

DRAFT 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

May 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.

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

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APPENDICES

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Appendix D: Efficient Transportation Decision Making (ETDM)

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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).

FDOT D-5 is conducting a Project Development and Environment (PD&E) Study to evaluate the recommendations from the CPS including 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. 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

SR 535 is a four-lane divided minor arterial facility located within unincorporated Osceola and Orange Counties in Central Florida. SR 535 is known as Vineland Road in Osceola County and Kissimmee-Vineland Road in Orange County. The project limits extend approximately 2.35 miles from the US 192 intersection in Osceola County to just north of the SR 536 intersection in Orange County, as shown in **Figure 1-1**.

Figure 1-1 - Project Location



1.2 Purpose & Need

The purpose of the project is to accommodate future projected traffic demand and improve safety. The need for the project is based on addressing future transportation demand and safety concerns.

1.2.1 Transportation Demand

In the existing condition, the section of SR 535 from US 192 to Kyngs Heath Road operates at a Level of Service (LOS) D with an Annual Average Daily Traffic (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 operates at LOS D with an AADT of 44,300.

In the future year (2045) 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 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) 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 Florida Department of Transportation (FDOT) 2024-2029 Five-Year Work Program and MetroPlan Orlando 2023-2028 Transportation Improvement Program (TIP). This project was screened in the Efficient Transportation Decision Making (ETDM) system as ETDM #14325.

1.4 Commitments

This section will be included as part of the Final Preliminary Engineering Report (PER).

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-miles per hour (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. The Preferred Alternative will be constructed within the existing right-of-way (R/W) 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



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 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) Partial Displaced Left Turn (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 or County R/W. Below is a summary of the preferred pond alternatives (see **Figure 1-3**).

- **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 R/W 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 R/W (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 R/W to provide a stormwater management alternative to meet water quality treatment and attenuation requirements, Pond Alternative 2A will require acquisition of R/W.
- **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 R/W (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 R/W to provide a stormwater management alternative to meet water quality treatment and attenuation requirements, Pond Alternative 3A will require acquisition of R/W.

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- **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 R/W and easement to provide the required water quality treatment and attenuation volumes.

Table 1-1 - Preferred Pond Alternatives

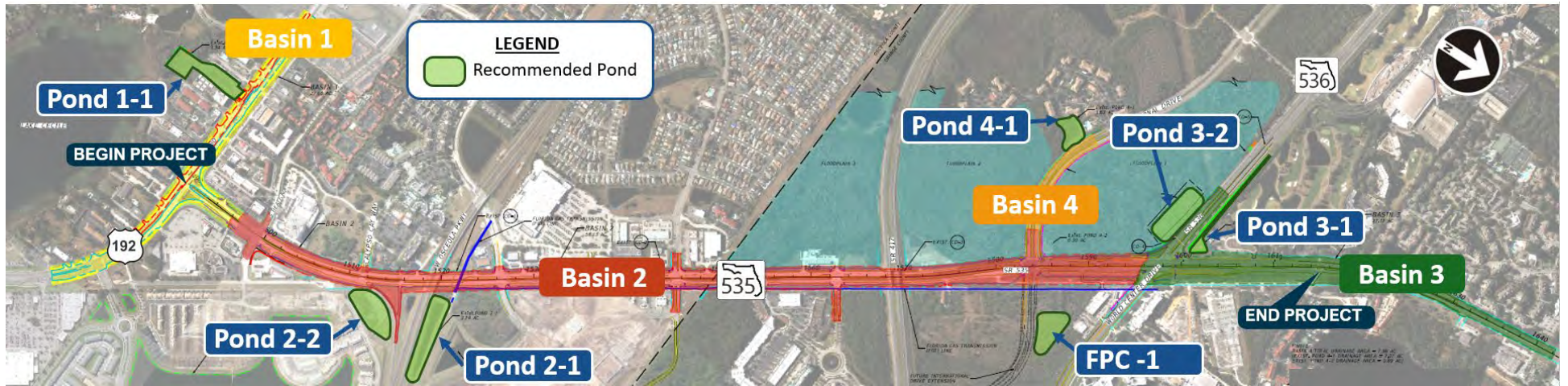
| Basin | Preferred Alternative | Ponds | Type | R/W Req'd. | Remarks |
|-------|-----------------------|------------------------------|------|------------|--|
| 1 | 1A | Exist. Pond 1-1 | Wet | 0.0 | Exist. pond sufficient. Reduced drainage area (30.94 ac to 29.16 ac) from exist. to proposed conditions. Increased freeboard in exist. pond. Pond within exist. R/W |
| 2 | 2A | Exist. Pond 2-1 and Pond 2-2 | Wet | 4.3 | Interconnected ponds to provide required water quality treatment and attenuation. Utilize Exist. Pond 2-1 outfall to Shingle Creek. Exist. Pond 2-1 within exist. R/W. Estimated R/W needs for Pond 2-2 provided (excluding public R/W used for pond). |
| 3 | 3A | Exist. Pond 3-1 and Pond 3-2 | Wet | 3.5 | Interconnected ponds to provide required water quality treatment and attenuation. Utilize Exist. Pond 3-1 and Pond 3-2 outfalls to Shingle Creek. Exist. Pond 3-1 within exist. R/W. Estimated R/W needs for Pond 3-2 provided (excluding public R/W used for pond). |
| 4 | 4A | Exist. Pond 4-1 | Wet | 0.0 | Exist. pond sufficient. Reduced drainage area (8.70 ac to 7.63 ac) from exist. to proposed conditions. Increased freeboard in exist. pond. Pond within exist. R/W |

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 |

Figure 1-3 - Preferred Alternative Ponds



1.6.3 Right of way and Construction Cost

SR 535 has an existing R/W of 224 feet which is ample R/W to accommodate the Preferred Alternative. Some R/W impacts will be required to accommodate intersection improvements at the International Drive and World Center Drive (SR 536) intersections and for offsite ponds. See **Table 1-2** for cost estimate.

Table 1-3 - Cost Estimate

| | Cost |
|------------------------------|----------|
| Construction | \$76.5M |
| R/W | \$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
 - Final Traffic Analysis Methodology Memorandum – December 2021
 - Final Project Traffic Analysis Report (PTAR) – March 2023
 - Draft Location Hydraulics Report (LHR) – February 2024
 - Draft Pond Siting Report (PSR) – February 2024
 - Final Geotechnical Technical Memorandum – March 2024
 - Draft Utility Assessment Package (UAP) – November 2023
 - Draft Transportation Systems Management & Operations (TMS&O) PSEMP - May 2024
 - Draft Concept of Operations (ConOps) - May 2024
- Environmental Reports
 - Final Noise Study Report (NSR) – April 204
 - Draft Contamination Screening Evaluation Report (CSER) – April 204
 - Draft Natural Resource Evaluation Technical Memorandum (NRE) – April 204
 - Draft Cultural Resource Assessment Survey (CRAS) – March 2024
 - Draft Type II Categorical Exclusion– April 204
- Public Involvement Reports

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- Final Public Involvement Plan (PIP), May 2020
- Draft Comments and Coordination Report (CC)
- Other Supporting Documents
 - Final ETDM Summary Report – July 2019
 - Final Corridor Planning Study – November 2017

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, R/W, 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.

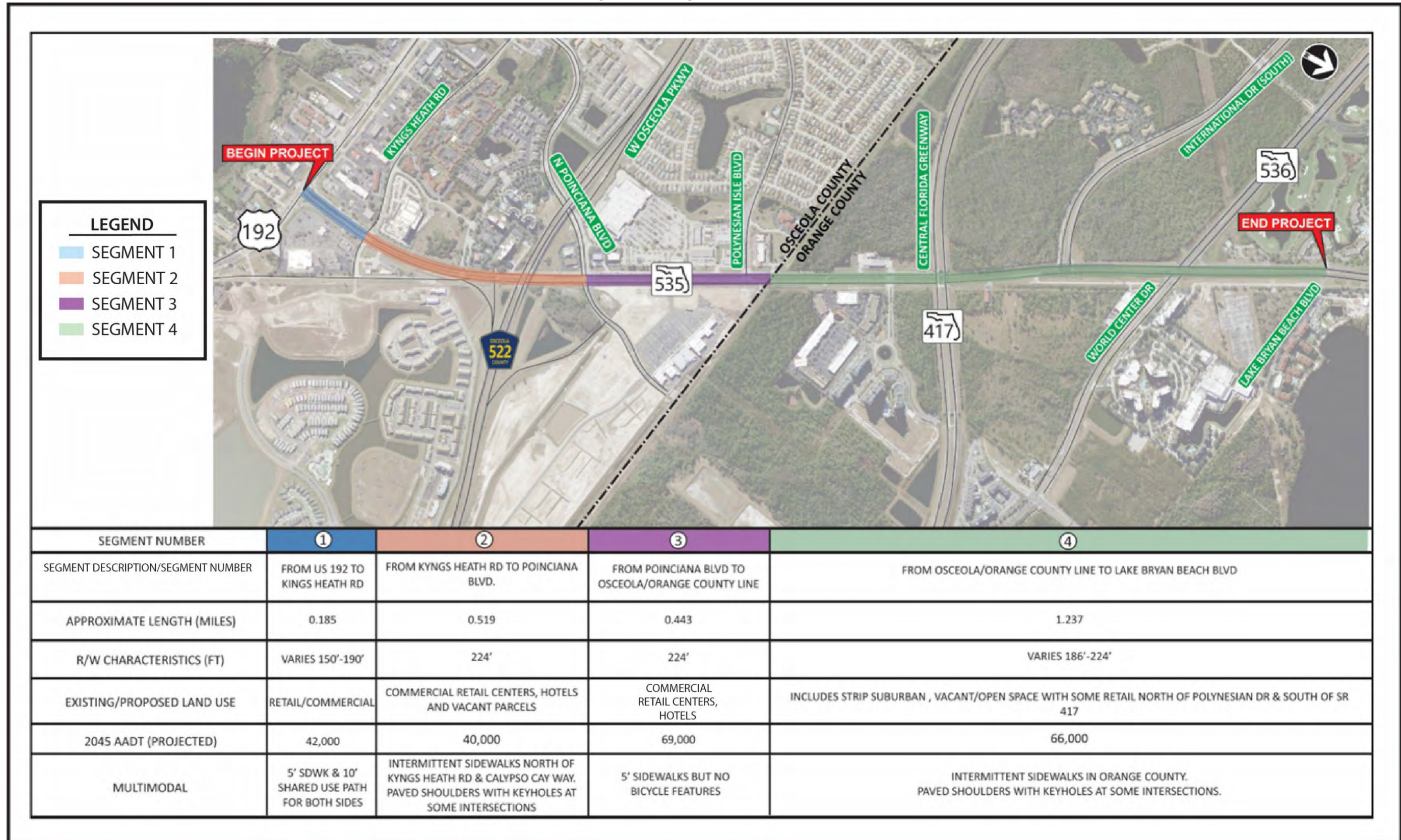
2.1 Previous Planning Studies

In November 2017, the FDOT D-5 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, TSM&O and multimodal improvements (such as adaptive PedSafe, transit enhancements, LED lighting, etc.), intersection improvements (such as the addition of turning lanes, channelizing and signal improvements), and innovative intersection designs (such as Displaced Left-Turns and Restricted Crossing U-Turns (RCUT)). The findings from the CPS were used in the development of the purpose and need for this PD&E Study. FDOT D-5 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, R/W, operational, multimodal accommodations, and geometric features. In general terms, **Segment 1** features an urban typical section and within an existing 150'-180' total R/W. This segment has a lower AADT than Segments 3, 4 and 5. **Segment 2** features a suburban typical

Figure 2-1 - Segmental Breakdown



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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 R/W 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 R/W 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 LBV Stores and the RACE gas station just south of LBV 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

