

PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

District 5

SR 535 PD&E Study

From US 192 to North of World Center Drive (SR 536)

Osceola and Orange Counties, Florida

Financial Project ID Number: 437174-2-22-01

ETDM Number: 14325

October 2024

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

PROFESSIONAL ENGINEER CERTIFICATION

PRELIMINARY ENGINEERING REPORT

Project: SR 535 PD&E Study

ETDM Number: 14325

Financial Project ID: 437174-2-22-01

Federal Aid Project Number: N/A

This preliminary engineering report contains engineering information that fulfills the purpose and need for the SR 535 Project Development & Environment Study from US 192 to North of World Center Drive (SR 536) in Osceola and Orange Counties, 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 Metric Engineering, Inc. 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 Carlos Rodriguez, P.E. on the date adjacent to the seal.

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Appendix B: FEMA FIRM

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Appendix E: Roadway Concept Roll Plot

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Appendix G: Access Management

Appendix H: Long Range Estimate (LRE)

1.0 PROJECT SUMMARY

In November 2017, the Florida Department of Transportation (FDOT) District Five (D-5) completed a Corridor Planning Study (CPS) to evaluate State Road 535 (SR 535) from US 192 in Osceola County to I-4 in Orange County. The purpose of the CPS was to identify specific problem areas along the corridor and evaluate multimodal alternatives that will be carried forward into future phases of project development in order to optimize the operations of the existing facility. Improvements identified as a result of the CPS included widening from four to six lanes, TSM&O and multimodal improvements, and intersection improvements (including innovative intersection designs).

This Preliminary Engineering Report (PER) documents the project's purpose and need, the alternatives developed, the process of selecting the preferred alternative, and presents the preliminary design analysis for the preferred alternative.

1.1 Project Description

The Florida Department of Transportation, District 5 (FDOT) is conducting a Project Development and Environment (PD&E) Study to evaluate the widening of SR 535 from four to six lanes from US 192 in Osceola County to just north of World Center Drive (SR 536) in Orange County, approximately 2.35 miles as shown in **Figure 1-1**. SR 535 is known as Vineland Road in Osceola County and Kissimmee-Vineland Road in Orange County.

Within the study limits, State Road (SR) 535 is a four-lane divided minor arterial facility that runs generally in a north south direction with an existing posted speed that varies from 45 to 50 miles per hour (mph) (**Figure 1-1**). Bicycle and pedestrian facilities are provided intermittently throughout the study limits. There are three bridges over SR 535 within the study limits. Two of the existing bridges (#750474 and #750475) serve eastbound and westbound SR 417 and one of the existing bridges (#924161) serves both eastbound and westbound Osceola Parkway. The existing drainage system collects roadway stormwater runoff in ditches and conveys the roadway stormwater runoff to treatment ponds via roadside ditches. The proposed improvements include widening SR 535 from four to six lanes, constructing intersection improvements, providing drainage treatment and providing shared use paths along both sides of the roadway. The existing bridges will not be modified. The typical section for the Preferred Alternative is provided in **Figure 1-2**.

Figure 1-1 - Project Location Map



1.2 Purpose & Need

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

1.2.1 Transportation Demand

In the existing condition, the section of SR 535 from US 192 to Kings Heath Road operates at a Level of Service (LOS) D with an Annual Average Daily Traffic (AADT) of 28,300; the section from Kings Heath Road to Poinciana Boulevard operates at LOS D with an AADT of 26,900; the section from Poinciana Boulevard to Polynesian Isle Boulevard operates at LOS D with an AADT of 46,800; the section from Polynesian Isle Boulevard to World Center Drive operates at LOS D with an AADT of 44,300.

Based on the approved Orange County and 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 section of SR 535 from US 192 and Kings Heath Road is projected to operate at LOS F with an AADT of 42,000; the section from Kings Heath

Road to Poinciana Boulevard is projected to operate at LOS E with an AADT of 40,000; the section from Poinciana Boulevard to Polynesian Isle Boulevard is projected to operate at LOS F with an AADT of 69,000; the section from Polynesian Isle Boulevard to World Center Drive is projected to operate at LOS F with an AADT of 66,000.

1.2.2 Safety

A total of 981 crashes were reported on SR 535 from US 192 to Lake Bryan Beach Boulevard in the five-year period from 2014 through 2018. Of those reported crashes, 463 (47%) resulted in injury and four (4) resulted in a fatality. The most frequent crash type was rear end with 605 (62%) total crashes, indicating congestion. Sideswipe crashes were the second highest with 106 (11%), followed by left-turn with 93 (9%) total crashes. Of the 981 crashes, 602 (61%) crashes occurred during daylight conditions. The crash rates along this segment of SR 535 exceed the FDOT statewide averages for similar facilities.

1.3 Project Status

The project is within the jurisdiction of MetroPlan Orlando. The MetroPlan Orlando 2045 Cost Feasible Plan (CFP)(see attached page) includes widening of SR 535 from US 192 in Osceola County to SR 536 in Orange County in years 2031 to 2035 (construction). The SR 535 improvements are funded for design in the FDOT 2024-2029 Five-Year Work Program and MetroPlan Orlando 2023-2028 Transportation Improvement Program (TIP) (see attached pages). This project was screened in the Efficient Transportation Decision Making (ETDM) system as ETDM #14325.

1.4 Commitments

FDOT has made a series of commitments and recommendations during this PD&E Study. The following sections summarize the commitments and recommendations that will be adhered to during the future transportation phases.

1. 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 (*Ursus americanus floridanus*). Any interaction with nuisance bears will be reported to the FWC Wildlife Alert hotline 888-404-FWCC (3922).
2. The most recent version of the USFWS Standard Protection Measures for the Eastern Indigo Snake will be utilized during construction.

3. If the tricolored bat (*Perimyotis subflavus*) is listed by USFWS as Threatened or Endangered and the project may affect the species, FDOT commits to re-initiating consultation with USFWS to determine appropriate avoidance and minimization measures for protection of the newly listed species.
4. If the Monarch butterfly (*Danaus plexippus*) is listed by USFWS as Threatened or Endangered and the project may affect the species, FDOT commits to re-initiating consultation with USFWS to determine appropriate avoidance and minimization measures for protection of the newly listed species.

1.5 Alternatives Analysis Summary

The following alternatives were evaluated during the study:

- 'No-Build' Alternative
- Construction ('Build') Alternatives

The build alternative consists of widening SR 535 from four to six lanes. The study evaluated a range of typical section and intersection alternatives including inside widening and outside widening of the existing roadway. The build alternative analysis included the evaluation of open and closed stormwater drainage conveyance systems together with the evaluation of pond site locations. The study also evaluated Transportation System Management and Operations (TSM&O) and multimodal improvements.

1.6 Description of Preferred Alternative

The Preferred Alternative consists of inside widening from four to six lanes with a shared use path along both sides and intersection improvements. The preferred alternative is shown on **Figure 1-2**.

The Preferred Alternative has a design speed of 45 mph and consists of full reconstruction with the additional lanes constructed towards the median. The typical section consists of three (3) 11-foot travel lanes in each direction separated by a 32-foot to 47-foot median with a 14-foot shared use path on the west side and a 12-foot shared use path on the east side of the roadway except under the Osceola Parkway Bridge where the shared use path is constrained to 12-foot in width on both sides of the roadway. The Preferred Alternative typical section will generally be constructed within the existing right-of-way width of 200-feet to 224-feet. Swales with ditch bottom inlets in conjunction with flume inlets at the curb line will be provided for drainage conveyance. Stormwater attenuation and floodplain compensation will be provided.

Figure 1-2 - Preferred Alternative Typical Section



SR 535 roadway improvements would not require extending or reconstructing the existing bridges over SR 535 Including the one bridge carrying Osceola Parkway traffic over SR 535 (#924161) and two bridges carrying SR 417 over SR 535 (#750474 and #750475) as all improvements will fit under the existing structures (see **Figure 1-3** and **Figure 1-4**). Due to horizontal constraints, the shared use path will decrease from 14' to 12' on the west side of SR 535 under the Osceola Parkway.

Figure 1-3 - Osceola Parkway over SR 535

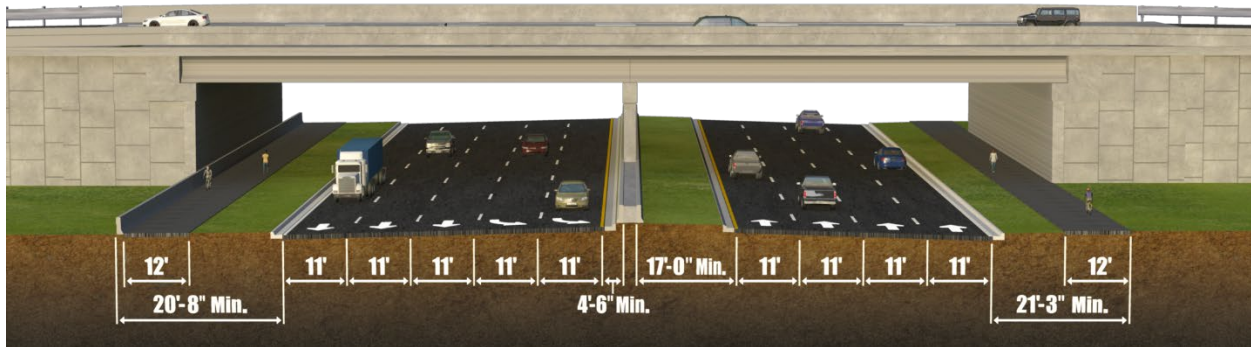


Figure 1-4 - SR 417 over SR 535



1.6.1 Intersection Improvements

The Preferred Alternative will also implement intersection improvements including the following innovative intersection concepts.

- Polynesian Isle Boulevard Partial Median U-Turn (PMUT): Implementation of the PMUT involves the removal of northbound and southbound direct left turn movements from SR 535 to Polynesian Isle Boulevard and the addition of signalized U-turns at the existing median openings located just north and south of the intersection along SR 535 to accommodate vehicles wishing to travel east or west on Polynesian Isle Boulevard.
- International Drive Partial Displaced Left Turn (PDLT): Implementation of the PDLT involves the removal of direct eastbound and westbound left turns from International Drive at SR 535 with the displaced left turns installed on both legs of International Drive. The northbound and southbound left turn movements for SR 535 continue to take place at the main intersection.
- SR 536 (World Center Drive) PDLT: Implementation of the PDLT involves the removal and replacement of direct northbound and southbound left turns from SR 535 at SR 536 with the displaced left turns installed on both legs of SR 535. The eastbound and westbound left turn movements for the SR 536/World Center Drive continue to take place at the main intersection.

1.6.2 Drainage

There are 4 basins in the existing and proposed condition, and all basins drain to permitted stormwater systems in the existing condition (see **Table 1-1**). Where feasible, stormwater management facilities have been recommended within existing FDOT right-of-way. Below is a summary of the preferred pond alternatives (see **Figure 1-5**).

SECTION 1 – PROJECT SUMMARY

- Basin 1: Alternative 1A is the Preferred Alternative for Basin 1. Alternative 1A consists of an existing wet detention pond (identified as Exist. Pond 1-1) within FDOT right-of-way to provide the required water quality treatment and attenuation volumes.
- Basin 2: Alternative 2A is the Preferred Alternative for Basin 2. Alternative 2A consists of 2 ponds, one existing wet detention pond within existing FDOT right-of-way (identified as Exist. Pond 2-1) interconnected with a second wet detention pond (identified as Pond 2-2) to provide the required water quality treatment and attenuation volumes. Since there is insufficient area within the existing FDOT right-of-way to provide a stormwater management alternative to meet water quality treatment and attenuation requirements, Pond Alternative 2A will require acquisition of right-of-way.
- Basin 3: Alternative 3A is the Preferred Alternative for Basin 3. Alternative 3A consists of 2 ponds, one existing wet detention pond within existing FDOT right-of-way (identified as Exist. Pond 3-1) interconnected with a second wet detention pond (identified as Pond 3-2) to provide the required water quality treatment and attenuation volumes. Since there is insufficient area within the existing FDOT right-of-way to provide a stormwater management alternative to meet water quality treatment and attenuation requirements, Pond Alternative 3A will require acquisition of right-of-way.
- Basin 4: Alternative 4A is the Preferred Alternative for Basin 4. Alternative 4A consists of an existing wet detention pond (identified as Exist. Pond 4-1) within existing Orange County right-of-way and easement to provide the required water quality treatment and attenuation volumes.

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Table 1-1 - Preferred Pond Alternatives

Basin	Preferred Alternative	Ponds	Type	R/W Req'd. (ac)
1	1A	Exist. Pond 1-1	Wet	0.0
2	2A	Exist. Pond 2-1 and Pond 2-2	Wet	3.0
3	3A	Exist. Pond 3-1 and Pond 3-2	Wet	3.5
4	4A	Exist. Pond 4-1	Wet	0.0

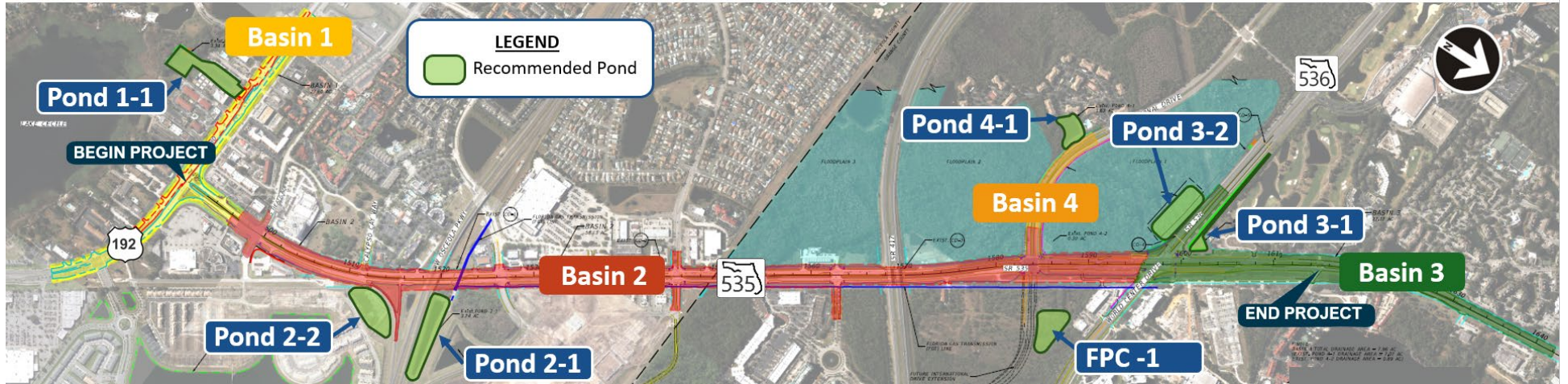
An analysis of floodplain impacts and Floodplain Compensation (FPC) alternatives was performed. Project improvements will impact the 100-year floodplain as a result of longitudinal impacts and transverse impacts. The Preferred FPC Alternative and anticipated right-of-way needs associated with the Preferred Alternative are provided in Table 1-2.

Table 1-2 - Preferred FPC Site

Name	Floodplain Impacts (ac-ft)	Floodplain compensation Volume Provided (ac-ft)	Estimated Pond R/W Req'd. (including access) (ac)
FPC-1	8.89	14.45	4.3

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Figure 1-5 - Preferred Alternative Ponds



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1.6.3 Right-of-way and Construction Cost

SR 535 has an existing right-of-way of 200 to 224 feet which accommodates the roadway typical section for the Preferred Alternative. Approximately 0.7 acres of right-of-way acquisition is required to construct improvements at the SR 535/International Drive and SR 535/World Center Drive (SR 536) intersections. Approximately 10.8 acres of right-of-way acquisition are associated with the required stormwater and floodplain compensation ponds. The Preferred Alternative will impact a total of 8 parcels. See Table 1-3 for cost estimate.

Table 1-3 - Cost Estimate

	Cost
Construction	\$76.5M
Right-of-Way Acquisition	\$38.1M
Utility Relocation	\$7M
Sub Total	\$121.6M
Design (15%)	\$11.5M
CEI (10%)	\$7.7M
Total Estimated Project Cost	\$140.8M

1.7 List of Technical Documents

The following is a list of technical documents completed during this study.

- Engineering Reports
 - Traffic Analysis Methodology Memorandum – December 2021
 - Project Traffic Analysis Report (PTAR) – March 2023
 - Location Hydraulics Report (LHR) – February 2024
 - Pond Siting Report (PSR) – February 2024
 - Geotechnical Technical Memorandum – March 2024
 - Utility Assessment Package (UAP) – November 2023
 - Transportation Systems Management & Operations (TMS&O) PSEMP - May 2024
 - Concept of Operations (ConOps) - May 2024
- Environmental Reports
 - Noise Study Report (NSR) – April 2024
 - Contamination Screening Evaluation Report (CSER) – April 2024
 - Natural Resource Evaluation Technical Memorandum (NRE) – April 2024
 - Cultural Resource Assessment Survey (CRAS) – March 2024

SECTION 1 – PROJECT SUMMARY

- Type II Categorical Exclusion – October 2024
- Public Involvement Reports
 - Public Involvement Plan (PIP) – May 2020
 - Comments and Coordination Report (CCR) – August 2024
- Other Supporting Documents
 - ETDM Summary Report – July 2019
 - Corridor Planning Study – November 2017

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2.0 EXISTING CONDITIONS

The purpose of the existing conditions analysis is to inform future improvement efforts by gaining an understanding of how the corridor performs today. The topics addressed in the existing conditions analysis include existing typical sections, right of way, roadway characteristics, traffic operations, safety, geotechnical information, and drainage information, among others. The evaluation of existing conditions included the collection and review of all data pertaining to the existing facility. The task involved an on-site inventory and verification of current existing conditions that would serve as the basis for evaluation of how the corridor performs today. This information is then utilized to inform development of future improvements.

Important project features along the SR 535 facility such as roadway characteristics, drainage information, traffic, safety, as well as, the existing social/environmental characteristics, were reviewed and summarized.

2.1 Previous Planning Studies

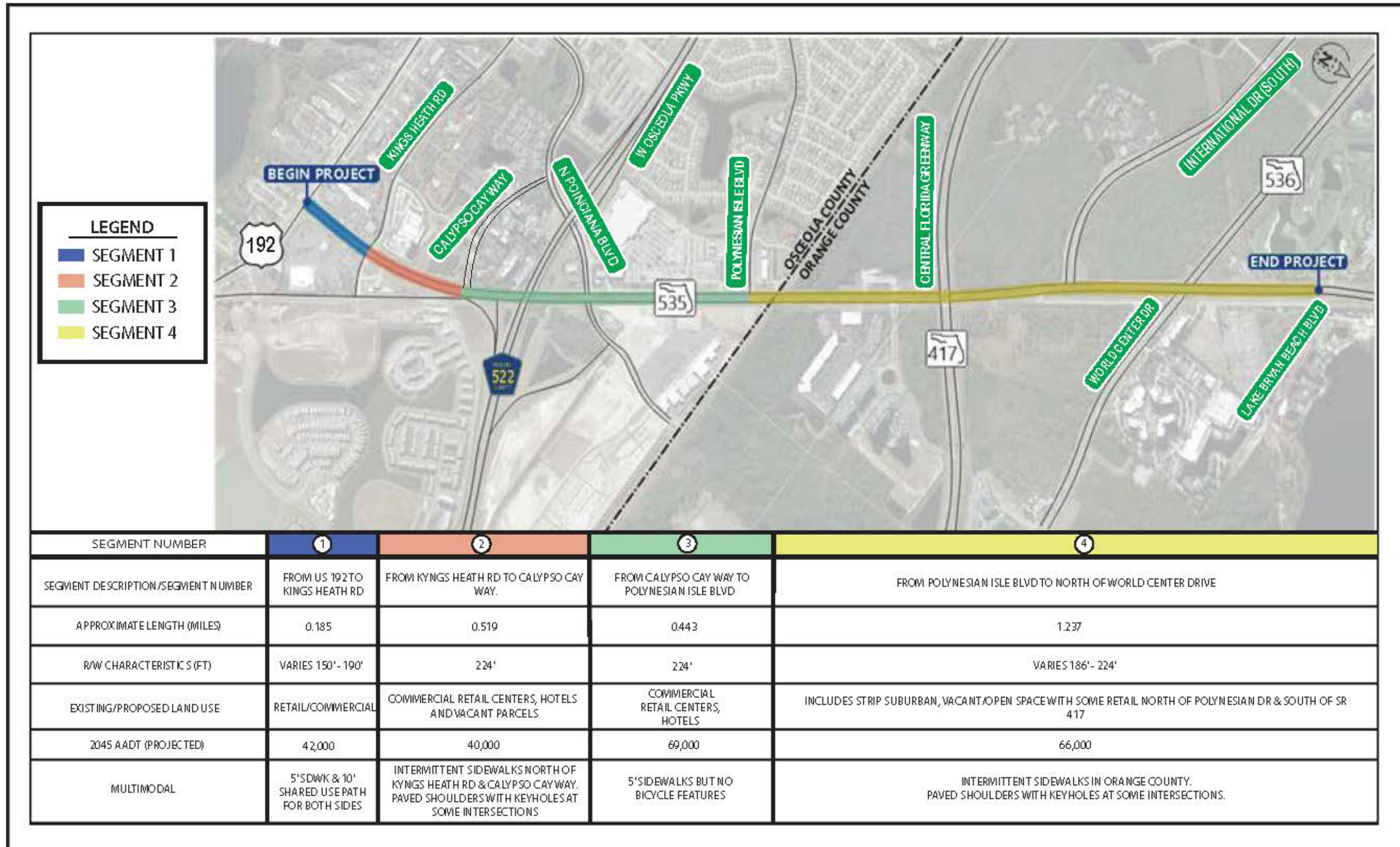
In November 2017, the FDOT completed a CPS to evaluate State Road 535 (SR 535) from US 192 in Osceola County to I-4 in Orange County. The purpose of the CPS was to identify specific problem areas along the corridor and evaluate multimodal alternatives that will be carried forward into future phases of project development in order to optimize the operations of the existing facility. Improvements identified as a result of the CPS include widening from four to six lanes from north of Kyngs Heath Road to SR 536. The findings from the CPS were used in the development of the purpose and need for this PD&E Study. FDOT is now conducting this PD&E Study to build upon and further evaluate the recommendations from the CPS.

2.2 Study Corridor Segmentation

Prior to initiating the analysis of existing conditions, the project was broken down into four (4) distinct segments (see **Figure 2-1**). Each segment has unique characteristics such as land use, right of way, operational, multimodal accommodations, and geometric features. In general terms, **Segment 1** features an urban typical section and within an existing 150'-180' total right of way.

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Figure 2-1 - Segmental Breakdown



SECTION 2 – EXISTING CONDITIONS

This segment has a lower AADT than Segments 3, 4 and 5. **Segment 2** features a suburban typical section with comparable AADT to the previous segment. Although the land use along the west side is also partially similar to Segment 1 (strip retail), additional multifamily residential and hotel land uses are also present. The abutting land use along the east side is generally vacant and the right of way is more ample extending approximately 112’ from the center line to both the east and west sides. **Segment 3**: the AADT increases substantially within this segment as compared with the previous two. The available right of way and abutting land uses along both sides are similar to the previous segment. It should be noted that the Polynesian Isle Boulevard/SR 535 intersection (at the terminus of this segment) exhibits the second highest concentration of crashes within the project limits. **Segment 4** features mostly vacant land uses along both sides except for the Lake Buena Vista Stores and the RACE gas station just south of Lake Buena Vista Factory Stores Drive. The AADT within this segment is also very high (only slightly lower than the previous segments).

2.3 Summary of Funded Improvements

Capacity, operational, intersection and multimodal improvements as part of the PD&E Study for SR 535 have been identified in the MetroPlan Orlando’s Transportation Improvement Program (TIP) for fiscal year 2023/2024 and the 2045 Long Range Transportation Plan (LRTP). **Table 2-1** includes some pertinent references to this study.

Table 2-1 - Planned SR 535 Projects within Study Vicinity

Facility	Location	Source	Improvement	Project ID/CF#
SR 535	From US 192 to SR 536/ World Center Drive	MetroPlan Orlando TIP	PD&E Study – 2023/2024 Design - 2025/2026	4371751-2
SR 535	From US 192 to SR 536/ World Center Drive	MetroPlan Orlando 2045 LRTP	Widen to 6 lanes PD&E Study - 2023 Design – 2023 R/W – 2026-2030 Construction- 2031-2035	2252

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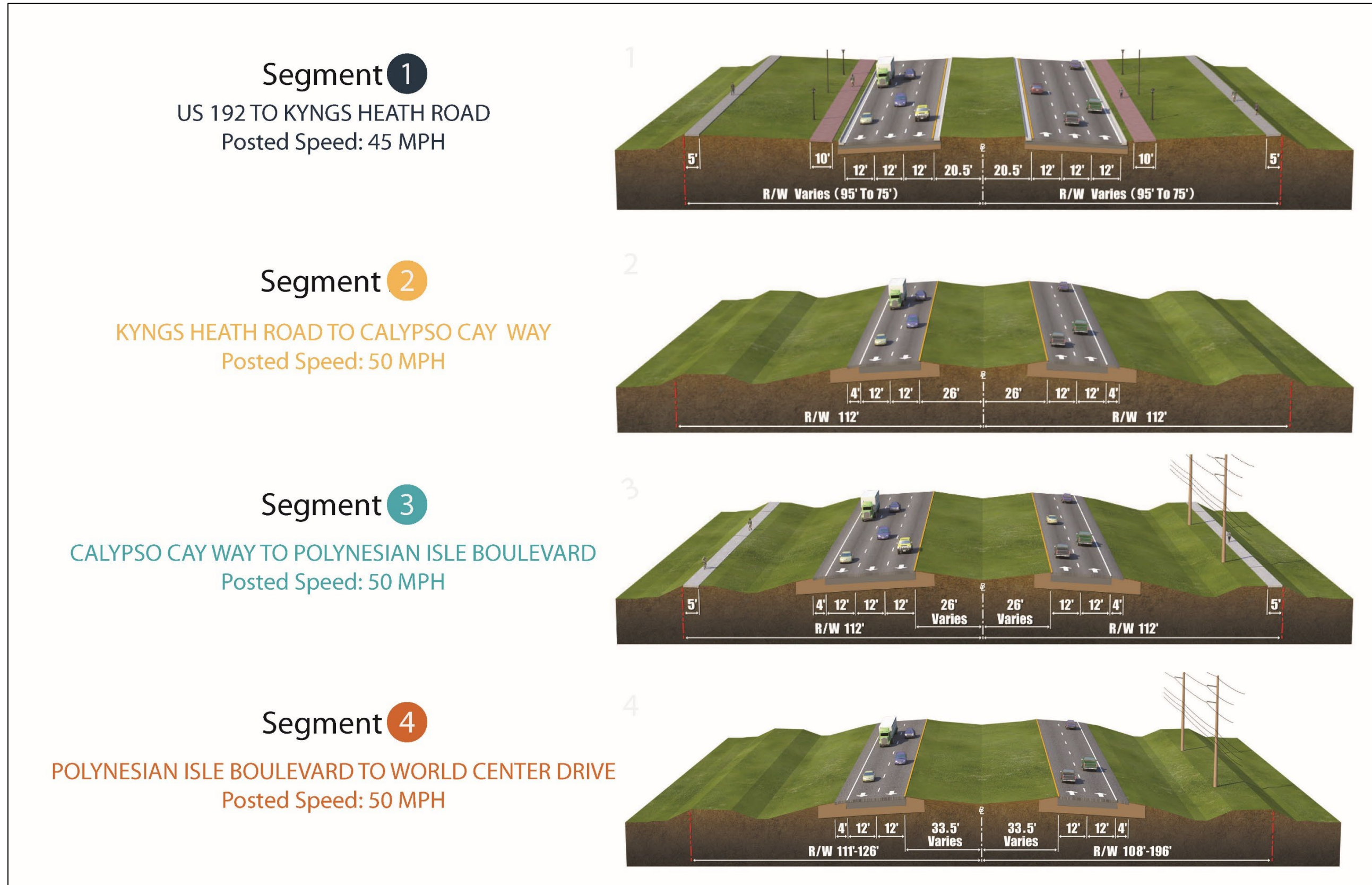
2.4 Roadway Characteristics

2.4.1 Typical Sections

As shown on **Figure 2-2**, the existing SR 535 facility generally features four (4) distinct typical sections. The existing typical sections are generally described as follows:

- **Segment 1: Begin Project (US 192) to Kyngs Heath Road**, the existing facility generally features a six lane divided urban typical section with 12-foot lanes, curb and gutter and a 41-foot wide, raised, landscaped median. The available right of way varies from 150 feet to 190 feet. A 10-foot wide shared use path is present along both sides of the road and 5-foot sidewalks along both the east and west right of way lines.
- **Segment 2: Kyngs Heath Road to Calypso Cay Way**, the existing facility generally features a four-lane divided suburban section with 12-foot lanes, 4-foot outside paved shoulders and a 52-foot grass median. The available right of way is 224 feet (112' to each side of the roadway centerline). Discontinuous 5-foot sidewalks are provided along both sides of the right of way lines just north of the Kyngs Heath Road intersection for approximately 450 feet. There are no bicycle facilities or sidewalks present along the rest of the segment.
- **Segment 3: Calypso Cay Way to Polynesian Isle Boulevard**, the existing facility generally features a five-lane divided suburban section with three 12-foot southbound lanes, two 12-foot northbound lanes, 4-foot outside paved shoulders and a 52-foot grass median. The available right of way is 224 feet (112' to each side of the roadway centerline). This section features a 5-foot continuous sidewalk along the west right of way from Poinciana Boulevard to Polynesia Isle Boulevard.
- **Segment 4: Polynesian Isle Boulevard to End Project (north of World Center Drive/SR 536)**, the existing facility features a divided suburban typical section which varies from four lanes to six lanes. This section has 12-foot-wide lanes, 4-foot outside paved shoulders and a median width that varies from 42 feet to 67 feet. The available right of way varies from 195 feet to 323 feet. The only sidewalks within this segment are located along the west right of way line south of the Osceola/Orange County line and along both the east and west right of way lines in the immediate vicinity of Lake Buena Vista factory Stores Drive.

Figure 2-2 - Existing Typical Sections



2.4.2 Right of way

The existing right of way associated with SR 535 within the project limits is shown in **Table 2-2**.

Table 2-2 - Existing Right of way

From	To	R/W (ft)
Begin Project (US 192)	Kyngs Heath Road	Varies 150' to 190'
Kyngs Heath Road	Calypso Cay Way	224'
Calypso Cay Way	Polynesian Isle Boulevard	224'
Polynesian Isle Boulevard	International Drive	224'
International Drive	End Project (World Center Drive/SR 536)	Varies 195' to 323'

2.4.3 Roadway Classification and Context Classification

SR 535 is functionally classified as an urban minor arterial within the project limits with existing posted speeds ranging between 45 and 50 mph. In terms of its context classification, the project area is designated as C3C Suburban Commercial classification since it closely complies with the distinguishing characteristics of this category in terms of land use types and street patterns.

2.4.4 Adjacent Land Use

Land use cover descriptions provided for both uplands and wetlands are classified utilizing the *Florida Land Use Cover and Forms Classifications System (FLUCFCS)* designations. Existing land uses in the project area were initially determined utilizing US Geological Survey (USGS) maps, historical images, aerial photographs, and land use mapping from the South Florida Water Management District (SFWMD) (2017-2019). Land use categories in the project area reported by SFWMD were verified in the field. Field reviews generally confirmed the SFWMD land use mapping with very minor adjustments. Land use categories in the project area as mapped by SFWMD are shown in **Figure 2-3** and **Figure 2-4** each land use category in the project area is described below.

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Figure 2-3 - Land Use in Osceola County Project Area

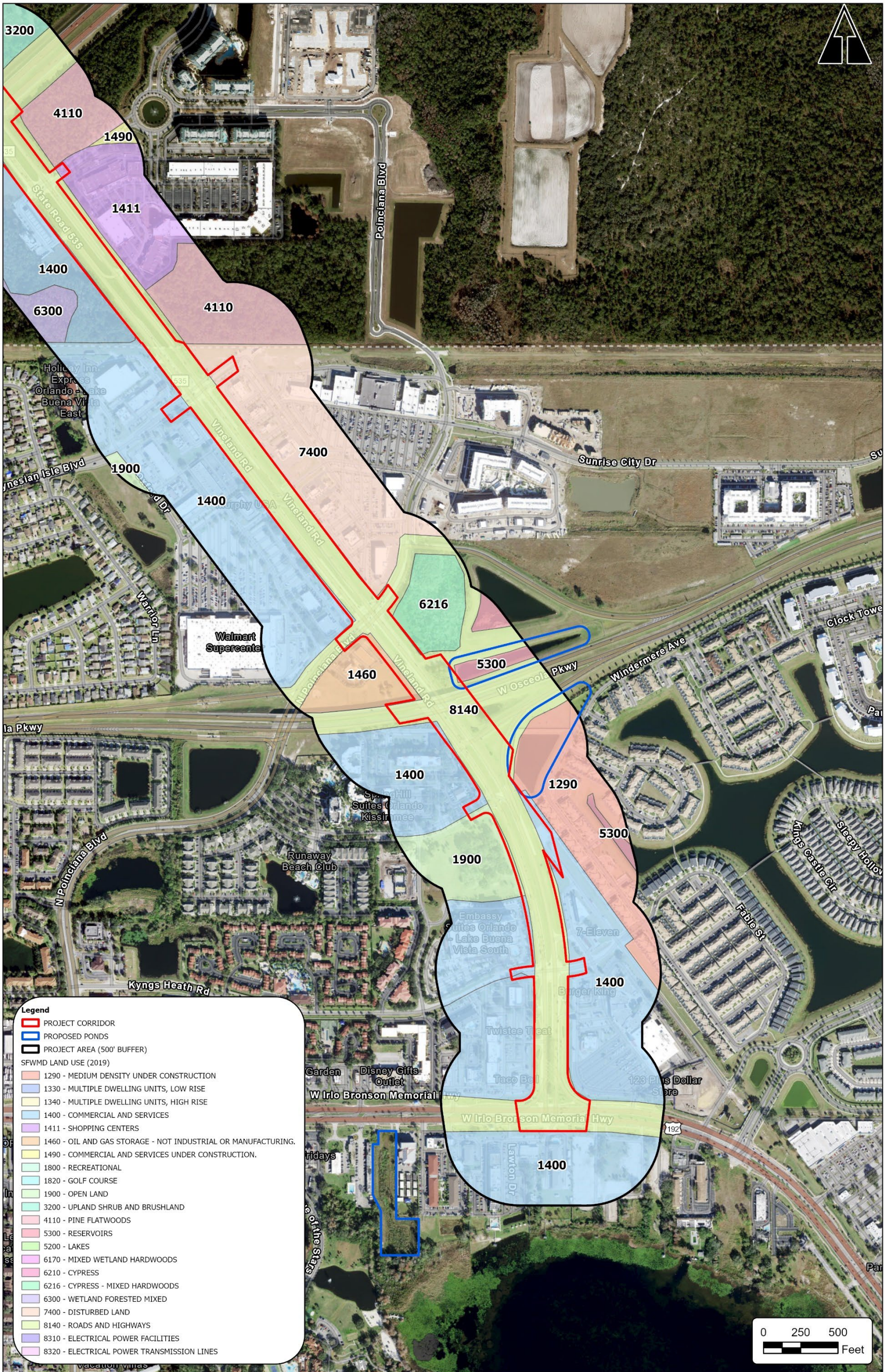
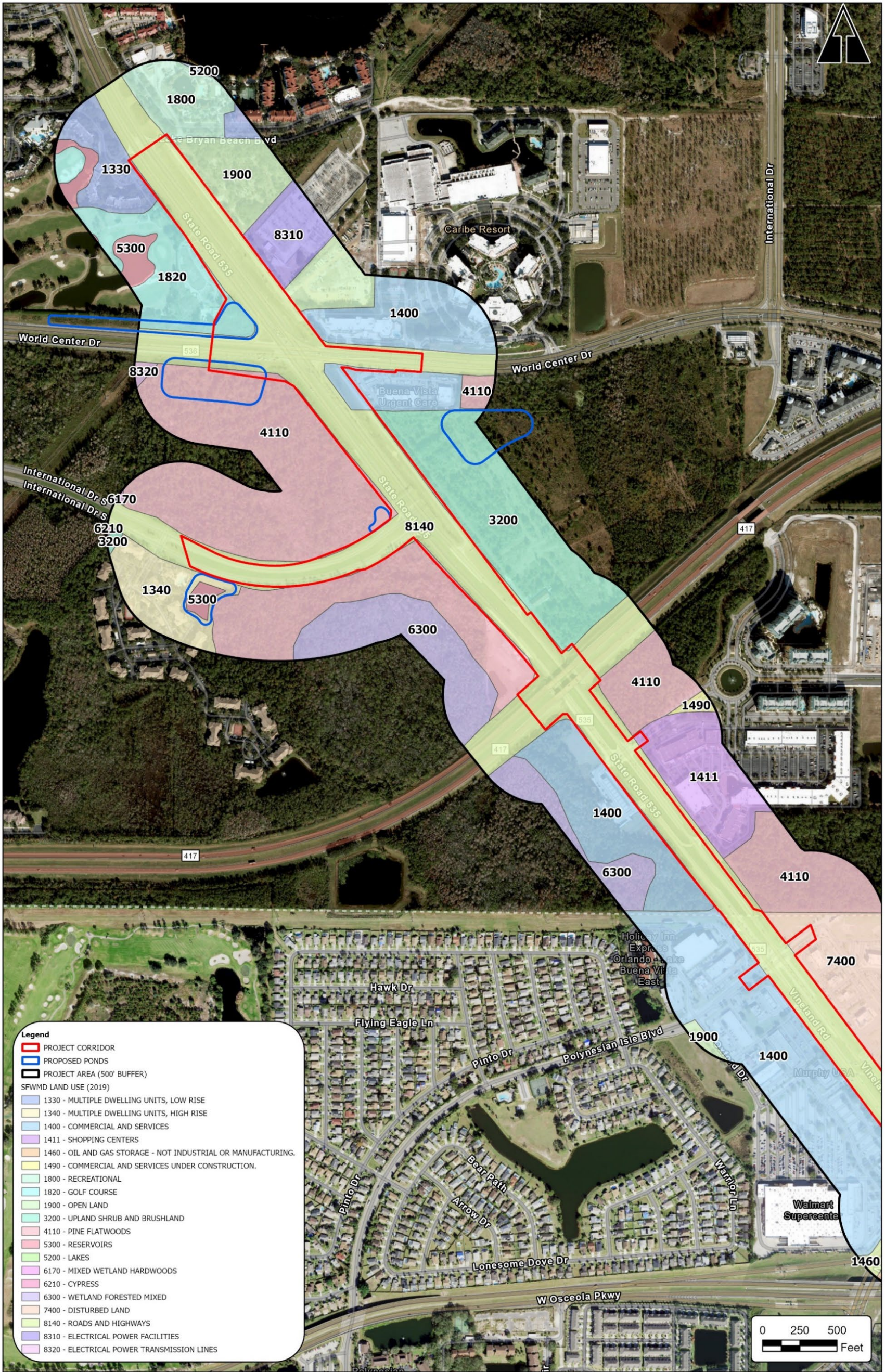


Figure 2-4 - Land Use in Orange County Project Area



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Residential, Medium Density Under Construction (FLUCCS – 1290)

This category refers to residential areas in the process of construction with a dwelling density of 2 to 5 per acre once completed. If more than 2/3 of the construction is completed, then the area should be coded by the 1200 FLUCCS for medium density residential. This land use type occurs immediately southeast of the on-ramp to eastbound Osceola Parkway from northbound SR 535.

Residential High Density, Multiple Dwelling Units (FLUCCS – 1330)

This category refers to a density of six or more dwelling units per acre. This land use category includes two-story town homes, duplexes, and other low-rise residential structures. Low-rise residential areas are newer developments which are commonly located on the urban fringe. This class is found in one location in the project area at the northwestern limits of the study area northwest of the SR 535 and World Center Drive intersection.

Commercial and Services (FLUCCS – 1400)

This is an active land use category that includes a broad range of uses and operations providing diverse products and services which often occur in complex mixtures. Subclasses include retail and wholesale, professional, cultural and entertainment, and tourist services, as well as others. The 1400 class includes shopping centers, commercial strip developments, warehouses, junk yards, campgrounds, and amusement parks. These areas are usually located along main transportation routes or at the intersections of secondary transportation corridors. This land use category accounts for a large portion of the study area and is found in several locations. This includes the southern portion of the project located south of SR 417 to south of US 192, aside from one area of 1900 Open Land and one area of 1290 Residential, Under Construction. This category is also located west of SR 535 from north of Osceola Parkway to SR 417 and east of SR 535 north and south of the World Center Drive intersection near the project's northern terminus.

Shopping Centers (FLUCCS – 1411)

This land use category includes varying sizes and shapes of buildings which share common parking facilities for customers. These include both connected and unconnected buildings commercial and retail facilities. This land use is found in one location of the project corridor at the outlet stores located south of Lake Buena Vista Factory Stores Drive north of the Osceola-Orange County Line and south of SR 417.

Oil and Gas Storage (FLUCCS – 1460)

This land use category includes storage facilities for petroleum, oil, and lubricant product retail and wholesale sales. This category can be identified by tanks, spill enclosures, internal roads/railroads, spurs, embankments, piers, and maintenance facilities. This land use is found in

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one location in the project area, west of SR 535 from north of W Osceola Parkway to south of Poinciana Blvd.

Recreational (FLUCCS – 1800)

This land use category is used for outdoor activities such as community sports, open-air performances, and fairgrounds. This includes well organized grounds with parking facilities, which are typically not paved. This land use is found in one location at the northeast limits of the study area in association with the adjacent resort complexes on Lake Bryan around Lake Bryan Beach Blvd.

Golf Course (FLUCCS – 1820)

Golf courses are easily recognizable by their distinctive well-maintained grass areas, fairways, and ponds. Golf courses are typically constructed in low-lying areas such as pine flatwoods and may be adjacent to, or displace wetlands. These wetlands would not be broken out of the 1820 Golf Course land use classification unless they meet the two acre minimum mapping unit criteria. This land use is associated with the Hawk's Landing Golf Club located northwest of the World Center Drive and SR 535 intersection.

Open Land (FLUCCS – 1900)

This land use category includes open, undeveloped land within urban areas which are typically interpreted as transitional or uncertain land uses. This land use does not include forests or wetlands, unless they occur as small areas which do not meet the mapping unit criteria within the 1900 land use. This open land category is found in one location within the study area, south of the Calypso Cay Way to the west of SR 535.

Upland Shrub and Brushland (FLUCCS – 3200)

This category is for upland non-agricultural, non-forested lands which exhibit no evidence of cattle grazing. This class includes areas where tree species are regenerating naturally after clear cutting or fire but are less than 20 feet tall. This includes native hardwood and coniferous species but does not apply to plantations. This land use type occurs in one location in the study area to the east of SR 535 from SR 417 to the commercial land uses immediately south of World Center Drive.

Pine Flatwoods (FLUCCS – 4110)

This class is for naturally generated pine flatwoods. The canopy closure must be 25 percent or more and the trees must average over 20 feet tall. The pine flatwoods class is dominated by slash pine, longleaf pine, or both. Common understory species include saw palmetto, wax myrtle, gallberry, and a wide variety of herbs and brush. Pine flatwoods are the most prevalent community in natural areas. Most pine flatwoods occur on broad, low, flat areas with seasonal high-water

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tables but not on hydric soils. They transition into mesic flatwood and hardwood communities on higher ground and into hydric flatwoods, cypress, and other wetlands on the lower edges. Pine flatwoods are found in four places in the project area. One area is located to the east of SR 535 from the county line to south of the factory outlets at Lake Buena Vista Factory Stores Dr and another area is located north of the Lake Buena Vista Factory Stores Dr to south of SR 417. The other two areas are located to the west of SR 535 from SR 417 to World Center Drive and are separated by International Drive S.

Reservoirs (FLUCCS – 5300)

This class is for artificial impoundments of water, or water bodies that have been substantially modified from the natural state. They are used for irrigation, flood control, municipal and rural water supplies, stormwater treatment, recreation, and hydro-electric power generation. Reservoirs are found in multiple places throughout the project area. Reservoirs land use is found in one location in the study area, to the east of SR 535 immediately north of Osceola Parkway.

Cypress – Mixed Hardwoods (FLUCCS –6216)

This class is used for forested wetland communities dominated by a mix of pond or bald cypress and hardwood swamps. This land use type is found in one location in the study area, immediately south of Poinciana Blvd to the east of SR 535.

Disturbed Land (FLUCCS – 7400)

This land use class is used for areas where soil or substrate has been altered or removed by human activity, whether or not the cause is known. The Level 1 Barren Land category, including this 7400 Disturbed Land sublevel, is only applied to upland areas. This land use type is found in one location in the study area, to the east of SR 535 from north of Poinciana Blvd to south of the county line.

Roads and Highways (FLUCCS – 8140)

This class includes those highways exceeding 100 feet in width, with 4 or more lanes and median strips. The intent of this data layer is to include only the major transportation corridors. This land use type is mapped for SR 535, US 192, Osceola Parkway, Poinciana Boulevard, SR 417, International Drive South, and World Center Drive.

Electrical Power Facilities (FLUCCS – 8310)

Electrical power facility land uses include fossil fuel and nuclear plants. Associated facilities include transformer yards, cooling ponds or towers, and fuel storage. One electrical power facility is found within the project area approximately 500 feet north of the World Center Drive and SR 535 intersection, to the east of SR 535.

2.4.5 Intersecting Roadway Facilities

There are four principal roadway facilities crossing or intersecting SR 535 within the project limits as described below. The existing intersection geometry for all the intersections evaluated in this study are described in Section 2.6.1 and shown in **Figure 2-16** and **Figure 2-17**.

1) US 192 (W. Irlo Bronson Memorial Highway) US 192 is a 75-mile long four-to-six lane east-west divided facility extending from Four Corners in Lake County in the west to Indialantic in Brevard County in the east. Within the project vicinity, US 192 serves a substantial proportion of tourist related traffic associated with Walt Disney World and Epcot Center, located north and west of the project limits.

2) Osceola Parkway (CR 522) provides a tolled alternate to US 192 between Walt Disney World and Kissimmee on the east. Within the project confines, the Osceola Parkway features a modified split diamond interchange providing access to and from the west at N. Poinciana Boulevard (just west of the SR 535 intersection) and access to and from the east via SR 535 (on-ramp) and N. Poinciana Boulevard (off-ramp) just east of the SR 535 intersection.

3) SR 417 (Central Florida Greene Way) is a tolled limited-access facility owned by CFX and the Turnpike providing an eastern beltway around the city of Orlando. SR 417 overpasses SR 535 but does not provide any connections to it.

4) World Trade Center Drive (SR 536) is an east-west 6-lane facility extending from an I-4 interchange near the Epcot theme park on the west to an interchange with SR 417 to the east.

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2.4.6 Access Management Classification

In terms of access management, the entire project corridor extending from the US 192/SR 535 intersection to just north of SR 536 is currently classified as an Access Class 3 facility with restrictive median treatment.

Access Class 3 facilities are controlled access highways where direct access to abutting land is controlled to maximize the operation of the through traffic movements. This class is used where the adjacent land is generally not extensively developed and/or the probability of substantial land use change exists. These highways are distinguished by existing or planned restrictive medians.

In general terms, most of the driveways within the study limits comply with access class 3 standards, however all of the median openings and signal spacings are non-compliant. A detailed evaluation of the existing facility's compliance with access management criteria is provided in **Section 7.8**.

2.4.7 Design and Posted Speeds

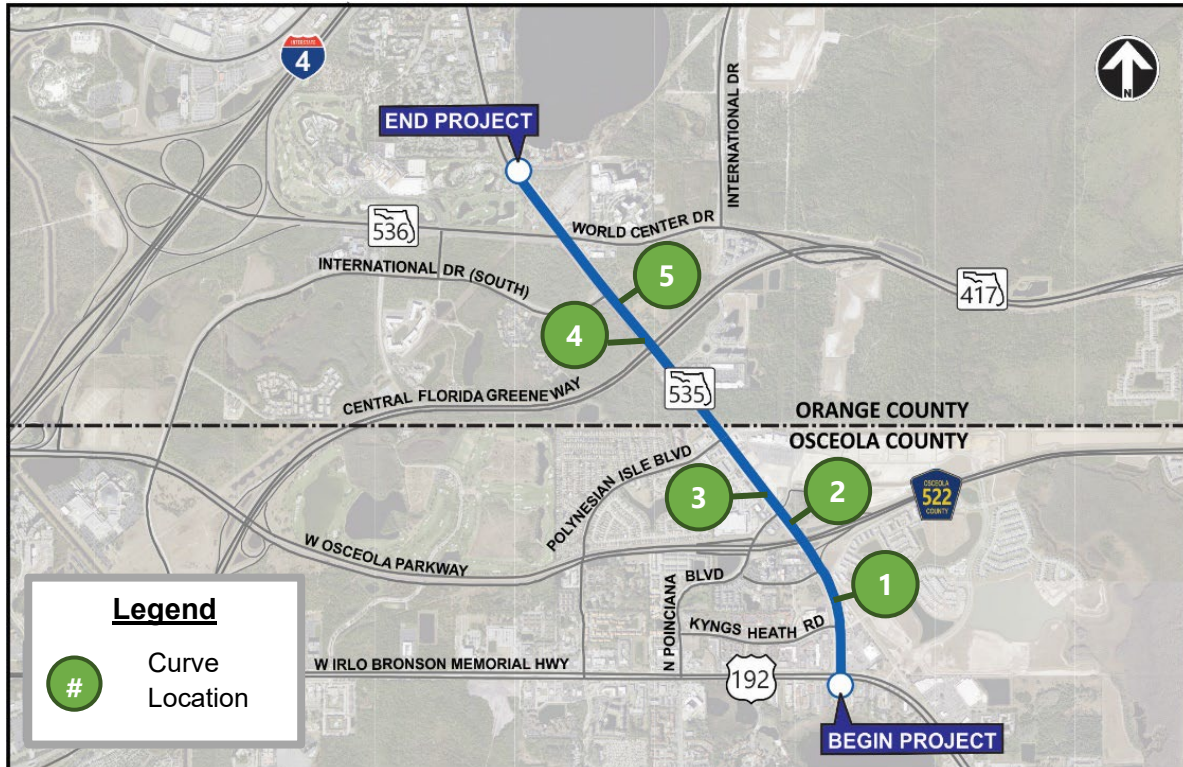
The posted speed limit is 45 mph from the beginning of the project to just north of Kyngs Heath Road. The rest of the project area has a 50-mph posted speed. Based on available as-built information, the design speed of the existing facility is 55 mph.

2.4.8 Vertical and Horizontal Alignment

In terms of horizontal alignment, there are 5 existing curves within the confines of the project (see **Figure 2-5**). This information was developed based on limited available as-builts and aerials. Curve 1, located just north of the Kyngs Heath Road meets FDOT Design Criteria Standards for 50 mph design speed. Existing curves 2, 3, 4 and 5 do not meet the desirable length of 750-feet for 50 mph design speeds. Similarly from the limited survey and as-builts, it resulted that the project corridor is generally flat.

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Figure 2-5 – Existing Horizontal Alignment



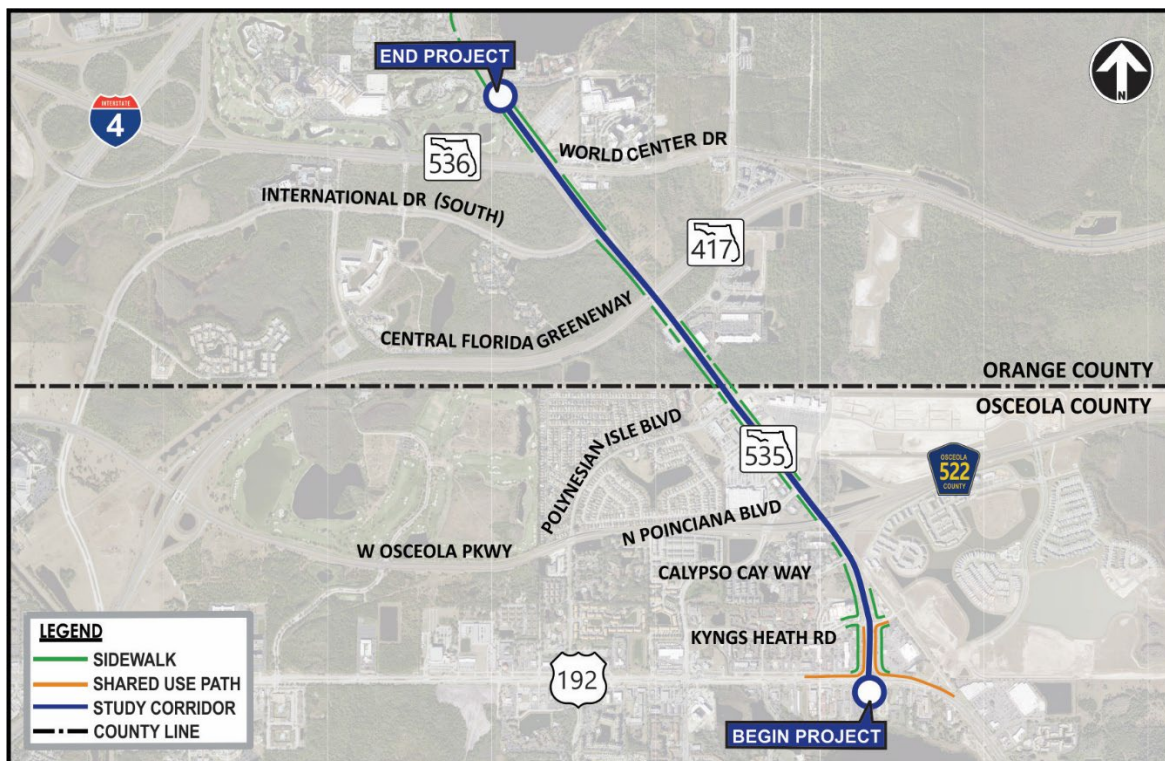
	Location	P.I. Sta.	Delta	D	T	L	R	e*	P.C. Sta.	P.T. Sta.
1	North of Kyngs Heath Rd	1507+05.07	37°00'10" (LT)	2°00'00"	958.62'	1,850.13'	2,864.78'	0.040	1497+46.45	1515+96.59
2	South of Poinciana Blvd	1523+93.91	2°08'28" (LT)	0°20'00"	321.20'	642.32'	17,188.73'	Normal Crown	1520+72.71	1527+15.03
3	North of Poinciana Blvd	1530+36.23	2°08'28" (RT)	0°20'00"	321.20'	642.32'	17,188.73'	Normal Crown	1527+15.03	1533+57.35
4	North of the SR 417 Bridge	1572+51.70	7°05'55" (LT)	1°00'00"	355.38'	709.86'	5,729.58'	0.021	1568+96.02	1576+05.88
5	South of International Dr	1582+37.73	7°05'55" (RT)	1°00'00"	355.38'	709.86'	5,729.58'	0.021	1578+82.35	1585+92.21

*Note: Superelevation has not been field verified.

2.4.9 Pedestrian Accommodations

As illustrated on (Figure 2-6), pedestrian features are intermittent throughout the study project. There are 5-foot sidewalks and 10-foot shared use paths along both sides of the road extending from the begin project (US 192 at SR 535 intersection) to just north of the Kyngs Heath Road intersection. North of this intersection; existing sidewalks are intermittent and generally located within private property. There are substantial gaps found along the west and east sides.

Figure 2-6 - Existing Bicycle and Pedestrian Facilities



2.4.10 Bicycle Facilities

There are 10-foot-wide shared use paths along both sides of the road extending from the beginning of the project to just north of Kyngs Heath Road, as shown on **Figure 2-6**. North of Kyngs Heath Road, the study corridor lacks designated bicycle facilities.

2.4.11 Transit Facilities

The existing LYNX Transit System bus routes that run within the study area can be seen on **Figure 2-7**. No bus routes run along the study corridor and there are no bus routes provided along SR 535 south of World Center Drive (SR 536). The following information describes the existing LYNX bus routes in the study area:

LYNX Bus Route 304 operates along SR 535 just north of the study limits where it also travels along World Center Drive (SR 536). This route connects the LYNX Central Station in Downtown Orlando to the Disney Springs West Side Transfer Station. Route 304 operates three (3) daily buses (2 westbound and 1 eastbound).

LYNX Bus Routes 55 and 56 operate along US 192 and feature bus stops just west of the SR 535/US 192 intersection (the project's beginning). Route 55 connects the Kissimmee Intermodal

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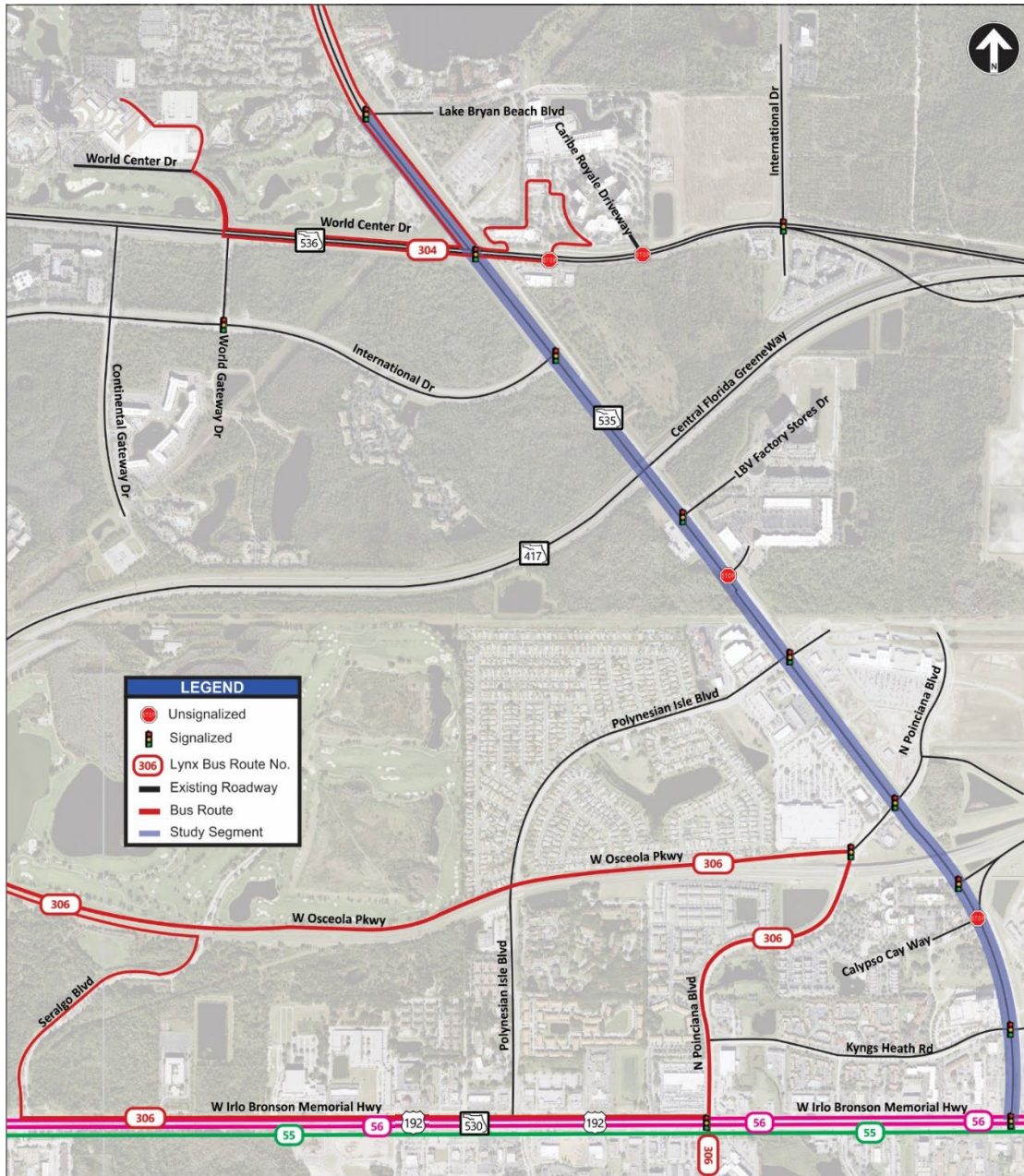
Station and the Four Corners Walmart while Route 56 connects the Kissimmee Intermodal Station and Disney’s Magic Kingdom. Both bus routes rank among the top 10 routes in the LYNX system for Saturday ridership.

LYNX Bus Route 306 operates along US 192 and W Osceola Parkway. Route 306 connects to the Disney Springs transfer center and features a stop along US 192. Route 306 operates one (1) trip per direction which include one northbound AM service and one southbound PM service.

In addition to the existing routes, the LYNX master plan shows future LYNX services that are planned to traverse along the study corridor. The plans call for a traditional fixed-route and a limited-stop route, both traveling along SR 535 having endpoints between the LYNX Kissimmee Intermodal Station and Disney Springs. There are also plans for an express route with service from Disney Springs to Poinciana SunRail and the Poinciana Walmart. Per coordination with LYNX staff members, there is no timeline for when these services will be implemented, as well as, no known bus stop locations within the project study area at this time. Coordination with LYNX will continue throughout the study and is recommended throughout the design phase.

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Figure 2-7 - Existing Transit Routes



2.4.12 Physical or Operational Restrictions

There are no physical or operational restrictions in relation to this project study.

2.4.13 Managed Lanes

This corridor does not have any managed lanes within the project limits.

2.4.14 Pavement Condition

According to the FDOT's Pavement Condition Survey database the rideability scores throughout the entire project length are generally poor. The historical Pavement Condition Survey reports indicate that within Osceola County (Roadway ID 92040) the pavement rating for the most current year (2021) is 4.5 for cracking, 7.4 for rideability and 9.0 for rutting. Within Orange County (Roadway ID 75035-001) the pavement rating for the most current year (2021) ranges from 3.5 to 7.5 for cracking, 7.6 to 8.0 for rideability and 9.0 for rutting.

Each section of pavement is rated for cracking and rideability on a 0-10 scale with 0 being the worst and 10 being the best. Any crack rating of 6.4 or less is considered deficient pavement. For speed limits less than or equal to 45 MPH a ride rating of 5.4 is considered deficient. A Resurfacing Restoration Rehabilitation (RRR) (FM# 445299-1) that will mill and resurface SR 535 from north of US 192 to south of International Drive is in design as of April 2024 with construction anticipated to begin Summer of 2024 before this widening project begins.

2.4.15 Lighting

There is existing lighting from the US 192 at SR 535 intersection to Kyngs Heath Road. North of Kyngs Heath Road there is no existing lighting along the project with the exception of small sections associated with some of the intersections and driveways.

2.4.16 Traffic Signs

There are various traffic signs throughout the project corridor. There are two guide signs that are located just south and north of the Osceola Parkway bridge along SR 535 that indicate access to East and West Osceola Parkway, respectively. There is an additional guide sign just south of Osceola Parkway indicating access for the Osceola Parkway eastbound on ramp (slip ramp).

2.4.17 Aesthetics

There are no notable aesthetic features within the project.

2.4.18 Existing Structures

There are three (3) existing bridges crossing SR 535 within the study limits at two different locations. **Figure 2-8** has the existing bridge characteristics and the SR 535 existing typical sections under the bridge. The bridge sufficiency ratings are a numerical value from 0 being the worst to 100 being the best and indicates the bridge's overall sufficiency to remain in service. The

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health index ranges from 0 being the worst to 100 being the best and is used to assess the overall condition of a bridge. A brief description of each follows:

- **Osceola Parkway over SR 535 – Bridge No. 924161.** This cast in place structure was constructed in 1995 and features an approximate total length of 162' and 116' in width. As per routine inspection (7/26/22), its sufficiency rating is 92.1, a Health Index of 99.41 and has a bridge condition rating of good.
- **Northbound SR 417 over SR 535 – Bridge No. 750475.** This cast in place structure was constructed in 1996 and features dual spans and a total bridge length of 186.4' and 43.3' in width. As per routine inspection (1/4/2022), its sufficiency rating is 96.7, a Health Index of 98.83 and has a bridge condition rating of good.
- **Southbound SR 417 over SR 535 – Bridge No. 750474.** This twin structure is similar to the previous bridge and was constructed at the same time and with similar dimensions. The latest available routine inspection (1/4/2022) assigned it a sufficiency rating of 96.7, a Health Index of 96.59, and has a bridge condition rating of good.

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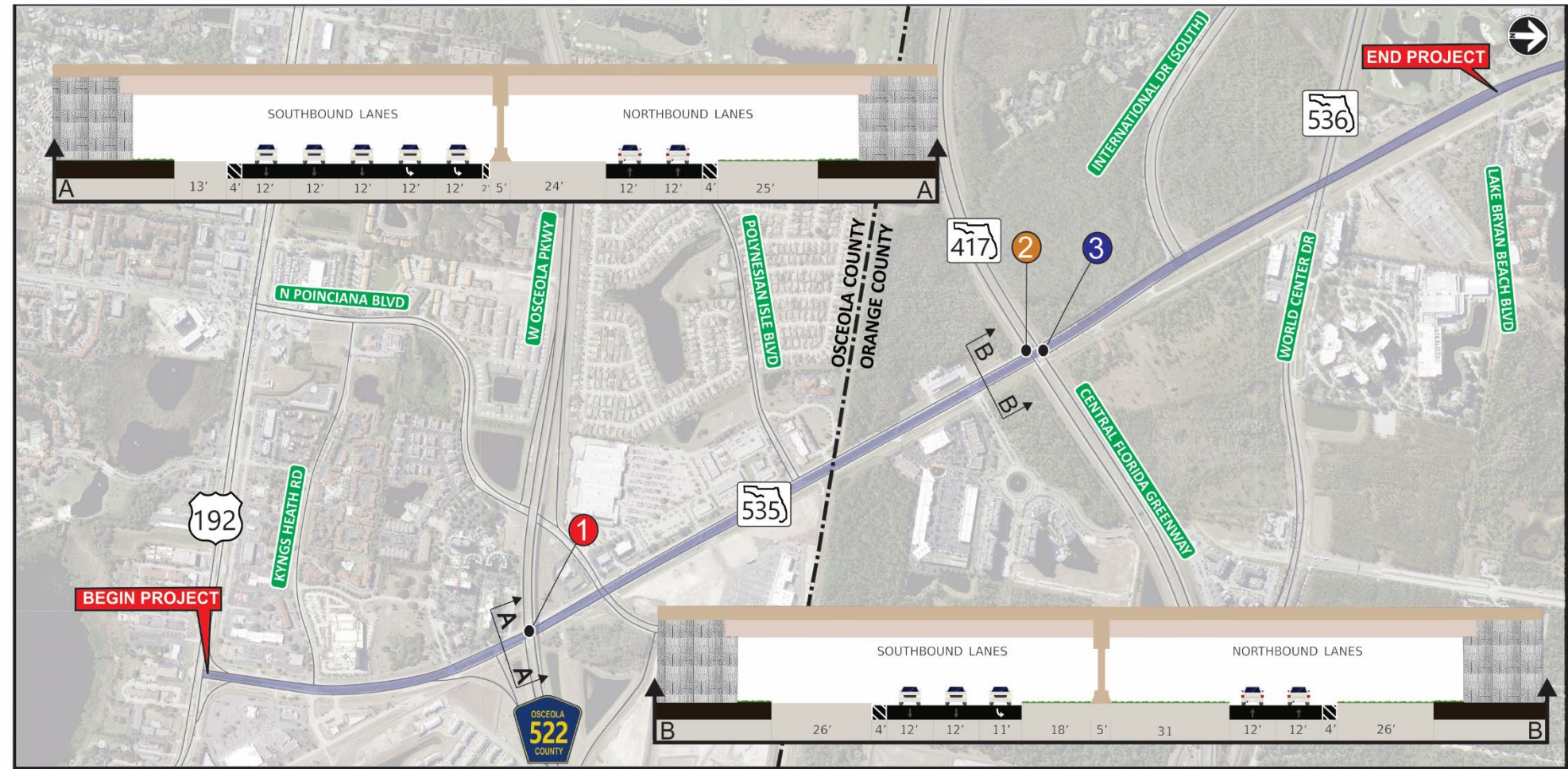
Figure 2-8 - Existing Bridges



1 The existing Osceola Parkway overpass is located just north of Calypso Cay Way and is in very good condition.



2 Both SR 417 overpass structures are in very good condition.
3



2.4.19 Soils and Geotechnical Data

The Natural Resources Conservation Service (NRCS) (2017) indicates 11 soil types occur in the project area (Figure 2-9). The soil types in the project area are listed in Table 2-3 along with descriptions and ratings from NRCS. Two hydric soils are known to occur in the project area: Basinger fine sand and Sanibel Muck. The majority of soils within the project area have been heavily disturbed during the construction of roadways as well as residential and commercial land uses.

Figure 2-9- Existing Soil Information

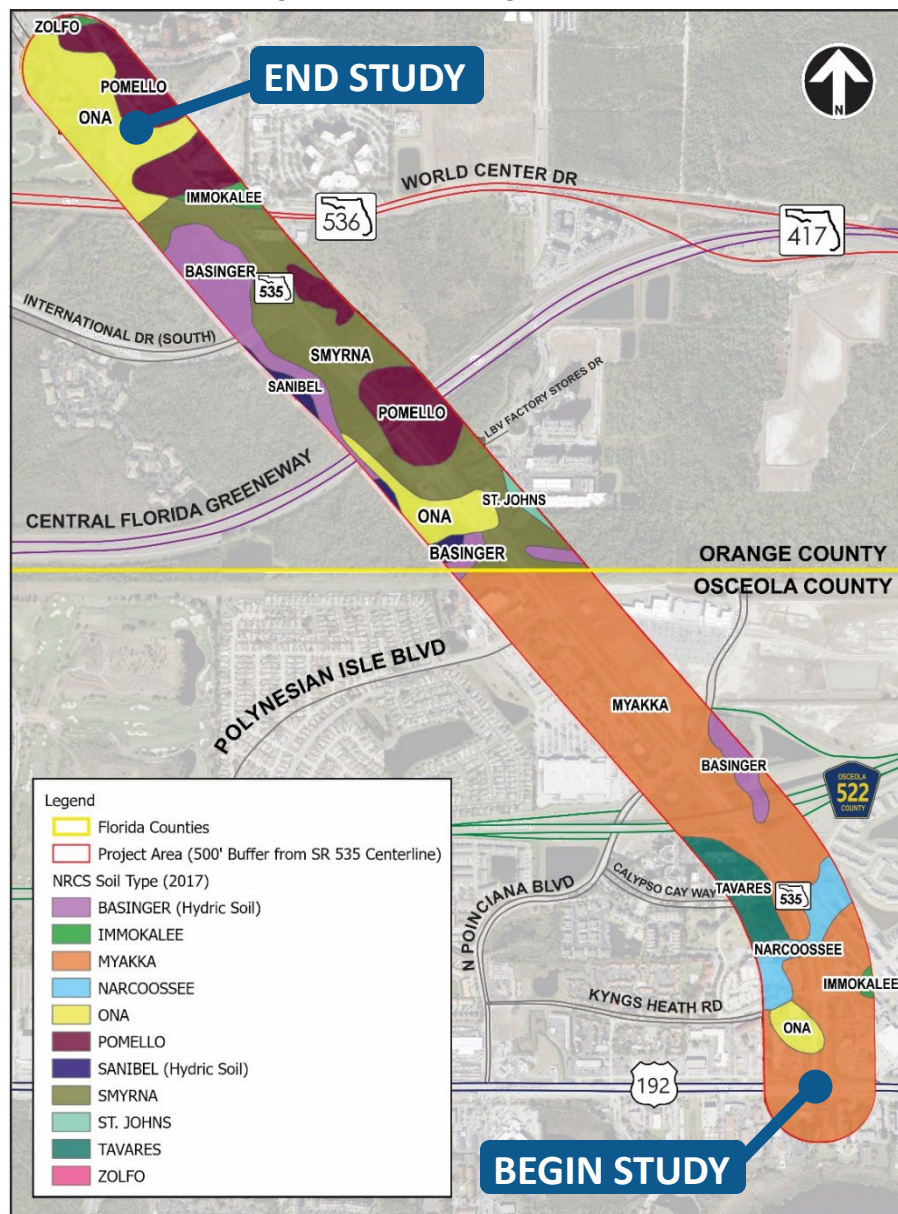


Table 2-3 - Soils in Project Area

Soil Type	Environmental Association	Approximate Percent of Project Area
Basinger Fine Sand	This soil type consists of very deep, poorly drained, rapidly permeable soil in low flats, sloughs, depressions, and poorly defined drainageways that formed in sandy marine sediments. They are found in Peninsular Florida. This is a hydric soil.	8.24
Immokalee Fine Sand	This soil type consists of very deep, very poorly, and poorly drained soils that form in sandy marine sediments. They are found on flatwoods and low broad flats on marine terraces. This is not a hydric soil.	1.13
Myakka Fine Sand	This soil type consists of very deep, very poorly or poorly drained, moderately rapid or moderately permeable soils that occur primarily in mesic flatwoods of peninsular Florida. They formed in sandy marine deposits. This is not a hydric soil.	39.25
Narcoossee Fine Sand	This soil type consists of very deep, somewhat poorly drained soils that formed in thick sandy sediments of marine origin. These soils are on low knolls and ridges in the flatwoods areas of central and southern peninsular Florida. This is not a hydric soil.	3.20
Ona Fine Sand	This type consists of poorly drained, moderately permeable soils that formed in thick sandy marine sediments. They are in the flatwood areas of central and southern Florida. Permeability is moderate. This is not a hydric soil.	13.22
Pomello Fine Sand	This soil type consists of very deep, moderately well to somewhat poorly drained soils that formed in sandy marine sediments. Pomello soils are on ridges, hills, and knolls in the flatwoods on marine terraces. Permeability is moderately rapid. This is not a hydric soil.	11.90
Sanibel Muck	This soil type consists of nearly level, deep, very poorly drained soil that has a muck surface layer over sandy mineral material located in ponds, drainageways and low broad flats. Permeability is rapid. This is a hydric soil.	1.16
Smyrna Fine Sand	This soil type consists of very deep, poorly to very poorly drained soils formed in thick deposits of sandy marine material. Permeability is rapid to moderate. This is not a hydric soil.	18.11
St. Johns Fine Sand	This soil type consists of very deep, very poorly or poorly drained, moderately permeable soils on broad flats and depressions of the lower Coastal Plain. They formed in sandy marine sediments. Permeability is moderate. This is not a hydric soil.	0.46
Tavares Fine Sand	This soil type consists of very deep, moderately well drained soils that formed in sandy marine or eolian deposits. Tavares soils are on hills, ridges and knolls of the lower Coastal Plain. This is not a hydric soil.	3.10
Zolfo Fine Sand	This soil type consists of very deep, somewhat poorly drained soils that formed in thick beds of sandy marine deposits. These soils are on low broad landscapes that are slightly higher than adjacent flatwoods on the lower coastal plain of central Florida. Permeability is rapid to moderate. This is not a hydric soil.	0.23
	TOTAL	100%

Source: NRCS 2017; USDA 1998: 21,22,24,25,27,28,31,32,34-36,39,41,51,52

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In addition to the NRCS soil database, soil borings were performed for this project. There were thirty-nine (39) hand auger borings performed at select locations along the roadway alignment to evaluate the near-surface soil and groundwater conditions and to provide preliminary geotechnical information. In addition, a total of twenty-two (22) Standard Penetration Test (SPT) borings were advanced to depths of 20 feet below existing grades in the areas of the proposed stormwater ponds and floodplain compensation (FPC) sites. In general, the subsurface conditions encountered consisted of sandy soils (A-3/A-2-4) within the boring depths. As an exception, a layer of clayey sand (A-2-6) was encountered at boring AB-3 from a depth of approximately 1.5 to 2.5 feet. Some of the hand auger borings were terminated at depths less than 5 feet below existing grades as a result of borehole collapse due to the shallow groundwater tables. In addition, many of the borings performed within the pond locations encountered intervals of organic sands to muck (A-8). The Preliminary Geotechnical Engineering Services Report including the soil information obtained from each borings is included in **Appendix A**.

2.4.20 Drainage

Four basins have been identified in the existing condition based on existing drainage divides and drainage features (see **Figure 2-10**). All basins are classified as open basins which discharge to Shingle Creek. All roadways within the project limits (SR 535, World Center Drive (SR 536) and International Drive), as well as adjacent developments have permitted stormwater treatment systems. A list of the relevant Environmental Resource Permits within the project corridor is provided in **Table 2-4**. Based on a review of the existing plans, offsite runoff is generally separated from the on-site runoff with the exception of US 192 in Basin 1.

Table 2-4 - Relevant Environmental Resource Permits

Application No.	Permit No.	Date Issued	Description
X000008640	85-00118-S	10/10/85	SR 535 Widening from US 192 to Orange County line
901113-1	48-00592-S	11/3/90	SR 535 from South of SR 536 to I-4
930909-1	49-00653-S	4/14/94	Osceola Parkway
971113-1	49-00883-P	3/12/98	SR 530 (US 192) from Bonnet Creek to SR 535
970147-8	48-00866-S	11/12/98	Greene Property Phase II (International Drive)
150611-22	49-00908-P	8/3/15	Orchid Bay/Storey Lake
160208-15	49-00908-P	3/11/16	Orchid Bay (Storey Lake)
160428-7	49-00908-P	6/7/16	Storey Lake Blvd Phases 2 & 3

Figure 2-10 - Basin Map



Basin 1:

The existing roadway and stormwater system within Basin 1 was constructed as part of SPN 92090-3543. Runoff from the roadway along SR 535 is drained by closed storm drain systems which convey runoff to an existing wet detention pond (identified as Pond WRA-4 in SPN 92090-3543) located on the south side of US 192 and west of SR 535. The wet detention pond receives

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runoff from on-site areas along US 192 and SR 535, as well as offsite areas, and discharges east to Lake Cecile and to Shingle Creek.

Basin 2:

The existing roadway and stormwater system within Basin 2 was constructed as part of SPN 75560-3609 and 75560-3610. Runoff from the roadway along SR 535 is drained by roadside ditches, side drains and cross drains to convey runoff to an existing wet detention located on the east side of SR 535 within the Osceola Parkway interchange infield area and is bounded by Osceola Parkway on the south side and a FGT line on the north side. The wet detention pond receives runoff from on-site area along SR 535, and discharges east along Osceola Parkway to unnamed wetlands associated with Shingle Creek.

Basin 3:

The existing roadway and stormwater system within Basin 3 was constructed as part of SPN 75560-3610. Runoff from the roadway along SR 535 and SR 536 is drained by roadside ditches, side drains and cross drains to convey runoff to existing ponds located on both sides of SR 536 west of SR 535. The existing stormwater system consists of a wet detention pond in the northwest quadrant of the SR 535/SR 536 intersection interconnected with a dry detention pond in the southwest quadrant of the SR 535/SR 536 intersection. The wet detention pond receives runoff from on-site area along SR 535 and SR 536, and the dry detention pond receives runoff from SR 536. There are multiple outfalls from both the wet and dry detention ponds, but the primary discharge is towards SR 535 and to Shingle Creek.

Basin 4:

This section of International Drive and the associated stormwater system within Basin 4 was constructed as part of developer improvements for the Greene property. Runoff from the roadway along International Drive is drained by closed storm drain systems which convey runoff to an existing wet detention pond located on the south side of International Drive and west of SR 535, and a dry detention pond in the northwest quadrant of the SR 535/International Drive intersection. The ponds receive runoff from on-site area along International Drive, and discharge to unnamed wetlands that drain to Shingle Creek.

2.4.20.1 Cross Drains

Five cross drains have been identified under SR 535 and SR 536 within the project limits. A summary of the cross drain locations is provided in **Table 2-5**.

Table 2-5 - Cross Drain summary

Cross Drain	Road	Location (Milepost)	Basin	Cross Drain Size and Type
CD-1	SR 535	0.600	2	2-30" RCP
CD-2	SR 535	1.037	2	2-24" RCP
CD-3	SR 535	0.382	2 (offsite)	1-24" RCP
CD-4	SR 536	1.694	3	1-3'x8' CBC
CD-5	SR 536	1.920	3	1-36" RCP

- Cross drain CD-1 conveys runoff from the west side of SR 535 in Basin 2 to Exist. Pond 2-1
- Cross drain CD-2 conveys runoff from the west side of SR 535 to the east side of SR 535 in Basin 2. Runoff is conveyed by roadside ditch to Exist. Pond 2-1.
- Cross drain CD-3 conveys offsite runoff from the west side of SR 535 (Floodplain 2) on the north side of SR 417 to an existing ditch which runs east to Shingle Creek.
- Cross drain CD-4 is an equalizer pipe under SR 536 that interconnects Exist. Pond 3-1 and Exist. Pond 3-2.
- Cross drain CD-5 conveys runoff from the north side of SR 536 to the south side of SR 536 west of SR 535 (Floodplain 1).

2.4.20.2 Seasonal High Groundwater Table Levels

The Seasonal High Groundwater Table (SHGWT) levels at the hand auger boring locations performed along the roadway alignments and within the borings completed within the proposed stormwater ponds and FPC sites were estimated based on a review of the soil samples including natural soil indicators such as stain lines, mottling, the depth to the root layer, measured

groundwater levels in the borings, information provided in the USDA Soil Survey published by the NRCS, and the surrounding topography. Based on the borings obtained, the estimated Seasonal High Ground Water generally ranges from 0.0 to 4.5 feet below ground within Orange County and 0.0 to 4.5 in Osceola County. Within the Pond and FPC sites, the estimated SHGWT ranges from 0.5 to 7 feet below ground surface. For more details on SHGWT, see **Appendix A**.

2.4.20.3 Floodplains

Floodplain impacts resulting from the project were evaluated pursuant to Executive Order 11988 of 1977, Floodplain Management.

A Pond Siting Report and Location Hydraulics Report were prepared to document the drainage and hydrology analysis for this project and are included in the project file. The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRMs) for the study area. The relevant FIRM panel numbers are 12095C0585F and 12095C0605F for Orange County, Florida dated September 25, 2009, and 12097C0055G for Osceola County, Florida dated June 18, 2013. There are no regulatory floodways within the project limits.

There are no floodplains in the vicinity of the project within the Osceola County limits (see attached maps). There is a floodplain located on the west side of SR 535 between the Osceola/Orange County line and SR 536 within the Osceola County limits, which is designated as Zone A (no base flood elevations determined). The floodplain through this area is traversed by International Drive and SR 417, which creates 3 distinct sections, although the floodplains are hydrologically connected. The preferred alternative results in a total of 8.89 ac-ft of floodplains impacts. The FEMA FIRM panels are located in **Appendix B**.

2.5 Environmental Characteristics

2.5.1 Protected Species and Habitat

This project was evaluated for the potential presence of protected plant and animal species and their habitats in accordance with the FDOT's PD&E Manual, Part 2, Protected Species and Habitat (last updated July 1, 2023), which incorporates the requirements of the National Environmental Policy Act (NEPA) and related federal and state laws. Federal and state listed species with potential to occur in the project corridor were identified through research and coordination with US Fish and Wildlife Service, and the Florida Fish and Wildlife Conservation Commission (**Table 2-6**). There is no Critical Habitat present within the project area. Field

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investigations of the project area were also conducted on multiple days and in different seasons to evaluate the potential presence of protected species and habitats.

The northwest quadrant of the intersection of SR 535 and International Drive includes an Orange County drainage easement as well as a South Florida Water Management District (SFWMD) conservation easement. Available mapping data shows overlaps between these easements and right-of-way for International Drive. It is anticipated that the Preferred Alternative may impact up to approximately 0.09 acre of SFWMD Conservation Easement. The area that is under SFWMD conservation easement is privately owned (Parcel number 34-24-28-0000-00-018) and is not under public recreational use. There are no parking areas or public access points, and no Management Plan or other documents describing recreational use were identified. There are no state-owned lands subject to review and approval by the Acquisition and Restoration Council.

