BACK

I-75 FORWARD

Interstate Master Plan

LAST UPDATED: 07/09/2024

I-75 Forward

Interstate Master Plan

Limits: From south of S.R. 44 in Sumter County to just south of County Road C.R. 234

Counties: Marion and Sumter

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.

Signature below constitutes Florida Department of Transportation District Five adoption of this planning document.

Signature: DocuSigned by: Kellie Smith FA179EF3C91646C... Date: 07/11/2024 | 1:03 PM EDT

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FDOT District Five

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Acronyms

AASHTO	American Association of State Highway and Transportation Officials
AADT	Average Annual Daily Traffic
ATM	Active Traffic Management
CARS	Crash Analysis Reporting System
CAV	Connected and Automated Vehicle
C/D	Collector/Distributor
CFP	Cost Feasible Plan
CFX	Central Florida Expressway
C.R.	County Road
FDOT	Florida Department of Transportation
FHP	Florida Highway Patrol
FMSF	Florida Master Site File
FPC	Floodplain Compensation
FPID	Financial Project Identification
FRAME	Florida Regional Advanced Mobility Elements
ILC	Intermodal Logistic Center
ITS	Intelligent Transportation Systems
LOS	Level of Service
LOTTR	Level of Travel Time Reliability
LRE	Long Range Estimate
MOT	Maintenance of Traffic
MPH	Miles per Hour
MPO	Metropolitan Planning Organization
NRHP	National Register of Historic Places
PD&E	Project Development and Environment
RISC	Rapid Incident Scene Clearance
SDR	Sociocultural Data Report
SHPO	State Historic Preservation Officer
SIS	Strategic Intermodal System
SMF	Stormwater Management Facility
S.R.	State Road
TDM	Travel Demand Management
TSM&O	Transportation Systems Management and Operations
TPO	Transportation Planning Organization
U.S.	United States
USFWS	United States Fish and Wildlife Service

Executive Summary

A New Vision for I-75

As the busiest interstate in Florida, Interstate 75 (I-75) plays a vital role in connecting Florida's major population centers and distributing people and products throughout Central Florida and the nation. It is critical to Florida's continued economic prosperity and quality of life. However, due to travel time reliability and growing demand, it is time to reinvest in this critical route. A new long-term vision is needed for I-75 – one that preserves past infrastructure investments and prepares Central Florida for the future through 2050 and beyond.

To create this long-term vision, the Florida Department of Transportation (FDOT) used a comprehensive planning process that resulted in *I-75 Forward* – a strategic Interstate Master Plan for I-75 from south of S.R. 44 in Sumter County to south of the C.R. 234 interchange near the Marion County/ Alachua County line.

I-75 Forward includes an Implementation Plan that involves investment in the expansion and reconstruction of the existing I-75 corridor and bridge infrastructure in phases, over time, as funding and priorities allow. The plan also incorporates vehicle technologies and operations improvements that can be adapted as technologies emerge and change.

Reinvesting, expanding, and modernizing I-75 is expected to provide long-lasting and sustained mobility for Central Florida's residents, producers, manufacturers, freight carriers, and travelers. The improvements will establish I-75 as the backbone to Florida's freight network, benefiting the region's economy. Improved travel time reliability and expanded capacity will save travelers lost time due to congestion and save real dollars in vehicle operations costs and safety-related costs due to crashes. Additional improvements will make users of this important facility safer.

Features of *I-75 Forward*

- Near-term improvements to address operations and long-term improvements to address mainline capacity
- Expandable to address long-term traffic growth while minimizing future construction
- Phased implementation and build-out as funding is made available
- Interchange improvements to address existing traffic and serve future growth and development
- Improved rest area and new truck parking facilities
- Consideration for future vehicle technologies

Through investment and expansion, I-75 Forward will transform I-75 into an enhanced, reliable, and sustainable interstate to serve Florida for decades to come.

I-75 Forward Interstate Master Plan

In coordination with its planning partners, and through engagement with key stakeholders and input from the general public, FDOT chose to prepare this Interstate Master Plan to identify strategic improvements for I-75 in Sumter and Marion counties.

The master planning process included:

- Travel demand analyses
- Traffic and safety operations analyses
- Development of construction and maintenance costs
- Identification of potential impacts to environmental resources
- Consideration of statewide travel efficiencies

Through system-level analyses, recommendations for near- and long-term mainline and interchange improvements were developed to address travel time reliability and capacity needs through 2050 and beyond.

To make the Master Plan successful, FDOT needs agency and stakeholder support to make I-75 operate optimally. Local governments need to require local roadways concurrent with development approvals to offset impacts to the interstate and minimize local trips using the interstate. The full potential of I-75 Forward will never be seen without active law enforcement and motorists' understanding and commitment to follow traffic safety laws.

Benefits of *I-75 Forward*

- Improved and more reliable travel times through Central Florida
- Reduction in the number of accidents and delay following accidents due to lane closures
- Reduction in the hours of travel delay
- Savings in travel and safety related costs

Implementing *I-75 Forward*

I-75 Forward presents a framework for implementing the recommended improvements that will be accomplished strategically over time as funding is available and priorities allow.

Corridor Priorities and Phasing

The emerging needs and priorities along the I-75 corridor will determine how FDOT selects and prioritizes the projects recommended in the *I-75 Forward* Implementation Plan. The intent is to effectively sequence its implementation in logical and connected sections, based on the highest needs as funding is available. This needs-based prioritization of projects is based on two primary triggers: Reliability and Traffic Capacity. Based on the projections of these triggers, the *I-75 Forward* Implementation Plan presents prioritized projects within three time horizons, referred to as phases. This framework is flexible for FDOT's programming and construction planning process, and is not a guarantee for when a recommended project will be constructed.

I-75 Forward is a long-term strategic plan that extends beyond 2050. It presents a vision for an ultimate, expandable interstate template that can be implemented in phases. The phased Implementation Plan can adjust to:

- The availability of funding and changing priorities
- The timing of needs
- Changes in traffic operations due to the emergence of new vehicle technologies

I-75 FORWARD RECOMMENDATIONS BY PHASE

PHASE 1
(near-term operational improvements)

- Add an auxiliary lane (additional lane between interchanges) in both directions from S.R. 44 to S.R. 326.
- Interim interchange improvements at S.R. 40 (see Chapter 5).
- Interim interchange improvements at S.R. 326 (see Chapter 5).

PHASE 2
(subsequent operational improvements)

Construct ultimate interchange improvements at S.R. 200, S.R. 40, US 27, and C.R. 318.

PHASE 3
(long-term mainline capacity)

Phase 3 will include long-term mainline capacity improvements including consideration for general purpose lanes, collector-distributor systems, managed lanes, and tolling.

Funding

Improving I-75 is an important commitment of the State of Florida and will require a significant portion of FDOT's funding in the future. The financial commitment needed to implement the full build-out could impact FDOT's ability to address other needs across the region and throughout Florida.

The Moving Florida Forward Infrastructure Initiative dedicates $4 billion from the General Revenue Surplus to advance construction on selected projects around the state that will address congestion, improve safety, ensure resiliency of our transportation network, and enhance Florida's supply chain and economic growth. I-75 Auxiliary Lanes from S.R. 44 to S.R. 326 is included in the initiative.

Moving forward, FDOT will continue to assess I-75 needs along with many important, competing needs across Florida in determining how best to spend limited resources. Furthermore, by staging the construction based on the timing of needs, FDOT could defray its costs over a longer period, beyond 2050.

Next Steps

I-75 Forward **provides strategic direction and a long-term framework for planning and programming future improvements along the I-75 corridor. This enables FDOT to maintain the existing infrastructure and plan, program, and construct projects along I-75 for long-term compatibility and cost efficiency.**

The next steps for implementing *I-75 Forward* include:

PROJECT PROGRAMMING

FDOT will use the *I-75 Forward* Implementation Plan to identify and program projects for its Five-Year Work Program. Based on available funding and the unique circumstances of each project, FDOT will identify the limits of each project, the required PD&E study analysis and documentation, and how best to phase and stage the improvements.

ADDITIONAL STUDIES

For the near-term Phase 1 improvements and long-term future improvements (Phases 2 and 3), FDOT will conduct additional engineering and environmental planning studies for each project (PD&E Studies). These studies will entail more detailed environmental resource studies with National Environmental Policy Act (NEPA) documentation and preliminary engineering design. They are followed by final design, Right of Way acquisition (if needed), and construction. During the studies and final design activities, public meetings will be held to obtain additional, more detailed public input. FDOT's process for delivering projects is discussed in CH 1.

COORDINATION WITH AREA PROJECTS

FDOT District improvements, such as intersection and resurfacing projects, will be coordinated to accommodate the *I-75 Forward* Implementation Plan. Coordination with planning studies and other ongoing projects will also occur with local governments. Opportunities to partner with local governments and transportation agencies to advance projects will be revisited on a regular basis.

FUNDING OPTIONS

FDOT will continue to assess alternative funding options. While utilizing tolls on the managed lanes to fund and finance the improvements is not currently planned, it may become an option worth considering as State funding priorities change or if new federal funding opportunities or incentives become available. Any future decision regarding tolls would entail a series of decision steps, in ascending level of detail, including considerable additional study and coordination with the State of Florida's policymakers, local governments, developers, and the public.

Master Plan Organization

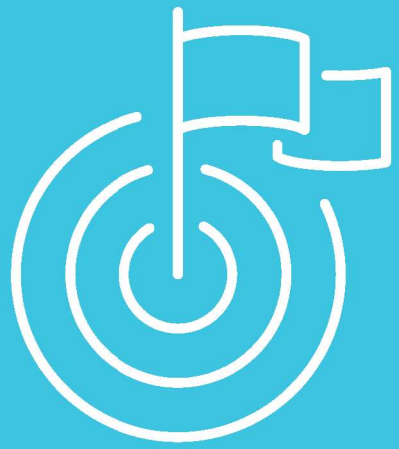
The *I-75 Forward* document describes the analyses and evaluation performed and the decision-making process that resulted in the *I-75 Forward* recommendations and Implementation Plan.

The *I-75 Forward* Interstate Master Plan includes the following chapters:

- Executive Summary
- Chapter 1—Introduction
- Chapter 2—Master Plan Considerations
- Chapter 3—Corridor Needs
- Chapter 4—Existing Conditions Summary
- Chapter 5—Potential Improvement Strategies
- Chapter 6—Other Considerations
- Chapter 7—Implementation Plan

The referenced documents present technical data and detailed analysis supporting the results provided in this document. This document includes the following referenced documents:

- ETDM Programming Screen Summary Report: I-75 from Turnpike to S.R. 200
- ETDM Programming Screen Summary Report: I-75 from S.R. 200 to C.R. 234
- Existing Conditions - Geotechnical and Contamination Memorandum
- Existing Conditions Technical Memorandum: I-75 from Turnpike to S.R. 200
- Existing Conditions Technical Memorandum: I-75 from S.R. 200 to C.R. 234
- Project Traffic Analysis Report: I-75 (S.R. 93) from Florida's Turnpike to S.R. 200
- Project Traffic Analysis Report: I-75 (S.R. 93) from S.R. 200 to C.R. 234
- Reliability Assessment: Existing Conditions and Alternatives Analysis
- Truck Parking Memorandum



1

Introduction

1

This chapter describes the purpose of the *I-75 Forward* master planning process, describes the *I-75 Forward* corridor limits, and presents the recommended phases for the *I-75 Forward* Implementation Plan.

Interstate 75 (I-75) through Florida is one of the State of Florida's most important transportation corridors, critical to Florida's economic competitiveness and quality of life.

As a primary north-south corridor, I-75 provides for the movement of people and freight, maintains mobility between regional employment and population centers, provides system connectivity to several east-west roadways, and serves as a thoroughfare for tourism and trade. In the last decade, I-75 has faced significant reliability and capacity issues, all of which are anticipated to worsen as the region's population, tourism, economy, and trade continue to grow.

I-75 at S.R. 40

1.1 Master Planning Process

In response to the corridor's growing needs, FDOT prepared this Interstate Master Plan for I-75 in Sumter and Marion counties—*I-75 Forward*. The purpose of *I-75 Forward* is to identify the best strategies for improving the I-75 corridor through 2050 and beyond. This entailed evaluating several different types of near- and long-term improvement strategies, such as widening the interstate, improving on-and off-ramps, reconstructing existing interchanges, or a combination of strategies.

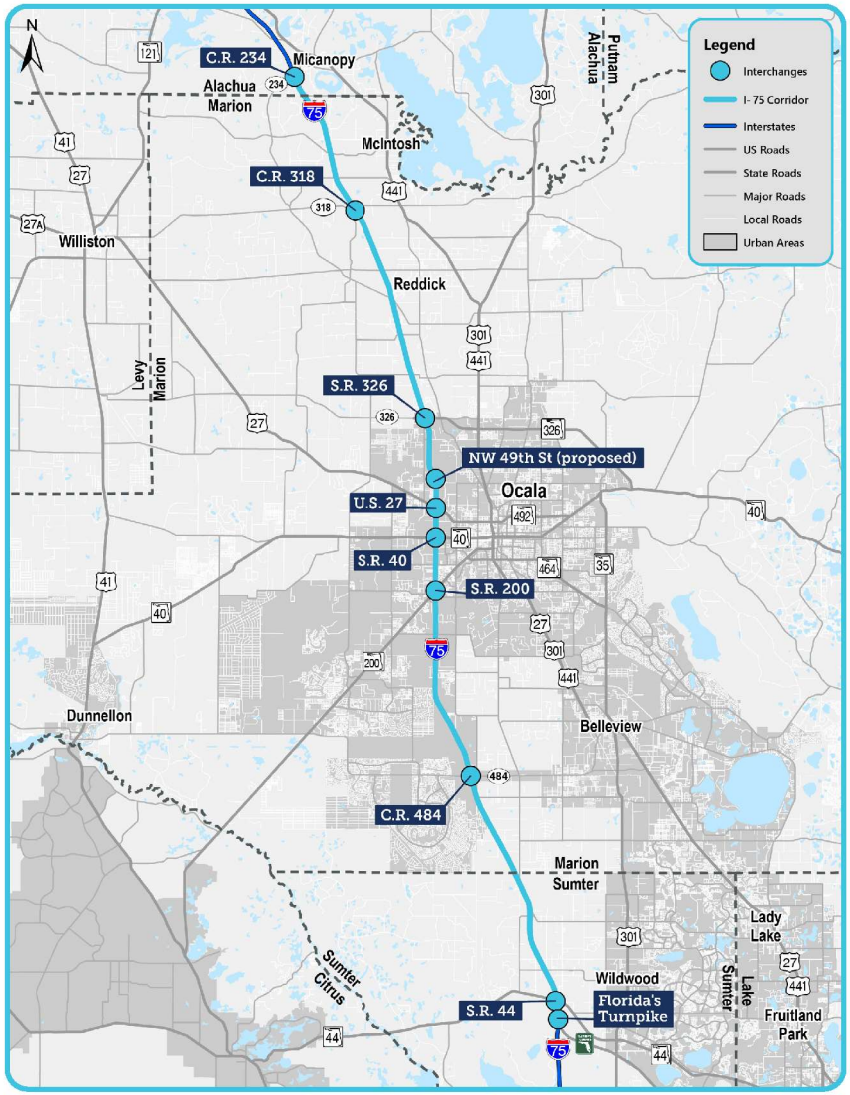
WHAT DO MASTER PLANS INCLUDE?

Improvements recommended in a master plan may include widening, managed lanes, auxiliary lanes, collector/distributor (C/D) roads, modifying interchanges, evaluating new interchanges, stormwater management facilities, and/or transportation systems management and operations (TSM&O) strategies. A master plan includes public engagement, which serves as input in the identification and prioritization of projects to move forward in the Project Development Process. This long-range approach provides a regional perspective to identify the areas where future demand is predicted and assists in defining subsequent Project Development and Environment (PD&E) Studies.

What is a Master Plan?

Prepared during the Planning and Feasibility Phase, the first phase of FDOT's Project Development Process, a master plan summarizes a vision for future transportation and provides a set of recommended improvements or enhancements to improve safety, reliability, and mobility. Development of a master plan involves data collection, public engagement, analysis of current and future transportation needs, and the identification and evaluation of potential projects to address those needs. The findings of the analysis and recommendations developed during the Planning and Feasibility Phase are documented in a master plan report.

Figure 1-1 *I-75 Forward* Corridor



I-75 Forward Corridor

FAST FACTS:

2 counties

48 miles

9 interchanges

+1 programmed interchange

The *I-75 Forward* corridor (the corridor) extends from south of S.R. 44 in Sumter County to just south of County Road (C.R.) 234 near the Marion County / Alachua County line (shown in Figure 1-1), approximately 48 miles. The *I-75 Forward* corridor for this master plan also includes the I-75 interchanges at S.R. 44, C.R. 484, S.R. 200, S.R. 40, U.S. 27, NW 49th Street (programmed), S.R. 326, and C.R. 318.

Through coordination and input from multiple stakeholders, strategies were developed for improvements that meet I-75's needs related to reliability and capacity for passenger and freight vehicles. The *I-75 Forward* Implementation Plan outlines near-term improvements that can be planned, designed, and constructed as funding is available, as well as long-term improvements for a build-out design concept through 2050 and beyond.

Activities performed as part of the *I-75 Forward* planning effort included the following:

Identify

- Identification of corridor needs
- Identification of potential truck parking facility locations

Evaluate

- An evaluation of existing conditions, including existing (2019) and future (2050) traffic conditions
- An evaluation of short- and long-term mainline improvements, including auxiliary lanes, roadway widening, C/D roads, and managed lanes
- An evaluation of near- and long-term improvements for the existing interchange locations

Consider

- Consideration for improvements to local roadways parallel to I-75
- Consideration for drainage and Transportation Systems Management and Operations (TSM&O) strategies
- Consider impacts by performing a fatal flaw environmental analysis

Prepare

- Preparation of cost estimates
- Preparation of an Implementation Plan for Phase 1 and Phase 2

FDOT will use the recommendations resulting from the master planning process to plan and program needed improvements for the *I-75 Forward* corridor through 2050 in the appropriate Work Program and Strategic Intermodal System (SIS) funding plans. The *I-75 Forward* process included evaluating several different types of short and long-term improvement strategies, such as widening the I-75 mainline, improving interchange on- and off-ramps, reconstructing existing interchanges, or a combination of strategies. The *I-75 Forward* recommendations will help FDOT schedule future PD&E Studies, design projects, and construction projects. In addition, *I-75 Forward* is intended to serve as a reference document to aid the Metropolitan and Transportation Planning Organizations in developing Long-Range Transportation Plans.

DEFINITION | Strategic Intermodal System (SIS)

The SIS is Florida's high priority network of transportation facilities that are important to the state's economy and mobility. The Governor and Legislature established the SIS in 2003 to focus the state's limited transportation resources on the facilities most significant for interregional, interstate, and international travel. The SIS is the state's highest priority for transportation capacity investments and a primary focus for implementing the Florida Transportation Plan, the state's long-range transportation vision and policy plan (**http://floridatransportationplan.com/**).

1.2 Implementation Plan

The *I-75 Forward* Implementation Plan covers three time horizons, referred to as phases.

PHASE 1

Near-term improvements for the mainline and interchanges that can be implemented within the ***next 10 to 15 years*** to reduce congestion, enhance safety, and improve operations.

PHASE 2

Subsequent improvements that address operational deficiencies at the interchanges for the corridor's long-term build out through 2050.

PHASE 3

Additional mainline capacity is the final element of the corridor's long-term build-out.

Details of the potential and recommended improvements for all phases are discussed in Chapter 5 starting on **page 62**.

2

Master Plan Considerations

2

This chapter describes the information and input that was taken into consideration to develop the *I-75 Forward* recommendations.

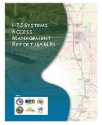
The improvements identified and evaluated drew upon previous planning efforts; known private developments and adjacent projects; and input provided by the local governments, residents, and stakeholders.

2.1 Relevant Planning Studies and Projects

The I-75 corridor in Sumter, Marion, and the surrounding counties has been the focus of several planning studies and projects since 2014. Previous or ongoing planning studies by FDOT, Florida's Turnpike, and the local governments along the corridor influenced *I-75 Forward* and were incorporated or considered in the analyses. These studies have specific recommendations for a wide variety of improvements relevant to this master plan, including safety and traffic operational improvements, ramp enhancements, interchange reconfigurations, highway widening, new crossings, enhancements to local corridors, and new alternative corridors.

Previous studies are listed to the right.

2014



I-75 Systems Access Management Report *(2014, FDOT District 5)*

Evaluated existing and future conditions on I-75 between C.R. 476B/C.R. 673 and C.R. 318 (60-mile stretch in Sumter and Marion counties) and provided recommendations to address operational deficiencies and access management at 10 different interchange locations. The majority of improvements identified in the study have been implemented.

2015

I-75 North Vision Study *(2015, FDOT Central Office)*

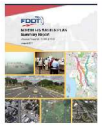
Presented an ultimate plan of how I-75 can safely accommodate future travel demand and freight from the I-75/I-275 interchange near Tampa to the Florida/Georgia border (32 interchanges over 200 miles).

2016

I-75 Relief Task Force Recommendations Report *(2016, FDOT Central Office)*

Evaluated I-75 from Tampa to northeast Florida and recommended expanding capacity and improving safety, efficiency, and reliability on I-75 as its primary strategy. Secondary strategies were upgrading parallel facilities and evaluating a new transportation corridor.

2017



North I-75 Master Plan *(2017, FDOT Central Office/District 2)*

Evaluated potential solutions for recurring and non-recurring congestion on I-75 from Florida's Turnpike to I-10. Recommendations included short-term improvements, such as signal coordination and fiber interconnection, and long-term improvements, such as adding general use or managed lanes. Improving other existing north-south roadways in the area was also considered, including U.S. 41, U.S. 441, and U.S. 301.

Coastal Connector *(2017, Florida's Turnpike Enterprise)*

Evaluated new transportation corridor alternatives in Citrus and Marion counties aimed at serving the Tampa Bay to I-75/U.S. 301 region. The study was discontinued in 2018 prior to being completed.

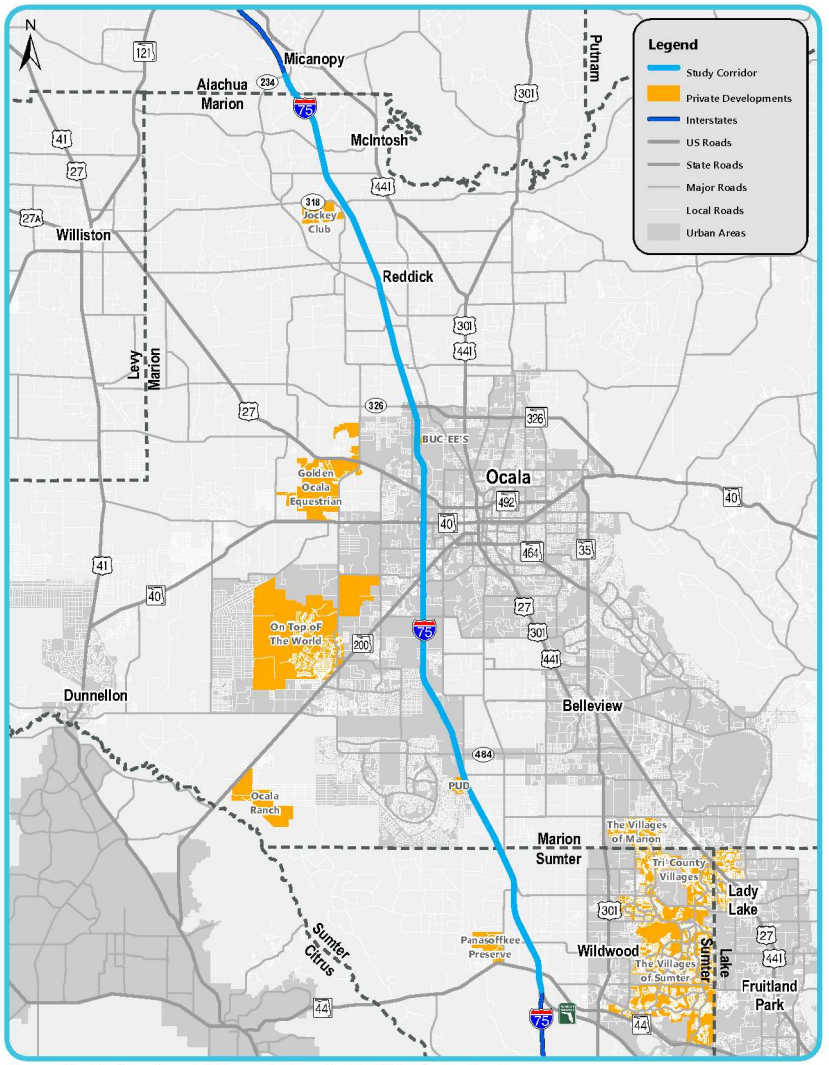
2.2 Private Developments

Approved private developments within the corridor at the time of this master plan were included in the *I-75 Forward* land use projections for the travel demand and traffic analyses, and they were considered in the development of the recommendations for traffic access and connectivity improvements.

Recently approved and ongoing private developments include:

- Golden Ocala Equestrian, Ongoing
- Jockey Club, Approved 2022
- Ocala Ranch, Approved 2017
- On Top of the World, Ongoing
- Panasoffkee Preserve, Approved 2016
- Planned Unit Development (PUD), Approved 2021
- The Villages, Ongoing
- Buc-ee's

Figure 2-1 Recently Approved and Ongoing Private Developments



Sources: Florida Department of Economic Opportunity, 2021; Marion County Comprehensive Plan, Amended 2022

2.3 Adjacent Projects

FDOT PROJECTS

Several FDOT projects are currently in construction or planned for construction within or adjacent to the *I-75 Forward* corridor (shown in **Figure 2-2**). These projects were taken into consideration when identifying improvements along I-75. Coordination will continue as projects advance. *Adjacent and nearby projects are described on the next page.*

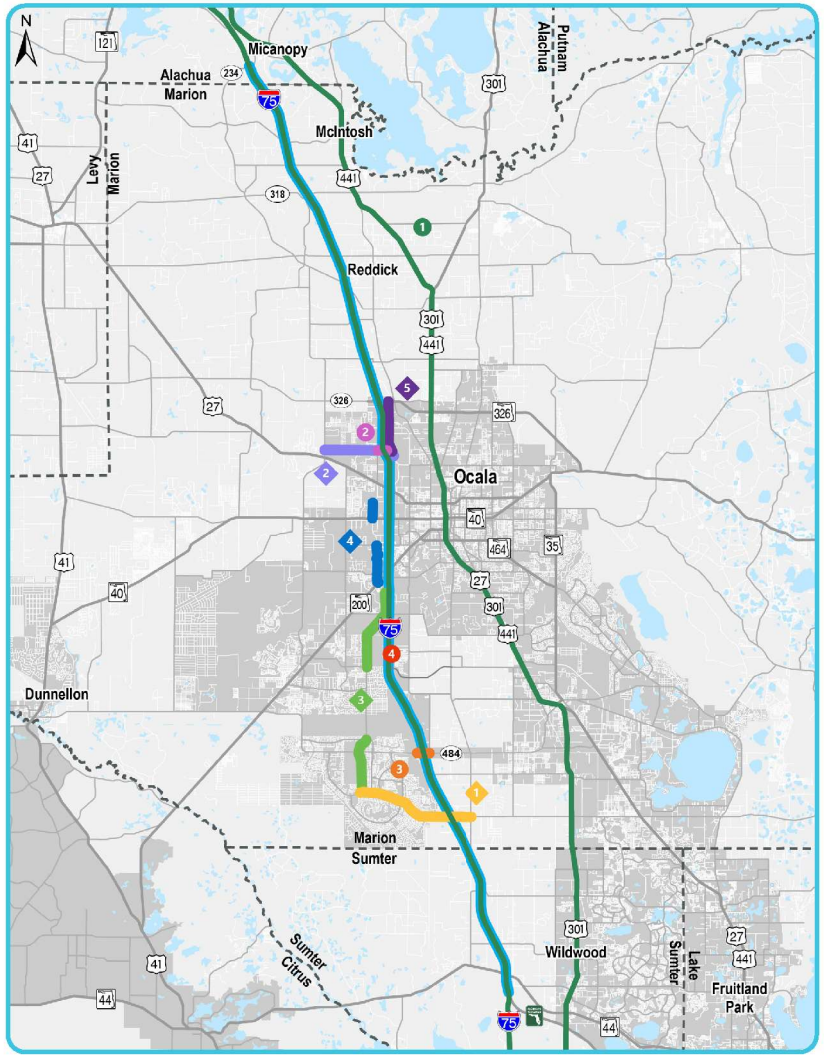
1. **FRAME**
2. **I-75 Interchange at NW 49th Street**
3. **C.R. 484 Interchange Improvements**
4. **I-75 Rest Area Reconstruction**

MARION COUNTY PROJECTS

In addition to the FDOT projects, Marion County has identified several roadway projects near the *I-75 Forward* corridor through its long-range transportation planning process to support future traffic needs due to population and development growth. Adjacent and nearby county *projects are described on the next page.*

1. **Marion Oaks Manor Extension**
2. **NW 49th/35th Street**
3. **SW 49th Avenue South**
4. **NW 44th Avenue**
5. **NW 35th Street to S.R. 326**

Figure 2-2 Adjacent Projects



Sources are listed on the next page

FDOT Projects

1. **FDOT, FRAME [Financial Project Identification (FPID) 440900-1] -** FDOT in 2021 added technology called Florida Regional Advanced Mobility Elements (FRAME) along several major roadways, which included I-75; S.R. 40, 44, 200, 326, and 464; and U.S. 27, 301, and 441 in Sumter and Marion counties. FRAME technology allows connected vehicles to enhance traffic data optimization for regional mobility. This will assist the Regional Transportation Management Center in efforts to manage congestion and improve traffic flow along the interstate and other area state roads that are connected to the system (https://www.cflroads.com/project/440900-1).

2. **FDOT, I-75 Interchange at NW 49th Street (FPID 435209-1) -** FDOT is constructing a new Diverging Diamond Interchange (DDI) in the area of I-75 and NW 49th Street in Ocala. This interchange will improve interstate and regional mobility within Marion County, accommodate future traffic growth, and provide relief to existing surrounding interchanges. These findings are a result of a PD&E Study for this location that was completed in March 2021. The Design and Right of Way phases are underway, and construction is funded for fiscal year 2025 (https://www.cflroads.com/project/435209-1).

3. **FDOT, C.R. 484 Interchange Improvements (FPID 433651-1) -** The project will improve safety and traffic flow with additional turn lanes and turn lane extensions at the C.R. 484 and I-75 interchange and the C.R. 484 and C.R. 475A intersection, reconstruction of the westbound through lanes, modifications to the existing median, and modification of the existing I-75 bridge to accommodate the widening. The project will also improve bicycle lane and pedestrian sidewalk connectivity through the project limits. The project is currently under construction and is expected to be complete by fall 2023.

4. **FDOT, I-75 Rest Area Reconstruction (FPID 438562-1) –** FDOT is designing upgrades to the northbound and southbound I-75 rest areas from north of C.R. 484 to south of S.R. 200. The project will reconstruct the facilities, update amenities, and add parking capacity to better serve the traveling public and meet current standards. The northbound rest area is funded for construction in early 2023. The southbound rest area is not funded.

Marion County Projects

1. **Marion Oaks Manor Extension –** Involves the extension of Marion Oaks Manor Street to the east over I-75 and connecting to a location near existing SE Hwy 42. The project will provide an alternative route for residents in Marion Oaks traveling to The Villages and will provide relief to the Hwy 484/I-75 interchange.

2. **NW 49th/35th Street –** A new 2.3-mile two-lane roadway from NW 44th Avenue to the Ocala City limits and a connection to the new interchange at I-75/NW 49th Street will provide traffic-carrying capacity, enhance the opportunity for economic development in the area, and improve truck traffic operations to and from the existing distribution centers. The project is funded in the Marion County Capital Improvements Program, Fiscal Year (FY) 2023-2027.

3. **SW 49th Avenue South, Segment F and North –** A new four-lane divided roadway from Marion Oaks Manor (0.7 mile) to south of C.R. 484 and a new two-lane divided roadway from Marion Oaks Trail to SW 95th Street (3.4 miles) will provide local relief to I-75 and completes several missing segments of SW 49th Avenue, which parallels I-75 to the west.

4. **NW 44th Avenue (multiple segments) –** Completes multiple segments of NW 44th Avenue where there are gaps in the two-lane roadway and will provide local relief to I-75 as a parallel facility west of I-75 from S.R. 200 to S.R. 326.

5. **NW 35th Street to S.R. 326 –** A new two-lane roadway from S.R. 326 to NW 35th Street near the new NW 49th Street interchange with I-75 will provide potential relief to I-75 and the S.R. 326 interchange as a secondary route for truck traffic to access the distribution center near NW 49th Street.

3

Corridor Needs

3

This chapter describes the corridor needs to be addressed by *I-75 Forward*.

The *I-75 Forward* corridor exhibits unique characteristics in that its traffic congestion is due to both recurring congestion (traffic bottlenecks) and non-recurring congestion (incidents, seasonal and special events, and weather). The combination of recurring and non-recurring congestion is contributing to unsatisfactory traffic operations in both the existing and future conditions on I-75. This has been well documented in previous studies and was again evaluated and reestablished as a primary traffic issue in the *I-75 Forward* traffic analysis.

Recurring vs. Non-recurring Congestion:

RECURRING CONGESTION

20% of total congestion on I-75

Recurring congestion is caused by increased traffic volumes and bottlenecks created during the peak hour morning and evening commute times.

NON-RECURRING CONGESTION

80% of total congestion on I-75

Non-recurring congestion occurs because of an unexpected or non-typical event, such as special events, seasonal traffic, crashes or incidents, work zones, and weather.

The following sections describe the needs to address travel time reliability (non-recurring congestion) and capacity (recurring congestion).

Reliability

NON-RECURRING CONGESTION

Seasonal traffic, special events, incidents, work zones, weather

Capacity

RECURRING CONGESTION

Population, visitor, and freight growth

3.1 Need for Improved Reliability

Lack of travel time reliability is a well-documented issue on I-75. On average, I-75 currently reaches an unacceptable LOS F for 134 days a year. To understand current reliability conditions, FDOT District 5 prepared the *Reliability Assessment: Existing Conditions and Methodology from Florida's Turnpike to County Road 234* (September 2021). The National Performance Management Research Data Set was used for analysis of non-recurring congestion through spatial heat maps, travel time confidence bands, and corridor level of travel time reliability (LOTTR). Based on the analysis, the I-75 corridor's current reliability issues and their potential causes are summarized to the right.

ADDITIONAL INFORMATION | Level of Travel Time Reliability

The Level of Travel Time Reliability (LOTTR) is the ratio that demonstrates the difference in travel times compared to the 50th percentile (median) travel time. The LOTTR identifies when travel times vary highly from the average conditions due to non-recurring congestion for things like incidents, severe weather, or severe fluctuations in demand (seasonal or event). In the *I-75 Forward* corridor, the 95th percentile showed a dramatic increase in travel time compared to the 50th percentile travel time.

Overall, the travel time reliability analysis confirmed that existing congestion issues along the I-75 corridor are primarily non-recurring congestion events, such as incidents or crashes and special event traffic. This is further intensified on the weekends when multiple non-recurring congestion events have a higher likelihood of happening together (e.g., crash during a special event when there are higher traffic volumes).

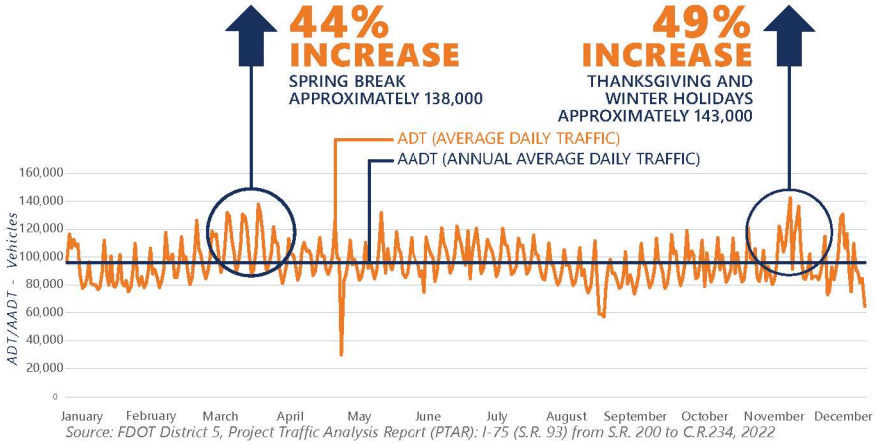
I-75 Forward corridor reliability issues and potential causes:

- The *I-75 Forward* corridor is uncongested[1] during most days of the year. This is especially true for the weekday AM and PM peak hours that are traditionally studied in corridor studies.
- Heavy congestion[2] is observed in the corridor sporadically on annual spatial heatmaps. Other than some clustering around spring break, Thanksgiving, and Christmas, there is no readily apparent pattern to the congestion. Bottlenecks are observed to form up and down the corridor, rather than at a specific location, as would be expected from recurring overcapacity. The randomness of congestion is indicative of non-recurring special events and incidents. The randomness of average daily traffic, with some clustering around holidays, is visualized in **Figure 3-1**and **Figure 3-2**.
- Weekend travel times in both the southbound and northbound directions are less reliable than weekdays.
- Using Federal Highway Administration guidance and the 95th percentile for travel time (reflective of the "worst weekday in a month"), motorists must budget up to an extra 50 minutes for on-time arrival 19 out of 20 times.
- Analysis of incident data indicates lengthy lane blockage incidents as a primary factor in the corridor's travel time reliability. The average duration of incidents is in excess of three hours, despite a generally quick response from the Road Ranger Service Patrol. These incidents cause significant delays, especially during periods of high demand, such as weekend afternoons or major holidays.

