the Cattlemen Road intersection, the existing westbound triple left-turn lanes cannot be expanded, and significant investment will be needed to ensure that intersection operations do not impact the interchange.

Proposed Interchange: Add lanes to existing Diverging Diamond Interchange (DDI)

SR 780/Fruitville Road

The existing interchange at Fruitville Road is a partial cloverleaf interchange with loops in the northwest and southeast quadrants that will be replaced by a proposed DDI. Letting for the DDI is planned for 2026. Additional lanes will be needed at this DDI in the future along with adjacent intersection improvements to the east and west of the interchange.

Proposed Interchange: Add lanes to E+C proposed Diverging Diamond Interchange (DDI)

SR 758/Bee Ridge Road

The current partial cloverleaf interchange at Bee Ridge Road will be replaced with a proposed hybrid of a displaced left diamond interchange and a continuous flow intersection that was included to improve the Cattlemen Road intersection immediately to the west of I-75. Letting for the hybrid DDI is planned for 2026. No additional improvements will be needed.

Proposed Interchange: No changes to E+C configuration

SR 72/Clark Road

The existing diamond interchange at Clark Road is being reconstructed as a DDI. The projected volumes at Clark Road are quite high at several turns, including the eastbound left-turn and the southbound right-turn movements. The eastbound left turn reaches almost 2,400 vph in the PM peak period while the southbound right turn is projected to be over 2,000 vph in the AM peak period. During the PD&E phase, reconfirming the lane configuration of this DDI is strongly recommended

Proposed Interchange: No changes to E+C configuration

SR 681

SR 681 is a half system interchange, with SR 681 diverging from southbound I-75 to connect to SR 41 to the west. The future volumes at this interchange are within the capacity of the connecting ramps and the interchange should operate without any modifications.

Proposed Interchange: No changes to existing configuration

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Laurel Road

At Laurel Road, the northbound and southbound directions of I-75 are separated by approximately 1,000 feet. This complicates any future interchange design and ramp placement and makes a SPUI impossible at this location. Additionally, Laurel Rd is elevated over I-75 and is at a slight skew across I-75 which might make interchange geometry difficult. A DDI was selected to enhance capacity while maintaining a small footprint similar to the existing diamond.

Proposed Interchange: Diverging Diamond Interchange (DDI)

Jacaranda Boulevard

Jacaranda Boulevard is currently a diamond interchange with a stop-controlled off-ramp for northbound I-75 and a loop ramp in the northeast quadrant serving the northbound left turns. There is little to no available right of way space in the other three quadrants to provide additional loop ramps. The future traffic volumes indicate that the northbound ramp terminal will require signalization and that the existing single lane loop ramp will be approaching capacity by the design year. The future volumes also show that most traffic arriving at the interchange from Jacaranda Boulevard is turning onto I-75 instead of continuing though the interchange. A DDI was selected to enhance capacity while maintaining a small footprint similar to the existing interchange.

Proposed Improvement: Diverging Diamond Interchange (DDI)

SR 777/River Road

The north leg of the River Road interchange only provides access to a small parking area to access the Myakka River, while the south leg of River Road is a regionally significant roadway. The current configuration of the interchange is a standard diamond interchange with stop-controlled ramp terminals. Because there is no development planned to the north side of the interchange past the existing parking lot, the projected traffic volumes do not exceed the capacity of the existing interchange design if the terminals are signalized and an additional right-turn lane from southbound I-75 is provided. If there are any unforeseen traffic increases, additional lanes can be added to the current configuration.

Proposed Improvement: Signalization of the ramp terminals

County	MP	Exit #	Interchange	Existing Interchange Type (2022)	Proposed Design Year Interchange Type (2045)
Manatee	16.2	229	Moccasin Wallow Road (CR 683)	Diamond	DDI
Manatee	14.8	228	I-275	Direct Connect (System to System)	Direct Connect (System to System)
Manatee	11	224	US 301	Partial Cloverleaf (2- quadrant) / Partial Diamond	Tight Diamond
Manatee	7.3	220	SR 64	Partial Cloverleaf (1- quadrant)/Partial Diamond	DDI
Manatee	3.7	217	SR 70 (Oneco-Myakka City Rd)	Partial Cloverleaf (1- quadrant)/Partial Diamond	DDI
Manatee	0	213	University Parkway	DDI	DDI
Sarasota	39.1	210	SR 780 (Fruitville Road)	Partial Cloverleaf (2- quadrant)/Partial Diamond	DDI
Sarasota	36.4	207	SR 758 (Bee Ridge Road)	Partial Cloverleaf (1- quadrant)/Partial Diamond	Hybrid Displaced Left Diamond
Sarasota	34.4	205	SR 72 (Clark Road)	Diamond	DDI
Sarasota	29	200	SR 681	Direct Connect (Half System)	Direct Connect (Half System)
Sarasota	24.7	195	Laurel Road	Diamond	DDI
Sarasota	22.3	193	Jacaranda Boulevard	Partial Cloverleaf (1- quadrant)/Partial Diamond	DDI
Sarasota	20.1	191	SR 777 (North River Road)	Diamond	Diamond

No Build E+C improvements are noted in red.