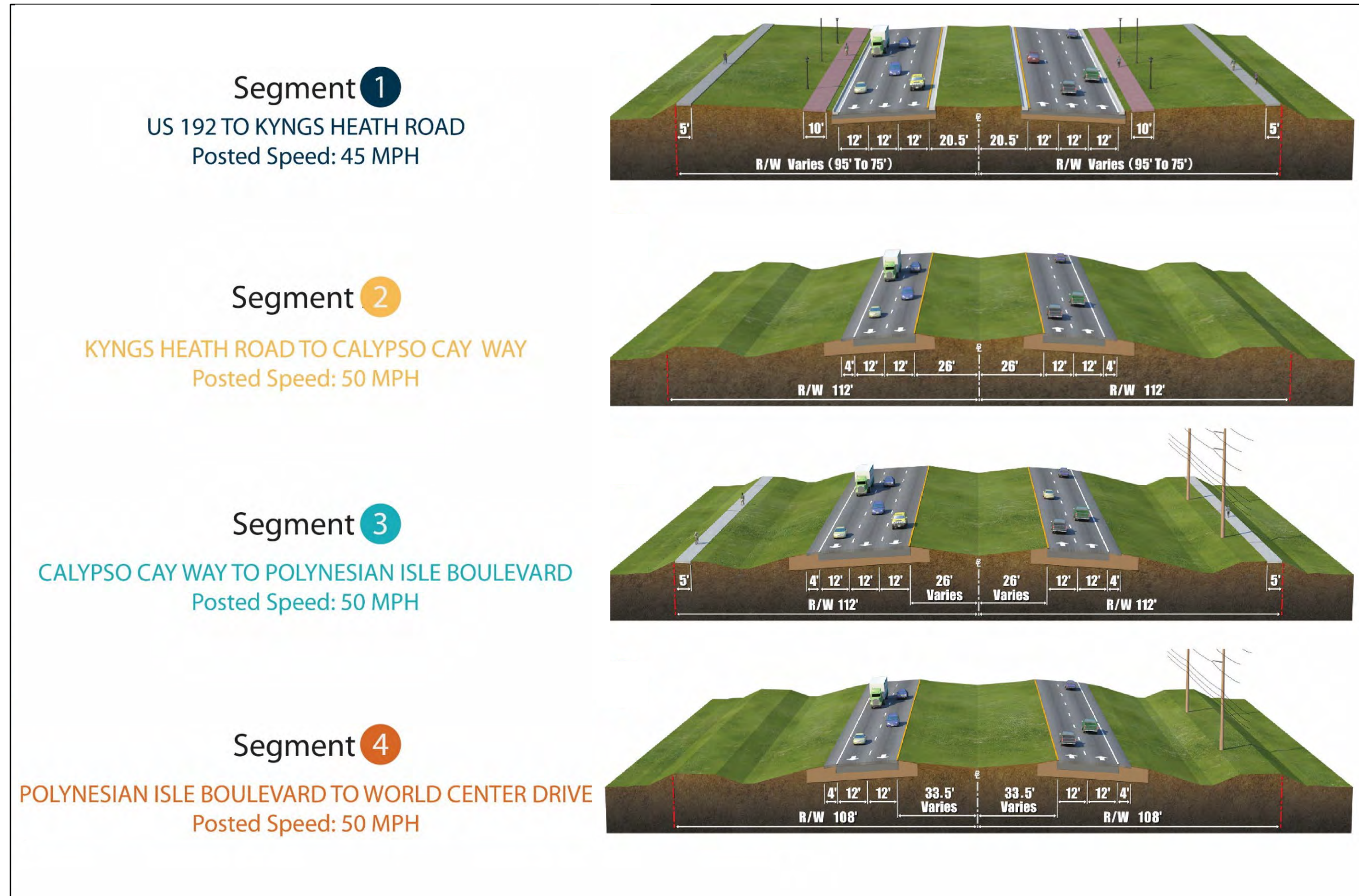
2.4.1 Typical Sections

As shown on **Figure 2-2**, the existing SR 535 facility generally features four (4) distinct typical sections. It should be noted that the only bicycle facility along the project limits is the shared use path within Segment 1, no other exclusive bicycle features are present within the project limits. The existing typical sections are generally described as follows:

- **Begin Project (US 192) to Kyngs Heath Road**, the existing facility generally features a six lane divided urban typical section with curb and gutter and 12-foot lanes. This section also features a 41-foot wide, raised, landscaped median with an available R/W varying 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 R/W lines.
- **Kyngs Heath Road to Calypso Cay Way**, this four-lane divided suburban section features 12-foot lanes, 4-foot outside paved shoulders and a 52-foot grass median. The available R/W is 224 feet (112' to each side of the roadway centerline). Discontinuous 5-foot sidewalks are only provided along both sides of the R/W lines just north of the Kyngs Heath Road intersection for approximately 450 feet.
- **Calypso Cay Way to Polynesian Isle Boulevard**, this section is generally similar to the previous in terms of median and R/W features. The section, however, features three southbound 12-foot lanes and provides a 5-foot continuous sidewalk along the west R/W from Poinciana Boulevard to Polynesia Isle Boulevard.
- **Polynesian Isle Boulevard to End Project (north of World Center Drive/SR 536)** is a suburban typical section varying from four-lane to six-lane divided section with 12-foot wide lanes, 4-foot outside paved shoulders and a varying median from 42-67 foot within an varying available R/W of 186 feet to 224 feet. The only sidewalks within this segment are located along the west R/W line south of the Osceola/Orange County line and along both the east and west R/W lines in the immediate vicinity of LBV factory Stores Drive.

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Figure 2-2 - Existing Typical Sections



2.4.2 Right-of-way

The existing R/W associated with SR 535 within the project limits is shown in **Table 2-2**.

Table 2-2 - Existing R/W

| 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) | 224'' |

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 (see **Figure 2-3**).

Figure 2-3 - Context Classification



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. Previous and 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

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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 2-4** and **Figure 2-5** each land use category in the project area is described below.

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

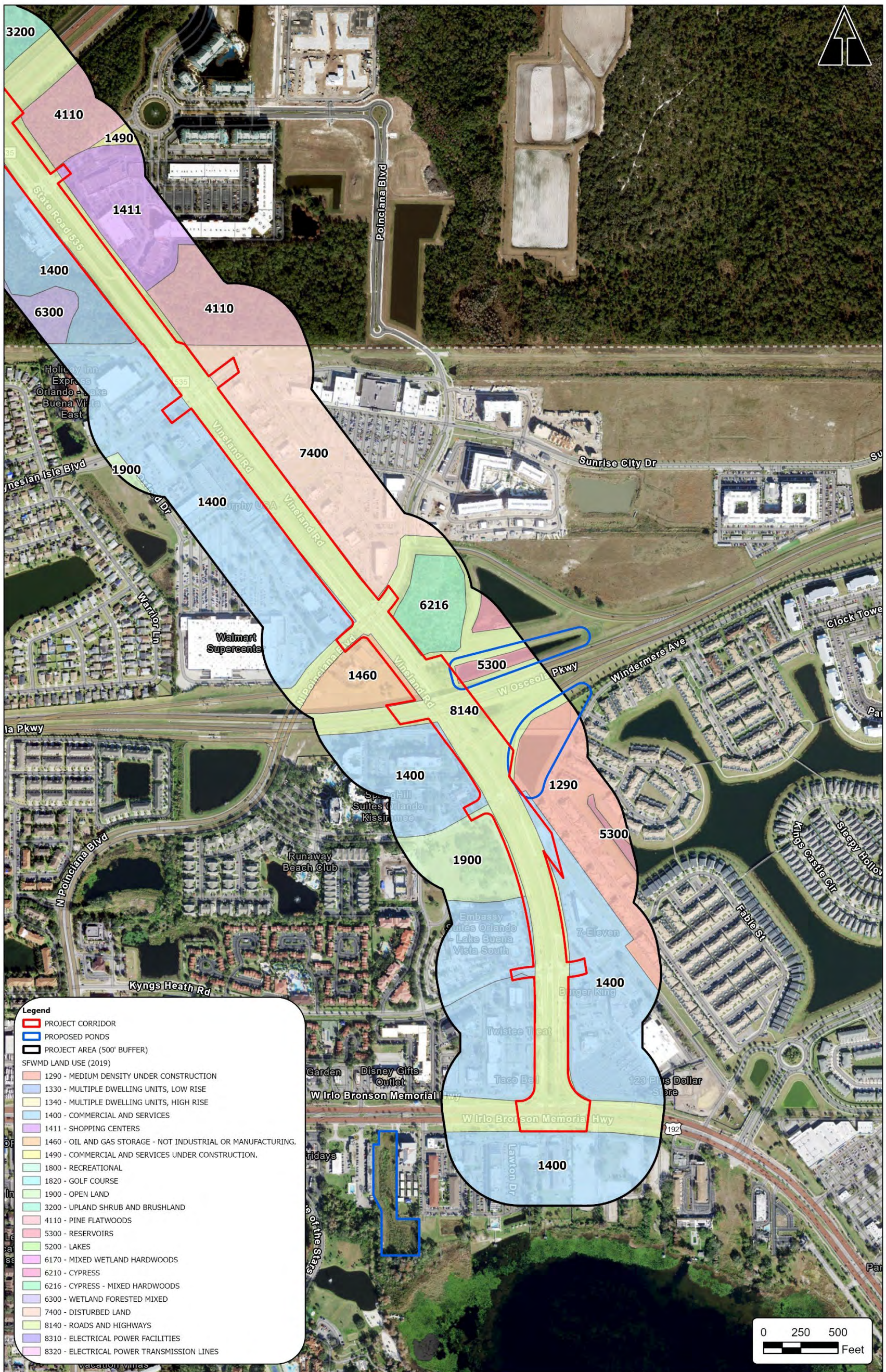
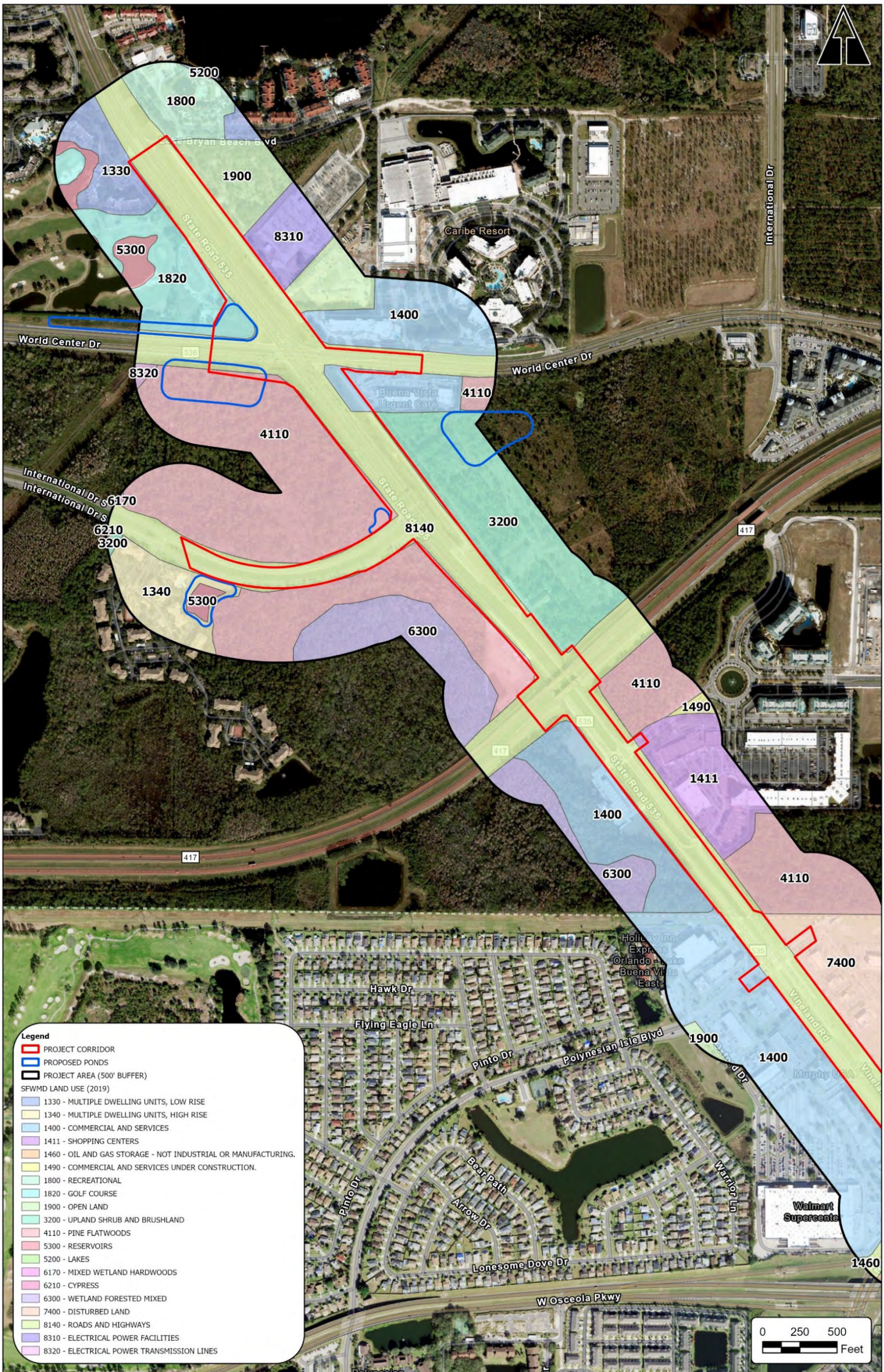


Figure 2-5 - Land Use in Orange County Project Area



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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 LBV 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 LBV Factory Stores Dr and another area is located north of the LBV 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 significantly 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 significant 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 significant 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**.