[1] Under FDOT Source Book 2020 edition, "uncongested condition" for freeways is defined as average speed greater than 65 mph.

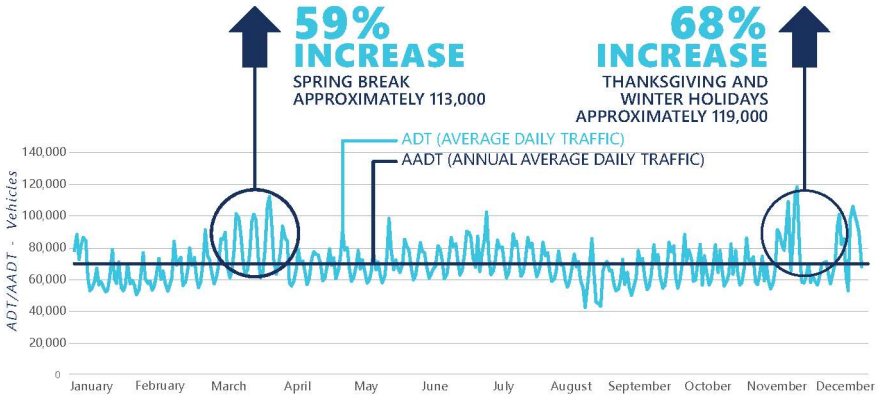
[2] Under FDOT Source Book 2020 edition, "heavy congestion" for freeways is defined as average speed less than 50 mph.

Figure 3-1 Corridor Average Daily Traffic from Florida's Turnpike to S.R. 200

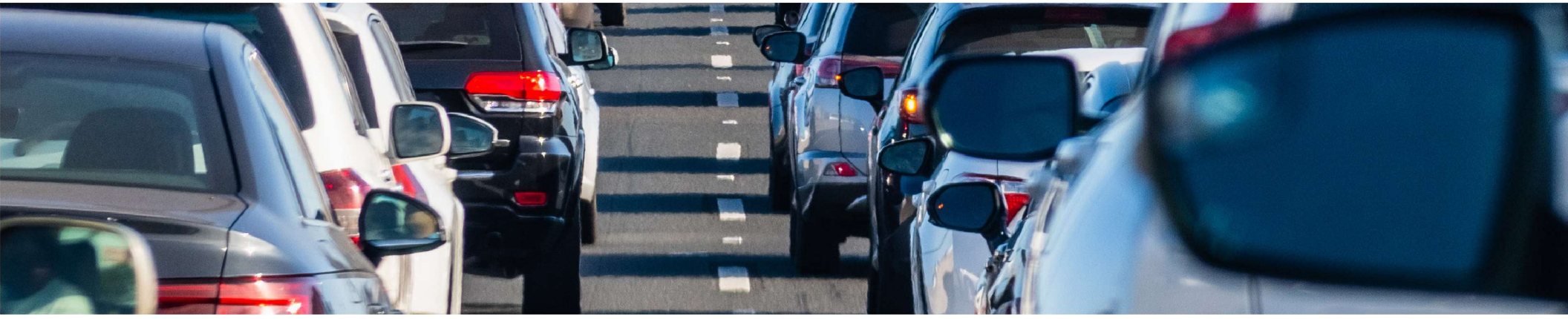


Source: FDOT District 5, Project Traffic Analysis Report (PTAR): I-75 (S.R. 93) from S.R. 200 to C.R.234, 2022

Figure 3-2 Corridor Average Daily Traffic from S.R. 200 to C.R. 234



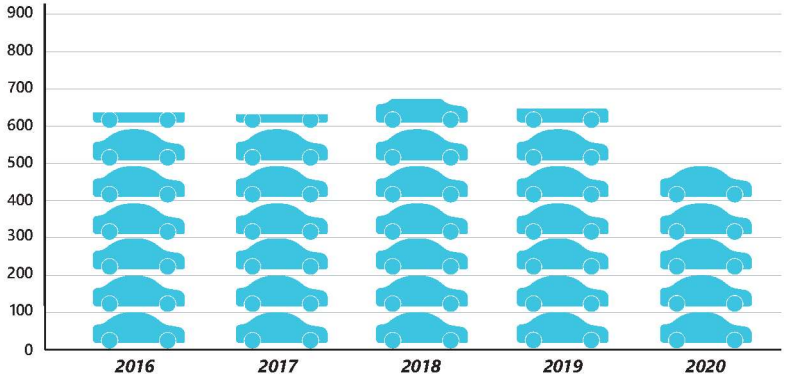
Source: FDOT District 5, PTAR: I-75 (S.R. 93) from Florida's Turnpike (S.R. 91) to S.R. 200, July 2022



3.1.1 Vehicle Safety and Incidents

Future improvements are needed to reduce the frequency and severity of incidents and make I-75 safer for travelers. In order to identify improvements, it is important to understand where, why, and how crashes occur on I-75. To do this, a safety analysis was performed for a five-year period from 2016 through 2020 using records from FDOT's Crash Analysis Reporting System (CARS). The analysis was conducted for both northbound and southbound travel to better understand behaviors unique to each direction. Findings show the number of crashes per year trended upward until the COVID-19 pandemic (shown in **Figure 3-3**), indicating a need to address safety along the corridor in the near term. Detailed safety analyses are documented in the Project Traffic Analysis Reports (PTARs).

Figure 3-3 Total Crashes Per Year (Northbound and Southbound Directions) 2016-2020



Sources: FDOT CARS, 2016-2020

Safety Analysis Findings (2016 to 2020)

TOTAL OF 3,033 crashes

40 FATAL **987 INJURY**

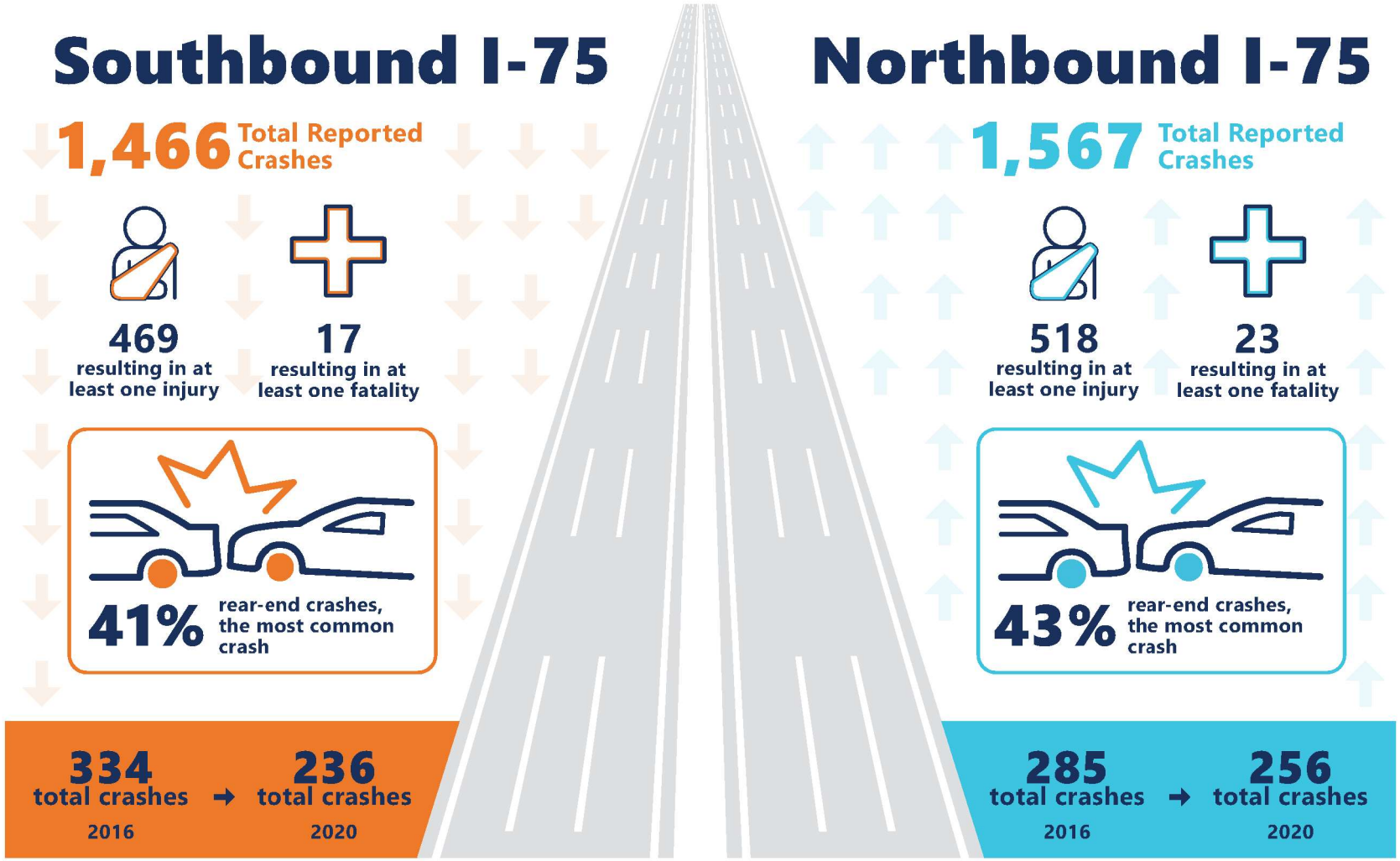
MOST COMMON CRASH TYPES

42% REAR-END **21% SIDESWIPE**

WEEKENDS COMPRISE APPROXIMATELY

32%

OF THE TOTAL CRASHES

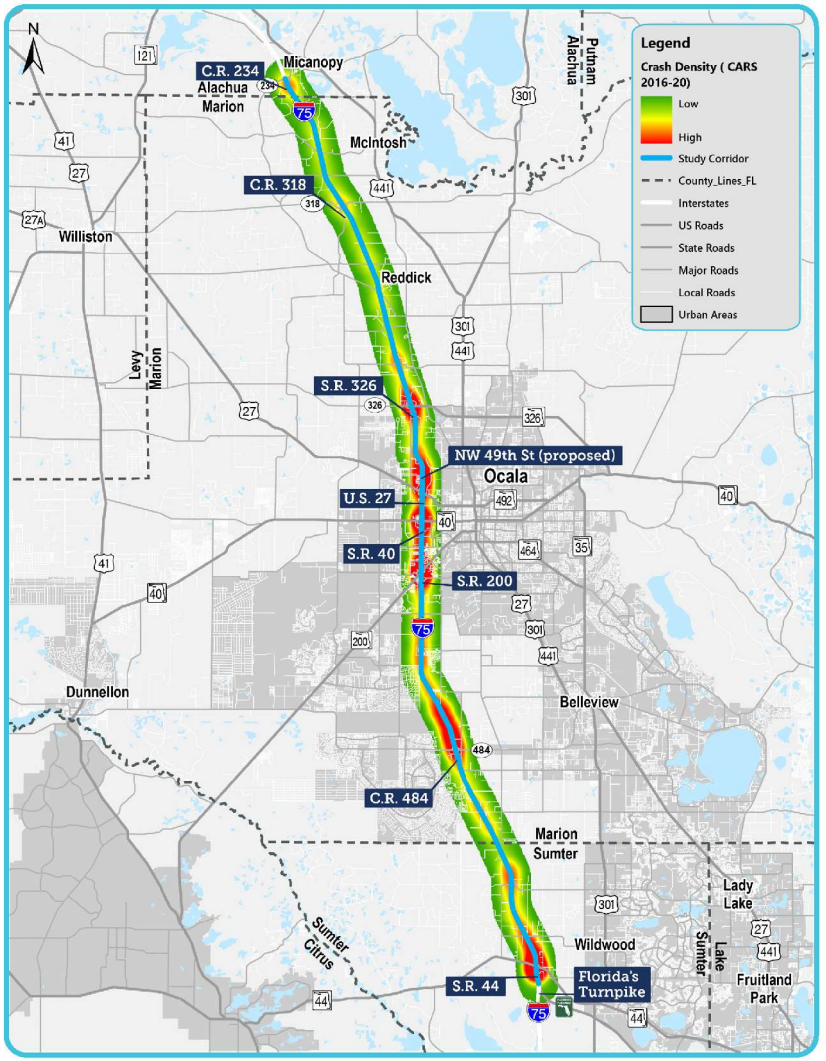


A crash heat map showing concentration areas, or "hotspots," is provided in **Figure 3-4** on the next page.

A crash rate analysis was performed in the PTARs for I-75 northbound, I-75 southbound, and nine intersecting roadways. The crash rate analysis demonstrated that the crash rates on the following I-75 segments and intersecting roadway segments have higher than average crash rates compared to similar facilities in Florida.

- **I-75 Northbound:**
  - Through the S.R. 44 interchange area
  - Through the C.R. 318 interchange area
  - Through the C.R. 234 interchange area
- **I-75 Southbound:**
  - Through the C.R. 318 interchange area
  - From C.R. 318 to S.R. 326
  - Through the S.R. 44 interchange area
  - Through the Florida's Turnpike interchange area
- **S.R. 44 from milepost (MP) 8.000 to MP 8.642**
- **C.R. 484 from SW 20th Avenue to C.R. 475A**
- **C.R. 318 from NW Highway 225 to Truck Stop Driveway east of I-75**
- **C.R. 234 from SE 21st Street to SE 26th Street**

Figure 3-4 Crash Heat Map for the *I-75 Forward* Corridor (2016 to 2020)

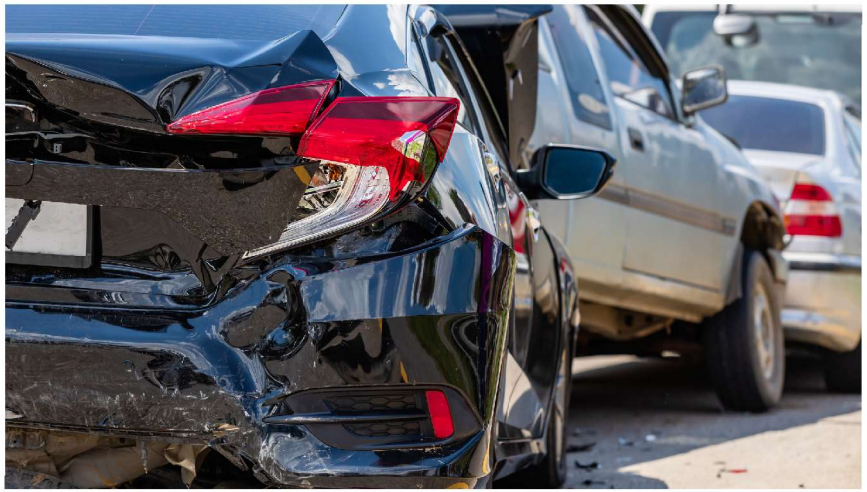


Source: FDOT Crash Analysis Reporting System, 2016-2020

Of the nine roadways that intersect I-75, S.R. 40 had the most crashes, with 491 total crashes, followed by S.R. 200 (340 crashes), C.R. 484 (317 crashes), U.S. 27 (250 crashes), and S.R. 326 (179 crashes). The remaining roadways that intersect I-75 had fewer than 100 crashes during the five-year period.

Crash Counts on Roadways that Intersect I-75

S.R. 40	491 total crashes
S.R. 200	340 total crashes
C.R. 484	317 total crashes
U.S. 27	250 total crashes
S.R. 326	179 total crashes
Remaining intersecting roadways	<100 total crashes



Many of the crashes appear to be caused by vehicles slowing or braking at entry and exit points to I-75. Additional causes include sudden weaving or merging maneuvers as vehicles try to avoid or go around vehicles entering or exiting I-75. Some collisions are caused by vehicles rear-ending other vehicles queued on the off-ramps. This is particularly true at locations with congested off-ramps, such as the northbound off-ramp to S.R. 326. In most cases, rear end collisions (presumably from vehicles stopped or slowing down) are cited as the primary cause of collisions on-ramps and the I-75 mainline. Several factors may be contributing to rear-end collisions when braking or slowing down, including geometric deficiencies on the ramps that require slower speeds, closely spaced interchanges in the Ocala area that cause vehicles to "stack" in the right-hand lane with poor weaving distance between interchanges, weaving associated with vehicles entering and existing the I-75 mainline, and congestion at off-ramps that causes vehicles to queue from off-ramps onto the mainline.

3.1.2 Incidents Resulting in Lane Blockages

Records for incidents that resulted in lane blockages were obtained for 2018 and 2019 for I-75 in Sumter and Marion counties from the FDOT District 5 Regional Traffic Management Center. Incident records prior to 2018 were not included in the analysis because of the lack of Road Ranger Service Patrol on I-75. Detailed incident analyses are documented in the PTARs.

EVERY 16 HOURS an incident **CLOSES** at least **ONE LANE**

1 out of 9 DAYS ALL LANES CLOSED

DEFINITIONS

Incident – Any occurrence that requires a travel lane to be closed for any duration of time.

Blockage – When any number of travel lanes are blocked by an incident.

Total Blockage Duration – The total time between when a travel lane blockage is reported to when it is reported that no travel lanes are blocked.

Response Time – The time between when an incident is first reported to when emergency response is reported as having first arrived at the incident.

Lane Blockage Analysis Findings (2018 to 2019)

AVERAGE LANE BLOCKAGE DURATION OF 3 hours

939 Incidents RESULTING IN ONE OR MORE LANES BLOCKED

COMMON CAUSES OF LANE BLOCKAGES

Crash 53%

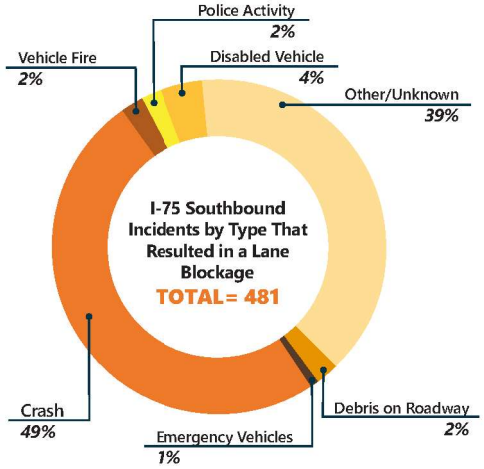
Disabled Vehicle 5%

During 2018 and 2019, incidents resulting in lane blockages occurred 481 times on I-75 southbound and 458 times on I-75 northbound. The highest observed and defined incident type was crash, comprising 57% and 49% of the total incidents on I-75 northbound and southbound, respectively. Disabled vehicle (6% on I-75 northbound and 4% on I-75 southbound) was the second highest defined incident type (not including the "other/unknown" incident types).

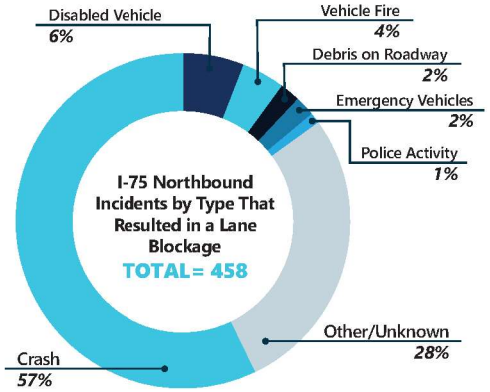
The average duration of incidents is over three hours. Factors contributing to lengthy lane blockage duration could be delayed Road Ranger Service Patrol response times, severity of incidents (over 30% of crashes result in injuries), crash investigation, and/or physical challenges to clearing vehicles.

Truck traffic on the I-75 corridor is higher than the average interstate corridor and is a major factor for crashes. From Florida's Turnpike to S.R. 200, semi-trucks (trucks over 10,000 pounds) accounted for 12% of the vehicles involved in crashes on I-75. Motorhomes/buses and trucks were involved in 32% of the fatal and serious injury crashes. From S.R. 200 to C.R. 234, semi-trucks accounted for 14% of the vehicles involved in crashes on I-75; motorhomes/buses and trucks were involved in 52% of the fatal and serious injury crashes.

I-75 SB from Florida's Turnpike to C.R. 234



I-75 NB from Florida's Turnpike to C.R. 234



I-75 NB and SB from Florida's Turnpike to S.R. 200

Semi-trucks accounted for:

12% of the vehicles involved in crashes on I-75

Motorhomes/buses and trucks were involved in:

32% of the fatal and serious injury crashes

I-75 NB and SB from S.R. 200 to C.R. 234

Semi-trucks accounted for:

14% of the vehicles involved in crashes on I-75

Motorhomes/buses and trucks were involved in:

52% of the fatal and serious injury crashes

Data Source: FDOT District 5 Regional Traffic Management Center
Data Years: 2018-2019

3.2 Need to Improve Capacity

3.2.1 Traffic Growth and Congestion

Improving capacity and addressing recurring congestion is a need. Traffic analysis assuming a No-Build scenario in the design year (2050) shows a 65% increase in Average Annual Daily Traffic (AADT) from the existing year (2019). The increase in number of vehicles per day, including freight traffic, in the corridor ranges from 43,000 additional vehicles on I-75 from S.R. 326 to C.R. 318, and 63,500 additional vehicles on I-75 from S.R. 200 to S.R. 40. The No-Build scenario (2050) and existing year (2019) AADT are shown in **Figure 3-5** on the next page.

WHAT IS A NO-BUILD SCENARIO?

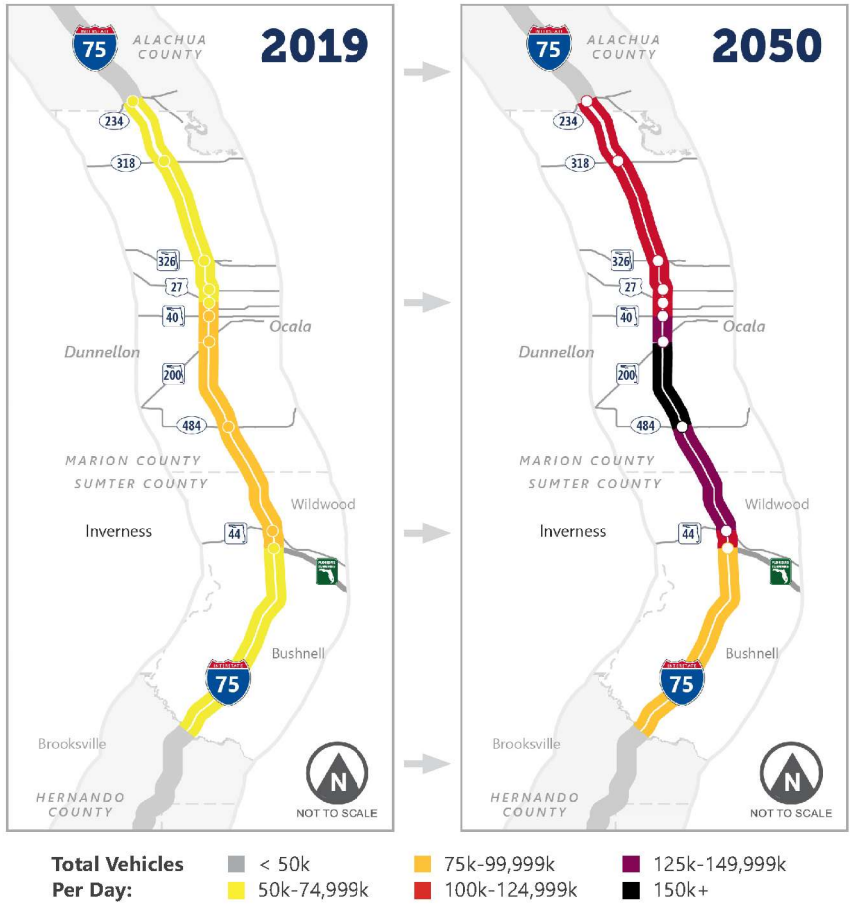
The No-Build scenario serves as the baseline against which the build alternatives are evaluated. The No-Build scenario is defined as the scenario in which the proposed activity would not take place. The existing I-75 with six lanes and the existing interchange configurations plus the programmed new interchange at NW 49th Street are considered the No-Build scenario.

A sensitivity analysis was performed to identify approximately when the I-75 mainline will start to become congested due to the growth in AADT. Operational analysis was performed for the No-Build scenario peak hours (AM, PM, and weekend) for design year 2050 and interim years 2030 and 2040. The 2030 and 2040 peak hour volumes were estimated by interpolating linearly between the existing year and design year balanced peak hour volume sets, except for the NW 49th Street interchange with I-75.

For the future NW 49th Street intersections, the proportion of opening year to design year volumes were referenced from the approved Interchange Justification Report and applied to the 2050 peak hour volumes to estimate the 2030 peak hour volumes. This methodology was used because the facility does not currently exist. The 2040 peak hour volumes were then interpolated between the 2030 and 2050 volumes for NW 49th Street only.

Figure 3-6 demonstrates the results of the mainline operational analysis for 2030, 2040, and 2050 compared to existing year (2019). The results shown represent the minimum level of service (LOS) for the most congested peak period (AM, PM, or weekend) in the northbound and southbound directions. By 2030, additional capacity will be needed in one or both directions to address recurring congestion between C.R. 484 and S.R. 326. By 2040, additional capacity will be needed in one or both directions the length of the corridor. Conditions will continue to worsen through 2050, assuming a No-Build scenario. For detailed LOS information, please see the PTARs.

Figure 3-5 Existing Year (2019) and Future Year No-Build Scenario (2050) AADT



Traffic Volumes & Freight Traffic

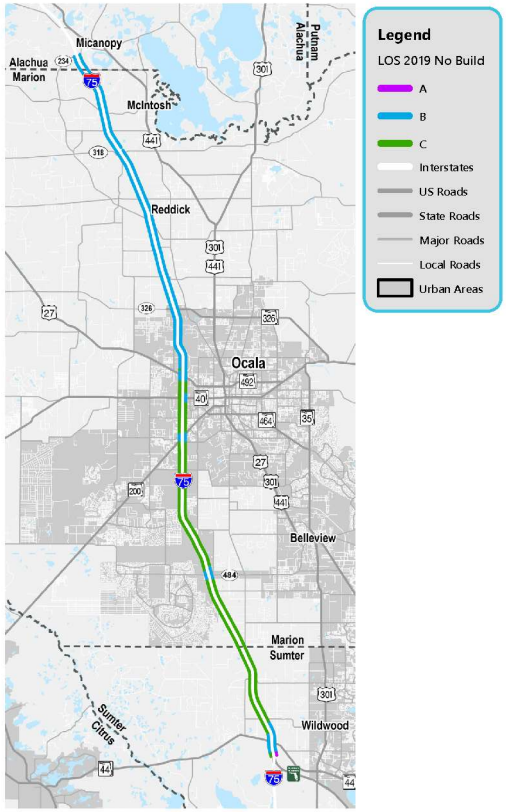
In 2019, **1 in 5** vehicles was a truck

LOCATION	AADT Total Vehicles Per Day		
	2019		2050
	Vehicles Per Day	% Truck Traffic	Vehicles Per Day
North of C.R. 234	70,500	19.34%	116,000
C.R. 234 to C.R. 318	67,500	20.20%	112,000
C.R. 318 to S.R. 326	66,000	20.20%	109,000
S.R. 326 to 49th	74,000	27.70%	122,000
49th to U.S. 27	74,000	27.70%	122,000
S.R. 27 to S.R. 40	83,000	21.90%	137,000
S.R. 40 to S.R. 200	97,500	20.20%	161,000
S.R. 200 to C.R. 484	97,000	20.30%	160,000
S.R. 484 to S.R. 44	81,000	24.20%	134,000
S.R. 44 to Florida's Turnpike	89,000	20.40%	147,000
South of Florida's Turnpike	54,000	21.10%	89,000

Sources: FDOT District 5, PTAR: I-75 (S.R. 93) from Florida's Turnpike (S.R. 91) to S.R. 200, 2022 and FDOT District 5, PTAR: I-75 (S.R. 93) from S.R. 200 to C.R.234, 2022

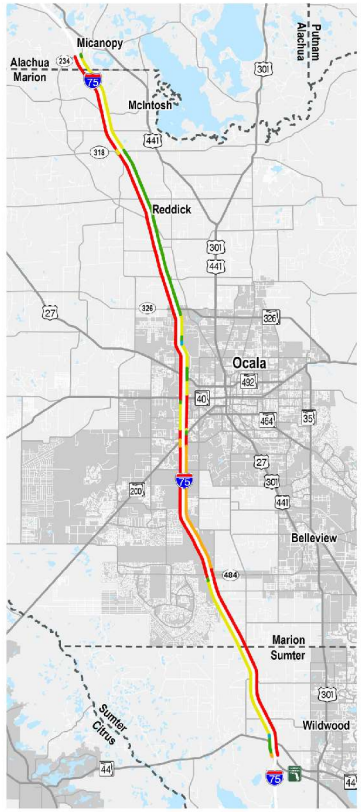
Figure 3-6 Mainline Minimum LOS for Existing Year (2019) and No-Build Scenario (2030, 2040, and 2050)

Existing Year (2019)

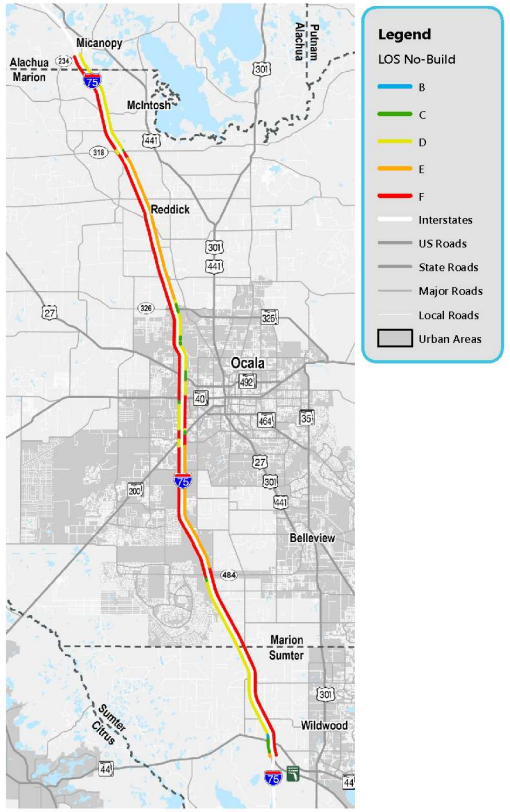


2030 No-Build Scenario

2040 No-Build Scenario



2050 No-Build Scenario



Sources: FDOT District 5, PTAR: I-75 (S.R. 93) from Florida's Turnpike (S.R. 91) to S.R. 200, 2022 and FDOT District 5, PTAR: I-75 (S.R. 93) from S.R. 200 to C.R.234, 2022

Operational analysis was also performed assuming a No-Build scenario at the interchanges for 2019, 2030, 2040, and 2050. **Table 3-1** demonstrates the results of the analysis. The results shown represent the minimum LOS for the most congested peak period (AM, PM or weekend) in the northbound and southbound directions. The results of the analysis were:

2030 By 2030, S.R. 326 northbound ramps are anticipated to reach an LOS F during at least one peak hour.

2040 By 2040, U.S. 27 and C.R. 318 southbound ramps are anticipated to reach LOS E during at least one peak hour.

2050 By 2050, northbound and southbound ramps for S.R. 326 and C.R. 318 are anticipated to reach LOS F, and southbound ramps for C.R. 484, S.R. 40, and U.S. 27 are anticipated to reach LOS E during at least one peak hour.

Level of Services (LOS):

Level of Service (LOS) is a qualitative measure of how efficiently a roadway or intersection operates. LOS A represents the highest traffic flow quality, while LOS E represents traffic flow at capacity. LOS F represents forced flow congested conditions. LOS B, C, and D represent a gradual degradation in traffic flow quality before reaching capacity. The target LOS for I-75 is D.

Table 3-1 Interchanges Minimum LOS for Existing Year (2019) and No-Build Scenario (2030, 2040, and 2050)

Northbound Ramps				
Interchange	**2019**	**2030**	**2040**	**2050**
S.R. 44	B	C	D	D
C.R. 484	C	C	C	D
S.R. 200	D	C	C	D
S.R. 40	B	C	C	D
U.S. 27	B	C	D	D
NW 49TH (programmed)	-	B	B	B
S.R. 326	B	F	F	F
C.R. 318	B	C	D	F

Southbound Ramps				
Interchange	**2019**	**2030**	**2040**	**2050**
S.R. 44	C	C	C	D
C.R. 484	C	D	D	D
S.R. 200	D	C	D	D
S.R. 40	B	C	D	E
U.S. 27	C	D	E	E
NW 49TH (programmed)	-	C	C	C
S.R. 326	B	C	D	E
C.R. 318	C	C	E	F

Sources: FDOT District 5, PTAR: I-75 (S.R. 93) from Florida's Turnpike (S.R. 91) to S.R. 200, 2022 and FDOT District 5, PTAR: I-75 (S.R. 93) from S.R. 200 to C.R.234, 2022

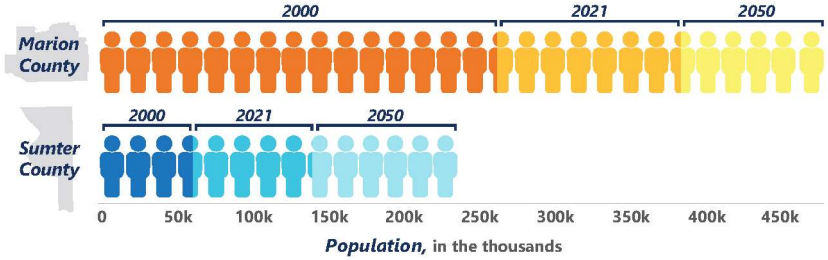
3.2.2 Population Growth

FAST FACTS: 16M (2000) → 21.9M (2021) → 27.9M (2050)

Growth in Florida's population will continue to contribute to congestion along I-75. Florida's population increased from 15,982,824 in 2000 to 21,898,945 in 2021, an increase of 37%. By 2050, Florida's population is estimated to be 27,877,700, an increase of 27% from 2021.[3]

Population in Marion County increased from approximately 259,000 in 2000 to 381,000 in 2021, an increase of 47%. Population is expected to increase by an additional 27% by 2050.

Population in Sumter County increased from approximately 53,000 in 2000 to 135,000 in 2021, an increase of 31%. Population is expected to increase by an additional 72% by 2050.[4]



[3] 2000 Census and University of Florida, Bureau of Economic and Business Research (BEBR), 2021 Estimates.

[4] BEBR, 2021 Estimates.

It's important for our partner local jurisdictions to continue analyzing their growth management impacts to I-75 and requiring an expanded local road network, concurrently with development, to reduce unnecessary interstate impacts.

3.2.3 Tourism Growth

Tourism is Florida's No. 1 industry, with 122 million visitors in 2021.[5] FDOT Transportation Indicators estimate that 52% of all visitors to Florida arrive by car, and roughly 15% of all visitors use I-75 to reach their destination.

Tourism continues to grow in the region. In 2021, Marion County Tourism Development Council recorded nearly 2 million tourists.[6] In northern Sumter County, The Villages issued over 235,000 guest passes during fiscal year 2020-2021. Tourism in the region is fueled by nature-based recreation, sporting events, and The Villages. In addition to travel within the region, millions of visitors pass through each year on their way to theme parks, sporting events, and ecotourism in other areas of Florida.

The growth in AADT and congestion can be attributed to growth in population, tourism, and freight. Growth trends summarized in Figure 3-7.

[5] VisitFlorida, 2022

[6] Marion County Tourism Development Council, *Economic Impact of Tourism Study (July 2020 - June 2021).*

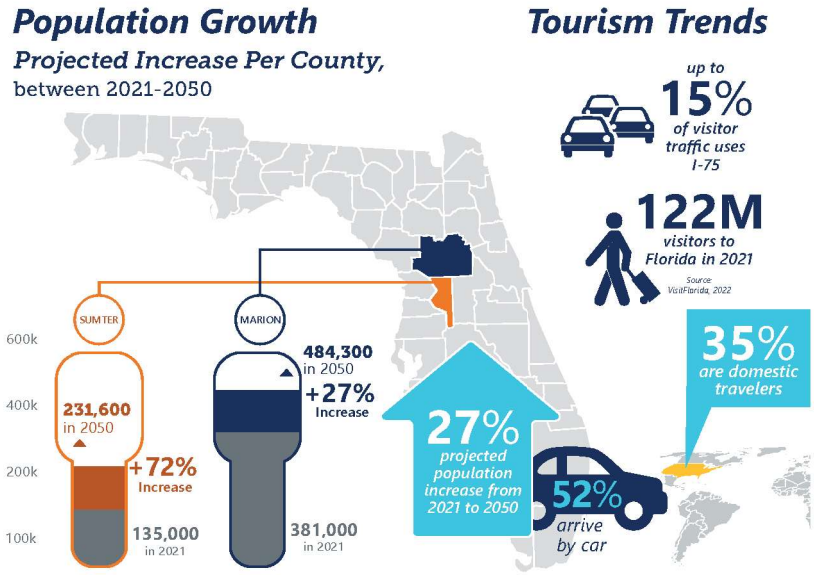


Figure 3-7 Population Growth and Tourism Trends

3.2.4 Regional Freight Growth

I-75 is included in Florida's SIS funding plans. It is part of the Primary Highway Freight System, which is a subsystem of the National Highway Freight Network. As the region within and surrounding the *I-75 Forward* corridor continues to grow, the demand for goods will rise. Higher demand for goods will contribute to a higher number of trucks using I-75 and connecting roadways and a higher demand for truck parking facilities. Based on the most recent annual counts collected by FDOT (2019), over 20% of vehicle trips on I-75 are made by trucks.[7] The segment of I-75 between S.R. 326 and U.S. 27 experiences the highest volume of trucks, with more than 26% of the total trips made by trucks. Truck volumes are shown in **Figure 3-9**.

