DRAFT PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

District 5

Project Development & Environment Study

US 17/92 from Ivy Mist Lane to Avenue A

Osceola County, Florida

Financial Management Number: 437200-2

ETDM Number: 14365

May 2025

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

PROFESSIONAL ENGINEER CERTIFICATION

PRELIMINARY ENGINEERING REPORT

Project: US 17/92 from Ivy Mist Lane to Avenue A, Osceola County, Florida

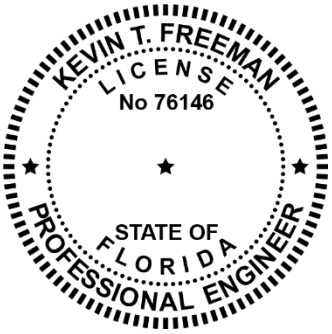
ETDM Number: 14365

Financial Project ID: 437200-2-22-01

Federal Aid Project Number: D520-055-B

This Preliminary Engineering Report contains engineering information that fulfills the purpose and need for the US 17/92 Project Development & Environment Study from Ivy Mist Lane to Avenue A in Osceola County, Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

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



This item has been digitally signed and sealed by Kevin Freeman on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Table of Contents

LIST OF FIGURES

Figure | Page Number

LIST OF TABLES

Table | Page Number

APPENDICES

Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ACS	US Census Bureau's American Community Survey
APE	Area of Potential Effect
ARC	Florida's Acquisition and Restoration Council
ASTM	American Society for Testing and Materials
ATC	Advanced Transportation Controller
ATMS	Advanced Traffic Management System
BAR	Bureau of Archaeological Research
BMPs	Best Management Practices
CATV	cable television
CARS	Crash Analysis Reporting System
CCTV	Closed-Circuit Television
CEI	Construction Engineering and Inspection
CFR	Code of Federal Regulations
CFRPM	Central Florida Regional Planning Model
CFX	Central Florida Expressway Authority
CR	County Road
CRAS	Cultural Resource Assessment Survey
CSER	Contamination Screening Evaluation Report
CSRP	Conceptual Stage Relocation Plan
dB	decibels
DBH	diameter at breast height
DMS	Dynamic Message Signs
EFH	Essential Fish Habitat
ERP	Environmental Resource Permit
ESA	Endangered Species Act
ETDM	Efficient Transportation Decision Making
EVP	emergency vehicle preemption
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDM	Florida Department of Transportation Design Manual
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMSF	Florida Master Site File
FNAI	Florida Natural Areas Inventory
FPC	Floodplain Compensation Area
FRAME	Florida Regional Advanced Mobility Elements
F.S.	Florida Statute
FTO	Florida Traffic Online
FWC	Florida Fish and Wildlife Conservation Commission
FY	fiscal year
GIS	Geographic Information System
HCM	Highway Capacity Manual

HSG	Hydrologic Soil Group
I-4	Interstate 4
ICAs	Impact to Construction Assessments
ICE	Intersection Control Evaluation
ICM	Integrated Corridor Management
ITS	Intelligent Transportation Systems
kV	kilovolt
LDC	Land Development Code
LED	light-emitting diode
LEP	Limited English Proficiency
LHR	Location Hydraulics Report
LJR	Lighting Justification Report
LOS	Level of Service
LRE	Long Range Estimates
LRFD	Load and Resistance Factor Design
MP	Mile Post
mph	miles per hour
MPO	Metropolitan Planning Organization
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MTP	Metropolitan Transportation Plan
MUT	Median U-Turn
NAC	Noise Abatement Criteria
NAVD	North American Vertical Datum
NBI	National Bridge Inventory
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRE	Natural Resources Evaluation
NRHP	National Register of Historic Places
NTCHS	National Technical Committee for Hydric Soils
OSWs	other surface waters
PCF	pounds per cubic foot
PD&E	Project Development & Environment
PER	Preliminary Engineering Report
PIP	Public Involvement Plan
PLF	pounds per linear foot
PPE	Poinciana Parkway Extension
PSF	pounds per square foot
PSR	Pond Siting Report
PTAR	Project Traffic Analysis Report
R-ICMS	Regional Integrated Corridor Management System
RCUT	Restricted Crossing U-Turn
ROW	Right-of-Way
SCE	Sociocultural Effects Evaluation
SDG	Structures Design Guidelines
SDM	Structures Detailing Manual

SFWMD	South Florida Water Management District
SHPO	State Historic Preservation Office
SHWL	Seasonal High Water Level
SIS	Strategic Intermodal System
SR	State Road
SSL	Sovereign Submerged Lands
STA	Station
STIP	Statewide Transportation Improvement Program
SWPPP	Stormwater Pollution Prevention Plan
TIITF	State of Florida Board of Trustees of the Internal Improvement Trust Fund
TIP	Transportation Improvement Program
TMC	Turning Movement Count
TMP	Transportation Management Plan
TPO	Transportation Planning Organization
TSM&O	Transportation Systems Management and Operations
UAO	utility agency owners
UAP	Utilities Assessment Package
UMAM	Uniform Mitigation Assessment Method
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDOT	United States Department of Transportation
USFWS	U.S. Fish and Wildlife Service
WL	Wind on Live Load
WS	Wind on Structure

1.0 Project Summary

1.1 Project Description

The Florida Department of Transportation (FDOT) District 5 is conducting a Project Development and Environment (PD&E) Study to evaluate alternatives to widen US 17/92 (State Road [SR] 600) from two to four lanes from Ivy Mist Lane to Avenue A, a distance of 3.8 miles, in Osceola County. This project traverses through the unincorporated communities of Poinciana and Intercession City. **Figure 1-1** shows the project location map with the US 17/92 PD&E Study limits.

Just west of Ivy Mist Lane, a proposed interchange along US 17/92 is planned to be constructed for the Poinciana Parkway Extension (PPE) (Central Florida Expressway Authority [CFX] Project numbers: CFX 538-234 & 538-235), shown in **Figure 1-1**. This interchange project will widen US 17/92 directly adjacent to the interchange to accommodate future travel demand and include a diverging diamond interchange. This project completed design in 2024. The western end of this project will begin at the eastern limit of the PPE project to seamlessly connect with the proposed PPE interchange.

Throughout the majority of the study limits, US 17/92 from Ivy Mist Lane to west of Intercession City is a two-lane undivided roadway. The existing typical section is rural with an open drainage system, approximately 12-foot-wide travel lanes, and four-foot paved shoulders. There are no consistent sidewalks or bicycle facilities. Currently, US 17/92 vehicular traffic crosses Reedy Creek utilizing a two-lane bridge that was constructed in 2001 (FDOT Bridge 920174) and spans approximately 2,231-feet long to traverse wetlands associated with the Reedy Creek floodplain. Within the study area, Reedy Creek is not considered navigable due to its shallow water depth, however the US Army Core of Engineers (USACE) noted during the Efficient Transportation Decision Making (ETDM) Programming Screen that Reedy Creek is navigable under Section 10 of the Rivers and Harbors Act.

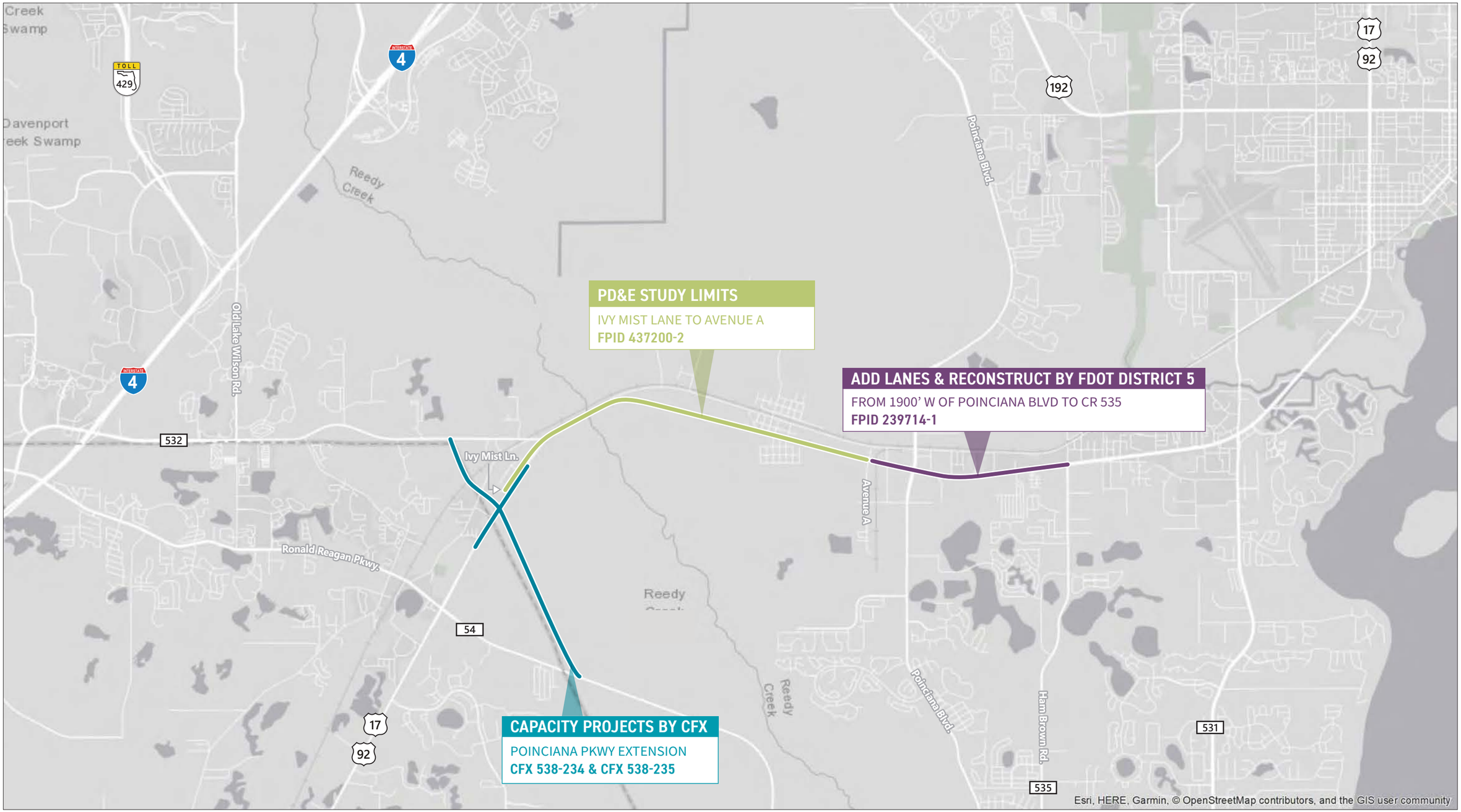
In Intercession City, US 17/92 is a three-lane undivided roadway with flush shoulders and drainage swales and no sidewalks or bicycle facilities. The segment between Intercession City and Avenue A is a transitional area from the three-lane typical section in Intercession City back to a two-lane typical section consistent with the roadway west of Intercession City, then to a four-lane facility near Avenue A. US 17/92 was recently widened from two to four lanes, from just west of Avenue A to County Road (CR) 535 (Ham Brown Road) in Kissimmee (FPID: 239714-1), shown in **Figure 1-1**.

The Preferred Alternative proposes widening US 17/92 from Ivy Mist Lane to Avenue A from the existing typical section to a four-lane divided roadway. The Preferred Alternative includes multimodal facilities along both sides of the roadway for most of the study corridor. A proposed 12-foot-wide shared-use path is proposed on both sides of the roadway west and east of

Intercession City and a 10-foot urban side path is proposed on both sides of the roadway for most of the study corridor. A proposed 12-foot-wide shared-use path is proposed on both sides of the roadway from the western project limits to the west end of the bridge over Reedy Creek, from the east end of the bridge over Reedy Creek to Suwannee Avenue in Intercession City, and from Nocatee Street/Shepherd Lane in Intercession City to the eastern project limits. The bridge crossing over Reedy Creek will include one 12-foot-wide shared use path along the north side of the roadway. Within Intercession City, a 10-foot urban side path is proposed on both sides of the roadway from approximately Suwannee Avenue to Nocatee Street/Shepherd Lane.

The US 17/92 bridge crossing over Reedy Creek will require improvements to accommodate four lanes, including removal of the abandoned US 17/92 bridges and roadway section in between to construct the westbound bridge structure. The existing US 17/92 bridge structure will be converted from two-way traffic to become the eastbound bridge, no improvements are required for the existing bridge other than restriping. The westbound bridge will include the 12-foot shared-use path, while no shared-use path will be on the eastbound bridge.

In addition, this project changes the access class of US 17/92 from Access Class 3 to Access Class 5, and includes access management modifications and intersection improvements at CR 532 (Osceola Polk Line Road), Old Tampa Highway, and Avenue A. Five pond sites and one floodplain compensation area are recommended as part of the Preferred Alternative for a total of 22.74 acres of stormwater ponds.



N.T.S.

Figure 1-1

Study Area Map
US 17/92 PD&E FPID 437200-2

1.2 Purpose and Need

1.2.1 Purpose and Need

The purpose of this project is to reduce congestion, accommodate future traffic demand, and improve safety, and is based on the following needs:

Capacity

In the existing condition, the US 17/92 study corridor experiences Annual Average Daily Traffic (AADT) volumes ranging from 16,400 to 29,000 and operates at an overall Level of Service (LOS) B and LOS C for the AM and PM peak hours, respectively. However, several intersections operate over capacity and do not meet LOS targets. The signalized intersection of US 17/92 at CR 532 is operating at LOS E (below the target LOS D) during the PM peak hour. Manatee Street, Shepherd Lane, and Avenue A operate at LOS F during the AM and PM peak hours. Additionally, Old Tampa Highway and Tallahassee Boulevard operate at LOS F during the PM peak hour.

Transportation Demand

The medium growth rate (2.82%) Bureau of Economic and Business Research (BEBR) projection predicts the population of Osceola County to increase from 370,552 to 642,600 between the years 2019 and the design year 2045. Based on the approved Osceola County Comprehensive Plan's future land-uses that are included in the Central Florida Regional Planning Model (CFRPM) version 7.0, in the future year (2045) No-Build condition the US 17/92 study corridor is expected to experience AADT volumes ranging from 34,000 to 43,500 and operate at target LOS D or better, except for the eastbound approach south of CR 532 in the 2045 AM peak hour, which operates at LOS F. While the study corridor generally meets or exceeds Target LOS D, all study intersections are expected to operate at LOS F by the 2045 design year.

Safety

Crash data for a five-year period (October 1, 2019 – September 30, 2024) obtained from Signal 4 Analytics found a total of 325 crashes occurred along the study corridor. Of the 325 reported crashes, 147 involved injuries and three resulted in fatalities. The highest portion of crashes were rear-end collisions (62.46%).

The crash rates for the segment of US 17/92 between Ivy Mist Lane and CR 532 exceed statewide crash rates for similar segment categories. The statewide crash rates for segments similar to US 17/92 between Ivy Mist Lane and CR 532 is 3.9745 crashes per million vehicle miles, while the crash rate for the segment is 5.5685.

The crash rates at the intersections of US 17/92 with Ivy Mist Lane, CR 532, Old Tampa Highway, and Shepherd Lane exceed statewide crash rates for similar intersection categories. The statewide crash rates for intersections similar to Ivy Mist Lane and Old Tampa Highway are 0.3134 crashes per million entering vehicles, while the crash rates for these two intersections are 0.4343 and

0.3401, respectively. The statewide crash rates for intersections similar to CR 532 and Shepherd Lane are 0.3877 crashes per million entering vehicles, while the crash rates for these two intersections are 1.0959 and 0.5802, respectively.

1.2.2 Project Status

The project is included in MetroPlan Orlando's 2045 Metropolitan Transportation Plan (MTP) Cost Feasible Plan (adopted December 11, 2024) with a total funding of $47,780,000 between 2024 and 2045. MetroPlan Orlando's 2024-2029 Transportation Improvement Program (TIP) allocates $7,000,000 in Fiscal Year (FY) 26/27 for preliminary engineering. Also, design phase funds totaling $7,000,000 are programmed in the FDOT Five-Year Work Program (2025-2029) and FDOT Statewide Transportation Improvement Program (STIP). Right-of-Way (ROW) and construction phases are not currently funded.

This project was screened in the ETDM system as ETDM #14365.

1.3 Commitments

PENDING FURTHER EVALUATION

The following commitments have been made by FDOT and will be adhered to during the future phases of the project:

1. The FDOT will adhere to the stipulations included in the [DATE PENDING] Section 106 Memorandum of Agreement (MOA) between the FDOT and the State Historical Preservation Officer (SHPO).
2. The most recent version of the U.S. Fish and Wildlife Service (USFWS) *Standard Protection Measures for the Eastern Indigo Snake* during construction and inspect potential eastern indigo snake refugia prior to construction.
3. If the listing status of the tricolored bat is elevated by USFWS to Threatened or Endangered and the Preferred Alternative is located within the consultation area during the design and permitting phase of the proposed project, FDOT commits to re-initiating consultation with the USFWS to determine the appropriate survey methodology and to address USFWS regulations regarding the protection of the tricolored bat.
4. FDOT commits to re-initiating consultation with the USFWS to determine the appropriate survey methodology for the Audubon's crested caracara and to re-survey for this species prior to construction.
5. FDOT will provide mitigation for impacts to wood stork SFH within the Service Area of the Service-approved wetland mitigation bank or wood stork conservation bank.

6. If the Monarch butterfly is listed by USFWS as Threatened or Endangered, FDOT commits to re-initiating consultation with USFWS to determine appropriate avoidance and minimization measures for protection of the newly listed species.
7. FDOT will require contractors to remove garbage daily from the construction site or use bear proof containers for securing of food and other debris from the project work area to prevent these items from becoming an attractant for the Florida black bear. Any interaction with nuisance bears will be reported to the FWC Wildlife Alert hotline 888-404-FWCC (3922).
8. If the contractor proposes blasting for any bridge demolition, the FDOT and their contractor will submit a blasting plan and acquire appropriate approvals from the USFWS and FWC to minimize potential effects on species prior to proceeding with construction activities. The blasting plan is expected to be consistent with the USFWS Guidelines for the Protection of Marine Animals During the Use of Explosives in the Waters of the State of Florida.

1.4 Alternatives Analysis Summary

1.4.1 No-Build Alternative

The No-Build Alternative assumes no improvements will be made within the study area, except for programmed improvements to nearby or adjacent facilities. The No-Build Alternative includes the recent widening of US 17/92 from Avenue A to CR 535 (FPID #239714-1) to four lanes, the programmed SR 538/Poinciana Parkway Extension (CFX 538-235), and the CR 532 widening (CFX 538-235A).

The No-Build Alternative serves as the baseline for comparing the Build Alternative and remains a viable option throughout the PD&E study process. Based on programmed improvements, the existing typical section assumed for the No-Build Alternative remains a two-lane undivided rural typical section. At the eastern end of the project at Avenue A, the corridor transitions to a four-lane typical section. The existing typical section along US 17/92 for a majority of the corridor within the study limits is shown below i**n Figure 1-2**. The existing bridge typical section is provided as **Figure 1-3**.

Figure 1-2: Existing Typical Section

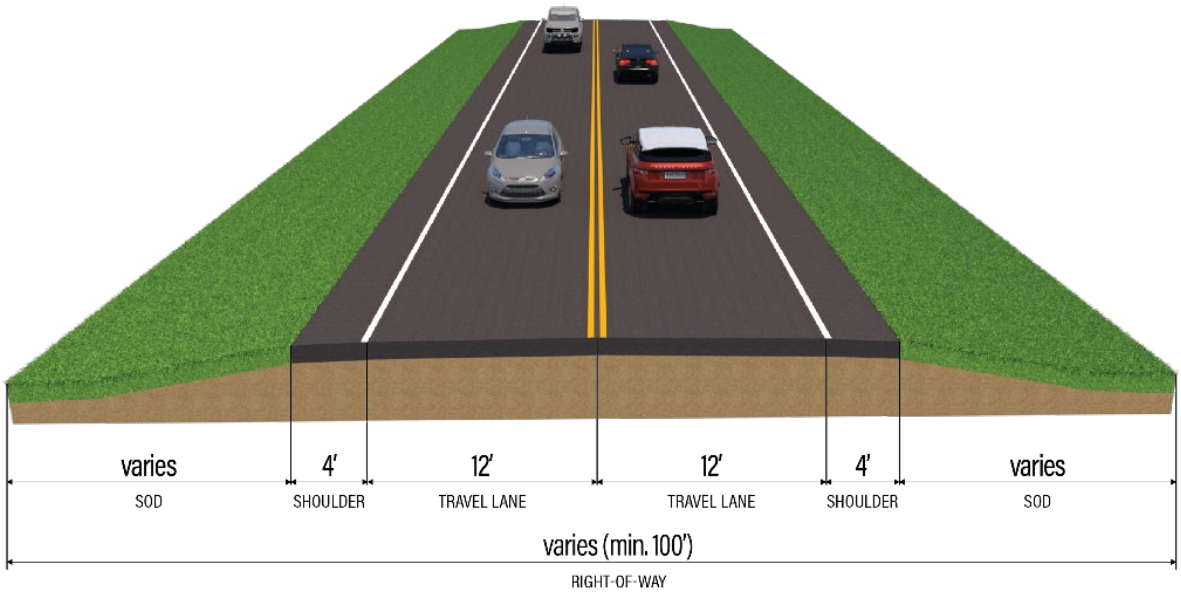
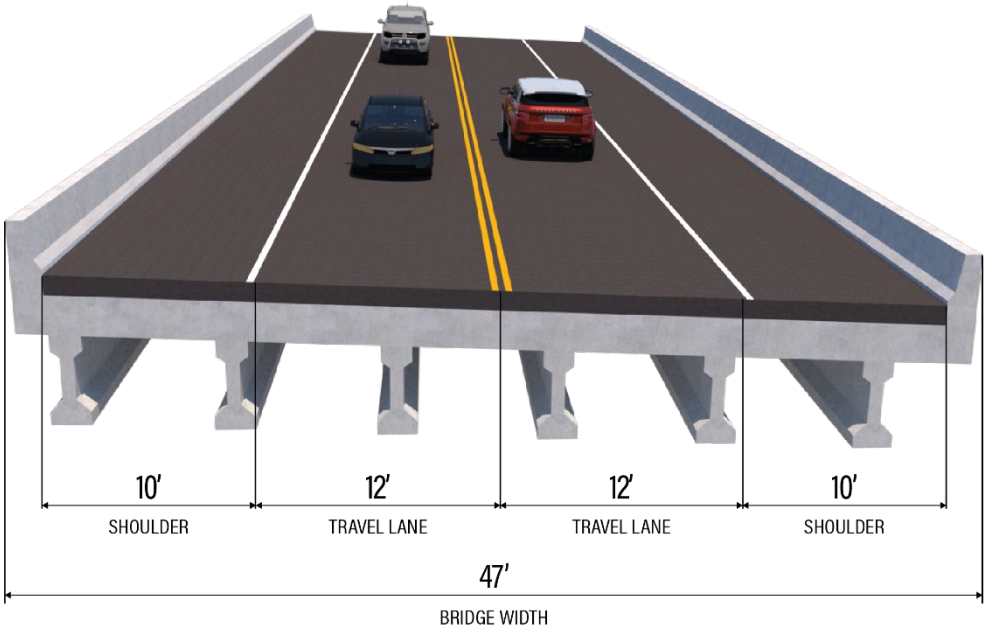


Figure 1-3: Existing Bridge Typical Section – Reedy Creek Bridge



1.4.2 Alternatives Considered

The Build Alternative widens US 17/92 to four lanes (two lanes per direction) from Ivy Mist Lane to Avenue A. Three alignments were developed for alternatives comparison. The alternatives vary at the Reedy Creek bridges and from just west of Suwannee Avenue to just east of Nocatee Street/Shepherd Lane. The remainder of the project is on a best fit alignment for all alternatives.

The intersection with CR 532 is shifted to the southwest and the intersection with Old Tampa Highway is shifted to the east for all alternatives to improve the intersection angle and safety conditions at both intersections and increase the distance to the Reedy Creek bridges. All alternatives show the existing Reedy Creek bridge that currently serves traffic in both directions becoming a two-lane eastbound-only structure. Several other options were considered for the two-lane westbound bridge for US 17/92. These include rehabilitating the existing abandoned US 17/92 bridges, widening the existing US 17/92 bridge, constructing a new bridge in the location of the abandoned US 17/92 bridges, and constructing a new bridge just north and south of the current US 17/92 bridge.

From Old Tampa Highway to Suwannee Avenue, all alternatives widen to the south, to minimize impacts to adjacent residential and commercial properties by maintaining the north ROW line. In the Intercession City segment, which is constrained ROW, Alternative 1 maintains a center alignment that would impact both sides of Intercession City. Alternative 2 widens to the north and maintains the southern ROW line. Alternative 3 widens to the south, maintaining the north ROW line.

East of Intercession City, a best fit alignment was used to connect Intercession City to the four-lane typical at Avenue A.

1.5 Description of Preferred Alternative

The Preferred Alternative widens US 17/92 from Ivy Mist Lane to Avenue A from the existing two-lane rural facility to a four-lane urban divided facility with swales with exception to the area around the Reedy Creek Bridge and Intercession City.

Within Intercession City the Preferred Alternative widens from the existing three-lane rural facility to a four-lane urban divided facility. This alternative proposes to change the access management classification from an Access Class 3 to Access Class 5 to better align with access needs for this rural town.

The Preferred Alternative also involves the retention of the existing bridge over Reedy Creek as the eastbound traffic lanes and the addition of a new bridge over Reedy Creek as the westbound traffic lanes in the location of the abandoned US 17/92 bridges over Reedy Creek. The Preferred Alternative provides continuous shared-use paths along both sides of the roadway for the entire length of the study corridor, except at the Reedy Creek Bridge due to constraints along the existing bridge (proposed eastbound structure). A pedestrian crossing will be provided at the Osceola Polk Line Road and Old Tampa Highway intersections to provide shared-use path users with a crossing over US 17/92 to connect to the path over Reedy Creek.

The Preferred Alternative will include realignment to the CR 532 and Old Tampa Highway intersections to provide more separation from the Reedy Creek bridges and accommodate

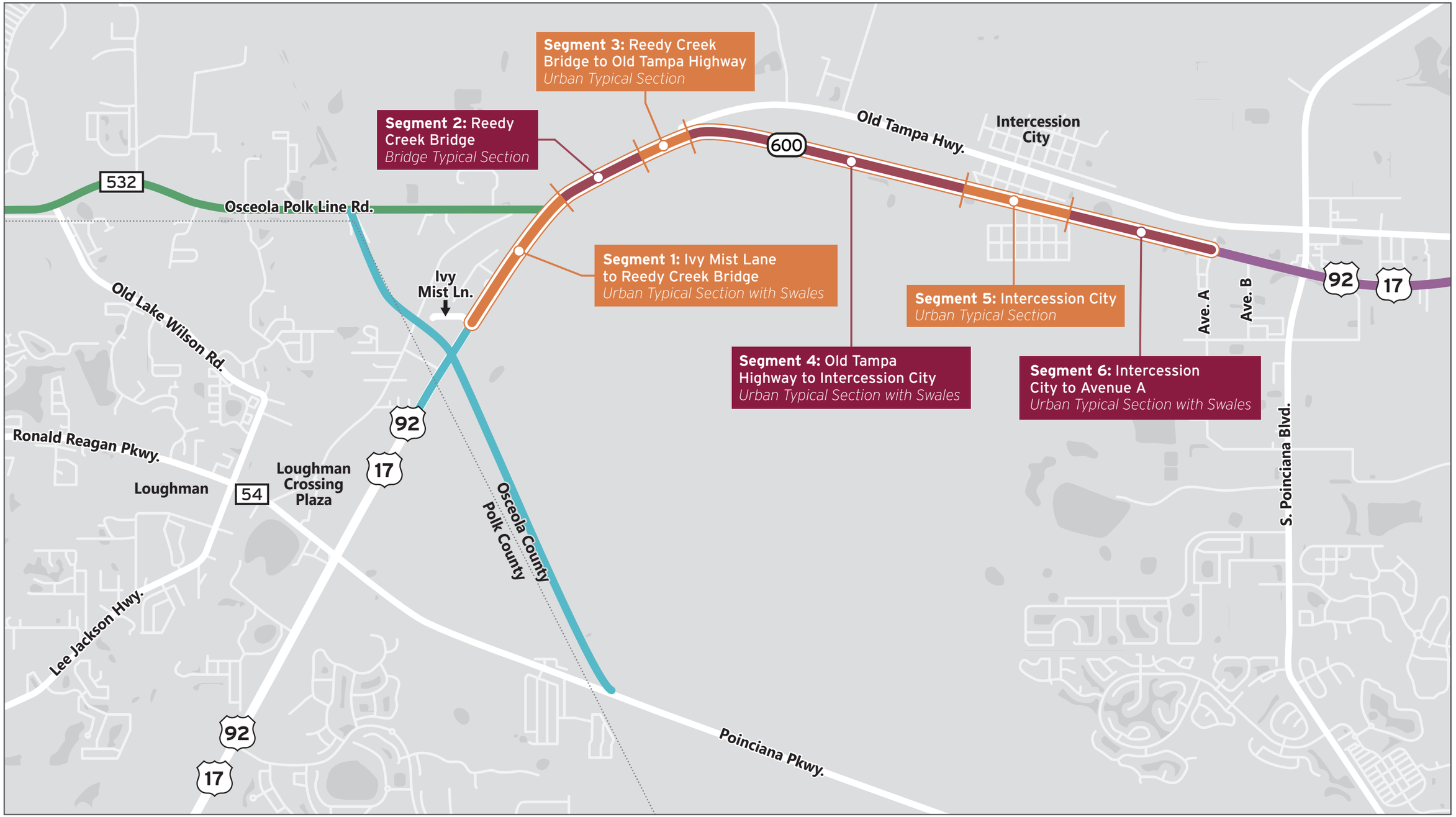
geometric needs. The intersection will maintain signalized control with CR 532. There will be a new signal at Old Tampa Highway intersection. The intersection with Avenue A is proposed to be a roundabout.

The Preferred Alternative will involve approximately 55.2 acres of ROW impacts through 48 parcels for the proposed improvements. There are two residential relocations and no business relocations anticipated as part of the Preferred Alternative. The first residential relocation, located at 5884 South Orange Blossom Trail, Davenport, Florida, would result from the widening of US 17/92. The second residential relocation, located at 5880 South Orange Blossom Trail, Davenport, Florida, would result from the widening of US 17/92.

Five pond sites and one floodplain compensation location have been recommended as part of the Preferred Alternative for a total of 33.85 acres of stormwater ponds.

The typical section for the Preferred Alternative is divided into six segments listed below and shown in **Figure 1-4** through **Figure 1-8**. The Typical Section Package is included in **Appendix A**.

- Segment 1 – Ivy Mist Lane to the Reedy Creek Bridge is approximately 0.70 miles in length and ties into the planned Poinciana Parkway Extension and interchange connection with US 17/92 immediately southwest of the study limits. This segment also includes the CR 532 intersection, which is programmed for widening.
- Segment 2 – The existing US 17/92 bridge that spans Reedy Creek is 0.43 miles in length. Also, there are three abandoned bridges that are connected by roadway on embankment located north of the existing US 17/92 bridge that previously served US 17/92.
- Segment 3 – Reedy Creek Bridge to Old Tampa Highway is approximately 0.28 miles in length.
- Segment 4 – Old Tampa Highway to Suwannee Avenue is approximately 1.34 miles in length.
- Segment 5 – Suwannee Avenue to Nocatee Street/Shepherd Lane and runs through Intercession City is approximately 0.30 miles in length.
- Segment 6 – Nocatee Street/Shepherd Lane to Avenue A is approximately 0.80 miles in length. This segment connects into the recently completed widening project immediately east of this study.



FDOT

Figure 1-4

Study Segments
US 17/92 PD&E
FPID 437200-2

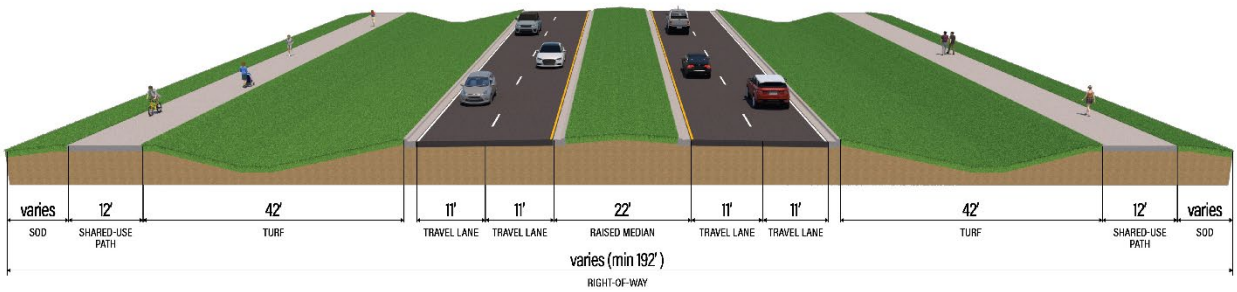
1.5.1 US 17/92 Typical Section – Segments 1, 4, and 6

The first typical section exists in three separate roadway segments along the US 17/92 study corridor, which are described below:

- Segment 1 - Just east of Ivy Mist Lane (beginning of study area) to Reedy Creek Bridge
- Segment 4 - Just east of Old Tampa Highway to just west of Suwannee Avenue
- Segment 6 - From Nocatee Street/Shepherd Lane to Avenue A (end of study area)

An urban roadway typical section with swales shown in **Figure 1-5** is proposed for Segments 1, 4, and 6. The typical section includes a 22-foot raised median, two 11-foot travel lanes in each direction, and a 12-foot shared-use path along both sides of the roadway. The shared-use paths are both separated from the roadway by curb and gutter and 42-foot-wide drainage swales. The required ROW for the typical section varies with a minimum of 192 feet. The design speed, posted speed, and target speed for this typical section is 45 miles per hour (mph).

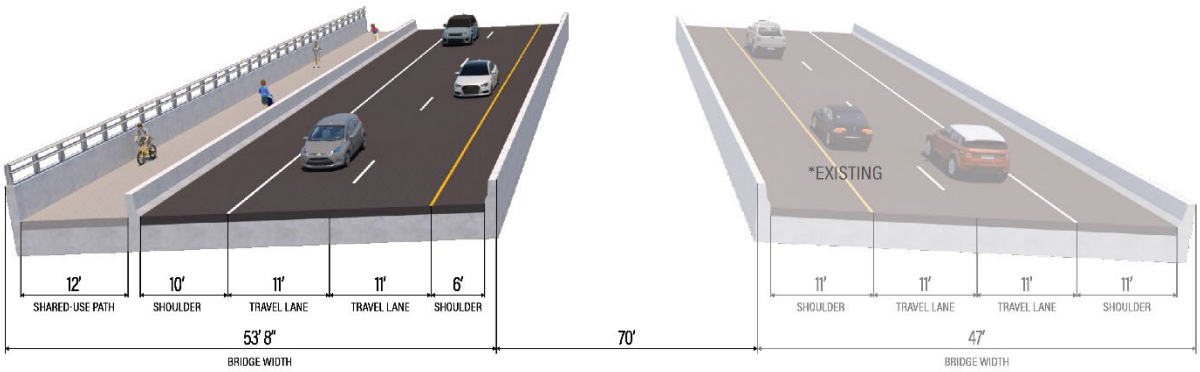
Figure 1-5: US 17/92 Typical Section (Segments 1, 4, and 6)



1.5.2 Reedy Creek Bridge Typical Section – Segment 2

The preferred typical section for the Reedy Creek Bridge shown in **Figure 1-6** includes two bridge structures. The existing bridge structure will serve eastbound traffic, and a new bridge structure will serve the westbound traffic. The two bridge structures will be separated by a width of 70 feet. The existing eastbound bridge will be restriped to include 11-foot inside and outside shoulders and two 11-foot travel lanes. The new westbound structure includes a six-foot inside shoulder, a 10-foot outside shoulder, two 11-foot travel lanes, and a 12-foot shared-use path separated from the roadway by a concrete barrier wall. The existing 244 feet of ROW accommodates the proposed bridge structure. The existing eastbound bridge is located in a permanent easement on the south side of the FDOT ROW, which allows the new westbound bridge to be located fully within the existing ROW to the north. The design speed, posted speed, and target speed for this typical section is 45 mph.

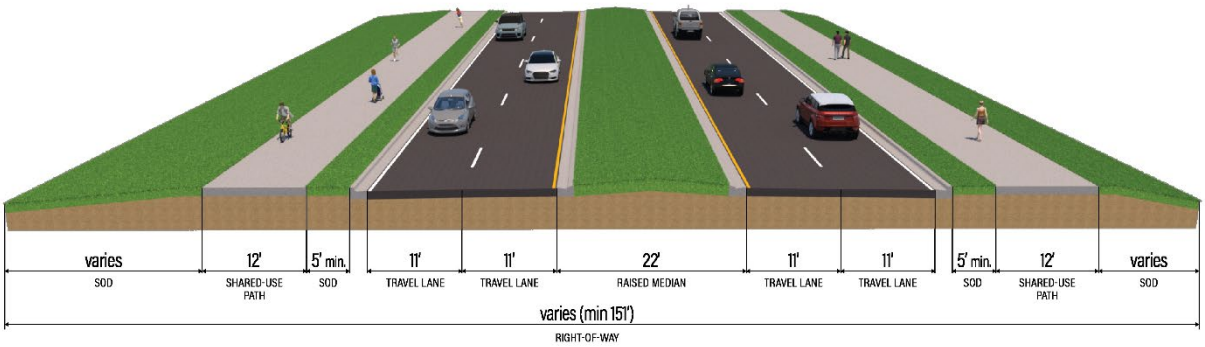
Figure 1-6: Reedy Creek Bridge Typical Section (Segment 2)



1.5.3 US 17/92 Typical Section – Segment 3

An urban typical section shown in **Figure 1-7** is proposed for Segment 3 from the east end of the Reedy Creek Bridge to Old Tampa Highway. This typical section consists of two 11-foot travel lanes in each direction separated by a 22-foot raised median, and a 12-foot shared-use path along both sides of the roadway. The shared-use path is separated from the roadway by curb and gutter and a buffer varying in width with a minimum of five feet. The total ROW needed for this typical section varies with a minimum of 151 feet. The design speed, posted speed, and target speed for this typical section is 45 mph.

Figure 1-7: US 17/92 Typical Section (Segment 3)

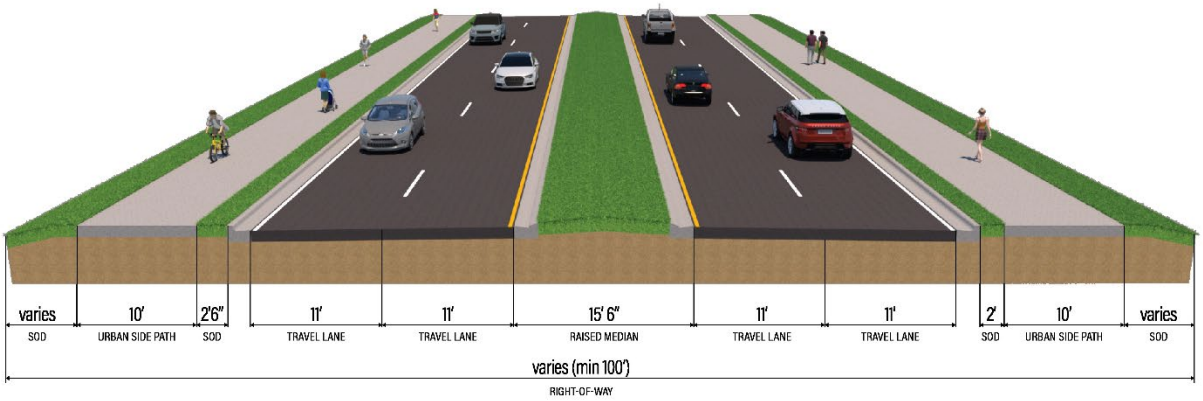


1.5.4 Intercession City Typical Section – Segment 5

An urban typical section is proposed for Segment 5 through Intercession City as shown in **Figure 1-8**. This typical section includes a 15.5-foot raised median, two 11-foot travel lanes in each direction, and a 10-foot urban side path along both sides of the roadway. The urban side path is separated from the roadway by curb and gutter and a buffer with a width of two feet along the south side of the roadway, and 2.5 feet along the north side of the roadway. The total ROW

needed for this typical section varies with a minimum of 100 feet. The design speed, posted speed, and target speed for this typical section is 30 mph.

Figure 1-8: Intercession City Typical Section (Segment 5)



1.6 List of Technical Documents

This Preliminary Engineering Report (PER) documents the existing conditions within the study area, summarizes the purpose and need for the project, provides an overview of the alternatives considered during the study, and details the Preferred Alternative and engineering aspects. The analysis of the preliminary engineering and environmental issues are documented in separate reports that have been prepared for this project and include the following:

Engineering Reports

- SR 600 (US 17/92) from CR 532 to Poinciana Boulevard Preliminary Engineering Report (February 1996)
- US 17/92 Corridor Planning Study from Ronald Reagan Parkway to Poinciana Boulevard (February 2018)
- Pond Siting Report (May 2023)
- Project Traffic Analysis Report (June 2021)
- Location Hydraulics Report (July 2023)
- Utilities Assessment Package (November 2022)
- Preliminary Soil Survey Report (June 2021)
- Stage 1 Intersection Control Evaluation (July 2021)
- Stage 2 Intersection Control Evaluation (January 2022)
- Existing Bridge Conditions Memo (June 2022)
- Lighting Justification Report (December 2022)

Environmental Reports

- Environmental Determination for State Road 600 (US 17/92) from County Road 532 to Poinciana Boulevard (February 1994)

- Tree Inventory and Impact Report for the US 17/92 Bridge Alignment Area (August 2023)
- Natural Resources Evaluation (December 2022)
- Water Quality Impact Evaluation Report (December 2022)
- Noise Study Report (March 2024)
- Cultural Resources Assessment Survey (October 2021)
- Section 106 Consultation Case Study Report (October 2024)
- Sociocultural Effects Evaluation Report (August 2024)
- Contamination Screening Evaluation Report (August 2023)
- Conceptual Stage Relocation Plan (June 2024)
- Type 2 Categorical Exclusion Checklist (TBD)
- Draft South Orange Blossom Trail Bridges Programmatic Section 4(f) Evaluation (TBD)
- Draft South Orange Blossom Trail Bridges Resource Group Programmatic Section 4(f) Evaluation (TBD)
- Draft Upper Reedy Creek Management Area - Intercession City Unit Section 4(f) Evaluation (TBD)
- Draft Beehive Hill Section 4(f) Evaluation (TBD)

Public Involvement Reports

- Public Involvement Plan (July 2020)
- Comments and Coordination Report (TBD)
- Public Hearing Transcript (TBD)

2.0 Existing Conditions

This section summarizes existing physical features collected through a review of available plans and documents. Some of the features evaluated include roadway condition, typical sections, existing ROW, speed limits, access management, utilities, crash data, traffic conditions, and pedestrian and bicycle facilities.

2.1 Previous Planning Studies

2.1.1 Corridor Planning Study

Preceding this PD&E Study, a corridor planning study was completed in February 2018. During the corridor planning study, existing and future conditions were analyzed, gathered local feedback, and identified initial alternatives to move forward into this PD&E Study phase. The planning study made the following recommendations:

2.1.1.1 Segment 1 – Ronald Reagan Parkway to CR 532

In this segment, a four-lane suburban typical section with a 30-foot raised median, sidewalks on both sides of the roadway, and paved shoulders to serve as bicycle lanes is recommended. The recommended speed limit for this section is 55 mph. Notable considerations for this segment include additional ROW requirements to the south side of the existing roadway to avoid power poles, gas lines, and existing development and the planned location for the PPE interchange with US 17/92.

2.1.1.2 Segment 2 – CR 532 to Old Tampa Highway

In this segment, a four-lane divided bridge section spanning approximately 2,200 feet, with 100-foot median (between the two bridges), sidewalks on the north side of the roadway on the new bridge structure, and paved shoulders is recommended. The recommended speed limit for this section is 55 mph. Notable considerations for this segment include location of the new bridge where the abandoned bridges now exist, potential to provide sidewalks accommodation. The existing bridge will remain and be converted from a two-way bridge to the eastbound bridge.

2.1.1.3 Segment 3 – Old Tampa Highway to Suwannee Avenue

In this segment, a four-lane rural typical section with a 40-foot grassed median, sidewalks on both sides of the roadway, and paved shoulders is recommended. The recommended speed limit for this section is 55 mph. Consideration should be made for the required ROW to be located on the south side of the existing roadway to avoid power poles and existing development.

2.1.1.4 Segment 4 – Suwannee Avenue to Nocatee Street/Shepherd Lane (Intercession City)

In this segment, a four-lane urban typical section with a 22-foot raised median, sidewalks on both sides of the roadway, and buffered bicycle lanes is recommended. The recommended speed limit

for this section is 45 mph. Notable considerations for this segment include the need for easements to accommodate utilities and slopes, and stormwater drainage for urban setting. However, the roadway features were planned to remain within the existing ROW.

2.1.1.5 Segment 5 – Nocatee Street/Shepherd Lane to Avenue A

In this segment, a four-lane rural typical section with a 40-foot grassed median, sidewalks on both sides of the roadway, and paved shoulders is recommended. The recommended speed limit for this section is 55 mph. Notable considerations for this segment include additional ROW needed on the north side of existing roadway, to match the US 17/92 widening project from Ham Brown Road to Avenue A, and potential utility relocation costs.

2.1.2 Previous PD&E Study

In 1996, a PD&E Study was completed from CR 532 to Poinciana Boulevard. Due to lapse of time, this PD&E Study is being conducted in lieu of a re-evaluation. The improvements recommended during the previous PD&E Study included widening US 17/92 from two to four lanes and replacing the currently abandon bridges over Reedy Creek (three two-way, two-lane bridges in poor condition described in **Section 2.3.3**) with two new bridges. The first new bridge was to be constructed as a two-way, two-lane, undivided bridge aligned slightly south of the existing bridge; it was to be 2,362 feet long with 10-foot-wide shoulders. This bridge would serve the traffic on US 17/92 when the existing bridges were closed, demolished, and a second two-lane bridge constructed in their place, once the widening was needed. The second bridge was to be 1,933 feet long with a 10-foot-wide outside shoulder and a 6-foot-wide inside shoulder. Upon the completion of the second bridge, the traffic pattern would be updated so that the first bridge served the eastbound traffic, and the second bridge served the westbound traffic. The existing bridge was proposed to ultimately serve the eastbound traffic and was constructed as part of the US 17/92 realignment project. The proposed widening to four lanes and the second bridge over Reedy Creek to accommodate westbound traffic was not constructed. Therefore, the bridge constructed in 2001 as a result of this PD&E remains a two lane, two-way bridge that is currently used for US 17/92 and the three US 17/92 bridges are abandoned and not currently maintained.

Commitments documented in the 1996 PD&E are as follows:

1. FDOT will coordinate with the Florida Department of Environmental Protection to relocate the Fletcher Park Monument prior to construction. (The Fletcher Park Monument was moved to the Osceola County Historical Society on US 192.)
2. Final approval for the use of the Three Lakes Wildlife Mitigation Bank for mitigation of project wetlands impacts will be obtained from the regulatory agencies during the design and permitting phase of the project. If approval is not obtained an alternative mitigation plan will be developed.

2.2 Existing Roadway Conditions

2.2.1 Roadway Typical Sections

US 17/92 from Ivy Mist Lane to approximately 1,450 feet west of Suwannee Avenue (excluding the bridge over Reedy Creek) is currently a two-lane undivided roadway. The travel lanes are approximately 12 feet wide. The typical section is rural with an open drainage system. Four-foot paved shoulders are provided throughout. The existing typical section for this segment of the corridor is shown in **Figure 2-1**.

The existing typical section for the bridge spanning Reedy Creek includes two undivided 12-foot lanes and 10-foot shoulders on both sides of the roadway. The existing bridge typical section is shown in **Figure 2-2**.

From approximately 1,450 feet west of Suwannee Avenue to Shepherd Lane, US 17/92 is currently a two-lane roadway with 12-foot travel lanes divided by a 12-foot two-way left turn lane. The typical section is rural with an open drainage system. Four-foot paved shoulders are provided throughout. The existing typical section for this segment of the corridor is shown in **Figure 2-3**.

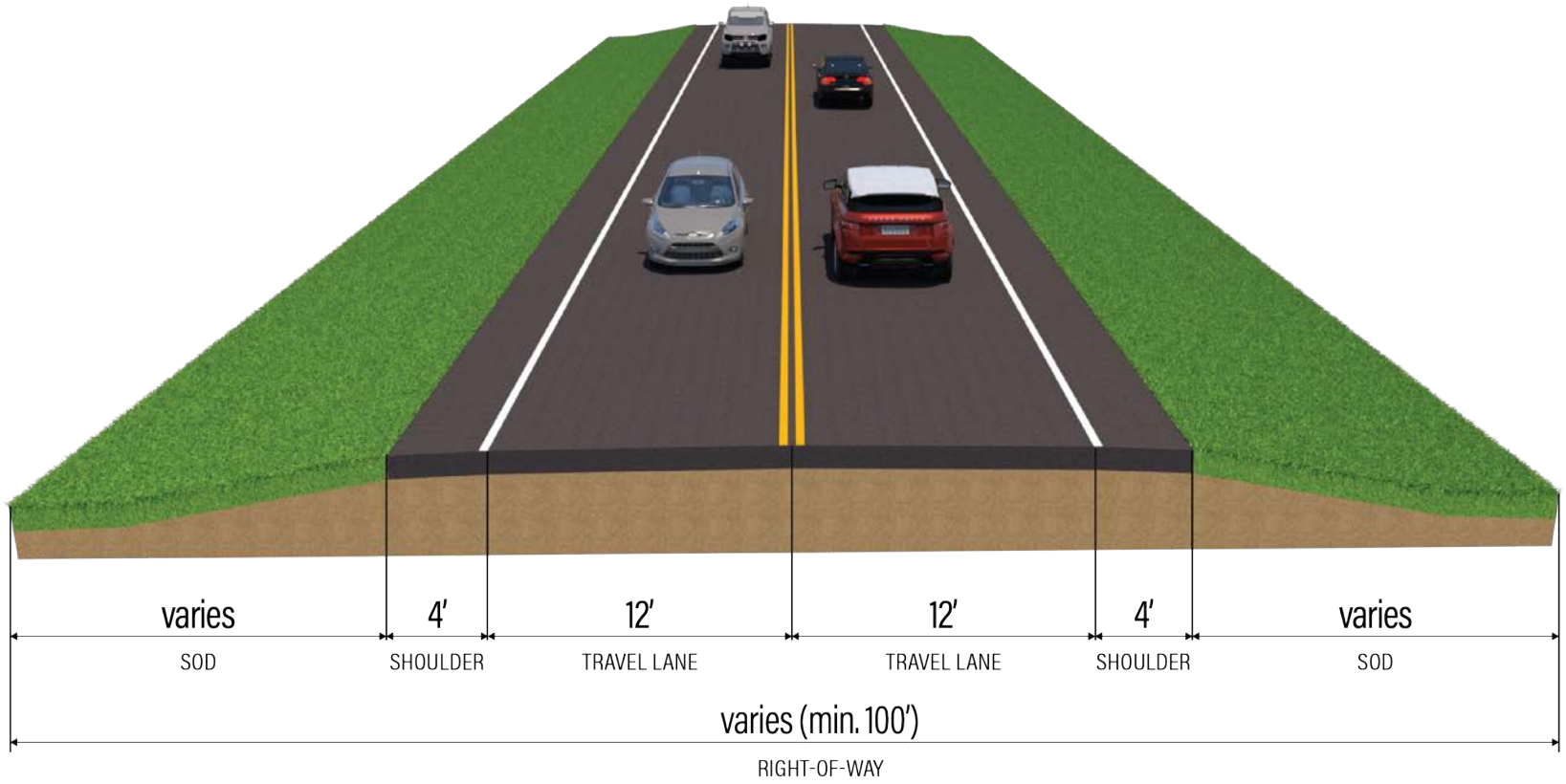
From Shepherd Lane to approximately 2,110 feet east of Shepherd Lane/Nocatee Street, US 17/92 is currently a two-lane undivided roadway with 12-foot travel lanes and 5-foot paved shoulders. The typical section is rural with an open drainage system. The existing typical section for this segment of the corridor is shown in **Figure 2-4**.

From approximately 2,110 feet east of Shepherd Lane/Nocatee Street to Avenue A, US 17/92 is currently a three-lane divided roadway with two eastbound lanes and one westbound lane. The travel lanes are approximately 12 feet wide, divided by a variable width (0 to 45-foot) open swale. The typical section is rural with an open drainage system. Seven-foot bike lanes are provided on the outer pavement edges, and two-foot paved shoulders are provided on the inside pavement edges. The existing typical section of this segment of the corridor is shown in **Figure 2-5**.

2.2.2 Roadway Functional & Context Classifications

US 17/92 within the study area is a state facility (SR 600) within FDOT District Five, Osceola County, and MetroPlan Orlando (the regional Metropolitan Planning Organization [MPO]) jurisdictions. The study area is not within any incorporated cities. The Florida Division of Emergency Management Agency has designated US 17/92 as an evacuation route. The functional classification for US 17/92 within the limits of the study area is an "Urban Principal Arterial Other." It is a two-lane, undivided highway. US 17/92 is classified as a Strategic Intermodal System (SIS) connector from CR 532 to Avenue A along the study corridor.