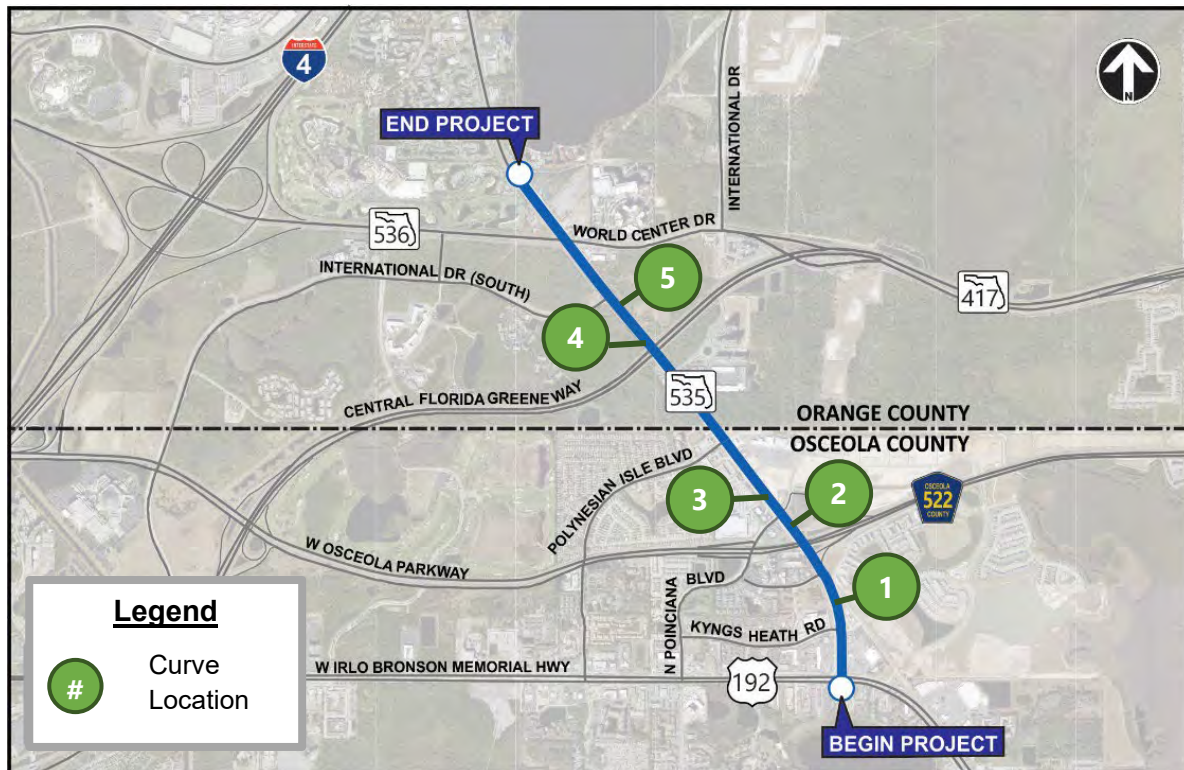
2.4.7 Design and Posted Speeds

The posted speed limit is 45 mph from the beginning of the project to just north of Kyngs Heath Road. At the present time, this is the most urbanized section of the project as reflected by the existing typical section (see Section 2.4.1) The rest of the project area has a 50-mph posted speed due to its generally suburban characteristics. 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 2-6**). This information was developed based on limited available as-builts and aerials. Curve 1 just north of the beginning of the project meets FDOT Design Criteria Standards; however, Curves 2, 3, 4 and 5 do not meet the desirable length of 750-feet for 50 mph design speeds. The rest of the project corridor generally provides acceptable tangent alignments. The existing vertical profile is generally flat.

Figure 2-6 – 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 2-7), 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; however, existing sidewalks are intermittent and generally present within private property. There are significant gaps found along the west and east side.

Figure 2-7 - Existing Bicycle and Pedestrian Facilities



2.4.10 Bicycle Facilities

The existing study corridor lacks designated bicycle facilities throughout. As previously stated, there are 10-foot wide shared use paths extending from the beginning of the project to just north of Kyngs Heath Road along the urban (curb and gutter) portion of the project.

2.4.11 Transit Facilities

The existing LYNX Transit System bus routes that run within the study area can be seen on **Figure 2-8**. 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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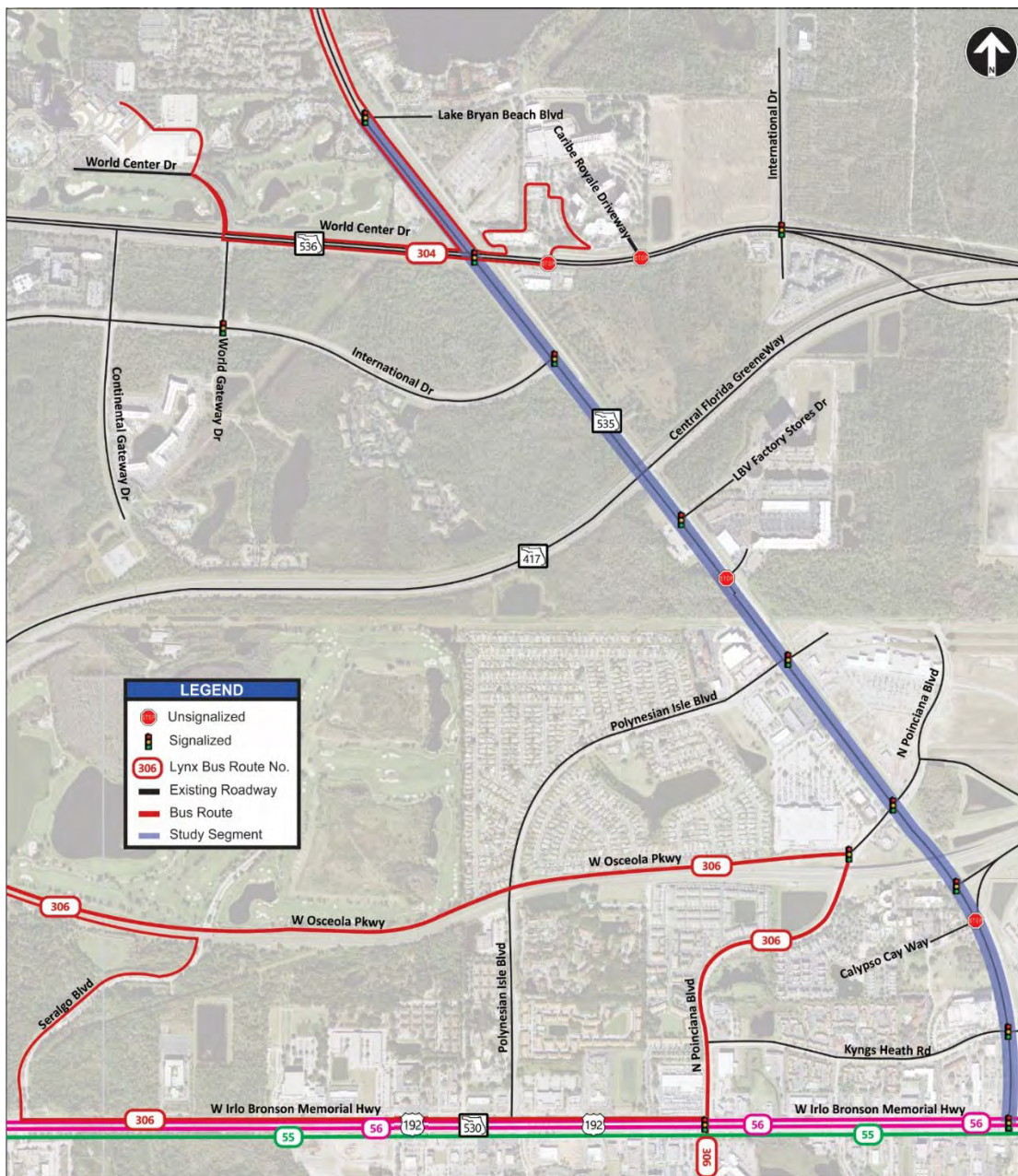
Station and the Four Corners Walmart while Route 56 connects the Kissimmee Intermodal Station and Disney’s Magic Kingdom. Both bus routes rank among the top 10 routes in the LYNX system for Saturday ridership.

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 2-8 - Existing Transit Routes



2.4.12 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.

2.4.13 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.

2.4.14 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).

2.4.15 Aesthetics

There are no aesthetic features within the project.

2.4.16 Existing Structures

There are three (3) existing bridges crossing SR 535 within the study limits at two different locations. **Figure 2-9** has the existing bridge characteristics and the SR 535 existing typical sections under the 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 and its Health Index is 99.41.

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- **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 and its Health Index is 98.83.
- **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 and a Health Index of 96.59.

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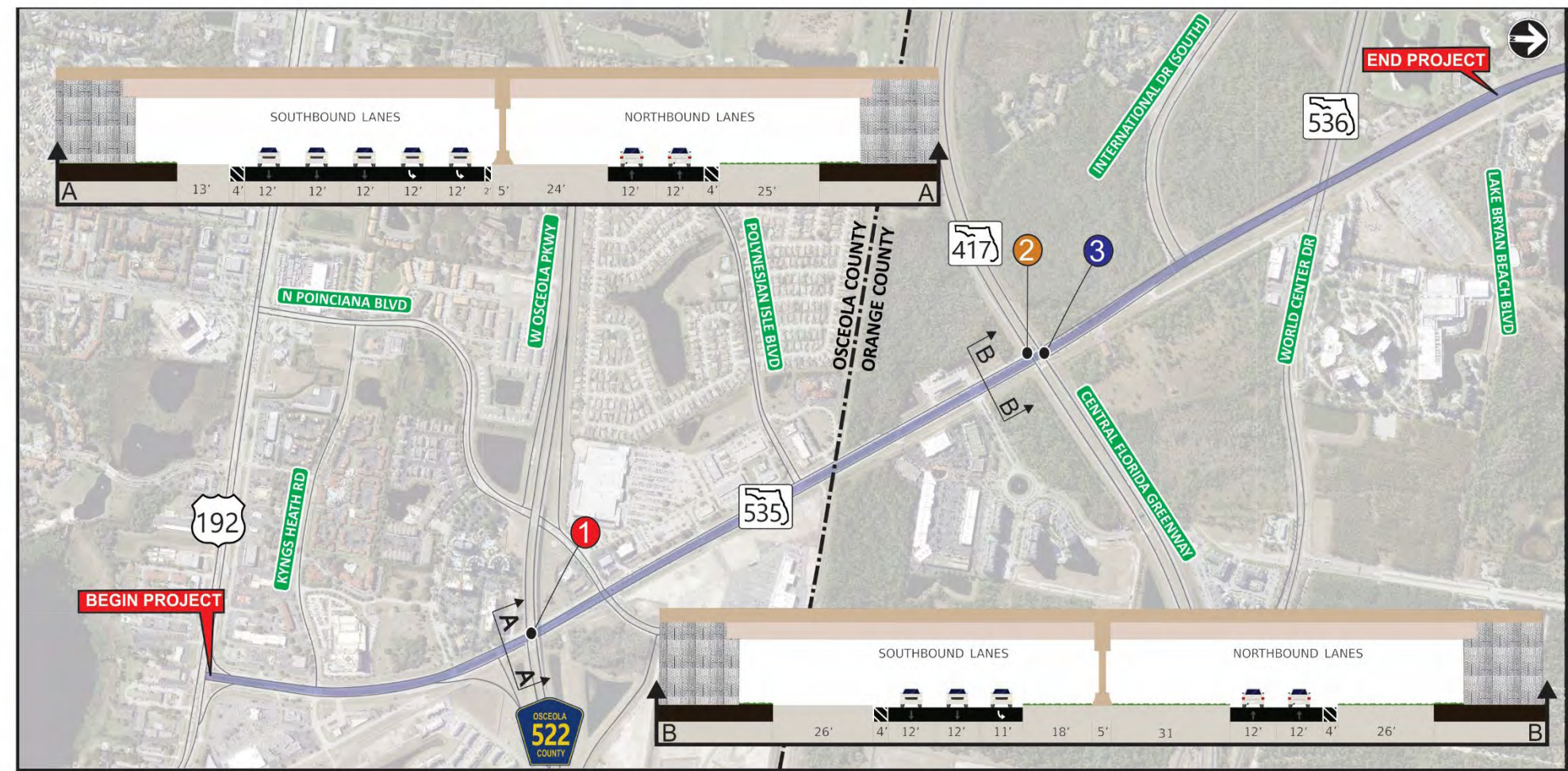
Figure 2-9 - Existing Bridges