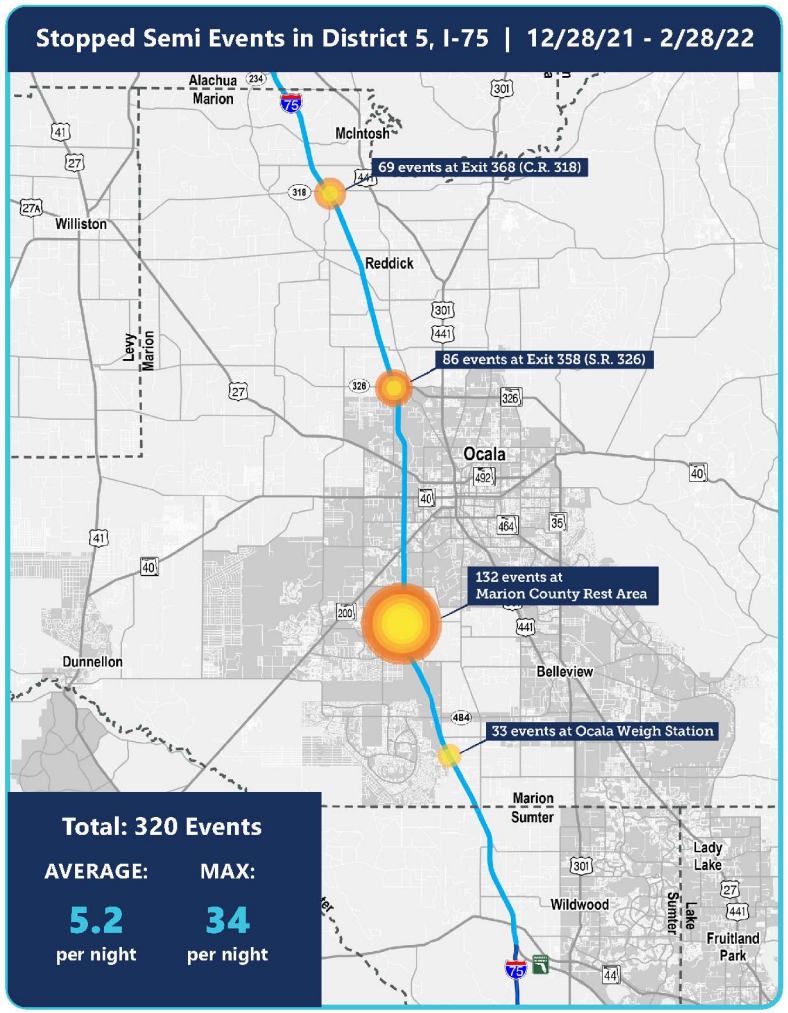
over **20%** of trips on I-75 are made by **TRUCKS**

Additional areas for truck parking are needed to accommodate the growing numbers of freight vehicles. The *FDOT Statewide Truck Parking Study* (2020) documented the difficulty in finding truck parking in Florida and identified priority areas of concern. Ocala is a priority area of concern that commonly experiences unauthorized truck parking, such as on shoulders of highway interchange ramps or local roadways. Unauthorized truck parking can negatively affect the safety of both the truck driver and the traveling public. Though not a priority area of concern in the parking study, the area surrounding the I-75 interchange with Florida's Turnpike has high truck parking utilization.

FDOT District 5 Operations staff has noticed that the current parking spots at the I-75 rest area and weigh stations are often at capacity. As can be seen on **Figure 3-8**, an average of five commercial vehicle drivers per night were observed to park illegally on the ramp shoulders in early 2022. On the busiest night, 34 drivers were observed illegally parked on the ramp shoulders. The situation is more predominant on the southbound direction, but it has been observed on both sides of I-75.

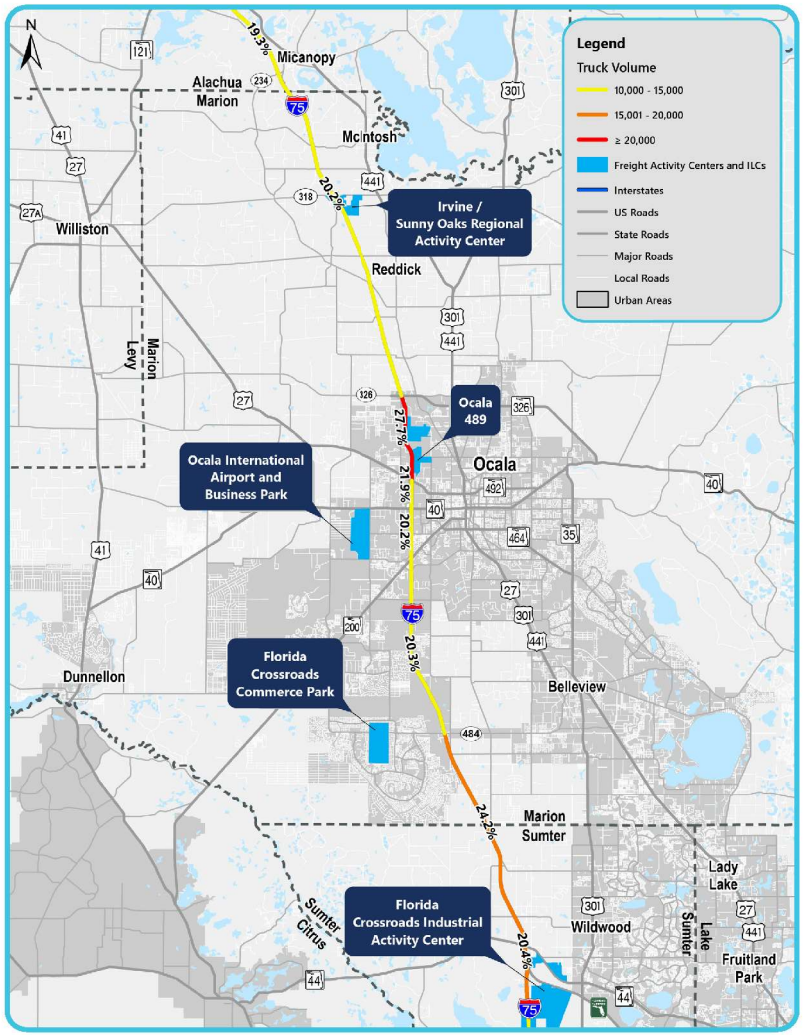
[7] FDOT, Roadway Characteristics Inventory, 2022.

Figure 3-8 Instances of Commercial Vehicles Stopped on Ramps



Source: FDOT District 5, Reliability Assessment: Existing Conditions & Alternatives Analysis From Florida's Turnpike to County Road 234, 2022

Figure 3-9 Truck Volumes, Freight Activity Centers, and ILCs



Sources: FDOT Roadway Characteristics Inventory, 2022 and Marion County Property Appraiser parcel data, 2021

There are more than 50,000 kilotons of freight being transported on I-75 annually. Freight tonnage between Florida and other states is expected to increase by 80% on the I-75 corridor between 2011 and 2040, with I-75 in the Ocala area carrying the highest tonnage of all the state's highways.

Multiple existing and planned Intermodal Logistic Centers (ILC) and freight activity centers in Marion County and surrounding areas contribute to this growth in truck volumes and freight tonnage. The activity centers are the Ocala/Marion County Commerce Park (Ocala 489), Ocala 275 ILC, McGinley Commerce Park (Florida Crossroads Commerce Park), Siemens Technology Park (Sunny Oaks), an expanded Ocala International Airport and business park, and the Florida Crossroads Industrial Activity Center in Sumter County, as shown in **Figure 3-9**.

In total, these developments are expected to provide more than 275 acres of ILCs, more than 700 acres for business park development, more than 1 million square feet of commercial, office, and medical space, and would support 10 million square feet of distribution centers.[8]

[8] FDOT TransStat

4

Existing Conditions Summary

4

This chapter provides planning-level details about general engineering features and the transportation network related to I-75, as well as a high-level overview of the existing environmental conditions within the *I-75 Forward* corridor.

A primary objective of the existing conditions analysis was to inventory existing infrastructure to gain insight into the types and extent of needed system improvements, and to inventory environmental resources to identify potential environmental constraints to recommended improvements.

Engineering elements reviewed included roadway geometrics, interchanges, bridges, weigh-in-motion stations, a rest area, and stormwater management facilities. The environmental resources reviewed included socioeconomic, cultural, natural and built environment resources, aligned with the environmental resources analyzed under the PD&E process.

More detailed descriptions of the existing transportation system and environmental resources within the corridor are provided in the Existing Conditions Technical Memoranda, located in the project file. A summary of traffic conditions is provided in **Section 3.2** and discussed in detail in the Project Traffic Analysis Reports, also located in the project file.

4.1 Transportation System

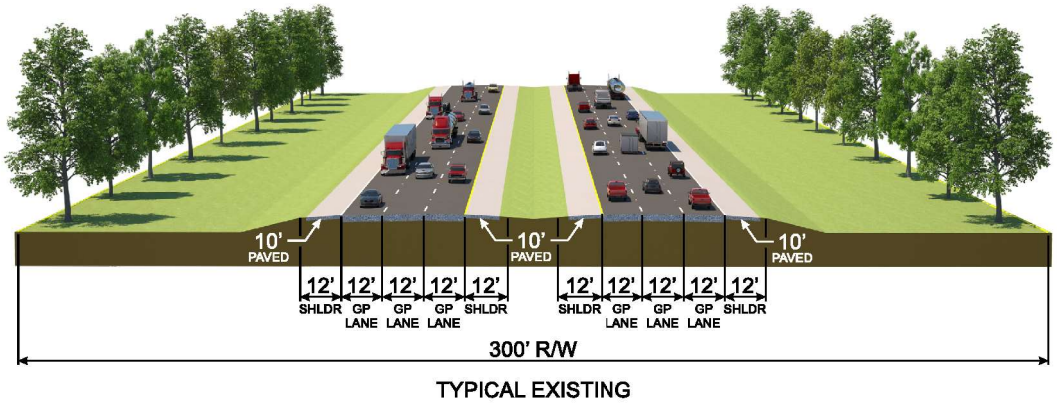
The existing transportation system within the I-75 corridor consists of the I-75 roadway and interchanges; bridges; weigh stations; and a rest area. Understanding the condition of existing facilities and how they function helped to identify needed improvements.

4.1.1 Mainline

Opened to traffic in 1964, I-75 is a limited-access facility designated as part of the Interstate Highway System and the National Highway Freight Network, and is considered a key part of Florida's SIS. I-75 is classified as an urban principal arterial interstate from the I-75 Wildwood Weigh Station in Marion County to S.R. 326 and is classified as a rural principal arterial interstate through the remainder of the corridor.

The existing I-75 typical section consists of six 12-foot-wide general-purpose lanes, three in each direction, and 12-foot (10-foot paved) inside and outside shoulders, as shown in **Figure 4-1**. The southbound and northbound lanes are separated by a 40-foot-wide grassed median that has double-faced guardrail separating northbound and southbound traffic. The existing I-75 typical section meets the minimum American Association of State Highway and Transportation Officials (AASHTO) and FDOT criteria for lane width, shoulder width, median width, and border width. The inside shoulders are also approved for emergency shoulder use.

Figure 4-1 Existing I-75 Typical Section



The I-75 Right of Way width is typically

300 feet

but can vary throughout the corridor, particularly at the rest area, weigh stations, and interchanges.

The design speed for I-75 within the corridor limits is 70 miles per hour (mph), which matches the posted speed.

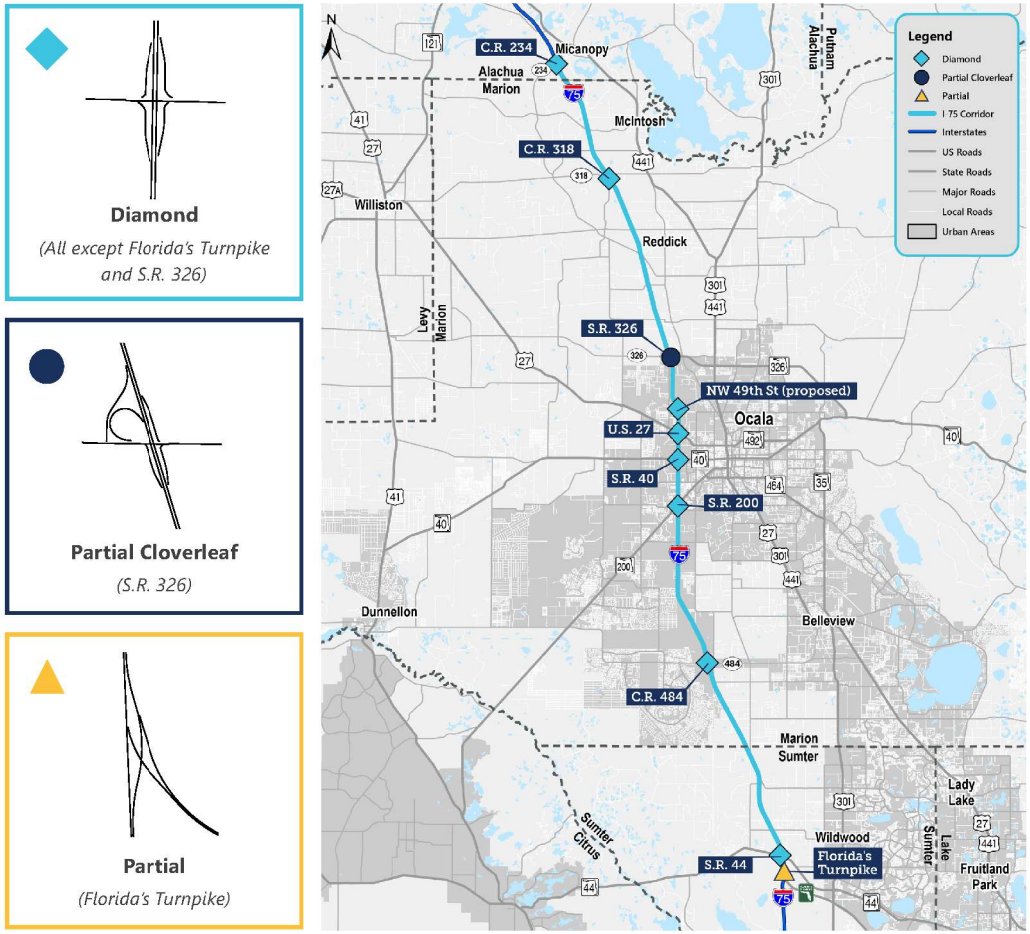
4.1.2 Interchanges

There are nine existing interchanges and one programmed interchange in the *I-75 Forward* corridor, shown on **Figure 4-2**.

- Florida's Turnpike
- S.R. 44
- C.R. 484
- S.R. 200
- S.R. 40
- U.S. 27
- NW 49th Street (programmed)
- S.R. 326 (known as C.R. 326 west of I-75)
- C.R. 318
- C.R. 234

All of the interchanges are configured as diamond interchanges with the exception of the interchanges at Florida's Turnpike and S.R. 326. S.R. 326 is a partial cloverleaf interchange with a westbound to southbound I-75 free-flow loop on-ramp. The interchange at Florida's Turnpike is a partial system-to-system interchange with movements from northbound Florida's Turnpike to northbound I-75 and from southbound I-75 to southbound Florida's Turnpike. In addition, there is a braided ramp system for the S.R. 44 interchange and Florida's Turnpike. This configuration eliminated a weaving segment between Florida's Turnpike to I-75 northbound on-ramp and the I-75 northbound off-ramp to S.R. 44 and a two-sided weaving maneuver between the southbound I-75 on-ramp from S.R. 44 to Florida's Turnpike southbound off-ramp.

Figure 4-2 I-75 Interchange Types and Locations



The specific lane configurations at each interchange are summarized as follows and shown in **Figure 4-2**.

S.R. 44 Interchange (Diamond)

- Two continuous through lanes in each direction
- Dual left turn lanes from S.R. 44 to both I-75 on-ramps
- Single exclusive right turn lane onto both I-75 on-ramps
  - The westbound right turn lane is channelized
- Both the off-ramp approaches have dual left turn lanes and a yield-controlled channelized right turn lane

S.R. 40 Interchange (Diamond)

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

C.R. 318 Interchange (Diamond)

- Single shared left/through/right lane in each direction along C.R. 318
- Both off-ramp approaches consist of a single shared left turn and a yield-controlled channelized right turn lane

C.R. 484 Interchange (Diamond)

- Two continuous through lanes in each direction
- Single exclusive left turn lanes onto the I-75 on-ramps
- Single channelized right turn lane onto the I-75 on-ramps
- The northbound off-ramp approach consists of a single left turn lane and a yield controlled channelized right turn lane
- The southbound off-ramp approach consists of dual left turn lanes and a yield controlled channelized right turn lane

U.S. 27 Interchange (Diamond)

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

C.R. 234 Interchange (Diamond)

- Single shared left/through/right lane in each direction along C.R. 234
- Both off-ramp approaches consist of one stop-controlled shared left and right lane

Any improvements to the C.R. 234 interchange will be determined by FDOT District 2 under a separate study.

S.R. 200 Interchange (Diamond)

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

S.R. 326 Interchange (Partial Cloverleaf)

- Two continuous through lanes in each direction
- Single left turn lane from S.R. 326 to the I-75 northbound on-ramp
- A free-flow right turn lane from S.R. 326 to the southbound loop on-ramp
- Single shared eastbound through/right turn lane onto the I-75 southbound on-ramp
- Both off-ramp approaches consist of one left turn lane and one yield-controlled channelized right turn lane

4.1.3 Bridges

There are 35 existing bridges on the I-75 corridor. None of the bridges are located over waterways. All existing bridges were evaluated in accordance with 2020 FDOT and AASHTO criteria. The evaluation included an assessment of bridge width, bridge length, type of bridge (prestressed concrete beam, steel girder, etc.), vertical and horizontal clearances, and load posting information. The evaluation also considered a condition assessment from the latest bridge inspection reports, which included the National Bridge Institute overall condition ratings, the Bridge Health Index, and Federal Highway Administration Sufficiency Ratings.

Table 4-1 summarizes the horizontal and vertical clearances of the existing bridges.

Key health information on the existing bridges on the corridor per the latest inspection reports includes:

- The Health Index of all bridges is 94.53 or better (good condition)
- The Sufficiency Rating of all the bridges is 80.0 or better (good condition), except Bridge #360048 (Williams Road over I-75), which is scheduled to be replaced
- None of the bridges were designated as Structurally Deficient
- Eight bridges are considered Functionally Obsolete due to horizontal clearance less than 1.8 meters (5.91 feet)
- Eight bridges do not meet the minimum vertical clearance (16.5 feet)

Table 4-1 Existing Bridges

Bridge No.	Route Carried	Facility Crossed	Horizontal Clearance (ft)	Vertical Clearance (ft)	Functionally Obsolete
180026	S.R. 92 (Turnpike)	I-75	-	-	N
180043	I-75 SB	Bryce Ditch	N/A	N/A	N
180044	I-75 NB	Bryce Ditch	N/A	N/A	N
180047	C.R. 462	I-75	10.0	**15.7**	N
180048	C.R. 462	I-75	10.3	16.0	N
180049	I-75 SB	Little Jones Creek	N/A	N/A	N
180063	I-75 NB	Little Jones Creek	N/A	N/A	N
180069	I-75 SB	S.R. 44	8.0	16.5	N
180070	I-75 NB	S.R. 44	8.0	16.5	N
360001	I-75 SB	C.R. 484	**4.2**	17.1	**Y**
360045	I-75 NB	C.R. 484	**4.2**	18.0	**Y**
360048	Williams Road	I-75	10.9	**15.7**	N
360063	I-75	S.R. 200	21.1	16.5	N
365302	SW 42nd St.	I-75	61.4	16.6	N
369001	Greenway Trail (pedestrian bridge)	I-75	39.3	16.4	N
360064	I-75	SW 20th St.	28.0	16.1	N
360018	I-75 SB	S.R. 40	**5.0**	16.3	**Y**
360920	I-75 NB	S.R. 40	**5.0**	16.0	**Y**
360022	I-75 SB	U.S. 27	**3.4**	14.9	**Y**
360023	I-75 NB	U.S. 27	**3.4**	15.5	**Y**
360049	NW 63rd St.	I-75	10.0	**15.9** *	N
360024	I-75 SB	S.R. 326	**3.0**	17.4	**Y**
360043	I-75 NB	S.R. 326	**3.0**	16.9	**Y**
360050	Martin Rd.	I-75	10.8	**15.7** *	N
360951	NW 120th St.	I-75	10.5	**15.1** *	N
360035	I-75 SB	C.R. 329	9.6	15.6	N
360036	I-75 NB	C.R. 329	9.6	14.9	N
360033	C.R. 316	I-75	10.6	**15.9** *	N
360037	I-75 SB	C.R. 318	10.1	15.1	N
360038	I-75 NB	C.R. 318	10.8	17.1	N
360065	I-75 SB	NW 193rd St.	15.1	17.0	N
360066	I-75 NB	NW 193rd St.	15.1	19.8	N
360034	C.R. 320	I-75	11.0	16.0 *	N
260078	I-75 NB	C.R. 234	25.2	15.0	N
260061	I-75 SB	C.R. 234	24.4	**14.4**	N

Source: FDOT Bridge Inspection Reports

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

4.1.4 Weigh Stations

The existing I-75 Wildwood Weigh Stations are located on northbound and southbound I-75 between C.R. 484/Exit 341 and the Sumter County line, adjacent to the Summer Glen community in Marion County. In 2021, FDOT reconstructed the station pavement and the I-75 northbound and southbound acceleration lanes; completed pond work; and updated lighting, signage, pavement markings, and various pedestrian features to comply with the current Americans with Disabilities Act (ADA) standards. In 2023, FDOT implemented weigh-in-motion technology. Any additional improvements or lane additions to the existing I-75 mainline will need to consider potential impacts to weigh station on- and off-ramps.

WHAT IS MAINLINE WEIGH-IN-MOTION TECHNOLOGY?

Mainline weigh-in-motion technology is used to screen semi-trucks (trucks over 10,000 pounds) on the interstate mainline for weight compliance. The sensor embedded in the pavement automatically weighs the vehicle and compares its weight to a threshold set to a percent of the legal weight. If the vehicle exceeds the threshold, it is directed to stop at the weigh station to be weighed on more accurate static scales. If the vehicle is under the threshold, it is directed back onto the mainline.

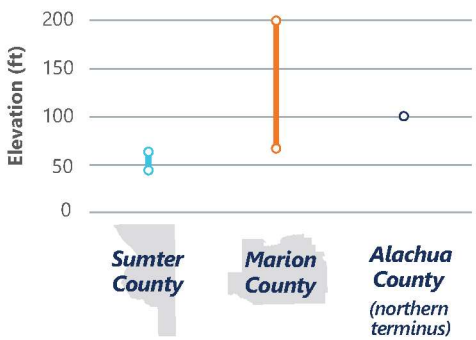
4.1.5 I-75 Northbound Rest Area

An existing rest area is located on northbound I-75, north of C.R. 484 (Exit 341) and south of S.R. 200 in Marion County. The rest area is under reconstruction scheduled for completion in late 2024 to bring the building up to current standards. The project will also construct additional picnic shelters and an area for pets, as well as a maintenance shed. Parking capacity will be increased for passenger vehicles (additional 57 regular spaces and 4 handicap spaces) and trucks (addition of 149 spaces); and the design will accommodate future parking expansion. Any improvements or lane additions to the existing I-75 mainline will need to consider potential impacts to the rest area.

I-75 northbound rest area building

4.2 Stormwater Management Facilities

The typical flow within the corridor is east to west. The topography ranges from relatively flat in Sumter County to rolling hills in Marion County. Elevations range from 45 feet to 65 feet within Sumter County and from 65 feet to 200 feet in Marion County and decrease to 100 feet at the northern terminus in Alachua County (North American Vertical Datum 1988).



Source: Existing Conditions Technical Memoranda

Stormwater management facility along I-75

Stormwater runoff sheet flows off I-75 to existing roadside ditches along both sides of the roadway and within the median to stormwater management facilities. The stormwater management facilities were designed and permitted when I-75 was last widened from four to six lanes and include linear ponds, infield ponds, and off-site ponds. Off-site stormwater facilities were also constructed in locations where roadside areas were not physically capable of meeting minimum stormwater management requirements associated with the widening. Underdrains are present within the median to draw down the groundwater and protect the roadway base. The roadside areas are also utilized for management of stormwater in accordance with water quality and water quantity requirements of the Water Management Districts and the FDOT.

The I-75 Forward corridor is located within the jurisdictions of the Southwest Florida Water Management District and the St. Johns River Water Management District. It is within two major watersheds: the Withlacoochee Watershed and the Ocklawaha Watershed. The waterbodies within these watersheds are not nutrient impaired; however, there are Best Management Action Plans for Silver Springs and Rainbow Springs. The corridor traverses the springsheds for Silver Springs and Rainbow Springs. The Withlacoochee River and the Ocklawaha River are classified as Outstanding Florida Waters by the Florida Department of Environmental Protection (FDEP). Since there are no direct discharges within the corridor, no additional treatment is required.

4.3 Environmental Resources

This section provides an overview of potential environmental considerations, focusing on the environmental resources with the highest potential to inform decision-making for recommended transportation improvements on the I-75 corridor. An inventory of the social, cultural, natural, and physical resources was prepared; and fatal flaw analysis of the resources was performed. A fatal flaw analysis is a desktop review to identify resources that could prevent a project from being built or require regulatory permits/approvals beyond FDOT's standard scope. **FDOT's Environmental Screening Tool was the primary source used to complement knowledge of area resources from previous studies and meetings with local governments.** A detailed, specific analysis on environmental resources was not completed.

The following sections document the setting and context of the environmental resources and describe resource-specific next steps and evaluation needed for future PD&E Studies, including potential mitigation measures.

FDOT's Environmental Screening Tool

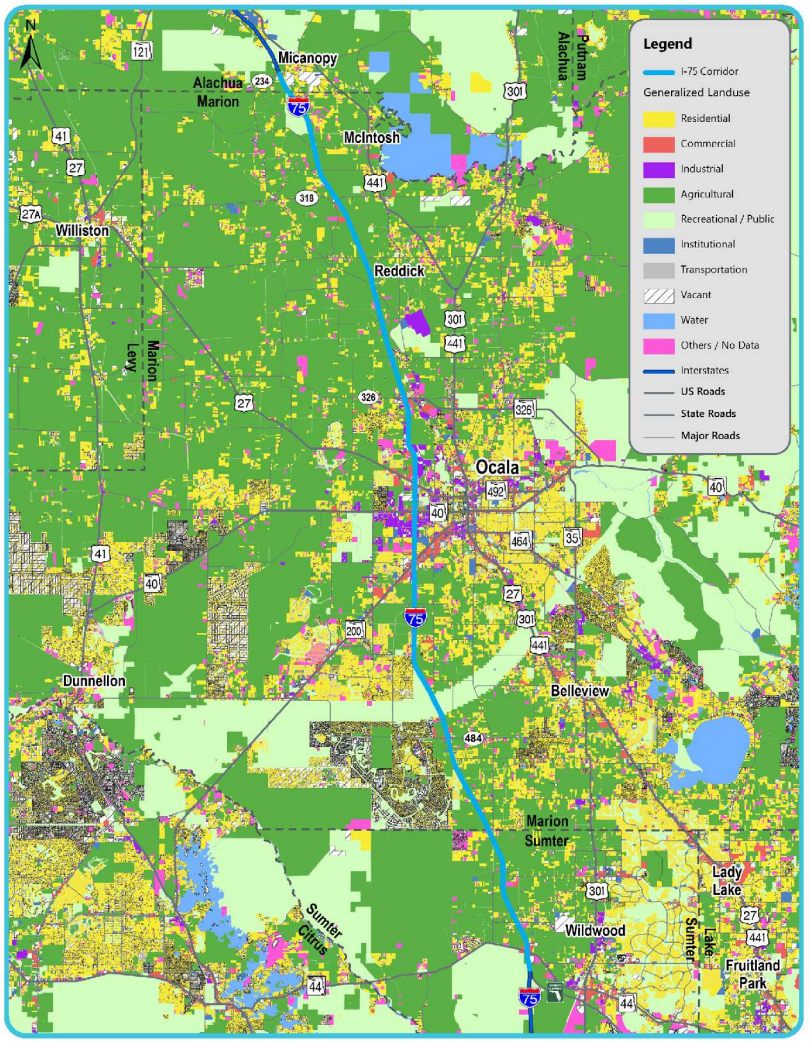
4.3.1 Socioeconomic

4.3.1.1 LAND USE

Agricultural and forested land predominantly surround the *I-75 Forward* corridor through its rural sections (south of S.R. 44 to the Wildwood Weigh Station and S.R. 326 to C.R. 234). Agricultural, commercial, industrial, and residential land uses predominantly surround the *I-75 Forward* corridor through its urban section (Wildwood Weigh Station to S.R. 326). Within the agricultural land, there are several farmlands of local importance and horse farms. Land uses are mapped in **Figure 4-3**.

During future PD&E Studies, a sociocultural effects evaluation will be performed. Land use changes will be reviewed as part of the evaluation. Land use changes are regulated by local government and relate to increases in traffic.

Figure 4-3 Existing Land Uses



Source: Florida Department of Revenue, 2020

4.4.1.2 ENVIRONMENTAL JUSTICE

A Sociocultural Data Report (SDR) was run using the FDOT Environmental Screening Tool to gather demographic data from the American Community Survey 2016-2020 for a 500-foot buffer from the corridor. **Based on the SDR results, minorities comprise approximately 40% of the population within 500 feet if the corridor and approximately 14% of households are below the poverty level.**

Additionally, the corridor crosses the historic Community of Royal in Sumter County. The Community of Royal is a historic African American community founded by formerly enslaved people during Reconstruction, with land patents dating to the 1870s.

During future PD&E Studies, underrepresented communities should be identified and offered opportunities for meaningful involvement.

Horse Farm

Royal Park

4.4.1.3 COMMUNITY FACILITIES

Community facilities within 500 feet of the *I-75 Forward* corridor include:

- Don Garlits Museum of Drag Racing
- Ocala Recreational Vehicle (RV) Camp Resort
- Several mobile home parks
- Union Cemetery
- College of Central Florida campus, including a gallery and library

C.R. 234, the northern terminus of the *I-75 Forward* corridor, is part of the Old Florida Heritage Highway, a designated Florida Scenic Highway.

During future PD&E Studies, potential impacts to community facilities will be avoided to the extent practical and considered in the sociocultural effects evaluation.

Don Garlits Museum of Drag Racing

Ocala RV Camp Resort

Table 4-2 Previously Recorded Historic Resources

Historic Structures			
FMSF No.	**Address**	**Year Built**	**NRHP Eligibility Status**
8MR02324	4551 NW S.R. 326	circa 1920	Ineligible
8MR02325	4555 80th Place	circa 1920	Ineligible
8MR02715	6997 NW 44th Avenue	1948	Ineligible
8MR03843	3637 W Silver Springs Boulevard	circa 1965	Ineligible
8MR03844	3805 W Silver Springs Boulevard	circa 1966	Ineligible
8MR03900	2045 C.R. 484	circa 1970	Ineligible
8MR03901	1805 C.R. 484	circa 1964	Ineligible
8MR03845	3805 W Silver Springs Boulevard	circa 1966	Ineligible
8MR03846	4025 W Silver Springs Boulevard	circa 1966	Ineligible
8MR04310	4055 NW 63rd Street	circa 1967	Ineligible
8MR04312	4250 W Highway 326	circa 1967	Not Evaluated
8SM00993	133 E C.R. 462	circa 1962	Not Evaluated
8SM00994	245 W C.R. 462	circa 1963	Not Evaluated
Resource Groups*			
FMSF No.	**Name**	**Resource Type**	**NRHP Eligibility Status**
8MR03289	Old Buggy Road	Linear Resource	Not Evaluated
8MR03271	S.R. 40 Railroad Grade	Linear Resource	Ineligible
8MR03410	Cross Florida Greenway	Historic Landscape	Eligible
8MR03403	State Road 40	Linear Resource	Ineligible
8SM01343	Community of Royal	Historic Landscape	Eligible

Source: FMSF database (updated April 2022)

*Resource groups are historical districts, archaeological districts or building complexes. Individual resources contributing to the resource group are usually (but are not always) separately listed in the FMSF.

4.4.2 Cultural

4.4.2.1 HISTORIC RESOURCES

Review of the Florida Master Site File (FMSF) database (updated April 2022) revealed 16 previously recorded historic resources (13 historic structures and 3 resource groups) within 500 feet of the *I-75 Forward* corridor. Ten structures and one resource group have been recommended ineligible for the National Register of Historic Places (NRHP) by the State Historic Preservation Officer (SHPO). The remaining three structures and one resource group have not been evaluated. The Cross Florida Greenway (8MR03410) resource group is a designated historic landscape that the SHPO determined eligible for the NRHP in 2019. The Community of Royal was recently determined eligible as a historic district. **Table 4-2** provides information about each historic resource. Potential impacts to historic resources will be further evaluated during future PD&E studies.

What's the National Register of Historic Places (NRHP)?

The NHRP is the Nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources. Properties listed in the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture.

4.4.2.2 ARCHAEOLOGICAL RESOURCES

Eighteen archaeological sites have been recorded within 500 feet of the corridor. The only archaeological site that has been determined eligible for the NRHP is the Ocala Meadows Country Club (8MR01947), a dense scatter of lithics and prehistoric ceramics, as well as several historic artifacts, including bottle glass and a musket ball. The remaining sites have either not been evaluated for eligibility in the NRHP or have been determined ineligible. **Table 4-3** provides information about each archaeological site.

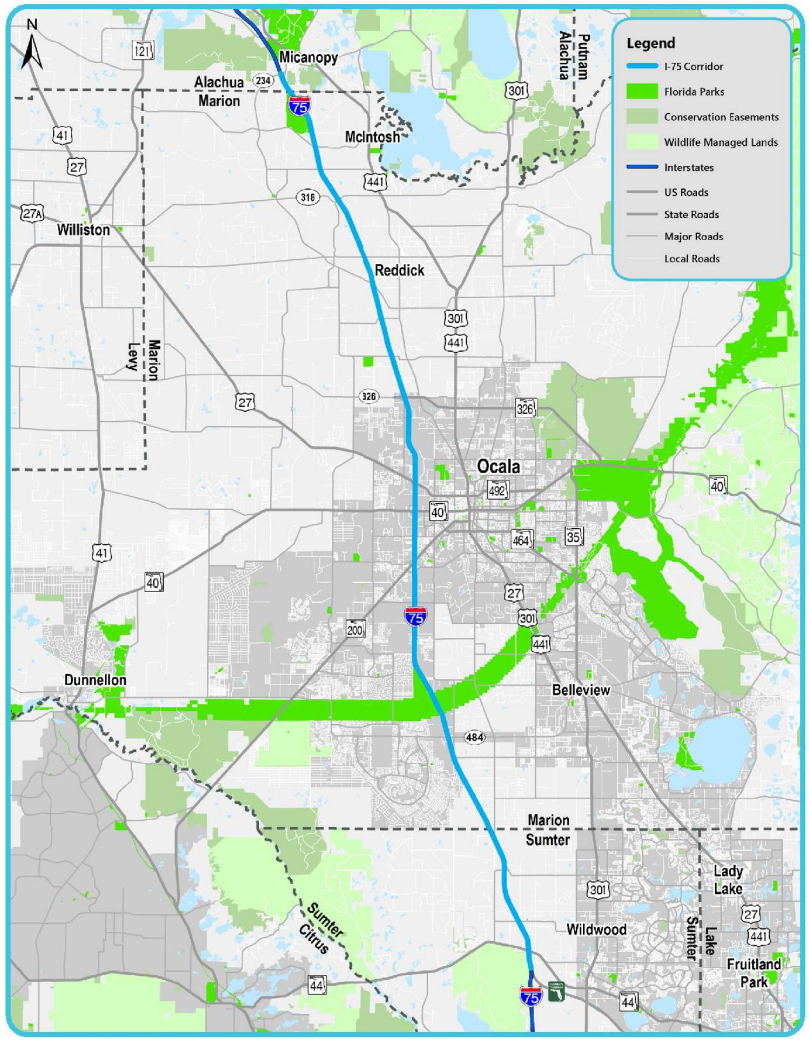
During future PD&E Studies, Section 106 consultation will need to be conducted, and a Cultural Resource Assessment Survey (CRAS) report prepared to evaluate historic and archaeological resources. These efforts should include coordination with SHPO, other consulting parties, and Native American Tribes; conducting surveys; and determining NRHP eligibility and effects. In addition, historic resources are protected under Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966, and an evaluation of Section 4(f) use of affected historic resources will be required for any resources potentially impacted by transportation improvements. FDOT will work to avoid and minimize impacts during preliminary and final design, although it is unlikely cultural resource impacts will be a concern because the corridor has been highly disturbed. Potential impacts to archaeological resources will be further evaluated during future PD&E studies.