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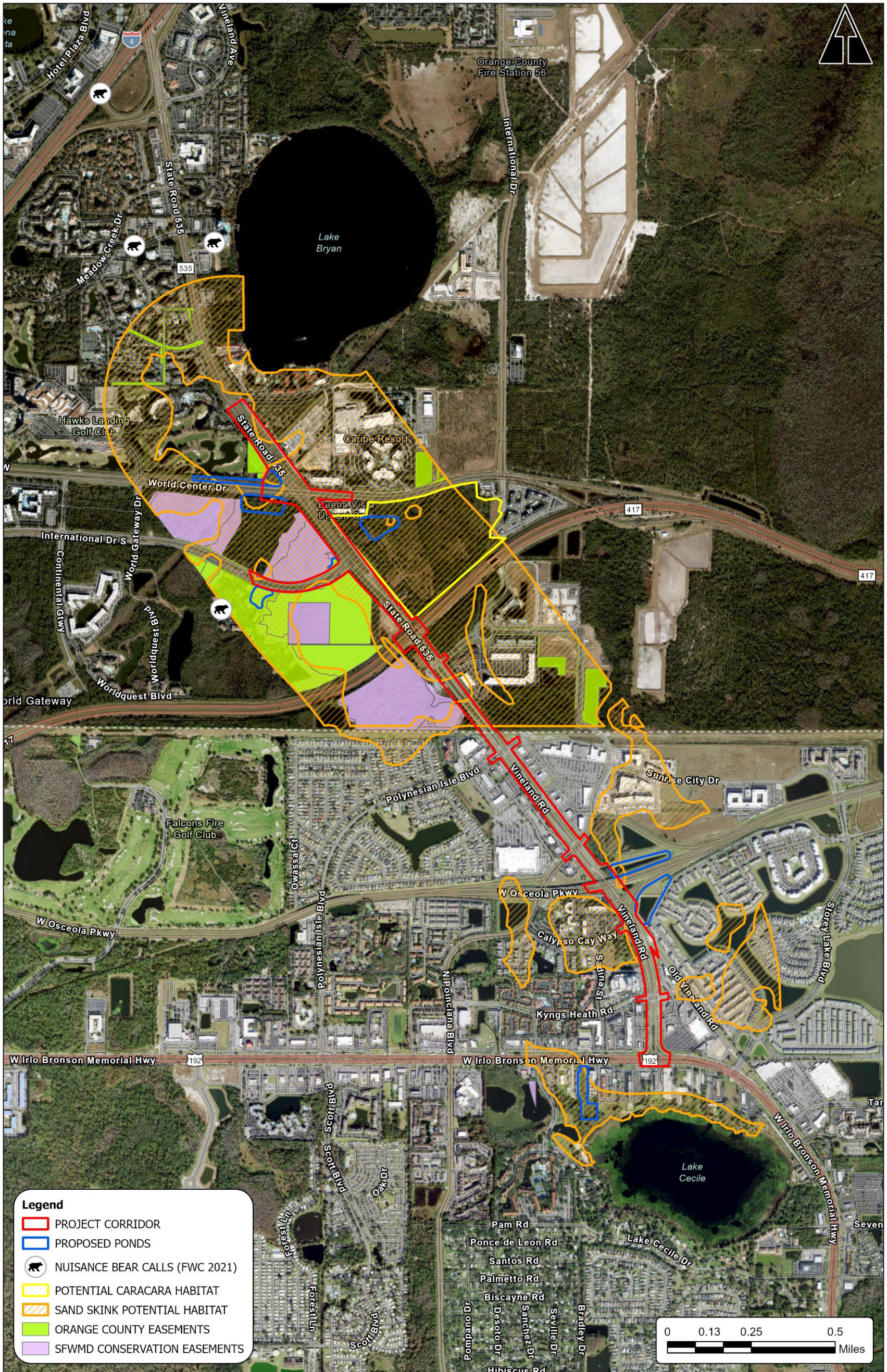
Table 2-6 - Listed Wildlife Species Potentially Occurring in Project Area

Common Name	Scientific Name	Federal Status	State Status	Occurrence Potential
Audubon's crested caracara	<i>Polyborus plancus audubonii</i>	FT	-	Low
Blue-tail mole skink	<i>Eumeces egregius lividus</i>	FT	-	Moderate
Eastern black rail	<i>Laterallus jamaicensis ssp. jamaicensis</i>	FT	-	Low
Eastern indigo snake	<i>Drymarchon corais couperi</i>	FT	-	Low
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	FE	-	Low
Florida burrowing owl	<i>Athene cunicularia</i>	-	ST	Low
Florida grasshopper sparrow	<i>Ammodramus savannarum floridanus</i>	FE	-	Low
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	-	ST	Low
Florida sandhill crane	<i>Grus canadensis pratensis</i>	-	ST	Low
Florida sand skink	<i>Neoseps reynoldsi</i>	FT	-	Moderate
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	FT	-	Low
Gopher tortoise	<i>Gopherus polyphemus</i>	-	ST	Low
Little blue heron	<i>Egretta caerulea</i>	-	ST	Low
Red-cockaded woodpecker	<i>Picoides borealis</i>	FE	-	Low
Roseate spoonbill	<i>Platalea ajaja</i>	-	ST	Low
Southeastern American kestrel	<i>Falco sparverius paulus</i>	-	ST	Low
Tricolored heron	<i>Egretta tricolor</i>	-	ST	Low
Wood stork	<i>Mycteria americana</i>	FE	-	Low
Beautiful pawpaw	<i>Deeringothamnus pulchellus</i>	FE	-	Low
Britton's beargrass	<i>Nolina brittoniana</i>	FE	-	Low
Florida greeneyes	<i>Berlandiera subacaulis</i>	FT	-	Low
Gray's beaksedge	<i>Rhynchospora grayi</i>	FT	-	Low
Lewton's polygala	<i>Polygala lewtonii</i>	FE	-	Low

Notes: FE = Federally Endangered, FT = Federally Threatened, and ST = State Threatened

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Figure 2-11 - Sensitive Environmental Features



2.5.2 Wetlands

Major hydrologic features mapped by the USFWS National Wetlands Inventory (NWI) in the project area are shown in **Figure 2-11** and **Figure 2-12**. A freshwater pond within a golf course is located north of SR 536 and west of SR 535 that intersects a small portion of the project area. There are also two patches of freshwater forested/shrub wetland that intersect the project area; one patch is located south of International Drive and stretches down south of SR 417 to the border of Orange and Osceola County, and another patch is located north of West Osceola Parkway and east of SR 535.

The project area contains high quality wetlands that are part of the natural drainage system of wetlands across central Florida. SFWMD land use maps that include wetlands are provided on **Figure 2-12** and **2-13**. Aside from wetlands in swales or irrigation features, six wetland or OSW types are mapped by SFWMD in the project area. They are Reservoirs (FLUCCS 5300), Lakes (FLUCCS 5200), Mixed Wetland Hardwoods (FLUCCS 6170), Cypress (FLUCCS 6210), Cypress – Mixed Hardwoods (FLUCCS 6216), and Wetland Forested Mixed (FLUCCS 6300). Wetlands and OSW in the project area mapped by the USFWS NWI are shown in **Figure 2-13**. They include freshwater emergent wetlands, freshwater forested/shrub wetlands, freshwater ponds, and riverine areas. After field reconnaissance it was verified that no wetlands are present within the existing right of way.

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Figure 2-12 - Hydrologic Features in Osceola County Project Area

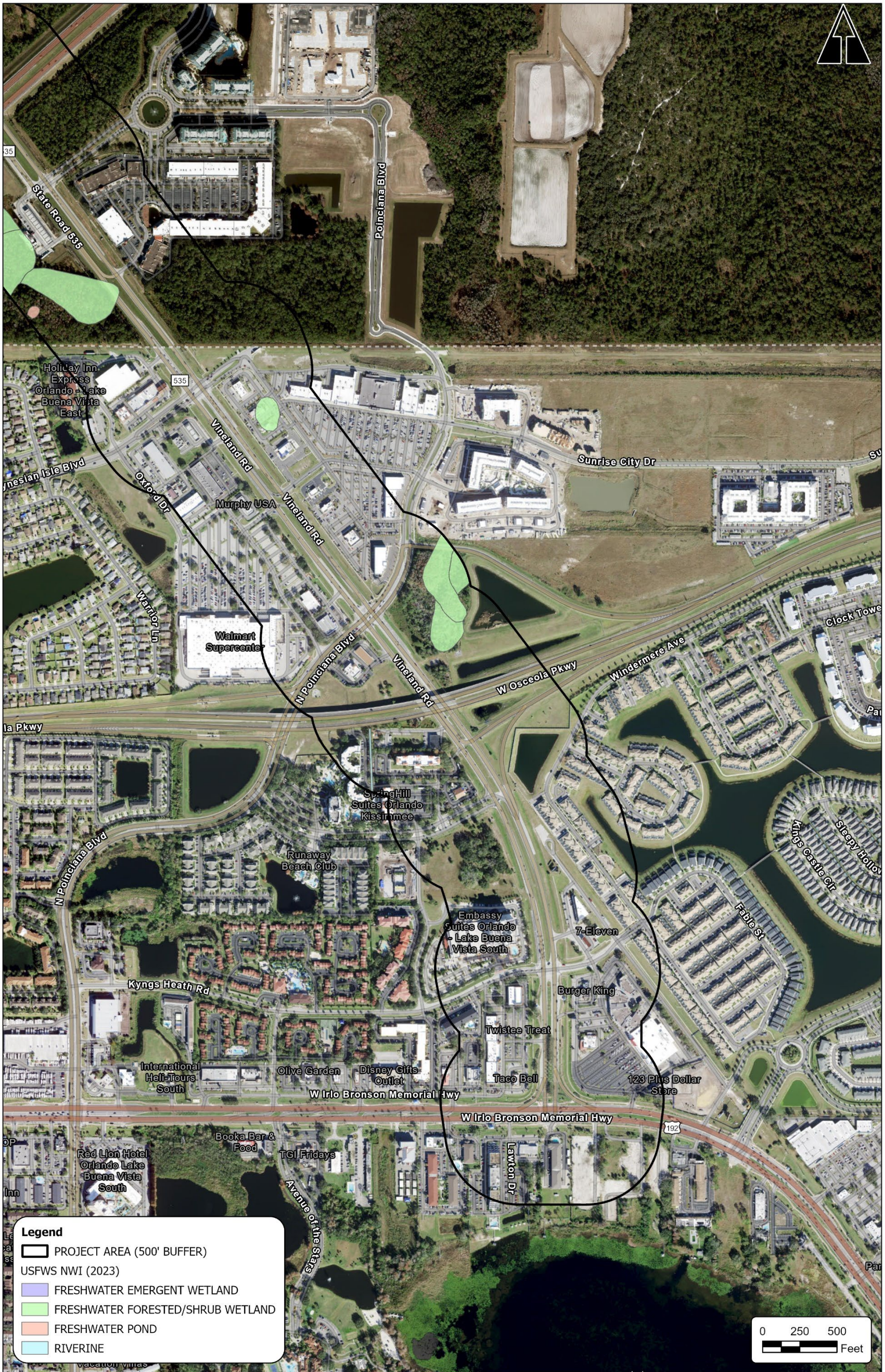


Figure 2-13 - Hydrologic Features in Orange County Project Area



2.5.3 Sole Source Aquifer

The project sits atop the Biscayne Aquifer, a Sole Source Aquifer as identified by the U.S. Environmental Protection Agency (USEPA). This project is located within the SFWMD's Reedy Creek and Shingle Creek Basins. The USEPA determined the project is not expected to cause a significant impact to the Aquifer or its recharge zone.

2.5.4 Potentially Contaminated Sites

A total of 22 sites of potential contamination risk were identified, including 1 High Risk, 8 Medium Risk, and 13 Low Risk sites. Information on each site is summarized in **Table 2-7** and shown on **Figure 2-14** and **Figure 2-15**. Individual site descriptions including field observations and a summary of available documentation are provided in the text below.

Table 2-7 - Site Information

Site No.	Facility Name	Address	Facility ID (FDEP/RCRA)	Risk Rating
1	7-Eleven Food Store #27584	2975 Vineland Rd	8944621, Discharge ID: 9311	Medium
2	Shell-Southbridge #285	3148 Vineland Rd	9063981, Discharge ID: 59807	Medium
3	RMA	3490 Polynesian Isle Blvd	8945275, Discharge ID: 59075	Low
4	Central FL Pipeline-Release	Hwy 535 & Polynesian Isle Blvd	9800541, Discharge ID: 50141	Low
5	7-Eleven Food Store #29775	8250 World Center Dr	9201333, Discharge ID: 57943	High
6	Progress Energy SARAP Lake Bryan Substation	8350 Lake Bryan Beach Blvd	122410, ERIC ID: ERIC_12781	Low
7	Daneta LLC	13725 SR 535	9808007, Discharge ID: 60792	Low
8	Speedway #6434	3270 Vineland Rd	9803008	Medium
9	Publix Super Market #351	2915 Vineland Rd	9810287	Low
10	Embassy Suites Orlando-LK Buena Vista South	4955 Kyngs Heath Rd	9813192	Low

Table 2-8 - Site Information (Cont.)

Site No.	Facility Name	Address	Facility ID (FDEP/RCRA)	Risk Rating
11	W Kissimmee Central Office	3080 Vineland Rd	8627084	Low
12	Wawa Food Market #5116	3140 Vineland Rd	9813385	Medium
13	Murphy USA #7190	3256 Vineland Rd	9807115	Medium
14	Publix Super Market #1607	3221 Vineland Rd	9815653	Low
15	Racetrac #2305	15570 Apopka Vineland Rd	9813548	Medium
16	Orange Co Utility - PS SW #3597	14344 Hwy 535	9401271	Low
17	Wal-Mart Supercenter #5420	3250 Vineland Rd	9807198	Low
18	Rebel #861	7900 World Center Dr	9808444	Medium
19	Hawkeye Heli-Tours LLC	5071 W Irlo Bronson Hwy	9814492	Low
20	Sun Inn and Suites	5020 W Irlo Bronson Hwy	94990	Low
21	Orlando World Center Marriott	8701 World Center Drive	8627488	Low
22	Florida Midland Railroad	Along east side of SR 535	N/A	Medium

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Figure 2-14 - Contaminated Sites in Osceola County

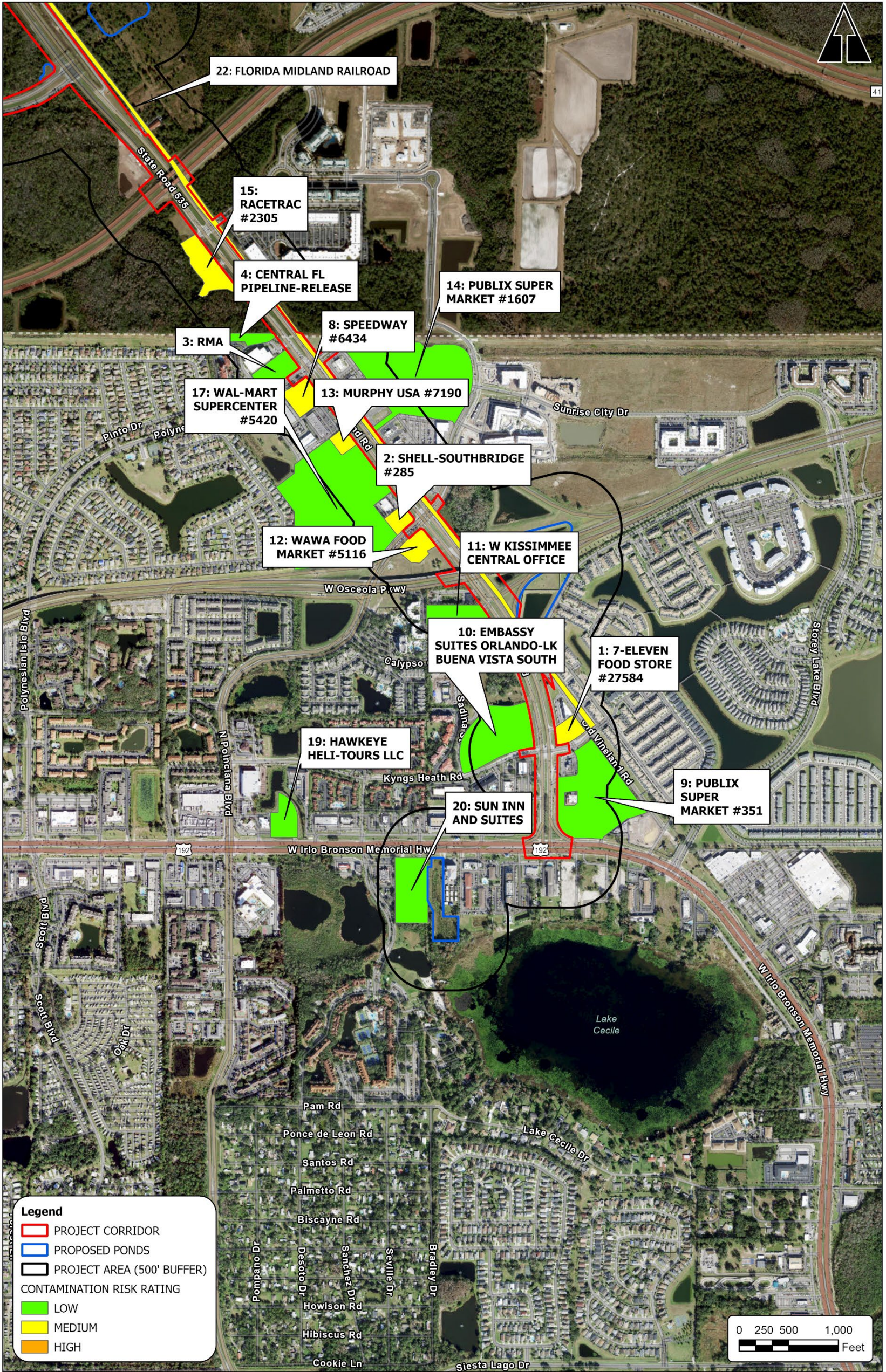
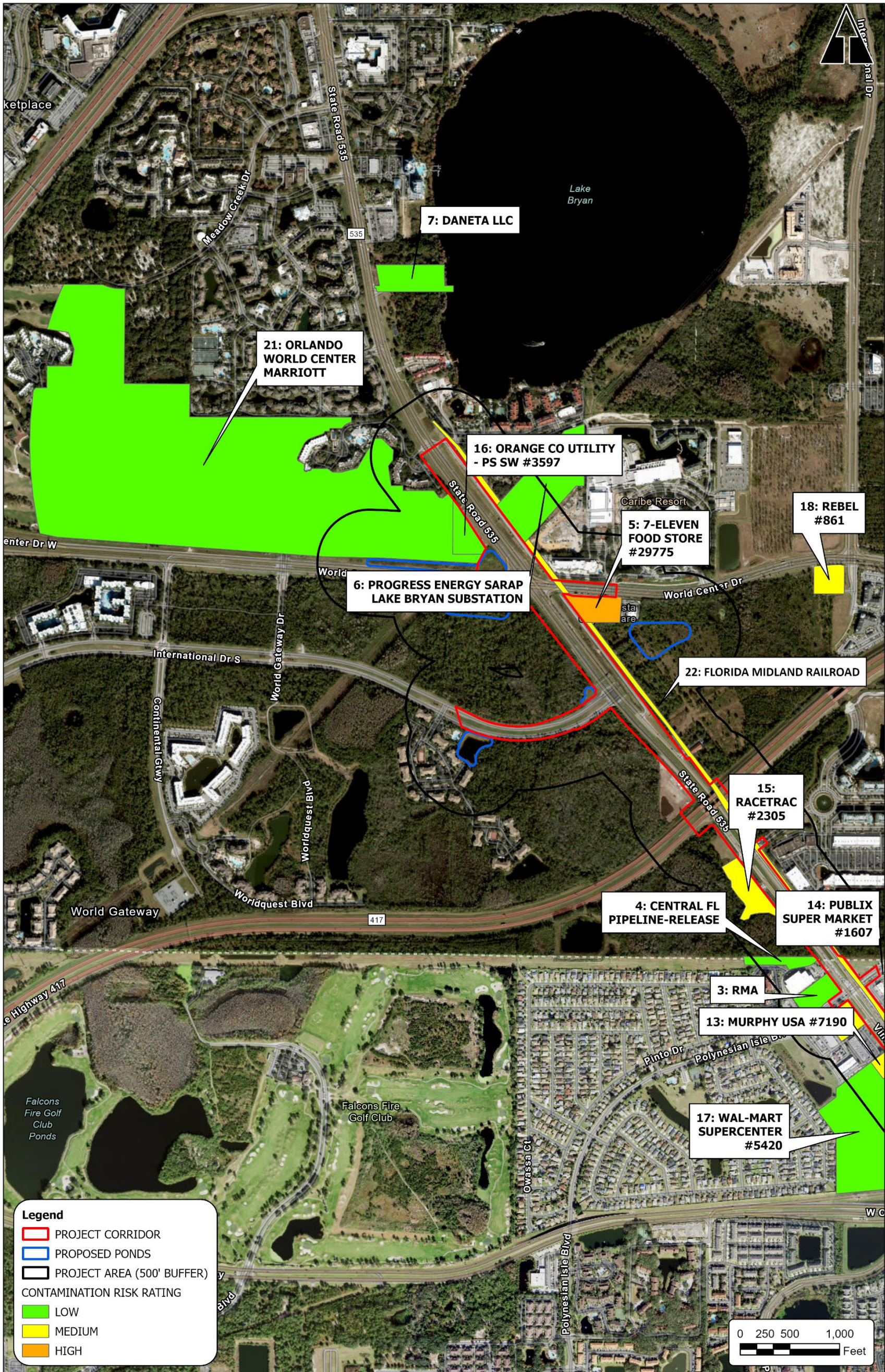


Figure 2-15 - Contaminated Sites in Orange County



2.5.5 Utilities

Utility companies with known facilities within the proposed project limits were contacted and requested to submit as-built plans and all proposed utilities within the project limits. **Table 2-8** presents a list of utilities within the project limits. Approximate locations of the facilities are tabulated from the utility responses received.

Table 2-9 - Existing Utilities

Utility Agency/Owner	Facility Type	Contact Person	Phone	Email
AT&T Distribution	Communications	Alan Reynolds	(407) 351-8180	ar2916@att.com
Charter Communications	Communications	Jonathan McLeroy	(407) 467-6147	jonathan.mcleroy@charter.com
Comcast	Communications	Cesar Rivera	(407) 312-5944	cesar_rivera@comcast.com
Duke Energy	Electric	Tomas Macias	(407) 938-6619	tomas.macias@duke-energy.com
Florida Gas Transmission	Gas	Joseph Sanchez	(407) 838-7171	joseph.e.sanchez@energytransfer.com
Kinder-Morgan (Central Florida Pipeline, LLC)	Fuel	Mark Clark	(727) 271-0024	mark.clark@kindermorgan.com
Kissimmee Utility Authority	Electric	Carlos Galindez	(407) 933-7777 X6153	cgalindez@kua.com
Lumen (Centurylink)	Communications	Bill McCloud	(850) 599-1444	william.mccloud@lumen.com
Orange County Utilities	Water/Sewer	Christina M. Crosby	(407) 254-9706	christina.crosby@ocfl.net
Osceola County	Irrigation	Juan Diaz	(407) 448-0761	juan.diaz@ferrovialservices.com
Orlando Utilities Commission	Electric	Robert Scheuerle	(407) 434-2107	rscheuerle@ouc.com
Summit Broadband	Communications	Michelle Daniel	(407) 920-7468	mdaniel@summit-broadband.com
TECO People's Gas Systems	Gas	Shawn Winsor	(407)420-6663	swinsor@tecoenergy.com
TOHO Water Authority	Water/Sewer	Calvin Carrero	(407)944-5044	ccarrero@tohowater.com
Uniti Fiber	Communications	James Mosley	(251)654-8216	james.mosley@uniti.com
Verizon/ MCI	Communications	Timothy Cole	(407)506-8635	timothy.cole@version.com

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AT&T Distribution owns the following facilities within the project's study limits:

- 144-count fiber optic cable (FOC) commencing at the south project limits near US-192 along the west right of way of SR-535.
- 24-count FOC along the north right of way of Kyngs Heath Rd. west of SR-535.
- 144-count FOC along the east right of way of SR-535 north of Kyngs Heath Rd.
- 144-count FOC along the south right of way of Osceola Pkwy.
- 48-count FOC along the east right of way of SR-535 extending north of Poinciana Blvd.
- 48-count and 60-count FOC along the east right of way of SR-535 north of International Dr.
- 60-count FOC along north right of way of International Drive crossing SR-535.
- 216-count FOC along the east right of way of SR-535 between International Dr. and SR-536 (World Center Dr.) and extending east along the north right of way of SR-536.
- 48-count FOC west of SR-535 along the north right of way of SR-536.
- 96-count FOC along the east right of way of SR-535 north of SR-536.
- Various cabinets, handholes, manholes, related utility appurtenances, and joint-use attachments to existing utility poles.

Charter Communications owns the following facilities within the project's study limits:

- Aerial communications cable attached to utility poles along the east right of way of SR-535 south of Poinciana Blvd
- Aerial communications cable attached to utility poles along the east right of way of SR-535 north of Poinciana Blvd with concurrent underground facilities located within 1.5" to 2" conduit.
- Various handholes and related utility appurtenances.

Comcast owns the following facilities within the project's study limits:

- Underground facilities along the west right of way of SR-535 from Polynesian Isle Blvd. to north of SR-417.
- Underground facilities along the east right of way of SR-535 from north of SR-417 to SR-536.
- Underground facilities along the south right of way of SR-536 east of SR-535.

Duke Energy owns the following facilities within the project's study limits:

- 7.2/12.47 kV overhead electric (OE) distribution lines and poles along the west right of way of SR-535 between Polynesian Isle Blvd. to International Dr.

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- OE underbuilt distribution (7.2/12.47 kV) and transmission pole line along the east right of way of SR-535 from Osceola County line to north of SR-536.
- 7.2/12.47 kV buried electric (BE) distribution along the south right of way of International Dr. west of SR-535.
- 7.2-12.47 kV BE extending from the Duke Energy substation located on the east side of SR-535 north of SR-536 crossing the SR-535/536 intersection and continuing west along the south right of way of SR-536
- OE underbuilt distribution (7.2/12.47 kV) and transmission lines crossing SR-535 north of SR-536 extending from the Duke Energy substation.
- BE distribution along the west right of way of SR-535 north of SR-536.
- Various distribution-type and transmission-type poles, handholes, switch cabinets, pole-mounted and pad-mounted transformers, pole risers, down guys and other related utility appurtenances.

Florida Gas Transmission Co. owns the following facilities within the project's study limits:

- 18" steel pipeline crossing SR-535 along the north right of way of Osceola Pkwy.
- FGT-Reedy Creek take-off valve and regulator station located east of SR-535 along the north right of way of Osceola Pkwy.
- 6.625" steel pipeline along the east right of way of SR-535 extending between the FGT-Reedy Creek take-off valve/regulator station and the FGT-TECO People Gas Systems Orlando Meter Station located north of SR-536 east of SR-535 (Orlando Southwest Measurement Station) within an FGT-owned easement.

Kinder Morgan/Central Florida Pipeline, LLC owns the following facilities within the project's study limits:

- 16" petroleum fuel pipeline crossing SR-535 at the Osceola County line, generally within an existing OUC transmission corridor located east and west of SR-535.

Kissimmee Utility Authority owns the following facilities within the project's study limits:

- 25kV BE crossing SR-535 along the south right of way of Kyngs Heath Rd.
- OE distribution line along the west right of way of SR-535 from north of Kyngs Heath Rd. to Osceola Pkwy.

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- OE transmission line along the east right of way of SR-535 from south of Osceola Pkwy. to north of Osceola Pkwy.
- OE transmission line with underbuilt distribution along the east right of way of SR-535 from north of Osceola Pkwy. to Polynesian Isle Blvd.
- Various distribution-type and transmission-type poles, handholes, switch cabinets, pole-mounted and pad-mounted transformers, pole risers, down guys and other related utility appurtenances.

Lumen (Centurylink) owns the following facilities within the project's study limits:

- Local fiber/underground (UG) copper along the east right of way of SR-535 south of Kyngs Heath Rd.
- Local fiber/UG copper along the east right of way of SR-535 from north of Calypso Cay Way to Osceola County line.
- Local fiber/UG copper along west right of way of SR-535 from north of Osceola County line to SR-536. and continuing west along the south right of way of SR-536.
- Local fiber/UG copper along the east right of way of SR-535 continuing to the north project limits.
- Metro optical ground wire affixed to Duke Energy Transmission poles crossing SR-535 north of SR-536 and along the east right of way of SR-535 north of SR-536.
- Various handholes and related utility appurtenances.

Orange County Utilities owns the following facilities within the project's study limits:

- 4" ductile iron pipe (DIP) force main (FM) along the west right of way of SR-535 from south of SR-417 to SR-536 and continuing west along the south right of way of SR-536.
- 12" polyvinyl chloride pipe (PVC) FM along the west right of way of SR-535 north of SR-536.
- 20" DIP FM crossing SR-535 north of SR-536 within a 36" steel casing.
- 10" PVC FM along the east right of way of SR-535 from south of SR-417 to north of SR-536 with a crossing south of SR-417.
- 20" DIP FM along the north right of way of SR-536 east of SR-535.
- 8" PVC watermain (WM) along the west right of way of SR-535 from Osceola County line and crossing SR-535 within a 30" steel casing south of SR-417.
- 16" DIP WM along the east right of way of SR-535 from south of SR-417 to SR-536.
- 16" high density polyethylene (HDPE) WM pipe crossing SR-535 north of SR-417.

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- 12" PVC WM along the south right of way of International Dr. crossing SR-535 within a 30" steel casing and connecting to the 16" DIP WM along the east right of way of SR-535.
- 24" DIP WM along the east right of way of SR-535 north of SR-536 within a casing across SR-536 and connecting to the 24" DIP WM along the south right of way of SR-536 east of SR-535.
- 4" PVC Reclaimed WM along International Dr. west of SR-535.
- 12" PVC Reclaimed WM along west right of way of SR-535 north of SR-536.
- 12" PVC Reclaimed WM within a 24" steel casing crossing SR-535 north of SR-536 and connecting to an existing 24" DIP Reclaimed WM along the east right of way of SR-535 continuing east long the north right of way of SR-536.
- 6" PVC Reclaimed WM along the east right of way of SR-535 connecting to an existing 12" PVC Reclaimed WM along SR-536 east of SR-535.

Orlando Utilities Commission owns the following facilities within the project's study limits:

- OE transmission lines crossing SR-535 along the Osceola County line north of Polynesian Isle Blvd. within an existing easement corridor located east and west of the SR-535 right of way.

Osceola County owns the following facilities within the project's study limits:

- Irrigation lines along the SR-535 east and west right of way and along the median between US-192 and SR-417.

Summit Broadband owns the following facilities within the project's study limits:

- 24-count fiber in (3) 1.25" HDPE conduit crossing SR-55 along the north right of way of Kyngs Heath Rd.
- 288-count fiber in (3) 1.25" HDPE conduit along the west right of way of SR-535 from Osceola Pkwy. to Poinciana Blvd.
- 144-count and 288-count aerial fiber along the east right of way of SR-535 from south of Poinciana Blvd. to south of SR-417.
- 144-count and 288-count aerial fiber along the east right of way of SR-535 from north of SR-417 to north of SR-536.

TECO Peoples Gas Systems owns the following facilities within the project's study limits:

- 4" coated steel (CS) gas main (GM) along the east right of way of SR-535 between Calypso Way and south of SR-417.
- 4" CS GM along the north right of way of US-192 crossing SR-535.
- 4" CS GM crossing SR-535 at Kyngs Heath Rd.
- 4" CS GM crossing SR-535 at Calypso Cay Way.
- 4" CS GM crossing SR-535 at Poinciana Blvd.
- 2" CS GM crossing SR-535 south of Polynesian Isle Blvd.
- 6" CS GM crossing SR-535 at International Dr.
- 6" CS GM along the east right of way of SR-535 from south of SR-417 to north of SR-536.
- 6" CS GM crossing SR-535 north of SR-536.
- 6" CS GM east along SR-536 connecting to the 6" CS GM along SR-535.

Toho Water Authority owns the following facilities within the project's study limits:

- 8" WM, valves, and appurtenances along the south right of way of US-192.
- 10" Gravity Sewer Main, manholes, and appurtenances.
- 12" Gravity Sewer Main and manholes across SR-535 at Kyngs Heath Rd.
- WM (unspecified diameter) across SR-535 at Kyngs Heath Rd.
- 10" WM along the west right of way of SR-535 from Kyngs Heath Rd. to south of Osceola Parkway.
- 12" FM crossing SR-535 south of Osceola Parkway and extending across Osceola Parkway to an existing lift station along N. Poinciana Blvd. west of SR-535.
- A 16" reclaimed WM along the north side of Osceola Parkway crossing SR-535.
- 24" WM along the north side of Osceola Parkway crossing SR-535.
- 6" WM along the west right of way of SR-535 from Poinciana Blvd. to the Osceola County line north of Polynesian Isle Blvd.
- 10" WM crossing SR-535 at Interior Street (south of Polynesian Isle Blvd.).
- 6" WM extending west along the south right of way of Polynesian Isle Blvd. from SR-535.
- 8" Gravity Sewer Main and manholes along the north and south right of way of Polynesian Isle Blvd. west of SR-535.

Uniti Fiber owns the following facilities within the project's study limits:

- (3) 1.25" ducts with 3/4" cable along the east right of way of SR-535 north of SR-536 and extending from the existing Duke Energy substation.

Verizon/MCI owns the following facilities within the project's study limits:

- Fiber optic cable along the SR-535 project limits.

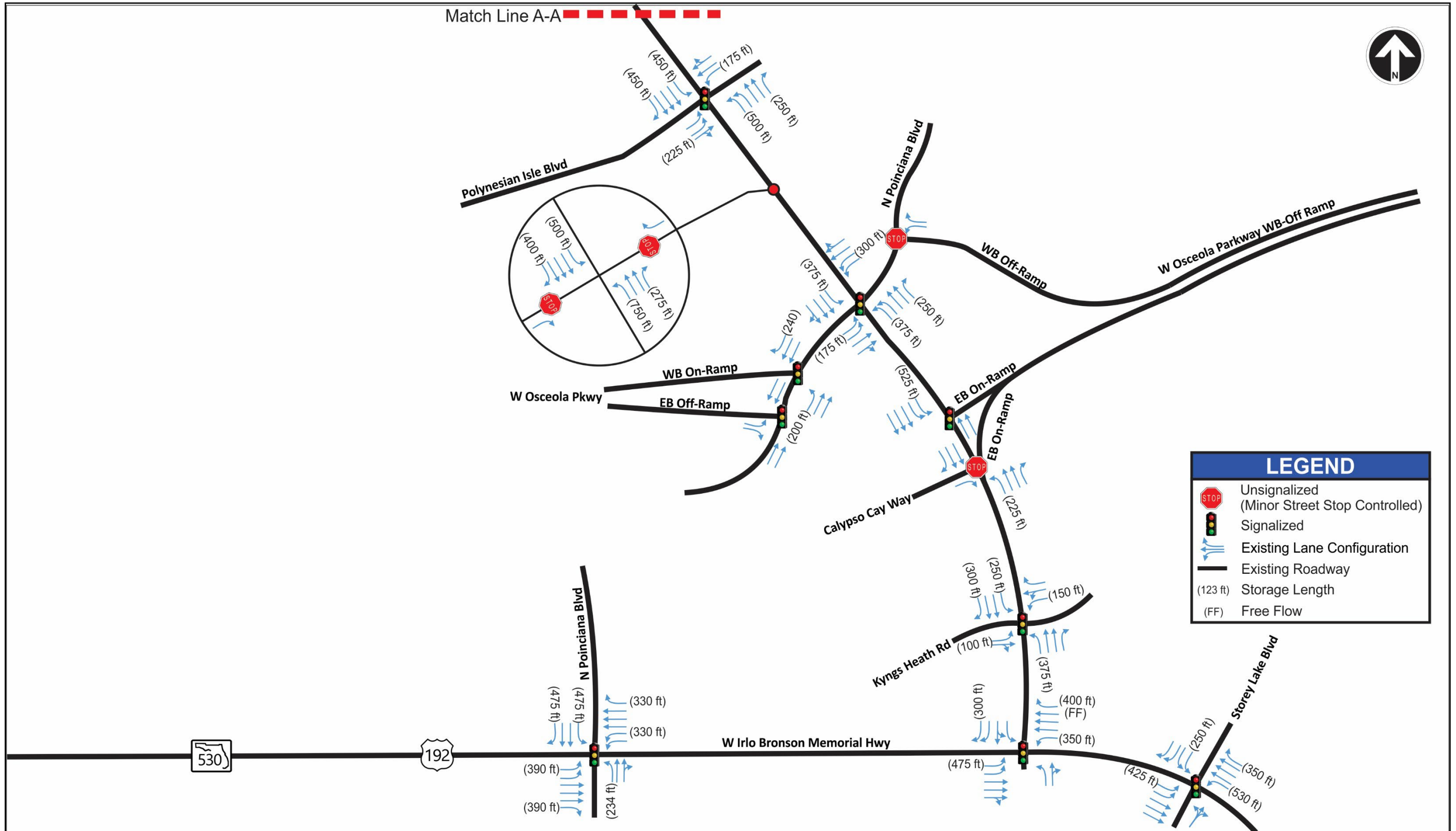
2.6 Roadway Operational Conditions

2.6.1 Existing Lane Geometry

Figure 2-16 and Figure 2-17 show the existing year (2020) intersection geometry for all the intersections evaluated in this study. The existing year intersection geometry information was obtained and verified from field visits and aerial photographs. The existing geometry plays a vital role in assessing the intersection Level of Service (LOS). LOS is a qualitative measure of traffic operations. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. The existing geometry will be considered as one of the factors in determining potential intersection improvements to accommodate the travel demand.

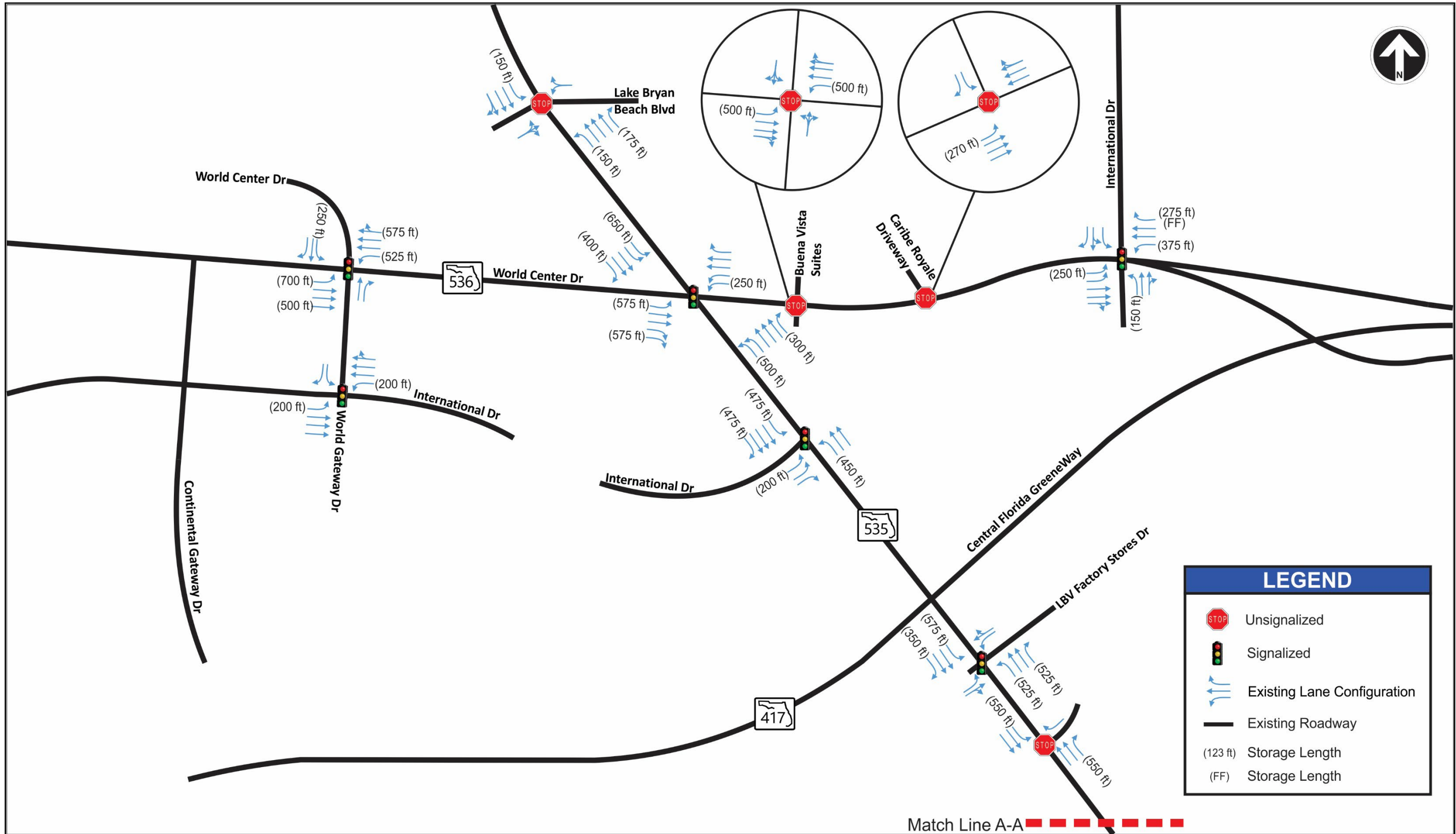
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Figure 2-16 - Existing Lane Geometry (1 of 2)



LEGEND	
	Unsignalized (Minor Street Stop Controlled)
	Signalized
	Existing Lane Configuration
	Existing Roadway
(123 ft)	Storage Length
(FF)	Free Flow

Figure 2-17 - Existing Lane Geometry (2 of 2)



LEGEND	
	Unsignalized
	Signalized
	Existing Lane Configuration
	Existing Roadway
(123 ft)	Storage Length
(FF)	Storage Length

2.6.2 Existing AADT

The traffic count information available from the data collection effort was used to develop existing traffic characteristics for the SR 535 study corridor and the side streets. Based on a review of the data collected, the following observations were made:

- Several Orange County sites show that the Average Daily Traffic (ADT) data collected in the month of October 2019 is substantially higher than FTO and data from other sources within the study area.
- SR 535 data between SR 536 and Osceola Parkway appear to be consistent between different data sources (FTO and County sources), indicating less variability between different times of the year.
- SR 535 volume and classification counts between Osceola Parkway and US 192 appear to show variability in AADT compared to FTO and County sources. It was also observed that the 72-hour classification count between Poinciana Boulevard and Polynesian Isle Boulevard (42,500) was lower than both FTO and Osceola County AADT.
- For a majority of the locations, the 2019 AADT from FTO or County were generally higher than the traffic data collected during 2020.

Based on above findings and observations, FTO counts were used along SR 535.

Table 2-10 summarizes the existing (2020) AADTs and source for all roadways within the study area. Growth rates, based on appropriate trends, were applied to 2019 FTO traffic data to develop 2020 AADTs. Appropriate seasonal factors were applied to collected traffic data for 2020 AADTs based on collected data. Seasonal factors ranged from 0.98 to 1.02 depending on the date of collection and location (Orange or Osceola Counties).

The roadway arterial operational analysis was performed for the existing year traffic conditions for AM and PM peak hours using Synchro 11 software. In addition, the target LOS for this project is LOS D. **Table 2-11**, summarizes the speed and arterial LOS for the SR 535 study corridor. Detailed Synchro Arterial LOS reports are provided in the PTAR, a companion document to this report.

During the AM peak hour condition, five (5) segments show deficient operations; three (3) of which are noted on northbound segments while two (2) are noted on southbound segments. Overall, the northbound and southbound SR 535 arterial segments operate at LOS E and LOS D,

SECTION 2 – EXISTING CONDITIONS

respectively. During the PM peak hour condition, six (6) segments show deficient operations; three (3) of which are noted on northbound segments and three (3) are noted on southbound segments. Overall, northbound SR 535 arterial segments operate at LOS D while southbound SR 535 operates at LOS E. In general, the southbound SR 535 segments between Calypso Cay Way and Polynesian Isle Boulevard operate at LOS D or better, which may be attributed to the third southbound lane.

Table 2-10 - Existing 2020 Annual Average Daily Traffic (AADT)

Intersection	Segments	2020 AADT	Collected (C) or Estimated (E)
SR 535 @ Lake Bryan Beach Blvd	Lake Bryan Beach Blvd, west of SR 535	500	E
	Lake Bryan Beach Blvd, East of SR 535	1,400	C
	SR 535, North of Lake Bryan Beach Blvd	50,000	C
	SR 535, South of Lake Bryan Beach Blvd	51,500	C
SR 535 @ World Center Dr	World Center Dr, west of SR 535	37,500	C
	World Center Dr, East of SR 535	36,000	C
	SR 535, North of World Center Dr	51,500	C
	SR 535, South of World Center Dr	49,500	C
SR 535 @ International Dr S	International Dr S, West of SR 535	6,400	C
	International Dr S, East of SR 535	-	
	SR 535, North of International Dr S	49,500	C
	SR 535, South of International Dr S	48,000	C
SR 535 @ Lake Buena Vista Factory Stores Dr	Lake Buena Vista Factory Stores Dr, west of SR 535	500	C
	Lake Buena Vista Factory Stores Dr, East of SR 535	4,900	C
	SR 535, North of Lake Buena Vista Factory Stores Dr	48,000	C
	SR 535, South Lake Buena Vista Factory Stores Dr	56,000	C
SR 535 @ Median Opening N	Median Opening North, East of SR 535	1,500	E
	SR 535, North of Median Opening North	56,000	C
	SR 535, South of Median Opening North	56,000	C
SR 535 @ Polynesian Isle Blvd	Polynesian Isle Blvd, west of SR 535	12,000	C
	Polynesian Isle Blvd, East of SR 535	4,300	C
	SR 535, North of Polynesian Isle Blvd	56,000	C
	SR 535, South of Polynesian Isle Blvd	54,000	C

SECTION 2 – EXISTING CONDITIONS

Table 2-10 - Existing 2020 Annual Average Daily Traffic (AADT) (Cont'd)

Intersection	Segments	2020 AADT	Collected (C) or Estimated (E)
SR 535 @ Median Opening S	Median Opening S, West of SR 535	3,400	E
	Median Opening S, East of SR 535	1,900	E
	SR 535, North of Median Opening S	54,000	C
	SR 535, South of Median Opening S	54,000	C
SR 535 @ Poinciana Blvd	Poinciana Blvd, west of SR 535	21,500	C
	Poinciana Blvd, East of SR 535	7,200	C
	SR 535, North of Poinciana Blvd	54,000	C
	SR 535, South of Poinciana Blvd	39,500	C
SR 535 @ Osceola Pkwy On Ramps (North)	Osceola Pkwy EB On Ramp	5,100	C
	SR 535, North of Osceola Pkwy On Ramps	39,500	C
	SR 535, South of Osceola Pkwy On Ramps	33,500	C
SR 535 @ Osceola Pkwy On Ramps (South)	Calypso Cay Way, west of SR 535	1,800	C
	Osceola Pkwy On Ramp (WB), East of SR 535	2,000	C
	SR 535, North of Osceola Pkwy On Ramp	33,500	C
	SR 535, South of Osceola Pkwy On Ramp	32,500	C
SR 535 @ Kyngs Heath Rd	Kyngs Heath Rd, west of SR 535	1,900	C
	Kyngs Heath Rd, East of SR 535	2,700	C
	SR 535, North of Kyngs Heath Rd	32,500	C
	SR 535, South of Kyngs Heath Rd	29,500	C
SR 535 @ US 192	US 192, west of SR 535	37,000	C
	US 192, East of SR 535	49,000	C
	SR 535, North of US 192	29,500	C
	SR 535, South of US 192	200	E
World Center Dr @ International Dr	World Center Dr, West of International Dr	36,000	C
	SR 417 Ramp	38,500	C
	International Dr, North of World Center Dr	25,000	C
	International Dr, South of World Center Dr	21,000	E

SECTION 2 – EXISTING CONDITIONS

Table 2-10 - Existing 2020 Annual Average Daily Traffic (AADT) (Cont'd)

Intersection	Segments	2020 AADT	Collected (C) or Estimated (E)
US 192 @ Storey Lake Blvd	US 192, west of Storey Lake Blvd	49,000	C
	US 192, east of Storey Lake Blvd	60,000	C
	Storey Lake Blvd, north of US 192	3,000	C
US 192 @ N Poinciana Blvd	US 192, west of Poinciana Blvd	45,000	E
	US 192, east of Poinciana Blvd	37,000	C
	Poinciana Blvd, north of US 192	17,500	E
	Poinciana Blvd, south of US 192	27,000	E
W Osceola Ramp @ N Poinciana Blvd (W of SR 535)	Osceola ramp, north of Poinciana Blvd	3,700	C
	Poinciana Blvd, east of Osceola On Ramp	21,500	C
	Poinciana Blvd, west of Osceola Off Ramp	25,500	C
W Osceola Off Ramp @ N Poinciana Blvd (WB)	Osceola Off ramp, South of Poinciana Blvd	3,400	C
	Poinciana Blvd, East of Osceola Off Ramp	5,500	E
	Poinciana Blvd, West of Osceola Off Ramp	7,200	C
World Gateway Drive @ World Center Drive	SR 536, west of World Gateway Dr	40,500	E
	SR 536, east of World Gateway Dr	37,500	C
	World Gateway Dr, north of SR 536	9,600	E
	World Gateway Dr, south of SR 536	16,700	E
World Gateway Drive @ International Drive	International Dr, west of World Gateway Dr	10,500	C
	International Dr, east of World Gateway Dr	6,400	C
	World Gateway Dr, north of International Dr	9,600	E
World Center Dr @ Buena Vista Suites	World Center Dr, west of Buena Vista Suites	36,000	C
	World Center Dr, east of Buena Vista Suites	36,000	C
	Buena Vista Suites, north of World Center Dr	1,000	E
	Buena Vista Suites, south of World Center Dr	1,300	E
World Center Dr @ Caribe Royale Orlando	World Center Dr, west of Caribe Royale Orlando	36,000	C
	World Center Dr, east of Caribe Royale Orlando	36,000	C
	Caribe Royale Orlando, North of World Center Dr	1,650	E

Table 2-11 - Existing Arterial LOS – SR 535 Segments

Time of Day	Arterial Segment	From	To	Section Length ¹ (ft)	Speed Limit (mph)	Travel Time (sec)	Arterial Speed		
							(mph)	%	LOS
AM	Northbound								
		US 192	Kyns Heath Road	1003	45	28.7	23.6	43%	D
		Kyns Heath Road	Osceola Pkwy on-ramp	1637	50	33.0	33.6	68%	B
		Osceola Pkwy on-ramp	Poinciana Blvd	1056	50	40.7	17.9	33%	E
		Poinciana Blvd	Polynesian Isle Blvd	1901	50	70.6	18.5	38%	E
		Polynesian Isle Blvd	Lake Buena Vista Factory Stores	1742	50	54.6	21.7	43%	D
		Lake Buena Vista Factory Stores	International Dr	2112	50	43.8	32.5	65%	C
		International Dr	SR 536/World Center Dr	1373	50	95.0	10.0	20%	F
		Total		2.05	50	366.4	17.8	39%	E
		Southbound							
		Entry Link	SR 536/World Center Dr	4594	50	131.7	23.8	48%	D
		SR 536/World Center Dr	International Dr	1373	50	52.7	18.0	36%	E
		International Dr	Lake Buena Vista Factory Stores	2112	50	47.1	30.3	61%	C
		Lake Buena Vista Factory Stores	Polynesian Isle Blvd	1742	50	44.5	26.6	53%	C
		Polynesian Isle Blvd	Poinciana Blvd	1901	50	60.1	21.8	44%	D
	Poinciana Blvd	Osceola Pkwy on-ramp	1056	50	20.3	35.9	72%	B	
	Osceola Pkwy on-ramp	Kyns Heath Road	1637	50	42.0	26.4	53%	C	
	Kyns Heath Road	US 192	1003	45	133.5	5.1	14%	F	
	Total		2.92	50	531.9	19.8	42%	E	
PM	Northbound								
		US 192	Kyns Heath Road	1003	45	34.4	19.7	44%	D
		Kyns Heath Road	Osceola Pkwy on-ramp	1637	50	36.5	30.4	61%	C
		Osceola Pkwy on-ramp	Poinciana Blvd	1056	50	42.1	17.3	35%	E
		Poinciana Blvd	Polynesian Isle Blvd	1901	50	73.3	17.9	36%	E
		Polynesian Isle Blvd	Lake Buena Vista Factory Stores	1742	50	53.8	22.0	44%	D
		Lake Buena Vista Factory Stores	International Dr	2112	50	43.1	33.1	66%	C
		International Dr	SR 536/World Center Dr	1373	50	83.6	11.3	23%	F
		Total		2.05	50	366.8	17.7	40%	E
		Southbound							
		Entry Link	SR 536/World Center Dr	4594	50	147.5	21.2	42%	D
		SR 536/World Center Dr	International Dr	1373	50	81.3	11.6	23%	F
		International Dr	Lake Buena Vista Factory Stores	2112	50	81.2	17.5	35%	E
		Lake Buena Vista Factory Stores	Polynesian Isle Blvd	1742	50	52.3	22.6	45%	D
		Polynesian Isle Blvd	Poinciana Blvd	1901	50	59.2	22.1	44%	D
	Poinciana Blvd	Osceola Pkwy on-ramp	1056	50	20.3	35.9	72%	B	
	Osceola Pkwy on-ramp	Kyns Heath Road	1637	50	41.1	27.0	54%	C	
	Kyns Heath Road	US 192	1003	45	199.5	3.4	18%	F	
	Total		2.92	50	682.4	15.4	37%	F	

¹ Length based on Arterial LOS Synchro Report length converted from miles to feet

² LOS based on HCM 6th Edition methodology (Avg. Travel Speed Threshold by Base FFS [Speed Limit]). Arterial LOS Synchro Report is based on HCM 2000 methodology; therefore, results may vary.

2.6.3 Crash Data Review and Summary

Crash data for the five-year period of January 1, 2014 through December 31, 2018 was obtained from the FDOT Crash Analysis Reporting (CAR) System database and Signal Four Analytics and is summarized in **Table 2-12**. In addition to the five-year crash summaries, the analysis utilized crash rates, statewide average crash rates and High Crash Location lists to identify high crash locations. Detailed crash data and collision diagrams are located in the PTAR. Based on the crash data obtained from CAR System and Signal Four Analytics for the five-year period, a total of 1,809 crashes were identified within the study area. Three-hundred-and-four (304) crashes were reported in 2014, 358 crashes in 2015, 391 crashes in 2016, 413 crashes in 2017, and 343 crashes in 2018.

Table 2-12 Crash Summary

Crash Severity & Type		Year					Total
		2014	2015	2016	2017	2018	
Severity	Fatal	3	1	2	0	0	6
	Injury	96	151	131	146	144	668
	PDO	205	206	258	267	199	1135
Crash Type	Rear-End	176	196	235	220	179	1006
	Head-On	1	1	1	0	0	3
	Angle	21	28	22	26	30	127
	Left-Turn	33	48	41	75	59	256
	Right-Turn	4	6	3	4	4	21
	Sideswipe	31	44	43	45	41	204
	Backed Into	0	0	0	0	1	1
	Pedestrian	5	0	3	2	1	11
	Pedalcycle	1	2	3	3	0	9
	Fixed Objects	9	5	11	8	8	41
	Other Non-Fixed Objects	1	2	0	1	0	4
	Non-Collisions	2	5	5	3	1	16
	Other	20	21	24	26	19	110
Overall		304	358	391	413	343	1809

Six-hundred and sixty-eight (668) crashes involving injuries were reported during the five-year period. In addition, three (3) fatal crashes were recorded in 2014, one (1) in 2015, and two (2) in 2016. Rear-end crashes were the most reported crash type, accounting for 1,006 crashes (56% of all crashes). Left Turn crashes were the second highest type of crashes accounting for 256 crashes (14% of all crashes). Most of the crashes (64%) occurred during the daytime and the majority of crashes (89%) under dry conditions.

2.6.4 Railroad Crossings

This corridor does not have any railroad crossings within the project limits.

2.6.5 Noise Walls and Perimeter Walls

This corridor does not have any noise or perimeter walls within the project limits.

2.6.6 Intelligent Transportation Systems (ITS)/Transportation System Management and Operations (TSM&O) Features

The 2.35-mile SR 535 corridor from U.S. 192 to north of SR 536 experiences substantial existing and projected capacity deficiencies as well as various safety deficiencies. This is noted namely towards the northern terminus of the project where access issues arise on roadways which service Disney's Epcot Center and Magic Kingdom. SR 535, within the project corridor, includes ten (10) intersections, comprised of eight (8) signalized and two (2) unsignalized intersections. There are four (4) principal roadway crossings/intersections within the project limits which include: U.S. 192 (W. Irlo Bronson Memorial Highway), Osceola Parkway (C.R. 522), SR 417 (Central Florida GreeneWay), and SR 536 (SR 536). SR 535 experiences frequent crashes and recurring congestion. From 2014 to 2018 there were 4 fatal crashes, 463 injury crashes, and 514 property damage only crashes along SR 535.

Signal controllers along the corridor communicate with hub locations using a Layer 2 Managed Field Ethernet Switch located in each signal cabinet. These switches relay information back to the FDOT Regional Transportation Management Center (RTMC) in Sanford via Layer 3 Networks, which are managed by the respective agencies. Various Advanced Traffic Management System (ATMS) software systems are utilized for the monitoring and control of their respective signal and ITS devices.

The purpose of this ConOps is to review the existing system and identify any additional needs along the corridor for consideration during the design phase of the project. The overall study was initiated with a detailed comprehensive analysis of existing and projected substandard conditions.

SECTION 2 – EXISTING CONDITIONS

Overall, some of the most critical potential needs identified include transportation demand, multimodality, safety/crash rates, and planning consistency, among others.

The objective of this ConOps is to identify additional needs and shortcomings along this corridor that will enable FDOT District 5 and its partners to more efficiently monitor and control traffic along the corridor and provide Performance Measures to document the benefits of this system. By providing these enhancements, road users will benefit from fewer crashes and reduced crash severity in support of FDOT's Target Zero Initiatives as well as less congestion, shorter travel times, and lower fuel consumption and emissions. In addition, the technologies considered for deployment along the corridor would allow incident responders to have signal priority, emergency vehicle preemption, as well as information dissemination to their On Board Units (OBU), if available.

The scope of this effort is to identify enhancements to the corridor as noted previously. The Design Team will complete all Systems Engineering documentation including complete full Signed and Sealed design plans. Proposed devices are anticipated to be on the FDOT approved products list (APL). The contractor will be responsible for installation of all FDOT procured devices, furnishing and installing all other devices, and any wiring and associated infrastructure as needed.

2.6.6.1 Operational Constraints

Overall, the project corridor is equipped with numerous ITS devices and monitored in real time. Operations are presently hindered by:

- Traffic signal controllers firmware in Osceola County not supporting ATSPM capabilities
- Lack of Dynamic Message Signs to support travel information dissemination
- Gap in CCTV coverage at Poinciana Boulevard
- Lack of EVP at signalized intersections for more efficient emergency response travel times.

2.6.6.2 Existing System

The existing conditions of the SR 535 corridor include numerous ITS devices for effective traffic management and monitoring. The study corridor includes:

- One (1) CFX owned CCTV
- Five (5) county owned CCTVs
- Two (2) Bluetooth/Roadside Units (BT/RSUs)

- One (1) CFX owned DMS for northbound traffic approaching International Drive
- Fiber communications owned by FDOT and maintained by the Counties
- Automated Traffic Signal Performance Measures (ATSPMs) for the Orange County signalized intersections
- Active traffic management/monitoring from the RTMC

In summary, these devices provide the ability to track real-time traffic conditions and respond quickly to incidents or congestion. FDOT has full access including Pan-Tilt-Zoom control capabilities of the county owned CCTVs from the RTMC. Overall, there are only a few gaps in the monitored corridor. Finally it should be noted that SR 535 is utilized as a Priority 1 diversion route for incidents that occur on I-4 southbound, just north of the project.

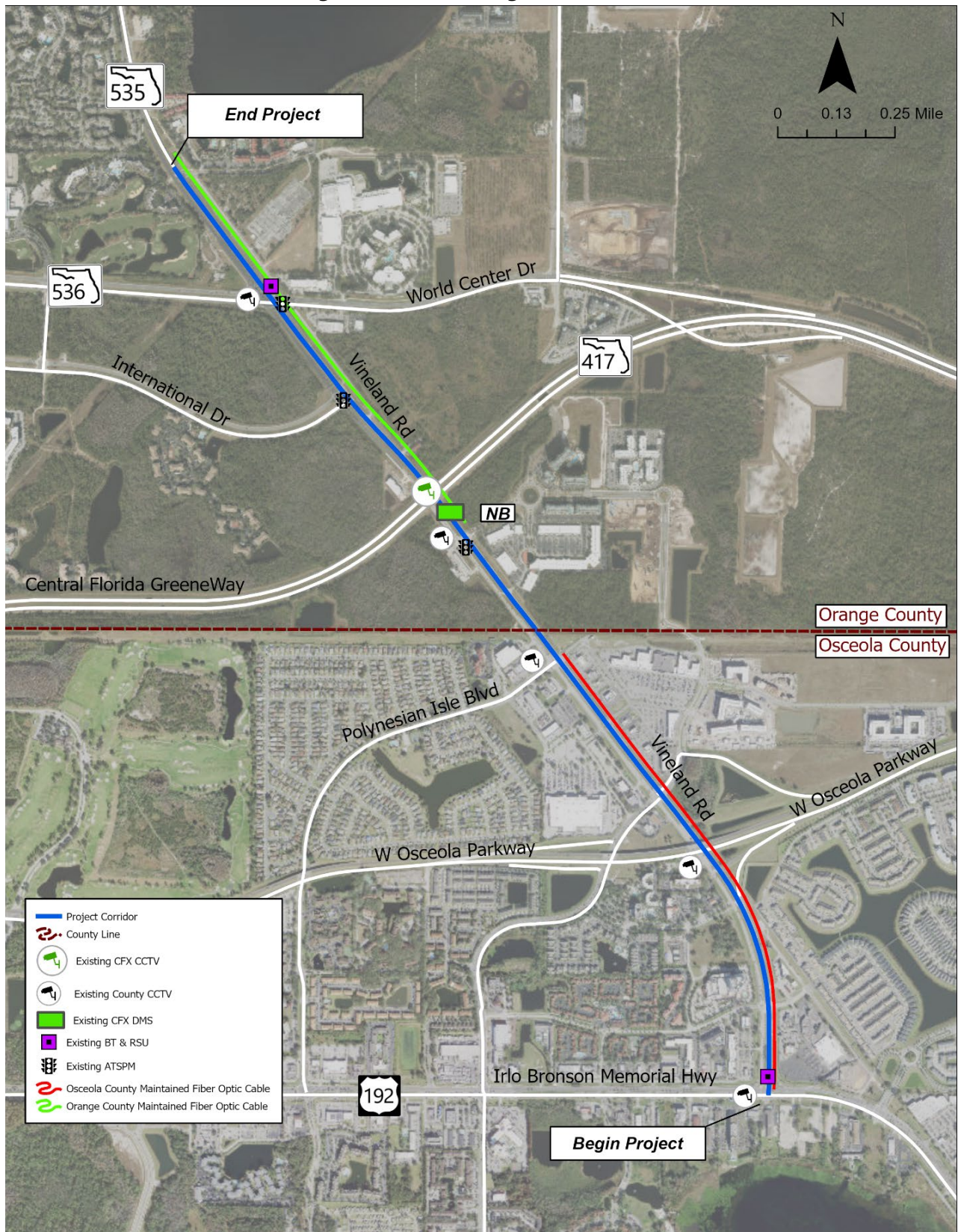
Existing ITS devices along the corridor are illustrated in **Figure 2-18** - Existing ITS Devices.

2.6.6.3 Existing ITS Devices

2.6.6.3.1 Orange County

- World Center Drive
 - At the intersection of World Center Drive and SR 535, the CCTV camera is located in the northeast quadrant. This CCTV camera provides detailed coverage of the intersection, with a direct view of the north, south, and east approaches, as well as the outgoing traffic moving from east to west.
- Central Florida GreeneWay (CFX Owned Roadway)
 - The DMS faces cars going northbound and is located just south of Central GreeneWay overpass. While relatively small when compared to other DMS sign, it can still be seen from the Lake Buena Vista Factory Stores Drive intersection.
- Lake Buena Vista Factory Store Drive
 - At the intersection of Lake Buena Vista Factory Store Drive and SR 535, the CCTV camera is located in the northeast quadrant. This CCTV camera provides thorough coverage of the intersection, with a direct view of the north and south approaches and can also see the traffic coming out of the RaceTrac gas station situated at the southwest corner of the intersection.

Figure 2-18 - Existing ITS Devices



2.6.6.3.2 Osceola County

- Polynesian Isle Boulevard
 - At the intersection of Polynesian Isle Boulevard and SR 535, the CCTV camera is located in the northeast quadrant. This CCTV camera provides thorough coverage of the intersection, with a direct view of the north, south, and east approaches, as well as the outgoing traffic moving from east to west.
- W Osceola Parkway
 - At the intersection of W Osceola Parkway and SR 535, the CCTV camera is located in the northeast quadrant. This CCTV camera provides comprehensive coverage of the intersection, with a direct view of the north and south approaches, as well as the outgoing traffic moving from west to east from the left-turn movements at the intersection.
- US 192/W Irlo Bronson Memorial Highway
 - At the intersection of W Irlo Bronson Memorial Highway and SR 535, the CCTV camera is positioned on the mast arm in the northwest quadrant. From this viewpoint, it offers a clear and unrestricted view of all four approaches: north, south, east, and west.

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3.0 FUTURE CONDITIONS

3.1 Transportation Plan Review

A RRR (FM# 445299-1) that will mill and resurface SR 535 from north of US 192 to south of International Drive is in design. Construction is anticipated to begin Summer of 2024.

Based on coordination with the Department, the following three Developer Partnership Projects (also shown on **Figure 3-1**) were added to the Build network since they are not in the CFRPM v7.0 2045 Cost Feasible network: Coordination between the County and the projects is ongoing.

- International Drive Extension (SR 535 to World Center Drive)
- Poinciana Boulevard Extension North (Lake Buena Vista Factory Stores Drive to International Drive Extension)
- Polynesian Isle Boulevard (North of County line to Poinciana Boulevard Extension)

3.2 Local Policies

The Osceola County Trails Prioritization and Feasibility Study (Study) developed and documents a strategy for an interconnected trail network which has been adopted into the County's Comprehensive Plan Transportation Element. This Study calls for a trail along SR 535 to serve as a System Trail.

MetroPlan Orlando has outlined SR 535 north of World Center Drive (SR 536) is constrained to six lanes. MetroPlan Orlando as well as Orange and Osceola County staff expressed safety concerns about a potential eight-lane section.

3.3 Context Classification

The future SR 535 section within and adjacent to this project will serve as an effective minor arterial to facilitate mobility and access to abutting land uses in the area. In general terms, this facility has a future classification of C3C-Suburban Commercial since it will serve “mostly non-residential uses with large building footprints and large parking lots network”. The Context Classification Form was approved October 28, 2020.

3.4 Target Speed

Target Speed is the highest speed at which vehicles should operate on a thoroughfare along the corridor, which is consistent with the adjacent land uses, mobility for motor vehicles and

supportive environment for pedestrians, bicyclists, etc. The Target Speed Recommendation Report was approved March 9, 2022 and the recommended Target Speed for this corridor is 45 mph throughout the entire corridor.

3.5 Future Land Use

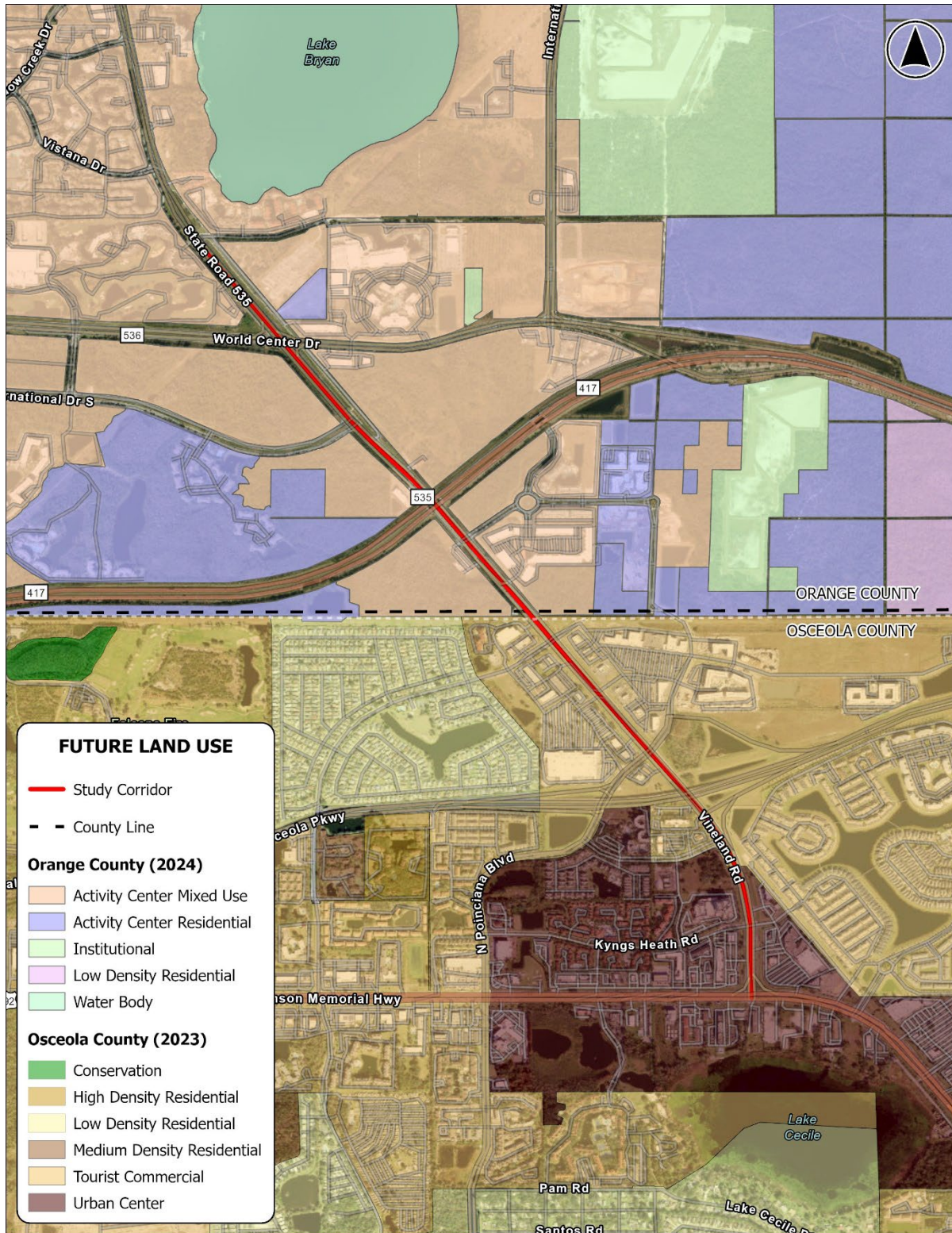
Figure 3-2 Illustrates the generalized future land use along the project area based on data retrieved from Orange and Osceola County GIS database. The prevalent future land uses along both the Osceola and Orange County sections are commercial and mixed-use/activity centers. Both classifications are closely related to the tourist industry. Activity Centers are planned in Orange County immediately adjacent to SR 535 where there is currently unimproved land. Future land use in Osceola County is generally anticipated to remain similar to existing land use.

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Figure 3-1 - Development Partnership Projects



Figure 3-2 - Future Land Use



3.6 Design Traffic Volumes

The design year (2045) AADT were developed by applying the annual growth rate between 2045 model Build scenario and 2015 scenario to the 2020 AADT following National Cooperative Highway Research Program (NCHRP) 765 procedure. Future AADT's and Directional Design Hour Volume's (DDHV), which are summarized in **Table 3-1**, were calculated based on approved growth rates. More information can be found in the PTAR, a companion document to this report.

Table 3-1 - Future AADT

Intersection	Segments	2020 AADT	Build Growth Rate	Build 2045	DDHV 2045
SR 535 @ Lake Bryan Beach Blvd	Lake Bryan Beach Blvd, west of SR 535	500	1.18%	650	20
	Lake Bryan Beach Blvd, East of SR 535	1,400	1.59%	2,000	70
	SR 535, North of Lake Bryan Beach Blvd	50,000	0.76%	60,000	2,350
	SR 535, South of Lake Bryan Beach Blvd	51,500	0.83%	62,500	2,450
SR 535 @ World Center Dr	World Center Dr, west of SR 535	37,500	1.69%	53,500	2,270
	World Center Dr, East of SR 535	36,000	0.51%	41,000	1,620
	SR 535, North of World Center Dr	51,500	0.83%	62,500	2,450
	SR 535, South of World Center Dr	49,500	0.45%	55,500	2,170
SR 535 @ International Dr S	International Dr S, West of SR 535	6,400	9.52%	22,000	1,150
	International Dr S, East of SR 535	-	6.00%	33,000	1,720
	SR 535, North of International Dr	49,500	0.45%	55,500	2,170
	SR 535, South of International Dr S	48,000	1.21%	63,000	2,470
SR 535 @ Lake Buena Vista Factory Stores Dr	Lake Buena Vista Factory Stores Dr, west of SR 535	500	2.29%	800	-
	Lake Buena Vista Factory Stores Dr, East of SR 535	4,900	8.39%	15,500	660
	SR 535, North of Lake Buena Vista Factory Stores Dr	48,000	1.17%	62,500	2,450
	SR 535, South Lake Buena Vista Factory Stores Dr	56,000	1.24%	73,500	2,880
SR 535 @ Median Opening N	Median Opening North, East of SR 535	1,500	4.26%	3,100	130
	SR 535, North of Median Opening North	56,000	1.24%	73,500	2,880
	SR 535, South of Median Opening North	56,000	0.93%	69,000	2,700
SR 535 @ Polynesian Isle Blvd	Polynesian Isle Blvd, west of SR 535	12,000	2.08%	18,500	740
	Polynesian Isle Blvd, East of SR 535	4,300	7.88%	13,000	520
	SR 535, North of Polynesian Isle Blvd	56,000	0.93%	69,000	2,700
	SR 535, South of Polynesian Isle Blvd	54,000	1.08%	69,000	2,700

Table 3-2 - Future AADT (Cont.)

Intersection	Segments	2020 AADT	Build Growth Rate	Build 2045	DDHV 2045
SR 535 @ Median Opening S	Median Opening S, West of SR 535	3,400	0.22%	3,600	140
	Median Opening S, East of SR 535	1,900	6.45%	5,000	200
	SR 535, North of Median Opening S	54,000	1.08%	69,000	2,700
	SR 535, South of Median Opening S	54,000	1.18%	70,000	2,740
SR 535 @ Poinciana Blvd	Poinciana Blvd, west of SR 535	21,500	0.62%	25,000	830
	Poinciana Blvd, East of SR 535	7,200	5.03%	16,500	790
	SR 535, North of Poinciana Blvd	54,000	1.18%	70,000	2,740
	SR 535, South of Poinciana Blvd	39,500	1.45%	54,000	2,110
SR 535 @ Osceola Pkwy On-Ramps (North)	Osceola Pkwy EB On-Ramp	5,100	3.44%	9,500	850
	SR 535, North of Osceola Pkwy On-Ramps	39,500	1.45%	54,000	2,110
	SR 535, South of Osceola Pkwy On-Ramps	33,500	1.16%	43,500	1,700
SR 535 @ Osceola Pkwy On-Ramps (South)	Calypso Cay Way, west of SR 535	1,800	0.61%	2,100	90
	Osceola Pkwy On ramp (WB), East of SR 535	2,000	1.55%	2,800	-
	SR 535, North of Osceola Pkwy On ramp	33,500	1.16%	43,500	1,700
	SR 535, South of Osceola Pkwy On ramp	32,500	1.23%	42,500	1,660
SR 535 @ Kyngs Heath Rd	Kyngs Heath Rd, west of SR 535	1,900	5.33%	4,500	180
	Kyngs Heath Rd, East of SR 535	2,700	9.76%	9,300	360
	SR 535, North of Kyngs Heath Rd	32,500	1.23%	42,500	1,660
	SR 535, South of Kyngs Heath Rd	29,500	1.27%	39,000	1,530
SR 535 @ US 192	US 192, west of SR 535	37,000	0.44%	41,500	1,680
	US 192, East of SR 535	49,000	0.80%	59,000	2,390
	SR 535, North of US 192	29,500	1.27%	39,000	1,530
	SR 535, South of US 192	200	3.40%	400	20

SECTION 3 – FUTURE CONDITIONS

Figure 3-3 and **Figure 3-4** show the 2045 turning movement counts. Projections for the three intersections of International Drive Extension at World Center Drive, SR 535 at SR 536/World Center Drive, and SR 535 at International Drive were adjusted in coordination with FDOT to reasonably consider the expected traffic redistribution associated with the International Drive Extension. It should be noted that intersection volumes for the International Drive Extension and Poinciana Boulevard Extension were not developed since the intersection is not part of the study. However, based on balanced volumes for the International Drive Extension intersections of SR 535 and World Center Drive, it is observed that the Poinciana Boulevard extension intersection will draw traffic from the International Drive Extension.

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Figure 3-3 – 2045 Design Year Turning Movement Counts (Osceola County)

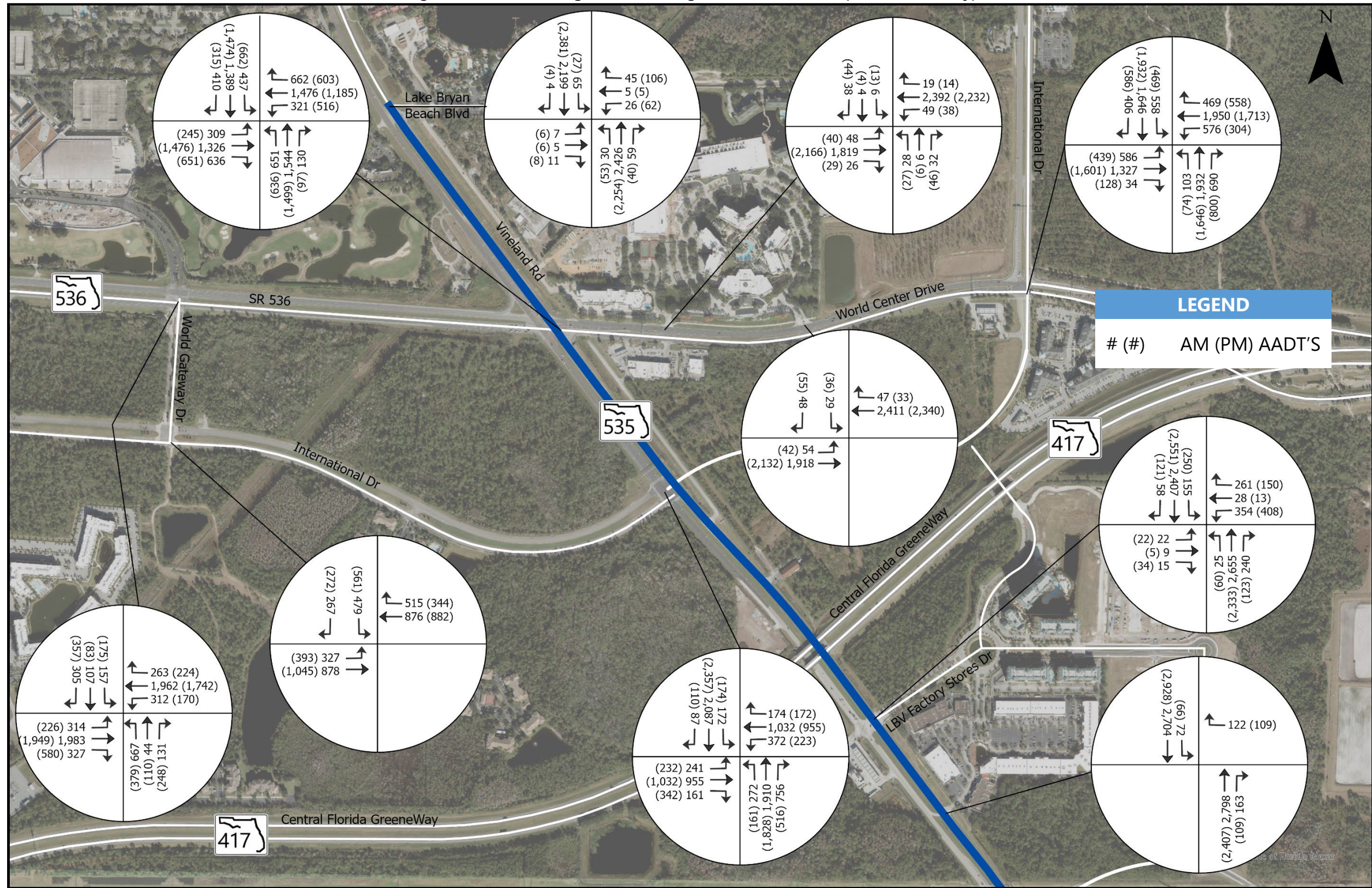
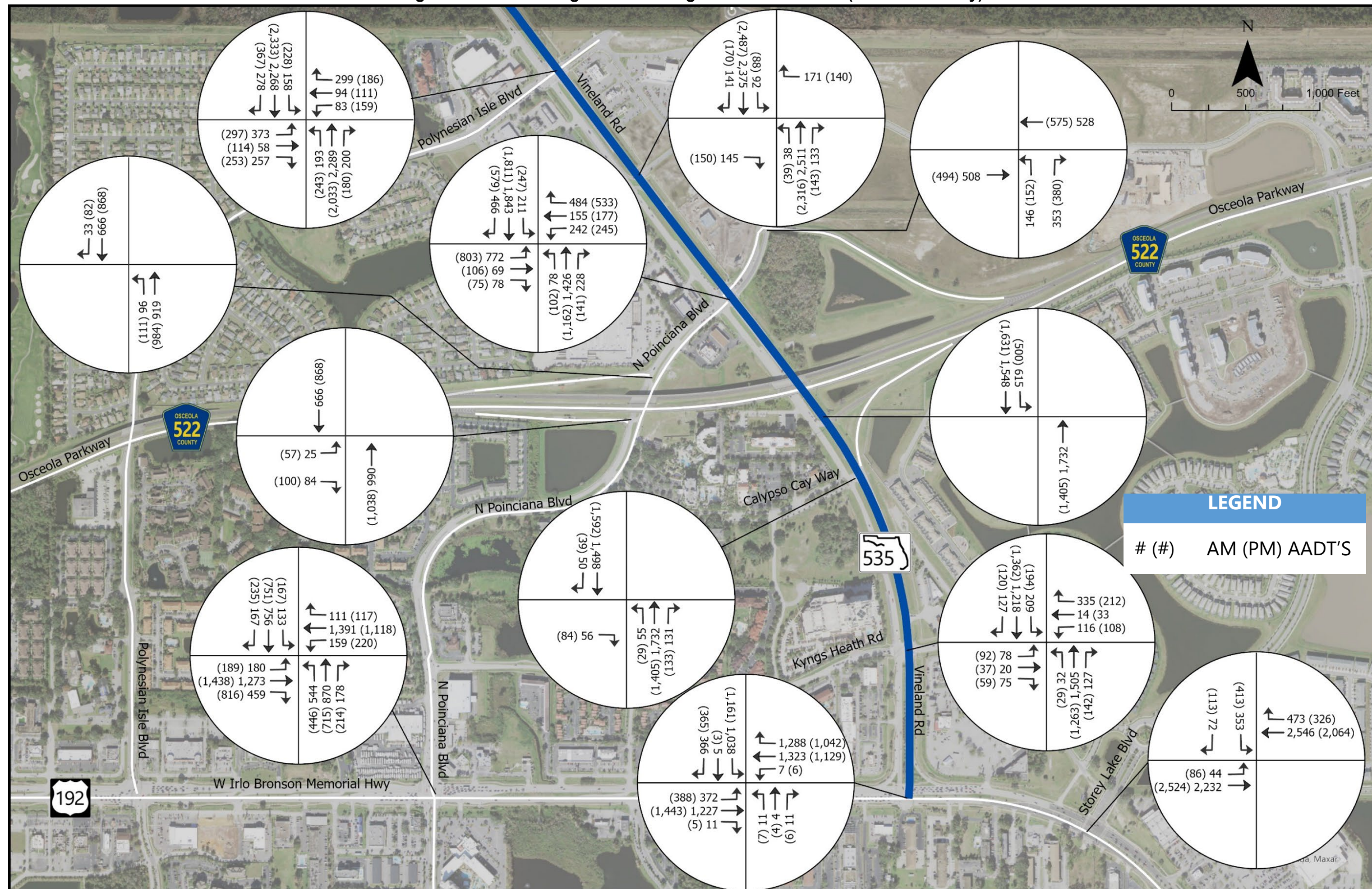


Figure 3-4 - 2045 Design Year Turning Movement Counts (Osceola County)



4.0 PROJECT DESIGN CONTROLS & CRITERIA

Design controls and criteria must be established prior to the formulation of design alternatives to ensure an adequate, safe, functional and operational roadway. These criteria are needed to develop typical sections, horizontal and vertical alignments, and other design features such as drainage, aesthetics, landscaping, and multimodal facilities. The controls and standards are those specified by the FDOT for state roadways. In addition, the consideration of the facility's Context Classification strives to ensure that "state roadways are supportive of safe and comfortable travel for their anticipated users".

4.1 Design Control and Criteria

4.1.1 Geometric Design Criteria

The design criteria used in the project area are based on the 2024 Florida Department of Transportation Design Manual (FDM) publication. **Table 4-1** shows the Roadway Design Criteria.

4.1.2 Drainage Design Criteria

The design of the stormwater management facilities for the project is governed by the rules set forth by the South Florida Water Management District (SFWMD), FDOT, Orange and Osceola Counties. Water quality treatment and attenuation requirements will comply with the guidelines as defined in Chapter 62-330.010 of the Florida Administration Code (F.A.C.), the SFWMD Environmental Resource Permit Applicant's Handbooks, and the FDOT Drainage Manual, as well as the pre-application meeting held with SFWMD on 11/16/22. SR 535 within the project limits is located within the Shingle Creek basin (WBID 3169A) and Lake Okeechobee Basin Management Action Plan (BMAP). The Pond Siting Report (PSR) for the project outlines the specific drainage design criteria (water quality, water quantity, and detention/retention pond configuration).

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Table 4-1 Roadway Design Criteria

	Roadway & Context Classifications	Curb and Gutter	High Speed with Curb and Gutter	High Speed with Flush Shoulders	Source
General Criteria	Context Classification	C3	C3	C3	
	Design Speed	45 mph	50 mph	50 mph	FDM 210 and as-builts
Horizontal Alignment	Max. Defl. w/o Curves	1°00'00"	0°45'00"	0°45'00"	FDM 210.8.1
	Desirable Length of Curves	675'	750'	750'	FDM Table 210.8.1
	Max Degree of Curvature with Max Superelevation	8°15'00" (e max=0.5)	8°15'00" (e max=0.10)	8°15'00" (e max=0.10)	FDM Table 210.9.1 & Table 210.9.2
Section Features	Lane widths, through	11'	12'	12'	FDM Table 210.2.1
	Median Widths	22'	30'	30'	FDM Table 210.3.1
	Inside Shoulder (# lanes in each direction)	-	6.5'	3 L: 10' (4' Paved)	FDM Table 210.4.1
	Outside Shoulder (# lanes in each direction)	-	6.5'	3 L: 10' (5' Paved)	FDM Table 210.4.1
Vertical Clearance	Roadway over Roadway	16.5'	16.5'	16.5'	FDM Table 260.6.1
	Overhead Sign Structure	17.5'	17.5'	17.5'	FDM 210.10.3
Clear Zone	Lateral Offset from Bridge Piers	16' Travel Lane 6-ft from Inside Aux Lane	16' Travel Lane 6-ft from Inside Aux Lane	16' Travel Lane 6-ft from Inside Aux Lane	FDM Table 215.2.2
	Pavement Cross Slope	2%-3%	2%-3%	2%-3%	FDM Figure 210.2.1
	Border Width	14'	29'	40'	FDM Table 210.7.1
Vertical Alignment	Max. Grade	6%	6%	6%	FDM Table 210.10.1
	Min. Length of Crest Curves	135'	300'	300'	FDM Table 210.10.4
	Min. K Value Crest Curves	98'	136'	136'	FDM Table 210.10.3
	Min. Length of Sag Curves	135'	200'	200'	FDM Table 210.10.4
	Min. K Value SAG Curves	79'	96'	96'	FDM Table 210.10.3
	Longitudinal Grade	Min 0.3%, max 0.7% (w/out curve)	Min 0.3% max 0.5% (w/out curve)	max 0.5% (w/out curve)	FDM 2.10.10.1.1
Multimodal Features	Sidewalk Width	6'	6'	6'	FDM Table 222.2.1
	Shared Use Path Width	8' – 14'	8' – 14'	8' – 14'	FDM 224.4
	Bicycle Lane Width	Shared Use Path Substitute for design speed of 35 mph or greater	Shared Use Path Substitute for design speed of 35 mph or greater	Shared Use Path Substitute for design speed of 35 mph or greater	FDM 223.2.1.1
	Curb and Gutter Type	E (Inside), F (Outside)	E (Inside), E (Outside)	N/A	FDM 210.5 FDM 210.5.1

4.1.2.1 Water Quality Treatment Criteria

SR 535 within the project limits is located within the Shingle Creek basin (WBID 3169A) and Lake Okeechobee Basin Management Action Plan (BMAP), and does not directly discharge to an Outstanding Water (OFW). Retention, detention, or both retention and detention in the overall system, including swales, lakes, canals, greenways, etc., shall be provided for one of the three following criteria or equivalent combinations thereof: (SFWMD Applicant's Handbook, Vol. II, Sec. 4.2.1)

- 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 impervious area, whichever is greater.
- Dry detention volume shall be provided equal to 75 percent of the above amounts computed for wet detention.
- Retention volume shall be provided equal to 50 percent of the above amounts computed for wet detention.
- Impervious areas subject to non-vehicular traffic do not require water quality treatment, and can be separated out from the calculation of impervious area.
- An additional 50% of water quality treatment should be provided wherever feasible due to the fact that the project is located within the Lake Okeechobee Basin Management Actions Plan (BMAP).
- Net improvement for nutrient loading requirements.