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



2.4.17 Soils and Geotechnical Data

The Natural Resources Conservation Service (NRCS) (2017) indicates 11 soil types occur in the project area (Figure 2-10). 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 2-10- Existing Soil Information

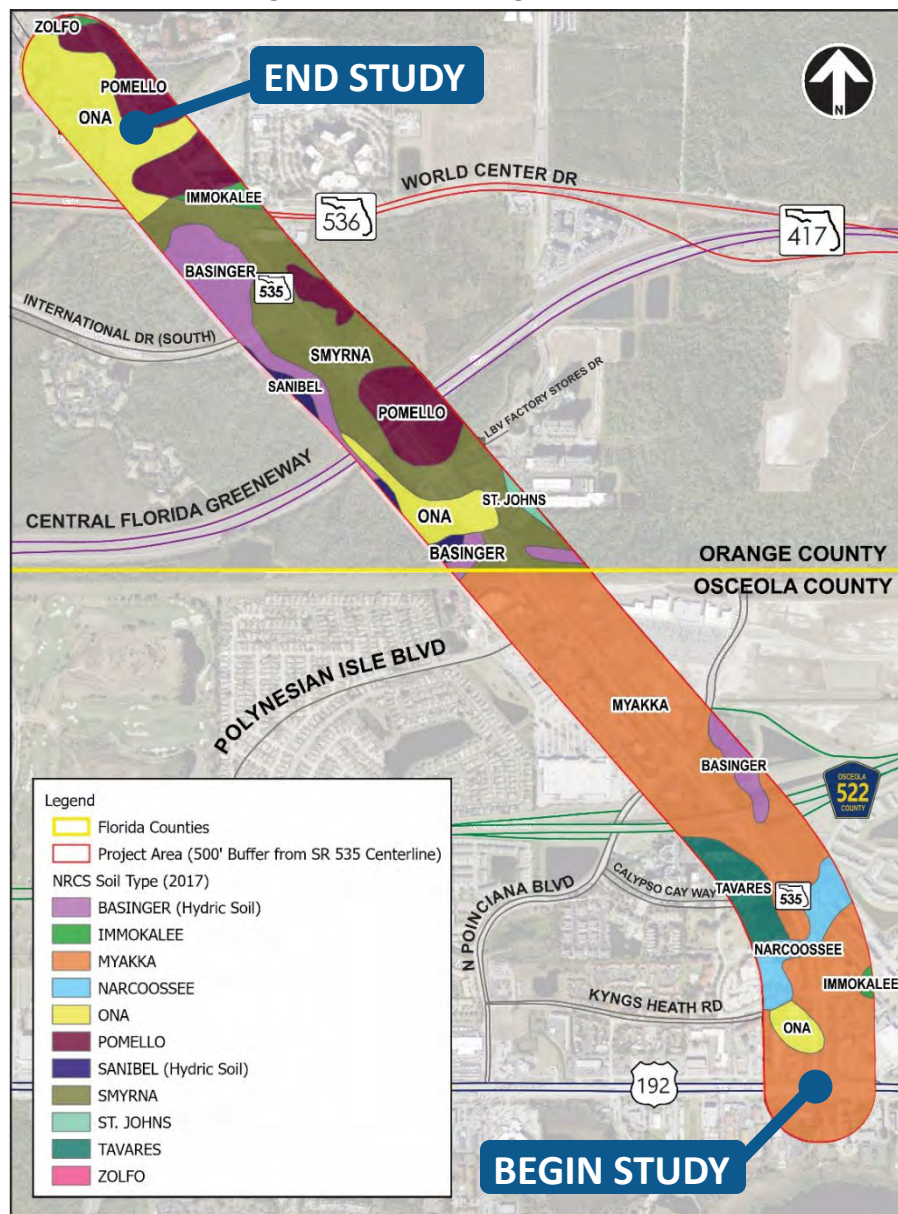


Table 2-3 - Soils in Project Area

| 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**.

2.4.18 Drainage

Four basins have been identified in the existing condition based on existing drainage divides and drainage features (see **Figure 2-11**). 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 2-11 - 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.

2.4.18.1 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).

2.4.18.2 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**.

2.4.18.3 Floodplains

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) (updated September 25, 2009), a portion of the project area in the northwest on the west side of SR 535 between the Osceola/Orange County line and SR 536 is located within the 500-year floodplain (Zone A). The floodplain through this area is traversed by International Drive and SR 417, which creates 3 distinct sections (identified as Floodplain 1, 2 and 3 in **Figure 2-11**). Although the floodplain sections are hydraulically connected, there are no floodways located within the limits of the project. The remaining project area is categorized as Zone X, which is an area of minimal flood hazard. 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 impacts to 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 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.

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

2.5.2 Wetlands

Major hydrologic features mapped by the USFWS National Wetlands Inventory (NWI) in the project area are shown in **Figure 2-12** and **Figure 2-13**. 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.

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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.

2.5.4 Potentially Contaminated Sites

A total of 19 sites of potential contamination risk were identified, including 2 High Risk, 8 Medium Risk, and 9 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) | Source/Databases | Site Descriptions | Concerns | Approximate Distance from Project | Risk Rating |
|----------|---|--------------------------------|------------------------------|--------------------|--------------------------------------|--------------------|-----------------------------------|-------------|
| 1 | 7-Eleven Food Store #27584 | 2975 Vineland Rd | 8944621, Discharge ID: 9311 | STCM; PCTS | Active Gas Station | Petroleum Products | Adjacent | Medium |
| 2 | Shell-Southbridge #285 | 3148 Vineland Rd | 9063981, Discharge ID: 59807 | STCM; PCTS | Active Gas Station | Petroleum Products | Adjacent | Medium |
| 3 | RMA | 3490 Polynesian Isle Blvd | 8945275, Discharge ID: 59075 | STCM; PCTS | Former Gas Station | Petroleum Products | Adjacent | Medium |
| 4 | Central FL Pipeline-Release | Hwy 535 & Polynesian Isle Blvd | 9800541, Discharge ID: 50141 | STCM; PCTS | Pipeline discharge site | Petroleum Products | Adjacent | Low |
| 5 | 7-Eleven Food Store #29775 | 8250 World Center Dr | 9201333, Discharge ID: 57943 | PCTS, FDEP Cleanup | Active Gas Station | Petroleum Products | Adjacent | High |
| 6 | Progress Energy SARAP Lake Bryan Substation | 8350 Lake Bryan Beach Blvd | 122410, ERIC ID: ERIC_12781 | ERIC Waste Cleanup | Florida Power Corporation Substation | Petroleum Products | Adjacent | Low |
| 7 | Daneta LLC | 13725 SR 535 | 9808007, Discharge ID: 60792 | STCM; PCTS | Former Gas Station | Petroleum Products | Adjacent | High |
| 8 | Speedway #6434 | 3270 Vineland Rd | 9803008 | STCM; PCTS | Active Gas Station | Petroleum Products | Within proposed R/W | Medium |
| 9 | Publix Super Market #351 | 2915 Vineland Rd | 9810287 | STCM | Former non-retail fuel user | Petroleum Products | 500 ft > east of project | Low |

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Table 2-7 - Site Information (cont.)

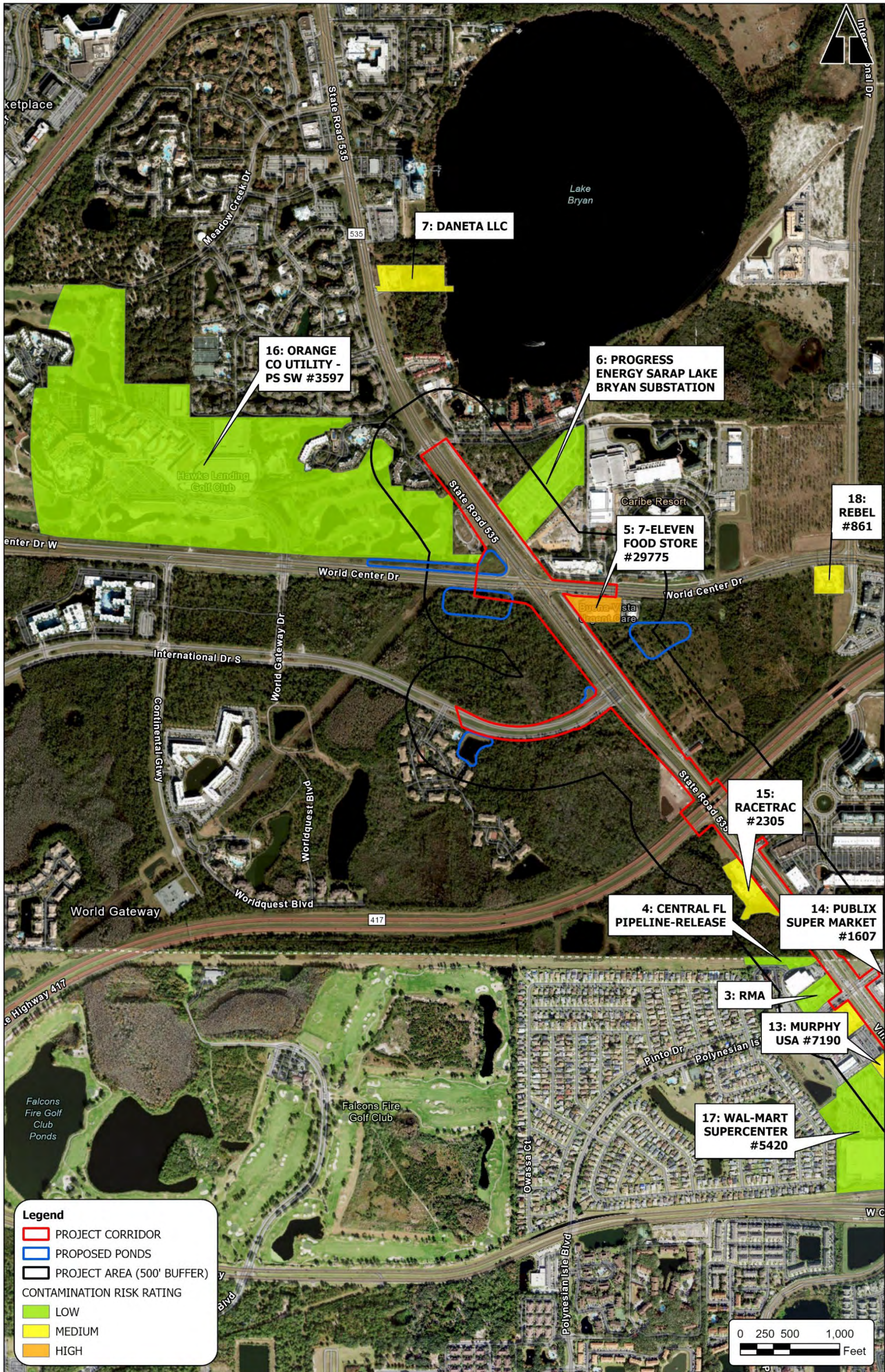
| Site No. | Facility Name | Address | Facility ID (FDEP/RCRA) | Source/ Databases | Site Descriptions | Concerns | Approximate Distance from Project | Risk Rating |
|----------|---|--------------------------|-------------------------|-------------------|----------------------|--------------------|-----------------------------------|-------------|
| 10 | Embassy Suites Orlando-LK Buena Vista South | 4955 Kyngs Heath Rd | 9813192 | STCM | Non-retail fuel user | Petroleum Products | Adjacent | Low |
| 11 | W Kissimmee Central Office | 3080 Vineland Rd | 8627084 | STCM | Non-retail fuel user | Petroleum Products | Adjacent | Low |
| 12 | Wawa Food Market #5116 | 3140 Vineland Rd | 9813385 | STCM | Active Gas Station | Petroleum Products | Adjacent | Medium |
| 13 | Murphy USA #7190 | 3256 Vineland Rd | 9807115 | STCM | Active Gas Station | Petroleum Products | Adjacent | Medium |
| 14 | Publix Super Market #1607 | 3221 Vineland Rd | 9815653 | STCM | Non-retail fuel user | Petroleum Products | 500 ft > east of project | Low |
| 15 | Racetrac #2305 | 15570 Apopka Vineland Rd | 9813548 | STCM | Active Gas Station | Petroleum Products | Adjacent | Medium |
| 16 | Orange Co Utility – PS SW #3597 | 14344 Hwy 535 | 9401271 | STCM | Pump Station | Petroleum Products | Adjacent | Low |
| 17 | Wal-Mart Supercenter #5420 | 3250 Vineland Rd | 9807198 | STCM | Small AST | Flammable Material | 500 ft > west of project | Low |
| 18 | Rebel #861 | 7900 World Center Dr | 9808444 | STCM | Active Gas Station | Petroleum Products | 500 ft > east of project | Medium |
| 19 | Hawkeye Heli-Tours LLC | 5071 W Irlo Bronson Hwy | 9814492 | STCM | Non-retail fuel user | Petroleum Products | 500 ft > west of project | Low |