Table 4-3 Previously Recorded Archaeological Sites

FMSF No.	Site Name	Description	NRHP Eligibility Status
8AL00402	Bartlett's C	Precontact, low-density artifact scatter	Not Evaluated
8MR00070	Bartlett's K	Precontact, low-density artifact scatter	Not Evaluated
8MR00071	Bartlett's O	Precontact, low-density artifact scatter	Not Evaluated
8MR00084	Land Syne Plantation 1 (possibly Ft. Drane)	Historic, farmstead and possible historic military fort	Not Evaluated
8MR00185	Hickman Prairie Northeast 23	Precontact, unknown	Not Evaluated
8MR00186	Hickman Prairie Northeast 24	Precontact, lithic scatter	Not Evaluated
8MR00192	Simonton Ridge 30	Precontact, lithic scatter	Not Evaluated
8MR00475	North Barge Canal	Precontact, low-density artifact scatter	Not Evaluated
8MR00476	I-75 Pond	Precontact, dense artifact scatter	Not Evaluated
8MR00481	Turpentine	Historic scatter related to the turpentine industry	Not Evaluated
8MR01050	Franklin 12	Unknown	Not Evaluated
8MR01051	Franklin 122	Unknown	Not Evaluated
8MR01947	Ocala Meadows Country Club	Precontact, dense artifact scatter and mid-nineteenth-century artifact scatter	Eligible
8MR02542	Tartan Farm Pond	Prehistoric artifact scatter	Ineligible
8MR03324	Lookout	Precontact, unspecified	Insufficient Info
8SM00130	Muldrew's	Precontact, low-density artifact scatter	Not Evaluated
8SM00357	Nichols Pond Site	Precontact, low-density artifact scatter	Ineligible
8SM00444	Sumter XXIII	Precontact, low-density artifact scatter	Ineligible

Source: FMSF database (updated April 2022)

Figure 4-4 Parks and Recreational Resources



Sources: Florida Natural Areas Inventory, 2019; FDEP Office of Greenways and Trails, 2019

Cross Florida Greenway

4.4.2.3 PARKS AND RECREATIONAL RESOURCES

Recreational resources within 500 feet of the *I-75 Forward* corridor include the Lake Panasoffkee Wildlife Management Area, Marjorie Carr Cross Florida Greenway State Recreation and Conservation Area (Marjorie Carr Conservation Area), the Cross Florida Greenway Trail, Price's Scrub, Franklin Crates local conservation area, a conservation easement, and five trail opportunities, as shown in **Figure 4-4**.

Public recreation resources are protected under Section 4(f) of the USDOT Act. These lands should be avoided to the extent practical during any enhancements to the *I-75 Forward* corridor in order to not present a potential fatal flaw. During future PD&E Studies, park and recreation resources will need to be inventoried, mapped, and evaluated for potential impacts. Impact assessment should include consideration of measures to avoid and minimize impacts, and mitigation measures should be identified to address unavoidable impacts.

4.4.3 Natural Resources

4.4.3.1 WETLANDS

Lake Panasoffkee Wildlife Management Area

Desktop analysis of National Wetlands Inventory data identified approximately 168 acres of wetlands (3% of total acreage) within 500 feet of the corridor, as shown in **Figure 4-5**.

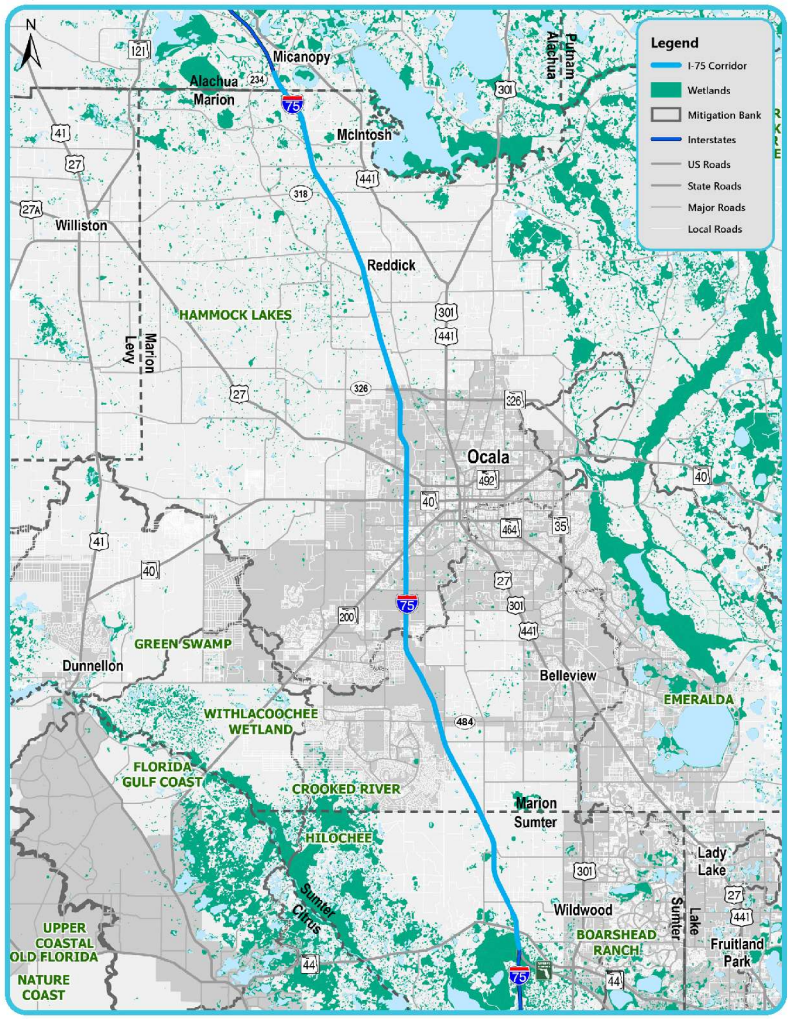
168 acres of wetlands

Jurisdictional wetlands within the I-75 Right of Way have been secondarily impacted so a functional assessment should reveal a lower quality of wetlands. The largest and highest quality systems are found within the floodplain of Orange Lake and Orange Creek and the large, forested Stream and Lake Swamp system extending from Lake Panasoffkee to Little Jones Creek in Sumter County.

During future PD&E Studies, potential wetland impacts will be assessed in the Natural Resources Evaluation.

While the presence of wetlands is not necessarily a fatal flaw, state and federal laws require avoidance and minimization of wetlands to the extent practical. For any wetland impacts that cannot be avoided, mitigation will be required. Currently, there are two federally approved wetland mitigation banks that cover the corridor—the Lake Louisa/Green Swamp Mitigation Bank (covering the entire corridor) and Hammock Lake Mitigation Bank (covering the southern portion of the corridor).

Figure 4-5 Wetlands



Source: USFWS National Wetlands Inventory, 2018

Table 4-4 Protected Species

Common Name	Scientific Name	Federal Listing Status	State Listing Status
	Wildlife		
Eastern Indigo Snake	Drymarchon couperi	Threatened	Threatened
Florida Scrub-jay	Aphelocoma coerulescens	Threatened	Threatened
Frosted Flatwoods Salamander	Ambystoma cingulatum	Threatened	Threatened
Red-cockaded Woodpecker	Picoides borealis	Endangered	Endangered
Sand Skink	Neoseps reynoldsi	Threatened	Threatened
Woodstork	Mycteria americana	Threatened	Threatened
Florida Burrowing Owl	Athene cunicularia	-	Threatened
Florida Pine Snake	Pituophis melanoleucus mugitus	-	Threatened
Florida Sandhill Crane	Grus canadensis	-	Threatened
Gopher Tortoise	Gopherus polyphemus	-	Threatened
Little Blue Heron	Egretta caerulea	-	Threatened
Short-tailed Snake	Lampropeltis extenuate	-	Threatened
Southeastern American Kestrel	Falco sparverius paulus	-	Threatened
Tricolored Heron	Egretta tricolor	-	Threatened
	Plants		
Britton's Beargrass	Nolina brittoniana	Endangered	Endangered
Cooley's Waterwillow	Justicia cooleyi	Endangered	Endangered
Florida Bonamia	Bonamia grandiflora	Threatened	Threatened
Lewton's Polygala	Polygala lewtonii	Endangered	Endangered
Longspurred Mint	Dicerandra cornutissima	Endangered	Endangered
Scrub Buckwheat	Eriogonum longifolium var. gnaphalifolium	Threatened	Threatened

Source: Adapted from Geotechnical and Environmental Consultants, Inc., Existing Conditions - Geotechnical and Contamination I-75 (S.R. 93) Widening from S.R. 200 to C.R.234 PD&E Study, 2020

4.4.3.2 WILDLIFE AND HABITAT

A review of the United States Fish and Wildlife Services (USFWS) Information for Planning and Consultation database was conducted to identify protected species. Protected species are listed in **Table 4-4**.

6 federally protected wildlife species
5 federally protected plant species
8 state protected species

with the potential to occur within the corridor

For some species, USFWS has designated consultation areas or critical habitat for certain federal species. Based on a review of the USFWS GIS data, the corridor is within the USFWS-designated consultation areas for the red-cockaded woodpecker, frosted flatwoods salamander, Florida scrub-jay, and the sand skink. The corridor contains potentially suitable habitat for the Florida Scrub-jay and sand skink, which may require species specific surveys. The corridor is also within a wood stork Core Foraging Area.

Sand Skink

Florida Scrub Jay

Gopher Tortoise

The longspurred mint has been documented to occur within the I-75 existing Right of Way. If impacts to the longspurred mint cannot be avoided, mitigation, which could include relocation or propagation of the plants for relocation, may be required. This type of mitigation has been done for other FDOT projects completed along this segment of I-75 in the past.

Several bat species have been documented within or adjacent to the *I-75 Forward* corridor. Bats are known to utilize bridge structures for roosting and are protected under the Florida Administrative Code Chapter 68A-4.001 General Prohibitions, as well as Chapter 68A.9.010

During future PD&E Studies, a general protected species survey and species-specific surveys would likely be required. Surveys will have to be conducted to determine if these species are located within the area where specific enhancements are proposed. Avoidance and minimization of listed species and their habitat is required by federal and state regulations. For unavoidable impacts, relocation (for some species) and/or mitigation will be required.

The potential presence of listed species is not considered a fatal flaw, but further assessment and/or permitting may be required depending upon the extent of improvements and results of species-specific survey.

Future Wildlife Crossings

I-75 represents a major regional landscape level barrier that reduces habitat connectivity and normal east-west dispersal of wildlife. Florida Fish and Wildlife Conservation Commission has requested that FDOT address this issue in terms of identifying opportunities during the design phase for the construction of longer bridges over streams and wetland areas that span portions of the floodplain, as well as consider habitat connectivity in upland areas on public lands. A review of current public/conservation land along the *I-75 Forward* corridor found one site (the Cross Florida Greenways State Recreation Area) with significant public lands on both sides of I-75. This site has an overpass across I-75 to facilitate wildlife connectivity. There is one other small parcel identified as public land south of the C.R. 475 overpass across I-75 that can be evaluated during a future PD&E Study to determine if a wildlife crossing would be appropriate for this location to improve habitat connectivity.

4.4.4 Physical Resources

4.4.4.1 CONTAMINATION

Hazardous materials may be encountered during construction; therefore, it is important to identify properties that may contain contamination prior to any Right of Way acquisition and construction. The FDEP Map Direct GIS website was used to identify sites with known or potential contamination risk. Contamination Risk Ratings (CRR) correspond to the July 1, 2020, Chapter 20 PD&E Manual guidelines. There are 125 preliminary sites identified on Map Direct with the highest concentrations of sites located primarily at the interchanges. Of the 125 sites, 31 were assigned a Low CRR, 93 were assigned a Medium CRR, and one was assigned a High CRR. A majority of the sites are petroleum tank contamination sites from gas stations, laundromats, and other retail and fuel user stores. All but 3 out of the 81 tank listings were assigned a Medium CRR. The one High CRR site is a historical Comprehensive Environmental Response, Compensation and Liability Act (Superfund) site. Five spill sites are located along the I-75 travel lanes at approximate MPs 344, 352, 354, 355, and 358. These spill sites have reported petroleum soil impacts and will require a Level II Impact to Construction Assessment to determine the extent of impacts.

During future PD&E Studies, a Phase I initial site assessment will need to be performed, and a Contamination Screening Evaluation Report prepared to further determine the impacts to potential contamination sites. Phase II site investigations may be required, depending on Phase I assessment results, project design, and location of proposed Right of Way acquisitions.

125 sites

Contamination Risk Ratings

0 sites

- **NO:** Indicates no potential contamination impact identified. Operations that may receive this rating include closed gas stations that have a clean closure assessment or a retail outlet that handles hazardous materials for resale, such as paint.

31 sites

- **LOW:** Indicates the operation has a hazardous waste generator identification number or deals with hazardous materials, but no reason exists to indicate contamination. This is the lowest possible rating an operating gas station could receive.

93 sites

- **MEDIUM:** Indicates that reviews identified known soil and/or water contamination, but that the problem does not need cleanup, is being cleaned up, or is being monitored. A recommendation should be made regarding the property's acceptability for use within the proposed project.

1 site

- **HIGH:** Indicates available information indicates a potential for contamination problems. Further assessment would be required to determine the actual presence and/or levels of contamination and the need for cleanup. A recommendation must be included for what further investigation is required. Old gas stations that have not been investigated would receive this rating.

4.4.4.2 GEOLOGY AND SOILS

Geological and soil conditions can impact the design and construction of roadway improvements. The prevalent geology in central Florida is known as karst, which is prone to sinkholes. The nature and relationship of the three sedimentary layers (limestone, clay, and sand) are typical of central Florida geology causes sinkholes. No method of geological, geotechnical, or geophysical exploration is known that can accurately predict the occurrence of sinkholes. Because the corridor lies in an area of high recharge to the Floridan Aquifer, it can be concluded that the relative risk of sinkhole formation is high compared to the overall risk in central Florida.

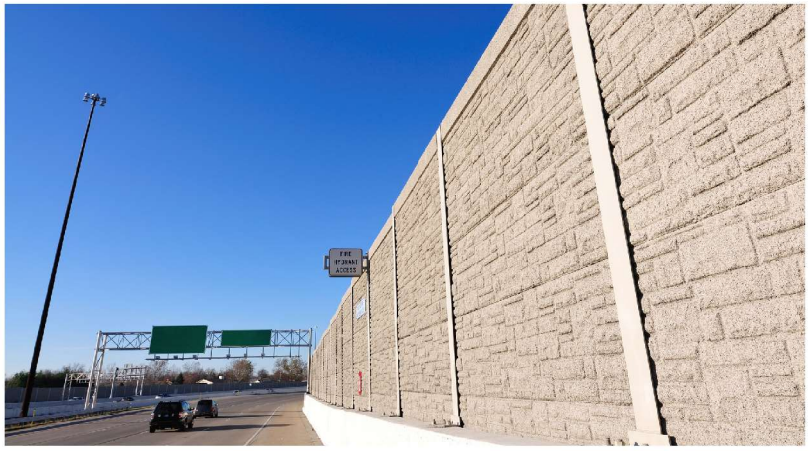
Natural Resources Conservation Service Soil Survey maps show that soils along the corridor are generally suitable for roadway widening. However, shallow groundwater and shallow clay are present within the corridor. Shallow groundwater can impact roadway grades and stormwater pond site selection, design, and construction. Near-surface clay can perch groundwater, potentially causing impacts to the pavement base. Muck is associated with lowland/wetland depressional areas and can have severe limitations for roadway embankment construction. Removal of muck, or treatment by means of soil surcharge, is typically required to provide adequate support for the roadway embankment.

During future PD&E Studies, auger and standard penetration test borings will need to be performed and piezometers will need to be installed to obtain additional geotechnical data.

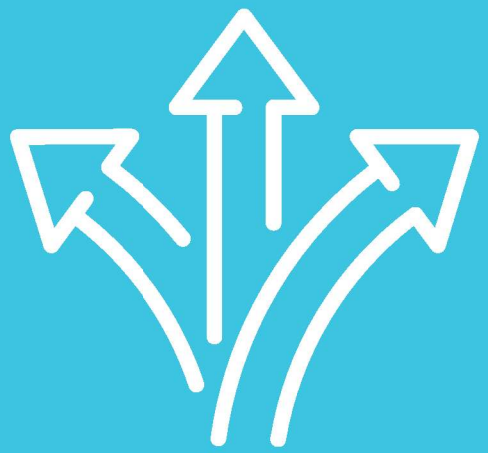
4.4.4.3 TRAFFIC NOISE

Noise-sensitive sites are present along the corridor, generally in the form of residential dwelling units. Other potentially noise-sensitive land uses along the corridor include areas of frequent outdoor use and commercial uses with outdoor uses with outdoor areas. Additionally, there are vacant lands that may be developed into noise-sensitive uses.

During future PD&E Studies, changes to the horizontal or vertical I-75 alignment or an increase of the number of through-traffic lanes will require investigation of traffic noise impacts. This analysis will establish the need for and reasonableness of noise abatement measures, which could include traffic noise barriers.



Example of a traffic noise barrier



5

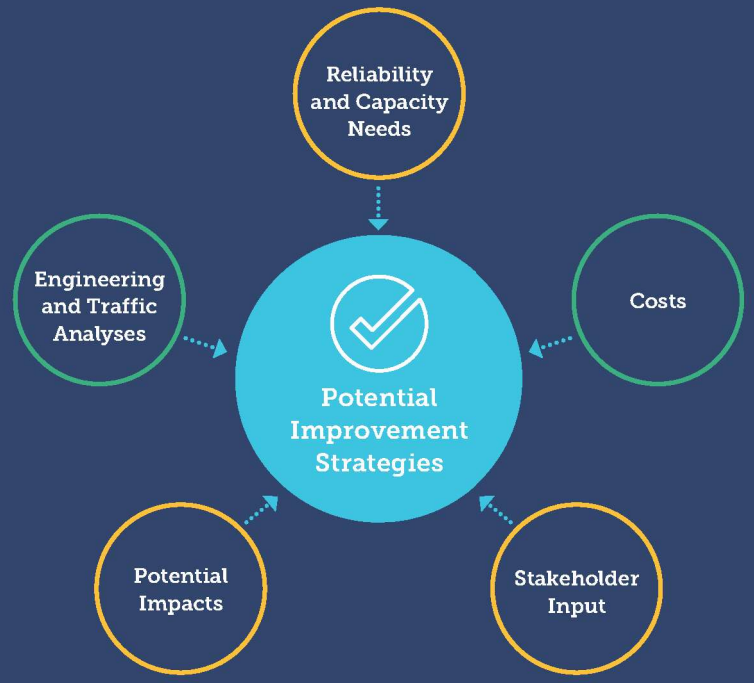
Potential Improvement Strategies

5

This chapter describes and analyses the potential mainline, interchange, local parallel roadway, and truck parking improvement strategies considered for the *I-75 Forward* corridor.

The identification of improvement strategies was based on a multidisciplinary approach that considered the corridor travel reliability and capacity needs (**Chapter 3**), engineering and traffic analysis, costs, potential impacts, and stakeholder input. The traffic operational and safety analyses for the corridor are documented in the Project Traffic Analysis Reports and the *Reliability Assessment: Existing Conditions and Methodology from Florida's Turnpike to County Road 234 (September 2021).*

Potential improvement strategies were identified based on the purpose of the phase (**Chapter 1**), logical sequencing of improvements, and the ability to fund and implement the improvements within the phase's desired time horizon.



5.1 Potential Improvement Strategies (All Phases)

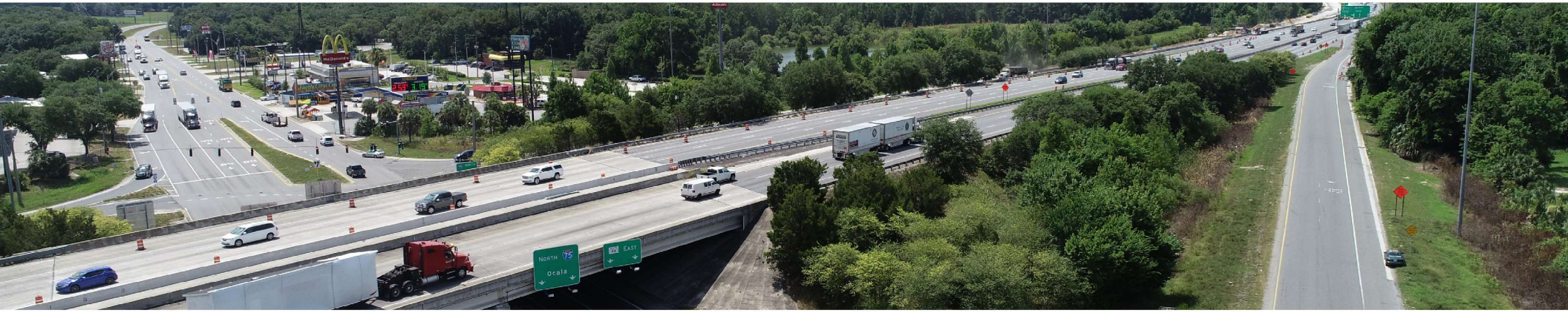
The potential improvement strategies included mainline and interchange improvements, improvements to local parallel roadways, and enhanced truck parking. As discussed in **Chapter 1**, recommended improvements will be implemented in phases. Any of the strategies could be considered for any of the *I-75 Forward* Implementation Plan phases and could be implemented as stand-alone projects or combined in any manner.

After the improvement strategies were identified, design concepts were developed in accordance with the FDOT Florida Design Manual and other applicable federal, state, and local regulations.

Descriptions of the potential improvement strategies considered are provided in the following subsections.

Potential Improvement Strategies

- I-75 Mainline Improvements
  - Add auxiliary lanes in each direction
  - Add one or two general purpose lanes in each direction
  - Add C/D lanes
  - Add managed lanes (toll, truck, HOV, or other uses)
- Interchange Improvements
  - Expand and/or rebuild existing interchanges
  - Improve existing ramps
  - Improve intersections adjacent to ramp terminals
- Local Parallel Roadways Improvements
- Additional Truck Parking



I-75 at S.R. 44

5.1.1 I-75 Mainline

5.1.1.1 ADD AUXILIARY LANES

Auxiliary lanes are general purpose lanes (open to all vehicle types all the time) located on the right-side (outside) of and adjacent to the travelway between interchange on-ramps and off-ramps. Auxiliary lanes are not designed to carry through traffic. Their primary purpose is to accommodate acceleration, deceleration, turning, weaving, and entering or leaving through traffic. Adding auxiliary lanes can improve travel time reliability.

5.1.1.2 ADD GENERAL PURPOSE LANES

General purpose lanes are open to all vehicle types all the time. They extend through interchanges. Adding general purpose lanes can expand highway capacity.

5.1.1.3 ADD COLLECTOR/DISTRIBUTOR (C/D) LANES

A C/D is a lane specifically designed to handle traffic entering and exiting a highway. Adding C/D lanes improves safety and reduces mainline and ramp collisions at the locations with the highest number of collisions. C/D lanes can also provide connections to closely spaced interchanges, while satisfying the spacing requirements between interchanges. By separating weaving and merging movements from the mainline, C/D lanes can improve throughput and improve safety by providing safer opportunities for merging and speed changes. C/D lanes can both improve travel time reliability and expand capacity

5.1.1.4 ADD MANAGED LANES

Managed lanes are a set of lanes on a freeway, ramps, or connectors with operational strategies to proactively implement and dynamically manage traffic flows in response to changing conditions. Managed lanes can both improve travel time reliability and expand capacity. Unlike general purpose lanes, they may limit vehicle types and may be tolled. Managed lanes may apply to one lane, many lanes, or all the lanes on a facility. Various types of managed lanes can be reviewed to the right.

Types of Managed Lanes

Long-Distance Trip Lanes

Long-distance trip lanes enable through traffic to avoid congestion at interchanges. Long-distance trip lanes are typically separated from local traffic entering and exiting the freeway at the skipped interchanges and may be tolled or non-tolled.

Truck Lanes

Truck lanes or ramps are one or more freeway lanes, or an entire ramp, reserved for trucks only. Truck lanes are installed to reduce the adverse capacity and safety implications of passenger cars weaving among slower speed trucks. Truck lanes also help truck drivers preserve adequate spacing between vehicles without having passenger cars cutting in between them. California I-5 in Kern County and I-85 in Atlanta are examples of truck lanes leading to truck ramps that separate truck merging from passenger car merging.

High-Occupancy Vehicle (HOV) Lanes

HOV lanes are designated lanes for vehicles with at least two persons (including the driver). The I-95 HOV lanes in Palm Beach County are an example. HOV lanes may be continuously accessible from the freeway general use lanes or access may be limited to certain points along the freeway. One problem that has been noted with barrier and buffer separated HOV lanes is the tendency of freeway crashes to concentrate near the access points. Enforcement of HOV compliance has also been a challenge.

Express Lanes

Express lanes manage congestion with vehicle eligibility, separation and access control, and pricing incentives.

Reversible Lanes

Barrier-separated reversible lanes can be a less costly alternative to adding general purpose lanes for addressing highly directional peak period demands. Reversible lanes are placed in the freeway median, and it is desirable that a minimum of two reversible lanes be provided (to allow passing of slower vehicles or breakdowns). The Lee Roy Selmon Expressway in Tampa and the I-595 expressway in Davie are examples of reversible lane deployments. It takes a significant amount of time to safely reverse the direction of reversible lanes; therefore, this managed lane option is one that works best for predictable recurring shifts in the direction of peak demands for the entire peak period.

Part-Time Shoulder Use

Part-time shoulder use is the conversion of paved shoulders to travel lanes for certain hours of the day. It is both a congestion relief and safety strategy, in that reducing congestion tends to reduce rear-end crashes. The shoulders may be opened exclusively to buses, or they may be opened to general traffic. Part-time shoulder use is an element of the evacuation operations for I-75.

5.1.2 Interchanges

5.1.2.1 EXPAND AND/OR REBUILD EXISTING INTERCHANGES

Congestion on freeways is often related to lane drops or weaving segments at or near interchanges. Reconfiguring or expanding interchanges is a common way of alleviating freeway bottlenecks. For example, the S.R. 44 interchange was recently reconfigured to reduce weaving and improve its capacity. Types of interchanges and interchange improvements are called out below.

5.1.2.2 ADD LANES TO ON- AND OFF-RAMPS

An additional lane on an on-ramp can serve traffic from new (upstream) turn lanes. An additional lane on an off-ramp can reduce queue lengths and enable more vehicles exiting at the ramp terminal. This strategy can expand capacity and improve travel time reliability.

5.1.2.3 INTERSECTION IMPROVEMENTS ADJACENT TO RAMP TERMINALS

Improvements to intersections adjacent to ramp terminals can include signalization and extending or adding turn lanes. They can improve interchange operations and reduce spill back onto the exit ramps, which improves travel time reliability.

Types of Interchanges and Interchange Improvements Under Consideration for the I-75 Corridor

Conventional Interchange - A conventional interchange/ intersection helps move large volumes of traffic through limited amounts of space safely and efficiently. Potential modifications could include improving signal timing, adding additional turn lanes or through lanes, and adding dedicated U-turn lanes to move more traffic through the crossroad intersection. Improvements to a conventional interchange can improve safety, mobility, and connectivity.

Diverging Diamond Interchange - A Diverging Diamond Interchange (DDI), handles higher traffic volumes, reduces travel times, and can improve safety for vehicles, bicycles, and pedestrians. The DDI allows free left turns for motorists by shifting traffic to the left side of the roadway prior to it entering the intersection. Two-phase traffic signals are installed at the crossovers. Once on the left side of the arterial roadway, vehicles can turn left onto the ramps without stopping and without conflicting with through traffic.

Displaced Left Turn - A displaced left turn intersection (DLT), also known as a continuous flow intersection, handles higher traffic volumes, reduces travel times, and can improve safety for vehicles, bicycles, and pedestrians. In a DLT, vehicles that intend to turn left cross to the left side of the roadway before they enter the intersection at a separate traffic signal. This eliminates the need for separate left turn signals at the intersection.

5.1.3 Improvements to Local Parallel Roadways

Improving roadways parallel to a highway could potentially help reduce traffic on the highway by reducing the number of local trips on the highway. Improved parallel roadways can serve as alternate routes or detours during times of closure due to incidents on a highway. This strategy can improve capacity and travel time reliability. FDOT values its local government stakeholders' efforts to construct these assets concurrent with development.

5.1.4 Additional Truck Parking

Lack of truck parking has been identified as an issue on the *I-75 Forward* corridor—as well as on other major interstate routes in Florida. Truck parking facilities provide truck drivers with a location to take required rest breaks and position themselves in advance of pick-ups and deliveries. Options to address the operational and safety challenges presented by the lack of truck parking facilities include increasing the supply of commercial vehicle parking (See also *Truck Parking Memorandum*), disseminating parking availability in real-time, partnering with private businesses for seasonal surges, and encouraging the most efficient usage of the existing commercial vehicle parking supply.

5.1.5 Partnering with Law Enforcement

Another improvement strategy is partnering with law enforcement to monitor and respond to illegal driving behaviors such as excessive speeding, aggressive driving, erratic lane changes, and tailgating, which are threats to all motorists and passengers.

5.1.6 Analysis Measures for Potential Improvement Strategies

The primary analysis measures by which the *I-75 Forward* potential improvements strategies were compared were estimated construction costs and traffic operational analysis. The methodologies for estimating costs and performing traffic operational analysis are described in the following sections.

5.1.6.1 COSTS

The *I-75 Forward* corridor was broken into 13 segments, using the north and south gore points at each interchange as the break between segments. The corridor segments and associated lengths are provided in **Table 5-1**. The construction cost was tabulated for each segment to determine how to segment and prioritize future improvements. Potential Right of Way costs, if any, were not estimated as part of the Master Plan. Right of Way costs will be estimated during future PD&E studies when more detailed design and pond siting is performed.

The construction cost estimates were prepared using FDOT cost per mile models, the FDOT Long Range Estimate (LRE) tool, costs from recent projects of similar scope around the state, and the 12-month Statewide and Market Area 6 average unit costs (April 2021 through March 2022).

Components included in the construction cost estimates are displayed on the next page at left.

Table 5-1 I-75 Segmentation for Cost Estimating

Common Name	Segment Name	Begin MP *(milepost)*	End MP *(milepost)*	Distance *(miles)*
From south of Florida's Turnpike to south of S.R. 44	South-1	21.778	22.437	0.659
From south of S.R. 44 to north of S.R. 44	South-2	22.437	22.928	0.491
From north of S.R. 44 to south of C.R. 484 (Sumter County)	South-3	22.928	28.996	6.068
From north of S.R. 44 to south of C.R. 484 (Marion County)	South-4	0.0	4.78	4.78
From south of C.R. 484 to north of C.R. 484	South-5	4.78	5.187	0.407
From north of C.R. 484 to south of S.R. 200	South-6	5.187	13.726	8.539
From south of S.R. 200 to north of S.R. 200	South-7	13.726	14.2	0.474
From north of S.R. 200 to north of U.S. 27	North-1	14.2	18.09	3.89
From north of U.S. 27 to south of S.R. 326	North-2	18.09	21.886	3.796
From south of S.R. 326 to north of S.R. 326	North-3	21.886	22.506	0.62
From north of S.R. 326 to south of C.R. 318	North-4	21.886	32.139	10.253
From south of C.R. 318 to north of C.R. 318	North-5	32.139	32.552	0.413
From north of C.R. 318 to south of C.R. 234	North-6	32.552	0.841	6.571

I-75 Forward construction cost estimate components:

- Roadway
  - Clearing and grubbing
  - Earthwork
  - Erosion and sediment control
  - Roadway pavement
  - Shoulder pavement
  - Shoulder treatment
- Bridge
  - Bridge replacement or widening
  - Bridge box culvert replacement or extension
- 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
- Interchange improvements
  - Phase 1 (short term improvements)
  - Ramp signalization

The *I-75 Forward* concept drawings were 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 concepts were also used to estimate quantities for the noise wall, bridge, drainage, signing, lighting, and intelligent transportation systems (ITS) components in each segment.

Further details on the references and assumptions used in the construction cost estimate are provided in Appendix A.

5.1.6.2 TRAFFIC OPERATIONAL ANALYSIS

Traffic operational analysis was a critical component to understand the impact of potential improvements on the overall mobility of the *I-75 Forward* corridor. Traffic analysis included traffic data collection, an analysis of existing conditions and future traffic projections, crash data analysis, and operational modelling of proposed improvement concepts. Years analyzed included 2019 (existing), 2030 (opening year), 2040 (interim year), and 2050 (design year). Peak hours were determined to be 7:15 AM – 8:15 AM (AM peak), 4:30 PM – 5:30 PM (PM peak), and 1:00 PM – 2:00 PM (weekend midday peak).

The mainline analyses were conducted using the Freeway Facilities Analysis outlined in the Highway Capacity Manual 6th Edition, as implemented by FREEVAL software. For the interchanges, evaluation tools included HCM 2000 procedures for LOS, Synchro software for intersections, and HCS software for ramp merge and diverge areas. The forecasts do not account for volume spikes due to non-recurring congestion events.

Details on the traffic analysis, including traffic counts, assumptions, methodologies, model validation, and detailed results are in the PTARs prepared for this master plan.

5.2 Phase 1 (Near-Term Improvements) Potential Improvement Strategies

Phase 1 near-term operational improvements are intended to reduce congestion, enhance safety, and improve operations on I-75 for the next 10 to 15 years. Phase 1 improvements are intended to improve corridor reliability and capacity until a long-term build-out design concept can be implemented and funded.

Considerations for selecting improvement strategies for Phase 1 included the readiness to start construction within two years, ability to serve traffic at acceptable levels for the next 10 years, and setting the stage for improvements in future phases. C/D lanes were not considered in Phase 1 because they would complicate potential future widening projects or managed lanes. Managed lanes were not considered for Phase 1 because they are a long-term strategy that would take considerable time to implement.

PHASE 1
(near-term operational improvements)

PHASE 2
(subsequent operational improvements)

PHASE 3
(long-term)

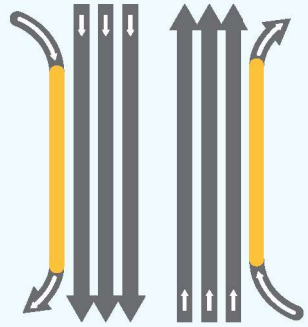
Potential Improvement Strategies for Phase 1

- Add auxiliary lanes
- Add one or two general purpose lanes in each direction
- Expand and/or rebuild existing interchanges
- Improve existing ramps

The following sections describe the potential improvement strategies that were considered for Phase 1. Costs and traffic operational analysis are compared for each strategy. A recommendation is provided following analysis in each section.

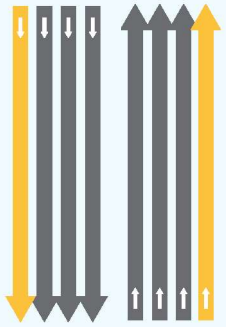
5.2.1 I-75 Mainline

FDOT considered three typical section options for the I-75 mainline for Phase 1. The three options are described on the next pages.



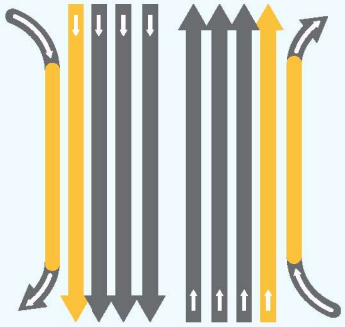
Add One Auxiliary Lane in Each Direction

OPTION 1



Add One General Purpose Lane in Each Direction

OPTION 2



Add Both One General Purpose Lane and One Auxiliary Lane in Each Direction

OPTION 3

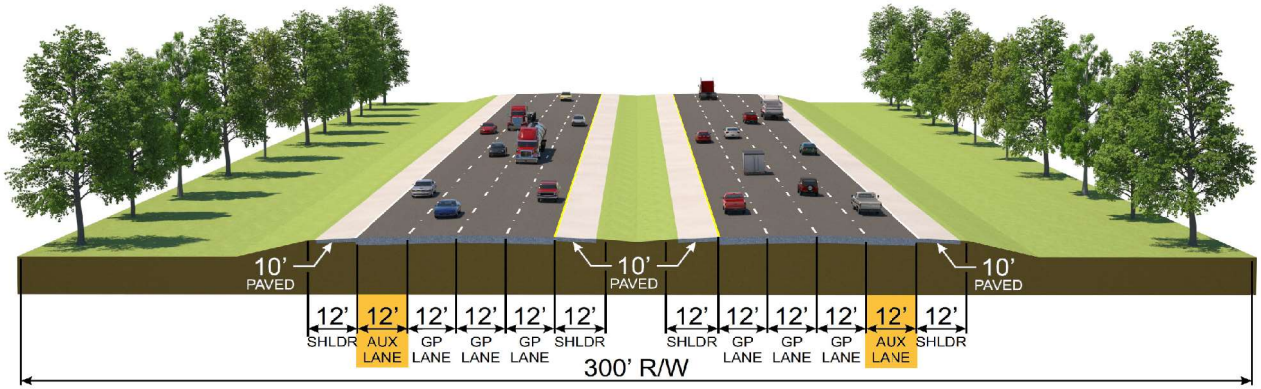
MAINLINE OPTION 1:

Add One Auxiliary Lane in Each Direction

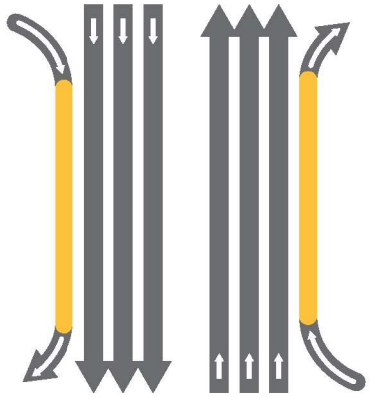
Mainline Option 1, shown in **Figure 5-1**, adds one 12-foot-wide auxiliary lane in each direction. The lane would be added to the outside; no construction would be required on the inside. The auxiliary lanes would not impact the interchange bridges or any major crossroad bridges. The crossroad bridges that would need to be replaced with Mainline Option 1 would be C.R. 462 over I-75, C.R. 475/C.R. 466 over I-75, SW 66th Street (Williams Road) over I-75, and NW 63rd Street over I-75.