Table 4.1: Proposed Interchanges

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4.2.4 **Recommended Alternative Analysis**

4.2.4.1 Construction Cost

The I-75 North Corridor was broken into 21 segments, using the north and south gore points at each interchange as the break between segments. The North Corridor segments and associated lengths are provided in Table 4.2. The construction cost was tabulated for each segment to facilitate the subsequent segmentation and prioritization of the Master Plan Recommended Alternative.

Table 4.2: North Corridor Segments

SECMENIT	DESCRIPTION	SEGMENT I	ENGTH
SEGMENT	DESCRIPTION	(LF)	(MI)
1	SR 777 (North River Road) Interchange to S. of Jacaranda Blvd	12500	2.37
2	Jacaranda Blvd Interchange	5000	0.95
3	from N. of Jacaranda Blvd through Laurel Rd Interchange	13000	2.46
4	from N. of Laurel Rd to S. of SR 681	19000	3.60
5	SR 681 Interchange	4500	0.85
6	from N. of SR 681 to S. of SR 72 (Clark Rd)	22500	4.26
7	SR 72 (Clark Rd) Interchange	5000	0.95
8	from N. of SR 72 (Clark Rd) to S. of SR 758 (Bee Ridge Rd)	5400	1.02
9	SR 758 (Bee Ridge Rd) Interchange	6900	1.31
10	from N. of SR 758 (Bee Ridge Rd) to S. of SR 780 (Fruitville Rd)	8000	1.52
11	SR 780 (Fruitville Rd) Interchange	5700	1.08
12	from N. of SR 780 (Fruitville Rd) to S. of University Pkwy	11500	2.18
13	University Pkwy Interchange	8607	1.63
14	from N. of University Pkwy to S. of SR 70	9500	1.80
15	SR 70 Interchange	8900	1.69
16	from N. of SR 70 to S. of SR 64	10000	1.89
17	SR 64 Interchange	8500	1.61
18	from N. of SR 64 to S. of US 301	6500	1.23
19	US 301 Interchange	12000	2.27
20	from N. of US 301 to S. of I-275	13500	2.56
21	I-275 Interchange and Moccasin Wallow Interchange	12900	2.44

The construction cost estimate was prepared using FDOT cost per mile models, the FDOT Long Range Estimate tool, and costs from recent projects of similar scope around the state. The 12-month Statewide and Market Area 10 average unit costs were used in the estimate (April 2021 through March 2022).

The following components were included in the Recommended Alternative construction cost estimate:

- Roadway
 - Clearing and grubbing
 - Earthwork
 - Erosion and sediment control
 - Roadway pavement
 - Shoulder pavement 0
 - Shoulder treatment 0
 - Noise wall
- Bridge
 - Bridge replacement or widening
 - Bridge box culvert replacement or extension

 - Existing Conditions Report) would be replaced.
- Drainage
 - Stormwater management ponds
 - Storm sewer system
 - Cross drains
- Signing
 - Overhead truss and span signs
 - Ground mounted signs
- Pavement markings
- Lighting
 - Conventional LED lighting
 - Bridge and underdeck lighting
- ITS
- Interchange improvements •
 - Interim and ultimate improvements
 - Ramp signalization

The Master Plan concept drawing was used to quantify the length (mileage or linear feet) of widened roadway, milled/resurfaced roadway, widened shoulder, milled/resurfaced shoulder, barrier wall, and pavement markings. The concept was also used to estimate quantities for the noise wall, bridge, drainage, signing, lighting, and ITS components in each segment.

Further details on the references and assumptions used in the Recommended Alternative construction cost estimate is provided in Appendix B of the Facility Enhancements Element.

The estimated construction cost estimate for each segment is summarized in Table 4.3. Detailed tabulation of each component of the construction cost estimate is provided in Appendix C of the Facility Enhancements Element.



• It was assumed that all bridge culverts with low Health Ratings (as noted shown in the