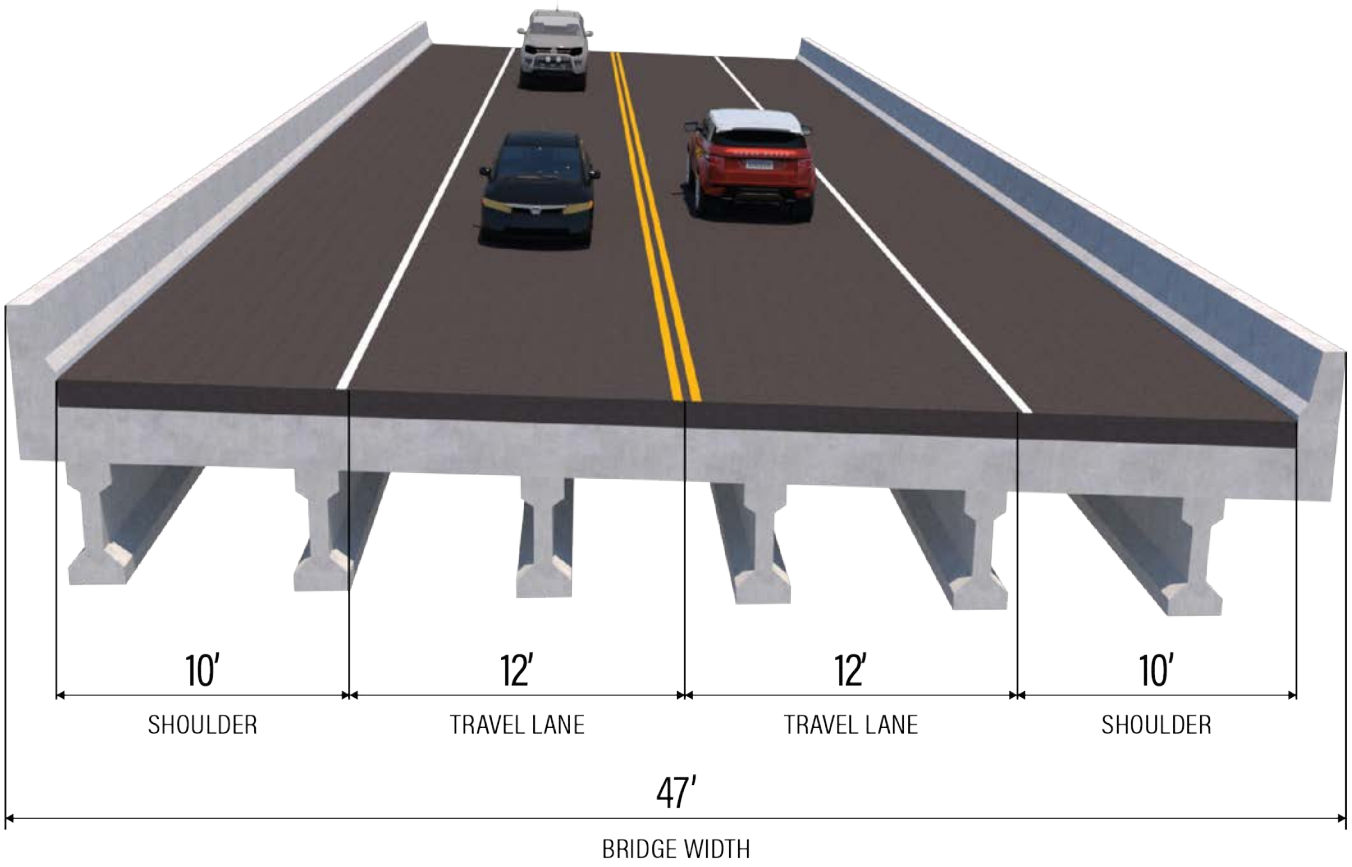
Figure 2-1: Existing US 17/92 Typical Section – Ivy Mist Lane to 1,450 feet west of Suwannee Avenue



Roadway ID 92010000/92010100: M.P. 0.000 to M.P. 2.780 (excluding bridge)

Design Speed: 60 mph

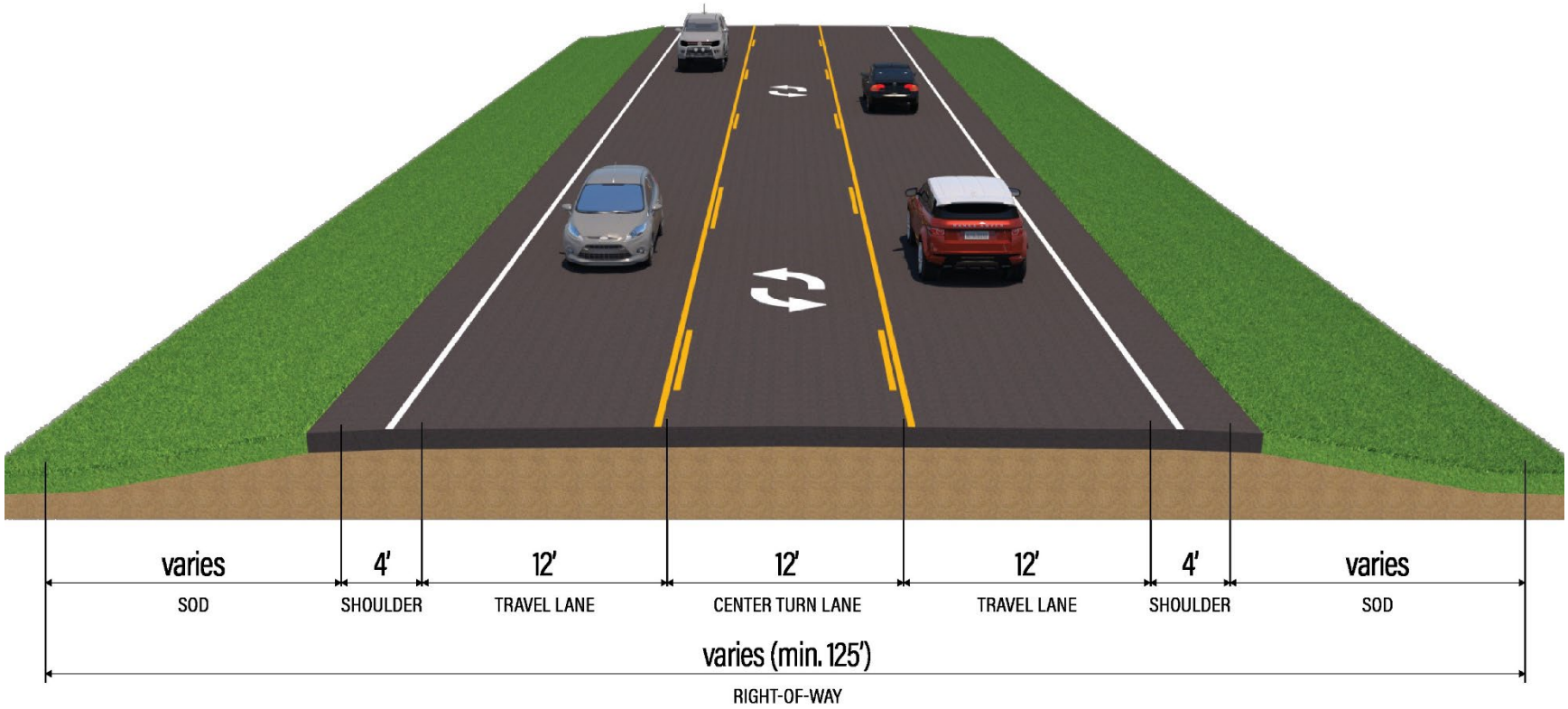
Figure 2-2: Existing US 17/92 Typical Section – Reedy Creek Bridge



Roadway ID 92010100: M.P. 0.447 to M.P. 0.888 (bridge typical)

Design Speed: 60 mph

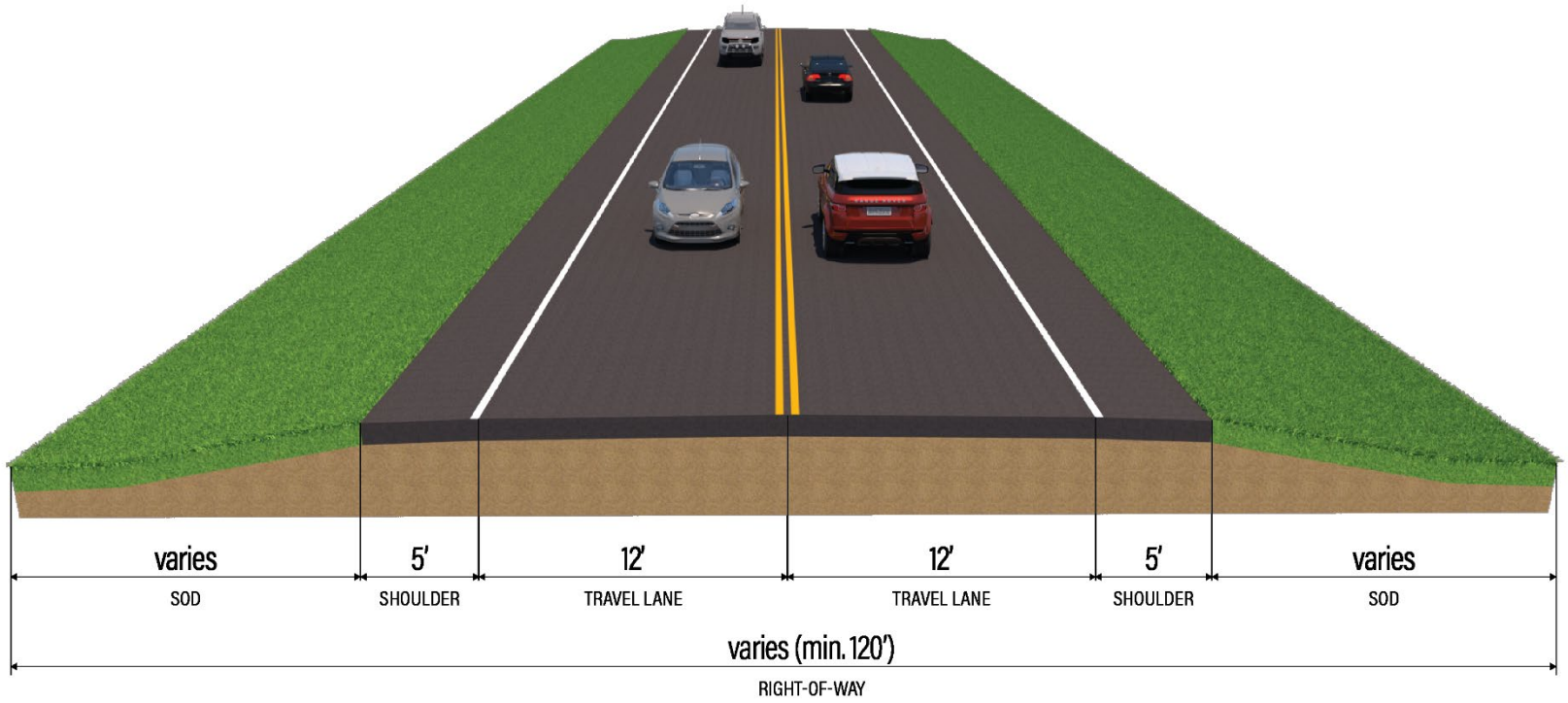
Figure 2-3: Existing US 17/92 Typical Section – 1,450 feet west of Suwannee Avenue to Shepherd Lane/Nocatee Street



Roadway ID 92010000: M.P. 2.780 to M.P. 3.330

Design Speed: 50 mph

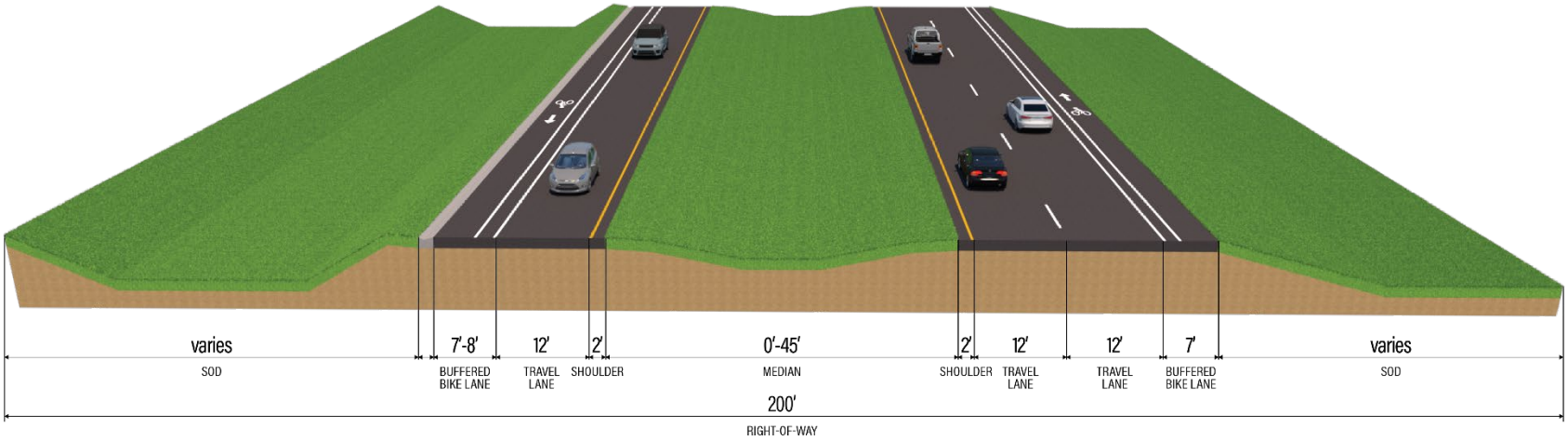
Figure 2-4: Existing US 17/92 Typical Section – Shepherd Lane/Nocatee Street to 2,110 feet east of Shepherd Lane/Nocatee Street



Roadway ID 92010000: M.P. 3.330 to M.P. 3.754

Design Speed: 60 mph

Figure 2-5: Existing US 17/92 Section – 2,110 feet east of Shepherd Lane/Nocatee Street to Avenue A



Roadway ID 92010000: M.P. 3.878 to M.P. 4.117

Design Speed: 55 mph

The existing context classifications were requested and reviewed. The Context Classification Request Form and Map are provided in **Appendix B.** The context classifications include C1 – Natural, C2T – Rural, C3C – Suburban Commercial, and C3R – Suburban Residential, as detailed in **Table 2-1**.

Table 2-1: Existing Context Classification

Segment Limits	Context Classification and Type	Distinguishing Characteristics
Ivy Mist Lane to Osceola-Polk Line Road	C3R	Mostly residential uses within large blocks and a disconnected or sparse roadway network
Osceola-Polk Line Road to Old Tampa Highway	C1	Lands preserved in a natural or wilderness condition, including lands unsuitable for settlement due to natural condition
Old Tampa Highway to approximately 480 feet west of Suwannee Avenue	C3C	Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network
480 feet south of Suwannee Avenue to approximately 640 feet west of Shepherd Lane/ Nocatee Street	C2T	Small concentration of developed areas immediately surrounded by rural and natural areas; includes many historic towns
Approximately 640 feet west of Shepherd Lane/ Nocatee Street to approximately 710 feet west of Avenue A	C1	Lands preserved in a natural or wilderness condition, including lands unsuitable for settlement due to natural condition
Approximately 710 feet west of Avenue A to Avenue A	C3C	Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network

2.2.3 Access Management Classification

The existing corridor is designated Access Class 3 (restrictive) despite being an undivided roadway. The requirements for this access class per Rule Chapter 14-97 of the Florida Administrative Code (F.A.C.) are detailed in **Table 2-2.**

Table 2-2: Access Class Requirements

Access Class	Speed Limit	Minimum Opening Spacing (ft)			Minimum Connection Spacing (ft)	
		Signal	Full	Directional	≤45 mph	> 45 mph
3	n/a	2,640	2,640	1,320	440	660

The existing corridor has numerous access connections with the majority of them meeting spacing requirements with the exception of Intercession City where majority of the connections do not meet spacing.

2.2.4 Right-of-Way

The existing ROW for US 17/92 within the study limits, based on available FDOT ROW maps, is summarized in **Table 2-3**.

Table 2-3: Existing ROW Summary

Roadway ID	Begin Location	End Location	ROW Width (ft)
92010000	Ivy Mist Lane	1,200 feet west of CR 532	100
92010000 & 92010100	1,200 feet west of CR 532	1,030 feet east of CR 532	Varies 100 - 276
92010100	1,030 feet east of CR 532	476 feet east of CR 532	Varies 217 - 220
92010100	476 feet east of CR 532	500 feet west of Old Tampa Highway	245
92010000 & 92010100	500 feet west of Old Tampa Highway	1,450 feet east of Old Tampa Highway	Varies 100 - 231
92010000	1,450 feet east of Old Tampa Highway	2,400 feet west of Avenue A	100
92010000	2,400 feet west of Avenue A	Avenue A	200

Source: FDOT ROW Maps

Details of the existing ROW are in the concept plans provided in **Appendix A** (Preferred Alternative) and **Appendix C** (Alternatives 1-3).

2.2.5 Adjacent Land Use

Existing land use data was identified using Osceola County Property Appraiser parcel data from November 2024. A 500-foot buffer was applied to the study corridor to determine the land uses surrounding the study corridor. The existing land uses surrounding the study corridor are described below, summarized in **Table 2-4**, and illustrated in **Figure 2-6**.

Table 2-4: Generalized Existing Land Use

General Land Use	Acres (within 500 feet)	Percent Total
Agricultural	7.88	2.02%
Commercial	10.19	2.62%
Industrial	20.96	5.38%
Institutional	20.87	5.36%
Other	23.84	6.12%
Residential	91.62	23.53%
Utilities & Rights-of-Way	1.83	0.47%
Vacant Commercial	15.18	3.90%
Vacant Governmental	127.83	32.83%
Vacant Industrial	10.10	2.59%
Vacant Institutional	0.20	0.05%
Vacant Residential	58.87	15.12%
Total	389.36	100.00%

Source: Osceola County GIS Department (2024) and Polk County GIS Department (2024).

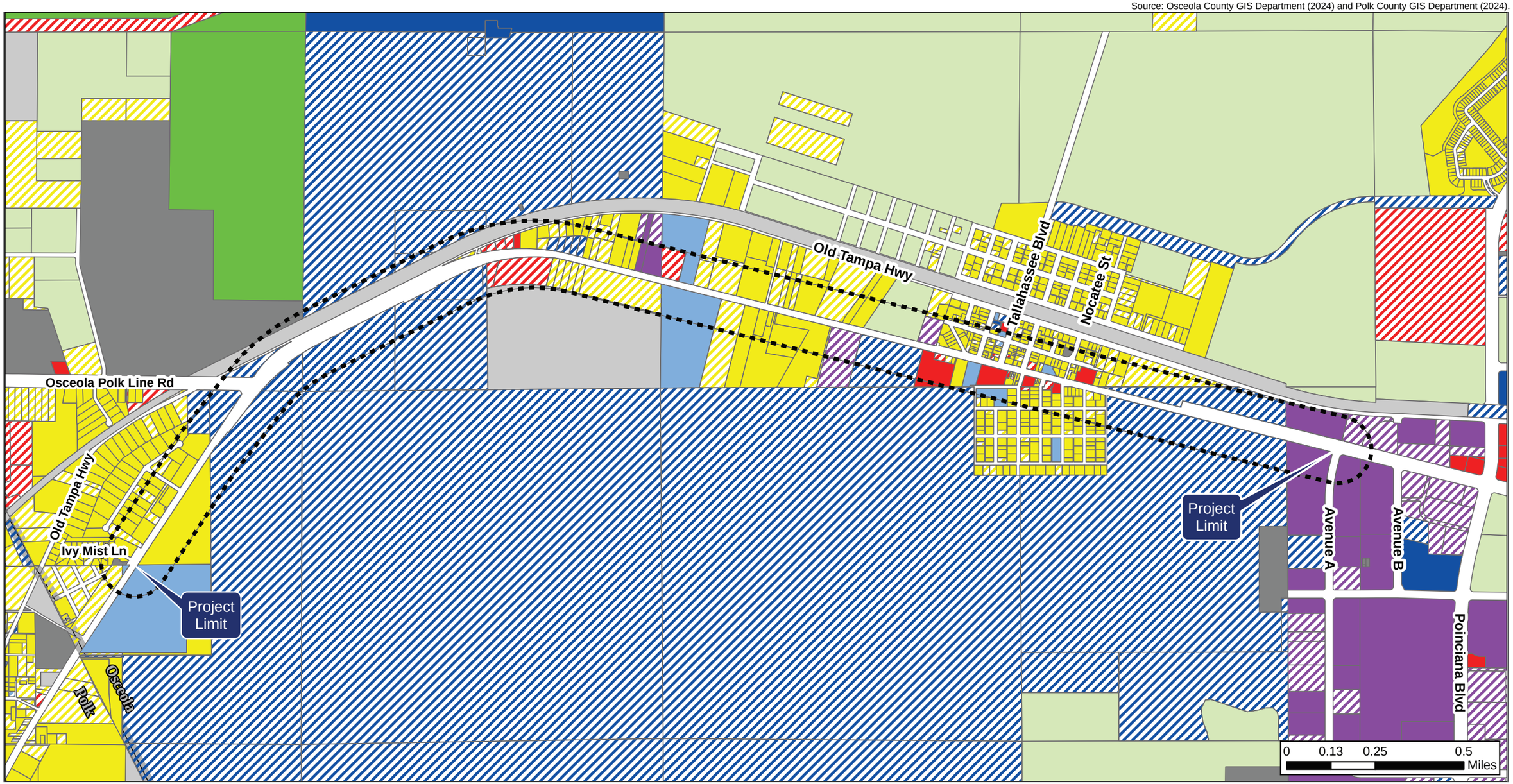


Figure 2-6

Existing Land Use
US 17/92 PD&E
FPID 437200-2

2.2.5.1 Ivy Mist Lane to Sundown Drive

The existing land uses surrounding the segment of US 17/92 from Ivy Mist Lane to Sundown Drive are predominantly designated residential, vacant residential and institutional. Parcels along the east side of this segment include a church and residential property setback beyond 200 feet and separated from the roadway with heavy vegetation. The west side of the segment is made up of residential parcels without direct access to US 17/92, commercial properties, and vacant parcels.

2.2.5.2 Sundown Drive to Old Tampa Highway

Between Sundown Drive and Old Tampa Highway, the existing land uses surrounding the study corridor are predominantly designated vacant governmental. The parcels surrounding this segment are mainly conservation area with railroad ROW running along the north side of US 17/92 along the Reedy Creek Bridge. Beginning at CR 532, railroad tracks approximately 270 feet from the edge of pavement are predominantly parallel to the corridor until Old Tampa Highway.

2.2.5.3 Old Tampa Highway to Suwannee Avenue

Between Old Tampa Highway and Suwannee Avenue, the existing land uses surrounding the study corridor are majority residential and vacant residential with some institutional, commercial, agricultural, vacant governmental, and industrial land uses. The developed parcels surrounding this segment are predominantly residences and businesses set back with direct access to the roadway. The Muslim Cemetery of Central Florida and the Aspire Health Partners Rehabilitation Center, on the north and south side of US 17/92 respectively, are located approximately 3,000 feet east of Old Tampa Highway.

2.2.5.4 Suwannee Avenue to Shepherd Lane/Nocatee Street

Between Suwannee Avenue and Shepherd Lane/Nocatee Street, the existing land uses surrounding the corridor are predominantly residential with some institutional and commercial land uses. This segment of US 17/92 runs through the unincorporated community of Intercession City. The parcels in the area are mostly single-family residential properties and businesses with direct driveway access to US 17/92.

2.2.5.5 Shepherd Lane/Nocatee Street to Avenue A

From Shepherd Lane/Nocatee Street to Avenue A, the existing land uses in the segment are primarily designated industrial and vacant governmental. The parcels near Avenue A in this segment are primarily industrial businesses.

2.2.6 Pavement Type and Condition

The Cracking and Ride ratings, as derived from the FDOT 2024 All System Pavement Condition Forecast extracted on August 16, 2024, for US 17/92 within the study limit, can be seen in **Table 2-5**. The distress rating for Cracking is deficient for the first half mile of the corridor (Roadway ID

#92010000, Mile Post [MP] 0.000 – MP 0.536). This segment of the corridor has a speed limit of 55 mph. The Cracking and Ride rating for the remainder of the corridor are predicted to be acceptable until at least 2029, with two exceptions. The first segment is between Sundown Drive and just west of Reedy Creek Bridge, where the 2029 Cracking rating is predicted to be 5.5. The second segment is between 0.28 miles east of Old Tampa Highway and 0.28 miles west of Suwannee Avenue, where the 2029 Cracking rating is predicted to be 5.5. Additionally, Cracking and Ride ratings are not provided for the travel lanes of concrete bridges. Therefore, no Cracking and Ride ratings are available for the Reedy Creek Bridge. The red-highlighted values indicate distress ratings that are considered deficient.

The FDOT 2024 All System Pavement Condition Forecast for Osceola County is included in **Appendix D**.

Table 2-5: Existing Pavement Conditions

Roadway ID	Begin Location	Begin MP	End Location	End MP	Distress Rating (2024)		Distress Rating (2029)	
					Cracking	Ride	Cracking	Ride
92010000	Ivy Mist Lane	0.299	Sundown Drive	0.536	6.0[1]	7.3	4.0[1]	7.0
92010100	Sundown Drive	0.000	West end of Reedy Creek Bridge	0.452[2]	7.5	7.4	5.5[1]	7.1
92010100	East end of Reedy Creek Bridge	0.875[3]	Approximately 0.28 mile east of Old Tampa Highway	1.354	8.5	7.9	6.5	7.6
92010000	Approximately 0.28 miles east of Old Tampa Highway	1.915	Approximately 0.28 miles west of Suwannee Avenue	2.770	7.5	8.0	5.5[1]	7.7
92010000	Approximately 0.28 miles west of Suwannee Avenue	2.770	Approximately 0.042 miles west of Shepherd Lane	3.745	8.5	7.8	6.5	7.5
92010000	Approximately 0.042 miles west of Shepherd Lane	3.745	Avenue A	4.117	10.0	7.9	9.0	7.7

[1]Indicates Pavement Deficient (Any Rating <= 6)

[2]Segment ends approximately at the west end of the Reedy Creek Bridge. No information for Reedy Creek Bridge

[3]Segment begins approximately at the east end of the Reedy Creek Bridge. No information for Reedy Creek Bridge

2.2.7 Existing Design and Posted Speed

The existing design and posted speeds for US 17/92 between Ivy Mist Lane and Avenue A are described in **Table 2-6**.

Table 2-6: Existing Design and Posted Speeds

Segment	Design Speed (mph)	Posted Speed (mph)
From Ivy Mist Lane to 1,450 feet west of Suwannee Avenue	60	55
From 1,450 feet west of Suwannee Avenue to Nocatee Street	50	45
From Nocatee Street to 2,110 feet east of Nocatee Street	60	45
From 2,110 feet east of Nocatee Street to Avenue A	55	45

2.2.8 Horizontal Alignment

The horizontal curve data was obtained from the *2001 Realignment As-Built Plans* (State Project No. 92010-3520). The horizontal geometry along US 17/92 within the study limits includes three curves:

- Approximately 1,300 feet west of Osceola Polk Line Road
- At Osceola Polk Line Road
- At Old Tampa Highway

Table 2-7 identifies the existing curve data.

Table 2-7: Existing Horizontal Curve Data

Curve #	1	2	3
Curve Description	1,300 feet west of CR 532	At CR 532	At Old Tampa Highway
Design Speed (mph)	60	60	60
Radius (ft)	6562	2723	2625
Curve Length (ft)	510	1220	1860
Degree of Curvature	0° 52’	2° 06’	2° 11’
Maximum Degree of Curvature Allowed*	5° 15’	5° 15’	5° 15’
Meets Current Standard*	Yes	Yes	Yes
Super-elevation	0.03	0.07	0.07
Minimum Superelevation Required*	0.026	0.057	0.076
Meets Current Standard*	Yes	Yes	No

**FDOT Design Manual Table 210.9.1*

2.2.9 Vertical Alignment

The existing vertical alignment was reviewed using the As-Built Plans along the corridor. The vertical reference is North American Vertical Datum (NAVD) of 1988. The As-Built Plans used to determine the vertical alignment of the corridor are as follows:

- *1994 Resurfacing As-Built Plans* (State Project No. 92010-3531) – MP 0.299 to MP 0.536
  From Ivy Mist Lane to Sundown Drive
- *2001 Realignment As-Built Plans* (State Project No. 92010-3520) – MP 0.537 to MP 1.943
  From Sundown Drive to approximately 0.88 miles east of Old Tampa Highway
- *1994 Resurfacing As-Built Plans* (State Project No. 92010-3531) – MP 1.943 to MP 3.732
  From approximately 0.88 miles east of Old Tampa Highway to approximately 0.38 miles west of Avenue A
- *2019 Widening Project* (FPID No. 239714-1-52-01) – MP 3.732 to MP 4.117
  From approximately 0.38 miles west of Avenue A to Avenue A

Several segments on US 17/92 lack comprehensive vertical alignment data.

2.2.9.1 Ivy Mist Lane to Sundown Drive

The *1994 Resurfacing As-Built Plans* (State Project No. 92010-3531) contain detailed cross sections but do not contain profile sheets, so only elevation data is available for each station along this segment. However, no curve data is available. The elevations shown in the *1994 Resurfacing As-Built Plans* (State Project No. 92010-3531) indicate that no vertical curves exist between Ivy Mist Lane and Sundown Drive, as none of the elevation changes indicate a change in grade greater than 1%.

2.2.9.2 Sundown Drive to Approximately 0.88 Miles East of Old Tampa Highway

The data for six vertical curves shown in the *2001 Realignment As-Built Plans* (State Project No. 92010-3520) are summarized in **Table 2-8**. All six curves meet the FDOT Design Manual (FDM) criteria for K value and length per FDM Table 210.10.3 and FDM Table 210.10.4, respectively.

Table 2-8: Vertical Curve Summary (Project No. 92010-3520)

PVC Station	PVT Station	Curve Type	Curve Length (ft)	Design Speed (mph)	Calc. K Value	Meets FDM Criteria? (Length)(K)	Grade In (%)	Grade Out (%)	Grade Change (%)
10+33.00	11+48.00	Sag	377	60	497.36	(Y)(Y)	-0.300	+0.458	0.758
14+50.00	16+00.00	Crest	492	60	1,074.24	(Y)(Y)	+0.458	0.000	0.458
22+02.50	23+17.50	Sag	377	60	278.43	(Y)(Y)	0.000	+1.354	1.354
23+30.00	26+70.00	Crest	1,115	60	363.67	(Y)(Y)	+1.354	-1.712	3.066
27+02.50	28+17.50	Sag	377	60	267.00	(Y)(Y)	-1.712	-0.300	1.412
29+92.50	31+07.50	Sag	377	60	604.17	(Y)(Y)	-0.300	+0.324	0.624

Note: This project was done in the metric system, so stationing is in meters.

2.2.9.3 Approximately 0.88 Miles East of Old Tampa Highway to Approximately 0.38 miles West of Avenue A

The elevations shown in the *1994 Resurfacing As-Built Plans* (State Project No. 92010-3531) indicate the existence of three slight curves between MP 2.16 and MP 2.22: a crest curve going from a 0% grade to a negative grade steeper than -1.3%, a sag curve going from the negative grade to a positive grade steeper than +1.4%, and a crest curve returning from the positive grade back to a 0% grade. However, no curve data is available. Therefore, the lengths and K values of these curves are unknown.

2.2.9.4 Approximately 0.38 miles West of Avenue A to Avenue A

The grade changes shown in the *2019 Widening Project* (FPID No. 239714-1-52-01) are made without vertical curves. FDM criteria specifies the maximum change in grade allowed before a vertical curve must be constructed as shown in **Table 2-9**.

Data for the four documented grade changes are shown in **Table 2-10**. All four grade changes fall within the limits of what is permissible without a vertical curve according to the FDM.

Table 2-9: FDM Maximum Grade Change Without Vertical Curve

Design Speed (mph)	Maximum Grade Change (%)
45	0.70
50	0.60
55	0.50
60	0.40

Source: FDOT Design Manual Table 210.10.2

Table 2-10: Vertical Grade Change Summary (FPID No. 239714-1-52-01)

PI Station	Design Speed (mph)	Grade In (%)	Grade Out (%)	Grade Change (%)	Meets FDM Criteria?
1202+50.00	55	-0.02	0.18	0.21	Yes
1207+50.00	55	0.18	0.00	0.18	Yes
1214+70.00	55	0.00	-0.32	0.32	Yes
1217+20.00	55	-0.32	0.00	0.32	Yes

2.2.10 Multimodal Facilities

2.2.10.1 Pedestrian Facilities

The pedestrian facilities within the study limits are as follows:

- Five-foot-wide concrete sidewalks, approximately 220 feet in total length, in front of the Muslim Cemetery of Central Florida on the north side of US 17/92.
- Four-foot-wide concrete sidewalks, approximately 200 feet in total length, on the north of US 17/92 between Immokalee Street and Tallahassee Street in Intercession City.

- Four-foot-wide concrete sidewalks, approximately 136 feet in total length, at the entrance of Auto - Vending LLC on the south side of US 17/92 across from Tallahassee Street in Intercession City.
- As part of the recently completed widening project (FPID #239714-1), a five-foot-wide concrete sidewalk on the south side of the US 17/92 intersection with Avenue A, heading east.

No other pedestrian facilities are present on US 17/92 within the study limits. There are no marked or signed pedestrian crosswalks at any of the other study intersections.

This corridor runs through the middle of the unincorporated community of Intercession City. Within Intercession City there are some sidewalks. However, almost all the sidewalks are away from the study corridor and there are many gaps in the community-wide network. The existing sidewalks are narrow and in a state of disrepair in many places.

2.2.10.2 Bicycle Facilities

The recently completed construction of the widening project (FPID #239714-1) at the east end of the project provides seven- to eight-foot-wide buffered bike lanes on the north and south sides of the roadway from approximately 2,200 feet west of Avenue A to Avenue A. Four-foot paved shoulders are provided on both sides of the corridor from Ivy Mist Lane to Wonder Court and from just east of Shepherd Lane/Nocatee Street to 2,200 feet west of Avenue A. There are no connected bicycle routes or signage on Osceola-Polk Line Road, Old Tampa Highway, or on any of the side streets in Intercession City.

2.2.10.3 Shared-Use Paths

There are no shared-use paths within the study area.

2.2.10.4 Transit

LYNX, the public transit service for Osceola County, provides limited connectivity. There is no fixed-route transit service along the corridor. NeighborLink Route 604/Intercession City-Campbell City flex-service is available upon request during limited hours for a portion of the corridor. Vehicle operators provide transportation anywhere within the designated service area or to a LYNX local bus stop. Route 604 service area extends from the west end of Intercession City by the intersection of US 17/92 and Suwannee Avenue to the intersection of US 17/92 and Harris Boulevard, east of the project limit.

2.2.10.5 Freight

The primary freight presence along the project corridor occurs at the intersection of US 17/92 with Avenue A. On the north side of US 17/92, PepsiCo. owns a 33.80-acre industrial distribution complex. In the southwest corner of the intersection, Jeld Wen, Inc. owns an 18.16-acre industrial distribution complex. On the south side of US 17/92, Vistar of Orlando has a 12.01-acre lot on the

southwest corner of US 17/92 and Avenue B less than 1000 feet from Avenue A, and Capstone Logistics has a 69.66-acre facility on the west side of Poinciana Boulevard just south of US 17/92.

Based on the AADT metrics and the Truck AADTs shown by Florida Traffic Online (FTO) (2023), there is a significant percentage of trucks along the study corridor. The truck percentages are summarized in **Table 2-11**.

Table 2-11: Truck Percentage of AADT, 2023

Corridor Segment	Truck Percentage (%)
Ivy Mist Lane to CR 532	6.9
CR 532 to east of Old Tampa Highway	23.7
East of Old Tampa Highway to Avenue A	5.0

Source: https://tdaappsprod.dot.state.fl.us/fto/

2.2.11 Intersections

Six intersections along US 17/92 were analyzed as part of this PD&E study. Among these six intersections, one is signalized and maintained by Osceola County. The study intersections along US 17/92 are:

- US 17/92 and CR 532 - Signal
- US 17/92 and Old Tampa Highway – Stop Control
- US 17/92 and Tallahassee Boulevard – Stop Control
- US 17/92 and Manatee Street/Hope Street – Stop Control
- US 17/92 and Shepherd Lane/Nocatee Street – Stop Control
- US 17/92 and Avenue A – Stop Control

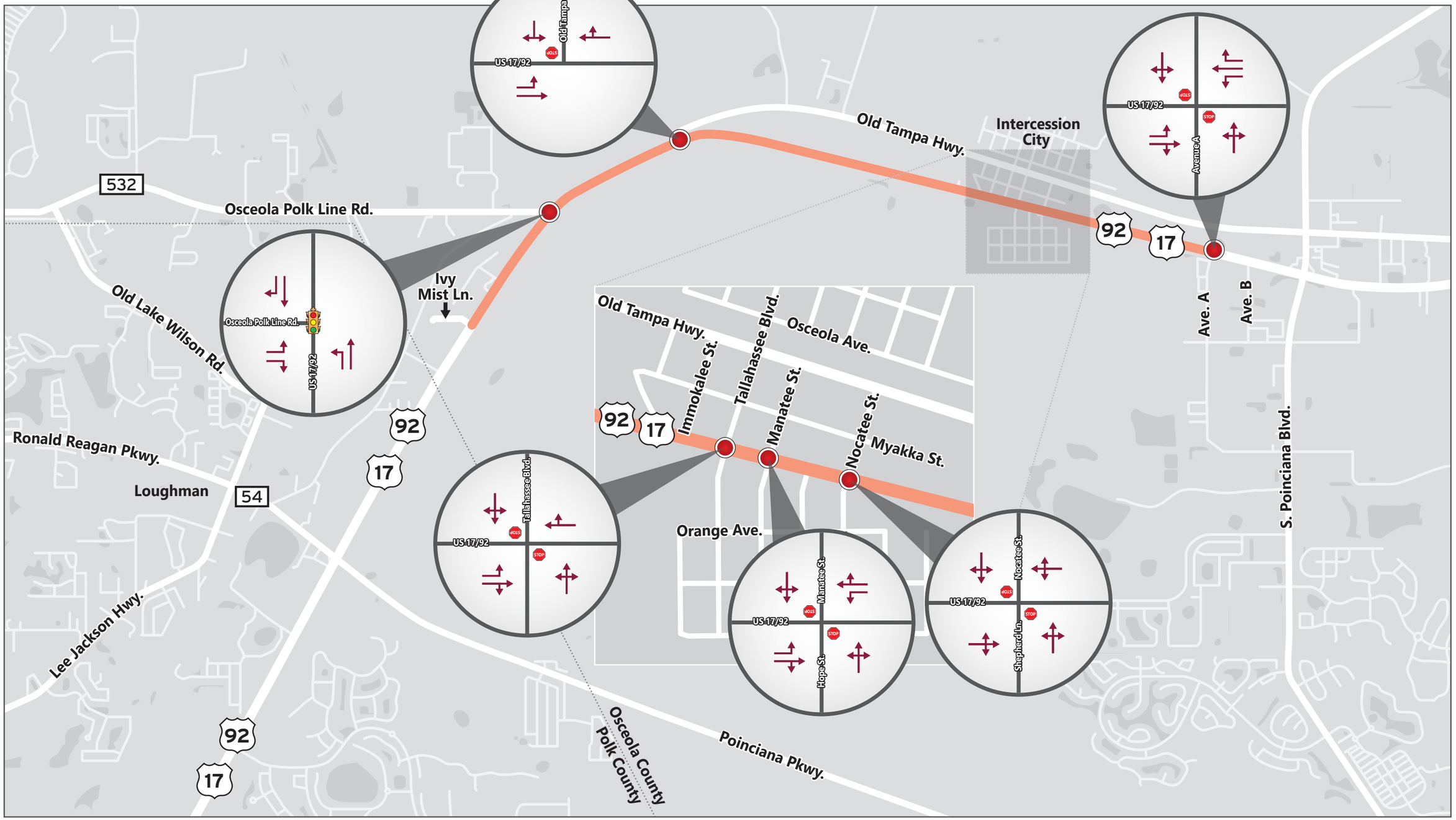
See **Figure 2-7** for the existing lane geometry for these six intersections.

2.2.12 Physical or Operational Restrictions

There are several existing restrictions present along US 17/92. The first restriction is the new interchange and box culvert near Ivy Mist Lane. US 17/92 will be widened and the box culvert just east of Ivy Mist Lane will be extended with the CFX project 538-235.

Another restriction is the existing US 17/92 bridge which crosses Reedy Creek. This bridge is a two-lane two-way bridge that will be utilized as part of the widening to the roadway. Minimizing impacts to Reedy Creek will be a key consideration for this project.

A box culvert just west of Avenue A was recently widened to accommodate the widening of the roadway is another restriction along the corridor to preserve the recently constructed box culvert.



N.T.S.

- Project Limits
- Lane Geometry
- Stop-Controlled Intersection
- Signalized Intersection

Figure 2-7

Existing Geometry
US 17/92 PD&E
FPID 437200-2

2.2.13 Traffic Data

The existing year 2021 AADT volumes and factors for the US 17/92 corridor and side street is provided in **Table 2-12**. Due to COVID-19 impacts to traffic, year 2019 traffic was utilized and considered 2021 traffic. For the low volume side street locations where the year 2019 traffic counts were not available, the 2019 AADT was derived based on the Turning Movement Counts (TMC) estimates at each intersection and the Standard K of 9.0%. Daily estimates based on StreetLight data were not used for this purpose as the intersection TMC estimates were adjusted to be consistent with the previous studies. The final adjusted AADTs are provided in **Figure 2-8**.

2.2.13.1 Existing Year 2019 Turning Movement Counts (TMCs)

The StreetLight data used for the year 2019 AM and PM peak hour TMC estimates at the study intersections are available in the Project Traffic Analysis Report (PTAR), in the project file. The adjusted existing year 2019 AM and PM peak hour TMC estimates for the study corridor are shown in **Figure 2-9**.

2.2.14 Roadway Operational Conditions

2.2.14.1 Existing Traffic Conditions

The LOS analyses (vehicle, bicycle, and pedestrian) for the intersections along US 17/92 were performed using the Highway Capacity Manual (HCM) 6th Edition methodology in Synchro 10. The existing year 2019 AM and PM Peak Hour Synchro outputs are included in the PTAR.

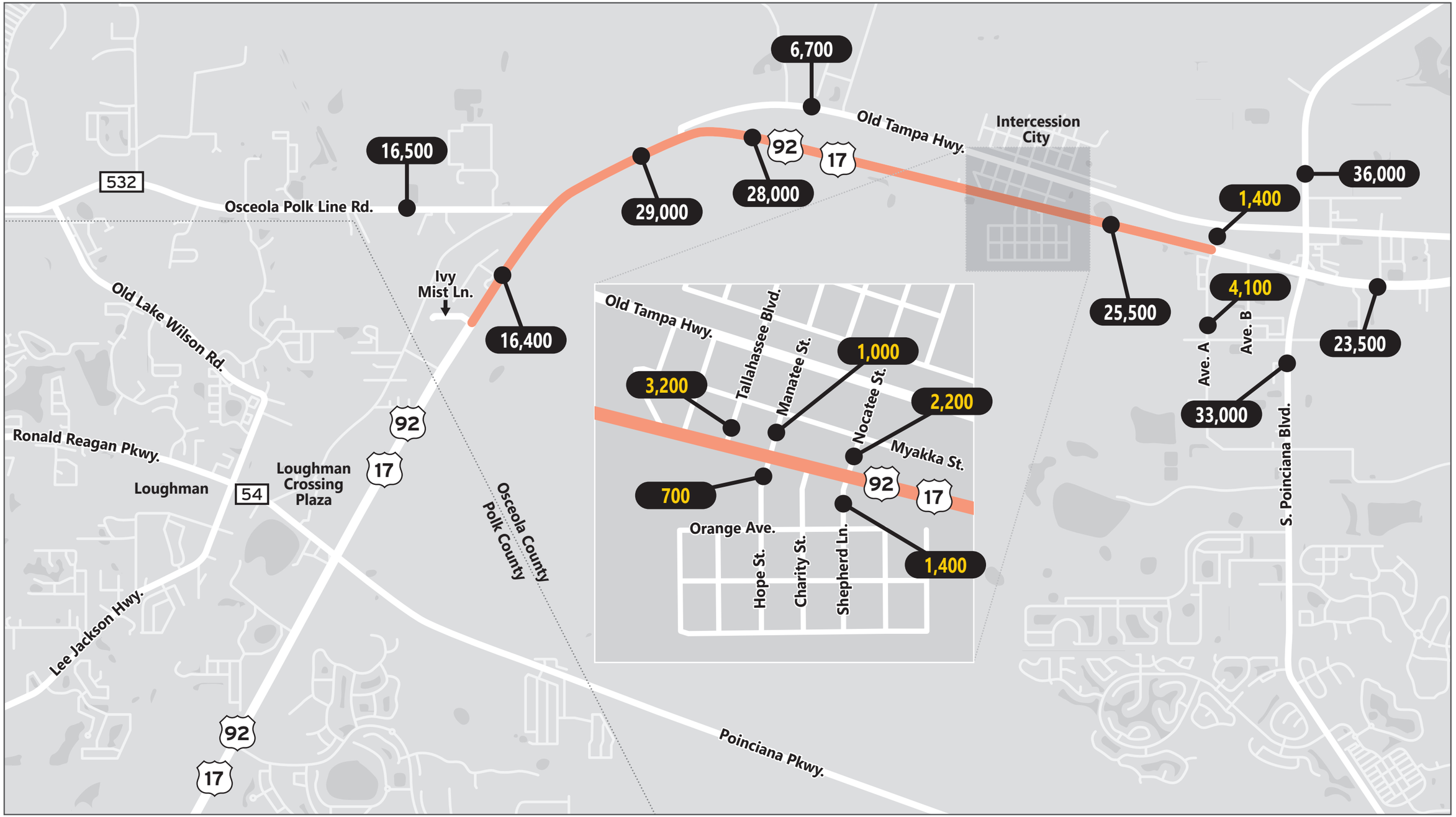
2.2.14.2 Existing Year 2019 Intersection LOS Analysis

A summary of the LOS analysis for the study intersections is included in **Table 2-13**. As shown in Table 2-13, the signalized intersection of US 17/92 at CR 532 was found to operate at LOS C and LOS E during AM and PM peak hours, respectively. At the unsignalized intersections in the AM peak hour, the minor streets along Manatee Street/Hope Street, Shepherd Lane/Nocatee Street, and Avenue A were found to operate at LOS F condition. The minor street movements along Old Tampa Highway and Tallahassee Boulevard were found to operate at or below the target LOS D in the AM peak hour. All the minor street movements at the unsignalized intersections were found to operate at LOS F during PM peak hour.

Table 2-12: Existing Year 2019 AADT Traffic Volumes & Characteristics Summary – US 17/92 Corridor

Roadway/Segment	Source of Count	Type of Count	Measured Characteristics									Seasonal Adj. [1]	Axle Adj. [2]	Adjusted AADT [3]
			Date of Count	ADT	Peak Hour	NB/EB	SB/WB	Peak Time	K Factor	D Factor	T Factor			
US 17/92														
CR 54/Ronald Reagan Parkway to CR 532[5]	2019 FTO Station 920314	-	-	-	- -	- -	- -	- -	9.0%	53.2%	10.1%	-	-	16,400
CR 532 to Old Tampa Highway	Osceola County Station 910	24 Hour Volume	3/5/2019	30,600	2,092 2,233	1,199 1,020	893 1,213	6:45-7:45 AM 5:00-6:00 PM	6.8% 7.3%	57.3% 54.3%	-NA-	0.96	0.99	29,000
East of Old Tampa Highway[5]	2019 FTO Station 920029	-	-	-	- -	- -	- -	- -	9.0%	53.2%	9.3%	-	-	28,000
West of Poinciana Boulevard	Osceola Count Station	24 Hour Volume	4/16/2019	26,262								0.98	0.99	25,500
East of Poinciana Boulevard	Osceola County Station 922	24 Hour Volume	3/5/2019	24,878	1,466 1,589	681 810	785 779	7:00-8:00 AM 3:00-4:00 PM	5.9% 6.4%	53.5% 51.0%	-NA-	0.96	0.99	23,500
CR 532														
East of Old Lake Wilson Road	Osceola County Station 102	24 Hour Volume	3/5/2019	17,308	1,194 1,217	369 601	825 616	6:30-7:30 AM 4:30-5:30 PM	6.9% 7.0%	69.1% 50.6%	10.2%	0.96	0.99	16,500
Old Tampa Highway														
West of Poinciana Boulevard	Osceola County STA 208	24 Hour Volume	3/5/2019	7,083	592 721	455 253	137 468	6:45-7:45 AM 4:45-5:45 PM	8.4% 10.2%	76.9% 64.9%	5.5%[6]	0.96	0.99	6,700
Poinciana Boulevard														
North of US 17/92	Osceola County STA 201	24 Hour Volume	3/5/2019	37,626	2,724 2,768	1,928 1,013	796 1,755	7:00-8:00 AM 3:45-4:45 PM	7.2% 7.4%	70.8% 63.4%	-NA-	0.96	0.99	36,000
South of US 17/92	Osceola County STA 202	24 Hour Volume	3/5/2019	34,888	2,368 2,340	1,625 1,131	743 1,209	6:30-7:30 AM 3:30-4:30 PM	6.8% 6.7%	68.6% 51.7%	-NA-	0.96	0.99	33,000
Tallahassee Boulevard[4]														
North of US 17/92		4 Hour TMC	September 2019	-NA-	137 286	93 111	44 175	7:00-8:00 AM 5:00-6:00 PM	9.0% 9.0%	67.9% 61.2%	-NA-	-NA-	-NA-	3,200
Manatee Street/Hope Street[4]														
North of US 17/92		4 Hour TMC	September 2019	-NA-	88 62	25 26	63 36	7:00-8:00 AM 5:00-6:00 PM	9.0% 9.0%	71.6% 58.1%	-NA-	-NA-	-NA-	1,000
South of US 17/92		4 Hour TMC	September 2019	-NA-	60 57	26 30	34 27	7:00-8:00 AM 5:00-6:00 PM	9.0% 9.0%	56.7% 52.6%	-NA-	-NA-	-NA-	650
Nocatee Street/Shepherd Lane[4]														
North of US 17/92		4 Hour TMC	September 2019	-NA-	59 196	43 128	16 68	7:00-8:00 AM 5:00-6:00 PM	9.0% 9.0%	72.9% 65.3%	-NA-	-NA-	-NA-	2,200
South of US 17/92		4 Hour TMC	September 2019	-NA-	57 125	31 58	26 67	7:00-8:00 AM 5:00-6:00 PM	9.0% 9.0%	54.4% 53.6%	-NA-	-NA-	-NA-	1,400
Avenue A[4]														
North of US 17/92		4 Hour TMC	September 2019	-NA-	128 100	89 67	39 33	7:00-8:00 AM 5:00-6:00 PM	9.0% 9.0%	69.5% 67.0%	-NA-	-NA-	-NA-	1,400
South of US 17/92		4 Hour TMC	September 2019	-NA-	369 227	105 96	264 131	7:00-8:00 AM 5:00-6:00 PM	9.0% 9.0%	71.5% 57.7%	-NA-	-NA-	-NA-	4,100

1. Most Recent Seasonal Adjustment Factors were obtained from 2019 FTI.
2. Most Recent Axle Factors were obtained from 2019 FTI.
3. Adjusted AADT = Measured ADT * Seasonal Adjustment * Axle Adjustment
4. The AADT volume was estimated using TMCs and a Standard K factor of 9.0%
5. These values are reported in the year 2019 Florida Traffic Online (FTO)
6. Daily Truck Percentage is based on the 2019 FTO Count. FTO Count was not used because it was estimated based on 2018 count.



N.T.S.

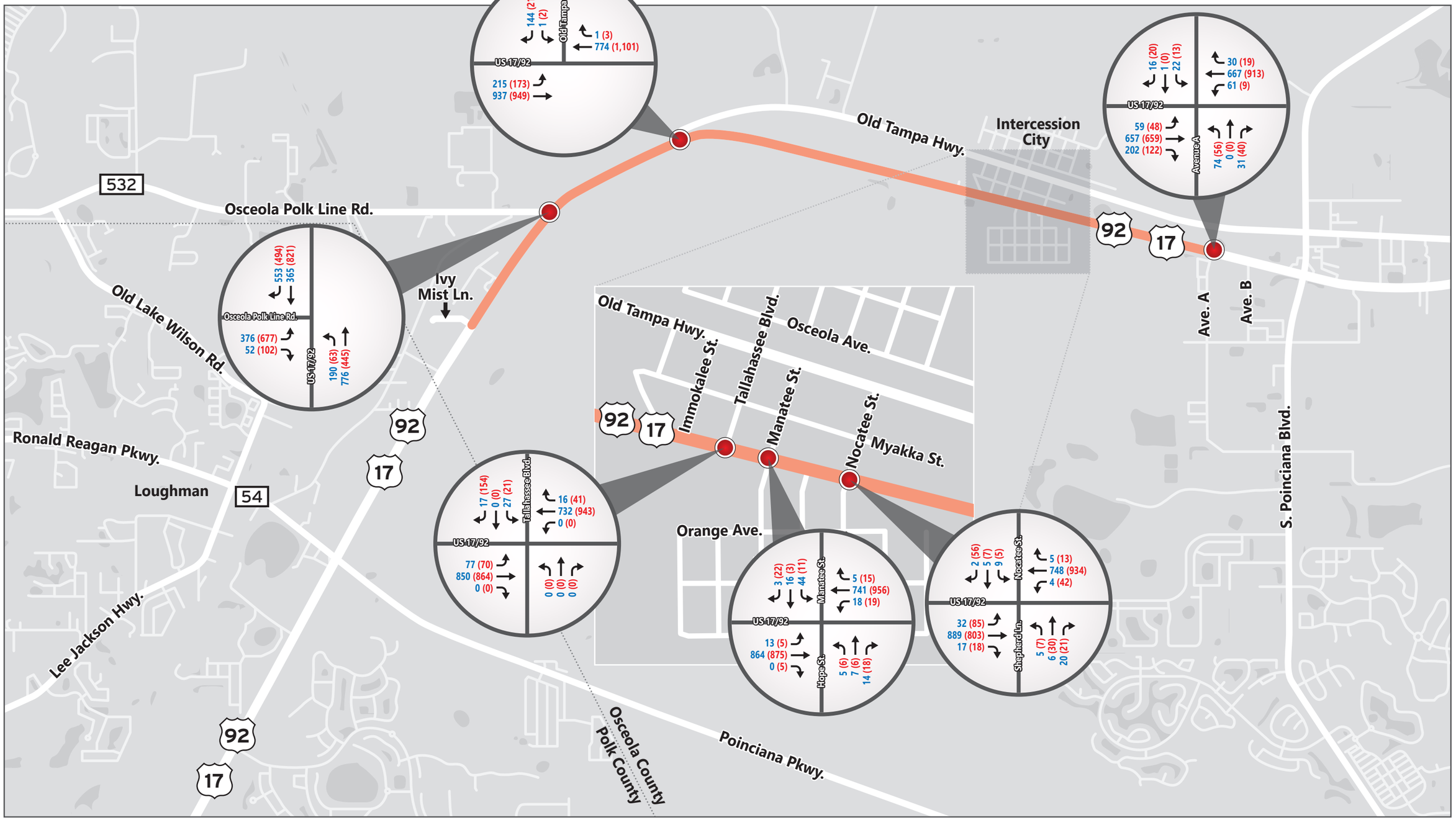
Project Limits

1,000 2019 AADT Volumes - based on 2019 FTI and 2019 Osceola Counts

1,000 2019 AADT Volumes - based on TMC and Standard K (9%)

Figure 2-8

Existing Year 2019 AADT Volumes
US 17/92 PD&E
FPID 437200-2



Project Limits

AM (PM) Turning Movement Volumes

N.T.S.

Figure 2-9

Existing Year 2019 AM & PM Peak Turning Movement Volumes
US 17/92 PD&E
FPID 437200-2

Table 2-13: Existing Year 2019 AM & PM Peak Intersection Analysis Summary

Study Intersections along US 17/92	Control Type	Target LOS	Existing Year 2019			
			AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
CR 532	Signal	D	26.8	C	59.9	E
Old Tampa Highway	Stop	D	11.1 / 22.8	B/ C	13.6 / 119.8	B / F
Tallahassee Boulevard	Stop	D	9.9 / 28.0	A / D	11.2 / 50.7	B/ F
Manatee Street/Hope Street	Stop	D	10.1 / 254.7	B / F	10.4 / 80.6	B / F
Shepherd Lane/Nocatee Street	Stop	D	10.1 / 85.2	B / F	11.1 / >300.0	B / F
Avenue A	Stop	D	10.7/ >300.0	B / F	11.0 / >300.0	B / F

Notes:

1. HCM 6th Edition based outputs are presented in this table for the signalized and unsignalized intersections, respectively.

2. In the case of unsignalized intersections, worst case results (delay and LOS) of major/minor movements are reported.

3. Result shown in color exceeds the target LOS D.

2.2.15 Managed Lanes

There are no managed lanes along US 17/92 within the study limits.

2.2.16 Crash Data

The crash data analysis was performed for five years (01/01/2014 through 12/31/2018) for the US 17/92 corridor. The crash data was obtained from FDOT Crash Analysis Reporting System (CARS). The details of the crash data and safety analysis are included in the PTAR. This section provides a summary of the results.

Based on the crash data obtained, a total of 161 crashes occurred within the study limits from 2014 to 2018. As shown in **Table 2-14**, out of the 161 total crashes that occurred over the five (5) year period, there were 2 fatal crashes (1.24%), 91 injury crashes (56.53%), and 68 (42.24%) property damage-only crashes. Most crashes were rear end (62.11%), followed by angle crashes (14.29%) and sideswipe (3.73%).

In addition, a total of 6 pedestrian/bicycle involved crashes (3.73%) occurred in the five years resulting in two fatalities. A total of 3 crashes (1.86%) involved driving while under the influence of alcohol and/or drugs.

110 (68.32%) out of the 161 crashes occurred in daylight and the remaining 51 crashes occurred in dark, dawn, or dusk conditions. Pavement condition was dry for 140 of the crashes (86.96%) and wet for the remaining 21 crashes (13.04%).

Table 2-14: Crash Summary by Year and Severity

Crash Type	2014	2015	2016	2017	2018	Total	Percent
Rear End	14	13	29	16	28	100	62.11%
Head On	0	1	2	1	1	5	3.11%
Sideswipe	1	1	3	0	1	6	3.73%
Overturn/Rollover	0	0	0	1	0	1	0.62%
Angle	6	2	6	3	6	23	14.29%
Utility Pole	0	1	0	0	1	2	1.24%
Sign Assembly	0	0	0	1	2	3	1.86%
Guardrail	0	0	2	0	0	2	1.24%
Barrier Wall	0	0	1	0	0	1	0.62%
Parked Vehicle	1	0	0	0	0	1	0.62%
Ran into Ditch/Water Canal	0	1	0	1	1	3	1.86%
Pedestrian & Bicycle	1	3	0	2	0	6	3.73%
Fixed Object	0	0	0	0	0	0	0.00%
Animal	0	1	0	0	0	1	0.62%
Other	2	1	1	1	2	7	4.35%
Total	25	24	44	26	42	161	100%
Crash Severity							
Fatality	0	1	0	1	0	2	1.24%
Injury	15	12	21	17	26	91	56.52%
Property Damage Only	10	11	23	8	16	68	42.24%
Total	25	24	44	26	42	161	100%
Pavement Condition							
Wet	6	3	5	2	5	21	13.04%
Dry	19	21	39	24	37	140	86.96%
Slippery	0	0	0	0	0	0	0.00%
Total	25	24	44	26	42	161	100%
Light Condition							
Daylight	19	13	29	17	32	110	68.32%
Dusk	0	2	3	0	2	7	4.35%
Dawn	0	0	2	0	0	2	1.24%
Dark	6	9	10	9	8	42	26.09%
Total	25	24	44	26	42	161	100%
Under the Influence							
Alcohol / Drugs	0	1	1	1	0	3	1.86%

2.2.16.1 Existing Crash Data by Intersection

A detailed review of the five-year crash data was performed for study intersections. As shown in **Table 2-15**, 99 crashes (61.50%) out of a total of 161 crashes occurred at the study intersections. Out of the 99 crashes that occurred at the study intersections, there were 2 fatal crashes (2.02%), 60 injury crashes (60.60%), and 37 property damage-only crashes (37.37%). A total of 66 crashes occurred during the daylight hours (66.67%), and 87 crashes occurred during dry roadway conditions (87.88%).