The auxiliary lanes would improve interchange operations but would not add capacity.

Figure 5-1 Mainline Option 1 Typical Section



KEY: **SHLDR** – Shoulder **AUX** – Auxiliary **R/W** – Right of Way



The typical section for Mainline Option 1 consists of the following:

- 300-foot minimum Right of Way (R/W)
- Six 12-foot-wide general purpose lanes (three in each direction)
- Two 12-foot-wide auxiliary lanes to the outside (one in each direction)
- Two 12-foot-wide outside shoulders (10 feet paved and 2 feet unpaved)
- A 40-foot median (includes two 12-foot-wide inside shoulders in both directions)
- Total cross section would be 160 feet from outside shoulder to outside shoulder
- There would be 70 feet of Right of Way remaining on either side

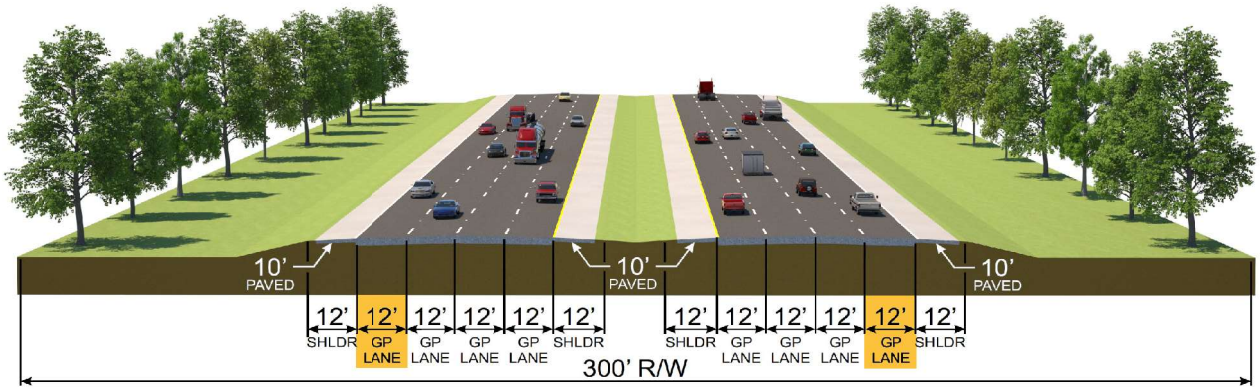
MAINLINE OPTION 2:

Add One General Purpose Lane in Each Direction

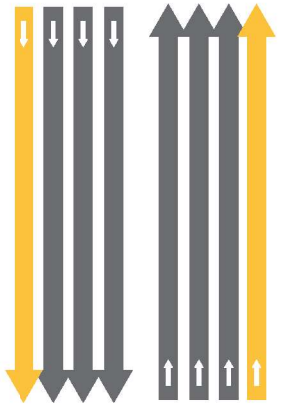
Mainline Option 2, shown in **Figure 5-2**, adds one 12-foot-wide general purpose lane in each direction. Widening would carry across the interchange bridges. All mainline bridges would need to be widened 12 feet on each side to accommodate the additional general purpose lane.

The additional general purpose lanes would add mainline capacity.

Figure 5-2 Mainline Option 2 Typical Section



KEY: **SHLDR** – Shoulder **GP** – General Purpose **R/W** – Right of Way



The typical section for Mainline Option 2 consists of the following:

- 300-foot minimum Right of Way (R/W)
- Eight 12-foot-wide general purpose lanes (four in each direction)
- Two 12-foot-wide outside shoulders (10 feet paved and 2 feet unpaved)
- A 40-foot median (includes two 12-foot-wide inside shoulders [10 feet paved and 2 feet unpaved] in both directions)
- Total cross section would be 150 feet from outside shoulder to outside shoulder
- There would be 70 feet of Right of Way remaining on either side

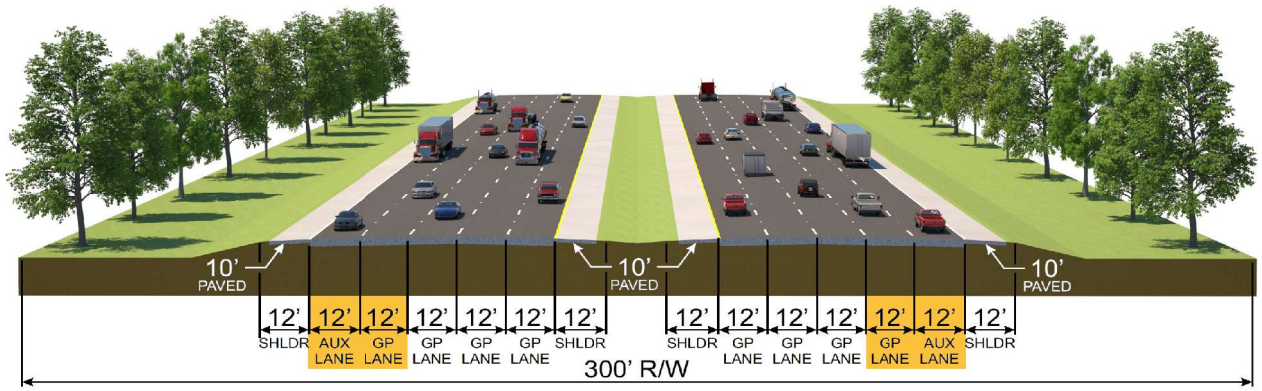
MAINLINE OPTION 3:

Add One General Purpose Lane and One Auxiliary Lane in Each Direction

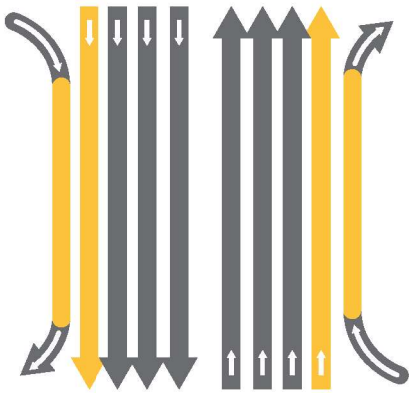
Mainline Option 3, shown in **Figure 5-3**, would add one 12-foot-wide general purpose lane and one 12-foot-wide auxiliary lane in each direction. Widening would carry across the interchange bridges. All mainline bridges would need to be widened 12 feet on each side to accommodate the additional general purpose lane.

The additional general purpose lane would add mainline capacity; the auxiliary lane would improve interchange operations but would not add capacity.

Figure 5-3 Mainline Option 3 Typical Section



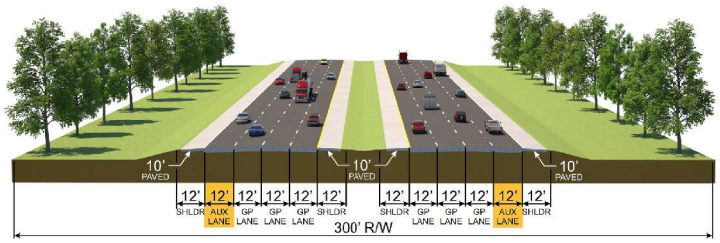
KEY: **SHLDR** – Shoulder **AUX** – Auxiliary **GP** – General Purpose **R/W** – Right of Way



The typical section for Mainline Option 3 consists of the following:

- 300-foot minimum Right of Way (R/W)
- Eight 12-foot-wide general purpose lanes (four in each direction)
- Two 12-foot-wide auxiliary lanes (one in each direction)
- Two 12-foot-wide outside shoulders (10 feet paved and 2 feet unpaved)
- A 40-foot median (includes two 12-foot-wide inside shoulders [10 feet paved and 2 feet unpaved] in both directions)
- Total cross section would be 150 feet from outside shoulder to outside shoulder
- There would be 58 feet of Right of Way remaining on either side

5.2.1.1 CONSTRUCTION COSTS



Mainline Option 1:
Add One Auxiliary Lane in Each Direction

The Mainline Option 1 construction cost estimate used the following assumptions.

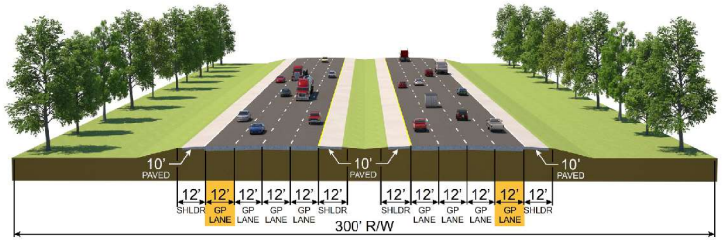
- Four of the ten crossroad bridges would be replaced with 300-foot (two 150-foot spans) and 44.5-foot bridges (two 11-foot travel lanes with 10-foot shoulders and traffic railing on each side).
- The auxiliary lanes would be carried through the I-75 Wildwood Weigh Station in Marion County (MP 2.019 to 3.155) in both directions.
- A 25% contingency was added to account for overhead signs, retention ponds, intelligent transportation systems (ITS), lighting, retaining walls, and other potential project unknowns.

The estimated construction cost estimate for each segment for Mainline Option 1 is summarized in **Table 5-2**. Detailed tabulation of each component of the construction cost estimate is provided in Appendix A.

Table 5-2 Mainline Option 1 Construction Cost Estimate

Segment Name	Roadway	Bridge*	Drainage	Signing	Pavement Markings	Lighting	Segment Subtotal
South-1	$45,600	$0	$203,100	$22,800	$31,100	$311,200	$613,800
South-2	$899,600	$0	$173,600	$174,400	$38,900	$266,100	$1,552,600
South-3	$21,171,600	$7,689,600	$1,988,000	$687,700	$233,500	$0	$31,770,400
South-4	$17,606,200	$0	$1,566,000	$485,400	$186,400	$0	$19,844,000
South-5	$794,700	$0	$133,300	$324,900	$29,500	$204,300	$1,486,800
South-6	$29,365,200	$3,844,800	$2,797,500	$933,300	$339,600	$0	$37,280,500
South-7	$1,084,400	$0	$155,300	$327,400	$32,100	$237,900	$1,837,100
North-1	$12,679,200	$885,200	$1,274,400	$917,700	$139,200	$1,952,700	$17,848,500
North-2	$10,969,500	$3,844,800	$1,243,600	$759,300	$116,000	$1,905,500	$18,838,800
North-3	$944,400	$0	$203,100	$22,800	$19,500	$311,200	$1,501,000
North-4	These segments are not included.						
North-5							
North-6							
						Subtotal	$132,573,000
						Maintenance of Traffic (MOT) (15% of Subtotal)	$19,886,000
						Mobilization (15% of Subtotal + MOT)	$22,868,900
						Contingency (25% of Subtotal + MOT + Mobilization)	$43,832,000
						Grand Total	$219,160,900

**Includes interchange and crossroad bridges*



Mainline Option 2:
One General Purpose Lane

The Mainline Option 2 construction cost estimate used the following assumptions.

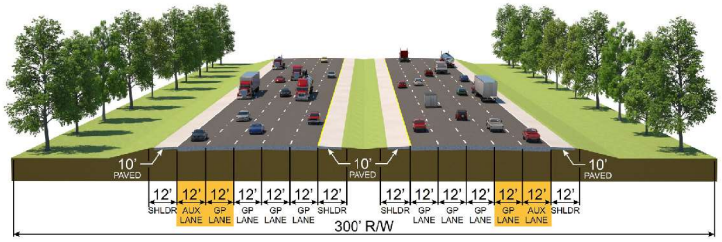
- Each of the ten crossroad bridges and the Cross Florida Greenway Trail bridge would be replaced with 300-foot (two 150-foot spans) and 44.5-foot bridges (two 11-foot travel lanes with 10-foot shoulders and traffic railing on each side).
- Interchange bridges would be widened.
- A 25% contingency was added to account for overhead signs, retention ponds, ITS, lighting, retaining walls and other potential project unknowns.
- The estimated construction cost estimate for each segment for Mainline Option 2 is summarized in **Table 5-3**. Detailed tabulation of each component of the construction cost estimate is provided in Appendix A.

The cost of Mainline Option 2 is higher than Mainline Option 1 due to the widening of the interchange bridges.

Table 5-3 Mainline Option 2 Construction Cost Estimate

Segment Name	Roadway	Bridge*	Drainage	Signing	Pavement Markings	Lighting	Segment Subtotal
South-1	$45,600	$0	$203,100	$22,800	$31,100	$311,200	$613,800
South-2	$899,600	$0	$173,600	$174,400	$38,900	$266,100	$1,552,700
South-3	$21,171,600	$7,689,600	$1,988,000	$687,700	$233,500	$0	$31,770,400
South-4	$17,606,200	$0	$1,566,000	$485,400	$191,400	$0	$19,849,000
South-5	$1,490,200	$1,145,800	$133,300	$324,900	$33,800	$204,300	$3,332,300
South-6	$31,703,300	$3,844,800	$2,797,500	$933,300	$344,600	$0	$39,623,700
South-7	$2,414,600	$2,291,500	$155,300	$327,400	$33,700	$237,900	$5,460,400
North-1	$19,331,200	$4,479,300	$1,274,400	$917,700	$144,200	$1,952,700	$28,099,600
North-2	$12,840,500	$3,844,800	$1,243,600	$759,300	$115,800	$1,905,500	$20,709,500
North-3	$4,871,200	$1,658,200	$203,100	$332,800	$36,000	$311,200	$7,412,500
North-4	$34,566,800	$12,993,800	$3,359,100	$996,200	$297,400	$5,146,900	$57,360,200
North-5	$3,906,300	$1,239,200	$135,300	$325,200	$25,000	$207,300	$5,838,400
North-6	$22,907,600	$5,379,400	$2,152,800	$551,100	$210,900	$3,298,600	$34,500,400
						Subtotal	$256,123,000
						MOT (15% of Subtotal)	$38,418,500
						Mobilization (15% of Subtotal + MOT)	$44,181,200
						Contingency (25% of Subtotal + MOT + Mobilization)	$84,680,700
						Grand Total	$423,403,400

**Includes interchange and crossroad bridges*



Mainline Option 3:
One General Purpose Lane and One Auxiliary Lane

The Mainline Option 3 construction cost estimate used the following assumptions.

- Each of the ten crossroad bridges and the Cross Florida Greenway Trail bridge would be replaced with 300-foot (two 150-foot spans) and 44.5-foot bridges (two 11-foot travel lanes with 10-foot shoulders and traffic railing on each side).
- Interchange bridges would be widened.
- A 25% contingency was added to account for overhead signs, retention ponds, ITS, lighting, retaining walls and other potential project unknowns.
- The estimated construction cost estimate for each segment for Mainline Option 3 is summarized in **Table 5-4**. Detailed tabulation of each component of the construction cost estimate is provided in Appendix A.

The cost of Mainline Option 3 is higher than Mainline Options 1 and 2 due to the widening of interchange bridges and the additional lane.

Table 5-4 Mainline Option 3 Construction Cost Estimate

Segment Name	Roadway	Bridge*	Drainage	Signing	Pavement Markings	Lighting	Segment Subtotal
South-1	$45,600	$0	$203,100	$22,800	$31,100	$311,200	$613,800
South-2	$899,600	$0	$173,600	$174,400	$38,900	$266,100	$1,552,700
South-3	$28,053,600	$7,689,600	$1,988,00	$687,700	$254,00	$0	$38,672,900
South-4	$25,003,800	$0	$1,566,000	$485,400	$209,100	$0	$27,264,400
South-5	$1,490,200	$1,145,800	$133,300	$324,900	$33,800	$204,300	$3,332,300
South-6	$41,862,000	$7,689,600	$2,797,500	$933,300	$344,600	$0	$53,627,100
South-7	$2,414,600	$2,291,500	$155,300	$327,400	$33,700	$237,900	$5,460,400
North-1	$21,632,000	$5,115,500	$1,274,400	$917,700	$162,400	$1,952,700	$31,054,900
North-2	$16,558,800	$3,844,800	$1,243,600	$759,300	$134,900	$1,905,500	$24,446,900
North-3	$4,871,200	$1,658,100	$203,100	$332,800	$35,800	$311,200	$7,412,300
North-4	$34,566,200	$12,993,800	$3,359,000	$996,200	$297,400	$5,146,900	$57,359,600
North-5	$3,906,300	$1,239,200	$135,300	$325,200	$25,000	$207,300	$5,838,300
North-6	$23,705,700	$5,379,400	$2,152,800	$551,100	$213,000	$3,298,600	$35,300,600
						Subtotal	$291,936,200
						MOT (15% of Subtotal)	$43,790,400
						Mobilization (15% of Subtotal + MOT)	$50,359,000
						Contingency (25% of Subtotal + MOT + Mobilization)	$96,521,400
						Grand Total	$482,607,100

**Includes interchange and crossroad bridges*

5.2.1.2 TRAFFIC OPERATIONAL ANALYSIS

The traffic operational analysis for the Phase 1 mainline options was conducted for the opening (2030) and interim (2040) years.

Mainline Option 1:
Add One Auxiliary Lane in Each Direction

The opening (2030) and interim (2040) years traffic operational analysis results for the weekday AM, weekday PM, and weekend midday peak hours show that Mainline Option 1 provides network travel time and average network delay savings versus the No-Build scenario.

Table 5-5 and **Table 5-6** compare the benefits of Option 1 over the No-Build scenario for average travel time and vehicle hours of delay for I-75 from Florida's Turnpike to S.R. 200 and for S.R. 200 to C.R. 234, respectively. The travel time and delay improvements can be attributed to the auxiliary lanes releasing the bottlenecks along I-75 that are expected to occur under the No-Build scenario. Auxiliary lanes provide space for entering and exiting vehicles to queue off of the general purpose lanes. They also provide longer weaving distances between interchanges, which should result in fewer crashes and lane closures, thereby improving reliability and delaying the need for additional capacity.

Table 5-5 Mainline Option 1: Operational Comparison to the No-Build Scenario (I-75 from Florida's Turnpike to S.R. 200 Peak Period)

Year	Performance Metric	% Benefit over No-Build Scenario					
		AM Peak Hour		PM Peak Hour		Weekend Peak Hour	
		NB	SB	NB	SB	NB	SB
2030	Average Travel Time	5%	2%	3%	13%	20%	9%
	Vehicle Hours of Delay	48%	22%	36%	94%	76%	56%
2040	Average Travel Time	44%	8%	28%	-11%	51%	-7%
	Vehicle Hours of Delay	83%	54%	81%	68%	90%	82%

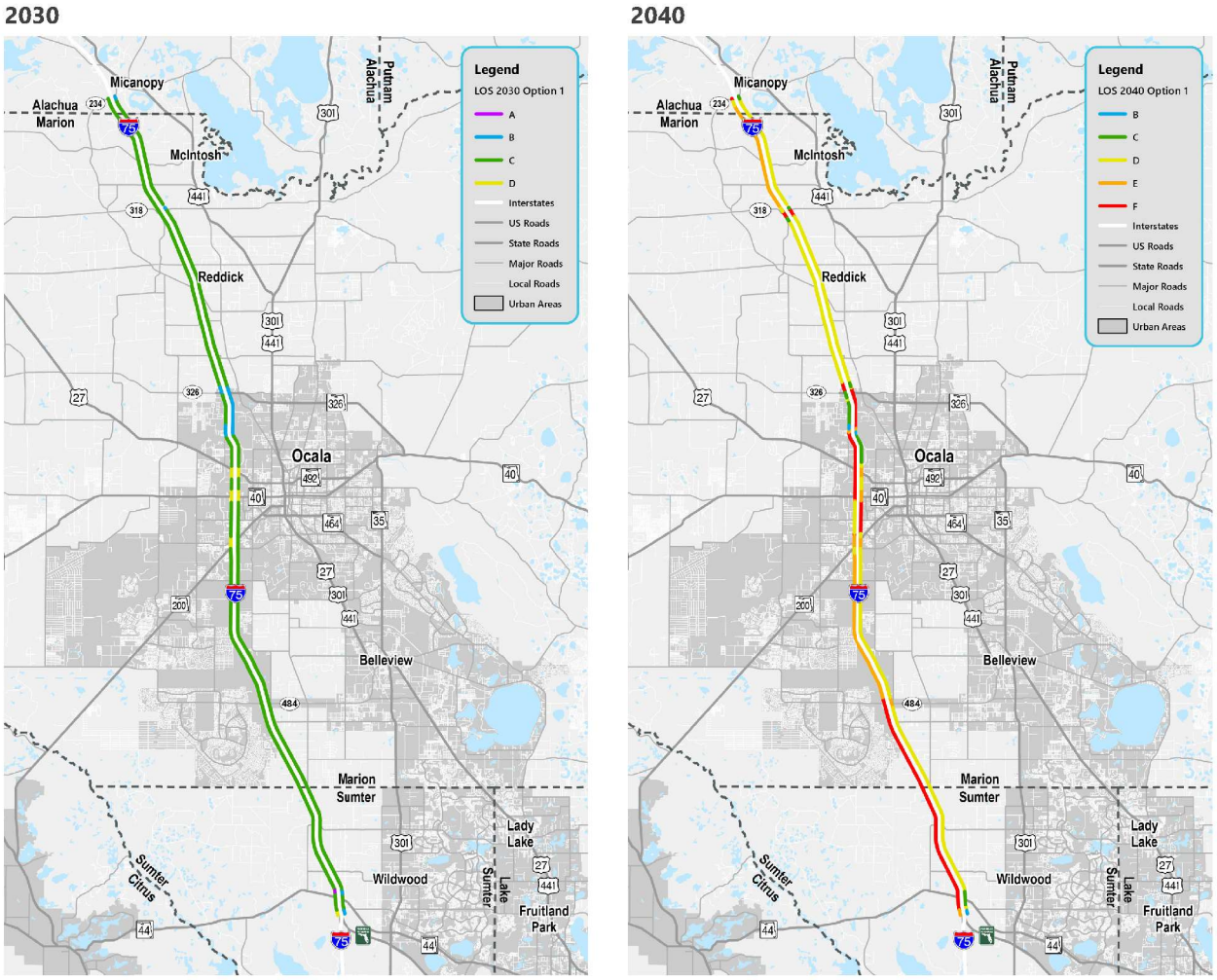
Source: FDOT District 5, PTAR: I-75 (S.R. 93) from Florida's Turnpike (S.R. 91) to S.R. 200, July 2022

Table 5-6 Mainline Option 1: Operational Comparison to the No-Build Scenario (I-75 from S.R. 200 to C.R. 234 Peak Period)

Year	Performance Metric	% Benefit over No-Build Scenario					
		AM Peak Hour		PM Peak Hour		Weekend Peak Hour	
		NB	SB	NB	SB	NB	SB
2030	Average Travel Time	2%	0.5%	1%	37%	11%	2%
	Vehicle Hours of Delay	23%	15%	18%	88%	91%	26%
2040	Average Travel Time	-14%	6%	15%	53%	-1%	50%
	Vehicle Hours of Delay	80%	68%	96%	76%	71%	88%

Source: FDOT District 5, PTAR: I-75 (S.R. 93) from S.R. 200 to C.R.234, 2022

Figure 5-4 Mainline Option 1 Minimum LOS for Years 2030 and 2040



Sources: FDOT District 5, PTAR: I-75 (S.R. 93) from Florida's Turnpike (S.R. 91) to S.R. 200, 2022 and FDOT District 5, PTAR: I-75 (S.R. 93) from S.R. 200 to C.R.234, 2022

The analysis also shows that the Mainline Option 1 is expected to provide adequate capacity along I-75 to between 2035 and 2040, based on average traffic conditions. **Figure 5-4** shows the minimum LOS for the most congested peak period (amongst the AM, PM, and weekend peaks) in the northbound and southbound directions for Mainline Option 1. Additional capacity beyond the auxiliary lane would be needed between 2035 and 2040.

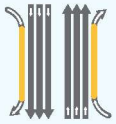
It can be assumed that Mainline Options 2 and 3 would also provide adequate capacity through the same period as they provide additional capacity beyond Mainline Option 1. Traffic modeling for Mainline Options 2 and 3 will be performed during Phase 3 or a future PD&E Study, as needed.

5.2.1.3 I-75 MAINLINE RECOMMENDATIONS

Based on the availability of Moving Florida Forward funding, construction cost estimates, and the traffic operational analysis, the Phase 1 recommended typical section is Mainline Option 1 (add one auxiliary lane in each direction) from north of S.R. 44 to south of S.R. 326, as shown in **Figure 5-5**. No improvements are recommended north of S.R. 326. Mainline Option 1 would cost less and be less disruptive to traffic patterns than Options 2 and 3, while addressing the corridor's capacity needs to at least 2035. Mainline Option 1 would address reliability by reducing travel time compared to the No-Build scenario and by providing additional weaving distance between interchanges, leading to fewer incidents and lane closures. The auxiliary lane would not carry through the interchanges and would not require bridge construction at the interchanges. Concept plans are included in Appendix B. Bridge widening would be required at S.R. 44 and SW 20th Street. Bridge replacement would be required at C.R. 462, C.R. 475, SW 66th Street, and NW 63rd Street. Bridge widening and replacement locations are shown in **Figure 5-6**.

North of S.R. 44 to South of S.R. 326

OPT 1



Add One Auxiliary Lane in Each Direction

North of S.R. 326: No improvements are recommended

Figure 5-5 I-75 Mainline Phase 1 Recommended Improvements

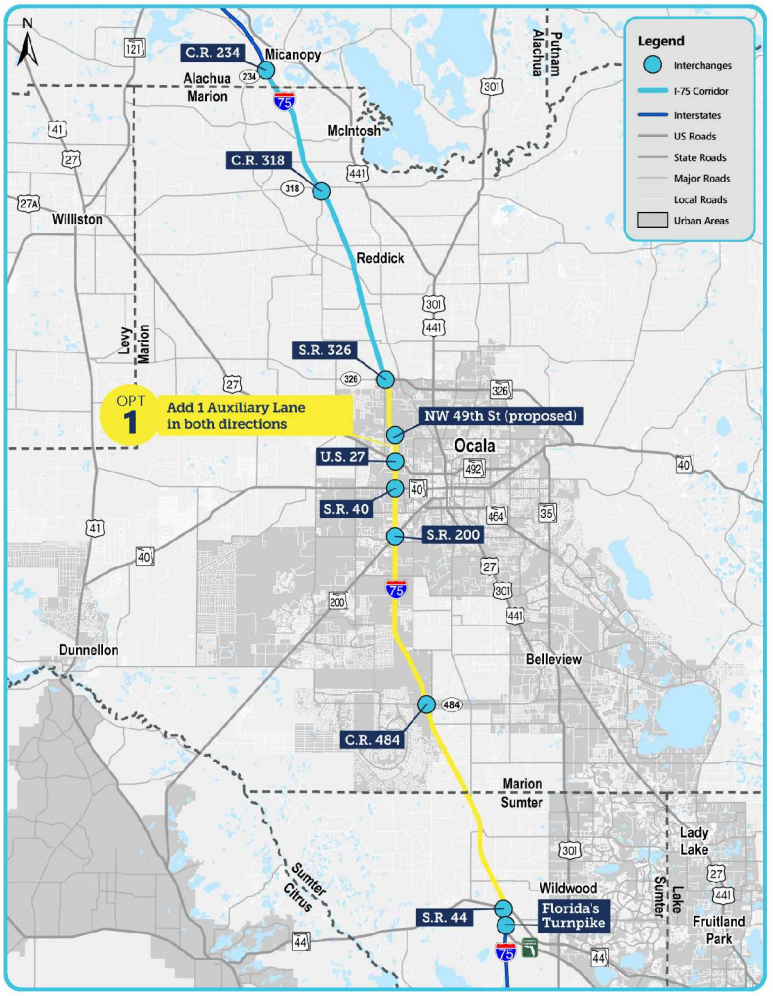
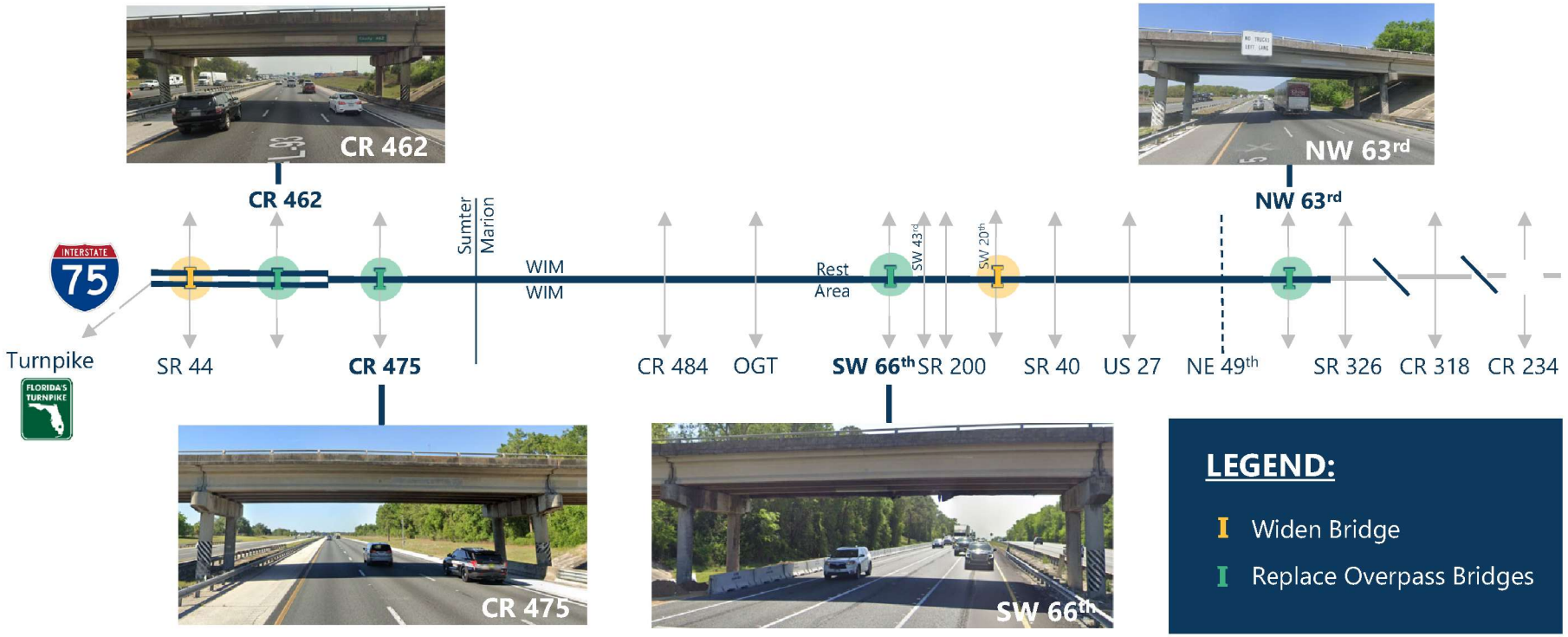


Figure 5-6 I-75 Mainline Bridge Widening and Replacement Locations



5.2.2 Interchanges

Phase 1 interchange improvements are recommended at the I-75 interchanges with S.R. 40 and S.R. 326.

5.2.2.1 S.R. 40 INTERCHANGE

The S.R. 40 interchange with I-75 was selected as a Phase 1 improvement because it is already under design (FPID 433652-1). Additionally, as previously noted, improvements to S.R. 40 are particularly needed because S.R. 40 has the highest number of crashes of the nine roadways intersecting I-75. Because the improvements are already under design, traffic was not modeled for S.R. 40.

Phase 1 improvements would include the following and are shown in **Figure 5-7** on the next page:

- Crosswalks for pedestrians
- Pedestrian facilities made continuous throughout corridor
- Extended queue for I-75 on-ramp approaches in both directions
- Dual left turn lanes and a yield-controlled channelized right turn lane at both I-75 off-ramp approaches

Access to local S.R. 40 from I-75 would be improved by the addition of a right turn lane in the off-ramp approaches in both northbound and southbound directions. Access to I-75 from local S.R. 40 would change from a continuous ramp connection to signal controlled right turn movements in both directions.

I-75 at S.R. 40. For illustrative purposes only.

The estimated Right of Way cost for the improvements is $4.6 million, and the estimated construction cost is $5.5 million. These costs include improvements to the intersection of S.R. 40 and U.S. 27, which is part of FPID 433652-1. Costs were obtained from the FPID 433652-1 project website. The costs do not include construction or Right of Way for stormwater ponds.

Figure 5-7 S.R. 40 Interchange Phase 1 Improvements

5.2.2.2 S.R. 326 INTERCHANGE

The S.R. 326 interchange with I-75 was selected as a Phase 1 short-term improvement because it is highly used by vehicles and trucks, has multiple failing intersections by 2030, the northbound off-ramp will be overcapacity by 2050, and all recommended improvements can be accomplished in the near-term.

The S.R. 326 interchange is currently a standard diamond with a loop ramp in the northwest quadrant serving the westbound left turning vehicles. There are commercial businesses built close to the ramps in the northeast, southeast, and southwest quadrants with multiple truck stops, gas stations, and drive through businesses.

Intersection analysis shows that by 2030 the northbound off-ramp intersection is projected to operate at LOS F during the AM peak period and LOS E during the PM peak period.

The projected No-Build scenario volumes show that the northbound off-ramp right turn volume will be over capacity by 2050 with over 1,500 vehicles per hour during all peak periods. The single-lane loop ramp will be near capacity by 2050 with over 1,300 vehicles per hour during the PM and weekend midday peak periods. These high turning volumes correspond to the long-distance traffic coming from the east and south legs of the interchange.

One displaced left turn (DLT) alternative was considered for the S.R. 326 interchange with I-75, referred to as the DLT Alternative. The DLT Alternative would include the addition of westbound displaced left turn lanes onto I-75 southbound. Lane configurations are shown on the next page in **Figure 5-8.**

I-75 at S.R. 326

Figure 5-8 S.R. 326 Interchange DLT Alternative

S.R. 326 Interchange Traffic Operational Analysis

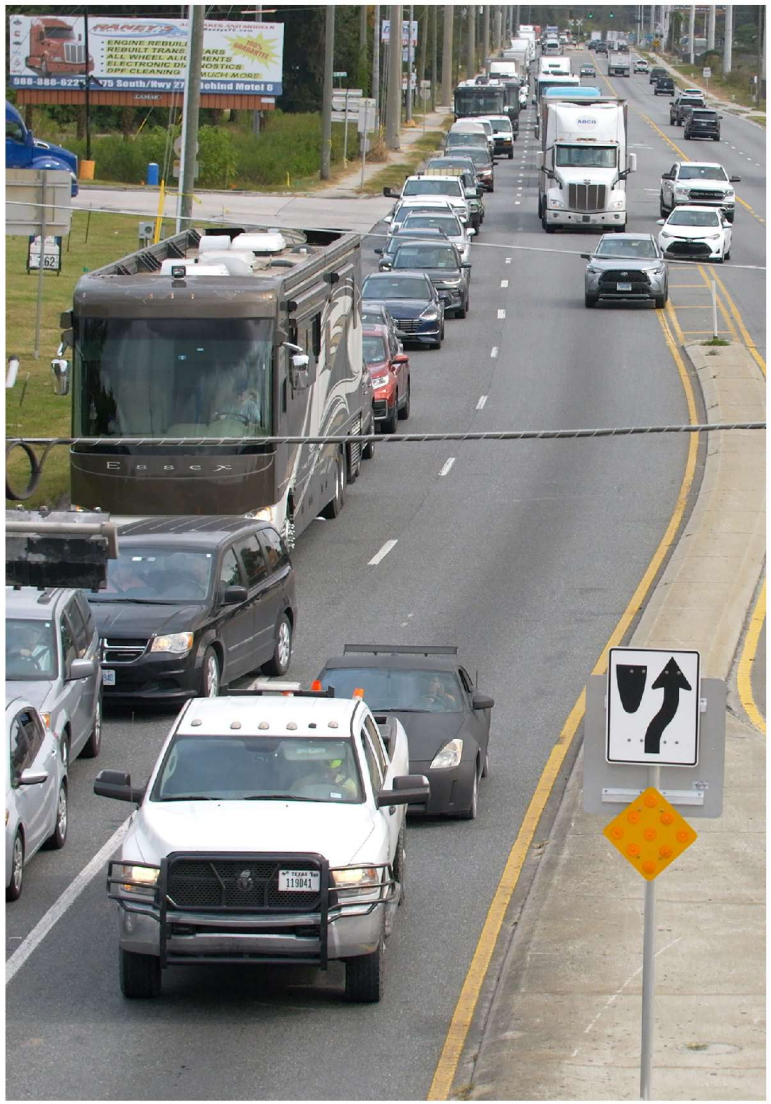
Traffic operational analysis was performed for the DLT Alternative. The analysis included the ramp merge and diverge areas and operations at the terminal intersections. Analyses assumed traffic volumes on an eight-lane I-75.

The results of the analysis showed that the DLT Alternative is expected to operate at LOS E or better and under capacity during all 2050 peak hours.

Table 5-7 summarizes the intersection operation results at both ramp terminal intersections for the 2050 AM, PM, and weekend midday peak hours. The delay refers to the average total vehicle delay of all movements through the intersection and is expressed in terms of seconds per vehicle. The amount of delay correlates to the LOS, per the Highway Capacity Manual 6th Edition.