Segment	Description	Roadway	Bridge	Drainage	Signing	Pavement Markings	Lighting	ITS	Interchange Improvements	Segment Subtotal
1	SR 777 (River Road) Interchange to S. of Jacaranda Blvd	\$14,742,488	\$7,883,600	\$10,583,423	\$4,109,000	\$75,151	\$3,583,600	\$4,885,000	\$400,000	\$46,262,262
2	Jacaranda Blvd Interchange	\$6,930,414	\$1,291,100	\$4,445,683	\$2,335,000	\$38,733	\$1,776,400	\$2,545,000	\$400,000	\$19,762,330
3	From N. of Jacaranda Blvd through Laurel Rd Interchange	\$15,721,916	\$1,455,900	\$11,305,482	\$4,793,000	\$83,258	\$3,043,100	\$4,750,000	\$0	\$41,152,656
4	From N. of Laurel Rd to S. of SR 681	\$16,351,433	\$5,106,400	\$15,863,475	\$5,581,000	\$104,432	\$3,509,400	\$5,980,000	\$O	\$52,496,140
5	SR 681 Interchange	\$3,842,154	\$0	\$3,951,710	\$951,000	\$31,559	\$843,400	\$3,165,000	\$0	\$12,784,823
6	From N. of SR 681 to S. of SR 72 (Clark Rd)	\$52,191,920	\$2,653,800	\$18,414,837	\$1,421,000	\$136,222	\$4,245,200	\$7,010,000	\$0	\$86,072,979
7	SR 72 (Clark Rd) Interchange	\$20,058,661	\$7,625,400	\$7,377,927	\$4,900,000	\$95,515	\$1,826,800	\$2,545,000	\$0	\$44,429,303
8	From N. of SR 72 (Clark Rd) to S. of SR 758 (Bee Ridge Rd)	\$28,179,574	\$4,436,400	\$7,915,567	\$2,100,000	\$57,672	\$1,834,800	\$3,485,000	\$0	\$48,009,013
9	SR 758 (Bee Ridge Rd) Interchange	\$33,611,640	\$15,874,600	\$10,266,549	\$3,150,000	\$164,112	\$2,360,800	\$3,045,000	\$165,620,402	\$234,093,103
10	From N. of SR 758 (Bee Ridge Rd) to S. of SR 780 (Fruitville Rd)	\$26,315,270	\$4,625,400	\$12,189,697	\$2,728,000	\$87,524	\$2,692,800	\$4,705,000	\$0	\$53,343,691
11	SR 780 (Fruitville Rd) Interchange	\$27,277,604	\$8,845,800	\$9,238,633	\$3,818,000	\$152,866	\$2,236,200	\$6,315,000	\$100,129,790	\$158,013,893
12	From N. of SR 780 (Fruitville Rd) to S. of University Pkwy	\$42,213,553	\$3,799,600	\$17,091,004	\$3,436,000	\$126,799	\$3,864,800	\$5,670,000	\$0	\$76,201,756
13	University Pkwy Interchange	\$36,415,764	\$18,376,800	\$12,762,486	\$3,436,000	\$196,578	\$2,924,300	\$5,185,000	\$0	\$79,296,928
14	From N. of University Pkwy to S. of SR 70	\$42,001,426	\$19,389,800	\$14,552,484	\$2,768,000	\$99,374	\$3,184,800	\$5,325,000	\$O	\$87,320,884
15	SR 70 Interchange	\$48,019,069	\$9,467,900	\$13,171,142	\$4,208,000	\$195,110	\$3,605,400	\$5,185,000	\$0	\$83,851,621
16	From N. of SR 70 to S. of SR 64	\$43,039,480	\$0	\$14,836,209	\$3,150,000	\$105,633	\$3,373,800	\$4,895,000	\$O	\$69,400,121
17	SR 64 Interchange	\$37,985,707	\$11,648,400	\$12,722,391	\$3,548,000	\$115,797	\$3,009,100	\$5,435,000	\$0	\$74,464,395
18	From N. of SR 64 to S. of US 301	\$22,165,874	\$54,872,500	\$9,902,499	\$2,426,000	\$68,733	\$2,211,800	\$3,850,000	\$O	\$95,497,406
19	US 301 Interchange	\$51,181,991	\$82,100,700	\$16,912,239	\$5,274,000	\$134,044	\$3,967,350	\$7,245,000	\$0	\$166,815,324
20	From N. of US 301 to S. of I-275	\$30,235,875	\$6,589,300	\$11,584,188	\$3,484,000	\$88,535	\$2,502,600	\$3,500,000	\$0	\$57,984,497
21	I-275 Interchange and Moccasin Wallow Interchange	\$31,103,437	\$51,873,300	\$13,725,362	\$5,966,000	\$108,744	\$2,568,600	\$6,840,000	\$400,000	\$112,585,443
									SUBTOTAL	\$1,699,838,567
									MOT (15% of Subtotal)	\$254,975,785
								Mobilization	(15% of Subtotal + MOT)	\$293,222,153
							Contingen	icy (25% of Subtot	al + MOT + Mobilization)	\$562,009,126
									GRAND TOTAL	\$2,810,045,631

Table 4.3: Preliminary Construction Cost Estimate

Note: These cost estimates do not have the benefit of a PD&E Preferred Alternative engineering level cost estimate and do not have a cost and schedule risk analysis workshop factored in as required in PD&E for FHWA major projects. These factors, and the current economic uncertainty around cost increases due to inflation, should be factored in when using these planning level estimates for 5-year work programming.