Table 2-15: Intersection Crash Summary by Severity

Study Intersection	Control Type	Total Crashes	Fatal Crashes	Injury Crashes	Property Damage Only Crashes	Dry	Daylight
CR 532	Signal	14	0	9	5	11	6
Old Tampa Hwy	Stop	6	0	2	4	5	3
Tallahassee Blvd	Stop	5	0	2	3	5	5
Manatee St/Hope St	Stop	5	2	2	1	5	2
Shepherd Ln/Nocatee St	Stop	27	0	16	11	23	18
Avenue A	Stop	42	0	29	13	38	32
Total		**99**	**2**	**60**	**37**	**87**	**66**

2.2.16.2 Fatal & Bicycle/Pedestrian Crashes Summary

A total of six pedestrian/bicycle-involved crashes occurred over the five-year study period from January 2014 to December 2018, resulting in two fatalities, as described in **Table 2-16**. Detailed summaries of these pedestrian/bicycle-involved crashes are provided in the PTAR.

Table 2-16: Fatal & Bicycle/Pedestrian Crashes

Crash Type	Severity	Report Number	Location	Weather Condition	Lighting Condition	Road Surface Condition	Alcohol/Drug -Related	Distraction -Related
Pedestrian	Fatality	845712920	US 17/92 at Manatee Street/Hope Street	Clear	Dark –Lighted	Dry	Yes	No
	Injury	852414630	US 17/92 at Wonder Court	Clear	Daylight	Dry	No	No
	Fatality	855461280	US 17/92 at Manatee Street/Hope Street	Clear	Dark – Not Lighted	Dry	Suspected	N/A
Bicycle	Injury	844874420	US 17/92 at Avenue A	Clear	Dark – Not Lighted	Dry	No	No
	Injury	852302890	US 17/92 at Shepherd Lane/Nocatee Street	Cloudy	Dark – Not Lighted	Wet	No	No
	Injury	855723180	US 17/92 at Avenue A	Clear	Dark – Not Lighted	Dry	No	No

2.2.16.3 Crash Rate Summary

As shown in **Table 2-17**, along the US 17/92 study corridor, the roadway segment from Ivy Mist Lane to CR 532 had a crash rate of 1.15 per million vehicle miles traveled with a total of 14 crashes. The roadway segment from CR 532 to Avenue A had a crash rate of 1.11 per million vehicle miles traveled with a total of 147 crash occurrences. The table also shows the crash rates for the study intersections. Crash rates were computed per the following equations:

$$Intersection\ Crash\ Rate = \frac{Number\ of\ Crashes * 1{,}000{,}000}{Daily\ Entering\ Volume * 365\ days * 5\ years}$$

$$Segment\ Crash\ Rate = \frac{Number\ of\ Crashes * 1{,}000{,}000}{Daily\ Entering\ Volume * 365\ days * 5\ years * Segment\ Length\ (miles)}$$

Table 2-17: Crash Frequency & Crash Rate Summary

Location	Average AADT	Number of Crashes	Segment Length	Crash Frequency	Crash Rate
Roadway Segment					
Ivy Mist Lane to CR 532	11,160	14	0.6	2.8	1.15
CR 532 to Avenue A	22,800	147	3.19	29.4	1.11
Intersection					
CR 532	23,510	14	1	2.8	0.33
Old Tampa Hwy	26,150	6	1	30.4	0.13
Tallahassee Blvd	24,400	5	1	1	0.11
Manatee St/Hope St	23,650	5	1	31.4	0.12
Shepherd Ln/Nocatee St	24,600	27	1	5.4	0.60
Avenue A	25,950	42	1	32.4	0.89

2.2.16.4 Crash Rate Comparison

As shown in **Table 2-18**, the historical segment crash rates were found to be below the statewide crash rate for similar facilities. The intersection crash rate for US 17/92 at CR 532 is very close to the statewide crash rate for a similar intersection category. The intersection crash rates for US 17/92 at Shepherd Lane/Nocatee Street and US 17/92 at Avenue A are much higher than the statewide crash rate for similar intersection categories.

Table 2-18: Crash Rate Comparison Summary

Location	Historical Crash Rate	Statewide Crash Rate	Crash Rate > Statewide Rate
Roadway Segment			
Ivy Mist Lane to CR 532	1.15	3.33[1]	No
CR 532 to Avenue A	1.11	3.33[1]	No
Intersection			
CR 532	0.33	0.38[2]	No (very close to the statewide crash rate)
Old Tampa Hwy	0.13	0.38[2]	No
Tallahassee Blvd	0.11	0.38[2]	No
Manatee St/Hope St	0.12	0.38[2]	No
Shepherd Ln/Nocatee St	0.60	0.38[2]	Yes
Avenue A	0.89	0.38[2]	Yes

Notes:
1. Statewide crash rate reported for the period 2012-2016 for an urban 2-3 lane 2-way undivided roadway category
2. Statewide crash rate reported for the period 2012-2016 for an urban 2-3 lane 2-way divided intersection category

2.2.17 Railroad Crossings

There is one railroad crossing (622952-B) located just outside the project limits, approximately 370 feet east of Avenue A, primarily operated by CSX Transportation. The crossing is identified as industry track for freight trains traveling approximately 10 mph and is a point of switch. The types of train-activated warning devices at the grade crossing include two roadway gate arms, four mast mounted incandescent flashing light with back lights included, and two bells. The 2022 count data included in the crossing inventory report lists the estimated daily movement as less than one movement per day, six trains per week. The United States DOT Crossing Inventory Form is included in **Appendix E**. Widening at this crossing (622952-B) is included in the recently completed widening east of Avenue A (FPID #239714-1).

2.2.18 Drainage

2.2.18.1 Topography

The area generally flows from north to south draining towards Reedy Creek and the Reedy Creek swamp. The elevation at both ends of the project (the intersection of US 17/92 and Avenue A, and the intersection of US 17/92 and Ivy Mist Lane) is approximately 75 feet (NAVD 1988). The road elevation in the vicinity of Reedy Creek is approximately 70 feet (NAVD 1988). Runoff along US 17/92 is collected by roadside swales and ditches.

2.2.18.2 Drainage Characteristics

The project site is in the Reedy Creek drainage basin. Reedy Creek flows north to south into Lake Russell and is one of the northernmost water sources for the greater Everglades ecosystem. Reedy Creek, and the limits of this project, are within the jurisdiction of the South Florida Water Management District (SFWMD). The project has been divided into four Basins. Basin 1 is located west of Reedy Creek, Basin 2 is located at Reedy Creek, and Basins 3 and 4 are east of Reedy Creek.

Basin 1 begins at Ivy Mist Lane (approximately station [STA] 1180+00) and ends at Osceola Polk Line Road/CR 532 (approximately STA 1210+00). The drainage system that serves this segment of US 17/92 is composed of open swales, side drains and cross drains that eventually drain south to the Reedy Creek Swamp, and then to Reedy Creek.

Basin 2 begins at Osceola Polk Line Road/CR 532 (approximately STA 1210+00) and ends approximately 500 feet west of Old Tampa Highway (approximately STA 1244+00). The drainage system that serves this segment of US 17/92 is composed of open swales, side drains, and cross drains that drain to Reedy Creek. This segment of US 17/92 crosses over Reedy Creek and includes the Reedy Creek Bridge, which discharges directly to Reedy Creek. The Reedy Creek Bridge is parallel to the historic Reedy Creek bridges, which have been placed out of service, but are still in place north of the Reedy Creek Bridge. The drainage system for Basin 2 also includes a dry retention pond which was permitted and constructed when the Reedy Creek Bridge was built. The pond is located on the north side of US 17/92, approximately 900 feet west of Old Tampa Highway (approximately STA 1241+00).

Basin 3 begins approximately 500 feet west of Old Tampa Highway (approximately STA 1244+00) and ends at Hope Street/Manatee Street (approximately STA 1333+00) within the Intercession City unincorporated community. The drainage system that serves this segment of US 17/92 is composed of open swales, side drains, and cross drains that eventually drain to the Reedy Creek Swamp, and then to Reedy Creek. The drainage system for Basin 3 also includes a wet detention pond which was permitted and constructed when the Reedy Creek Bridge was built. The pond is located on the north side of US 17/92, approximately 900 feet east of Old Tampa Highway (approximately STA 1262+00).

Basin 4 begins at Hope Street/Manatee Street (approximately STA 1333+00) and ends at Avenue A (approximately STA 1383+00). The drainage system that serves this segment of US 17/92 is composed of open swales, side drains, and cross drains that eventually drain to the Reedy Creek Swamp, and then to Reedy Creek.

These basins are illustrated in **Figure 2-10** through **Figure 2-13**.

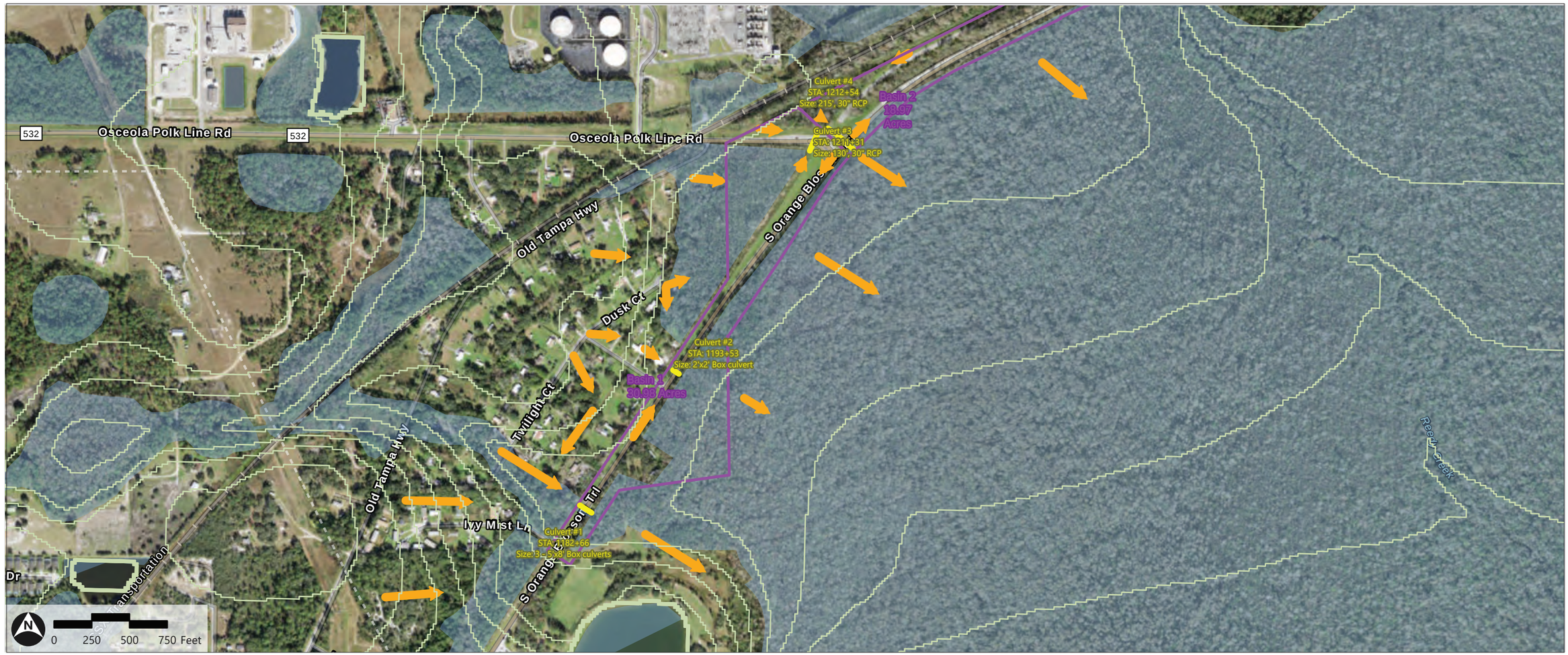
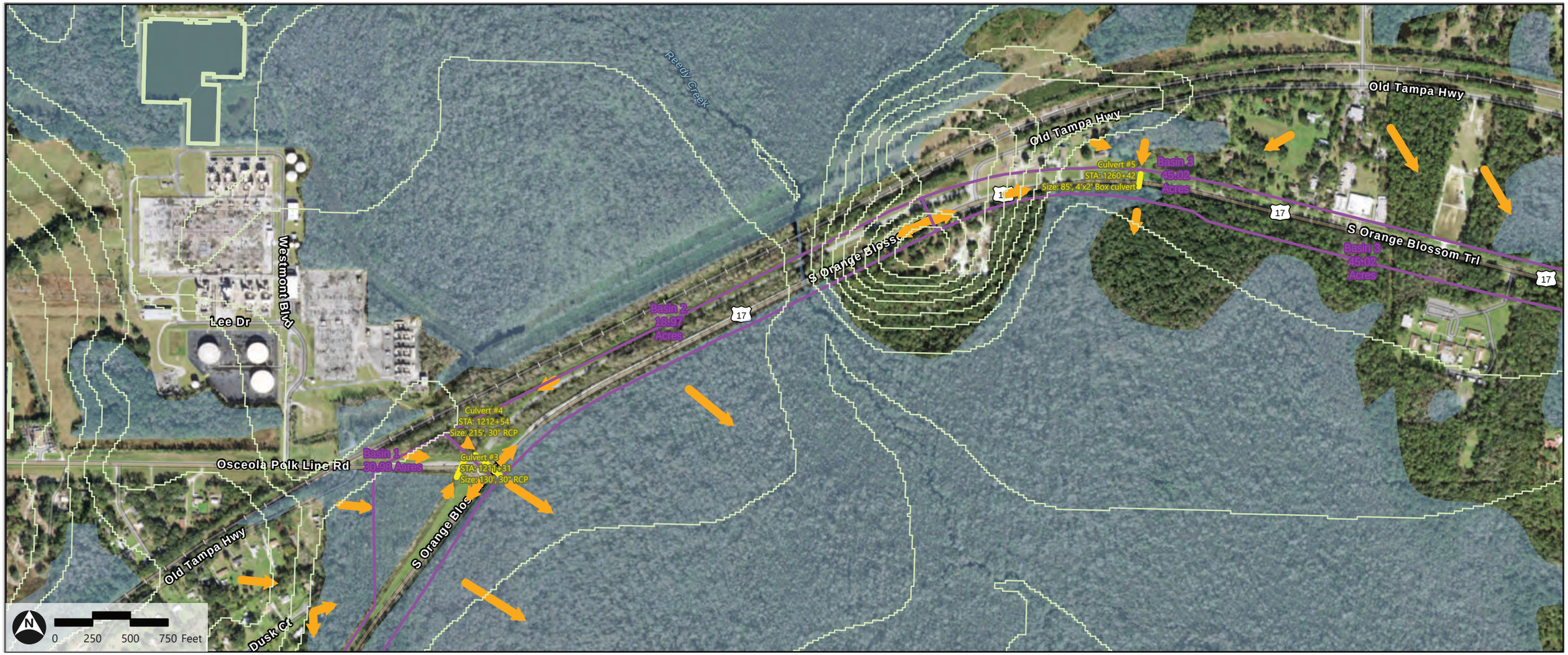


Figure 2-10

Basin 1
US17/92 PD&E
FPID 437200-2



N.T.S.

- Basin Right-of-Way
- Culvert
- Contour 2 ft
- Flow Direction
- Wetland Areas

Figure 2-11

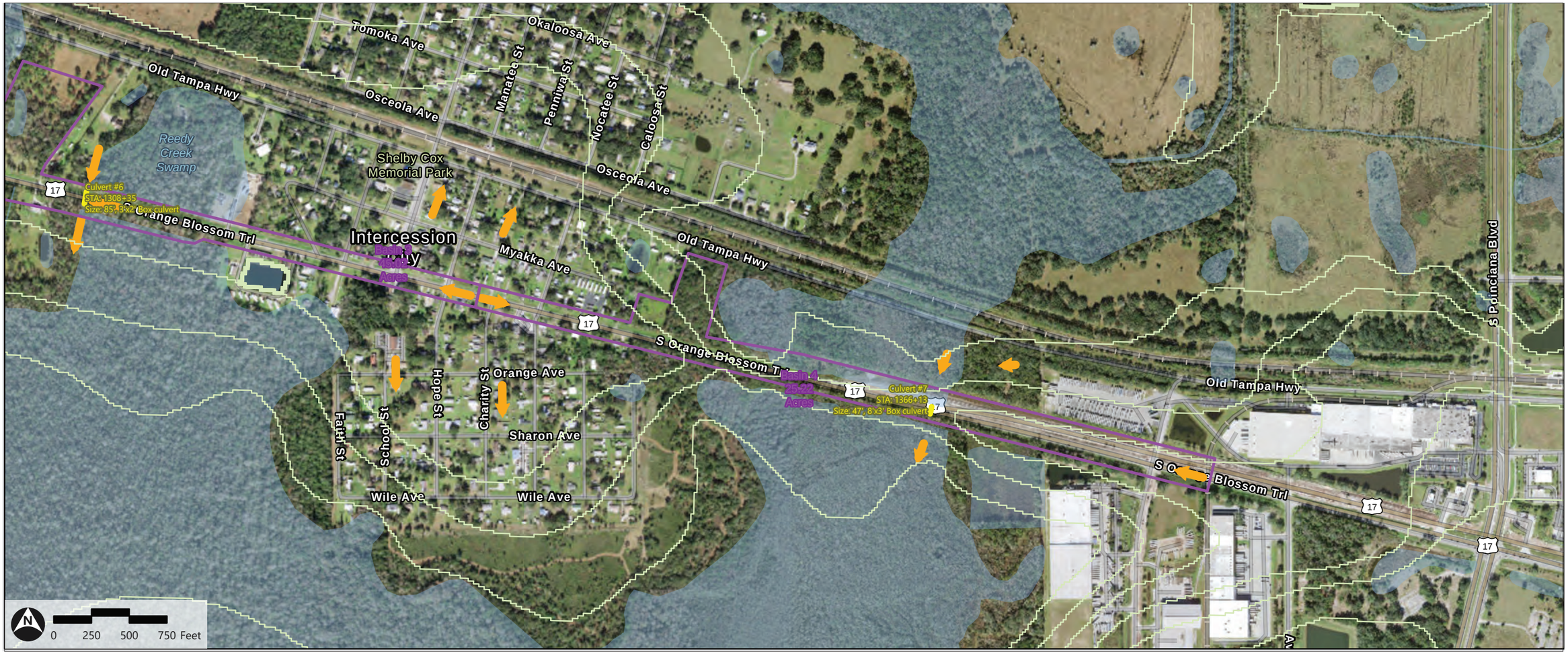
Basin 2
US17/92 PD&E
FPID 437200-2

N.T.S.

- Basin Right-of-Way
- Culvert
- Contour 2 ft
- Flow Direction
- Wetland Areas

Figure 2-12

Basin 3
US17/92 PD&E
FPID 437200-2



N.T.S.

- Basin Right-of-Way
- Culvert
- Contour 2 ft
- Flow Direction
- Wetland Areas

Figure 2-13

Basin 4
US17/92 PD&E
FPID 437200-2

2.2.18.3 Cross Drains

There are six existing cross drains, summarized in **Table 2-19**, that cross US 17/92 within the project corridor, and one cross drain that crosses Osceola Polk Line Road, within the project limits. The cross drain culvert sizes were measured and invert elevations shot by the survey crew in September of 2020. Cross drain culverts were visually inspected during the site visit in December 2022. These seven culvert locations are shown in Figures 13 through 19 of the Location Hydraulics Report (LHR), in the project file.

Table 2-19: Existing Cross Drains

Cross Drain	Roadway	Size	Length (ft)
EX-CD-1	US 17/92	8-ft x 5-ft Box Culvert	92
EX-CD-2	US 17/92	2-ft x 2-ft Box Culvert	69
EX-CD-3	Osceola Polk Line Road	30-inch Pipe	130
EX-CD-4	US 17/92	30-inch Pipe	215
EX-CD-5	US 17/92	4-ft x 2-ft Box Culvert	85
EX-CD-6	US 17/92	3-ft x 2-ft Box Culvert	85
EX-CD-7	US 17/92	8-ft x 3-ft Box Culvert	95

2.2.18.4 Floodplain

The project corridor falls within Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panels No. 12097C0045G and 12097C0065G for Osceola County, Florida dated June 18, 2013, shown in **Figure 2-14**. Portions of the project corridor are in the 100-year floodplain zone, in designated Zones A and AE, which are respectively defined as having no base flood elevation determined and having a base flood elevation determined. The base flood elevation for this project corridor is 67.0 feet.

The historic Reedy Creek bridges and the proposed Reedy Creek Bridge fall within the Reedy Creek Floodway. More information is provided in this project's Location Hydraulics Report.

Project Alignment
County Boundary
1% Annual Chance Flood Hazard (FEMA 100yr floodplain)
0.2% Annual Chance Flood Hazard (FEMA 500yr floodplain)
Regulatory Floodway

Imagery source: State of Florida, Maxar

Figure 2-14

FEMA Floodplain Map
US17/92 PD&E
FPID 437200-2

2.2.19 Lighting

There is sporadic lighting along US 17/92 within the study limits as follows (all distances given are approximate):

- Lighting structures along the south side of US 17/92 from Ivy Mist Lane to 600 feet east of Ivy Mist Lane (CFX 538-235)
- Lighting structures along the north side of US 17/92 from Ivy Mist Lane to Sundown Drive (CFX 538-235)
- Cantilever light-emitting diode (LED) lighting structures along the north side of US 17/92, between 500 feet west of Suwannee Avenue and 800 feet east of Shepherd Lane/Nocatee Street on existing power poles spaced 150 feet apart (Intercession City)
- Cobra head lighting structure on the south side of US 17/92, 300 feet west of Suwannee Avenue on a dedicated lighting pole (Intercession City)
- One cobra head cantilever light is present in the southeast corner of the intersection of US 17/92 and Hope Street (Intercession City)
- LED lighting structures along the north side of US 17/92 between 800 feet west of Avenue A to Avenue A on dedicated shoulder mounted poles, spaced between 140 to 190 feet apart

2.2.20 Utilities

An initial Sunshine 811 ticket was processed in June 2020 for the original limits of this project (see Utilities Assessment Package (UAP), in the project file. Several utility agency owners (UAO) responded to the Sunshine 811 ticket. The Sunshine 811 ticket from June 2020 and the utility information provided by the UAOs are provided in the UAP.

Then a list of existing utility companies within the project limits were obtained from a Sunshine 811 design ticket request processed in March 2021. **Table 2-20** outlines these utility owners with their respective contact information.

Initial Contact with the UAOs was made via email by sending them the PD&E Request Package on September 28, 2021, with a request to identify any major existing surface and/or subsurface facilities that could be affected by proposed improvements of the project area. For UAOs that did not provide a response, the information collected in June 2020 was used. The UAP includes the Sunshine 811 design tickets, list of contacts, Utility Coordination Status Sheet, and initial contact letter.

Table 2-20: Utility Owners

Utility Company	Utility Type	Contact	Response
CenturyLink	Fiber, Telephone	Bill McCloud (850) 599-1444	Maps provided (3/15/2021)
Charter Communications	Cable Television (CATV), Fiber, Telephone	Ramon Nunez (407) 215-5870	Markups provided (7/1/2020)
Comcast Communications	CATV	Andrew Sweeney (904) 738-6898	Maps Provided (6/2/2021)
Duke Energy	Fiber, Electric	Mark Hurst (727) 820-5208	Markups provided (11/16/2021)
Kinder Morgan/ Central Florida Pipeline	Fuel Oil Pipeline	Mark Clark (727) 271-0024	No Conflict Statement (4/15/2021)
Osceola County Traffic	Fiber, Traffic Lights	Jack Lott (407) 742-7534	Markups provided (7/1/2020)
Spectra Energy / Sabal Trail	Gas	Steve Peck (201) 853-4218	Markups provided (10/19/2021)
TECO Peoples Gas	Gas	Joan Domning (813) 275-3783	Markups provided (11/18/2021)
Toho Water Authority - Zone 1 and Zone 4	Reclaimed Water, Wastewater	Janet Patrick (407) 944-5034	Maps provided (7/8/2021)
Transtate Industrial Pipeline Systems	Gas	Tom Ulmer (772) 778-2255	Markups provided (10/18/2021)
Verizon (MCI)	Communication Lines, Fiber	MCIU01 Investigations (469) 886-4091	Maps provided (12/2/2021)

Table 2-21 describes the utilities located along the corridor based on the information provided by the UAOs during the Initial Contact process, with supplemental information provided from the Sunshine Ticket processed in June 2020. All distances and locations provided are approximate. A quarter mile was used to define the study area; any UAO assets outside of this study are not anticipated to be impacted by the proposed project improvements.

Table 2-21: Existing Utilities

Utility Agency Owner	Utility Type	Description
CenturyLink	Fiber, Telephone	One buried asset along US 17/92 between Ivy Mist Lane and Shepherd Lane/Nocatee Street and between Avenue A and east of Avenue A: • Between Ivy Mist Lane and CR 532 (position indistinguishable) • Between CR 532 and Old Tampa Highway (north side of US 17/92) • Between Old Tampa Highway and 500 feet east of Shepherd Lane/Nocatee Street (position indistinguishable) • Between Avenue A and east of Avenue A (position indistinguishable) Multiple spurs off the buried asset between Ivy Mist Lane and Shepherd Lane/Nocatee Street occur at the following locations: • Buried asset along the driveway 900 feet east of Ivy Mist Lane • Buried asset along the intersection with Sundown Drive • Buried asset along the intersection with CR 532 • Buried asset along the intersection with Old Tampa Highway • Buried asset along the driveway of Central Pro, A SiteOne Company • Buried asset along the driveway of Aspire Health Partners, Inc. • Buried asset along the driveway 300 feet west of Immokalee Street • Buried asset along the intersection with Immokalee Street • Buried asset along the intersection with Tallahassee Boulevard • Buried asset along the intersection with Manatee Street • Buried asset along the intersection with Charity Lane • Buried asset along the intersection with Shepherd Lane/Nocatee Street • Buried asset along the intersection with Avenue A
Charter Communications	CATV, Fiber, Telephone	Overhead CATV crossing US 17/92 3,000 feet east of Old Tampa Highway Overhead CATV, fiber optic cables, and coaxial cables, along the north side of US 17/92 between 3,000 feet east of Old Tampa Highway and east of Avenue A
Comcast Communications	CATV	Overhead CATV along the on the north side of US 17/92 between west of Ivy Mist Lane and east of Avenue A Multiple overhead CATV crossings within Intercession City (positions undisclosed)
Duke Energy	Fiber, Distribution Electric (12.47 kV)	Overhead 12.47 kV electric along the north side of US 17/92 between Ivy Mist Lane and Avenue A, 25 to 55 feet from the edge of existing US 17/92 pavement[1, 2]

Utility Agency Owner	Utility Type	Description
Duke Energy (cont.)	Fiber, Distribution Electric (12.47 kV)	Buried 12.47 kV electric along the south side of US 17/92 between west of Ivy Mist Lane to 200 feet east of Ivy Mist Lane, 70 feet from the edge of the existing US 17/92 pavement (proposed; CFX Project Number: 538-235) Buried 12.47 kV electric crosses under US 17/92 at the following location: • Along the west side of Avenue A Overhead 12.47 kV electric crosses over US 17/92 at the following locations: • At Sundown Drive (Proposed; CFX Project Number: 538-235) • 2,500 feet east of Old Tampa Highway • 3,300 feet east of Old Tampa Highway • 100 feet east of Immokalee Street • At Avenue A No fiber identified *NOTES:* *1) The 12.47 kV distribution lines between west of Ivy Mist Lane to just west of Sundown Drive are to be removed for* the Poinciana Parkway Extension project (CFX Project Number: 538-235). *2) Between CR 532 and Old Tampa Highway, the 12.47 (kV) overhead facilities are along the north side of the old Reedy Creek bridge, 165 to 250-feet from the edge of existing US 17/92 pavement.*
	Fiber, Distribution Electric (7.2 kV)	Buried 7.2 kV electric in the northwest corner of the US 17/92 intersection with Ivy Mist Lane, 35 feet away from the US 17/92 edge of pavement and 5 feet from Ivy Mist Lane edge of pavement. Overhead 7.2 kV electric along the northeast side of Sundown Drive just north of US 17/92, 10 feet away from the edge of pavement Overhead 7.2 kV electric crosses US 17/92 at the following locations: • 550 feet west of Sundown Drive (To be removed, CFX Project Number: 538-235) • 500 feet west of Sundown Drive (Proposed; CFX Project Number 538-235) • 3,200 feet west of Wonder Court • 2,900 feet west of Wonder Court • 2,000 feet west of Wonder Court • 100 feet west of Wonder Court • At Manatee Street/Hope Street • At Charity Lane No fiber identified

Utility Agency Owner	Utility Type	Description
Duke Energy (cont.)	Fiber, Distribution Electric (0.24kV)	Overhead 0.24 kV electric along the south side of US 17/92 between Suwanee Avenue and Tallahassee Boulevard and between Tallahassee Boulevard and Manatee Street/Hope Street, 15 feet away from the edge of pavement. Overhead 0.24 kV electric crosses US 17/92 at the following locations: • 1,800 feet west of Wonder Court • 300 feet west of Wonder Court • 200 feet west of Wonder Court • 100 feet east of Nocatee Street/Shepherd Lane • 400 feet east of Nocatee Street/Shepherd Lane No fiber identified
	Fiber, Transmission Electric (69 kV)	Overhead 69 kV electric along the north side of US 17/92 between west of Ivy Mist Lane and 450 feet west of Old Tampa Highway[1, 2] Overhead 69 kV electric crosses over US 17/92 700 feet west of Avenue A No fiber identified *NOTES:* *1) These transmission lines share the same utility pole with, and are just above, the overhead 12.47 kV electric distribution lines mentioned three rows above from Ivy Mist Lane to Old Tampa Highway.*
Kinder Morgan / Central Florida Pipeline	Fuel Oil Pipeline	10-inch gas along the north side of the railroad tracks, north of US 17/92, between west of Ivy Mist Lane and east of Avenue A, greater than or equal to 300 feet from the existing edge of US 17/92 pavement[1] *NOTES:* *1) The 10-inch gas along the north side of the railroad tracks is 100 feet from the existing edge of Old Tampa Road pavement*
Osceola County Traffic	Fiber, Traffic Lights	No assets within 1,320 feet of the study corridor
Spectra Energy / Sabal Trail	Gas	6-inch high-pressure gas pipeline along the north side of US 17/92 between CR 532 and Old Tampa Highway, 580 feet from the existing edge of pavement
TECO Peoples Gas	Gas	8-inch steel gas along the north side of US 17/92 between CR 532 and Avenue A[1,2.3]

Utility Agency Owner	Utility Type	Description
TECO Peoples Gas (cont.)	Gas	*NOTES:* *1) Between CR 532 to Old Tampa Highway, the 8-inch steel gas is 140 feet from the existing edge of US 17/92 pavement.* *2) Between Old Tampa Highway and 1,700 feet west of Avenue A, the 8-inch steel gas is between 20 to 30 feet from the existing edge of US 17/92 pavement.* 3) *Between 1,700 feet west of Avenue A to Avenue A, the 8-inch steel gas is 50 feet from the existing edge of US 17/92 pavement.*
Toho Water Authority - Zone 1 and Zone 4	Reclaimed Water, Wastewater	Distribution water main (size unknown) along the south side of Ivy Mist Lane One 36-inch reclaim effluent transmission main along the north side of US 17/92 between CR 532 and Old Tampa Highway and along the north side of Old Tampa Highway from US 17/92 to east of US 17/92. This reclaim effluent transmission main crosses US 17/92 at the following location: • 750 feet west of Avenue A One 30-inch raw water main along the north side of US 17/92 between CR 532 and Old Tampa Highway: • Along the north side of CR 532 • Along the north side of US 17/92 • Along the north side of Old Tampa Highway One distribution water main (size unknown) along the south side of US 17/92 between 300 feet east of Wonder Court and 400 feet east of Shepherd Lane with spurs at the following locations: • West side of Hope Street • West side of Shepherd Lane One raw water main along the north side of US 17/92 between 200 feet east of Wonder Court and Immokalee Street and Nocatee Street and Avenue A: • 2-inch raw water main between 200 feet east of Wonder Court and Suwannee Avenue • 8-inch raw water main between Suwannee Avenue and Immokalee Street • Raw water main (size unknown) between Nocatee Street and 800 feet east of Nocatee Street • 30-inch raw water main between 800 feet east of Nocatee Street and 1,800 feet east of Nocatee Street[1] • 30-inch raw water main between 1,800 feet east of Nocatee Street and 2,700 feet east of Nocatee Street • 24-inch raw water main between 2,700 feet east of Nocatee Street and east of Avenue A One distribution water main at Suwannee Avenue

Utility Agency Owner	Utility Type	Description
Toho Water Authority - Zone 1 and Zone 4 (cont.)	Reclaimed Water, Wastewater	One distribution water main (size unknown) along the north side of US 17/92 between Immokalee Street and Nocatee Street with spurs at Immokalee Street and Tallahassee Boulevard 8-inch wastewater gravity main along the north side of US 17/92, with four wastewater manholes, between 750 feet west of Avenue A to Avenue A *NOTES:* *1) The 30-inch raw water main diverts north 1,800 feet east of Shepherd Lane (following the existing right-of-way (ROW)) as a 24-inch raw water main for 100 feet.*
Transtate Industrial Pipeline Systems	Gas (Kissimmee Utility Authority)	One 20-inch high-pressure natural gas along the north side of CR 532, US 17/92, and Old Tampa Highway: • Along the north side of CR 532 between west of the railroad crossing to just east of the railroad crossing[1] • Along the north side of US 17/92 between CR 532 and Old Tampa Highway[2] • Along the north side of Old Tampa Highway between US 17/92 and east of US 17/92[3] *NOTES:* *1) At the railroad crossing of CR 532, the pipeline is 40 feet from the existing edge of CR 532 pavement.* *2) Between CR 532 and Old Tampa Highway, the pipeline is 180 feet from the edge of pavement.* 3) *Along the north side of Old Tampa Highway, the pipeline is 10 feet from the existing edge of pavement*
Verizon (MCI)	Communication Lines, Fiber	Buried fiber optic assets along the railroad tracks, north of US 17/92, from CR 532 to Old Tampa Highway; at their closest the facilities are approximately 300 feet away from the existing edge of pavement. Overhead fiber along the northside of US 17/92 between Ivy Mist Lane and Avenue A with a spur at the following location: • 2,400 feet east of Old Tampa Highway

2.2.21 Soils and Geotechnical Data

Thirteen soil types occur within the study area, as listed in **Table 2-22** and depicted in **Figure 2-15**. The soils within the study area have been mapped by the Natural Resources Conservation Service (NRCS) and classified as hydric or non-hydric. Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as "soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions" near the ground surface. Most of the soil types within the study corridor are poorly drained soils, Hydrologic Soil Group (HSG) A/D, primarily Riviera Fine sand. More information regarding soil characteristics within the study area is provided in the Preliminary Soil Survey Report, in the project file.

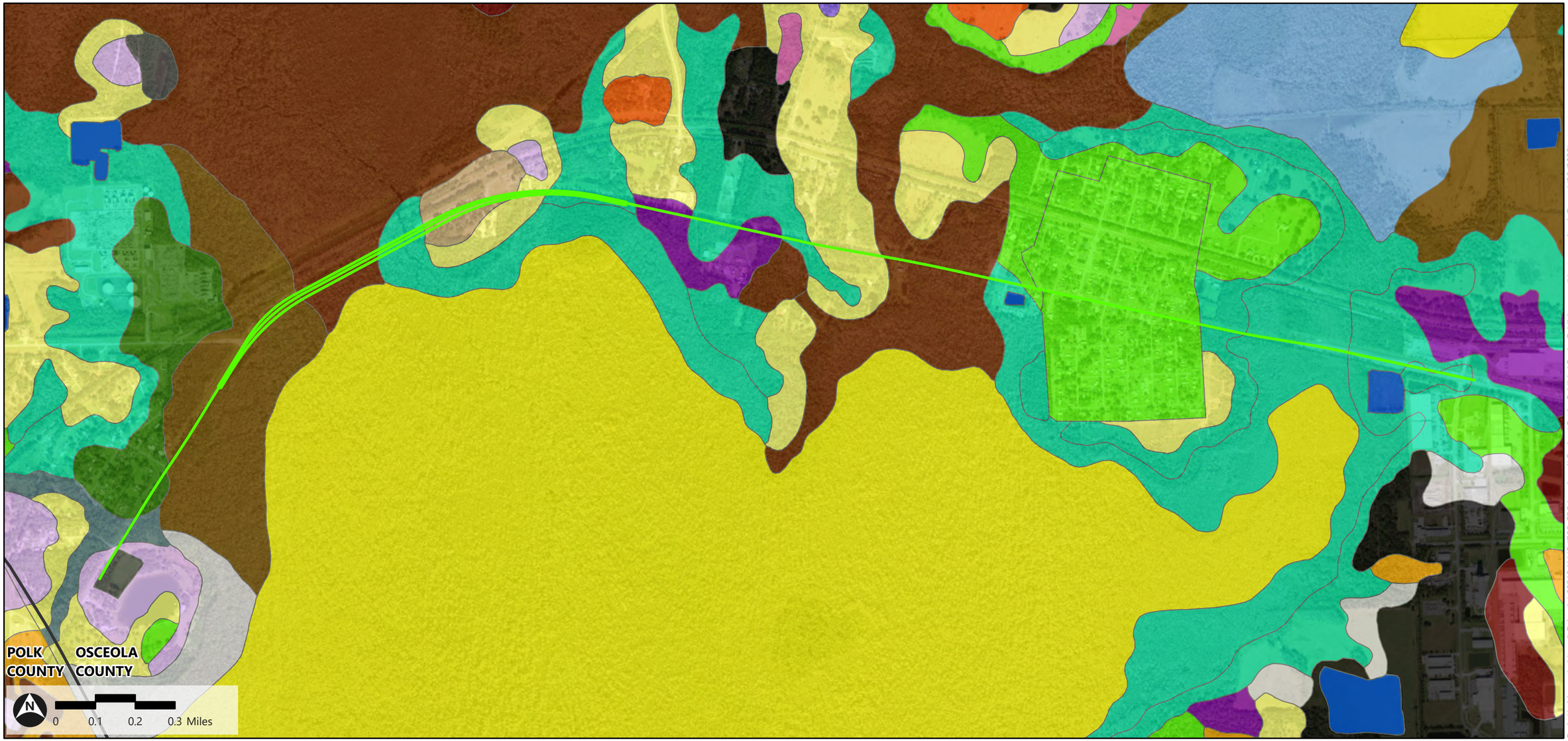
Table 2-22: Soil Types Within the Study Area

Soil ID	Description	Hydric	Hydrologic Soil Group*
7	Candler Sand, 0 to 5 percent slopes	N	A
15	Hontoon Muck, frequently ponded, 0 to 1 percent slopes	Y	A/D
16	Immokalee Fine Sand, 0 to 2 percent slopes	N	B/D
22	Myakka Fine Sand, 0 to 2 percent slopes	N	A/D
23	Myakka-Urban land complex	N	A/D
25	Nittaw Muck	Y	C/D
29	Parkwood loamy fine sand, occasionally flooded	Y	A/D
36	Pompano fine sand, 0 to 2 percent slopes	Y	A/D
37	Pompano fine sand, frequently ponded, 0 to 1 percent slopes	Y	D
38	Riviera fine sand, 0 to 2 percent slopes	Y	A/D
39	Riviera fine sand, frequently ponded, 0 to 1 percent slopes	Y	A/D
41	Satellite Sand, 0 to 2 percent slopes	N	A
45	Wabasso fine sand, 0 to 2 percent slopes	N	A/D

Farmlands

Within 500 feet of the US 17/92 PD&E study area, the Department's ETDM process identified 22.9 acres of soils classified as *Farmland of Unique Importance*. These soils are primarily located in the eastern portion of the corridor, within the Intercession City area and along Avenue A. According to the US Census Bureau Urban Area dataset, the US 17/92 study area is only partially located within an urban area. The western segment of the corridor is adjacent to the *Four Corners, FL* urban area, while the easternmost portion of the corridor, from Suwannee Avenue to Avenue A, is located within the *Kissimmee-St. Cloud, FL* urban area. The project is located within the Osceola County Urban Growth Boundary and the 2040 Urban Infill area.

Due to the occurrence of *Farmlands of Unique Importance* within the study area, additional coordination with NRCS is required to determine potential impacts to farmlands and mitigative strategies.



Project Alignment
County Boundary

NRCS Soils (Name, Hydrologic Soils Group)

- ADAMSVILLE,A
- BASINGER,A/D
- CANDLER,A
- FLORIDANA,C/D
- HONTOON,A/D
- IMMOKALEE,B/D
- KALIGA,C/D
- MYAKKA,A/D
- NARCOOSSEE,A
- NITTAW,C/D
- ONA,B/D
- PARKWOOD,A/D
- PITS
- PLACID,A/D
- POMPANO,A/D
- RIVIERA,A/D
- SATELLITE,A
- SMYRNA,A/D
- WABASSO,A/D
- WATER
- WAUCHULA,A/D

Imagery source: State of Florida, Maxar

Figure 2-15

NRCS Soils
US17/92 PD&E
FPID 437200-2

2.2.22 Aesthetics Features

A Tree Inventory and Impact Report for the US 17/92 Bridge Alignment Area, in the project file, details the cypress trees within the area of the Reedy Creek bridges. Within the tree inventory study area, 24 cypress trees have a breast height diameter between 36 inches and 48 inches, six trees have a breast height diameter between 48 inches and 60 inches, and seven trees have a breast height diameter of at least 60 inches. All recorded cypress trees are anticipated to be over 100 years old, with those at the top end of the recorded diameter at breast height (DBH) measurements anticipated to be over 200 years old.

Fletcher Park is a Florida Department of Environmental Protection (FDEP) managed conservation land located along US 17/92 south of the CSX ROW and east of CR 532. It is held in title by the State of Florida Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (TIITF). While the land is not accessible to the public and no designated recreation occurs within the property boundaries, it contains a protected large cypress tree preserve. During the previous PD&E Study described in **Section 2.1.2**, Osceola County issued a resolution on April 11, 1994, stating that it is in the best interest of the people of Osceola County and the State of Florida that the said cypress trees be protected. Another resolution was passed during this PD&E Study (Resolution # 23-235R) reaffirming the previous resolution in support of preserving cypress trees.

2.2.23 Traffic Signs

No existing overhead cantilever signs or span sign structures were observed within the study limits. Existing signage consists of standard ground-mount regulatory signage and roadside wayfinding guide signage. In addition to standard signage, "no fishing from bridge" signs, one "Fletcher Park Site" sign, directional signage for post office and RV campsite, and specific business signage exist along the corridor.

2.2.24 Noise Walls and Perimeter Walls

No existing noise walls or perimeter walls are present along the US 17/92 corridor.

2.2.25 Intelligent Transportation Systems (ITS)/Transportation System Management and Operations Features

As part of the US 17/92 PD&E Study, the corridor and surrounding transportation system were examined for existing and planned/programmed Intelligent Transportation Systems (ITS) devices. The following section describes typical ITS devices and systems in a transportation network, and their presence within the US 17/92 study corridor.

- **Fiber optic cable** Fiber optic communication is not present within the project limits. Fiber is located along US 17/92, starting at Poinciana Boulevard, and heading eastward. Poinciana Boulevard is also equipped with fiber north and south of US 17/92.

- **Dynamic Message Signs (DMS)** There are no DMS devices within the project limits, though devices are located just east of the study area along US 17/92 near Louis Drive, and along Poinciana Boulevard approximately 3,960 feet north of US 17/92.
- **Closed-Circuit Television (CCTV)** There are no CCTV cameras within the project limits. There is one CCTV camera at the Poinciana Boulevard intersection at US 17/92, just east of the project limits.
- **Bluetooth sensors** There are no Bluetooth sensors within the US 17/92 study area.
- **Vehicle preemption devices** There are no preemption devices within the project limits. There is one emergency vehicle preemption (EVP) device on US 17/92 at the Poinciana Boulevard intersection just east of the project limits.
- **Advanced Transportation Management System (ATMS)** The traffic signal at the Poinciana Boulevard intersection with US 17/92, just east of the project limits, is also connected to the Osceola County ATMS via fiber communication.

The existing ITS infrastructure along US 17/92 and surrounding transportation network is shown in **Figure 2-16**.

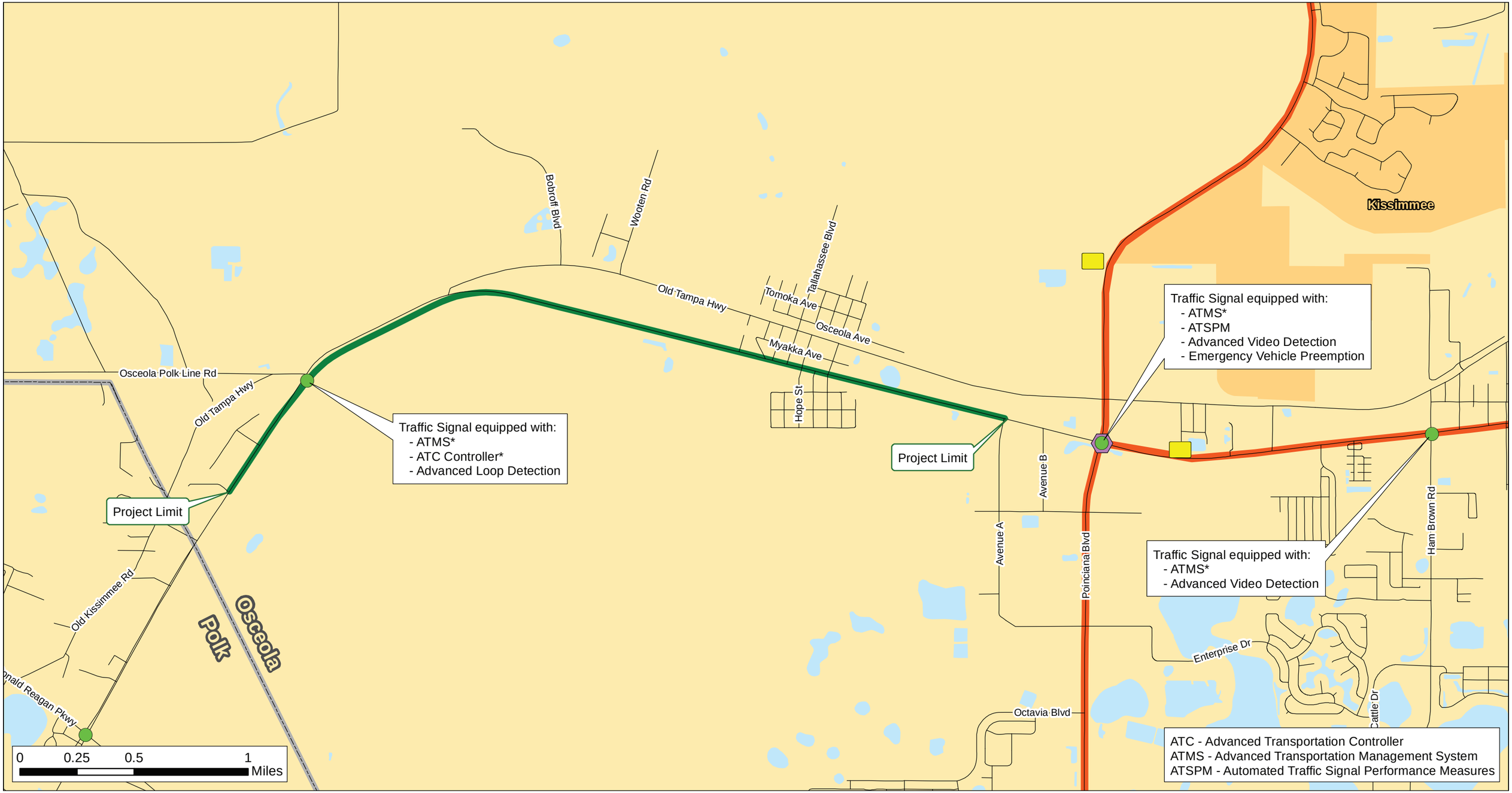


Figure 2-16

Existing ITS Systems and Infrastructure
US 17/92 PD&E
FPID 437200-2

2.3 Existing Bridges and Structures

There are two primary structures located along US 17/92 within the project limits. Bridge and structure information was obtained from the Federal Highway Administration's (FHWA) National Bridge Inventory (NBI) in July of 2020. The first structure is a 25.9-foot-long culvert located approximately 300 feet east of Ivy Mist Lane, over Reedy Creek. It is registered as Structure No. 920001 in the NBI. The second structure is Bridge No. 920174; it is located approximately 410 feet east of CR 532, over Reedy Creek. The two-lane bridge is 2,231 feet long. Additionally, there are three bridges (Bridge Nos. 920002, 920003, and 920004), abandoned in place, located just to the north of Bridge No. 920174. FDOT is responsible for all maintenance relating to these structures.

The following existing bridge elements do not apply to these bridges and culverts:

- Ship impact data
- Load posting information
- Bridge security issues
- Remaining fatigue life estimate

2.3.1 Culvert No. 920001

Culvert No. 920001, as shown in **Figure 2-17,** was built in 1934 and extended by 48 feet in 1996. According to the latest available inspection from Florida NBI dated October 2019, the culvert was evaluated to be in good condition and no vertical clearance data was provided. The culvert is 25.9 feet long (along the roadway) and consists of three 8-foot by 5-foot concrete boxes with each barrel of the box 91 feet in length. The concrete boxes have approximately 2.3 feet of fill over them. The culvert provides for two 12-foot traffic lanes, and two 4-foot paved shoulders. Outside of the paved shoulders is grass slope to the end of the culvert. The culvert is located on a tangent section of US 17/92.

Figure 2-17: Culvert No. 920001 over Reedy Creek

According to an above water bridge inspection dated 10/25/2019, the bridge is in good condition with a sufficiency rating of 90.8 and health index of 66.68. The existing load rating was performed via Load Test. The Minimum Inventory Rating Factor calculated is 0.85. No load posting is required.

This box culvert is planned to be extended as part of the PPE project to accommodate the US 17/92 widening associated with that project. Refer to Appendix A for horizontal clearances between the existing and to the adjacent right-of-way lines.

2.3.2 Bridge No. 920174

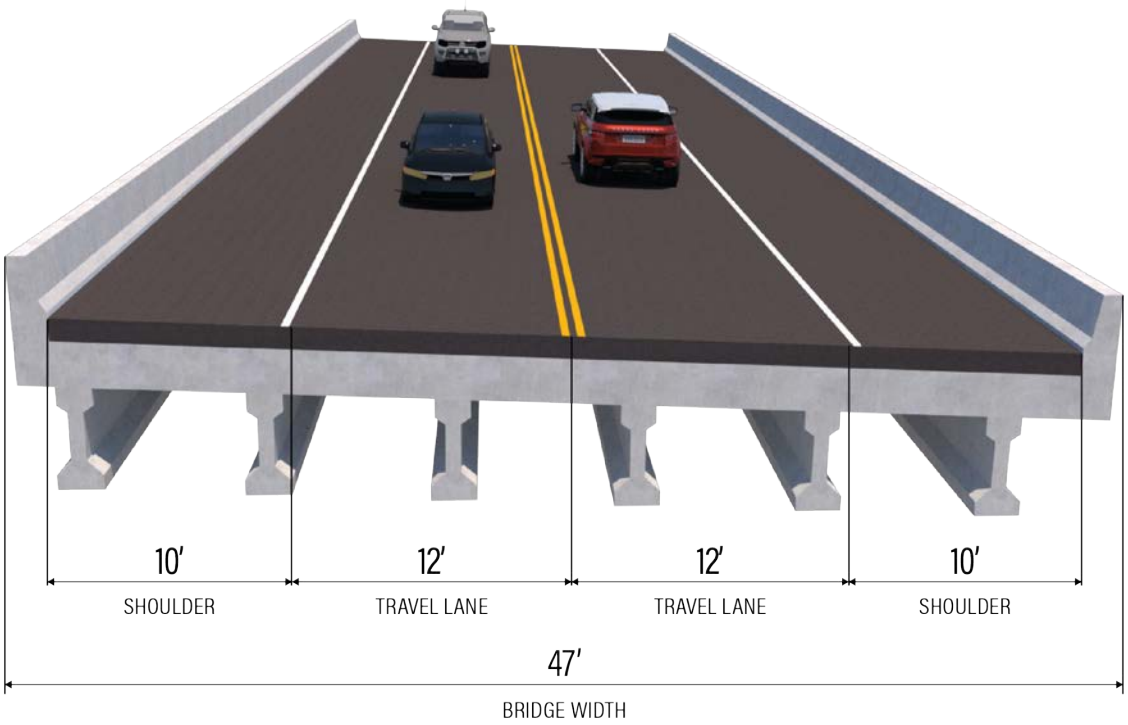
The US 17/92 bridge over Reedy Creek (Bridge No. 920174), located approximately 410 feet east of CR 532, was constructed in 2001 to replace the currently abandoned US 17/92 bridge structures (Bridge Nos. 920002, 920003, and 920004) which were left-in-place. At this location, Reedy Creek is not considered navigable due to its shallow water depth. According to the inspection from Florida NBI dated July 2019, the bridge was evaluated to be in good condition for the deck, superstructure, and substructure. No value was provided by the NBI for minimum vertical clearance. The bridge is 2,231.3 feet long and consists of 30 equal 74.4-foot spans (see **Figure 2-18)**.

Figure 2-18: Bridge No. 920174 over Reedy Creek (eastbound)

Source: Google Earth

The typical section for the 30-span bridge varies at the beginning of the bridge, but generally provides for two 12-foot (approximately) traffic lanes, two 10-foot (approximately) shoulders and two 1.6-foot (approximately) wide barriers for a total bridge width of 46.4 feet (approximately) for all spans (see **Figure 2-19**) except for spans 1 through 4. Spans 1 and 2 accommodate an additional traffic lane and have a total bridge width of 58.2 feet (approximately). Spans 3 and 4 transition in width between the two widths described previously. The bridge starts on a horizontal curve and then is located on a tangent section of US 17/92. Refer to Typical Section No. 2 in Appendix A for all horizontal clearances between the existing and to the adjacent right-of-way lines.

Figure 2-19: Existing Typical Section of Bridge No. 920174 over Reedy Creek



The bridge superstructure consists mainly of an eight-inch (200 millimeter) concrete deck slab supported on six American Association of State Highway and Transportation Officials (AASHTO) Type III prestressed concrete beams except for spans 1 through 3 where eight beams exist and span 4 where seven beams exist in the transition area from three lanes to two. Concrete pile bents are used for the substructure. Each pile bent has five to seven 24-inch steel pipe piles supporting it. Bridge drainage is accommodated by open deck drains discharging directly into Reedy Creek.

Based off the 1999 design plans (FPID 239635-1-52-01) for Bridge No. 920174, a metric unit project, the structure contains 1.143-meter (3.750-foot) deep AASHTO Type III Beams and a 200-millimeter (7.872-inch) concrete slab depth. Bridge No. 920174 has a finished grade of 23.75 meters (77.920 feet), a total structure depth of 1.343 meters (4.406 feet), and a design high water elevation of 21.28 meters (69.816 feet). Therefore, Bridge No. 920174 has a minimum vertical clearance of approximately 3.698 feet.

The water bridge inspection referenced above is dated July 16, 2019; the underwater inspection was performed on July 16, 2019. The bridge inspection reports indicate the bridge is in good condition with a sufficiency rating of 79 and a health index of 93.31. The NBI rating is 7 for all the bridge elements, indicating above minimum criteria.

The existing load rating was performed in 2001, and it used the LFR rating method. The Minimum Inventory Rating Factor calculated is 1.279 and the Minimum Operating Rating is 2.048. Based on the existing bridge inspection reports, sufficiency rating, health index, and LFR load rating, widening, or reuse of the existing bridge is a viable option.

2.3.3 Bridge Nos. 920002, 920003, and 920004

As detailed in the Existing Bridge Conditions Memo, in the project file, three bridges over Reedy Creek located approximately 410 feet east of CR 532 previously served as the US 17/92 Reedy Creek bridges prior to the completion of Bridge No. 920174. The three abandoned bridges were constructed in 1938 and left-in-place after traffic was removed in 2001. The 1938 bridges are comprised of short span steel girders with a concrete deck on timber bent caps supported by timber piles that given their age (over 80 years) are all beyond their reasonable and accepted design and serviceably useful life. These Bridge Nos. 920002, 920003, and 920004 are National Register of Historic Places (NRHP) Resource Nos. 8OS01749, 8OS01748, and 8OS01747, respectively (see **Figure 2-20** as detailed in **Section 2.4.2**). Reedy Creek at this location is not considered navigable due to its shallow water depth.

Bridge No. 920002 is a 6-span structure that provided for two 12-foot traffic lanes, two 1-foot shoulders for a clear bridge width of 26 feet and a 150.5-foot length of bridge. Span length is 25 feet except for the end spans that are 24 feet nine inches.

Bridge No. 920003 is a 5-span structure that provided for two 12-foot traffic lanes, two 1-foot shoulders for a clear bridge width of 26 feet and a 125.5-foot length of bridge. Span length is 25 feet except for the end spans that are 24 feet nine inches.

Bridge No. 920004 is a 7-span structure that provided for two 12-foot traffic lanes, two 1-foot shoulders for a clear bridge width of 26 feet and a 175.5-foot length of bridge. Span length is 25 feet except for the end spans that are 24 feet nine inches.

The bridge superstructure consists of concrete deck slab supported on six steel 21WF @ 59# girders. Timber pile bents are used for the substructure.

Based off the 1937 design plans (Project No. 2-C) for Bridge Nos. 920002, 920003, and 920003, the structure contains 21-inch deep WF beams and a 7-inch concrete slab depth. Bridge Nos. 920002, 920003, and 920004 have a finished grade of 73.0 feet, a total structure depth of 28 inches, and a high-water elevation of 68.9 feet. Therefore, Bridge Nos. 920002, 920003, and 920004 have a minimum vertical clearance of approximately 1.77 feet.