Table 5-7 DLT Alternative: 2050 Peak Hour Operational Analysis Summary

	2050 AM		2050 PM		2050 Weekend	
	NB Ramps	SB Ramps	NB Ramps	SB Ramps	NB Ramps	SB Ramps
	Delay (LOS)					
DLT Alternative	29.9 (C)	47.1 (D)	30.7 (C)	51.5 (D)	28.3 (C)	33.8 (C)



S.R. 326 Interchange Recommendation

The DLT Alternative is the recommended Phase 1 improvement because it is anticipated to operate at or above target service levels for all movements through 2050.

The DLT Alternative, shown in **Figure 5-9** on the next page, would include the following improvements:

- Displaced dual left turn-lanes for I-75 southbound on-ramp approach
- Channelized dual right turn and left turn lanes under signal control at the I-75 northbound off-ramp approach
- Left turn lane for I-75 southbound off-ramp approach
- Additional lane for I-75 northbound on-ramp approach
- New entrance for businesses north of S.R. 326
- Signalized intersection at business entrances on east side of interchange
- Medians for left and right turn movements on east side of interchange

COSTS

The construction cost for the DLT Alternative was estimated using LRE and the measured shapes and lines from the concept drawings. The same percentages used in the I-75 mainline construction cost estimates were applied to the LRE subtotal (15% MOT, 15% Mobilization) and LRE total (25% Unknowns).

The estimated construction cost for the DLT Alternative is $8,645,400.

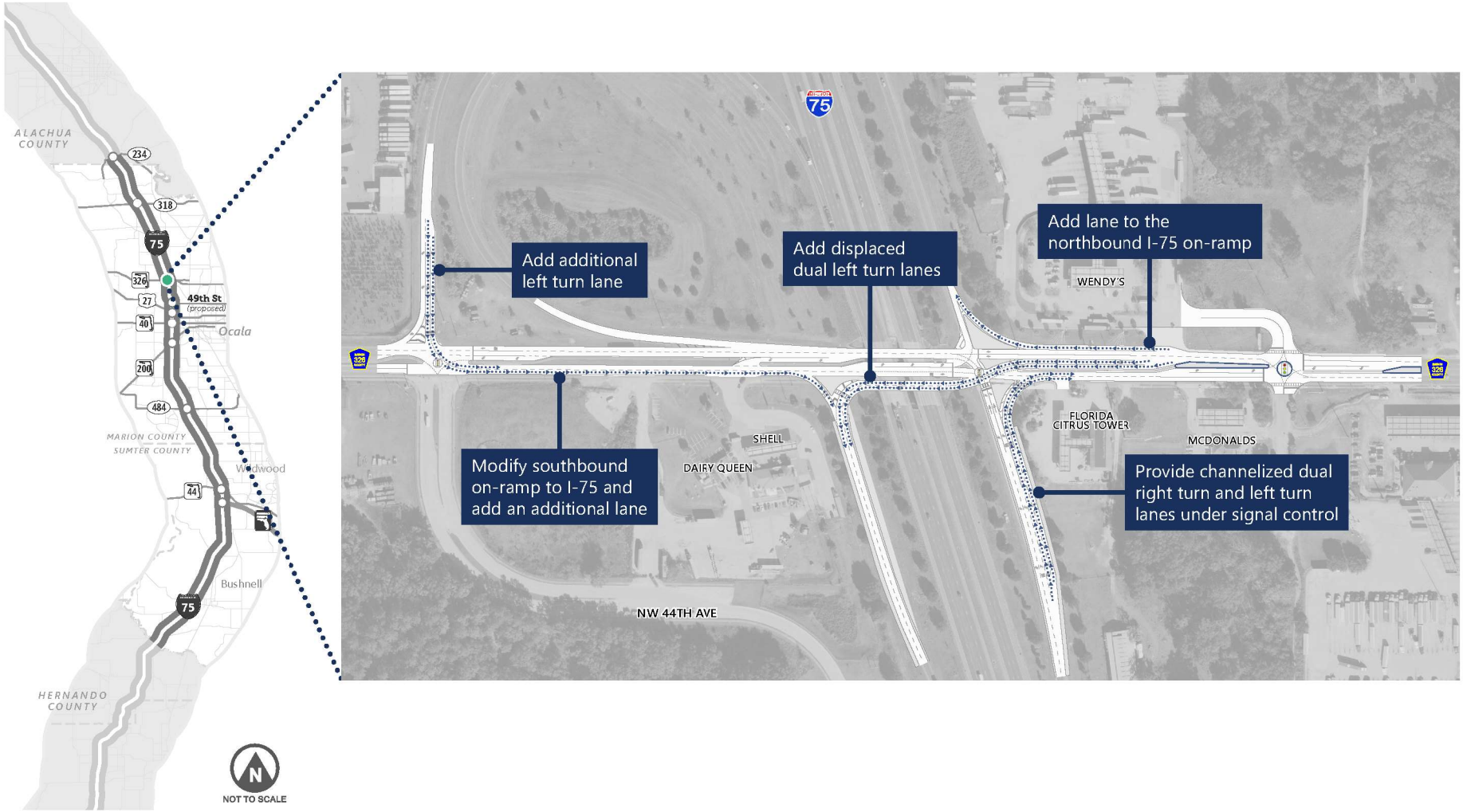
RIGHT OF WAY

The DLT Alternative would require approximately 1.63 acres of Right of Way. Approximately 0.64 acre of Right of Way acquisition is needed to implement the westbound right turn lane. The new entrance for businesses north of S.R. 326 would require a 0.99-acre easement.

ACCESS MANAGEMENT

Access to local S.R. 326 from I-75 would be improved with the addition of a left turn lane for the I-75 southbound off-ramp approach and channelized dual-left and right turn lanes for the I-75 northbound off-ramp approach. Access to I-75 from local S.R. 326 would be improved with the additions of dual-displaced left turn lanes and a merge lane for the I-75 southbound on-ramp approaches. The corridor would be widened to provide a right turn lane for the I-75 northbound on-ramp approach. The addition of the right turn lane would shift the entrance to businesses north of S.R. 326 approximately 250 feet east.

Figure 5-9 S.R. 326 Interchange Phase 1 Improvements



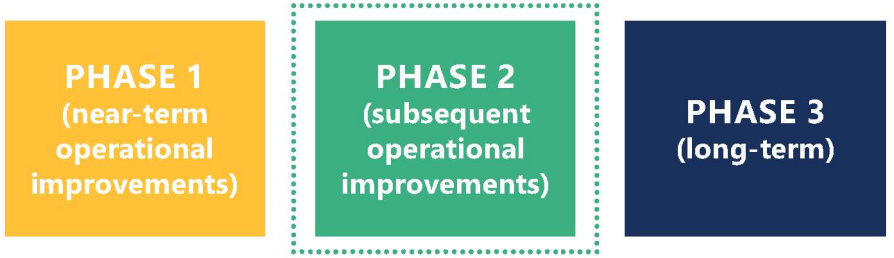
5.4 Phase 2 (Subsequent Interchange Operational Improvements)

Phase 2 focuses on the buildout design of the interchanges. These improvements are intended to enable interchanges to handle increased traffic volumes and serve greater capacity on the mainline and crossroads in the long-term. Reduced congestion at interchanges would lead to fewer accidents thereby also improving reliability.

Phase 2 interchange improvements are recommended for I-75 interchanges with S.R. 200, S.R. 40, U.S. 27, and C.R. 318. Proposed interchange configurations were selected based on projected traffic volumes, and lane calls were recommended through an iterative process using the traffic analysis results. A recommended alternative was selected based on anticipated ability to accommodate future traffic. Costs, Right of Way, and access management were evaluated for the recommended alternative.

Phase 2 interchange improvements are not recommended at the I-75 interchanges with S.R. 44, C.R. 484, and S.R. 326. Improvements are not recommended at S.R. 44 because the No-Build traffic analysis did not identify overcapacity movements through the 2050 peak hours. Improvements are not recommended at S.R. 326 because the Phase 1 improvements will meet long-term traffic needs. Improvements to C.R. 484 are not recommended as part of I-75 Forward because improvements to this interchange are underway (FPID 433651-1) as this plan is being developed.

Additionally, a **Stage 1 Intersection Control Evaluation (ICE) was conducted for Design Year (2050) peak hours** at the I-75 interchanges with **S.R. 200, S.R. 40, U.S. 27, S.R. 326, and C.R. 318** and is located in the project file.

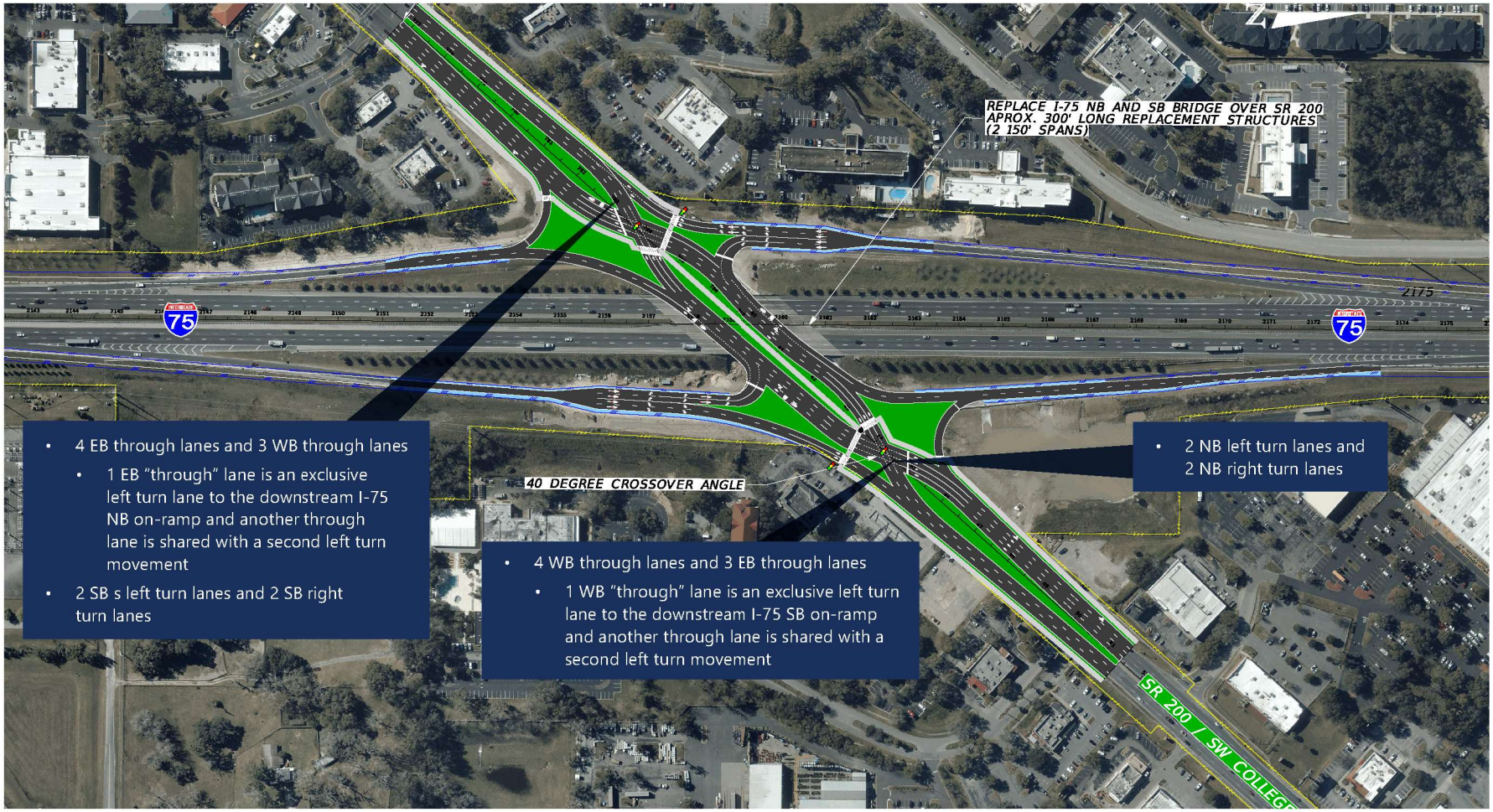


5.4.1 S.R. 200 Interchange

The S.R. 200 interchange is currently a diamond configuration. There are commercial businesses including hotels and gas stations in all four quadrants. Projected traffic volumes show that a DDI would be a good fit.

Traffic analysis for a DDI with a "3 by 3" lane configuration (three through lanes in each direction one exclusive left turn lane formed downstream of the crossover intersection along with one shared through/left turn lane onto the I-75 ramps) was first performed, which then led to a DDI with a "4 by 3" lane configuration (four through lanes upstream of the crossover intersections with one exclusive left turn lane along with one shared through/left turn lane onto the I-75 ramps) to accommodate 2050 traffic volumes. Lane configurations of the DDI (4 by 3) Alternative are shown in **Figure 5-10**.

Figure 5-10 S.R. 200 DDI (4 by 3) Alternative



5.4.1.1 ANALYSIS

5.4.1.1.1 Traffic Operational Analysis

Traffic operational analysis for the DDI (4 by 3) Alternative showed all intersection movements are expected to operate at LOS E or better and under capacity during the 2050 AM, PM, and weekend peak hours except one. The eastbound through movement at the I-75 northbound ramps intersection is expected to operate at LOS F (still under capacity) during the 2050 AM peak hour. **Table 5-8** summarizes the overall intersection operation results for each ramp terminal intersection for the 2050 AM, PM, and weekend midday peak hours.

5.4.1.1.2 Costs

The construction cost was estimated using LRE and the measured shapes and lines from the concept drawings. The same percentages used in the I-75 mainline construction cost estimates were applied to the LRE subtotal (15% MOT, 15% Mobilization) and LRE total (25% Unknowns).

The estimated cost for the DDI (4 by 3) Alternative is $25,873,000.

5.4.1.1.3 Right of Way

The DDI (4 by 3) Alternative may have minor Right of Way impacts east of I-75 in the eastbound direction and west of I-75 in the westbound direction.

5.4.1.1.4 Access Management

With the DDI (4 by 3) Alternative, the on-ramp connection to I-75 are improved with the conversion to a merge lane in each direction allowing vehicles traveling east and west through the corridor to simultaneously enter the highway system. The off-ramp connections to S.R. 200 have channelized dual left turn and channelized dual right turn lanes under signal controls.

Table 5-8 2050 Peak Hour Operational Analysis Summary for the S.R. 200 Build Alternative

	2050 AM		2050 PM		2050 Weekend	
	NB Ramps	SB Ramps	NB Ramps	SB Ramps	NB Ramps	SB Ramps
	Delay (LOS)					
DDI (4 by 3)	59.3 (E)	24.4 (C)	34.0 (C)	30.7 (C)	28.6 (C)	32.2 (C)

Delay = Average total vehicle delay of all movements through the intersection and is expressed in terms of seconds per vehicle.

5.4.1.2 RECOMMENDATION

The DDI (4 by 3) Alternative is the recommended long-term solution for the S.R. 200 interchange. The DDI (4 by 3) Alternative includes the following improvements:

- Reconfigure to a DDI
  - Three through lanes in each direction
  - Dual left turn lanes for both the northbound and southbound I-75 on-ramps
  - Dual lanes for all other ramp turning movements
- I-75 northbound and southbound bridge replacements will be required to accommodate the DDI.

The DDI (4 by 3) Alternative should be further studied and evaluated during the PD&E Study phase.

5.4.2 S.R. 40 Interchange

The S.R. 40 interchange is currently a tight diamond interchange. There are commercial businesses including hotels and gas stations in the northwest, southeast, and southwest quadrants. There are vacant lots in the northeast and southwest quadrants which could provide opportunities for interchange redesign. The projected volumes indicate that various interchange designs would work at this location. A DDI is a good choice to handle left turning traffic and would fit in the available space. A DDI would also be resilient to unexpected traffic increases past the projected volumes.

Traffic analysis for a DDI with a "3 by 2" (two through lanes in each direction with one exclusive left turn lane onto the I-75 ramps) lane configuration was first performed, which then led to a DDI with a "4 by 3" lane configuration (four through lanes upstream of the crossover intersections with one exclusive left turn lane along with one shared through/left turn lane onto the I-75 ramps).

S.R. 40 at I-75 southbound ramps, facing east

5.4.2.1 ANALYSIS

5.4.2.1.1 Traffic operational analysis

Traffic operational analysis for the DDI (4 by 3) Alternative showed all intersection movements are expected to operate at LOS E or better and under capacity during the 2050 AM, PM, and weekend peak hours. **Table 5-9** summarizes the overall intersection operation results for each ramp terminal intersection for the 2050 AM, PM, and weekend peak hours.

5.4.2.1.2 Costs

The construction cost was estimated using LRE and the measured shapes and lines from the concept drawings. The same percentages used in the I-75 mainline construction cost estimates were applied to the LRE subtotal (15% MOT, 15% Mobilization) and LRE total (25% Unknowns).

The estimated cost for the DDI (4 by 3) Alternative is $14,427,200.

5.4.2.1.3 Right of Way

The DDI (4 by 3) Alternative would require approximately 1.86 acres of Right of Way to accommodate the improvements. The concept drawing shows Right of Way needed on both sides S.R. 40 to the east and west of I-75.

5.4.2.1.4 Access Management

With the DDI (4 by 3) Alternative, the on-ramp connections to I-75 are improved with the addition of a merge lane in each direction allowing vehicles travelling east and west through the corridor to simultaneously enter the highway system. The off-ramp connections to local S.R. 40 are widened in both directions allowing vehicles to exit the highway system quicker. The southbound off-ramp connection has channelized dual left turn lanes and a channelized right turn lane under signal controls. The northbound off-ramp connection has channelized dual right turn and left turn lanes under signal controls.

Table 5-9 2050 Peak Hour Operational Analysis Summary for the S.R. 40 Build Alternative

	2050 AM		2050 PM		2050 Weekend	
	NB Ramps	SB Ramps	NB Ramps	SB Ramps	NB Ramps	SB Ramps
	Delay (LOS)					
DDI (4 by 3)	17.6 (B)	18.9 (B)	18.9 (B)	18.4 (B)	13.1 (B)	11.1 (B)

Delay = Average total vehicle delay of all movements through the intersection and is expressed in terms of seconds per vehicle.

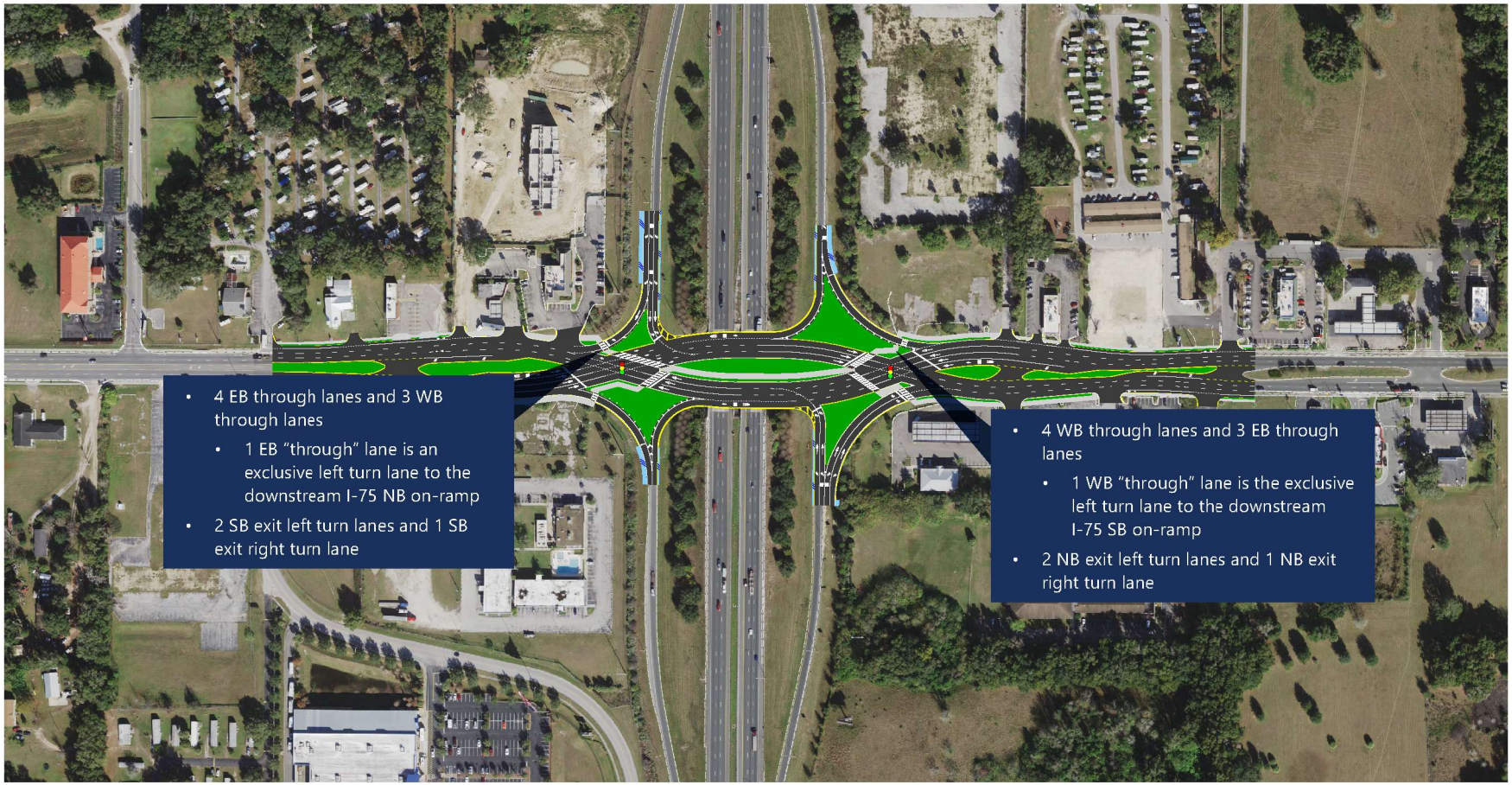
5.4.2.2 RECOMMENDATION

The DDI (4 by 3) Alternative is the recommended solution for the S.R. 40 interchange. The DDI (4 by 3) Alternative, shown in **Figure 5-11,** includes the following improvements:

- Reconfigure to a DDI
  - Three continuous through lanes in each direction
  - Merge lane for I-75 on-ramp approaches in both directions
  - Dual left turn lanes and a yield controlled channelized right turn lane at the I-75 southbound off-ramp approach
  - Dual left turn lanes and dual channelized right turn lanes under signal control at the I-75 northbound off-ramp approach
  - Continuous pedestrian facilities
  - Shared-used path in some areas of the S.R. 40 corridor
- I-75 northbound and southbound bridge replacements will be required to accommodate the DDI.

The DDI (4 by 3) Alternative should be further studied and evaluated during the PD&E Study phase.

Figure 5-11 S.R. 40 DDI (4 by 3) Alternative



5.4.3 U.S. 27 Interchange

The U.S. 27 interchange is currently a tight diamond and is angled at a skew under I-75. There are numerous businesses that are built close to U.S. 27 and the ramp terminals, many with driveway access to U.S. 27. Because of their proximity to the ramps and U.S. 27, these businesses might make some interchange designs infeasible without significant impacts. Projected volumes show that turning movements in both the AM and PM are not insignificant, but still could be accommodated by a more traditional interchange design like a standard diamond. However, a DDI or other innovative designs would be less sensitive to increases in turning traffic.

Two build alternatives were considered for the U.S. 27 interchange: a DLT interchange concept and a DDI with a "3 by 2" lane configuration (two through lanes in each direction with one exclusive left turn lane onto the I-75 ramps). The DLT Alternative requires partial reconfiguration to add displaced left turn lanes in each direction. The DDI (3 by 2) Alternative requires complete reconfiguration of the interchange from a diamond into a DDI. Lane configurations are shown in **Figure 5-13 and Figure 5-14**.

US 27 at I-75 northbound ramps, facing west

Figure 5-12 U.S. 27 DLT Alternative

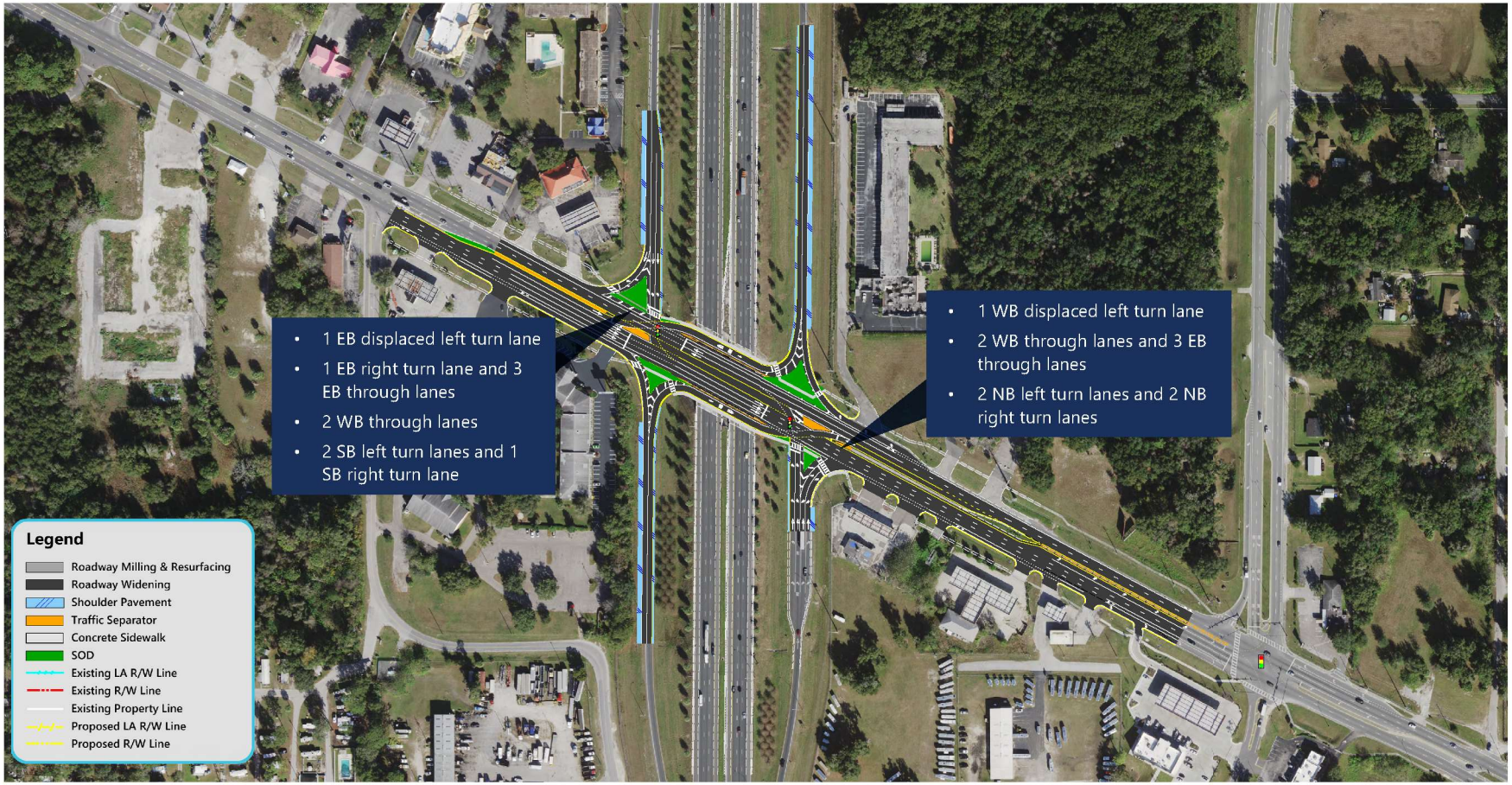
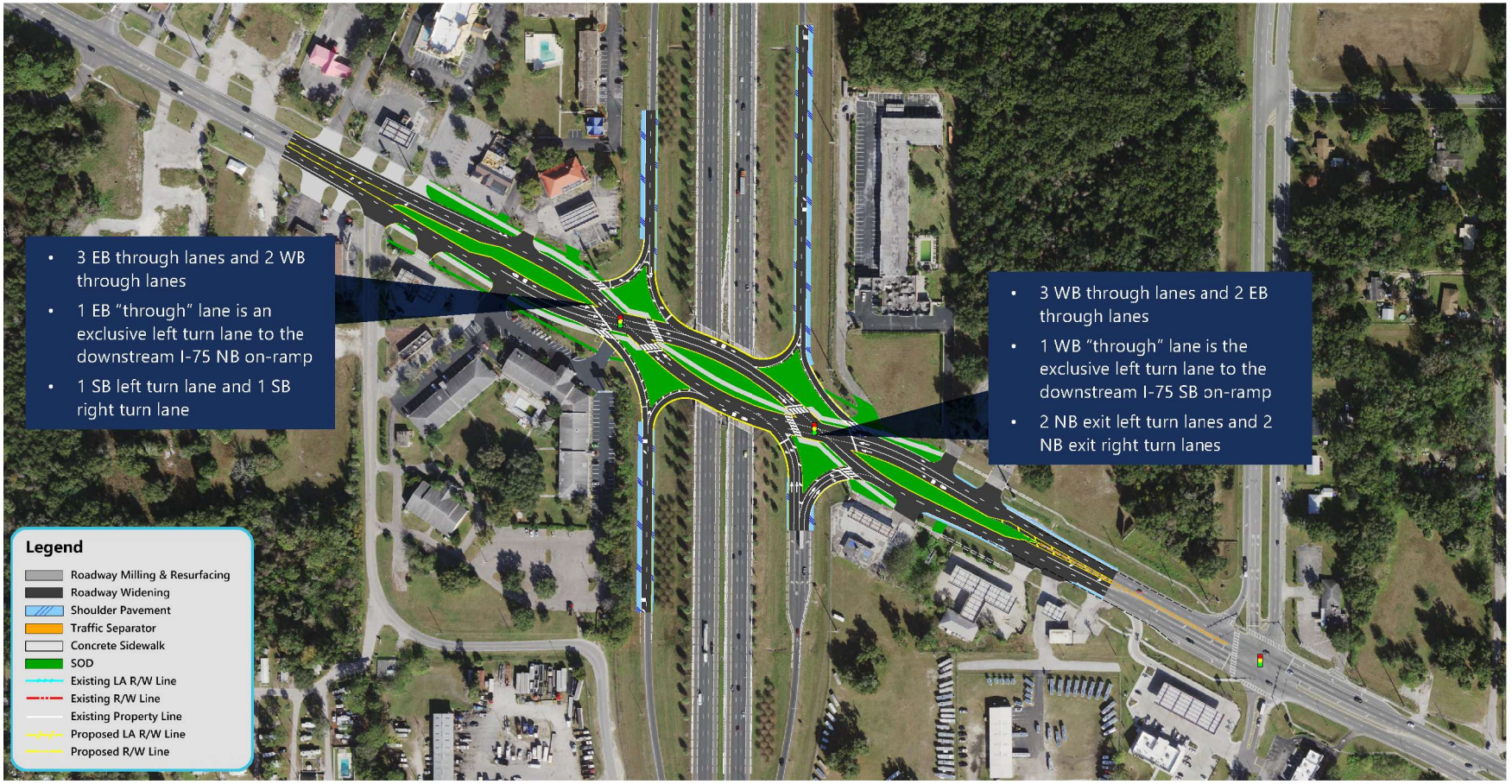


Figure 5-13 U.S. 27 DLT (3 by 2) Alternative



5.4.3.1 ANALYSIS

5.4.3.1.1 Traffic operational analysis

Traffic operational analysis was performed for both alternatives. The DLT Alternative results showed the westbound left turn and the northbound left turn movements at the I-75 northbound ramps operating at LOS F and/or over capacity during peak hours. **Table 5-10** summarizes the overall intersection operation results for each ramp terminal intersection for the 2050 AM, PM, and weekend midday peak hours. The DDI (3 by 2) Alternative performed better overall.

Table 5-10 2050 Peak Hour Operational Analysis Summary for the U.S. 27 Build Alternatives

	2050 AM		2050 PM		2050 Weekend	
	NB Ramps	SB Ramps	NB Ramps	SB Ramps	NB Ramps	SB Ramps
	Delay (LOS)					
DDI (3 by 2)	30.2 (C)	30.0 (C)	35.1 (D)	34.4 (C)	22.0 (C)	22.7 (C)
DLT	39.1 (D)	25.8 (C)	55.8 (E)	34.5 (C)	31.5 (C)	24.9 (C)

Delay = Average total vehicle delay of all movements through the intersection and is expressed in terms of seconds per vehicle.

5.4.3.1.2 Costs

The construction cost was estimated using LRE and the measured shapes and lines from the concept drawings. The same percentages used in the I-75 mainline construction cost estimates were applied to the LRE subtotal (15% MOT, 15% Mobilization) and LRE total (25% Unknowns).

The estimated cost for the DLT Alternative is $7,510,200.

The estimated cost for the DDI (3 by 2) Alternative is $13,984,900.

5.4.3.1.3 Right of Way

The roadway concepts for the DLT Alternative and DDI (3 by 2) Alternative would be accommodated within the existing Right of Way. Stormwater ponds have not been evaluated and could result in Right of Way impacts.

5.4.3.1.4 Access Management

With the DLT Alternative, access to local U.S. 27 from I-75 southbound is improved by the addition of a channelized right turn lane under signal control and channelized dual left turn lanes. The I-75 northbound off-ramp approach maintains the channelized dual left and right turn lanes. The on-ramp connections to I-75 are improved with the addition of a merge lane in each direction allowing vehicles travelling east and west through the corridor to simultaneously enter the highway system. With the DDI (3 by 2) Alternative, the on-ramp connections to I-75 maintain the merge lanes introduced in Phase 1 (auxiliary lanes). The northbound off-ramp approach maintains the channelized dual right and left turn lane and the southbound off-ramp has a channelized right lane under yield control and a channelized left turn lane under signal control.

5.4.3.2 RECOMMENDATION

The DDI (3 by 2) Alternative is the recommended solution for the U.S. 27 interchange because it performed better in the traffic analysis. However, the DLT Alternative could be constructed first and the DDI Alternative could be constructed later. Having this two-tiered option may be appropriate depending on funding and needs. Both alternatives are discussed as follows.

The DLT Alternative includes the following improvements:

- Partial reconfiguration to DLT
  - Three continuous lanes eastbound on U.S. 27
  - Signalized displaced left turns for the I-75 on-ramp approaches
  - in both directions
  - Continuous pedestrian facilities throughout corridor
  - Continuous bicycle lanes throughout corridor
  - Dual left turn lanes and a yield controlled channelized right turn lane at the I-75 southbound off-ramp approach
- I-75 northbound/southbound bridge replacements (approximately 200-ft long replacement structures)

The DDI (3 by 2) Alternative includes the following improvements:

- Reconfigure to a DDI
  - Two continuous through lanes in each direction
  - Merge lane for I-75 on-ramp approaches in both directions
  - Yield controlled channelized right turn lane and a channelized left turn lane under signal control at the I-75 southbound off-ramp approach
  - Channelized dual right turn and left turn lanes under signal control at the I-75 northbound off-ramp approach
- I-75 northbound/southbound bridge replacements (approximately 200-ft long replacement structures) (if not previously done for the DLT Alternative)

The DDI (3 by 2) Alternative should be further evaluated during the PD&E Study phase.

5.4.4 C.R. 318 Interchange

The C.R. 318 interchange is currently an unsignalized diamond interchange. The C.R. 318 is nearly 10 miles north of the S.R. 326 interchange and nearly 7 miles south of the C.R. 234 interchange. Currently, only the northeast quadrant has built infrastructure, namely a large truck parking lot and rest stop. Projected volumes are fairly low in both the AM and PM peak periods. Signalizing the ramp terminals and adding dedicated turn lanes would accommodate these vehicles without the need to reconfigure the interchange design. A future conversion to a DDI could be performed in the same footprint and provide significantly increased capacity should it ever be needed.

Traffic analysis was first performed for signalized intersections maintaining the existing lane configurations, which led to the addition of one exclusive westbound left turn lane for the Signalized Alternative. The improvements associated with the Signalized Alternative are shown in **Figure 5-14.**

C.R. 318 at I-75 northbound ramps, facing west

Figure 5-14 C.R. 318 Signalized Alternative

5.4.4.1 ANALYSIS

5.4.4.1.1 Traffic Operational Analysis

Traffic operational analysis showed all intersection movements evaluated are expected to operate at LOS E or better and under capacity during all peak hours with the Signalized Alternative. **Table 5-11** summarizes the overall intersection operation results for the 2050 AM, PM, and weekend midday peak hours.

Table 5-11 2050 Peak Hour Operational Analysis Summary for the C.R. 318 Signal Alternative

	2050 AM		2050 PM		2050 Weekend	
	NB Ramps	SB Ramps	NB Ramps	SB Ramps	NB Ramps	SB Ramps
	Delay (LOS)					
Signalized Alternative	29.9 (C)	47.1 (D)	30.7 (C)	51.5 (D)	28.3 (C)	33.8 (C)

Delay = Average total vehicle delay of all movements through the intersection and is expressed in terms of seconds per vehicle.

5.4.4.1.2 Costs

The construction cost was estimated using LRE and the measured shapes and lines from the concept drawings. The same percentages used in the I-75 mainline construction cost estimates were applied to the LRE subtotal (15% MOT, 15% Mobilization) and LRE total (25% Unknowns).

The estimated cost for the Signalized Alternative is $2,668,500.