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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 2-8 - 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 R/W of SR-535.
- 24-count FOC along the north R/W of Kyngs Heath Rd. west of SR-535.
- 144-count FOC along the east R/W of SR-535 north of Kyngs Heath Rd.
- 144-count FOC along the south R/W of Osceola Pkwy.
- 48-count FOC along the east R/W of SR-535 extending north of Poinciana Blvd.
- 48-count and 60-count FOC along the east R/W of SR-535 north of International Dr.
- 60-count FOC along north R/W of International Drive crossing SR-535.
- 216-count FOC along the east R/W of SR-535 between International Dr. and SR-536 (World Center Dr.) and extending east along the north R/W of SR-536.
- 48-count FOC west of SR-535 along the north R/W of SR-536.
- 96-count FOC along the east R/W 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 R/W of SR-535 south of Poinciana Blvd
- Aerial communications cable attached to utility poles along the east R/W 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 R/W of SR-535 from Polynesian Isle Blvd. to north of SR-417.
- Underground facilities along the east R/W of SR-535 from north of SR-417 to SR-536.
- Underground facilities along the south R/W 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 R/W 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 R/W of SR-535 from Osceola County line to north of SR-536.
- 7.2/12.47 kV buried electric (BE) distribution along the south R/W 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 R/W 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 R/W 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 R/W of Osceola Pkwy.
- FGT-Reedy Creek take-off valve and regulator station located east of SR-535 along the north R/W of Osceola Pkwy.
- 6.625" steel pipeline along the east R/W 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 R/W of Kyngs Heath Rd.
- OE distribution line along the west R/W of SR-535 from north of Kyngs Heath Rd. to Osceola Pkwy.

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- OE transmission line along the east R/W of SR-535 from south of Osceola Pkwy. to north of Osceola Pkwy.
- OE transmission line with underbuilt distribution along the east R/W 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 R/W of SR-535 south of Kyngs Heath Rd.
- Local fiber/UG copper along the east R/W of SR-535 from north of Calypso Cay Way to Osceola County line.
- Local fiber/UG copper along west R/W of SR-535 from north of Osceola County line to SR-536. and continuing west along the south R/W of SR-536.
- Local fiber/UG copper along the east R/W 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 R/W 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 R/W of SR-535 from south of SR-417 to SR-536 and continuing west along the south R/W of SR-536.
- 12" polyvinyl chloride pipe (PVC) FM along the west R/W 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 R/W 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 R/W of SR-536 east of SR-535.
- 8" PVC watermain (WM) along the west R/W 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 R/W 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 R/W of International Dr. crossing SR-535 within a 30" steel casing and connecting to the 16" DIP WM along the east R/W of SR-535.
- 24" DIP WM along the east R/W of SR-535 north of SR-536 within a casing across SR-536 and connecting to the 24" DIP WM along the south R/W of SR-536 east of SR-535.
- 4" PVC Reclaimed WM along International Dr. west of SR-535.
- 12" PVC Reclaimed WM along west R/W 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 R/W of SR-535 continuing east long the north R/W of SR-536.
- 6" PVC Reclaimed WM along the east R/W 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 R/W.

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

- Irrigation lines along the SR-535 east and west R/W 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 R/W of Kyngs Heath Rd.
- 288-count fiber in (3) 1.25" HDPE conduit along the west R/W of SR-535 from Osceola Pkwy. to Poinciana Blvd.
- 144-count and 288-count aerial fiber along the east R/W of SR-535 from south of Poinciana Blvd. to south of SR-417.
- 144-count and 288-count aerial fiber along the east R/W 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 R/W of SR-535 between Calypso Way and south of SR-417.
- 4" CS GM along the north R/W 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 R/w 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 R/W 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 R/W 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 R/W 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 R/W of Polynesian Isle Blvd. from SR-535.
- 8" Gravity Sewer Main and manholes along the north and south R/W 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 R/W 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 Existing Traffic Analysis

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)

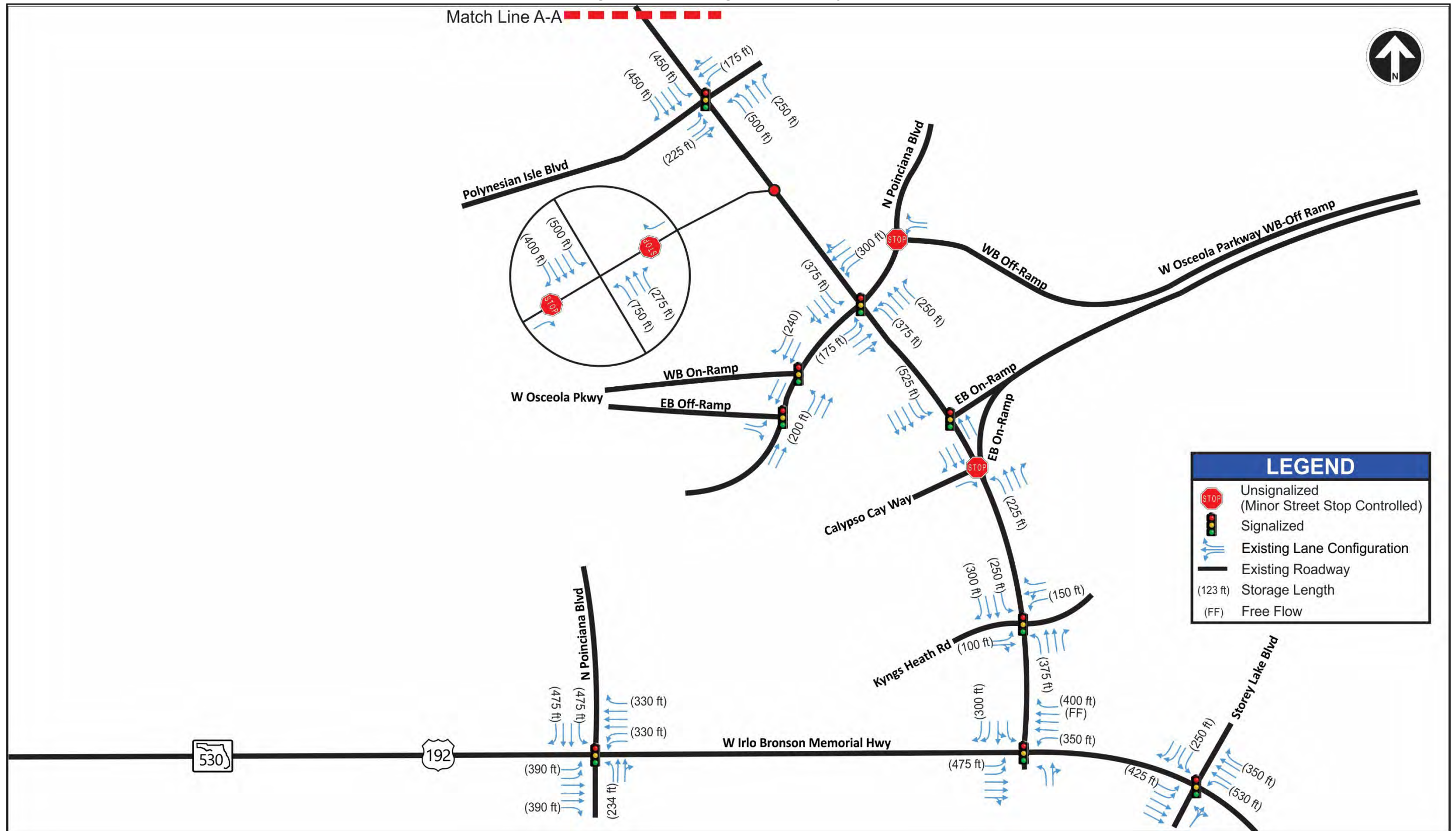
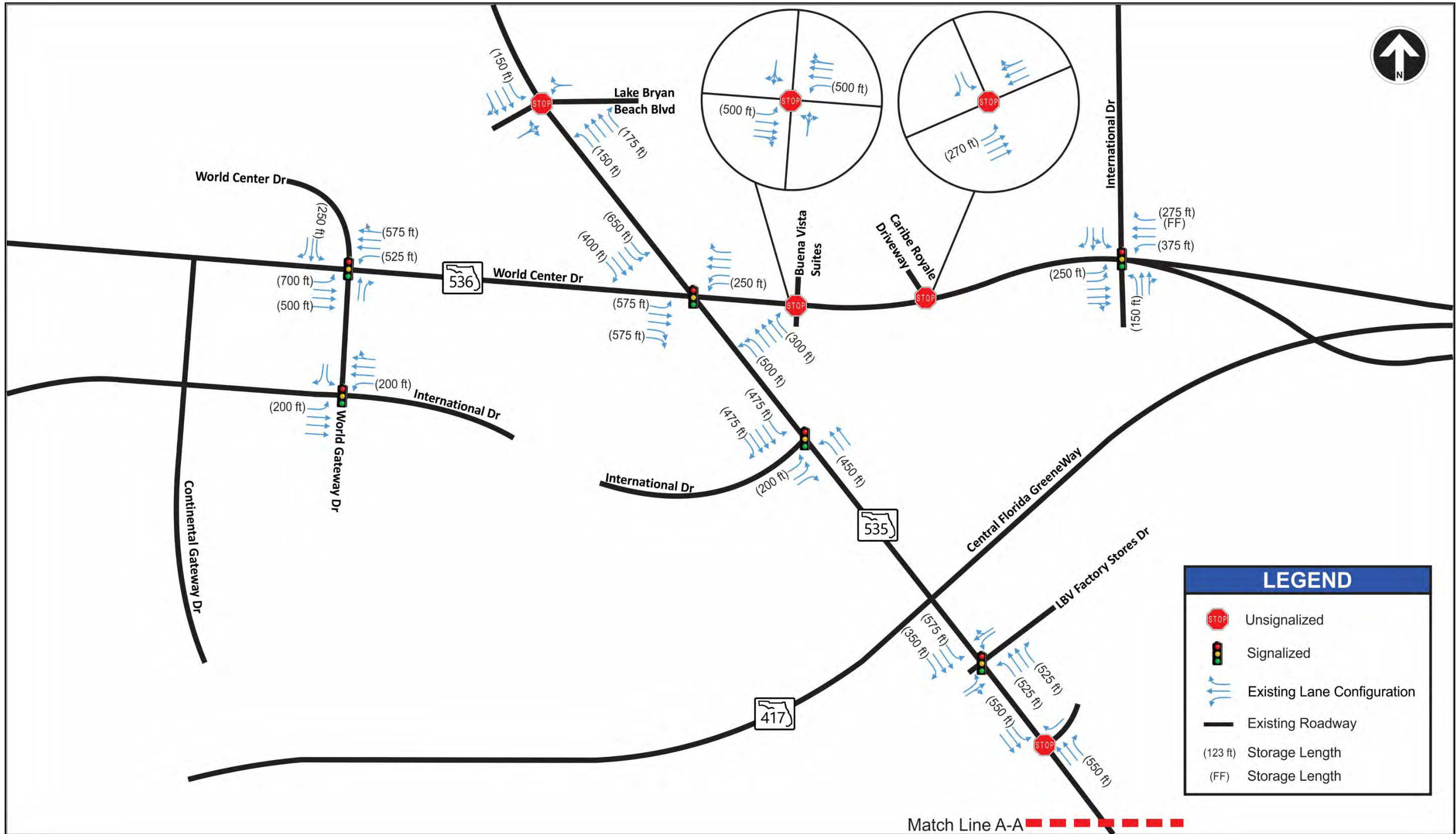


Figure 2-17 - Existing Lane Geometry (2 of 2)



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 significantly 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.