Based on the limited existing bridge inspection reports, the absence of any available existing geotechnical borings, pile driving records, etc. and the reasons for the decision to abandon their use in 2001, reuse of the existing bridges would not be likely and would require complete

reconstruction. Refer to Section 2.2.21 and documents listed in Section 1.6 of this report for more information on the existing soils and geotechnical data available for these bridges.

2.4 Existing Environmental Features

2.4.1 Natural Environment

A Natural Resources Evaluation (NRE) Report, in the project file, was completed to determine the existing natural environmental conditions along the study corridor. A summary of the existing natural environmental conditions is provided in the following sections.

Threatened and Endangered Species

A thorough review of readily available data from the USFWS, FWC, and Florida Natural Areas Inventory (FNAI) was conducted to determine whether a protected species occur or have the potential to occur within the study limits. This included a review of designated critical habitat. Those threatened and endangered species with a moderate, high, observed potential are included in **Table 2-23**.

Table 2-23: Protected Species within the Region and Their Potential of Occurence within the Study Area

Scientific Name	Common Name	FWC	USFWS	Preferred Habitat	Potential Occurrence
INVERTEBRATES					
Danaus plexippus	Monarch Butterfly	N	C	Flowering plants within fields, roadside areas, open areas, wet areas, or urban gardens.	Moderate
REPTILES					
Alligator mississippiensis	American Alligator	T	T(S/A)	Freshwater lakes, rivers, ponds. Brackish water estuaries and coastal areas.	Observed
Drymarchon corais couperi	Eastern Indigo Snake	T	T	Upland and wetland habitat, hydric ecotonal areas, gopher tortoise burrows.	Moderate
Gopherus polyphemus	Gopher Tortoise	T	N	Xeric uplands, pine flatwoods, pastures, and open, ruderal habitats.	Moderate
Pituophis melanoleucus	Pine Snake	T	N	Habitats with relatively open canopies and dry sandy soils. Sandhill and former sandhill, old fields and pastures, sand pine scrub and scrubby flatwoods. Often coexists with pocket gophers and gopher tortoises.	Moderate
Plestiodon (Eumeces) egregius lividus	Bluetail Mole Skink	T	T	Well-drained sandy uplands above 80 feet. Rosemary, oak, and sand pine scrubs; occasional in turkey oak barrens, sandhill, and xeric hammocks.	Moderate
Plestiodon (Neoseps) reynoldsi	Sand Skink	T	T	Well-drained sandy uplands above 80 feet. Rosemary, oak, and sand pine scrubs; occasional in turkey oak barrens, sandhill, and xeric hammocks.	Moderate
BIRDS					

Scientific Name	Common Name	FWC	USFWS	Preferred Habitat	Potential Occurrence
Antigone canadensis pratensis	Florida Sandhill Crane	T	N	Prairies, freshwater marshes, and pasture lands. Avoids forests and deep marshes but uses transition zones and edges between these and prairies or pasture lands.	Moderate
Dryobates (Picoides) borealis	Red-cockaded Woodpecker	E	E	Inhabits open, mature pine woodlands containing a rich diversity of grasses, forbs, and shrubs.	Moderate
Egretta caerulea	Little Blue Heron	T	N	Feeds in shallow freshwater, brackish, and saltwater habitats.	Moderate
Egretta tricolor	Tricolored Heron	T	N	Feeds in a variety of permanently and seasonally flooded wetlands, mangrove swamps, tidal creeks, ditches, and edges of ponds and lakes.	Moderate
Falco sparverius paulus	Southeastern American Kestrel	T	-	Found in open pine habitats, woodland edges, prairies, and pastures throughout much of Florida.	Moderate
Haliaeetus leucocephalus	Bald Eagle	68A-16.002 FAC*	BGEPA/ MBTA	Forested habitats for nesting and roosting, and expanses of shallow fresh or salt water for foraging.	Moderate
Mycteria americana	Wood Stork	T	T	Mixed hardwood swamps, sloughs, mangroves, and cypress domes for nesting and a variety of wetlands for foraging.	Moderate
Polyborus plancus audubonii	Audubon's crested caracara	T	T	Open land with limited canopy, including dry prairie and pasture lands with cabbage palm, cabbage palm/live oak hammocks, and shallow ponds and sloughs.	Moderate
MAMMALS					
Eumops floridanus	Florida Bonneted Bat	E	E	Roosts in palms and hollow trees and in buildings. Forages high in air over natural as well as human-altered landscapes.	Moderate
Perimyotis subflavus	Tricolored Bat	N	C	Roosts in mature hardwood forests, and manmade structures during the spring, summer, and fall. During the winter hibernates in caves and mines. Forages over openings and water such as agricultural fields and streams.	Detected**
Ursus americanus floridanus	Florida black bear	68A-4.009, FAC**	N	Prefers a variety of habitats that contain a dense understory with shrubs and trees that produce fruit and nuts.	Moderate
PLANTS					
Carex chapmannii	Chapman's Sedge	T	N	Hydric hammock and bottomland forest; usually on wooded stream banks and in river floodplains.	Moderate
Illicium parviflorum	Star Anise	E	N	Banks of spring-run or seepage streams, bottomland forest, hydric hammock, baygall dominated by red maple and sweet bay.	Moderate
Najas filifolia	Narrowleaf Naiad	T	N	Floating annual plant that prefers dark water less than 2 meters deep.	Moderate
Pecluma plumula	Plume Polypody	E	N	Wet hammocks and swamps; epiphytic on live oaks, occasionally on rocks or terrestrial.	Moderate

Scientific Name	Common Name	FWC	USFWS	Preferred Habitat	Potential Occurrence
Pecluma ptilota var. bourgeauana	Comb Polypody	E	N	Rockland hammocks, strand swamps, and wet woods; often on tree bases and fallen logs.	Moderate
Salix floridana	Florida willow	E	N	Wet mucky soils in bottomland forests, floodplains, hydric hammocks, swamps, spring-runs, and streams.	Moderate

E = Endangered, T = Threatened, C =Candidate for Listing, SSC=Species of Special Concern N = Not Listed,
Moderate = Potentially suitable habitat present and/or documented occurrences near the study area,
High = Suitable habitat present and documented occurrences within the study area.
** Removed from Florida's Endangered and Threatened Species List in 2008, but is still protected under the Bald and Golden Eagle Protection Act (BGEPA), Migratory Bird Treaty Act (MBTA), and FAC.*
***Removed from Florida's Endangered and Threatened Species List in 2012, but still protected under the FAC.*

Essential Fish Habitat

The National Marine Fisheries Service (NMFS) is the regulatory agency responsible for the nation's living marine resources and their habitats, including Essential Fish Habitat (EFH). This authority is designated by the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended. The MSFCMA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" [16 United States Code (U.S.C.) § 1802(10)]. In accordance with the MSFCMA, Section 7 of the Endangered Species Act (ESA), and the FDOT's PD&E Manual, the corridor was evaluated for potential EFH. No EFH is located within or adjacent to the corridor. Therefore, no EFH assessments are required.

Wetlands and Other Surface Waters

Biologists performed a geographic information system (GIS) database and literature review to identify wetlands that have been documented within and adjacent to the study area. The identified wetlands were used during a field survey to verify the limits of the wetlands and other surface within the study area. A Uniform Mitigation Assessment Method (UMAM) analysis, pursuant to Chapter 62-345, F.A.C., was also performed to evaluate the existing ecological quality of the wetland and surface water areas, as described in the NRE.

The study area includes wetlands and other surface waters (OSWs) that are directly or indirectly connected to Reedy Creek. The majority of wetlands within the study area are adjacent to developed and undeveloped areas that have altered the hydrology of these systems. The presence of wetlands and other surface waters associated with Reedy Creek fall under the jurisdiction of USACE.

Noise

A Noise Study Report, under separate cover, was prepared to determine both the existing level of impacts from highway noise along US 17/92 and the impact that widening would have on highway noise. Traffic noise is a combination of noises produced by the engine, exhaust, and tires and is never

constant. The noise metric used to describe this combination of noise is referred to as "Leq." This metric allows for the fluctuations of daily traffic noise to be analyzed in terms of steady noise levels with the same acoustic energy, and thus, is the level of constant sound. Constant sound is quantified by a meter that measures units called decibels (dB). For highway traffic noise, an adjustment or weighting of the high- and low-pitched sounds is applied to approximate how an average person hears. These adjusted sounds are called "A-weighted decibels" and are expressed as "dB(A)."

Land use also plays an important role in traffic noise analyses. Noise sensitive receptors are any property where frequent exterior human use occurs and where a lowered noise level would provide a benefit. The FHWA has established noise levels at which noise abatement must be considered for various types of land uses. As shown in **Table 2-24**, these levels are used to evaluate traffic noise and are referred to as Noise Abatement Criteria (NAC). The FDOT requires noise abatement consideration for noise levels that approach the FHWA criteria by one dB(A) for the corresponding Activity Category. Another criterion for determining project impacts that warrant abatement consideration occurs when project noise levels are below the NAC but show a substantial increase (15.0 dB(A) or more) over existing levels.

Table 2-24: Noise Abatement Criteria

Hourly A-Weighted Sound Level – Decibels (dB(A))				Description of Activity Category
Activity Category	Activity Leq(h)[1]	Evaluation Location		
	FHWA	FDOT		
A	57.0	56.0	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need; and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67.0	66.0	Exterior	Residential.
C[2]	67.0	66.0	Exterior	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, golf courses, places of worship, playgrounds, public meeting rooms, public/non-profit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52.0	51.0	Interior	Auditoriums, daycare centers, hospitals libraries, medical facilities, places of worship, public meeting rooms, public/nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[2]	72.0	71.0	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	-	-	-	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical) and warehousing.
G	-	-	-	Undeveloped lands that are not permitted.

(Based on Table 1 of 23 CFR Part 772)

Notes:

The Leq(h) Activity Criteria values are for impact determination only and are not design standards for noise abatement measures.

Includes undeveloped lands permitted for this activity category.

Using **Table 2-24** as a guide, most noise sensitive land uses within the study corridor fall under Activity Category B - Residential. There are also Activity Category C land uses in the project corridor, including several churches, the Aspire Health Rehabilitation Center, and the Muslim Cemetery. Analysis of interior (Category D) noise levels is not required for this project as all Category C locations have areas of exterior use. The one Activity Category E land use is the Ebenezer Nursery and Landscaping commercial business. While Activity Category F land uses are in the project corridor, this is not considered a noise sensitive activity and is not included in this analysis. No land uses in the study corridor warrant an Activity Category A analysis.

There are pockets of Activity Category G undeveloped land within the study corridor. A permit search of vacant properties was conducted to identify any active building permits for noise sensitive land uses. As of September 1, 2022, no such permits were discovered. If a future noise sensitive land use receives a building permit before the project's Date of Public Knowledge and after the date of this report, they will be assessed for traffic noise impacts during the project's final design phase of development.

2.4.2 Cultural Resources

The study area was evaluated for archaeological and historical potential. Shovel testing was conducted to identify cultural resources within the project Area of Potential Effect (APE). The full analysis is included in the Phase I Cultural Resource Assessment Survey (CRAS), in the project file.

Cultural material, one newly recorded archaeological site, and three archeological occurrences were documented. Consultation will continue with the SHPO, the Florida Bureau of Archaeological Research (BAR), and federally recognized Tribes residing in or culturally affiliated with Florida concerning proposed improvements in the vicinity of the Beehive Hill Redeposited (8OS03133) site.

The architectural history survey identified 91 historic resources within the APE, including 23 previously recorded resources and 68 newly recorded resources. The previously recorded historic resources include three linear resources, three bridges, and 17 structures. The newly recorded historic resources include two resource groups, three bridges, and 63 structures. These are described in the following Section 4(f) Properties.

Section 4(f) Properties

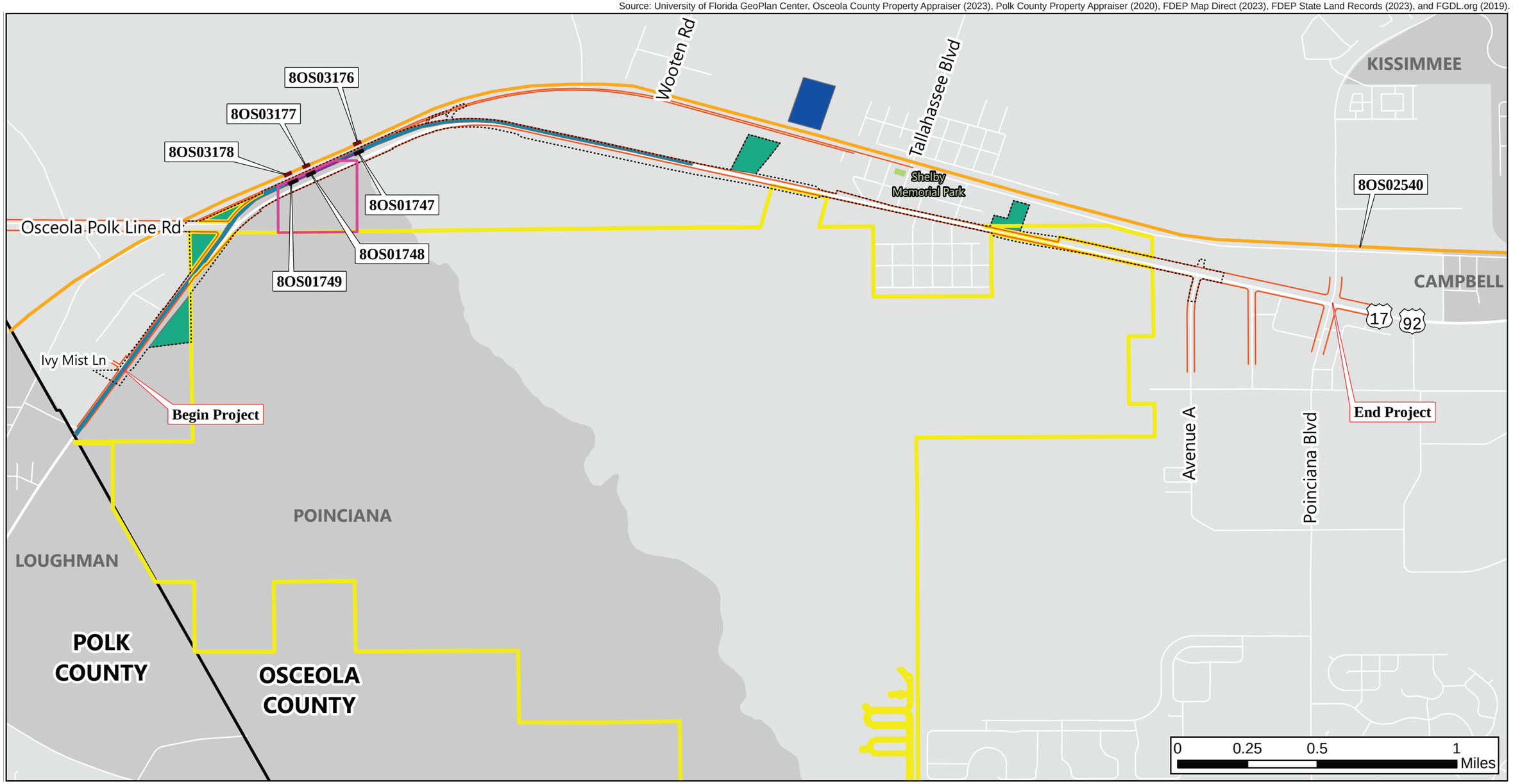
There are nine historic properties (i.e., cultural resources listed or eligible for listing in the NRHP) within the project's APE. These resources are described below and shown in **Figure 2-20**:

- The South Orange Blossom Trail Bridges (8OS03182) is a newly identified resource group that is comprised of:

    - The South Orange Blossom Trail Bridge (8OS01747, known as FDOT Bridge No. 9200004) is a historic bridge that has been recommended NRHP-eligible as contributing to 8OS03182
    - The South Orange Blossom Trail Bridge (8OS01748, known as FDOT Bridge No. 9200003) is a historic bridge that has been recommended NRHP-eligible as contributing to 8OS03182
    - The South Orange Blossom Trail Bridge (8OS01749, known as FDOT Bridge No. 9200002) is a historic bridge that has been recommended NRHP-eligible as contributing to 8OS03182
    - US 17/92 (8OS02796, also called Orange Blossom Trail) is a historic roadway that is individually ineligible, but a 0.3-mile section is recommended eligible as contributing to 8OS03182
- The South Florida Railroad (8OS02540) is a linear resource that has been recommended to remain NRHP-eligible within the limits of the project's APE
- The CSX Railroad Bridge 1 (8OS03176) is a historic bridge that is NRHP-eligible as contributing to 8OS02540
- The CSX Railroad Bridge 2 (8OS03177) is a historic bridge that is NRHP-eligible as contributing to 8OS02540
- The CSX Railroad Bridge 3 (8OS03178) is a historic bridge that is NRHP-eligible as contributing to 8OS02540

The Upper Reedy Creek Management Area – Intercession City Unit, owned by the SFWMD, occupies the majority of land south of the study area and intersects the study limits near CR 532 and east and west of Intercession City. The Upper Reedy Creek Management Area – Intercession City is a publicly owned multiple-use tract with the primary use as conservation and protection of water resources. Per communication between the SFWMD and FDOT, dated November 7, 2022, and documented in the Upper Reedy Creek Management Area – Intercession City Section 4(f) Evaluation, in the project file, the portions of the Upper Reedy Creek Management Area – Intercession City Unit that are affected by the proposed improvements do not include any significant public recreational facilities that are open to the public or any significant, designated wildlife or waterfowl refuges, therefore this property is not applicable for Section 4(f).

Source: University of Florida GeoPlan Center, Osceola County Property Appraiser (2023), Polk County Property Appraiser (2020), FDEP Map Direct (2023), FDEP State Land Records (2023), and FGDL.org (2019).



N.T.S.

- Historic CSX Railroad Bridges (8OS03176 - 8OS03178)
- Historic US 17/92 Bridges (8OS01747 - 8OS01749)
- Existing Right-of-Way
- Proposed US 17/92 Right-of-Way
- Preferred Pond Site
- Preferred Flood Compensation Area
- Parks
- SFWMD Upper Reedy Creek Management Area - Intercession City Unit
- Fletcher Park Boundary
- South Florida Railroad Resource Group (8OS02540)
- South Orange Blossom Trail Bridges Resource Group (8OS03182)
- Orange Blossom Trail Resource Group (8OS01796)

Figure 2-20

Section 4(f) Properties
US 17/92 PD&E
FPID 437200-2

2.4.3 Sociocultural Features

To better understand the study area and the locations of special populations (elderly and disabled populations), a review of the Osceola County socioeconomic characteristics was completed using US Census Bureau's American Community Survey (ACS) 2022 Five-Year estimates. Datasets considered include Race, Ethnicity, Limited English Population, Age, and Income. For this analysis, Block Group level data was used except where only Census Tract-level data was available.

The four block groups that comprise the study area are significantly larger in land size than the immediate study area, expanding as much as five miles further to the north and to the south of the US 17/92 corridor. This may limit the accuracy and reliability of the demographic data collected for the study area, as it may be representative of other communities outside of the immediate study area. More information is provided in the Sociocultural Effects Evaluation (SCE) Report, in the project file.

2.4.3.1 Population and Income

Osceola County has a total population of nearly 394,000. The Census block groups that intersect the 500-foot buffer area around the study corridor have a total population of 12,095, with 2,859 households.

In Osceola County, the average population below the poverty level is slightly higher than the Florida average (12.7%) at 13.4%. As seen in **Table 2-25**, the Census Block group within the northeastern portion of the US 17/92 Study area has a much higher percentage of residents living in poverty than the county average (highlighted in bold).

Table 2-25: US 17/92 Study Area Census Blocks and Poverty Level

Block group	% Population with income in the past 12 months below poverty level
97040801.1	6.4%
97040810.1	**26.9%**
97041004.2	4.1%
97041102.3	2.9%

Source: ACS 2022 Block Group Data

2.4.3.2 Race and Ethnicity

Included in **Table 2-26** are the Osceola County and US 17/92 Study Area averages for race and ethnicity. The study area has a larger percentage of White residents than the county average. Similarly, the study area has a larger Hispanic or Latino population than the county average. However, the block group encompassing the southeast portion of the US 17/92 study area was dissimilar with respect to race, having a much higher proportion of individuals identifying as *Some Other Race* (54.6%) than the county and the study area.

Table 2-26: Osceola County and US 17/92 Study Area Race and Ethnicity

Category		Osceola County	US 17/92 Study Area
Race	**White**	49.6%	55.8%
	Black or African American	10.9%	7.8 %
	American Indian and Alaska Native	0.4%	0.0%
	Asian	2.7%	2.2%
	Native Hawaiian and Other Pacific Islander	0.1%	0.0%
	Some Other Race	19.6%	20.7%
	Two or More Races	16.6%	13.5%
Ethnicity	**Hispanic or Latino**	56.1 %	69.1%

Source: ACS 2022 Block Group Data

2.4.3.3 Limited English Proficiency

Limited English Proficiency (LEP) is measured as the number of people who speak English not well or not at all. Based on United States Department of Transportation (USDOT) Policy Guidance, the FDOT PD&E Manual, Part 1, Chapter 11, Section 11.1.2.2 identifies factors to determine if LEP services are required. Out of the 2,859 households in the study area block groups, 269 (9.4%) are Spanish-speaking LEP households. Additionally, there are 59 (2.1%) Indo-European households that are designated as LEP. Based on the results, the Spanish LEP percentage is considered high enough to warrant the provision of Spanish translations for all property owner notifications as well as posting all public meeting/hearing advertisements in the Spanish newspaper.

2.4.3.4 Age and Disability

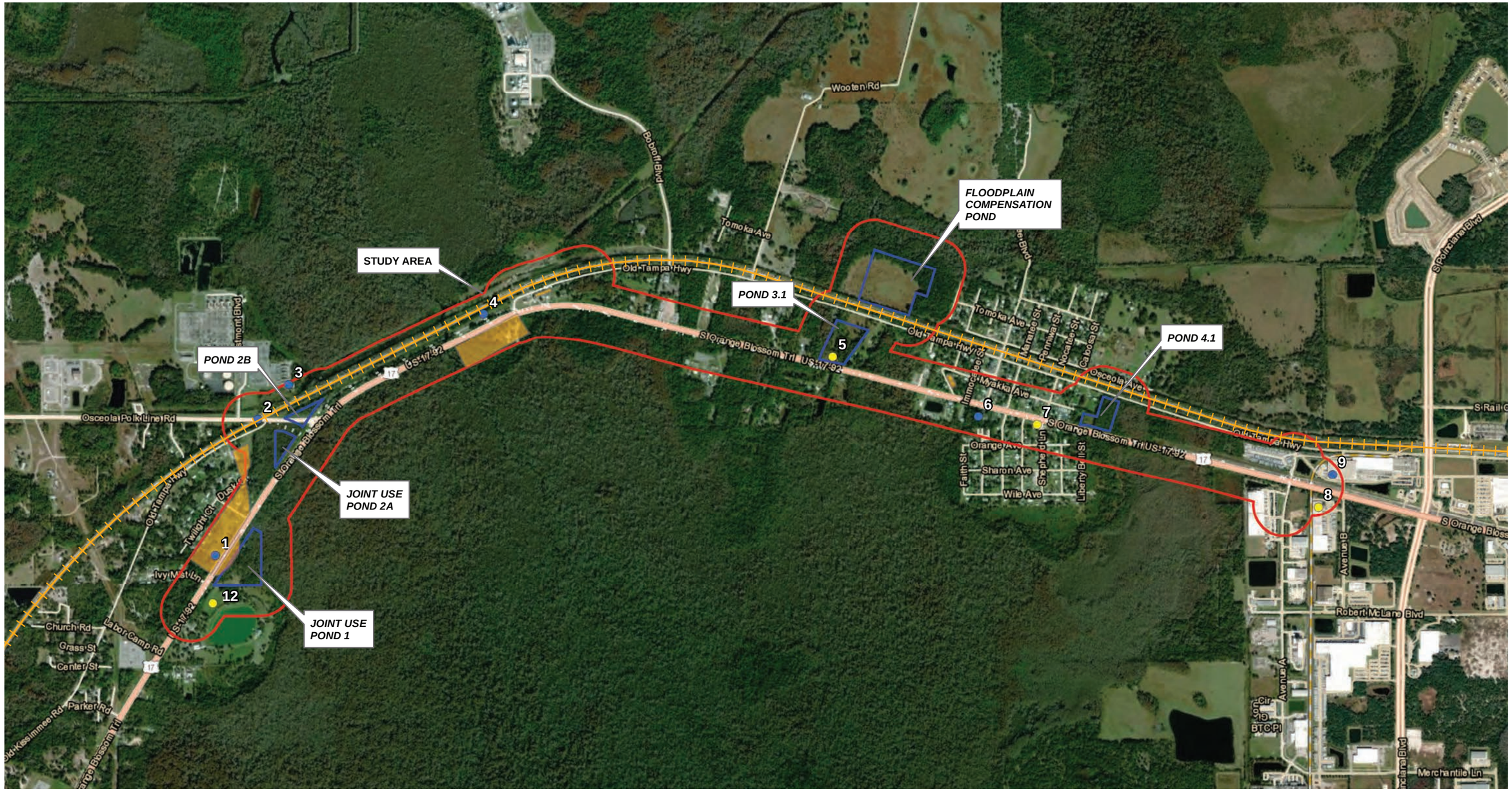
The median age for the study area block groups is 37.7 years old. Individuals aged 65 and over comprise 2,243 (18.5%) of the population within the four impacted block groups. Approximately 14.7% of the noninstitutionalized population, 18 to 64 years old, within the four block groups have a disability (a disability in this context relates to any hearing, vision, cognitive, ambulatory, self-care, or independent living difficulty).

2.4.3.5 Housing

There are 5,466 housing units in the impacted Census block groups. These units are comprised of owner-occupied (2,184), renter-occupied (675), and vacant units (2,607).

2.4.4 Contamination

A Contamination Screening Evaluation Report (CSER), in the project file, was prepared to identify potential contamination sources located within or adjacent to the project corridor. Based on the results of the contamination screening activities, 12 potential sites were identified as shown in **Figure 2-21**, with one site rated as having a High potential for contamination impact and four sites having a Medium potential for contamination impact. The remaining seven sites were rated as having a Low potential for contamination impact.



N.T.S.

- High Risk Rating Site Location
- Medium Risk Rating Site Location
- Low Risk Rating Site Location
- Railroad - Low Risk (Site 10)
- Historical Citrus Groves - Medium Risk (Site 11)

Figure 2-21

Potential Contamination Site Location Map
US 17/92 PD&E
FPID 437200-2

3.0 Future Conditions

3.1 Future Conditions Considerations

When construction for the proposed US 17/92 widening occurs, the future conditions will be different than what currently exists along the study corridor. As a result of the PPE project (CFX Project Number: 538-235), a new diverging diamond interchange between US 17/92 and Poinciana Parkway will be added approximately 1,100 feet west of the beginning of the US 17/92 PD&E project. The US 17/92 PD&E project will tie into the proposed diverging diamond interchange design, and not the existing two-lane roadway currently present along the study corridor. Additionally, CR 532 will be widened from the existing two-lane roadway to a four-lane roadway (CFX Project Number: 538-235A), however the intersection of US 17/92 will be set up to accommodate the current condition.

Section 6.1.2 describes stakeholder coordination which includes the CFX project team in more detail. Stakeholder coordination records are also provided in the Comments and Coordination Report.

3.2 Future Traffic Volumes

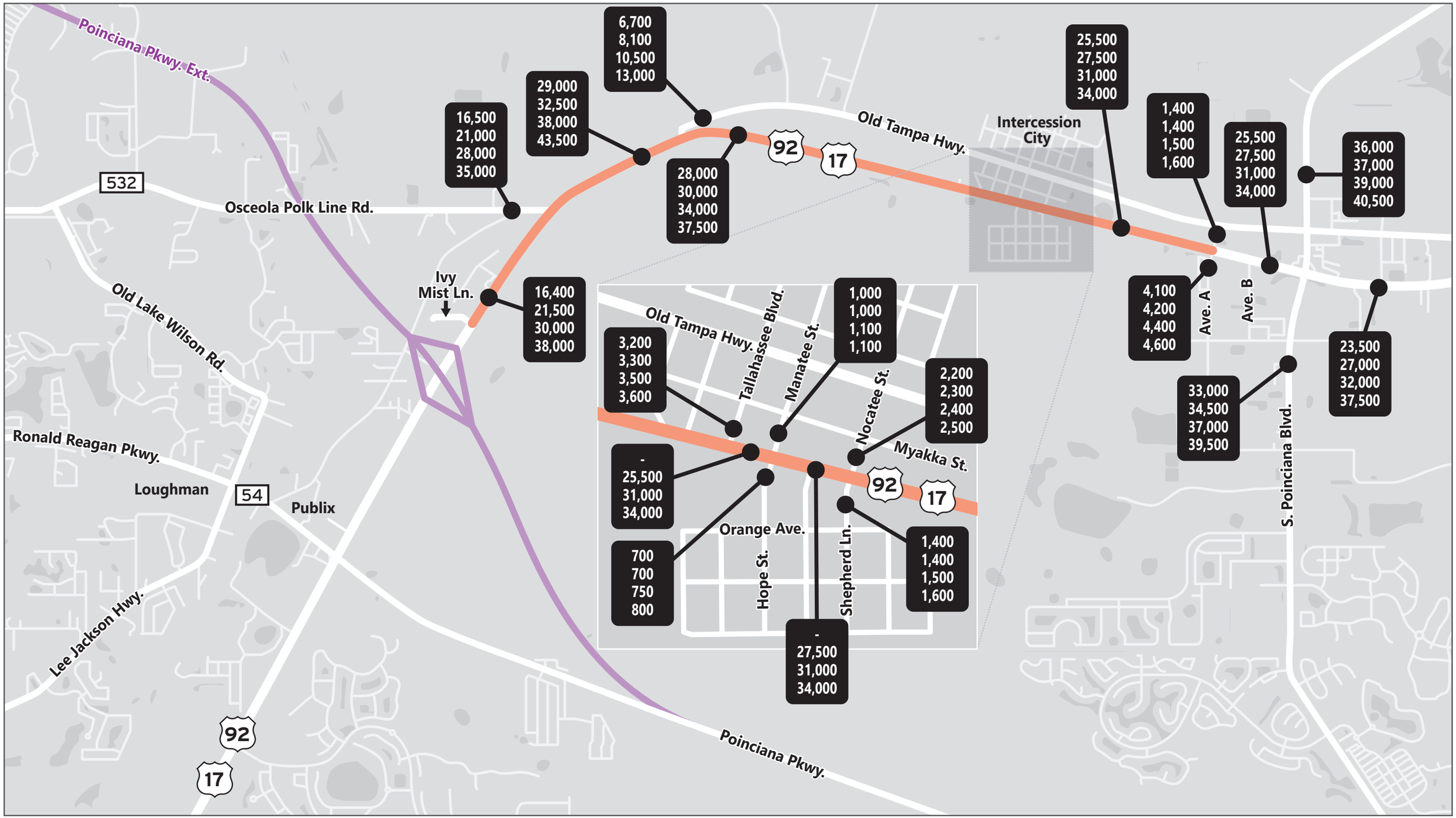
3.2.1 Future Travel Demand

Future traffic forecasts were performed for the US 17/92 study corridor and are documented in the PTAR. The following future year scenarios for travel demand were developed using the validated Central Florida Regional Planning Model (CFRPM) v6.1:

- Year 2045 No-Build Alternative: This alternative will maintain the existing two lanes on US 17/92 within the study limits and incorporate all the programmed improvements near the study area.
- Year 2045 Build Alternative: This alternative will have four lanes on US 17/92 within the study limits and incorporate all the programmed and planned improvements near the study area.

3.2.2 Future Segment Volumes

For each study segment traffic development, the future projected traffic volume was generated by applying the CFRPM model volume growth rate to the 2019 AADT. The model-based growth clearly showed that the future traffic will remain approximately the same on US 17/92 within the study limits regardless of the roadway widening, Therefore, this study utilized the same AADT forecasts for both the No-Build and Build alternatives. The future year AADT diagrams provide the projected volumes in **Figure 3-1**.



Project Limits

N.T.S.

YR 2019
YR 2025
YR 2035
YR 2045
AADT Volumes

Figure 3-1

Future Year AADT Volumes
US 17/92 PD&E
FPID 437200-2

3.2.3 Future Intersection Turning Movement Volumes

The existing AADT counts, future year (2045) AADT forecasts, existing TMCs, and recommended traffic characteristics (K and D factors) were used to develop the design hour volumes for the AM and PM design hours at the intersections for the opening (2025), mid (2035), and design (2045) years. **Figure 3-2**, **Figure 3-3**, and **Figure 3-4** present the future volumes (AM and PM) in the years 2025, 2035, and 2045, respectively.

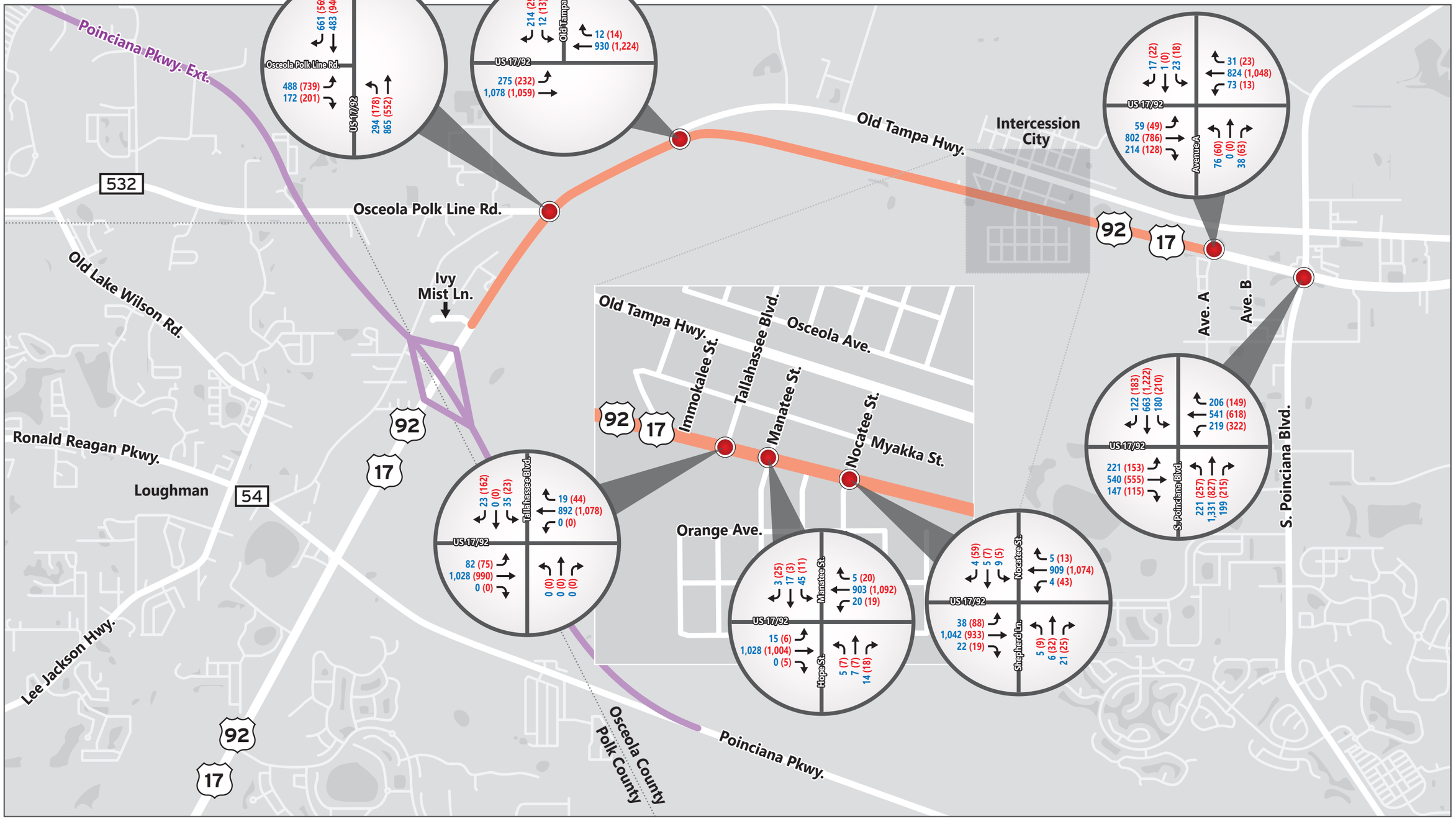
3.3 Future Land Use

The future land uses along US 17/92 were identified using data published by the Osceola County GIS Department in May 2024, and by Reedy Creek Improvement District in 2021, as shown in **Figure 3-5**. The future land uses within 500 feet of the US 17/92 study area are summarized in **Table 3-1**. The most prominent future land use within the study area is Low Density Residential, especially along the western half of US 17/92 from Ivy Mist Lane to Old Tampa Highway. Commercial, Industrial, Employment Center, and Medium Density Residential future land uses are present along US 17/92 from Old Tampa Highway east to Wonder Court near Intercession City. Within Intercession City are Low Density Residential, Medium Density Residential, and Neighborhood Center future land uses. There are three segments where the Reedy Creek Conservation Area abuts US 17/92: on the south side of US 17/92 from Sundown Drive to Osceola Polk Line Road, on the south side of US 17/92 from 1,110 feet west of Wonder Court to 180 feet west of Wonder Court, and on both sides of US 17/92 from 650 feet east of Nocatee Street to 750 feet west of Avenue A. Employment Center future land use is located at the eastern end of the US 17/92 project limits, from 750 feet west of Avenue A to Avenue A.

Table 3-1: Future Land Uses

Future Land Use	Acres (within 500 feet)	Percent
Commercial	10.36	2.49%
Conservation	78.83	18.97%
Industrial	80.22	19.30%
Institutional	3.50	0.84%
Employment Center	27.21	6.55%
Low Density Residential	159.44	38.36%
Medium Density Residential	43.80	10.54%
Neighborhood Center	5.05	1.21%
Poinciana	7.17	1.73%
Total	**415.58**[1]	**100%**

[1] The discrepancy in total acreage between the existing and future land uses within 500 feet of the US 17/92 study area is related to how roadway ROW and other similar features are documented (or not documented) within the two datasets.



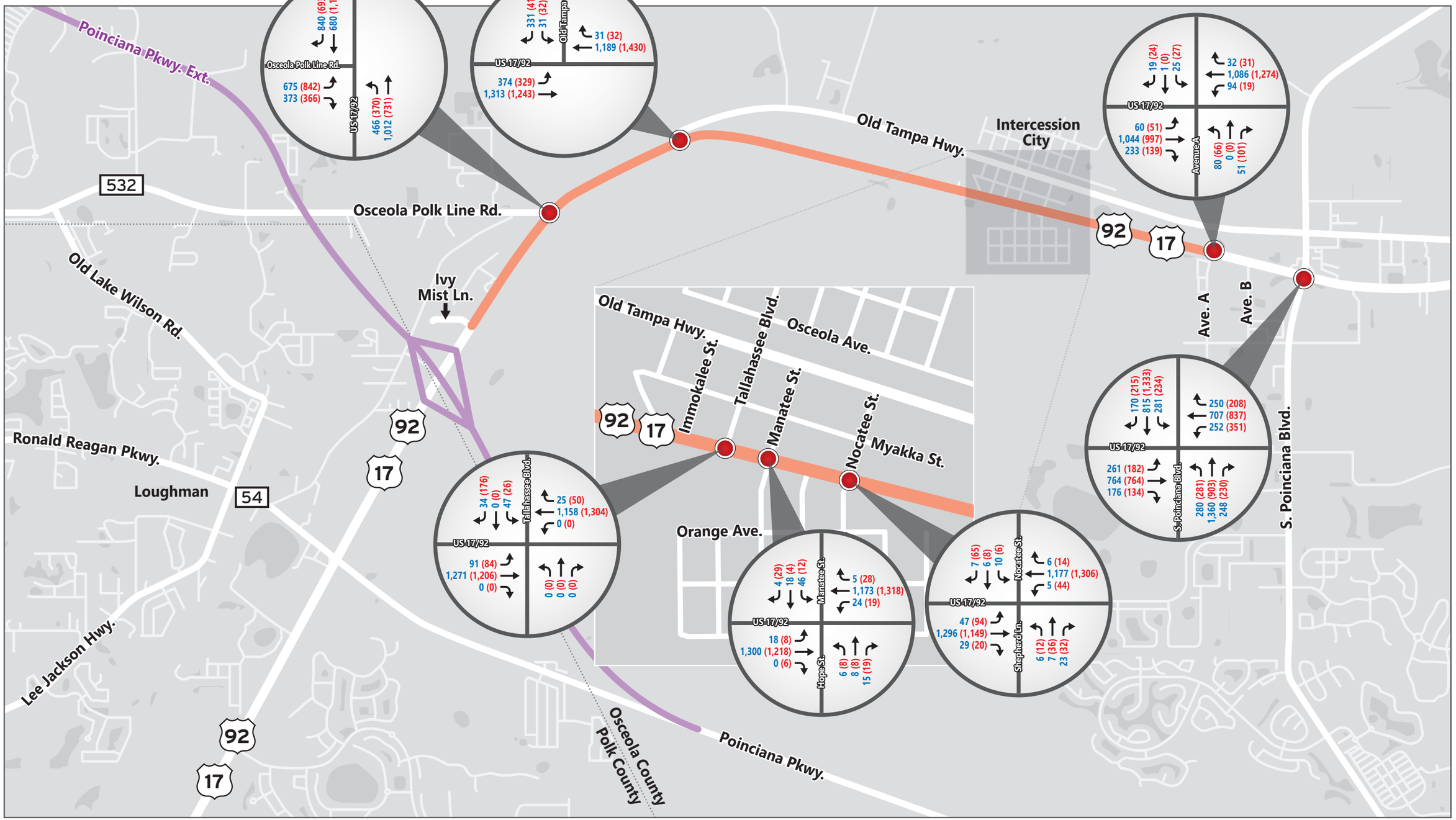
N.T.S.

Project Limits

AM (PM) Turning Movement Volumes

Figure 3-2

Future Year 2025 AM & PM Peak Turning Movement Volumes
US 17/92 PD&E
FPID 437200-2



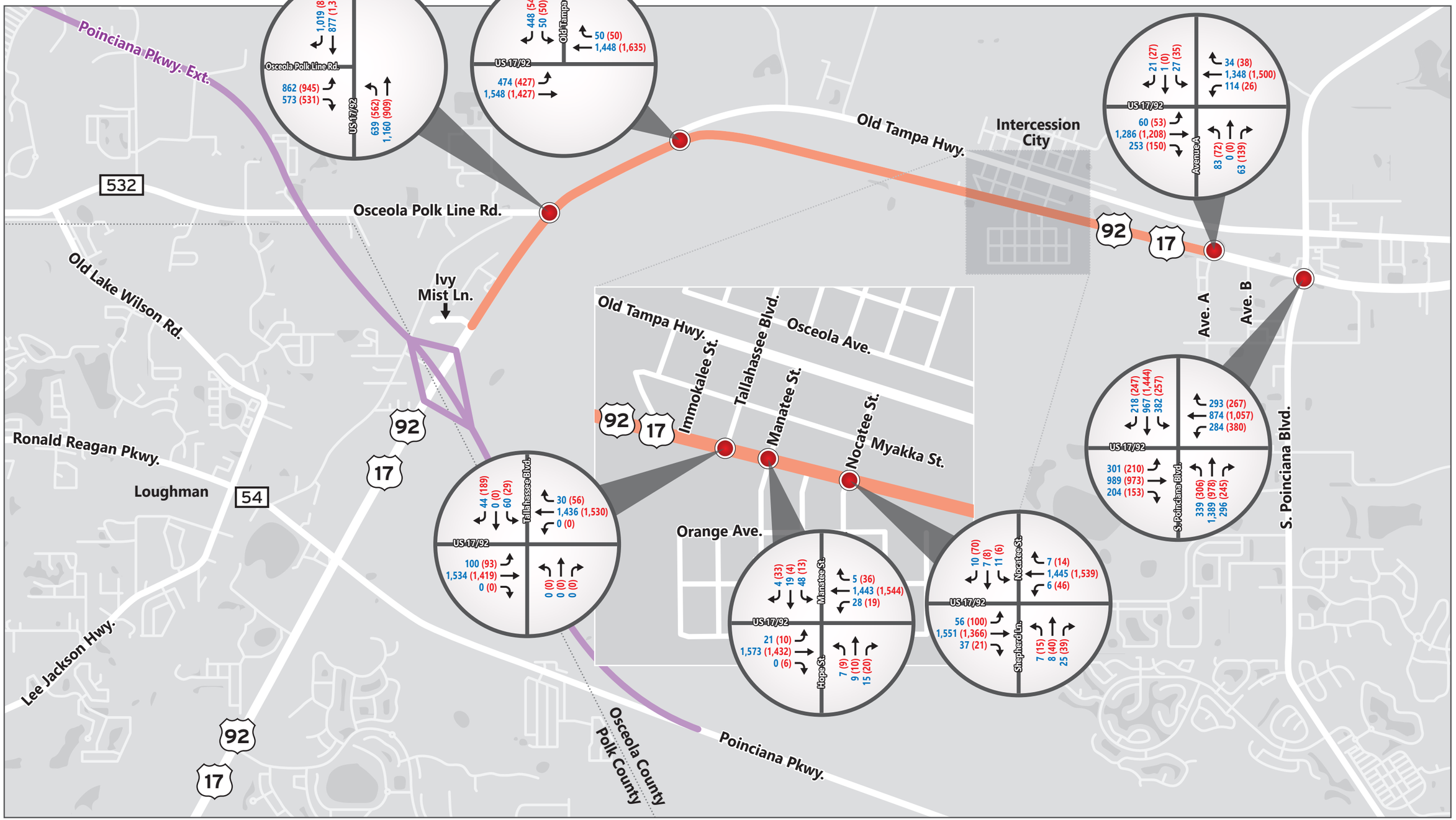
N.T.S.

Project Limits

AM (PM) Turning Movement Volumes

Figure 3-3

Future Year 2035 AM & PM Peak Turning Movement Volumes
US 17/92 PD&E
FPID 437200-2



N.T.S.

Project Limits

AM (PM) Turning Movement Volumes

Figure 3-4

Future Year 2045 AM & PM Peak Turning Movement Volumes
US 17/92 PD&E
FPID 437200-2

Source: Osceola County GIS Department (2024) and Reedy Creek Improvement District (2021).

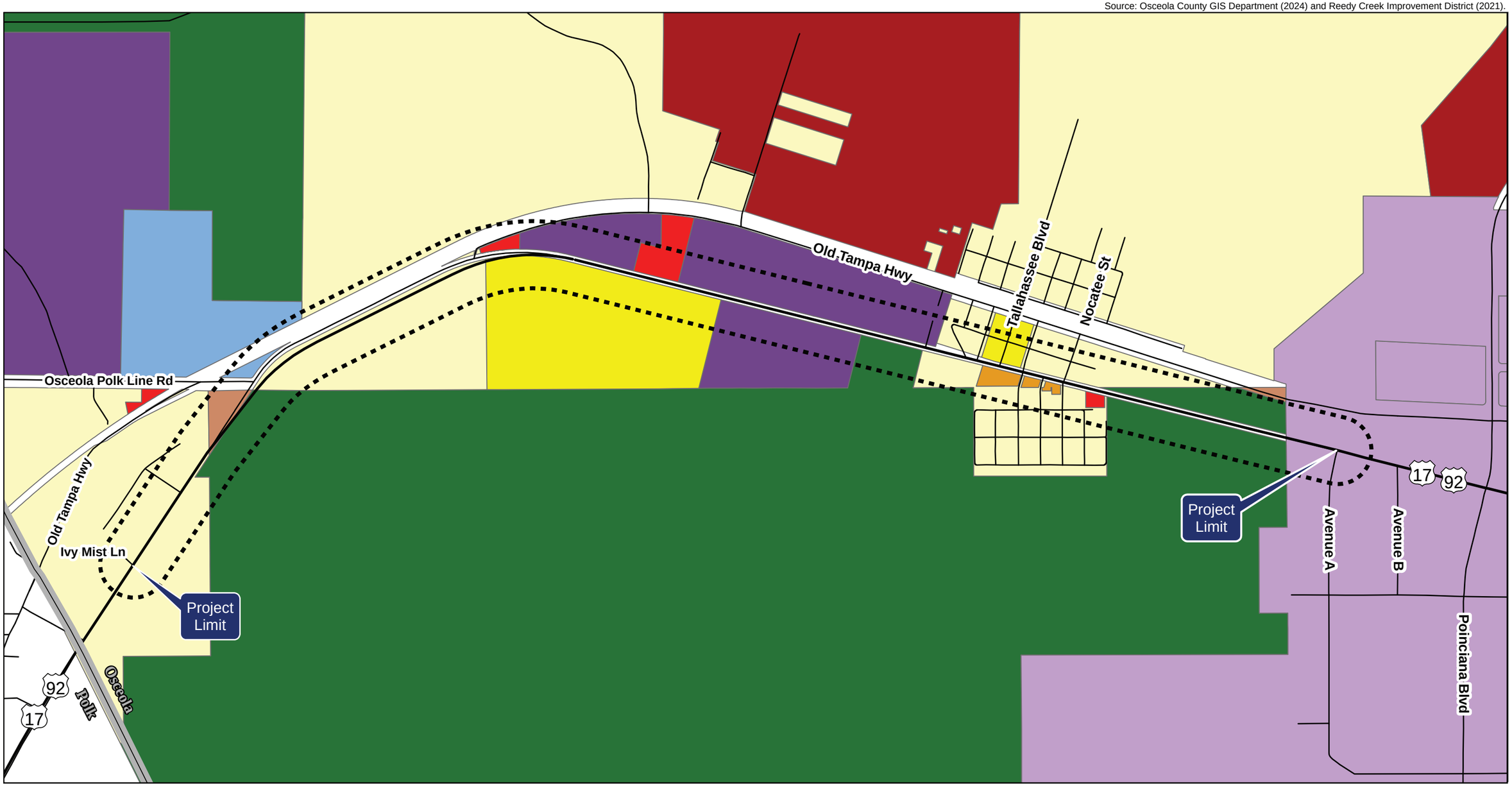


Figure 3-5

Future Land Use
US 17/92 PD&E
FPID 437200-2

4.0 Design Controls and Criteria

4.1 Design Controls

4.1.1 Context Classification

The FDOT Context Classification Guide (2022) provides detailed criteria to determine the context classification along state roadways. The preliminary context classifications identified for US 17/92, as previously described, were reviewed and determined if recommended changes were needed based on future land use designations. The results of the context classification evaluation are shown in **Table 4-1**. No changes in context classification were recommended.

Table 4-1: Summary of Context Classification Evaluation

Segment Limits	Context Classification and Type	Distinguishing Characteristics
Ivy Mist Lane to Osceola-Polk Line Road	C3R – Existing	Mostly residential uses within large blocks and a disconnected or sparse roadway network
Osceola-Polk Line Road to Old Tampa Highway	C1 – Existing	Lands preserved in a natural or wilderness condition, including lands unsuitable for settlement due to natural condition
Old Tampa Highway to approximately 480 feet west of Suwannee Avenue	C3C – Existing	Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network
480 feet south of Suwannee Avenue to approximately 640 feet west of Shepherd Lane/Nocatee Street	C2T – Existing	Small concentration of developed areas immediately surrounded by rural and natural areas; includes many historic towns
Approximately 640 feet west of Shepherd Lane/Nocatee Street to approximately 710 feet west of Avenue A	C1 – Existing	Lands preserved in a natural or wilderness condition, including lands unsuitable for settlement due to natural condition
Approximately 710 feet west of Avenue A to Avenue A	C3C – Existing	Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network

4.1.2 Roadway Target Speed

According to FDM Section 202.2.1, Target Speed is the highest speed at which vehicles should operate on a throughfare in a specific context, consistent with the level of multimodal activity generated by adjacent land uses, to provide both mobility for motor vehicles and a supportive environment for pedestrians, bicycles, and public transit users. Per FDM Section 202.2.1, the Design Speed of a roadway should be changed to match the Target Speed.

During the alternatives phase of this PD&E Study, the below listed design speeds were used to create the alternatives:

- Ivy Mist Lane to west end of Intercession City: 55 mph
- Intercession City: 35 mph
- East end of Intercession City to Avenue A: 55 mph

These design speeds were shown at the Alternatives Public Meeting, held on October 12, 2021.

However, since the Alternatives Public Meeting was held, Target Speeds have been developed for the corridor, in accordance with the FDOT Target Zero and Complete Streets initiatives. In March 2022, the target speeds changed for each segment of the project, as shown in **Table 4-2** and further detailed in **Appendix G**. Typical sections for the project were developed to match the target speed recommendations along the corridor. Further information about the typical sections can be found in **Section 7.1**.

Table 4-2: Target Speed Recommendations

Roadway Segment	Recommended Target Speed
Ivy Mist Lane to Suwannee Avenue	45 mph
Suwannee Avenue to Shepherd Lane/Nocatee Street	30 mph
Shepherd Lane/Nocatee Street to Avenue A	45 mph

The recommended target speeds between Ivy Mist Lane to Old Tampa Highway and Shepherd Lane/Nocatee Street to Avenue A are below the allowable range of design speeds based on context classification per FDM Section 201.5.1. As such, design variations for these segments are required. Also, the recommended 30 mph within Intercession City is below the allowable range of designs speed for C2T context classification and requires a design variation. More information about these design variations can be found in **Section 7.5**.

4.2 Design Criteria

Table 4-3 through **Table 4-7** describe the design controls required for the design of this project and their criteria, as defined in the 2023 FDM. All criteria are subject to change, and only the most current criteria should be used during the final design phase.

Table 4-3: Design Control List

Design Control	Ivy Mist Lane to Sundown Drive	Sundown Drive to 1000′ west Old Tampa Highway	1000′ west of Old Tampa Highway to 1100′ east of Old Tampa Highway	1100′ east of Old Tampa Highway to Suwannee Avenue	Suwannee Avenue to Shepherd Lane/ Nocatee Street	Shepherd Lane/ Nocatee Street to Avenue A	Source
Design Vehicle	WB-62FL	WB-62FL	WB-62FL	WB-62FL	WB-62FL	WB-62FL	FDM Section 201.6
Functional Class	Urban Principal Arterial Other	Urban Principal Arterial Other	Urban Principal Arterial Other	Urban Principal Arterial Other	Urban Principal Arteria Other I	Urban Principal Arteria Other I	FDOT Functional Classification Maps
Context Classification	C3R – Suburban Residential	C1 – Natural	C3C – Suburban Commercial	C3C – Suburban Commercial	C2T – Rural Town	C1 – Natural	FDOT District 5
Proposed Access Management Classification	3	3	3	3	5	3	FDM Table 201.4.2 / Access Management Tech Memo
Design/Posted Speed	45/45	45/45	45/45	45/45	30/30	45/45	Target Speed Determination Report
Design Year	2045	2045	2045	2045	2045	2045	Traffic Methodology
Facility within 1-Mile Urban Boundary	Yes	Yes	Yes	Yes	Yes	Yes	Florida Urban Area Buffer Maps
Capacity	41,790	41,790	41,790	41,790	41,790	41,790	US 17/92 PTAR Section 8.2.2
LOS Target	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D	State Highway System, Policy 000-525-006c
Shared Use Path/ Urban Side Path Applicability	Yes	Yes	Yes	Yes	Yes	Yes	FDM Section 223.2.3, bullet
Minimum Vertical Clearance above Control Elevation (ft)	2	2	2	2	2	2	FDM Section 260.8.1

Design controls including physical constraints, environmental constraints, and design wave heights are not applicable.