4.1.2.2 Water Quantity (Attenuation) Criteria

SFWMD Criteria

For open basins, the post-development peak rate of discharge must not exceed the pre-developed peak rate of discharge for the 25-year/72-hour event. For closed basins, the post-development peak discharge volume must not exceed the pre-development peak discharge rate and volume during the 100-year, 72-hour storm. (SFWMD Applicant's Handbook, Vol. II, Sec. 3.2 and 3.3).

FDOT Criteria

The design of stormwater management systems for Department projects will comply with the water quality, rate, and quantity requirements of Section 334.044(15), Florida Statutes (F.S.), Chapter 14-86, Florida Administrative Code (F.A.C.), Rules of the Department of Transportation,

SECTION 4 – PROJECT DESIGN CONTROLS & CRITERIA

only in basins closed during storms up to and including the 100-year storm event, or areas subject to historical flooding.

Osceola County and Orange County Criteria

Based on a review of permit documentation, one existing pond evaluated in this report utilizes the Osceola County 10-year/72-hour and 100-year/72-hour event. Several existing ponds evaluated in this report utilize the Orange County 25-year/24-hour event. For more information please see the pond calculations for the design storm utilized in to determine required attenuation volumes in the PSR, a companion document to this report.

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5.0 ALTERNATIVES ANALYSIS

Several alternatives were evaluated to determine if they meet the purpose and need of this project. These alternatives are described in the following sections and include the following:

- 'No-Build' Alternative
- Transportation Systems Management and Operations (TSM&O)
- Multimodal Alternatives
- Construction ('Build') Alternatives

5.1 Alternatives Evaluation Process

Previous sections of this report thoroughly document the project area's existing deficiencies, needs and conditions. Based on these factors and also public/agency input, a comprehensive alternative development and evaluation process was initiated and conducted for the proposed project improvements as documented herein.

A multi-phase alternative development, evaluation and selection process was employed to properly assess all build alternatives considered for the proposed improvements as compared to the No-Build Alternative. Four (4) different phases comprised the build alternative selection process. A discussion of each of the different phases follows. A diagram depicting the Alternatives Evaluation Process is shown in **Appendix C**.

5.2 Phase 1: Conceptual Analysis

5.2.1 No-Build Alternative

The "No-Build" alternative is an alternative solution used in PD&E studies that assumes the retainment of existing conditions and includes planned projects in the study area. The "No-Build" Alternative is a viable alternative that is considered all the way through the project. This provides a comparison of existing conditions related to implementing the proposed improvements and those incurred by continuing to use the existing facility. The No-Build alternative eliminates costs related to right of way acquisition and construction, traffic delays caused by construction, and impacts to the natural and social environments. However, the "No-Build" alternative would entail the retainage of the existing conditions within the project limits with its present operational, multimodal, and safety deficiencies in addition to programmed and funded safety and maintenance improvements in the area. The existing facility within the project confines is inadequate in terms of future capacity. It is evident that because of the reasons previously discussed in **Section 2.0**, adoption of this alternative would not address the project's purpose and

SECTION 5 – ALTERNATIVES ANALYSIS

need. However, the “No-Build” alternative will be maintained as a viable option providing an effective yardstick or baseline condition by which other project alternatives will be compared throughout the project alternative selection process.

Design year 2045 results reveal that AM and PM peak hour conditions show similarities in their operational results with further levels of degradation and deficiencies. Under the AM peak hour conditions, many of the intersections do not meet the LOS D Target and are projected to operate at deficient LOS. The following intersections do not meet the overall intersection LOS D Target in the design year under the No-Build Alternative.

- SR 535 at Poinciana Boulevard – LOS F with an overall delay of 148.3 sec/veh
- SR 535 at Polynesian Isle Boulevard – LOS F with a delay of 104.0 sec/veh
- SR 535 at Lake Buena Vista Factory Stores – LOS F with a delay of 227.7 sec/veh
- SR 535 at International Drive – LOS E with a delay of 60.0 sec/veh
- SR 535 at SR 536/World Center Drive – LOS F with a delay of 197.8 sec/veh

Overall, most of the intersections have degraded when compared to the existing and opening year scenarios, with SR 535 and Lake Buena Vista Factory Stores showing the highest delays.

Under the PM peak hour conditions, most of the signalized intersections do not meet the LOS D Target and are projected to operate at deficient LOS. The following intersections do not meet the LOS D Target in the design year under the No-Build Alternative.

- SR 535 at Poinciana Boulevard– LOS F with a delay of 136.7 sec/veh
- SR 535 at Polynesian Isle Boulevard – LOS F with a delay of 118.6 sec/veh
- SR 535 at Lake Buena Vista Factory Stores – LOS F with a delay of 187.1 sec/veh
- SR 535 at International Drive – LOS E with a delay of 68.0 sec/veh
- SR 535 at SR 536/World Center Drive – LOS F with a delay of 190.5 sec/veh

Regarding queue length impacts, the design year condition exhibits similar impacts during both the AM and PM peak hour, with much heavier queuing occurring along SR 535 and the cross streets when compared to the existing and opening year conditions.

During the design year, nearly all stop-controlled movements are projected to operate at LOS E or LOS F with the exception of stop-controlled movements at the intersections of SR 535 and Calypso Cay Way. Please see the PTAR prepared for this project for more details regarding the operations of the No-Build Alternative.

5.2.2 Transportation Systems Management and Operations Alternatives (TSM&O)

The Transportation Systems Management and Operations (TSM&O) alternatives are comprised of minor improvement options that are usually generated to alleviate specific traffic congestion/safety problems, or to obtain maximum utilization out of the existing facility by improving operational efficiency. A Concept of Operations (ConOps), a supplemental document to this report, was prepared to identify any additional needs and shortcomings along the corridor and provide performance measures to document the benefits of the system. These alternatives do not serve as a point of reference but rather they ensure that a wide range of realistic alternatives are considered by decision makers. The various TSM&O alternatives that were investigated include the upgrade of the existing facility by means of intersection widening and turning lane storage enhancements, improved/modified signalization, improved signing, pavement markings and delineation, etc. (see **Table 5-1**).

As indicated in the table, it is expected that these TSM&O improvements alone will not alleviate all of the existing corridor deficiencies nor would they suffice to meet future travel demand. It was therefore concluded during the initial stages of the study that in addition to the TSM&O solutions, major reconstruction alternatives (e.g. – corridor widening, grade separation considerations, etc.) would be required to provide the effective improvement of the existing facility at various locations throughout the project corridor.

In summary, even though some beneficial effects can be obtained through the exclusive use of low-cost improvements, the overall capacity restriction of maintaining the existing roadway section precludes the attainment of any substantial improvement in the overall project LOS. It is because of this fact that these alternatives were considered to have only marginal value. However, they will be further considered as valuable components of an integrated final solution.

Table 5-1 - Evaluation of TSM&O Alternatives

TSM&O Alternatives	Consequences of Implementation	Remains Viable?
Provision of access management controls	Some minor safety and operational benefits to the arterial at the expense of reducing access. Will not provide sufficient increase in capacity to accommodate current or future travel demand.	No
Provision of Roundabouts or Traffic Circle	Generally used to reduce high vehicular speeds and potentially divert non-local traffic. These were not judged to be critical problems along the subject facility. Will likely increase the number of bicycle/vehicle conflicts. Will restrict mobility of emergency vehicles.	No
Intersection widening, turning lane storage and operational enhancements	Some improvements to intersection operations at selected intersection locations. Will not provide sufficient increases in capacity to accommodate future travel demand.	Yes
Improved/ Modified signalization	Some improvements attainable through signal system retiming and installation of PedSafe features. Will not provide sufficient increases in capacity to accommodate future travel demand.	Yes
Improved signing, markings and delineation	Only slight improvements in guidance and possibly safety. Will not alleviate any of the major existing deficiencies.	Yes
Innovative Intersection Design	Partially increases localized mobility and safety. Provides improvements but does not fully address the major corridor capacity needs.	Yes
Smart Signals Initiative (ATC, Type VI Cabinets, etc.)	Features such as Transit Signal Priority (TSP), Emergency Vehicle Pre-emption (EVP), etc. are useful and effective measures to help manage traffic mobility in specific cases but do not add additional capacity.	Yes

5.2.3 Multimodal Alternatives

The study is analyzing the opportunity to close existing gaps in the sidewalk and bicycle facilities that are along SR 535. The multimodal alternatives that are currently being considered are shared use paths, larger sidewalks and separated bicycle lanes. These alternatives satisfy the project’s need by enhancing safety for all modes of travel, including bicycle and pedestrian connectivity.

5.2.4 Phase 2: Preliminary Typical Section/Alignment Evaluation

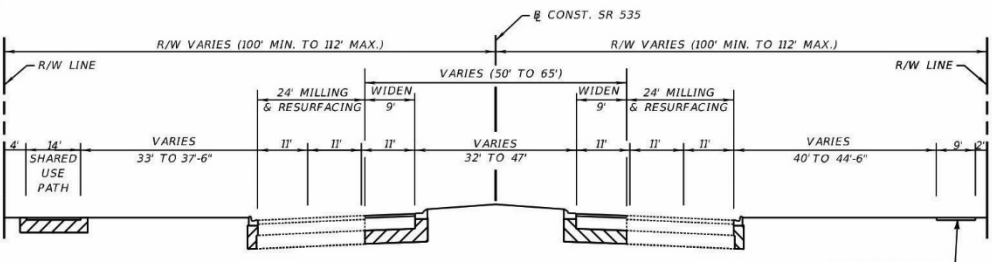
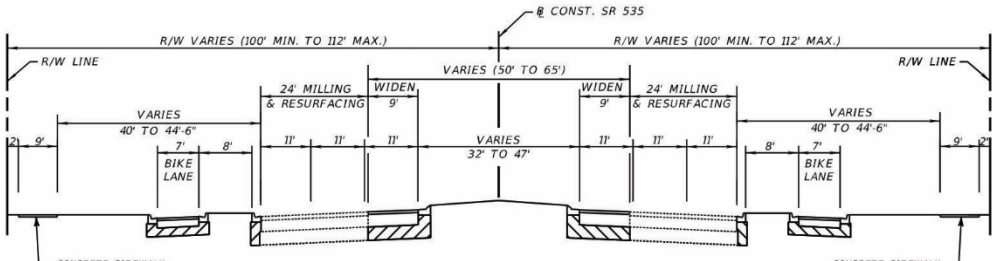
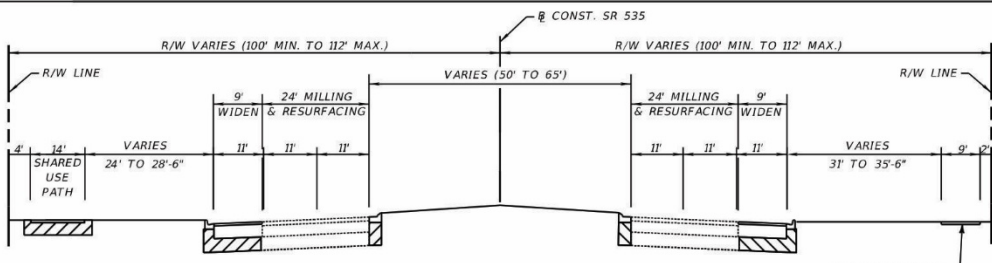
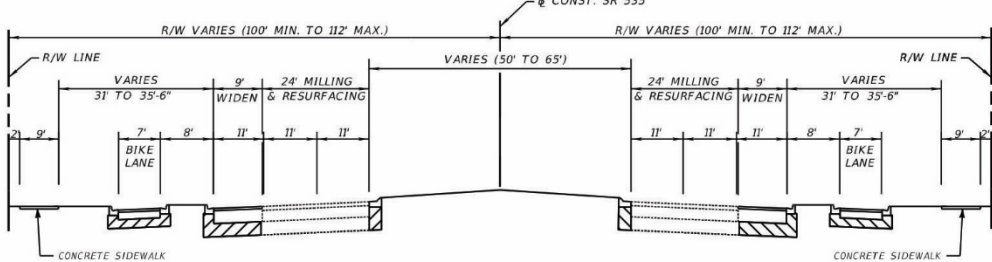
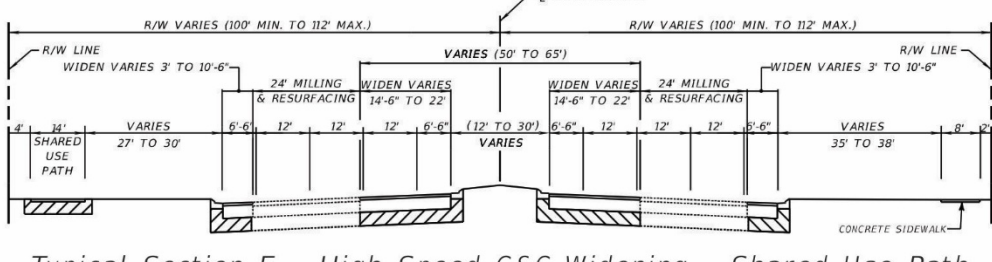
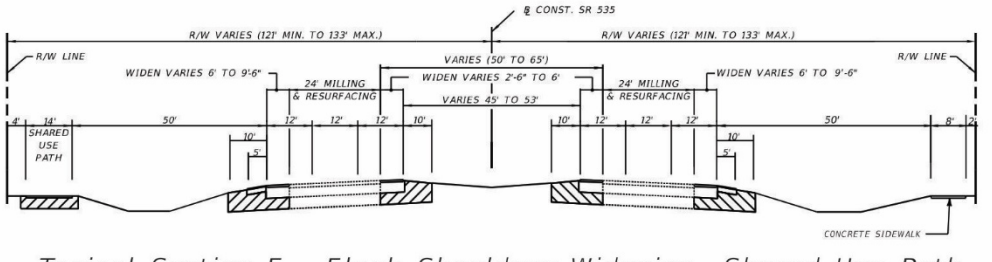
This phase involved the generation of various potential typical sections and the selection of those viable typical sections to be further evaluated along all project segments within the study corridor. The various components that were considered include design speed, lane widths, median type and width, multimodal considerations (sidewalks and bicycle features), border width, curb and gutter, etc.

SECTION 5 – ALTERNATIVES ANALYSIS

On a preliminary basis, six (6) typical roadway sections/alignment options were developed ranging in total width from 200 feet to 224 feet. **Figure 5-1** illustrates and describes the features of typical sections alternatives and their segmental applicability.

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Figure 5-1 - Preliminary Typical Sections

Typical Section Alternatives	Border Width	Width between travel lane & pedestrian	Multimodal Features	Lane & Shoulder Width	Median	Design Speed (mph)	R/W Required	Applicable Segments			
								1	2	3	4
 <p>Typical Section A - C&G Inside Widening - Shared Use Path</p>	Varies 51' to 55'-6"	Varies 33' to 44'-6"	14' Shared Use Path and 9' Sidewalk	11' Lanes	Varies 32' to 47'	45	Varies 200' to 224'	✓	✓	✓	✓
 <p>Typical Section B - C&G Inside Widening - Separated Bike Lane</p>	Varies 51' to 55'-6"	Varies 40' to 44'-6"	7' Sep. Bike Lane 9' SDWK	11' Lanes	Varies 32' to 47'	45	Varies 200' to 224'	✓	✓	✓	✓
 <p>Typical Section C - C&G Outside Widening - Shared Use Path</p>	Varies 42' to 46'-6"	Varies 24' to 35'-6"	14' Shared Use Path and 9' Sidewalk	11' Lanes	Varies 50' to 65'	45	Varies 200' to 224'	✓	✓	✓	✓
 <p>Typical Section D - C&G Outside Widening - Separated Bike Lane</p>	Varies 42' to 46'-6"	Varies 31' to 35'-6"	7' Sep. Bike Lane 9' SDWK	11' Lanes	Varies 50' to 65'	45	Varies 200' to 224'	✓	✓	✓	✓
 <p>Typical Section E - High Speed C&G Widening - Shared Use Path</p>	Varies 45' to 48'	Varies 29' to 38'	12' Shared Use Path	12' Lanes 6'-6" paved inside & outside shldr.	Varies 12' to 30'	50	Varies 200' to 224'		✓	✓	✓
 <p>Typical Section F - Flush Shoulders Widening - Shared Use Path</p>	Varies 60' to 68'	50'	14' Shared Use Path 5' Undesignated Bike Lane	12' Lanes 6'-6" paved inside & 5' paved outside shldr.	Varies 45' to 53'	50	Varies 200' to 224'		✓	✓	✓

5.2.5 Phase 3: Pre-Final Typical Section/Alignment Evaluation

A numerical/descriptive matrix was developed in order to evaluate all typical section alternatives. The evaluation has been included in **Appendix C** and a summary is provided below. The main purpose of the evaluation is to identify which alternative(s) are clearly inferior so that they can be eliminated before even more stringent evaluation criteria and procedures are used during the next evaluation phase. The evaluation used involved the generation of a weighting scheme for each of the evaluation parameters which considered the input of a multi-disciplinary team of experts. Thirteen (13) different evaluation parameters regarding engineering, social and economic, environmental and cost factors were used. Each parameter was assigned a value ranging from four (4) to ten (10) depending on its degree of importance. These parameters weightings were developed from the average of individual weighting sets prepared by members of the consultant's team reflecting a broad range of professional backgrounds. This evaluation involves a combination of both qualitative and quantitative values resulting in an overall score.

The summary of the results shown on **Table 5-2** show that Alternatives A, C and D were selected for further evaluation. As previously noted, the objective of this phase is not necessarily to determine which options are the best but rather to identify which alternative(s) are clearly inferior so that they can be eliminated before even more stringent evaluation criteria and procedures are used during the next evaluation phase. All alternatives with lower scores that do not exceed the median value for the group were eliminated.

Table 5-2 - Preliminary Alternative Typical Section Elimination Process

Alternative	Score		Summary of Evaluation
A	59.4	Remains Viable	Would have the least impacts to drainage, cross streets, and utilities, would require less R/W for stormwater ponds, and a moderate construction cost
B	51.4	Eliminated	Although it provides an additional multimodal feature (separated bicycle lane), it would require the greatest R/W for stormwater ponds, highest cost and potential conflicts with cross streets
C	58.2	Remains Viable	Similar to Alternative A but provides a wider footprint and some base clearance concerns with outside widening and potentially greater utility impacts
D	52.2	Remains Viable	Similar to Alternative B but slightly wider median and less constructability concerns
E	50.2	Eliminated	Larger footprint has greater drainage impacts, requires larger stormwater ponds, has potentially greater utility impacts, encourages faster travel speeds
F	50.6	Eliminated	Encourages faster travel speeds, widest typical section affords no area for landscaping, would require additional R/W for roadside ditches, base clearance concerns

After the Alternatives Public Information Meeting (APIM), the following modifications were made in coordination with local agencies and FDOT.

- The study started with 9-ft sidewalks on both sides of the typical section as per recommendations from the CPS. Due to sufficient right of way and to address the need for adequate bicycle facilities, a wider shared use path of 14 feet was selected for the west side and a 12-foot shared use path will be provided on the east side of the roadway.
- Based on review of the limited survey available during this study, the study corridor may have areas where the longitudinal grades and cross slopes are flatter than the minimum per design standards. In order to provide the necessary longitudinal grades and cross slopes to provide for adequate drainage, the Preferred Alternative will recommend full reconstruction (as opposed to widening and milling/resurfacing).
- Per the Speed Management Strategies Memorandum, the Target Speed recommendation for the entire corridor is 45 mph. Thus, the following modifications and recommendations have been made: 11-foot lane widths and lowering the posted speed from 50 mph to 45 mph.

5.2.6 Phase 4: Final Alternative Evaluation

The purpose of this phase was to further screen the remaining three alternatives, Alternatives A, C and D, with respect to more detailed evaluation procedures. This final evaluation is summarized in **Table 5-3 – Final Typical Section/Alignment Evaluation** (ponds and intersections are not included). This phase also entailed performing the Intersection Control Evaluation (ICE) for determination of potential innovative intersection control types to be implemented along with a recommended typical section.

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Table 5-3 - Final Typical Section/Alignment Evaluation

Evaluation Criteria	No-Build	Alternative A	Alternative C	Alternative D
Purpose and Need				
Meet Traffic Demand	No	Yes	Yes	Yes
Enhance Multimodal Features	No	Yes	Yes	Yes
Improve Safety	No	Yes	Yes	Yes
Social Environmental				
Business Parcels Impacted/Relocated	No	0	0	0
Residential Parcels Impacted/Relocated	No	0	0	0
Vacant Land Parcels Impacted/Relocated	No	0	0	0
Cultural Environmental				
Archaeological Sites Impacted	0	0	0	0
Historical Resources Impacted	0	0	0	0
Natural Environment				
Wetland (Acres)	0	0	0	0
Contamination (Sites)	N/A	0	0	0
Total Pond Size Required (Acres)	0	8	8	10
Floodplain (Acres)	0	0	0	0
Sand Skink Suitable Habitat (Acres)	0	0	0	0
Physical Environment				
Utility Impacts (FGT)	No	Yes (No FGT)	Yes (No FGT)	Yes (No FGT)
Right of way Acquisition (Acres)	0	0	0	0
Construction Cost	0	\$62M	\$60M	\$65M

5.2.6.1 Intersection Control Evaluation (ICE)

The study locations included in the CAP-X analysis are SR 535 signalized intersections at Poinciana Boulevard, Polynesian Isle Boulevard, International Drive, and SR 536. Intersection configurations considered include Displaced Left Turn, Partial Displaced Left Turn, Median U-Turn, Roundabout, Restricted Crossing U-Turn, and Quadrant Roadway. The reports and results generated by the ICE CAP-X Analysis worksheets for all intersections and the Stage 1 Screening forms along with the ICE Control Evaluation (ICE) Stage 1 Technical Memorandum is provided in the PTAR.

A summary of the CAP X analysis for the major intersections is provided below.

- SR 535 and Poinciana Boulevard - CAP-X results for the intersection of SR 535 and Poinciana Boulevard reveal that the displaced left turn exhibits the lowest overall v/c ratio and highest v/c ranking during the AM and PM peak hour condition. During the AM peak hour condition, the displaced left turn option is followed in v/c ranking by the quadrant roadway (S-E), partial displaced left turn (N-S), quadrant roadway (S-W), partial median U-Turn (N-S), Median U-Turn (N-S), traffic signal, signalized restricted crossing U-Turn (N-S), and 2 by 2 roundabout options, respectively. During the PM peak hour condition, the results slightly differed with the displaced left turn option being followed by quadrant roadway (S-E), partial displaced left turn (N-S), quadrant roadway (S-W), traffic signal, signalized restricted crossing U-Turn (N-S), Median U-Turn (N-S), partial median U-Turn (N-S), and roundabout (2x2) roadway concepts.
- SR 535 and Polynesian Boulevard - Results for the intersection of SR 535 and Polynesian Boulevard show that the traffic signal exhibits the lowest overall v/c ratio and highest v/c ranking during the AM peak hour condition. The traffic signal option is followed in v/c ranking by quadrant roadway (N-E), partial median U-turn (N-S), median U-turn (N-S), signalized restricted crossing U-turn (N-S), roundabout (2x2), and unsignalized restricted crossing U-turn (N-S), respectively. The PM peak hour condition reveals the partial median U-turn (N-S) being followed by median U-turn (N-S), quadrant roadway (N-E), signalized restricted crossing U-turn (N-S), traffic signal, roundabout (2x2), and unsignalized restricted crossing U-turn (N-S) roadway concepts.
- SR 535 and International Drive - Results for the intersection of SR 535 and International Drive show that displaced left turn exhibits the lowest overall v/c ratio and highest v/c ranking during the AM peak hour condition. The displaced left turn option is followed in v/c ranking by the quadrant roadway (S-E), partial displaced left turn (E-E), quadrant roadway

(N-W), traffic signal, median U-turn (E-E), partial median U-turn (E-W), signalized restricted crossing U-turn (E-W) and roundabout (2x2). Similarly, the PM peak hour condition reveals the displaced left turn as the best option followed by the partial displaced left turn (E-W), quadrant roadway (S-W), median U-turn (E-W), quadrant roadway (N-W), traffic signal, partial median U-turn (E-W), signalized restricted crossing U-turn (E-W), and roundabout (2x2) roadway concepts.

- SR 535 and SR 536/World Center Drive - Results for the intersection of SR 535 and SR 536/World Center Drive show that the displaced left turn exhibits the lowest overall v/c ratio and highest v/c ranking during the AM peak hour condition. The displaced left turn option is followed in v/c ranking by the partial displaced left turn (N-S), the quadrant roadway (S-W), partial median U-turn (N-S), traffic signal, median U-turn (N-S), and roundabout (2x2). The PM peak hour condition reveals the displaced left turn as the best option followed by the quadrant roadway (S-W), partial displaced left turn (N-S), traffic signal, partial median U-turn (N-S), median U-turn (N-S), and roundabout (2x2) roadway concepts.

5.2.6.2 ICE Stage 2

Based on these results a Stage 2 evaluation was performed in coordination with the PD&E project team and FDOT as part of the alternative evaluation process and consistent with the selection of the preferred alternatives.

SR 535 and Poinciana Boulevard Alternatives

The primary movements of the interchange are northbound and southbound, with heavy eastbound and westbound left turn movements in both the AM and PM peak hour periods. The following alternatives were evaluated during this stage:

- Alternative A - Traffic Signal
 - This concept, shown in **Figure 5-2**, involves the installation of an additional lane along SR 535 for northbound and southbound movements and provision of triple eastbound left turn lanes.
 - This alternative provides some operational benefits as compared to the No-Build.
 - This alternative avoids right of way impacts and impacts to FGT, thus was selected as the recommended intersection treatment.
- Alternative B - Partial Median U-turn N-S + Jug Handle
 - This concept, shown in **Figure 5-2**, involves the removal of the minor street eastbound and westbound direct left turn movements. The eastbound left turn

movements are treated with a jug handle loop in the southeast quadrant. Vehicles enter the free-flowing loop ramp just east of Poinciana Boulevard and SR 535 and exit at the proposed traffic signal just south of Poinciana Boulevard, where they are able to make right turns to head north. The westbound left turn movements are treated with a median U-turn just north of the intersection on SR 535.

- This configuration provides greater reduction in delay and improves the heavy eastbound left turn movements.
- This alternative results in right of way and wetland impacts and potential impacts to FGT thus was eliminated.

At the intersection of SR 535 and Poinciana Boulevard, Alternative A, the traffic signal was selected as the recommended intersection option.

SR 535 and Polynesian Boulevard Alternatives

The primary movements of the interchange are northbound and southbound, with high volumes in both the AM and PM peak hour periods. The following alternatives were evaluated during this stage:

- Alternative A - Partial Median U-turn N-S
 - This concept, shown **Figure 5-3**, involves the removal of northbound and southbound direct left turn movements on SR 535 and the addition of U-turn storage bays at the existing median openings located just north and south of the intersection.
 - U-turn operations may not be as favorable as the movement is combined with an existing median opening. This alternative provides benefits as compared to the No-Build.
 - Avoids impacts to right of way and businesses, thus was selected as the recommended intersection treatment.
- Alternative B - Quadrant Roadway N-E
 - This concept, shown **Figure 5-3**, involves the installation of an additional lane along SR 535 for northbound and southbound movements, replacing direct left turns with right turns via a signal-controlled quadrant roadway in the northeast quadrant, and adding a right turn on the east leg of Polynesian Isle Boulevard.
 - This alternative provides greatest operational benefits.
 - Results in greatest right of way and business impacts, thus was eliminated.

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At the intersection of SR 535 and Polynesian Isle Boulevard, Alternative A, the Partial Median U-Turn, was selected as the recommended intersection option.

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Figure 5-2 - SR 535 and Poinciana Boulevard Alternatives

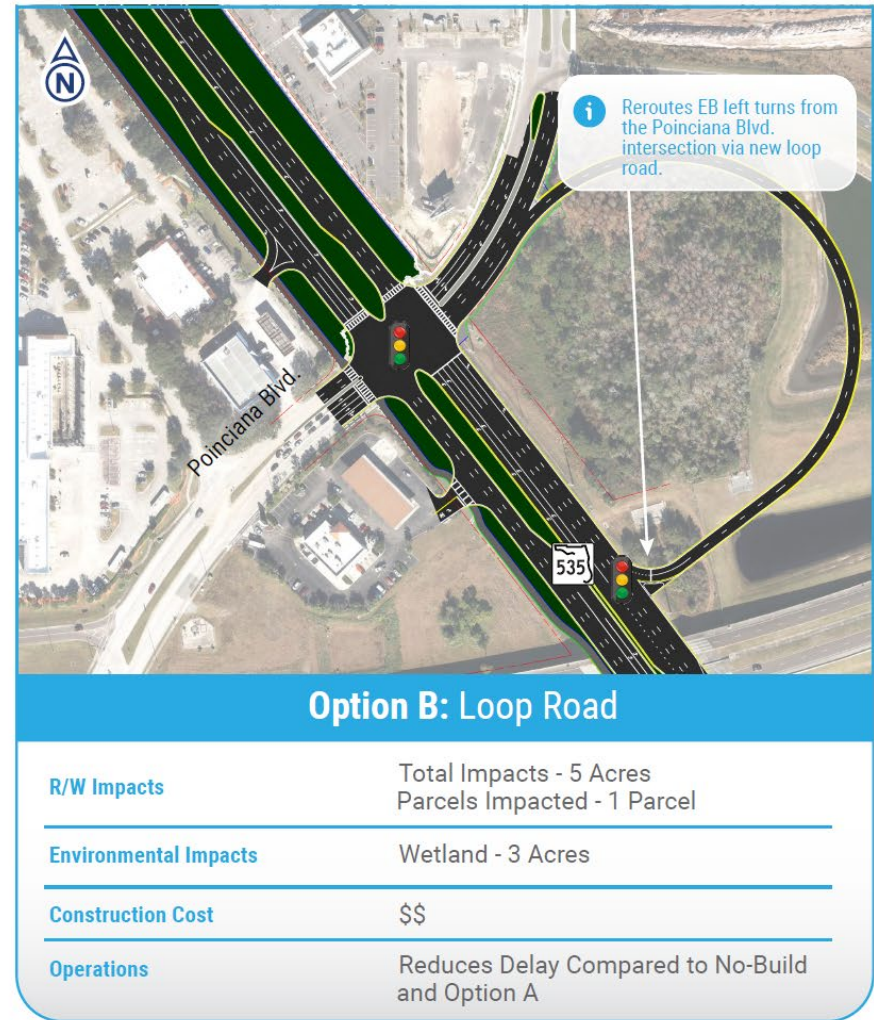
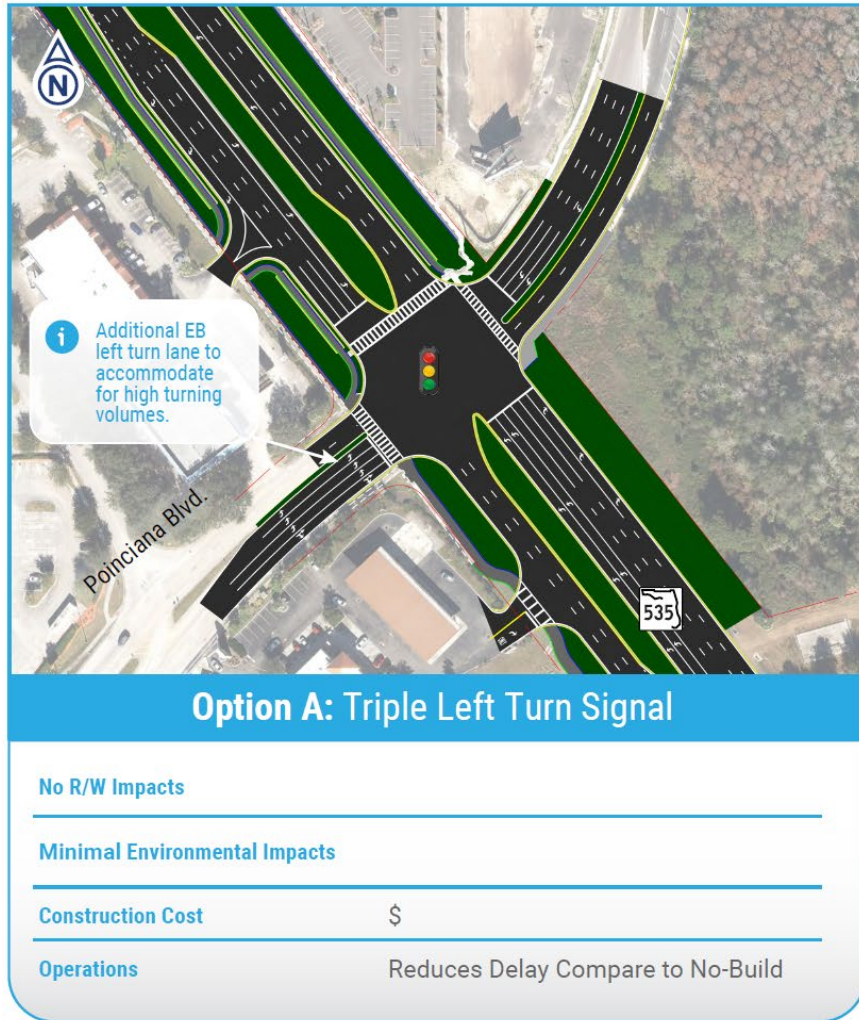
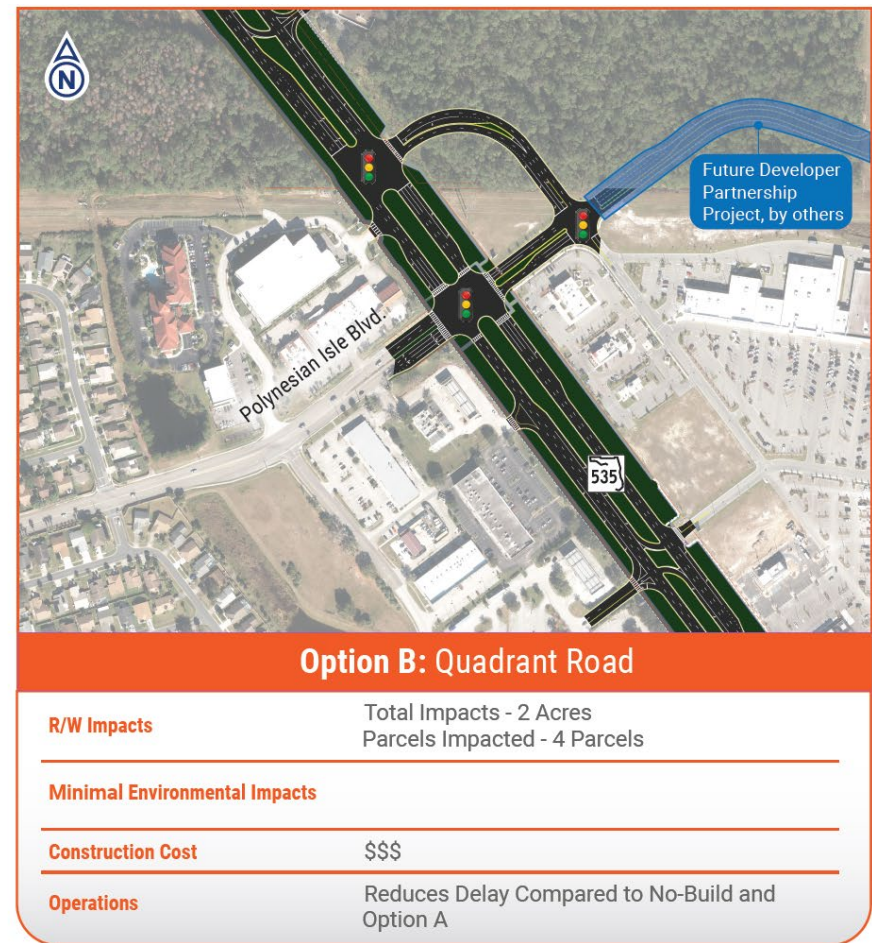
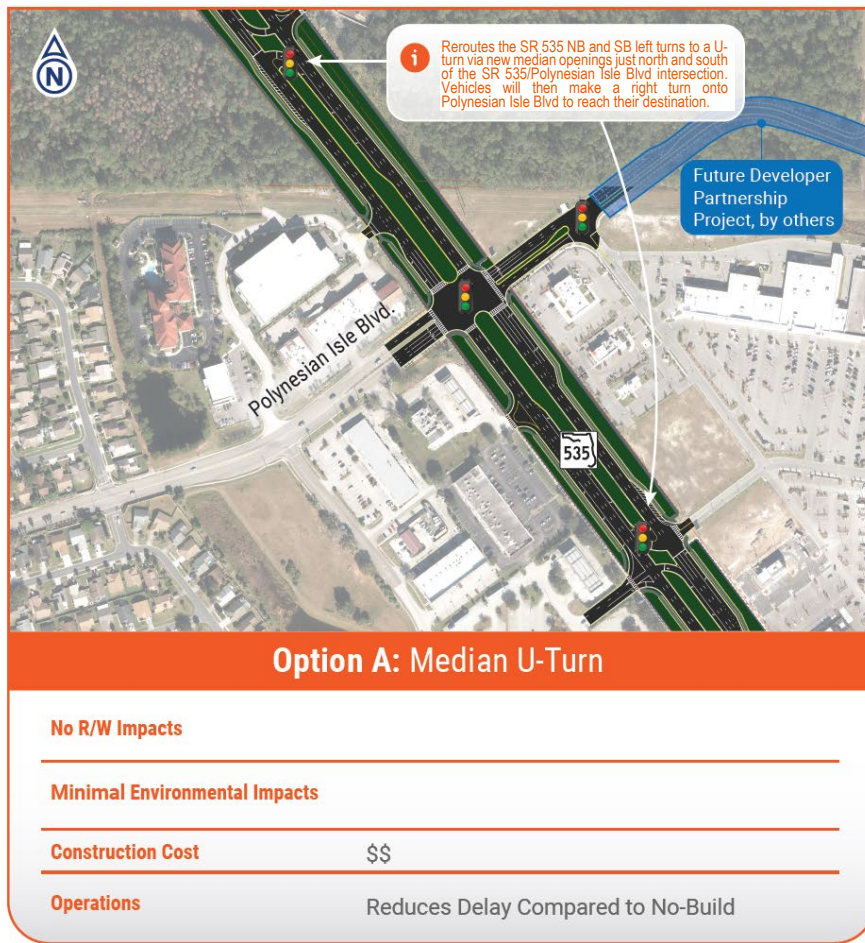


Figure 5-3 - SR 535 and Polynesian Isle Boulevard Alternatives



SR 535 and International Drive Alternatives

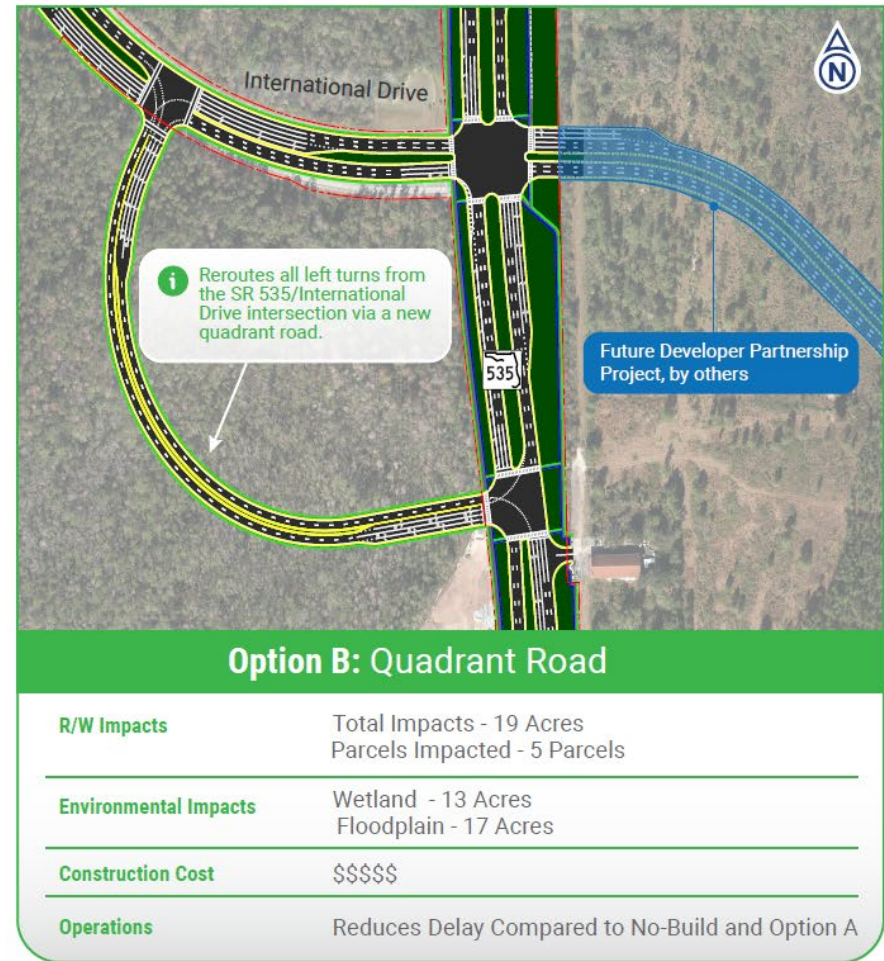
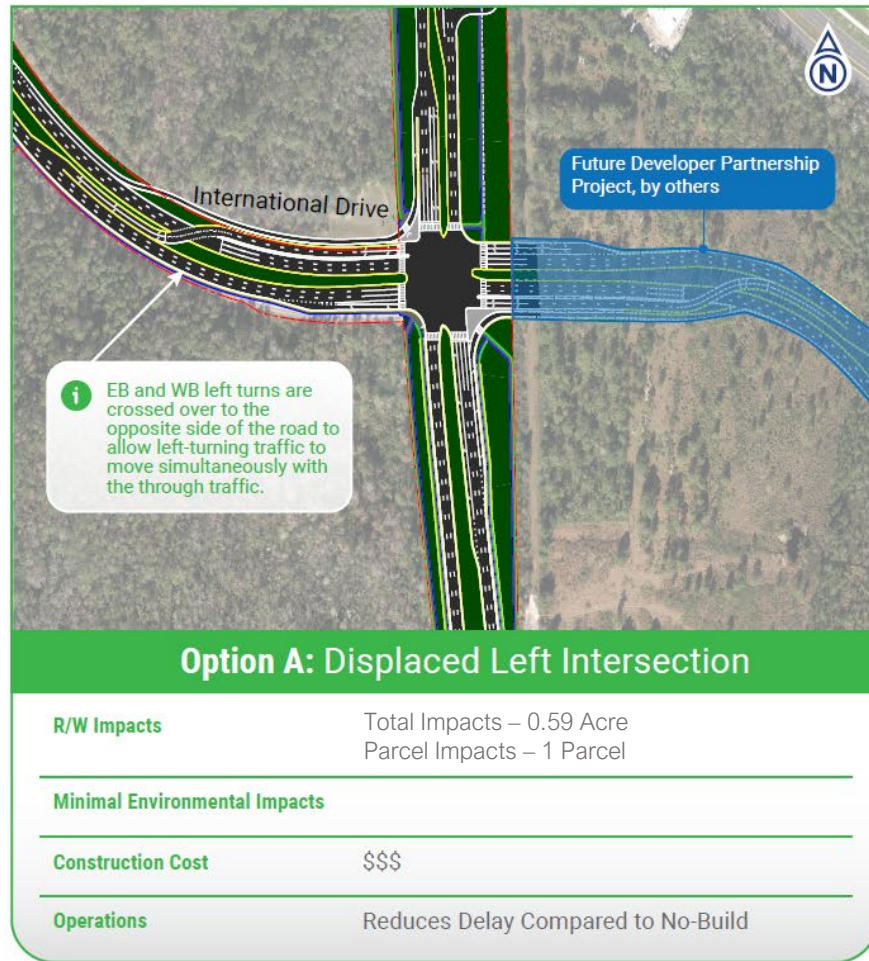
This existing T-intersection will be reconfigured to a four-legged intersection with an east leg extension connecting SR 535 to World Center Drive. The intersection has high volumes at all approaches with the heaviest volumes on the northbound approach on SR 535, and higher left turns along International Drive. The following alternatives were evaluated during this stage:

- Alternative A - Partial Displaced Left Turn (PDLT) E-W
 - This concept, shown on **Figure 5-4**, involves the removal of direct eastbound and westbound left turns on International Drive with the displaced left turns installed on both legs of this minor street. The northbound and southbound left turn movements for the major street on SR 535 continue to take place at the main intersection.
 - This alternative provides operational benefits by separating the E-W left turn movements
 - Results in some right of way impacts due to widening of International Drive to accommodate the DLT, thus was selected as the recommended intersection treatment.
- Alternative B - Quadrant Roadway S-W
 - This concept, shown **Figure 5-4**, involves the removal of direct left turns with the installation of a quadrant roadway in the southwest quadrant.
 - Provides greatest operational benefits compared to Alternative A and No-Build.
 - Results in substantial right of way, floodplain and wetland impacts and has the highest cost thus was eliminated.

At the intersection of SR 535 and International Drive, Alternative A, the Partial Displaced Left Turn, was selected as the recommended intersection option.

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Figure 5-4 - SR 535 and International Drive Alternatives



SR 535 and SR 536/World Center Drive

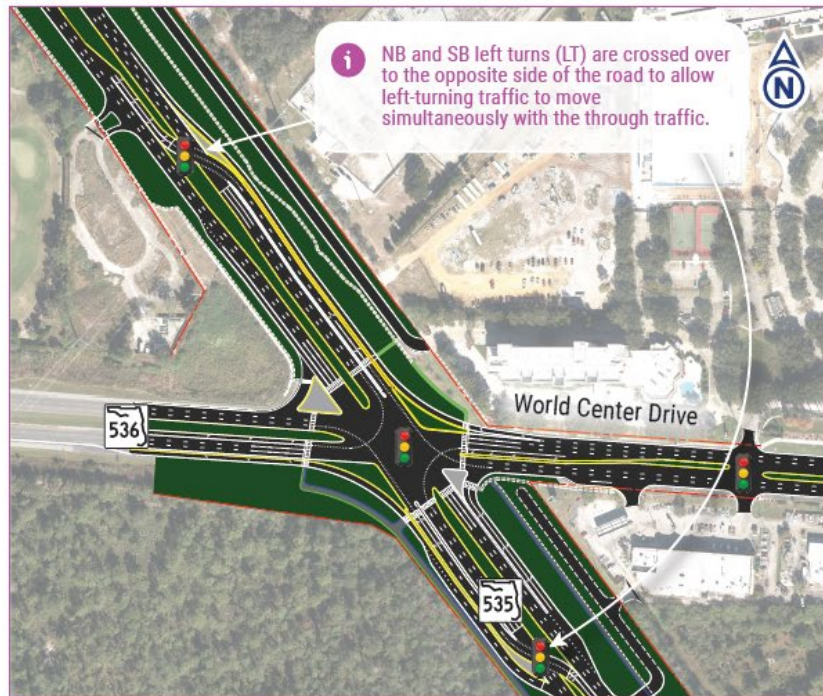
The primary movements of the interchange are northbound and southbound, with high volumes in both the AM and PM peak hour periods. This intersection experiences a high number of left turns on the major street (SR 535) and moderate to high numbers of left turns on the minor street (World Center Drive). The following alternatives were evaluated during this stage:

- Alternative A - Partial Displaced Left Turn (PDLT) N-S
 - This concept, shown in **Figure 5-5**, involves the removal and replacement of direct northbound and southbound left turns on SR 535 with the displaced left turns installed on both legs of SR 535 (major street). The eastbound and westbound left turn movements for the minor street on SR 536/World Center Drive continue to take place at the main intersection.
 - This alternative provides benefits as compared to the No-Build.
 - Avoids right of way and wetland impacts and reduces costs and thus was selected as the recommended intersection treatment.
- Alternative B - Quadrant Roadway S-W
 - This concept, shown in **Figure 5-5**, involves the removal of direct left turns with the installation of a quadrant roadway in the southwest quadrant.
 - Provides greatest operational benefits compared to Alternative A and No-Build.
 - Results in substantial right of way, floodplain and wetland impacts and has the highest cost thus was eliminated.

At the intersection of SR 535 and SR 536/World Center Drive, Alternative A, the Partial Displaced Left Turn, was selected as the recommended intersection option.

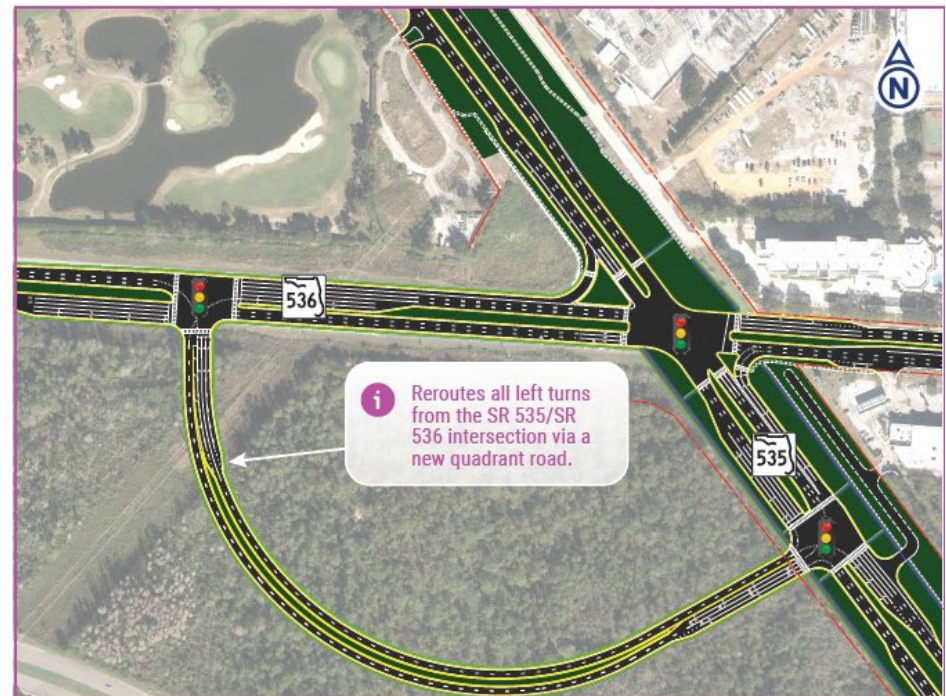
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Figure 5-5 - SR 535 and SR 536/World Center Drive Alternatives



Option A: Displaced Left Intersection

R/W Impacts	Total Impacts – 0.13 Acre Parcel Impacts – 1 Parcel
Minimal Environmental Impacts	
Construction Cost	\$\$\$
Operations	Reduces Delay Compared to No-Build



Option B: Quadrant Road

R/W Impacts	Total Impacts - 23 Acres Parcels Impacted - 1 Parcel
Environmental Impacts	Wetland - 2 Acres Floodplain - 23 Acres
Construction Cost	\$\$\$\$\$
Operations	Reduces Delay Compared to No-Build and Option A

5.2.6.3 Build Operational Analysis

This summary includes vehicular traffic operational improvements for design year 2045 Build Alternatives 1 and 2. Both alternatives included the widening of SR 535 from four to six lanes from US 192 to SR 536/World Center Drive. From a traffic operational standpoint, Typical section alternatives A, C and D are equivalent and are not distinguished in the operational analysis. In addition to the widening, different innovative intersection treatments are evaluated under each alternative, as summarized in **Table 5-4**. It should be noted that only one intersection alternative is evaluated for the SR 535 intersections of US 192, Kyngs Heath Road, Calypso Cay Way, and Osceola Parkway Eastbound On-Ramp. Please refer to the PTAR for more details.

Table 5-4 - Summary of Alternatives

SR 535 Intersection	Alternative 1	Alternative 2
US 192	Convert southbound approach to one (1) exclusive right turn lane, one (1) shared through-left turn lane, and (2) exclusive left-turn lanes.	
Kyngs Heath Road	Convert east-west signal phasing from split phasing to concurrent phasing with protected/permissive left turn operations. Convert shared westbound left/through lane to exclusive westbound through	
Osceola Parkway On-Ramp	-	
Poinciana Boulevard	Convert eastbound approach to three (3) exclusive left turn lanes and one (1) shared through-right turn lane.	Convert intersection to provide eastbound left-turn movement via an east-to-north loop and provide the westbound left-turn movement via median U-turn at the existing median opening north of the intersection. Provide one (1) additional southbound left turn lane.
Polynesian Boulevard	Convert intersection to a northeast quadrant road configuration.	Convert intersection to a partial north-south median U-turn intersection. Provide an exclusive eastbound right-turn lane. Convert westbound approach to one (1) exclusive right-turn lane, one (1) shared through-right turn lane, and two (2) exclusive left-turn lanes.
Lake Buena Vista Factory Stores	Convert westbound approach to three (3) exclusive left-turn lanes and one (1) shared through-right turn lane. Provide one (1) additional southbound left-turn lane.	Alternative 1 westbound approach improvements and the provision of the eastbound left turn movement via southbound U-turn movement at the same signalized median opening for the Polynesian Boulevard northbound U-turn movement.
International Drive	Convert intersection to an east-west partial displaced left turn intersection configuration.	Convert intersection to a southwest quadrant road configuration.
SR 536/World Center Drive	Convert intersection to a north-south partial displaced left turn intersection configuration.	Convert intersection to a southwest quadrant road configuration.

Build Design Year (2045) Alternative 1 Summary

Table 5-5 provides the results of the overall intersection delay and LOS for Alternative 1 for design year 2045. Overall, for Build Alternative 1, the design year condition shows substantial improvement from the No-Build alternative. Under the AM peak hour conditions, all signalized intersections meet or exceed the LOS D Target, showing that the Build Alternative 1 network operations substantially improve along SR 535 when compared to the No-Build scenario for the design year (2045), where No-Build has five (5) intersections operating deficiently.

Under the PM peak hour conditions, one signalized intersection operates deficiently, showing improvement over the No-Build scenario where five (5) intersections operate deficiently. The following intersections do not meet the LOS D Target:

- SR 535 at Poinciana Boulevard – LOS E with a delay of 61.5 sec/veh

During the design year, nearly all stop-controlled movements are projected to operate at LOS E or LOS F with the exception of stop-controlled movements at the intersections of SR 535 and Calypso Cay Way.

For Alternative 1 arterial analysis, shown in **Table 5-6**, the AM peak conditions show deficient operations on seven (7) northbound segments and on six (6) southbound segments. The northbound and southbound SR 535 arterial networks operate at an overall LOS E. The PM peak conditions show deficient operations on five (5) northbound segments and on five (5) southbound segments. The northbound SR 535 arterial network operates at an overall LOS D and southbound SR 535 operates at an overall LOS E. This shows improvement when compared to the design year scenario for the No-Build alternative, where most segments were operating deficiently. Although, a majority of 2045 segment operations are LOS E, overall travel time along SR 535 is reduced by approximately 10 minutes in the northbound direction and seven (7) minutes in the southbound direction. Overall operations are substantially improved under Alternative 1 as compared to the No Build in terms of reducing overall travel time along the corridor and improving average speeds.

Build Design Year (2045) Alternative 2 Summary

Table 5-5 provides the results of the overall intersection delay and LOS for Alternative 2 for design year 2045. Design year (2045) results reveal that overall, both the AM and PM peak hour conditions perform similarly.

Under both the AM and PM peak hour conditions, all signalized intersections meet or exceed the LOS D Target, showing that operations substantially improve along SR 535 when compared to the No-Build scenario, where No-Build has five (5) intersections operating deficiently.

Overall, similar deficiencies are noted on turning movements at all major intersection approaches when compared to the No-Build and Build Alternative 1 scenarios. During the design year, Build Alternative 2 shows evident improvement when compared to No-Build and Build Alternative 1, during both the AM and PM peak hour conditions, most likely due to better delay and capacity management.

Stop-controlled approach operations remain similar to the No-Build and Alternative 1 conditions with the exception of several median openings on SR 535 being signalized under Alternative 2.

For Alternative 2 arterial analysis, shown in **Table 5-6**, the AM peak conditions show deficient operations on six (6) northbound segments and on four (4) southbound segments. The northbound SR 535 arterial network operates at an overall LOS E and the southbound operates at an overall LOS D. The PM peak conditions show deficient operations on seven (7) northbound segments and on four (4) southbound segments. The northbound and southbound SR 535 arterial networks operate at an overall LOS D. Alternative 2 provides the greatest reduction in travel time when compared to No-Build with reduction of 700 seconds (over 11 minutes) in the northbound direction during the 2045 AM peak hour. Overall operations are substantially improved under Alternative 2 in terms of reducing overall travel time along the corridor and improving average speeds.

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Table 5-5 Intersection Analysis Summary

Intersection	2020		2045					
	Existing		No-Build		Alternative 1		Alternative 2	
	AM	PM	AM	PM	AM	PM	AM	PM
SR 535 & US 192	C	D	D	D	C	C	D	D
SR 535 & Kyngs Heath Rd	B	C	D	C	C	C	B	B
SR 535 & Osceola Pkwy On-Ramp	A	A	B	B	B	A	A	A
SR 535 & Poinciana Blvd	D	D	F	F	D	E	C	C
SR 535 & Poinciana Blvd E-N Loop							B	B
SR 535 & Median Opening S							C	C
SR 535 & Polynesian Isle Blvd	D	D	F	F	C	B	C	C
SR 535 & Qd. Rd. to Polynesian Isle Blvd					B	B		
SR 535 & Median Opening N							B	B
SR 535 & Lake Buena Vista Factory Stores	C	D	F	F	D	D	C	C
SR 535 & Qd. Rd. International Dr							B	B
International Dr & Qd. Rd. to SR 535							B	B
SR 535 & International Dr	B	D	E	E	D	D	C	C
International Dr & EBL Crossover (PDLT)					A	A		
International Dr & WBL Crossover (PDLT)					A	A		
SR 535 & SR 536/World Center Dr	D	F	F	F	C	D	C	D
SR 535 & NBL Crossover (PDLT)					B	A		
SR 535 & SBL Crossover (PDLT)					C	B		
SR 535 & Qd. Rd. to SR 536							B	B
SR 536 & Qd. Rd. to SR 535							C	C

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Table 5-6 - Arterial Analysis Summary

From	To	2020		2025				2045							
		Existing		No-Build		Alternative 1		Alternative 2		No-Build		Alternative 1		Alternative 2	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Northbound SR 535															
US 192	Kyngs Heath Rd	D	D	C	E	D	D	D	E	F	F	E	E	E	E
Kyngs Heath Rd	Osceola Pkwy On-Ramp	B	C	C	C	B	C	B	B	D	C	B	B	B	B
Osceola Pkwy On-Ramp	Poinciana Blvd E-N Loop	E	E	F	F	E	E	E	D	F	F	F	F	E	E
Poinciana Blvd E-N Loop	Poinciana Blvd							F	F					F	F
Poinciana Blvd	Median Opening S	E	E	F	E	B	B	C	D	F	F	C	C	E	E
Median Opening S	Polynesian Isle Blvd							C	C					D	C
Polynesian Isle Blvd	Qd. Rd. to Polynesian Isle Blvd					F	F			F	F				
Qd. Rd. to Polynesian Isle Blvd	Median Opening N	D	D	F	E	C	D			F	F			E	E
Median Opening N	Lake Buena Vista Factory Stores							D	D					D	E
Lake Buena Vista Factory Stores	Qd. Rd. International Dr	C	C	B	D	D	D	C	C	C	E	E	D	C	C
Qd. Rd. International Dr	International Dr							D	D	C	E	E	D	F	E
International Dr	SR 535 NBL Crossover (PDLT) (Alt 1)					B	B	C	C			C	B	C	C
	Qd. Rd. to SR 535 (Alt 2)	F	F	F	F					F	F				
SR 535 NBL Crossover (PDLT) (Alt 1)	SR 536/World Center Dr					F	F	F	E			F	F	F	F
Qd. Rd. to SR 535 (Alt 2)															
SR 536/World Center Dr	SR 535 SBL Crossover (PDLT) (Alt 1)					D	C					E	D		
Total Travel Time (sec)		374.5	366.8	576.9	492.3	395.0	367.1	335.6	338.1	1,128.5	1,038.3	472.8	433.3	428.8	413.7
Corridor Average Speed (mph)		19.7	20.1	12.8	15.0	20.2	21.8	22.2	22.0	6.5	7.1	16.9	18.4	17.4	18.0
Overall LOS		D	D	F	E	D	D	D	D	F	F	E	D	E	D
Southbound SR 535															
Entry Link	SR 535 SBL Crossover (PDLT) (Alt 1)	D	D	E	E	A	A	B	B	F	F	A	A	C	C
SR 535 SBL Crossover (PDLT) (Alt 1)	SR 536/World Center Dr					F	F					F	F		
SR 536/World Center Dr	SR 535 NBL Crossover (PDLT) (Alt 1)					E	E	C	C			F	E	C	D
	Qd. Rd. to SR 535 (Alt 2)	E	F	E	E					F	F				
SR 535 NBL Crossover (PDLT) (Alt 1)	International Dr					F	F	D	D			F	F	F	F
Qd. Rd. to SR 535 (Alt 2)															
International Dr	Qd. Rd. International Dr	C	E	E	E	C	C	C	B	F	F	D	D	B	C
Qd. Rd. International Dr	Lake Buena Vista Factory Stores							C	D					D	D
Lake Buena Vista Factory Stores	Median Opening N							C	D					E	E
Median Opening N	Qd. Rd. to Polynesian Isle Blvd	C	D	D	C	C	D			E	E	D	D		
Qd. Rd. to Polynesian Isle Blvd	Polynesian Isle Blvd					D	D	D	D			E	D	D	D
Polynesian Isle Blvd	Median Opening S	D	D	D	D	D	D	C	D	F	F	E	E	E	E
Median Opening S	Poinciana Blvd							D	C					D	D
Poinciana Blvd	Poinciana Blvd E-N Loop	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Poinciana Blvd E-N Loop	Osceola Pkwy On-Ramp							B	B	B	B	B	B	B	B
Osceola Pkwy On-Ramp	Kyngs Heath Rd	C	C	E	C	B	C	C	C	C	D	C	C	C	C
Kyngs Heath Rd	US 192	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Total Travel Time (sec)		504.9	568.5	581.2	588.9	510.0	518.7	462.5	464.4	1,025.0	1,030.7	598.2	587.6	510.0	537.8
Corridor Average Speed (mph)		20.8	18.5	18.1	17.9	20.6	20.3	22.8	22.7	10.3	10.2	17.6	17.9	20.7	19.5
Overall LOS		D	E	E	E	D	D	D	D	F	F	E	E	D	D

Experienced Travel Time

Alternatives 1 and 2 include several innovative intersection types that displace/re-route certain intersection movements to increase overall intersection efficiency through the reduction of signal phases. Experienced Travel Time (ETT) was calculated for each displaced movement consistent with the *2021 Traffic Analysis Handbook* in order to accurately compare the displaced/re-routed movements to the No-Build conventional intersection movements. ETT is the combination of control delay at intersections and Extra Distance Travel Time (EDTT) for origin-destination paths of the displaced. In general, it is observed that while the quadrant road configurations generate low overall intersection delays as presented in the previous sections, displaced movements ETT are highest compared to other alternatives. This is observed at the intersection of SR 535 and Polynesian Isle Boulevard under Alternative 1 and at the intersections of SR 535 at International Drive and SR 536 under Alternative 2. The Alternative 1 PDLT movements at the International Drive and SR 536 intersections show a substantial reduction in delay for displaced movements when compared to No-Build conditions.

5.2.7 Selection of the Preferred Alternative

The previous sections provided a detailed description and evaluation of the No-Build, TSM&O and the various Build alternatives. A multi-phase evaluation process was followed to determine the most efficient build alternative to address the various existing and future project deficiencies. Based on the evaluation it is evident that the best solution to address the needs of the corridor will be a comprehensive build alternative that considers capacity (widening to six lanes), innovative intersections, TSM&O strategies and multimodal enhancements.

As shown on **Table 5-3**, Alternative Typical Sections A, C and D all meet and address the project's purpose and need and all minimize impacts to the natural, physical and social environments with minor differences in construction cost and utility impacts. After receiving input from the agencies and the public and in coordination with FDOT, Alternative A, as shown in **Figure 5-6** was recommended as the Preferred Alternative Typical Section for the following reasons:

- The inside widening would have less impact to the crossing streets and allow more room for development of the innovative intersections.
- Inside widening would still provide adequate median width throughout the project length while allowing more room to provide roadside swales, maximize stormwater quality

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treatment along those swales, and provide greater separation between the edge of pavement and the shared use path.

- Inside widening would minimize potential impacts to base clearance. More detailed survey would be looked at in final design.
- A shared use path was preferred over the separated bicycle lanes by the agencies and the public.

Figure 5-6 - Preferred Typical Section



An Intersection Control Evaluation (ICE) was performed, and the following intersections alternatives are recommended as part of the Preferred Alternative.

- At the intersection of SR 535 and Poinciana Boulevard, Alternative A, the traffic signal was selected as the recommended intersection option. At the intersection of SR 535 and Polynesian Isle Boulevard, Alternative A, the Partial Median U-Turn, was selected as the recommended intersection option.
- At the intersection of SR 535 and International Drive, Alternative A, the Partial Displaced Left Turn, was selected as the recommended intersection option.
- At the intersection of SR 535 and SR 536/World Center Drive, Alternative A, the Partial Displaced Left Turn, was selected as the recommended intersection option.

6.0 PROJECT COORDINATION & PUBLIC INVOLVEMENT

The purpose of the SR 535 outreach program is to: (1) share project information with the individuals who work and live in this area; (2) listen to ideas and concerns; and (3) incorporate this input into the study process. The outreach program includes agency coordination, communication tools, small group meetings, and community-wide meetings (Alternatives Public Information Meeting and a Public Hearing).

Public involvement activities were integrated into the PD&E study process providing the opportunity for property owners, residents, businesses, government entities and agencies to share their concerns and ideas with the FDOT. The summary of the outreach efforts and meetings conducted to date, as well as selected detailed descriptions of specific activities are also provided in the following sections. A complete summary of the meetings, including meeting notifications, presentations, display materials, comments, sign-in sheets and media coverage is provided in the Comments and Coordination Report, available separately.

6.1 Public Involvement Plan

A Public Involvement Plan (PIP) was developed and was carried out as an integral part of the project and provides an overview of the outreach approach for the PD&E Study. The purpose of the PIP was to guide the public outreach process in establishing and maintaining communication with the public throughout the study and incorporating public input during the alternative evaluation. The PIP was signed on May 4, 2020.

Public involvement activities began when the project started in the Spring of 2020 and have continued throughout the study process. All input received served as valuable information that was taken into consideration for the refinement of the alternatives and the development of the Preferred Alternative. Representatives from the FDOT were available at each meeting to discuss the project and answer questions.

6.2 Agency Coordination

6.2.1 Advance Notification & Programming Screen Summary Report

An Advance Notification Package was prepared and sent to the Florida State Clearinghouse on May 9, 2019, where it was then distributed to the appropriate state agencies for review. The Advance Notification was also distributed to appropriate non-state agencies and tribal nations. A copy of the Advance Notification Package is provided in **Appendix D**.

In addition, a Programming Screen Summary Report was published on July 3, 2019 and re-published on May 6, 2024. The purpose of this report is to summarize the results of the Environmental Technical Advisory Team Programming Screen review of the project; providing details concerning agency comments about potential effects to natural, cultural, and community resources; and provide additional documentation of activities related to the Programming Phase of this project. The environmental screening during these processes resulted in summary degrees of effect (DOE) of moderate or lower for all topics. Water quality received a substantial form in the US Environmental Protection Agency due to the presence of potentially contaminated sites, BMAP for Lake Okeechobee and the recharge source zone for the Biscayne Aquifer. A copy of the Programming Screen Summary Report is provided in **Appendix D**.

6.2.2 Agency and Stakeholder Meetings

A key aspect of the PIP for this project included meetings with interested parties other than the Federal and State environmental, permit and review agencies. These include representatives of public agencies and project stakeholders. A Project Visioning Team was formed during the Corridor Planning Study. This group was expanded for the PD&E Study and a Community Advisory Group (CAG) was formed. **Table 6-1** summarizes the various agency and stakeholders meetings conducted to date.

The CAG included participation from the following groups: Orange County, Osceola County, MetroPlan Orlando, LYNX, East Central Florida Regional Council, FDOT District 5, International Drive Resort Area Chamber of Commerce, Kissimmee-Osceola County Chamber of Commerce. A summary of the meeting including comments and more information are available in the Comments and Coordination Report, a companion document to this report.

Table 6-1 - Agency/Stakeholder Coordination

Date	Stakeholder/Government Agency	Topic
1/27/21	CAG #1	Kick Off Meeting
6/16/21	CAG #2	Project Update
10/11/21	Local Agency Coordination (MetroPlan Orlando, Orange Count, and Osceola County)	Traffic
11/3/21	Local Agency Coordination (MetroPlan Orlando, Orange Count, and Osceola County)	Traffic
4/19/22	Orange County	International Drive Extension
6/20/22	CAG #3	Alternatives Development
6/23/22	Osceola County	Alternatives Development
2/1/24	CAG #4	Preferred Alternative

6.2.3 Public Kick-Off Newsletter

An Informational Kick-Off Newsletter was sent in November 2020 in lieu of a Kick-Off Meeting. The newsletter was sent to adjacent property owners within 300 feet of the study corridor, elected officials, agencies, and interested parties. The Newsletter was printed in English and Spanish. In addition, the newsletter was hand delivered to 140 businesses along SR 535, and 30 copies were left at the Celebration Public Library in Osceola County and 30 copies left at the Southwest Public Library in Orange County.

6.2.4 Hybrid Alternatives Public Information Meeting

A Hybrid Alternatives Public Information Meeting (APIM) was held on August 11, 2022 at Embassy Suites - Lake Buena Vista South and online via GoToWebinar. This meeting provided an opportunity for property owners, residents, businesses, elected officials, stakeholders and other interested parties to view project alternatives and ask questions of the study team and provide comments. Public meeting notices were sent via mail to elected officials, agencies, stakeholders, and property owners. The notices were provided in English and Spanish. Newsletters were hand delivered to local businesses along the SR 535 corridor as well as 30 copies left at the Celebration Public Library and Southwest Public Library in Osceola and Orange Counties. The meeting was announced on the Department project website and as a Press Release, advertised in the Orlando Sentinel (Orange and Osceola Editions) in English and in the El Sentinel in Spanish, as well as the Florida Administrative Register.

As individuals signed in at the in-person venue, they received a comment form. Also available were the Project Information Handout, in English and Spanish, and a Newsletter in English and Spanish. The same materials were available to those attending virtually. Individuals could provide their input by submitting a completed comment form at the in-person meeting or by mailing or emailing it at a later date. For those attending virtually, they could type in comments in the "Questions" panel. Responses to the virtually submitted comments were provided after the meeting. At the in-person venue, several project display boards were available for review from 5 p.m. to 7 p.m. in an open house format. Study team members were available to answer questions and have one-on-one conversations with meeting participants. A project video was available for review throughout the meeting. For those attending virtually, the same project materials were available at the project website. Excluding the project team, 11 individuals attended the meeting in person and 5 attended the meeting virtually. A total of twelve written comments were received. One comment form was submitted at the venue, two comments were submitted virtually, and nine

emails were received during the comment period. Overall, comments received focused on the need for SR 535 improvements, intersection comments, informational requests and comments on other area projects.

6.2.5 Public Hearing

A Public Hearing was held on June 18, 2024 (virtual via GoToWebinar) and on June 20, 2024 (in-person) at Embassy Suites – Lake Buena Vista South. The hearing was held to give interested persons an opportunity to express their views concerning the location, conceptual design, and social, economic, and environmental effects of the proposed improvements. Both formats began at 5:30 p.m. as an open house with the project presentation starting at 6 p.m. After the presentation, individuals had the opportunity to make verbal comments. Letters were emailed to 38 elected officials on May 20, 2024 and to 122 agencies and 55 stakeholders on May 21, 2024 with Project Information Handout and Public Hearing Location Map as attachments. A letter, Project Information Handout (English and Spanish), and Project Hearing location Map (English and Spanish) were mailed to 681 property owners and 36 stakeholders on May 22, 2024. A newspaper ad was published twice in the Orlando Sentinel: May 26, 2024 (English and Spanish versions in Orange Extra and Osceola Extra) and June 9, 2024 (English and Spanish versions in Orange Extra and Osceola Extra). The Public Hearing was also advertised in the Florida Administrative Register on June 7, 2024. One hundred eighty-five (185) copies of Newsletter No. 3 (English and Spanish versions) were hand delivered to local businesses in the SR 535 corridor on May 29 and 30, 2024. Also, 25 sets of Newsletter No. 3 were left at the Osceola County Public Library – West Osceola Branch and the Orange County Public Library – Southwest Branch. The Public Hearing was also announced on www.cflroads.com/project/437174-2 as well as the FDOT website (www.fdot.gov on District Five’s public meetings page). On June 11, 2024 the FDOT Public Information Office emailed a news release to Orange and Osceola Counties media outlets. Draft study documents were available for review from May 28, 2024 (21 days before the public hearing) through July 1, 2024 at the Osceola County Public Library – West Osceola Branch, the Orange County Public Library – Southwest Branch, and on the study website at www.cflroads.com/project/431774-2.

The Public Hearing virtual format started at 5:30 p.m. as an open house. A total of 9 people signed into the Virtual Public Hearing, excluding staff members. During this time, individuals could review and/or download the study documents. In addition, individuals could share questions and comments by typing them in the “Questions Box” in the control panel. The “Questions Box” was also where individuals could type requests to speak during the public comment part of the Public

Hearing. The project presentation began at 6 p.m. Afterwards, attendees were invited to verbally share their comments. In the “Questions Box”, one set of comments was submitted along with one question. There were no requests to speak during the public comment part of the public hearing. Responses to those written comments were provided after the Public Hearing.

The Public Hearing in-person format began at 5:30 p.m. as an open house. A total of 3 people signed into the in-person Public Hearing, excluding staff members. As individuals signed in, they could pick up copies of: comment form, Project Information Handout (English and Spanish), and Newsletter No. 3 (English and Spanish). Speaker cards were also available for those individuals who wanted to speak during the public comment part of the hearing. Between 5:30 p.m. and 6 p.m., individuals could review the display boards (same ones posted on the study website and at the Virtual Public Hearing). Study team members were available to answer questions and to hold “one-on-one” conversations with the hearing participants. The project presentation began at 6 p.m. Afterwards, attendees were invited to verbally share their comments. No one spoke during the public comment part of the public hearing. Also, no comment forms were submitted at the Public Hearing.

During the Public Hearing comment period (from May 20, 2024 through July 1, 2024), a total of 4 comments were received, two written comments at the virtual Public Hearing, and two comments were emailed. These included two clarification questions and two comments, summarized below:

- Concerns about the changes (signals to U-turns) at the SR 535 intersections with Polynesian Isle Boulevard and Poinciana Boulevard; need to have left turns onto SR 535 from the Lake Buena Vista Factory Stores and Lake Buena Vista Resort & Spa and the left turn from SR 535 into the shopping center on the south side (1)
- Consider creating a median cut for southbound SR 535 traffic to allow for a left turn onto a future eastbound on-ramp onto SR 417

All comments received were taken into consideration in the development and selection of the alternatives and will be considered further during subsequent project phases. A summary of the meeting including the comments and more information are available in the Comments and Coordination Report. The Public Hearing Transcripts and the Public Hearing Certification Form are attached.

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7.0 DESIGN FEATURES OF THE PREFERRED ALTERNATIVE

7.1 Engineering Details of the Preferred Alternative

The results of the Alternative Selection Process indicate that the Preferred Alternative Typical Section is Alternative A, inside widening with a shared use path, in combination with this typical section the following innovative intersections:

- SR 535 and Polynesian Boulevard– Partial Median U-Turn
- SR 535 and International Drive Boulevard– Partial Displaced Left Turn (East-West) Alternative
- SR 535 and SR 536/World Center Drive - Partial Displaced Left Turn Alternative

The following sections describe and highlight the different design elements associated with the preferred alternative. For more details, please refer to the concept plans in **Appendix E**. In addition, 123BIM was utilized to create a 3D model of the preferred alternative to help visualize the corridor.

7.1.1 Typical Section

After a comprehensive alternative generation and evaluation process, one (1) alternative was selected as being the most effective option throughout the project corridor (see **Figure 7-1**). The preferred typical section, Alternative A, consists of total reconstruction with the widening of the additional lane towards the median. This inside widening helps minimize potential impacts to the FGT Line and at the various innovative intersections. The typical section consists of three (3) 11-foot travel lanes in each direction, a median width that varies from 32-feet to 47-feet, a 14-foot shared use path on the west side and a 12-foot sidewalk on the east side. This typical section is anticipated to fit within the existing right of way of SR 535. For additional information the typical section package is in **Appendix F**.

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Figure 7-1 - Preferred Typical Section



7.1.2 Intersections

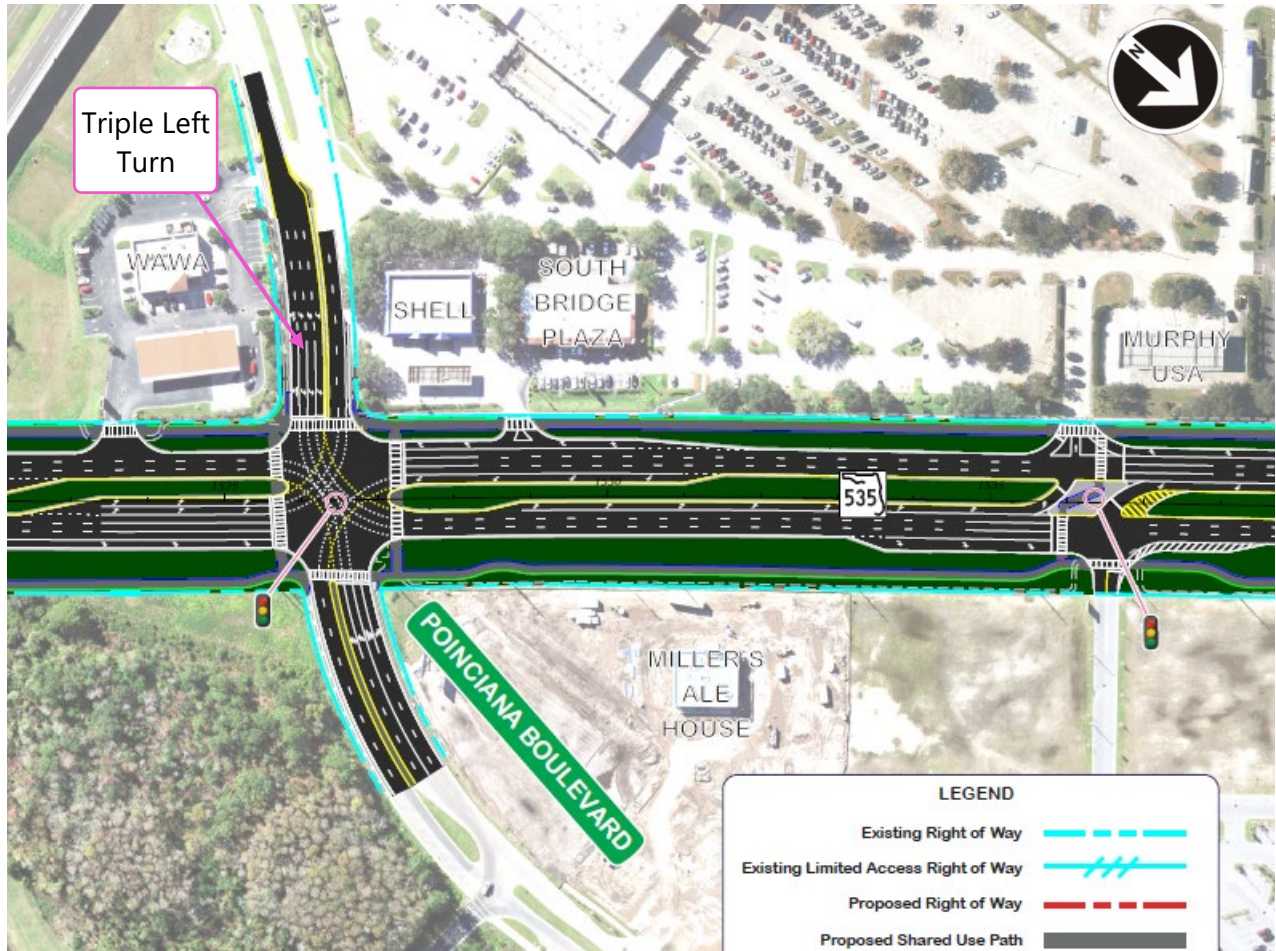
An Intersection Control Evaluation (ICE) was performed for SR 535 signalized intersections at Poinciana Boulevard, Polynesian Isle Boulevard, International Drive, and SR 536. A summary of the CAP X analysis for the major intersections is provided below.

SR 535 and Poinciana Boulevard – Signalized Intersection

The preferred alternative for SR 535 and Poinciana Boulevard, the traffic signal concept (see **Figure 7-2**), involves the removal and replacement of direct northbound and southbound left turns from SR 535 at SR 536 with the displaced left turns installed on both legs of SR 535. The eastbound and westbound left turn movements for the SR 536/World Center Drive continue to take place at the main intersection.

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Figure 7-2 - SR 535 and Poinciana Blvd Signalized Intersection

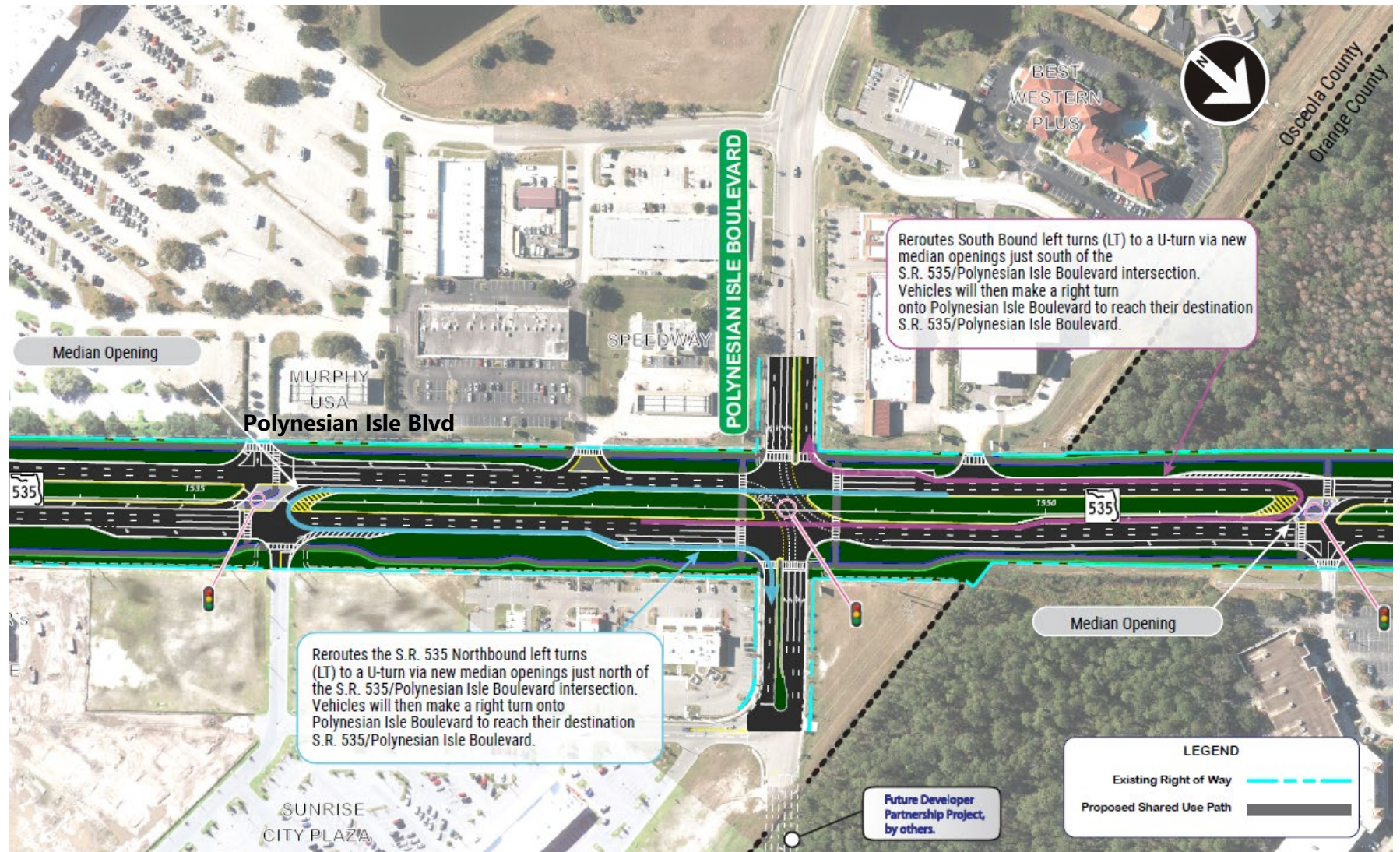


SR 535 and Polynesian Isle Boulevard– Partial Median U-Turn

The preferred alternative for SR 535 and Polynesian Isle Boulevard, Partial Median U-Turn concept (see **Figure 7-3**), involves the removal of northbound and southbound direct left turn movements from SR 535 to Polynesian Isle Boulevard and the addition of signalized U-turns at the existing median openings located just north and south of the intersection along SR 535 to accommodate vehicles wishing to travel east or west on Polynesian Isle Boulevard.