The roadway arterial operational analysis was performed for the existing year traffic conditions for AM and PM peak hours using Synchro 11 software. Table 2-10, 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, 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 2-9 summarizes the recommended 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. **Table 2-10**, 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, 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 2-9 - 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 @ LBV Factory Stores Dr | LBV Factory Stores Dr, west of SR 535 | 500 | C |
| | LBV Factory Stores Dr, East of SR 535 | 4,900 | C |
| | SR 535, North of LBV Factory Stores Dr | 48,000 | C |
| | SR 535, South LBV 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 |

Table 2-9 - 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 |

Table 2-9 - Existing 2020 Annual Average Daily Traffic (AADT)

| 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 2-10 - 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 | Kyngs Heath Road | 1003 | 45 | 28.7 | 23.6 | 43% | D |
| | | Kyngs 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 | LBV Factory Stores | 1742 | 50 | 54.6 | 21.7 | 43% | D |
| | | LBV 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 | LBV Factory Stores | 2112 | 50 | 47.1 | 30.3 | 61% | C |
| | | LBV 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 | Kyngs Heath Road | 1637 | 50 | 42.0 | 26.4 | 53% | C | |
| | Kyngs 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 | Kyngs Heath Road | 1003 | 45 | 34.4 | 19.7 | 44% | D |
| | | Kyngs 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 | LBV Factory Stores | 1742 | 50 | 53.8 | 22.0 | 44% | D |
| | | LBV 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 | LBV Factory Stores | 2112 | 50 | 81.2 | 17.5 | 35% | E |
| | | LBV 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 | Kyngs Heath Road | 1637 | 50 | 41.1 | 27.0 | 54% | C | |
| | Kyngs 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 2-11**. 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 2-11 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 |

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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.

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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 as of April 2024. Construction is anticipated to begin Summer of 2024.

There are three development partnership projects planned within the study area and they are depicted in **Figure 3-1**. The extension of International Drive is included in Orange County's Comprehensive Plan. There is a developer road network agreement from 2006 for the International Drive Extension and it will be the developer's responsibility to construct the road as development occurs east of SR 535. However, there is no planned development at this time and there is currently no timetable for construction of the road.

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 that a section of SR 535 just north of World Center Drive (SR 536) is constrained to six lanes, curtailing the possibility of a future eight lane section. Although the study segment of SR 535 does not have a constraint as per MetroPlan Orlando, 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

SECTION 3 – FUTURE CONDITIONS

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.

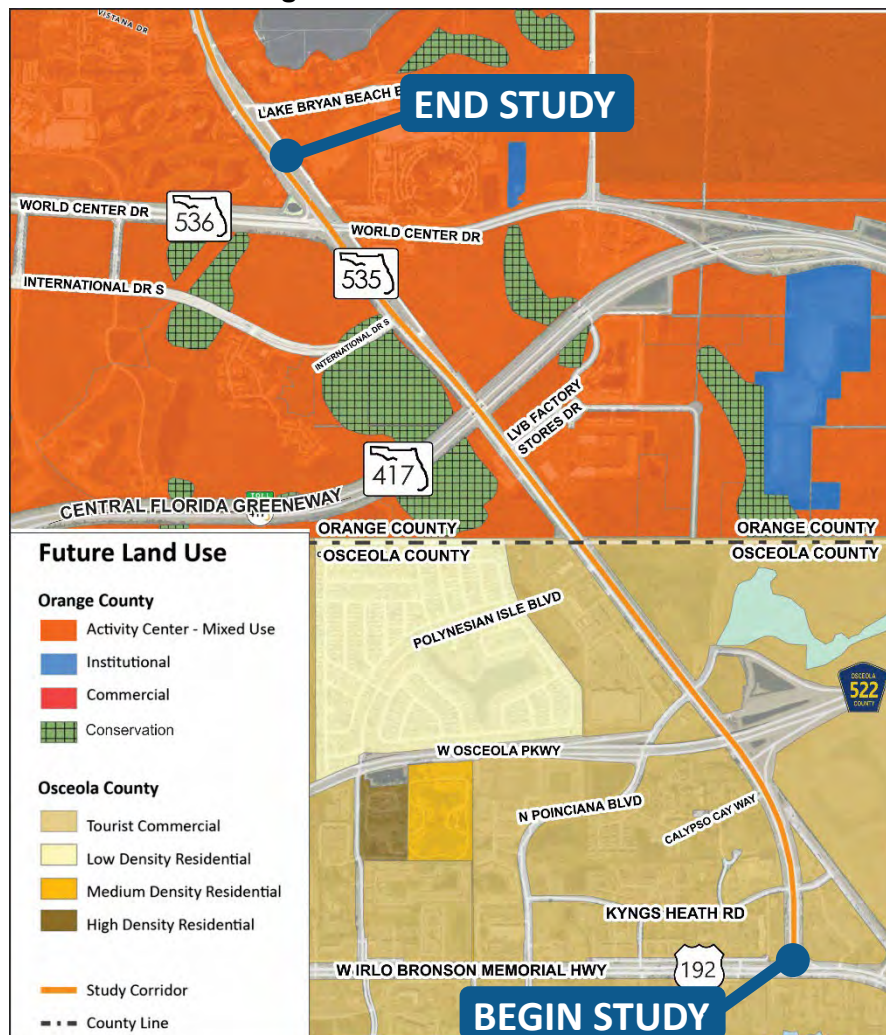
Figure 3-1 - Development Partnership Projects



3.5 Future Land Use

Figure 3-2 Illustrates the generalized future land use along the project area. 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. It should be noted that the future land uses abutting the project corridor do not change from the present land use, zoning classifications.

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

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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 @ LBV Factory Stores Dr | LBV Factory Stores Dr, west of SR 535 | 500 | 2.29% | 800 | - |
| | LBV Factory Stores Dr, East of SR 535 | 4,900 | 8.39% | 15,500 | 660 |
| | SR 535, North of LBV Factory Stores Dr | 48,000 | 1.17% | 62,500 | 2,450 |
| | SR 535, South LBV 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 |
| 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 |

Table 3-1 - Future AADT (continued)

| Intersection | Segments | 2020 AADT | Build Growth Rate | Build 2045 | DDHV 2045 |
|---|---|-----------|-------------------|------------|-----------|
| 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 |

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 D-5 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.

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

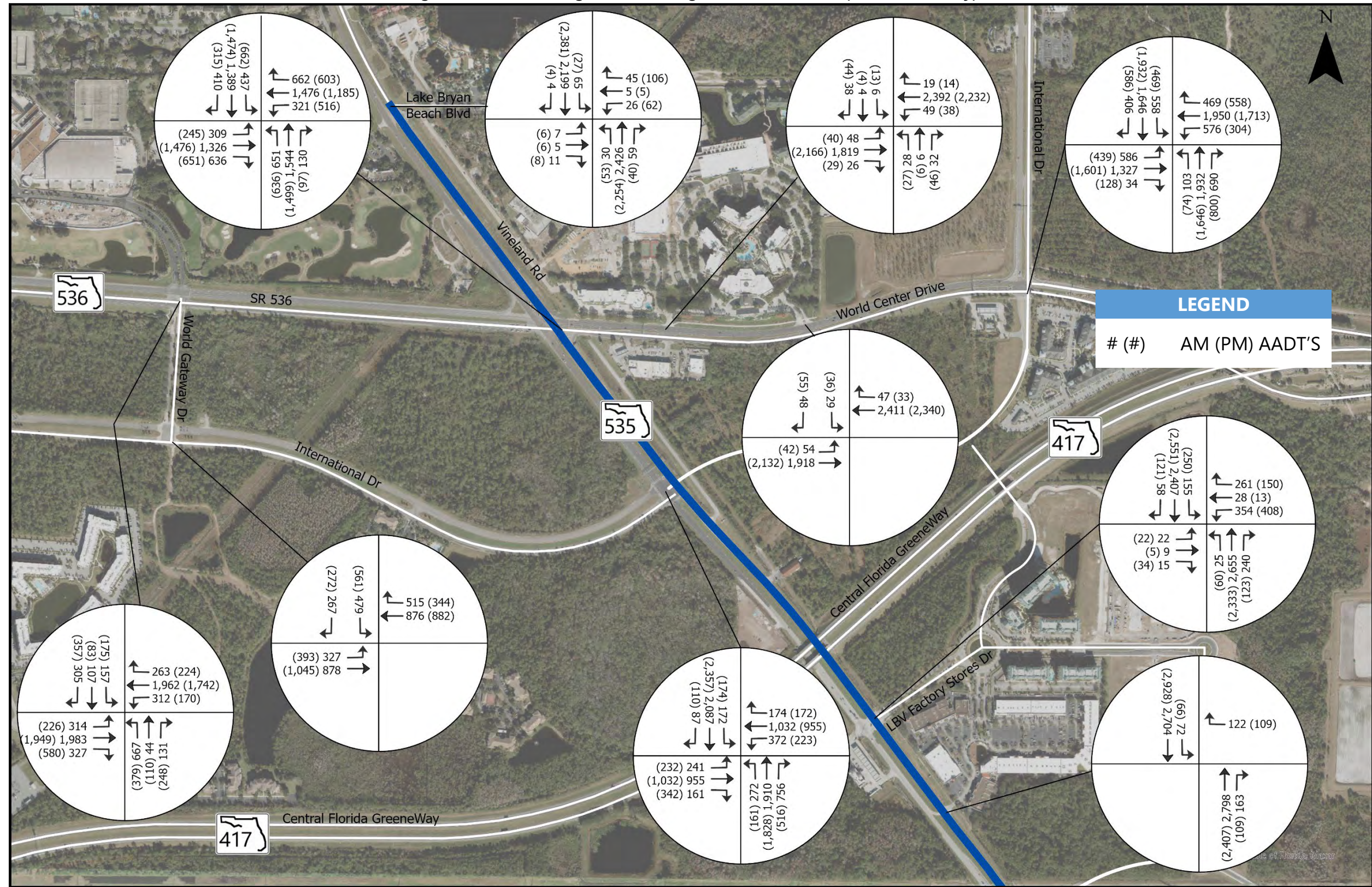
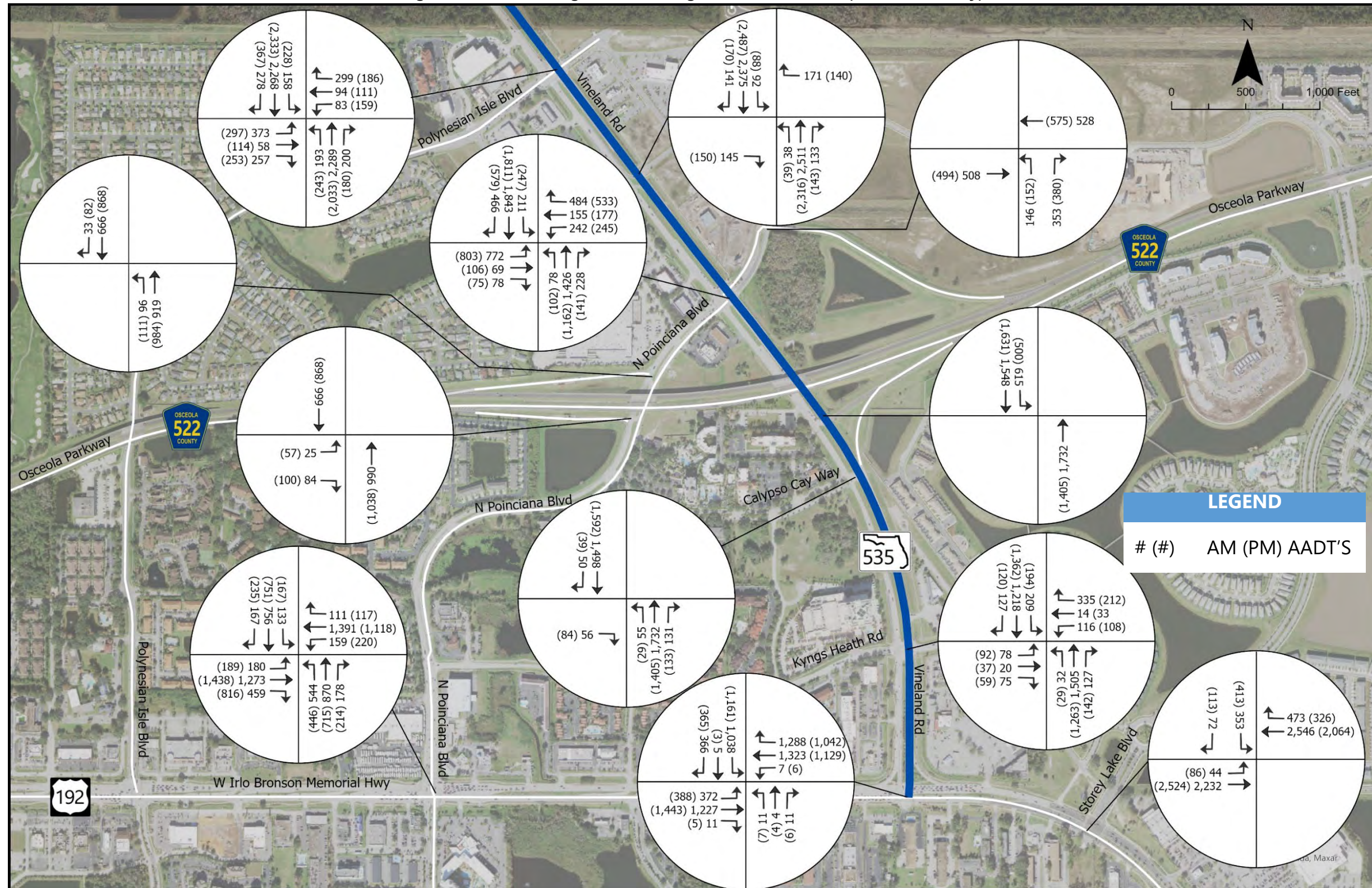