Table 4-4: Design Criteria for Typical Section

	Design Criteria	Ivy Mist Lane to Sundown Drive	Sundown Drive to 1000′ west Old Tampa Highway	1000′ west of Old Tampa Highway to 1100′ east of Old Tampa Highway	1100′ east of Old Tampa Highway to Suwannee Avenue	Suwannee Avenue to Shepherd Lane/ Nocatee Street	Shepherd Lane/ Nocatee Street to Avenue A	Source
Typical Section	**Proposed Typical Section Type**	Suburban	Suburban	Urban	Suburban	Urban	Suburban	Selected by study
	Number of Lanes	4	4	4	4	4	4	PTAR
	Lane Widths (min) (ft)	11	11	11	11	11	11	FDM Table 210.2.1
	Median Widths (ft) (min)	22	22	22	22	15.5	22	FDM Table 210.3.1
	Border Width (ft) (min)	33	33	14	33	12	33	FDM Table 210.7.1
	Pavement Cross Slope	0.02	0.02	0.02	0.02	0.02	0.02	FDM Section 210.2.4
	Curb & Gutter Type (outside/median)	Type F / Type E	Type F / Type E	Type F / Type E	Type F / Type E	Type F / Type E	Type F / Type E	FDM Section 210.5
	Max. Roadside Slopes	1:6	1:6	1:2	1:6	1:2	1:6	FDM Table 215.2.3
	Shared-Use Path Width (ft)	12	12	12	12	10[1]	12	FDM Sections 224.1, 224.4, and 224.7

[1]Shared-Use Path in this section is considered an Urban Side Path, with design criteria governed by FDM Section

Table 4-5: Design Criteria for Horizontal Alignment

Design Criteria		Ivy Mist Lane to Sundown Drive	Sundown Drive to 1000′ west Old Tampa Highway	1000′ west of Old Tampa Highway to 1100′ east of Old Tampa Highway	1100′ east of Old Tampa Highway to Suwannee Avenue	Suwannee Avenue to Shepherd Lane/ Nocatee Street	Shepherd Lane/ Nocatee Street to Avenue A	Source
Horizontal Alignment	**Max Deflection Without a Horizontal Curve**	0°45′00″	0°45′00″	1°00′00″	0°45′00″	2°00′00″	0°45′00″	FDM Section 210.8.1
	Max Deflection Angle Through Intersections	3°00′00″	3°00′00″	3°00′00″	3°00′00″	8°00′00″	3°00′00″	FDM Table 212.7.1
	Minimum Radius of Curve (ft)	694	694	694	694	286	694	FDM Table 210.8.2
	Desired Length of Curve (ft)	675	675	675	675	450	675	FDM Table 210.8.1
	e_{max}	0.05	0.05	0.05	0.05	0.05	0.05	FDM Section 210.9

Table 4-6: Design Criteria for Vertical Alignment

	Design Criteria	Ivy Mist Lane to Sundown Drive	Sundown Drive to 1000′ west Old Tampa Highway	1000′ west of Old Tampa Highway to 1100′ east of Old Tampa Highway	1100′ east of Old Tampa Highway to Suwannee Avenue	Suwannee Avenue to Shepherd Lane / Nocatee Street	Shepherd Lane / Nocatee Street to Avenue A	Source
Vertical Alignment	Max Profile Grade	6%	6%	6%	6%	8%	6%	FDM Table 210.10.1
	Max Change in Grade w/o Vertical Curve (percent)	0.70	0.70	0.70	0.70	1.00	0.70	FDM Table 210.10.2
	Base Clearances (ft)	3 (1*)	3(1*)	3(1*)	3(1*)	3(1*)	3(1*)	FDOT Flexible Pavement Manual Section 5.2.2
	Minimum Distance Required Between VPIs (ft)	250	250	250	250	250	250	FDM Section 210.10.1.1
	Minimum Grade	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	FDM Section 210.10.1.1
	Minimum Stopping Sight Distance (Downgrade) (ft)	400 (6%)	400 (6%)	400 (6%)	400 (6%)	222 (8%)	400 (6%)	FDM Table 210.11.1
	Minimum Stopping Sight Distance (Upgrade)	331 (6%)	331 (6%)	331 (6%)	331 (6%)	180 (8%)	331 (6%)	FDM Table 210.11.1
	Minimum Crest Vertical Curve (K)	98	98	98	98	31	98	FDM Table 210.10.3
	Minimum Sag Vertical Curve (K)	79	79	79	79	37	79	FDM Table 210.10.3
	Minimum Crest Vertical Curve Length	135	135	135	135	90	135	FDM Table 210.10.4
	Minimum Sag Vertical Curve Length	135	135	135	135	90	135	FDM Table 210.10.4

**For a 1-foot Base Clearance, a 50% modulus reduction is required.*

Table 4-7: Design Criteria for Structures

	Design Criteria	Standard	Source
Structures	**Number of Lanes (per direction)**	2	Selected by Study
	Lane Width (ft), Bridge	11	FDM Figure 260.1.4
	Outside Shoulder Width (ft), Bridge	10	FDM Figure 260.1.4
	Inside Shoulder Width (ft), Bridge	6	FDM Figure 260.1.4

4.3 Bridge Design Criteria

4.3.1 Specifications and Design Manuals

- FDOT Structures Manual, January 2024 including Structures Design Guidelines (SDG), Structures Detailing Manual (SDM), and subsequent design bulletins as applicable.
- FDOT Standard Plans for Road and Bridge Construction, FY 2024-2025
- FDOT Standard Specifications for Road and Bridge Construction, FY 2024-2025
- FDOT Basis of Estimates Manual, 2024 Edition
- AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications, 9th Edition

4.3.2 Design Loads

- Dead Loads
    - Unit Weight of Reinforced Concrete: 150 pounds per cubic foot (PCF)
    - Stay-in-Place Deck Forms: 20 pounds per square foot (PSF) Per SDG Table 2.2-1
    - 36-inch Single Slope Traffic Railing (Index 521-427): 430 pounds per linear foot (PLF) Per SDG Table 2.2-1
    - 27-inch Concrete Parapet Pedestrian/Bicycle Railing (Index 521-820): 225 PLF Per SDG Table 2.2-1
- Live Loads
    - LRFD: HL-93 Truck/Tandem and Lane Design Loading with Dynamic Load allowance
    - FDOT: FL120 Permit Loading
- Wind Loads
    - Wind on Structure (WS) per AASHTO LRFD 3.8.1.2 and SDG 2.4.
    - Wind on Live Load (WL) per AASHTO LRFD 3.8.1.3 and SDG 2.4.
- Thermal Forces
    - Thermal forces calculated per AASHTO LRFD 3.12
    - Uniform temperature range per SDG 2.7.1
- Seismic Forces
    - The proposed bridges are exempt from seismic design as stated in section 2.3.1 of the SDG.

    - The bridges must satisfy minimum bearing support dimension as required by AASHTO LRFD 4.7.4.4.
- Vessel Collision
    - Not applicable since the bridge is not over navigable waters from barges or ocean-going ships and has been exempt from Coast Guard Bridge Administration.
- Wave Loads
    - Not applicable since the bridge crosses inland rivers/creeks and, therefore, is not vulnerable to coastal storms.
- See AASHTO LRFD Chapter 3 and SDG Chapter 2 for loads not listed above.

4.3.3 Design Method

- Load and Resistance Factor Design (LRFD) Method

4.3.4 Material Properties:

- Concrete in accordance with SDG Chapter 1.4, Table 1.4.3-1
- Traffic Railing: Class II – f'c = 3,400 psi (Slightly Aggressive)
- Bridge Deck: Class II (Bridge deck) – f'c = 4,500 psi (Slightly Aggressive)
- Approach Slab: Class II (Bridge Deck) – f'c = 4,500 psi
- Precast P/S Beams: Class VI – f'c = 8,500 psi
- Precast P/S Piles: Class V – f'c = 6,000 psi
- Substructure: Class IV – f'c = 5,500 psi
- Reinforcing Steel – American Society for Testing and Materials (ASTM) A615, Grade 60 (Fy = 60 ksi) per FDOT Specifications 931
- Prestressing Steel – ASTM A416, Grade 270, low-relaxation strands (Fy = 270 ksi)

4.3.5 Environmental Classification

Based on the Summary of Corrosion Test Results from the Preliminary Soil Survey Report and the requirements of SDG Table 1.3.2-1 the bridge environmental classification is:

- Superstructure: Slightly Aggressive
- Substructure: Concrete: Slightly Aggressive
  Steel: Moderately Aggressive

4.3.6 Concrete Cover

Per SDG Table 1.4.2-1:

- Bridge Deck: 2.5 inch (Top), 2.0 inch (Bottom)
- Traffic Railing (Single-Slope): 2.5 inch
- Precast P/S Beams: 2 inch (Typ. UNO), ¾ inch (Top flange surface)

- Substructure: 4.0 inch (Cast against earth), 3 inch (Formed surfaces), 2 inch (Pedestal and Cheekwalls)
- Precast P/S Piles: 3 inches

4.3.7 Bridge Security

The proposed bridge is not Category 2 or identified as a critical, landmark or signature bridge; therefore, a refined evaluation is not required for bridge security and anti-terrorist countermeasures.

4.3.8 Foundations

The proposed bridges should consider the use of Prestressed Concrete Piles. Concrete piles shall meet the requirement of SDG Table 3.5.1-1.

4.3.9 Vessel Collision

A detailed Vessel Collision Risk Analysis is not required since this is a non-navigable waterway for barges or ocean ships.

4.3.10 Scour

Scour is anticipated at the interior bents of the proposed bridge. The amount of scour is not known at this stage and shall be coordinated with the drainage/hydraulics and geotechnical engineer during final design and accounted for in the foundation design. In addition, it is anticipated that riprap will be necessary around the end bents and approaches. Final determination of the appropriate limits and type of protection will be performed in coordination with the drainage/hydraulics and geotechnical engineer during final design.

4.4 Stormwater Management Criteria

The design of the stormwater management facilities for the project is regulated by the rules set forth by the SFWMD and FDOT. Water quality treatment and water quantity attenuation will comply with the guidelines defined in Chapters 62-330 and the SFWMD Environmental Resource Permit (ERP) Applicant's Handbook, Volume II. Due to the nature of the surrounding soils, wet detention ponds are assumed. Stormwater design criteria are listed below:

SFWMD Criteria (2016):

1) Flood Control/Water Quantity:
   a) The 25-year/72-hour design storm will be used in computing pre and post development runoff for all basins.
2) Stormwater Quality:
   a) For wet detention volume shall be provided for the first inch of runoff from the developed project, or the total runoff of 2.5 inches times the percentage of imperviousness, whichever is greater.

i) The outfall structure shall be designed to drawdown one-half the required treatment volume between 48 and 60 hours.
ii) The permanent pool shall be sized to provide at least a 21-day residence time based upon average wet season rainfall (rainfall occurring over the wettest four months of an average year; for Central Florida, these are June through September)
iii) A residence time of 2 weeks is considered to be the minimum duration that ensures adequate opportunity for algal growth.
    (1) A maximum pond depth of 12 feet and a mean depth (pond volume divided by the pond area at the control elevation) between 2 and 8 feet is required.
iv) The average length to width ratio of the pond must be at least 2:1.
v) To minimize ground water contributions which may lower treatment efficiencies, the control elevation shall be set at or above the normal on-site ground water table elevation.

FDOT Criteria (2024):

1) Pond Configuration:
    a) Side Slopes of 1 (vertical) to 4 (horizontal) or flatter. Conserve established slope vegetation, where possible.
    b) Refer to the Drainage Manual for minimum widths and slopes for maintenance berms (15-feet minimum with a side slope of 1:8 or flatter). For ponds with permanent pools, keep the lowest point of the maintenance berm at least one foot above top of the treatment volume.
    c) Use a radius of 30 feet or larger for the inside edge of the maintenance berm.
    d) Have a benchmark constructed near or in all ponds to check critical elevations or the pond and outlet control structure.
    e) For wet ponds, provide permanent pool volume based on Water Management District requirements.
    f) At least 1.0 foot of freeboard is required above the maximum design stage of the pond below the front of the maintenance berm.
2) Protective Treatment
    a) Use flat slopes when practical.
    b) Only a fence when a documented need for restricted access (steep slopes, hidden hazard, or espouse to children or the elderly) has been demonstrated. A Design Variation is required.
3) Dry Retention
    a) FDOT policy is to design dry retention ponds in accordance with the methodology in the Stormwater Quality Applicant's Handbook (2010).

5.0 Alternatives Analysis

The objective of the alternatives analysis process is to identify technically and environmentally sound alternatives that meet the traffic needs of the project, improve safety, are cost effective, and are acceptable to the community. This chapter describes the alternatives considered during this study.

5.1 No-Build Alternative

The No-Build Alternative, carried as a viable alternative throughout the PD&E process, assumes no improvements such as additional traffic lanes or other improvements will be made within the study area, except for programmed improvements to nearby or adjacent facilities. The advantages of the No-Build Alternative include no additional ROW acquisition, no impacts to the natural or social environment, no disruption of traffic during construction, and no project cost. However, the disadvantages of the No-Build Alternative include not satisfying the purpose and need of the project and being inconsistent with locally adopted plans. This alternative would not improve traffic operations or safety along the study corridor.

5.2 Transportation Systems Management and Operations Alternative

Transportation Systems Management and Operations (TSM&O) is a set of strategies that focus on safety and operational improvements that can complement, delay, or even replace larger capital expense projects, such as major roadway widening. The primary goal of TSM&O is to maximize the safety and efficiency of existing infrastructure.

Based on the anticipated transportation capacity demand of 34,000 vehicles per day or higher in the design year (2045), it was determined a TSM&O-only alternative could not fulfill the purpose and need of the US 17/92 project. Even the most advanced TSM&O strategies, such as Integrated Corridor Management (ICM), ATMS, and Adaptive Signal Control, cannot provide the necessary efficiencies to account for a failing LOS in current and future conditions. Given a TSM&O-only solution cannot meet the project purpose and need, a package of complementary TSM&O strategies was identified to support the preferred build alternative.

5.2.1 Regional Integrated Corridor Management System – Diversion Route

ICM is a regional TSM&O program that emphasizes improved operations for limited-access facilities and their surrounding arterial networks. FDOT District Five has established the Regional Integrated Corridor Management System (R-ICMS) in support of the *I-4 Ultimate* project for the Interstate 4 (I-4) corridor. The R-ICMS system utilizes real-time data, ATMS central management software, pre-programmed diversion routes, coordinated traffic signals, predictive traffic data, and continuous coordination with external local agencies to identify, verify, and implement the most appropriate action to reduce recurring or non-recurring congestion.

The US 17/92 project corridor is identified as a secondary diversion route for I-4 in the I-4 Florida's Regional Advanced Mobility Elements (FRAME) project. In support of this designation, US 17/92 is recommended to be integrated into the R-ICMS program as a diversion route. This will require additional ITS infrastructure to enable the functionality necessary for a diversion route, as described below.

5.2.2 Smart Signals

To enable advanced operations as part of the diversion route designation, it is recommended the traffic signals along the US 17/92 study area be upgraded to the Department's *Smart Signal* standard,[2] which includes:

- Advanced Transportation Controller (ATC)
- Stopbar detection
- Advanced detection, using either video or radar technology
- Bluetooth travel-time reader for speed and origin-destination data collection
- CCTV cameras for observation and confirmation
- Type 6 cabinets for increased storage capacity, where feasible

Given the US 17/92 PD&E improvements are not expected to complete construction for approximately five (5) to ten (10) years, the Smart Signal improvements may be completed earlier as part of a separate project.

5.2.3 Blank Out Signs

Blank out signs can provide traveler information to roadway users similar to DMS devices. In support of the diversion route designation for the US 17/92 corridor, it is recommended to deploy blank out signs along US 17/92 and along the forthcoming PPE at appropriate locations for improved decision-making and wayfinding. The construction limits of the US 17/92 project would need to be expanded to include blank out sign deployments on the PPE as it approaches the new US 17/92 interchange.

5.2.4 Fiber Deployment

Fiber communication enables increased data bandwidth for larger data transfers and more advanced operations. It is recommended that fiber optic cable be installed along US 17/92 from the planned PPE to Poinciana Boulevard to complete fiber gaps and provide network redundancy in the area for CFX and FDOT.

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[2] FDOT District Five – Smart Signal Design Guidance v1.0.
https://www.cflsmartroads.com/projects/smartsignals.html

5.2.5 Midblock Crossing Enhancements

Midblock crossing will facilitate safer pedestrian and bicyclist movements within Intercession City. While pedestrians and bicyclists typically use these safety features, it is still possible that potential users may not utilize the midblock crossing. It is suggested that computer vision devices be deployed at the midblock crossing to passively track if people are using or ignoring the midblock crossing. If results indicate pedestrians and/or bicyclists do not use the midblock crossing, the Department and/or County may need to conduct additional measures along the corridor and additional stakeholder engagement to encourage appropriate use of the crossing.

5.3 Multimodal Alternative

A Multimodal Alternative would provide improvements to the existing transportation network that would accommodate multiple modes of transportation, such as walking, biking, and transit, among others. The primary goal of the Multimodal Alternative is to improve the existing infrastructure so that these alternative modes of transportation are safer and more accessible for users.

There were no multimodal improvements to the US 17/92 corridor identified in the MetroPlan Orlando MTP. Further, the LYNX Transit Development Plan (2023) did not identify any additional transit services in the *Osceola County 20-Year Vision* for the US 17/92 area. However, the *Osceola County Comprehensive Plan Bicycle and Trail Facilities – 2040* map includes a proposed multi-use path along the US 17/92 study corridor by 2040. The Build Alternative will include a shared-use path along both sides of US 17/92 project.

Based on the anticipated transportation capacity demand of 34,000 vehicles per day or higher in the design year (2045), as well as the existing and future land uses within the study area, it was determined a Multimodal-only Alternative could not fulfill the purpose and need of the US 17/92 project. Instead, a collection of multimodal elements was identified to support the preferred build alternative, including shared-use paths, urban side paths, and midblock crossings.

5.4 Build Alternatives

The Build Alternative widens US 17/92 to provide four lanes (two lanes per direction) throughout the study limits. As part of the Build Alternative, proposed multimodal improvements include a 12-foot shared-use path along the north side of the roadway, and a 6-foot sidewalk along the south side of the roadway. The Build Alternative also involves several bridge options. Stormwater management modifications are also recommended to accommodate the proposed widening. Three alternatives for the alignment of the Build Alternative were developed and are discussed below.

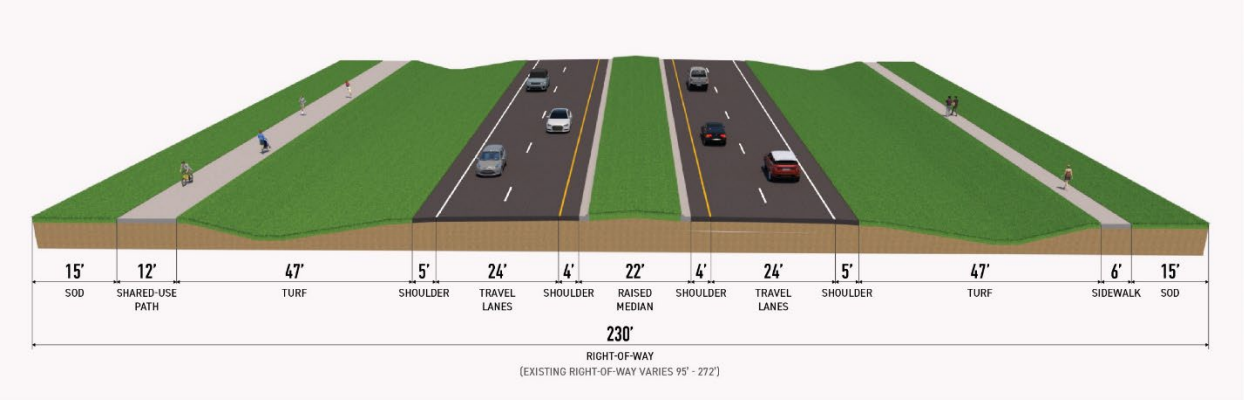
5.4.1 Typical Sections

5.4.1.1 US 17/92 Typical Section – Segments 1, 4, and 6

Two typical sections were evaluated for these segments including a flush shoulder and flush median, rural style typical section and a suburban style typical section with flush shoulder and raised median. The rural style typical section was not compatible due to the higher speed nature of this typical section. Even though some areas are with a C1 or C2 context classification it has C3 and C2T areas mixed in that require slower speeds for safety.

Shown in **Figure 5-1**, the suburban typical section considered, consists of a four-lane suburban design with a 22-foot raised median, two 12-foot travel lanes in each direction, four-foot inside shoulders, five-foot outside shoulders, a 12-foot shared-use path along the north side of the roadway, and a 6-foot sidewalk along the south side of the roadway. The sidewalk and shared-use path are both separated from the roadway by 47-foot-wide drainage swales. The required ROW for the suburban roadway typical section is 230 feet.

Figure 5-1: US 17/92 Typical Section (Segments 1, 4, and 6)



5.4.1.2 Reedy Creek Bridge Typical Section – Segment 2

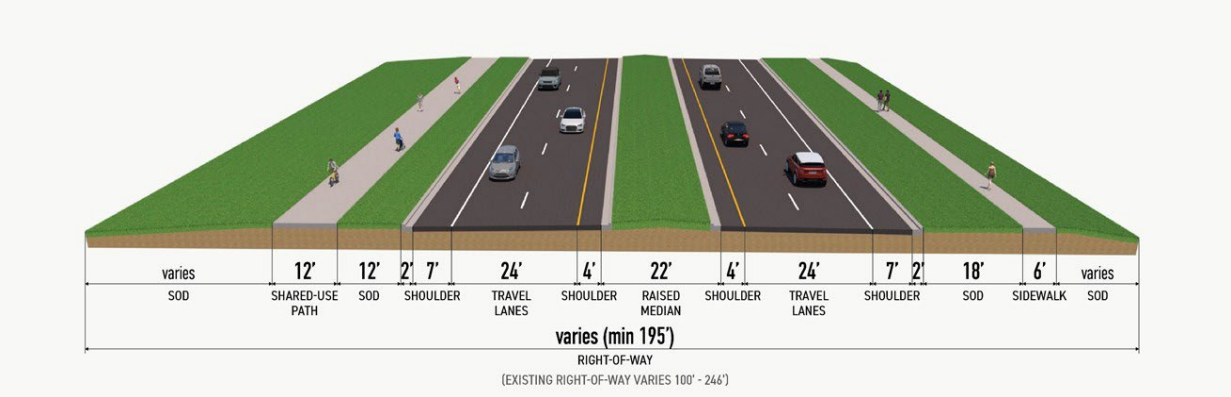
See **Section 5.4.5** Structures Alternatives for all bridge typical section and alignments over Reedy Creek.

5.4.1.3 Old Tampa Highway Intersection Typical Section – Segment 3

Due to the adjacent geometric, residential, and environmental constraints in this segment only a high-speed urban typical section was considered due to its compact size. Illustrated in **Figure 5-2**, the typical section is located between the east end of the Reedy Creek Bridge to Old Tampa Highway. This typical section consists of a 22-foot raised median, two 12-foot travel lanes per direction, four-foot inside shoulders, seven-foot outside paved shoulders with curb and gutter, a 12-foot shared-use path along the north side of the roadway, and a six-foot sidewalk along the south side of the roadway. The shared-use path is separated from the roadway by a 12-foot buffer.

The sidewalk is separated from the roadway by an 18-foot buffer. The total ROW needed for this typical section varies with a minimum of 195 feet.

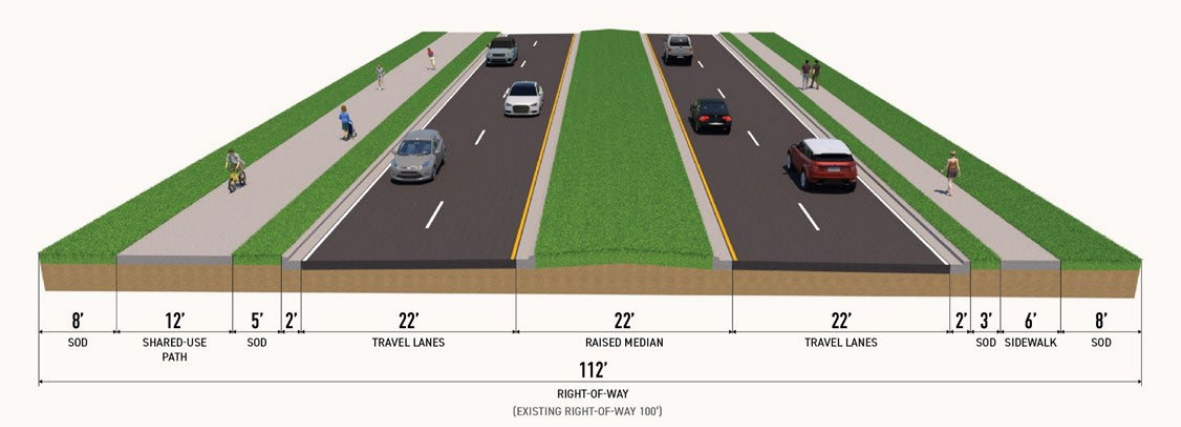
Figure 5-2: Old Tampa Highway Intersection Typical Section (Segment 3)



5.4.1.4 Intercession City Urban Typical Section – Segment 5

An urban typical section, illustrated in **Figure 5-3**, is proposed for Segment 5 through Intercession City. This typical section includes a 22-foot raised median, two 11-foot travel lanes per direction, a 12-foot shared-use path along the north side of the roadway, and a six-foot sidewalk along the south side. The shared-use path is separated from the roadway by a five-foot buffer. The sidewalk is separated from the roadway by a three-foot buffer. The total ROW needed for this typical section is 112 feet.

Figure 5-3: Intercession City Typical Section (Segment 5)



5.4.2 Alternative Alignments

5.4.2.1 Alternative 1

Alternative 1 provides a best fit alignment through all of Segment 1 and Segment 3 (from Ivy Mist Lane to Old Tampa Highway) to accommodate connections to the PPE interchange, CR 532 intersection, Reed Creek Bridges and Old Tampa Highway intersection. Segment 2 alignments are

discussed in **Section 5.4.5**. In Segment 4, Alternative 1 widens to the south, to minimize impacts to the Muslim Cemetery along with residential and commercial impacts along the north by maintaining the north ROW line for approximately 3,600 feet before transitioning to Segment 5.

Segment 5, through Intercession City, in Alternative 1 maintains a center alignment through the constrained segment. This would impact both sides of Intercession City but reduce the depth of ROW needed in the adjacent properties. The remaining Segment 6 serves as a connecting point between the urban section within Intercession City to tie into the recently constructed four-lane section at Avenue A: therefore, a best fit alignment was applied in this segment.

A detailed layout of Alternative 1 is provided in **Appendix C**.

5.4.2.2 Alternative 2

For Alternative 2, Segments 1, 3, 4, and 6 are similar as discussed in Alternative 1. Segment 5, through Intercession City, in Alternative 2 widens to the north, maintaining the south ROW line.

A detailed layout of Alternative 2 is provided in **Appendix C**.

5.4.2.3 Alternative 3

For Alternative 3, Segments 1, 3, 4, and 6 are similar as discussed in Alternative 1. Segment 5, through Intercession City, in Alternative 3 widens to the south, maintaining the north ROW line.

A detailed layout of Alternative 3 is provided in **Appendix C**.

5.4.3 Osceola Polk Line Road and Old Tampa Highway Realignment

As part of the Build Alternative, the intersection with CR 532 is being shifted approximately 300 feet to the southwest along US 17/92. Also, the intersection with Old Tampa Highway is being shifted approximately 380 feet to the east. The purpose of this is to improve the intersection angle by improving the safety conditions at both intersections and provide more space between the intersections and the Reedy Creek bridges. Shifting the intersections at CR 532 and Old Tampa Highway away from the bridges allows more space for a smoother transition from the narrower typical section on either end of the bridge to the wider typical section over the bridge.

5.4.4 Innovative Intersections

An Intersection Control Evaluation (ICE) Analysis was performed for three intersections within the project limits. The purpose of the ICE Analysis is to determine viable candidates for intersection control based on capacity, safety, and geometric constraints to be recommended for the project design phase. The intersections and control strategies evaluated in Stage 1 were:

- CR 532
    - Signalized Intersection
    - Roundabout

    - Signalized Restricted Crossing U-Turn (RCUT)
- Old Tampa Highway:
    - Signalized Intersection
    - Roundabout
    - Signalized RCUT
    - Partial Median U-Turn (MUT)
- Avenue A:
    - Signalized Intersection
    - Roundabout
    - Signalized RCUT
    - Unsignalized RCUT
    - Partial MUT

Operations for each intersection and control strategy were evaluated for the Design Year 2045 in order to ensure that the intersection control alternatives provide sufficient operations through the design year.

The results of the Stage 1 ICE analysis are summarized in **Table 5-1**.

Table 5-1: Stage 1 ICE Analysis Results Summary

Intersection	Control Strategy	Capacity (v/c)		Multimodal Score	SPICE Ranking	Advanced to Stage 2?
		2045 AM	2045 PM			
CR 532	Signalized Intersection	0.75	0.89	4.8	1	Yes
	Roundabout	1.61	2.83	5.6	2	No
	Signalized RCUT	0.84	0.90	6.3	3	Yes
Old Tampa Highway	Signalized Intersection	0.74	0.87	4.8	1	Yes
	Roundabout	1.35	1.91	5.6	2	No
	Signalized RCUT	0.63	0.68	6.3	3	No
	Partial MUT	0.92	0.93	6.3	-	No
Avenue A	Signalized Intersection	0.56	0.59	4.8	4	Yes
	Roundabout	0.75	0.72	5.6	2	Yes
	Signalized RCUT	0.50	0.51	6.3	3	Yes
	Unsignalized RCUT	1.11	1.42	4.4	1	No
	Partial MUT	0.55	0.56	6.3	-	Yes

Based on the results of the Stage 1 ICE analysis, a signalized intersection was determined to be the only viable control strategy for the intersection at Old Tampa Highway, therefore a signal was approved as part of Stage 1 ICE analysis. CR 532 and Avenue A intersection moved forward into Stage 2.

Stage 2 of the ICE analysis was conducted to determine the benefit-cost ratio of each control strategy. The results of the Stage 2 ICE analysis are summarized in **Table 5-2.**

Table 5-2: Stage 2 ICE Analysis Results Summary

Intersection	Control Strategy	NPVC[1]	Delay b/c[2]	b/c[3]
CR 532	Signalized Intersection	$38,372,044	1	-
	Signalized RCUT	$53,815,653	28.25	-
Avenue A	Signalized Intersection	$24,926,857	-	1
	Roundabout	$16,188,769	-	13.23
	Signalized RCUT	$20,253,633	-	4.42
	Partial MUT	$16,798,871	-	6.99

Notes:

1. *NPVC =Net Present Value of Cost (lower is better)*
2. *Delay b/c =Benefit-cost ratio based on intersection operations*
3. *b/c = Overall benefit-cost ratio*

Based on the results of the Stage 2 ICE analysis, a signalized intersection is recommended as the optimal control for the CR 532 intersection, and a roundabout is recommended as the optimal control for the intersection at Avenue A.

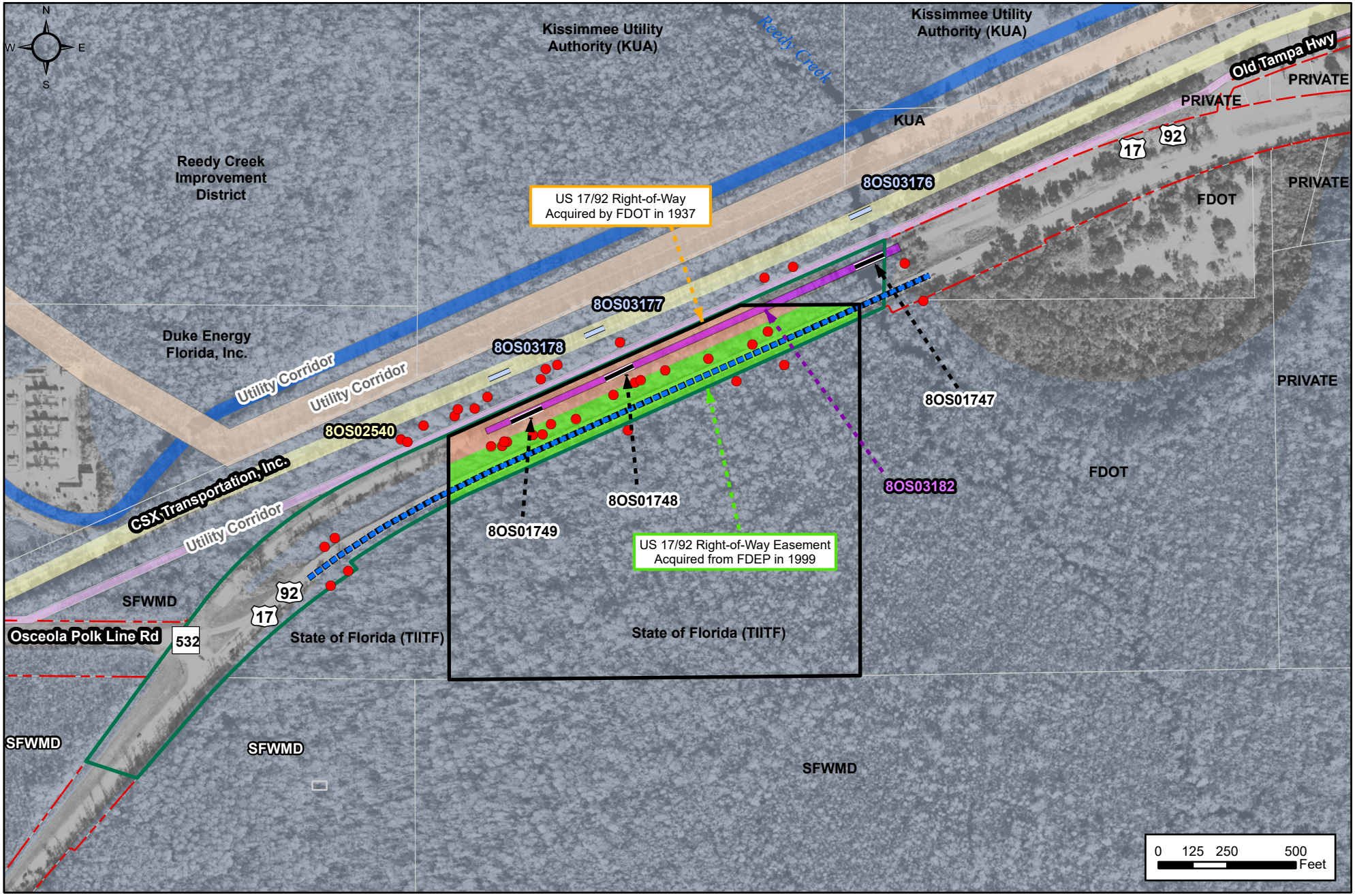
The full ICE Analysis can be found in the Stage 1 ICE and the Stage 2 ICE, in the project file.

5.4.5 Structure Alternatives

Segment 2 encompasses the study corridor along the Reedy Creek Bridge, for approximately 0.43 miles in length. In this segment there are three abandoned bridges (Bridge Nos. 920002, 920003, and 920004), north of the existing US 17/92 bridge (Bridge No. 920174), that previously served as the US 17/92 Reedy Creek bridges prior to the existing US 17/92 bridge. The existing bridge that currently serves traffic in both directions along US 17/92 will become a two-lane eastbound-only structure. Several alternatives were considered to incorporate a westbound bridge for US 17/92. Additionally, as indicated in **Figure 5-4** the avoidance of large cypress trees and the area of Fletcher Park, [redacted] and historic resources is essential to minimize impacts for this segment. The following subsections describe structure alternatives for the Reedy Creek Bridge Segment of the US 17/92 corridor.

5.4.5.1 Rehabilitation Alternative

The Rehabilitation Alternative examined the potential to improve the historic US 17/92 resources to a condition that would allow use of the bridges to structurally support the future westbound traffic by providing two travel lanes. This alternative avoids impacts to other NRHP-eligible resources including the South Florida Railroad (8OS02540), the NRHP-eligible CSX Railroad bridges (8OS03176-8OS03178), and [redacted] avoids further impacts to Fletcher Park to meet the stipulations of the 1999 FDEP easement and avoids the utility corridor just north of the historic bridges, which involves multiple major utilities (electric transmission and distribution, pressurized gas lines, subsurface sewer lines, and buried fiber optic).



- Specimen Trees (>36" Diameter at Breast Height)
- Existing US 17/92 Bridge (Built in 2001)
- Existing Right-of-Way
- Historic US 17/92 Bridges (Built in 1938) 8OS01747-8OS01749
- Historic CSX Railroad Bridges 8OS03176-8OS03178 (Built ca. 1950)
- Fletcher Park Boundary
- Sovereign Submerged Lands Easement (Acquired in 1999)
- Utility Corridor - Sabal Trail Natural Gas Pipeline
- Utility Corridor - Kissimmee Utility Authority Transmission Lines
- Utility Corridor (Multiple Utilities)
- Wetland and Surface Waters
- US 17/92 Right-of-Way Easement (Acquired from FDEP in 1999)
- South Orange Blossom Trail Bridges Resource Group (8OS03182)
- South Florida Railroad Resource Group (8OS02540)
- US 17/92 Right-of-Way (Acquired by FDOT in 1937)
- Parcel Lines

Figure 5-4
Section 106 Existing Conditions

US 17/92 PD&E
FPID 437200-2

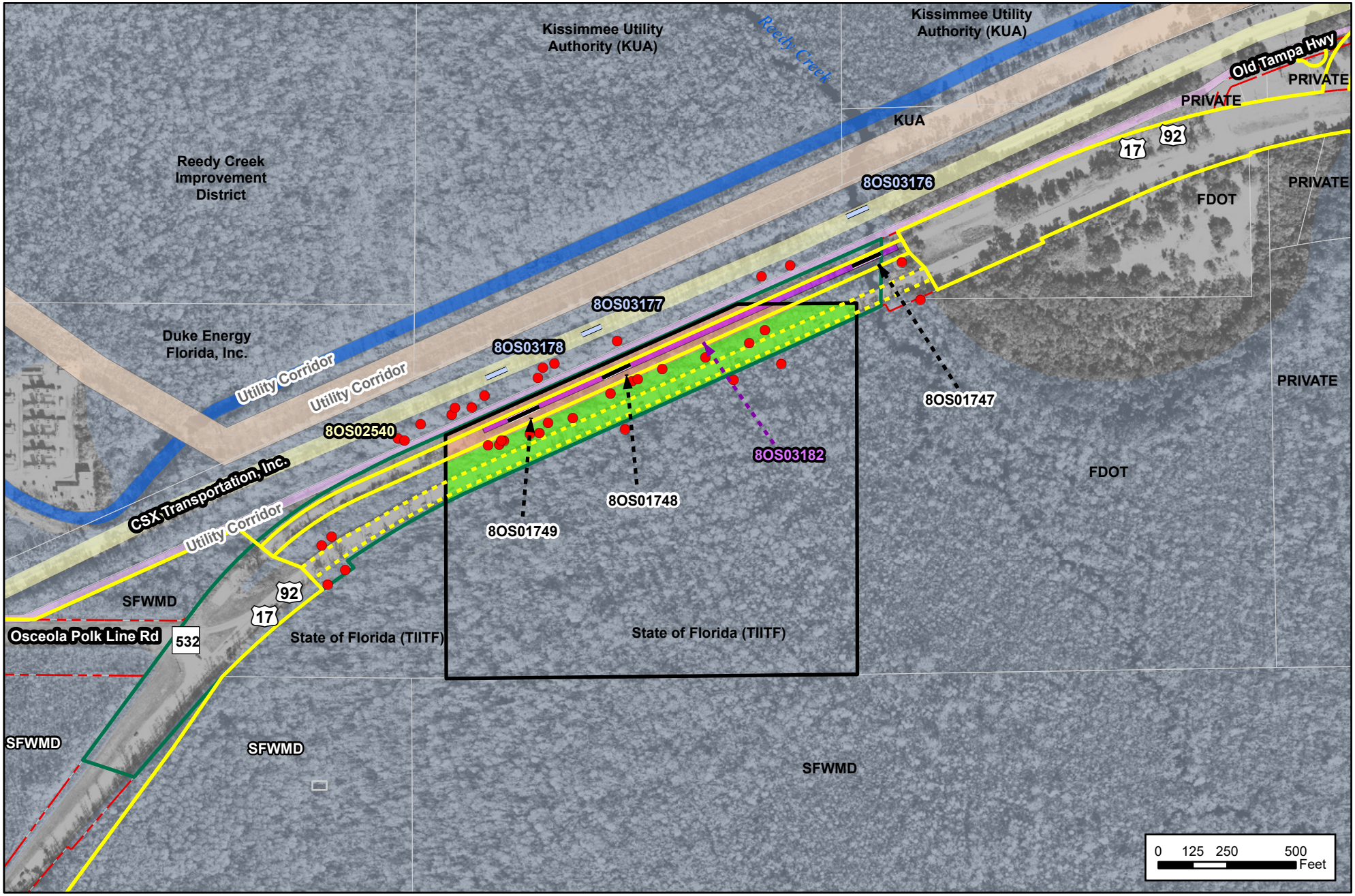
Based on the Existing Bridge Conditions Memo, rehabilitation of the historic bridges will require extensive reconstruction of the substructure and superstructure. The timber piles and the timber bent caps that support all substructure elements would need to be replaced due to heavy deterioration. To replace these elements, the entire bridge would need to be removed (the pavement, concrete bridge rails, concrete deck, steel girders, concrete abutment backwalls, timber bent caps, and the timber piles) and reconstructed from the bottom-up. Reconstruction of the bridge could not re-use any of the historic concrete or timber bridge elements.

The existing steel girders would be evaluated for deterioration and incorporated if possible. The concrete bridge rail system could not be reconstructed as it does not meet current safety standards (no reinforcement) and would need to be replaced. To maintain the similar historic span arrangement, the existing steel girders (steel beams) would need strengthening before re-use to meet current design standards for load requirements. Strengthening the bridge to appropriate design standards may require the structure depth to increase. This would require the bridges and the roadway (fill) sections in between the bridges to be raised.

5.4.5.2 Alternative A – Replace the Historic US 17/92 Bridges

Alternative A would utilize the current US 17/92 bridge structure to accommodate future eastbound traffic (two lanes) and construct a new parallel low-level, fixed-span concrete bridge to accommodate future westbound traffic (two lanes) and a shared-use path along the historic US 17/92 alignment (see **Figure 5-5**). The eastbound bridge would be re-striped to include two 11-foot-wide travel lanes, an 11-foot-wide inside shoulder, and an 11-foot-wide outside shoulder. The new westbound bridge would require replacement of the historic US 17/92 bridges so that it could be constructed at a wider footprint and longer span than the historic bridges to meet current design standards, improve floodplain management, and minimize wetland impacts.

The new westbound bridge would include two 11-foot-wide travel lanes, a 6-foot-wide inside shoulder, a 10-foot-wide outside shoulder, and a 12-foot-wide shared-use path. The new bridge would be 2,320-feet in length to span Reedy Creek and the associated floodplains and wetlands. The proposed westbound bridge is 53-feet, 8 inches wide, and would be constructed within the historic US 17/92 ROW (and existing FDEP TIITF sovereign submerged lands easement), approximately 70 feet north of the current US 17/92 bridge, to provide adequate separation for construction and maintenance. The new westbound bridge would maintain a low-level profile similar to the current US 17/92 bridge and increase the vertical clearance by just over one foot to improve the hydraulic bridge opening and flood control.



N.T.S.

- Alternative A - Proposed Limits of CST
- Existing US 17/92 Bridge (Built in 2001)
- Specimen Trees (>36" Diameter at Breast Height)
- Existing Right-of-Way
- Historic US 17/92 Bridges (Built in 1938) 8OS01747-8OS01749
- Historic CSX Railroad Bridges 8OS03176-8OS03178 (Built ca. 1950)
- Sovereign Submerged Lands Easement (Acquired in 1999)
- Utility Corridor (Multiple Utilities)
- US 17/92 Right-of-Way Easement (Acquired from FDEP in 1999)
- Wetland and Surface Waters
- Utility Corridor - Sabal Trail Natural Gas Pipeline
- Utility Corridor - Kissimmee Utility Authority Transmission Lines
- South Orange Blossom Trail Bridges Resource Group (8OS03182)
- South Florida Railroad Resource Group (8OS02540)
- Fletcher Park Boundary
- US 17/92 Right-of-Way (Acquired by FDOT in 1937)
- Parcel Lines

Figure 5-5
Alternative A - Replace the Historic US 17/92 Bridges
US 17/92 PD&E
FPID 437200-2

The purpose of this alternative was to avoid impacts to other NRHP-eligible resources including the South Florida Railroad (8OS02540), the CSX Railroad bridges (8OS03176-8OS03178), and [redacted] and avoid further impacts to Fletcher Park (and the cypress trees) to meet the stipulations of the 1999 FDEP/TIITF ROW easement and the 1999 FDEP/TIITF Sovereign Submerged Lands easement. Additionally, impacts to the utility corridor adjacent to the historic US 17/92 bridges would be avoided.

5.4.5.3 Alternative B – Widen Current US 17/92 Bridge

Alternative B would widen the current US 17/92 bridge structure to accommodate four future travel lanes (two travel lanes eastbound and two travel lanes westbound) and a shared-use path along the north side of the westbound travel lanes (see **Figure 5-6**). The current US 17/92 bridge (FDOT Bridge 920174) is 47-foot-wide and only accommodates the two existing travel lanes.

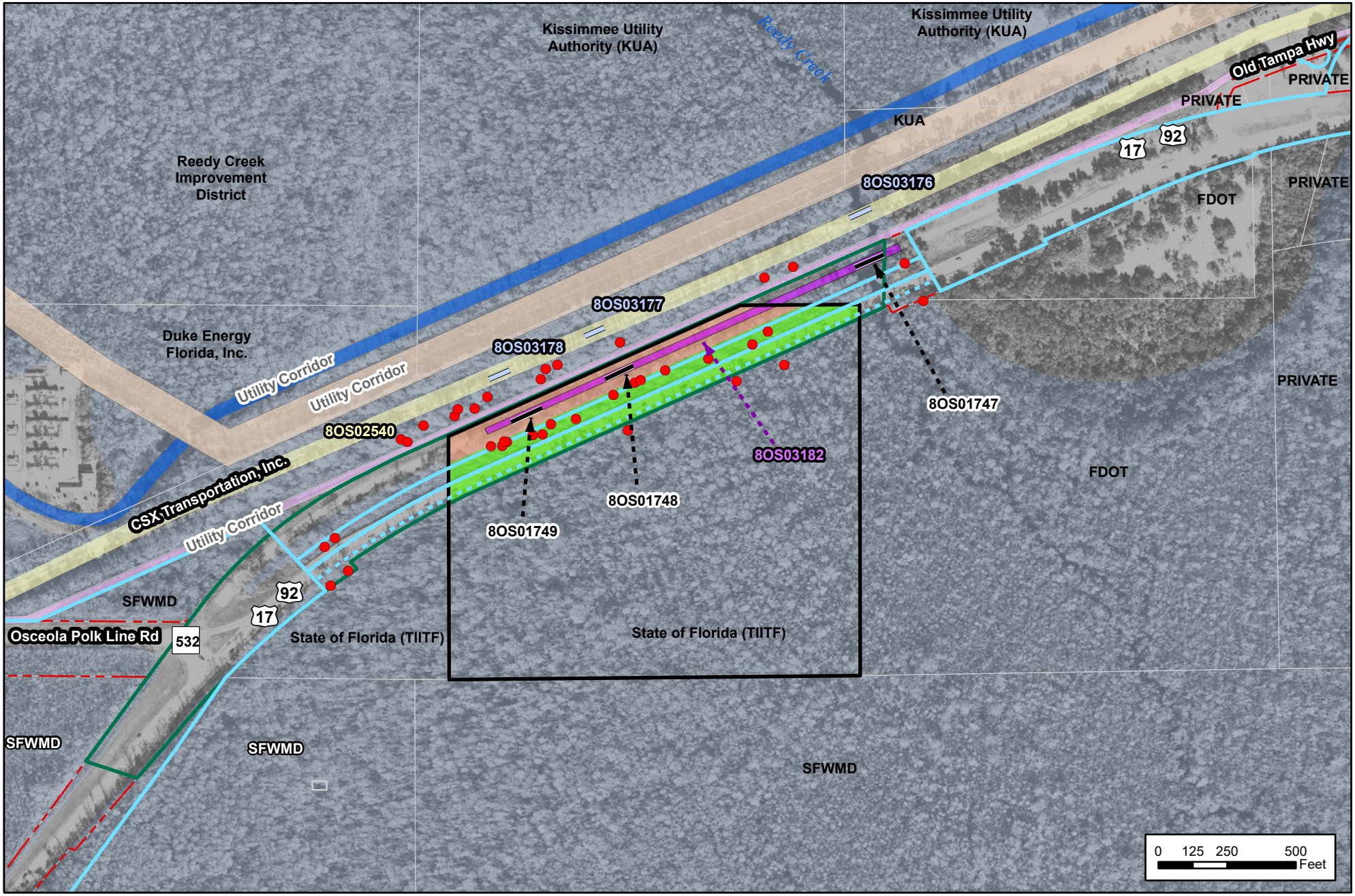
The required widening to accommodate four travel lanes would increase the total bridge width to 94 feet, 10 inches. The current US 17/92 bridge is sloped to the south and therefore, widening would be accomplished to the north side to avoid reducing the current drift clearance of the bridge above the Reedy Creek floodplain. The widened bridge would have two 11-foot-wide travel lanes, a 6-foot-wide inside shoulder, and an outside shoulder in each direction (10 feet in the westbound direction and 11 feet in the eastbound direction). The eastbound and westbound traffic would be separated by a traffic barrier. A 12-foot-wide shared-use path would be constructed along the north side of the westbound travel lanes. The new bridge would be 2,275-feet in length, similar to the current US 17/92 structure.

Alternative B assumes the historic US 17/92 bridges and causeway will remain in place with no maintenance.

The purpose of this alternative was to avoid direct impacts to the historic US 17/92 resources and other NRHP-eligible resources including the South Florida Railroad (8OS02540), the CSX Railroad bridges (8OS03176-8OS03178) and [redacted] in addition to avoiding direct impacts to the utility corridor.

5.4.5.4 Alternative C – New Bridge between Current and Historic US 17/92 Bridges

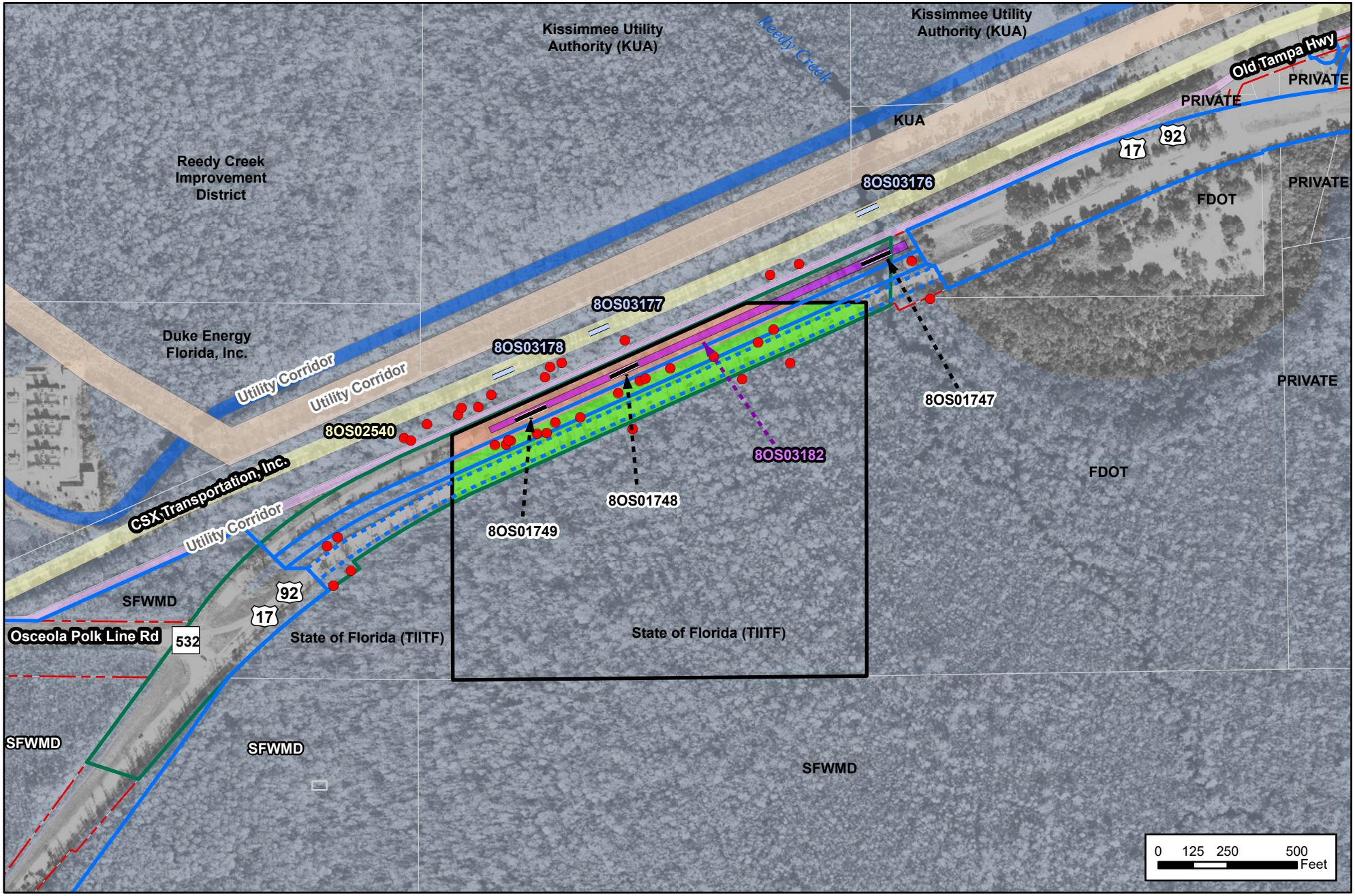
Alternative C would utilize the current US 17/92 bridge structure to accommodate future eastbound traffic (two lanes) and construct a new parallel low-level, fixed-span concrete bridge between the current US 17/92 bridge structure and the historic US 17/92 bridges to accommodate future westbound traffic (two lanes) and a shared-use path (see **Figure 5-7**). Alternative C assumes the historic US 17/92 bridges and causeway will remain in place with no maintenance.



N.T.S.

- Alternative B - Proposed Limits of CST
- Existing US 17/92 Bridge (Built in 2001)
- Specimen Trees (>36" Diameter at Breast Height)
- Existing Right-of-Way
- Historic US 17/92 Bridges (Built in 1938) 8OS01747-8OS01749
- Historic CSX Railroad Bridges 8OS03176-8OS03178 (Built ca. 1950)
- Sovereign Submerged Lands Easement (Acquired in 1999)
- Utility Corridor (Multiple Utilities)
- US 17/92 Right-of-Way Easement (Acquired from FDEP in 1999)
- Wetland and Surface Waters
- Utility Corridor - Sabal Trail Natural Gas Pipeline
- Utility Corridor - Kissimmee Utility Authority Transmission Lines
- South Orange Blossom Trail Bridges Resource Group (8OS03182)
- South Florida Railroad Resource Group (8OS02540)
- Fletcher Park Boundary
- US 17/92 Right-of-Way (Acquired by FDOT in 1937)
- Parcel Lines

Figure 5-6
Alternative B - Widen Current Bridge
US 17/92 PD&E
FPID 437200-2



N.T.S.

- Alternative C - Proposed Limits of CST
- Existing US 17/92 Bridge (Built in 2001)
- Specimen Trees (>36" Diameter at Breast Height)
- Existing Right-of-Way
- Historic US 17/92 Bridges (Built in 1938) 8OS01747-8OS01749
- Historic CSX Railroad Bridges 8OS03176-8OS03178 (Built ca. 1950)
- Sovereign Submerged Lands Easement (Acquired in 1999)
- Utility Corridor (Multiple Utilities)
- US 17/92 Right-of-Way Easement (Acquired from FDEP in 1999)
- Wetland and Surface Waters
- Utility Corridor - Sabal Trail Natural Gas Pipeline
- Utility Corridor - Kissimmee Utility Authority Transmission Lines
- South Orange Blossom Trail Bridges Resource Group (8OS03182)
- South Florida Railroad Resource Group (8OS02540)
- Fletcher Park Boundary
- US 17/92 Right-of-Way (Acquired by FDOT in 1937)
- Parcel Lines

Figure 5-7
Alternative C - New Bridge between Current US 17/92 and Historic US 17/92
US 17/92 PD&E
FPID 437200-2

The eastbound bridge would be re-striped to include two 11-foot-wide travel lanes, an 11-foot-wide inside shoulder, and an 11-foot-wide outside shoulder. The new westbound bridge would include two 11-foot-wide travel lanes, a 6-foot-wide inside shoulder, a 10-foot-wide outside shoulder, and a 12-foot-wide shared-use path. The new bridge would be 2,320-feet in length to span the Reedy Creek floodplains and wetlands.

The new westbound bridge is 53-feet, 8 inches wide, and would be constructed partially within the historic US 17/92 ROW, approximately 20 feet minimum north of the current US 17/92 bridge to provide adequate separation for construction and maintenance. The new bridge would maintain a low-level profile and vertical clearance, similar to the current US 17/92 bridge.

The purpose of this bifurcated bridge alternative was to avoid direct impacts to the historic US 17/92 resources and other NRHP-eligible resources including the South Florida Railroad (8OS02540), the CSX Railroad bridges (8OS03176-8OS03178), and [redacted] and reduce costs. Alternative C also avoids impacts with the utility corridor.