The estimated cost for the long-term DDI (3 by 2) Alternative was not calculated for *I-75 Forward*.

5.4.4.1.3 Right of Way

To accommodate the addition of the exclusive westbound left turn lane for the Signalized Alternative, C.R. 318 would need to be widened through approximately 0.47 acre of Right of Way acquisition.

To accommodate the DDI (3 by 2) Alternative, C.R. 318 would need to be widened through approximately 2.98 acre of Right of Way acquisition.

5.4.4.1.4 Access Management

With the Signalized Alternative, access to I-75 from C.R. 318 remains the same, while access to C.R. 318 from I-75 is improved with the addition of a merge lane for the I-75 northbound off-ramp. The through movements for C.R. 318 are signalized allowing smoother operations at the off-ramp connections. With the DDI (3 by 2) Alternative, access to I-75 is improved with the addition of channelized dual left turn lanes, a signal-controlled right turn lane, and merge lanes at the on-ramp approaches in each direction. The off-ramp approaches from I-75 are improved with signal-controlled left and right turn lanes.

5.4.4.2 RECOMMENDATION

The Signalized Alternative is the recommended solution for the C.R. 318 interchange. Although not included in the traffic analysis, a DDI (3 by 2) is recommended in the long-term to accommodate future growth which has been planned since the time of the traffic model development.

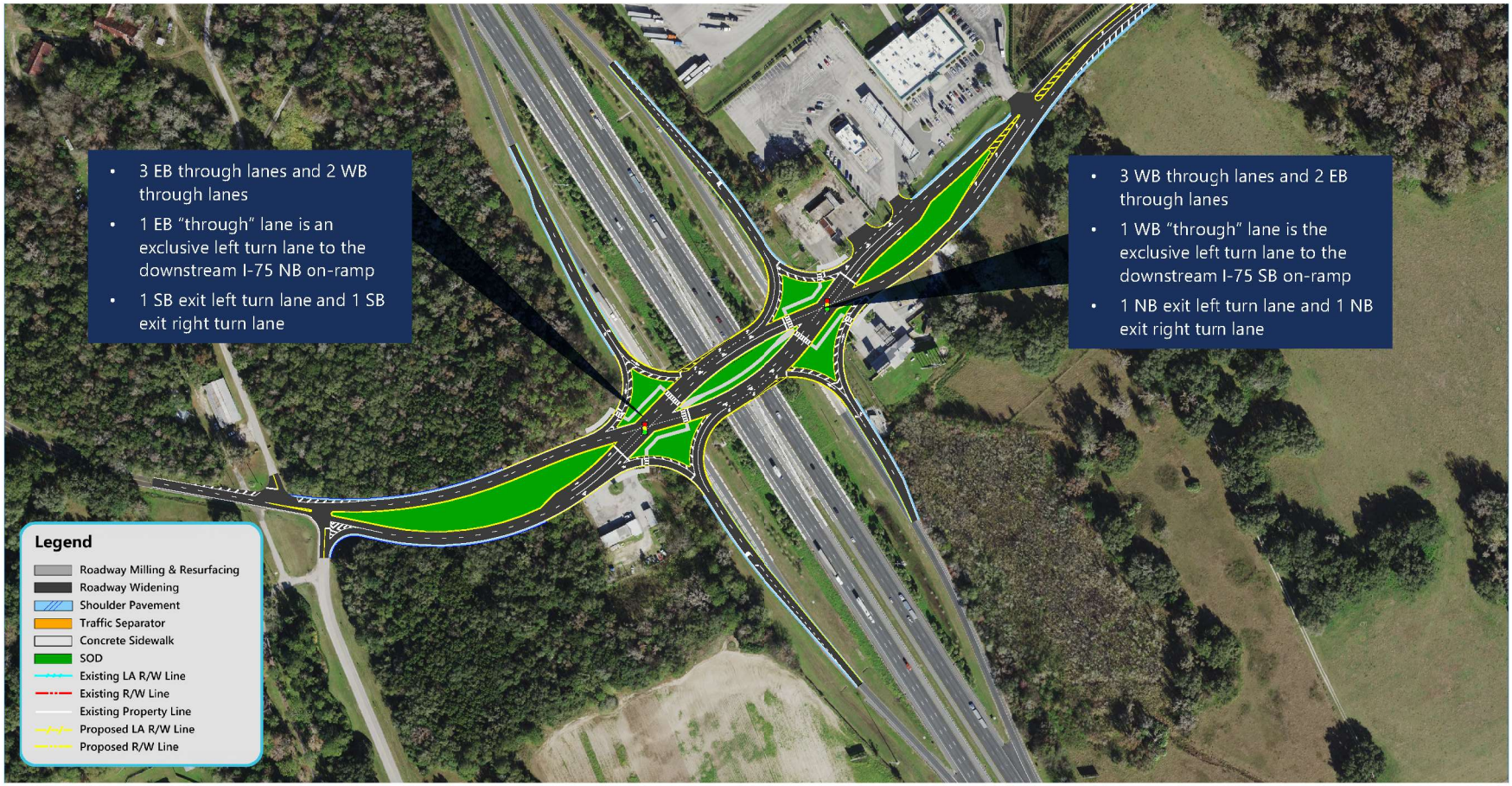
The Signalized Alternative improvements include the following.

- Signalized intersection for I-75 southbound on/off-ramp approaches
- Left turn lane introduced for I-75 southbound on-ramp approach
- Signalized intersection for I-75 northbound on/off-ramp approaches
- Merge lane introduced for I-75 northbound off-ramp/East C.R. 318

The DDI (3 by 2) Alternative includes the following improvements, shown in **Figure 5-15.**

- Reconfigure to a DDI
  - Two continuous choice/through lanes in each direction
  - Continuous pedestrian facilities throughout corridor
  - Channelized right turn lane under signal control and channelized dual left turn lanes at the I-75 northbound/southbound on-ramp approaches
  - Merge lane introduced on I-75 NB/SB on-ramps
  - Channelized right and left turn-lanes under signal control at I-75 northbound/ southbound off-ramp approaches
  - Signalized intersection introduced at NW Highway 225 off-ramp
- I-75 northbound/southbound bridge replacements (approximately 200-ft long replacement structures)

Figure 5-15 C.R. 318 DDI (3 by 2) Alternative



5.5 Phase 3 (Long-Term Improvements)

Phase 3 focuses on the buildout design of the I-75 mainline beyond year 2050. The following sections outline potential buildout alternatives for mainline improvements that could enhance mobility and improve reliability and safety along the corridor by either adding additional lanes adjacent to the existing I-75 travel lands or by providing additional lanes separated from the existing I-75 travel lanes as a "system within a system". The alternatives represent planning level scenarios and require additional evaluation in subsequent Project Development and Environment (PD&E) Studies to evaluate engineering considerations and potential environmental impacts. The footprint width of the alternatives that were evaluated ranged from 184 foot in width to 270 feet. All of the alternatives that were developed for Phase 3 generally fit within the existing right-of-way.

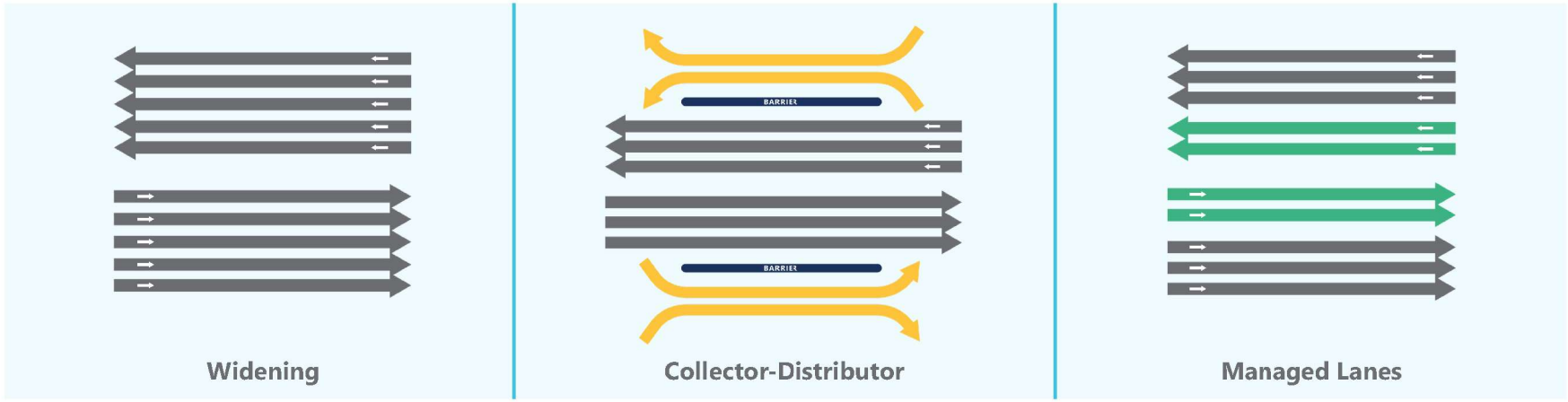
Mainline options to address long-term transportation needs are described as follows.

PHASE 1 (near-term operational improvements)

PHASE 2 (subsequent operational improvements)

PHASE 3 (long-term improvements)

Types of Options Being Considered



5.5.1 I-75 Widening Options

Mainline Option 4A: Widen Two General Purpose Lanes in Each Direction (10 Lanes)

Mainline Option 4A, as shown in **Figure 5-16**, would convert the auxiliary lane constructed as part of Phase 1 to a general-purpose lane and add another general-purpose lane for a total of five general purpose lanes in each direction. Widening carries across the interchange bridges. All mainline bridges would need to be widened.

The typical section for widening two general purpose lanes in each direction will consist of the following:

- Ten 12-ft wide general-purpose lanes (five in each direction)
- Two 12-ft wide inside shoulders (10-ft paved and 2-ft unpaved)
- Two 12-ft wide outside shoulders (10-ft paved and 2-ft unpaved)
- A 40-ft median (includes inside shoulders in both directions)remaining on either side

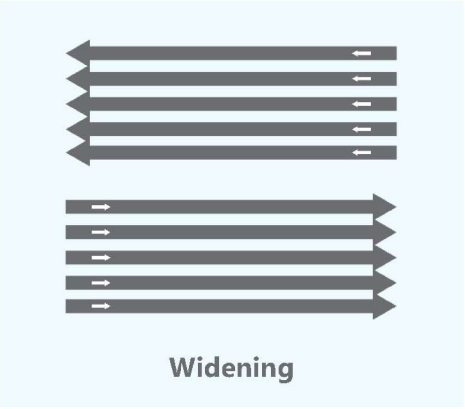


Figure 5-16 Mainline Option 4A Typical Section

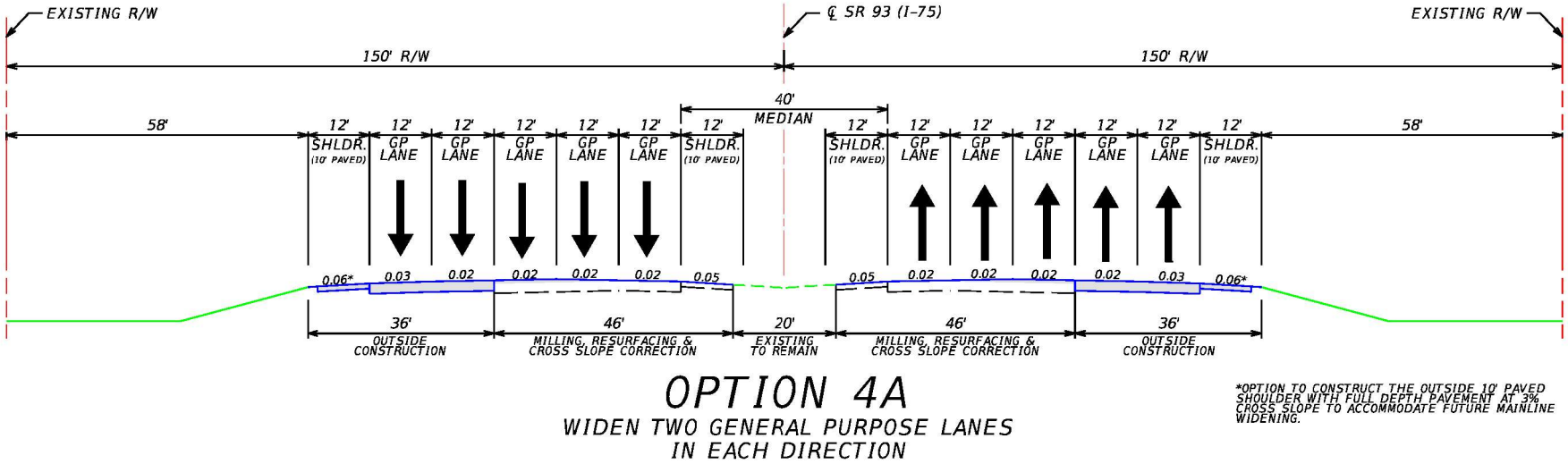
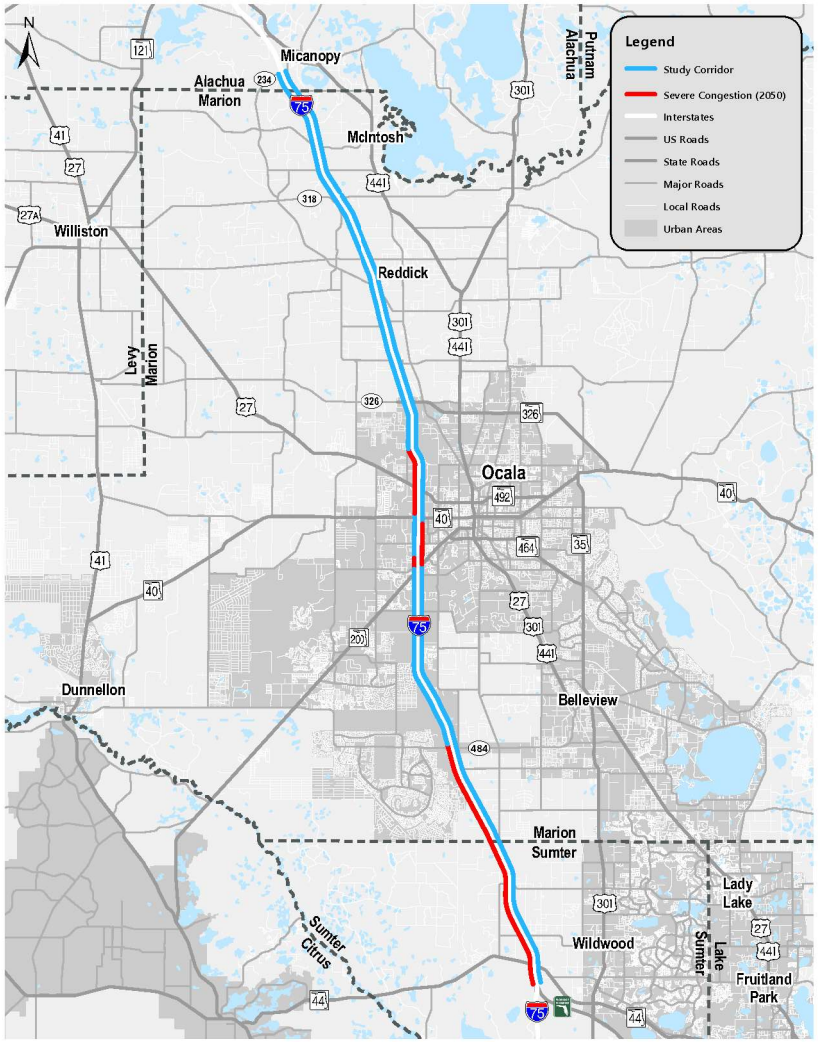


Figure 5-17 Mainline Option 4A: Severely Congested Roads (<25 mph)



Based on average traffic conditions, Mainline Option 4A is expected to provide adequate capacity along I-75 to between year 2040 and 2050. Additional capacity beyond the 10-lane widening will be needed to address the projected traffic through the design year (2050).

The interim (2040) and design (2050) years operational analysis results for the weekday AM, weekday PM, and weekend midday peak hours show that Mainline Option 4A is expected to provide adequate capacity along I-75 to between year 2040 and 2050. In 2050, I-75 is anticipated to have overcapacity (LOS F) segments with heavy congestion during the AM, PM, and weekend peak periods for both the northbound and southbound directions. The analysis shows that by 2050, additional capacity will be needed at the Florida Turnpike, S.R. 44, C.R. 484, S.R. 40, U.S. 27, and NW 49th Street merge and diverges in one or both directions. Severe congestion (speeds lower than 25 mph) is expected to be present in the northbound direction between S.R. 200 and S.R. 40 in the southbound direction between NW 49th Street and S.R. 40, between north of C.R. 484 and Florida's Turnpike, and north of S.R. 200.

Sources: FDOT District 5, PTAR: I-75 (S.R. 93) from Florida's Turnpike (S.R. 91) to S.R. 200, 2022 and FDOT District 5, PTAR: I-75 (S.R. 93) from S.R. 200 to C.R.234, 2022

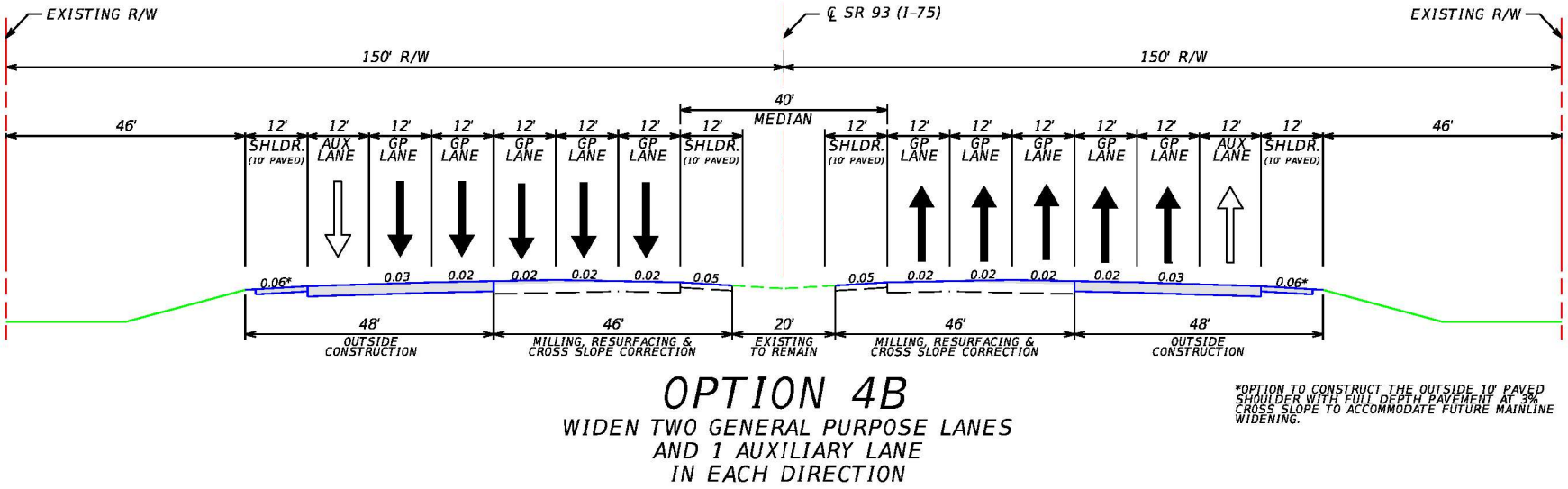
Mainline Option 4B: Widen Two General Purpose Lanes and One Auxiliary Lane in Each Direction (10-Lane + Aux Lane)

Mainline Option 4B, as shown in **Figure 5-17**, will convert the auxiliary lane constructed as part of Phase 1 to a general-purpose lane, add another general-purpose lane, and construct a new auxiliary lane for a total of five general purpose lanes and one auxiliary lane in each direction. Widening carries across the interchange bridges. All mainline bridges would need to be widened.

The typical section for widening two general purpose lanes in each direction will consist of the following:

- Ten 12-ft wide general-purpose lanes (five in each direction)
- Two 12-ft wide inside shoulders (10-ft paved and 2-ft unpaved)
- Two 12-ft wide outside shoulders (10-ft paved and 2-ft unpaved)
- A 40-ft median (includes inside shoulders in both directions)
- Two 12-ft wide auxiliary lanes (one in each direction)

Figure 5-18 Mainline Option 4B Typical Section



5.5.2 I-75 Collector-Distributor Options

Mainline Option 5A: Two Barrier Separated Collector-Distributor in Each Direction

The typical section for widening two barrier separated collector distributor lanes as shown in **Figure 5-18** in each direction would consist of the following:

- Six 12-ft wide general-purpose lanes (three in each direction)
- Two 12-ft wide inside shoulders (10-ft paved and 2-ft unpaved)
- Two 12-ft wide shoulders (12-ft paved) (outside of GP lanes)
- A 2-ft wide shoulder barrier on each side
- Two 8-ft paved shoulders (one in each direction)
- Four 12-ft wide collector distributor lanes (two in each direction)
- A 40-ft median (includes inside shoulders in both directions)
- Two 12-ft wide outside shoulders (10-ft paved and 2-ft unpaved) (outside of CD lanes)

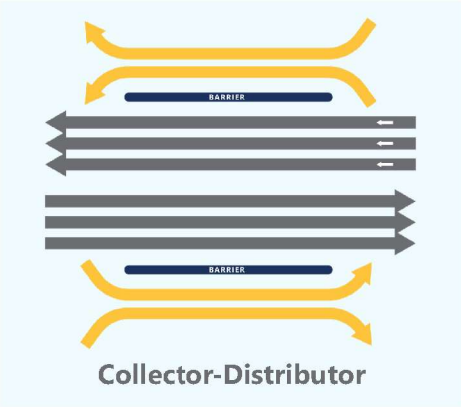
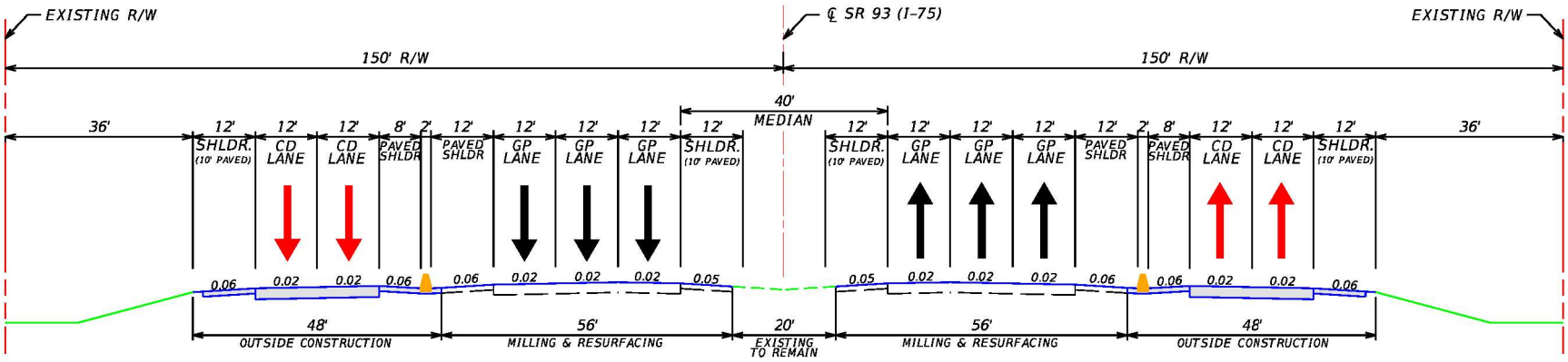


Figure 5-19 Mainline Option 5A Typical Section



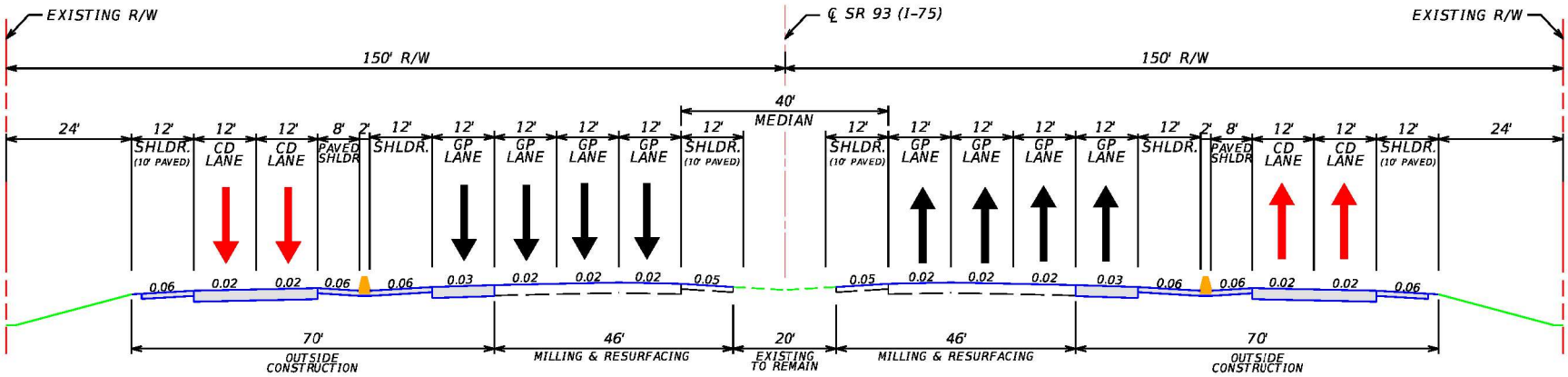
OPTION 5A
TWO BARRIER SEPARATED
COLLECTOR DISTRIBUTOR LANES
IN EACH DIRECTION

Option 5B: Widen One General Purpose Lane and Two Barrier Separated Collector-Distributor or Managed Lanes in Each Direction

The typical section for widening one general purpose lane and two barrier separated collector-distributor lanes (or managed lanes) in each direction will consist of the following:

- Eight 12-ft wide general-purpose lanes (four in each direction)
- Two 12-ft wide inside shoulders (10-ft paved and 2-ft unpaved)
- Two 12-ft wide shoulders (12-ft paved) (outside of GP lanes)
- A 2-ft wide shoulder barrier on each side
- Two 8-ft paved shoulders (one in each direction)
- Four 12-ft wide collector distributor lanes (two in each direction)
- A 40-ft median (includes inside shoulders in both directions)
- Two 12-ft wide outside shoulders (10-ft paved and 2-ft unpaved) (outside of CD lanes)

Figure 5-20 Mainline Option 5B Typical Section

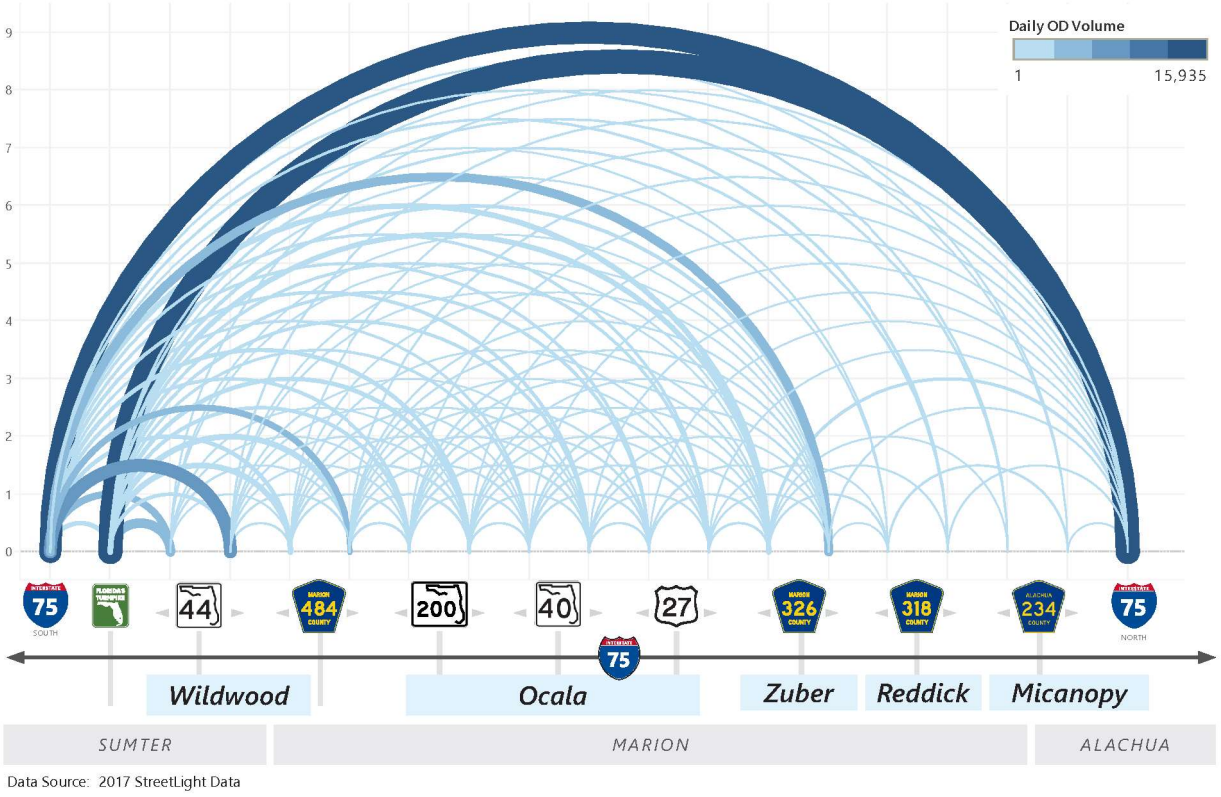


OPTION 5B

WIDEN ONE GENERAL PURPOSE LANE AND TWO BARRIER SEPARATED COLLECTOR DISTRIBUTOR LANES IN EACH DIRECTION

A detailed review of origin-destination patterns was undertaken to determine the potential feasibility of a collector-distributor system, particularly in Ocala where the distance between interchanges (SR 200, SR 40, US 27, SR 326) is relatively short compared to other sections of the corridor. An analysis of StreetLight Data shows traffic entering the study corridor from the north is primarily long-distance through traffic that does not stop in the study area. Similar patterns exist for traffic entering the study corridor from the south, indicating a low demand for interchange-to-interchange traffic movement that could benefit from a collector-distributor system. Additional information can be found in the **Reliability Assessment: Existing Conditions and Methodology** report prepared for the study corridor.

Daily OD Volume Chart (Bi-Directional)



Data Source: 2017 StreetLight Data

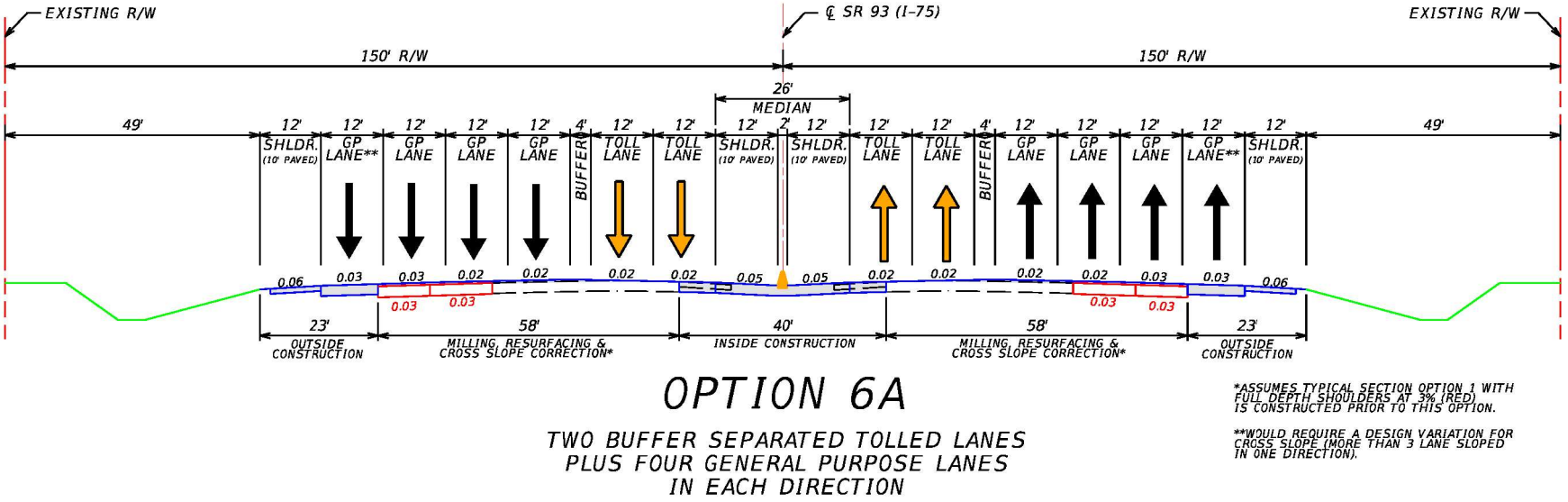
5.5.3 I-75 Tolled/Managed Lanes Options

Mainline Option 6A: Two Buffer Separated Toll Lanes Plus Four General Purpose Lanes in Each Direction

The typical section for widening two buffer separated toll lanes as shown in **Figure 5-20** in each direction would consist of the following:

- Eight 12-ft wide general-purpose lanes (four in each direction)
- Two 12-ft wide inside shoulders (10-ft paved and 2-ft unpaved)
- Two 12-ft wide shoulders (12-ft paved) (outside of GP lanes)
- A 4-ft wide buffer separator on each side
- Four 12-ft wide toll lanes (two in each direction)
- A 26-ft median (includes inside shoulders in both directions)

Figure 5-21 Mainline Option 6A Typical Section

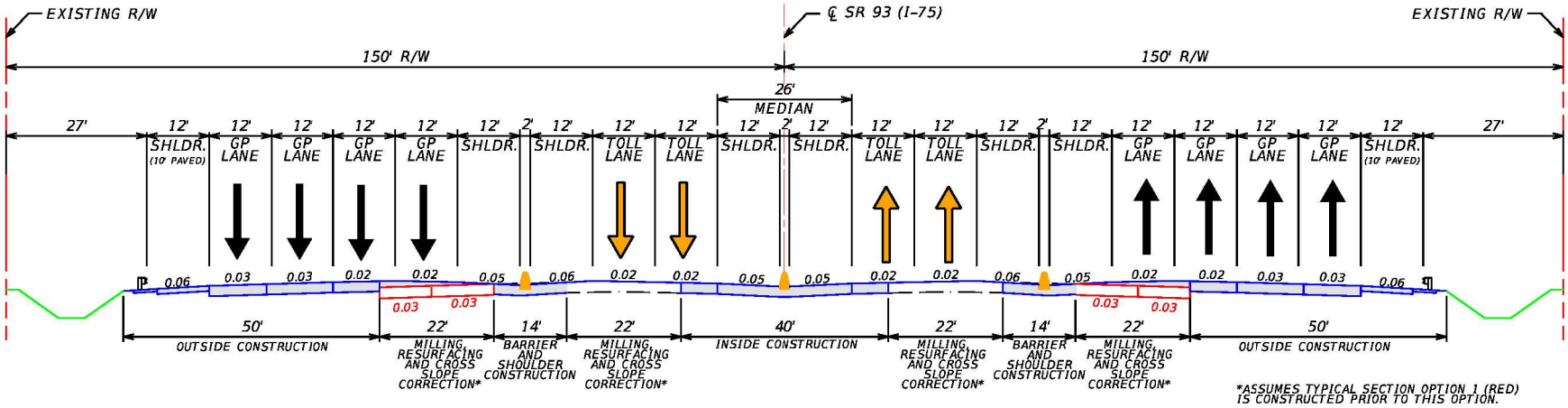


Mainline Option 6B: Two Barrier Separated Toll Lanes Plus Four General Purpose Lanes in Each Direction

The typical section for widening two barrier separated toll lanes as shown in **Figure 5-21** in each direction would consist of the following:

- Eight 12-ft wide general-purpose lanes (four in each direction)
- Two 12-ft wide inside shoulders (12-ft paved) (inside of GP lanes)
- Two 12-ft wide shoulders (12-ft paved) (outside of GP lanes)
- A 2-ft wide barrier separator on each side
- Four 12-ft wide toll lanes (two in each direction)
- A 26-ft median (includes inside 12-ft shoulders in both directions)
- Two 12-ft wide outside shoulders (12-ft paved) (outside of toll lanes)

Figure 5-22 Mainline Option 6B Typical Section



OPTION 6B

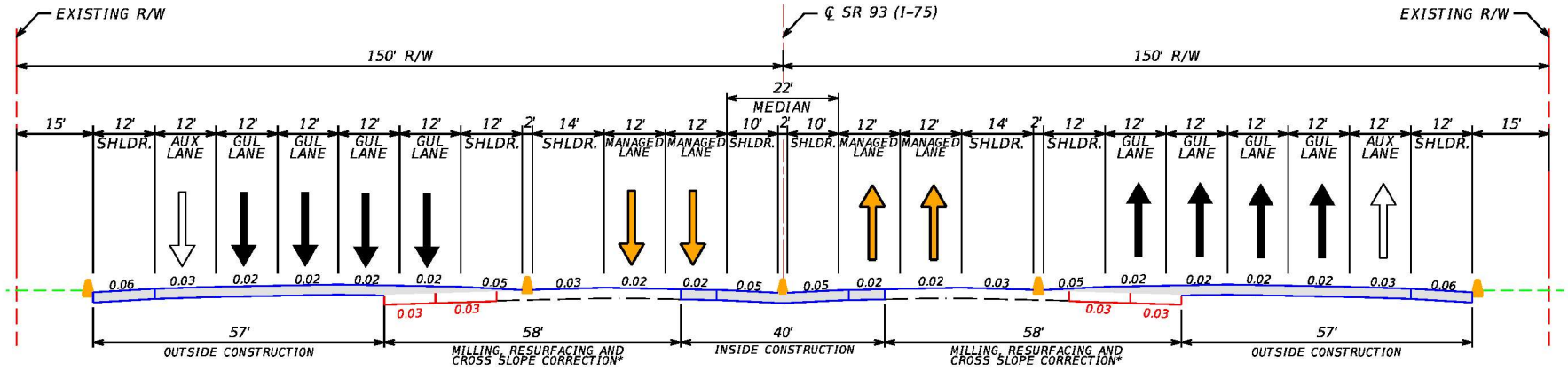
TWO BARRIER SEPARATED TOLLED LANES
PLUS FOUR GENERAL PURPOSE LANES
IN EACH DIRECTION

Mainline Option 6C: Two Barrier Separated Toll Lanes Plus Four General Purpose Lanes Plus One Auxiliary Lane in Each Direction

The typical section for widening two barrier separated toll lanes as shown in **Figure 5-22** in each direction would consist of the following:

- Eight 12-ft wide general-purpose lanes (four in each direction)
- Two 12-ft wide auxiliary lanes (one in each direction)
- Two 12-ft wide inside shoulders (12-ft paved) (inside of GP lanes)
- Two 12-ft wide shoulders (12-ft paved) (outside of auxiliary lanes)
- A 2-ft wide barrier separator on each side
- Four 12-ft wide toll lanes (two in each direction)
- A 26-ft median (includes inside 12-ft shoulders in both directions)
- Two 12-ft wide outside shoulders (12-ft paved) (outside of toll lanes)

Figure 5-23 Mainline Option 6C Typical Section



A preliminary analysis of traffic and reliability conditions indicates a tolled or managed lane option could provide substantial benefits beyond 2050; however, additional study is recommended. In addition to a detailed traffic analysis, the ingress/egress access types and points would need to be evaluated along with the separation type (barrier versus buffer) from the general-purpose lanes.