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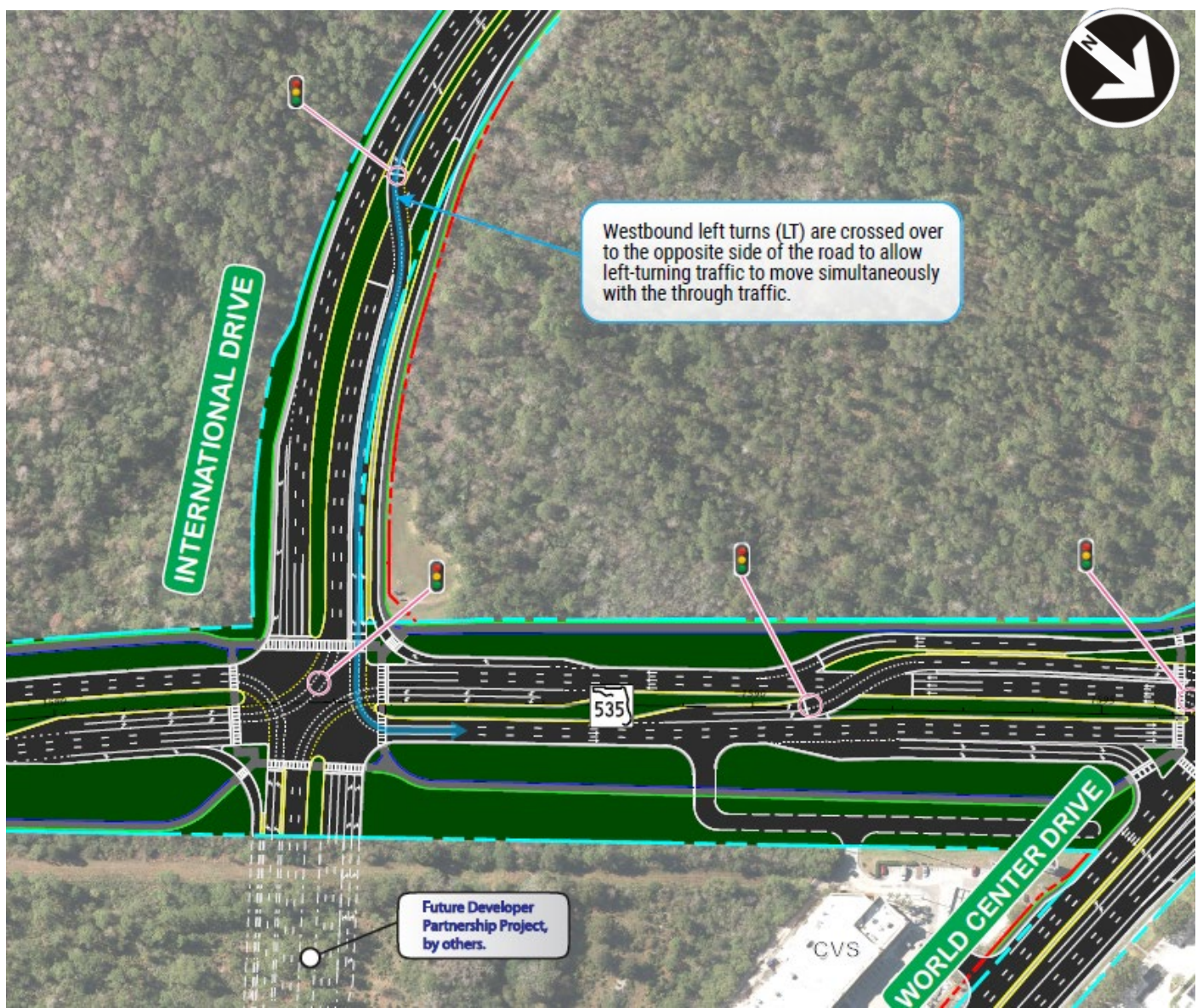
Figure 7-3 - SR 535 and Polynesian Isle Blvd Partial Median U-Turn Intersection



SR 535 and International Drive Boulevard– Partial Displaced Left Turn (East-West)

The preferred alternative for SR 535 and International Drive, Partial Displaced Left Turn concept (see **Figure 7-4**), involves the removal of direct eastbound and westbound left turns from International Drive at SR 535 with the displaced left turns installed on both legs International Drive. The northbound and southbound left turn movements for SR 535 continue to take place at the main intersection.

Figure 7-4 - SR 535 and International Drive Partial Displaced Left Turn Alternative

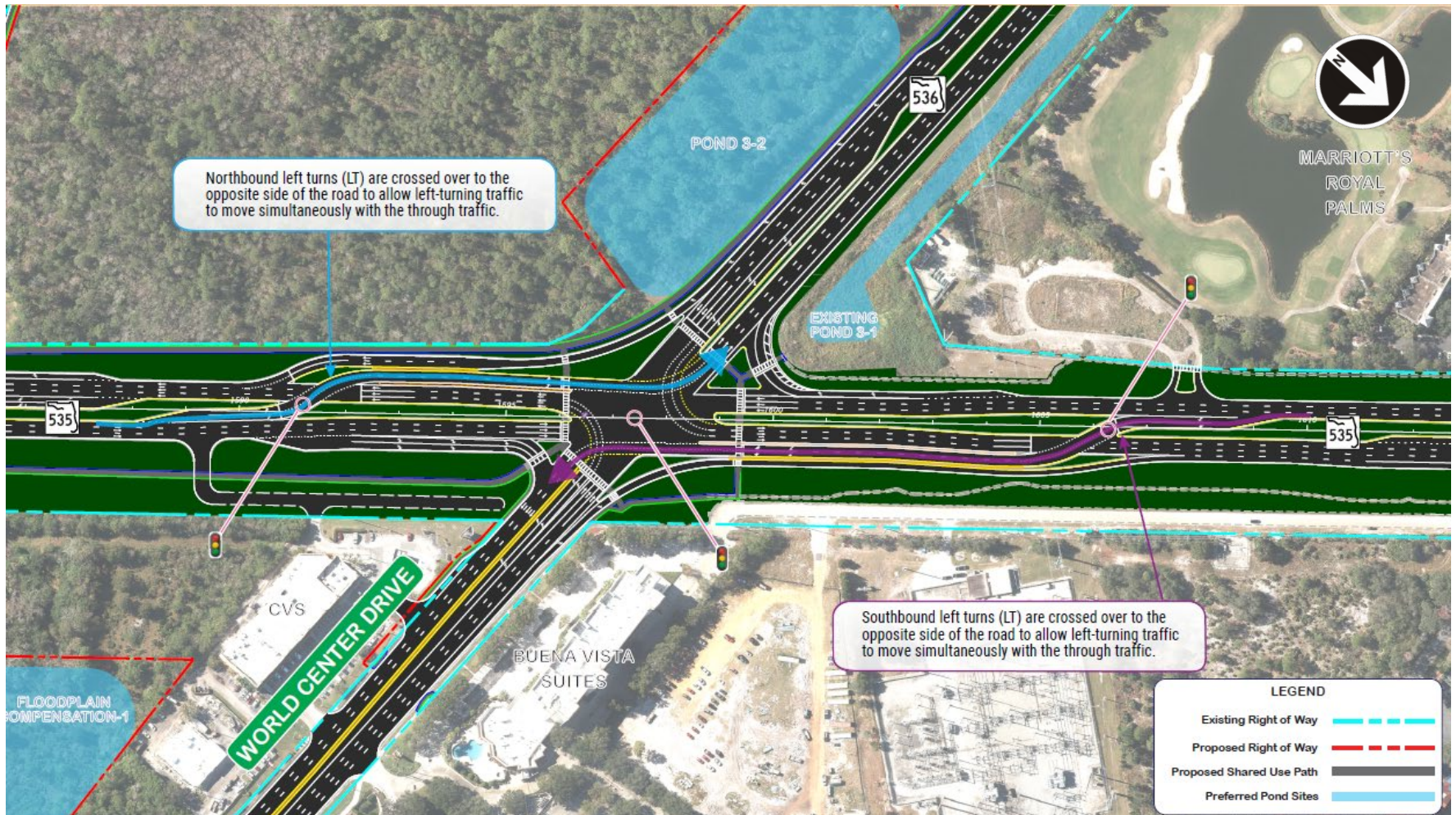


SR 535 and SR 536/World Center Drive - Partial Displaced Left Turn Alternative

The preferred alternative for SR 535 and SR 536/World Center Drive, the Partial Displaced Left Turn concept (see **Figure 7-5**), involves the installation of an additional lane along SR 535 for northbound and southbound movements and the removal and replacement of direct northbound and southbound left turns on SR 535 with the displaced left turns installed on both legs of SR 535 (major street). The eastbound and westbound left turn movements for the minor street on SR 536/World Center Drive continue to take place at the main intersection.

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Figure 7-5 - SR 535 and SR 536/World Center Dr Partial Displaced Left Turn Alternative



7.1.3 Bridges and Structures

There are no bridge structures along SR 535. In the project corridor there are three (3) bridge structures over SR 535. One (1) bridge carries Osceola Parkway traffic over SR 535 (#924161) and two (2) bridges carry SR 417 traffic over SR 535 (#750474 and #750475). Roadway improvements would not require extending or reconstructing these bridges as all preferred alternative improvements will fit under the existing structures (see **Figure 7-6** and **Figure 7-7**). Based on the National Bridge Inventory information, the existing vertical clearance for the Osceola Parkway bridge over SR 535 is 16.8 feet and for the bridges that carry SR 417 traffic over SR 535 the vertical clearance is 16.7 feet. It should be noted that for the SR 417 bridges over SR 535 a minimum clearance of 16 feet 6 inches is required, but can be reduced to 16 feet for construction. With the proposed slight shift of the southbound roadway alignment towards the median under the SR 417 bridge, it is anticipated that the vertical height will increase by approximately 1 inch, thus satisfying the required clearance.

Figure 7-6 - Osceola Parkway over SR 535

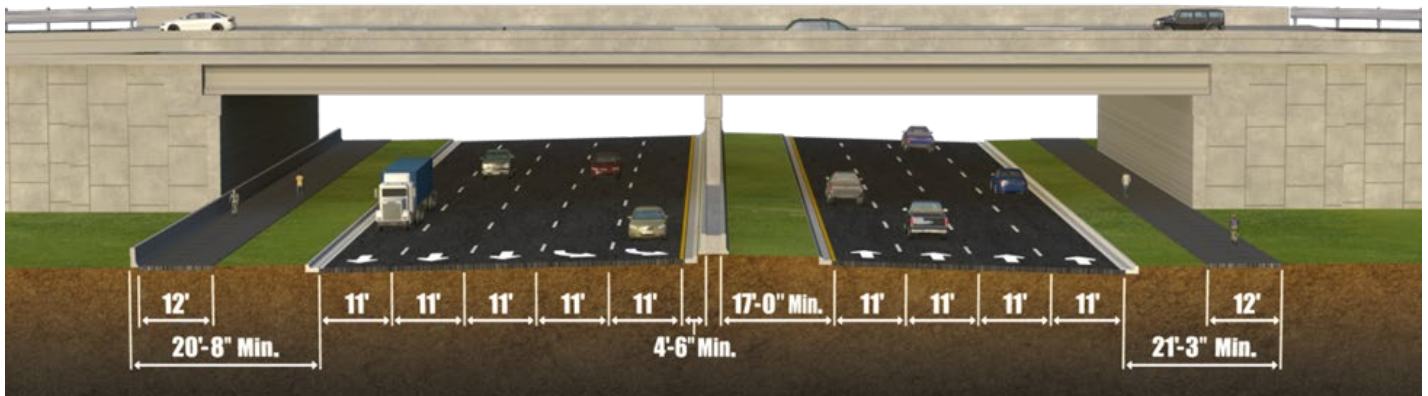
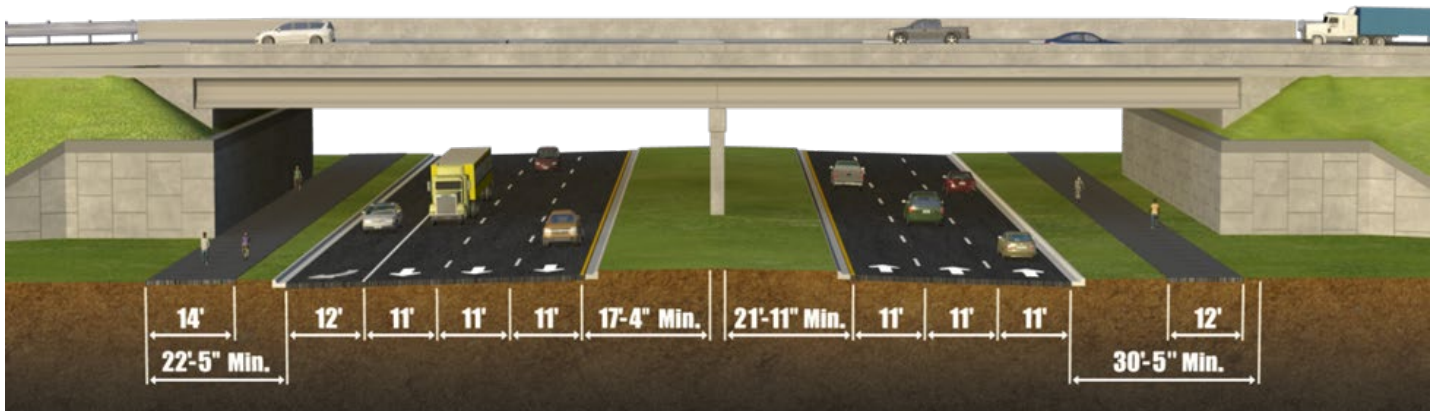


Figure 7-7 - SR 417 over SR 535



7.1.4 Right of way

There are 11.5 acres of right of way impacts (excluding FDOT and County owned parcels required) are anticipated as a result of the preferred alternative. Of the 11.5 total acres, 0.7 acres are associated with improvements at the SR 535/International Drive and SR 535/World Center Drive (SR 536) intersections. Of the 11.5 total acres, 10.8 acres are associated with the required stormwater and floodplain compensation ponds (excluding FDOT and County owned parcels required). A total of 8 parcels are anticipated to be impacted from the preferred alternative. Right of way acquisition is anticipated to cost approximately \$38.1 million. Coordination during final design will determine the final right of way requirements of the project. There are no relocations anticipated for the preferred alternative.

7.1.5 Horizontal and Vertical Geometry

The proposed horizontal alignment follows the existing horizontal alignment. The information is located in Section 2.4.8. The curve data is also displayed on the concept plans, see **Appendix E**. Based on a review of available survey, the study corridor may have areas where the existing longitudinal grades may be flatter than the minimum per design standards for curbed roadway. In order to provide the necessary longitudinal grades to provide for adequate drainage as well as provide for adequate base clearance, full reconstruction may be required. It is anticipated that the roadway will generally follow the existing vertical alignment, however, the final analysis of the vertical alignment including analysis of base clearance and longitudinal slope will be completed in the design phase.

7.1.6 Bicycle and Pedestrian Accommodations

The Preferred Alternative includes a 14-foot wide shared use path on the west side and a 12-foot wide shared use path on the east side of the typical section through the entirety of the project. Pedestrian signalization will be included at the signalized intersections within the project limits. It should be noted that there are existing sidewalks within private property along parts of the study corridor. These sidewalks are not anticipated to be impacted.

7.1.7 Multimodal Accommodations

As previously mentioned, the LYNX Transit System of the Central Florida Regional Transportation Authority services the northern portion of the study area with Bus Route 304. Coordination will be on-going throughout the design phase if the bus service will ever be expanded along the study corridor.

7.1.8 Access Management

It is recommended that the entire project corridor remains as the existing Access Class 3 facility. Below is a summary of the proposed access management plan for SR 535 based on the approved Access Management Plan Technical Memorandum. The criteria from the Florida Administrative Code 14-97 and FDOT Design Manual was followed (see **Table 7-1**).

Table 7-1– Access Management Standards

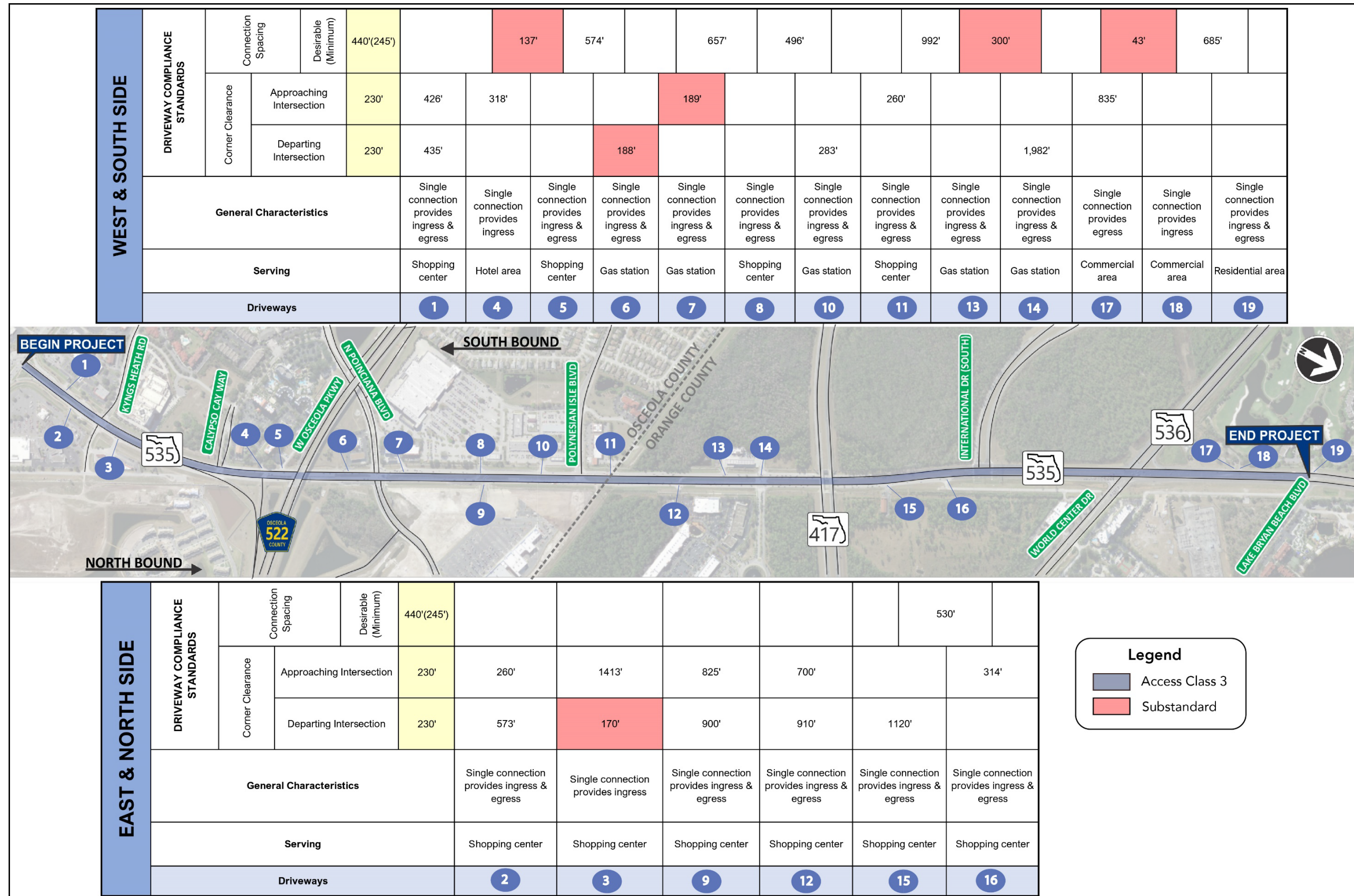
Access Class	FDOT Context Classification	Median Type	Connection Spacing (feet)		Median Opening Spacing (feet)		Signal Spacing (feet)
			>45 mph	≤ 45 mph	Directional	Full	
2	C1 Natural, C2 Rural	Restrictive w/Service Roads	1,320	660	1,320	2,640	2,640
3	C1 Natural, C2 Rural, C2T Rural Town, C3R Suburban Residential, C3C Suburban Commercial	Restrictive	660	440	1,320	2,640	2,640
4	C2T Rural Town, C4 Urban General, C5 Urban Center, C6 Urban Core	Non-Restrictive	660	440	-----	-----	2,640
5		Restrictive	440	245	660	2,640/1,320*	2,640/1,320*
6		Non-Restrictive	440	245	-----	-----	1,320
7		Both Median Types	125		330	660	1,320

*Note: 2,640 for > 45 mph; 1,320 for ≤ 45 mph

7.1.8.1 Driveway Connection Spacing

There are various driveways and side street connections along both sides of the study providing access to the hotels/commercial developments, etc. The driveway connection is the distance between two adjacent driveways and the corner clearance is the distance from the driveway connection to an intersection. **Figure 7-8** illustrates the Driveway Connections Evaluation for existing driveways. There are four driveway connection spacings that are not to standard. These driveways are either additional access for a hotel, convenience store or gas station or they serve as the only access to the property. For these reasons there are no proposed changes to the existing driveway connections along the project corridor.

Figure 7-8 - Driveway Connections Spacing Compliance



7.1.8.2 Median Spacing

Within the project limits, the proposed roadway segment along SR 535 will maintain the restrictive median. The existing and proposed median spacing and compliance with the standards are shown in **Table 7-2**. All the median openings (full and directional) do not comply with the standards of an Access Class 3 facility. Based on the existing and no build LOS results for the study intersections, consolidation of median openings to meet spacing criteria would increase traffic volumes resulting in further degradation of operations.

Table 7-2 – Median Spacing and Standard Compliance

Existing Opening	Proposed Design Speed	Proposed Stations	Existing Stations	Existing Spacing (feet)	Median Type	Proposed Spacing (feet)	Meets Standard	Deviation from Standard (%)
	(mph)							
1	W IRLO BRONSON MEMORIAL HWY	45	1489+41.87	1489+41.87	---	Full	---	----
2	KYNGS HEATH RD	45	1499+34.87	1499+34.87	993	Full	993	No 62.4%
3	CALYPSO CAY WAY	45	1511+60.87	1511+60.87	1,226	Directional	1,226	No 7.1%
4	W OSCEOLA PKWY RAMP	45	1515+82.87	1515+82.87	422	Directional	422	No 68.0%
5	N POINCIANA BLVD	45	1526+50.87	1526+50.87	1,068	Full	1,068	No 59.5%
6	SHOPPING CENTER ENTRANCE	45	1536+34.87	1536+34.87	984	Directional	984	No 25.5%
7	POLYNESIAN ISLE BLVD	45	1545+72.87	1545+72.87	938	Full	938	No 64.5%
8	SHOPPING CENTER ENTRANCE	45	1554+84.87	1555+24.87	952	Directional	912	No 30.9%
9	LAKE BUENA VISTA FACTORY STORES DR	45	1562+83.87	1562+83.87	759	Full	799	No 69.7%
10	INTERNATIONAL DR	45	1583+85.87	1583+85.87	2,102	Full	2,102	No 20.4%
11	WORLD CENTER DR	45	1597+43.87	1597+43.87	1358	Full	1,358	No 48.6%
12	LAKE BRYAN BEACH BLVD	45	1615+09.87	1615+09.87	1,766	Full	1,766	No 33.1%

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7.1.8.2.1 Median Closure Analysis

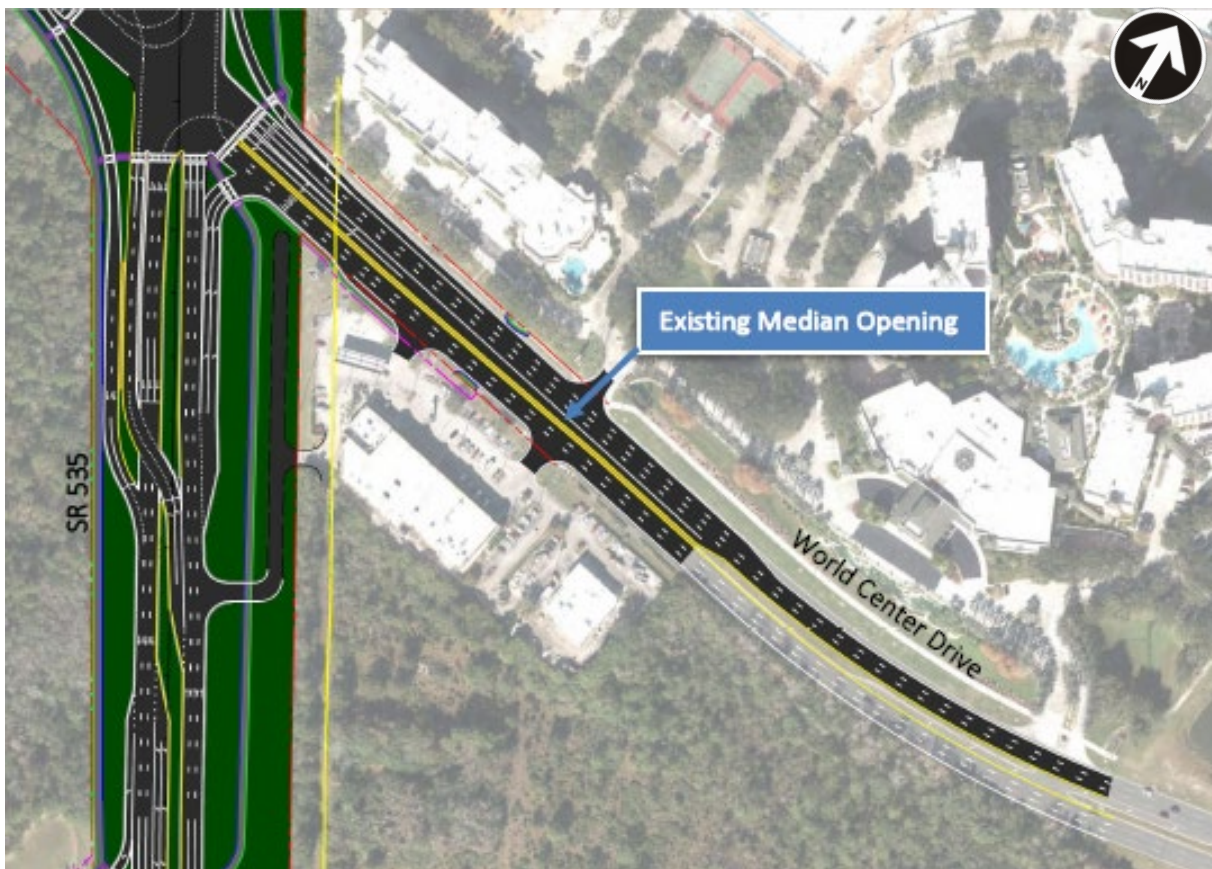
As part of the analysis of the intersection of SR 535 and SR 536 (World Center Drive), a safety and operational qualitative assessment was performed for the closure of the median on World Center Drive (SR 536) east of SR 535 that serves as access to the Buena Vista Suites and Caribe Royale. See **Figure 7-9** for the median opening location and current concept plan of the proposed median closure. This location is a prevalent area for left turn/angle crashes due to the number of travelers attempting to turn into the Buena Vista Suites or the Caribe Royale Hotel. A total of 167 crashes have been recorded, at an increasing rate, within the 5-year period between 2014 to 2018, which is an average of 33 crashes per year. The proposed median opening closure will result in the need for motorists to modify their travel routes to access properties north and south of World Center Drive (SR 536). The following describes proposed travel patterns:

- Northbound left turn and eastbound left turn movements from the existing median opening will be rerouted to perform an eastbound U-turn movement at the median opening 940-ft east of the existing opening.
- Southbound left turn and westbound left turn movements from the existing median opening will be rerouted to perform a westbound U-turn movement at the intersection of SR 535 and World Center Drive (SR 536).

It should be noted that the median closure does provide additional turn bay storage for the westbound left turn movement at the intersection of SR 535 and World Center Drive (SR 536) to accommodate design year projected queue lengths of approximately 200-ft and 350-ft during the 2045 AM and PM peak hours, respectively. Additional details pertaining to this median closure can be found in **Appendix G**.

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Figure 7-9 - Existing Median Opening Location



7.1.8.3 Traffic Signal Spacing

A comparison of the proposed signal spacing within the corridor and immediate adjacent signals are shown on **Table 7-3** and indicate the distances between the signalized intersections. It should be noted that for the innovative intersections, all signalized intersections are considered as one signal at the center of the intersection. The distances are shown on **Table 7-3**. Although none of the signal spacings comply with the standard of 2,640 feet, there are no proposed changes to the signal spacing.

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Table 7-3 – Signal Spacing Compliance

FROM	TO	SPACING (feet)	MEETS STANDARD
W Irlo Bronson Memorial Hwy	Kyns Health Rd	980	No
Kyns Heath Rd	W Osceola Pkwy Ramp	1663	No
W Osceola Pkwy Ramp	N Poinciana Blvd	1060	No
N Poinciana Blvd	Polynesian Isle Blvd	1914	No
Polynesian Isle Blvd	Lake Buena Vista Factory Stores Dr	1720	No
Lake Buena Vista Factory Stores Dr	International Dr	2114	No
International Dr	World Center Dr (SR 536)	1390	No

7.1.8.4 Access Management Conclusions

An Access Management evaluation was performed for the proposed SR 535 PD&E study from US 192 to just north of World Center Drive (SR 536) (see **Appendix G**). The roadway is currently classified as an Access Management Classification 3. The following conclusions can be made from the information provided.

- Proposed signal spacing within the corridor does not comply with Access Class 3 standards but is proposed to remain the same at the existing locations.
- Although the median spacing is not compliant to Access Class 3 standards it is recommended to maintain the existing median locations.
 - With the exception of the median closure on World Center Drive (SR 536) east of SR 535 that serves as access to the Buena Vista Suites and Caribe Royale

Based on the existing and no build LOS results for the study intersections, consolidation of median openings to meet spacing criteria would increase traffic volumes resulting in further degradation of operations. As part of the alternatives development, a comprehensive Intersection Control Evaluation was performed for the project intersections resulting in a series of intersection configurations that provide for more efficient distribution of movements throughout the corridor. For the example, northbound and southbound left turn movements are restricted at the SR 535 intersections of Polynesian Isle Boulevard and SR 536/World Center Drive and are instead serviced through displaced left turn and median U-turn movements at nearby existing and/or new median openings. This approach results in operational and safety improvements throughout the project corridor.

7.1.8.5 Tolled Projects

SR 535 from US 192 to north of World Center Drive (SR 536) is not a tolled facility. SR 417 that has an overpass over SR 535 is a tolled facility but has no direct access along our project corridor.

7.1.9 Intelligent Transportation System and TSM&O Strategies

A Concept of Operations (ConOps) and Preliminary Systems Engineering Management Plan (PSEMP) for the Transportation Systems Management & Operations (TSM&O) component of this project has been completed and seeks to implement strategies as part of FDOT's goals to improve mobility and safety along SR 535. Based on the selected alternative, the ConOps and PSEMP evaluate multiple TSM&O initiatives and Connected Vehicles (CV) technologies, these include but are not limited to improved traffic signal systems, communication systems, travel time systems, Emergency Vehicle Preemption (EVP), LED/Smart Corridor Lighting, Adaptive Traffic Control Systems (ATCS), Smart Signals Initiative, and pedestrian/bicycle CV safety applications (PedSafe) features. In addition, the TSM&O documents summarize the existing and proposed systems along with involved stakeholders, user involvement and intersection, modes of operation, impacts and constraints, and cost, schedule and procurement options.

The TSM&O component of this project is being implemented to improve existing active traffic management activities along the corridor. The goal for this project is to expand the use of TSM&O strategies to eliminate gaps in the network. This project will utilize the existing ITS and signal network communications and additional infrastructure as a base to add the required CCTV, BT/RSUs, and DMS devices. Additionally, the project seeks to expand ATSPM capabilities. When completed, this project will provide the means for FDOT and local counties/cities to obtain additional traffic data for use in managing the roadways and will allow motorists to receive advance warnings of incidents and congestion and be rerouted around the area, thus saving time and fuel while reducing emissions and promoting safety for motorists.

The project's main limitation is existing controller firmware in Osceola County to engage ATSPMs capabilities at signalized intersections. Smart signal detection is also needed in order expand ATSPM capabilities for the signalized intersections located in the Orange County portion of the project.

In order to address the identified constraints, this project proposes the following improvements:

- Upgrade Osceola County traffic signal controller firmware to version 3.28 or later to support ATSPM capabilities.

- Provide smart signals detection for ATSPM capabilities.
- Ensure dedicated curb ramps instead of shared curb ramps are provided for each crosswalk. to allow for compatibility with pedestrian passive detection design requirements.
- Install CCTV and BT/RSU at Poinciana Boulevard to fill the existing device gap.
- Install DMS for southbound traffic travel information notification.
- Coordinate the implementation of EVP.

Figure 7-10 illustrates the locations of proposed ITS devices.

7.1.9.1 Speed Management Strategies

Table 202.3.1 of the FDOT Design Manual (FDM) identifies Speed Management Strategies to achieve a desired operating speed. The table uses context classification and target speed to identify the types of strategies that would be most effective. Based on Table 202.3.1, with context classification of C3R or C3C and a target speed of 45 mph, speed management strategies include Roundabouts, Lane Narrowing, Horizontal Deflection, Speed Feedback Signs, Rectangular Rapid Flashing Beacon (RRFB) and Pedestrian Hybrid Beacon (PHB) for consideration.

A Speed Management Strategies Technical Memorandum was prepared for this study. The proposed improvements for the Preferred Alternative utilize appropriate strategies from the listed above where feasible based on project considerations such as multimodal needs, access management, design criteria and right of way considerations. The following outlines the speed management strategies used for this corridor.

- **Lane Narrowing** – The lane width will be reduced from 12-foot to a proposed 11-foot.
- **Speed Feedback Signs** – Several segments throughout the corridor provide an opportunity for the placement of speed feedback signs. A traffic speed study is recommended to be conducted after the opening of the improvements to determine the need for speed feedback signs.

On-going coordination is recommended during the Design Phase.

SECTION 7 – DESIGN FEATURES OF THE PREFERRED ALTERNATIVE



Figure 7-10 - Proposed Intelligent Transportation Systems (ITS) Devices

7.1.10 Landscape

No additional landscaping features are being proposed at this time of the PD&E Study. It is recommended that this can be part of the final design phase.

7.1.11 Lighting

Since a Lighting Justification Study was not conducted as part of this PD&E effort, the potential need for installation of continuous roadway lighting along the study corridor cannot be ascertained at this time. This task remains as part of the final design phase.

7.1.12 Wildlife Crossings

SR 535 from US 192 to north of World Center Drive (SR 536) has no proposed designated wildlife crossings.

7.1.13 Permits

No special permitting requirements have been taken into consideration during this PD&E Study. It is recommended that this task remains as part of the final design phase.

7.1.14 Utilities

The 16 UAO's that occur along the project corridor have a variety of buried and overhead utilities throughout the corridor. The preliminary evaluation of the proposed improvements revealed potential utility conflicts along the corridor. Additional conflicts may be identified during final design due to proposed drainage, signals, Maintenance of Traffic, etc.

Conflict mitigation strategies should include the following:

- Subsurface Utility Engineering (SUE) for verified vertical and horizontal (Vvh) information on existing underground utilities to confirm conflicts.
- Obtaining Vvh information will also help guide the final design phase and ensure that informed decisions are made where practical to reduce potential utility relocations.
- Accurate location of all aerial utility facilities to confirm conflicts with the project final design, temporary work, MOT, and constructability of project improvements.
- Consideration of final design location to maintain Occupational Safety and Health Administration (OSHA) and National Electric Safety Code (NESC) final and temporary clearance requirements from energized overhead powerlines.
- Implementation of Utility Work by Highway Contractor Agreement (UWHCA) for any necessary relocation of water and sewer facilities.

- Completion of utility relocation work prior to the start of roadway construction activities.
- Most UAOs have the capability to adjust their facilities without causing major inconvenience to their customers. Mitigation measures to minimize service disruptions should include the following:
 - Installation and activation of new facilities prior to removal of existing.
 - Allowing service disruptions only during periods of minimum usage.
 - Limiting the duration of service disruptions.
 - Evaluation of innovative approaches to maintaining utility services in temporary work areas.

The estimated utility relocation cost is provided on **Table 7-4**. For additional details this information can be located on the Utility Assessment Package (a companion report to this document).

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Table 7-4 - Estimated Utility Relocation Cost

UAO	ESTIMATED RELOCATION COST
AT&T Distribution	\$ 675,000
Charter Communications	\$ 252,500
Comcast	\$ 144,500
Duke Energy	\$ 2,320,000
Florida Gas Transmission	\$ -
Kinder-Morgan (Central FL Pipeline)	\$ -
Kissimmee Utility Authority	\$ 1,090,000
Lumen Technologies	\$ 195,500
Orange County	\$ 1,170,000.00
Osceola County	\$ -
Orlando Utilities Commission	\$ -
Summit Broadband	\$ 141,000
TECO Peoples Gas	\$ 654,000
TOHO Water Authority	\$ 275,500
Uniti Fiber	\$ -
Verizon/MCI	\$ 110,000
TOTAL:	\$ 7,028,000

7.1.15 Drainage and Stormwater Management Facilities

In general, basin limits and discharge points in the proposed condition will remain the same as the existing condition except where noted in the proposed basin descriptions. Existing stormwater ponds have been evaluated, and proposed stormwater ponds have been sized to provide the required water quality treatment, attenuation and nutrient load reduction set forth by the SFWMD and FDOT.

A combination of closed storm drain system and shallow roadside ditches located between the proposed curb and gutter and shared use paths are proposed on both sides of the roadway as shown in **Figure 7-1**.

The primary purpose of the shallow ditches is not conveyance, as the proposed ditch footprints do not have adequate capacity to convey runoff to the proposed stormwater ponds and outfalls. The width available for the shallow ditches is generally limited by right of way and utility constraints. Flume inlets or curb openings will convey runoff from the roadway to the shallow ditches, and a storm drain system composed of DBIs and pipe will convey runoff to the outfall.

The shallow ditches will assist in meeting stormwater quality criteria, and also may assist with the phasing of the drainage system construction as noted below.

- Net improvement for nutrient loading for total phosphorus is required due to the project's location within the Lake Okeechobee BMAP. Given that the conversion from a rural typical section in the existing condition to an urban typical section in the proposed condition, there is a substantial increase in the directly connected impervious area (DCIA). This increase in DCIA also results in higher nutrient loads in the proposed condition. Utilizing a proposed drainage system with flume inlets and shallow roadside ditches where feasible will convert the proposed roadway impervious area to non-DCIA, thereby substantially reducing the nutrient load in the proposed condition prior to stormwater treatment.
- The preferred widening for SR 535 is to widen to the inside (towards the median). Construction of storm drain systems outside of the existing roadway footprint may facilitate the Maintenance of Traffic (MOT) plan developed during the design phase.

7.1.15.1 Pond Sizing Methodology

The pond sizing analysis assumes that all ponds will be designed using wet detention criteria due to the soil conditions and groundwater table elevations along the SR 535 corridor. The PSR, a companion document to this report, focuses on the preliminary estimate of required pond volumes necessary for each roadway drainage basin. As all project basins currently drain to permitted stormwater facilities, the existing ponds have been evaluated to determine whether the pond size is sufficient to provide the required water quality treatment and attenuation, or if additional pond volume is required (either through expansion of the existing stormwater pond or by adding a potential stormwater pond to the basin). All existing stormwater ponds serving the project basins are utilized in the proposed condition.

The following parameters were considered in the sizing and location of the potential pond sites:

- Hydrologic and hydraulic factors such as existing ground elevations, soil types, estimated seasonal high groundwater table (SHGWT), stormwater conveyance feasibility, allowable hydraulic grade line (HGL);
- Potential impacts to environmental resources, including wetlands, conservation easements, threatened or endangered species;
- Floodplain impacts;
- Major utility conflict potential;

- Parcel descriptions and land usage;
- Impacts to cultural resources; and
- Impacts to contamination sites

For the purposes of the pond siting analysis in the PD&E, the shared use paths have been included in the calculation of impervious area to provide a conservative estimate of water quality volume required. It is recommended that the impervious area acreage be refined during the design phase of the project to provide a more accurate estimate of water quality treatment volume requirements.

The Preferred Pond Alternative for each basin is provided in **Table 7-5** and **Table 7-6** anticipated right of way needs (excluding FDOT and County owned parcels used for the alternatives) associated with the preferred alternatives are also provided. Existing stormwater ponds within Basins 1 and 4 have sufficient capacity to provide the required water quality treatment and attenuation in the ponds currently serving these basins, so no additional right of way is required based on the calculations contained herein. Proposed ponds are shown on **Figure 7-11**.

Table 7-5 - Preferred Pond Sites

Basin	Preferred Alternative	Ponds	Type	Remarks
1	1A	Exist. Pond 1-1	Wet	Exist. pond sufficient. Reduced drainage area (30.94 ac to 29.16 ac) from exist. to proposed conditions. Increased freeboard in exist. pond.
2	2A	Exist. Pond 2-1 and Pond 2-2	Wet	Interconnected ponds to provide required water quality treatment and attenuation. Utilize Exist. Pond 2-1 outfall to Shingle Creek.
3	3A	Exist. Pond 3-1 and Pond 3-2	Wet	Interconnected ponds to provide required water quality treatment and attenuation. Utilize Exist. Pond 3-1 and Pond 3-2 outfalls to Shingle Creek.
4	4A	Exist. Pond 4-1	Wet	Exist. pond sufficient. Reduced drainage area (8.70 ac to 7.63 ac) from exist. to proposed conditions. Increased freeboard in exist. pond.

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Table 7-6 – Right of way Needs for Preferred Alternatives

Basin	Preferred Alternative	Ponds	Estimated R/W Req'd.	Remarks
1	1A	Exist. Pond 1-1	0.0	Pond within exist. right of way
2	2A	Exist. Pond 2-1 and Pond 2-2	3.0	Exist. Pond 2-1 within exist. R/W. Estimated R/W needs for Pond 2-2 provided (excluding FDOT or County R/W used for pond).
3	3A	Exist. Pond 3-1 and Pond 3-2	3.5	Exist. Pond 3-1 within exist. R/W. Estimated R/W needs for Pond 3-2 provided (excluding FDOT or County R/W used for pond).
4	4A	Exist. Pond 4-1	0.0	Pond within exist. R/W

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Figure 7-11 - Recommended Ponds



The project lies within the Shingle Creek basin, which is impaired for nutrients (macrophytes). SFWMD stated that nutrient loading calculations are not required for discharges to Shingle Creek due to this type of nutrient impairment, but that net improvement for total phosphorus (TP) is required because the project lies within the Lake Okeechobee BMAP. Impervious areas subject to non-vehicular traffic (e.g., sidewalk and shared use paths) do not require water quality treatment, and can be separated out from the calculation of impervious area.

Based on the SFWMD pre-application meeting, dry detention facilities (existing or proposed) do not receive any credit for providing nutrient load reduction. As all basins discharge to Shingle Creek, net improvement for TP is analyzed on a project-wide basis. Nutrient load calculations using BMPTrains can be found in the pond siting report (a companion document to this report). A summary of the net improvement calculations for the preferred pond sites is included in **Table 7-7**.

Table 7-7 - Nutrient Loading Summary

Basin	Existing TP Loading (kg/yr)	Proposed TP Loading (kg/yr)	Difference in TP Loading (kg/yr)
1	1.69	1.55	-0.14
2	2.45	2.49	0.04
3	1.91	1.57	-0.34
4	1.58	1.02	-0.56
Total	7.63	6.63	-1.00

7.1.16 Floodplain Analysis

The preferred alternative will impact the 100-year floodplain in 2 different ways:

- Longitudinal roadway impacts resulting from filling the floodplain areas. Project improvements will impact the 100-year floodplain as a result of longitudinal impacts as SR 535 does not bisect the floodplain but is instead on the upstream fringe of the mapped floodplain. Impacts to the floodplain were conservatively estimated based on the existing profile and the potential impacts of the road widening within the project limits. In addition to the impacts that result from the road widening, the Pond 3-2 maintenance berm will also encroach into the 100-year floodplain. Impacts from Pond 3-2 (part of the preferred Alternative 3A for Basin 3 in the Pond Siting Report) were conservatively estimated at the pond berm.

- Transverse impacts resulting from the extension or replacement of the existing cross drain culverts.

The longitudinal impacts from the roadway improvements cannot be avoided as the project involves the widening of an existing roadway with site constraints (FGT line) to the east of SR 535. Minimization of impacts is accomplished by utilizing an urban typical section with widening to the inside as the preferred typical section. During the design phase, opportunities to minimize these impacts by optimizing the grading for ditches and proposed side slopes, or whether Pond 3-2 (which is an expansion of Exist. Pond 3-2) is able to provide any floodplain compensation, should be investigated. The floodplain limits in the vicinity of project improvements have been identified in the Pond Alternatives Exhibit shown on **Figure 7-12**.

Project improvements will impact the 100-year floodplain as a result of longitudinal impacts as SR 535 does not bisect the floodplain but is instead on the upstream fringe of the mapped floodplain. Impacts to the floodplain were conservatively estimated based on the existing profile and the potential impacts of the road widening within the project limits. During the design phase, opportunities to reduce these impacts by optimizing the grading for ditches and proposed side slopes. In addition to the impacts that result from the road widening, the Pond 3-2 maintenance berm will also encroach into the 100-year floodplain.

Since all three locations of floodplain impacts have been identified as Zone A, no base flood elevation (BFE) was provided on the FIRMs. In order to extrapolate a value for the BFEs to utilize in the floodplain impact calculations, the floodplain shapes were superimposed on contours generated from LiDAR data. The BFEs associated with each impact location have been identified in **Table 7-8** along with the floodplain impacts within each section.

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Figure 7-12 - Floodplain Map

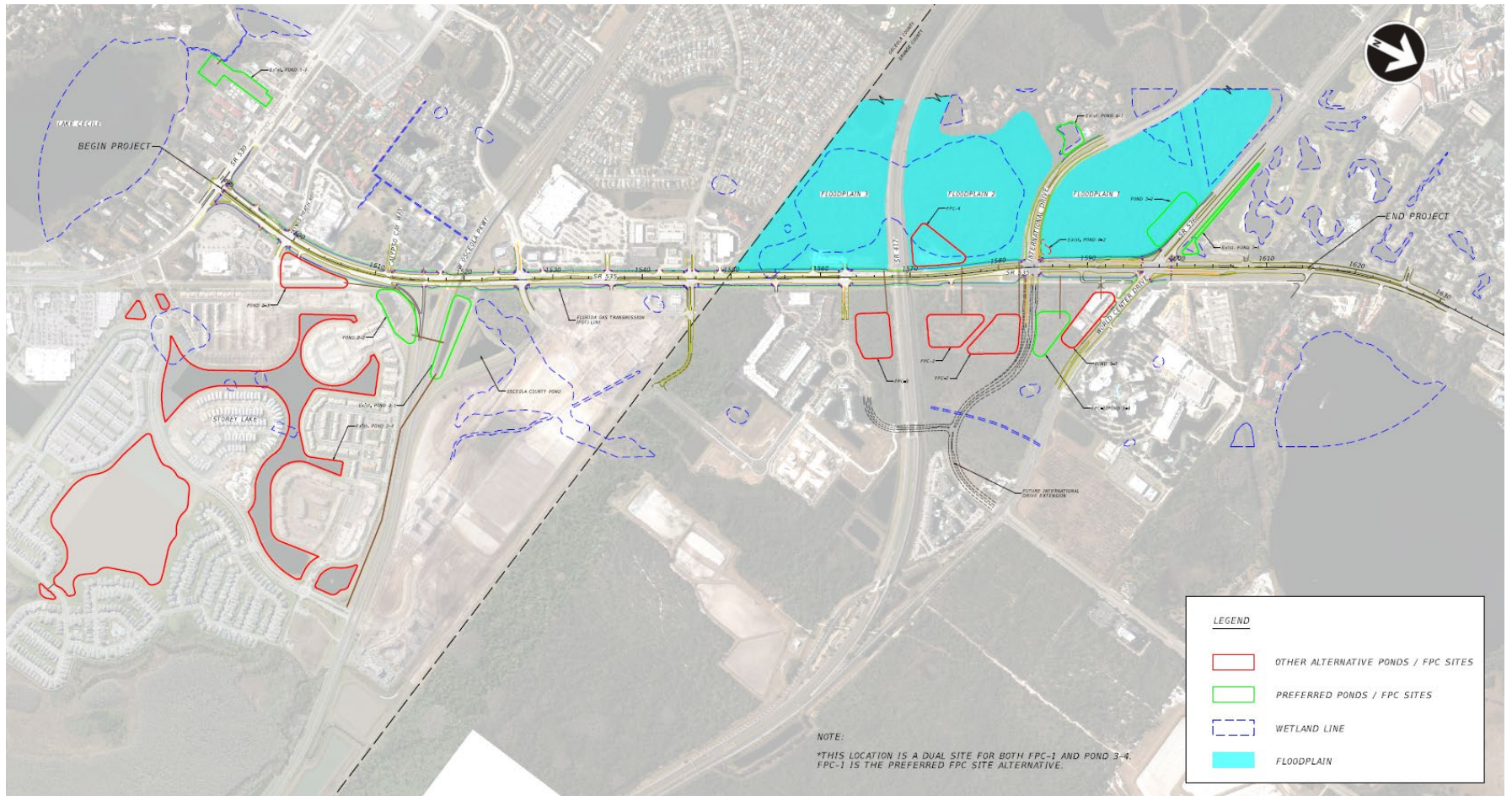


Table 7-8 - Base Flood Elevations and Floodplain Impacts

Floodplain Reference*	Station Range	Base Flood Elevation	Floodplain Impacts (ac-ft)
1	1582+00 to 1600+00	95	4.82
2	1569+00 to 1582+00	91	1.78
3	1550+00 to 1569+00	89.5	2.29
Total			8.89

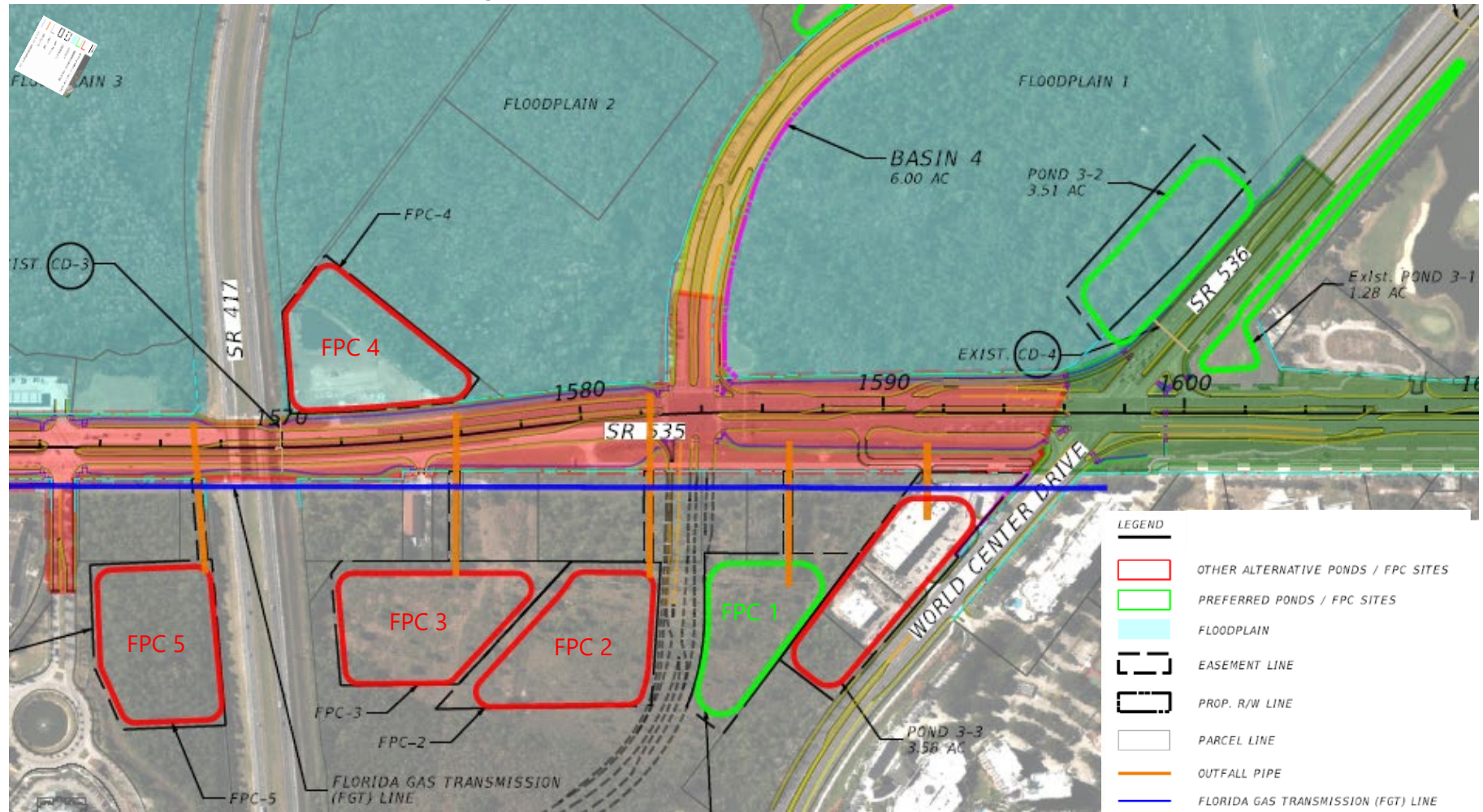
*reference numbers as noted on the calculations and exhibits

Since the three impact locations are hydraulically connected and within close proximity of each other, it was determined that the impacts from the three locations could be combined for developing compensation options. Five floodplain compensation (FPC) site alternatives have been developed and are included as part of this analysis. Equivalent storage was checked to ensure impacts at the lower elevations could be accommodated at each floodplain compensation site. Pond liners have been assumed at FPC sites 1, 2, and 3 in order to provide compensation at equivalent elevations for those impacts at the lower end of the spectrum. Once more detailed information is obtained during the design phase it is anticipated that additional storage can be provided within the right of way at these lower elevations and the need for liners will either be reduced or eliminated. Since land adjacent to the floodplain in the vicinity of the project is limited due to the extent of floodplain and the conservation easements, four of the five FPC sites will be hydraulically connected to the floodplain utilizing storm drain piping. As discussed with SFWMD at the pre-application meeting, the average wet season water table was used to determine the vertical extents of the floodplain compensation available at each FPC site. The five FPC sites compensations provided at each location is summarized in **Table 7-9**. Detailed calculations for each floodplain compensation site are provided in the Location Hydraulics Report, a companion document to this report. See **Figure 7-13** for the locations of the FPC sites.

Table 7-9 - Floodplain Compensation Alternatives

FPC Site	Station	Side	Floodplain Compensation Provided (ac-ft)
1	1586+00	RT	14.45
2	1581+00	RT	19.74
3	1575+00	RT	19.74
4	1572+00	LT	10.08
5	1566+00	RT	12.75

Figure 7-13 - Floodplain Compensation Map



All FPC site alternatives analyzed will provide the required storage to offset floodplain impacts. Based on this analysis, FPC Site 1 is the preferred alternative. The evaluation matrix which outlines all of the variables included in the analysis is provided in the Location Hydraulics Report, a companion document to this report.

7.1.17 Transportation Management Plan

A Transportation Management Plan (TMP) is required for minimizing activity-related traffic delay and crashes. The goal is to reduce congestion during construction by managing traffic through the project area. Maintenance of Traffic construction plans are necessary in order to demonstrate the ability to properly and safely implement the proposed improvement while maintaining the facility open to traffic. The project will be able to adhere to the FDOT Design Manual and Standard Plans.

7.1.18 Constructability

The conceptual construction sequencing has been divided into three different phases. **Figure 7-14** depicts the conceptual construction sequence schemes along SR 535 for the preferred alternative. Phase 1 will shift the existing traffic slightly to the outside of the existing section to construct the proposed inside widening and drainage. Then Phase 2 will shift over the traffic towards the inside while using the newly constructed inside widening and construct the outside lane. Then in Phase 3 the traffic will shift over to the recently constructed outside widening to construct the middle lane. Once Phase 3 is completed all three traffic lanes can now be utilized.

7.1.19 Construction Impacts

Due to the proposed TMP and construction sequences, there are no anticipated impacts associated with the construction of the preferred alternative.

7.1.20 Special Features

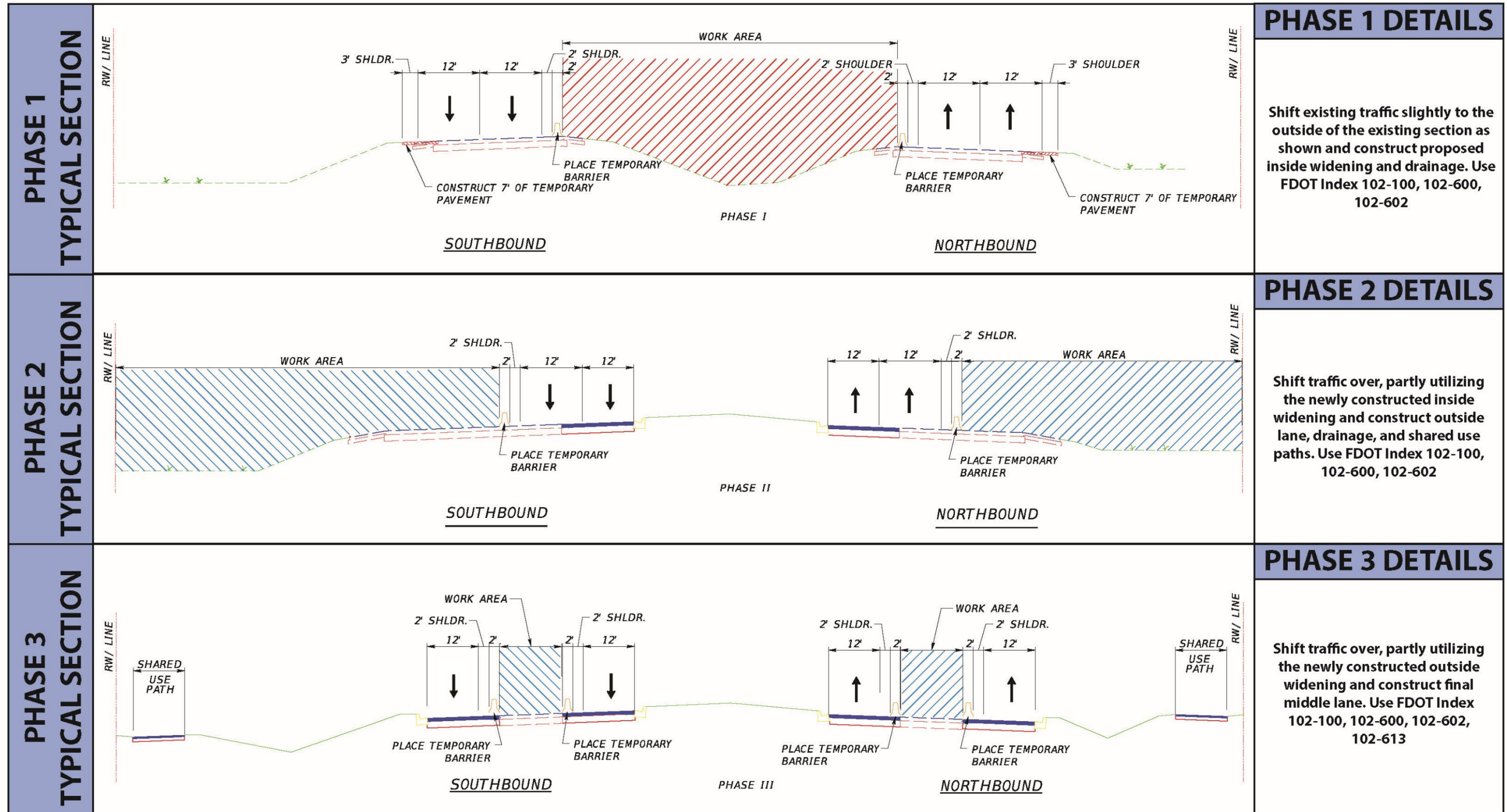
There are no special features associated with this project corridor.

7.1.21 Design Variations and Design Exceptions

There are no design variations or exceptions anticipated for this project.

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Figure 7-14 – SR 535 Conceptual MOT



7.1.22 Cost Estimates

The construction cost estimate was taken from the FDOT’s Long Range Estimate (LRE) while the design and construction engineering inspection (CEI) was taken as a percentage of the construction cost. See **Table 7-10** for the construction cost estimates. For additional construction cost details see **Appendix H**.

Table 7-10 - Cost Estimates

	Cost
Construction	\$76.5M
Right of way	\$38.1M
Utility Relocation	\$7M
Sub Total	\$121.6M
Design (15%)	\$11.5M
CEI (10%)	\$7.7M
Total Estimated Project Cost	\$140.8M

7.1.23 Value Engineering

Value Engineering (VE) Studies are required, in accordance with Value Engineering Program Topic No. 625-030-002, for all projects with an estimated total cost of \$50 Million dollars or more. A VE study will be performed during the design phase of this project, prior to the completion of the final design.

7.2 Summary of Environmental Impacts of the Preferred Alternative

7.2.1 Section 4(f)

There are no properties in the project area that are protected pursuant to Section 4(f) of the USDOT Act of 1966.

7.2.2 Cultural Resources

A Cultural Resource Assessment Survey (CRAS), conducted in accordance with 36 CFR Part 800, was performed for the project, and the resources listed below were identified within the project Area of Potential Effect (APE). FDOT found that these resources do not meet the eligibility criteria for inclusion in the National Register of Historic Places (NRHP), and State Historic Preservation Officer (SHPO) concurred with this determination on 06/03/2024. Therefore, FDOT, in consultation with SHPO has determined that the proposed project will result in No Historic Properties Affected.

The defined archaeological APE includes the existing right-of-way where improvements are proposed. The architectural history APE included the existing right-of-way and was extended to the back or side property lines of parcels adjacent to the right-of-way or no more than 100 meters (328 feet) from the right-of-way line. Where ponds are proposed, the APE was defined to include the proposed pond footprints in addition to a 30.5-meter (100-foot) buffer of each pond. The "APE" refers to the combined archaeological APE and architectural history APE.

Archaeological Survey

The archaeological survey included the excavation of eight shovel tests and nine “no-dig” points; due to heavy modern development and buried utilities within the archaeological APE, most of the corridor was limited to pedestrian survey and surface inspection. No artifacts were recovered, and no archaeological sites or occurrences were identified within the APE. The results of the CRAS indicate that no further archaeological survey is required.

Architectural Survey

The architectural history survey resulted in the identification and evaluation of one newly recorded historic building at 8350 Lake Bryan Beach Boulevard (8OR11944). Resource 8OR11944 was determined ineligible for the NRHP. The survey also recorded a new segment of the Florida Midland Railroad, a previously recorded resource in Orange and Osceola counties. It is recorded in Orange County as Resource 8OR10235 and in Osceola County as Resource 8OS02541. The SHPO previously evaluated recorded segments of 8OR10235 and 8OS02541 outside the current APE as ineligible for the NRHP. Based on the results of the current architectural history survey and SHPO linear resource guidelines, the segment of 8OR10235/8OS0254 within the APE lacks significance and was determined ineligible for listing in the NRHP. The SHPO concurred with these determinations on 06/03/2024; the concurrence letter is attached.

No historic properties were identified within the APE. No further work is required. For these reasons, no significant impacts to historic resources are anticipated.

7.2.3 Wetlands

This project was evaluated for impacts to wetlands and other surface waters in accordance with FDOT's *PD&E Manual, Part 2, Wetlands and Other Surface*, which incorporates the requirements of the National Environmental Policy Act (NEPA) and related federal and state laws. After field reconnaissance it was verified that no wetlands are present within the existing right of way and

was determined that there would be no direct impacts to wetlands or other surface waters under the Preferred Alternative.

A SFWMD Environmental Resource Permit is anticipated for modifications to an existing drainage system and for increases in permeable cover. There are no Federally jurisdictional wetlands that will be impacted under the Preferred Alternative. Therefore, no Section 404 permit is anticipated. An FDEP National Pollution Discharge Elimination System Permit will also be required.

7.2.4 Protected Species and Habitat

This project was evaluated for impacts to protected plant and animal species and their habitats in accordance with the FDOT's PD&E Manual, which incorporates the requirements of the National Environmental Policy Act (NEPA) and related federal and state laws. Other applicable federal laws protecting wildlife and habitat include the Bald and Golden Eagle Protection Act (16 U.S.C.668-668d) (BGEPA) and Migratory Bird Treaty Act (MBTA). Applicable state laws include Chapter 5B-40 and Chapter 68A-27, Florida Administrative Code (FAC).

A Natural Resources Evaluation was developed for this project. Federal and state listed species with potential to occur in the project corridor were identified through research and coordination with US Fish and Wildlife Service (USFWS), and the Florida Fish and Wildlife Conservation Commission (FWC) and information on each species is provided in the table below. Based on technical consultation with USFWS North Florida Ecological Services Field office on November 29, 2022 and USFWS South Florida Ecological Field Services office on November 21, 2022, it was determined that suitable habitat for sand and blue tail mole skinks and Audubon's crested caracara were unlikely to exist within the project limits and surveys would not be required (see attached letters). Effect determinations were made using USFWS effect determination keys for wood stork and Eastern indigo snake. To avoid potential impacts to Eastern indigo snakes, the USFWS Standard Protection measures will be implemented. For other species the proposed project activities along with the presence and quality of suitable habitat, historical records of occurrence, and field inspections were used to develop effect determinations. No listed species were observed during field investigations. There is no Critical Habitat present within the project area. No adverse impacts are anticipated to any listed species from the Preferred Alternative. Effect determinations for listed species are provided in **Table 7-11**.

Table 7-11 – Effect Determination of Listed Wildlife Species Occurring in Project Area

Common Name	Scientific Name	Federal Status	State Status	Critical Habitat in Project Area	Effect Determination
Fauna Species					
Audubon's crested caracara	<i>Polyborus plancus audubonii</i>	FT	-	None	No Effect
Blue-tail mole skink	<i>Eumeces egregius lividus</i>	FT	-	None	No Effect
Eastern black rail	<i>Laterallus jamaicensis ssp. jamaicensis</i>	FT	-	None	No Effect
Eastern indigo snake	<i>Drymarchon corais couperi</i>	FT	-	None	NLAA
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	FE	-	None	No Effect
Florida burrowing owl	<i>Athene cunicularia</i>	-	ST	None	NAEA
Florida grasshopper sparrow	<i>Ammodramus savannarum floridanus</i>	FE	-	None	No Effect
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	-	ST	None	NAEA
Florida sandhill crane	<i>Grus canadensis pratensis</i>	-	ST	None	NAEA
Florida sand skink	<i>Neoseps reynoldsi</i>	FT	-	None	No Effect
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	FT	-	None	No Effect
Gopher tortoise	<i>Gopherus polyphemus</i>	-	ST	None	NAEA
Little blue heron	<i>Egretta caerulea</i>	-	ST	None	NAEA
Red-cockaded woodpecker	<i>Picoides borealis</i>	FE	-	None	No Effect
Roseate spoonbill	<i>Platalea ajaja</i>	-	ST	None	No Effect Anticipated
Southeastern American kestrel	<i>Falco sparverius paulus</i>	-	ST	None	NAEA
Tricolored heron	<i>Egretta tricolor</i>	-	ST	None	No Effect Anticipated

**Table 7-12 – Effect Determination of Listed Wildlife Species Occurring in Project Area
(Cont.)**

Common Name	Scientific Name	Federal Status	State Status	Critical Habitat in Project Area	Effect Determination
Wood stork	<i>Mycteria americana</i>	FE	-	None	No Effect
Flora Species					
Beautiful pawpaw	<i>Deeringothamnus pulchellus</i>	FE	-	None	No Effect
Britton's beargrass	<i>Nolina brittoniana</i>	FE	-	None	No Effect
Florida greeneyes	<i>Berlandiera subacaulis</i>	FT	-	None	No Effect
Gray's beaksedge	<i>Rhynchospora grayi</i>	FT	-	None	No Effect
Lewton's polygala	<i>Polygala lewtonii</i>	FE	-	None	No Effect

Notes: FE = Federally Endangered, FT = Federally Threatened; ST = State Threatened, NLAA = Not Likely to Adversely Affect, MANLAA = May Effect, Likely to Adversely Effect, NAEA = No Adverse Effect Anticipated

7.2.5 Essential Fish Habitat

There is no Essential Fish Habitat in the project area thus no impacts are anticipated.

7.2.6 Highway Traffic Noise

A Noise Study Report (NSR) was completed in May 2024 following the Federal Highway Administration (FHWA) and FDOT procedures along with the most recent version of the FDOT PD&E Manual and FDOT Traffic Noise Modeling and Analysis Practitioners Handbook (dated December 1, 2018). The following summarizes the results of the NSR including a description of noise-sensitive areas that may be impacted by the proposed improvements and evaluates noise barriers as an abatement measure for sensitive areas expected to be impacted as a result of the planned improvements. The FHWA has established Noise Abatement Criteria (NAC) for seven land use activity categories. These criteria determine when an impact occurs and when consideration of noise abatement is required. Noise abatement measures must be considered when predicted noise levels approach or exceed the NAC levels or when a substantial noise increase occurs. Following the FDOT procedure, “approach” is defined as within one (1) dB(A) (decibel (dB) using an “A”-scale [dB(A)] weighting) of the FHWA criteria. A substantial noise

increase is defined by FDOT as when the existing noise level is predicted to be exceeded by 15 dB(A) or more as a result of the transportation improvement project.

Land uses surrounding this project corridor consist mainly of commercial land. Very few single-family homes (designated noise sensitive areas) are present within the project areas. All single-family homes present in this project area are located in The Cove, east of SR 535 and adjacent to Old Vineland Road and Kyngs Heath Road. Four (4) hotels with exterior areas of use were also identified within the project area, which include the Golden Link Hotel, Embassy Suites, Hampton Inn, and Buena Vista Suites. Five (5) restaurants with exterior seating were located within the project corridor which include Smokey Bones, Miller's Alehouse, Starbucks, Twistee Treat, and Wendy's. Lastly, the Marriott Golf Course has been identified as a noise sensitive area. Noise sensitive sites along the project limits are illustrated in **Figure 7-15**.

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Figure 7-15 - Noise Sensitive Sites



Traffic noise levels were predicted for design year 2045 along the project corridor for the Existing Conditions, No-Build, and the Preferred Alternative. Throughout the project corridor, 32 single-family homes (Category B/Residential Areas), four (4) hotels along with five (5) restaurants with exterior use (Category E/Outdoor Use Areas) and one (1) non-residential/special use sites consisting of the Marriott Golf Course (Category C/Recreational Area) were designated as noise sensitive sites. Existing condition predicted noise levels for the entire project range from 54.3 dB(A) to 67.8 dB(A). Under No-Build, traffic noise levels for the entire project are predicted to range from 55.5 dB(A) to 68.9 dB(A). Under the Preferred Alternative, traffic noise levels for the entire project are predicted to range from 56.0 dB(A) to 69.2 dB(A). The highest traffic noise level increase between the Existing Condition and the Preferred Alternative is 2.7 dB(A). Therefore, traffic noise levels throughout the project corridor are not expected to substantially increase above the existing conditions.

Throughout the project corridor, only the Marriott Golf Course special land use site would exceed the NAC. Noise abatement is not feasible and/or reasonable at the Marriott Golf Course due to not meeting the requirements for special land use sites which would not meet the occupancy required to consider the noise wall as reasonable. The results of the NSR indicate that noise abatement measures are not reasonable or feasible. For the above reasons, no impacts from noise are anticipated.

7.2.7 Contamination

A Contamination Screening Evaluation Report was prepared to evaluate the potential risk to the project from contamination and is located in the project file. Regulatory databases and field investigations were conducted to identify sites for evaluation. Sites were identified within applicable buffers of the project, including landfills, Comprehensive Environmental Response, Compensation, and Liability Act sites (CERCLA, also known as Superfund), and National Priorities List (NPL) sites within one half-mile of the project, petroleum contamination, drycleaners, and non-petroleum contamination within 500 feet of the project, and non-landfill solid waste sites within 1,000 feet of the project.

A total of 22 sites of potential contamination risk were identified, including 1 High Risk, 8 Medium Risk, and 13 Low Risk sites (see **Table 7-13** - Contamination Site Information). Level II Contamination Assessment investigations will be completed when proposed dewatering or subsurface work (e.g., pole foundations, drainage features, soil excavation, etc.) would occur at or adjacent to any sites rated High or Medium Risk. If dewatering is necessary during construction,

SECTION 7 – DESIGN FEATURES OF THE PREFERRED ALTERNATIVE

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.

Table 7-13 - Contamination Site Information

Risk Rating	Number of Sites	Number of Sites proposed for R/W acquisition
Low	13	0
Medium	8	0
High	1	1

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Appendix A – Geotechnical Data Analysis

March 7, 2024

Metric Engineering, Inc.
13940 S.W. 136 Street
Miami, Florida 33186

Attn: Mr. Paul Carballo, P.E.

**RE: Preliminary Geotechnical Engineering Services Report
SR 535/Vineland Road PD&E Study
from US 192 to North of World Center Drive
Orange and Osceola Counties, Florida
FPID No.: 437174-2-22-01
Tierra Project No.: 5511-19-052**

Mr. Carballo:

Tierra, Inc. (Tierra) has performed preliminary geotechnical services to support the PD&E Study associated with the above referenced project. The results of our study are presented herein.

Review of Published Information

As part of our study, Tierra reviewed soils information obtained from the Soil Survey of Orange and Osceola Counties, Florida published by the United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS) and topographic information obtained from the "Kissimmee, Florida" Quadrangle Map published by the United States Geological Survey (USGS). Reproductions of the **USDA Soil Survey & USGS Quadrangle Maps** for the project vicinity are included in the **Appendix A. A Summary of USDA Soil Survey Information** is also included in **Appendix A**.

Soil Borings

Tierra performed thirty-nine (39) hand auger borings at select locations along the roadway alignment to evaluate the near-surface soil and groundwater conditions and to provide preliminary geotechnical information. In addition, a total of twenty-two (22) Standard Penetration Test (SPT) borings were advanced to depths of 20 feet below existing grades in the areas of the proposed stormwater ponds and FPC sites. The hand auger borings were performed by manually twisting and advancing a bucket auger into the ground, typically in 6-inch increments. The hand auger boring depths ranged from 3 to 10 feet below existing grades. The SPT borings were performed in general accordance with American Society for Testing and Materials (ASTM) Test Designation D-1586 titled "Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils." SPT resistance N-values were taken continuously to a depth of 10 feet and at intervals of 5 feet thereafter to the boring termination depths. The soil samples were sealed in glass jars, labeled and transported to our laboratory for classification by a geotechnical engineer.

The borings were initially located and staked in the field by representatives of Tierra using hand-held, non-survey grade Global Positioning System (GPS) equipment with a manufacturer's reported accuracy of ± 10 feet. The station, offset, and elevation of the borings were based on design files and LiDAR data provided by BCC Engineering, Inc. and GPS coordinates obtained by Tierra, Inc. at the time of fieldwork. The boring locations are presented on the **Boring Location Plan** and **Pond Soil Survey** sheets in **Appendix A**.

In general, the subsurface conditions encountered consisted of sandy soils (A-3/A-2-4) within the boring depths. As an exception, a layer of clayey sand (A-2-6) was encountered at boring AB-3 from a depth of approximately 1.5 to 2.5 feet. Some of the hand auger borings were terminated at depths less than 5 feet below existing grades as a result of borehole collapse due to the shallow groundwater tables. In addition, many of the borings performed within the pond locations encountered intervals of organic sands to muck (A-8). The results of the borings are presented on the **Roadway Soil Profiles** and **Pond Soil Survey** sheets in **Appendix A**.

Laboratory Testing

Representative soil samples collected from the borings were classified and stratified in general accordance with the AASHTO soil classification system. Our classification was based on visual observations, using the results from the laboratory testing as confirmation. The testing performed to date included grain-size analyses, organic content, and natural moisture content determination tests. In addition, environmental corrosion tests were performed on select soil samples to evaluate the corrosive nature of the subsurface soils encountered along the project alignment.

Detailed summaries of the laboratory test results are presented in the **Summary of Laboratory Test Results for Soil Classification** and **Summary of Laboratory Test Results for Environmental Classification** in **Appendix B**.

Seasonal High Groundwater Table Levels

The SHGWT levels at the hand auger boring locations performed along the roadway alignments and within the borings completed within the proposed stormwater ponds and FPC sites were estimated based on a review of the soil samples including natural soil indicators such as stain lines, mottling, the depth to the root layer, measured groundwater levels in the borings, information provided in the USDA Soil Survey published by the NRCS, and the surrounding topography. The estimated SHGWT levels are depicted on the **Roadway Soil Profiles** sheets and **Pond Soil Survey** sheets in **Appendix A** and are summarized in the **Summary of Seasonal High Groundwater Table Estimates for Roadway** and **Summary of Seasonal High Groundwater Table Estimates for Ponds** tables in **Appendix B**.

The SHGWT levels reported in the attached table are estimated historic levels. Man-made influences, such as existing water management ditches, swales, and drainage ponds will affect groundwater levels but are not considered when determining the historical SHGWT. Where appropriate, biological indicators should be used in conjunction with the historic SHGWT levels when setting pavement grades. Once profile and grade lines become available, Tierra requests the opportunity to review the base elevations in relation to the SHGWT estimates.

Preliminary Geotechnical Engineering Services Report
SR 535/Windland Road PD&E Study
from US 192 to North of World Center Drive
Orange and Osceola Counties, Florida
FPID No.: 4371742-22-01
Tierra Project No.: 5511-19-052
Page 3 of 3

Tierra appreciates the opportunity to be of service to Metric and the Florida Department of Transportation (FDOT) on this project. If you have any questions or comments regarding this report, please contact our office at your earliest convenience.

Sincerely,

TIERRA, INC.



Luis A. Almodovar, P.E.
Geotechnical Engineer
Florida License No. 93273



Jeremy A. Sewell, P.E.
Senior Geotechnical Engineer
Florida License No. 62951

This item has been digitally signed and sealed by Jeremy A. Sewell, P.E. 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.

Appendix A

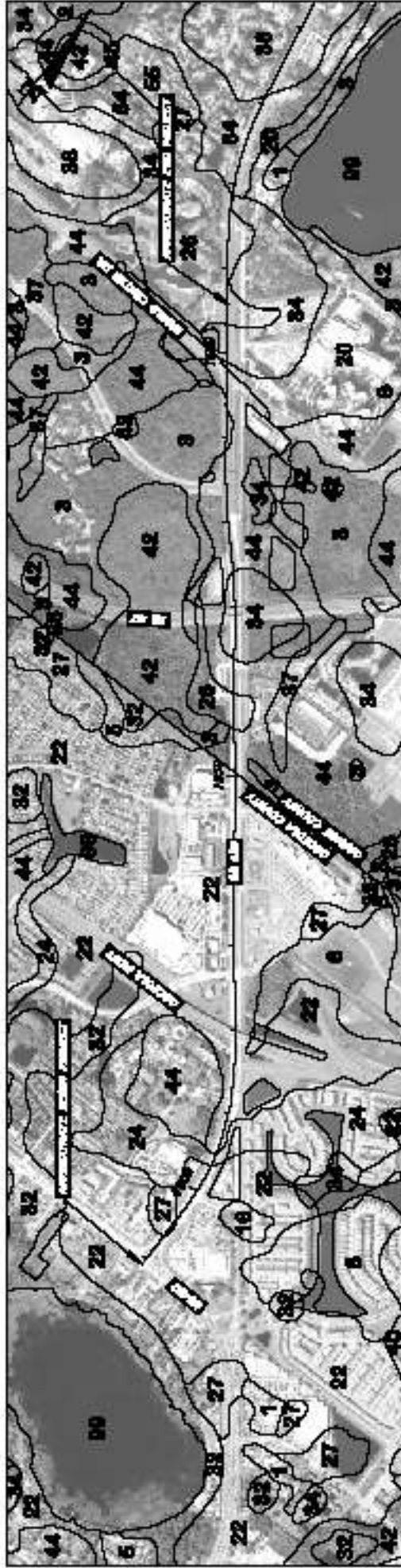
USDA Soil Survey & USGS Quadrangle Maps **(1 Sheet)**
Boring Location Plan **(8 Sheets)**
Roadway Soil Profiles **(1 Sheet)**
Pond Soil Survey **(9 Sheets)**

Appendix B

Summary of USDA Soil Survey Information **(Table 1)**
Summary of Seasonal High Groundwater Table Estimates for Roadway **(Table 2)**
Summary of Seasonal High Groundwater Table Estimates for Ponds and FPC Sites **(Table 3)**
Summary of Laboratory Test Results for Soil Classification **(Table 4)**
Summary of Laboratory Test Results for Environmental Classification **(Table 5)**
Summary of Hydraulic Conductivity Test Results **(Table 6)**

APPENDIX A

USDA Soil Survey & USGS Quadrangle Maps **(1 Sheet)**
Boring Location Plan **(8 Sheets)**
Roadway Soil Profiles **(1 Sheet)**
Pond Soil Survey **(9 Sheets)**



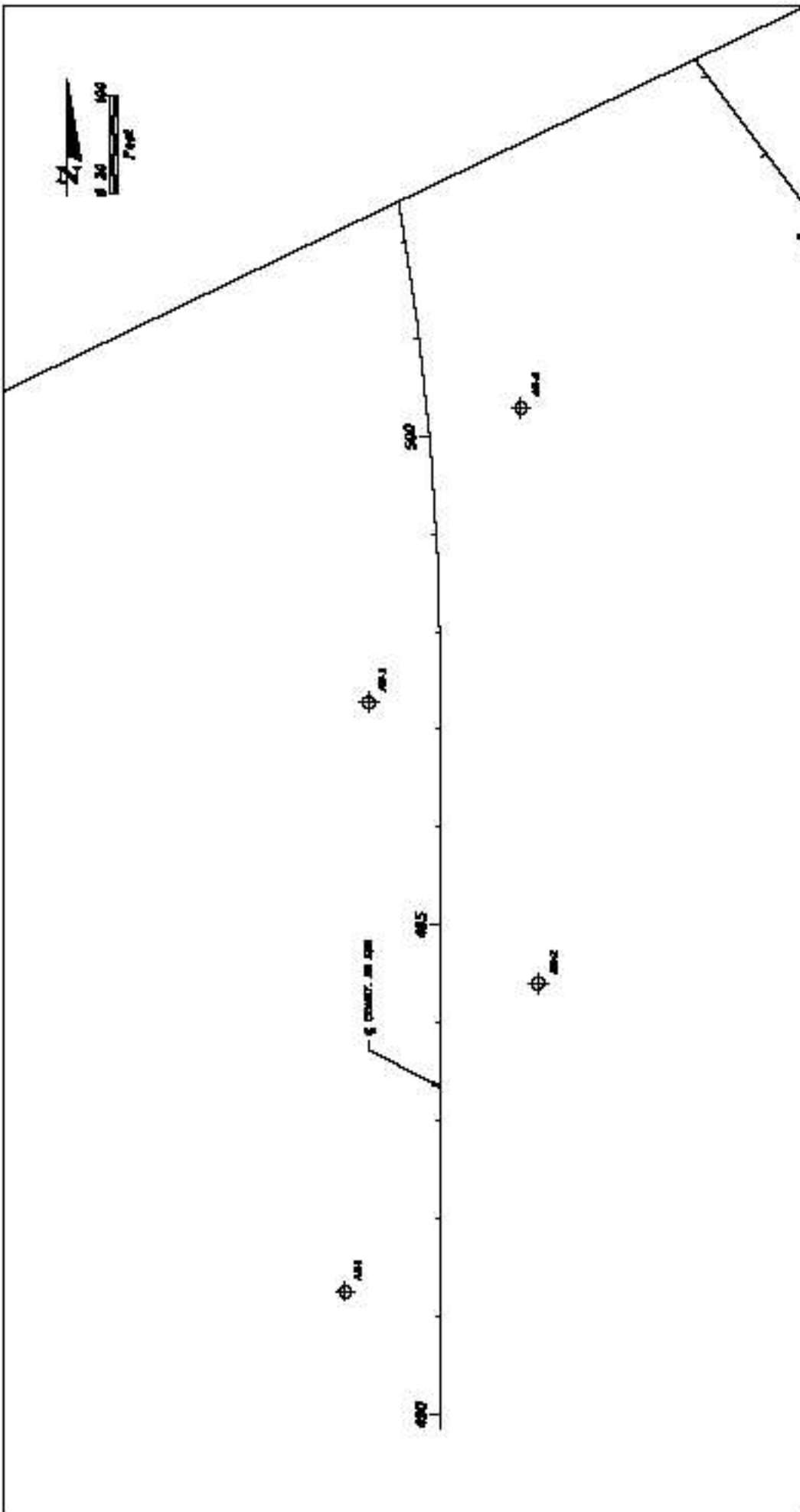
REFERENCE: USDA SOIL SURVEY OF OSCOLA AND ORANGE COUNTIES, FLORIDA



REFERENCE: USDA QUADRANGLE MAP OF WIMSUHAM, FLORIDA

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 RANGE: 28W
 SECTION: 34, 35, 2

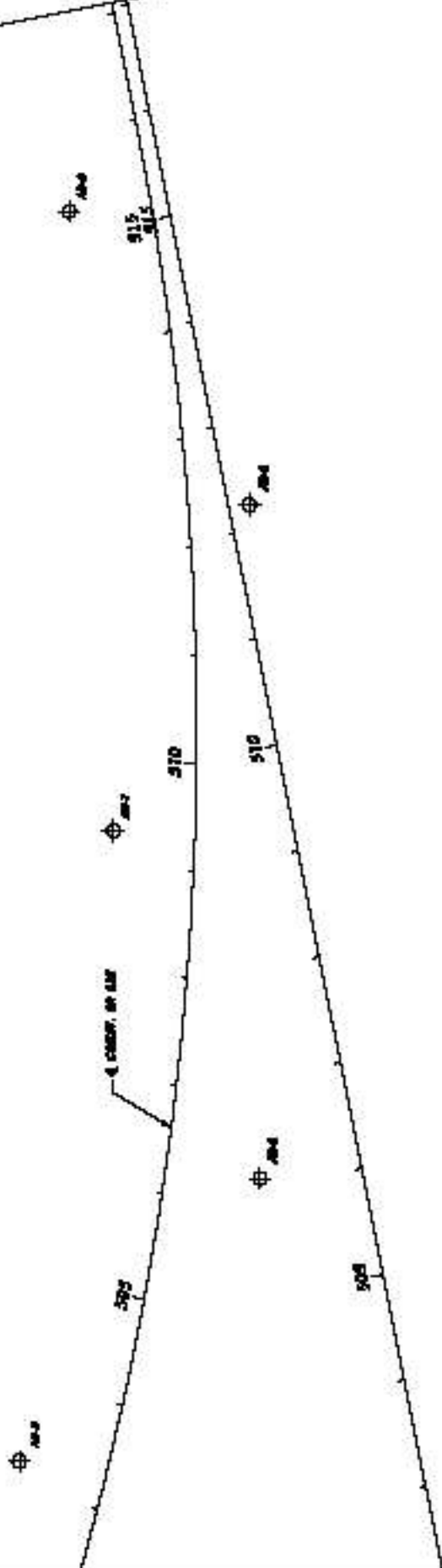
ARNOLD A. BOWEN, P.E. P.E. License No. 12345 FLSA, INC. 100 JOYCE A. SMITH COURT WINTER GARDEN, FLORIDA 32787 PHONE: 352-201-1234		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. 1234 COUNTY ORANGE AREA 1234-5678		USDA SOIL SURVEY & USGS QUADRANGLE MAP		SHEET NO.	
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LEGEND

⊕ APPROXIMATE BORING POSITION LOCATIVE

PROJECT: STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. 190 COUNTY DADE DISTRICT VI CONTRACT NO. 190-1-1-1-1		BORING LOCATION PLAN (J) <small>DATE PLOTTED: 11/15/66</small>	SHEET NO. 10 OF 10
ENGINEER: ARTHUR A. BARNETT, P.E. P.E. License No. 10000 (Exp. 12/31/68) Y2 ENGINEERING, INC. 1801 JAYWALK AVE. SUITE 200 MIAMI GARDENS, FLORIDA 33157 PHONE: 305-436-1111			

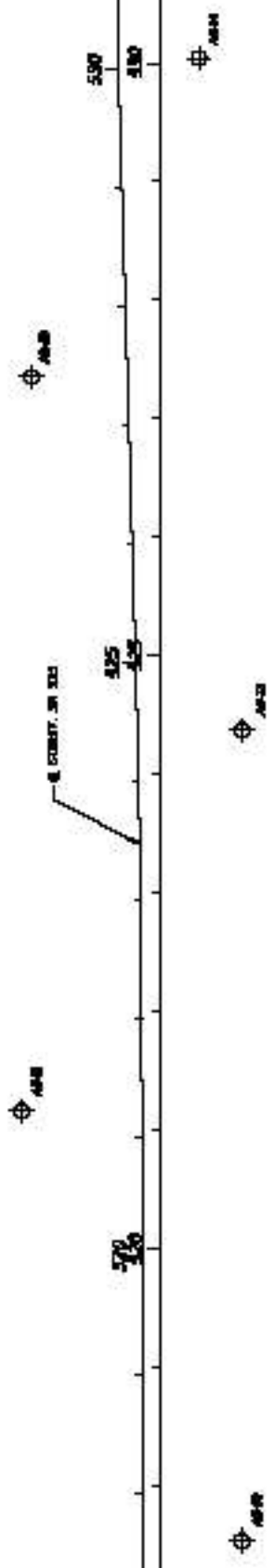


LEGEND

⊕ PROPOSED MANHOLE LOCATION

DATE	REVISION	DRAWN	CHECKED	APPROVED	ARNOLD A. BIRNELL, P.E. P.E. License Expires 06/30/2025 T22834, INC. 390 JAYNE A. SMITH COURT WINTER GARDEN, FLORIDA 32787 PHONE: 888.877.7478	TITLE OF PROJECT BORING LOCATION PLAN (B)			SHEET NO. 01
						PROJECT NO. 24-001	COUNTY HAWAII	DISTRICT HAWAII	

THIS DOCUMENT PREPARED UNDER CONTRACT BY THE PROFESSIONAL ENGINEER LICENSED IN THE STATE OF HAWAII.