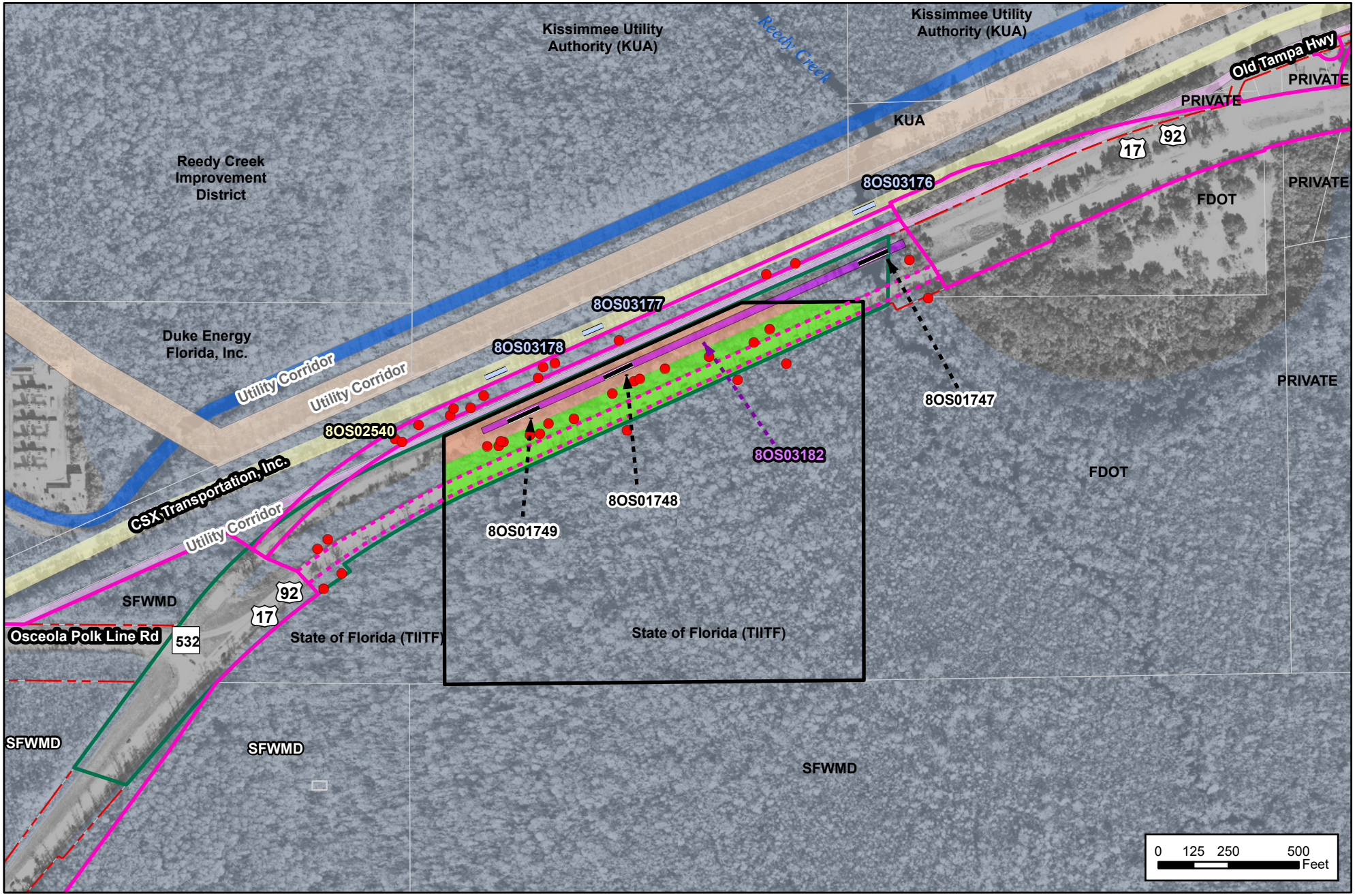
5.4.5.5 Alternative D – New Bridge between Historic US 17/92 Bridges and CSX Railroad

Alternative D would utilize the current US 17/92 bridge structure to accommodate future eastbound traffic (two lanes) and construct a new parallel low-level, fixed-span concrete bridge between the historic US 17/92 bridge structure and the CSX Railroad to accommodate future westbound traffic (two lanes) and a shared use path. Alternative D assumes the historic US 17/92 bridges and causeway will remain in place with no maintenance (see **Figure 5-8**).

The eastbound bridge would be re-striped to include two 11-foot-wide travel lanes, an 11-foot-wide inside shoulder, and an 11-foot-wide outside shoulder. The new westbound bridge would include two 11-foot-wide travel lanes, a 6-foot-wide inside shoulder, a 10-foot-wide outside shoulder, and a 12-foot-wide shared-use path. The new bridge would be 2,350-feet in length to span the Reedy Creek floodplains and wetlands.

The new westbound bridge would be constructed within the CSX ROW, approximately 194 feet north of the current US 17/92 bridge, to avoid the historic US 17/92 resources and the adjacent major utility corridor. The new bridge would maintain a low-level profile and vertical clearance, similar to the current US 17/92 bridge.

The purpose of this bifurcated bridge alternative was to avoid direct impacts to the historic US 17/92 resources, avoid involvement with the [redacted] and avoid impacts to the Fletcher Park conservation land to preserve the large cypress trees.



N.T.S.

- Alternative D - Proposed Limits of CST
- Existing US 17/92 Bridge (Built in 2001)
- Specimen Trees (>36" Diameter at Breast Height)
- Existing Right-of-Way
- Historic US 17/92 Bridges (Built in 1938) 8OS01747-8OS01749
- Historic CSX Railroad Bridges 8OS03176-8OS03178 (Built ca. 1950)
- Sovereign Submerged Lands Easement (Acquired in 1999)
- Utility Corridor (Multiple Utilities)
- US 17/92 Right-of-Way Easement (Acquired from FDEP in 1999)
- Wetland and Surface Waters
- Utility Corridor - Sabal Trail Natural Gas Pipeline
- Utility Corridor - Kissimmee Utility Authority Transmission Lines
- South Orange Blossom Trail Bridges Resource Group (8OS03182)
- South Florida Railroad Resource Group (8OS02540)
- Fletcher Park Boundary
- US 17/92 Right-of-Way (Acquired by FDOT in 1937)
- Parcel Lines

Figure 5-8
Alternative D - New Bridge between Historic US 17/92 Bridges and CSX Railroad
US 17/92 PD&E
FPID 437200-2

5.4.5.6 Alternative E – New Bridge south of Current US 17/92

Alternative E would utilize the current US 17/92 bridge structure to accommodate future westbound traffic (two lanes) and construct a new parallel low-level, fixed-span concrete bridge south of the current US 17/92 bridge to accommodate future eastbound traffic and a shared-use path (see **Figure 5-9**). Alternative E assumes the historic US 17/92 bridges and causeway will remain in place with no maintenance.

The eastbound bridge would be re-striped to include two 11-foot-wide travel lanes, an 11-foot-wide inside shoulder, and an 11-foot-wide outside shoulder. The new westbound bridge would include two 11-foot-wide travel lanes, a 6-foot-wide inside shoulder, a 10-foot-wide outside shoulder, and a 12-foot-wide shared-use path. The new westbound bridge would be constructed partially within FDOT ROW and would be 2,290-feet in length to span the Reedy Creek floodplains and wetlands. The new bridge would maintain a low-level profile and vertical clearance, similar to the current US 17/92 bridge.

The purpose of this bifurcated bridge alternative was to avoid direct impacts and adjacent construction to the historic US 17/92 resources, avoid involvement with the NRHP-eligible South Florida Railroad (8OS02540) and the CSX Railroad bridges (8OS03176-8OS03178), and avoid impacts to the Fletcher Park conservation land to preserve the large cypress trees.

5.4.5.7 Box Culvert Extension

A three-cell box culvert (Culvert No. 920001) with eight-foot spans and five-foot-tall openings is located within Segment 1 of the study area. The box culvert is located at STA 1193+47 and will be extended or replaced as part of the PPE project to accommodate the PPE project and associated widening along US 17/92. No additional modifications are anticipated as part of this project.

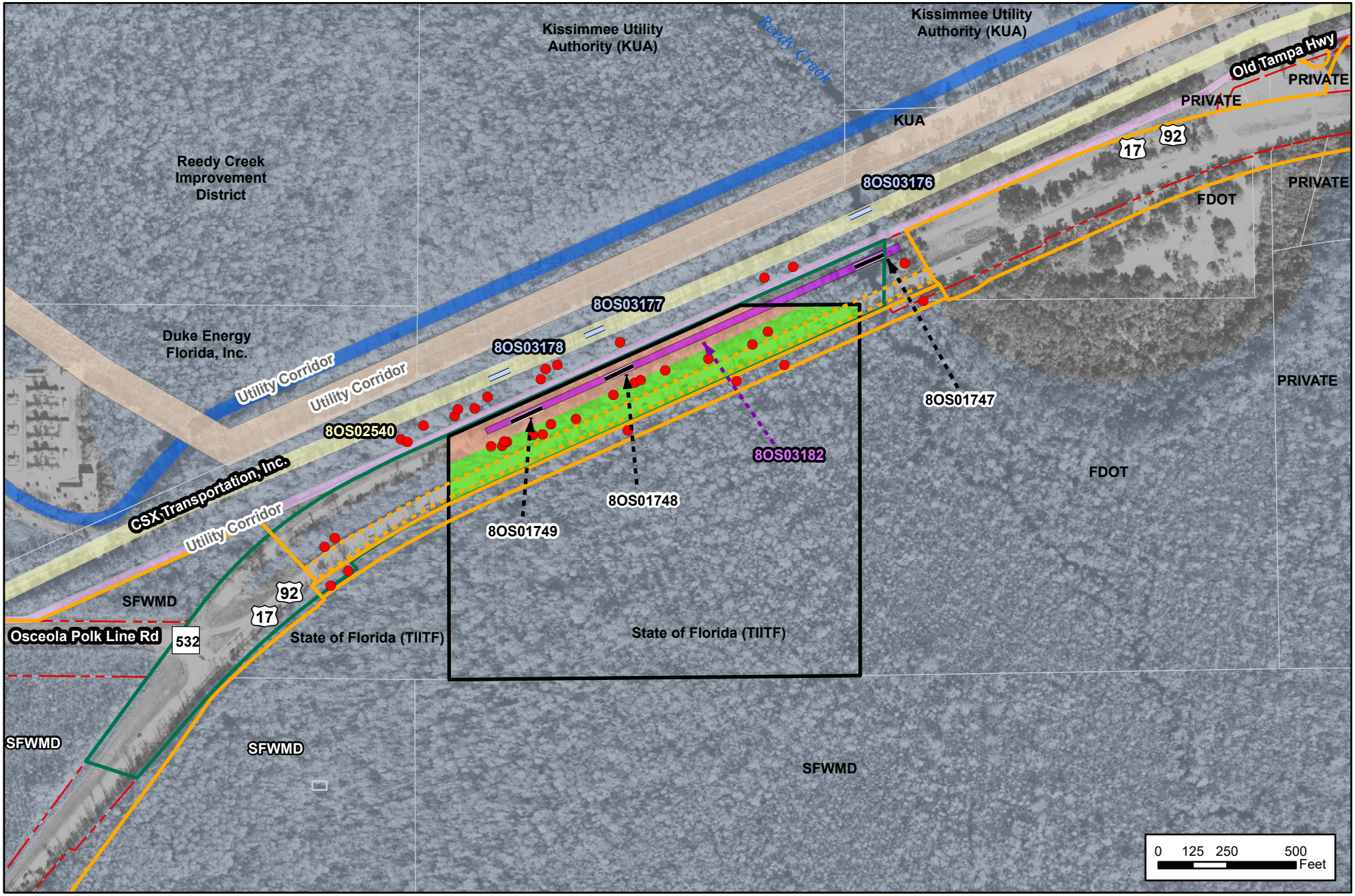
5.4.6 Drainage

Drainage alternatives were developed for the four basins (detailed in **Section 2.2.18**) within the study area. The map of the pond and floodplain compensation locations is shown in **Figure 5-10**.

5.4.6.1 Joint Use and Regional Pond Options

Joint use ponds are proposed for Basins 1 and 2. During the PD&E Study, FDOT coordinated with CFX regarding the use of joint use ponds in the area where PPE and CR 532 meet US 17/92. CFX is currently in Design for both PPE and CR 532 projects. See **Figure 5-10** for the location of the joint use ponds. The Joint Use Pond Summary Memorandum and follow up correspondence are included in the Pond Siting Report (PSR), in the project file.

The Phase III Drainage Design Report for the CR 532 widening study by CFX (CFX 538-235A) (dated June 2022) included the calculated required area for Pond 7 in Basin 7 of that project to be 1.34 acres. This pond will be part of Joint Use Pond 2A of this project.



N.T.S.

- Alternative E - Proposed Limits of CST
- Existing US 17/92 Bridge (Built in 2001)
- Specimen Trees (>36" Diameter at Breast Height)
- Existing Right-of-Way
- Historic US 17/92 Bridges (Built in 1938) 8OS01747-8OS01749
- Historic CSX Railroad Bridges 8OS03176-8OS03178 (Built ca. 1950)
- Sovereign Submerged Lands Easement (Acquired in 1999)
- Utility Corridor (Multiple Utilities)
- US 17/92 Right-of-Way Easement (Acquired from FDEP in 1999)
- Wetland and Surface Waters
- Utility Corridor - Sabal Trail Natural Gas Pipeline
- Utility Corridor - Kissimmee Utility Authority Transmission Lines
- South Orange Blossom Trail Bridges Resource Group (8OS03182)
- South Florida Railroad Resource Group (8OS02540)
- Fletcher Park Boundary
- US 17/92 Right-of-Way (Acquired by FDOT in 1937)
- Parcel Lines

Figure 5-9
Alternative E - New Bridge south of Current 17/92

US 17/92 PD&E
FPID 437200-2

N.T.S.

- Project Alignment
- County Boundary
- Berm
- Offsite Compensation Pond
- Pond
- Joint Use Pond
- Floodplain Compensation Pond

Figure 5-10

Pond Locations
US 17/92 PD&E
FPID 437200-2

The Phase III Drainage Documentation for the Poinciana Parkway study by CFX (CFX 538-235) (dated January 2022) included the calculated required area for Pond 400 in Basin 400 of that project to be 1.96 acres. This pond will be part of Joint Use Pond 1 of this project.

5.4.6.2 Pond Alternatives

Three pond alternatives were each developed for Basins 3 and 4. Due to the nature of the soils, and the expected elevation of the water table, all three alternatives were assumed to be wet detention ponds.

5.4.6.2.1 Basin 3

Two potential pond locations were identified north of US 17/92, and one south of US 17/92. All three ponds are located west of Intercession City and will have floodplain impacts. Pond and floodplain calculations are included in the PSR. See **Figure 5-11** for the proposed Basin 3 pond locations.

5.4.6.2.2 Basin 4

Two potential pond locations were identified north of US 17/92, and one south of US 17/92. All three ponds are located east of Intercession City and will have floodplain impacts. Pond and floodplain calculations are included in the PSR. See **Figure 5-12** for the proposed Basin 4 pond locations.

5.4.7 Offsite Ponds

During the Environmental Look Around, which was held at the project site on July 29, 2021, the use of an offsite pond was discussed, as one option for additional compensation if needed. The Environmental Look Around Meeting Summary Memorandum is included in the PSR. As a result, an offsite pond was evaluated southeast of Intercession City. The offsite pond could serve as compensation as well as to provide treatment to the existing paved roads in the already developed residential area.

Offsite compensation could be given to this area which is currently not treated and drains to the Reedy Creek Swamp. See **Figure 5-10** for the proposed off-site compensation pond location. The site evaluated is located within existing SFWMD managed lands (Intercession City Tract) and is part of the Upper Reedy Creek Management Area. After evaluating the stormwater management needs, additional compensation for offsite treatment was not required and the offsite pond was eliminated from further consideration to avoid impacts to the existing conservation lands and associated recreation uses.

\\vhb.com\gbl\proj\Orlando\63316.11 US 1792 CR54 to Ave A\Graphics\FIGURES\PSR

Imagery source: State of Florida, Maxar, Earthstar Geographics, Esri Community Maps Contributors, FDEP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, FDEP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS

N.T.S.

- Project Alignment
- Pond
- County Boundary
- Berm
- Culvert
- Parcels 2023
- Contour 2 ft

Figure 5-11

Basin 3 Pond Alternatives
US17/92 PD&E
FPID 437200-2

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N.T.S.

- Project Alignment
- Pond
- County Boundary
- Berm
- Culvert
- Parcels 2023
- Contour 2 ft

Figure 5-12

Basins 4 Pond Alternatives
US17/92 PD&E
FPID 437200-2

5.4.8 Floodplain Compensation Areas

The proposed roadway widening and the proposed pond alternatives include floodplain impacts. The volume of floodplain impacts was estimated, and three proposed locations have been identified to compensate the floodplain impacts. Floodplain calculations are included in the PSR. A summary of the floodplain compensation areas is included in **Table 5-3**. See **Figure 5-13** for the proposed floodplain compensation areas.

Table 5-3: Floodplain Compensation Areas

Pond	FCA1	FCA2	FCA3
Drainage Basin Size (Ac)	-	-	-
Compensation Area Size (Ac)	12.29	11.11	11.65
Total Parcel Size Required (Ac)	12.36	11.11	11.65
Wetland Impacts (Ac)	0.16	0.85	4.57
FEMA Floodplain Impacts (Ac)	0.04	1.11	6.13
Relocations	None	None	None
Contamination Potential	Medium Risk	Medium Risk	Medium Risk
Historic/Archaeological Involvement	No Involvement	No Involvement	No Involvement
Listed Species Habitat Potential	Caracara-H Woodstork-M Sandhill Crane-M Gopher Tortoise-H	Caracara-H Woodstork-L Sandhill Crane-L Gopher Tortoise-H	Caracara-H Woodstork-M Sandhill Crane-M Scrub Jay-H Gopher Tortoise-H Sand Skink-H
Other Environmental Impacts	Poorly Drained Soils	Poorly Drained Soils	Poorly Drained Soils
Utility Impacts	No Impacts	No Impacts	No Impacts
Current Land Use Zoning	Agricultural/Other	Agricultural	Agricultural
Future Land Use	Tourist Commercial	Tourist Commercial	Tourist Commercial
Recommendation/Ranking		Recommend	

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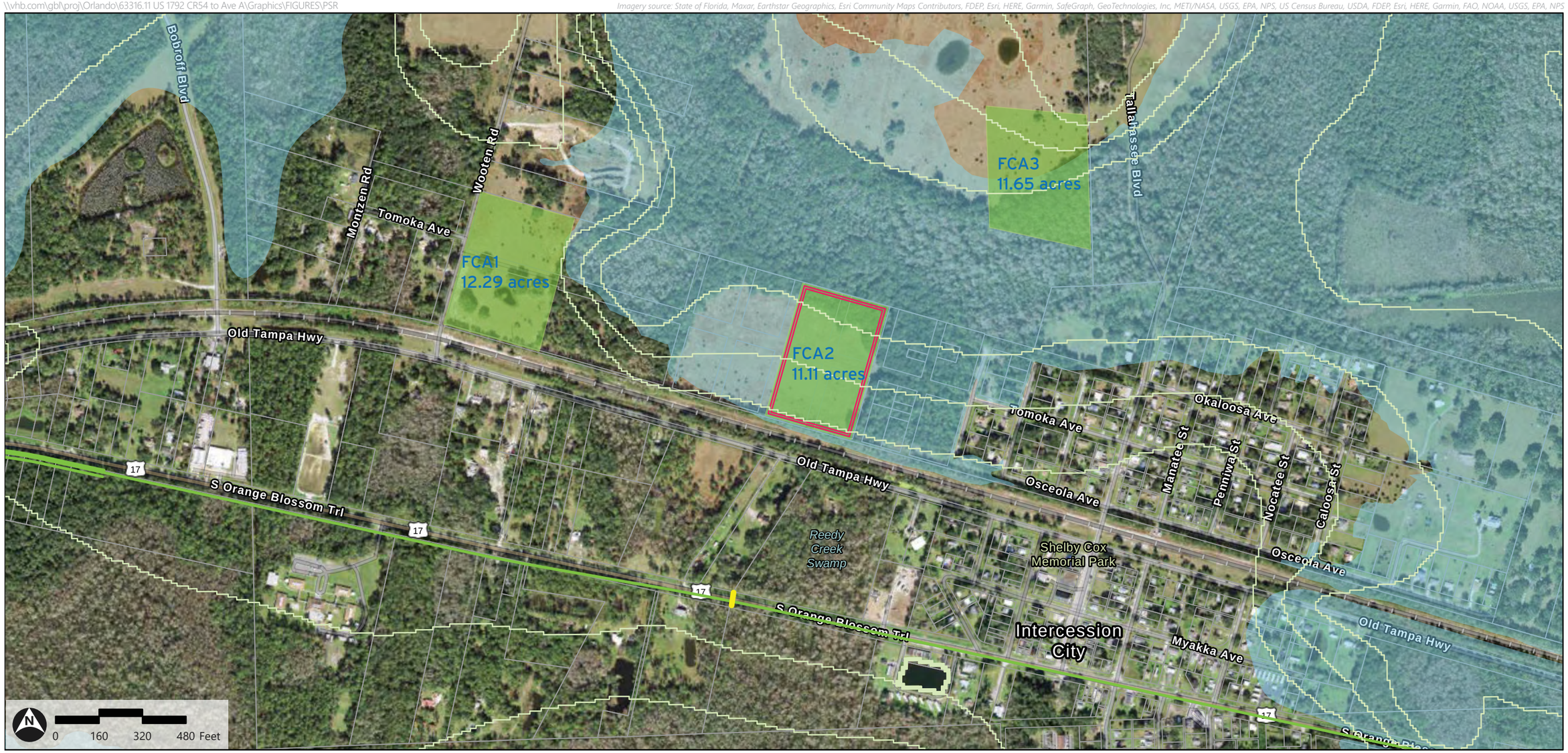


N.T.S.

- Project Alignment
- Floodplain Compensation Pond
- County Boundary
- Berm
- Culvert
- Parcels 2023
- Contour 2 ft
- 100-Year Floodplain

Figure 5-13

Floodplain Compensation Areas
US 17/92 PD&E
FPID 437200-2

5.4.9 Pond Evaluation

In selecting the type and sites for stormwater treatment facilities, costs, maintainability, constructability, and environmental impacts were considered. **Table 5-4** summarizes the basin information and environmental impacts.

5.4.9.1 Basin 1 and 2

Early in the PD&E analysis, during the Environmental Look Around, the option of a joint use pond was discussed between FDOT and Osceola County. Since the CFX project (where Poinciana Parkway and CR 532 meet) will be constructed well before the widening of US 17/92 it was agreed that a joint use pond made the most sense for these two basins. Joint Use Pond 1, Joint Use Pond 2, and Pond 2B are needed to meet the requirements of Basins 1 and 2. Easements will not be required. No historical or archeological involvement was identified. There are no impacts to utilities.

5.4.9.2 Basin 3

Pond 3.1 is the preferred pond site, with the least amount of wetland. Pond 3.2 has an environmental restriction because it is a conservation land, and Pond 3.3 requires the relocation of residences. Easements will not be required. No historical or archaeological involvement was identified. There are no impacts to utilities.

5.4.9.3 Basin 4

Pond 4.1 is the preferred pond site, with nearly zero wetland impact and the least required parcel size. For Ponds 4.2 and 4.3, the future land use zoning is conservation land. Easements will not be required. No historical or archeological involvement was identified. There are no impacts to utilities.

5.4.10 Linear System Options

Linear ponds were not considered as an alternative to offsite stormwater ponds due to the limited ROW and the high-water table.

5.5 Comparative Alternatives Evaluation

5.5.1 Alignment Alternatives Analysis

A preliminary evaluation of the No-Build Alternative and the Build Alternatives was performed to understand viability for purpose and need, impacts to the community and environment, and project cost for comparison. An evaluation matrix, provided in **Table 5-5**, was prepared for a side-by-side assessment of each alternative and its estimated impacts. Each topic within the evaluation matrix is described in this section.

Table 5-4: Pond Alternative Comparison Table

Pond	JU P1	JU P2A	2B	3.1	3.2	3.3	4.1	4.2	4.3	OS 1
Drainage Basin Size (Ac)	22.02*	22.02*	22.02*	31.05	31.05	31.05	17.25	17.25	17.25	48.3
Pond Size (Ac)	6.66**	3.26**	1.04	7.62	7.73	7.42	4.16	4.24	4.24	20.73
Total Parcel Size Available (Ac)	20.39	4.71	2.41	10.36	15.07	13.61	9.9	191.83	16.64	191.83
Wetland Impacts (Ac)	5.86	3.29	1.00	2.72	7.73	7.2	1.00	1.3	1.02	None
FEMA Floodplain Impacts (Ac)	None	None	None	None	None	None	3.87	3.38	4.24	5.15
Relocations	Yes	None	None	None	None	Yes	None	None	None	None
Contamination Potential	Low Risk	Low Risk	Low Risk	Medium Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Historic/Archaeological Involvement	No Involvement	No Involvement	No Involvement	No Involvement	No Involvement	No Involvement	No Involvement	No Involvement	No Involvement	No Involvement
Listed Species Habitat Potential	Caracara-H Bonnetted Bat-M Woodstork-M Sandhill Crane-M Gopher Tortoise-L	Woodstork-M Sandhill Crane-M Gopher Tortoise-L	Woodstork-M Sandhill Crane-M Gopher Tortoise-L	Caracara-H Woodstork-M Sandhill Crane-M Gopher Tortoise-H	Bonnetted Bat-M Woodstork-M Sandhill Crane-M	Woodstork-M Sandhill Crane-M Gopher Tortoise-L	Woodstork-L Sandhill Crane-L Gopher Tortoise-M	Caracara-H Bonnetted Bat-M Woodstork-M Sandhill Crane-M Gopher Tortoise-M	Plants-H Woodstork-M Sandhill Crane-M Gopher Tortoise-M	Caracara-H Scrub Jay-H Gopher Tortoise-M
Other Environmental Impacts	Poorly Drained Soils	Poorly Drained Soils	Poorly Drained Soils	Poorly Drained Soils	Conservation Poorly Drained Soils	Poorly Drained Soils	Poorly Drained Soils	Conservation Poorly Drained Soils	Conservation Poorly Drained Soils	Conservation Poorly Drained Soils
Utility Impacts	No Involvement	No Involvement	No Involvement	No Involvement	No Involvement	No Involvement	No Involvement	No Involvement	Low	No Involvement
Current Land Use Zoning	Residential	Vacant Institutional	Vacant Institutional	Vacant Residential	Vacant Institutional	Vacant Residential	Vacant Residential	Institutional	Institutional	Institutional
Future Land Use Zoning	Low Density Residential	Poinciana	Institutional	Low Density Residential	Conservation	Low Density Residential	Low Density Residential	Conservation	Conservation	Conservation
Recommendation/Ranking	Recommend	Recommend	Recommend	Recommend			Recommend			

**Basin 1 and 2 combined*

***These two ponds are joint use ponds with CFX projects*

Table 5-5: Alternatives Evaluation Matrix

Evaluation Criteria	No-Build Alternative	Alternative 1	Alternative 2	Alternative 3
Purpose & Need				
Accommodates Future Traffic Demand	No	Yes	Yes	Yes
Safety Improved	No	Yes	Yes	Yes
Potential Community Impacts				
Number of Parcels Potentially Impacted				
Residential	0	32	32	15
Commercial	0	41	17	36
Undeveloped	0	33	31	28
Total	**0**	**106**	**80**	**79**
Potential Relocations				
Residential	0	32	22	24
Commercial	0	3	2	2
Other	0	1	0	1
Total	**0**	**36**	**24**	**27**
ROW Anticipated to be Required (acres)				
Residential	0.0	16.2	16.2	16.1
Commercial	0.0	2.7	2.7	2.8
Governmental	0.0	8.5	8.5	8.8
Agricultural	0.0	1.2	1.2	0.9
Other	0.0	3.4	3.4	3.4
Total	**0.0**	**32.0**	**31.9**	**32.0**
Potential Utility Impacts (Low/Moderate/High)	None	Moderate	Moderate	Moderate
Potential Historic/Archaeological Impacts (Low/Moderate/High)	None	High	High	High
Potential Environmental Impacts				
Wetlands (acres)	0	18.254	18.292	18.352
Floodplains (acres)	0	30.393	30.393	30.393
Threatened and Endangered Species (Low/Moderate/High)	None	Moderate	Moderate	Moderate
Potential Contamination Sites (Low/Medium/High)	None	4/7/0	4/7/0	4/7/0
Estimated Project Cost				
Estimated Design Cost[1]	$ 0	$ 7M	$ 7M	$ 7M
Estimated ROW Acquisition Cost	$ 0	$ 92.20M	$ 80.09M	$ 82.03M
Estimated Roadway Construction Cost[2]	$ 0	$ 61.04M	$ 61.04M	$ 61.04M
Total Estimated Costs	**$ 0**	**$ 160.24M**	**$ 148.13M**	**$ 150.07M**

Notes:
1. Amount reflects FDOT Five Year Work Program 2022-2026 Adopted.
2. Roadway construction cost developed using FDOT's Long Range Estimates (LRE) tool.

5.5.1.1 Purpose and Need

5.5.1.1.1 Accommodates Future Traffic Demand

The No-Build alternative does not accommodate future traffic demand which will cause the facility to fail by year 2045. Each of the three build alternatives widen US 17/92 from Ivy Mist Lane to Avenue A, providing a continuous four-lane facility from the planned PPE to the widened segment of US 17/92 east of Avenue A (recently completed). The four-lane facility is anticipated to

accommodate future traffic demand, as described in the PTAR. With the proposed improvements at the signalized intersections and along the study corridor (shared-use path along the entire study corridor), both the pedestrian and bicycle modes are expected to operate within LOS D through the year 2045. Since transit routes are not planned along US 17/92 within the study limits, the transit LOS will remain F through the year 2045.

5.5.1.1.2 Improves Safety

Since the No-Build alternative assumes the existing roadway facility, the safety conditions are expected to decrease as traffic volumes increase through the year 2045.

With the implementation of widening the US 17/92 roadway, the addition of raised median, incorporation of turn lane improvements, and intersection lighting enhancements, the following safety outcomes are anticipated for any of the Build Alternatives based on the safety analysis conducted in the PTAR:

- The total number of crashes in the corridor is expected to fall by 10%, from roughly 90 to 81 crashes per year.
- Fatal and injury crashes are anticipated to be reduced by 11% from about 27 crashes per year to 24 crashes per year.

5.5.1.2 Potential Community Impacts

5.5.1.2.1 Parcel Impacts

Parcel impacts for each alternative were determined and categorized by Residential, Commercial, and Undeveloped. Alternative 1 is anticipated to impact a total of 106 parcels, while Alternative 2 and Alternative 3 are anticipated to impact 80 and 79, respectively. For Alternative 1, there are 32 Residential parcels, 41 Commercial parcels, and 33 Undeveloped parcels included in the total anticipated parcels. Alternative 2 includes 32 Residential, 17 Commercial, and 31 Undeveloped parcels. Alternative 3 includes 15 Residential, 36 Commercial, and 28 Undeveloped parcels.

There are no parcel impacts associated with the No-Build alternative.

5.5.1.2.2 Potential Relocations

Thirty-six potential relocations are anticipated for Alternative 1, of which 32 are Residential properties, three are Commercial, and one is designated other. There are 24 potential relocations anticipated for Alternative 2, 22 Residential and two Commercial. Twenty-seven potential relocations are anticipated for Alternative 3, with 24 being Residential properties, two Commercial, and one designated other. There are no relocations associated with the No-Build alternative.

5.5.1.2.3 Anticipated ROW Required

The three build alternatives are anticipated to require similar ROW acres, with approximately 32.0 acres for Alternative 1, approximately 31.9 acres for Alternative 2, and approximately 32.0 acres

for Alternative 3. The anticipated ROW acres were categorized by Residential, Commercial, Governmental, Agricultural, and Other; and show similar potential impacts for each alternative. There are no acres of ROW needed for the No-Build alternative.

5.5.1.2.4 Potential Historic/Archaeological Impacts

All three build alternatives will impact Beehive Hill (8OS01726) but will not likely impact the preservation area of Beehive Hill that is an NRHP-eligible site. Also, the three abandoned US 17/92 bridges (8OS01747, 8OS01748, and 8OS01749) will be impacted by all three build alternatives, which the CRAS recommends eligible for listing in the NRHP as part of Resource Group 8OS03182. Due to anticipated adverse effects on resources recommended NRHP-eligible, each alternative is considered to have a high impact on cultural resources.

5.5.1.3 Potential Environmental Impacts

5.5.1.3.1 Wetlands

The proposed project was evaluated for potential impacts to wetlands. Wetlands were mapped, field verified and assessed to determine potential acres of impacts for each alternative. Each alternative is anticipated to impact similar acres of wetlands, with approximately 18.254 acres for Alternative 1, approximately 18.292 acres for Alternative 2, and approximately 18.352 acres for Alternative 3. There are no wetland impacts associated with the No-Build alternative.

5.5.1.3.2 Floodplains

An analysis of impacts to floodplains was performed in accordance with FDOT's PD&E Manual. The three build alternatives were evaluated to determine potential floodplain impacts of each, resulting in approximately 30.393 acres of impacts for each. There are no floodplain impacts associated with the No-Build alternative.

5.5.1.3.3 Threatened & Endangered Species

A threatened and endangered qualitative assessment was conducted to assess the potential for wildlife usage or rare plant occurrences within the study area. Potential occurrence of protected species within the study area was evaluated based on reviews of databases maintained by USFWS, FWC, and FNAI, and field surveys. Each of the three build alternatives were assigned a moderate degree of potential impact.

5.5.1.3.4 Potential Contamination Sites

A preliminary review of relevant information from the FDEP Map Direct website was conducted regarding known or potential contamination sites within the study area. Identified sites were assigned a Contamination Risk Rating in accordance with the FDOT's PD&E Manual. Each alternative is anticipated to have impacts to four Low Risk sites, seven Medium Risk sites, and no High Risk sites.

5.5.1.4 Potential Utility Impacts

All three build alternatives were developed to minimize utility impacts. However, there are some unavoidable impacts that assign the three build alternatives with a moderate degree of potential impact to utilities. There are no utility impacts associated with the No-Build alternative.

As part of the selection of the Preferred Alternative, it was requested that the UAOs present along the study corridor provide information regarding any existing facilities that could potentially come into conflict with the proposed plans and may need to be adjusted. If the potentially impacted facilities are located within the existing ROW, the cost associated with the relocation of the facilities would be the responsibility of the utility owner. If the potentially impacted facilities are located outside of the existing ROW, in easements, the cost associated with the relocation of the facilities would be the responsibility of FDOT.

Below is a summary of each of the impacted utility companies and the location of their impacted facilities.

5.5.1.4.1 Duke Energy

The 12.47 kilovolt (kV) facilities running along the north side of US 17/92 may come into conflict with project construction along the following segments:

- **Alternative 1 and Alternative 2:** Approximately 3,300 feet west of Wonder Court to Avenue A
- **Alternative 3:** Approximately 1,900 feet west of Wonder Court to Avenue A

All of the 12.47 kV facilities along the north side of US 17/92 are just within the existing ROW.

For all three build alternatives, 0.24 kV overhead secondary cables on the south side of US 17/92 between Wonder Court and Manatee Street/Hope Street may come into conflict with construction; these facilities are within the existing ROW. Facilities at each location where they cross over or under US 17/92 may come into conflict with construction. Most of these locations fall fully within the existing ROW, those which do not are as follows:

- 12.47 kV facilities crossing under US 17/92:
    - 2,500 feet east of Old Tampa Highway
    - 3,300 feet east of Old Tampa Highway
- 7.2 kV overhead facilities crossing US 17/92:
    - 3,200 feet west of Wonder Court
    - 2,900 feet west of Wonder Court
    - 2,000 feet west of Wonder Court
    - 100 feet west of Wonder Court

5.5.1.4.2 TECO People's Gas - Orlando

The 8-inch gas pipeline running along the north side of US 17/92 may come into conflict with the project construction for the full length that it runs along the north of US 17/92 from CR 532 to Avenue A, as well as on CR 532 just north of the intersection with US 17/92. The full length of the 8-inch gas pipeline is within the existing ROW.

These impacts will be the same across all three alignment alternatives.

5.5.1.4.3 Transtate Industrial Pipeline Systems Inc.

The 20-inch gas pipeline running along the north side of US 17/92 may come into conflict with the project construction on Old Tampa Highway immediately north of the intersection with US 17/92. The pipeline at this location is outside of the existing ROW.

These impacts will be the same across all three alignment alternatives.

5.5.1.4.4 Utility Relocation Costs

Depending on facility location and depth, the proposed improvements may require adjustment of some or all of these utilities. No relocation costs were provided by the UAOs, so no utility relocation cost estimate can be made at this time.

Additional information about the utility impact assessment including a record of all coordination efforts is available within the UAP developed for this PD&E Study and summarized in **Section 2.2.20**.

5.5.1.4.5 Railroad Impacts

Railroad tracks run parallel to US 17/92 on the north side of the roadway throughout the study area. The railroad tracks get as close as 270 feet from the edge of pavement along US 17/92 from CR 532 to Old Tampa Highway. It was determined the existing roadway ROW could accommodate the US 17/92 widening without impacting the railroad corridor. However, in addition to the US 17/92 widening and multimodal improvements, the intersections with CR 532 and with Old Tampa Highway will be shifted and realigned to meet design standards and provide additional turn lanes. The shift and realignment of Old Tampa Highway will impact approximately 0.123 acres of the railroad corridor, just northeast of the existing intersection of US 17/92 and Old Tampa Highway. The railroad crossing east of Avenue A is planned to have a sidewalk along the north side of US 17/92 cross at this location which will require modification to the crossing arms to accommodate. The Build Alternative is not expected to impact railroad operations or disturb the railroad tracks.

5.5.1.5 Estimated Project Cost

The estimated design cost for each alternative is assumed to be $7 million using FDOT's 2022-2026 Adopted Five-Year Work Program. The estimated roadway construction cost was developed

using FDOT's Long Range Estimates (LRE) tool and estimated to be $61.04 million for each alternative. The estimated ROW acquisition cost associated with Alternative 1 is $92.2 million, bringing the total estimated cost for the project to $160.24 million, the highest of the three build alternatives. The estimated ROW acquisition cost associated with Alternative 2 is $80.09 million, bringing the total estimated cost for the project to $148.13 million, the lowest of the three build alternatives. The estimated ROW acquisition cost associated with Alternative 3 is $82.03 million, bringing the total estimated cost for the project to $150.07 million.

5.5.2 Structure Alternatives Analysis

The Reedy Creek Bridge No-Build and Build alternatives (see **Section 5.4.5**) were evaluated based on the following criteria:

- Ability to address the US 17/92 project Purpose and Need
- Section 106 criteria of the National Historic Preservation Act (NHPA)
- Potential impacts to the social, cultural, natural, and physical environment
- Section 4(f) considerations per 49 U.S.C. 303
- Construction and maintenance costs

The alternatives were evaluated for whether they would avoid NRHP-eligible Section 106 historic properties located in the project area. These 11 historic properties can be grouped as follows:

- South Orange Blossom Trail Bridges Resource Group (8OS03182), including the historic US 17/92 bridges – FDOT Bridges 920002, 920003, and 920004 (respectively 8OS01749, 8OS01748, and 8OS01747) – and the abandoned section of historic roadway (US 17/92 8OS02796/8PO08622)
- [redacted]
- The South Florida Railroad (8OS02540) and three CSX Railroad bridges over Reedy Creek (8OS03176, 8OS03177, and 8OS03178).

The following subsections provide a summary of potential impacts with each bridge alternative. **Table 5-6** summarizes the No-Build and Build Alternatives for the Reedy Creek Bridge segment of the US 17/92 project.

Table 5-6: Bridge Alternatives Evaluation Matrix

Evaluation Criteria	No-Build Alternative	Rehabilitation Alternative	Alternative A (Replacement for WB Structure)	Alternative B (Widen Current Bridge)	Alternative C (New Bridge to North)	Alternative D (New Bridge south of CSX)	Alternative E (New Bridge to South)
Purpose & Need							
Accommodates Future Traffic Demand	No	Yes	Yes	Yes	Yes	Yes	Yes
Safety Improved	No	Yes	Yes	Yes	Yes	Yes	Yes
Meets Purpose and Need	No	Yes	Yes	Yes	Yes	Yes	Yes
Proposed Bridge Horizontal Geometry							
Length of Proposed Bridge (feet)	N/A	N/A	2,320	2,275	2,320	2,350	2,290
Width of Proposed Bridge/Widening (feet)	N/A	N/A	53'-8"	47'-10"	53'-8"	53'-8"	53'-8"
Minimum Distance to CSX Bridges (feet)	N/A	N/A	143	219	193	19	334
Minimum Distance from proposed bridge to Historic US 17/92 Bridges (feet)	N/A	N/A	0 (Replacement)	43	18	70	159
Proposed Structure Construction Cost (Millions)	N/A	Unknown until Design	$24.0	$28.5	$25.2	$25.5	$24.9
Potential Community Impacts							
Residential Parcels Potentially Impacted	0	0	0	0	0	0	0
Non-Residential Parcels Potentially Impacted	0	0	0	0	0	2	4
Total Number of Parcels Potentially Impacted	0	0	0	0	0	2	4
Potential Relocations	0	0	0	0	0	0	0
TIITF Land Impact Area (acres)	0	0	0	1.6	1.7	0	1.8
ROW Anticipated to be Required (acres)	0	0	0	0[1]	0[1]	4.2	4.9
Potential Environmental Impacts							
Floodplains Impacts	0	Unknown until Design[5]	Enhanced[3]	Negligible[4]	Negligible[4]	Negligible[4]	Negligible[4]

Evaluation Criteria	No-Build Alternative	Rehabilitation Alternative	Alternative A (Replacement for WB Structure)	Alternative B (Widen Current Bridge)	Alternative C (New Bridge to North)	Alternative D (New Bridge south of CSX)	Alternative E (New Bridge to South)
Potential Threatened and Endangered Species Impacts	None	Wood stork	Wood stork	Wood stork	Wood stork	Wood stork	Wood stork
Wetlands Impacts (acres)	0	Unknown until Design	0.8	2.1	2.8	2.6	3.2
Specimen Tree Impacts (Identified Cypress Trees from 2023 Tree Inventory and Impact Report)[2]	0	0	0	12	15	13	6
Direct Historic US 17/92 Bridge Impacts?	No	Yes	Yes	No	No	No	No
Indirect Historic US 17/92 Bridge Impacts?	No	N/A – direct impacts	N/A – direct impacts	Moderate potential due to construction proximity	High potential due to construction proximity	Low	None
Direct Fletcher Park property or TIITF easement Impacts?	No	No – Existing FDOT easement	No – Existing FDOT easement	Yes – New easement required for additional Cypress Tree impacts	Yes – New easement required for additional Cypress Tree impacts	No – within CSX ROW not Fletcher Park	Yes – New easement required for Cypress Tree impacts and increased impact area to Fletcher Park
Utility Corridor Impacts?	No	No	No	No	No	Yes	No
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Direct Historic CSX Railroad Bridge Impacts?	No	No	No	No	No	Yes	No
Avoidance Alternative to NRHP-eligible US 17/92 Historic Bridges?	No – Adverse Effect (deterioration)	No – Direct Effects anticipated	No – Direct Effects anticipated	No – Moderate potential for indirect effects and deterioration	No – Moderate potential for indirect effects and deterioration	No – Adverse Effect (deterioration)	No – Adverse Effect (deterioration)

Evaluation Criteria	No-Build Alternative	Rehabilitation Alternative	Alternative A (Replacement for WB Structure)	Alternative B (Widen Current Bridge)	Alternative C (New Bridge to North)	Alternative D (New Bridge south of CSX)	Alternative E (New Bridge to South)
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Avoidance Alternative to NRHP-eligible South Florida Railroad?	Yes	Yes	Yes	Yes	Yes	No – Direct impacts	Yes

Table Notes:

1. Easement modification required and approval by FDEP/Tufts University due to additional cypress tree impacts although the land area is within the existing FDEP/TIITF easement.
2. Specimen tree defined as any tree identified in the 2023 Tree Inventory and Impact Report with a breast height diameter of at least 36".
3. The three historic bridges will be removed along with the fill sections between them. One bridge would replace these, reducing the impacts to floodplains.
4. Floodplain impacts caused by pier locations only.
5. Slightly increased floodplain impacts due to raising the causeways.

5.5.2.1 No-Build Alternative

The advantages of the No-Build Alternative include no additional ROW acquisition, no disruption of traffic during construction, and no project cost.

However, the No-Build Alternative does not satisfy the project's Purpose and Need to address current and future travel demand, and to improve safety. Consistency with locally adopted plans would not be maintained. Additionally, the No-Build Alternative carries the scenario of "demolition by neglect", where the historic US 17/92 resources will continue to deteriorate and will eventually collapse into their respective waterways below without costly repair and/or rehabilitation work, a continuous bridge inspection program, and maintenance program. The continued deterioration of the bridge infrastructure may result in impacts to the surrounding wetlands, floodplains, and environment. Providing a No-Build Alternative is anticipated to ultimately result in an adverse effect on the historic US 17/92 bridges due to the continuous deterioration of the bridges.

5.5.2.2 Rehabilitation Alternative

The existing cross-section of the three historic bridges and the causeway (roadway) between the bridges does not meet design standards for the two proposed westbound lanes. The historic bridges would need to be widened 13 feet, 8 inches at a minimum to meet current FDOT FDM criteria for travel lanes and shoulders. This would also require the causeway (fill) segments in between the bridges to be widened, resulting in additional floodplain impacts and requiring floodplain compensation. Additional timber piles and closer spacing of the timber bents is anticipated to be required, which will increase the obstructions in the waterway.

Reconstruction of the historic bridges could not re-use any of the historic concrete or timber bridge elements. The existing steel girders would be evaluated for deterioration and incorporated if possible (assuming they can be strengthened, a full bridge load rating is performed, and a favorable load rating is the outcome for all three bridges).

To maintain the similar historic span arrangement, the existing steel girders (steel beams) would need strengthening before re-use to meet current design standards for load requirements. The historic US 17/92 bridges were designed using loading criteria from 1937 (for H-15 State Road Department of Florida Design Specifications (1937)), which equates to today's 15-ton vehicles, and therefore do not meet today's heavier design vehicles and load requirements. Strengthening the bridge to appropriate design standards may require the structure depth to increase, which could impact the bridges' drift clearance. The existing three bridges would need to be nearly wholistically repaired and/or modified to be used and would need to meet current loading, design, and construction specifications that the historic US 17/92 bridges are currently not designed for.

In summary, only the steel girders (beams) could be rehabilitated (strengthened with new materials and potentially raised) and every other superstructure or substructure element, including

the historic bridge decks, wood piers, and bridge railings, would require replacement to address design criteria and deteriorated materials. It is anticipated that the Rehabilitation Alternative would have very little or none of the historic materials remaining after construction. Due to the needed rehabilitation methods and modifications identified above, the historic bridges would not maintain historical bridge characteristics or surrounding setting (due to increased vertical clearance and removal of fill between bridges).

5.5.2.3 Alternative A – Replace the Historic US 17/92 Bridges

Alternative A is an avoidance alternative for [redacted] and the South Florida Railroad linear resource (8OS02540)/CSX Railroad bridges (8OS03176-8OS03178). This alternative was the original alignment alternative from the 1996 environmental document and is supported by both Osceola County and the FDEP (land manager for TIITF conservation area known as Fletcher Park).

Construction of Alternative A would require impacts to NRHP-eligible Resource Group 8OS03182 including demolition of the historic US 17/92 bridges (8OS01747–8OS01749) and the 0.3-mile NRHP-eligible section of the historic US 17/92 roadway (8OS02796/8PO08622). The reconstruction would involve removal of the existing roadway fill on the historic causeways to remove floodplain encroachment consistent with the prior SFWMD permit (Permit No. 49-00025-D). The proposed bridge in Alternative A is expected to have positive impact to the floodplains and floodplain control since the historic bridges and fill sections between the bridges will be removed, and a single structure would replace them. This satisfies the SFWMD Permit requirement established for the 2001 construction project and is supported by FDEP and local stakeholders.

Alternative A is the only Build Alternative that avoids impacts to the existing cypress trees preserved as part of Fletcher Park, which satisfies the 1996 PD&E commitments, FDEP, Tufts College, and local stakeholders. Additionally, Alternative A will not involve an additional TIITF easement, as the original 1935 easement provides for FDOT use of the existing ROW. All the other Build Alternatives will require FDEP and Florida's Acquisition and Restoration Council (ARC) coordination and approval of additional impacts to the cypress trees within the existing easements (but preserved through deed restrictions) or additional impacts to Fletcher Park lands.

Alternative A is expected to involve 0.8 acres of wetlands impacts, which minimizes wetland involvement compared to the other alternatives. While potential effects to species or habitat involves the wood stork, Alternative A has the least overall environmental impacts and avoids impacts to any specimen cypress trees, Fletcher Park, and the utility corridor. It is the least impactful alternative because it is constructed within the footprint of previously constructed roadway ROW.

No additional ROW impacts, sovereign submerged lands (SSL) easements, or utility relocations are anticipated. The estimated construction cost for Alternative A is $24.0 million, which is lower than the other Build Alternatives.

In summary, Alternative A has the least overall environmental impacts and avoids additional ROW needs, impacts to cypress trees, Fletcher Park, and the utility corridor. Alternative A addresses FDEP/TIITF easement/deed restrictions, SFWMD commitments, and Osceola County resolutions to protect the cypress trees.

Alternative A results in the least overall harm to the natural environment, by cumulatively protecting the cypress trees, providing a net floodplain benefit, and minimizing wetland impacts. However, Alternative A results in replacement and therefore, an adverse effect to the historic US 17/92 resources.

5.5.2.4 Alternative B – Widen Current US 17/92 Bridge

Alternative B is an avoidance alternative to avoid direct impacts to the historic US 17/92 resources and other NRHP-eligible resources including the South Florida Railroad (8OS02540), the CSX Railroad bridges (8OS03176-8OS03178) and [redacted]. Alternative B would be located approximately a minimum of 219 feet away from the CSX bridges.

The historic US 17/92 bridges and causeway would not be replaced by construction of Alternative B. However, construction activities including pile driving operations and ground disturbance have the potential for indirect effects to the historic US 17/92 resources due to the proximity of the widened bridge to the historic US 17/92 bridges (minimum 43 feet). While specialized construction methods can be employed to minimize risk of indirect impacts, the unique setting (heavily rooted and tall cypress trees) enhances the risk of indirect impacts.

Alternative B assumes the historic US 17/92 bridges and causeway will remain in place with no maintenance. It is reasonably foreseeable the historic bridge structures will continue to deteriorate and eventually collapse.

Construction of Alternative B would require removal of 12 specimen cypress trees and an additional 1.6 acres of impact to Fletcher Park conservation land, which is in violation of the existing 1999 FDEP/TIITF perpetual ROW easement, deed restrictions within the historic Fletcher Park boundary, and the expressed community desires of Osceola County as documented in prior resolutions to preserve and protect the cypress trees. This alternative also increases impacts to high-quality wetlands (2.1 acres) within Fletcher Park, increases wetland mitigation costs, and results in the highest construction cost ($28.5 million dollars) of the alternatives.

Due to the substantial natural environmental impacts associated with Alternative B and the continued deterioration of the historic US 17/92 resources, Alternative B is not considered a viable (prudent) alternative and was eliminated from further consideration.

5.5.2.5 Alternative C – New Bridge between Current and Historic US 17/92 Bridges

Alternative C is an avoidance alternative to avoid direct impacts to the historic US 17/92 resources and other NRHP-eligible resources, including the South Florida Railroad (8OS02540), the CSX Railroad bridges (8OS03176-8OS03178), and [redacted]. Alternative C is located approximately a minimum of 193 feet away from the CSX bridges.

The existing wooden piles that support the historic US 17/92 bridges would likely be impacted due to the pile driving operations and the removal of the heavily rooted, large cypress trees immediately to the south of the historic US 17/92 bridges. Alternative C is in close proximity (approximately a minimum of 18 feet away) to the historic US 17/92 bridges. While specialized construction methods can be employed to minimize risk of indirect impacts, the unique setting (heavily rooted and tall cypress trees) means that there is a substantial risk of indirect impacts to the historic US 17/92 bridges.

Alternative C assumes the historic US 17/92 bridges and causeway would remain in place in areas that are not structurally damaged by the construction of the new bridge. Although Alternative C would avoid direct impacts to the US 17/92 historic bridges, it is reasonably foreseeable that any historic bridge structures not damaged during construction will continue to deteriorate and eventually collapse.

Construction of Alternative C would require removal of 15 specimen cypress trees and an additional 1.7 acres of impact to Fletcher Park conservation land, which is in violation of the existing 1999 FDEP/TIITF perpetual ROW easement, deed restrictions within the historic Fletcher Park boundary, and the Osceola County resolutions to preserve and protect the cypress trees. This alternative also increases impacts to high-quality wetlands (2.8 acres) within Fletcher Park and increases wetland mitigation costs as compared to Alternative B. Alternative C has an estimated construction cost of $25.2 million, which is higher than Alternative A.

Due to the substantial natural environmental impacts associated with Alternative C and the continued deterioration of the historic US 17/92 resources, Alternative C is not considered a viable (prudent) alternative and was eliminated from further consideration.

5.5.2.6 Alternative D – New Bridge between Historic US 17/92 Bridges and CSX Railroad

Alternative D is an avoidance alternative to avoid direct impacts to the historic US 17/92 resources, avoid involvement with [redacted], and avoid impacts to the Fletcher Park conservation land to preserve the large cypress trees. The historic US 17/92 bridges would be located, at a minimum, approximately 70 feet away from Alternative D. Alternative D assumes the historic US 17/92 bridges and causeway will remain in place with no maintenance. Although Alternative D would avoid direct impacts to the US 17/92 historic bridges, it is reasonably foreseeable the historic bridge structures will continue to deteriorate and eventually collapse.

Construction of Alternative D would require acquisition of 4.2 acres of ROW from the CSX ROW. The NRHP-eligible South Florida Railroad (8OS02540) linear resource and the CSX Railroad bridges (8OS03176-8OS03178) are along the CSX alignment. Alternative D would be constructed within CSX ROW approximately 30 feet from the historic CSX bridge centerline which meets CSX minimum standard horizontal clearance of 25 feet from centerline of track but impacts CSX's maintenance areas surrounding the bridge.

Construction of Alternative D would require removal of 13 specimen cypress trees and result in 2.6 acres of wetlands impacts.

As the westbound proposed bridge crosses the utility corridor twice, impacts to the utility corridor are expected for Alternative D. Approximately 0.4 acres of impact would occur in the utility corridor, and four major utility poles are expected to require relocation, along with impacts to two gas lines, a raw water line, and a buried fiber optic line. Utility relocations costs are anticipated to involve substantial costs. Alternative D has an estimated construction cost of $25.5 million.

Due to the impacts to railroad operations and high cost associated with ROW, construction, and utility relocates, Alternative D is not considered a viable (prudent) alternative and was eliminated from further consideration.

5.5.2.7 Alternative E – New Bridge south of US 17/92

Alternative E is an avoidance alternative to the historic US 17/92 resources bridges (approximately at a minimum 159 feet away) and the South Florida Railroad (8OS02540) and CSX Railroad bridges (8OS03176-8OS03178) approximately at a minimum 334 feet away. Alternative E also avoids impacts to the largest of the specimen trees within Fletcher Park. However, Alternative E results in involvement with [redacted].

Alternative E assumes the historic US 17/92 bridges and causeway will remain in place with no maintenance. Although Alternative E would avoid direct impacts to the US 17/92 historic bridges, it is reasonably foreseeable the historic bridge structures will continue to deteriorate and eventually collapse.

Four parcels are expected to be impacted for Alternative E, all of which are non-residential and not anticipating any relocations. As such, approximately 4.9 acres of additional ROW would be required. Alternative E is expected to have 3.2 acres of wetlands impacts, which is the most of any alternative. Alternative E does not impact the utility corridor.

Construction of Alternative E would require removal of six specimen cypress trees and an additional 1.8 acres of impact to Fletcher Park/TIITF conservation land in violation of the existing 1999 FDEP/TIITF perpetual ROW easement stipulations, deed restrictions within the historic Fletcher Park boundary, and the Osceola County resolutions to preserve and protect the cypress

trees. This alternative also increases impacts to high-quality wetlands (3.2 acres) within Fletcher Park and increases wetland mitigation costs as compared to Alternative B.

Due to the substantial natural environmental impacts associated with Alternative E, impacts to [redacted] and the continued deterioration of the historic US 17/92 resources, Alternative E is not considered a viable (prudent) alternative and was eliminated from further consideration.

5.6 Selection of the Preferred Alternative

An analysis of the evaluation factors presented in the evaluation matrix (**Table 5-5**) revealed that while there are no direct impacts associated with the No-Build Alternative, the No-Build Alternative will exceed or be close to the maximum service volume, representing overcapacity conditions. Additionally, safety conditions will decrease without adequate improvements to support the increased traffic.

The Build Alternative will provide for the capacity needs in design year 2045, as described in the Future Traffic Volumes section. While there are impacts associated with all three Alignment Alternatives, Alternative 2 was deemed overall to have the fewest impacts and to be the most cost-effective. The impacts incurred through Alternative 2 will be minimized and mitigated as part of the recommendations of this study.

To gauge local support, the Build Alternative and the three Alignment Alternatives were presented at the Alternatives Public Information Meeting on October 12, 2021. Seven comments were received during the public comment period. Comments received were generally regarding questions about ROW acquisition. None opposed the Build Alternative, and some were expressly in favor of the Build Alternative, voicing concerns for the future traffic growth expected in the area and desire for advancement of the project. No comments expressed a preference for any of the three Alignment Alternatives.

The Build Alternative with Alignment 2 is recommended to move forward as the Preferred Alternative for this PD&E Study.