The advantages and disadvantages of each potential access type should be evaluated with consideration given to continuous access, weave zones, weave lanes, slip ramps, and/or direct connect ramps. An analysis of various factors for ingress/egress locations should also be undertaken including origin-destination patterns, traffic demand, roadway geometry, operational characteristics, signing, environmental impacts, and costs.

For the mainline tolled/managed lane options, further analysis of managed lane separation methods is also recommended including a comparison of buffer separation versus rigid barrier separation options. A whitepaper was previously prepared documenting the potential advantages/disadvantages of each separation method and is briefly summarized below:

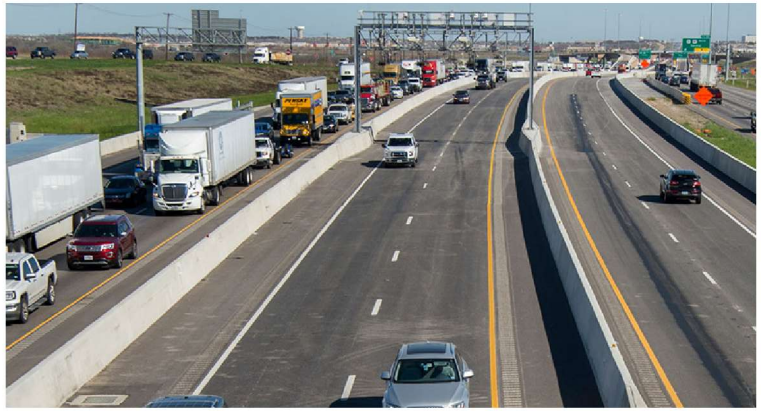
Buffer separation

- Requires less right-of-way and allows for easier retrofitting of the system.
- Access for incident management and emergency vehicles is continuous throughout the buffer separated system.
- Greater potential for toll avoidance or other access violations.
- Drivers could experience a frictional effect that degrades vehicle throughput when there is significant traffic density and the resultant speed differential in the general use lanes.
- Likely to be affected by any incident by reducing flow to a rate similar to the directly affected lanes.
- Lack of shoulders between the adjacent facilities does not provide disabled vehicles a safe location to move over and are left stranded in the travel lane.
- Maintenance needs could be significantly higher.

Rigid barrier separation

- Requires further expansion of the existing roadway width and possibly additional right-of-way due to full shoulder widths.
- Access for incident management and emergency vehicles is limited to specific entrance and exit points.
- Less potential for toll avoidance or other access violations.
- Errant vehicles are less likely to cross over and impact traffic in the adjacent facility.
- Provides motorists a heightened sense of security during high-speed differential conditions and due to the inability of illegal maneuvers into or out of facility.
- Providing full-width shoulders allows for disabled vehicles to move over to a safe location off the travel lanes. This also allows for incident management to provide maintenance-of-traffic that diverts traffic around any blocked travel lanes.

Example of buffer separated lanes



Example of rigid barrier separated lanes

5.5.4 Recommendations

Based on preliminary traffic analysis, the mainline widening options have the potential to address transportation demand through 2040; however, additional capacity would be needed by 2050 for most segments in the study corridor. Additional widening is also unlikely to address reliability issues the corridor experiences because of non-recurring congestion. For these reasons, the mainline widening options are not expected to meet the long-term demands of the study corridor.

For the collector-distributor options, an analysis of the origin-destination data indicates a low demand within the study corridor for short, local trips and for interchange-to-interchange vehicle movements. For this reason, the mainline collector-distributor options are not anticipated to meet the long-term demands of the study corridor.

The mainline tolled/managed lane options have the greatest potential to meet the future transportation needs of the study corridor; however, additional study and coordination with Florida's Turnpike is recommended. Consideration should be given to the location of the tolled/managed lanes (inside versus outside of the general purpose lanes), ingress and egress types and locations, and separate methods (buffer versus barrier).

6

Other Considerations

6

In addition to roadway and interchange improvement strategies, TSM&O strategies and drainage requirements were considered as part of *I-75 Forward*.

TSM&O Strategies

+

Drainage Requirements

6.1 TSM&O Strategies

Traffic analysis indicated that TSM&O strategies alone would not be enough to address the corridor needs but could be implemented with roadway and interchange improvement strategies. FDOT District 5 already employs or will be deploying several TSM&O strategies along the *I-75 Forward* corridor. This section discusses existing and additional TSM&O strategies that may be implemented on the *I-75 Forward* corridor.

6.1.1 Traffic Incident Management

Traffic incident management is the process of coordinating the resources of multiple partner agencies and private sector companies to detect, verify, respond to, and clear traffic incidents as quickly as possible to reduce the impacts or incidents on safety and congestion, while protecting the safety of on-scene responders and the traveling public. This strategy uses closed-circuit television (CCTV), traffic sensors, telecommunications, and a central traffic management center (TMC) to improve the operational efficiency of freeways, expressways, and arterials. A few of the programs that fall under the umbrella of traffic incident management are described on the next pages, including two that are already present on the *I-75 Forward* corridor.

6.1.1.1 FDOT ROAD RANGER SERVICE PATROL (PRESENT)

FDOT's Road Ranger Service Patrol provides traffic incident management response services and limited no-cost highway assistance to motorists to improve highway safety for emergency responders and the motoring public. Trained personnel use specially equipped vehicles to patrol congested highways locating and responding to traffic incidents. General services include pushing vehicles out of travel lanes, providing gasoline, changing flat tires, making minor repairs to help motorists safely move their vehicle out of through traffic, and allowing motorists two local phone calls if necessary. Road Ranger Service Patrol vehicles are equipped with warning lights or a variable message sign that alert through traffic to move over.

Improvements to the program that would benefit the *I-75 Forward* corridor could include identifying and designating sites for towing abandoned vehicles to and/or designating crash investigation sites along the corridor.

Road Ranger Service Patrol truck

What are Crash Investigation Sites?

Crash investigation sites are improved areas off the freeway mainline, specifically designated, that are a safe area where vehicles can be temporarily relocated. Generally, these sites are identified by signs and sometimes pavement markings and have sufficient space to park multiple vehicles, lighting to ensure personal safety, and often access to phone service.

Crash investigation sites provide:

- A safe area for stranded motorists experiencing mechanical problems or involved in a minor incident to relocate operable vehicles away from a travel lane or roadway shoulder, as required by Florida law, to exchange information and to receive assistance
- A safe area for law enforcement to conduct and complete crash investigations
- A safe area to conduct commercial vehicle and other enforcement activities
- A safe area and easier access for the Road Ranger Service Patrol to provide motorist vehicle assistance
- A relocation site for tow truck operators to move wrecked vehicles for final rigging and securing of loads
- A staging area for other activities unrelated to incident management

6.1.1.2 RAPID INCIDENT SCENE CLEARANCE (PRESENT)

Incident scene being cleared

FDOT District 5 has an innovative clearance strategy—the Rapid Incident Scene Clearance (RISC) Program—that significantly reduces the time it takes to clear major highway incidents and truck crashes. Through its current RISC contract, FDOT has access to vendors that provide heavy-duty towing services.

Opportunities for improvement to future RISC contracts could include changes to the incentive structure. The current incentive structure is based on the contractor's response time to the site of a crash, but does not include an incentive for rapid clearance of the crash vehicles. An incentive could be added for the amount of tonnage cleared.

6.1.1.3 I-75 FRAME PROJECT

Illustration of connected vehicle technologies and cover of I-75 FRAME report

FDOT Central Office received funding in 2016 under the USDOT's Advanced Transportation Congestion Management Technologies Deployment grant program for the I-75 FRAME project. I-75 FRAME lessens the recurring and non-recurring congestion on I-75 between Gainesville and the Wildwood/Ocala region in FDOT District 2 and District 5, which includes parts of the *I-75 Forward* corridor.

The I-75 FRAME project is using connected vehicle technologies to disseminate real-time information to motorists during freeway emergencies and incidents on I-75 and to reroute traffic to U.S. 301/441 using east to west arterials, such as S.R. 500, S.R. 200 and S.R. 40. It includes Automated Traffic Signal Performance Measures; roadside units and on-board units; transit signal priority; pedestrian safety elements; and adding fiber optic cable on U.S. 301/441 gaps to better manage, operate, and maintain the multimodal system and create an integrated corridor management solution.

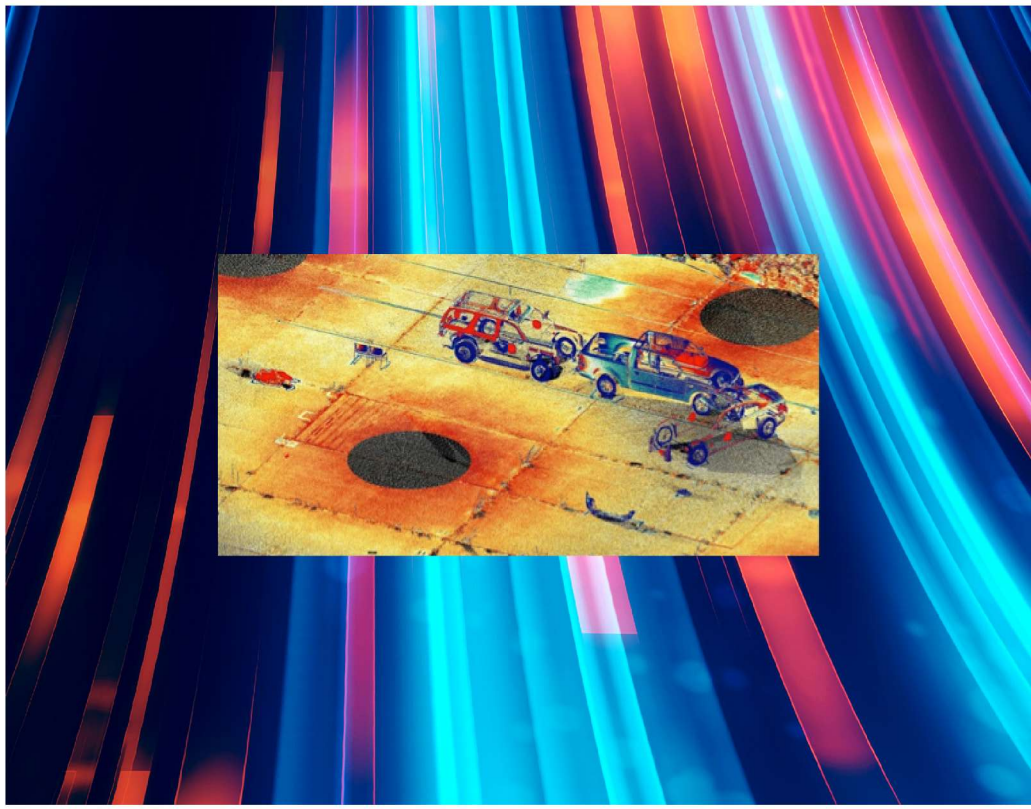
6.1.1.4 INCIDENT IMAGING TECHNOLOGIES

The Florida Highway Patrol (FHP) is in charge of conducting fatal crash investigations in the I-75 corridor. Crashes involving fatalities must be treated as crime scenes by the responding officers. The officers must document exact details of the crash site and record a wide array of information, such as road conditions, position of the vehicles, occupants, and debris. This can last on average more than three hours.

The aftermath of a fatal crash, or any incident requiring lane blockage and data collection, can pose safety risks to incident responders and motorists and increase the likelihood of secondary crashes. Upgrades to FHP's equipment and expanding the tools available to troopers could result in shorter data collection times and more comprehensive measurements and images.

Central Florida Expressway (CFX) recently partnered with FDOT to test 3D laser scanners to improve the accuracy of data collection at a crash scene and reduce the amount of time it takes to clear a crash and reopen the facility to traffic. In a related development, recent state legislation now allows FHP to use laser-equipped drones to aid in crash scene investigations.

Lessons learned from the CFX pilot and from drone usage by FHP and in other states can be implemented on the *I-75 Forward* corridor to reduce the duration of lane blockage incidents.



Incident imaging technology

Wildwood Weigh-in-Motion Station

Smart work zones feature technology to promote enhanced safety on roadways for both workers and drivers

6.1.2 Mainline Weigh-in-Motion Technology

Mainline weigh-in-motion technology determines the weight of a commercial vehicle for weight compliance as it approaches a weigh station on a freeway. Mainline weigh-in-motion technology results in a high probability of correctly directing a truck to the weigh station if it exceeds a weight threshold and improves efficiencies by keeping vehicles in transit. Weigh-in-motion technology is currently in use at 18 stations in Florida and on mainlines at 3 port of entry locations (Pensacola I-10, White Springs I-75, and Yulee I-95). FDOT District 5 is installing additional mainline weigh-in-motion technology within the *I-75 Forward* corridor limits, further reducing the time needed to weigh commercial vehicles and expanding the number of vehicles that are weighed.

When complete, the I-75 FRAME project described in Section 6.1.1.3 will integrate weigh-in-motion data for real-time freight operations and weight information collection and dissemination on the *I-75 Forward* corridor.

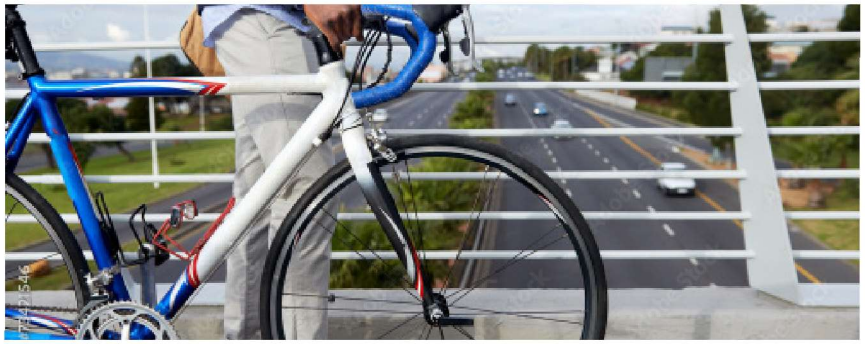
6.1.3 Smart Work Zones

FDOT is currently using ITS and connected and automated vehicle (CAV) applications to create smart work zone (SWZ) projects across the state. FDOT Central Office developed a sample 'scope of work' template for the FDOT Districts with an Active Work Zone Action Plan to guide and facilitate SWZ deployments.

FDOT District 5 implemented a traveler information system that uses dynamic message signs for the I-4 Ultimate construction project. A SWZ pilot project on another I-4 segment has a traveler information system that uses smart arrow boards and CAV technologies. FDOT District 5 also is using queue warning systems through dynamic message signs at the interchange of I-4 and I-95.

SWZs could be considered during construction of *I-75 Forward* improvements.

An example ATM facility (I-5 in Seattle). Source: Washington State Dept of Transportation Flickr Account



Alternative transportation modes are a method that can reduce travel demand

6.1.4 Active Traffic Management

Active traffic management (ATM) is a method of increasing peak capacity and smoothing traffic flows on major highways. A computerized system continuously monitors facility operations from a TMC so that adjustments can be made in real time to traffic speeds and communicate lane closures. ATM requires that a facility be highly instrumented to detect traffic counts and speeds every ⅓ mile, video cameras to monitor incidents, a service patrol, a staffed TMC, and overhead gantries at ½-mile spacing to display recommended speeds, downstream congestion, lane closures, and adverse weather conditions. ATM results in more rapid emergency response to incidents and the ability to adjust traffic flow based on changing traffic and weather conditions.

ATM is in operation on the I-5 in Seattle, the I-35W in Minneapolis, and the I-66 in Fairfax. ATM facilities are more expensive to operate and maintain than general use lanes. The cost and location of the overhead gantries is a significant consideration.

On the *I-75 Forward* corridor, ATM could be considered with any of the mainline improvements.

6.1.5 Travel Demand Management

Travel Demand Management (TDM) encompasses a range of techniques designed to influence traveler behavior by either reducing the demand for travel or spreading the demand over space and time. TDM techniques include congestion pricing; ridesharing; development of transit alternatives; promotion of non-motorized transportation, such as cycling and pedestrian activities; telecommuting; and land use management. In addition to improving travel time reliability, TDM strategies can extend the useful life of a transportation facility, reduce fuel consumption, and improve air quality.

On the *I-75 Forward* corridor, TDM strategies would be most effectively implemented to manage congestion on holidays or during planned special events.

6.2 Drainage

Drainage considerations are a key component to the development of any roadway or interchange improvement strategy. Drainage concepts will be evaluated in detail in future project development phases to determine how the concepts affect the existing drainage system and major watersheds along the corridor.

A planning-level drainage analysis was performed for the *I-75 Forward* corridor to determine the pond sizing needed in the future. Pond sites will be determined as projects advance to the FDOT PD&E Phase. The analysis is documented in a *Draft Pond Sizing Technical Memorandum (2022)* for FPID 443623-1 (Florida's Turnpike to S.R. 200); and a *Draft Drainage Technical Memorandum (2022)* for FPID 443624-1 (S.R. 200 to C.R. 234). The analysis estimated potential stormwater management facility (SMF) and floodplain compensation (FPC) sizes. Note that FPC and SMF sites were evaluated separately.

The *I-75 Forward* corridor was divided into **78 mainline subbasins**

One potential SMF size was determined for each of the 78 subbasins. The potential SMF sizes included the storage area and a 20-foot maintenance berm plus 20% to account for ingress/egress access and terrain irregularities for transitional slopes to match existing grade outside the maintenance berms. It was assumed that the long-term recommendation for the I-75 corridor would impact most of the existing SMFs and floodplains within the Right of Way. It also was assumed that stormwater attenuation and treatment of runoff for the interchange could be accommodated within the interchange infield areas.

The water quality and quantity criteria differ for each water management district along the corridor. The required treatment and attenuation volumes for each subbasin were calculated per the water management district criteria where the subbasin is located. The analysis conservatively estimated the volume required to provide full treatment of the impervious area to account for existing water quality and attenuation volumes.

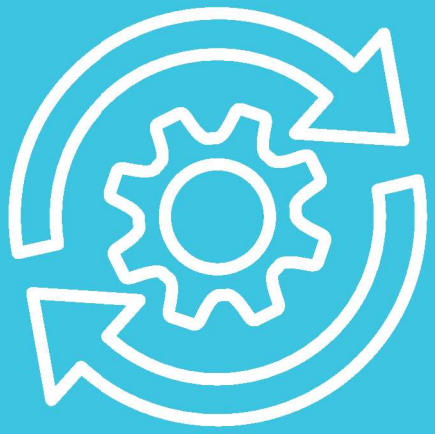
FPC sites were sized to accommodate equivalent volume compensation for the estimated encroachment area calculated. The estimated volumes were based on uniform depth coverage spanning the encroachment area. The estimated FPC sizes included an additional 20% to account for terrain irregularities, grading, and base flood elevation assumptions.

FOR ALL 78 MAINLINE SUBBASINS:

Estimated total SMF area needed	**272.87 acres**
Estimated total FPC area needed	**86.28 acres**

Refer to the technical memoranda mentioned in the second paragraph of this section for basin maps, per basin estimates, and details on the methodology and design criteria.

Stormwater management facility along I-75



7

Implementation Plan

7

This chapter presents a framework for implementing the *I-75 Forward* recommendations that will be accomplished strategically over time as funding is available and priorities allow.

The intent of the *I-75 Forward* Implementation Plan is to effectively sequence the recommendations in logical and connected sections, based on the highest needs and funding availability. This needs-based prioritization of projects is based on two primary triggers: Reliability and Traffic Capacity. Based on the projections of these triggers, the *I-75 Forward* Implementation Plan presents prioritized projects within three time horizons, referred to as phases. This framework is flexible for FDOT's programming and construction planning process and is not a guarantee for when a recommended project will be constructed.

7.1 Phase 1 (Near-Term Improvements)

Phase 1 (near-term improvements) is intended to reduce congestion, enhance safety, and improve operations on I-75 for the next 10 to 15 years. Based on costs, traffic analysis, and funding considerations, the following improvements are recommended to advance as part of Phase 1.

I-75 mainline improvements in segments presented in **Section 5.2.1**:

- From south of S.R. 44 to south of C.R. 484: Add one general purpose lane and one auxiliary lane (Mainline Option 3) in each direction
- From south of C.R. 484 to south of S.R. 200: Add one general purpose lane (Mainline Option 2) in each direction
- From north of S.R. 200 to south of S.R. 326: Add one auxiliary lane (Mainline Option 1) in each direction
- North of S.R. 326: No improvements in Phase 1

S.R. 40 interchange operational improvements and lane reconfigurations presented in **Section 5.2.2** (interchange analysis report is currently in review):

- Add dual left turn lanes and a yield-controlled channelized right turn lane at both I-75 off-ramp approaches
- Extend queue for I-75 on-ramp approaches in both directions
- Add cross walks for pedestrians
- Make pedestrian facilities continuous throughout interchange

S.R. 326 interchange operational improvements and lane reconfigurations presented in **Section 5.2.2** (interchange analysis report is currently in review):

- Add displaced dual left turn-lanes for I-75 southbound on-ramp approach
- Add channelized dual right turn and left turn lanes under signal control at the I-75 northbound off-ramp approach
- Add left turn lane for I-75 southbound off-ramp approach
- Add a lane for I-75 northbound on-ramp approach
- Add new entrance for businesses north of S.R. 326
- Signalize the intersection at business entrances on east side of interchange
- Add medians for left and right turn movements on east side of interchange

7.1.1 Project Programming and Additional Studies

The Phase 1 recommendations for the I-75 mainline and the S.R. 326 interchange will need to be programmed in FDOT's Five-Year Work Program and further advanced in PD&E Studies.

The I-75 mainline recommendations will proceed with two PD&E Studies. There are currently two FPIDs for the *I-75 Forward* mainline:

- FPID 443623-1 (Florida's Turnpike to S.R. 200): will proceed with one PD&E Study from S.R. 44 to S.R. 200.
- FPID 443624-1 (S.R. 200 to C.R. 234): will proceed with one PD&E Study from S.R. 200 to S.R. 326.

Note that Phase 1 did not recommend improvements to the full limits included in the FPID.

The S.R. 326 interchange improvements will proceed as a standalone PD&E Study. The NEPA class of action will be a Type 1 Categorical Exclusion.

PD&E activities will include traffic operational analysis for the I-75 mainline recommendations, preliminary engineering design, evaluation of bridges structures for widening versus replacement, pond siting, detailed environmental resource studies with documentation based on the determined NEPA class of action, and community engagement.

National Environmental Policy Act (NEPA) Classes of Action

The NEPA Class of Action determination identifies the level of documentation required for a federal project.

- **Type 1 Categorical Exclusions** use a Checklist and apply to specific actions listed in the Code of Federal Regulations
- **Type 2 Categorical Exclusions** require the lowest level of NEPA documentation and apply to actions that do not have a significant environmental effect
- **Environmental Assessments** require a more robust NEPA report and supporting documentation than a Type 2 Categorical Exclusion, and apply to actions where the level of environmental impact is not clearly established
- **Environmental Impact Statements** require the highest level of NEPA report and supporting documentation, and apply to projects expected to have significant environmental impacts

PD&E Studies will be followed by final design, Right of Way acquisition (if needed), and construction. During the PD&E Studies and final design, public meetings will be held to obtain additional, more detailed public input.

The S.R. 40 interchange recommendations are already through FDOT's PD&E and Design phases. The next step is to complete an interchange access request, and the project can proceed to construction.

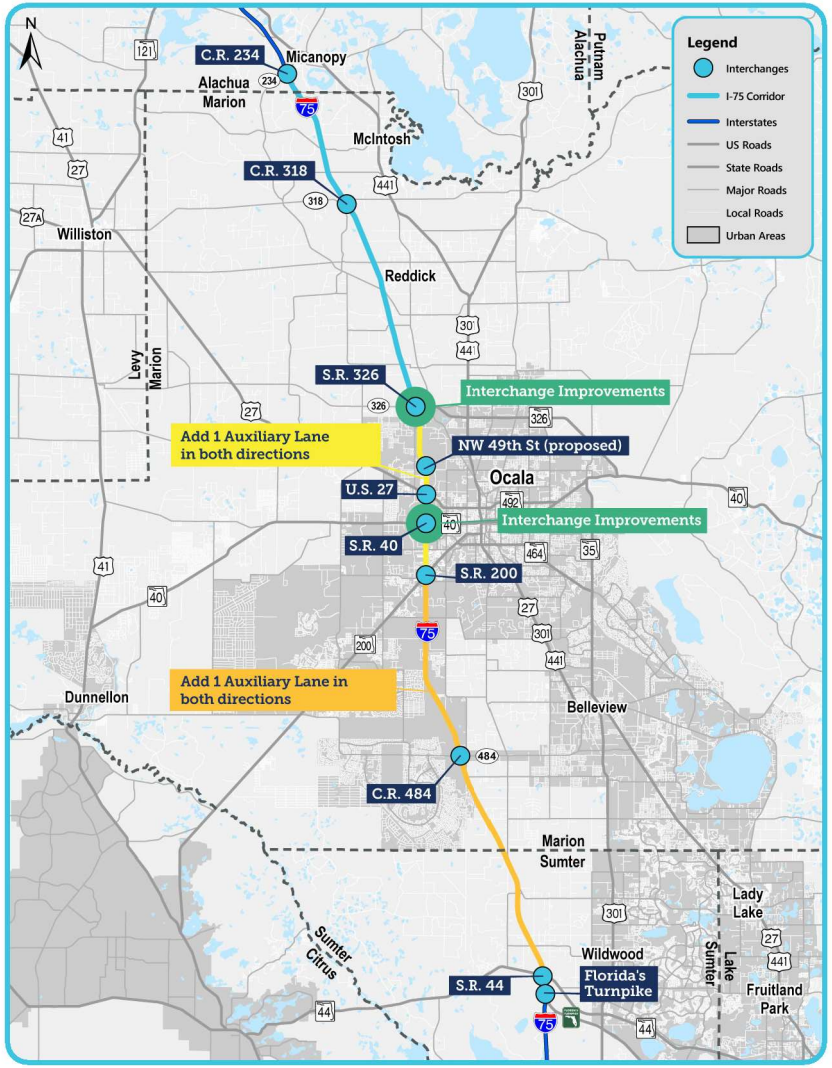
Table 7-1 summarizes the Phase 1 recommendations and next steps toward implementation. The locations of Phase 1 improvements are mapped in **Figure 7-1**.

Table 7-1 Phase 1 Recommended Improvements

Project Location	Description	Estimated Cost	Next Step	Anticipated Class of Action
I-75 Mainline from S.R. 326 to S.R. 200	Add 1 AUX lane	$63,130,010	PD&E/Design	Type 2 Categorical Exclusion
I-75 Mainline from S.R. 200 to S.R. 44	Add 1 AUX lane	$152,449,371	PD&E/Design	Type 2 Categorical Exclusion
I-75 Interchange at S.R. 40	Interchange improvements	$10,100,000	Interchange Operational Analysis Report	Type 1 Categorical Exclusion
I-75 Interchange at S.R. 326	Interchange improvements	$8,645,428	PD&E/Design	Type 1 Categorical Exclusion

Notes: GP – general purpose, AUX – auxiliary

Figure 7-1 Phase 1 Recommended Improvements



7.2 Phase 2 (Subsequent Operational Improvements)

Phase 2 (subsequent operational improvements) is intended to enable interchanges to handle increased traffic volumes and serve greater capacity on the mainline and crossroads in the long-term.

Based on traffic analysis, the following interchange improvements are recommended as part of Phase 2.

S.R. 200 INTERCHANGE

Reconfigure the S.R. 200 interchange to a DDI. Improvements include:

- Three through lanes in each direction
- Dual left turn lanes for both the northbound and southbound I-75 on-ramps
- Dual lanes for all other ramp turning movements
- I-75 northbound and southbound bridge replacements will be required to accommodate the DDI.

S.R. 40 INTERCHANGE

Reconfigure the S.R. 40 interchange to a DDI. Improvements include:

- Three continuous through lanes in each direction
- Merge lane for I-75 on-ramp approaches in both directions
- Dual left turn lanes and a yield controlled channelized right turn lane at the I-75 southbound off-ramp approach
- Dual left turn lanes and dual channelized right turn lanes under signal control at the I-75 northbound off-ramp approach
- Continuous pedestrian facilities
- Shared-used path in some areas of the S.R. 40 corridor
- I-75 northbound and southbound bridge replacements will be required to accommodate the DDI.

U.S. 27 INTERCHANGE

Reconfiguring the U.S. 27 interchange to a DDI is the recommended improvement; however, there is opportunity for a tiered approach. The tiered approach would first involve a partial reconfiguration to a DLT, and later reconfigure to a DDI.

- Partial reconfiguration to DLT
  - Three continuous lanes eastbound on U.S. 27
  - Signalized displaced left turns for the I-75 on-ramp approaches in both directions
  - Continuous pedestrian facilities throughout corridor
  - Continuous bicycle lanes throughout corridor
  - Dual left turn lanes and a yield controlled channelized right turn lane at the I-75 southbound off-ramp approach
- I-75 northbound/southbound bridge replacements (approximately 200-ft long replacement structures)
- Reconfigure to a DDI
  - Two continuous through lanes in each direction
  - Merge lane for I-75 on-ramp approaches in both directions
  - Yield controlled channelized right turn lane and a channelized left turn lane under signal control at the I-75 southbound off-ramp approach
  - Channelized dual right turn and left turn lanes under signal control at the I-75 northbound off-ramp approach
  - I-75 northbound/southbound bridge replacements (approximately 200-ft long replacement structures) (if not previously done for the DLT Alternative)

C.R. 318 INTERCHANGE

Signalize and add one lane at the C.R. 318. Improvements include:

- Signalized intersection for I-75 southbound on/off-ramp approaches
- Left turn lane introduced for I-75 southbound on-ramp approach
- Signalized intersection for I-75 northbound on/off-ramp approaches
- Merge lane introduced for I-75 northbound off-ramp/East C.R. 318

In the long-term, a DDI is recommended; however, improvement costs were not estimated in this plan.

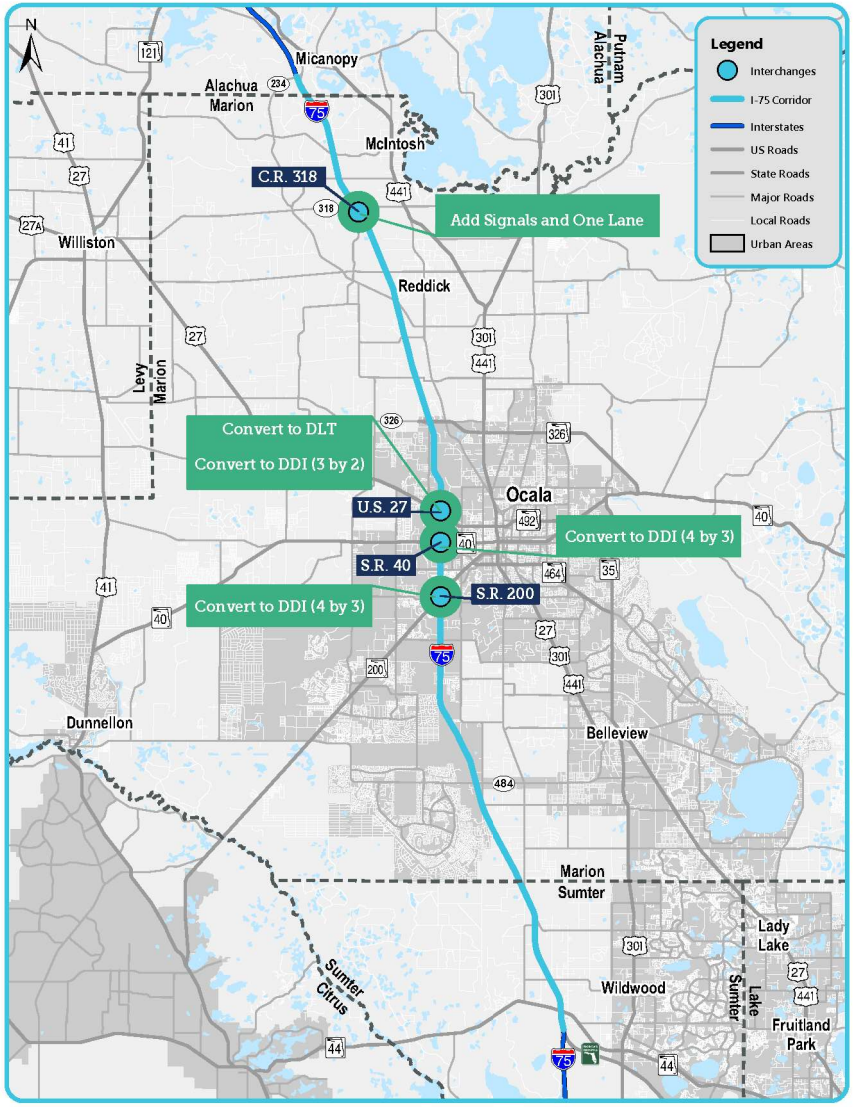
7.2.1 Project Programming and Additional Studies

The **Phase 2** recommendations should be added to long-range planning documents including the Ocala-Marion Transportation Planning Organization (TPO) Long Range Transportation Plan. Planning documents should include PD&E, Design, Right of Way (if applicable), and Construction Phases. Interchange access requests will be needed for each project. **Table 7-2** summarizes the Phase 2 recommendations and estimated costs.

Table 7-2 Phase 2 Recommended Improvements

Alternative	Description	Estimated Costs
I-75 Interchange at S.R. 200	Convert to DDI (4 by 3)	$25,873,000
I-75 Interchange at S.R. 40	Convert to DDI (4 by 3)	$14,427,175
I-75 Interchange at U.S. 27	Convert to DLT	$7,510,151
	Convert to DDI (3 by 2)	$13,984,897
I-75 Interchange at C.R. 318	Add Signals and One Lane	$2,668,548

Figure 7-2 Phase 2 Recommended Improvements



7.3 Coordination with Area Projects

Other programmed and planned FDOT District 5 improvements, such as intersection and resurfacing projects, will be coordinated with the *I-75 Forward* Implementation Plan improvements. FDOT District 5 will continue coordination with local governments regarding planning studies and adjacent, ongoing projects. Opportunities to partner with local governments, transportation agencies, and developers to advance *I-75 Forward* recommendations will be revisited on a regular basis.

The Ocala-Marion Transportation Planning Organization (TPO) Cost Feasible Plan (CFP) and the Lake-Sumter Metropolitan Planning Organization (MPO) CFP will need to be amended to reflect Phase 1 recommendations for consistency. The Ocala-Marion TPO 2045 CFP includes widening I-75 to eight lanes from the Sumter/Marion County line to C.R. 318 in years 2031 to 2035 and from C.R. 318 to the Marion/Alachua County line in years 2036 to 2040. The Lake-Sumter MPO 2045 CFP includes widening I-75 to eight lanes in the years 2036 to 2045.

7.4 Funding Options

Improving I-75 is an important commitment of the State of Florida and will require a significant portion of FDOT's funding in the future. The financial commitment needed to implement the full build-out could impact FDOT's ability to address other needs across the region and throughout Florida. Moving forward, FDOT will continue to assess I-75 needs along with many important, competing needs across the state in determining how best to spend limited resources. Furthermore, by staging the construction based on the timing of needs, FDOT could defray its costs over a longer period, beyond 2050.

FDOT will continue to assess alternative funding options. While utilizing tolls to fund and finance the improvements is not currently planned, it may become an option worth considering as State funding priorities change or if new federal funding opportunities or incentives become available. Any future decision regarding tolls would entail a series of decision steps, in ascending level of detail, including considerable additional study and coordination with the State's policymakers and the public.

I-75 FORWARD *Interstate Master Plan*

FDOT