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4.2.4.2 Right of Way Cost

Right of way costs were estimated based on planning level cost per mile provided by the Department. Planning level costs vary by county and by rural and urban context. **Table 4.4** shows the assumptions. **Table 4.5** displays the planning level cost estimates by segment.

Table 4.4: Planning Level Right of Way Cost Per Mile Assumptions

County	Urban Per Mile	Rural Per Mile	Beginning of Rural Area
Sarasota	\$30 Million	\$15 Million	South of Clark Road
Manatee	\$25 Million	\$10 Million	North of SR 64

Table 4.5: Planning Level Right of Way Cost Estimate

Segment	Description	Right of Way Cost	Assumption		
1	SR 777 (River Road) Interchange to S. of Jacaranda Blvd	\$35,000,000			
2	Jacaranda Blvd Interchange	\$15,000,000			
3	From N. of Jacaranda Blvd through Laurel Rd Interchange	\$35,000,000	\$15 million per mile		
4	From N. of Laurel Rd to S. of SR 681	\$55,000,000			
5	SR 681 Interchange	\$15,000,000			
6	From N. of SR 681 to S. of SR 72 (Clark Rd)	\$65,000,000			
7	SR 72 (Clark Rd) Interchange	\$30,000,000			
8	From N. of SR 72 (Clark Rd) to S. of SR 758 (Bee Ridge Rd)	\$30,000,000			
9	SR 758 (Bee Ridge Rd) Interchange	\$40,000,000			
10	From N. of SR 758 (Bee Ridge Rd) to S. of SR 780 (Fruitville Rd)	\$45,000,000	\$30 million per mile		
11	SR 780 (Fruitville Rd) Interchange	\$30,000,000			
12	From N. of SR 780 (Fruitville Rd) to S. of University Pkwy	\$65,000,000			
13	University Pkwy Interchange	\$50,000,000			
14	From N. of University Pkwy to S. of SR 70	\$45,000,000			
15	SR 70 Interchange	\$40,000,000	\$25 million per		
16	From N. of SR 70 to S. of SR 64	\$45,000,000	mile		
17	SR 64 Interchange	\$40,000,000			
18	From N. of SR 64 to S. of US 301	\$10,000,000			
19	US 301 Interchange	\$25,000,000	\$10 million per		
20	From N. of US 301 to S. of I-275	\$25,000,000	mile		
21	I-275 Interchange and Moccasin Wallow Interchange	\$25, 000,000	mile		
	TOTAL	\$740,000,000			

4.2.4.3 Environmental Impacts

Potential impacts to social, cultural, natural, and physical resources were reviewed. The environmental review was oriented to identify fatal flaws only in this Master Plan phase, and to support the future PD&E phase for corridor improvement segments. As the scope of the Master Plan primarily utilizes existing mostly cleared I-75 right of way, it is unlikely that there will be significant impacts to any of the environmental elements evaluated. In areas that may require expanding on the current right of way, a more detailed analysis must be completed



as part of the PD&E study. Conceptual plans were reviewed to identify fatal flaws in areas with known potential for right of way impacts. Stormwater ponds were not located as part of this Master Plan study but could have right of way impacts. No fatal flaws were identified.

Potential impacts, environmental technical reports, and agency coordination for each resource category are summarized in Table 4.6. These may vary depending on which corridor segments are covered by the project/PD&E study.

Resource Category	Potential Impacts	Technical Reports	Agency Coordination
Social	 No neighborhoods would be divided; no social isolation would occur. No farmland impacts Updates needed to the county comprehensive plans and MPO LRTP. Minor right of way impacts 	 Conceptual Stage Relocation Plan Farmland Conversion Impact Rating Form 	 FDOT Natural Resources Conservation Service
Cultural	 Further investigation of archaeological resources is needed. Direct impacts to recreational resources are not anticipated. 	 Cultural Resource Assessment Survey Section 4(f) Determination of Applicability 	 State Historic Preservation Officer Seminole Tribe of Florida Southwest Florida Water Management District (SWFWMD) Sarasota County Manatee County FDOT Office of Environmental Management
Natural	 Potential wetland impacts Potential floodplain impacts Coordination needed with National Park Service (NPS), Florida Department of Environmental Protection (FDEP), and Sarasota due to crossing of Myakka River Increase in stormwater runoff 	 Natural Resources Evaluation (includes biological assessment, wetland evaluation, essential fish habitat, and floodplains) Biological Opinion (small- tooth sawfish) Water Quality Impact Evaluation 	 FDEP FDOT Florida Fish and Wildlife Conservation Commission FWS National Marine Fisheries Service NPS Sarasota County SWFWMD U.S. Army Corps of Engineers (USACE)
Physical	 No impacts to air quality Potential impacts to the Former Workman Electronics Area brownfield site Noise sensitive sites need to be further evaluated. New bridge structures need to be evaluated for compliance with USCG clearance. 	 Contamination Screening Evaluation Report Noise Study Report Vessel Survey and Navigational Evaluation Report 	 FDOT USCG

Table 4.6: Environmental Technical Reports and Agency Coordination

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A list of the permits that have the potential to be required is provided in **Table 4.7**.