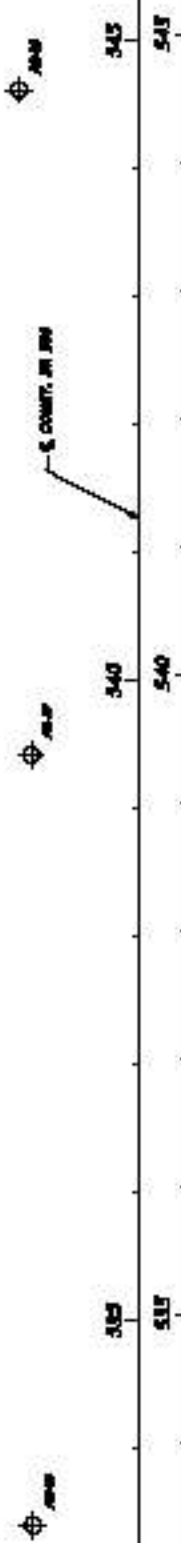


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			DRAWN BY 12345	CHECKED BY 12345	
PROJECT LOCATION 12345 12345 12345			COUNTY 12345	STATE 12345	SCALE 1" = 10'

THIS DOCUMENT IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE



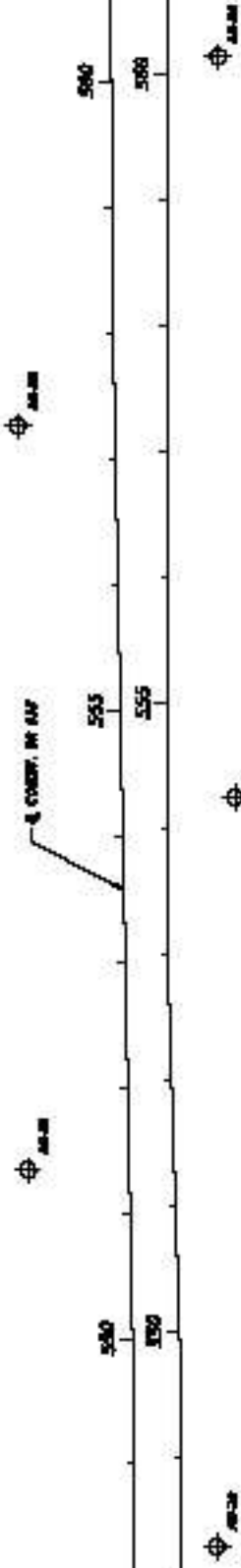
M.M.P.

M.M.P.

LEGEND

⊕ APPROPRIATE AGENCIES FROM LOCATIONS

ARNOLD A. BARNETT, P.E. P.E. License No. 12000 (0000) TALLAHASSEE, FLORIDA 100 JOYCE A. SMITH COURT BRUNSWICK, FLORIDA 32009 PHONE: 904-777-1111		POLINE OF FLORIDA DEPARTMENT OF TRANSPORTATION TALLAHASSEE, FLORIDA 100 JOYCE A. SMITH COURT BRUNSWICK, FLORIDA 32009 PHONE: 904-636-1111		SHEET NO.
DATE:		PROJECT:		BORING LOCATION PLAN (P)
SCALE:		DRAWING NO.:		SHEET NO.

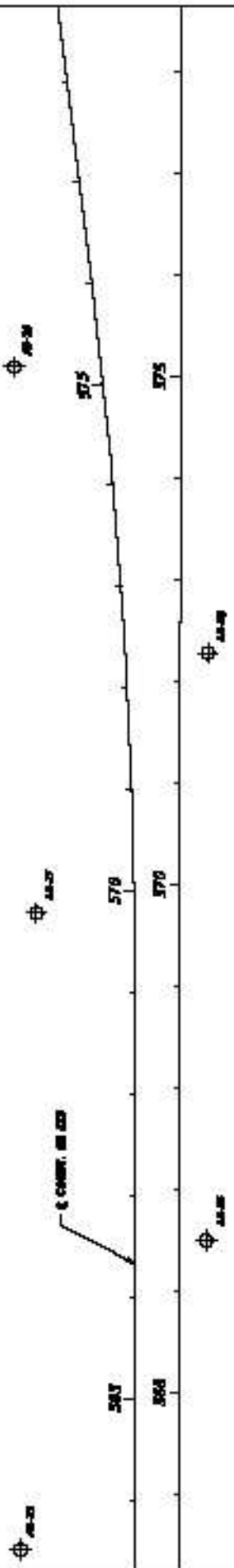


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				DATE 11/15/78	DRAWN BY M. J.					

THIS DOCUMENT PREPARED UNDER CONTRACT BY THE FEDERAL BUREAU OF SURVEYING



LEGEND

⊕ APPROXIMATE AROUND BOREHOLE LOCATION

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				TRENDA, INC. 100 JOYCE A. SMITH COURT WINTER GARDEN, FLORIDA 32787 PHONE: 888-747-7474		ROAD NO. 200	COUNTY POLK		

THIS DOCUMENT PREPARED UNDER CONTRACT BY THE POLK COUNTY TRANSPORTATION DEPARTMENT.



MB-33

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E. CORNER OF LOT 2

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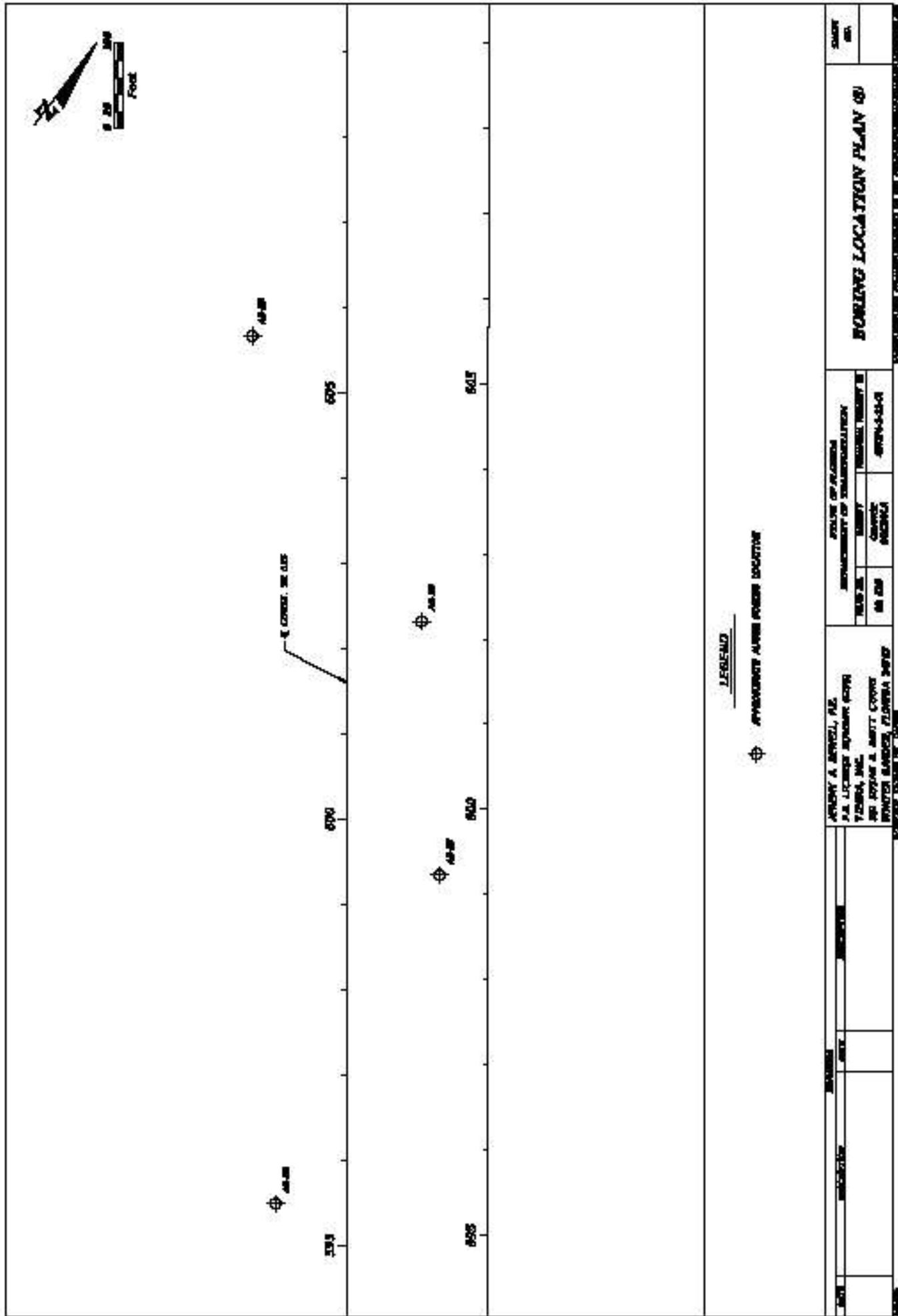
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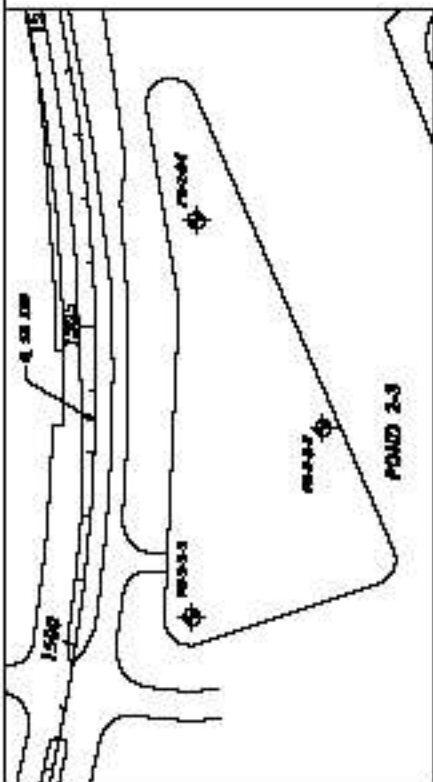
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⊕ APPROPRIATE ADJACENT PROPERTY

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				DATE 08/28/2024	DRAWN BY J. BOWEN	CHECKED BY J. BOWEN	APPROVED BY J. BOWEN	PROJECT NO. 2024-001	SHEET NO. 01-01		



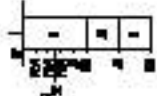
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ENGINEER J. M. LITTLE, P.E. P.E. License No. _____ FLSA, INC. 100 JEFFERSON A. BUILDING JACKSONVILLE, FLORIDA 32202 PHONE: 904-364-4400		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION TALLAHASSEE OFFICE TRAVELER SERVICE CENTER PROJECT NO. _____ SECTION NO. _____			
DATE _____		BORING LOCATION PLAN (B) THIS DRAWING IS THE PROPERTY OF THE STATE OF FLORIDA. IT IS TO BE KEPT AS A RECORD OF THE PROJECT.			



BOUNING LOCATION PLAN

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- 4.3. ALIGNED BOUNDING POINTS AS INDICATED BY THE BOUNDING POINT WITH S&W 14-4
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BOUNDING POINT 19	BOUNDING POINT 20	BOUNDING POINT 21
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BOUND 2-3

STATE OF FLORIDA	DEPARTMENT OF TRANSPORTATION
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SECTION	SECTION
STATION	STATION

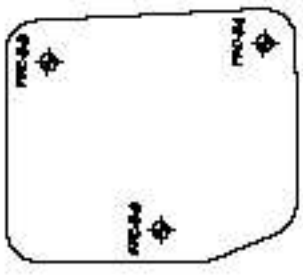
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 P.E. License No. 12345
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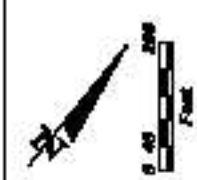
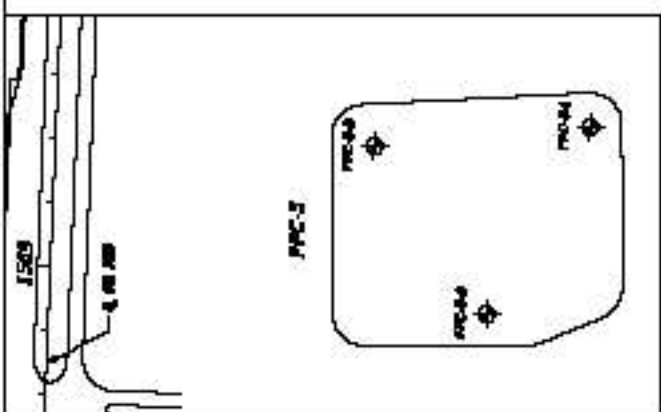
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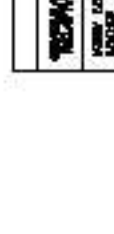
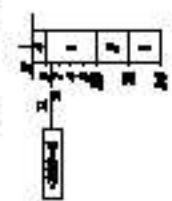
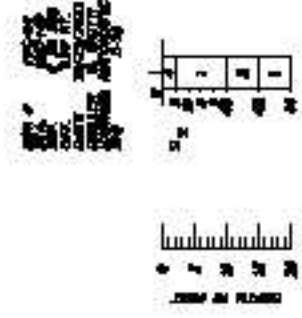
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BONDING LOCATION PLAN



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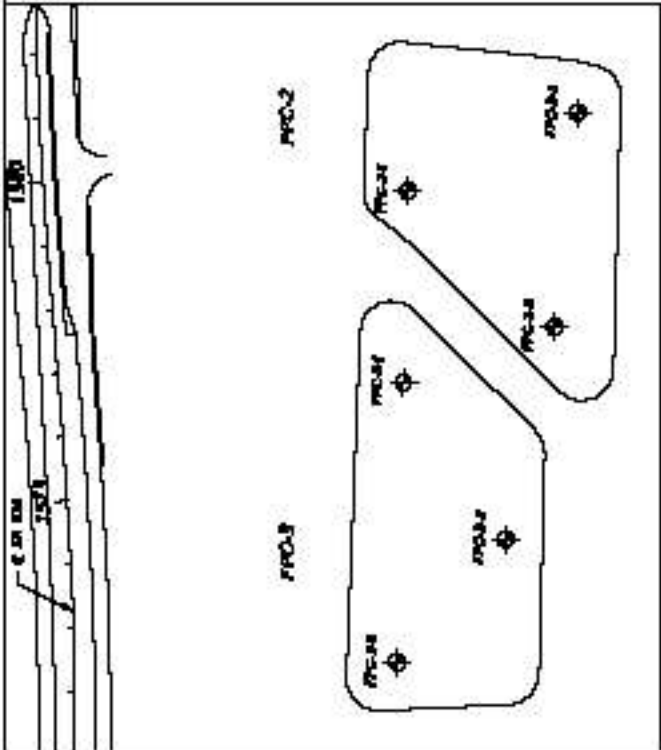
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POND SOIL SURVEYS		

TITLE OF PROJECT		
REVISIONS		
DATE	BY	REVISION

ANDREW A. BOWEN, P.E.
P.E. License No. 100000000000
VEKOR, INC.
200 JAYNE & ARMIT COURT
MORNING STAR, FLORIDA 33109
TEL: 305-444-1111

DATE: _____
SCALE: _____

NO.	DATE	REVISION
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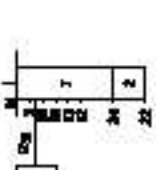
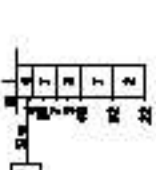


SOURCE LOCATION PLAN

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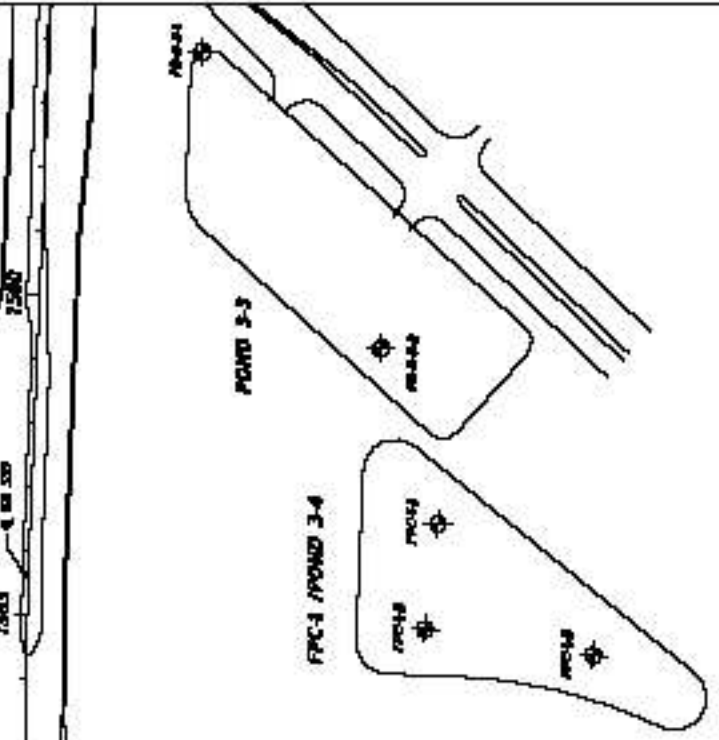


FPC-3

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FUND SOURCE SURVEY 140			
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[Owner Name]		[Engineer Name]	
CLIENT		PROJECT LOCATION	
[Client Name]		[Project Location]	
PROJECT DESCRIPTION			
[Project Description]			
PROJECT BOUNDARY			
[Project Boundary]			
PROJECT AREA			
[Project Area]			
PROJECT COST			
[Project Cost]			
PROJECT RISK			
[Project Risk]			
PROJECT SUMMARY			
[Project Summary]			

LEGEND

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2. MARK POINTS TO BE DRILLED WITH TELL TAP
3. DEMONSTRATION POINTS SHALL BE DRILLED WITH TELL TAP
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- 4.3. ALL MARK POINTS SHALL BE REFERRED TO MARK POINT (A-A)
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6. POINTS TO BE DRILLED AT VARIOUS INTERVALS THROUGHOUT THE PROJECT PERIOD
7. POINTS TO BE DRILLED AT VARIOUS INTERVALS THROUGHOUT THE PROJECT PERIOD
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9. POINTS TO BE DRILLED AT VARIOUS INTERVALS THROUGHOUT THE PROJECT PERIOD



BORING LOCATION PLAN

TESTING POINT	TEST NAME	TEST NUMBER	TEST DATE
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PNC-33	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-34	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-35	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-36	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-37	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-38	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-39	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-40	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-41	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-42	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-43	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-44	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-45	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-46	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-47	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-48	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-49	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-50	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-51	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-52	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-53	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-54	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-55	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-56	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-57	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-58	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-59	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-60	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-61	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-62	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-63	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-64	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-65	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
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PNC-67	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-68	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-69	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-70	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-71	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-72	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-73	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-74	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-75	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-76	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-77	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-78	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-79	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING
PNC-80	WATER SAMPLING	WATER SAMPLING	WATER SAMPLING



POND 3-3

POND SOIL SURVEY

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

ROADWAY

SECTION

PROJECT NO.

DATE

BY

SCALE

PROJECT NO.

DATE

BY

SCALE

PROJECT NO.

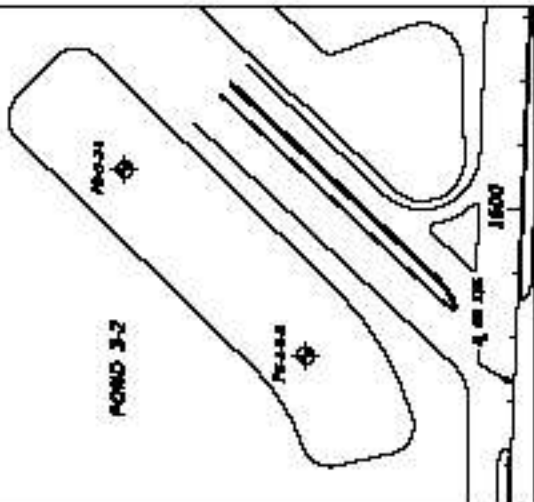
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BY

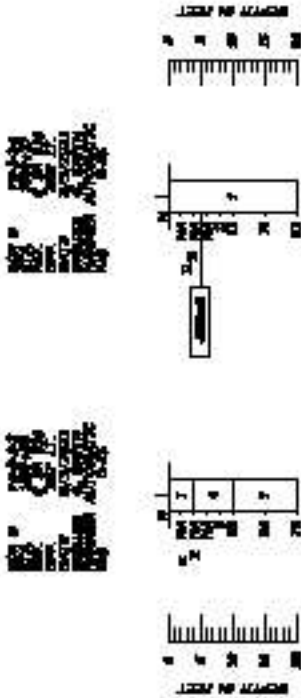
SCALE

LEGEND

- 1. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 2. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 3. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 4. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 5. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 6. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 7. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 8. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 9. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 10. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 11. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 12. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 13. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 14. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 15. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 16. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 17. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 18. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 19. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.
- 20. BOUNDARY TO BE REMOVED AND CORNER MARKERS TO BE SET TO MARK WITH 1/2" x 1/2" x 1/4" STAINLESS STEEL ANGLES TO BE SET IN 18" DIA. CONCRETE SETS 6" x 6" x 6" IN PLACE.



TRACT NAME	TRACT NUMBER	ACTIVITY NUMBER	ACTIVITY NAME
TRACT 1	1	100	ACTIVITY 1
TRACT 2	2	200	ACTIVITY 2
TRACT 3	3	300	ACTIVITY 3
TRACT 4	4	400	ACTIVITY 4
TRACT 5	5	500	ACTIVITY 5
TRACT 6	6	600	ACTIVITY 6
TRACT 7	7	700	ACTIVITY 7
TRACT 8	8	800	ACTIVITY 8
TRACT 9	9	900	ACTIVITY 9
TRACT 10	10	1000	ACTIVITY 10



POND 3-2

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

PROJECT NO. 10000000000000000000
SECTION NO. 00000000000000000000

DATE: 10/1/2000
BY: J. A. BROWN, P.E.
CHECKED BY: J. A. BROWN, P.E.

PROJECT TITLE: POND 3-2 SURVEY '90

SCALE: AS SHOWN

APPENDIX B

Summary of USDA Soil Survey Information **(Table 1)**

Summary of Seasonal High Groundwater Table Estimates for Roadway **(Table 2)**

Summary of Seasonal High Groundwater Table Estimates for Ponds and FPC Sites **(Table 3)**

Summary of Laboratory Test Results for Soil Classification **(Table 4)**

Summary of Laboratory Test Results for Environmental Classification **(Table 5)**

Summary of Hydraulic Conductivity Test Results **(Table 6)**

Table 1

Summary of USDA NRCS Soil Survey of Orange and Osceola Counties, Florida

SR 535/Wineand Road from US192 to north of World Center Drive

Orange and Osceola Counties, Florida

FPID: 437174-2-22-01

Tierra Project No. 5911-19-052

USDA Map Unit and Soil Name	Soil Classification				pH	Seasonal High Water Table		Risk of Corrosion	
	Depth (in)	USCS	AA-SHTO	Permeability (in/hr)		Depth (feet)	Months	Uncoated Steel	Concrete
(3) Basinger fine sand, frequently ponded, 0 to 1 percent silts	0-80	SP, SM, SM	A-3, A-2-4	6.0 - 20.0	3.5-7.3	+2.0-0.0	Jan-Feb, Jun-Dec	Moderate	High
	0-35	SP, SP, SM	A-3	6.0 - 20.0	4.5-5.5				
	35-67	SP, SM, SM	A-3, A-2-4	0.6 - 2.0	4.5-5.5	0.5-1.0	July-Sept	High	High
(20) Immokalee fine sand	67-80	SP, SP, SM	A-3	6.0 - 20.0	4.5-5.5				
	0-4	SP, SM, SM	A-3, A-2-4	6.0 - 20.0	4.5-6.0				
	4-22	SP, SM, SM	A-3, A-2-4	0.6 - 2.0	4.5-6.0				
(26) Ona fine sand, 0 to 2 percent silts	22-80	SP, SM, SM	A-3, A-2-4	6.0 - 20.0	4.5-6.0				
	0-47	SP, SM	A-3	> 20.0	4.5-6.0				
	47-58	SP, SM	A-2-4	0.6 - 6.0	4.3-6.0				
(34) Pomello fine sand, 0 to 5 percent silts	58-65	SP, SM	A-3	0.6 - 6.0	4.5-6.0				
	65-80	SP	A-3	6.0 - 20.0	4.0-6.0				
	0-11	PT	A-8	6.0 - 20.0	3.5-7.3				
(42) Samibel muck	11-80	SP, SP, SM	A-3	6.0 - 20.0	3.5-7.3				
	0-4	SP, SM, SP, SM	A-2-4	6.0 - 20.0	3.5-4.4				
	4-17	SP, SP, SM	A-3, A-2-4	6.0 - 20.0	3.5-4.6				
(44) Smyrna fine sand, 0 to 2 percent silts	17-27	SP, SM, SM	A-2-4	0.6 - 6.0	3.5-5.5				
	27-80	SP, SP, SM	A-3, A-2-4	6.0 - 20.0	5.1-6.0				
						+1.0-0.0	June-Sept	High	Moderate
						0.0-3.5	June-Sept	High	High

Table 1

Summary of USDA NRCS Soil Survey of Orange and Osceola Counties, Florida
 SR 535W Inland Road from US 192 to north of World Center Drive
 Orange and Osceola Counties, Florida

FPID: 437174-2-22-01

Tierra Project No. 5911-19-052

USDA Map Unit and Soil Name	Soil Classification			pH	Seasonal High Water Table		Risk of Corrosion		
	Depth (in)	USCS	AA-SHTO		Permeability (in/hr)	Depth (feet)	Months	Uncoated Steel	Concrete
(6) Basinger fine sand, depressional, 0 to 1 percent slopes	0-3	SP, SM	A-2-4	6.0 - 80.0	3.5-7.3	+2.0-0.0	Jan-Feb, May-Dec	Moderate	Moderate
	3-8	SP, SP-SM	A-2-4, A-3	6.0 - 50.0	3.5-7.3				
	8-24	SP, SP-SM	A-2-4, A-3	6.0 - 50.0	3.5-7.3				
	24-80	SP, SP-SM	A-3	6.0 - 50.0	3.5-7.3				
(22) Myakka fine sand, 0 to 2 percent slopes	0-20	SP-SM, SM	A-3, A-2-4	6.0 - 20.0	3.5-6.5	0.5-1.5	June-Nov	High	High
	20-36	SP-SM, SM	A-2-4, A-3	0.6 - 6.0	3.5-6.5				
	36-80	SP-SM, SM	A-3, A-2-4	6.0 - 20.0	3.5-6.5				
(24) Narocsee fine sand, 0 to 2 percent slopes	0-22	SM, SP-SM	A-2-4	6.0 - 20.0	3.5-6.0	2.0-3.5	June-Nov	Low	High
	22-26	SP-SM, SM	A-2-4, A-3	2.0 - 6.0	3.5-6.0				
	26-80	SP-SM, SM	A-2-4	6.0 - 20.0	3.5-6.0				
(27) Ona fine sand, 0 to 2 percent slopes	0-4	SP-SM, SM	A-2-4, A-3	6.0 - 20.0	4.5-6.0	0.5-1.5	June-Nov	High	High
	4-22	SM, SP-SM	A-2-4, A-3	0.6 - 2.0	4.5-6.0				
	22-80	SP-SM, SM	A-2-4, A-3	6.0 - 20.0	4.5-6.0				

Osceola County, Florida

TABLE 2

Summary of Seasonal High Groundwater Table Estimates for Roadway
 S.R. 535 PD&E Study from U.S. 192 to North of World Center Drive
 Orange and Osceola Counties, Florida

FPN: 437174-2-22-01

Terra Project No.: 5511-19-032

Boring Number	Boring Location ⁽¹⁾ C/L SR 535		Boring Depth ⁽²⁾ (feet)	Ground ⁽³⁾ Surface Elevation (feet)	Measured GWT		Date Groundwater Table Recorded	USDA Soil Survey		Estimated SHG WPT ⁽⁴⁾ Elevation NAVD 88 (feet)	
	Station (feet)	Offset (feet)			Depth Below Ground Surface (feet)	Elevation NAVD 88 (feet)		Soil Map Unit	SHG WPT Depth ⁽⁵⁾ (feet)		Depth Below Ground Surface (feet)
AB - 1	491+26	97 LT	5.0	81.7	4.0	77.7	8/17/2021	22	0.5-1.5	3.0	78.7
AB - 2	494+41	100 RT	5.5	81.6	4.0	77.6	8/12/2021	22	0.5-1.5	2.5	79.1
AB - 3	497+28	73 LT	6.0	84.7	5.0	79.7	8/17/2021	2327	0.5-1.5	4.5	80.2
AB - 4	500+19	95 RT	6.0	82.1	4.0	78.1	8/12/2021	22	0.5-1.5	3.0	79.1
AB - 5	503+26	81 LT	4.5	81.8	3.2	78.6	8/17/2021	2324	0.5-1.52,0-3.5	2.0	79.8
AB - 6	506+26	88 RT	6.0	81.7	4.5	77.2	8/12/2021	2324	0.5-1.52,0-3.5	3.5	78.2
AB - 7	509+34	76 LT	4.5	81.0	2.5	78.5	8/17/2021	22	0.5-1.5	1.5	79.5
AB - 8	512+35	58 RT	10.0	86.3	8.0	78.3	8/12/2021	22	0.5-1.5	7.0	79.3
AB - 9	515+26	76 LT	4.5	83.7	4.0	79.7	8/17/2021	22	0.5-1.5	3.0	80.7
AB - 10	517+60	84 RT	7.5	83.5	6.5	77.0	8/12/2021	22	0.5-1.5	4.0	79.5
AB - 11	521+22	102 LT	4.0	82.4	2.5	79.9	8/17/2021	22	0.5-1.5	1.5	80.9
AB - 12	524+41	88 RT	5.5	82.4	3.0	79.4	8/12/2021	22	0.5-1.5	2.0	80.4
AB - 13	527+44	80 LT	4.5	82.7	1.2	81.5	8/17/2021	22	0.5-1.5	0.0	82.7
AB - 14	530+06	68 RT	3.5	83.6	1.5	82.1	8/12/2021	22	0.5-1.5	0.5	83.1
AB - 15	533+41	83 LT	4.0	83.6	1.2	82.4	8/17/2021	22	0.5-1.5	0.5	83.1
AB - 16	536+17	116 RT	8.0	86.8	5.0	81.8	8/12/2021	22	0.5-1.5	4.0	82.8
AB - 17	539+42	85 LT	4.5	85.9	2.5	83.4	8/17/2021	22	0.5-1.5	1.5	84.4
AB - 18	542+35	79 RT	4.0	83.9	1.5	82.4	8/12/2021	22	0.5-1.5	0.0	83.9
AB - 19	544+62	94 LT	3.5	85.3	1.8	83.5	8/17/2021	22	0.5-1.5	1.0	84.3
AB - 20	548+35	66 RT	4.0	86.0	1.5	84.5	8/12/2021	22	0.5-1.5	0.5	85.5

Osceola County

TABLE 2
Summary of Seasonal High Groundwater Table Estimates for Roadway
S.R. 535 PD&E Study from U.S. 192 to North of World Center Drive
Orange and Osceola Counties, Florida
FPN: 437174-2-22-01

Terra Project No. 5511-19-032

Boring Number	Boring Location ¹⁾ C/L SR 535		Boring Depth ²⁾ (feet)	Ground ¹⁾ Surface Elevation (feet)	Measured GWT		Date Groundwater Table Recorded	USDA Soil Survey		Estimated SHG WPT ³⁾ Elevation NAVD 88 (feet)	
	Station (feet)	Offset (feet)			Depth Below Ground Surface (feet)	Elevation NAVD 88 (feet)		Soil Map Unit	SHG WPT Depth ⁴⁾ (feet)		Depth Below Ground Surface (feet)
AB - 21	551+26	81 LT	3.5	86.3	1.5	84.8	8/17/2021	44	0.0-3.5	0.5	85.8
AB - 22	554+28	90 RT	4.0	89.2	3.0	86.2	8/13/2021	44	0.0-3.5	2.5	86.7
AB - 23	557+27	77 LT	5.0	87.3	2.5	84.8	8/17/2021	26	0.5-1.5	1.5	85.8
AB - 24	560+20	85 RT	4.5	87.4	3.2	84.2	8/13/2021	44	0.0-3.5	2.0	85.4
AB - 25	563+51	113 LT	4.5	89.3	3.2	86.1	8/16/2021	44	0.0-3.5	2.0	87.3
AB - 26	566+96	70 RT	4.0	90.3	2.5	87.8	8/13/2021	34	2.0-3.5	1.5	88.8
AB - 27	569+80	97 LT	5.0	91.0	2.0	89.0	8/16/2021	3444	2.0-3.5/0.0-3.5	1.0	90.0
AB - 28	572+29	81 RT	4.0	90.4	1.2	89.2	8/13/2021	34	2.0-3.5	0.0	90.4
AB - 29	575+26	85 LT	4.0	89.6	1.3	88.3	8/16/2021	44	0.0-3.5	0.0	89.6
AB - 30	579+30	120 RT	5.0	91.6	3.0	88.6	8/13/2021	44	0.0-3.5	2.0	89.6
AB - 31	581+30	68 LT	10.0	94.9	7.5	87.4	8/16/2021	44	0.0-3.5	6.5	88.4
AB - 32	584+26	95 RT	4.5	91.3	3.3	88.0	8/16/2021	44	0.0-3.5	2.5	88.8
AB - 33	587+05	84 LT	4.0	93.9	3.5	90.4	8/16/2021	344	+2.0-0.0/0.0-3.5	2.5	91.4
AB - 34	590+10	78 RT	3.5	92.2	3.0	89.2	8/16/2021	344	+2.0-0.0/0.0-3.5	1.5	90.7
AB - 35	593+29	80 LT	3.0	94.0	2.0	92.0	8/16/2021	3	+2.0-0.0	1.0	93.0
AB - 36	595+49	83 LT	4.0	94.5	3.5	91.0	8/16/2021	3	+2.0-0.0	2.5	92.0
AB - 37	599+35	109 RT	3.5	95.6	1.0	94.6	8/16/2021	34	2.0-3.5	0.0	95.6
AB - 38	602+32	87 RT	3.5	96.5	2.7	93.8	8/16/2021	34	2.0-3.5	1.5	95.0
AB - 39	605+67	111 LT	4.0	97.9	2.7	95.2	8/16/2021	26	0.5-1.5	1.5	96.4

¹⁾ Boring locations and ground surface elevations were provided by WBC Design & Engineering, Inc.

²⁾ Depth below existing grades at time of field services.

³⁾ Seasonal high groundwater table depth reported in the Soil Survey of Orange and Osceola Counties, Florida published by the USDA/NRCS.

⁴⁾ Seasonal high groundwater table depth estimated based on soil stratigraphy, measured groundwater levels from the borings.

the USDA/NRCS Soil Survey information, and surrounding topography.

TABLE 3

Summary of Seasonal High Groundwater Table Estimates for Ponds and FPC Sites
 SR 535 PD&E Study from US 192 to North of World Center Drive
 Orange and Osceola Counties, Florida

FPN: 437174-2-22-01

Tierra Project No.: 5511-19-052

Boring Number	Boring Location ⁽¹⁾		Boring Depth ⁽²⁾ (feet)	Ground Surface Elevation NAVD83 ⁽¹⁾ (feet)	Measured GWT		Date Groundwater Table Recorded	USDA Soil Survey		Estimated SHGWT ⁽⁴⁾	
	Station	Offset			Depth Below Ground Surface (feet)	Elevation NAVD83 (feet)		Soil Map Unit	SHGWT Depth ⁽³⁾ (feet)	Depth Below Ground Surface (feet)	Elevation NAVD83 (feet)
OSCEOLA COUNTY											
Pond 2-3											
PB - 2-3-1	1506+51	165' RT.	20.0	85.0	7.7	77.3	10/02/2023	24	2.0-3.5	7.0	78.0
PB - 2-3-2	1503+49	356' RT.	20.0	82.2	6.0	76.2	10/02/2023	22	0.5-1.5	4.2	78.0
PB - 2-3-3	1500+65	173' RT.	20.0	82.4	5.2	77.2	10/26/2023	22	0.5-1.5	3.5	78.9
ORANGE COUNTY											
Pond 3-2											
PB - 3-2-1	1600+37	622' LT.	20.0	95.7	4.4	91.3	11/3/2023	26	0.5-1.5	3.5	92.2
PB - 3-2-2	1597+58	327' LT.	20.0	94.7	4.6	90.1	11/3/2023	44	0.0-3.5	2.8	91.9
Pond 3-3											
PB - 3-3-1	1593+91	239' RT.	20.0	97.7	6.3	89.4	10/26/2023	44	0.0-3.5	7.0	90.7
PB - 3-3-2	1598+39	536' RT.	20.0	96.0	6.5	89.5	10/26/2023	44	0.0-3.5	5.5	90.5
Pond 4-2											
PB - 4-2-1	1585+38	198' LT.	20.0	92.4	3.3	89.1	10/26/2023	44	0.0-3.5	1.2	91.2
FPC - 1											
FPC - 1-1	1586+69	637' RT.	20.0	92.2	1.7	90.5	10/23/2023	44	0.0-3.5	1.3	90.9
FPC - 1-2	1584+92	622' RT.	20.0	91.9	1.5	90.4	10/23/2023	44	0.0-3.5	1.2	90.7
FPC - 1-3	1584+51	886' RT.	20.0	91.6	1.0	90.6	10/23/2023	42	+1.0-2.0	0.5	91.1
FPC - 2											
FPC - 2-1	1579+45	569' RT.	20.0	91.1	1.7	89.4	10/20/2023	44	0.0-3.5	1.4	89.7
FPC - 2-2	1577+08	780' RT.	20.0	90.6	1.0	89.6	10/20/2023	44	0.0-3.5	0.7	89.9
FPC - 2-3	1580+65	841' RT.	20.0	91.2	1.8	89.4	10/20/2023	3	+2.0-0.0	1.3	89.9

TABLE 3

Summary of Seasonal High Groundwater Table Estimates for Ponds and FPC Sites
 SR 535 PDES Study from US 192 to North of World Center Drive
 Orange and Osceola Counties, Florida

FPN: 437174-2-22-01

Tierra Project No.: 5511-19-052

Boring Number	Boring Location ⁽¹⁾		Boring Depth ⁽²⁾ (feet)	Ground Surface Elevation NAVD83 ⁽¹⁾ (feet)	Measured GWT		Date Groundwater Table Recorded	USDA Soil Survey		Estimated SHGM ⁽⁴⁾	
	Station	Offset			Depth Below Ground Surface (feet)	Elevation NAVD83 (feet)		Soil Map Unit	SHGWT Depth ⁽³⁾ (feet)	Depth Below Ground Surface (feet)	Elevation NAVD83 (feet)
FPC - 3											
FPC - 3-1	1576+41	537' RT.	20.0	90.6	1.4	89.2	10/20/2023	44	0.0-3.5	1.2	89.4
FPC - 3-2	1572+38	504' RT.	20.0	90.6	2.1	88.5	10/20/2023	34/44	2.0-3.5/0.0-3.5	1.7	88.9
FPC - 3-3	1574+07	680' RT.	20.0	90.6	1.7	88.9	10/20/2023	44	0.0-3.5	1.3	89.3
FPC - 4											
FPC - 4-1	1574+84	192' LT.	20.0	87.0	2.2	84.8	11/3/2023	44	0.0-3.5	0.0	87.0
FPC - 4-2	1571+52	488' LT.	20.0	89.4	3.5	85.9	11/3/2023	3	+2.0-0.0	1.0	88.4
FPC - 5											
FPC - 5-1	1567+49	634' RT.	20.0	89.6	3.3	85.8	10/23/2023	34/44	2.0-3.5/0.0-3.5	2.5	87.1
FPC - 5-2	1567+06	498' RT.	20.0	89.6	4.3	85.3	10/23/2023	34	2.0-3.5	2.0	87.6
FPC - 5-3	1564+51	684' RT.	20.0	88.7	4.3	84.4	10/23/2023	44	0.0-3.5	2.0	86.7

⁽¹⁾ Station, offset, and elevation of the borings were based on design files and LIDAR data provided by BCC Engineering, Inc. and GPS coordinates obtained by Tierra, Inc. at the time of fieldwork.

⁽²⁾ Depth below existing grades at time of field services.

⁽³⁾ Seasonal high groundwater table depth reported in the Soil Survey of Orange and Osceola Counties, Florida published by the US DNR RCS.

⁽⁴⁾ Seasonal high groundwater table depth estimated based on soil stratigraphy, measured groundwater levels from the borings, the USDA NRCS Soil Survey information, and surrounding topography.

TABLE 6

Summary of Laboratory Test Results for Environmental Classification
 SR 535 PD&E Study from US192 to North of World Center Drive
 Orange and Osceola Counties, Florida
 FPN: 437174-2-22-01
 Tierra Project No. 5511-19-052

Boring Name	Depth (ft)	AA SHTO Symbol	Stratum Number	pH	Resistivity (ohm-cm)	Chlorides (ppm)	Sulfates (ppm)	Environmental Classification	
								Steel Substructure	Concrete Substructure
AB-15	1.0 - 2.0	A-3	1	7.4	28,000	30	< 5	Slightly Aggressive	Slightly Aggressive
AB-24	1.0 - 2.0	A-3	1	7.2	20,000	45	< 5	Slightly Aggressive	Slightly Aggressive
AB-34	1.0 - 2.0	A-3	1	6.8*	27,000	45	< 5	Moderately Aggressive	Slightly Aggressive
PB-2-3-3	0.0 - 4.5	A-3	1	7.4	72,000	30	< 5	Slightly Aggressive	Slightly Aggressive
PB-3-2-1	3.0 - 5.0	A-3	1	6.0*	25,000	30	< 5	Moderately Aggressive	Moderately Aggressive
PB-3-3-1	1.5 - 2.5	A-3	1	8.4	48,000	30	< 5	Slightly Aggressive	Slightly Aggressive
A-5	1.5 - 2.5	A-2-4	2	5.1*	52,000	30	< 5	Extremely Aggressive	Moderately Aggressive
PB-4-2-1	3.5 - 5.0	A-8	4	5.1*	56,000	30	< 5	Extremely Aggressive	Moderately Aggressive

* Indicates governing factor(s) for environmental classification

TABLE 6
SUMMARY OF HYDRAULIC CONDUCTIVITY TEST RESULTS
 S. R. 535 PDS E Study from U.S. 192 to North of World Center Drive (S. R. 536)
 Orange and Osceola Counties, Florida

FPN: 437174-2-22-01

Tierra Project No.: 5511-19-052

Pond ID.	Boring No./Test Location	Boring/Test Location ¹⁾		Ground Surface Elevation ²⁾ (feet, NAVD83)	Test Elevation (feet, NAVD83)	Estimated SHGW Elevation (feet, NAVD83)	Vertical Hydraulic Conductivity ²⁾ (feet/day)	Horizontal Hydraulic Conductivity (feet/day)	Confining Layer Elevation (feet, NAVD83)	Effective Porosity (%)
		Station	Offset							
2-3	PBS-2-3-1	1506+51	165' RT.	85.0	82.0	78.0	33	50	75.0	25
	PBS-2-3-2	1503+49	356' RT.	82.2	79.2	78.0	13	20	72.2	20
	PBS-2-3-3	1500+65	173' RT.	82.4	79.4	78.9	12	18	72.4	20

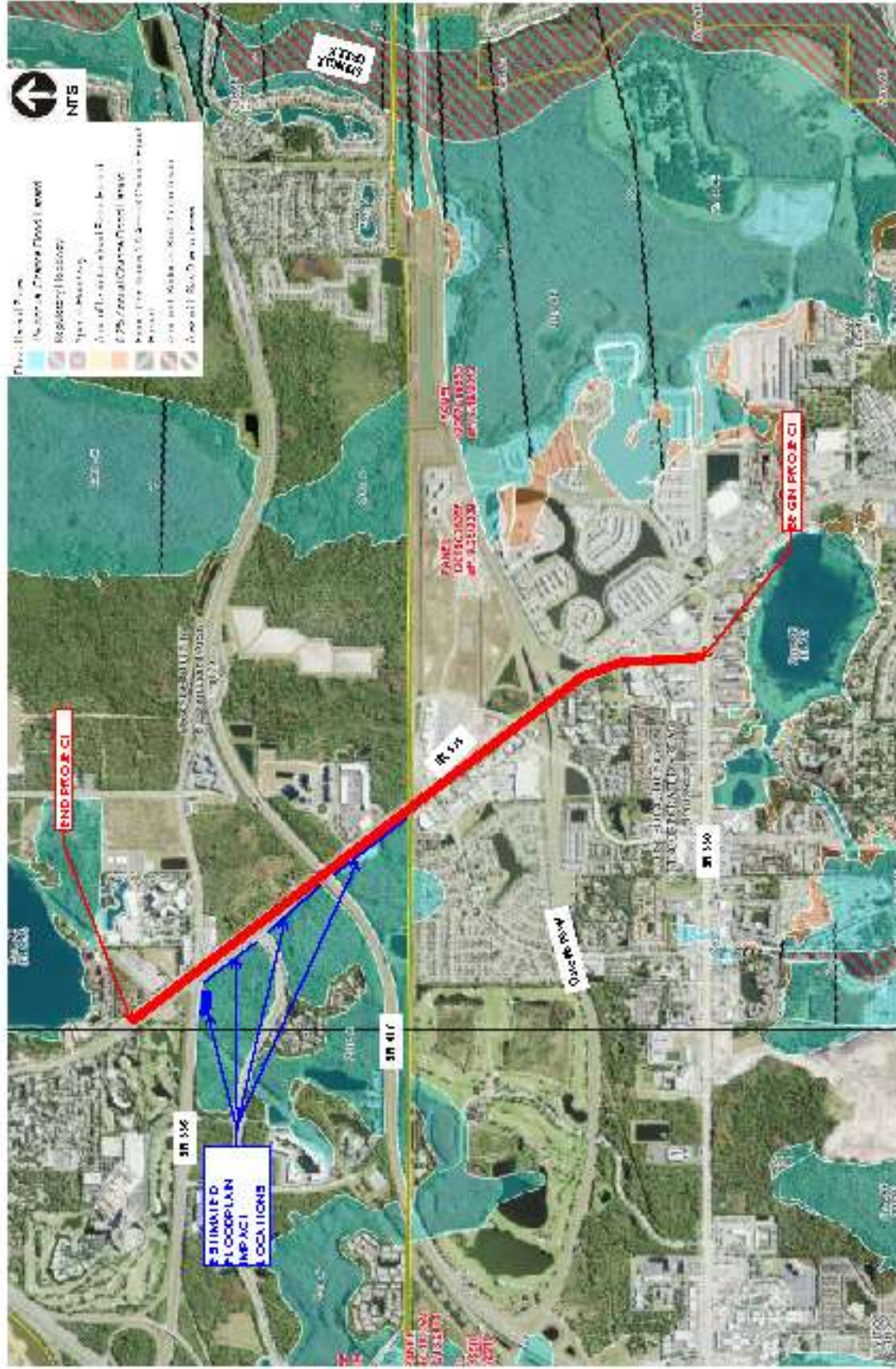
Notes:

¹⁾ Station, offset, and elevation of the borings were based on design files and LIDAR data provided by BCC Engineering, Inc. and GPS coordinates obtained by Terra, Inc. at the time of fieldwork.

²⁾ Measured hydraulic conductivity rates of soils encountered at the time of testing. No reduction or safety factors have been applied to the values. We recommend the pond designer apply the appropriate safety factors to these values.

Appendix B – FEMA Floodplain Map

SR535PD4E
FEMA Floodplains within Vicinity of Project Limits



NOTES TO USERS

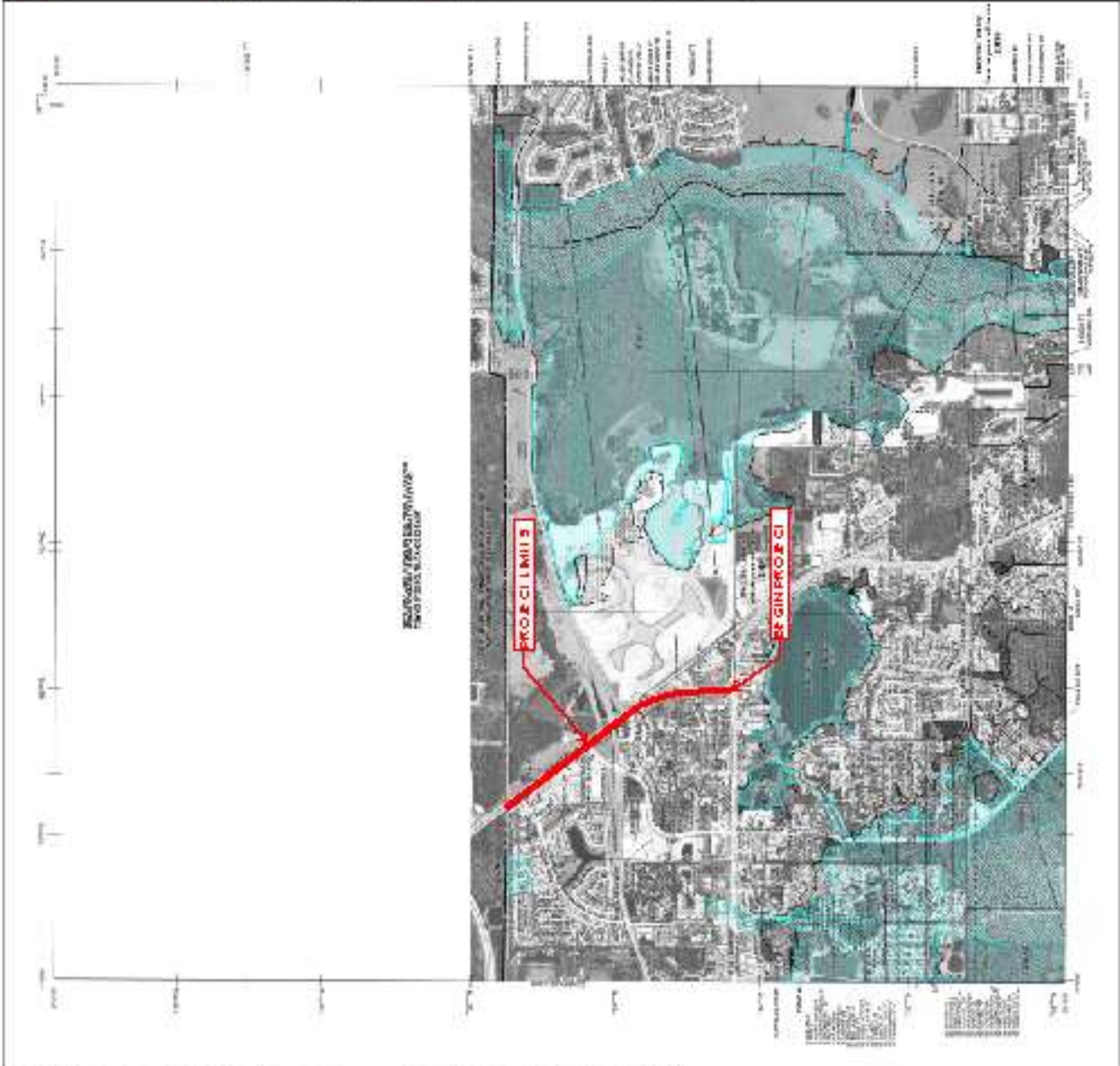
1. This map was prepared for the purpose of showing the location of the proposed project and is not intended to be used for any other purpose. The user is advised that the map is not a substitute for a site visit and that the user should consult with the appropriate authorities for more information.

2. The map is based on the best available information and is not intended to be used for any other purpose. The user is advised that the map is not a substitute for a site visit and that the user should consult with the appropriate authorities for more information.

3. The map is based on the best available information and is not intended to be used for any other purpose. The user is advised that the map is not a substitute for a site visit and that the user should consult with the appropriate authorities for more information.

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5. The map is based on the best available information and is not intended to be used for any other purpose. The user is advised that the map is not a substitute for a site visit and that the user should consult with the appropriate authorities for more information.



LEGEND

1. PROPOSED PROJECT LOCATION

2. EXISTING PROJECT LOCATION

3. EXISTING PROJECT LOCATION

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Appendix C – Alternative Evaluation Details

APPENDIX C

This appendix provides more details into the Alternative Evaluation Process that was undertaken for this PD&E Study.

Alternatives Evaluation Process

As illustrated on **Figure 1**, a multi-phase alternative development, evaluation and selection process was employed to properly assess all build alternatives considered for the proposed improvements. Essentially, four (4) different phases comprised the build alternative selection process..

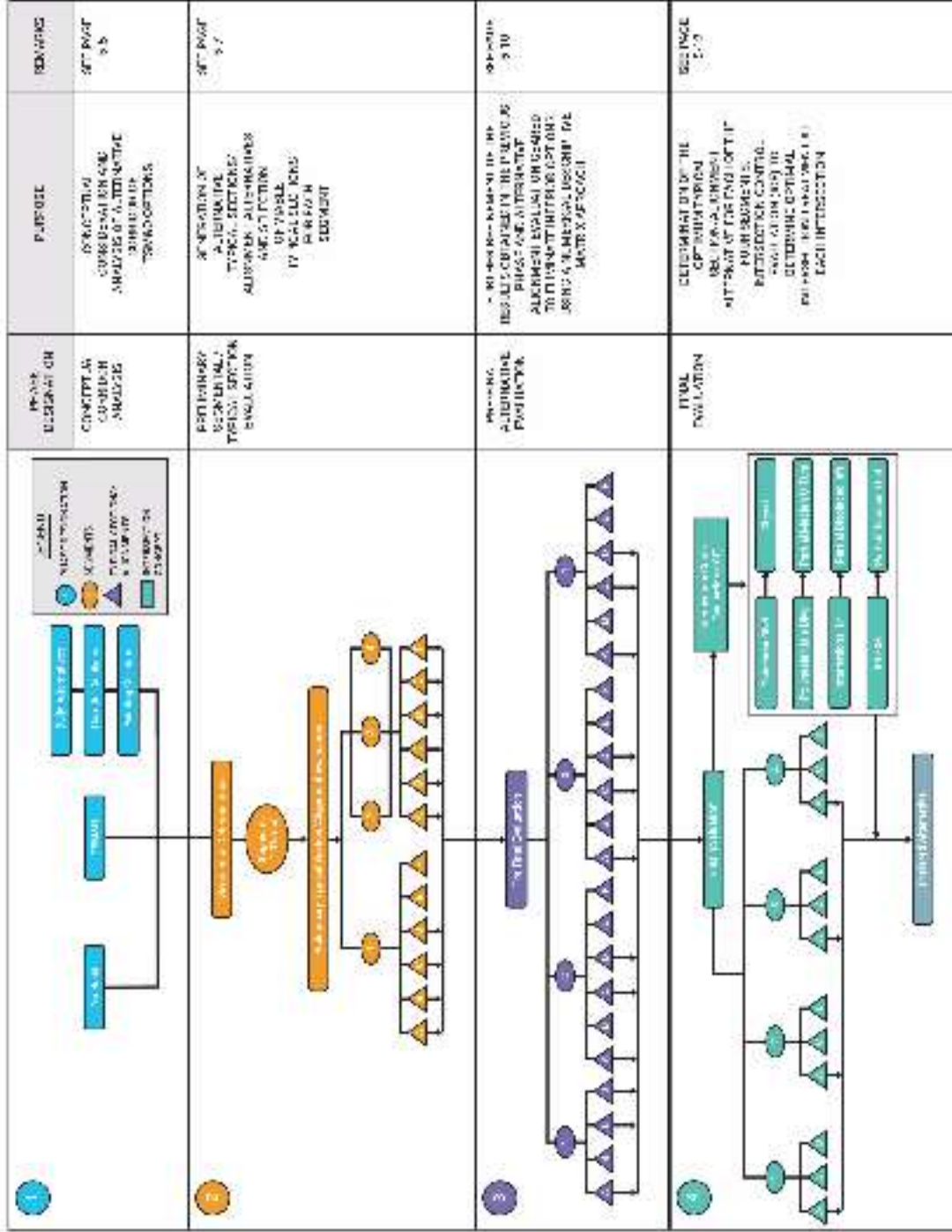
Phase 3: Pre-Final Typical Section/Alignment Evaluation

Table 1 is a numerical/descriptive matrix, which evaluates all typical section alternatives. It is important to note that the main purpose of this evaluation is not necessarily to determine the best option, but rather to identify which alternative(s) are clearly inferior so that they can be eliminated before even more stringent evaluation criteria and procedures are used during the next evaluation phase. The evaluation used involved the generation of a weighting scheme for each of the evaluation parameters. Thirteen (13) different evaluation parameters regarding engineering, social and economic, environmental and cost factors were used. Each parameter was assigned a value ranging from four (4) to ten (10) depending on its degree of importance. These parameters weightings were developed from the average of individual weighting sets prepared by members of the consultant's team reflecting a broad range of professional backgrounds. In addition, the alternative performance with respect to each parameter was compared using two criteria; 1) the overall effect on the specified parameter, and/or 2) the relative effect between the competing typical section alternatives. The overall effect received one of the five judgmental values (++ = 1.00, + = 0.80, o = 0.60, - = 0.40, -- = 0.20). If, however any of the alternatives had an overall negative effect, then the worst alternative received a (- -) and the relatively better alternative received a higher score (-). If any two values were approximately equal, then they both received the relatively lowest score. If the alternatives had an overall positive effect, then the best alternative received a (++) and the relatively worse alternative received a lower score (+). A common value, therefore, signifies an equal overall and relative effect.

This evaluation involves a combination of both qualitative and quantitative values resulting in an overall score. Each score indicated on the table is the result of multiplying the judgmental analysis rating times the relative weight for that parameter. For example, in **Table 5-2** Alternatives B and D under the 'multimodal issues' parameter were given a (++) designation (judgmental value =

1.0) since they provide adequate sidewalk width (6') and bike lane width (7'). This judgment value of 1.0 was then multiplied by the relative weight of the "multimodal issues" parameter (8.0) resulting in an overall score of 8.0.

Figure 3-1 Build Alternatives Selection Process



NUMBER	DESCRIPTION	PURPOSE	ISSUES
1	IDENTIFY ALTERNATIVES CONCEPTUAL DESIGN ANALYSIS	GENERATING ALTERNATIVE CONCEPTS AND IDENTIFYING FEASIBLE OPTIONS	SET POINT 3.5
2	SCREENING CONCEPTUAL DESIGN ANALYSIS	GENERATION OF ALTERNATIVE TECHNICAL SOLUTIONS AND IDENTIFICATION OF FEASIBLE ALTERNATIVES BY CALCULATING PERFORMANCES	SET POINT 3.7
3	EVALUATING ALTERNATIVES PRODUCTION	RESULTS OF THE SCREENING PHASE AND IDENTIFYING ALTERNATIVES TO PROCEED WITH DESIGN AND ANALYSIS	SET POINT 3.10
4	FINAL SELECTION	DETERMINATION OF THE BEST ALTERNATIVE FOR THE PROJECT AND IDENTIFICATION OF THE BEST ALTERNATIVE FOR THE PROJECT	SET POINT 3.9

Appendix D – Efficient Transportation Decision Making



Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

KEVIN J. THIBAUT
SECRETARY

ETDM Summary Report

Project #14325 - SR 535 from US 192 to N. of SR 536/World Center Dr.

Programming Screen - Published on 07/03/2019

Printed on: 3/10/2020

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Introduction to Programming Screen Summary Report

The Programming Screen Summary Report shown below is a read-only version of information contained in the Programming Screen Summary Report generated by the ETDM Coordinator for the selected project after completion of the ETAT Programming Screen review. The purpose of the Programming Screen Summary Report is to summarize the results of the ETAT Programming Screen review of the project; provide details concerning agency comments about potential effects to natural, cultural, and community resources; and provide additional documentation of activities related to the Programming Phase for the project. Available information for a Programming Screen Summary Report includes:

- Screening Summary Report chart
- Project Description information (including a summary description of the project, a summary of public comments on the project, and community-desired features identified during public involvement activities)
- Purpose and Need information (including the Purpose and Need Statement and the results of agency reviews of the project Purpose and Need)
- Alternative-specific information, consisting of descriptions of each alternative and associated road segments; an overview of ETAT Programming Screen reviews for each alternative; and agency comments concerning potential effects and degree of effect, by issue, to natural, cultural, and community resources.
- Project Scope information, consisting of general project commitments resulting from the ETAT Programming Screen review, permits, and technical studies required (if any)
- Class of Action determined for the project
- Dispute Resolution Activity Log (if any)

The legend for the Degree of Effect chart is provided in an appendix to the report.

For complete documentation of the project record, also see the GIS Analysis Results Report published on the same date as the Programming Screen Summary Report.



#14325 SR 535 from US 192 to N. of SR 536/World Center Dr.

District: District5

Phase: Programming Screen

County: Orange, Osceola

From: US 192 (Osceola County)

Planning Organization: FDOT District5

To: N. of SR 536/World Center Dr.

Plan ID: Not Available

Financial Management No.: 437174-2-22-01

Federal Involvement: FHWA Funding Other Federal Permit

Contact Information: Sarah Van Gundy (386)943-5551 sarah.vangundy@dot.state.fl.us

Snapshot Date From: Project Published 7/03/2019

Issues and Categories are reflective of what was in place at the time of the screening event.

Alternative #1 From: US 192 To: N. of SR 536/World Center Dr. Published: 07/03/2019 Reviewed From: 05/14/2019 to 05/24/2019	Social and Economic							Cultural			Natural				Physical				Screening Category		
	Land Use Changes	Social	Relocation Potential	Farmlands	Aesthetic Effects	Economic	Mobility	Section 4(f) Potential	Historic and Archaeological Sites	Recreation Areas	Wetlands and Surface Waters	Water Quality and Quantity	Floodplains	Wildlife and Habitat	Coastal and Marine	Noise	Air Quality	Contamination		Infrastructure	Navigation
	N	G	N	N	N	N	N	N	N	G	G	G	G	N/A	G	N	G	N	N/A	G	

Purpose and Need

Purpose and Need

PURPOSE

The purpose of the project is to accommodate future projected traffic demand and improve safety.

NEED

The need for the project is based on transportation demand and safety.

TRANSPORTATION DEMAND

In the future year (2040) no-build condition, the section of SR 535 from US 192 and Kyngs Heath Road is projected to operate at LOS F with an AADT of 42,000; the section from Kyngs Heath Road to Poinciana Boulevard operates at LOS E with an AADT of 40,000; the section from Poinciana Boulevard to Polynesian Isle Boulevard operates at LOS F with an AADT of 69,000; the section from Polynesian Isle Boulevard to World Center Drive operates at LOS F with an AADT of 66,000.

In the existing condition, the section of SR 535 from US 192 and Kyngs Heath Road operates at LOS D with an AADT of 28,300; the section from Kyngs Heath Road to Poinciana Boulevard operates at LOS D with an AADT of 26,900; the section from Poinciana Boulevard to Polynesian Isle Boulevard operates at LOS D with an AADT of 46,800; the section from Polynesian Isle Boulevard to World Center Drive drive operates at LOS D with an AADT of 44,300.

SAFETY

A total of 823 crashes were reported on SR 535 from US 192 to World Center Drive in the five-year period from 2012 through 2016. Of those reported crashes, 652 (85%) resulted in injury and 3 resulted in a fatality. The most frequent crash type was rear end with 499 (61%) total crashes, *indicating congestion*. Angle crashes were the second highest with 153 (19%), followed by side swipe with 86 (10%) total crashes. 485 (59%) of the 823 crashes occurred during daylight conditions. The crash rates along this segment of SR 535 exceed the FDOT statewide averages for similar facilities.

PROJECT STATUS

The SR 535 project is located within the jurisdiction of MetroPlan Orlando. The Project Development and Environment (PD&E) Study, is documented in MetroPlan Orlando's Transportation Improvement Program (TIP) for fiscal year 2019/20 with an anticipated cost of \$1.4 million. There is currently no funding for the design, right-of-way or construction phases.

Purpose and Need Reviews

FDOT Office of Environmental Management

Acknowledgment	Date Reviewed	Reviewer	Comments
Accepted	06/19/2019	Katie Britt Williams (Katie.BrittWilliams@dot.state.fl.us)	No Purpose and Need comments found.

FL Department of Agriculture and Consumer Services

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	06/24/2019	Brian Camposano (Brian.Camposano@FreshFromFlorida.com)	No Purpose and Need comments found.

FL Department of Economic Opportunity

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	06/24/2019	Matt Preston (matt.preston@deo.myflorida.com)	No Purpose and Need comments found.

FL Department of State

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	06/14/2019	Adrienne Daggett (Adrienne.Daggett@dos.myflorida.com)	No Purpose and Need comments found.

FL Fish and Wildlife Conservation Commission

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	06/12/2019	Fritz Wettstein (fritz.wettstein@myfwc.com)	No Purpose and Need comments found.

National Marine Fisheries Service

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	05/31/2019	Jennifer Schull (Jennifer.Schull@noaa.gov)	No Purpose and Need comments found.

National Park Service

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	06/19/2019	Anita Barnett (anita_barnett@nps.gov)	No Purpose and Need comments found.

South Florida Water Management District

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	06/18/2019	Trisha Stone (tstone@sflwmd.gov)	No Purpose and Need comments found.

US Army Corps of Engineers

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	06/17/2019	Randy Turner (Randy.L.Turner@usace.army.mil)	No Purpose and Need comments found.

US Coast Guard

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	05/14/2019	Randall Overton (randall.d.Overton@uscg.mil)	No Coast Guard involvement

US Environmental Protection Agency

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	06/24/2019	Roshanna White (White.Roshanna@epa.gov)	The project description states that SR-535 will be widened within the project limits but does not give the increase in number of lanes for the project. Along with the current number of lanes, in future documents please state the increase number of lanes and any connections or intersection improvements of the project.

US Fish and Wildlife Service

Acknowledgment	Date Reviewed	Reviewer	Comments
Understood	05/28/2019	Zakia Williams (zakia_williams@fws.gov)	No Purpose and Need comments found.

Project Description Data

Project Description

In the existing condition, SR 535 is an urban minor arterial, access class 3 facility with posted speeds ranging from 45 miles per hour (MPH) to 50 MPH. The roadway has four travel lanes (two in each direction) from US 192 to SR 536/World Center Drive. The project involves the widening of SR 535 from US 192 to World Center Drive, a project length of approximately 2.2 miles.

Summary of Public Comments

In October of 2015 the proposed project was presented at MetroPlan Orlando's Citizen's Advisory Committee (CAC) and Bicycle and Pedestrian Advisory Committee (BPAC). Comments received included concern for high crash rates and bike/ped safety on the corridor and suggestion for a context sensitive evaluation and consideration of BRT (Bus Rapid Transit).

Planning Consistency Status

No information available.

Potential Lead Agencies

- FDOT Office of Environmental Management

Exempted Agencies

Agency Name	Justification	Date
US Coast Guard	US Coast Guard has requested to be exempt from reviewing any projects that do not impact navigable waterways.	04/14/2017

Community Desired Features

No desired features have been entered into the database. This does not necessarily imply that none have been identified.

User Defined Communities Within 500 Feet

- com.esri.aims.mfer.io.http.UnableToRngEsrimapException

Census Places Within 500 Feet

- com.esri.aims.mfer.io.http.UnableToRngEsrimapException

Alternative #1

Alternative Description

Name	From	To	Type	Status	Total Length	Cost	Modes	SIS
Alternative was not named.	US 192	N. of SR 536/World Center Dr.	Widening	ETAT Review Complete	7 mi.		Roadway To Be Determined	N

Segment Description(s)

Location and Length

Segment No.	Name	Beginning Location	Ending Location	Length(mi.)	Roadway Id	BMP	EMP
75035001 (MP 0 to 0.894)	75035001 (MP 0 to 0.894)			0.892	75035001		
92040000 (MP 0 to 1.147)	92040000 (MP 0 to 1.147)			1.148	92040000		

Jurisdiction and Class

Segment No.	Jurisdiction	Urban Service Area	Functional Class
75035001 (MP 0 to 0.894)			URBAN: Minor Arterial
92040000 (MP 0 to 1.147)			URBAN: Minor Arterial

Base Conditions

Segment No.	Year	AADT	Lanes	Config
75035001 (MP 0 to 0.894)		44000	4	
92040000 (MP 0 to 1.147)		44000	5	

Interim Plan

Segment No.	Year	AADT	Lanes	Config
75035001 (MP 0 to 0.894)				
92040000 (MP 0 to 1.147)				

Needs Plan

Segment No.	Year	AADT	Lanes	Config
75035001 (MP 0 to 0.894)				
92040000 (MP 0 to 1.147)				

Cost Feasible Plan

Segment No.	Year	AADT	Lanes	Config
75035001 (MP 0 to 0.894)				
92040000 (MP 0 to 1.147)				

Funding Sources

No funding sources found.

Project Effects Overview for Alternative #1

Issue	Degree of Effect	Organization	Date Reviewed
Social and Economic			
Land Use Changes	2 Minimal	FL Department of Economic Opportunity	06/24/2019
Social	3 Moderate	US Environmental Protection Agency	06/24/2019
Economic	2 Minimal	FL Department of Economic Opportunity	06/24/2019
Cultural			
Historic and Archaeological Sites	2 Minimal	South Florida Water Management District	06/18/2019
Historic and Archaeological Sites	2 Minimal	FL Department of State	05/10/2019
Recreation Areas	0 None	South Florida Water Management District	06/18/2019

Recreation Areas	N/A	N/A / No Involvement	National Park Service	05/24/2019
Natural				
Wetlands and Surface Waters	2	Minimal	US Army Corps of Engineers	06/17/2019
Wetlands and Surface Waters	2	Minimal	US Environmental Protection Agency	06/24/2019
Wetlands and Surface Waters	2	Minimal	US Fish and Wildlife Service	06/11/2019
Wetlands and Surface Waters	2	Minimal	FL Department of Environmental Protection	06/21/2019
Wetlands and Surface Waters	3	Moderate	South Florida Water Management District	06/18/2019
Wetlands and Surface Waters	3	Moderate	National Marine Fisheries Service	05/31/2019
Water Quality and Quantity	2	Minimal	FL Department of Environmental Protection	06/21/2019
Water Quality and Quantity	4	Substantial	US Environmental Protection Agency	06/24/2019
Water Quality and Quantity	3	Moderate	South Florida Water Management District	06/18/2019
Floodplains	3	Moderate	South Florida Water Management District	06/18/2019
Wildlife and Habitat	N/A	N/A / No Involvement	FL Department of Agriculture and Consumer Services	06/24/2019
Wildlife and Habitat	2	Minimal	US Fish and Wildlife Service	06/11/2019
Wildlife and Habitat	2	Minimal	South Florida Water Management District	06/18/2019
Wildlife and Habitat	3	Moderate	FL Fish and Wildlife Conservation Commission	06/12/2019
Coastal and Marine	3	Moderate	National Marine Fisheries Service	05/31/2019
Coastal and Marine	N/A	N/A / No Involvement	South Florida Water Management District	06/18/2019
Physical				
Air Quality	2	Minimal	US Environmental Protection Agency	06/24/2019
Contamination	N/A	N/A / No Involvement	South Florida Water Management District	06/18/2019
Contamination	3	Moderate	US Environmental Protection Agency	06/24/2019
Navigation	N/A	N/A / No Involvement	US Army Corps of Engineers	06/17/2019
Navigation	N/A	N/A / No Involvement	US Coast Guard	05/14/2019
Special Designations				
Special Designations	3	Moderate	South Florida Water Management District	06/18/2019
Special Designations	N/A	N/A / No Involvement	National Park Service	06/19/2019
Special Designations	3	Moderate	US Environmental Protection Agency	06/24/2019
Emergency Response				

ETAT Reviews and Coordinator Summary: Social and Economic


Land Use Changes

Project Effects

Coordinator Summary Degree of Effect: **2** Minimal assigned 07/01/2019 by FDOT District5

Comments:

The Florida Department of Economic Opportunity (DEO) assigned a Degree of Effect of "Minimal" for Land Use Changes. The Degree of Effect was assigned because the project is compatible and consistent with the planned land uses documented in the Orange County Comprehensive Plan's Transportation Element, "Future Lynx Transit Routes 2017" and is neither consistent, nor inconsistent with the Osceola Comprehensive Plan. Transportation Maps will need to be amended in the future. The FDOT has assigned a DOE of "Minimal" for land use changes.

Degree of Effect:  Minimal assigned 06/24/2019 by Matt Preston, FL Department of Economic Opportunity

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comprehensive Plan(s) Reviewed:

Orange County 2010-2030, adopted on May 19, 2009 (Updated Feb 6, 2018).

Osceola County 2025, last updated April 2018.

Comments on Effects to Resources:

Compatibility with Community Development Goals and Comprehensive Plan:

Orange County Response:

SR 535 has been identified as a New Future Transit Route on Map 2B of the County's Comprehensive Plan's Transportation Element "Future Lynx Transit Routes 2017."

As previously stated, this area has many approved Planned Developments and is designated an Activity Center in Orange County's adopted Comprehensive Plan. In addition, it is an area of high tourist activity and seeing higher levels of pedestrian movements. To be consistent with the land use aspects of the International Drive and other Future Land Use policies of the Adopted Orange County Comprehensive Plan, Planning staff recommends that the widening project incorporate complete streets and context sensitive improvements throughout its length, including features such as wider sidewalks, pedestrian crosswalks and medians, bus shelters, shade trees, lighting and pedestrian accommodations etc. Participant policies are summarized below.

Also, the SR 535 Corridor Planning Study recommended that TSMO and municipal improvements including adaptive PedSafe, signal control, transit enhancements, and LED corridor lighting be incorporated. It is not clear how these improvements will be used within the project. The study also recommended that a portion of the corridor be designed as a Rural Typical Section. This is of concern since the future vision for growth in the area is Urban. Therefore, we recommend the project corridor (including the segments from Kings Heath Road to Veterans Dr) be designed as an Urban Typical Section (possibly with a consistent posted speed of 45 mph throughout the corridor), as well as incorporate the complete streets and context sensitive improvements for Urban Typical Section, e.g. narrower lane widths, wider sidewalks, etc.

Considerable guidance has been adopted, which guides and establishes criteria for Orange County's Mixed Use Activity Center. ID2.3.5 indicates that Streetscape criteria shall be established in order to promote economic viability and create interest in walking. It is intended to support multiple modes including premium transit and encouraging walking.

Osceola County: Recently adopted a new planning scheme. Generally, it includes pursuing higher densities and intensities within the Urban Growth Boundary (UGB) with the goal of accommodating premium transit. The Urban Center and Tourist Commercial land use categories provide the highest density and intensity standards and are by design intended to support transit and connections. Compatibility with their planning scheme should acknowledge the County's priority for premium transit.

Osceola County Response: A six lane roadway is neither consistent nor inconsistent with the Comprehensive Plan; however, the plan requires a walkable Urban form. This entails the development of a connected street grid with redevelopment of frontages. Design of the state roadway must include sidewalks, lighting, and transit stops/stopshelters - and be designed to prioritize transit use.

Two of Osceola's transportation five planning goals include; Establishment of a Multimodal Transportation System (Goal 3) and Management of the Multimodal Transportation System (Goal 4). Considerable guidance has also been adopted pertaining to Complete Streets and also land use transportation alignment with transit (rail and BRT), bicycle and pedestrian modes. The Transportation maps series includes future planning scenarios for Roadway Networks, Multimodal Corridors, Transit System, Bicycle and Trail Facilities through planning horizons; 2025, 2040 and 2080. Additional support for other modes has been adopted into the Land Development Code.

Future Transportation Map:

The 6-laning project for SR 535 is identified in the 10-year schedule in the Orange County Comprehensive Plan, Policy C1E1.8.2, from the Osceola County line to World Center Drive/SR 535.

The details of this project are not depicted on Osceola County's Transportation maps series UGB 2025, 2040 or 2080. DEO staff recommends that Osceola County update its future transportation map(s) to include the proposed project.

Land Uses:

Future Land Use Map categories that surround the project include:

Orange County: Activity Center Mixed Use and Activity Center Residential.

Osceola County: Tourist/Commercial and Urban Center.

Parks:

The northwestern end of the project is in less than 1,000 ft. from Lake Buena Vista, an area with considerable recreation activity.

Area of Critical State Concern (ACSC), Coastal High Hazard Area (CHHA), and Military Bases:

The project is not located within an Area of Critical State Concern, or the CHHA, nor does it encroach on any military installations.

Other Planning Related Items:

Orange County: Orange County's main concern is that the entire SR 535 planning corridor in Orange County should be treated as an Urban Typical Section with complete streets and context sensitive improvements. The current plan only accommodates the complete streets improvements in the northern section of the project limits.

Osceola Response: The Sunrise City project will include up to 900 apartments and can access this roadway via Poinciana Boulevard and the adjacent Sunrise City shopping center.

Contact Information:

Emails to Cori Carpenter Osceola County Senior Planner and Tina Burnett, (cori.carpenter@osceola.org and (Tina.Burnett@Osceola.org 407-742-0293).

Orange County Comprehensive Planning staff members Karen McGuire 407-836-5615, or Maria Cahill 407-836-5322.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to FL Department of Economic Opportunity's Review (07/01/2019): Thank you for your review and comments. The FDOT will work with Orange and Osceola Counties to update the future transportation map and any applicable content in the local government comprehensive plans.

Social

Project Effects

Coordinator Summary Degree of Effect: **3** Moderate assigned 07/01/2019 by FDOT District 5

Comments:

USEPA reviewed this issue and assigned a Degree of Effect of "Moderate" because some census blocks have the potential to be affected. While there is limited potential for disproportionately high and adverse effects on minority and low-income populations, proactive measures will be taken to involve the affected community in the decisions related to alternative selection, impact analysis, and mitigation. The FDOT has assigned a DOE of "Moderate" for this category.

Degree of Effect: **3** Moderate assigned 06/24/2019 by Roshanna White, US Environmental Protection Agency

Coordination Document: To Be Determined: Further Coordination Required

Direct Effects

Identified Resources and Level of Importance:

FDOT acknowledges in its Preliminary Environmental Discussion (PED) comments that the SocioCultural Data Report identified a minority population of 58.19% within a project buffer of 500-ft, and low-rise multiple dwelling units and high-rise multiple dwelling units. Also, FDOT acknowledged that the majority of the improvements are anticipated to occur within the existing right-of-way (216-ft to 224-ft) with the exception of storm water ponds. FDOT states that development of alternative pond sites for each basin would focus on minimizing potential residential relocations and/or business displacements. Additionally according to GIS Analysis for Social:

- Within a 100-ft buffer there is a walk-in clinic
- Within a 200-ft buffer there are four developments of regional impact in the State of Florida that exist within the right-of-way: Legacy Park, Little England (Kentucky City), Wind Song and World Gateway
- Within a 500-ft buffer there are Condominiums (likely the multiple dwelling units)

The acquisition of homes, businesses, and community features and the impact on the community from the removal and/or temporary impacts will further determine the degree of impact on Social. Therefore, EPA assigns a Moderate degree of effect on Social impacts.

Comments on Effects to Resources:

FDOT acknowledged in its Preliminary Environmental Discussion (PED) comments that the project would be developed in accordance with the Civil Rights Act of 1964 and 1968, along with Title V of the Civil Rights Act, and E.O. 12898 (Environmental Justice). Partial and full right-of-way acquisitions

business and other community features may affect quality of life. Environmental features and community elements help individuals maintain health and well-being.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (07/01/2019): Thank you for your review and comments. Executive Orders 13045 and 12896 will be considered during the public outreach and alternative analysis phases of the Project Development and Environment (PD&E) Study.

This project will be developed without regard to race, color, national origin, age, sex, religion, disability, or family status.

A proactive public involvement approach, consistent with the PD&E Manual, will be implemented to ensure that opportunity is given to all residents and businesses along the corridor to provide input into this project. If necessary, the FDOT will further analyze sociocultural effects during the PD&E study consistent with the Sociocultural Effects Evaluation Handbook.

Relocation Potential

Project Effects

Coordinator Summary Degree of Effect:  Minimal assigned 07/01/2019 by FDOT District 5

Comments:

No ETAT reviews were submitted for this issue. The proposed project is expected to result in minimal, if any, residential relocations or business displacements. Right-of-way may be required for stormwater ponds; however, the project will be designed to avoid and/or minimize relocation impacts. A Conceptual Stage Relocation Plan will be prepared if it is determined that residential relocations or business displacements occur.

None found

Farmlands

Project Effects

Coordinator Summary Degree of Effect:  Minimal assigned 07/01/2019 by FDOT District 5

Comments:

No ETAT reviews were submitted for this issue. The proposed project is expected to result in minimal involvement with farmlands as the project is expected to occur within the existing right-of-way (with the exception of stormwater ponds). During the PD&E Study, the FDOT will coordinate with the Natural Resources Conservation Service (NRCS) to determine whether a Farmland Protection Policy Act (AD-1006) assessment is required.

None found

Aesthetic Effects

Project Effects

Coordinator Summary Degree of Effect:  Minimal assigned 07/01/2019 by FDOT District 5

Comments:

No ETAT reviews were submitted for this issue. The project is anticipated to have minimal impacts to aesthetics, viewsheds, etc.; therefore, a Degree of Effect of "Minimal" is being assigned to this issue. The context of classifications will be considered and potential landscaping and other options will be identified in either the PD&E Study or in future phases.

None found


Economic

Project Effects

Coordinator Summary Degree of Effect:  Enhanced assigned 07/01/2019 by FDOT District 5

Comments:

The Department of Economic Opportunity assigned a Degree of Effect (DOE) of "Minimal". This DOE is based on the potential of the project to attract new development. The FDOT has assigned an overall DOE of "Enhanced" because the project is anticipated to enhance the economic resources of the area by improving the transportation system and enhancing connectivity to/from major employment centers and tourist attractions, such as Walt Disney World.

Degree of Effect:  Minimal assigned 06/24/2019 by Matt Preston, FL Department of Economic Opportunity

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comprehensive Plan(s) Reviewed:

Orange County 2010-2030, adopted on May 19, 2009 (Updated Feb 6, 2018).

Osceola County 2025, last Updated April 2018.

Comments on Effects to Resources:

The project is not located within a Rural Area of Opportunity.

The project has potential to attract new development. The potential type of employment within the adopted land use categories is likely to be tourist supportive, service industry and transportation.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to FL Department of Economic Opportunity's Review (07/01/2019): Thank you for your review and comments.

Mobility

Project Effects

Coordinator Summary Degree of Effect:  Enhanced assigned 07/01/2019 by FDOT District 5

Comments:

No ETAT reviews were submitted for this issue. A Degree of Effect of "Enhanced" is being assigned to this issue based on the additional roadway capacity and sidewalk connectivity to be provided in the build condition.

None found

ETAT Reviews and Coordinator Summary: Cultural

Section 4(f) Potential

Project Effects

Coordinator Summary Degree of Effect:  Minimal assigned 07/01/2019 by FDOT District 5

Comments:

No ETAT reviews were submitted for this issue. The FDOT has assigned a DOE of "Minimal" because the one potential Section 4(f) resource is owned by the South Florida Water Management District (District owned mitigation lands), and would likely not be protected under Section 4(f) of the Department of Transportation Act of 1988.

During the PD&E Study, a Section 4(f) Determination of Applicability may be prepared, although the proposed project is expected to result in minimal to no involvement with this or other Section 4(f) resources.

None found

Historic and Archaeological Sites


Project Effects

Coordinator Summary Degree of Effect:  Minimal assigned 07/01/2019 by FDOT District 5

Comments:

The South Florida Water Management District and the Florida Department of State, Division of Historic Resources both assigned a Degree of Effect (DOE) of "Minimal". The FDOT has also assigned a DOE of "Minimal".

A Cultural Resource Assessment Survey (CRAS) report that follows the specifications set forth in Chapter 1A-46 Florida Administrative Code, FDOT PD&E Manual Part 2, Chapter 8 will be developed.