5.6.1 Bridge Recommendations

5.6.1.1 Preferred Bridge Alternative

Alternative A, which proposes to replace the historic US 17/92 bridges to accommodate westbound traffic, meets the project Purpose and Need. It is also the only Build Alternative that avoids impacts to the existing cypress trees preserved as part of Fletcher Park, which satisfies the 1996 PD&E commitments. Alternative A also avoids [redacted] and the South Florida Railroad linear resource (8OS02540) and CSX Railroad Bridges (8OS03176-8OS03178). Alternative A also carries the smallest impact to wetlands among the Build Alternatives and provides a net benefit to floodplains and floodplain control. It is also the least impactful Build

Alternative because it is constructed within the footprint of previously constructed roadway ROW; it also has the lowest construction costs among the Build Alternatives. Alternative A results in the least overall harm to the natural environment among the Build Alternatives. Alternative A would result in the demolition and replacement of the historic US 17/92 bridges, which is an adverse effect on the NRHP-eligible resources. However, given the overall benefits associated with this alternative, as well as the deteriorating condition of the historic US 17/92 bridges and potential for "demolition by neglect" associated with other alternatives, Alternative A is the Preferred Bridge Alternative for the Reedy Creek Bridge segment along US 17/92.

5.6.2 Refinement of Preferred Alternative

After the selection of Alternative 2 as the Preferred Alternative in January 2022, several changes to the alternative have been made. In order to improve safety along the corridor, the Target Speed within the project limits was reduced from 55 mph to 45 mph outside of Intercession City, and reduced from 45 mph to 30 mph within Intercession City. This change in Target Speed led to several changes in the typical section of the corridor, including the below:

- Replaced 6-foot sidewalk on south side of roadway with 12-foot shared-use path
- Replaced flush shoulder on outside travel lanes with Type F curb and gutter
- Removed flush shoulder on inside travel lanes
- Changed 12-foot shared-use path and 8-foot sidewalk within Intercession City to two 10-foot urban side paths

Further details about the refined Preferred Alternative are described in **Chapter 7**.

6.0 Agency Coordination & Public Involvement

This chapter documents the public involvement activities accomplished throughout this PD&E Study. All materials for the various public involvement activities, including meeting agendas, comments received, and coordination records are provided in the Comments and Coordination Report, in the project file.

6.1 Agency Coordination

6.1.1 Efficient Transportation Decision Making (ETDM)

Prior to the PD&E Study, a programming screen was conducted using the ETDM Environmental Screening Tool (ETDM #14365) for the US 17/92 widening. Early agency feedback and public comments are obtained through the ETDM to provide project information on environmentally sensitive areas and identification of project issues. The ETDM Program Screen Degree of Effect Summary is provided in the ETDM Programming Screening Summary Report, in the project file.

6.1.2 Stakeholder Coordination

The following stakeholder coordination meetings took place over the course of the study. All materials associated with the stakeholder meetings are included in the Comments and Coordination Report.

- Stakeholder Kick-off Meeting (1/25/2021): The stakeholder kick-off meeting was held to introduce the PD&E Study team to local stakeholders within the study area and also to gather input and feedback on any considerations that should be made during the study process. The meeting was attended by representatives of FDOT District 5 and District 1, MetroPlan Orlando, Osceola County, Polk County, the CFX PPE project team, and the study team.
- Stakeholder Follow-up Meeting (2/08/2021): The purpose of this follow-up meeting was to review the existing projects located in the area and discuss with stakeholders the change to the western project limit from CR 54 to north of PPE (Ivy Mist Lane). The meeting was attended by representatives from FDOT District 5, FDOT District 1, MetroPlan Orlando, Polk County Transportation Planning Organization (TPO), Osceola County, the CFX PPE project team, and the study team.
- Stakeholder Meeting #2 (8/21/2021): The purpose of the second agency stakeholder meeting was to discuss the alternatives and anticipated impact findings developed by the study team and receive input from the stakeholders prior to the public meeting held on October 12, 2021. The meeting was attended by representatives of FDOT District 5 and District 1, MetroPlan Orlando, Osceola County, CFX, the CFX PPE project team, and the study team.

- Stakeholder Meeting #3 (12/6/2021): The purpose of the third agency stakeholder meeting was to update the stakeholder group about the study alternatives and public meeting feedback, and to receive input from the stakeholders on the proposed alternative to move forward. The meeting was attended by representatives of FDOT District 5, FDOT District 1, Osceola County, the CFX PPE project team, and the study team.
- Stakeholder Update Email (2/28/2023): A stakeholder update email was sent to representatives from FDOT District 5, FDOT District 1, Polk County, Polk TPO, Osceola County, MetroPlan Orlando, the CFX PPE project team, and the City of Kissimmee. The purpose of the stakeholder update email was to update agency stakeholders on the progress of the project and next steps for the study prior to Stakeholder Meeting #4.
- Stakeholder Meeting #4 (12/4/2023): The purpose of the fourth agency stakeholder meeting was to review the status of the project, discuss progress and changes since the last stakeholder meeting, and receive input from the stakeholders on the updated preferred concept plans. The meeting was attended by representatives of FDOT District 1, FDOT District 5, the CFX PPE project team, MetroPlan Orlando, Polk TPO, Osceola County, and the study team.

6.1.3 Drainage-Related Agency Coordination

In addition to stakeholder group meetings, several stormwater drainage-related coordination meetings were held with agencies. All materials associated with the drainage-related agency coordination meetings are included in the Comments and Coordination Report.

- South Florida Water Management District Coordination Meeting (6/2/2021): The purpose of this meeting was to discuss stormwater management strategies throughout the study area. The meeting was attended by representatives of SFWMD, FDOT District 5, and the study team.
- Environmental Look Around Meeting (6/21/2021): The purpose of the Environmental Look Around was to gather input and feedback on any considerations that should be made during the study process regarding watershed-wide stormwater needs, regional treatment, and alternative permitting approaches. The meeting was attended by representatives of FDOT District 5, Osceola County, and the study team.
- Osceola County Drainage Coordination Meeting (7/22/2021): The purpose of this meeting was to discuss water flow through Intercession City and receive input on the study's stormwater approach from Osceola County. The meeting was attended by representatives of FDOT District 5, Osceola County, and the study team.
- CFX Drainage Coordination Meeting (7/29/2021): The purpose of this meeting was to discuss the potential of joint use ponds for the SR 538 and CR 532 project and the US 17/92 PD&E Study. The meeting was attended by representatives of FDOT District 5, CFX, and the study team.

6.2 Public Involvement

6.2.1 Public Involvement Plan

A Public Involvement Plan (PIP), in the project file was developed at the beginning of this study and followed throughout the study. This program is in compliance with the FDOT PD&E Manual, Executive Orders 11990 and 11988, Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA), Department of Transportation Order 5610.1C, and Parts 23 and 40 of the Code of Federal Regulations (CFR). The purpose of the PIP is to ensure study information is effectively communicated, with opportunity for input, to concerned citizens, agency, private groups, organizations, government agencies, and elected and appointed officials. The PIP is followed throughout the PD&E Study process to maintain the values and needs of the community it is intended to benefit. The general approach to the public involvement, including the contact persons, media outlets, agencies and project stakeholders, and the means used to involve them in the process is all documented in the PIP.

6.2.2 Kickoff Newsletter

The project kickoff newsletter along with a project information handout was distributed in April 2021 to all property owners, business owners, interested persons and organizations, and made available for download on the study website (www.cflroads.com/project/437200-1). The purpose of the kickoff newsletter was to present information on the PD&E Study and provide the public with an opportunity to offer comments and express their views regarding the project.

Information contained in the kickoff newsletter included the project limits, a brief overview of the purpose and need for the PD&E Study, an estimated public involvement schedule, and funding schedule for future project phases.

6.2.3 Alternatives Public Meeting

The Alternatives Public Meeting was held on Tuesday, October 12, 2021. The purpose of the Alternatives Public Meeting was to present the different build alternatives for the widening of US 17/92 to the public, share the results of the existing and future conditions assessment, and explain the alternatives developed for the project corridor in order to receive public feedback.

The meeting was conducted in two formats, an in-person and a virtual format. The in-person format was conducted as an open house setting beginning at 5:30 p.m. Attendees could view project displays, view a looping narrated presentation, and ask questions with available project staff. Attendees were given a comment form to submit written comments about the project. The open house ended at 7:30 p.m. A handout and several display boards were provided at the meeting, including:

- Welcome Board
- Title VI

- Regional Overview
- Alternative Concepts – Western end of Corridor
- Alternative Concepts – Eastern end of Corridor
- Intercession City Alternatives
- Typical Sections
- Potential Ponds
- Alternatives Evaluation Matrix
- Innovative Intersections
- Study Schedule
- Alternative 1, Alternative 2, and Alternative 3 Concept Plan Sets

For the virtual format, a GoToWebinar began at 5:30 p.m. on Tuesday, October 12, 2021. During the virtual meeting, the narrated presentation (shown during the in-person meeting) was played. Attendees were encouraged to submit their comments and questions via the online meeting's chat-box throughout the presentation and were given an additional 10 minutes following the presentation video. Attendees were also given links to download the project displays and comment forms. All materials presented in the virtual format were the same as offered at the in-person location. A phone-in line was provided for those who wanted to join the virtual format but did not have access to a computer, tablet, or smart phone. Persons choosing the phone-in option were encouraged to contact the project manager to submit comments or ask questions.

Approximately 34 members of the public attended the meeting in person. Sixteen members of the public attended the virtual GoToWebinar. Additionally, four FDOT staff members, four staff representing the PPE and CR 532 widening projects, and seven members of the consultant study team attended the meeting (total of 65 participants).

Two written comments were received during the in-person meeting, one was received during the virtual live Q&A session, and four comments were received following the public meeting. The following lists the general subjects of the comments received:

- Access management in Intercession City
- Safety concerns regarding lack of part-time shoulders and/or emergency lanes
- Concern for pedestrian safety and accessibility
- Request for signalized intersection in Intercession City
- Frustration regarding duration of the projected study schedule and design phase (particularly desiring the project to be completed sooner)
- Concerns for future traffic volumes
- Alternative suggestions such as utilizing existing infrastructure for proposed roadway changes
- ROW and relocation process questions

All comments were responded to in writing immediately following the public comment period. The comments, responses, sign-in sheets, and display materials are all included within the Comments and Coordination Report.

6.2.4 Other Coordination

The following other coordination meetings took place over the course of the study. All materials associated with the stakeholder meetings are included in the Comments and Coordination Report.

- Call with Gatorade Plant Manager (10/31/2022): The purpose of this call was to provide the stakeholder with a brief overview of the project and discuss plant operations and gate access at US 17/92 at Avenue A to determine the feasibility of the proposed roundabout.

6.3 Public Hearing

This section will be updated following the Public Hearing.

7.0 Preferred Alternative

This section discusses the results of the preliminary engineering analysis and environmental evaluation conducted for the Preferred Alternative. The Build Alternative with Alignment 2 is recommended to move forward with Alternative A as the Preferred Bridge Alternative for the Reedy Creek Bridge segment along US 17/92. This concept, and the comparison to the No-Build Alternative, will be presented at the Public Hearing tentatively planned for Summer 2025.

As shown in the Preferred Alternative concept plans, **Appendix A**, the Preferred Alternative widens US 17/92 from the existing two-lane undivided rural facility to a four-lane divided facility throughout the entirety of the study area. Since the Preferred Alternative changes US 17/92 from an undivided to divided roadway, median openings will be limited to better meet the proposed access class standards defined for the study corridor. The locations of the proposed median openings will enhance traffic flow and improve safety along the corridor and for the surrounding community. The Preferred Alternative adds a 12-foot-wide continuous shared-use path to the north along the entire corridor and will add a 12-foot-wide shared-use path to the south along the entire corridor, besides the Reedy Creek bridge (where the shared-use path is only along the westbound bridge) and besides Intercession City (where a 10-foot-wide urban side path is on both sides of the road). The addition of these separated multimodal facilities will increase the user experience and confidence of pedestrians and bicyclists traveling along US 17/92.

The project begins at the intersection with Ivy Mist Lane and will connect to the proposed PPE to the west of the project. Heading east from Ivy Mist Lane the alignment will have a slight shift to the southeast before connecting to the bridges over Reedy Creek. Between Ivy Mist Lane and CR 532, the shared-use paths are both separated from the roadway by drainage swales varying in width. The existing US 17/92 bridge will be utilized for dedicated eastbound traffic, while a new bridge will be added for dedicated westbound traffic to use in the location of the abandoned US 17/92 bridges over Reedy Creek. The two bridge structures will allow for two 11-foot lanes per direction, with a 12-foot shared-used path along the westbound bridge only, separated from the travel lanes by a barrier. The two bridges will be separated by at least 70 feet, which provides an adequate distance for inspection.

East of the bridges over Reedy Creek to Wonder Court, the project will shift to a south alignment, holding the northern ROW line. Additionally, the project will include a 12-foot shared-use path along the north and south sides of the roadway. Between the Reedy Creek bridges and 1,000 feet east of the Old Tampa Highway intersection, the shared-use paths are separated from the roadway by curb and gutter and a minimum five-foot utility strip. From about 1,000 feet east of the Old Tampa Highway intersection to Wonder Court the shared-use paths are separated from the roadway by drainage swales varying in width.

From Wonder Court to Nocatee Street/Shepherd Lane, the alignment is mostly within existing ROW with some area requiring ROW from the north side. The project will include a 10-foot urban side path along both sides of US 17/92 through this area with two feet of separation or more between the path and curb.

From Nocatee Street/Shepherd Lane to Avenue A, the alignment will generally follow the existing US 17/92 alignment but will have some slight shifts to connect from the proposed alignment in Intercession City to the alignment of the recently constructed US 17/92 widening project, just west of Avenue A. The project will include a 12-foot shared-use path on both sides of the roadway.

In addition to the widening and multimodal improvements along US 17/92, this project includes intersection improvements at CR 532, Old Tampa Highway, and Avenue A. CR 532 and Old Tampa Highway will both be realigned in order to meet design standards, and both intersections will add additional turn lanes. Meanwhile, the Avenue A intersection will be converted into a roundabout.

For the existing CR 532 intersection, the Preferred Alternative realigns CR 532 by shifting the intersection 300 feet to the west and adds a dedicated eastbound right-turn lane and dedicated eastbound left-turn lane to the CR 532 approach of the intersection. This project adds an additional eastbound left-turn lane and adds an additional westbound right-turn lane to accommodate future traffic demand.

At the Old Tampa Highway intersection, the Preferred Alternative realigns Old Tampa Highway by shifting the intersection 375 feet to the east and adds an additional dedicated southbound right-turn lane along Old Tampa Highway. This intersection will include a traffic signal and additional westbound right-turn lane and westbound left-turn lane.

At the Avenue A intersection, the Preferred Alternative converts the existing unsignalized intersection into a roundabout. The Preferred Alternative connects into the recently completed US 17/92 widening project (FPID #239714-1) between Avenue A and Ham Brown Road.

7.1 Typical Sections

The Preferred Alternative consists of four typical sections throughout the US 17/92 study corridor.

The first typical section exists in three separate roadway segments along the US 17/92 study corridor, which are described below:

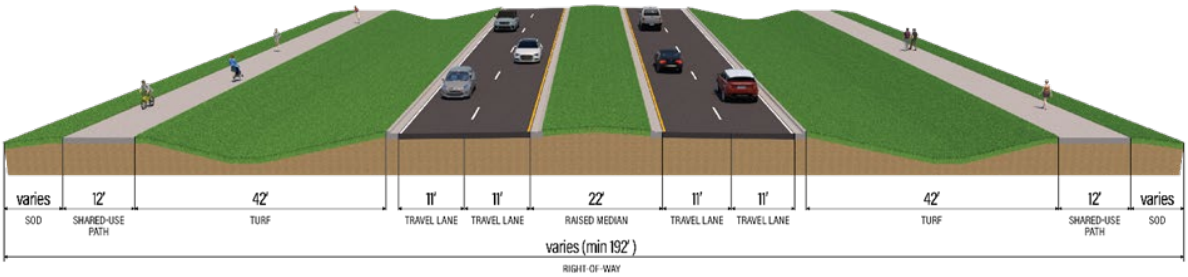
- Just east of Ivy Mist Lane (beginning of study area) to Reedy Creek Bridge
- Just east of Old Tampa Highway to just west of Suwannee Avenue
- From Nocatee Street/Shepherd Lane to Avenue A (end of study area)

7.1.1 US 17/92 Typical Section – Segments 1, 4, and 6

An urban roadway typical section with swales, illustrated in **Figure 7-1**, is proposed for Segments 1, 4, and 6. The typical section includes a 22-foot raised median, two 11-foot travel lanes in each

direction, and a 12-foot shared-use path along both sides of the roadway. The shared-use paths are both separated from the roadway by curb and gutter and 42-foot-wide drainage swales. The required ROW for the suburban roadway typical section varies with a minimum of 192 feet. The design speed, posted speed, and target speed for this typical section is 45 mph.

Figure 7-1: US 17/92 Suburban Typical Section (Segments 1, 4, and 6)

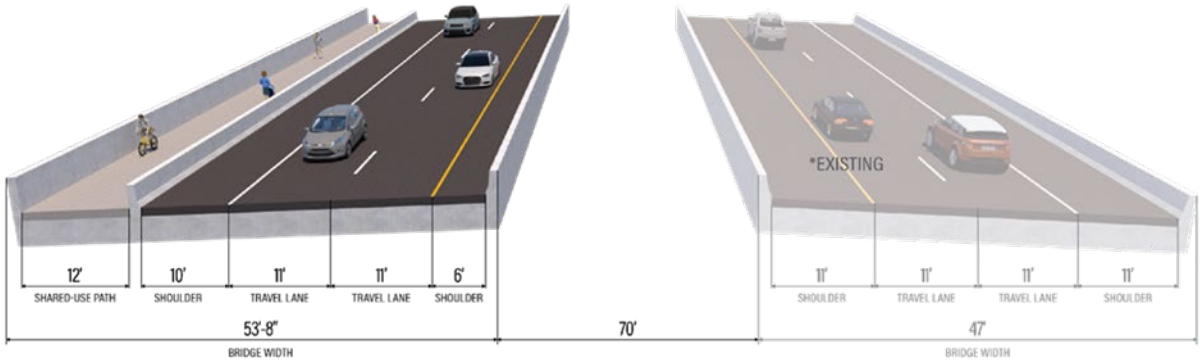


7.1.2 Reedy Creek Bridge Typical Section – Segment 2

The typical section for the Reedy Creek Bridge, illustrated in **Figure 7-2**, includes two bridge structures. The existing bridge structure will serve eastbound traffic, and a new bridge structure will serve the westbound traffic in the location of the abandoned US 17/92 bridges. The two bridge structures will be separated by a width of 70 feet. The existing eastbound bridge will be restriped to provide 11-foot inside and outside shoulders and two 11-foot travel lanes.

The new westbound structure includes a six-foot inside shoulder, a 10-foot outside shoulder, two 11-foot travel lanes, and a 12-foot shared-use path separated from the roadway by a raised concrete barrier. The existing 244 feet ROW accommodates the proposed bridge structure. The existing eastbound bridge is located in a permanent easement on the south side of the FDOT ROW, which allows the new westbound bridge to be located fully within the existing ROW to the north. The design speed, posted speed, and target speed for this typical section is 45 mph.

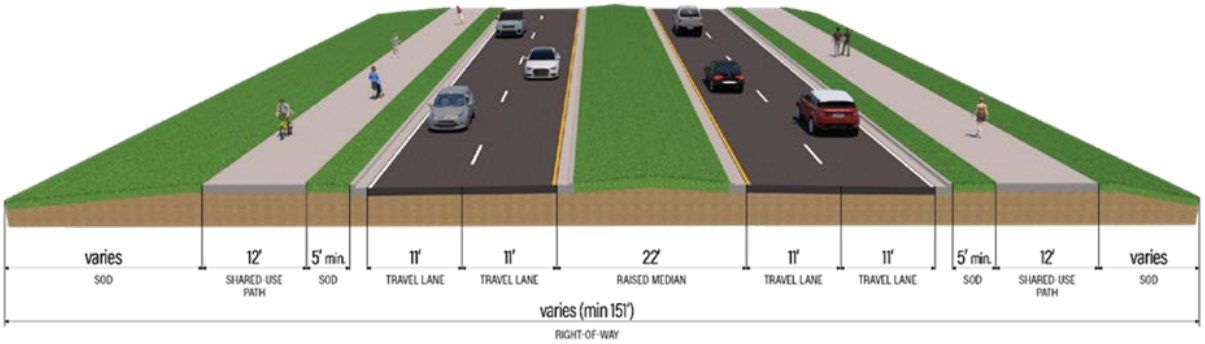
Figure 7-2: Reedy Creek Bridge Typical Section (Segment 2)



7.1.3 Old Tampa Highway Intersection Typical Section – Segment 3

An urban typical section, illustrated in **Figure 7-3**, is proposed for Segment 3 from the east end of the Reedy Creek Bridge to Old Tampa Highway. This typical section consists of two 11-foot travel lanes in each direction separated by a 22-foot raised median, and a 12-foot shared-use path along both sides of the roadway. The shared-use path is separated from the roadway by curb and gutter and a buffer varying in width with a minimum of five feet. The total ROW needed for this typical section varies with a minimum of 151 feet. The design speed, posted speed, and target speed for this typical section is 45 mph.

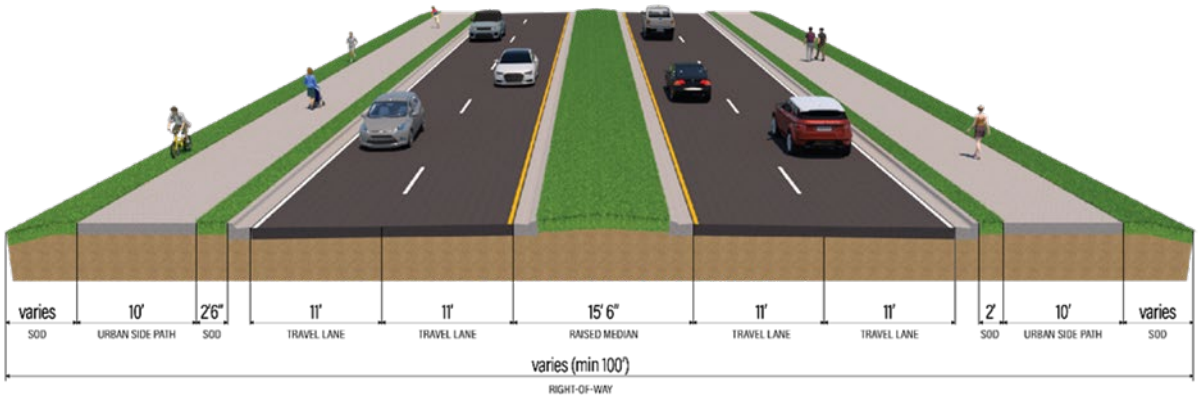
Figure 7-3: Old Tampa Highway Intersection Typical Section (Segment 3)



7.1.4 Intercession City Urban Typical Section – Segment 5

An urban typical section is proposed for Segment 5 through Intercession City, illustrated in **Figure 7-4**. This typical section includes a 15.5-foot raised median, two 11-foot travel lanes in each direction, and a 10-foot urban side path along both sides of the roadway. The urban side path is separated from the roadway by curb and gutter and a buffer with a width of two feet along the south side of the roadway, and 2.5 feet along the north side of the roadway. The total ROW needed for this typical section varies with a minimum of 100 feet. The design speed, posted speed, and target speed for this typical section is 30 mph.

Figure 7-4: Intercession City Typical Section (Segment 5)



7.2 Access Management

As part of the development of the alternatives, the Access Class from Wonder Court to Nocatee Street/Shepherd Lane is recommended to be changed to FDOT Access Class 5 to better reflect the nature of the corridor and the more developed surroundings through that segment. This classification provides for directional median openings spaced at 660 feet (0.125 miles) and full openings and signals spaced at 1,320 feet (0.25 miles) for speed limits at or below 45 mph.

As such, the access change recommendations were developed with the goal of meeting the FDOT Access Class 3 and Access Class 5 spacing requirements where applicable. However, existing driveways to major businesses requiring freight access were also taken into consideration, and as the corridor is largely surrounded by public lands, further development is unlikely, allowing for provisions to be made more easily to the existing businesses. The proposed access management plan will include three full median openings and 11 directional median openings. Two of the new openings are in place solely to provide U-turn accessibility, the other three provide access to residential areas or businesses in addition to U-turns.

The proposed median openings for the study corridor are detailed in **Table 7-1** and illustrated in the Preferred Alternative concept plans, provided in **Appendix A**. While the proposed access management improvements seek to improve safety throughout the study corridor, there are six median openings that do not satisfy spacing standards of rule 14-97 of the F.A.C. The reasons are as follows:

- The first deviation is at Sundown Drive which is only 1,195 feet away from the previous opening at Ivy Mist Lane as opposed to the required 1,320 feet. This EB directional opening serves the residential area on the northwest side of US 17/92, allowing drivers to turn left or U-turn at Sundown Drive rather than having to travel to CR 532 in order to U-turn. Thus, the opening shall remain as proposed.

- The second deviation is located at just east of Old Tampa Highway. It is only 1,273 feet away from the previous opening at Old Tampa Highway as opposed to the required 1,320 feet. This opening provides a U-turn in both the eastbound and westbound direction so that drivers do not have to travel farther to the next median opening. As such, the opening shall remain as proposed.
- The third deviation is located at Central Pro Delivery. It is only 985 feet away from the previous opening, the directional U-turn just east of Old Tampa Highway, as opposed to the required 1,320 feet. This median opening provides access to the business and a U-turn location for both eastbound and westbound drivers, and as such the opening shall remain as proposed.
- The fourth deviation is located at Aspire Health Partners. It is only 970 feet from the previous opening at Central Pro Delivery as opposed to the required 1,320 feet. This median opening provides access to the health facility and a U-turn location for both eastbound and westbound drivers. Thus, the opening shall remain as proposed.
- The fifth deviation is located at Manatee Street/Hope Street. It is only 379 feet away from the previous opening at Tallahassee Boulevard as opposed to the required 660 feet. As the opening at Manatee Street/Hope Street is westbound directional, and the opening at Tallahassee Boulevard is eastbound directional, these two openings effectively function as a single dual directional opening. Thus, the opening shall remain as proposed.
- The sixth deviation is located at Nocatee Street/Shepherd Lane. It is only 600 feet away from the previous opening at Manatee Street/Hope Street as opposed to the required 660 feet. The deviation from the required spacing is very small, and the proposed directional openings at Tallahassee Boulevard, Manatee Street/Hope Street, and Nocatee Street/ Shepherd Lane are necessary for accessing the roadway network in Intercession City, and as such, all three of the openings shall remain as proposed.

Table 7-1: Proposed Median Openings

Median Opening	Distance From Previous Opening (ft)	Median Opening Type	North Side Connection	South Side Connection	Directional Opening		Full Opening/Traffic Signal		Proposed Access Class	Recommended Target Speed (mph)
					Distance from Previous Opening	Meets Std or % Deviation	Distance from Previous Opening	Meets Std or % Deviation		
1	-	Dual Directional	Ivy Mist Lane	n/a					3	45
2	1,195	EB Directional	Sundown Drive	n/a	1,195	9.47%				
3	1,707	Full-Signal	CR 532	n/a	1,707	Meets				
4	4,441	Full-Signal	Old Tampa Highway	n/a			4,441	Meets		
5	1,273	Dual Directional	n/a	n/a	1,273	3.56%				
6	985	Dual Directional	Strada Air Conditioning	n/a	985	25.38%				
7	970	Dual Directional	n/a	Aspire Health Partners, Inc.	970	26.52%				
8	2,051	Dual Directional	n/a	n/a	2,051	Meets				
9	1,300	Dual Directional	Wonder Court	Unnamed street	1,300	Meets			5	30
10	1,069	EB Directional	Tallahassee Boulevard	n/a	1,069	Meets				
11	379	WB Directional	Manatee Street	Hope Street	379	42.58%				
12	600	Dual Directional	Nocatee Street	Shepherd Lane	600	9.09%				
13	1,735	EB Directional	n/a	n/a	1,735	Meets			3	45
14	2,464	Full-Roundabout	Avenue A	Avenue A	2,464	Meets	12,826	Meets		

7.3 Right-of-Way

The Preferred Alternative will involve approximately 55.2 acres of ROW impacts from 48 parcels for the proposed improvements. There are two residential relocations and no business relocations anticipated as part of the Preferred Alternative.

The first residential relocation, located at 5884 South Orange Blossom Trail, Davenport, Florida, would result from the widening of US 17/92. The second residential relocation, located at 5880 South Orange Blossom Trail, Davenport, Florida, would result from the widening of US 17/92. FDOT will carry out the ROW and Relocation Program in accordance with Florida Statute (F.S.) 421.55 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646 as amended by Public Law 100-17). The brochures that describe, in detail, the FDOT's Relocation Assistance Program and ROW acquisition program are "Residential Relocation Under the Florida Relocation Assistance Program," and "Relocation Assistance Program Personal Property Moves." The Conceptual Stage Relocation Plan (CSRP), in the project file, provides more information on the two anticipated relocations and potential resources available to the impacted residents. During the Alternatives Public Meeting, the proposed alternatives were presented to the public, including their potential relocations. ROW staff were available to discuss the relocation process with residents. Since the Alternatives Public Meeting, the Build Alternative has been further refined to avoid or mitigate impacts to properties, leading to a reduced number of relocations than what is presented in **Section 5.5**.

In Summer 2023, additional survey was conducted within Intercession City. ROW control, cross sections at 100-foot intervals, and topo along the existing ROW line at 50-foot intervals were gathered. Using this updated survey data, the proposed profile and 3D model of the US 17/92 corridor were generated to verify the tie downs and to minimize the amount of gravity wall or proposed ROW that would be required. Based on the additional research, no relocations are anticipated within Intercession City.

7.4 Horizontal and Vertical Geometry

A summary of the horizontal and vertical geometry for the Preferred Alternative is provided in **Table 7-2** and **Table 7-3**, respectively. Curve data is also provided in the Preferred Alternative concept plans in **Appendix A**.

7.4.1 Horizontal Geometry

There are nine horizontal curves along the Preferred Alternative alignment (**Table 7-2**), noted as "CL Const. US 17-92" in the Concept Plans (**Appendix A**). The curve data were based off the concept plans and the superelevation rates were determined using FDOT FDM Table 210.9.1. Superelevation transition slope rates were also reviewed to ensure smooth transitions between

curves. All proposed horizontal curves meet the standards for curve length, radius, and associated superelevation for a design speed of 45 mph.

Table 7-2: Horizontal Curve Data Summary for the Preferred Alternative

Curve #	Design Speed (mph)	PI Station	Radius (ft)	Degree of Curvature	Superelevation	Curve Length (ft)
1	45	1177+07.30	7,411.00	0.773°	NC	411.44
2	45	1189+48.32	11,459.00	0.500°	NC	527.17
3	45	1195+97.80	11,459.00	0.500°	NC	526.10
4	45	1216+21.78	2,200.00	2.604°	NC	1,157.24
5	45	1254+03.00	2,425.00	2.363°	NC	1,717.59
6	45	1293+21.75	11,459.00	0.500°	NC	467.66
7	45	1307+37.76	20,000.00	0.286°	NC	816.26
8	45	1352+32.91	11,470.00	0.499°	NC	624.72
9	45	1362+44.04	11,486.00	0.499°	NC	626.41

Note:
NC = Normal Crown

7.4.2 Vertical Curve Geometry

A preliminary centerline profile was established for the new alignment due to the terrain of the area and to review the feasibility of the proposed roadway improvements. There are 31 proposed vertical curves identified along US 17/92 within the study area. **Table 7-3** provides the vertical curve details for the preferred alignment. All proposed vertical curves meet the standards for vertical grade, K value, and curve length for a design speed of 45 mph.

Table 7-3: Vertical Curve Data Summary for the Preferred Alternative

Curve #	Curve Type	Curve Length (ft)	Beginning Grade (%)	Ending Grade (%)	K Value
1	Crest	160.00	-0.300	-0.620	500.52
2	Sag	250.00	-0.620	-0.306	796.39
3	Sag	350.00	-0.306	0.308	570.55
4	Crest	250.00	0.308	-0.419	343.86
5	Sag	250.00	-0.419	0.714	220.53
6	Sag	250.00	0.714	1.000	875.18
7	Crest	300.00	1.000	0.530	638.93
8	Crest	400.00	0.530	0.000	754.06
9	Sag	377.00	0.000	1.354	278.51
10	Crest	1,115.00	1.354	-1.764	357.63
11	Sag	380.00	-1.764	0.542	164.77
12	Crest	200.00	0.542	-0.302	236.88
13	Sag	250.00	-0.302	0.302	413.82
14	Crest	250.00	0.302	-0.410	351.16
15	Sag	200.00	-0.410	0.385	251.69

Curve #	Curve Type	Curve Length (ft)	Beginning Grade (%)	Ending Grade (%)	K Value
16	Crest	250.00	0.385	-0.305	362.34
17	Sag	200.00	-0.305	0.449	265.27
18	Crest	200.00	0.449	-0.511	208.36
19	Sag	200.00	-0.511	0.479	201.87
20	Crest	600.00	0.479	-0.302	767.68
21	Sag	300.00	-0.302	0.300	498.23
22	Crest	250.00	0.300	-0.302	415.19
23	Sag	200.00	-0.302	0.300	332.16
24	Crest	800.00	0.300	-0.307	1317.09
25	Sag	225.00	-0.305	0.304	367.90
26	Crest	300.00	0.304	-0.492	376.58
27	Sag	500.00	-0.492	0.318	616.66
28	Crest	400.00	0.318	-0.313	634.05
29	Sag	200.00	-0.313	0.468	256.28
30	Crest	250.00	0.468	0.301	1498.43
31	Crest	250.00	0.301	0.000	830.42

The preferred alignment was reviewed against the seasonal high-water and found to be above the three-foot required clearance from the seasonal high-water mark for the US 17/92 reconstruction within the limits of the project except for a section within Intercession City. Between STA 1332+30.00 and STA 1347+95.00, the preferred alignment does not meet the three-foot required clearance from the seasonal high-water mark, and only has a minimum two-foot base clearance. Per Section 5.2.2 of the Flexible Pavement Design Manual, this section of Intercession City will require a 25% reduction in the design resilient modulus.

7.5 Design Variations and Design Exceptions

Three design variations are completed as shown in **Appendix H**. All are related to design speed being outside the allowed design speed range for a certain context classification. The first design variation is related to Segments 1, 2, and 3. For these segments, the design speed is 45 mph. Per the Target Speed Recommendation Report, the Target Speed for this segment of roadway is 45 mph. Per FDM Table 201.5.1, the allowable design speed range for these segment's C1 context classification is 55-70 mph. The reason for this design variation is due to the segment immediately east and west having a C3R/C3C context classification with a design speed of 45 mph. A 45-mph design speed in Segments 1, 2, and 3 will provide a consistent design speed throughout the adjacent segments.

The second design variation is related to Segment 5. For this segment, the design speed is 30 mph. Per the Target Speed Recommendation Report, the Target Speed for this segment of roadway is 30 mph. Per FDM Table 201.5.1, the minimum SIS design speed for the segment's C2T context classification is 40 mph. The reason for this design variation is due to reducing the social,

environmental, and ROW impacts within Intercession City and the communities desire to reduce speed through this area.

The final design variation is related to Segment 6. For this segment, the design speed is 45 mph. Per the Target Speed Recommendation Report, the Target Speed for this segment of roadway is 45 mph. Per FDM Table 201.5.1, the allowable design speed range for the segment's C1 context classification is 55-70 mph. The reason for this design variation is due to the segment just west having a C2T context classification with a design speed of 30 mph, and the segment just east having a C3C context classification with a design speed of 55 mph with a posted speed of 45 mph. A 45-mph design speed provides a smooth transition between the two adjacent segments.

7.6 Multimodal Accommodations

7.6.1 Bicycle and Pedestrian Accommodations

Bicycle and pedestrian accommodations are provided in the form of a 12-foot-wide shared-use path along the north side of the corridor. A 12-foot-wide shared-use path along the south side of the corridor is also provided throughout the corridor except for the Reedy Creek Bridge (Segment 2), due to constraints along the existing bridge. CR 532 and Old Tampa Highway, west and east of the bridge respectively, will be the crossing location to utilize one shared-use path over Reedy Creek. The shared-use paths become 10-foot-wide urban side paths within Intercession City due to ROW constraints.

Two midblock pedestrian crossings are located within Intercession City, one is located just east of Tallahassee Boulevard and the other just west of Nocatee Street. These midblock crossing are anticipated to be controlled by a pedestrian hybrid beacon.

A 10-foot sidewalk connection from Avenue A to Avenue B is planned along the north side to provide connection to adjacent pedestrian facilities.

7.6.2 Transit

There are no improvements planned for transit along this corridor with the Preferred Alternative.

7.6.3 Railroads

The southernmost SunRail station is located at the intersection of Poinciana Boulevard and Old Tampa Highway, approximately 0.58 miles east of the US 17/92 project limits. The existing signage for the SunRail station will be maintained.

The railroad crossing just east of Avenue A will need to be slightly modified to include a six-foot sidewalk crossing along the north side of US 17/92. The roadway portion of the crossing will not need to be modified as it was recently widened. This modification will require relocation of the crossing arms to accommodate the new sidewalk.

7.6.4 Freight

Given the significant percentage of truck volume within the corridor, there will be a direct impact to truck routes during the construction phase. However, this project will improve freight movement through this area once the project is complete. Additionally, Design is currently underway for the Osceola County Truck Parking Site, which will be located along CR 532 approximately 0.5 miles west of the US 17/92 study area. ROW and construction phases are also funded with ROW funded in FY 2026 and construction funded in FY 2027. This truck parking facility will be located at a key junction point near several regional freight corridors, including I-4, PPE, US 17/92, and will provide over 200 parking spaces for freight vehicles to rest.

7.7 Intersection Concept and Signal Analysis

Per the US 17/92 ICE Analysis discussed in **Section 5.4.4**, the preferred intersection type for CR 532 and Old Tampa Highway is a signalized intersection, and the preferred intersection type for Avenue A is a roundabout.

Specific lane geometries, including turn lanes and storage lengths, were identified to accommodate the 2045 future projected traffic volumes. **Figure 7-5** shows the build geometry for the preferred alternative and **Table 7-4** shows the recommended queue lengths for the design year 2045 design hour conditions.

Table 7-4: Recommended Queue Lengths for Turn Lanes at Signals

Intersection on US 17/92	Turn Lane Queue Length (ft)							
	US 17/92				Side Streets			
	EBL	EBR	WBL	WBR	NBL	NBR	SBL	SBR
CR 532	525	-	-	675	-	-	775	300
Old Tampa Highway	275	-	-	25	-	-	-	400
Avenue A	50	150	100	-	100	-	-	-

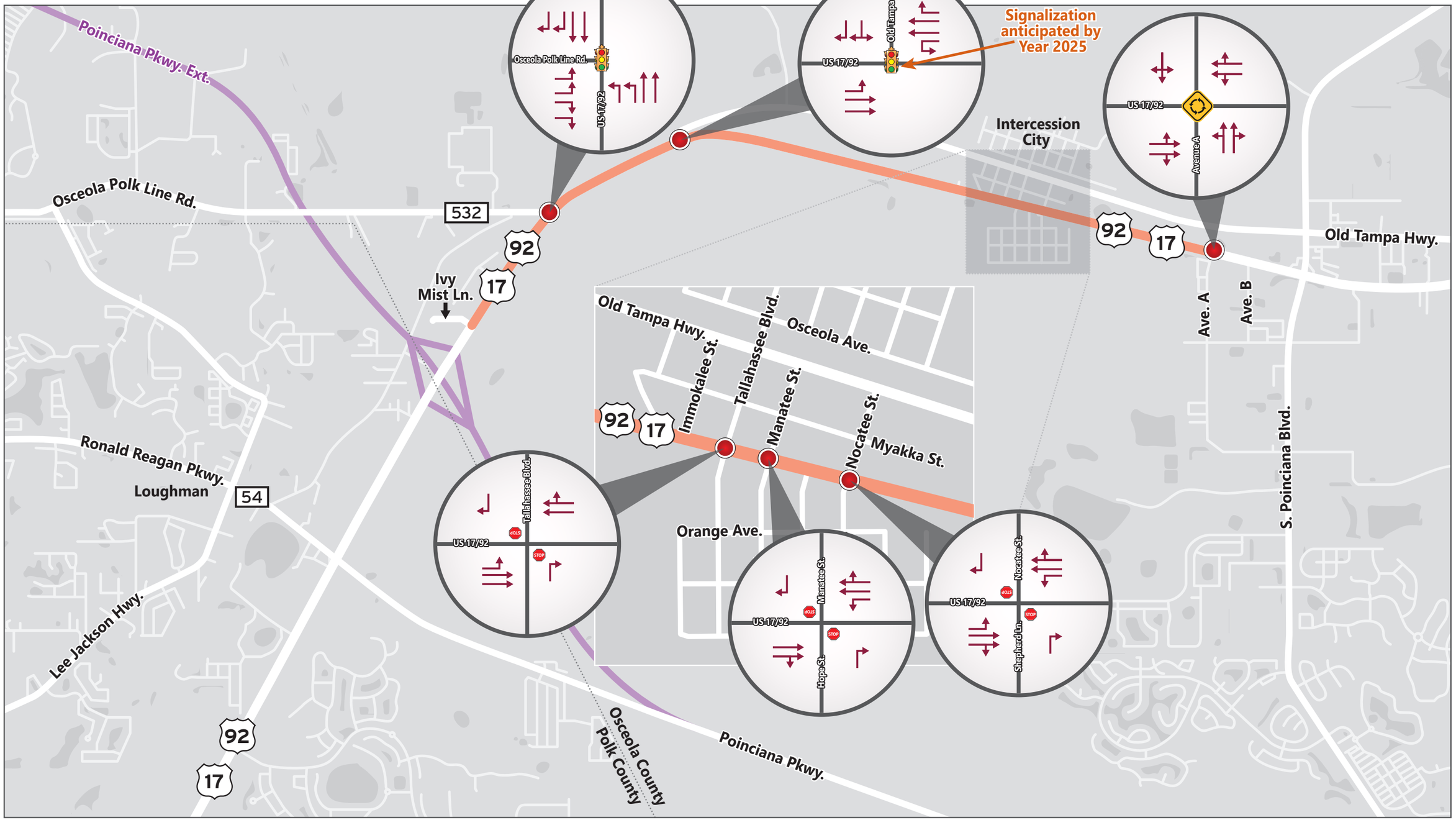


Figure 7-5

Future Build Geometry
US 17/92 PD&E
FPID 437200-2

7.8 Tolled Projects

This project will have no tolling lanes.

7.9 ITS and TSM&O Strategies

Based on the existing conditions, TSM&O best practices, and discussions with the Osceola County Traffic Operations team, several complementary ITS and TSM&O solutions are included as part of the Preferred Alternative. The following section describes these complementary solutions.

The US 17/92 corridor should be integrated into the District Five R-ICMS program as a diversion route. To enable the advanced functionality necessary for a diversion route, the signalized intersections along the US 17/92 corridor should be upgraded to FDOT's Smart Signal standard, including:

- ATC
- Stopbar detection
- Advanced detection, using either video or radar technology
- Bluetooth travel-time reader for speed and origin-destination data collection
- CCTV cameras for observation and confirmation
- Type 6 cabinets for increased storage capacity, where feasible

Fiber optic communication is recommended along US 17/92 from the planned PPE to Poinciana Boulevard to support advanced operations on the corridor. This deployment of fiber optic cable will also provide redundancy for the FDOT and CFX fiber network in this area of Central Florida.

Midblock crossings are recommended along US 17/92 at Tallahassee Boulevard and Charity Lane within Intercession City. Computer vision devices are recommended at these midblock crossings to passively detect pedestrian and bicyclist usage. This safety enhancement can alert traffic operations staff if pedestrians and/or bicyclists are not using the midblock crossing. This can indicate further safety measures or if public outreach is needed to ensure stakeholders use the midblock crossings in the safest manner possible.

Table 7-5 outlines the recommended complementary ITS improvements for the Preferred Alternative. **Figure 7-6** illustrates the proposed improvements along US 17/92.

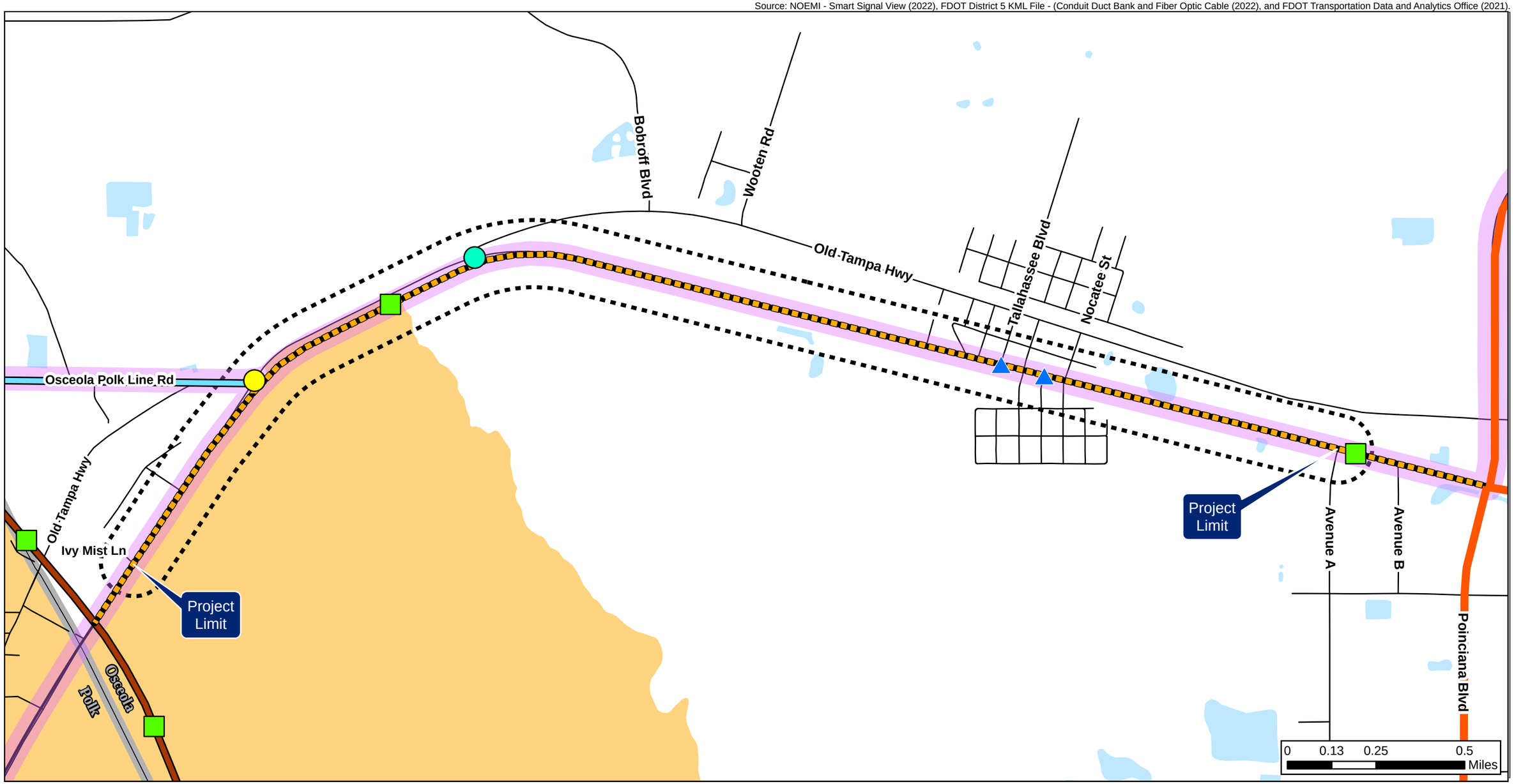
Table 7-5: Recommended ITS Improvements

Roadway/Intersection	Improvement
US 17/92 from Osceola County Line to Poinciana Boulevard	Designate US 17/92 corridor as a secondary diversion route for the I-4 FRAME project, as part of the R-ICMS program
US 17/92 from Poinciana Parkway Extension to Poinciana Boulevard (extended construction limits)	Deploy fiber optic communication along study corridor to improve data bandwidth, support advanced traffic management and operations, and provide redundancy for the FDOT and CFX networks
Along Poinciana Parkway Extension approaching US 17/92 interchange (extended construction limits)	Deploy blank out sign for detour routing during major events on I-4 and for improved traveler information
US 17/92 at Osceola Polk Line Road	Upgrade existing traffic signal to the FDOT Smart Signal standard[1]
US 17/92 at Old Tampa Highway	Implement FDOT Smart Signal[1] standard at new signalized intersection
US 17/92 at Tallahassee Boulevard Midblock Crosswalk	Deploy computer vision system at proposed midblock crossing to ensure proper use of the midblock crossing
US 17/92 at Charity Lane Midblock Crosswalk	Deploy computer vision system at proposed midblock crossing to ensure proper use of the midblock crossing
US 17/92 approaching Poinciana Boulevard	Deploy blank out sign for detour routing during major events on I-4 and for improved traveler information

[1]Smart Signal Standard includes ATC controller, ATSPM, Stop Bar Detection, Intersection Movement Counts, Advanced Detection, CCTV, Bluetooth travel time device, and TS-2 Size 6 Cabinet.

Additional coordination between the Department and Osceola County is recommended during the respective Design phases of the US 17/92 Preferred Alternative and the US 17/92 ATMS 8 project (MTP ID 8145) to ensure the appropriate ITS infrastructure is deployed along the US 17/92 corridor.

Source: NOEMI - Smart Signal View (2022), FDOT District 5 KML File - (Conduit Duct Bank and Fiber Optic Cable (2022), and FDOT Transportation Data and Analytics Office (2021).



N.T.S.

- US 17/92 - 500ft Buffer
- Upgrade to Smart Signal*
- New Smart Signal*
- Blank Out Signs
- Midblock Crossing - Computer Vision
- Recommended Fiber
- Existing - Fiber Optic Cable
- Proposed I-4 Diversion Routes
- Poinciana Pkwy Extension - New 4-lane Expressway
- CR 532 from Old Lake Wilson Rd to US 17/92 - Widen to 4 Lanes

*Note - The FDOT Smart Signal Standard Package includes: ATC Controller; Automated Traffic Signal Performance Measure (ATSPM); Stop Bar Detection; Intersection Movement Counts; Advanced Detection; CCTV; BlueTooth; Fiber; and TS-2 Size 6 Cabinet.

FDOT

Figure 7-6

Recommended ITS Infrastructure
US 17/92 PD&E
FPID 437200-2

7.10 Landscape

Landscaping should be focused in and around the Intercession City area for speed management and to enhance aesthetics. According to FDM Section 202.4, street enclosure through vertical landscaping is one of several potential treatments to help transition from a higher-speed to lower-speed cross section. Landscaping will be further evaluated in the design phase for this project.

7.11 Lighting

The existing lighting will be maintained in the widening of the corridor with any necessary updates made to meet proper FDOT lighting requirements for the widened roadway.

A Lighting Justification Report (LJR), in the project file, was prepared for the US 17/92 study corridor. The initial findings of the LJR were that no additional lighting is warranted along the US 17/92 study corridor. However, additional lighting is needed at new or reconstructed signalized intersections, per FDM Section 231.3.2.1. Therefore, lighting will be recommended at the intersection of US 17/92 and CR 532 and the intersection of US 17/92 and Old Tampa Highway. Per FDM Section 231.3.3, lighting is required at roundabouts. Consequently, lighting will be recommended at the roundabout at the intersection of US 17/92 and Avenue A. Per FDM Section 231.3.4, lighting is required at midblock crossings. Therefore, lighting will be recommended at the midblock crossings along US 17/92 at Tallahassee Boulevard and Charity Lane. Furthermore, lighting is recommended to be maintained throughout Intercession City and at the eastern end of the project, which was installed as part of the US 17/92 widening project (FPID #239714-1).

7.12 Wildlife Crossings

No wildlife crossings are proposed for the Preferred Alternative.

7.13 Permits

The Preferred Alternative will require permits from state and federal regulatory agencies for impacts to wetlands, other surface waters and water quality. **Table 7-6** provides a list of anticipated permits associated with the construction of the Preferred Alternative.

Table 7-6: Anticipated Permits for the Preferred Alternative

Permit Type	Agency
Individual Federal Section 404	USACE
Individual Environmental Resource Permit (ERP)	SFWMD
National Pollution Discharge Prevention and Elimination System (NPDES)*	FDEP

*Note: *This permit will be obtained by the selected construction contractor*

According to 18-21, F.A.C., projects that cross-state owned submerged lands are required to obtain or modify an SSL lease/easement for use of these lands. A review of the FDEP State Lands Board of Trustees Land Document System was conducted, and it was determined that the FDOT has an existing SSL easement for the existing bridge. However, this easement will not accommodate the proposed bridge over the previous bridge alignment. Therefore, the SSL easement will need to be modified for the Preferred Alternative.

7.14 Drainage and Stormwater Management Facilities

The PD&E team completed an assessment of potential stormwater alternatives to accommodate the widening of US 17/92. The proposed drainage concept is to treat runoff from the existing and new construction of US 17/92 using wet detention ponds. The ponds are designed with an outfall (open basins), and the ponds are sized to meet SFWMD and FDOT criteria. There are four basins within the study corridor. Due to the proximity of nearby roadway projects currently in design, joint use ponds are proposed for Basins 1 and 2, with coordination completed with CFX regarding the use and sizing of the ponds. Meanwhile, three pond options each were developed for Basins 3 and 4. All potential pond sites were evaluated with the goal to minimize environmental, wetland, and floodplain impacts. **Table 7-7** provides a summary of the basins used to determine the stormwater attenuation recommendations for the preferred alternative.

For further information on proposed drainage conditions, see the PSR.

Table 7-7: Summary of Proposed Conditions Basins

Basin Name	Approximate Area (acres)	Location Onsite
Basin 1	30.98	From West of Reedy Creek to Reedy Creek
Basin 2	18.97	Reedy Creek
Basin 3	45.02	From Reedy Creek to Intercession City
Basin 4	25.22	From Intercession City to East of Intercession City

7.14.1 Pond Recommendations

The ponds identified for this project have been designed in accordance with SFWMD and FDOT requirements. The preliminary calculations demonstrate that the pond volumes are adequate for treatment and attenuation of stormwater runoff from the proposed improvements. Pond locations have been identified based on evaluation of the existing conditions topography, while minimally impacting environmental factors, such as existing wetland and habitats that were preliminarily identified. All of the recommended pond locations will require ROW acquisition. The locations of all the proposed pond sites are shown in the Preferred Alternative concept plans in **Appendix A**.

7.14.1.1 Basin 1

The preferred pond site for Basin 1 has been determined to be Joint Use Pond 1, approximately 6.66 acres in size. Early in the PD&E analysis, the option of a joint use pond was discussed between

FDOT and CFX. Since the adjacent CFX project (SR 538) will be constructed before the widening of US 17/92, it was agreed that this joint use pond made the most sense.

7.14.1.2 Basin 2

The preferred pond sites for Basin 2 have been determined to be Joint Use Pond 2A and Pond 2B, approximately 3.26 and 1.04 acres in size, respectively. Early in the PD&E analysis, the option of a joint use pond was discussed between FDOT and CFX. Since the adjacent CFX project (CR 532) will be constructed before the widening of US 17/92, it was agreed that this joint use pond is the most logical pond option.

7.14.1.3 Basin 3

Pond 3.1, approximately 7.62 acres in size, has been determined to be the preferred pond site for Basin 3. This pond has the least amount of wetland and social impacts of the three Basin 3 pond options.

7.14.1.4 Basin 4

Pond 4.1, approximately 4.16 acres in size, has been determined to be the preferred pond site for Basin 4. This pond has nearly zero wetland impact and the least social impact of the three Basin 4 pond options.

7.15 Floodplain Analysis

Within the project limits, a small portion of US 17/92 is within the 500-year floodplain in several areas along the corridor (Zone X). These include a small portion of the corridor just north of the intersection with Ivy Mist Lane, and a small portion of the corridor about 800 feet east of the intersection with Shepherd Lane. The 500-year floodplain indicates areas that have a 0.2% annual chance of flood.

The proposed improvements are estimated to result in 9.87 acre-feet of floodplain impacts. Floodplain impacts will be compensated for by constructing a floodplain compensation area. Three floodplain compensation areas were identified and evaluated. Floodplain Compensation Area 2 was determined to be the Preferred Alternative. This floodplain compensation area of 11.11 acres in size is proposed north of Old Tampa Highway and west of Hicpochee Street. Additional information can be found in the LHR, in the project file.

Any fill of floodplain occurring in this project between the Seasonal Highwater Level (SHWL) and the floodplain elevation will require floodplain compensation. No net encroachment into the floodplain is allowed between the SHWL and the floodplain elevation.

7.16 Bridge and Structure Analysis

The existing bridge over Reedy Creek will be utilized for eastbound traffic, and a proposed bridge will be constructed north of the existing bridge to carry westbound traffic. The bridges will be

separated by 70 feet. Both bridges will have two 11-foot travel lanes, with the eastbound bridge having an 11-foot inside and outside shoulder, and the westbound bridge having a 6-foot inside shoulder and a 10-foot outside shoulder. Additionally, the westbound bridge will have a 12-foot shared-use path separated from the travel lanes by a traffic barrier.

The proposed alternative will replace the three existing bridges (Bridge Nos. 920002, 920003, and 920004), with one new bridge comparable to the current US 17/92 bridge over Reedy Creek (Bridge No. 920174) that will become the eastbound bridge as shown in **Figure 7-2.** The proposed bridge will be a 25-span structure that starts at STA 1215+59 and extends approximately 2,305 feet to STA 1238+64 with 23 equal 90-foot spans and two 95-foot spans (2,260 feet) near the end over Reedy Creek. The number of spans proposed is less than the number of spans in the eastbound direction to reduce impacts into the wetlands and floodplains. A bridge plan layout showing span arrangements can be found in **Appendix F**.