Table 4.7: Anticipated Permits

Permit Type	Issuing Agency
Environmental Resource Permit	SWFWMD
Water Use Permit or Dewatering	SWFWMD
Section 404 Permit	USACE/FDEP
Section 408 Authorization	USACE
National Pollutant Discharge Elimination	EDED
System	
Local Drainage District Approvals/Permits	Local Drainage Districts
USCG Bridge Permit	USCG



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5.0 Public Involvement

5.1 Public Involvement Plan

A Public Involvement Plan prepared under separate cover (January 15, 2020) was created for this project outlining community outreach efforts. It presents the approach used to involve the public, public officials, the media, and government agencies throughout the project.

5.2 Public Meetings

Public meetings are summarized in the following sections. The Public Involvement Summary Report contains copies of meeting notifications, meeting materials, and public comments and responses.

5.2.1 **Postponed Public Kickoff Meeting**

Due to limitations on public meetings during the COVID-19 pandemic, FDOT created a Virtual Preview in place of the in-person kickoff meetings.

FDOT scheduled Public Kickoff Meetings for April 9, 2020 in Sarasota County and April 16, 2020 in Manatee County, but these meetings were postponed due to Covid-19 restrictions. Public Kickoff Meetings were also scheduled for the I-75 South Corridor in March and notifications were sent out for the South Corridor. The project team felt that since notifications had been sent for the originally scheduled meeting for the South Corridor, and the materials were ready for public viewing, it was important to follow through with sharing the information with the public for both the North and South Corridors. The in-person meetings were reformatted as a Virtual Preview where all the materials planned for the Public Kickoff Meeting were posted on the project website for the public to review and provide comment.

5.2.2 Rescheduled Public Kickoff Meeting - Virtual Preview

The virtual preview was hosted on the project website, <u>www.swflinterstates.com</u> and was available to the public from April 9, - April 22, 2020. The information provided introduced the project and the study process. This preview consistent of the information that was to be shown at the in-person public meeting posted on the project website. The public was also able to contact the project team with any questions or comments.

FDOT distributed email notifications on April 9, 2020 with a link to enter the preview. Emails with an invite to the virtual preview were sent to elected/appointed officials and to interested parties. Information was posted on social media by FDOT.

A total of 408 citizens visited the North Corridor Preview webpage between April 9 and April 24, 2020. This meeting sought the public's input on the study in general, the study's schedule, and a preview of the next steps to be taken. No formal presentation was made, but project display boards, traffic data, as well as information on the noise evaluation process were available. Additionally, a video describing managed lanes was available for viewing and download. A handout was also available for attendees to download when they entered the virtual preview on the website. Visitors could provide their comments through this site, and request to receive future project updates.

5.2.3 Virtual Public Outreach Meeting

A Virtual Public Outreach Meeting was held June 15 through June 25, 2021, with a live question and answer session on June 15, 2021 from 5 to 6:30 p.m. online via GoToWebinar. FDOT held the public meeting to provide important information on the Master Plan and to collect any comments attendees would like to submit into public record during its initial phase. Attendees were led through multiple interactive stations containing



video and static displays designed to update the public on the status of the project and changes in its development direction.

Emails inviting elected and appointed officials and the public were sent on May 18, 2021. A postcard invite was mailed to property owners whose property lies, in whole or part, within at least 300 feet of the right of way of each project alternative, 300 feet from the centerline of cross streets, and 1,000 feet on either side of I-75 at interchanges, as well as other local citizens who may be impacted by the construction of this project. This postcard also listed how to request project information in Spanish.

A total of 102 members of the public or elected officials registered for the virtual meeting, and 63 attended, including one elected official and four MPO representatives. During the virtual meeting, 75 questions or comments were received. Common comment topics included noise, safety, and general support for improvements to I-75.

5.2.4 Public Information Meeting

Both a live, online meeting and an in-person meeting were held in February 2023. Both meeting formats presented the same meeting materials and provided the public an opportunity to ask questions to the project team. The meetings were held to provide the public with an update of the Master Plan to date, and to provide the opportunity to discuss the study and provide comments. Meeting materials included 18 exhibit boards, a video explaining the managed lanes concept, meeting handout, FDOT noise brochures and right of way handouts. Exhibit boards included a variety of information including aerial photographs of the typical sections, identified Year of Need, proposed projects. The meeting materials were also available for viewing and comment online at www.swflinterstates.com/i75-north-corridor/ from Monday, February 20 through Monday, March 6. The website included a virtual tour with multiple interactive stations containing the manage lanes video and static exhibit boards formatted as though walking through an in-person public meeting.