Figure 3-4 - 2045 Design Year Turning Movement Counts (Osceola County)



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

Geometric criteria pertaining to the proposed improvements are documented in several FDOT manuals, Federal Highway Administration publications, and in publications of the American Association of State Highway and Transportation Officials (AASHTO). 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

4.1.2.1 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).

4.1.2.2 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. Please see the pond calculations for the design storm utilized to determine required attenuation volumes.

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 | 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 |
| 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 |

4.1.3 Stormwater/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).

4.1.3.1 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.

4.1.3.2 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).

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

4.1.3.4 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

The need for the proposed widening of this corridor was previously described in Section 1.2 of this document and existing conditions detailed in Section 2. The widening of SR 535 from 4 to 6 lanes is currently included in the MetroPlan Orlando 2045 Long Range Transportation Plan Cost Feasible Plan.

The PD&E Study built upon the findings of the CPS to evaluate a range of feasible alternatives that meet the intended needs of the corridor.

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 (No-Action) 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

SECTION 5 – ALTERNATIVES ANALYSIS

related to R/W 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 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 LBV 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 LBV 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 LBV 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. 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

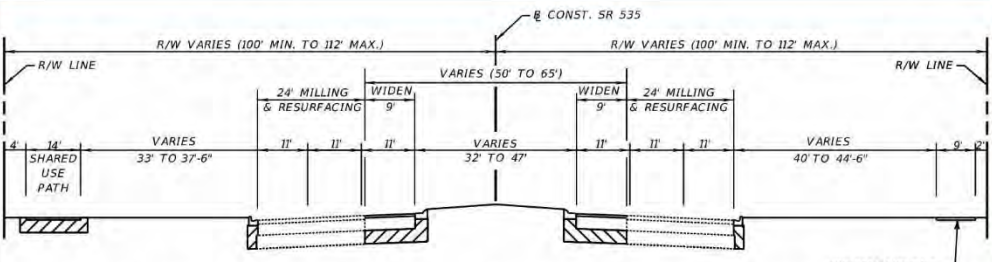
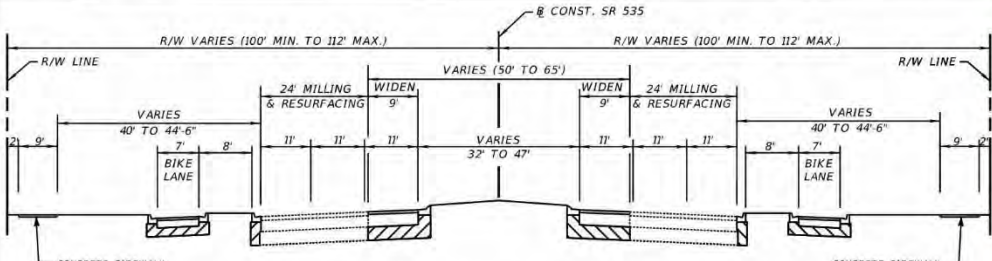
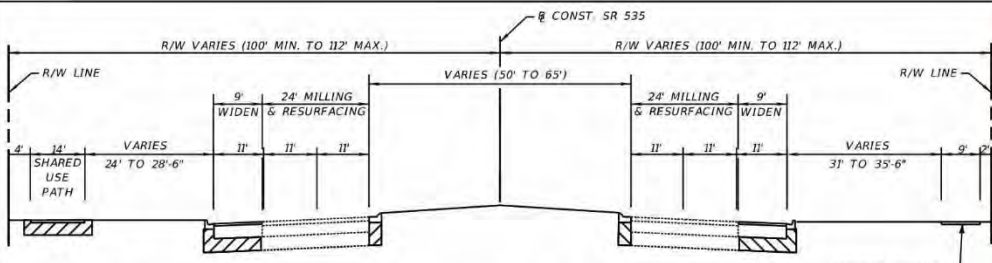
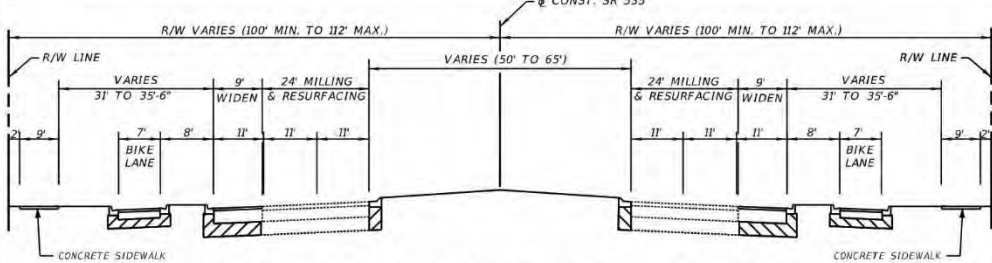
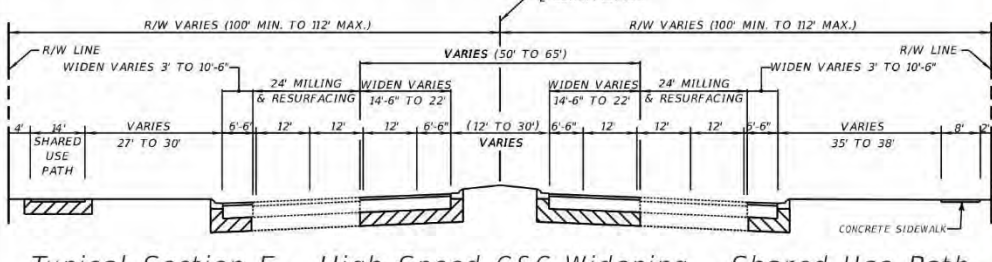
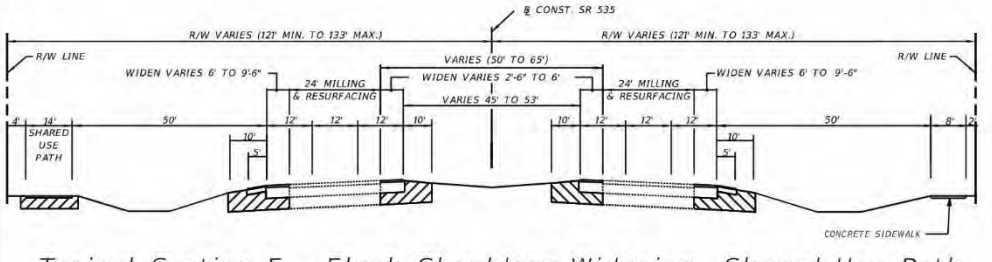
| TSM&O Alternatives | Consequences of Implementation | Remains Viable? |
|--|---|-----------------|
| Provision of access management controls | Some minor safety and operational benefits to the arterial at the expense of reducing access. Will not provide sufficient increase in capacity to accommodate 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 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.

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.

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' | | ✓ | ✓ | ✓ |

5.2.4 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 |

5.2.5 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**. 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) |
| R/W Acquisition (Acres) | 0 | 0 | 0 | 0 |
| Construction Cost | 0 | \$62M | \$60M | \$65M |

5.2.5.1 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.

5.2.5.2 ICE Stage 2

Based on these results a Stage 2 evaluation was performed in coordination with the PD&E project team and FDOT D-5 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 R/W 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 R/W and wetland impacts and potential impacts to FGT thus was eliminated.

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 R/W 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 R/W and business impacts, thus was eliminated.