Degree of Effect:  Minimal assigned 06/18/2019 by Trisha Stone, South Florida Water Management District

Coordination Document: Permit Required

Coordination Document Comments:

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

Direct Effects

Identified Resources and Level of Importance:

The SPWMD will coordinate with the Division of Historical Resources during the Environmental Resource Permit application process.

Comments on Effects to Resources:

Please see comment above.

Additional Comments (optional):

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

CLC Commitments and Recommendations:

FDOT District 5 Feedback to South Florida Water Management District's Review (07/01/2019): Thank you for your review and comments. A Cultural Resource Assessment Survey will be prepared during the PD&E Study.

Degree of Effect: ■ Minimal assigned 05/10/2019 by Adrienne Daggott, FL Department of State

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects

Identified Resources and Level of Importance:

As reported.

Comments on Effects to Resources:

The project has some potential to impact cultural resources within and adjacent to the proposed project.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to FL Department of State's Review (07/01/2019): Thank you for your review and comments. Further coordination with your agency will take place during the PD&E Study, which will include a Cultural Resource Assessment Survey.

Recreation Areas

Project Effects

Coordinator Summary Degree of Effect: ■ Minimal assigned 07/01/2019 by FDOT District 5

Comments:

South Florida Water Management District assigned a Degree of Effect (DOE) of "None", while the National Park Service assigned a DOE of "N/A No Involvement". The proposed project is anticipated to avoid impacts to future planned trails, a privately owned golf course, and the SPWMD conservation easement that were documented within 500 feet of the project, however, a DOE of "Minimal" will be assigned by FDOT because of the proximity to these sites.

Degree of Effect: ■ None assigned 06/18/2019 by Trisha Stone, South Florida Water Management District

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to South Florida Water Management District's Review (07/01/2019): Thank you for your review.

Degree of Effect: **N/A** N/A / No Impact/No Eff assigned 05/24/2019 by Anita Barnett, National Park Service

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to National Park Service's Review (07/01/2019): Thank you for your review.

ETAT Reviews and Coordinator Summary: Natural

Wetlands and Surface Waters

Project Effects

Coordinator Summary Degree of Effect: **3** Moderate assigned 07/01/2019 by FDOT District5

Comments:

The Wetlands and Surface Water issue was given a "Moderate" Degree of Effect (DOE) by South Florida Water Management District and the National Marine Fisheries Service. The US Environmental Protection Agency (US EPA), Florida Department of Environmental Protection (FDEP), US Fish and Wildlife Service (FWS) and the US Army Corps of Engineers (USACE) assigned a DOE of "Minimal". Given the Uncertainty of the impacts, and the responses from the ETAT, the FDOT is assigning a DOE of "Moderate" to this issue.

Measures to avoid and/or minimize impacts to wetlands, mitigation options, as well cumulative impacts will be documented in the Natural Resource Evaluation report that will be prepared as part of this study. The project will be designed to meet state water quality and quantity requirements, and the FDOT will implement proper best management practices during construction.

Degree of Effect: **2** Minimal assigned 06/17/2019 by Randy Turner, US Army Corps of Engineers

Coordination Document: Permit Required

Coordination Document Comments:

The project as proposed, may qualify for the Department of the Army's Regional General Permit (RGP) - 92 for impacts to any proposed impacts to waters of the U.S. (wetlands or surface waters). If the project does not qualify for a general permit then it would need to be permitted using a Standard Individual Permit which includes the need to publish a Public Notice to other federal and State resource agencies as well as all adjacent property owners. If the wetland impacts are 0.5 acre or below, the Corps recommends using the Nationwide Permit 14 (NWP-14) for any proposed impacts to waters of the U.S. (Wetlands or surface waters).

Direct Effects

Identified Resources and Level of Importance:

A review of the EST revealed the presence of approximately 17 acres of palustrine wetlands within a 500 foot buffer; 1 acres of palustrine wetlands within a 200 foot buffer; and, 0.29 acre of palustrine wetlands within a 100 foot buffer. The level of importance would be minimal.

Comments on Effects to Resources:

Any palustrine wetlands in the project area deemed to be jurisdictional along the roadway corridor already have been secondarily impacted so a jurisdictional assessment should reveal a lower quality of wetlands.

Additional Comments (optional):

The project as proposed, may qualify for the Department of the Army's Regional General Permit (RGP) - 92 for impacts to any proposed impacts to waters of the U.S. (wetlands or surface waters). If the project does not qualify for a general permit then it would need to be permitted using a Standard Individual Permit which includes the need to publish a Public Notice to other federal and State resource agencies as well as all adjacent property owners. If the wetland impacts are 0.5 acre or below, the Corps recommends using the Nationwide Permit 14 (NWP-14) for any proposed impacts to waters of the U.S. (Wetlands or surface waters).

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Army Corps of Engineers's Review (07/01/2019): Thank you for your comments and identifying the permits and mitigation bank opportunities available.

Degree of Effect: ■ Minimal assigned 06/24/2019 by Roshanna White, US Environmental Protection Agency

Coordination Document: To Be Determined: Further Coordination Required

Direct Effects

Identified Resources and Level of Importance:

FDOT acknowledges in its Preliminary Environmental Discussion (PED) comments that within a 500-ft buffer there are 16.75 acres of palustrine wetlands. According to GIS Analysis for Wetlands and Surface Waters within a 500-ft buffer there are 294.63 acres of the Lake Okechobee Watershed, a Northern Everglades and Estuaries Protection Program Watershed. The proposed project requires additional right-of-way, which requires placement of fill into wetlands. FDOT's PED comments state they expect minimal involvement with wetlands and mitigation for unavoidable wetland impacts will occur in future phases. The EPA does not expect significant impacts on wetlands from the proposed project. Therefore, EPA assigns a Minimal Degree of effect to Wetlands and Surface waters.

Comments on Effects to Resources:

Northern Everglades and Estuaries Protection Program Watershed can be negatively affected by human activities. The loss of wetlands (inflow, loss of wildlife habitat, degradation of water quality in wetlands, potential impacts to water quality in surface waters, and reduction in flood storage and capacity may be impacted by the proposed project. Therefore, protection of ground water quality from loss of environmental resources is a concern.

Consistent with Section 404 of the Clean Water Act, the selected site should avoid and minimize to the maximum extent practicable, placement of fill into jurisdictional waters of the U.S., which include wetlands and streams. Additionally, impervious or semi-impervious surfaces will contribute to surface drainage and non-point sources that will impact surface and groundwater quality.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (07/01/2019): Thank you for your review and comments. The limits of wetlands will be preliminarily established during the PD&E study and then surveyed during the design phase. Measures to avoid and/or minimize impacts to wetlands will be documented in the Natural Resource Evaluation report that will be developed as part of this study. The project will be designed to meet state water quality and quantity requirements, and the FDOT will implement proper best management practices during construction.

Degree of Effect: ■ Minimal assigned 06/11/2019 by Zakia Williams, US Fish and Wildlife Service

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects

Identified Resources and Level of Importance:

Sand skink (*Neosaps reynoldsi*)

The EST tool identified that the project area falls within the sand skink consultation area. The potential for sand skink within this proposed corridor is not likely. There is no habitat in the area or the surrounding areas to provide suitable habitat for the species. The US FWS has no documented occurrences of sand skink in the area.

Wood Stork (*Mycteria americana*)

The action area falls within the Core Foraging Area (CFA) of the wood stork. The project is not located close to any wood stork nesting colonies. Although the project area falls within the CFA it is unlikely that wood storks are utilizing this area for foraging.

Comments on Effects to Resources:

Wood Stork (*Mycteria americana*)

Dependent upon the design of the project direct impacts should be avoided. To minimize adverse effects to the wood stork and other wetland dependent species, we recommend that impacts to suitable foraging habitat be avoided. If avoidance is not possible, minimization measure should be employed and best management practices to avoid further degradation of the site. Mitigation for wetland impacts should be discussed with US FWS and will require further coordination. Please refer to the North Florida Field Office website for WOST colony locations. <http://www.fws.gov/northflorida>

Coordination with the Office of Migratory birds will be needed for all projects involving migratory birds and eagles, please contact Ugonda Kipatrik in our Migratory Birds Permit Office at:

Migratory Birds Permit Office
1875 Century Boulevard, NE
Atlanta, Georgia 30345

Surveys for all federally listed plants found in Orange and Osceola counties (the list can be found on our website northflorida.fws.gov) should be conducted by a trained botanist during the appropriate time of year.

Florida has 229 species of plants found nowhere else in the world, and most of them are rare and declining. Diverse plant communities are essential for maintaining a healthy environment for fish, wildlife, and people, and improved land conservation and land management can help restore these rare plants. To this end, the Service worked with the Florida Department of Agriculture and Consumer Services, and many Universities and non-profits, to establish the Florida Rare Plant Conservation Endowment. The Endowment funds projects that are critical to preventing the extinction of Florida's rare plants. To ensure the survival of Florida's unique and rare plants, the Service encourages the applicant to make a voluntary contribution of \$5,000 to the Endowment. All contributions are voluntary and tax deductible.

Wetlands

Wetlands provide important habitat for fish and wildlife. Best Management Practices (BMPs) should be used to prevent degradation of wetland and other aquatic resources from erosion, siltation, and nutrient discharges associated with the project site. We recommend that the project be designed to avoid these valuable resources to the greatest extent practicable. If impacts to wetlands are unavoidable, we recommend that the FDOT provide mitigation that fully compensates for the loss of wetland resources.

Dependent upon the alternative(s) selected, the proposed project is expected to result in minimal to moderate involvement with wildlife and habitat resources. If it is determined the project will affect and federally listed species and/or their habitat, the Department will initiate consultation with FWS during the Project Development process.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Fish and Wildlife Service's Review (07/01/2019): Thank you for your review and comments. Measures to avoid and/or minimize impacts to wetlands as well as mitigation opportunities will be documented in the Natural Resource Evaluation report that will be prepared as part of this study. The project will be designed to meet state water quality and quantity requirements, and the FDOT will implement proper best management practices during construction.

Degree of Effect: ■ *Minimal* assigned 06/21/2019 by Chris Stahl, FL Department of Environmental Protection

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects

Identified Resources and Level of Importance:

National Wetlands Inventory GIS data indicates that there are approximately 8.57 acres of wetlands within the 500-ft buffer area.

Comments on Effects to Resources:

An Environmental Resource Permit (ERP) will be required from the South Florida Water Management District. The ERP applicant will be required to eliminate or reduce the proposed wetland resource impacts of the pathway to the greatest extent practicable:

- Minimization should emphasize avoidance-oriented corridor alignments, wetland fill reductions via pile bridging and steep vertically retained side slopes, and median width reductions within safety limits.
- Wetlands should not be displaced by the installation of stormwater conveyance and treatment scales; compensatory treatment in adjacent Uplands is the preferred alternative.
- After avoidance and minimization have been exhausted, mitigation must be proposed to offset the adverse impacts of the project to existing wetland functions and values. Significant attention is given to forested wetland systems, which are difficult to mitigate.
- The cumulative impacts of concurrent and future transportation improvement projects in the vicinity of the subject project should also be addressed.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to FL Department of Environmental Protection's Review (07/01/2019): Thank you for your review and comments. Measures to avoid and/or minimize impacts to wetlands as well as state cumulative impact criteria will be documented in the Natural Resource Evaluation report that will be developed as part of this study. The project will be designed to meet state water quality and quantity requirements, and the FDOT will implement proper best management practices during construction.

Degree of Effect: ■ *Moderate* assigned 06/18/2019 by Trisha Stone, South Florida Water Management District

Coordination Document: Permit Required

Coordination Document Comments:

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

Direct Effects

Identified Resources and Level of Importance:

Wetland resources would be affected; impacts reduction and elimination options are available. The District holds conservation easements on the westside of SR 535 from World Center Drive to the Orange/Osceola County line. Impacts to the easements could be reduced by eliminating roadway widening on the westside of the road.

Comments on Effects to Resources:

See comments above.

Additional Comments (optional):

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

CLC Commitments and Recommendations:

FDOT District 5 Feedback to South Florida Water Management District's Review (07/01/2019): Thank you for your review and comments regarding wetlands and conservation easements that occur within the project corridor. Measures to avoid and/or minimize impacts to wetlands will be documented in the Natural Resource Evaluation report that will be developed as part of this study. The project will be designed to meet state water quality and quantity requirements, and the FDOT will implement proper best management practices during construction.

Degree of Effect: **3 Moderate** assigned 05/31/2019 by Jennifer Schull, National Marine Fisheries Service

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Based on our review of the information provided on the EST website, GIS-based effects analysis on wetlands and interpretation of aerial photographs, NOAA's National Marine Fisheries Service (NMFS) has determined that mixed forested wetlands, cypress-mixed hardwood wetlands, and palustrine wetlands are located within the project corridor. These wetlands range from low to moderate in quality.

Comments on Effects to Resources:

The wetlands along the proposed roadway expansion provide water quality functions, such as removal of sediments, excess nutrients, and contaminants, which benefit and support these aquatic ecosystems. Through hydrological connections, these wetlands also contribute plant material and other usable nutrients (both dissolved and particulate organic matter) into aquatic food webs that include recreationally, commercially, and ecologically important species within downstream estuaries. If wetland impacts are unavoidable, sequential minimization and mitigation should take place.

In addition to the direct impacts from filling wetlands, construction activities may impact adjacent wetlands through sedimentation and runoff.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to National Marine Fisheries Service's Review (07/01/2019): Thank you for your review and confirmation that the project will not affect National Marine Fisheries Service trust resources.

Water Quality and Quantity

Project Effects

Coordinator Summary Degree of Effect: **3 Moderate** assigned 07/01/2019 by FDOT District 5

Comments:

The Water Quality issue was given a "Substantial" Degree of Effect (DOE) by the US Environmental Protection Agency, while the South Florida Water Management District assigned a DOE of "Moderate" and the Florida Department of Environmental Protection assigned a DOE of "Minimal".

A Summary DOE of "Moderate" is being assigned due to the project crossing in close proximity to Okeechobee Basin Management Action Plan and four Water Body Identification Numbers (WBIDs), one of which [Shingle Creek (WBID 3169A)] is a verified impaired Florida Water for nutrients.

Degree of Effect: ■ *Minimal* assigned 06/21/2019 by Chris Stahl, FL Department of Environmental Protection

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects

Identified Resources and Level of Importance:

The EST GIS analysis identified the project is within the Lake Okeechobee Watershed.

Comments on Effects to Resources:

Every effort should be made to maximize the treatment of stormwater runoff from the proposed pathway/road widening project to prevent ground and surface water contamination. If an ERP permit is required to construct the project, stormwater treatment should be designed to maintain the natural predevelopment hydroperiod and water quality, as well as to protect the natural functions of adjacent wetlands. We recommend that the PD&E study include details on possible future stormwater treatment facilities. We recommend that the PD&E study include an evaluation of existing stormwater treatment adequacy and details on the future stormwater treatment facilities. Retro-fitting of stormwater conveyance systems would help reduce impacts to water quality.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to FL Department of Environmental Protection's Review (07/01/2019): Thank you for your review and comments. The potential impact the proposed project will have on water quality will be evaluated according to Part 2, Chapter 11 of the FDOT Project Development and Environment (PD&E) Manual. The FDOT will include an evaluation of existing stormwater treatment and details on the future stormwater treatment facilities. The project will be designed to meet state water quality and quantity requirements and the FDOT will implement proper best management practices during construction.

Degree of Effect: ■ *Substantial* assigned 06/24/2019 by Roshanna White, US Environmental Protection Agency

Coordination Document: Tech Memo Required

Coordination Document Comments:

Please contact Larry Cole, Water Protection Division, at cole.larry@epa.gov or 404.582.9474 for a Sole Source Aquifer Impact Determination Letter.

Direct Effects

Identified Resources and Level of Importance:

FDOT acknowledges in its Preliminary Environmental Discussion (PED) comments a Basin Management Action Plan (BMAP) for Lake Okeechobee (Northern Everglades and Estuaries Protection Program Watershed), Principal Aquifers of the State of Florida and Recharge area, the Biscayne Aquifer Sole Source Aquifer streamflow and recharge source zone, four onsite sewage treatment and disposal systems, four Super Aot Risk Sources, and one Super Aot Risk Well. Also, FDOT acknowledged 4 water bodies within a 500-ft. buffer-Lake Coote, Lake Bryan, Reedy Creek, and Shingle Creek (a Verified impaired water for nutrients).

According to GIS Analysis, the Florida's aquifer systems is "more vulnerable" (FAVA Theme Response) to contamination. At this time, EPA assigns a Substantial degree of effect. Detailed protection measures for these resources as the project continues into future phases of development will further determine the degree of effect for Water Quality and Quantity.

Comments on Effects to Resources:

Healthy waters provide clean drinking water and productive fisheries which support a healthy environment and quality of life. Human activities have the potential to degrade ground water and surface water. Excavation may contribute to soil erosion and a reduction in vegetation can increase sediment runoff.

An increase in impervious or semi-impervious surfaces can contribute to surface drainage and non-point sources that will impact surface and groundwater quality. Common roadway pollutants such as heavy metals, volatile organic chemicals, petroleum hydrocarbons, and suspended solids degrade near-by water bodies through storm water runoff. These contaminants can increase the turbidity of a water body. Turbid waters heat more rapidly when exposed to sunlight and decrease primary production and dissolved oxygen levels. Therefore, it is a potential for an increase in water degradation. Additionally, construction activities may produce the release of hazardous pollutants through spills and improper storage of materials. Hazardous pollutants can infiltrate the aquifer to an area of discharge.

The EPA acknowledges and support FDOT comment in the PED of the project and encourages the use of the following activities during project design and development meet water quality and quantity requirements, and utilize best management practices during construction.

Additional Comments (optional):

Please contact Larry Cole, Water Protection Division, at larry@epa.gov or 404.562.9474 for a Sole Source Aquifer Impact Determination Letter.

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (07/01/2019): Thank you for your review and comments. The potential impact the proposed project will have on water quality will be evaluated according to Part 2, Chapter 11 of the FDOT Project Development and Environment (PD&E) Manual. The FDOT will include an evaluation of existing stormwater treatment and details on the future stormwater treatment facilities. The project will be designed to meet state water quality and quantity requirements, and the FDOT will implement proper best management practices during construction.

A Water Quality Impact Evaluation will also be prepared as part of this study.

Degree of Effect: **3** Moderate assigned 06/18/2019 by Trisha Stone, South Florida Water Management District

Coordination Document: Permit Required

Coordination Document Comments:

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

Direct Effects

Identified Resources and Level of Importance:

Water quality treatment criteria of 2.5 inches of runoff from the newly-proposed impervious area in addition to any existing water quality treatment will need to be provided in the proposed project. There are numerous developments alongside the corridor of this project; it is possible that joint-use facilities may provide existing water quality treatment. This is a very old area and previously-issued permit parameters and existing storm water management facility properties may be challenging to research as some permits may have been issued through Orange and/or Osceola counties pre-dating SPWMD permitting. For linear projects with site constraints such as this one, compensating water quality treatment is allowed. Water quality criteria needs to be met showing that the post-development discharge rate does not exceed the pre-development discharge rate in the area. Also, the project lies within the Shingle Creek Basin which has a discharge limitation as described in Appendix II.

Comments on Effects to Resources:

See comments above.

Additional Comments (optional):

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

CLC Commitments and Recommendations:

FDOT District 5 Feedback to South Florida Water Management District's Review (07/01/2019): Thank you for your review and comments regarding permit information. The potential impact the proposed project will have on water quality will be evaluated according to Part 2, Chapter 11 of the FDOT Project Development and Environment (PD&E) Manual. The FDOT will include an evaluation of existing stormwater treatment and details on the future stormwater treatment facilities. The project will be designed to meet state water quality and quantity requirements and the FDOT will implement proper best management practices during construction.

Floodplains

Project Effects

Coordinator Summary Degree of Effect: **3** Moderate assigned 07/01/2019 by FDOT District 5

Comments:

The SPWMD assigned a Degree of Effect (DOE) of "Moderate". Due to the presence of floodplain areas within 100 feet of the corridor, it is likely that floodplain will be affected by the proposed road widening. As such an overall DOE of "Moderate" is being assigned for floodplains.

An evaluation of floodplain impacts and alternatives to avoid impacts will be undertaken as part of the Project Development and Environment (PD&E) Study. Efforts will be made to avoid or minimize impacts to floodplain resources and functions. Engineering design features and hydrological drainage structures will be designed such that stormwater transport, flow, and discharge meet or exceed flood control requirements.

Degree of Effect: **3 Moderate** assigned 06/18/2019 by Trisha Stone, South Florida Water Management District

Coordination Document: Permit Required

Coordination Document Comments:

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

Direct Effects

Identified Resources and Level of Importance:

Any floodplain impacts as a result of the activities proposed in this project will need to be mitigated based on a cut-for-cut analysis. It should be noted that no impacts will be allowed in flood zone areas. In addition, any existing or previously permitted floodplain compensating storage will need to be maintained in the proposed design.

Comments on Effects to Resources:

Please see comments above.

Additional Comments (optional):

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

CLC Commitments and Recommendations:

FDOT District 5 Feedback to South Florida Water Management District's Review (07/01/2019): Thank you for your review. An evaluation of floodplain impacts and alternatives to avoid potential impacts will take place during the Project Development and Environment (PD&E) Study.

Wildlife and Habitat

Project Effects

Coordinator Summary Degree of Effect: **3 Moderate** assigned 07/01/2019 by FDOT District 5

Comments:

The Florida Fish and Wildlife Conservation Service assigned a Degree of Effect (DOE) of "Moderate" for this issue, while US Fish and Wildlife Service (FWS) and South Florida Water Management District assigned a "Minimal" DOE. Florida Department of Agriculture and Consumer Services (FDACS) assigned a "No Involvement" DOE. These agencies provided comments on Wildlife and Habitat issues citing that the project is within the geographic range and consultation area for a number of species including the Florida scrub jay, Everglade snail kite, red cockaded woodpecker, Audubon's crested caracara, Florida grasshopper sparrow, Lake Wales Ridge plants, the blue-tailed mole skink, and the sand skink. However, the presence of these species along this primarily urban corridor is unlikely.

The FDOT will conduct wildlife surveys during the Project Development and Environment (PD&E) Study and coordinate with the FWS and FWC. A Natural Resource Evaluation (NRE) will be prepared during the PD&E Study to assess potential impacts to listed species, develop avoidance and minimization efforts, and to document any involvement with wildlife and habitat resources. The NRE will assess potential for and fatal species within the corridor, as well as potential habitat for these species. The results of the NRE will be coordinated with federal and/or state resource/regulatory agencies as applicable.

Degree of Effect: **N/A N/A / No Involvement** assigned 06/24/2019 by Brian Camposano, FL Department of Agriculture and Consumer Services

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to FL Department of Agriculture and Consumer Services's Review (07/01/2019): Thank you for your review.

Degree of Effect: **1 Minimal** assigned 06/11/2019 by Zakia Williams, US Fish and Wildlife Service

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects

Identified Resources and Level of Importance:

Sand skink (*Neosaps reynoldsi*)

The EST tool identified that the project area falls within the sand skink consultation area. The potential for sand skink within this proposed corridor is not likely. There is no habitat in the area or the surrounding areas to provide suitable habitat for the species. The US FWS has no documented occurrences of sand skink in the area.

Wood Stork (*Myrtoria americana*)

The action area falls within the Core Foraging Area (CFA) of the wood stork. The project is not located close to any wood stork nesting colonies. Although the project area falls within the CFA it is unlikely that wood storks are utilizing this area for foraging.

Comments on Effects to Resources:

Wood Stork (*Myrtoria americana*)

Dependent upon the design of the project direct impacts should be avoided. To minimize adverse effects to the wood stork and other wetland dependent species, we recommend that impacts to suitable foraging habitat be avoided. If avoidance is not possible, minimization measures should be employed and best management practices to avoid further degradation of the site. Mitigation for wetland impacts should be discussed with US FWS and will require further coordination. Please refer to the North Florida Field Office website for WOST colony locations. <http://www.fws.gov/northflorida>

Coordination with the Office of Migratory Birds will be needed for all projects involving migratory birds and eagles, please contact Ugonda Kilpatrick in our Migratory Birds Permit Office at:

Migratory Birds Permit Office

1875 Century Boulevard, NE

Atlanta, Georgia 30345

352-406-6780 cell (MAN)

Surveys for all federally listed plants found in Orange and Osceola counties (the list can be found on our website northflorida.fws.gov) should be conducted by a trained botanist during the appropriate time of year.

Florida has 229 species of plants found nowhere else in the world, and most of them are rare and declining. Diverse plant communities are essential for maintaining a healthy environment for fish, wildlife, and people, and improved land conservation and land management can help restore these rare plants. To this end, the Service worked with the Florida Department of Agriculture and Consumer Services, and many universities and non-profits, to establish the Florida Rare Plant Conservation Endowment. The Endowment funds projects that are critical to preventing the extinction of Florida's rare plants. To ensure the survival of Florida's unique and rare plants the Service encourages the applicant to make a voluntary contribution of \$5,000 to the Endowment. All contributions are voluntary and tax deductible.

Wetlands

Wetlands provide important habitat for fish and wildlife. Best Management Practices (BMPs) should be used to prevent degradation of wetland and other aquatic resources from erosion, siltation, and nutrient discharges associated with the project site. We recommend that the project be designed to avoid these valuable resources to the greatest extent practicable. If impacts to wetlands are unavoidable, we recommend that the FDOT provides mitigation that fully compensates for the loss of wetland resources.

Dependent upon the alternative(s) selected, the proposed project is expected to result in minimal to moderate involvement with wildlife and habitat resources. If it is determined the project will affect and federally listed species and/or their habitat, the Department will initiate consultation with FWS during the Project Development process.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Fish and Wildlife Service's Review (07/01/2019): Thank you for your review and comments. A Natural Resource Evaluation report will be prepared as part of the Project Development and Environment (PDSE) Study. This report will document the results of field surveys and the potential for effects to federally protected species. The FDOT will coordinate with USFWS during the PDSE Study regarding species effect determinations and any impacts that cannot be avoided.

Degree of Effect: ■ *Minimal* assigned 06/18/2019 by Trisha Stone, South Florida Water Management District

Coordination Document: Permit Required

Coordination Document Comments:

An Environmental Resource Permit would be required from the South Florida Water Management District (SFWMD). A pre-application meeting

with SPWMD staff is recommended.

Direct Effects

Identified Resources and Level of Importance:

Quality of wetland habitats is minimal along the roadway corridor.

Comments on Effects to Resources:

Please see comment above.

Additional Comments (optional):

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

CLC Commitments and Recommendations:

FDOT District 5 Feedback to South Florida Water Management District's Review (07/01/2019): Thank you for your review and comments.

Degree of Effect: **3** Moderate assigned 06/12/2019 by Fritz Wettstein, FL Fish and Wildlife Conservation Commission

Coordination Document: To Be Determined: Further Coordination Required

Coordination Document Comments:

We appreciate the opportunity to provide input on highway design and the conservation of fish and wildlife resources. Please call Kristie Booth at (850) 383-8298 or email Kristie.Booth@myFWC.com and ConservationPlanningServices@myFWC.com for questions or further coordination on this project.

Direct Effects

Identified Resources and Level of Importance:

Florida Fish and Wildlife Conservation Commission (FWC) staff have reviewed ETRM #14325, Orange & Osceola Counties, and provide the following comments related to potential effects to fish and wildlife resources of this Programming Phase project.

The Project Description Summary states that this roadway currently has four travel lanes (two in each direction) with limits from US 192 to SR 536/World Center Drive for a project length of approximately 2.2 miles. The project includes the widening of SR 535 from four to six lanes and alternatives for urban interchanges at SR 535 and SR 536/World Center Drive. At this time, FDOT will not be purchasing any right-of-way (ROW). If off-site ponds are needed, then additional ROW will be purchased, otherwise FDOT will keep the drainage within the existing footprint. The project is in FDOT District 5.

An assessment of the project area was performed on lands within 500 feet of the proposed alignment to determine potential impacts to habitat which supports listed species and other fish and wildlife resources. Our inventory included a review of aerial and ground-level photography, various wildlife observation and landcover data bases, along with coordination with FWC biologists and other State and Federal agencies. A GIS analysis was performed using the Florida Department of Transportation's (FDOT) Environmental Screening Tool (EST) to determine the potential quality and extent of Upland and wetland habitat, and other wildlife and fisheries resource information. We have reviewed the Preliminary Environmental Discussion Comments Report provided by the FDOT, and offer the following comments and recommendations.

Our assessment reveals that land use in the assessment area is primarily Urban (74.46%, 219.58 acres). The rest of the corridor is a mixture of various other landcover types that include Mesic Flatwoods (12.71%, 37.47 acres), Freshwater Forested Wetland (3.86%, 11.37 acres), Extractive (3.22%, 9.49 acres), Prairies and Bogs (2.79%, 8.23 acres), Cypress/Tupelo (1.43%, 4.23 acres), Rural (0.92%, 2.72 acres), and Cultural - Lacustrine (0.62%, 1.83 acres).

Based on range and preferred habitat type, the following species listed by the Federal Endangered Species Act and the State of Florida as Federally Endangered (FE), Federally Threatened (FT), or State-Threatened (ST) have the potential to occur in the project area: Audubon's crested caracara (FT), Eastern indigo snake (FT), Everglade snail kite (FE), Florida sand skink (FT), blue-tail mole skink (FT), wood stork (FE), Florida burrowing owl (ST), Florida pine snake (ST), Florida sandhill crane (ST), gopher tortoise (ST), little blue heron (ST), roseate spoonbill (ST), Southeastern American kestrel (ST), and tricolored heron (ST). The wetland species are likely to utilize appropriate habitats in the vicinity of the project alignment.

The GIS analysis revealed several specific characteristics associated with lands along the project alignment that provide an indication of potential habitat quality or sensitivity that will require field studies to verify the presence or absence of listed wildlife species and the quality of wildlife habitat resources. The project is within the Central Florida Black Bear Management Unit with known mortality in the region. The project is within the U.S. Fish and Wildlife Service Consultation Areas for Audubon's Crested Caracara, Everglade Snail Kite, Florida Grasshopper Sparrow, Florida Sand Skink, Florida Scrub Jay, Lake Wales Ridge Plants, and Red-cockaded Woodpecker. The project is within a USFWS Core Foraging Area for the wood stork. The project also includes the Shingle Creek watershed containing the rare and imperiled fish species the ironcolor shiner.

Comments on Effects to Resources:

Primary wildlife issues associated with this project include: potential loss of wildlife habitat from expanded roadway construction; potential adverse effects to a moderate number of species listed by the Federal Endangered Species Act as Endangered or Threatened, or by the State of Florida as Threatened; and potential water quality degradation because of additional stormwater runoff from the new roadway surface draining into nearby wetlands.

Based on the project information provided, PWC staff believe that direct and indirect effects of this project could be moderate, if roadway construction is confined to the existing cleared ROW to the maximum degree possible as was stated in the project description, and degradation of adjacent or downstream water quality is avoided via inclusion of Best Management Practices in the project design.

Additional Comments (optional):

We appreciate the opportunity to provide input on highway design and the conservation of fish and wildlife resources. Please call Kristee Booth at (850) 383-6298 or email Kristee.Booth@MyPWC.com and ConservationPlanningServices@MyPWC.com for questions or further coordination on this project.

CLC Commitments and Recommendations:

FDOT District 5 Feedback to FL Fish and Wildlife Conservation Commission's Review (07/01/2019): Thank you for your review and comments. A Natural Resource Evaluation report will be developed as part of the Project Development and Environment (PDE) Study. This report will document the results of field surveys and the potential for effects to state protected species.

Coastal and Marine

Project Effects

Coordinator Summary Degree of Effect: **N/A** N/A / No involvement assigned 07/01/2019 by FDOT District 5

Comments:

The South Florida Water Management District assigned a Degree of Effect (DOE) of "N/A, No involvement". National Marine Fisheries Service assigned a DOE of "Moderate" because mixed forested wetlands, cypress-mixed hardwood wetlands, and palustrine wetlands are located within the project corridor. The proposed project is anticipated to have no involvement with coastal or marine resources and as such was assigned a "N/A No Involvement" DOE for Coastal and Marine.

Degree of Effect: **3** Moderate assigned 05/31/2019 by Jennifer Schull, National Marine Fisheries Service

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Based on our review of the information provided on the EST website, GIS-based effects analysis on wetlands and interpretation of aerial photographs, NOAA's National Marine Fisheries Service (NMFS) has determined that mixed forested wetlands, cypress-mixed hardwood wetlands, and palustrine wetlands are located within the project corridor. These wetlands range from low to moderate in quality.

Comments on Effects to Resources:

The wetlands along the proposed roadway expansion provide water quality functions, such as removal of sediments, excess nutrients, and contaminants, which benefit and support these aquatic ecosystems. Through hydrological connections, these wetlands also contribute plant material and other usable nutrients (both dissolved and particulate organic matter) into aquatic food webs that include recreationally, commercially, and ecologically important species within downstream estuaries. If wetland impacts are unavoidable, sequential minimization and mitigation should take place.

In addition to the direct impacts from filling wetlands, construction activities may impact adjacent wetlands through sedimentation and runoff.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to National Marine Fisheries Service's Review (07/01/2019): Thank you for your review and confirmation that the project will not affect National Marine Service trust resources.

Degree of Effect: **N/A** N/A / No involvement assigned 06/18/2019 by Trisha Stone, South Florida Water Management District

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to South Florida Water Management District's Review (07/01/2019): Thank you for your review.

ETAT Reviews and Coordinator Summary: Physical

Noise

Project Effects

Coordinator Summary Degree of Effect: 3 Moderate assigned 07/01/2019 by FDOT District5

Comments:

No ETAT reviews were submitted for this issue. A Degree of Effect of "Moderate" is being assigned to this resource based on the noise sensitive sites present. Noise impacts will be documented in the Noise Study Report as part of the Project Development and Environment (PDE) study in accordance with Part 2, Chapter 18 of the FDOT PDE Manual.

None found

Air Quality

Project Effects

Coordinator Summary Degree of Effect: 2 Minimal assigned 07/01/2019 by FDOT District5

Comments:

USEPA reviewed this issue and assigned a Degree of Effect of "Minimal" since this project is within an attainment area, and the impacts to air quality are expected to be minimal.

Degree of Effect: 2 Minimal assigned 06/24/2019 by Roshanna White, US Environmental Protection Agency

Coordination Document: To Be Determined: Further Coordination Required

Direct Effects

Identified Resources and Level of Importance:

A wide variety of air pollutants can be emitted from stationary and mobile sources. The EPA establishes the National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and regulates emissions of hazardous air pollutants. The proposed project is in an attainment area, so criteria pollutants under NAAQS are considered to be an acceptable level. Therefore, EPA expects the project to have minimal impact on air quality.

Comments on Effects to Resources:

The project area air quality can possibly be affected by airborne dust, and other ambient air pollutants from project construction.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (07/01/2019): Thank you for your review and comments.

Contamination

Project Effects

Coordinator Summary Degree of Effect: 3 Moderate assigned 07/01/2019 by FDOT District5

Comments:

The US Environmental Protection Agency assigned a DOE of "Moderate", while South Florida Water Management District assigned a Degree of Effect (DOE) of "NA No Involvement". The FDOT is assigning a DOE of "Moderate" based on the potentially contaminated sites in the area, including five (5) Hazardous Waste Facilities; four (4) On-site Sewage Sites; seven (7) Petroleum Contamination Monitoring Sites; five (5) Biomedical Waste Sites; one (1) Brownfield area (West 192 Development Authority Area); seven (7) Petroleum Contamination monitoring Sites; 12 Storage Tank Contamination Monitoring Sites; five (5) Super Aot Risk Sources; 11 US Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES); and four (4) USEPA Resource Conservation and Recovery Act (RCRA) Regulated Facilities within the 500-foot project buffer area.

Degree of Effect: **N/A** N/A / No Involvement assigned 06/18/2019 by Trisha Stone, South Florida Water Management District

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to South Florida Water Management District's Review (07/01/2019): Thank you for your comments. A Contamination Screening Evaluation Report will be conducted during the Project Development and Environment (PD&E) Study. Future phases of project development will incorporate the measures outlined in your comments.

Degree of Effect: **3** Moderate assigned 06/24/2019 by Roshanna White, US Environmental Protection Agency

Coordination Document: To Be Determined; Further Coordination Required

Direct Effects

Identified Resources and Level of Importance:

Within a 500-ft buffer FDOT acknowledged in its Preliminary Environmental Discussion comments:

- 5 Biomedical Waste Sites
- One Brownfield location (West 182 Development Authority Area)
- 4 Onsite Sewage Sites
- 12 Storage Tank Contamination Monitoring Sites
- 5 Super Act Risk Sources
- 7 Petroleum Contamination Monitoring Sites
- 11 EPA National Pollutant Discharge Elimination System (NPDES) permits
- 4 USEPA Resource Conservation and Recovery Act (RCRA) Regulated Facilities

Within a 500-ft project buffer, Water Quality and Quantity GIS analysis identified Lake Okeechobee (Northern Everglades and Estuaries Protection Program Watershed), the Biscayne Aquifer Sole Source Aquifer streamflow and recharge source zone, and a Principal Aquifer of the State of Florida and Recharge Area with a Florida Aquifer System FAVA response theme as more vulnerable. Contamination to the aforementioned resources is a concern. Therefore, the EPA assigns a Moderate degree of Effect to Contamination.

Comments on Effects to Resources:

Petroleum hydrocarbons are the primary constituents in oil, gasoline, diesel, as well as solvents. Petroleum hydrocarbons are the primary focus of many site and risk assessments. The petroleum constituents of primary interest to human health are aromatic hydrocarbons (benzene, ethylbenzene, toluene, and xylenes), polycyclic aromatic hydrocarbons (PAHs), gasoline additives (MTBE, TBA) and combustion emissions from flares. Other contaminated site features, such as Hazardous Waste Sites and USEPA RCRA Sites, involve other types of hazardous and solid wastes. Releases of hazardous wastes into the ground can contaminate groundwater and degrade land use. Furthermore, owners or operators have corrective obligations under RCRA.

Owners and operators are to properly install storage systems and protect their storage systems from spills, overfills, and corrosion. It is also required that correct filling practices be followed. In addition, owners and operators must report the existence of new storage systems, suspected releases, storage system closures, and keep records of operation and maintenance. If wastes are not cleaned up the property may become a brownfield site. Blighted and potentially contaminated sites negatively affect the aesthetics, criminality, and economic value of a community.

Also, construction activities may produce the release of hazardous pollutants through spills and improper storage of materials. Hazardous pollutants can infiltrate the aquifer to an area of discharge.

The EPA acknowledges and supports the following comments in the PED of the project and encourages the use of these activities during project design and development:

- A Contamination screening evaluation will be conducted and a Contamination Screening Evaluation Report will be prepared.

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (07/01/2019): Thank you for your comments. A Contamination Screening Evaluation Report will be conducted during the Project Development and Environment (PD&E) Study. Future phases of project development will incorporate the measures outlined in your comments.

Infrastructure

Project Effects

Coordinator Summary Degree of Effect: **Minimal** assigned 07/01/2019 by FDOT District5

Comments:

No ETAT reviews were submitted for this issue. A Degree of Effect of "Minimal" is being assigned to this resource based on the identified one (1) Federal Aviation Administration (FAA) aviation transportation facility (Magio Air Adventure), five (5) FAA obstructions, one (1) FM tower structures (Auditorium of Prayer and Worship, Inc.), two (2) Television Broadcast Structure Locations (both WKMG-CD), one (1) electric substation (Lake Bryon substation), and two (2) wireless antenna structures (Sprintcom and Crowncoast) within a 5,280-foot buffer. Overhead and Underground Utilities and other features may be impacted, but only on a temporary basis, mostly related to short-term construction-related activities.

None found

Navigation

Project Effects

Coordinator Summary Degree of Effect: **N/A N/A / No Involvement** assigned 07/01/2019 by FDOT District5

Comments:

The US Coast Guard and the US Army Corps of Engineers both assigned a Degree of Effect of "N/A / No Involvement" for Navigation noting that there would be no involvement with navigable waters.

Degree of Effect: **N/A N/A / No Involvement** assigned 06/17/2019 by Randy Turner, US Army Corps of Engineers

Coordination Document: Permit Required

Coordination Document Comments:

The project would require Department of the Army authorization for impacts to waters of the U.S. (wetlands) Under Section 404 of the Clean Water Act but not Under Section 10 of the Rivers and Harbor Act. The project as proposed, may qualify for the Department of the Army's Regional General Permit (RGP) - 92 for impacts to any proposed impacts to waters of the U.S. (wetlands or surface waters). If the project does not qualify for a general permit then it would need to be permitted using a Standard Individual Permit which includes the need to publish a Public Notice to other federally and State resource agencies as well as all adjacent property owners. If the wetland impacts are 0.5 acre or below, the Corps recommends using the Nationwide Permit 14 (NWP-14) for any proposed impacts to waters of the U.S. (Wetlands or surface waters).

Direct Effects

Identified Resources and Level of Importance:

None - No Involvement.

Comments on Effects to Resources:

None

Additional Comments (optional):

The project would require Department of the Army authorization for impacts to waters of the U.S. (wetlands) Under Section 404 of the Clean Water Act but not Under Section 10 of the Rivers and Harbor Act. The project as proposed, may qualify for the Department of the Army's Regional General Permit (RGP) - 92 for impacts to any proposed impacts to waters of the U.S. (wetlands or surface waters). If the project does not qualify for a general permit then it would need to be permitted using a Standard Individual Permit which includes the need to publish a Public Notice to other federally and State resource agencies as well as all adjacent property owners. If the wetland impacts are 0.5 acre or below, the Corps recommends using the Nationwide Permit 14 (NWP-14) for any proposed impacts to waters of the U.S. (Wetlands or surface waters).

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Army Corps of Engineers's Review (07/01/2019): Thank you for your review and comments.

Degree of Effect: **N/A N/A / No Involvement** assigned 05/14/2019 by Randall D Overton, US Coast Guard

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

No Coast Guard involvement

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Coast Guard's Review (07/01/2019): Thank you for your review.

ETAT Reviews and Coordinator Summary: Special Designations

Special Designations

Project Effects

Coordinator Summary Degree of Effect: **3** Moderate assigned 07/01/2019 by FDOT District5

Comments:

Both the US Environmental Protection Agency and South Florida Water Management District assigned a Degree of Effect (DOE) of "Moderate" for Special Designations issues because the project occurs within the Biscayne Sole Source Aquifer and Recharge Zone and the District holds a conservation easement in the westside of SR 535. The National Park Service assigned a DOE of N/A-No Involvement.

The GIS analysis showed that there are no aquatic preserves, Outstanding Florida Waters, Scenic Highways, or wild and scenic rivers within a 500-foot buffer of the project area. The FDOT will assign a "Moderate" Degree of Effect recognizing that effects to the sole source aquifer and conservation easement will be evaluated during the PD&E Study.

Degree of Effect: **3** Moderate assigned 06/18/2019 by Trisha Stone, South Florida Water Management District

Coordination Document: Permit Required

Coordination Document Comments:

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

Direct Effects

Identified Resources and Level of Importance:

The District holds a conservation easement in the west side of SR 535.

Comments on Effects to Resources:

Please see comment above.

Additional Comments (optional):

An Environmental Resource Permit would be required from the South Florida Water Management District (SPWMD). A pre-application meeting with SPWMD staff is recommended.

CLC Commitments and Recommendations:

FDOT District 5 Feedback to South Florida Water Management District's Review (07/01/2019): Thank you for your review and comments.

Degree of Effect: **N/A** N/A / No involvement assigned 06/19/2019 by Anita Barnett, National Park Service

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

Comments on Effects to Resources:

Additional Comments (optional):

CLC Commitments and Recommendations:

FDOT District 5 Feedback to National Park Service's Review (07/01/2019): Thank you for your review.

Degree of Effect: **3** Moderate assigned 06/24/2019 by Roshanna White, US Environmental Protection Agency

Coordination Document: Tech Memo Required

Coordination Document Comments:

Technical Document: Sole Source Aquifer Impact Determination Letter

Please contact Larry Cole, Water Protection Division, at cole.larry@epa.gov or 404.562.9474 for a Sole Source Aquifer Impact Determination Letter.

Direct Effects

Identified Resources and Level of Importance:

The Biscayne Sole Source Aquifer (SSA) is not listed as an Outstanding Florida Water Under Florida Administrative Code 62.302.700, but the January 2015 Agency Operating and Funding Agreement for Continuing Participation in Efficient Transportation Decision Making and Transportation Project Development Processes between the EPA and Federal Highway Administration, and FDOT states in Section 4-Statement of Work that USEPA will review issues for Special Designations, focusing on Sole Source Aquifers pursuant to the Safe Drinking Water Act. As the project continues into future phases of development and more detailed information on the impacts to the SSA will determine the degree of effect to this resource.

Comments on Effects to Resources:

Contaminant infiltration is of concern.

Additional Comments (optional):

Technical Document: Sole Source Aquifer Impact Determination Letter

Please contact Larry Cole, Water Protection Division, at cole.larry@epa.gov or 404.562.9474 for a Sole Source Aquifer Impact Determination Letter.

CLC Commitments and Recommendations:

FDOT District 5 Feedback to US Environmental Protection Agency's Review (07/01/2019): Thank you for your review. A Sole Source Aquifer Impact Determination Letter will be submitted to USEPA as part of the coordination associated with this PDS Study.

ETAT Reviews and Coordinator Summary: Emergency Response

Eliminated Alternatives

There are no eliminated alternatives for this project.

Project Scope

General Project Recommendations

There are no general project recommendations identified for this project in the EST.

Anticipated Permits

Permit	Type	Conditions	Review Org	Review Date
Environmental Resource Permit	Water		FDOT District 5	07/01/19
Environmental Protection Agency Sole Source Aquifer Review	Federal		FDOT District 5	05/10/19
SPWMD Environmental Resource Permit	Water		FDOT District 5	07/01/19
National Pollutant Discharge Eliminated System	FDEP		FDOT District 5	07/01/19
Sole Source Aquifer	USEPA		FDOT District 5	07/01/19
Gopher Tortoise Permit	FPACC		FDOT District 5	07/01/19
Standard (Individual) Permit	USACE		FDOT District 5	07/01/19

Anticipated Technical Studies

Technical Study Name	Type	Conditions	Review Org	Review Date
Design Traffic Technical Memorandum	ENGINEERING		FDOT District 5	07/01/2019
Final Preliminary Engineering Report (signed and sealed)	ENGINEERING		FDOT District 5	07/01/2019
Drainage Pond Siting Report	ENGINEERING		FDOT District 5	07/01/2019
Conceptual Design Roadway Plan Set	ENGINEERING		FDOT District 5	07/01/2019
Typical Section Package	ENGINEERING		FDOT District 5	07/01/2019
Value Engineering Information Report	ENGINEERING		FDOT District 5	07/01/2019
Public Involvement Plan	ENVIRONMENTAL		FDOT District 5	07/01/2019
Class of Action Determination	ENVIRONMENTAL		FDOT District 5	07/01/2019
Noise Study Report	ENVIRONMENTAL		FDOT District 5	07/01/2019
Contamination Screening Evaluation Report	ENVIRONMENTAL		FDOT District 5	07/01/2019
Conceptual Stage Relocation Plan	ENVIRONMENTAL		FDOT District 5	07/01/2019
Public Hearing Transcript	ENVIRONMENTAL		FDOT District 5	07/01/2019
Type 2 CE	ENVIRONMENTAL		FDOT District 5	07/01/2019
Quality Control Plan	ENVIRONMENTAL		FDOT District 5	07/01/2019
Sociocultural Effects Evaluation	Other		FDOT District 5	07/01/2019
Comments and Coordination Report	ENVIRONMENTAL		FDOT District 5	07/01/2019
Air Quality Technical Memorandum	ENVIRONMENTAL		FDOT District 5	07/01/2019
Water Quality Impact Evaluation	ENVIRONMENTAL		FDOT District 5	07/01/2019
Cultural Resources Assessment Survey	ENVIRONMENTAL		FDOT District 5	07/01/2019
Design Variations and Exceptions Package	ENGINEERING		FDOT District 5	07/01/2019
Location Hydraulics Technical Memorandum	ENGINEERING		FDOT District 5	07/01/2019

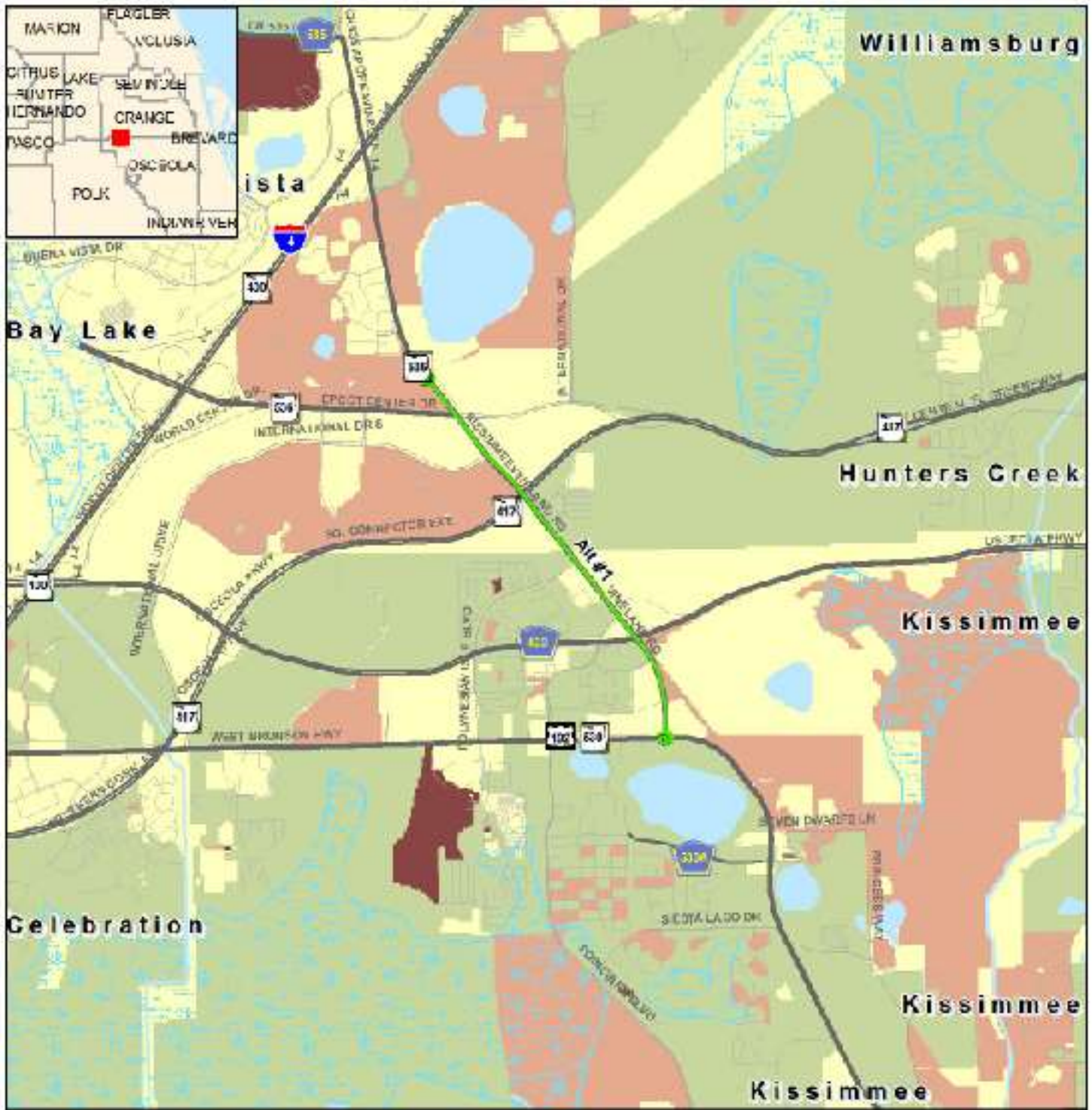
Utility Assessment Package	ENGINEERING		FDOT District 5	07/01/2019
QA/QC Plan	ENGINEERING		FDOT District 5	07/01/2019
Section 4(f) Determination of Applicability	ENVIRONMENTAL		FDOT District 5	07/01/2019
Farmland Conversion Impact Rating Form	ENVIRONMENTAL		FDOT District 5	07/01/2019
Natural Resources Evaluation (NRE)	ENVIRONMENTAL		FDOT District 5	07/01/2019

Dispute Resolution Activity Log

There are no dispute actions identified for this project in the EST.

Hardcopy Maps: Alternative #1

14325 SR 535 from US 192 to N. of SR 536/World
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 US 192 to N. of SR 536/World Center Dr.



Age Distribution Map



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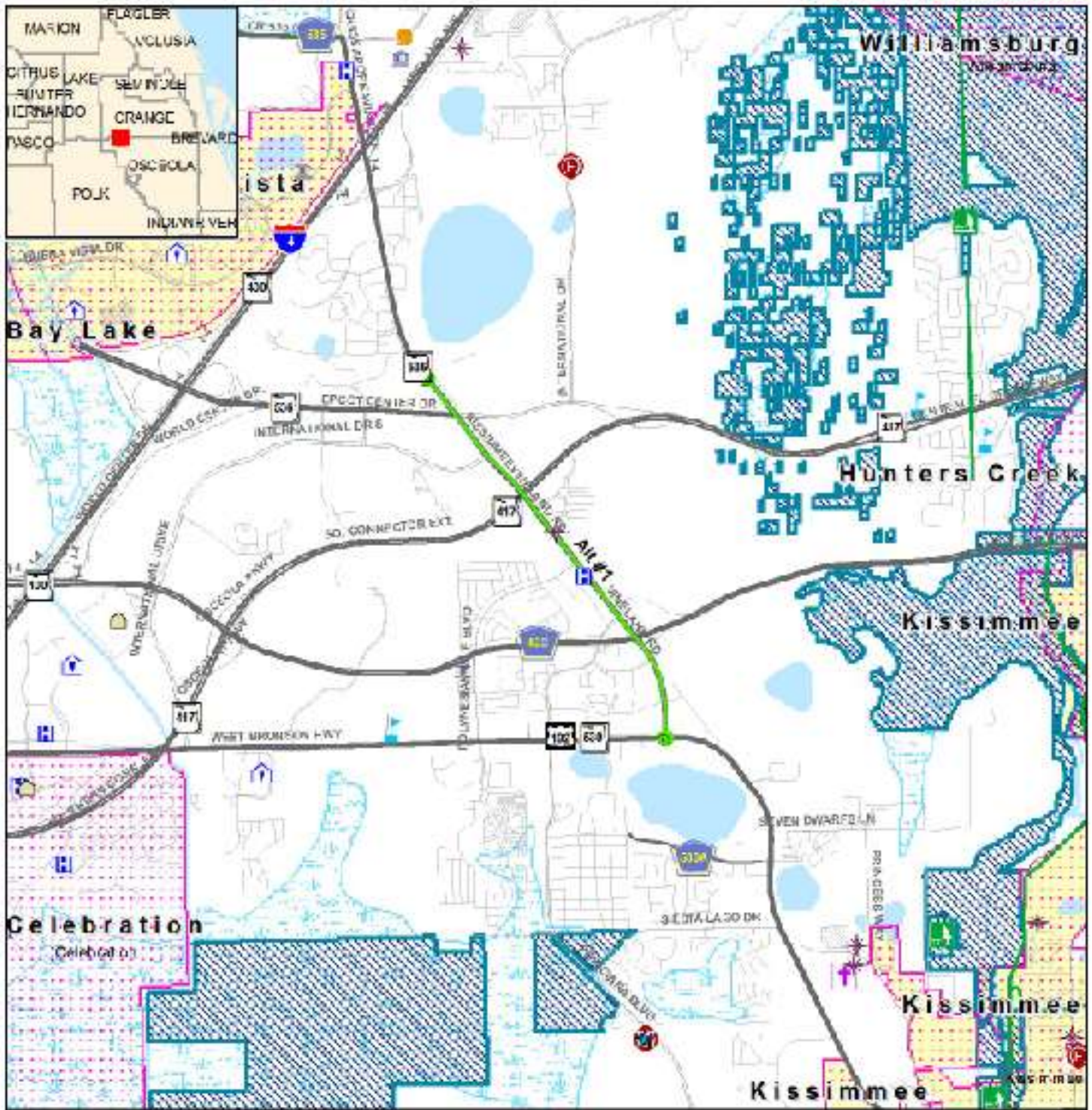
Coastal and Marine Map

ETCM Alternative	Swamp or Marsh	Coastal Barrier Resilience Area	Non-vegetated Wetland
ETCM Alternative Terminals	Exposed Rocky Platform	Continuous Seagrass	Vegetated Non-forested Wetland
Dry Limits	Sand Beach	Discontinuous Seagrass	Wetland Forested Mixed
Navigable Water Way	Gravel Beach/Riprap	Aquatic Preserve	Wetland Coniferous Forest
Exposed / d/dl Flat	Sheltered Tidal Flat		Wetland Hardwood Forest
Mixed Sand And Gravel Beach	Sheltered Rock/Seawall/Vegetated		
Exposed Vertical Rocky Shore/Seawall			

Data Sources: NAVTEQ; US Geological Survey; Florida Marine Research Institute; Florida Department of Transportation; Florida Department of Environmental Protection; National Oceanic and Atmospheric Association; Florida Water Management Districts

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14325 SR 535 from US 192 to N. of SR 536/World
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Community Services Map

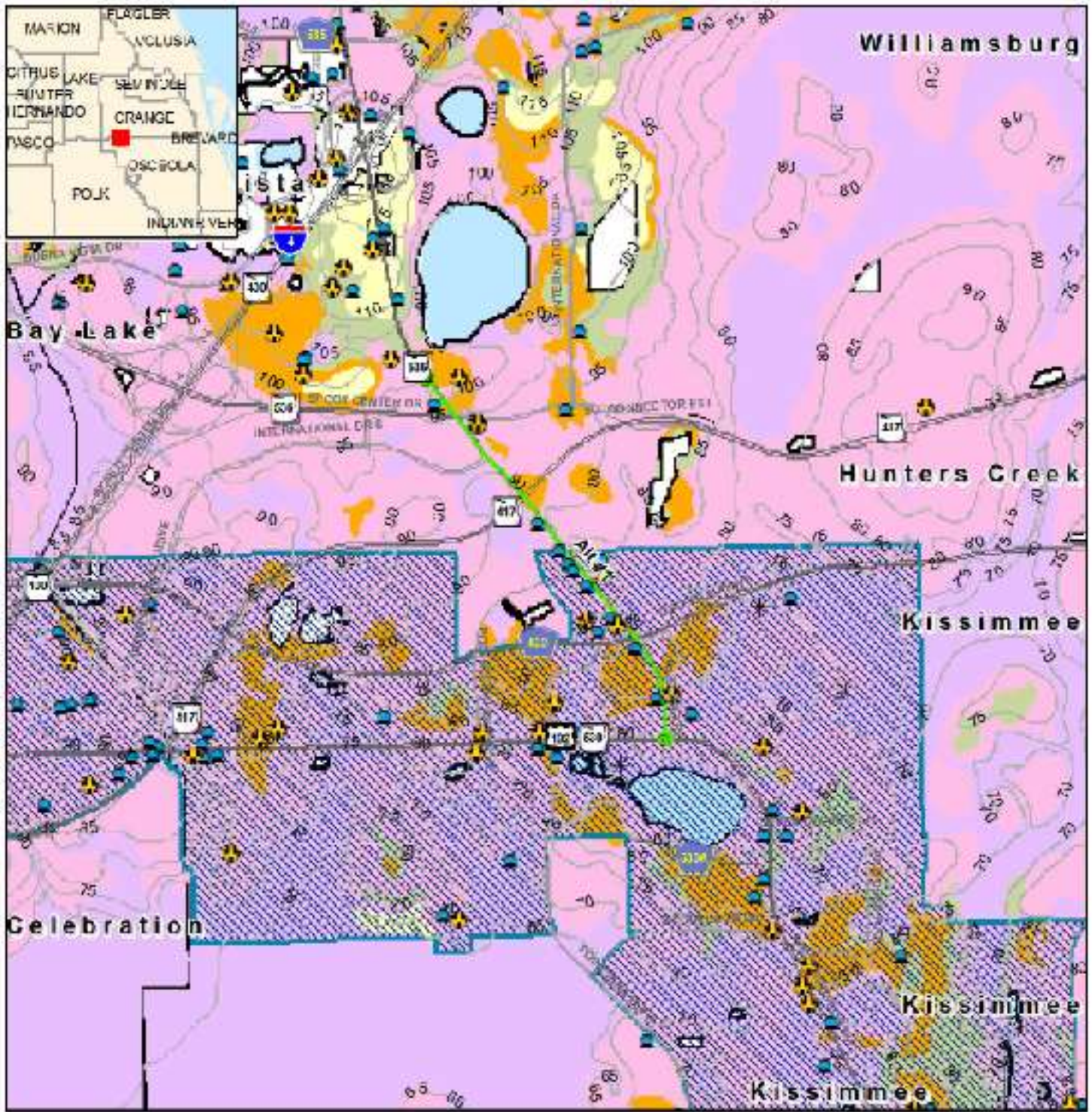
ETDM Alternative	Government	Law Enforcement	Health Care	Recreational Trail
ETDM Alternative Terminus	Civic Center	Place of Worship	School	Community Boundary
Major Road	Cemetery	Cultural Center	Park	Conservation or Recreation Area
Local Road or Trail	Social Service	Fire Station		
City Limits	Community Center			

Data Sources:
 US Geological Survey, FL Department of Transportation, NA/TEO, FL Property Appraisers, FL Natural Areas Inventory

Scale: 0 0.2 0.4 0.6 Miles

4/2/2018

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Contamination Map

ETDM Alternative	Solid Waste Facility	RDEP Tanks	Soil Drainage	Somewhat Poorly Drained
ETDM Alternative Terminus	Hazardous Material Site	5 FT Contour	Excessively Drained	Poorly Drained
Major Road	Power Plant	Former Land Area	Well Drained	Very Poorly Drained
Local Road or Trail	Superfund Site		Somewhat Excessively Drained	Unclassified
Toxic Release Inventory	Nuclear Site		Moderately Well Drained	
Dry Cleaning Facility				

Data sources: FDOT, US Geological Survey, FL Department of Transportation, FL Department of Environmental Protection, FL Water Management Districts, US Environmental Protection Agency, Natural Resource Conservation Service.

Scale: 0 0.2 0.4 0.6 miles
 North arrow pointing up.

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Cultural Resources Data Map

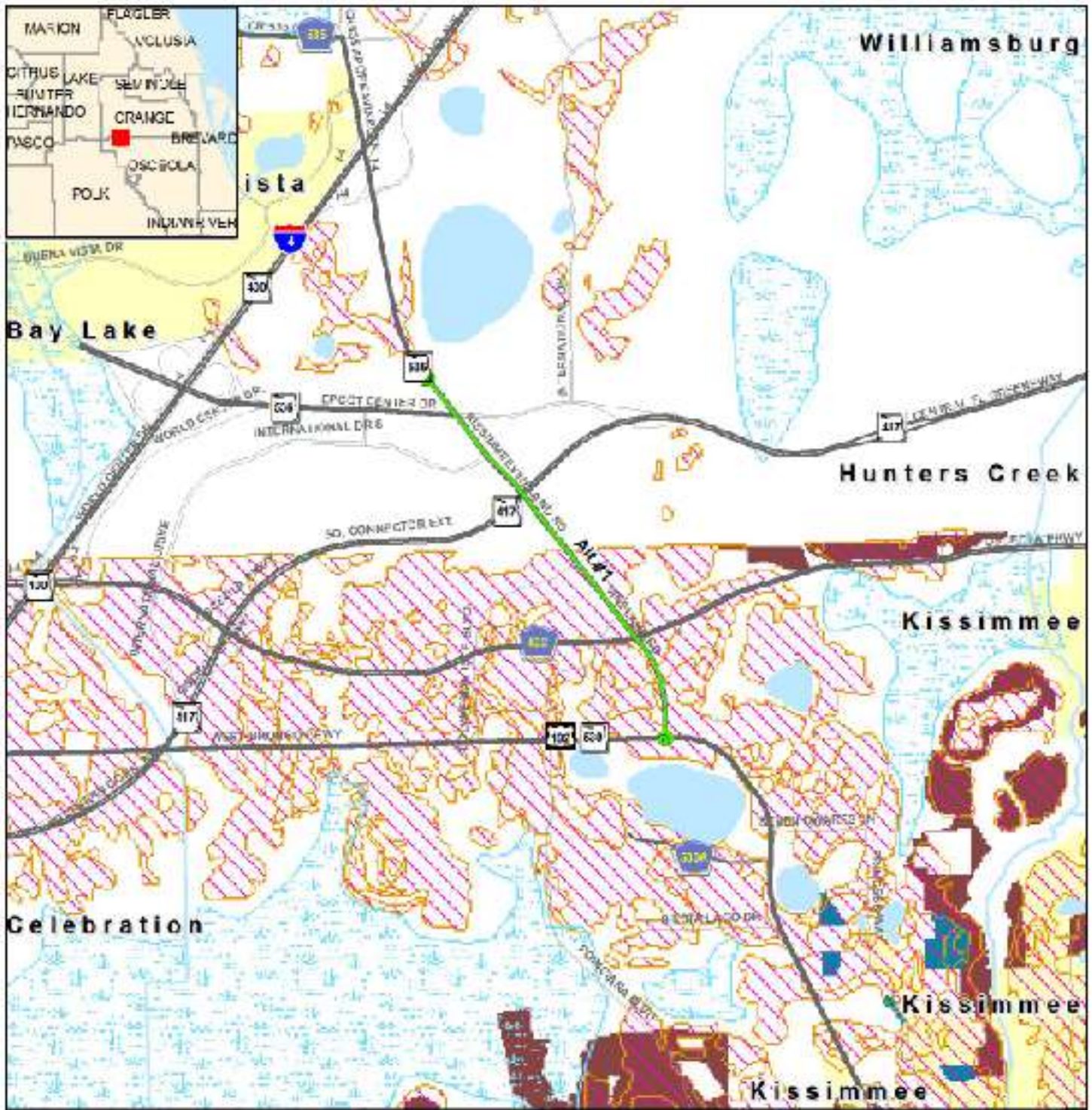
- ETCM Alternative
 - Major Road
 - Local Road or Trail
 - ★ Historic Structure
 - Historic Bridge
 - State Historic Highway
 - Historic Cemetery
 - Historic Resource Group
 - Cultural Resource Field Survey Area
 - ETCM Alternative
- Year Built**
- Pre 1970
 - Post 1980
 - 1970 - 1979
 - Parcels w/ no values



Data Sources:
 11/17/20
 US Geological Survey
 Florida Department of Transportation
 Florida Department of State
 Bureau of Archaeological Research



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Farmlands Map

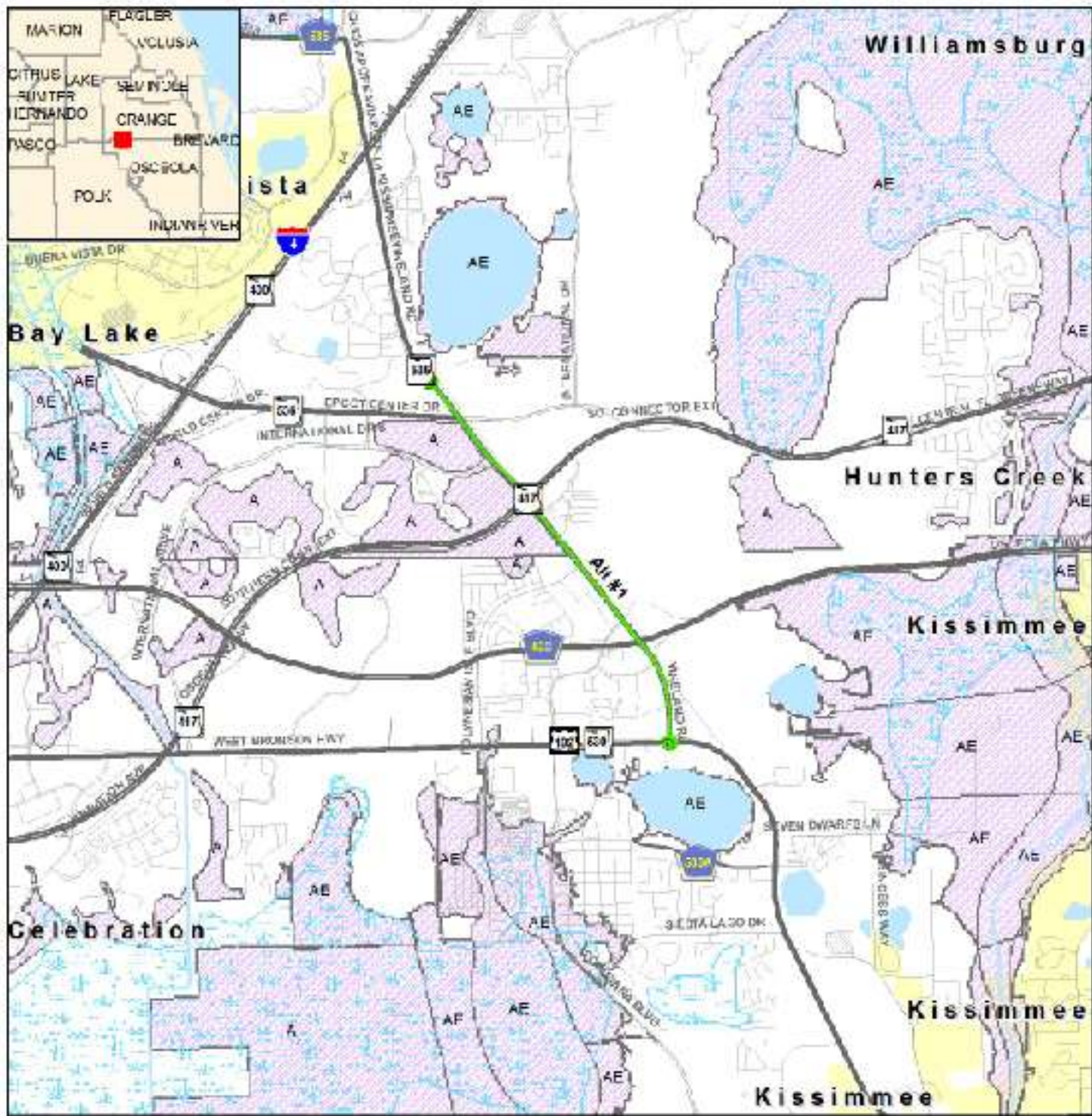
FTDM Alternative	Cropland/Pastureland	Prime Farmland Soils
ETDM Alternative Terminus	Nurseries/Wayyards	
Major Road	Specialty Farms	
Local Road or Trail	Tree Crops	
City Limits	Rural Open Lands	

Data Sources:
 NAUTCO
 Florida Water Management Districts
 US Geological Survey
 National Resources Conservation Service

0 0.2 0.4 0.8 Miles

4/2/2018

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Floodplains Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits
- Special Flood Hazard Area

0 0.25 0.5 1 mile

3/12/2019

Data Source:
 NAVTEC
 US Geological Survey
 Federal Emergency Management Agency



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**14325 SR 535 from US 192 to N. of SR 536/World
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Historic Resource Map

E/DM Alternative	Year Built	Historic Structure	Data Sources: NAVTRC US Geological Survey Florida Department of Transportation Florida Department of State, Bureau of Archaeological Research
E/DM Alternative Terminus	Pre 1970	Historic Bridge	
Major Road	Post 1980	State Historic Highway	
Local Road or Trail	1970 - 1979	Historic Cemetery	
	Parcels with no values	Historic Resource Group	
		Cultural Resource Field Survey Area	

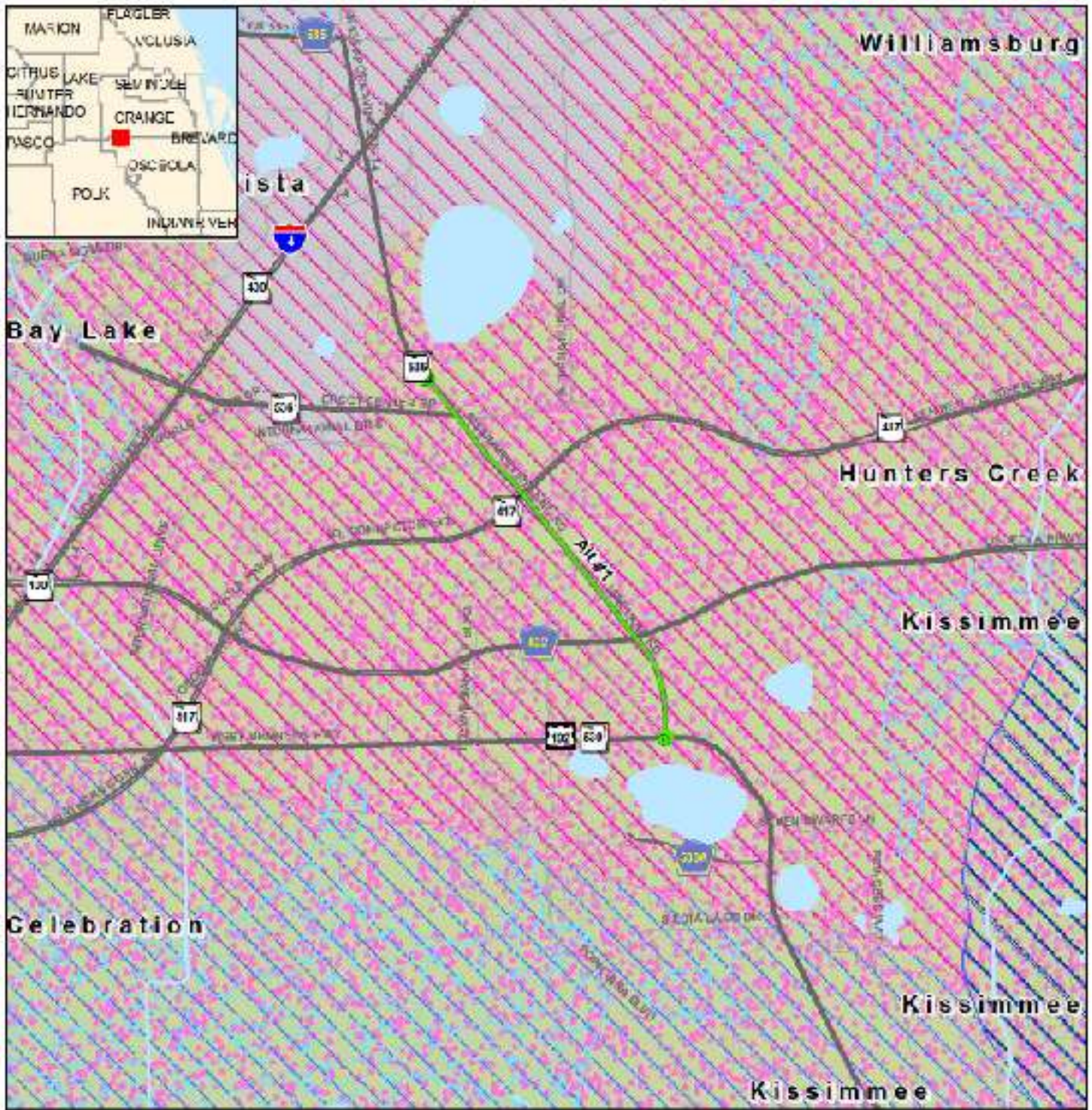
Note: Historic properties depicted on this map represent resources listed in the Florida Master Site File excluding archeological site locations which, pursuant to Chapter 267.135, Florida Statutes, may be exempt from public record (Chapter 119.07, Florida Statutes). Absence of features on the map does not necessarily indicate an absence or record in the project vicinity.