The live, online meeting was held on Tuesday, February 21, 2023, at 6 p.m. on GoToWebinar. The meeting began with a presentation of the meeting displays, including broadcasting a video describing Managed Lanes. The meeting handout, FDOT noise brochure and right of way handout were accessible to attendees in the control panel as meeting handouts. For the remainder of the meeting, the attendees were able to type questions into the question panel and the project team answered them while referring to project display boards. The online meeting had 38 attendees. Twenty questions were asked during the online meeting.

The in-person meeting was held as an "open house" from 5 – 7 p.m. on Thursday, February 23, 2023, at the Realtor Association of Sarasota and Manatee 2320 Cattlemen Road, Sarasota, FL 34232. Upon arrival, attendees were provided with a meeting handout and comment sheet. The FDOT Noise Brochure and Right of way information were also available. A video describing Managed Lanes played continuously throughout the evening. Exhibit boards were available for attendees to view and FDOT representatives were available to discuss the project. The in-person meeting had 32 attendees. A total of 10 written comments were received at the in-person meeting. Attendees were directed to submit formal comments through the project website or by email to Nicole.Harris@dot.state.fl.us. Twelve comments were submitted through the project website or emailed by March 6, 2023.

Most comments received were about noise concerns and existing operational concerns. There were no comments received that were against improving I-75.

Emails inviting elected and appointed officials and other interested stakeholders were sent on January 26, 2023. The meeting was posted on the FDOT public meeting website on January 25, 2023. A newsletter invite was sent to 1,347 property owners in Sarasota County and 3,277 property owners in Manatee County. These were property owners whose property lies, in whole or part, within at least 300 feet of the right-of-way of each

project alternative (Section 339.155 FS), 300 feet from the centerline of cross streets, and 1,000 feet on either side of I-75 at interchanges, as well as other local citizens who may be impacted by the construction of this project. This newsletter also listed how to request project information in Spanish. An advertisement was also placed in the *Florida Administrative Register* on February 13, 2023. FDOT distributed press releases on February 15, 2023 and February 21, 2023 to inform the local media of the outreach event. FDOT also published a legal advertisement on February 10, 2023.

5.3 Public Outreach

Outreach methods other than public meetings are summarized in the following sections. The Public Involvement Summary Report contains copies of outreach materials and public comments and responses.

5.3.1 **Project Website**

A project website was available at www.swflroads.com/i75-north-corridor. The website was updated monthly to keep the public apprised of the project's status. The parent website featured information for the other I-75 Master Plan study corridors and I-4.

5.3.2 Additional Public Comment

Additional public comment was received through the website and by mail/email throughout the course of the study. These comments are included in the project file. Common comment topics included noise, safety, congestion, access, and general support for improvements to I-75.

5.3.3 Other Outreach Methods

Additional outreach methods used to notify and involve the public in the project include social media posts. Much of this was done in conjunction with the public meetings.

5.4 Agency, Local Government, and Stakeholder Coordination

5.4.1 Efficient Transportation Decision Making (ETDM)

Consistent with FDOT's ETDM process, the proposed project was evaluated during the ETDM programming screen, (ETDM Project Number 14399) published on October 11, 2019 when this project was expected to be a PD&E Study. Through ETDM, early agency and public comments were obtained to provide project information on potentially environmentally sensitive areas and identification of project issues. The ETDM Programming Screen Summary Report dated October 11, 2019 is available on the ETDM public web site (https://etdmpub.fla-etat.org/est/).

5.4.2 Agency and Local Government Presentations

Numerous agencies and local governments were identified that would have an interest in the I-75 Master Plan. Meet and Greet meetings were held in December 2019 with staff from the Sarasota/Manatee MPO and Charlotte County MPO, Manatee County and Charlotte County, the cities/towns of Longboat Key, Palmetto, Punta Gorda, Sarasota, and Venice and Port Manatee. Additionally, an updated presentation was made to the Sarasota/Manatee MPO on February 22, 2021. An update presentation was made to the Joint Technical Advisory Committee between the Sarasota/Manatee MPO and the Charlotte County-Punta Gorda MPO on January 9, 2023.

5.4.3 Planning Consistency

The Manatee County 2035 Future Traffic Circulation Number of Lanes Map shows I-75 as a ten-lane facility. The Sarasota County Comprehensive Plan 2040 Future Thoroughfare Plan shows I-75 as an eight-lane facility



between Jacaranda Boulevard and University Parkway. The comprehensive plans for Manatee and Sarasota Counties will need to be revised to account for the 12-lane typical section from Clark Road to US 301.