The superstructure of both the 90-foot and the 95-foot spans are supported by six 45-inch Florida-I Beams, to match the depth of the beams supporting the existing US 17/92 Bridge, with a standard 8.5-inch cast-in-place concrete bridge deck. The supporting substructure will be typical end and intermediate pile bents supported by six 24-inch prestressed concrete piles per bent. The typical design of the span arrangements lends itself well to a standard beam-over-pile design. This is supported by the pile capacity curves in the Preliminary Soil Survey Report. A typical section of the bridge superstructure can be found in **Appendix F**.

The old existing Reedy Creek Bridge and the proposed Reedy Creek Bridge fall within the Reedy Creek Floodway. However, it is not anticipated that the project will affect the floodway. Through consultation with local, state, and federal water resources agencies, the project will not support base floodplain development that is incompatible with existing floodplain management programs. Therefore, the floodplain involvement of this project has minimal impact to human life, transportation facilities and natural and beneficial floodplain values. This minimal impact was addressed by following the FDOT drainage design standards and SFWMD design criteria, and floodplain compensation volumes were provided in a proposed pond (Pond FCA2), so that the proposed improvements do not result in an increase in flood elevations or cause adverse effects to the floodplain limits. The floodplain encroachment is anticipated to be minimal. A No-Rise Certification for the bridge will be performed during the design stage.

7.17 Transportation Management Plan

The Transportation Management Plan (TMP) is designed to minimize impacts to motorists while maintaining safety and access to the surrounding area and the affected ancillary roadways during construction of the Preferred Alternative. As with most projects, the purpose is to establish a uniform standard for traffic control using guidance on Traffic Control Through Work Zones from the *FDOT Design Standards*. Phasing of the construction is discussed in the following sections.

After construction of the project is complete, US 17/92 will have two (2) lanes of traffic in each direction, along with a shared-use path along both directions of the roadway.

The mainline roadway reconstruction and full replacement of the US 17/92 westbound bridge over Reedy Creek can be accomplished following a four-phase construction. The roadway traffic control phases have been developed to be in sequence with the bridge construction phases.

7.17.1 Phase I: Construction of westbound bridge, partial construction of eastbound and westbound roadway, and construction of realigned Old Tampa Highway and CR 532

The initial construction phase consists of construction of the proposed westbound bridge. The location of the proposed westbound bridge interferes with an abandoned roadway and bridge. As such, the abandoned roadway and bridge will need to first be demolished. After the abandoned roadway is demolished, westbound proposed roadway from approximately STA 1213+00 to STA 1248+00 can be constructed as well. This phase also consists of the construction of the proposed eastbound travel lanes between the beginning of the project and approximately STA 1205+00, and between approximately STA 1255+00 and the end of the project which is mostly outside of the existing roadway and will have minimal impact on the existing roadway operation. Finally, this phase consists of the construction of the realigned Old Tampa Highway and CR 532. Once the proposed eastbound roadway is constructed, both eastbound and westbound traffic can be shifted to travel along the new eastbound roadway. Additionally, the existing US 17/92 between the beginning of the project and STA 1205+00, along with STA 1255+00 and STA 1355+00 can be demolished. Between STA 1355+00 and the end of the project, traffic will stay on the south side of US 17/92 while the westbound US 17/92 is constructed. For the proposed roundabout at Avenue A, additional pavement for the north half of the roundabout will be constructed in this phase, while eastbound and westbound traffic will remain on existing US 17/92.

7.17.2 Phase II: Construct Tie in between eastbound US 17/92 and realigned Old Tampa Highway and CR 532

To begin Phase II, a temporary diversion will be constructed to switch traffic from the newly constructed eastbound US 17/92 to the existing eastbound US 17/92 at STA 1355+00. Additionally, a temporary diversion will be constructed between STA 1205+00 and STA 1255+00, excluding the newly constructed westbound bridge, to shift traffic from the existing US 17/92 traffic configuration to the eastbound roadway being constructed in Phase I. Once all traffic has been shifted to the eastbound lanes constructed in Phase I, the second phase constructs the tie-in between the newly constructed eastbound US 17/92 and the newly realigned Old Tampa Highway and CR 532. Once these new intersections are created, traffic can be shifted onto the realigned roadways and new intersections, and the existing intersections for CR 532 and Old Tampa Highway can be demolished. Temporary diversions between the newly constructed US 17/92 roadway and the realigned Old Tampa Highway and CR 532 alignments will be

constructed to connect the newly constructed westbound roadway and bridge from Phase I to the newly constructed intersections. Once these diversions are in place, westbound traffic can be shifted to the new westbound bridge and roadway between the CR 532 and Old Tampa Highway intersections. Both the existing bridge and approaches to the existing bridge can have final striping updates performed. For the roundabout at Avenue A, additional pavement for the south half of the roundabout will be constructed in this phase, while eastbound and westbound traffic will remain on existing US 17/92.

7.17.3 Phase III: Complete Westbound Roadway construction

Phase III will complete the construction of the US 17/92 westbound roadway between the beginning of the project and STA 1205+00, and from STA 1255+00 to the end of the project, excluding Intercession City. During the completion of the construction of the US 17/92 westbound roadway, eastbound and westbound traffic will use the recently constructed eastbound US 17/92 roadway to travel the corridor. Within Intercession City, traffic will shift to the newly constructed eastbound lanes while the existing roadway is demolished and reconstructed. West of Avenue A, traffic will shift to the newly constructed westbound US 17/92. Additionally, remaining westbound pavement will be constructed to connect the newly constructed westbound traffic with the CR 532 and Old Tampa Highway intersections constructed in Phase II. For the roundabout at Avenue A, eastbound and westbound traffic will be directed on the outside lanes while construction of traffic separators and the median island occur.

7.17.4 Phase IV: Complete Median and apply final cleanup work

This phase entails shifting eastbound and westbound traffic to the outside of their respective roadways so that the median and median openings can be constructed. The final stage will perform any cleanup work remaining, including removal of any temporary pavement, application of the friction course layer, and final stripping. At this stage, pedestrians and bicyclists can use the shared-used path along the entire corridor.

7.18 Constructability

Overall, the widening of US 17/92 is anticipated to have few constructability issues, as the alignment and the reduced ROW width of the Preferred Alternative results in the least ROW impacts and relocations possible.

Temporary lane closures will be required along US 17/92 throughout the construction process to facilitate the widening. The existing Reedy Creek bridge can continue to be used for both directions of traffic while the new bridge is constructed, then both directions of traffic can temporarily be diverted to the new bridge to allow for the restriping of the existing bridge. Thus, the bridge widening will never fully impede traffic from crossing Reedy Creek.

Through Intercession City, construction efforts will have to maintain appropriate barriers and signage to protect all roadway users during construction. Constructability will be further evaluated in the Design phase.

7.19 Construction Impacts

The following describes potential construction impacts for the US 17/92 Preferred Alternative. Construction impacts will be further evaluated in the Design phase.

7.19.1 Air Quality

During the construction of the US 17/92 project, particulate emissions associated with construction activity are anticipated to temporarily increase. Construction activities may cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to applicable state regulations and to applicable FDOT Standard Specifications for Road and Bridge Construction.

7.19.2 Noise and Vibration

During the construction of the US 17/92 project, noise and vibration related to construction activities are anticipated to temporarily increase. It is anticipated that the application of the FDOT Standard Specifications for Road and Bridge Construction will minimize or eliminate most of the potential construction noise and vibration impacts. In the event unanticipated noise or vibration issues arise during the construction process, the project manager, in coordination with the District Noise Specialist and the Contractor, will investigate additional methods to mitigate or eliminate these impacts.

7.19.3 Water Quality Protection

During construction, discharges of stormwater will be regulated by National Pollutant Discharge Elimination System (NPDES) Generic Permit for Stormwater Discharge from Large and Small Construction Activities, which requires preparation of project specific Stormwater Pollution Prevention Plan (SWPPP) and Sediment and Erosion Control Plans and identifications of Best Management Practices (BMPs).

Regulatory agencies including SFWMD, FDEP, and USACE will also review the Constructions Plans, SWPPP and Sediment and Erosion Control Plans for the proposed project and may identify special conditions for permit issuance through the SFWMD ERP, and USACE Federal Section 404 Permit approval process. The permits referenced above are required prior to commencement of any construction activities.

After construction is complete, stormwater treatment and attenuation will be provided within new offsite wet retention ponds or expansion of existing retention areas.

Dewatering activities during construction are regulated by SFWMD Water Use Permits Program and will adhere to the Master Water Use (Dewatering) Permit Conditions as well as project specific BMPs established by FDOT design criteria.

It is anticipated that liquid or solid waste generated by the US 17/92 project construction will be removed by a certified waste hauler. After construction is complete, the project will not generate liquid or solid waste.

7.19.4 Species and Habitat Protection

Based on the environmental analysis, the construction of the Preferred Alternative may impact certain protected species. For federally listed species these impacts are classed as "may affect, but is not likely to adversely affect" and for state listed species the impacts are classed as "no adverse effect is anticipated". The potentially impacted species are as follows:

- Eastern Indigo Snake – Federally Listed
- Sand Skink and Bluetail Mole Skink – Federally listed
- Wood Stork – Federally listed
- Audubon's Crested Caracara – Federally listed
- Florida Bonneted Bat – Federally listed
- Tricolored Bat – Other, Candidate species for federal listing
- Gopher Tortoise – State listed
- Florida Pine Snake – State listed
- Florida Sandhill Crane – State listed
- Southeastern American Kestrel – State listed
- Little Blue Heron – State listed
- Tricolored Heron – State listed

To prevent impacts to protected species and habitat during construction, the following commitments will be kept:

- FDOT will implement the USFWS's Stand*ard Protection Measures for Eastern Indigo Snake* during project construction and will inspect potential eastern indigo snake refugia prior to construction.
- The project is located within the Frequent Range of the Florida Black Bear. Therefore, consistent with the FWC Black Bear Management Plan, garbage and food debris must be properly removed from the construction site daily to eliminate possible sources that could encourage and attract bears. Nuisance black bears are to be reported to the FWC at the Wildlife Alert Hotline at 1-888-404-3922.

7.19.5 Maintenance of Traffic and Access

Section 7.17 describes the TMP for the construction of the US 17/92 Preferred Alternative, separated into four phases.

During all phases of construction, access to all driveways and side streets will be maintained. Temporary closure of driveways will be coordinated with the property owner.

7.19.6 Safety Considerations

The construction of the US 17/92 project shall adhere to applicable state regulations and to applicable FDOT Standard Specifications for Road and Bridge Construction. Traffic laws shall be enforced within the work zone area in order to decrease the number of crashes within the work zone area.

7.19.7 Public Involvement and Community Interaction

To combat crashes in work zone areas, a communication program shall be established to increase public awareness of the US 17/92 project construction, in addition to education regarding work zone safety.

7.20 Special Features

7.20.1 Gravity Walls

For the Build Alternative, within Intercession City, a gravity wall is placed behind the back of the urban side path to avoid the need for ROW acquisition. This gravity wall is located on the south side of US 17/92 between STA 1317+85 and STA 1318+50 and is approximately six feet in height.

7.20.2 Speed Management

In the sections of the study corridor outside of Intercession City, the posted speed limit is 45 mph, while inside Intercession City, the posted speed limit is 30 mph. Due to this speed limit discrepancy, the Preferred Alternative implements speed curves for eastbound traffic just west of Intercession City, and for westbound traffic just east of Intercession City. These speed curves are used as a horizontal deflection strategy of speed management. Additionally, pavement markings which state "Speed Limit 30 MPH Ahead" just before these speed curves prepare drivers of the impending speed curves and speed limit decrease.

7.21 Utilities

As part of the UAP, concept plans were sent to UAOs and information regarding any potential utility impacts and their cost was requested. A response was received from all the UAOs. For these UAOs, utilities will have to be located and protected or adjusted depending on the drainage and widening depth:

- CenturyLink
- Charter Communications

- Comcast Communications
- Duke Energy
- Kinder Morgan/Central Florida Pipeline
- Osceola County Traffic
- Spectra Energy/Sabal Trail
- TECO Peoples Gas
- Toho Water Authority – Zone 1 and Zone 4
- Transtate Industrial Pipeline Systems
- Verizon (MCI)

See **Table 2-20** for the contact information of these UAOs.

Table 7-8 outlines potential anticipated impacts associated with the Build Alternative.

Table 7-8: Potential Utility Impacts Summary

Utility Type	Transverse or Adjacent	General Location	Size	Approximate Length	Impacts	Cost Estimate
CenturyLink						
Local Buried Asset	Adjacent	Along US 17/92 between Ivy Mist Lane and Shepherd Lane/Nocatee Street	Unknown	3 miles	Potential impacts along mainline in addition to spurs at the following locations: • Along the driveway 900 feet east of Ivy Mist Lane • Along the intersection with Sundown Drive • Along the intersection with CR 532 • Along the intersection with Old Tampa Highway • Along the driveway of Central Pro, A SiteOne Company • Along the driveway of Aspire Health Partners, Inc. • Along the driveway 300 feet west of Immokalee Street • Along the intersection with Immokalee Street • Along the intersection with Tallahassee Boulevard • Along the intersection with Manatee Street • Along the intersection with Charity Lane • Along the intersection with Shepherd Lane/Nocatee Street	Not provided
Local Buried Asset	Adjacent	Along US 17/92 between Avenue A and east of Avenue A	Unknown	+/- 100 feet	Potential impacts at the intersection of US 17/92 with Avenue A	Not provided
Charter Communications						
Overhead Television	Adjacent	Along the north side of US 17/92 between 3,000 feet east of Old Tampa Highway and east of Avenue A	0.25 inches	2 miles	<u>Direct Impacts</u> • Between 400 feet west of Wonder Court and 700 feet west of Suwannee Avenue • Between 500 feet east of Shepherd Lane/Nocatee Street and 1,800 feet east of Shepherd Lane/Nocatee Street <u>Potential Impacts</u> • Between 700 feet west of Suwannee Avenue and 500 feet east of Shepherd Lane/Nocatee Street • Between 1,800 feet east of Shepherd Lane/Nocatee Street and Avenue A	Not provided
Overhead Television	Transverse	3,000 feet east of Old Tampa Highway	0.25 inches	+/- 100 feet	Direct Impact to the utility pole located approximately 50 feet south of the existing ROW	Not provided

Utility Type	Transverse or Adjacent	General Location	Size	Approximate Length	Impacts	Cost Estimate
Comcast Communications						
CATV	Adjacent	Along the north side of US 17/92 between Ivy Mist Lane and east of Avenue A	Unknown	3.8 miles	<u>Direct Impacts</u> • Between Ivy Mist Lane and Sundown Drive • Between 400 feet west of Wonder Court and 700 feet west of Suwannee Avenue • Between 500 feet east of Shepherd Lane/Nocatee Street and 1,800 feet east of Shepherd Lane/Nocatee Street <u>Potential Impacts</u> • Between 700 feet west of Suwannee Avenue and 500 feet east of Shepherd Lane/Nocatee Street • Between 1,800 feet east of Shepherd Lane/Nocatee Street and Avenue A *NOTES:* *<u>Overhead Crossings</u>* *Comcast stated multiple overhead crossings within Intercession City but did not mark the locations.*	Not provided
Duke Energy						
Overhead Electric	Adjacent	Along the north side of US 17/92	12.47 kV	+/- 100 feet at each location	Potential construction impacts with overhead crossings at the following locations: • At Sundown Drive • Proposed intersection of US 17/92 with Osceola Polk Line Road[1] • Proposed intersection of US 17/92 with Old Tampa Highway[1] • 2,500 feet east of Old Tampa Highway • 3,300 feet east of Old Tampa Highway • 100 feet east of Immokalee Street • At Avenue A *NOTES:* *1) 69 kV electric crosses at these locations in addition to 12.47 kV electric*	Not provided

Utility Type	Transverse or Adjacent	General Location	Size	Approximate Length	Impacts	Cost Estimate
Overhead Electric	Adjacent	Along the north side of US 17/92 between Ivy Mist Lane and Sundown Drive	12.47 kV 69 kV	1,700 feet	Direct impacts: drainage swale	Not provided
Overhead Electric	Adjacent	Along the north side of US 17/92 between 400 feet west of Wonder Court and 700 feet west of Suwannee Avenue	12.47 kV	2,200 feet	Direct impacts: sidewalk and drainage swale	Not provided
Overhead Electric	Adjacent	Along the north side of US 17/92 between 700 feet west of Suwannee Avenue and 500 feet east of Shepherd Lane/Nocatee Street	12.47 kV	3,800 feet	Potential impacts: within existing ROW, just behind proposed sidewalk (within 5 feet)	Not provided
Overhead Electric	Adjacent	Along the north side of US 17/92 between 500 feet east of Shepherd Lane/Nocatee Street and 1,800 feet east of Shepherd Lane/Nocatee Street	12.47 kV	1,300 feet	Direct impacts: sidewalk, pavement, and drainage swale	Not provided
Overhead Electric	Adjacent	Along the north side of US 17/92 between 1,800 feet east of Shepherd Lane/Nocatee Street and Avenue A	12.47 kV	3,500 feet	Potential impacts: within existing ROW, just behind proposed sidewalk (within 5 feet)	Not provided
Buried Electric	Adjacent	On the south side of US 17/92 at Ivy Mist Lane along the proposed ROW for CFX Project Number: 538-235	12.47 kV	700 feet	Potential Impacts: drainage swale	Not provided
Buried Electric	Adjacent	Northwest corner of the US 17/92 intersection with Ivy Mist Lane	7.2 kV	300 feet	No impacts anticipated	$0
Overhead Electric	Adjacent	Northeast side of Sundown Drive just north of US 17/92	7.2 kV	80 feet	No impacts anticipated	$0

Utility Type	Transverse or Adjacent	General Location	Size	Approximate Length	Impacts	Cost Estimate
Overhead Electric	Transverse	Overhead crossings along US 17/92	7.2 kV	+/- 100 feet at each location	Potential construction impacts with overhead crossings at the following locations: • 500 feet west of Sundown Drive • 3,200 feet west of Wonder Court • 2,900 feet west of Wonder Court • 2,000 feet west of Wonder Court • 100 feet west of Wonder Court • At Manatee Street/Hope Street • At Charity Lane	Not provided; Potential for Reimburse-ment as identified by UAO
Overhead Electric	Adjacent	Along the south side of US 17/92 between Suwannee Avenue and Tallahassee Street	0.24 kV	400 feet	Direct impact: pavement, sidewalk, or curb *NOTES:* *1) No visible overhead elective in this area, electric is shown on data send from UAO*	Not provided
Overhead Electric	Adjacent	Along the south side of US 17/92 between Tallahassee Street and Manatee Street/Hope Steet	0.24 kV	600 feet	Direct impact: pavement, sidewalk, or curb	Not provided
Overhead Electric	Transverse	Overhead crossings along US 17/92	0.24 kV	+/- 100 feet at each location	Potential construction impacts with overhead crossings at the following locations: • 1,800 feet west of Wonder Court • 300 feet west of Wonder Court • 200 feet west of Wonder Court • 100 feet east of Nocatee Street/Shepherd Lane • 400 feet east of Nocatee Street/Shepherd Lane	Not provided
Kinder Morgan / Central Florida Pipeline						
Gas Main	Adjacent	Runs along the north side of the railroad tracks, north of US 17/92	10 inches	4.2 miles	No anticipated impacts	$0
Osceola County Traffic						
N/A	N/A	N/A	N/A	N/A	No assets within 1,320 feet of the study corridor	$0

Utility Type	Transverse or Adjacent	General Location	Size	Approximate Length	Impacts	Cost Estimate
Spectra Energy / Sabal Trail						
High Pressure Gas	Adjacent	Runs along the north side of US 17/92 between CR 532 and Old Tampa Highway	36 inches	1 mile	No impacts anticipated	$0
TECO Peoples Gas						
Gas Main	Adjacent	North side of CR 532 at the railroad tracks	8 inches	200 feet	Direct impact: sidewalk	Not provided
Gas Main	Adjacent	Along the north side of US 17/92 just west of the proposed bridge at the existing CR 532 roadway	8 inches	50 feet	Potential impacts: sidewalk	Not provided
Gas Main	Adjacent	Along the north side of US 17/92 at the existing Old Tampa Highway Road intersection	8 inches	50 feet	Potential impact with existing Old Tampa Highway reconstruction	Not Provided
Gas Main	Adjacent	Along the north side of US 17/92 at the proposed Old Tampa Highway intersection	8 inches	50 feet	Direct impact: gas line under proposed Old Tampa Highway pavement	Not Provided
Gas Main	Adjacent	Along the north side of US 17/92 between Old Tampa Highway and 400 feet west of Wonder Court	8 inches	4,200 feet	Potential impacts: within existing ROW less than 10 feet behind proposed sidewalk	Not Provided
Gas Main	Adjacent	Along the north side of US 17/92 between 400 feet west of Wonder Court and 700 feet west of Suwannee Avenue	8 inches	2,200 feet	Direct impacts: sidewalk and drainage swale	Not Provided
Gas Main	Adjacent	Along the north side of US 17/92 between 700 feet west of Suwannee Avenue and 500 feet east of Shepherd Lane/Nocatee Street	8 inches	3,800 feet	Potential impacts: within existing ROW, just behind proposed sidewalk (within 5 feet)	Not provided

Utility Type	Transverse or Adjacent	General Location	Size	Approximate Length	Impacts	Cost Estimate
Gas Main	Adjacent	Along the north side of US 17/92 between 500 feet east of Shepherd Lane/Nocatee Street and 2,400 feet east of Shepherd Lane/Nocatee Street	8 inches	1,900 feet	Direct impacts: sidewalk, pavement, median and drainage swale	Not provided
Gas Main	Adjacent	Along the north side of US 17/92 between 2,400 feet east of Shepherd Lane/Nocatee Street and east of Avenue A	8 inches	2,400 feet	Potential impacts: within existing ROW, just behind proposed sidewalk (within 5 feet)	Not provided
Toho Water Authority – Zone 1 and Zone 4						
Water Main	Adjacent	At the US 17/92 intersection with Ivy Mist Lane	Unknown	+/- 50 feet	No impacts anticipated	$0
Water Main	Adjacent	Along the north side of CR 532 at the limits of construction	30 inches	400 feet	Potential impacts: sidewalk	Not provided
Water Main	Adjacent	Along the north side of US 17/92 just west of the proposed bridge at the existing CR 532 roadway	30 inches	50 feet	Potential impacts: sidewalk	Not provided
Water Main	Adjacent	Along the north side of US 17/92 between CR 532 and Old Tampa Highway	30 inches	3,600 feet	No impacts anticipated	$0
Water Main	Adjacent	Along the north side of Old Tampa Highway at proposed curve to US17/93	30 inches	100 feet	No impacts anticipated	$0
Water Main	Adjacent	Along the south side of US 17/92 within intercession City	Unknown	2,200 feet	Potential impacts with main line, including spurs along the west side of Hope Street and the west side of Shepherd Lane, sidewalk	Not provided
Water Main	Adjacent	Along the north side of US 17/92 between Wonder Court and 500 feet east of Shepherd Lane/Nocatee Street	Varies (8 in, 2 in, and unknown)	2,500 feet	Potential impacts: within existing ROW, approximately just behind proposed sidewalk (within 5 feet)	Not provided

Utility Type	Transverse or Adjacent	General Location	Size	Approximate Length	Impacts	Cost Estimate
Water Main	Adjacent	Along the north side of US 17/92 between 500 feet east of Shepherd Lane/Nocatee Street and 1,800 feet east of Shepherd Lane/Nocatee Street	Varies (30 in, 24 in, and unknown)	1,300 feet	Direct impacts: sidewalk, pavement, and drainage swale	Not provided
Water Main	Adjacent	Along the north side of US 17/92 between 1,800 feet east of Shepherd Lane/Nocatee Street and east of Avenue A	Varies (30 in, 24 in, 8 in, 2 in, and unknown)	3,500 feet	Potential impacts: within existing ROW, just behind proposed sidewalk (within 5 feet)	Not provided
Water Main	Adjacent	Along the north side of US 17/92 at the intersection with Avenue A	Unknown	200 feet	Direct impact: sidewalks, curb, and pavement (intersection reconstruction)	Not provided
Reclaimed Water Main	Adjacent	Along the north side of Old Tampa Highway from US 17/92 to east of US 17/92	36 inches	100 feet	No impacts anticipated	$0
Reclaimed Water Main	Transverse	750 feet west of Avenue A under US 17/92	Unknown	+/- 100 feet	Potential impacts to construction: RWM crosses under US 17/92 with depth unknown	Not provided
Wastewater Gravity Main	Adjacent	Along the north side of US 17/92 existing ROW between 750 feet west of Avenue A and Avenue A	8 inches	750 feet	Potential impacts along the existing ROW	Not provided
Wastewater Gravity Main	Adjacent	Along the north side of US 17/92 at the intersection with Avenue A	8 inches	200 feet	Direct impact: sidewalks, curb, and pavement (intersection reconstruction)	Not provided
Transtate Industrial Pipelines Systems						
High Pressure Gas	Adjacent	Along the northside of CR 532 at the railroad tracks	20 inches	600 feet	Potential impacts with the project's sidewalk construction adjacent to the railroad tracks[1] *NOTES:* *1) Further coordination with UAO is needed in design*	Not provided
High-Pressure Gas	Adjacent	North of US 17/92 at Old Tampa Highway	20 inches	1.4 miles	Potential impacts: Asset appears to be within existing ROW directly adjacent to proposed roadway[1] *NOTES:* *1) Further coordination with UAO is needed in design*	Not provided

Utility Type	Transverse or Adjacent	General Location	Size	Approximate Length	Impacts	Cost Estimate
Verizon (MCI)						
Buried Fiber Optic Cable	Adjacent	Runs along the railroad tracks north of US 17/92	Unknown	3.8 miles	No anticipated impacts	$0
Overhead Fiber Optic Cable	Adjacent	Runs along US 17/92 between Ivy Mist Lane and Avenue A	Unknown	3.8 miles	<u>Direct Impacts</u> • Between Ivy Mist Lane and Sundown Drive • Between 400 feet west of Wonder Court and 700 feet west of Suwannee Avenue • Between 500 feet east of Shepherd Lane/Nocatee Street and 1,800 feet east of Shepherd Lane/Nocatee Street <u>Potential Impacts</u> • Between 700 feet west of Suwannee Avenue and 500 feet east of Shepherd Lane/Nocatee Street • Between 1,800 feet east of Shepherd Lane/Nocatee Street and Avenue A	Not provided

7.21.1 Utility Relocation Costs

Depending on facility location and depth, the proposed improvements may require adjustment of some or all of these utilities. No relocation costs were provided by the UAOs, so no utility relocation cost estimate can be provided at this time.

7.22 Cost Estimates

The Preferred Alternative has a total project cost of $200.96 million which includes costs for final design, ROW acquisition, and construction, but does not include costs for utility relocation. The total project cost also does not include costs for environmental mitigation. The roadway construction cost (i.e., the cost to construct roadway inside the PD&E footprint) is estimated as $103.68 million using FDOT's LRE tool, which includes a 20% construction contingency. Final design cost is estimated to be $7.78 million. CEI cost is estimated to be $12.44 million. ROW acquisition is estimated to be $77.06 million. **Table 7-9** provides a summary of the Preferred Alternative cost estimate. The LRE report is included in **Appendix I**.

Table 7-9: Preferred Alternative Cost Estimates Summary

Cost Item[1]	Cost (millions)
Final Design[2]	$7.78
ROW Acquisition[3]	$77.06
Roadway Construction[4]	$103.68
CEI[5]	$12.44
Total	**$200.96**

Notes:

1. *Project Costs are in 2024 dollars.*
2. ***The Final Design cost is estimated as 7.5% of the construction cost.***
3. *The ROW cost estimate as **of November 2023**.*
4. *The Roadway Construction cost was determined using FDOT's Long Range Estimates (LRE) tool dated 12/13/2024.*
5. *CEI cost is estimated as 12% of the construction cost.*

7.23 Summary of Environmental Impacts of the Preferred Alternative

7.23.1 Future Land Use

The preferred alternative will minimally impact Future Land Use based on the project's consistency with the Osceola County Comprehensive Plan 2024, described in **Section 3.3**. The project is located within Osceola County's Urban Growth Boundary and Urban Infill Area, which is the priority area for urban scale development supported by the necessary public facilities including the US 17/92 proposed improvements. The SCE completed for this study (November 2024) determined the proposed widening improvements to US 17/92 are not anticipated to significantly affect existing land uses except for frontage impacts of commercial and residential properties along with two residential relocations. The project will require 55.2 acres of proposed ROW and impact 48 parcels.

No concerns were raised by the public during the public meetings regarding land use. Based on field reviews and available GIS data, no land use changes are anticipated to occur along the project corridor which are not outlined in the future land use designations of Osceola County if the proposed project is implemented.

7.23.2 Cultural Resources

A Phase I CRAS was completed to determine the extent of impacts on cultural resources along the study corridor to determine the extent of impacts on cultural resources along the study corridor. All identified archaeological resources are considered ineligible for listing in the NRHP. Based on the limits of the maximum ROW and pond footprints, no additional archaeological work is currently recommended; however, FDOT shall continue consultation with the SHPO, the BAR, and the consulting Tribal parties pursuant to the requirements of the NHPA concerning the proposed improvements in the vicinity of the Beehive Hill Redeposited (8OS03133) site.

Based on the results of the architectural survey conducted for the CRAS, the proposed US 17/92 improvements project will have no effect on architectural resources found within the US 17/92 study area listed or eligible for listing in the NRHP.

The three abandoned South Orange Blossom Trail Bridges, Nos. 920004, 920003, and 920002, are identified as NRHP-Eligible Historic Resources (8OS01747, 8OS01748, 8OS01749) due to their contribution to the South Orange Blossom Trail Bridges Resource Group (8OS03182), which is also identified as a NRHP Eligible Historic Resource. Based upon the SHPO's concurrence with the eligibility recommendations for historic resources presented in the CRAS, a separate Section 106 case study was prepared to evaluate any project-related effects.

Section 106

A Section 106 Case Study, in the project file, was conducted to evaluate the No-Build and Build Alternatives related to the historic US 17/92 bridges (Bridge Nos. 920002, 920003, and 920004). Each structure build alternative was examined based on the following evaluation criteria: US 17/92 project Purpose and Need; avoidance of Section 106 historic properties; impacts to social, cultural, natural, and physical environment; Section 4(f) considerations; and construction and maintenance costs. **Section 5.5.6** and **Table 5-6** summarize the advantages and disadvantages of each bridge alternative,

The Section 106 Case Study investigated the potential impacts each alternative may have, if any, on NRHP-eligible resources within the study area, including the South Orange Blossom Trail Bridges Resource Group (8OS03182), the South Florida Railroad linear resource (8OS02540)/CSX Railroad Bridges (8OS03176, 8OS03177, and 8OS03178), and [redacted]. **Table 7-10** summarizes the potential impacts to these resources associated with each bridge alternative.

Table 7-10: NRHP-Eligible Resource Avoidance Analysis

Alternatives	No-Build	Rehabilitation	A	B	C	D	E
South Orange Blossom Trail Bridges Resource Group (8OS03182)	I	D	D	I	I	I	I
South Florida Railroad linear resource (8OS02540) /CSX Railroad bridges (8OS03176-8OS03178)	A	A	A	A	A	I	A
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table notes:
D – Direct Impacts
I – Indirect Impacts
A – Avoidance Alternative

Alternatives B, C, D, and E, as well as the No-Build Alternative, avoid direct impacts to the historic US 17/92 bridges. However, construction activities for Alternatives B and C could potentially cause indirect impacts to the historic bridges. Additionally, it is reasonably foreseeable that the historic US 17/92 bridges may continue deteriorating and eventually collapse due to lack of maintenance associated with the No-Build Alternative and Alternatives B, C, D, and E. The Rehabilitation Alternative would improve the historic bridges to a condition that would allow use of the bridges to support future westbound traffic. However, it is anticipated that the Rehabilitation Alternative would retain little to none of the historic materials after construction and would result in an adverse effect to the historic bridges. Alternative A would replace the historic US 17/92 bridges with a new parallel low-level, fixed-span concrete bridge to accommodate future westbound traffic.

Only Alternative D is expected to indirectly impact the South Florida Railroad linear resource (8OS02540) and CSX railroad bridges (8OS03176-8OS03178) due to the acquisition of 4.2 acres of ROW within the CSX ROW. The other alternatives are expected to avoid impacts to these resources.

Alternative E will result in direct impacts to the [redacted]

In addition to the NRHP-eligible resources noted above, the bridge alternatives were also evaluated based on potential impacts to wetlands, floodplains, nearby specimen cypress trees, utilities, railroad operations, additional ROW needs, and additional construction and maintenance costs. Based on the project purpose and need as well as the potential direct and indirect impacts of each alternative, Alternative A was identified as the Preferred Alternative. The Section 106 Case Study concluded the proposed concept plans (see **Appendix A** and **Appendix C**) would result in

an *Adverse Effect* to historic properties within study area, as detailed in **Table 7-10**. On November 20, 2024, the SHPO concurred with the Section 106 Case Study which documented these conditions would result in an adverse effect to the historic US 17/92 bridges (Bridge Nos. 920002, 920003, 920004) and the South Orange Blossom Trail Bridges Resource Group (8OS03182). FDOT presented proposed mitigation measures to SHPO. The options presented included a survey of bridges constructed in the early twentieth century and a historic narrative of early transportation patterns within FDOT District 5 boundaries. The final mitigation commitments will be documented in a Memorandum of Agreement.

Section 4(f)

Based on the Section 106 Case Study Report and SHPO consultation, the Preferred Alternative bridge improvements are anticipated to result in Section 4(f) use of significant historic resources and an adverse effect to Section 4(f) historic resources. There are nine Section 4(f) historic properties within the study area, one conservation area within the proposed project area, and one archaeological site proximate to the proposed project area.

Four separate Section 4(f) Evaluations (all of which are located in the project file) were prepared to document the evaluation of potential avoidance alternatives and measures to minimize harm:

- Draft South Orange Blossom Trail Bridges Programmatic Section 4(f) Evaluation
- Draft South Orange Blossom Trail Bridges Resource Group Programmatic Section 4(f) Evaluation
- Draft Upper Reedy Creek Management Area - Intercession City Unit Section 4(f) Evaluation
- Draft Beehive Hill Section 4(f) Evaluation

The results of each evaluation are summarized below:

<u>South Orange Blossom Trail Bridges Resource Group (8OS03182)</u>

According to the CRAS, the three historic US 17/92 bridges (8OS01747, 8OS01748, and 80S01749) and the abandoned section of historic US 17/92 roadway (8OS02796) are considered NRHP-eligible as contributing elements to the South Orange Blossom Trail Bridges Resource Group (8OS03182) due to their proximity to each other, and their collective significant and distinguishable engineering distinction as 1930s depression-era, unadorned concrete bridges. Additionally, the three bridges have not been moved or relocated since construction, and the setting surrounding the bridges has remained relatively intact besides the addition of a 30-foot-wide utility corridor serving multiple utilities between the bridges and CSX Railroad.

The ca. 1938 bridges are constructed with cast-in-place concrete decks supported by steel girders on timber pile bents. All three bridges no longer meet FDOT standards and are well beyond their intended service lives (approximately 65 years) - the timber pile bents are decaying, and the three bridges have not been maintained since being placed out of service in 2001.

As part of the Preferred Alternative, to accommodate four lanes on the US 17/92 bridge over Reedy Creek, the current US 17/92 bridge will be widened to serve eastbound traffic on US 17/92 and the NRHP-eligible South Orange Blossom Trail Bridges (8OS03182) Resource Group and three contributing bridges (8OS01747, 8OS01748, and 8OS01749) will be removed and replaced by a new bridge to serve westbound traffic on US 17/92. The historic causeway (8OS02796), or roadway fill section between the three bridges, will be removed as part of the bridge replacement and result in floodplain enhancement. The construction of the new westbound bridge will restore the fourth contributing resource, US 17/92, the Orange Blossom Trail (8OS02796), to functioning condition on its original historic alignment. The bridge replacement will be constructed on the historic roadway alignment and within the historic transportation ROW. No elements of the South Orange Blossom Trail Bridges (8OS03182) Resource Group will remain on this alignment and all materials will be disposed of.

The Preferred Alternative will result in an adverse effect and therefore, a Section 4(f) Use of the South Orange Blossom Trail Bridges Resource Group (8OS03182), including the 0.30-mile segment of US 17/92 roadway (8OS02796) and the three historic bridges (8OS01747, 8OS01748, and 8OS01749) that contribute to the South Orange Blossom Trail Bridges Resource Group. There are no feasible and prudent avoidance alternatives to the Section 4(f) Use of the historic properties. The Section 4(f) documentation for the resource group, the causeway, and the historic bridges is located in the project file.

Consultation with the SHPO has confirmed that the bridge is adversely affected by replacement, and Section 4(f) is applicable. Replacement will impair the historic integrity of the bridge and constitutes a use under Section 4(f) per the guidelines of the Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges. There are no feasible and prudent alternatives to the use of the historic bridge, and the project includes all possible planning to minimize harm.

For the South Orange Blossom Trail Bridges Resource Group (8OS03182) and the 0.30-mile segment of US 17/92 roadway (8OS02796), FDOT has determined that this project meets all the applicability criteria set forth by FHWA's guidance for Programmatic Evaluation for Transportation Projects that have a Net Benefit to a Section 4(f) Property. By constructing a modern segment of a divided highway in the same segment of a historic corridor (versus expanding the ca. 2001 corridor, which is proposed to carry northbound traffic only at the end of construction), FDOT will retain a transportation resource in a similar horizontal and vertical alignment when compared to original construction. In keeping the proposed north and southbound lanes separated, FDOT will not lose the historic location, materials, setting, feeling, and association of the early 20th century highway corridor. Additionally, FDOT and SHPO will gain a clearer understanding of the significance of early transportation routes in Central Florida through the completion of the

proposed mitigation stipulations, including a survey of remaining resources from this era and an updated historic context.

The project results in a clear net benefit to the Section 4(f) resource, there are no prudent and feasible alternatives to the use of the Section 4(f) resource, and the project includes all possible planning to minimize harm. Pursuant to Section 4(f) of the U.S. Department of Transportation Act, FDOT has determined that proposed mitigation measures presented in the MOA will result in a net benefit to the South Orange Blossom Trail Bridges (8OS03182) resource group and contributing Orange Blossom Trail (8OS02796) road segment by returning them to an operational state and restoring them to their historic use as transportation facilities while preserving the characteristics that qualify them for listing on the NRHP.

South Florida Railroad (8OS02540)

The NRHP-eligible South Florida Railroad (8OS02540) and the three CSX Railroad bridges (8OS03176-8OS03178) which are contributing to the linear resource will remain in place and unaltered by the project. The Preferred Alternative results in construction of a new westbound bridge structure south of the South Florida Railroad (8OS02540) approximately 143 feet minimum from the proposed improvements and within the historic US 17/92 ROW. The proposed improvements will not diminish the integrity of these historic resources, nor detract from their ability to display the characteristics that make them eligible for listing in the NRHP.

FDOT determined the Preferred Alternative will have No Adverse Effect to the South Florida Railroad (8OS02540) and its contributing resources (8OS03176, 8OS03177, and 8OS03178). The SHPO concurred with this finding in the Section 106 Determination of Effects Case Study Report on November 20, 2024.

As such, FDOT determined the project will have no Section 4(f) involvement with these historic properties.

Upper Reedy Creek Management Area - Intercession City Unit

The Preferred Alternative impacts a conservation area designated the Upper Reedy Creek Management Area - Intercession City Unit. This is a large, multiple-use land holding managed by the South Florida Water Management District SFWMD with the primary use as conservation and protection of water resources. It occupies the majority of land south of the study area and intersects the study limits near CR 532 and east and west of Intercession City.

Per communication between the Official With Jurisdiction (OWJ), SFWMD, and FDOT dated November 7, 2022, the portions of the Upper Reedy Creek Management Area - Intercession City Unit that are affected by the proposed improvements do not include any significant public recreation facilities that are open to the public or any significant, designated wildlife or waterfowl refuges. Based on this OWJ consultation with SFWMD, FDOT has determined Section 4(f) is "Not

Applicable" for the Upper Reedy Creek Management Area - Intercession City conservation area within the proposed project area.

Beehive Hill Archaeological Site (8OS01726)

The Sub-Area A portion of the larger Beehive Hill archaeological site (8OS01726) was determined by SHPO to be NRHP-eligible on June 22, 2000, and recommended for preservation in place and therefore, FDOT identified Sub-Area A as a designated Section 4(f) protected historic property. Impacts to this site were avoided based on prior SHPO and BAR consultation. Therefore, FDOT has determined there is No Use to the NRHP-eligible Sub-Area A portion of the Beehive Hill archaeological site (8OS01726).

If the proposed project footprint is altered, Section 4(f) applicability and impacts will need to be re-evaluated for this and all historic properties.

7.23.3 Wetlands

The Preferred Alternative minimizes impacts to natural resources, such as wetlands. Pond siting was limited due to the tie-in locations from projects on the west and east end of the Preferred Alternative. Two of the proposed ponds will be joint-use retention to treat stormwater from the Preferred Alternative and related projects described in **Section 1.2.3**. Additionally, there is two stormwater ponds (Pond 3.1 and Pond 4.1) and Floodplain Compensation Area (FPC) included in the Preferred Alternative that are not associated with the joint use ponds, and they are located in the eastern portion of the study area. Pond 3.1 is located between US 17/92 and Old Tampa Highway, and FPC is located north of the Old Tampa Highway. Pond 3.1 was selected and will result in wetland impacts; however, these impacts are lower when compared to the other pond site alternatives that were previously evaluated. Pond 4.1 is included in the Preferred Alternative and results in no wetland impacts. The FPC site will not impact wetlands, and therefore, it was selected over the two other potential FPC locations. Please see the PSR for more details on the Pond Sites and FPCs. However, direct and indirect impacts anticipated from the Preferred Alternative are discussed in the subsections below.

7.23.3.1 Direct Impacts

The Preferred Alternative will result in wetland and OSW impacts. Accounting for the proposed typical sections and drainage improvements, the estimated project footprint will result in 54.24 acres of direct wetland impacts and 2.88 acres of other surface waters impacts. The calculated impacts per system are provided below in **Table 7-11** and **Table 7-12**.

7.23.3.2 Indirect Impacts

The Preferred Alternative was evaluated for potential indirect (i.e., secondary) impacts during construction, these impacts were calculated in wetland areas 25 feet beyond the limits of the direct

wetland impacts (**Table 7-11**). It is anticipated that the Preferred Alternative will result in 11.24 acres of indirect wetland impact.

The Preferred Alternative may result in indirect water quality impacts, but those impacts will be reduced by capturing and treating stormwater prior to discharge. In addition, erosion control measures and the use of BMPs during construction will be implemented to provide reasonable assurance that the Preferred Alternative will not contribute to violations of water quality standards.

Table 7-11: Anticipated Wetland Impacts and Functional Loss from the Proposed Build Alternative

Wetland or OSW ID	FLUCFCS Code and Description	Direct Impacts		Indirect Impact	
		Acre(s)	Functional Loss	Acre(s)	Functional Loss
WL-2	630 – Wetland Forested Mixed	16.78	13.424	3.61	0.241
WL-2A	630 – Wetland Forested Mixed	4.64	3.712	0.39	0.026
WL-3	630 – Wetland Forested Mixed	2.37	1.580	0.50	0.017
WL-4	643 - Wet Prairies	0.02	0.011	0.09	0.006
WL-5	630 – Wetland Forested Mixed	0.27	0.162	0.07	0.005
WL-6	630 – Wetland Forested Mixed	7.17	5.019	0.93	0.062
WL-9	630 – Wetland Forested Mixed	0.63	0.462	0.06	0.004
WL-10	630 – Wetland Forested Mixed	0.69	0.529	0.14	0.009
WL-11	630 – Wetland Forested Mixed	0.71	0.544	0.13	0.009
WL-12	630 – Wetland Forested Mixed	0.13	0.074	0.04	0.003
WL-13	630 – Wetland Forested Mixed	1.97	1.379	0.67	0.045
WL-14	630 – Wetland Forested Mixed	2.58	1.806	1.57	0.105
WL-16	630 – Wetland Forested Mixed	6.21	3.519	0.82	0.055
WL-16A	640 - Vegetated Non-forested Wetlands	1.08	0.540	0.43	0.029
WL-17	630 – Wetland Forested Mixed	1.41	0.752	0.55	0.037
WL-18	630 – Wetland Forested Mixed	0.06	0.042	0.08	0.005
WL-19	630 – Wetland Forested Mixed	0.46	0.230	0.24	0.016
WL-21	630 – Wetland Forested Mixed	7.00	4.900	0.69	0.046
WL 41	630 – Wetland Forested Mixed	0.04	0.025	0.11	0.007
WL 41A	630 – Wetland Forested Mixed	0.02	0.011	0.12	0.008
Total Wetland Impacts and Functional Loss		**54.24**	**38.721**	**11.24**	**0.735**

Table 7-12: Anticipated Other Surface Impacts from the Proposed Build Alternative

Other Surface Water ID	FLUCFCS Code and Description	Direct Impacts
SW-6	510-Streams and Waterways	0.09
SW-7	510-Streams and Waterways	0.02
SW-8	510-Streams and Waterways	0.01
SW-14	510-Streams and Waterways	0.44
SW-15	530-Reserviors	0.01
SW-16	510-Streams and Waterways	1.19

SW-17	510-Streams and Waterways	0.03
SW-18	510-Streams and Waterways	0.22
SW-19	510-Streams and Waterways	0.03
SW-20	510-Streams and Waterways	0.07
SW-21	510-Streams and Waterways	0.07
SW-22	510-Streams and Waterways	0.02
SW-23	510-Streams and Waterways	0.03
SW-24	510-Streams and Waterways	0.06
SW-25	510-Streams and Waterways	0.05
SW-26	510-Streams and Waterways	0.04
SW-27	510-Streams and Waterways	0.04
SW-28	510-Streams and Waterways	0.06
SW-29	510-Streams and Waterways	0.20
SW-30	510-Streams and Waterways	0.02
SW-31	510-Streams and Waterways	0.02
SW-32	510-Streams and Waterways	0.02
SW-33	510-Streams and Waterways	0.03
SW-34	510-Streams and Waterways	0.05
SW-35	510-Streams and Waterways	0.02
SW-36	510-Streams and Waterways	0.01
SW-37	510-Streams and Waterways	0.01
SW-38	510-Streams and Waterways	0.01
SW 39	510-Streams and Waterways	0.01
Total Impacts		**2.88**
Note: Other surface water impacts are not anticipated to require wetland mitigation.		

7.23.3.3 Cumulative Impacts

Direct and indirect impacts from the Preferred Alternative are minimal. Mitigation will be provided to offset the anticipated functional loss of wetlands and therefore, no adverse cumulative impacts are anticipated.

7.23.3.4 Avoidance and Minimization

In accordance with federal and state regulations, avoidance and minimization of wetland impacts were considered in developing the proposed build alternative. These measures include proposing a typical section to meet the needs of the project and the minimum requirements of the FDOT standard design criteria; evaluating the best fit options for widening, including left/center/right; analyzing potential pond sites to collect stormwater runoff; and considering the use of retaining walls along steep side slopes to minimize the construction footprint.

7.23.3.5 Wetland Functional Assessment

An assessment was conducted for the wetlands within the footprint of the proposed build alternative using the Chapter 62-345, F.A.C. UMAM.

The results of the UMAM assessment are provided in **Table 7-12**. The UMAM assessment worksheets demonstrating these results are provided in the NRE. These values may be refined with coordination and review by the regulatory agencies.

7.23.3.6 Wetland Mitigation

Mitigation needs of the proposed build alternative pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C. 1344 will be evaluated by FDOT. There are multiple mitigation banks (Reedy Creek Mitigation Bank, Southport Ranch Mitigation Bank) that have credits available to offset the wetland impacts associated with the proposed build alternative and meet the mitigation requirements of the USACE and SFWMD.

The proposed build alternative has been evaluated in accordance with Federal Executive Order 11990 - "Protection of Wetlands." Based upon the above considerations, it is determined that there are no practicable alternatives to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. As the project advances through subsequent phases, avoidance and minimization of wetland impacts will continue to be considered to the maximum extent practicable. Therefore, with proper mitigation, the proposed project is expected to result in no significant impacts to wetlands.

7.23.4 Protected Species and Habitat

The potential impact of the widening of US 17/92 was determined for the federally listed, state listed, and other protected species with a moderate or high potential of occurrence within the study area, or the species in which the project occurs within the USFWS consultation area for said species (see **Section 2.4.1**).

The effects determination for the relevant species are summarized in **Table 7-13**. The full effects determination is included in the NRE.

Table 7-13: Species Effects Determination for the Preferred Alternative

Common Name	Effects Determination
Federal Listed Species	
Eastern Indigo Snake	May Affect, Not Likely to Adversely Affect
Bluetail Mole Skink	
Sand Skink	
Florida Scrub-Jay	
Wood Stork	
Audubon's crested caracara	
Florida Bonneted Bat	
Monarch Butterfly	To Be Determined
TriColored Bat	
American Alligator	No Effect
Florida Grasshopper Sparrow	
Red-cockaded Woodpecker	
Everglade Snail Kite	
Florida Panther	
Black Rail	
State Listed Species	
Gopher Tortoise	No Adverse Effect Anticipated
Pine Snake	
Little Blue Heron	
Tricolored Heron	
Southeastern American Kestrel	
Chapman's Sedge	
Star Anise	
Narrowleaf Naiad	
Plume Polypody	
Comb Polypody	
Florida willow	
Florida Sandhill Crane	No Effect Anticipated
Florida Burrowing Owl	
Other Protected Species	
Bald Eagle	No Effect
Florida Black Bear	No Adverse Effects

7.23.5 Essential Fish Habitat

Based on the ETDM coordination, the NMFS concluded that the study area will not directly or indirectly impact EFH and provided a no involvement determination. Based on the location of the project, comment received from NMFS, and field review, the project will have no involvement with EFH.

7.23.6 Tree Survey and Inventory

Within the area of the current and historic US 17/92 bridges and the surrounding Fletcher Park conservation land, there are 37 large cypress trees located within the Reedy Creek floodplain. Cypress trees provide critical functions and values to Reedy Creek, wildlife species, and overall environmental quality.

In August 2023, a Tree Inventory and Impact Report, in the project file, was completed within the study area between and surrounding both the current US 17/92 bridge and historic US 17/92 bridges to further evaluate natural resources, specifically the presence of the protected cypress trees and existing land use. These specimen cypress trees are also extremely important to the community and the Osceola Board of County Commissioners adopted Resolution #23-235R reaffirming its 1994 resolution stating that protection of the ancient cypress trees constitutes an overriding public interest and opposing removal of any further cypress trees in Fletcher Park.

The Osceola County Land Development Code (LDC) protects Historic/Specimen Trees. The Osceola County LDC defines Historic/Specimen trees as follows: "A Historic/Specimen Tree is any tree that possesses distinction, with regard to significant historic events, persons and/or places, or is an ecologically significant tree of its species due to its size and/or age." Historic/Specimen trees are designated based on credible historic and/or ecological evidence, subject to approval from the Osceola County Board of County Commissioners. The trees are recorded on the Historic/Specimen Tree Registry map, maintained by the County Manager. Under Osceola County LDC removal of Historic/Specimen trees is expressly prohibited. The Historic/Specimen Tree Registry map is not publicly available, and it is not known if any registered Historic/Specimen Trees occur within the tree inventory study area. However, it is likely that trees within the area would meet the requirements for registration as Historic/Specimen trees.

7.23.7 Highway Traffic Noise

The noise impact analysis results show that noise levels attributed to the project's Build Alternative will not increase substantially over existing noise levels, with 9.4 dB(A) being the highest predicted noise level increase. While none of the individual increases are considered substantial (i.e., ≥15 dB(A) over existing levels), project noise levels are predicted to meet or exceed the NAC at 38 residential Activity Category B receptors and one Activity Category C receptor.

To mitigate the 39 impacts, noise barriers were considered as an abatement measure. The evaluation concluded that barriers are not feasible for this project. Five impacted residential receptors are considered "isolated." Therefore, noise abatement at those locations cannot meet the minimum acoustic feasibility requirement of 5.0 dB(A) in noise reduction at two impacted receptors. Due to engineering constraints caused by numerous driveways and side streets, noise barriers cannot be constructed with sufficient length to mitigate the noise impacts at the remaining 33 impacted receptors.

7.23.8 Contamination

A total of 12 sites of potential contamination risk were identified, including seven Low Risk and five Medium Risk sites (no High Risk sites were found), shown in **Table 7-14**. Information on each site is summarized in **Table 7-15**. The CSER, in the project file, includes Figure A4: Potential Contamination Site Location Map. Level II Contamination Assessment investigations are

recommended where proposed dewatering or subsurface work (e.g., pole foundations, drainage features, soil excavation, etc.) would occur at or adjacent to any sites rated Medium Risk. If dewatering will be necessary during construction, a FDEP Dewatering Permit will be required. The contractor will be held responsible for ensuring compliance with any necessary dewatering permit(s). A dewatering plan will be necessary to avoid potential contamination plume exacerbation. All permits will be obtained in accordance with Federal, state, and local laws and regulations, and in coordination with the District Contamination Impact Coordinator. Further details on each site and the site location maps are included in the CSER.

Table 7-14: Contamination Risk Rating Summary

Risk Rating	Number of Sites	Number of Sites Proposed for ROW Acquisition
Low	7	2
Medium	5	2
High	0	0

Table 7-15: Site Information

Site No.	Facility Name	Address	Facility ID (FDEP/RCRA)	Concerns	Approximate Distance from Project	Risk Rating
1	Ebenezer Nursery	6635 S Orange Blossom Trail, Davenport, FL 33896	N/A	Hazardous Materials	~50 feet west of US 17/92	Low
2	Spill at Train Tracks near 6525 Osceola Polk Line Road (Incident No. 55627)	N/A	N/A	Tanks, Leaks, Hazardous Materials	Adjacent to construction	Low
3	Duke Energy Intercession City Plant	6525 Osceola Polk Line Road, Davenport, FL 33896	8840909	Petroleum Products	~360 feet northwest of Pond 2B	Low
4	Debris Management Site	US 17/92 at Old Tampa Highway	99959	Hazardous Materials	Co-located	Low
5	Historical Telephone Repeater Station	N/A	N/A	Hazardous Materials	~160 feet north of project	Medium
6	Appliances	5624 S Orange Blossom Trail, Intercession City, FL 33848	SQG_103237	Tanks, Leaks, Hazardous Materials	Adjacent	Low

7	Marathon – Intercession #090 / Circle K #7226	1608 Shepherd Ln, Intercession City, FL 33848	8513740, FLD984254276	Tanks	Adjacent	Medium
8	Leprino Foods	3152 Ave B, Kissimmee, FL 34758	8520986	Tanks, Hazardous Materials	Adjacent	Medium
9	SVC Manufacturing Inc.	1650 S Poinciana Blvd, Kissimmee, FL 34758	9808670, FLD984175281	Hazardous Materials	~100 feet north of US 17/92	Low
10	Railroads	North of US 17/92, intersecting Osceola Polk Line Road	N/A	Hazardous materials, Petroleum Products, Arsenic, Herbicides, Polycyclic/Polynuclear Aromatic Hydrocarbons	280 feet to 1,000 feet north of US 17/92	Low
11	Historical Citrus Groves	Western half of study area	N/A	Pesticides, Herbicides, Arsenic	Adjacent	Medium
12	Area of Pits	Near Ivy Mist Lane intersection	N/A	Unknown	Adjacent	Medium

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Note: "Co-located" is intended to mean overlapping with the project footprint.

Per the CSER, the below Contamination Support recommendations have been made, and will be adhered to during the future phases of the project. Level II Impact to Construction Assessments (ICAs) are recommended for this project as follows:

1. The debris pile on Joint Use Pond 1 will require evaluation for solvents, paints, and petroleum products.
2. The Historical Telephone Repeater Station (Site No. 5) will require evaluation of the structure and the wire chases/conduit for lead and asbestos containing materials. These features should be removed prior to excavating Pond 3.1.
3. Site No. 7 is an active gas station without known contamination impacts and may require a Level II ICA prior to ROW acquisition. Impacts are not anticipated to this location.
4. Site No. 8 is located about 400 feet southeast of the proposed roundabout construction and does not appear to require a Level II ICA unless dewatering will be performed during the roundabout construction. Impacts are not anticipated to this location.
5. The soil within the Historical Citrus Grove areas (Site No. 11) containing the realigned US 17/92 and Joint Use Pond 1 should be evaluated for arsenic, pesticides, and herbicides.
6. The Area of Pits (Site No. 12) is located adjacent to, but outside of the current project area (US 17/92 construction and Joint Use Pond 1). There is a potential for unknown buried materials at this location. Test pits and contamination assessment may be necessary.

Recommendations based on Asbestos Containing Materials testing and Lead Based Paint testing done on Bridge Nos. 920002, 920003, and 920004 are as follows:

1. Abatement of the Asbestos Containing Materials on Bridge No. 920002 vibration pads is recommended.
2. Sample metal coatings for waste characterization (TCLP analysis) is recommended due to the concentration of total lead detected. This waste stream will most likely require disposal in an FDEP-approved waste management facility.
3. Transport and disposal of old creosote pilings to an FDEP-approved waste management facility.