0 0.2 0.3 1 Miles

4/2/2018

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**14325 SR 535 from US 192 to N. of SR 536/World
Center Dr., Alternative #1
US 192 to N. of SR 536/World Center Dr**



Hydrogeology Map

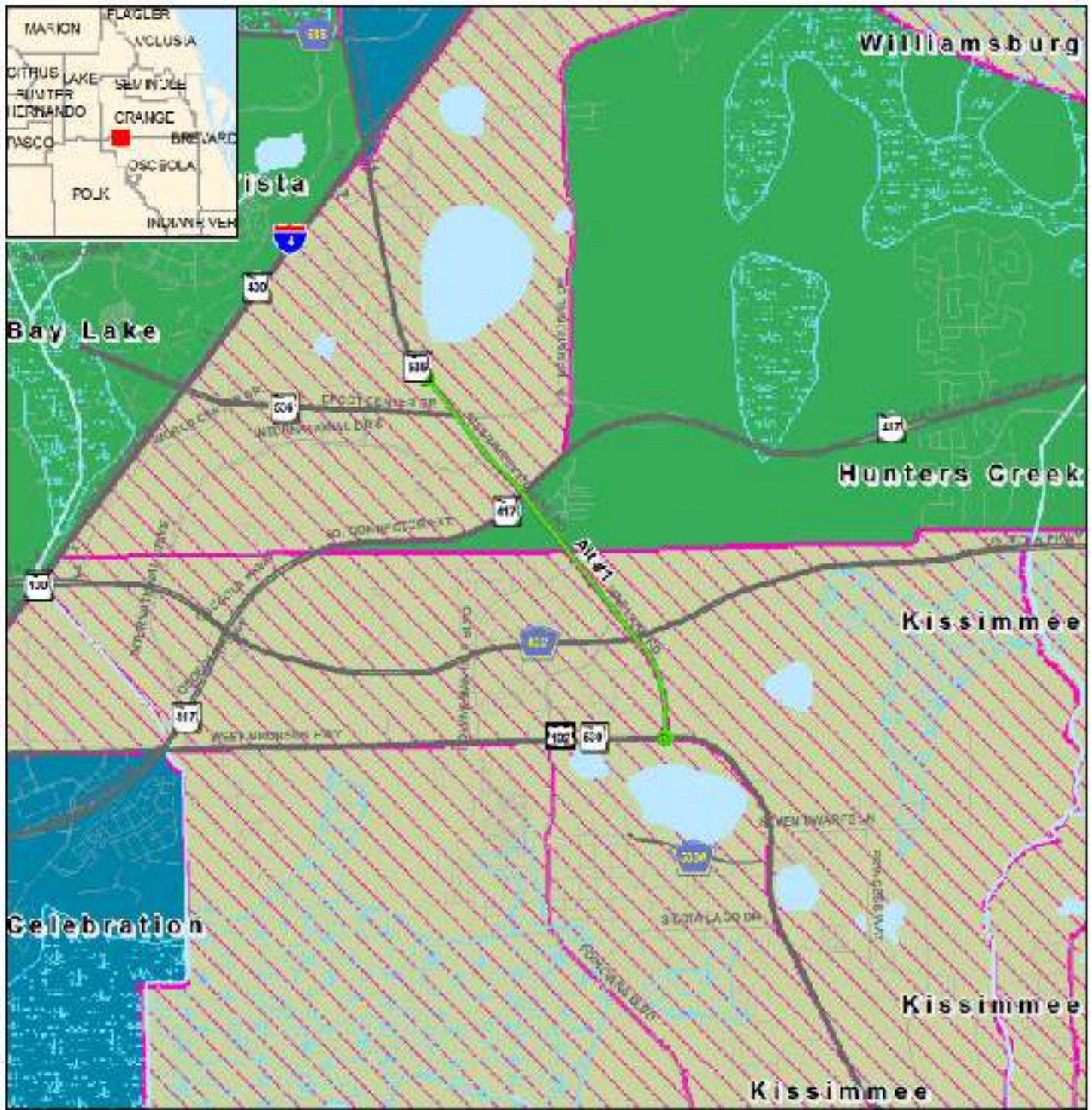
<ul style="list-style-type: none"> ■ ETDMA Alternative ● FPDMA Alternative Terminus — Major Road — Local Road or Trail ○ City Limits 	<p>Recharge Areas of the Floridan Aquifer</p> <ul style="list-style-type: none"> Discharge 1 to 5 Discharge > 5 Discharge < 1 Recharge 1 to 10 Recharge > 10 Recharge < 1 	<p>Surface Geology</p> <ul style="list-style-type: none"> Pliocene Miocene Miocene/Pliocene 	<ul style="list-style-type: none"> Oligocene Oligocene/Miocene Holocene Holocene 	<ul style="list-style-type: none"> Pleistocene/Holocene Pliocene Holocene/Holocene
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Data Sources: NA/TBD; US Geological Survey
Florida Department of Transportation
South West Florida Water Management District
Florida Geological Survey

5/12/2018

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**14325 SR 535 from US 192 to N. of SR 536/World
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Income Map

<ul style="list-style-type: none"> ■ ETDM Alternative ■ ETDM Alternative Terraces Major Road Local Road or Trail > 20% Below Poverty 	<p>Median Household Income</p> <ul style="list-style-type: none"> 0 - 10,000 10,001 - 29,999 30,000 - 49,999 50,000 - 79,999 80,000 - 125,000 > 125,000 	<p>Data Sources: US Geological Survey FL Department of Transportation NWI file US Census Bureau (2010)</p>
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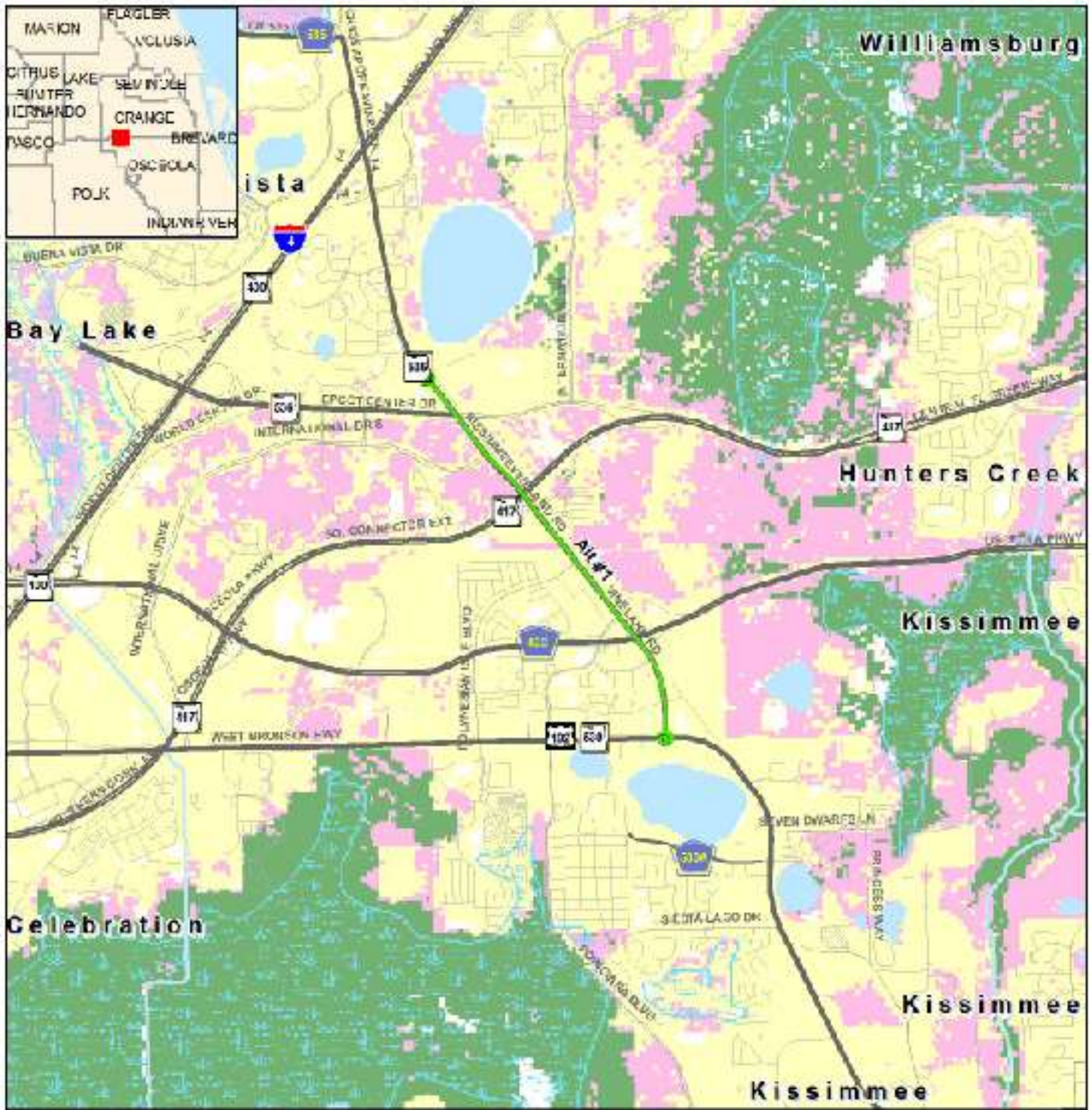
0 3.25 6.5 13 miles

N

5/12/2019

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14325 SR 535 from US 192 to N. of SR 536/World
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Integrated Wildlife Model Map

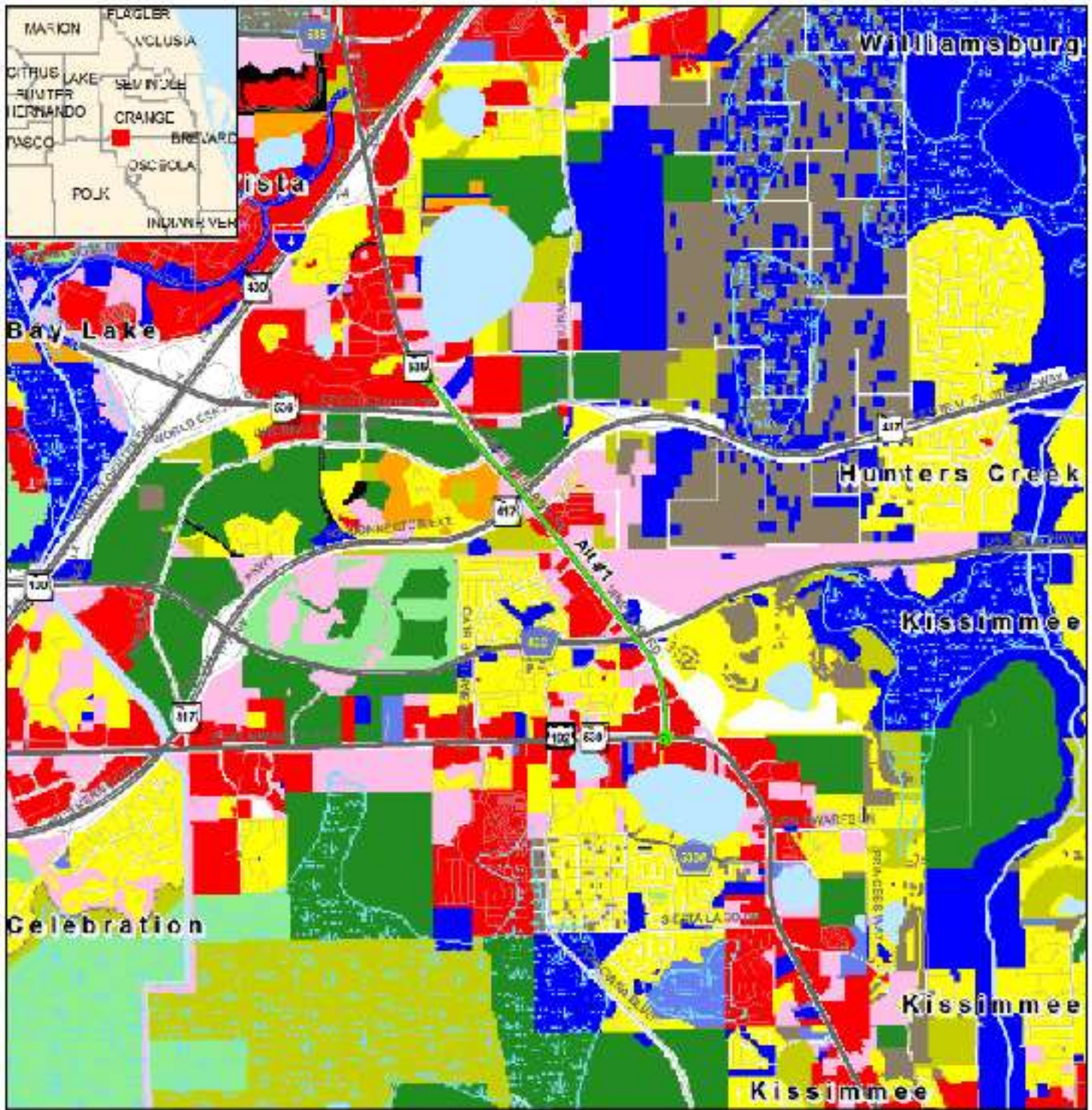
<ul style="list-style-type: none"> ■ ETDMA Alternative ● ETDMA Alternative Terminus — Major Road — Local Road or Trail 	<ul style="list-style-type: none"> Low Habitat Quality Medium Habitat Quality High Habitat Quality 	<p>Data Sources: NAVTEC US Geological Survey Florida Department of Transportation Florida Fish & Wildlife Conservation Commission</p>
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0 0.5 1 1.5 Miles

Environmental Training & Mapping

5/12/2019

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Land Use Map

FTRM Alternative	Agricultural	Other	Retail/Office
ETRM Alternative (minus)	Industrial	Public	Vacant (Residential)
Major Road	Institutional	Right-of-Way	Vacant (Nonresidential)
Local Road (if any)	Mining	Recreational	Water
	Open (Not Agriculture)	Residential	No Data

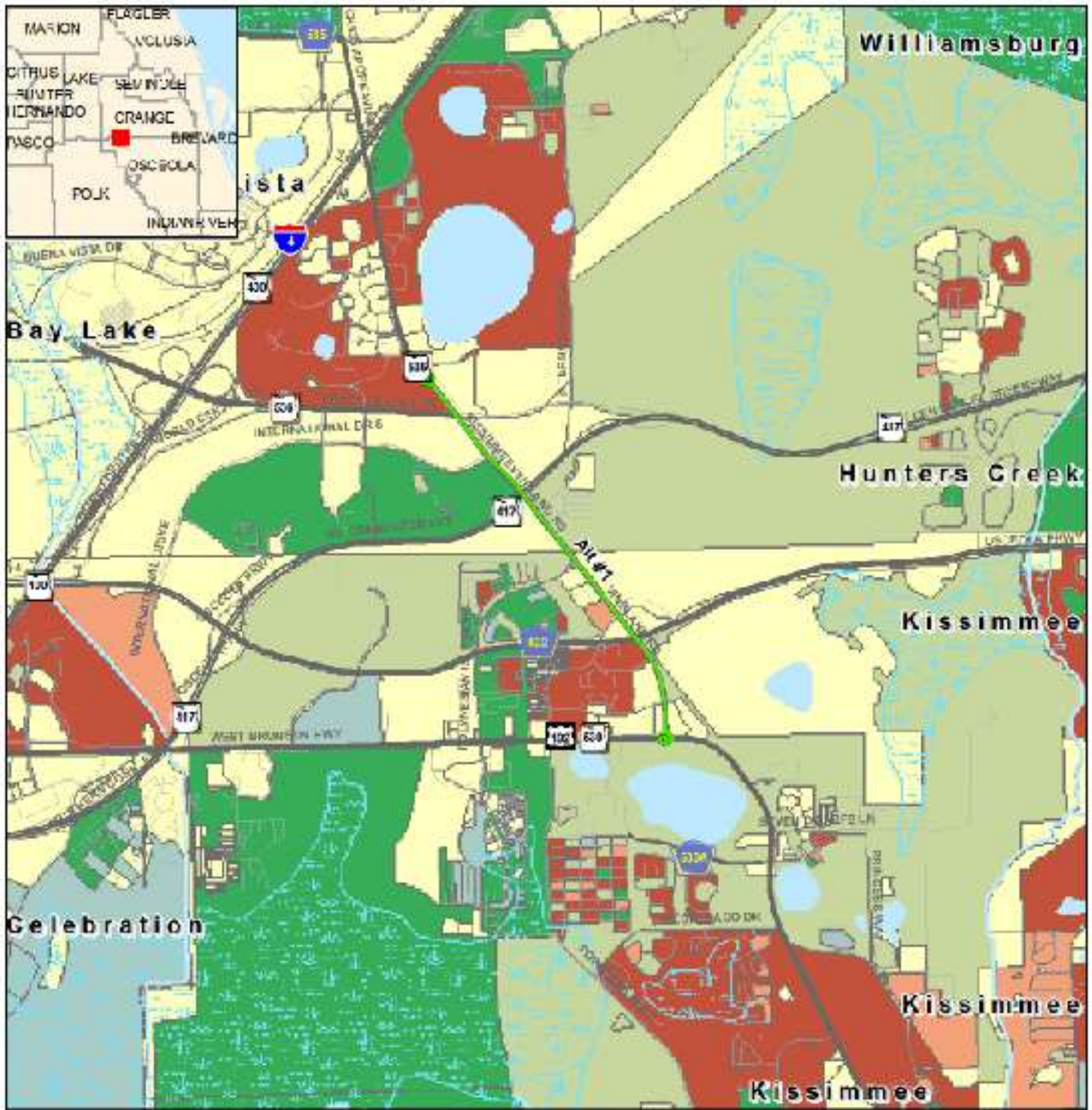
Data Source:
 NAU/FCO
 US Geological Survey
 Florida Department of Revenue
 Florida Department of Transportation
 Florida County Property Appraiser Offices

0 0.25 0.5 1 Miles

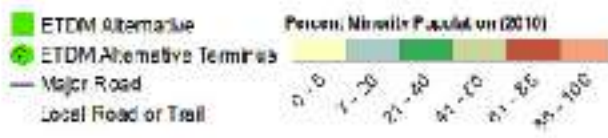
5/12/2019

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14325 SR 535 from US 192 to N. of SR 536/World
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Minority Population Map



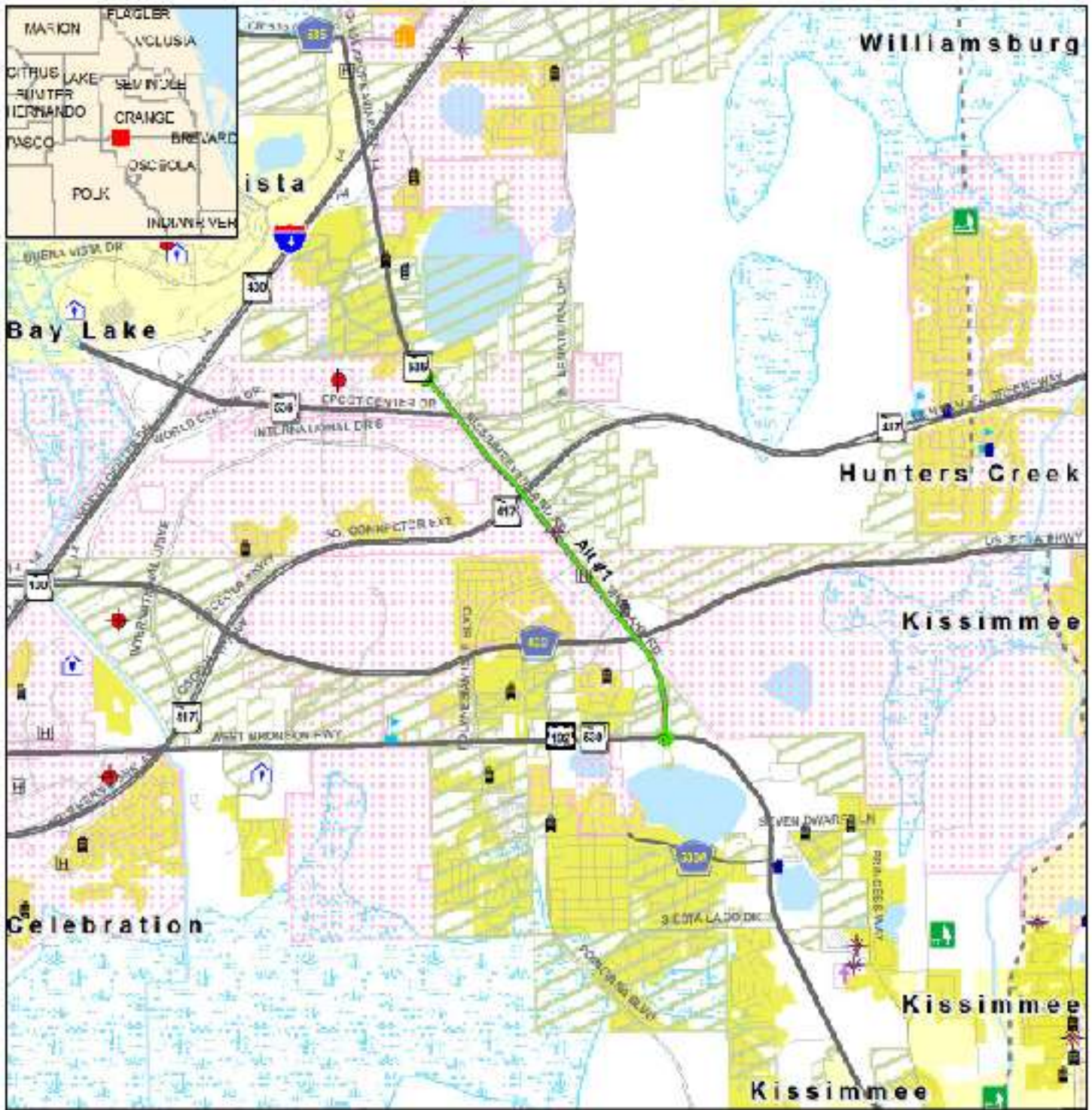
Data Source:
 US Geological Survey
 FL Department of Transportation
 NAVTEC
 US Census Bureau (2010)



3/12/2018

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Noise Map

FTTM Alternative	Civic Owners Associations	Cultural Center	Historic Cemetery	ETAT.LU_NW_INDUSTRIAL_10
EUM Alternative	Hospitals	Health Care	Planned Unit Developments	ETAT.LU_NW_RESIDENT_10
City Limits	Laser Noise	Park	Wildlife Refuges	HUD Renewal
Noise Barriers	Group Care Facilities	National Parks	National Park Projects	NREI Estuarine Reserves
Fencing Trails	Cemetery	Place of Worship	Marine Sanctuaries	Enterprise Zones
	Community Center	School	Military Installations	DRI

0 0.2 0.4 0.8 Miles

Data Sources:
 The Plan Center, US Geological Survey, US Census Bureau,
 HUD, Florida DDT, US Fish and Wildlife, National Park Service,
 NOAA, National Estuarine Research Enterprise Florida

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14325 SR 535 from US 192 to N. of SR 536/World
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Population Density Map



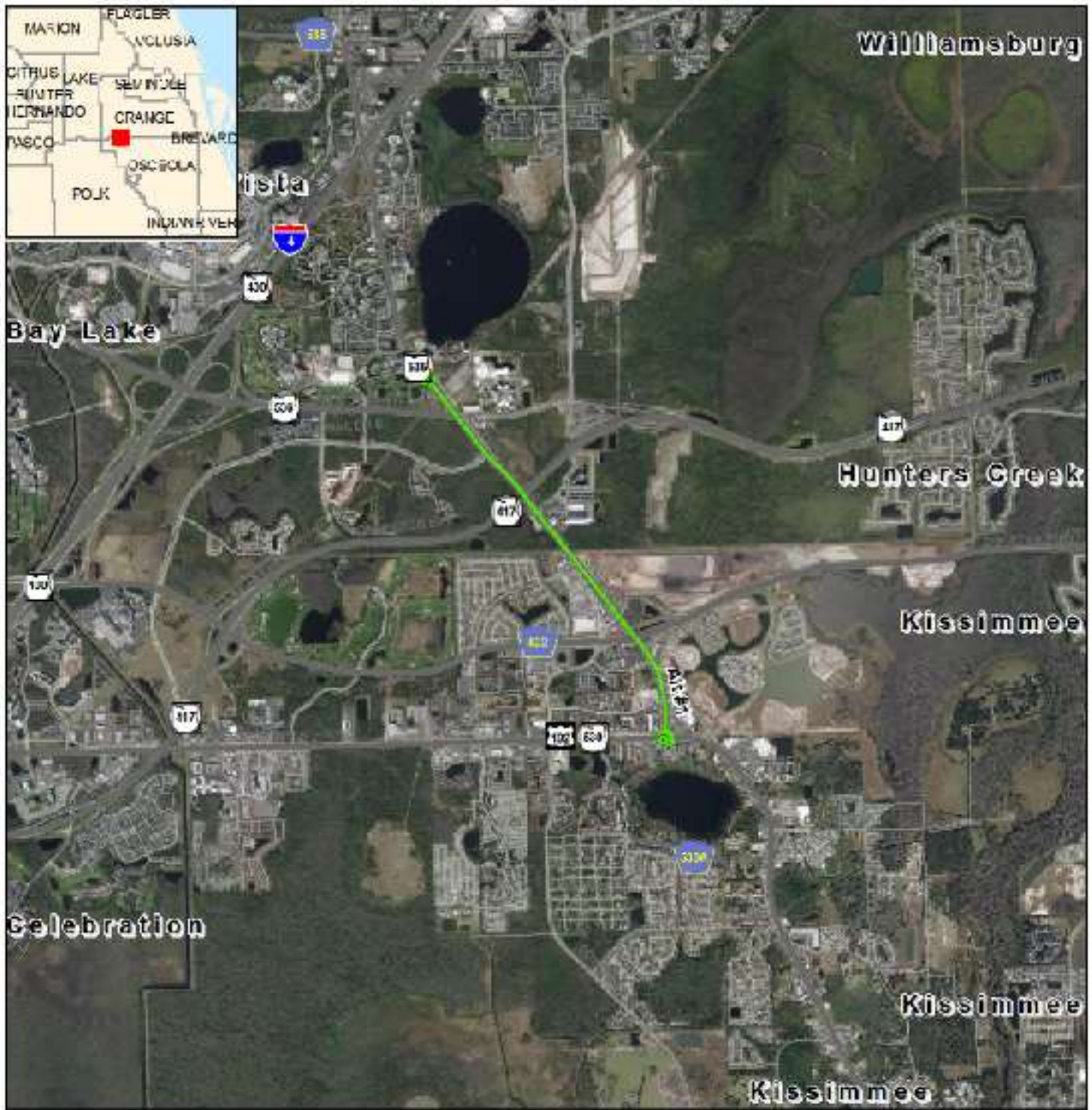
Data Sources:
 US Geological Survey
 FL Department of Transportation
 NWRI
 US Census Bureau (2010)



3/12/2018

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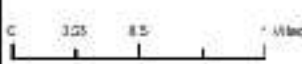
14325 SR 535 from US 192 to N. of SR 536/World
 Center Dr., Alternative #1
 US 192 to N. of SR 536/World Center Dr.



Project Aerial Map

- ETDN Alternative
- ETDN Alternative Terminus
- Major Road
- Local Road or Trail

Data Sources:
 Highways - MA/TBC
 Digital Orthophotograph - ArcGIS Online



3/12/2020

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14325 SR 535 from US 192 to N. of SR 536/World
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Project Base Map

- ETCM Alternative
- ETCM Alternative Terminus
- Local Road or Trail
- Major Road
- City Limits
- Managed Conservation Lands

Data Sources:
 NAVTEQ
 US Geological Survey
 US Census Bureau
 County Property Appraisers
 Florida Nature Area Inventory

0 30 60 90 Miles

etdm
 Environmental Technology & Design

FDOT

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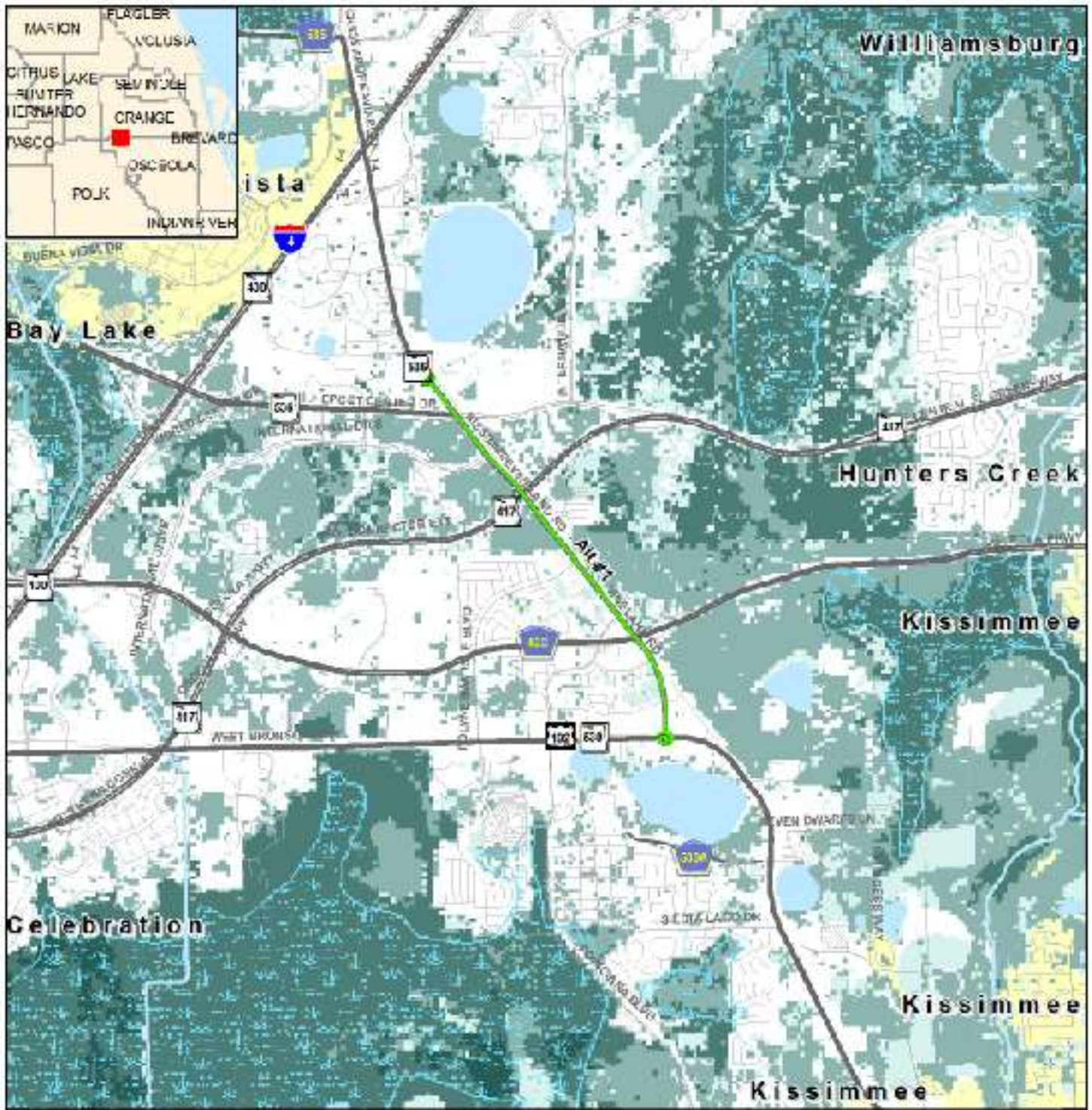
Recreational Areas Map

<ul style="list-style-type: none"> ■ ETCM Alternative ● ETCM Alternative Terminus — Major Road — Local Road or Trail ■ City Limits 	<ul style="list-style-type: none"> Conservation or Recreation Area 	<p>Data Sources: NAVTEQ US Geological Survey Florida Natural Areas Inventory</p>
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0 3.25 6.5 13.0 Miles

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14325 SR 535 from US 192 to N. of SR 536/World
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Species Potential Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits

Potential Habitat Richness

1 - 2 Species
 3 - 5 Species
 6 - 10 Species
 11 - 15 Species

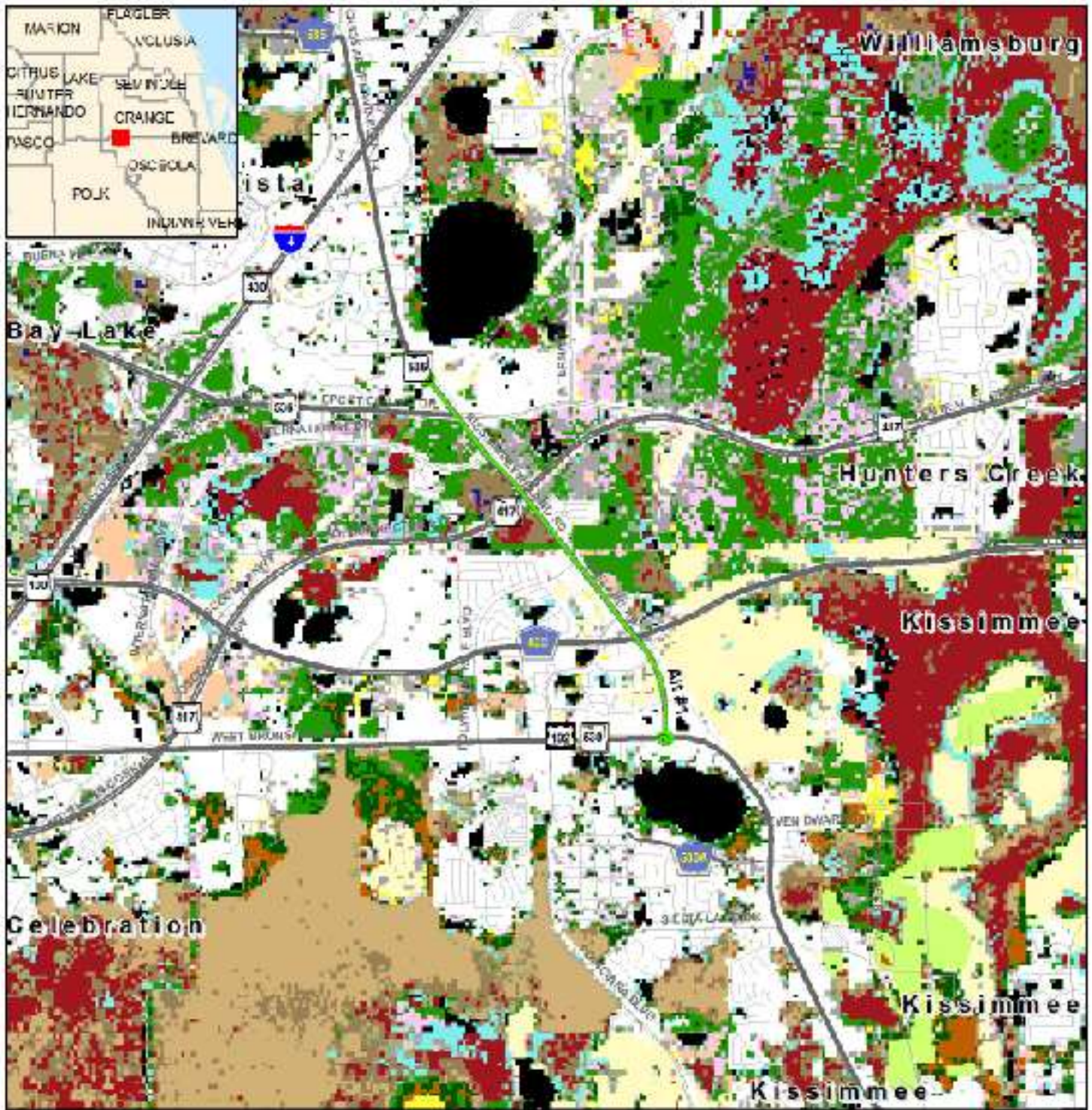
Data Sources:
 NAVTEO
 US Geological Survey
 Florida Department of Transportation
 Florida Fish & Wildlife Conservation Commission

0 0.5 1 1.5 Miles

5/12/2018

etdm
 Environmental Technology
 FDOT

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Vegetation Map



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Water Resource Map

ETDM Alternative	1st Magnitude Spring	Drainage Basin	Water Body
ETDM Alternative Terminus	River, Stream or Canal	Outstanding Florida Water	Swamp/Marsh
Major Road	Navigable Water Way	Surface Water Class I	
Local Road or Trail	RFWMD Canal	Surface Water Class II	
City Limits			

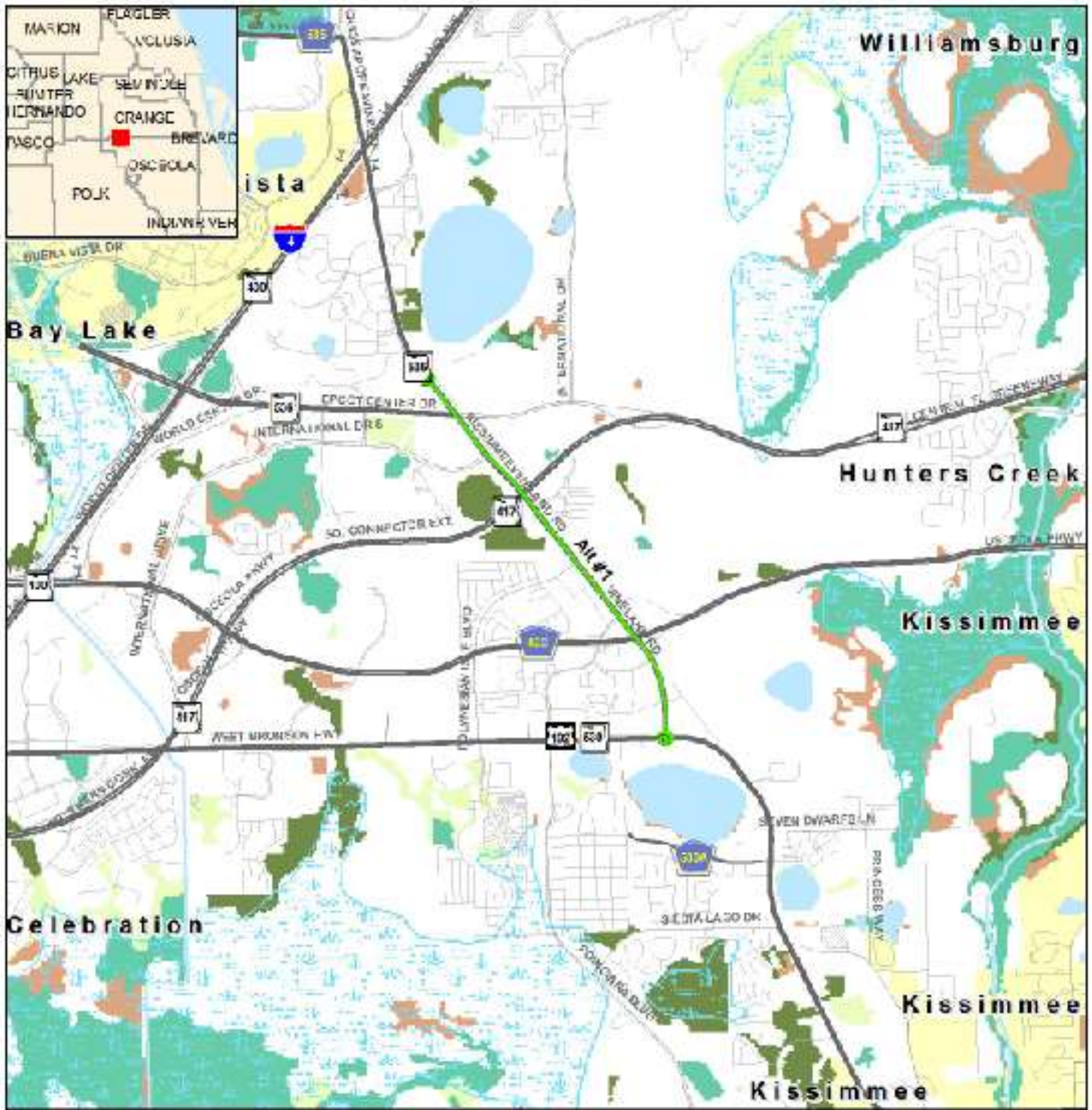
Data Sources:
 NA/TEC
 US Geological Survey
 Florida Department of Transportation
 Florida Department of Environmental Protection
 Florida Geological Survey
 US Bureau of Transportation Statistics

Scale: 0 0.5 1 1.5 Miles

5/12/2019

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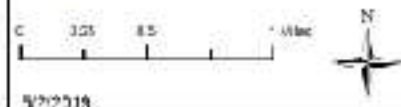
14325 SR 535 from US 192 to N. of SR 536/World
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Wetlands and Surface Waters Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits
- River, Stream or Canal
- Water Body
- Swamp/Marsh
- Non-vegetated Wetland
- vegetated Non-forested Wetland
- Wetland Forested Mixed
- Wetland Coniferous Forest
- Wetland Hardwood Forest

Data Sources:
 NW 5G
 Florida Water Management Districts
 US Geological Survey



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Appendices

PED Comments

Advance Notification Comments

FL Department of Agriculture and Consumer Services Comment --

No additional comment

--Brian Camposano, 6/24/2019

Response --

--, \$tools.date.format("M/d/yyyy", \$commentresponseTimestamp)

US Army Corps of Engineers Comment --

The Corps has no issues with the Advance Notification Package and concurs with the initial assessment of Wetlands and Surface Water and Navigation issues.

--Randy Turner, 6/17/2019

Response --

--, \$tools.date.format("M/d/yyyy", \$commentresponseTimestamp)

FL Fish and Wildlife Conservation Commission Comment --

FWC comments have been recorded in the ETDM Programming Screen. We appreciate the opportunity to provide input on highway design and the conservation of fish and wildlife resources. Please call Kristie Booth at (850) 363-6296 or email Kristie.Booth@MyFWC.com and ConservationPlanningServices@MyFWC.com for questions or further coordination on this project.

--Fritz Wettstein, 6/12/2019

Response --

--, \$tools.date.format("M/d/yyyy", \$commentresponseTimestamp)

FL Department of State Comment --

No comments

--Adrienne Daggott, 5/10/2019

Response --

--, \$tools.date.format("M/d/yyyy", \$commentresponseTimestamp)

GIS Analyses

Since there are so many GIS Analyses available for Project #14325 - SR 535 from US 192 to N. of SR 538/World Center Dr., they have not been included in this ETDM Summary Report. GIS Analyses, however, are always available for this project on the Public ETDM Website. Please click on the link below (or copy this link into your Web Browser) in order to view detailed GIS tabular information for this project:

<http://etdmpub.fl-aia.org/est/index.jsp?projectId=14325&startPageName=GIS%20Analysis%20Results>

Special Note: Please be sure that when the GIS Analysis Results page loads, the Project Published 7/03/2019 Milestone is selected. GIS Analyses snapshots have been taken for Project #14325 at various points throughout the project's life-cycle, so it is important that you view the correct snapshot.

Project Attachments

Note: Attachments are not included in this Summary Report, but can be accessed by clicking on the links below:

Date	Type	Size	Link / Description
------	------	------	--------------------

Degree of Effect Legend

Color Code	Meaning	ETAT	Public Involvement
N/A	Not Applicable / No Involvement	There is no presence of the issue in relationship to the project, or the issue is irrelevant in relationship to the proposed transportation action.	
0	None (after 12/5/2005)	The issue is present, but the project will have no impact on the issue; project has no adverse effect on ETAT resources; permit issuance or consultation involves routine interaction with the agency. The <i>None</i> degree of effect is new as of 12/5/2005.	No community opposition to the planned project. No adverse effect on the community.
1	Enhanced	Project has positive effect on the ETAT resource or can reverse a previous adverse effect leading to environmental improvement.	Affected community supports the proposed project. Project has positive effect.
2	Minimal	Project has little adverse effect on ETAT resources. Permit issuance or consultation involves routine interaction with the agency. Low cost options are available to address concerns.	Minimum community opposition to the planned project. Minimum adverse effect on the community.
2	Minimal to None (assigned prior to 12/5/2005)	Project has little adverse effect on ETAT resources. Permit issuance or consultation involves routine interaction with the agency. Low cost options are available to address concerns.	Minimum community opposition to the planned project. Minimum adverse effect on the community.
3	Moderate	Agency resources are affected by the proposed project, but avoidance and minimization options are available and can be addressed during development with a moderate amount of agency involvement and moderate cost impact.	Project has adverse effect on elements of the affected community. Public involvement is needed to seek alternatives more acceptable to the community. Moderate community interaction will be required during project development.
4	Substantial	The project has substantial adverse effects but ETAT understands the project need and will be able to seek avoidance and minimization or mitigation options during project development. Substantial interaction will be required during project development and permitting.	Project has substantial adverse effects on the community and faces substantial community opposition. Intensive community interaction with focused Public Involvement will be required during project development to address community concerns.
5	Potential Dispute (Planning Screen)	Project may not conform to agency statutory requirements and may not be permitted. Project modification or evaluation of alternatives is required before advancing to the LRTP Programming Screen.	Community strongly opposes the project. Project is not in conformity with local comprehensive plan and has severe negative impact on the affected community.
5	Dispute Resolution (Programming Screen)	Project does not conform to agency statutory requirements and will not be permitted. Dispute resolution is required before the project proceeds to programming.	Community strongly opposes the project. Project is not in conformity with local comprehensive plan and has severe negative impact on the affected community.
	No ETAT Consensus	ETAT members from different agencies assigned a different degree of effect to this project, and the ETDI coordinator has not assigned a summary degree of effect.	
	No ETAT Reviews	No ETAT members have reviewed the corresponding issue for this project, and the ETDI coordinator has not assigned a summary degree of effect.	



Florida Department of Transportation

RON DESANTIS
GOVERNOR

715 South Woodland Boulevard
Tallahassee, Florida 32304-6834

KEVIN J. THIBAUT, P.E.
SECRETARY

May 9, 2019

Mr. Chris Stahl, Environmental Manager
Florida State Clearinghouse
Department of Environmental Protection
3900 Commonwealth Boulevard, Mail Station 47
Tallahassee, FL 32399-3000

RE: Advance Notification
S.R. 535 from U.S. 192 to N. of S.R. 536 Project Development and Environment Study
ETDM Number: 14325
Financial Management Number: 437-74-2-22-01
Orange & Osceola Counties, Florida

Dear Mr. Stahl:

This Advance Notification (AN) package is being sent to your office for distribution to State agencies that conduct federal consistency reviews (consistency reviewers) in accordance with the Coastal Zone Management Act and Presidential Executive Order 12372. Although we will request specific comments during the permitting process, we are asking that consistency reviewers examine the attached information and provide us with their comments.

Consistency reviewers have 45 days from the Programming Screening Notification to provide their comments. Once you have received their comments, please submit a consistency determination for the State of Florida within 60 days of the Programming Screen Notification. If you need more review time, send a written request for an extension to our office within the initial 60-day comment period.

This is a federal action. 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 December 14, 2016 and executed by the Federal Highway Administration and FDOT. FDOT will determine what type of environmental documentation will be necessary. The determination will be based upon in-house environmental evaluations and comments received through coordination with other agencies. Please provide a consistency review for this project in accordance with the State's Coastal Zone Management Program.

In addition, please review this project's consistency, to the maximum extent feasible, with the requirements of Chapter 163 of the Florida Statutes.

FDOT District Five is submitting this project through the Programming Screen of the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST) in coordination with this AN Package. The project is listed as #14325 – SR 535 from US 192 to N. of SR 536/World Center Drive.

Mr. Stahl
ETDM #14325
Page 2

The Environmental Technical Advisory Team (ETAT) members may review this report on the ETDM website. Non-ETAT agencies may review this report on the public access website located at: <http://etdmpub.fl.a-ctat.org/>.

Your comments should be submitted via the EST if you are an ETAT representative, or emailed or mailed to the District contact:

Sarah Van Gundy
Florida Department of Transportation
719 South Woodland Boulevard, MS #2-542
DeLand, Florida 32720-6800
sarah.vangundy@dot.state.fl.us

Sincerely,



Karen A. Snyder, P.E.
Project Development Manager

KS/kl
Attachments

Advance Notification Package

Project #14325 - SR 535 from US 192 to N. of SR 536/World Center Dr.

Programming Screen - Published on 05/10/2019

Printed on: 5/10/2019

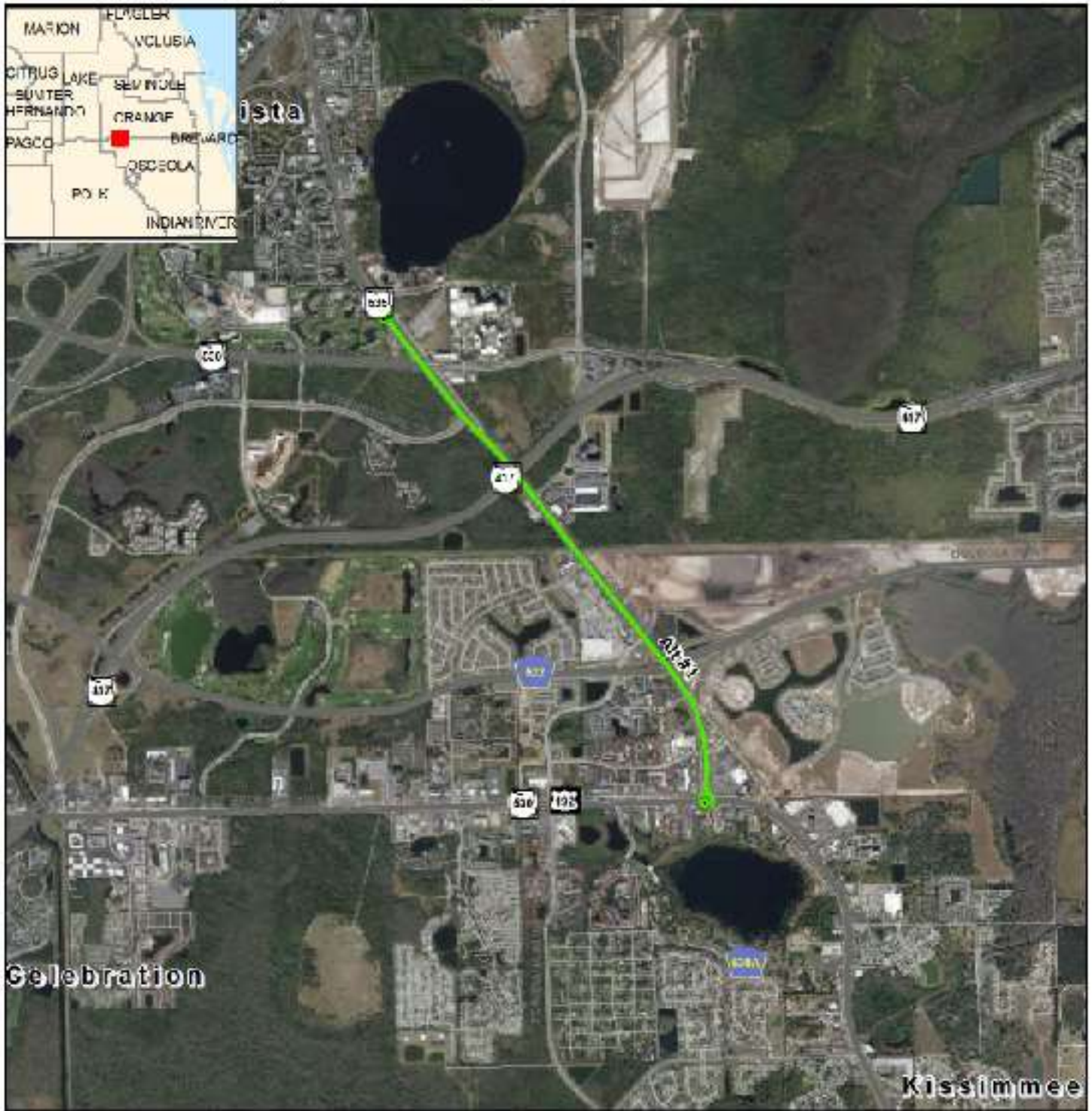
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I. Location Maps

14325 SR 535 from US 192 to N. of SR 536/World Center Dr.

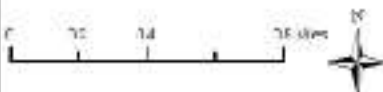
US 192 (Osceola County) to N. of SR 536/World Center Dr.



Project Aerial Map

- ETDM Alternative
- FTDM Alternative Terminus
- Major Road
- Local Road or Trail

Data Sources:
Highways - NAVTEQ
Digital Orthoimage - ArcGIS Online



2/12/2018

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14325 SR 535 from US 192 to N. of SR 536/World Center Dr.

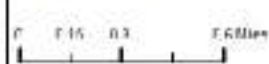
US 192 (Osceola County) to N. of SR 536/World Center Dr.



Project Base Map

- ETCM Alternative Terminus
- Managed Conservation Lands
- Alt #1
- Local Road or Trail
- Major Road
- City Limits

Data Sources:
 NAVTEQ
 US Geological Survey
 US Census Bureau
 County Property Appraisers
 Florida Natural Areas Inventory



5/2/2019

II. Fact Sheet

Disclaimer

DISCLAIMER: The Fact Sheet data consists of the most up-to-date information available at the time the Advance Notification Package is published. Updates to this information may be found on the ETDM website at <http://etdm.fl.gov>

Special Note: Please be aware of the selected Milestone date when viewing project data on the ETDM website. Snapshots of project and analysis data have been taken for Project #14325 at various points throughout the project's life-cycle. On the website these **Project Milestone Dates** are listed in the the project header immediately after the project contact information. Click on any of the dates listed to view the information available on that date.

Overview

#14325 SR 535 from US 192 to N. of SR 536/World Center Dr.

District: District 5

County: Orange, Osceola

Planning Organization: FDOT District 5

Plan ID: Not Available

Federal Involvement: FHWA Funding Other Federal Permit

Contact Information: Sarah VanGundy (386) 943-5551

Snapshot Data From: Current Draft Data

Phase: Programming Screen

From: US 192 (Osceola County)

To: N. of SR 536/World Center Dr.

Financial Management No.: 437174-2-22-01

sarah.vangundy@dot.state.fl.us

a. Purpose and Need

PURPOSE

The purpose of the project is to accommodate future projected traffic demand and improve safety.

NEED

The need for the project is based on transportation demand and safety.

TRANSPORTATION DEMAND

In the future year (2040) no-build condition, the section of SR 535 from US 192 and Kyngs Heath Road is projected to operate at LOS F with an AADT of 42,000; the section from Kyngs Heath Road to Poinciana Boulevard operates at LOS E with an AADT of 40,000; the section from Poinciana Boulevard to Polynesian Isle Boulevard operates at LOS F with an AADT of 69,000; the section from Polynesian Isle Boulevard to World Center Drive operates at LOS F with an AADT of 66,000.

In the existing condition, the section of SR 535 from US 192 and Kyngs Heath Road operates at LOS D with an AADT of 28,300; the section from Kyngs Heath Road to Poinciana Boulevard operates at LOS D with an AADT of 26,900; the section from Poinciana Boulevard to Polynesian Isle Boulevard operates at LOS D with an AADT of 46,800; the section from Polynesian Isle Boulevard to World Center Drive drive operates at LOS D with an AADT of 44,300.

SAFETY

A total of 823 crashes were reported on SR 535 from US 192 to World Center Drive in the five-year period from 2012 through 2016. Of those reported crashes, 652 (85%) resulted in injury and 3 resulted in a fatality. The most frequent crash type was rear end with 499 (61%) total crashes, *indicating congestion*. Angle crashes were the second highest with 153 (19%), followed by side swipe with 86 (10%) total crashes. 485 (59%) of the 823 crashes occurred during daylight conditions. The crash rates along this segment of SR 535 exceed the FDOT statewide averages for similar facilities.

PROJECT STATUS

The SR 535 project is located within the jurisdiction of MetroPlan Orlando. The Project Development and Environment (PD&E) Study, is documented in MetroPlan Orlando's Transportation Improvement Program (TIP) for fiscal year 2019/20 with an anticipated cost of \$1.4 million. There is currently no funding for the design, right-of-way or construction phases.

b. Project Description

In the existing condition, SR 535 is an urban minor arterial, access class 3 facility with posted speeds ranging from 45 miles per hour (MPH) to 50 MPH. The roadway has four travel lanes (two in each direction) from US 192 to SR 535/World Center Drive. The project involves the widening of SR 535 from US 192 to World Center Drive, a project length of approximately 2.2 miles.

c. Preliminary Environmental Discussion

i. Social and Economic

1. Land Use Changes

Project PED Comments

This portion of SR 535 is located within the jurisdiction of South Florida Water Management District (SFWMD). At the 500-foot buffer, the GIS analysis of the 2008-2015 SFWMD Florida Land Use and Land Cover identified Roads and Highways with 97.17 acres (33%); Commercial and Services with 69.43 (22%); Pine Flatwoods with 31.65 acres (11%); and Open Land with 28.35 acres (8.0%) as the four-major existing land uses. The project is not within 500 feet of any Census Designated Places.

The project is consistent with future land uses and will not affect land use or development patterns. Therefore, the project will result in no involvement with land use.

2. Social

Project PED Comments

The Environmental Screening Tool (EST) Sociocultural Data Report (SDR) was used for demographic data (the SDR can be found within the Community Coordination section of the EST). The SDR uses the Census 2017 American Community Survey (ACS) data and reflects the approximation of the population based on a 500-foot project buffer area intersecting the Census Block Groups along the project corridor. At the 500-foot buffer, the SDR identified the following demographics:

Population and Income

96 households with a population of 287 people. The median household income is \$44,809. Several households are below poverty level (15.62%) and 2.08% households receive public assistance.

Race and Ethnicity

The minority population makes up 58.19% of the total population comprising of "Asian Alone" with 23 people (8.01%), "Black or African American Alone" with a population of 13 people (4.53%), "Some Other Race Alone" with 12 people (4.18%), and "Claimed 2 or More Races" with 10 people (3.48%) within the 500-foot project buffer area. There are 122 people (42.51%) that have a "Hispanic or Latino of Any Race" ethnicity.

Age and Disability

The median age is 28 and persons age 65 and over comprise 7.32% of the population. There are 20 people (10.31%) between the ages of 20 and 64 that have a disability.

Housing

There are 174 housing units. The housing consists of multi-family units (58%), single family units (39%), and mobile home units (3%). These units are vacant units (45%), renter occupied (33%), and owner occupied (22%).

Language

There are 20 people (7.46%) that speak English "not well" and 6 people (2.24%) that speak English "not at all". Based on US DOT Policy Guidance, the FDOT has identified four factors to help determine if Limited English Proficiency (LEP) services would be required as listed in the FDOT PD&E Manual. Based on a review of these factors and the fact that there is 9.7% LEP population for this project, LEP services may be required. Refinement of the LEP population totals and requirements will be further evaluated in PD&E as part of the public involvement efforts.

Community features along, or in close proximity to SR 535, include the Masjid An-Noor Mosque, The Worship Place Church and the Indian Wells Recreation Area.

This project will be developed in accordance with the Civil Rights Act of 1964, the Civil Rights Act of 1968, along with Title VI of the Civil Rights Act, Executive Order 12898 (Environmental Justice) which requires Federal agencies to take the appropriate steps to identify and address any disproportionately high and adverse human health or environmental effects of Federal programs, policies, and activities on minority and low-income populations. Where there is potential for disproportionately high and adverse effects on minority and low-income populations, proactive measures to involve the affected community in the decisions related to alternative selection, impact analysis, and mitigation.

The project is expected to result in minimal involvement with social resources.

3. Relocation Potential

Project PED Comments

At the 500-foot buffer, the GIS analysis of the 2008 SFWMD Florida Land Use and Land Cover identified Low-Rise multiple dwelling units [2.05 acres (0.69%)] and High-Rise multiple dwelling units [0.11 acres (0.04%)] as the only existing residential land uses.

The existing, apparent right of way varies from 224 feet to 216 feet; therefore, the majority of the improvements are anticipated to occur within the existing right of way with the exception of stormwater ponds. During the pond siting process, the FDOT will develop alternative pond sites for each basin, with a focus on minimizing potential residential relocations and/or business displacements.

The project will be evaluated for disproportionately high and adverse effects, and where it is found that disproportionate impacts would result, every effort will be made to avoid or minimize those impacts and, where impacts are unavoidable, special public outreach will be undertaken to involve the affected population in the decisions regarding the alternatives, including mitigation, if needed. Should residents, businesses, or community structures require relocation, a right-of-way (ROW) and relocation program will be implemented in accordance with the Uniform Relocation Assistance and Real

Property Acquisition Policies Act of 1970. A Conceptual Stage Relocation Plan will be prepared for this project if relocations occur.

The project is expected to result in minimal relocations.

4. Farmlands

Project PED Comments

The GIS data identified prime farmland, "Farmland of Unique Importance", with 139.48 acres (47.29%) within the 500-foot buffer. 18.75 acres (or 6.36% of the project area) within the 500-foot buffer area of the project is categorized as Agricultural according to the Generalized Agricultural Land Use data layer in the EST.

The project is expected to result in minimum involvement with farmlands; however, the FDOT will coordinate with the Natural Resources Conservation Service (NRCS) during the PD&E study.

5. Aesthetic Effects

Project PED Comments

The GIS data 2008-2015 SFWMD Florida Land Use and Land Cover identified Roads and Highways with 97.17 acres (33%); Commercial and Services with 69.43 (22%); Pine Flatwoods with 31.65 acres (11%); and Open Land with 28.35 acres (8.0%) as the four-major existing land uses.

Capacity improvements to SR 535 are anticipated to have minimal impacts, and will likely, enhance aesthetics along the corridor; therefore, minimal involvement with aesthetics is anticipated.

6. Economic

Project PED Comments

The GIS data identified five (5) Developments of Regional Impact (DRIs) [Legacy Park (ADA No.: 1988-022); Little England-Xentury City (ADA No.: 1980-018; Sierra Land (ADA No.: 1994-002); Wind Song (ADA No.: 1974-001); and World Gateway (ADA No.: 1982-031)] within the 500-foot buffer.

SR 535 is located in Lake Buena Vista, an area that attracts tourists and support the tourism industry. The corridor is located less than two miles east of Disney properties, and supporting resorts, hotels, factory outlet stores, and other ancillary developments are present throughout the corridor.

The project is anticipated to enhance economic resources.

7. Mobility

Project PED Comments

The GIS data identified one Office of Greenways and Trails (OGT) existing multi-use trail (Shingle Creek West Connector) within the 500-foot buffer.

There are three (3) transit routes (Route 304-Lynx 3D: Rio Grande/Vistana Resort, Route 56-West U.S. 192/Magic Kingdom, and Route 55-West U.S. 192/Orange Lake) identified within the 500-foot buffer. There are existing noncontiguous sidewalks located along both sides of the roadway.

The project will enhance mobility.

ii. Cultural

1. Section 4(f) Potential

Project PED Comments

Within the 500-foot buffer of the project, the GIS data identified one property owned by the South Florida Water Management District (District-owned mitigation lands), which would likely not be protected under Section 4(f) of the Department of Transportation Act of 1966. During the PD&E Study further analysis will take place.

The proposed project is expected to result in minimal to no involvement with Section 4(f) resources.

2. Historic and Archaeological Sites

Project PED Comments

The GIS data did not identify any documented archaeological sites within the 500-foot buffer. There is one identified linear resource (Florida Midland Railroad) identified within the 500-foot buffer that was determined to be ineligible for NRHP by SHPO. According to the GIS analysis, there is one (1) parcel with a 1972 construction date located within the 500-foot buffer. There also no documented historic bridge structures, or other historic standing structures within the 500-foot buffer.

A CRAS will be prepared during the PD&E Study, and coordination with the SHPO will be conducted.

The project is expected to result in minimal involvement with historic and archaeological sites.

3. Recreation Areas

Project PED Comments

Within the 500-foot buffer, the GIS data identified one Office of Greenways and Trails (OGT) multi-use trail opportunity (Shingle Creek West Connector); a privately-owned golf course (Hawks Landing Golf Course); and 23.28 acres of easement owned by SFWMD within the 500-foot buffer.

The project is anticipated to result in minimal involvement with recreational areas.

iii. Natural

1. Wetlands and Surface Waters

Project PED Comments

The National Wetlands Inventory (NWI) dataset of the GIS data identified 16.75 acres (5.68% of the project area) as palustrine wetlands within the 500-foot buffer. The SFWMD 2008-2015 wetlands dataset identifies 8.50 acres of wetlands within 500 feet of the corridor as cypress-mixed hardwoods and wetland forested mixed habitat types.

A Natural Resources Evaluation (NRE) will be conducted during the PD&E Study and will include coordination with the USACE, FDEP, and SFWMD.

Based on the small percentage of wetland resources within 500 feet of the project, minimal involvement with wetland resources is expected. Mitigation for unavoidable wetland impacts will occur in a future phase prior to or concurrent with the impacts.

2. Water Quality and Quantity

Project PED Comments

Within the 500-foot buffer, the GIS data identified one (1) Basin Management Action Plan (BMAP): Lake Okeechobee. SR 535 is within close proximity to the following FDEP Water Body Identification Numbers (WBID's): Shingle Creek (WBID 3169A), Lake Cecile (WBID 31690), Lake Bryan (WBID 3169N), and Reedy Canal (WBID 3169B). Shingle Creek is a Verified impaired Florida Water for nutrients. According to the EST, the project does not occur in proximity to any FDEP designated Outstanding Florida Waters.

Within the 500-foot buffer, principal Aquifers of the State of Florida described the Surficial Floridan Aquifer System as 294.93 acres (100%). Within this buffer, the Recharge Areas of the Floridan Aquifer shows a 'Discharge' 1 to 10' as 100%. As part of the Water Quality Impact Evaluation (WQIE), a Sole Source Aquifer Impact Determination will be prepared for USEPA's review and approval. The project corridor is also located within the designated Biscayne Aquifer sole source aquifer (SSA) streamflow and recharge source zone.

There are four (4) onsite sewage treatment and disposal systems, four (4) Super Act Risk Sources, as well as one (1) Super Act Well located within the 500-foot project buffer area. Potential contamination facilities are listed under the Contamination issue.

The project will be designed to meet state water quality and quantity requirements, and best management practices will be utilized during construction. The proposed project is expected to result in moderate involvement with water quality and quantity resources.

3. Floodplains

Project PED Comments

The GIS data identified Special Flood Hazard Areas within 500 feet of the project with 42.07 acres (14.26%) within Zone A and 252.86 acres (85.74%) outside the 100-year floodplain. The D-FIRM 100-year Floodplain dataset identifies 1.04 acres (1.86%) of area within the 100-foot project buffer area that is within the 100-year floodplain. The project will be designed such that stormwater transport, flow, and discharge meet or exceed flood control requirements.

The project is expected to have minimal involvement with floodplains.

4. Coastal Zone Consistency

Coastal Zone Consistency Determination is Required: Yes
Project is subject to a consistency review as required by 15 CFR 930.

5. Wildlife and Habitat

Project PED Comments

The GIS data identified the project as within the USFWS designated Consultation Area for Florida scrub-jay, Everglade snail kite, red cockaded woodpecker, Audubon's crested caracara, Florida grasshopper sparrow, Lake Wales Ridge

plants, the blue-tailed mole skink, and the sand skink. No documented occurrences of these species have been identified as the corridor; however, approximately 41.68 acres (14.3%) of the 500-foot buffer of the project is above the 82 feet elevation and has the appropriate well drained soil types to be considered potential habitat for this skinks.

The project is located within the Central Florida Black Bear Management Unit and black bear mortality has been documented in the region. The project occurs within the Core Foraging radius of several wood stork nesting colonies. No nesting eagle territories are documented along the corridor.

A Natural Resources Evaluation (NRE) will be conducted during the PD&E Study and will include coordination with the USFWS and FFWCC.

The project is expected to result in moderate involvement with wildlife and habitat resources.

6. Coastal and Marine

Project PED Comments

The GIS data did not identify any Environmentally Sensitive Shorelines or Coastal Barrier Resources within the 500-foot buffer. The project is located within the Lake Okechobee Coastal Assessment Framework.

The project is anticipated to have no involvement with coastal or marine resources.

iv. Physical

1. Noise

Project PED Comments

The 2008 SFWMD Florida Land Use and Land Cover GIS data identified two (2) multiple dwelling units (2.16 acres/ 0.73%) as the only residential land uses within the 500-foot buffer.

According to the GIS data, the following potential noise sensitive sites are found within a 500-foot buffer of the project: one (1) religious center (the Good Shepherd Evangelical Lutheran Church); one (1) health care facility (Med-Life Institute, Inc.); 15 planned unit developments; and five (5) Development of Regional impacts areas.

A noise analysis will be conducted during the PD&E Study and a Noise Study Report will be completed. The proposed project is expected to result in moderate involvement with noise.

2. Air Quality

Project PED Comments

This area of Osceola/Orange Counties has not been designated as nonattainment or maintenance for ozone, carbon monoxide (CO), particulate matter (PM), or any of the National Ambient Air Quality Standards (NAAQS) in accordance with the Clean Air Act. An Air Quality Screening will occur during Project Development.

The proposed project is expected to have minimal impact on air quality.

3. Contamination

Project PED Comments

The GIS data identified five (5) Hazardous Waste Facilities; four (4) Onsite Sewage Sites; seven (7) Petroleum Contamination Monitoring Sites; five (5) Biomedical Waste Sites; one (1) Brownfield area (West 192 Development Authority Area); seven (7) Petroleum Contamination monitoring Sites; 12 Storage Tank Contamination Monitoring Sites; five (5) Super Act Risk Sources; 11 US Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES); and four (4) USEPA Resource Conservation and Recovery Act (RCRA) Regulated Facilities within the 500-foot project buffer area. No solid waste facilities or Toxic Release Inventory Sites were identified within the 500-foot project buffer area of the project area.

A contamination screening evaluation will be conducted during the PD&E Study and a Contamination Screening Evaluation Report (CSER) will be prepared. The project is expected to result in moderate involvement with potential sources of contamination.

4. Infrastructure

Project PED Comments

At the 500-foot buffer, the GIS data identified one Federal Aviation Administration (FAA) aviation transportation facility (Magic Air Adventure), five (5) FAA obstructions, one FM tower structures (Auditorium of Prayer and Worship, Inc.), two (2) Television Broadcast Structure Locations (both WKME-CD), one (1) electric substation (Lake Bryon substation), and two (2) wireless antenna structures (Sprintcom and Crowncastle) within a 5,280-foot buffer.

Various utilities are present, including communications/electric; gas pipeline; fiber CATV and phone lines; wastewater and reclaimed water; fiber optic; traffic signals and fiber; water; telephone; sewer; oil; and telecom cable and fiber. A Utility Assessment Package will be developed during the PD&E Study to determine impacts to utilities.

The project is expected to result in minimal involvement with existing and planned infrastructure.

5. Navigation

Project PED Comments

The GIS data did not identify any potential navigable waterways within the 500-foot buffer.

The project is expected to have no involvement with navigation resources.

v. Special Designations

1. Special Designations: Outstanding Florida Waters

Project PED Comments

The GIS data did not identify any Outstanding Florida Waters within the 500-foot buffer.

The project is expected to have no involvement with Outstanding Florida Waters.

2. Special Designations: Aquatic Preserves

Project PED Comments

The GIS data did not identify any Aquatic Preserves within the 500-foot buffer.

This project will have no involvement with Aquatic Preserves.

3. Special Designations: Scenic Highways

Project PED Comments

The GIS data did not identify any Scenic Highways within the 500-foot buffer.

The project will have no involvement with Scenic Highways.

4. Special Designations: Wild and Scenic Rivers

Project PED Comments

The GIS data did not identify any Wild and Scenic Rivers within the 500-foot buffer.

The proposed project will have no involvement with Wild and Scenic Rivers.

d. Anticipated Permits

There are no anticipated permits identified for this project in the EST.

e. Anticipated Technical Studies

There are no anticipated technical studies identified for this project in the EST.

III. Form SF-424: Application for Federal Assistance

Application for Federal Assistance SF-424		Version 02
*1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	*2. Type of Application * If Revision, select appropriate letter(s) <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation *Other (Specify) _____ <input type="checkbox"/> Revision	
3. Date Received:		4. Applicant Identifier: 437174-2-22-01
5a. Federal Entity Identifier:		*5b. Federal Award Identifier:
State Use Only:		
6. Date Received by State:		7. State Application Identifier:
8. APPLICANT INFORMATION:		
*a. Legal Name: Florida Department of Transportation		
*b. Employer/Taxpayer Identification Number (EIN/TIN): 59-6001874		*c. Organizational DUNS:
d. Address:		
*Street 1:	<u>719 S. Woodland Blvd</u>	
Street 2:	_____	
*City:	<u>DeLand</u>	
County:	_____	
*State:	<u>Florida</u>	
Province:	_____	
*Country:	<u>USA</u>	
*Zip / Postal Code	<u>32720</u>	
e. Organizational Unit:		
Department Name: FDOT Environmental Management Office		Division Name: District 5
f. Name and contact information of person to be contacted on matters involving this application:		
Prefix:	<u>Ms.</u>	*First Name: <u>Sarah</u>
Middle Name:	_____	
*Last Name:	<u>Van Gundy</u>	
Suffix:	_____	
Title:	<u>Project Manager</u>	
Organizational Affiliation: FDOT District: 5		
*Telephone Number: 386-943-5551		Fax Number: 386-943-5718
*Email: <u>sarah.vangundy@dct.state.fl.us</u>		

Application for Federal Assistance SF-424	Version 02
*9. Type of Applicant 1: Select Applicant Type: A.State Government Type of Applicant 2: Select Applicant Type: Type of Applicant 3: Select Applicant Type: *Other (Specify)	
*10 Name of Federal Agency: U.S. Department of Transportation -Federal Highway Administration	
11. Catalog of Federal Domestic Assistance Number: <u>23-20F</u> CFDA Title: _____	
*12 Funding Opportunity Number: _____ *Title: _____	
13. Competition Identification Number: _____ Title: _____	
14. Areas Affected by Project (Cities, Counties, States, etc.): Orange and Osceola Counties, Florida	
*15. Descriptive Title of Applicant's Project: This project will address the proposed widening of S.R. 535 from U.S. 192 in Osceola County, Florida to North of S.R. 536 in Orange County, Florida.	

Application for Federal Assistance SF-424

Version 02

16. Congressional Districts Of:

*a. Applicant: FL-6

*b. Program/Project: FL-9 and FL-10

17. Proposed Project:

*a. Start Date: PD&E study start = 2/24/20

*b. End Date: PD&E study end =12/7/22

18. Estimated Funding (\$):

*a. Federal _____
*b. Applicant _____
*c. State _____
 PD&E c. \$1,675,000
*d. Local _____
*e. Other _____
*f. Program Income _____
*g. TOTAL _____

***19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- a. This application was made available to the State under the Executive Order 12372 Process for review on 5/9/19.
 b. Program is subject to E.O. 12372 but has not been selected by the State for review.
 c. Program is not covered by E. O. 12372

***20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)**

Yes No

21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil or administrative penalties. (U. S. Code, Title 218, Section 1001)

** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions

Authorized Representative:

Prefix: Ms. _____ *First Name: Sarah _____
Middle Name: _____
*Last Name: Van Gundy _____
Suffix: _____

*Title: Project Manager

*Telephone Number: 386-943-5551

Fax Number: 386-943-5718

* e-mail: sarah.vangundy@dot.state.fl.us

*Signature of Authorized Representative:



*Date Signed: 05/09/2019

Application for Federal Assistance SF-424

Version 02

***Applicant Federal Debt Delinquency Explanation**

The following should contain an explanation if the Applicant organization is delinquent of any Federal Debt.

IV. Transmittal List

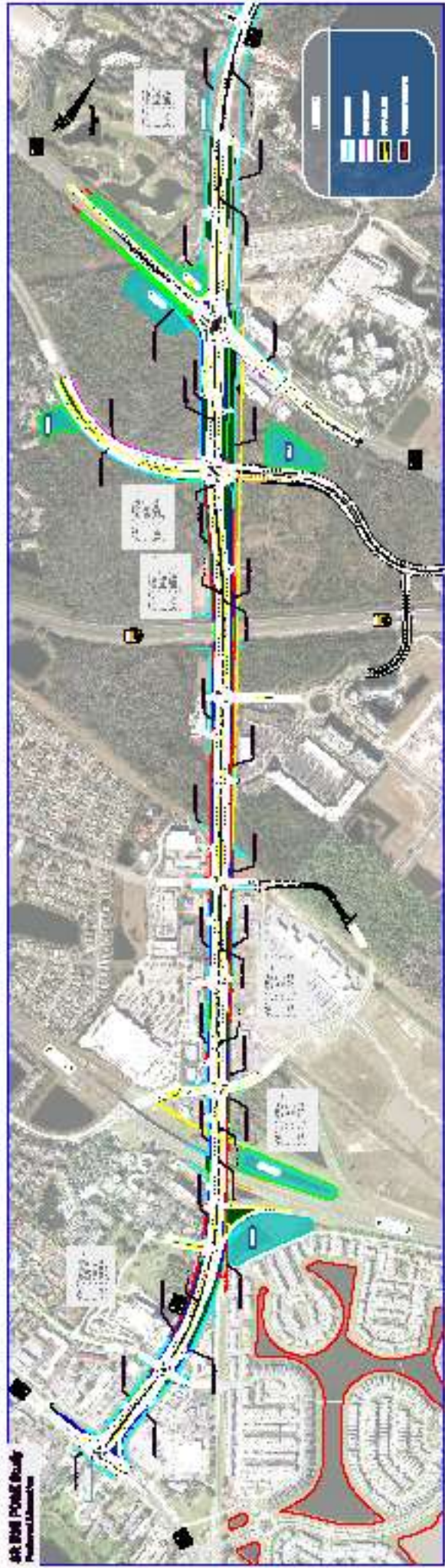
Official Transmittal List

	Organization	Name
1.	FDOT District 5	Ganey, Jim
2.	FDOT District 5	Walsh, William G.
3.	FDOT Office of Environmental Management	Britt, Katherine
4.	FDOT Office of Environmental Management	Clark, Thu-Huong
5.	FDOT Office of Environmental Management	Comwell, Katasha
6.	FDOT Office of Environmental Management	Kirby, Marjorie
7.	FDOT Office of Environmental Management	McGilvray, Peter
8.	FDOT Office of Environmental Management	Muchunza, Victor
9.	Federal Aviation Administration	* Federal Aviation Administration Orlando Airports District Office
10.	Federal Transit Administration	Goeman, Richelle
11.	Federal Transit Administration	Mitchell, Stan
12.	FL Department of Agriculture and Consumer Services	Camposano, Brian
13.	FL Department of Agriculture and Consumer Services	Morris, Vincent
14.	FL Department of Economic Opportunity	Preston, Matt
15.	FL Department of Environmental Protection	Stahl, Chris
16.	FL Department of State	Aldridge, Jason
17.	FL Department of State	Daggett, Adrienne
18.	FL Department of State	McManus, Alyssa
19.	FL Fish and Wildlife Conservation Commission	Fischer, Judy
20.	FL Fish and Wildlife Conservation Commission	Gilbert, Terry
21.	FL Fish and Wildlife Conservation Commission	Goff, Jennifer
22.	FL Fish and Wildlife Conservation Commission	Wettstein, Fritz
23.	METROPLAN Orlando	Barley, Harry
24.	METROPLAN Orlando	Caskey, Keith
25.	Miccosukee Tribe of Indians of Florida	* Dayhoff, Fred
26.	Miccosukee Tribe of Indians of Florida	* The Honorable Mr. Billy Cypress, Chairman
27.	Muscogee (Creek) Nation	* Historic & Cultural Preservation Department
28.	Muscogee (Creek) Nation	* The Honorable Mr. James Floyd, Principal Chief
29.	National Marine Fisheries Service	Schull, Jennifer
30.	National Park Service	Barnett, Anita
31.	Natural Resources Conservation Service	Crockett, Leroy
32.	Poarch Band of Creek Indians	* The Honorable Ms. Stephanie A. Bryan, Tribal Chair
33.	Poarch Band of Creek Indians	* White, Carolyn M.
34.	Seminole Nation of Oklahoma	* The Honorable Mr. Leonard M. Harjo, Principal Chief
35.	Seminole Tribe of Florida	Backhouse, Paul N.
36.	Seminole Tribe of Florida	Menchaca, Victoria
37.	Seminole Tribe of Florida	Swing, Alison
38.	Seminole Tribe of Florida	* The Honorable Mr. Marcellus W. Osceda, Chairman
39.	South Florida Water Management District	Burkett, Annette
40.	South Florida Water Management District	Stone, Trisha
41.	US Army Corps of Engineers	Kizlauskas, Andrew A.
42.	US Army Corps of Engineers	Ovdenk, Cynthia
43.	US Army Corps of Engineers	Tamblyn, Mark M.
44.	US Army Corps of Engineers	Turner, Randy
45.	US Coast Guard	Overton, Randall D.

46.	US Coast Guard	Tate, William G.
47.	US Coast Guard	Tompkins, Darayl
48.	US Coast Guard	Zercher, Jennifer
49.	US Department of Health and Human Services	* National Center for Environmental Health Centers for Disease Control and Prevention
50.	US Department of Housing and Urban Development	* Regional Environmental Officer
51.	US Department of Interior	* Bureau of Land Management, Southeastern States Field Office
52.	US Department of Interior	Director, USGS-FISC
53.	US Environmental Protection Agency	Kajumba, Ntale
54.	US Environmental Protection Agency	Singh-White, Alya
55.	US Environmental Protection Agency	Somerville, Amanetta
56.	US Environmental Protection Agency	White, Roshanna
57.	US Fish and Wildlife Service	Cantrell, Mark
58.	US Fish and Wildlife Service	Williams, Zakia
59.	US Fish and Wildlife Service	Wrublik, John
60.	US Forest Service	Davis, Erika

* Hardcopy recipient

Appendix E – Roadway Concept Roll Plot



Appendix F – Typical Section Package

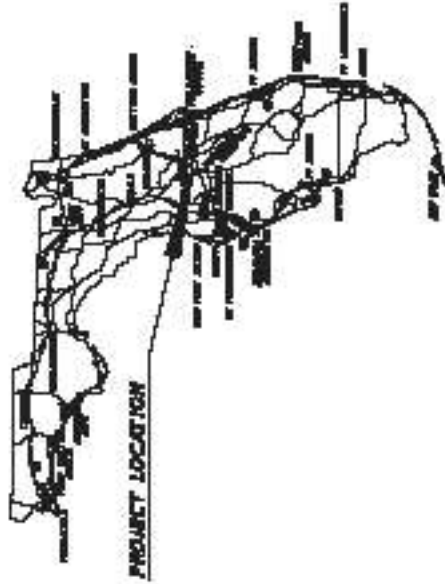
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 437714-2-22-01
(FEDERAL FUNDS)
OSCEOLA COUNTY (92049) & ORANGE COUNTY (75035)

STATE ROAD NO. 531

ADD LABELS AND RECONSTRUCT FROM US 162 TO
NORTH OF WORLD CENTER DRIVE (SR 806)



POST CONTRACT DESIGN REVIEW
4/2/2024 4:04 PM EDT
07/29/2024 8:32 PM EDT
CONTRACTOR DATE:
REVISIONS & APPROVALS

POST CONTRACT APPROVALS
4/2/2024 4:04 PM EDT
07/29/2024 3:39 PM EDT
CONTRACTOR DATE:
REVISIONS & APPROVALS

FINAL TRANSMITTAL APPROVALS
4/2/2024 4:04 PM EDT
07/29/2024 3:39 PM EDT
CONTRACTOR DATE:
REVISIONS & APPROVALS

FOR INFO
4/2/2024 4:04 PM EDT
07/29/2024 3:39 PM EDT
CONTRACTOR DATE:
REVISIONS & APPROVALS

Paul Carballo
Digitally signed by Paul Carballo
Date: 2024.07.31 11:26:06 -04'00'



THIS STATE HAS BEEN DIGITALLY SIGNED AND SEALED BY PAUL CARBALLO, DISTRICT ENGINEER, OSCEOLA COUNTY, FLORIDA. THE STATE HAS BEEN DIGITALLY SIGNED AND SEALED BY PAUL CARBALLO, DISTRICT ENGINEER, OSCEOLA COUNTY, FLORIDA. THE STATE HAS BEEN DIGITALLY SIGNED AND SEALED BY PAUL CARBALLO, DISTRICT ENGINEER, OSCEOLA COUNTY, FLORIDA.

PROJECT LOCATION (URL: <http://i1paper1.com/92049>)
PROJECT LIMITS: OSCEOLA COUNTY
SR 5, 0+00 TO 1+142
ORANGE COUNTY
SR 5, 0+00 TO 1+228
EXCEPT NUMBER: NONE
MILEAGE LIMITS: NONE
RAILROAD CROSSING: NONE

FOR INFO: THIS PACKAGE IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT TO BE USED FOR CONSTRUCTION.

INDEX OF SHEETS

PROJECT NO.	437714-2-22-01
CONTRACT NO.	75035-0001
DISTRICT NO.	OSCEOLA COUNTY
SECTION NO.	SR 5, 0+00 TO 1+228

PROJECT CONTROLS

- PROJECT CLASSIFICATION**
- 1) A1 : INITIAL
 - 1) C1C : CONCEPTUAL
 - 1) C2 : DESIGN
 - 1) C3 : PERMITS
 - 1) C4 : CONSTRUCTION
 - 1) C5 : OPERATIONAL
 - 1) C6 : MAINTENANCE
 - 1) C7 : DEMOLITION

FUNCTIONAL CLASSIFICATION

- 1) A1 : INITIAL
- 1) C1 : CONCEPTUAL
- 1) C2 : DESIGN
- 1) C3 : PERMITS
- 1) C4 : CONSTRUCTION
- 1) C5 : OPERATIONAL
- 1) C6 : MAINTENANCE
- 1) C7 : DEMOLITION

HAZARDOUS SYSTEM

- 1) A1 : INITIAL
- 1) C1 : CONCEPTUAL
- 1) C2 : DESIGN
- 1) C3 : PERMITS
- 1) C4 : CONSTRUCTION
- 1) C5 : OPERATIONAL
- 1) C6 : MAINTENANCE
- 1) C7 : DEMOLITION

ACCESS CLASSIFICATION

- 1) 1 - LIMITED
- 1) 2 - RESTRICTED
- 1) 3 - CONTROLLED
- 1) 4 - PROHIBITED
- 1) 5 - UNRESTRICTED
- 1) 6 - UNRESTRICTED
- 1) 7 - UNRESTRICTED
- 1) 8 - UNRESTRICTED
- 1) 9 - UNRESTRICTED

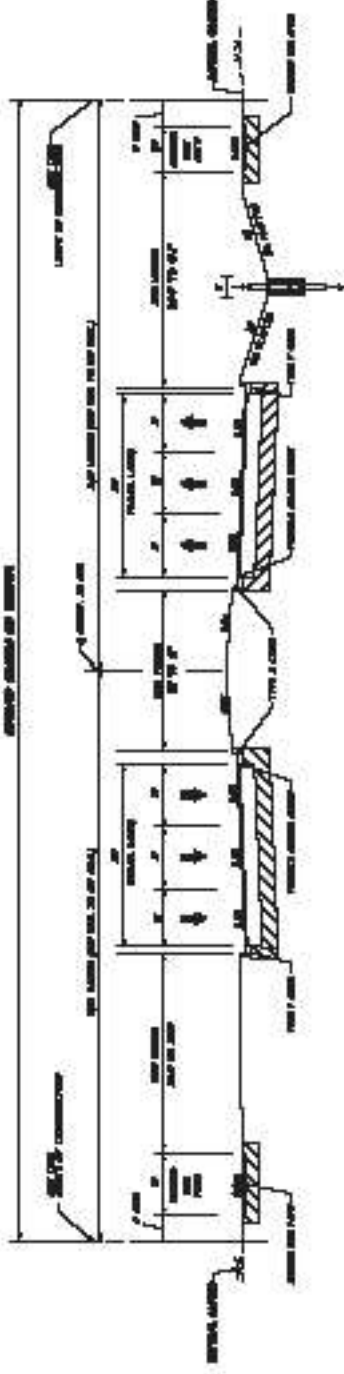
CRITERIA

- 1) CONSTRUCTION / MAINTENANCE
- 1) OPERATIONAL
- 1) MAINTENANCE & COLLECTION

POTENTIAL ENERGY RISKS AND VARIATIONS RELATED TO TYPICAL SECTIONS

DESIGN INFORMATION

TYPICAL SECTION - A



NOT TO SCALE

SIT 506
 STA. 1480+00.00 TO STA. 1520+00.00
 STA. 1515+00.00 TO STA. 1550+00.00
 STA. 1545+00.00 TO STA. 1585+00.00



PROJECT NO	48704-2-22-01
PROJECT REV.	02

PROJECT CONTROLS

CONCRETE CLASSIFICATION

- 1) 41 : AIRWAY 02 : CONC : STRUCTURE CONC
- 1) 42 : BARRICADE 03 : CONC : WALLS & ARCHES
- 1) 43 : BARRICADE TYPING 04 : CONC : WALLS & ARCHES
- 1) 44 : BARRICADE REINFORCING 05 : CONC : WALLS & ARCHES
- 1) 45 : BARRICADE REINFORCING 06 : CONC : WALLS & ARCHES
- 1) 46 : BARRICADE REINFORCING 07 : CONC : WALLS & ARCHES

FUNCTIONAL CLASSIFICATION

- 1) 10 : AIRWAY
- 1) 11 : BARRICADE
- 1) 12 : BARRICADE TYPING
- 1) 13 : BARRICADE REINFORCING
- 1) 14 : BARRICADE REINFORCING

HANDRAIL SYSTEM

- 1) 101 : HANDRAIL SYSTEM
- 1) 102 : HANDRAIL SYSTEM
- 1) 103 : HANDRAIL SYSTEM
- 1) 104 : HANDRAIL SYSTEM

ACCESS CLASSIFICATION

- 1) 1 : ACCESS
- 1) 2 : ACCESS
- 1) 3 : ACCESS
- 1) 4 : ACCESS
- 1) 5 : ACCESS
- 1) 6 : ACCESS
- 1) 7 : ACCESS

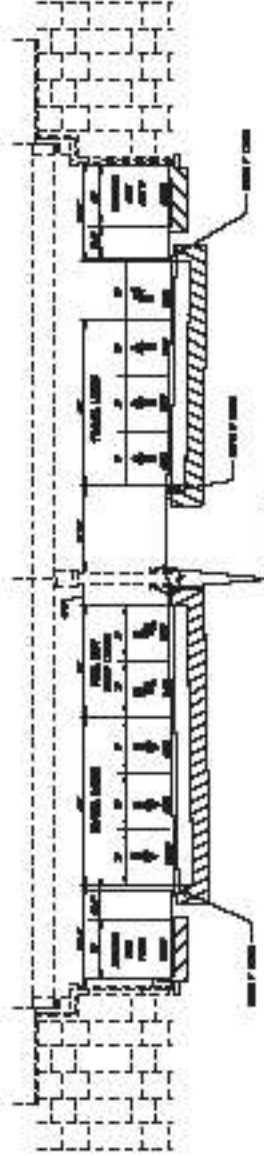
CRITERIA

- 1) 101 : CRITERIA
- 1) 102 : CRITERIA
- 1) 103 : CRITERIA

POTENTIAL ENERGY RISKS AND VARIATIONS RELATED TO TYPICAL SECTIONS

SEE SHEETS 42-0-0108-5078 X1034

TYPICAL SECTION - B



NOT TO SCALE

CRITERIA PARALLEL OVER STA 1511

STA. 1510+30.00 TO STA. 1511+00.00

CRITERIA PARALLEL OVER STA 1511

STA. 1510+30.00 TO STA. 1511+00.00

CRITERIA PARALLEL OVER STA 1511

STA. 1510+30.00 TO STA. 1511+00.00

PROJECT NO.	48774-3-23-01
SHEET NO.	03

PROJECT CONTROLS

CONCRETE CLASSIFICATION

- (1) C1 : AIRWAY
- (2) C2 : CONC. CURB
- (3) C3 : CONC. CURB
- (4) C4 : CONC. CURB
- (5) C5 : CONC. CURB
- (6) C6 : CONC. CURB
- (7) C7 : CONC. CURB
- (8) C8 : CONC. CURB
- (9) C9 : CONC. CURB
- (10) C10 : CONC. CURB

FUNCTIONAL CLASSIFICATION

- (1) AIRWAY
- (2) CONC. CURB
- (3) CONC. CURB
- (4) CONC. CURB
- (5) CONC. CURB
- (6) CONC. CURB
- (7) CONC. CURB
- (8) CONC. CURB
- (9) CONC. CURB
- (10) CONC. CURB

HAZARDOUS SYSTEM

- (1) HAZARDOUS SYSTEM
- (2) HAZARDOUS SYSTEM
- (3) HAZARDOUS SYSTEM
- (4) HAZARDOUS SYSTEM
- (5) HAZARDOUS SYSTEM

ACCESS CLASSIFICATION

- (1) 1 - ACCESS
- (2) 2 - ACCESS
- (3) 3 - ACCESS
- (4) 4 - ACCESS
- (5) 5 - ACCESS
- (6) 6 - ACCESS
- (7) 7 - ACCESS

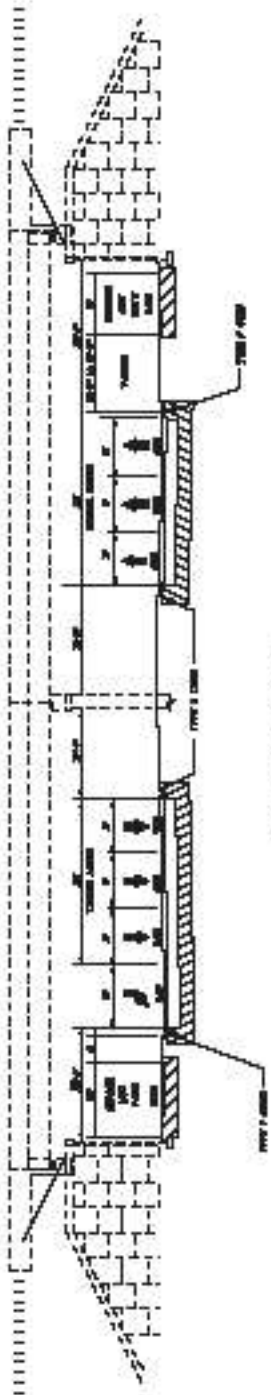
CRITERIA

- (1) CONC. CURB
- (2) CONC. CURB
- (3) CONC. CURB

POTENTIAL ENERGY RISKS AND VARIATIONS RELATED TO TYPICAL SECTION

DESIGN VARIATIONS
N/A

TYPICAL SECTION - C



NOT TO SCALE

SR 617 OVER SR 635
STA 1088+36.67 to STA 1280+81.00

CONCRETE CURB
CONCRETE DECK
CONCRETE CEILING
CONCRETE CURB
CONCRETE DECK
CONCRETE CEILING
CONCRETE CURB
CONCRETE DECK
CONCRETE CEILING
CONCRETE CURB
CONCRETE DECK
CONCRETE CEILING

PROJECT NO.	48774-3-23-01
SHEET NO.	04

PROJECT CONTROLS

CONTRACT CLASSIFICATION

- 1) A1 : INITIAL
- 1) C1C : DESIGN COMP.
- 1) C1 : BIDDAL
- 1) C1A : URBAN DESIGN
- 1) C1T : URBAN TRAFFIC
- 1) C1I : URBAN INTERIOR
- 1) C1B : SUBURBAN RCL
- 1) C1D : URBAN CONC.
- 1) C1J : I.L.A. PROJECT

FUNCTIONAL CLASSIFICATION

- 1) A1 : AVENUE
- 1) B1 : ROAD COLLECTOR
- 1) F1 : FEEDER/ARTERY
- 1) R1 : ROAD COLLECTOR
- 1) P1 : PARKWAY/ARTERY
- 1) U1 : URBAN
- 1) R1 : RURAL

TRAFFIC SYSTEM

- 1) A1 : FULL SIGNAL SYSTEM
- 1) A2 : PARTIAL SIGNAL SYSTEM
- 1) A3 : STOP SIGN CONTROL
- 1) A4 : STOP SIGN CONTROL

ACCESS CLASSIFICATION

- 1) 1 - FREEWAY
- 1) 2 - LIMITED ACCESS ROAD
- 1) 3 - MULTILANE URBAN P.V. OVERPASS BRIDGE
- 1) 4 - MULTILANE URBAN P.V. OVERPASS BRIDGE
- 1) 5 - MULTILANE URBAN P.V. OVERPASS BRIDGE
- 1) 6 - MULTILANE URBAN P.V. OVERPASS BRIDGE
- 1) 7 - URBAN LOCAL STREET

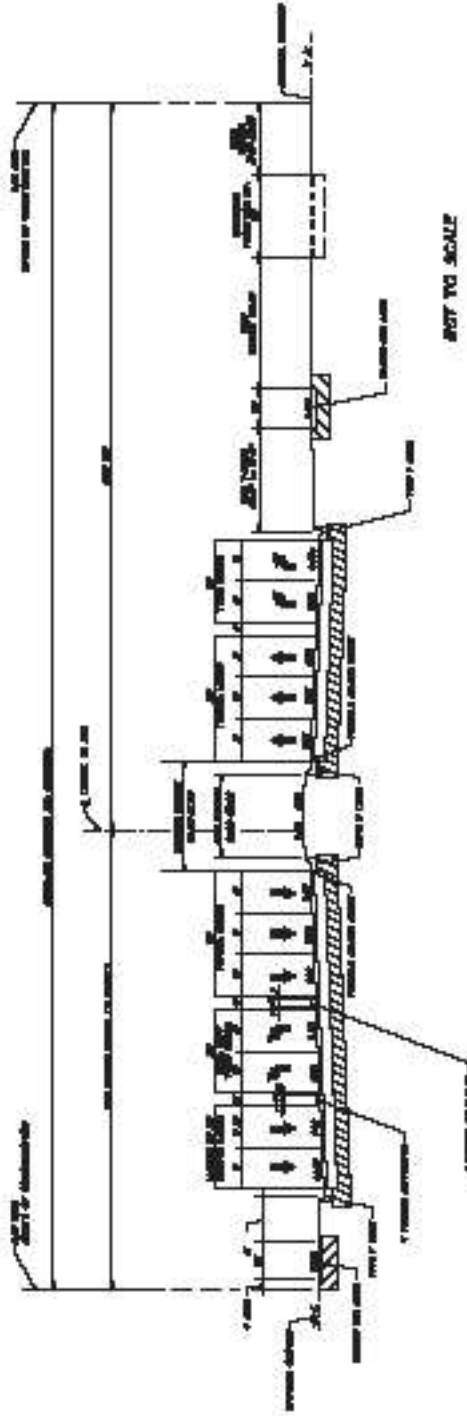
CRITERIA

- 1) A1 : CONSTRUCTION / RECONSTRUCTION
- 1) A2 : CONSTRUCTION / RECONSTRUCTION
- 1) A3 : MAINTENANCE & COLLECTION

POTENTIAL ENERGY RISKS AND VARIATIONS RELATED TO TYPICAL SECTION

DESIGN NUMBER: 48774-3-23-01

TYPICAL SECTION - D



DISPLACED LEFT INTERSECTION ALONG SR 535 AT THE WORLD CENTER DRIVE (SR 688) INTERSECTION

STA. 15984+0.00 TO STA. 15984+0.00



PROJECT NO.	48774-3-23-01
SHEET NO.	05

Appendix G – Access Management

Date: 05/05/2023

From: Paul Carballo, P.E.
To: David Graeber, P.E.