Capacity improvements to I-75 are included in state and regional planning documents. The 2022 - 2026 State Transportation Improvement Program (STIP) includes a PD&E Study for I-75 from University Parkway to Moccasin Wallow Road. The STIP will need to be updated to reflect new PD&E limits from the projects identified in this Master Plan. The STIP also includes dynamic message signs from the Sarasota County line to I-275 and interchange improvements for I-75 at SR 70, US 301, SR 64, University Parkway, Clark Road, Bee Ridge Road, and Fruitville Road.

The SIS First Five Year Program, adopted July 2022, includes PD&E on I-75 mainline and interchange improvements for I-75 at Bee Ridge Road, Fruitville Road, and SR 64. The SIS Second Five Year Program includes PD&E on I-75 mainline and interchange improvements for I-75 at Bee Ridge Road and SR 681. The SIS Long Range Cost Feasible Plan (CFP) shows managed lanes on I-75 from North of University Parkway to Moccasin Wallow Road, from South of River Road to SR 681, and from SR 681 to North of University Parkway. The SIS Long Range CFP will need to be updated with new limits from the Master Plan and to show capacity improvements instead of managed lanes for I-75 from River Road to Clark Road.

The 2045 Sarasota Manatee MPO Cost Feasible Plan shows managed lanes on I-75 broken out the same as the SIS Long Range CFP and will require updates once the SIS Long Range CFP is updated. Capacity improvements to I-75 are not included in the 2045 Sarasota Manatee MPO Transportation Improvement Program. The 2045 Sarasota Manatee MPO Transportation Improvement Program will need to be updated projects identified in this Master Plan that will commence in the next five years. The Sarasota Manatee MPO Adopted 2022/2023 – 2026/2027 Transportation Improvement Program (TIP) includes PD&E on I-75 mainline, dynamic message signs from the Sarasota County line to I-275, expanding the interchange at SR 681 to a full interchange, and interchange improvements at: SR 70, University Parkway, US 301, SR 64, Bee Ridge Road, and Clark Road.

6.0 Recommendations

As noted above, the mainline I-75 system recommended alternative is TL+LA. The TL+LA typical section consists of three through lanes (inside), three local access lanes (outside), and an auxiliary lane to the outside of the local access lanes in each direction. The TL+LA typical section is proposed from Clark Road to US 301. The remainder of the corridor consists of a recommended alternative with four GP lanes in each direction plus Auxiliary Lanes. Due to the length of the corridor, FDOT District 1 will proceed with the Recommended Alternative in segments.

Segmentation and projects were developed by:

- Determining segment and interchange years of failure in isolation,
- Identifying locations where improvements can be deferred via minor improvements,
- Identifying other considerations such as continuity and staged/standalone implementation, and
- Developing an initial priority list and refining.

Through sensitivity analyses, the approximate year of need was determined in isolation for each interchange along I-75 and the sections of the I-75 mainline between those interchanges. For the interchanges, failure was defined not by LOS, but by when congestion on the local network would cause ramp failure to the extent that it would negatively impact the mainline. This may result from the failure of the interchange ramp terminals or the signals along the arterial nearby.

Minor improvements such as adding signals or a turn bay were evaluated in applicable locations to determine if long-term improvements could be deferred. In some cases, minor improvements were found that could defer failure for 5-10 years.

Typical section continuity was a key factor in defining segmentation for the corridor. The location of existing I-75 structures over water or other facilities could make transitioning from the TL+LA typical section back to the existing more challenging. The ability of each project to function in its own was also considered in segmentation because funding will govern how quickly these projects are implemented.

Table 6.1 and **Figure 6.1** present the project list and segmentation recommended at the time of this Master Plan Summary Report, for both the mainline and interchanges.

Table 6.1: Preliminary Master Plan Projects List

Project No.	Interchange / Segment	Interchange/I-75	Description	Estimated Cost
1	1	River Rd	Signalization of I-75 ramp terminals and dual right-turn on SB off-ramp	\$2.4M
2	8	University Pkwy	Additional I-75 NB off-ramp right-turn lane and adjacent intersection improvements at Market Street (RCUT with MUT on east leg only)	\$15M
За		I-75	Mainline improvements from I-275 to north of Moccasin Wallow Rd (includes braided SB ramps)	\$100M
Зb	12-13	Moccasin Wallow Rd	DDI and adjacent intersection improvements (widening outside of study area from 2 to 4 lanes needed to service projected demand volumes)	\$150M
4	2	Jacaranda Blvd	Signalization of I-75 NB ramp terminal	\$0.4M
5	4-5	I-75	Mainline improvements from SR 681 to Clark Rd (Widen in multiple stages, with 1 lane added in Priority #5 and an additional lane added as part of transitions in Priority #9 and #12)	\$70M
6	11-12	I-75	Mainline improvements from US 301 to I-275	\$205M
7	9-11	I-75	Mainline improvements from SR 70 to US 301 with cloverleaf ramp modifications at SR 64 and SR 70	\$300M
8	8-9	I-75	Mainline improvements from University Pkwy to SR 70	\$150M
9	5-8	I-75	Mainline improvements from Clark Rd to University Pkwy	\$320M
10	0*-2	I-75	Mainline improvements from south of River Rd to Jacaranda Blvd	\$45M
11	2-3	I-75	Mainline improvements from Jacaranda Blvd to Laurel Rd	\$55M
12	3-4	I-75	Mainline improvements from Laurel Rd to SR 681	\$50M
13	10	SR 64	DDI and adjacent intersection improvements	\$150M
14	7	Fruitville Rd	Capacity improvements along Fruitville Rd (additional lanes at DDI and adjacent intersection improvements)	\$15M
15	5	Clark Rd	Revisit interim DDI for additional improvements if needed after mainline bridges are reconstructed	\$15M