Subject: Draft Access Management Plan Tech Memo
Re: SR 535 PD&E Study from US 192 to SR 536 (World Center Drive)
FPID: 437174-2

1. Access Management Classification

Florida Administrative Code 14-97 establishes the seven classifications for state highways that contain separation standards for access features as stated in the FDOT Access Management Guidebook (2019). The entire project corridor (see **Figure 1**) extending from the US 192/SR 535 intersection to just north of SR 536 (World Center Drive) is currently classified as an Access Class 3 facility with restrictive median treatment.

Access Class 3 facilities are controlled access highways where direct access to abutting land is controlled to maximize the operation of the through traffic movements. This class is used where the adjacent land is generally not extensively developed and/or the probability of significant land use change exists. These highways are distinguished by existing or planned restrictive medians.

Figure 1 - Existing Access Management Classification



2. Access Management Criteria

The posted speed limits along SR 535 is 45 mph from the begin project to just north of Kyngs Heath Road and 50 mph from just north of Kyngs Heath Road to the end of the project limits. Target Speed is the highest speed at which vehicles should operate on a thoroughfare along the corridor, which is consistent with the adjacent land uses, mobility for motor vehicles and supportive environment for pedestrians, bicyclists, etc. The Target Speed recommendation for this corridor is 45 mph throughout the entire corridor.

SR 535 from US 192 to just north of SR 536 (World Center Drive) within and adjacent to this project will serve as an effective minor arterial to facilitate mobility and access to abutting land uses in the area. This facility has a context classification of C3C-Suburban Commercial since it will serve the adjacent land uses that are primarily Commercial, interspersed with some Residential and Conservation. There are no fronting uses and parking is primarily in front of the buildings. In general terms, mostly non-residential uses with large building footprints and large parking lots network (see **Figure 2**).

Figure 2 – SR 535 Context Classification



The criteria from the Florida Administrative Code 14-97 and FDOT Design Manual was followed (see **Table 1**).

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Table 1 – Access Management Standards

Access Class	FDOT Context Classification	Median Type	Connection Spacing (feet)		Median Opening Spacing (feet)		Signal Spacing (feet)
			>45 mph	≤ 45 mph	Directional	Full	
2	C1 Natural, C2 Rural	Restrictive w/Service Roads	1,320	660	1,320	2,640	2,640
3	C1 Natural, C2 Rural, C2T Rural Town, C3R Suburban Residential, C3C Suburban Commercial	Restrictive	660	440	1,320	2,640	2,640
4	C2T Rural Town, C4 Urban General, C5 Urban Center, C6 Urban Core	Non-Restrictive	660	440	---	---	2,640
5		Restrictive	440	245	660	2,640/1,320*	2,640/1,320*
6		Non-Restrictive	440	245	---	---	1,320
7		Both Median Types	125		330	660	1,320

* Note: 2,640 for > 45 mph; 1,320 for ≤ 45 mph

3. Driveway Connection Spacing

There are various driveways and side street connections along both sides of the study providing access to the hotels/commercial developments, etc. The driveway connection is the distance between two adjacent driveways and the corner clearance is the distance from the driveway connection to an intersection. **Figure 3** illustrates the Driveway Connection's Evaluation.

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4. Median Spacing

Within the project limits, the proposed roadway segment along SR 535 will maintain the restrictive median. The existing and proposed median spacing and compliance with the standards are shown in **Table 2**. All of the median openings (full and directional) do not comply with the standards of an Access Class 3 facility.

Table 2 – Median Spacing and Standard Compliance

	Existing Opening	Proposed Design Speed	Proposed Stations	Existing Stations	Existing Spacing	Median Type	Proposed Spacing	Meets Standard	Deviation from Standard (%)
		(mph)			(feet)		(feet)		
1	WIRLO BRONSON MEMORIAL HWY	45	1489+41.87	1489+41.87	—	Full	—	—	—
2	KYNGS HEATH RD	45	1499+34.87	1499+34.87	993	Full	993	No	62.4%
3	CALYPSO CAY WAY	45	1511+60.87	1511+60.87	1,226	Directional	1,226	No	7.1%
4	W OSCED LA PKWY RAMP	45	1515+82.87	1515+82.87	422	Directional	422	No	68.0%
5	N POINCIANA BLVD	45	1526+50.87	1526+50.87	1,068	Full	1,068	No	59.5%
6	SHOPPING CENTER ENTRANCE	45	1536+34.87	1536+34.87	984	Directional	984	No	25.5%
7	POLYNESIAN ISLE BVLD	45	1545+72.87	1545+72.87	938	Full	938	No	64.5%
8	SHOPPING CENTER ENTRANCE	45	1554+84.87	1555+24.87	952	Directional	912	No	30.9%
9	LBV FACTORY STORES DR	45	1562+83.87	1562+83.87	759	Full	799	No	69.7%
10	INTERNATIONAL DR	45	1583+85.87	1583+85.87	2,102	Full	2,102	No	20.4%
11	WORLD CENTER DR	45	1597+43.87	1597+43.87	1,358	Full	1,358	No	48.6%
12	LAKE BRYAN BEACH BLVD	45	1615+09.87	1615+09.87	1,766	Full	1,766	No	33.1%

5. Traffic Signal Spacing

A comparison of the proposed signal spacing within the corridor and immediate adjacent signals are shown on **Table 3** and indicate the distances among the signalized intersections. It should be noted that for the innovative intersections, all signalized intersections are considered as one signal at the center of the intersection. The distances are shown on Table 3. All of the signal spacings do not comply with the standards of 2,640 feet.

Table 3 – Signal Spacing and Standard Compliance

FROM	TO	SPACING (feet)	MEETS STANDARD
W IRLO BRONSON MEMORIAL HWY	KYNGS HEALTH RD	980	No
KYNGS HEATH RD	W OSCEOLA PKWY RAMP	1663	No
W OSCEOLA PKWY RAMP	N POINCIANA BLVD	1060	No
N POINCIANA BLVD	POLYNESIAN ISLE BVLD	1914	No
POLYNESIAN ISLE BVLD	LBV FACTORY STORES DR	1720	No
LBV FACTORY STORES DR	INTERNATIONAL DR	2114	No
INTERNATIONAL DR	WORLD CENTER DR	1390	No

6. Conclusions

An Access Management evaluation was performed for the proposed SR 535 PD&E study from US 192 to just north of SR 536 (World Center Drive) (see **Attachment 1**). The roadway is currently classified as an Access Management Classification 3. The following conclusions can be made from the information provided.

- Proposed Signal Spacing within the corridor are not in compliance with Access Class 3 but are proposed to remain the same as the existing locations.
- Although the median spacing is not compliant to Access Class 3 standards it is recommended to maintain the existing median locations.
 - The proposed SR 535 median locations will remain at the existing locations (with the exception of one median just north of Polynesian Isle).

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Attachment 1 – Access Management Plan

ACCESS MANAGEMENT PLAN

92040000 (Item US 1921 to Coonard/Owens Court Drive) (S. 25.055007) (Item 056 of 4) (Orange County Lane to Rtn. of SR 536 (Walden Drive))
 4371742-27-01

SR 535

US 1921 to North of SR 536 (Walden Drive)

CSC

Proposed 45 mph

5/5/2023

Site Section Number

PM Number

Site Road Number

Limit

Classification

Speed Limit

Date

7640

1.370

Existing Opening	Proposed Design Speed	Proposed Alignment	Existing Alignment	Existing Opening Type	Existing Spacing	Width	Width Type	Proposed Spacing		Deviation from Standard (%)
								Width	Spacing	
1 W. WILSON MEMORIAL HWY	45 MPH	14.38+41.37	14.38+41.37	Parallels	—	—	Full	—	—	—
2 KINGS HEATH RD	45 MPH	14.88+54.37	14.88+54.37	Parallels	383	383	Full	383	383	0.4%
3 CALYPSO CAY WAY	45 MPH	15.11+80.37	15.11+80.37	Parallels	1,276	1,276	Diagonal	1,276	1,276	1.1%
4 WOODS LA PINEY RAMP	45 MPH	15.15+87.37	15.15+87.37	Parallels	472	472	Diagonal	472	472	65.0%
5 N POINTS BLVD	45 MPH	15.28+0.37	15.28+50.37	Parallels	1,085	1,085	Full	1,085	1,085	58.5%
6 SHOPPING CENTER ENTRANCE	45 MPH	15.38+54.37	15.38+54.37	Parallels	354	354	Diagonal	354	354	25.5%
7 POLYMER DRIVE BLDG	45 MPH	15.46+72.37	15.46+72.37	Parallels	303	303	Full	303	303	84.5%
8 SHOPPING CENTER ENTRANCE	45 MPH	15.54+54.37	15.54+74.37	Parallels	252	252	Diagonal	252	252	50.8%
9 LOW FACILITY STORES DR	45 MPH	15.67+82.37	15.67+82.37	Parallels	153	153	Full	153	153	88.1%
10 INTERNATIONAL DR	45 MPH	15.80+82.37	15.80+82.37	Parallels	2,102	2,102	Full	2,102	2,102	20.4%
11 WORLD CENTER DR	45 MPH	15.87+43.37	15.87+40.37	Parallels	133	133	Full	133	133	48.8%
12 LAKE BRYAN BEACH BLVD	45 MPH	16.15+02.37	16.15+02.37	Parallels	1,186	1,186	Full	1,186	1,186	33.1%

Recommended By

Consultant Project Manager

Date

Concurred By

FDO Project Manager

Date

FDO District Traffic/Access Manager

Date

REVISIONS	
Date	By
	Description

Date: November 7, 2023

From: Stefan Escanes, P.E., PTOE
To: David Graeber, P.E.Subject: Median Closure Technical Memorandum
Re: SR 535 PD&E Study from US 192 to SR 536 (World Center Drive)
FPID: 437174-2**Introduction**

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study, State Financial Project Number 437174-2, to evaluate the widening of a 2.35-mile section of SR 535 from US 192 (in Osceola County) to north of SR 536/World Center Drive (in Orange County). The portion of SR 535 included in the study falls within section 92040000 located in Osceola County and section 75035001 located in Orange County. This memorandum summarizes the safety and operational qualitative assessment for the closure of the median on World Center Drive east of SR 535 that serves as access to the Buena Vista Suites and the Caribe Royal. See **Figure 1** for the median opening location and current concept plan of the proposed median closure.

**Figure 1 – Existing Median Opening Location**

Safety Review

This location is a prevalent area for left turn/angle crashes due to the number of travelers attempting to turn into the Buena Vista Suites or the Caribe Royale Hotel. **Table 1** provides the sum of angle and left turn crash types that were identified at the study location which are correctable by closure of the median opening. As shown in **Table 1**, a total of 167 crashes have been recorded, at an increasing rate, within the 5-year period between 2014 to 2018, which is an average of 33 crashes per year. Excerpts from the SR 535 PD&E Study Project Traffic Analysis Report which illustrates the historical crash data is included in **Attachment A**. A detailed crash summary can be found in **Attachment B**.

Table 1 Median Crashes

Year	Angle + Left Turn Crashes
2014	20
2015	29
2016	34
2017	44
2018	40
Total	167

Operational Review

As shown in **Figure 1**, the proposed median opening closure will result in the need for motorists to modify their travel routes to access properties north and south of World Center Drive. The following describes proposed travel patterns:

- Northbound left turn and eastbound Left turn movements from the existing median opening will be rerouted to perform an eastbound U-turn movement at the median opening 940-ft east of the existing opening.
- Southbound left turn and westbound left turn movements from the existing median opening will be rerouted to perform a westbound U-turn movement at the intersection of SR 535 and SR 536/World Center Drive.

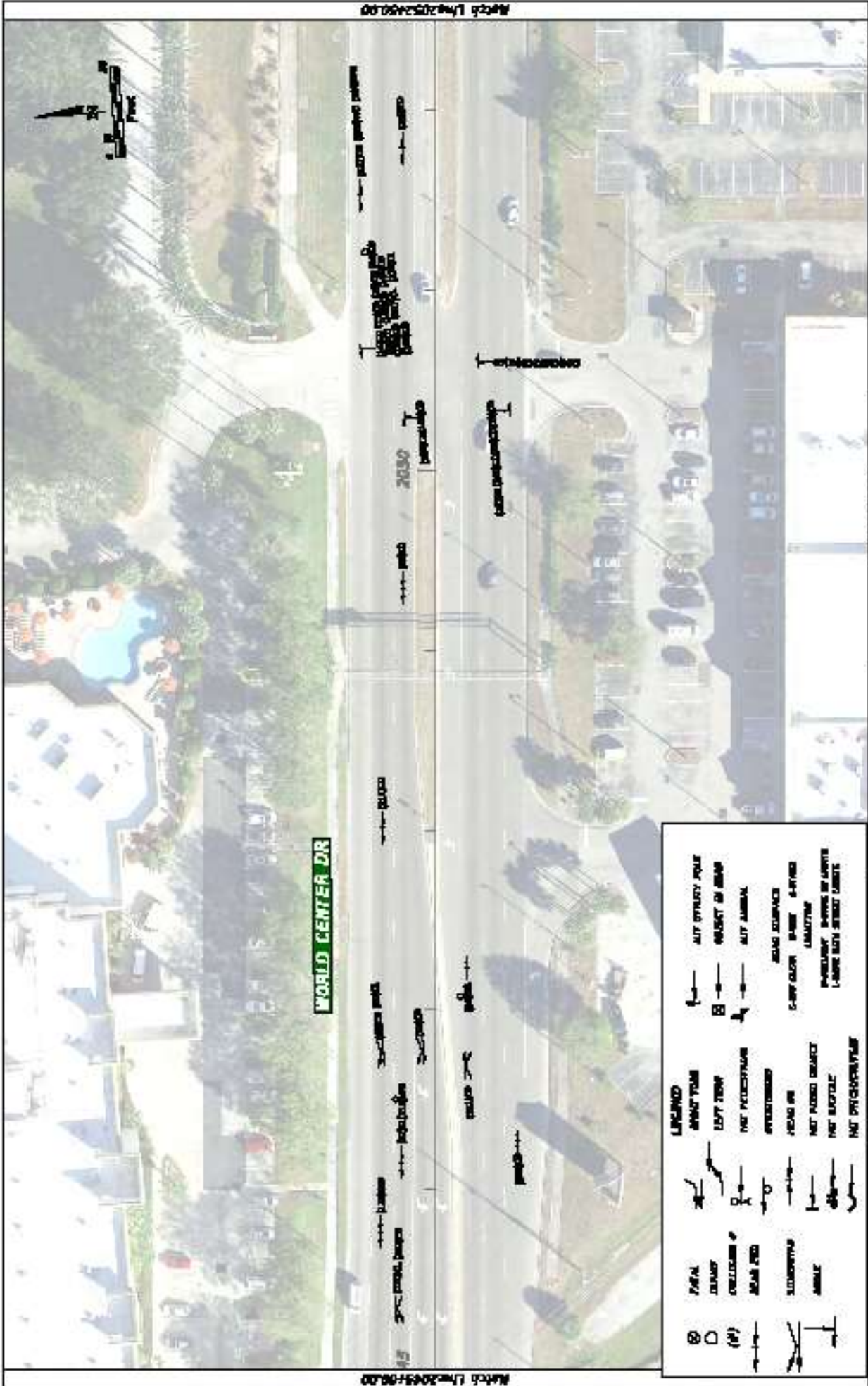
It should also be noted that the median closure does provide additional turn bay storage for the westbound left turn movement at the intersection of SR 535 and SR 536/World Center Drive to accommodate design year projected queue lengths of approximately 200-ft and 350-ft during the 2045 AM and PM peak hours, respectively. Similarly, the longer storage bay will also provide access to the left turn lanes from potential blockage due to the design year westbound through project queue lengths of approximately 560-ft and 510-ft during the 2045 AM and PM peak hours, respectively.

Attachments

- A) Excerpts from the SR 535 PD&E Study Project Traffic Analysis Report**
- B) Crash Summary**

Attachment A

Excerpts from the SR 535 PD&E Study Project Traffic Analysis Report

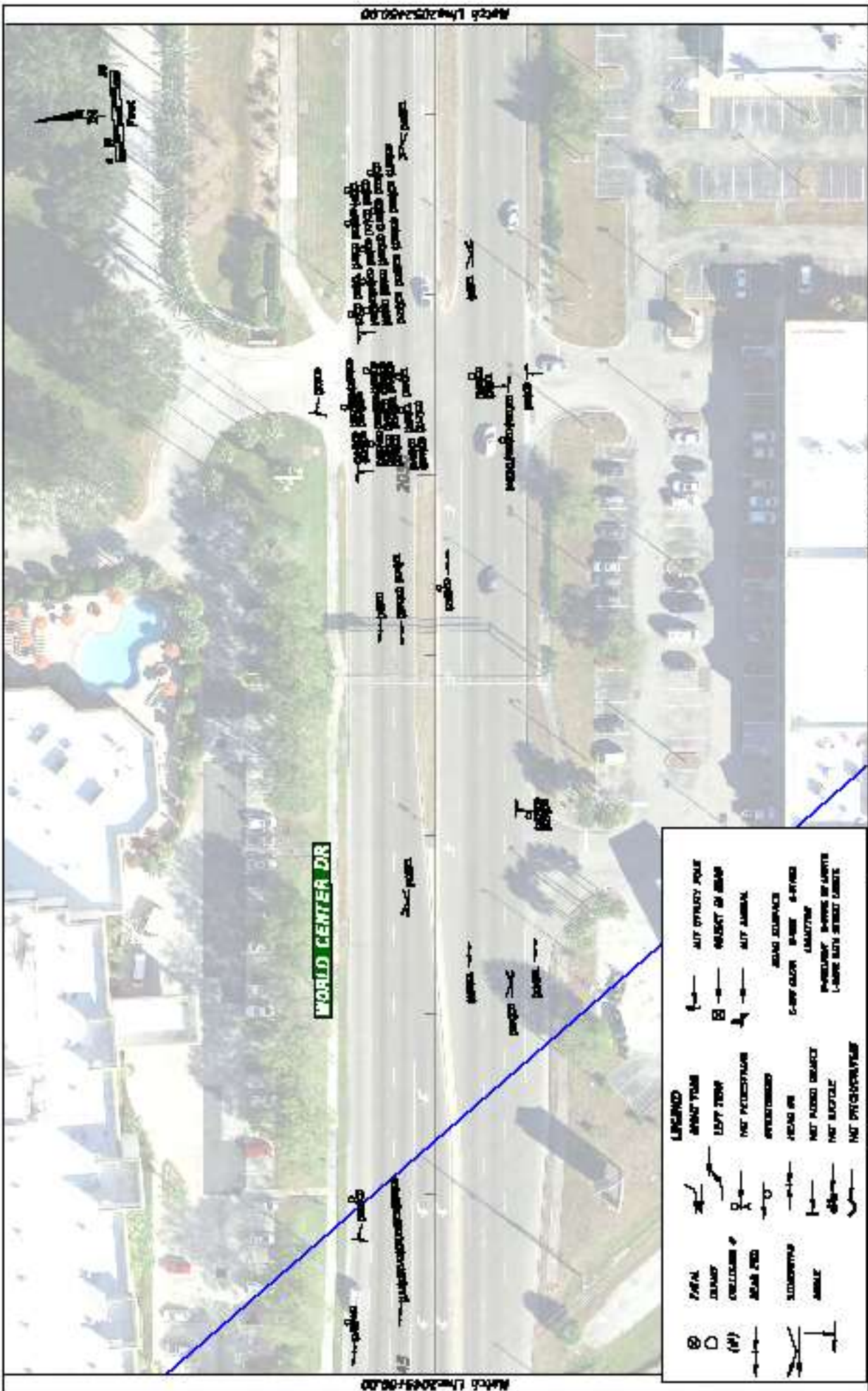


Match Line 2024-0000

Match Line 2024-0000

LEGEND	
	Pole
	STREET POLE
	UTILITY POLE
	POLE WITH TRANSFORMER
	POLE WITH TRANSFORMER AND METER
	POLE WITH TRANSFORMER, METER, AND SWITCH
	POLE WITH TRANSFORMER, METER, SWITCH, AND FUSE
	POLE WITH TRANSFORMER, METER, SWITCH, FUSE, AND LIGHT
	POLE WITH TRANSFORMER, METER, SWITCH, FUSE, LIGHT, AND SIGN
	POLE WITH TRANSFORMER, METER, SWITCH, FUSE, LIGHT, SIGN, AND STREET LIGHT
	POLE WITH TRANSFORMER, METER, SWITCH, FUSE, LIGHT, SIGN, STREET LIGHT, AND POLE

	AMTRAC INDUSTRIES, INC.	2024 Callout Diagram	SCALE: 1" = 20'
PROJECT OF RECORD DEPARTMENT OF TRANSPORTATION		ROAD NO. 2024 COUNTY INDIAN WELLS IN MS 2024 OBJECT/CLASS/TYPE CON-10-00-08	
SHEET NO. 27		DATE 2024	



LEGEND	
①	PAVA
②	DEMAND
③	COLLECTOR
④	ROAD PAV
⑤	STREETWAY
⑥	ASPHLT
⑦	⑧
⑨	⑩
⑪	⑫
⑬	⑭
⑮	⑯
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PROJECT INFORMATION		PROJECT NAME	
2023 Centexon Diagram		2023 Centexon Diagram	
DATE		DATE	
DRAWN BY		DRAWN BY	
CHECKED BY		CHECKED BY	
APPROVED BY		APPROVED BY	
SCALE		SCALE	
SHEET NO.		SHEET NO.	
27		27	

Attachment B
Crash Summary

CRASH DATA 2 014

No	Crash_Location	RP	HDM_Rapor	Year	Crash_Date	Crash_Time	Crash_Type	Fatalitas	Injuria	Skewed_Irval_Vid	Lighting_Condition	Contributing_Factor	Crash_Severity	Road_Surface
14	S.J. 35-51 Km0+0.000, D.10-3.R. 555	1274	31/03/2014	2014	04/03/2014	04:00 PM	Angle	0	0	None	Daylight	Failure of the Right-Of-Way	POO	Clear
15	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/04/2014	2014	05/04/2014	05:00 PM	Left Turn	0	0	None	Daylight	Angle	POO	Clear
20	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/02/2014	2014	02/02/2014	02:00 PM	Left Turn	0	0	None	Daylight	Angle	POO	Clear
4	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/03/2014	2014	04/03/2014	04:00 PM	Right Angle	0	0	None	Daylight	Angle	POO	Clear
5	S.J. 35-51 Km0+0.000	0000	31/03/2014	2014	03/03/2014	03:00 PM	Left Turn	0	0	None	Daylight	Curves or the Right-Of-Way	POO	Clear
64	S.J. 35-51 Km0+0.000	0000	31/01/2014	2014	01/01/2014	01:00 PM	Left Turn	0	4	None	Daylight	Failure of the Right-Of-Way	Inj	Clear
65	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/03/2014	2014	03/03/2014	03:00 PM	Right Angle	0	0	None	Daylight	Angle	POO	Clear
20	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/01/2014	2014	01/01/2014	01:00 PM	Right Angle	0	0	None	Daylight	Angle	POO	Clear
104	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/04/2014	2014	04/04/2014	04:00 PM	Right Angle	0	0	None	Daylight	Angle	POO	Clear
150	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/01/2014	2014	01/01/2014	01:00 PM	Left Turn	0	0	None	Daylight	Angle	POO	Cloudy
145	S.J. 35-51 Km0+0.000	0000	31/03/2014	2014	03/03/2014	03:00 PM	Left Turn	0	0	None	Daylight	Curves or the Right-Of-Way	POO	Clear
146	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/01/2014	2014	01/01/2014	01:00 PM	Other	0	0	None	Daylight	Angle	POO	Clear
148	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/03/2014	2014	03/03/2014	03:00 PM	Left Turn	0	0	None	Daylight	Angle	POO	Cloudy
166	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/03/2014	2014	03/03/2014	03:00 PM	Other	0	0	None	Daylight	Angle	POO	Clear
167	S.J. 35-51 Km0+0.000	0000	31/03/2014	2014	03/03/2014	03:00 PM	Left Turn	0	0	None	Daylight	Right-Of-Way	POO	Clear
261	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/03/2014	2014	03/03/2014	03:00 PM	Left Turn	0	0	None	Dark-Light	Angle	POO	Clear
262	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/03/2014	2014	03/03/2014	03:00 PM	Left Turn	0	0	None	Dark-Light	Other	POO	Clear
269	W040+0.000 Drive from S.N. 555 to Infrastructural Drive	0000	31/03/2014	2014	03/03/2014	03:00 PM	Left Turn	0	0	None	Daylight	Angle	POO	Clear

CRASH DATA 2 015

ID	Crash Location	RP	HWY_Rptnr	Year	Crash Date	Crash Time	Crash Type	Fatalities	Injuries	Arrested / In Custody	Lighting Condition	Contributing Factor	Crash Severity	Road Surface
1	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	0491404	2013	10/20/13	11:05:54A	Left-Lane	0	0	0	Daylight	Angle	PVO	Clear
2	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	0495027	2013	11/14/2013	3:00PM	Left Rear	0	0	0	Dark - Lighted	Angle	PVO	Clear
3	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	0496274	2013	2/20/2013	5:53PM	Left-Lane	0	0	0	Daylight	Angle	PVO	Cloudy
34	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	0495450	2013	2/24/2013	5:05PM	Right-Angle	0	0	0	Daylight	Other	PVO	Cloudy
37	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	0495030	2013	5/20/13	3:49PM	Left-Lane	0	2	0	Daylight	Angle	Injury	Clear
40	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	0495517	2013	5/20/2013	5:50PM	Left Rear	0	0	0	Daylight	Angle	PVO	Clear
47	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	0495240	2013	5/25/2013	11:44:54A	Left-Lane	0	0	0	Daylight	Angle	PVO	Clear
123	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05115026	2013	5/22/2013	4:05PM	Left Rear	0	0	0	Daylight	Angle	PVO	Clear
127	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05122105	2013	5/25/2013	3:56PM	Left-Lane	0	1	0	Dark	Angle	Injury	Clear
134	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05116606	2013	5/13/2013	3:04PM	Left-Lane	0	2	0	Daylight	Angle	Injury	Clear
193	S.R. 55-41 W040 Center Dr	2034	05131313	2013	05/20/13	3:07PM	Left-Lane	0	0	0	Daylight	Curve or High Speed/Blameworthy	PVO	Clear
193	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	04914405	2013	4/13/2013	2:47PM	Other	0	2	0	Daylight	Angle	Injury	Cloudy
229	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05117425	2013	9/22/2013	10:15:54A	Other	0	0	0	Daylight	310-Angle, Item Description	PVO	Cloudy
245	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05126239	2013	9/25/2013	3:32PM	Right Through	0	0	0	Dark - Lighted	Angle	PVO	Clear
254	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05124635	2013	10/2/2013	3:27PM	Left-Lane	0	0	0	Daylight	Angle	PVO	Clear
261	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05129432	2013	10/2/2013	10:05:54A	Left-Lane	0	0	0	Daylight	Angle	PVO	Clear
263	S.R. 55-41 W040 Center Dr	0293	05121704	2013	10/2/2013	4:24PM	Left-Lane	0	2	0	Daylight	Curve or High Speed/Blameworthy	Injury	Clear
273	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	0520290	2013	10/16/2013	3:10PM	Left-Lane	0	2	0	Daylight	Angle	Injury	Clear
279	S.R. 55-41 W040 Center Dr	2034	05206105	2013	10/22/2013	2:55:54A	Left-Lane	0	2	0	Daylight	Improper Passing	Injury	Clear
282	S.R. 55-41 W040 Center Dr	2034	05206104	2013	10/22/2013	3:45PM	Left-Lane	0	0	0	Daylight	Curve or High Speed/Blameworthy	PVO	Clear
286	S.R. 55-41 W040 Center Dr	1234	05217527	2013	10/24/2013	3:45PM	Front End	0	1	0	Daylight	No Contributing Action	Injury	Clear
324	S.R. 55-41 W040 Center Dr	0293	05251935	2013	11/14/2013	4:13PM	Left-Lane	0	1	0	Dark - Lighted	Improper Passing	Injury	Clear
333	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05251940	2013	12/11/2013	4:00PM	Left-Lane	0	0	0	Daylight	No Contributing Action	Injury	Clear
343	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05251746	2013	12/16/2013	2:52PM	Head-On	0	2	0	Daylight	Angle	Injury	Clear
347	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05251725	2013	12/22/2013	10:05:54A	Left-Lane	0	0	0	Daylight	Angle	PVO	Clear
356	W040 Center Drive from S.R. 535 to Infrastrona Blvd	0000	05251268	2013	12/29/2013	3:03PM	Left-Lane	0	0	0	Dark	Angle	PVO	Clear
357	S.R. 55-41 W040 Center Dr	1234	05271106	2013	12/29/2013	11:20PM	Front End	0	0	0	Dark - Lighted	Improper Lane	PVO	Clear

CRASH DATA 2 01 6

#	Crash Location	RP	HDMU_Rapor	Year	Crash Date	Crash Time	Crash Type	Fatalities	Injuries	Vehicle Involved	Lighting Condition	Contributing Factor	Crash Severity	Road Surface
29	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251405	2016	2/6/2016	4:05PM	Head-On	0	0	None	Dark	Front to Front	POO	Rain
30	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251394	2016	2/6/2016	2:42PM	Left Rear	0	0	None	Daylight	Angle	POO	Clear
39	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251405	2016	2/15/2016	3:42PM	Leik-lum	0	0	None	Dark - Light 0	Angle	POO	Clear
57	S.R. 553 at World Center Dr	0000	03250928	2016	2/18/2016	3:42PM	Leik-lum	0	1	None	Daylight	Front-0 to 90-Min Right-Of-Way	Injury	Clear
67	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250707	2016	2/24/2016	4:20PM	Leik-lum	0	0	None	Daylight	Angle	POO	Cloudy
71	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251550	2016	3/6/2016	9:45AM	Right Angle	0	0	None	Daylight	Angle	POO	Clear
74	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251594	2016	3/6/2016	10:21PM	Leik-lum	0	0	None	Dark - Light 0	Angle	POO	Clear
75	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250928	2016	3/6/2016	9:20AM	Other	0	0	None	Daylight	Other	POO	Clear
80	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250730	2016	3/6/2016	3:40PM	Head-On	0	0	None	Dark - Light 0	Front-to-Rear	POO	Clear
83	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250633	2016	3/19/2016	4:20PM	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
84	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250497	2016	3/19/2016	11:51AM	Other	0	0	None	Daylight	Angle	POO	Clear
86	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250524	2016	3/19/2016	6:00AM	Left Rear	0	0	None	Dark	Front to Front	POO	Clear
92	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250705	2016	3/20/2016	4:40PM	Left Rear	0	2	None	Dark - Light 0	Front to Front	Injury	Clear
94	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251660	2016	3/23/2016	11:00AM	Leik-lum	0	1	None	Daylight	Angle	POO	Clear
104	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251694	2016	3/22/2016	4:47AM	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
118	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251130	2016	4/10/2016	10:37AM	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
124	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251105	2016	4/10/2016	3:45AM	Leik-lum	0	0	None	Dark - Light 0	Angle	POO	Clear
126	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250928	2016	4/19/2016	6:48PM	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
129	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250666	2016	4/19/2016	3:45AM	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
136	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250928	2016	4/29/2016	2:17PM	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
140	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251668	2016	4/29/2016	2:17PM	Leik-lum	0	4	None	Daylight	Front-to-Rear	Injury	Clear
161	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251311	2016	5/16/2016	6:48PM	Leik-lum	0	2	None	Daylight	Angle	Injury	Clear
197	S.R. 553 from World Center Dr. to S.R. 535	1239	03254468	2016	6/24/2016	2:45PM	Leik-lum	0	0	None	Daylight	Improper Passing	POO	Clear
207	S.R. 553 at World Center Dr	0000	03251670	2016	02/20/2016	6:51PM	Angle	0	0	None	Daylight	Improper Passing	POO	Clear
208	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251626	2016	02/20/2016	3:17PM	Left Leading	0	0	None	Daylight	Angle	POO	Rain
225	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251405	2016	4/19/2016	3:50PM	Leik-lum	0	1	None	Daylight	Front to Front	Injury	Clear
226	World Center Drive from S.R. 535 to Infranskom 104w	0000	03251410	2016	4/22/2016	3:21PM	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
255	S.R. 553 at World Center Dr	0000	03250928	2016	8/20/2016	3:45PM	Leik-lum	0	1	None	Daylight	Front-0 to 90-Min Right-Of-Way	Injury	Clear
279	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250928	2016	9/19/2016	4:45AM	Leik-lum	0	2	None	Daylight	Angle	Injury	Clear
284	S.R. 553 at World Center Dr	2034	03251592	2016	9/22/2016	4:45AM	Leik-lum	0	0	None	Daylight	Head-on	POO	Clear
299	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250499	2016	10/3/2016	3:40PM	Leik-lum	0	0	None	Daylight	Front-0 to 90-Min Right-Of-Way	POO	Clear
304	S.R. 553 at World Center Dr	2034	03250633	2016	10/9/2016	10:51PM	Leik-lum	0	3	None	Dark - Light 0	Head-on	Injury	Clear
517	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250105	2016	10/10/2016	3:21PM	Other	0	0	None	Daylight	Angle	POO	Clear
548	World Center Drive from S.R. 535 to Infranskom 104w	0000	03250702	2016	12/29/2016	3:05PM	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
590	World Center Drive from S.R. 535 to Infranskom 104w	0000	03254929	2016	12/30/2016	10:51AM	Right Through	0	0	None	Daylight	Angle	POO	Clear

CRASH DATA 2 017

#	Crash Location	RP	HWY_Rapor	Year	Crash Date	Crash Time	Crash Type	Fatalities	Injury	Property Damage	Lighting Condition	Contributing Factor	Crash Severity	Road Surface
7	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-46705	2017	10/20/17	1:20 PM	Leb-lum	0	0	0	Daylight	Angle	Clear	Clear
15	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-46538	2017	1/14/2017	6:02 PM	Leb-lum	0	0	0	Dusk	Front to Front	POO	Clear
19	S.R. 561 from W000 Galena Dr. to S.R. 535	1259	01-46538	2017	1/25/2017	3:47 PM	Ho-C-objd	0	0	0	Daylight	Ho-C-objd	POO	Clear
20	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-46413	2017	1/29/2017	12:50 PM	Leb-lum	0	1	0	Daylight	Angle	Injury	Cloudy
41	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-47205	2017	2/10/2017	6:55 PM	Leb-lum	0	1	0	Dark - Light 0	Angle	Injury	Clear
48	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-46125	2017	2/18/2017	3:04 PM	Other	0	3	0	Daylight	Angle	Injury	Cloudy
64	S.R. 561 from W000 Galena Dr. to S.R. 535	1141	01-46538	2017	5/20/2017	3:56 PM	Leb-lum	0	1	0	Daylight	Impoverlan, Ang	Injury	Clear
68	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-46516	2017	5/20/2017	3:20 AM	Reashed	0	2	0	Daylight	Angle	Injury	Clear
70	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-46028	2017	1/19/2017	3:09 PM	Leb-lum	0	0	0	Dark - Light 0	Angle	POO	Cloudy
77	S.R. 561 from W000 Galena Dr. to S.R. 535	1170	01-46515	2017	1/15/2017	1:50 AM	Leb-lum	0	0	0	Daylight	Ho-C-objd	POO	Clear
80	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-46130	2017	1/19/2017	11:27 AM	Leb-lum	0	2	0	Daylight	Angle	Injury	Clear
90	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-46566	2017	1/29/2017	9:00 AM	Leb-lum	0	1	0	Daylight	Angle	Injury	Clear
99	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-50140	2017	1/25/2017	3:40 PM	Leb-lum	0	0	0	Daylight	Angle	POO	Clear
105	S.R. 561 from W000 Galena Dr. to S.R. 535	1259	01-46413	2017	1/19/2017	3:45 PM	Leb-lum	0	0	0	Daylight	Impoverlan	POO	Clear
116	S.R. 561 from W000 Galena Dr. to S.R. 535	1174	01-50128	2017	4/10/2017	6:04 PM	Leb-lum	0	1	0	Daylight	Ho-C-objd	Injury	Clear
119	S.R. 561 from W000 Galena Dr. to S.R. 535	1254	01-50266	2017	4/19/2017	6:50 PM	Leb-lum	0	6	0	Daylight	Impoverlan, Ang	Injury	Clear
177	S.R. 561 from W000 Galena Dr. to S.R. 535	1259	01-46538	2017	4/19/2017	6:12 PM	Leb-lum	0	0	0	Daylight	Ho-C-objd	POO	Clear
178	S.R. 561 from W000 Galena Dr. to S.R. 535	1259	01-46538	2017	4/20/2017	3:53 PM	Leb-lum	0	0	0	Daylight	Impoverlan, Ang	POO	Clear
180	S.R. 561 from W000 Galena Dr. to S.R. 535	1245	01-46540	2017	5/20/2017	2:40 AM	Leb-lum	0	0	0	Daylight	Ho-C-objd	POO	Clear
185	S.R. 561 from W000 Galena Dr. to S.R. 535	1174	01-52155	2017	1/19/2017	2:16 PM	Angle	0	6	0	Daylight	Fallo to No Mthght-C-Obj	Injury	Clear
190	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-52156	2017	1/15/2017	6:14 PM	Other	0	0	0	Daylight	Angle	POO	Clear
196	S.R. 5541 W000 Crmbr Dr	1266	01-46466	2017	1/18/2017	1:50 AM	Leb-lum	0	0	0	Daylight	Impoverlan, Ang	POO	Clear
199	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-50265	2017	1/26/2017	3:55 PM	Other	0	0	0	Daylight	Angle	POO	Clear
205	S.R. 561 from W000 Galena Dr. to S.R. 535	1259	01-50250	2017	1/19/2017	4:50 PM	Leb-lum	0	1	0	Daylight	Curve to or Ho ght-Blanner	Injury	Clear
205	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-50252	2017	6/26/2017	4:14 PM	Leb-lum	0	0	0	Daylight	Angle	POO	Clear
217	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-46566	2017	1/20/2017	1:45 AM	Leb-lum	0	0	0	Daylight	Angle	POO	Clear
225	S.R. 5541 W000 Crmbr Dr	2034	01-50455	2017	1/15/2017	12:56 PM	Angle	0	0	0	Daylight	No Contributing Action	POO	Clear
228	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-54524	2017	1/29/2017	2:55 PM	Leb-lum	0	0	0	Daylight	Angle	POO	Clear
234	S.R. 561 from W000 Galena Dr. to S.R. 535	1254	01-56606	2017	1/22/2017	2:42 PM	Leb-lum	0	1	0	Daylight	Impoverlan	Injury	Cloudy
236	S.R. 561 from W000 Galena Dr. to S.R. 535	1254	01-56607	2017	1/22/2017	4:55 PM	Leb-lum	0	0	0	Daylight	Fallo to No Mthght-C-Obj	POO	Cloudy
258	S.R. 5541 W000 Crmbr Dr	2096	01-50505	2017	1/26/2017	4:00 PM	Leb-lum	0	1	0	Daylight	Ho-C-objd	Injury	Cloudy
297	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-56608	2017	1/29/2017	3:03 PM	Leb-lum	0	0	0	Daylight	Angle	POO	Cloudy
298	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-56608	2017	1/29/2017	6:05 PM	Leb-lum	0	0	0	Daylight	Angle	POO	Cloudy
299	S.R. 5541 W000 Crmbr Dr	2034	01-56608	2017	1/19/2017	1:40 AM	Leb-lum	0	0	0	Daylight	Fallo to No Mthght-C-Obj	POO	Clear
299	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-56608	2017	1/19/2017	3:45 PM	Leb-lum	0	0	0	Daylight	Angle	POO	Clear
319	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-56608	2017	1/29/2017	12:24 PM	Leb-lum	0	0	0	Dark - Light 0	Angle	POO	Cloudy
348	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-46566	2017	1/15/2017	4:01 PM	Leb-lum	0	0	0	Daylight	Angle	POO	Clear
349	S.R. 5541 W000 Crmbr Dr	2030	01-19170	2017	1/10/2017	3:14 AM	Leb-lum	0	0	0	Dusk	Impoverlan	Injury	Clear
360	S.R. 561 from W000 Galena Dr. to S.R. 535	1271	01-19170	2017	1/10/2017	3:06 PM	Leb-lum	0	1	0	Daylight	Impoverlan	Injury	Clear
364	S.R. 561 from W000 Galena Dr. to S.R. 535	1174	01-19158	2017	1/23/2017	10:28 PM	Leb-lum	0	0	0	Dark - Light 0	Impoverlan, Ang	Injury	Clear
397	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-18043	2017	1/20/2017	3:59 PM	Leb-lum	0	0	0	Daylight	Angle	POO	Clear
401	W000 Crmbr Drive from S.R. 535 to Infranskom 104w	0000	01-18046	2017	1/23/2017	1:20 PM	Other	0	0	0	Dusk	Other	POO	Clear
405	S.R. 561 from W000 Galena Dr. to S.R. 535	1271	01-18060	2017	1/20/2017	3:27 PM	Leb-lum	0	1	0	Daylight	Impoverlan, Ang	Injury	Clear
410	S.R. 5541 W000 Crmbr Dr	2015	01-18045	2017	1/20/2017	3:24 PM	Leb-lum	0	0	0	Dark - Light 0	No Contributing Action	POO	Clear

CRASH DATA 2 01 8

#	Crash Location	RP	HWY_Hwy	Year	Crash Date	Crash Time	Crash Type	Fatalities	Injuries	Person Involved	Lighting Condition	Contributing Factor	Crash Severity	Road Surface
7	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8129447	2018	10/20/18	4:41:54	Angle	0	0	None	Daylight	Angle	POO	Clear
8	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8114026	2018	10/20/18	2:27:54	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
29	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8115144	2018	9/29/2018	5:56:54	Leik-lum	0	3	None	Daylight	Frontal-Over	Injury	Clear
30	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8115946	2018	2/4/2018	4:41:54	Leik-lum	0	5	None	Daylight	Angle	Injury	Clear
44	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8115291	2018	2/10/2018	4:46:54	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
45	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8116016	2018	2/14/2018	9:11:54	Unknown	0	0	None	Daylight	Angle	POO	Cloudy
47	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8116291	2018	2/18/2018	3:00:54	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
57	S.R. 55-61 W-90 Crmbr Dr	6095	8116014	2018	2/25/2018	10:45:54	Leik-lum	0	0	None	Daylight	Run Stop Sign	POO	Cloudy
58	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8116415	2018	2/25/2018	4:21:54	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
56	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8111166	2018	2/28/2018	12:13:54	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
71	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8116148	2018	5/29/2018	9:09:54	Leik-lum	0	2	None	Daylight	Angle	Injury	Clear
74	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8116026	2018	5/25/2018	12:00:54	Leik-lum	0	1	None	Daylight	Angle	Injury	Clear
76	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8120148	2018	5/26/2018	10:46:54	Leik-lum	0	2	None	Daylight	Angle	Injury	Clear
100	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8120566	2018	4/14/2018	2:10:54	Angle	0	2	None	Daylight	Angle	Injury	Clear
101	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8121144	2018	4/14/2018	3:22:54	Leik-lum	0	2	None	Dark - Lighted	Angle	Injury	Clear
102	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8119166	2018	4/19/2018	3:20:54	Leik-lum	0	1	None	Daylight	Angle	Injury	Clear
109	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8120115	2018	4/25/2018	5:03:54	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
117	S.R. 55-61 W-90 Crmbr Dr	6028	8119566	2018	4/28/2018	3:40:54	Leik-lum	0	2	None	Daylight	Ho-C-Obd	Injury	Clear
120	S.R. 55-61 W-90 Crmbr Dr	2034	8120134	2018	5/4/2018	4:49:54	Angle	0	1	None	Daylight	Frontal-Over	Injury	Cloudy
121	S.R. 55-61 W-90 Crmbr Dr	2034	8121358	2018	5/6/2018	3:14:54	Leik-lum	0	0	None	Daylight	Frontal-Over	Injury	Clear
126	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8120144	2018	5/6/2018	6:00:54	Leik-lum	0	0	None	Daylight	Angle	POO	Cloudy
149	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8120162	2018	6/5/2018	4:53:54	Leik-lum	0	6	None	Daylight	Angle	Injury	Clear
181	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8124524	2018	6/29/2018	5:53:54	Leik-lum	0	1	None	Daylight	Angle	Injury	Clear
191	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8124546	2018	4/13/2018	3:14:54	Leik-lum	0	2	None	Daylight	Angle	Injury	Clear
195	S.R. 55-61 W-90 Crmbr Dr	6095	8124618	2018	4/16/2018	9:00:54	Leik-lum	0	0	None	Daylight	Frontal-Over	POO	Clear
235	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8123664	2018	9/29/2018	11:27:54	Leik-lum	0	2	None	Daylight	Angle	Injury	Clear
254	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8126026	2018	9/29/2018	3:05:54	Leik-lum	0	2	None	Daylight	Angle	Injury	Clear
294	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8126018	2018	9/29/2018	4:41:54	Right Lum	0	0	None	Daylight	Angle	POO	Cloudy
297	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8126026	2018	9/14/2018	4:53:54	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
298	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8126014	2018	9/14/2018	2:50:54	Leik-lum	0	3	None	Daylight	Angle	Injury	Clear
299	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8126016	2018	9/14/2018	3:56:54	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
299	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8126118	2018	9/29/2018	12:00:54	Leik-lum	0	2	None	Daylight	Angle	Injury	Clear
267	S.R. 55-61 W-90 Crmbr Dr	2034	8090426	2018	8/9/2018	3:55:54	Angle	0	2	None	Daylight	Imperp Bar, Ang	Injury	Rain
271	S.R. 55-61 W-90 Crmbr Dr	2034	8129416	2018	10/10/2018	9:11:54	Leik-lum	0	0	None	Daylight	Imperp Bar, Ang	POO	Clear
275	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8094416	2018	10/14/2018	4:10:54	Leik-lum	0	0	None	Daylight	Angle	POO	Cloudy
285	S.R. 55-61 W-90 Crmbr Dr	2034	8090204	2018	10/21/2018	4:53:54	Leik-lum	0	0	None	Daylight	Imperp Bar, Ang	POO	Clear
287	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8090206	2018	10/21/2018	11:13:54	Leik-lum	0	4	None	Daylight	Angle	Injury	Clear
505	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8095416	2018	11/24/2018	11:57:54	Angle	0	1	None	Daylight	Angle	Injury	Clear
527	W-90 Crmbr Drive from S.R. 535 to Infrastrona (D-4w)	6000	8095424	2018	12/15/2018	10:16:54	Leik-lum	0	0	None	Daylight	Angle	POO	Clear
527	S.R. 55-61 W-90 Crmbr Dr	6095	8095426	2018	12/20/2018	9:21:54	Leik-lum	0	0	None	Dark - Lighted	Ho-C-Obd	POO	Clear

Appendix H – Construction Cost Estimate

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 437174-2-22-01 Letting Date: 01/2099

Description: SR 535/WINELAND RD FROM US 192 TO NORTH OF WORLD CENTER DR

District: 05 County: 99 DISTRICT/STATEWIDE Market Area: 99 Units: English
 Contract Class: 1 Lump Sum Project: N Design/Build: N Project Length: 2.250 MI

Project Manager: LFC-MET

Version 10 Project Grand Total \$76,505,097.76
 Description: Preferred Alternative

Sequence: 3 NDU - New Construction, Divided, Urban Net Length: 1.316 MI
6,950 LF

Description: Alternative 1 - Inside Widening - Shared Use Path
 Special Conditions: Mainline Full Reconstruction

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	112.00 / 112.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	2.353
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	35.73	AC	\$51,330.22	\$1,834,028.76
120-6	EMBANKMENT	99,418.33	CY	\$41.73	\$4,148,726.91
Earthwork Component Total					\$5,982,755.67

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	33.00 / 33.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
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160-4	TYPE B STABILIZATION	58,932.07 SY	\$39.15	\$2,307,190.54
285-709	OPTIONAL BASE,BASE GROUP 09	50,963.26 SY	\$87.57	\$4,462,852.68
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	7,007.45 TN	\$313.97	\$2,200,129.08
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 7 6-22	4,204.47 TN	\$385.91	\$1,622,547.02

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	20.00
Stabilization Code	Y
Base Code	Y
Friction Course Code	Y

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	11,786.41	SY	\$39.15	\$461,437.95
285-709	OPTIONAL BASE,BASE GROUP 09	10,192.65	SY	\$87.57	\$892,570.36
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,401.49	TN	\$313.97	\$440,025.82
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 7 6-22	840.89	TN	\$385.91	\$324,507.86

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	888.00	EA	\$7.91	\$7,024.08
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	5.26	GM	\$1,239.37	\$6,519.09
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	5.26	GM	\$715.71	\$3,764.63
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	5.26	GM	\$6,093.38	\$32,051.18
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	5.26	GM	\$2,416.07	\$12,708.53
Roadway Component Total					\$12,773,328.82

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
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520-1-10	CONCRETE CURB & GUTTER, TYPE F	6,949.54 LF	\$71.44	\$496,475.14
520-1-10	CONCRETE CURB & GUTTER, TYPE F	6,949.54 LF	\$71.44	\$496,475.14
570-1-1	PERFORMANCE TURF	7,721.71 SY	\$10.74	\$82,931.17

Erosion Control

Pay Items

Pay Item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	13,899.07 LF	\$5.43	\$75,471.95
104-11	FLOATING TURBIDITY BARRIER	329.05 LF	\$14.29	\$4,702.12
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	329.05 LF	\$15.11	\$4,971.95
104-15	SOIL TRACKING PREVENTION DEVICE	2.00 EA	\$4,694.65	\$9,389.30
104-18	INLET PROTECTION SYSTEM	68.00 EA	\$247.08	\$16,801.44
107-1	LITTER REMOVAL	33.50 AC	\$115.24	\$3,860.54
107-2	MOWING	33.50 AC	\$182.07	\$6,099.34

Shoulder Component Total

\$1,197,178.09

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	47.00
Performance Turf Width	42.50

Pay Items

Pay Item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	13,899.07 LF	\$99.07	\$1,376,980.86
570-1-1	PERFORMANCE TURF	32,817.25 SY	\$10.74	\$352,457.26

Median Component Total

\$1,729,438.12

DRAINAGE COMPONENT

Pay Items

Pay Item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	48.00 EA	\$11,608.98	\$557,231.04
425-1-451	INLETS, CURB, TYPE J-5, <10'	14.00 EA	\$11,913.85	\$166,793.90
425-1-521	INLETS, DT BOT, TYPE C, <10'	7.00 EA	\$11,855.39	\$81,587.73
425-2-41	MANHOLES, P-7, <10'	7.00 EA	\$10,674.45	\$74,721.15
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"SI CD	3,488.00 LF	\$228.03	\$795,368.64
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"SI CD	312.00 LF	\$236.89	\$73,909.68
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"SI CD	6,584.00 LF	\$396.00	\$2,607,264.00
570-1-1	PERFORMANCE TURF	400.12 SY	\$11.07	\$4,429.33

Drainage Component Total

\$4,361,305.47

INTERSECTIONS COMPONENT

Intersection 1

Description	Value
Mainline No. of Left Turn Lanes	3
Mainline No. of Right Turn Lanes	2
Mainline Design Speed	45
Cross Street Thru Lanes	4
Cross Street No. of Left Turn Lanes	4
Cross Street No. of Right Turn Lanes	0
Cross Street Design Speed	45
T-Intersection?	N
Multiplier	1

Description Poinciana - Signalized Intersection

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.75	AC	\$41,531.15	\$114,210.66
120-1	REGULAR EXCAVATION	2,139.04	CY	\$63.44	\$135,700.70
160-4	TYPE B STABILIZATION	2,946.61	SY	\$30.76	\$90,637.72
160-4	TYPE B STABILIZATION	5,164.69	SY	\$30.76	\$158,865.86
285-709	OPTIONAL BASE, BASE GROUP 09	2,946.61	SY	\$91.52	\$269,673.75
285-709	OPTIONAL BASE, BASE GROUP 09	5,164.69	SY	\$91.52	\$472,672.43
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	405.16	TN	\$362.83	\$147,004.20
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	852.17	TN	\$362.83	\$309,192.84
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 7 6-22	243.10	TN	\$406.29	\$98,769.10
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 7 6-22	426.09	TN	\$406.29	\$173,116.11
520-1-7	CONCRETE CURB & GUTTER, TYPE E	405.68	LF	\$99.07	\$40,190.72
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,058.00	LF	\$79.13	\$83,719.54
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	620.00	LF	\$113.77	\$70,537.40
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	370.00	LF	\$113.77	\$42,094.90
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4'	587.78	SY	\$96.41	\$56,667.87
522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6'	173.89	SY	\$133.33	\$23,184.75
570-1-1	PERFORMANCE TURF	587.78	SY	\$11.07	\$6,506.72
Intersection's Component Total					\$2,292,745.27

SIGNING COMPONENT

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	32.00	AS	\$718.46	\$22,990.72
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	3.00	AS	\$2,180.43	\$6,541.29
700-2-15	MULTI-POST SIGN, F&I GM, 51-100 SF	3.00	AS	\$12,032.19	\$36,096.57
700-2-16	MULTI-POST SIGN, F&I GM, 101-200 SF	3.00	AS	\$14,994.53	\$44,983.59

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane MastArm
Multiplier	1
Description	Poindiana Blvd Signalization

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPEN TRENCH	700.00	LF	\$20.02	\$14,014.00
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	300.00	LF	\$35.27	\$10,581.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	\$12,340.48	\$12,340.48
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	\$1,396.69	\$30,727.18
639-1-112	ELECTRICAL POWER SRV, F&I, OH, M, PUR BY CON	1.00	AS	\$4,226.06	\$4,226.06
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	\$9.20	\$552.00
641-2-11	PREST CNC POLE, F&I, TYP P-II, PEDESTAL	1.00	EA	\$2,511.64	\$2,511.64
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	4.00	EA	\$131,844.51	\$527,378.04
650-1-14	VEH TRAF SIGNAL, F&I ALUMINUM, 3 S 1 W	20.00	AS	\$2,388.58	\$47,771.60
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	\$959.47	\$7,675.76
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00	EA	\$937.34	\$18,746.80
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00	AS	\$1,719.18	\$34,383.60
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	\$422.46	\$3,379.68
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	\$40,621.55	\$40,621.55
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	\$394.71	\$1,578.84
Signalizations Component Total					\$756,488.23

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value				
Spacing	MIN				
Pay Items					
Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPEN TRENCH	6,949.54	LF	\$20.02	\$139,129.79
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	1,379.38	LF	\$35.27	\$48,650.73
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	47.00	EA	\$1,396.69	\$65,644.43
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	25,381.60	LF	\$7.74	\$196,453.58
715-61-342	LIGHT POLE CMLT, STD, F&I, 40MH, 12' ARM L	47.00	EA	\$14,570.60	\$684,818.20

715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	47.00 EA	\$806.58	\$37,909.26
	Sub component Total			\$1,172,606.00
	Lighting Component Total			\$1,172,605.99
<hr/>				
Sequence 3 Total				\$30,376,457.83
<hr/>				

Sequence: 4MIS - Miscellaneous Construction

Net Length: 2.353 MI
12,425 LF

Description: 14-ft Shared Use Path

Special
Conditions: 14-ft Shared Use Path

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.90	AC	\$39,374.56	\$153,560.78
570-1-2	PERFORMANCE TURF, SOD	2,347.00	SY	\$13.12	\$30,792.64

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	7.00 / 7.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	24,849.79	SY	\$39.15	\$972,869.28
285-701	OPTIONAL BASE, BASE GROUP 01	19,327.62	SY	\$10.00	\$193,276.20
334-1-11	SUPERPAVE ASPHALTIC CONC, TRAFFIC A	1,449.57	TN	\$92.97	\$134,766.52

Roadway Component Total \$1,485,265.42

Sequence 4 Total \$1,485,265.42

Sequence: 5MIS - Miscellaneous Construction

Net Length: 2.353 MI
12,425 LF

Description: 12-ft Shared Use Path

Special
Conditions: 12-ft Shared Use Path

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.90	AC	\$39,374.56	\$153,560.78
570-1-2	PERFORMANCE TURF, SOD	2,347.00	SY	\$13.12	\$30,792.64

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	6.00 / 6.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	22,088.70	SY	\$39.15	\$864,772.60
285-701	OPTIONAL BASE, BASE GROUP 01	16,566.53	SY	\$10.00	\$165,665.30
334-1-11	SUPERPAVE ASPHALTIC CONC, TRAFFIC A	1,242.49	TN	\$92.97	\$115,514.30

Roadway Component Total \$1,330,305.62

Sequence 5 Total \$1,330,305.62

Sequence: 6NDU - New Construction, Divided, Urban

Net Length: 0.322 MI
1,700 LF

Description: World Center Drive - Displaced Left

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	105.00 / 105.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.322
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	8.20	AC	\$39,374.56	\$322,871.39
120-6	EMBANKMENT	8,724.97	CY	\$41.73	\$364,093.00
Earthwork Component Total					\$686,964.39

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	33.00 / 33.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	14,417.36	SY	\$39.15	\$564,439.64
285-709	OPTIONAL BASE, BASE GROUP 09	12,467.84	SY	\$87.57	\$1,091,808.75
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,714.33	TN	\$313.97	\$538,248.19
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 76-22	1,028.60	TN	\$385.91	\$396,947.03

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	20.00
Stabilization Code	Y
Base Code	Y
Friction Course Code	Y

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,883.47	SY	\$39.15	\$112,887.85
285-709	OPTIONAL BASE, BASE GROUP 09	2,493.57	SY	\$87.57	\$218,361.92

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	342.87 TN	\$313.97	\$107,650.89
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	205.72 TN	\$385.91	\$79,389.41

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	217.00	EA	\$7.91	\$1,716.47
710-11-101	PAINTED PAVT MARK, STD, WHITE, SOLID, 6"	1.29	GM	\$1,239.37	\$1,598.79
710-11-131	PAINTED PAVT MARK, STD, WHITE, SKIP, 6"	1.29	GM	\$715.71	\$923.27
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.29	GM	\$6,093.38	\$7,860.46
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.29	GM	\$2,416.07	\$3,116.73
Roadway Component Total					\$3,124,949.39

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,700.16	LF	\$71.44	\$121,459.43
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,700.16	LF	\$71.44	\$121,459.43
570-1-1	PERFORMANCE TURF	1,889.07	SY	\$10.74	\$20,288.61

Erosion Control

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,400.32	LF	\$5.19	\$17,647.66
104-11	FLOATING TURBIDITY BARRIER	80.50	LF	\$14.13	\$1,137.47
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	80.50	LF	\$15.20	\$1,223.60
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$4,586.88	\$4,586.88
104-18	INLET PROTECTION SYSTEM	17.00	EA	\$245.64	\$4,175.88
107-1	LITTER REMOVAL	8.19	AC	\$131.39	\$1,076.08
107-2	MOWING	8.19	AC	\$230.40	\$1,886.98

Shoulder Component Total

\$294,942.02

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	17.50

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	3,400.32	LF	\$87.38	\$297,119.96
570-1-1	PERFORMANCE TURF	3,305.87	SY	\$10.74	\$35,505.04
Median Component Total					\$332,625.00

DRAINAGE COMPONENT

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	12.00	EA	\$11,155.49	\$133,865.88
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	\$9,948.78	\$39,795.12
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	\$11,211.81	\$22,423.62
425-2-41	MANHOLES, P-7, <10'	2.00	EA	\$10,972.13	\$21,944.26
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"SI CD	856.00	LF	\$211.56	\$181,095.36
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"SI CD	80.00	LF	\$236.89	\$18,951.20
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"SI CD	1,616.00	LF	\$422.94	\$683,471.04
570-1-1	PERFORMANCE TURF	97.89	SY	\$10.74	\$1,051.34
Drainage Component Total					\$1,102,597.82

INTERSECTIONS COMPONENT

Intersection 1

Description	Value
Mainline No. of Left Turn Lanes	4
Mainline No. of Right Turn Lanes	3
Mainline Design Speed	45
Cross Street Thru Lanes	4
Cross Street No. of Left Turn Lanes	4
Cross Street No. of Right Turn Lanes	2
Cross Street Design Speed	45
T-Intersection?	N
Multiplier	1
Description	World Center Drive at 535

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.75	AC	\$41,531.15	\$114,210.66
120-1	REGULAR EXCAVATION	2,458.78	CY	\$63.44	\$155,985.00
160-4	TYPE B STABILIZATION	3,312.31	SY	\$30.76	\$101,886.66

160-4	TYPE B STABILIZATION	5,936.69 SY	\$30.76	\$182,612.58
285-709	OPTIONAL BASE,BASE GROUP 09	3,312.31 SY	\$91.52	\$303,142.61
285-709	OPTIONAL BASE,BASE GROUP 09	5,936.69 SY	\$91.52	\$543,325.87
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	455.44 TN	\$362.83	\$165,247.30
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	979.55 TN	\$362.83	\$355,410.13
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	489.78 TN	\$406.29	\$198,992.72
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	273.27 TN	\$406.29	\$111,026.87
520-1-7	CONCRETE CURB & GUTTER, TYPE E	405.68 LF	\$99.07	\$40,190.72
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,058.00 LF	\$79.13	\$83,719.54
520-5-11	TRAF SEP CONC-TYPE I, 4'WIDE	570.00 LF	\$113.77	\$64,848.90
520-5-11	TRAF SEP CONC-TYPE I, 4'WIDE	370.00 LF	\$113.77	\$42,094.90
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4'	587.78 SY	\$96.41	\$56,667.87
522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6'	173.89 SY	\$133.33	\$23,184.75
570-1-1	PERFORMANCE TURF	587.78 SY	\$11.07	\$6,506.72

Intersection 2

Description	Value
Mainline No. of Left Turn Lanes	0
Mainline No. of Right Turn Lanes	0
Mainline Design Speed	45
Cross Street Thru Lanes	2
Cross Street No. of Left Turn Lanes	0
Cross Street No. of Right Turn Lanes	0
Cross Street Design Speed	45
T-Intersection?	Y
Multiplier	2
Description	Crossover N

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.78	AC	\$39,374.56	\$70,086.72
120-1	REGULAR EXCAVATION	749.64	CY	\$44.51	\$33,366.48
160-4	TYPE B STABILIZATION	706.44	SY	\$39.15	\$27,657.13
160-4	TYPE B STABILIZATION	1,810.02	SY	\$39.15	\$70,862.28
285-709	OPTIONAL BASE,BASE GROUP 09	706.44	SY	\$87.57	\$61,862.95
285-709	OPTIONAL BASE,BASE GROUP 09	1,810.02	SY	\$87.57	\$158,503.45
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	116.56	TN	\$313.97	\$36,596.34
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	298.66	TN	\$313.97	\$93,770.28
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	149.32	TN	\$385.91	\$57,624.08
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	58.28	TN	\$385.91	\$22,490.83
520-1-7	CONCRETE CURB & GUTTER, TYPE E	202.84	LF	\$87.38	\$17,724.16
520-1-10	CONCRETE CURB & GUTTER, TYPE F	658.00	LF	\$71.44	\$47,007.52
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4'	365.56	SY	\$95.00	\$34,728.20

522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6"	173.88 SY	\$124.52	\$21,651.54
570-1-1	PERFORMANCE TURF	365.56 SY	\$10.74	\$3,926.11
Intersections Component Total				\$3,306,911.90

SIGNING COMPONENT

Pay Items	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	8.00	AS	\$710.80	\$5,688.80
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	\$1,985.18	\$1,985.18
700-2-15	MULTI-POST SIGN, F&I GM, 51-100 SF	1.00	AS	\$11,560.60	\$11,560.60
700-2-16	MULTI-POST SIGN, F&I GM, 101-200 SF	1.00	AS	\$14,162.48	\$14,162.48
Signing Component Total					\$33,393.06

SIGNALIZATIONS COMPONENT

Signalization 1	Description	Value			
Type		6 Lane Mast Arm			
Multiplier		1			
Description					
Pay Items	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPEN TRENCH	700.00	LF	\$19.96	\$13,972.00
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	300.00	LF	\$33.24	\$9,972.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	\$10,716.81	\$10,716.81
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	\$1,281.29	\$28,188.38
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	\$4,111.62	\$4,111.62
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	\$8.97	\$538.20
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	\$2,509.08	\$2,509.08
649-21-13	STEEL MAST ARM ASSEMBLY, F&I, 60'- 50'	1.00	EA	\$146,682.38	\$146,682.38
649-21-15	STEEL MAST ARM ASSEMBLY, F&I, 70'	3.00	EA	\$125,145.24	\$375,435.72
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	4.00	EA	\$131,848.06	\$527,392.24
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	27.00	AS	\$2,519.26	\$68,020.02
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	\$944.43	\$7,555.44
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	27.00	EA	\$1,209.40	\$32,653.80
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	27.00	AS	\$1,711.49	\$46,210.23
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	\$431.99	\$3,455.92

670-5-111	TRAF CNT LASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	\$40,647.83	\$40,647.83
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	8.00 EA	\$6,502.70	\$52,021.60

Signalization 2

Description	Value
Type	2 Lane Mast Arm
Multiplier	2
Description	Crossover Intersections

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPEN TRENCH	1,600.00	LF	\$19.96	\$31,936.00
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	400.00	LF	\$33.24	\$13,296.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00	PI	\$10,716.81	\$21,433.62
633-3-11	FIBER OPTIC CONN HDWR, SPLICE ENCLOSURE	4.00	EA	\$1,084.66	\$4,338.64
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	24.00	EA	\$1,281.29	\$30,750.96
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	2.00	AS	\$4,111.62	\$8,223.24
639-2-1	ELECTRICAL SERVICE WIRE, F&I	120.00	LF	\$8.97	\$1,076.40
649-21-4	STEEL MAST ARM ASSEMBLY, F&I, 40'-30'	2.00	EA	\$115,000.00	\$230,000.00
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	24.00	AS	\$2,519.26	\$60,462.24
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	24.00	EA	\$1,209.40	\$29,025.60
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	24.00	AS	\$1,711.49	\$41,075.76
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	16.00	EA	\$431.99	\$6,911.84
670-5-111	TRAF CNT LASSEM, F&I, NEMA, 1 PREEMPT	2.00	AS	\$40,647.83	\$81,295.66
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	8.00	EA	\$6,502.70	\$52,021.60
Signalizations Component Total					\$1,981,930.83

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value				
Spacing	MIN				
Pay Items					
Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPEN TRENCH	1,700.16	LF	\$19.96	\$33,935.19
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	337.46	LF	\$33.24	\$11,217.17
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	\$1,281.29	\$15,375.48
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,209.45	LF	\$8.52	\$52,904.51
715-61-342	LIGHT POLE CMPLT, STD, F&I, 40MH, 12' ARM L	12.00	EA	\$14,570.60	\$174,847.20
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	12.00	EA	\$1,345.46	\$16,145.52

Subcomponent Total	\$304,425.08
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Lighting Component Total	\$304,425.07
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Sequence 6 Total	\$11,168,739.48
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Sequence: 7 NDU - New Construction, Divided, Urban

Net Length: 0.330 MI
1,743 LF

Description: International Drive - Displaced Left

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	105.00 / 105.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.322
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	8.40	AC	\$39,374.56	\$330,746.30
120-6	EMBANKMENT	8,724.97	CY	\$41.73	\$364,093.00
Earthwork Component Total					\$694,839.30

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	33.00 / 33.00
Structural Spread Rate	275
Friction Course Spread Rate	165

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	14,780.03	SY	\$39.15	\$578,638.17
285-709	OPTIONAL BASE, BASE GROUP 09	12,781.47	SY	\$87.57	\$1,119,273.33
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,757.45	TN	\$313.97	\$551,786.58
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 7 6-22	1,054.47	TN	\$385.91	\$406,930.52

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	20.00
Stabilization Code	Y
Base Code	Y
Friction Course Code	Y

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,956.01	SY	\$39.15	\$115,727.79
285-709	OPTIONAL BASE, BASE GROUP 09	2,556.29	SY	\$87.57	\$223,854.32

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	351.49 TN	\$313.97	\$110,357.32
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 7.6-22	210.89 TN	\$385.91	\$81,384.56

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	223.00	EA	\$7.91	\$1,763.93
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.32	GM	\$1,239.37	\$1,635.97
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP,6"	1.32	GM	\$715.71	\$944.74
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.32	GM	\$6,093.38	\$8,043.26
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.32	GM	\$2,416.07	\$3,189.21
Roadway Component Total					\$3,203,529.69

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,742.93	LF	\$71.44	\$124,514.92
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,742.93	LF	\$71.44	\$124,514.92
570-1-1	PERFORMANCE TURF	1,936.59	SY	\$10.74	\$20,798.98

Erosion Control

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,485.86	LF	\$5.19	\$18,091.61
104-11	FLOATING TURBIDITY BARRIER	82.52	LF	\$14.13	\$1,166.01
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	82.52	LF	\$15.20	\$1,254.30
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$4,586.88	\$4,586.88
104-18	INLET PROTECTION SYSTEM	17.00	EA	\$245.64	\$4,175.88
107-1	LITTER REMOVAL	8.40	AC	\$131.39	\$1,103.68
107-2	MOWING	8.40	AC	\$230.40	\$1,935.36

Shoulder Component Total

\$302,142.54

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	17.50

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	3,485.86	LF	\$87.38	\$304,594.45
570-1-1	PERFORMANCE TURF	3,389.03	SY	\$10.74	\$36,398.18
Median Component Total					\$340,992.63

DRAINAGE COMPONENT

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	12.00	EA	\$11,155.49	\$133,865.88
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	\$9,948.78	\$39,795.12
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	\$11,211.81	\$22,423.62
425-2-41	MANHOLES, P-7, <10'	2.00	EA	\$10,972.13	\$21,944.26
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"SI CD	880.00	LF	\$211.56	\$186,172.80
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"SI CD	80.00	LF	\$236.89	\$18,951.20
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"SI CD	1,656.00	LF	\$422.94	\$700,388.64
570-1-1	PERFORMANCE TURF	100.35	SY	\$10.74	\$1,077.76
Drainage Component Total					\$1,124,619.28

INTERSECTIONS COMPONENT

Intersection 1

Description	Value
Mainline No. of Left Turn Lanes	4
Mainline No. of Right Turn Lanes	2
Mainline Design Speed	45
Cross Street Thru Lanes	4
Cross Street No. of Left Turn Lanes	4
Cross Street No. of Right Turn Lanes	3
Cross Street Design Speed	45
T-Intersection?	N
Multiplier	1
Description	International Dr SR 535

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.75	AC	\$41,531.15	\$114,210.66
120-1	REGULAR EXCAVATION	2,607.33	CY	\$63.44	\$165,409.02
160-4	TYPE B STABILIZATION	3,032.31	SY	\$30.76	\$93,273.86

160-4	TYPE B STABILIZATION	6,295.36 SY	\$30.76	\$193,645.27
285-709	OPTIONAL BASE,BASE GROUP 09	3,032.31 SY	\$91.52	\$277,517.01
285-709	OPTIONAL BASE,BASE GROUP 09	6,295.36 SY	\$91.52	\$576,151.35
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	416.94 TN	\$362.83	\$151,278.34
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,038.73 TN	\$362.83	\$376,882.41
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 7 6-22	519.37 TN	\$406.29	\$211,014.84
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 7 6-22	250.17 TN	\$406.29	\$101,641.57
520-1-7	CONCRETE CURB & GUTTER, TYPE E	405.68 LF	\$99.07	\$40,190.72
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,058.00 LF	\$79.13	\$83,719.54
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	570.00 LF	\$113.77	\$64,848.90
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	370.00 LF	\$113.77	\$42,094.90
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4'	587.78 SY	\$96.41	\$56,667.87
522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6'	173.89 SY	\$133.33	\$23,184.75
570-1-1	PERFORMANCE TURF	587.78 SY	\$11.07	\$6,506.72

Intersection 2

Description	Value
Mainline No. of Left Turn Lanes	0
Mainline No. of Right Turn Lanes	0
Mainline Design Speed	45
Cross Street Thru Lanes	2
Cross Street No. of Left Turn Lanes	0
Cross Street No. of Right Turn Lanes	0
Cross Street Design Speed	45
T-Intersection?	Y
Multiplier	1
Description	Crossover w

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.89	AC	\$39,374.56	\$35,043.36
120-1	REGULAR EXCAVATION	374.82	CY	\$44.51	\$16,683.24
160-4	TYPE B STABILIZATION	353.22	SY	\$39.15	\$13,828.56
160-4	TYPE B STABILIZATION	905.01	SY	\$39.15	\$35,431.14
285-709	OPTIONAL BASE,BASE GROUP 09	353.22	SY	\$87.57	\$30,931.48
285-709	OPTIONAL BASE,BASE GROUP 09	905.01	SY	\$87.57	\$79,251.73
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	58.28	TN	\$313.97	\$18,298.17
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	149.33	TN	\$313.97	\$46,885.14
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 7 6-22	74.66	TN	\$385.91	\$28,812.04
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 7 6-22	29.14	TN	\$385.91	\$11,245.42
520-1-7	CONCRETE CURB & GUTTER, TYPE E	101.42	LF	\$87.38	\$8,862.08
520-1-10	CONCRETE CURB & GUTTER, TYPE F	329.00	LF	\$71.44	\$23,503.76
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4'	182.78	SY	\$95.00	\$17,364.10

522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6"	86.94 SY	\$124.52	\$10,825.77
570-1-1	PERFORMANCE TURF	182.78 SY	\$10.74	\$1,963.06
Intersections Component Total				\$2,957,166.78

SIGNING COMPONENT

Pay Items	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	8.00	AS	\$710.60	\$5,684.80
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	\$1,985.18	\$1,985.18
700-2-15	MULTI-POST SIGN, F&I GM, 51-100 SF	1.00	AS	\$11,560.60	\$11,560.60
700-2-16	MULTI-POST SIGN, F&I GM, 101-200 SF	1.00	AS	\$14,162.48	\$14,162.48
Signing Component Total					\$33,393.06

SIGNALIZATIONS COMPONENT

Signalization 1	Description	Value			
Type	6 Lane Mast Arm	1			
Multiplier					
Description					
Pay Items	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPEN TRENCH	700.00	LF	\$19.96	\$13,972.00
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	300.00	LF	\$33.24	\$9,972.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	\$10,716.81	\$10,716.81
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	\$1,281.29	\$28,188.38
639-1-112	ELECTRICAL POWER SRV, F&I, OH, M, PUR BY CON	1.00	AS	\$4,111.62	\$4,111.62
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	\$8.97	\$538.20
641-2-11	PREST CNC POLE, F&I, TYP P-II, PEDESTAL	1.00	EA	\$2,509.08	\$2,509.08
649-21-15	STEEL MAST ARM ASSEMBLY, F&I, 70'	3.00	EA	\$125,145.24	\$375,435.72
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	4.00	EA	\$131,848.06	\$527,392.24
650-1-14	VEH TRAF SIGNAL, F&I ALUMINUM, 3 S 1 W	25.00	AS	\$2,519.26	\$62,981.50
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	\$944.43	\$7,555.44
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	25.00	EA	\$1,209.40	\$30,235.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	25.00	AS	\$1,711.49	\$42,787.25
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	\$431.99	\$3,455.92
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	\$40,647.83	\$40,647.83

700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	8.00 EA	\$6,502.70	\$52,021.60
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Signalization 2

Description			Value	
Type			2 Lane MastArm	
Multiplier			1	
Description	Crossover Intersection			

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPEN TRENCH	800.00	LF	\$19.96	\$15,968.00
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	200.00	LF	\$33.24	\$6,648.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	\$10,716.81	\$10,716.81
633-3-11	FIBER OPTIC CONN HDWR, SPLICE ENCLOSURE	2.00	EA	\$1,084.66	\$2,169.32
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	\$1,281.29	\$15,375.48
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	\$4,111.62	\$4,111.62
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	\$8.97	\$538.20
649-21-4	STEEL MAST ARM ASSEMBLY, F&I, 40'-30'	1.00	EA	\$115,000.00	\$115,000.00
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1W	5.00	AS	\$2,519.26	\$12,596.30
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	5.00	EA	\$1,209.40	\$6,047.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	5.00	AS	\$1,711.49	\$8,557.45
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	\$40,647.83	\$40,647.83
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00	EA	\$6,502.70	\$26,010.80

Signalizations Component Total

\$1,476,907.40

LIGHTING COMPONENT

Conventional Lighting Sub component

Description				Value	
Spacing				MIN	
Pay Items	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPEN TRENCH	1,742.93	LF	\$19.96	\$34,788.88
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	345.94	LF	\$33.24	\$11,499.05
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	\$1,281.29	\$15,375.48
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,365.65	LF	\$8.52	\$54,235.34
715-61-342	LIGHT POLE CMPLT, STD, F&I, 40MH, 12' ARM L	12.00	EA	\$14,570.60	\$174,847.20
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	12.00	EA	\$1,345.46	\$16,145.52
	Sub component Total				\$306,891.47
	Lighting Component Total				\$306,891.47

Sequence 7 Total

\$10,440,482.15

Sequence: 8NDU - New Construction, Divided, Urban

Net Length: 0.387 MI
2,045 LF

Description: Polynesian Isle Blvd - Partial MUT

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	105.00 / 105.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.387
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	9.85	AC	\$39,374.56	\$387,839.42
120-6	EMBANKMENT	10,486.22	CY	\$41.73	\$437,589.96
Earthwork Component Total					\$825,429.38

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	33.00 / 33.00
Structural Spread Rate	27.5
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	17,341.13	SY	\$39.15	\$678,905.24
285-709	OPTIONAL BASE, BASE GROUP 09	14,996.26	SY	\$87.57	\$1,313,222.49
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,061.99	TN	\$313.97	\$647,403.00
337-7-83	ASPH CONC FC, TRAFFIC C, FC-12.5, PG 76-22	1,237.19	TN	\$385.91	\$477,443.99

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	20.00
Stabilization Code	Y
Base Code	Y
Friction Course Code	Y

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,468.23	SY	\$39.15	\$135,781.20
285-709	OPTIONAL BASE, BASE GROUP 09	2,999.25	SY	\$87.57	\$262,644.32

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	412.40 TN	\$313.97	\$129,481.23
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	247.44 TN	\$385.91	\$95,489.57

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	261.00	EA	\$7.91	\$2,064.51
710-11-101	PAINTED PAVT MARK, STD, WHITE, SOLID, 6"	1.55	GM	\$1,239.37	\$1,921.02
710-11-131	PAINTED PAVT MARK, STD, WHITE, SKIP, 6"	1.55	GM	\$715.71	\$1,109.35
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.55	GM	\$6,093.38	\$9,444.74
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.55	GM	\$2,416.07	\$3,744.91
Roadway Component Total					\$3,758,655.58

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,044.94	LF	\$71.44	\$146,090.51
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,044.94	LF	\$71.44	\$146,090.51
570-1-1	PERFORMANCE TURF	2,272.16	SY	\$10.74	\$24,403.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	4,089.89	LF	\$5.19	\$21,226.53
104-11	FLOATING TURBIDITY BARRIER	96.82	LF	\$14.13	\$1,368.07
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	96.82	LF	\$15.20	\$1,471.66
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$4,586.88	\$4,586.88
104-18	INLET PROTECTION SYSTEM	20.00	EA	\$245.64	\$4,912.80
107-1	LITTER REMOVAL	9.86	AC	\$131.39	\$1,295.51
107-2	MOWING	9.86	AC	\$230.40	\$2,271.74

Shoulder Component Total

\$353,717.22

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	17.50

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	4,089.89	LF	\$87.38	\$357,374.59
570-1-1	PERFORMANCE TURF	3,976.28	SY	\$107.4	\$42,705.25
Median Component Total					\$400,079.84

DRAINAGE COMPONENT

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLET S, CURB, TYPE P-5, <10'	14.00	EA	\$11,155.49	\$156,176.86
425-1-451	INLET S, CURB, TYPE J-5, <10'	4.00	EA	\$9,948.78	\$39,795.12
425-1-521	INLET S, DT BOT, TYPE C, <10'	2.00	EA	\$11,211.81	\$22,423.62
425-2-41	MANHOLES, P-7, <10'	2.00	EA	\$10,972.13	\$21,944.26
430-175-124	PIPE CULV, OPT MATL, ROUND, 24" S/CD	1,024.00	LF	\$211.56	\$216,637.44
430-175-136	PIPE CULV, OPT MATL, ROUND, 36" S/CD	96.00	LF	\$236.89	\$22,741.44
430-175-148	PIPE CULV, OPT MATL, ROUND, 48" S/CD	1,944.00	LF	\$422.94	\$822,195.36
570-1-1	PERFORMANCE TURF	117.74	SY	\$107.4	\$1,264.53
Drainage Component Total					\$1,303,178.63

SIGNING COMPONENT

Pay Items

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	10.00	AS	\$710.60	\$7,106.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	\$1,985.18	\$1,985.18
700-2-15	MULTI-POST SIGN, F&I GM, 51-100 SF	1.00	AS	\$11,560.60	\$11,560.60
700-2-16	MULTI-POST SIGN, F&I GM, 101-200 SF	1.00	AS	\$14,162.48	\$14,162.48
Signing Component Total					\$34,814.26

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane MastArm
Multiplier	1

Description

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPENTRENCH	700.00	LF	\$19.96	\$13,972.00
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	300.00	LF	\$33.24	\$9,972.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	\$10,716.81	\$10,716.81
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	\$1,281.29	\$28,188.38
639-1-112	ELECTRICAL POWER SRV, F&I, OH, M, PUR BY CON	1.00	AS	\$4,111.62	\$4,111.62
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	\$8.97	\$538.20
641-2-11	PREST CNC POLE, F&I, TYP P-II, PEDESTAL	1.00	EA	\$2,509.08	\$2,509.08
649-21-15	STEEL MAST ARM ASSEMBLY, F&I, 70'	2.00	EA	\$125,145.24	\$250,290.48
650-1-14	VEH TRAF SIGNAL, F&I ALUMINUM, 3 S 1 W	9.00	AS	\$2,519.26	\$22,673.34
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	\$944.43	\$7,555.44
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	9.00	EA	\$1,209.40	\$10,884.60
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	9.00	AS	\$1,711.49	\$15,403.41
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	\$431.99	\$3,455.92
670-5-111	TRAF CNT LASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	\$40,647.83	\$40,647.83
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	\$399.91	\$1,599.64

Signalization 2

Description	Value
Type	6 Lane Mast Arm
Multiplier	2
Description	MUTS

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPENTRENCH	1,400.00	LF	\$19.96	\$27,944.00
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	600.00	LF	\$33.24	\$19,944.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00	PI	\$10,716.81	\$21,433.62
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	44.00	EA	\$1,281.29	\$56,376.76
639-1-112	ELECTRICAL POWER SRV, F&I, OH, M, PUR BY CON	2.00	AS	\$4,111.62	\$8,223.24
639-2-1	ELECTRICAL SERVICE WIRE, F&I	120.00	LF	\$8.97	\$1,076.40
641-2-11	PREST CNC POLE, F&I, TYP P-II, PEDESTAL	2.00	EA	\$2,509.08	\$5,018.16
649-21-15	STEEL MAST ARM ASSEMBLY, F&I, 70'	4.00	EA	\$125,145.24	\$500,580.96
650-1-14	VEH TRAF SIGNAL, F&I ALUMINUM, 3 S 1 W	18.00	AS	\$2,519.26	\$45,346.68
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	16.00	AS	\$944.43	\$15,110.88
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	18.00	EA	\$1,209.40	\$21,769.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	18.00	AS	\$1,711.49	\$30,806.82

665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	16.00 EA	\$431.99	\$6,911.84
670-5-111	TRAF CNT LASSEM, F&I, NEMA, 1 PREEMPT	2.00 AS	\$40,647.83	\$81,295.66
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00 EA	\$399.91	\$3,199.28
Signalizations Component Total				\$1,267,556.25

LIGHTING COMPONENT

Conventional Lighting Sub component

Description				Value
Spacing				MIN
Pay Items				
Pay item	Description	Quantity	Unit Price	Extended Amount
630-2-11	CONDUIT, F&I, OPEN TRENCH	2,044.94	\$19.96	\$40,817.00
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	405.89	\$33.24	\$13,491.78
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	14.00	\$1,281.29	\$17,938.06
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	7,468.69	\$8.52	\$63,633.24
715-61-342	LIGHT POLE CMPLT, STD, F&I, 40MH, 12' ARM L	14.00	\$14,570.60	\$203,988.40
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	14.00	\$1,345.46	\$18,836.44
Sub component Total				\$358,704.92
Lighting Component Total				\$358,704.92
Sequence 8 Total				\$8,302,136.08

Date: 5/13/2024 5:38:18 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 437174-2-22-01

Letting Date: 01/2099

Description: SR 535/VINELAND RD FROM US 192 TO NORTH OF WORLD CENTER DR

District: 05 County: 99 DISTRICT/STATEWIDE Market Area: 99 Units: English

Contract Class: 1 Lump Sum Project: N Design/Build: N Project Length: 2.250 MI

Project Manager: LFC-MET

Version 10 Project Grand Total \$76,505,097.76
Description: Preferred Alternative

Project Sequences Subtotal \$63,103,386.58

102-1 Maintenance of Traffic 10.00 % \$6,310,338.66

101-1 Mobilization 10.00 % \$6,941,372.52

Project Sequences Total \$76,355,097.76

Project Unknowns 0.00 % \$0.00

Design/Build 0.00 % \$0.00

Non-Bid Components:

Pay Item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	\$150,000.00	\$150,000.00

Project Non-Bid Subtotal \$150,000.00

Version 10 Project Grand Total \$76,505,097.76