*0 represents the southern project terminus, which is south of North River Road.





Figure 6.1: Preliminary Master Plan Projects



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6.1 Preliminary Proposed Projects Implementation List

FDOT District One's Interstate Program Office (IPO) team met and reviewed the above priorities identified by the study team, proposed segmentation, safety data, years of need, typical sections, scopes of work, projects requested by local agencies, existing programmed and/or recently constructed projects. The IPO team then generated a list of potential projects for implementation that covered most of the needs identified. The IPO team has reached out to the MPOs for comments and recommendations on priorities on these potential

projects to further refine this list. These potential projects will also be considered in the development of the Cost Feasible Plan update. **Table 6.2** lists the potential projects for implementation on the I-75 North Corridor. This list will continue to be refined and updated based on coordination with the local agencies, FDOT District One leadership, and FDOT Central Office. The list was presented to the public at the Corridor Workshop.

Table 6.2: Preliminary Proposed Project Implementation List

Mainline or			Beginning of Segment				End of Segment	Segment	Year of	
Interchange Project Name		Corridor	Location	Interchange	County	Location	Interchange	County	Length (miles)	Need
Interchange	I-75 (SR 93) at River Rd	I-75 North	South of	SR 777 (N River Rd)	Sarasota	North of	SR 777 (N River Rd)	Sarasota	0.514	2025
Interchange	I-75 (SR 93) at SR 681	I-75 North	South of	SR 681	Sarasota	South of	SR 72 (Clark Rd)	Sarasota	5.118	2100
Interchange	I-75 (SR 93) at University Pkwy	I-75 North	South of	University Pkwy	Sarasota	North of	University Pkwy	Sarasota	0.682	2029
Interchange	I-75 (SR 93) at Moccasin Wallow Rd	I-75 North	South of	I-275	Manatee	North of	CR 683 (Moccasin Wallow Rd)	Manatee	2.367	2026
Mainline	I-75 (SR 93) from N US 301 to S of I-275	I-75 North	North of	US 301	Manatee	South of	I-275	Manatee	2.823	2031
Interchange	I-75 (SR 93) at Jacaranda Blvd	I-75 North	South of	Jacaranda Blvd	Sarasota	North of	Jacaranda Blvd	Sarasota	0.666	2032
Mainline	I-75 (SR 93) from N SR 70 to N US 301	I-75 North	North of	SR 70 (Oneco-Myakka City Rd)	Manatee	North of	US 301	Manatee	7.295	2035
Mainline	I-75 (SR 93) from N Fruitville Rd to N SR 70	I-75 North	North of	SR 780 (Fruitville Rd)	Sarasota	North of	SR 70 (Oneco-Myakka City Rd)	Manatee	7.168	2034
Mainline	I-75 (SR 93) from S Clark Rd to N Fruitville Rd	I-75 North	South of	SR 72 (Clark Rd)	Sarasota	North of	SR 780 (Fruitville Rd)	Sarasota	5.355	2038
Mainline	I-75 (SR 93) from N Sumter Blvd to S Clark Rd	I-75 North	North of	Sumter Blvd	Sarasota	South of	SR 72 (Clark Rd)	Sarasota	22.888	2026



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Appendix A | Concept Plans



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TRAVEL LANES BRIDGES BARRIER WALL EXISTING LA R/W - EXISTING R/W ←∕←≁ PROPOSED LA R/W* EXISTING PROPERTY LINES 40' MULTI-MODAL CORRIDOR → TRAVEL LANES → AUXILIARY LANES • DELINEATORS PROJECTS BY OTHERS

*PROPOSED LA R/W SHOWN IS FOR ROADWAY IMPROVEMENTS ONLY AND

I-75 MASTER PLAN CONCEPT PLAN

SHEET

NO.



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LEGEND

TRAVEL LANES BRIDGES BARRIER WALL EXISTING LA R/W EXISTING R/W PROPOSED LA R/W* EXISTING PROPERTY LINES 40' MULTI-MODAL CORRIDOR TRAVEL LANES AUXILIARY LANES DELINEATORS PROJECTS BY OTHERS



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LEGEND

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I-75 MASTER PLAN CONCEPT PLAN

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