Figure 5-2 - SR 535 and Poinciana Boulevard Alternatives

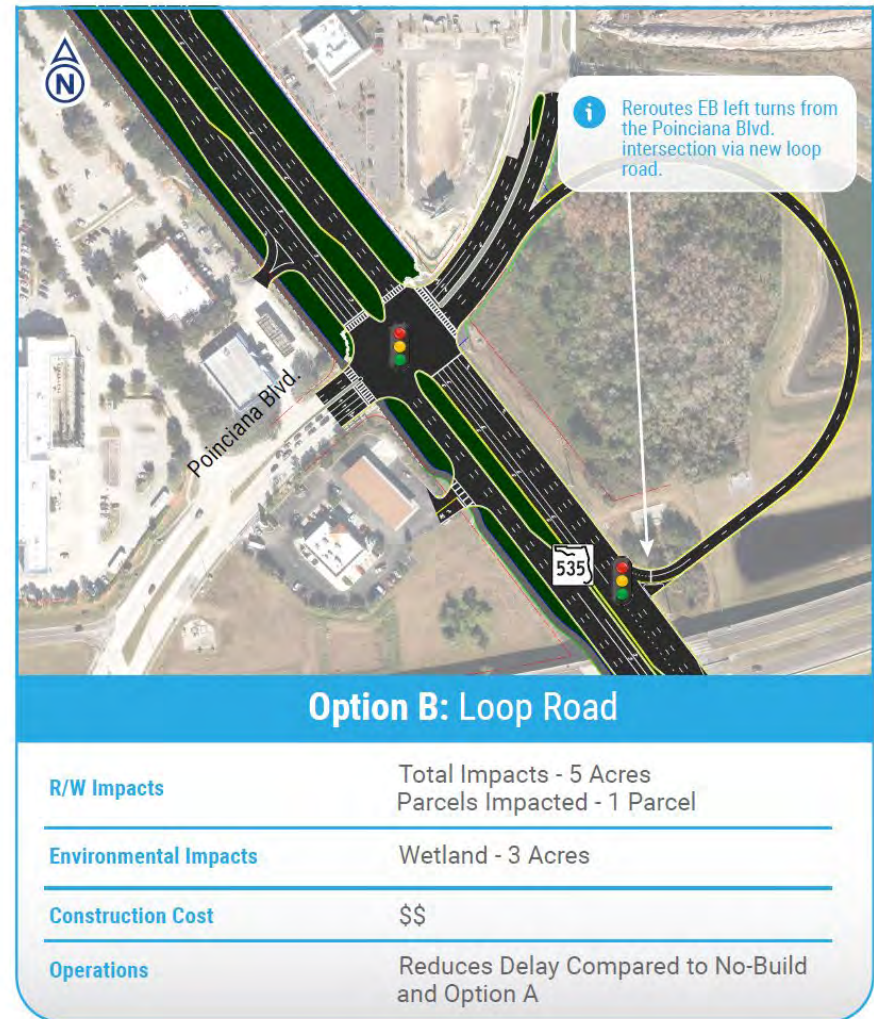
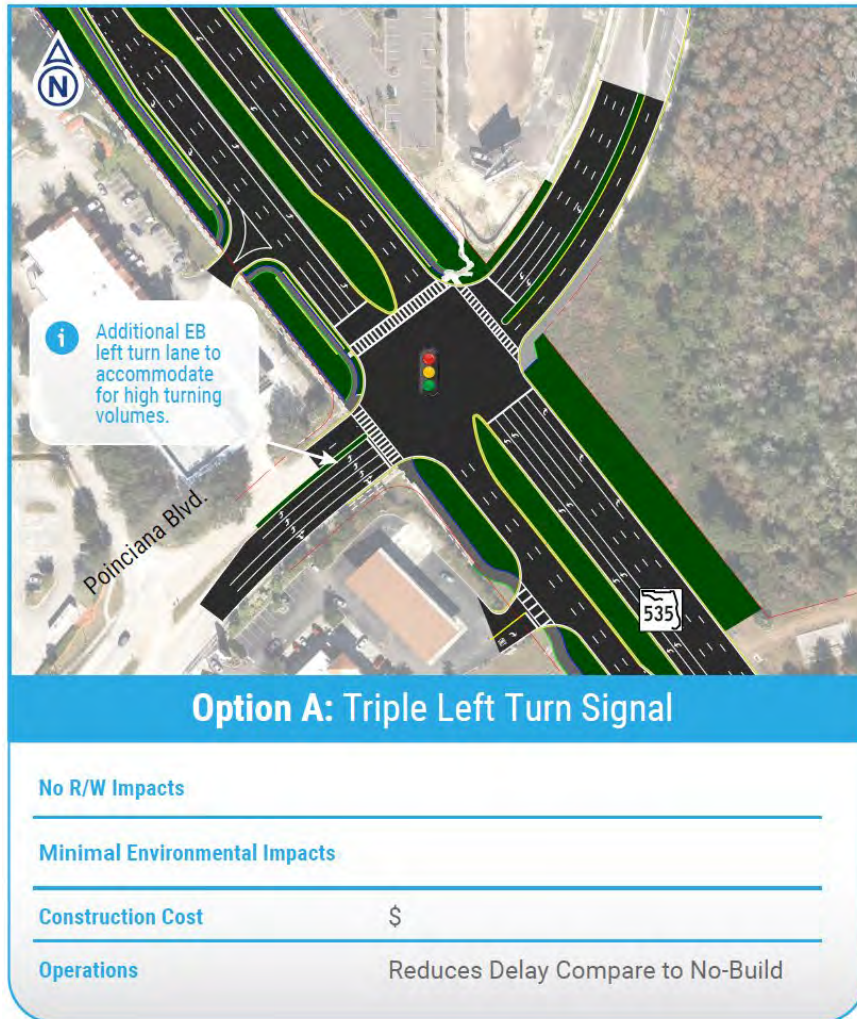
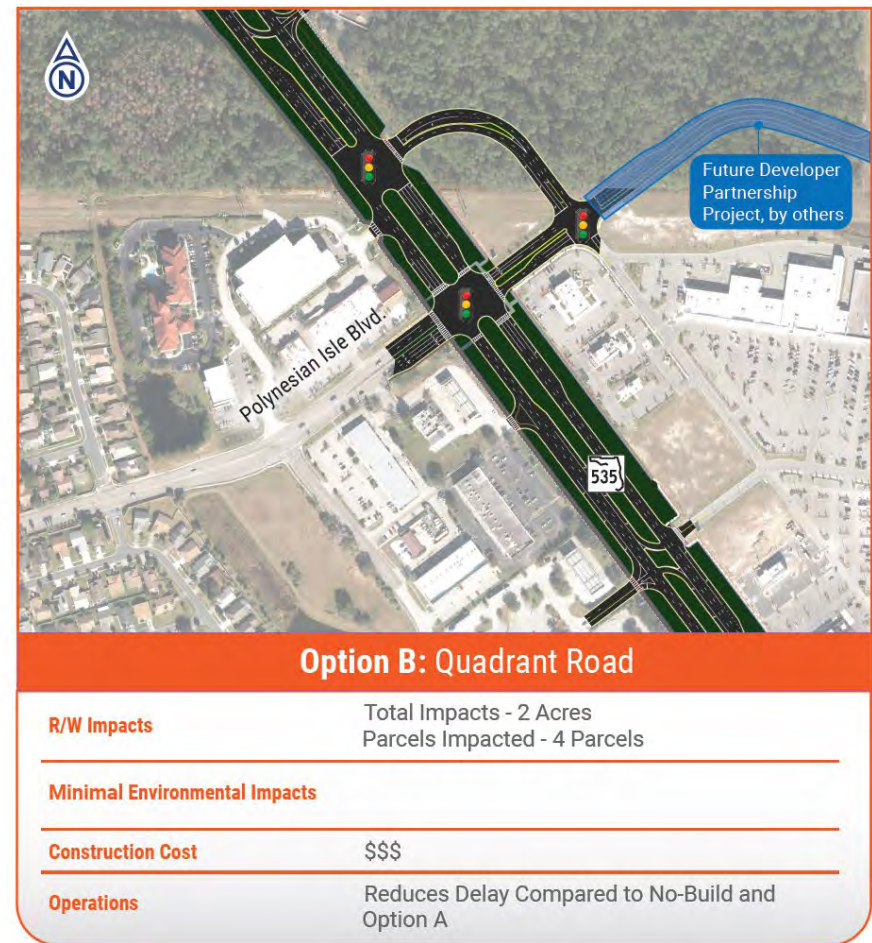
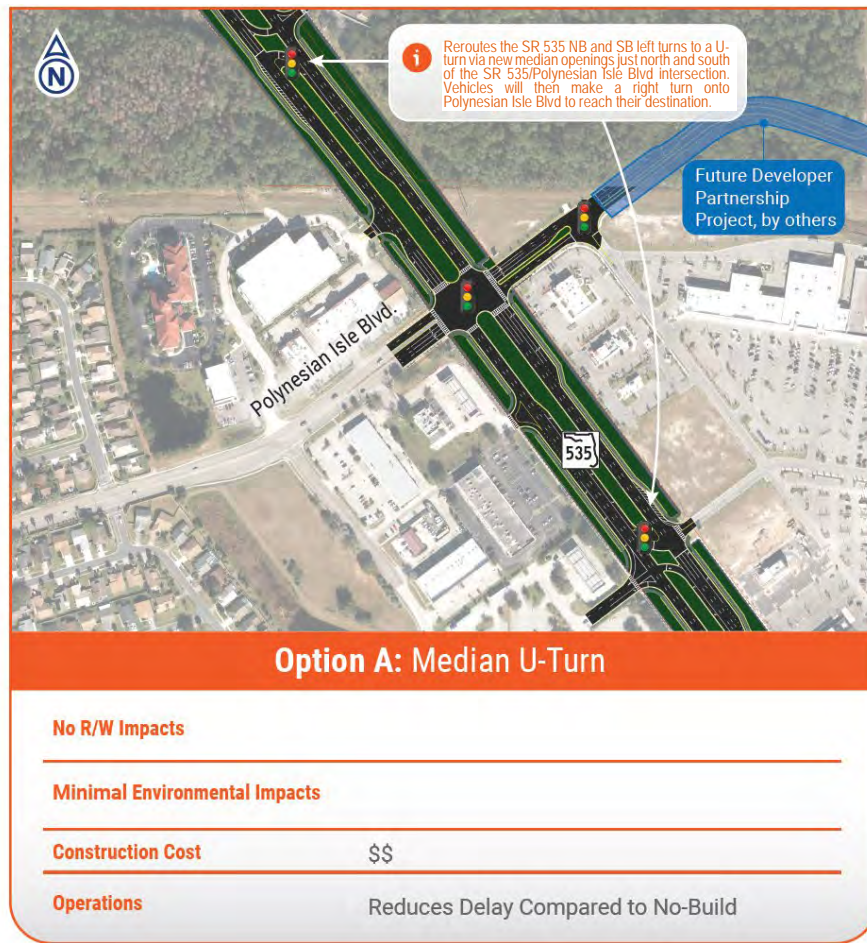


Figure 5-3 - SR 535 and Polynesian Isle Boulevard Alternatives



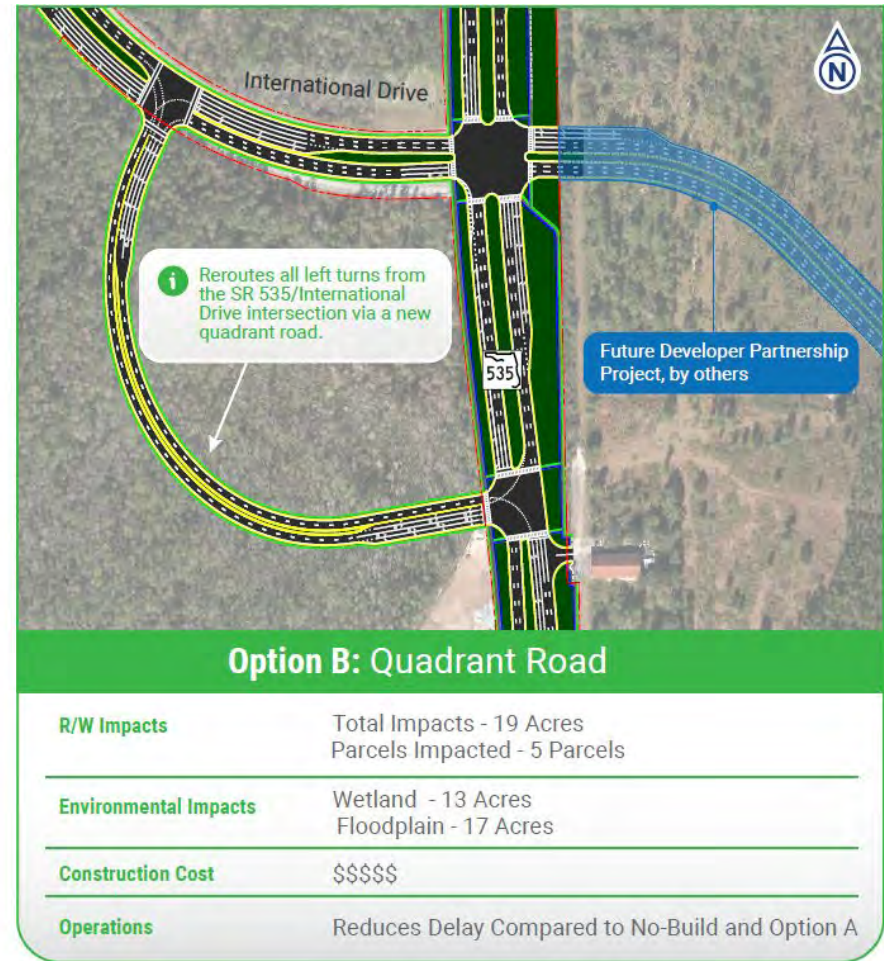
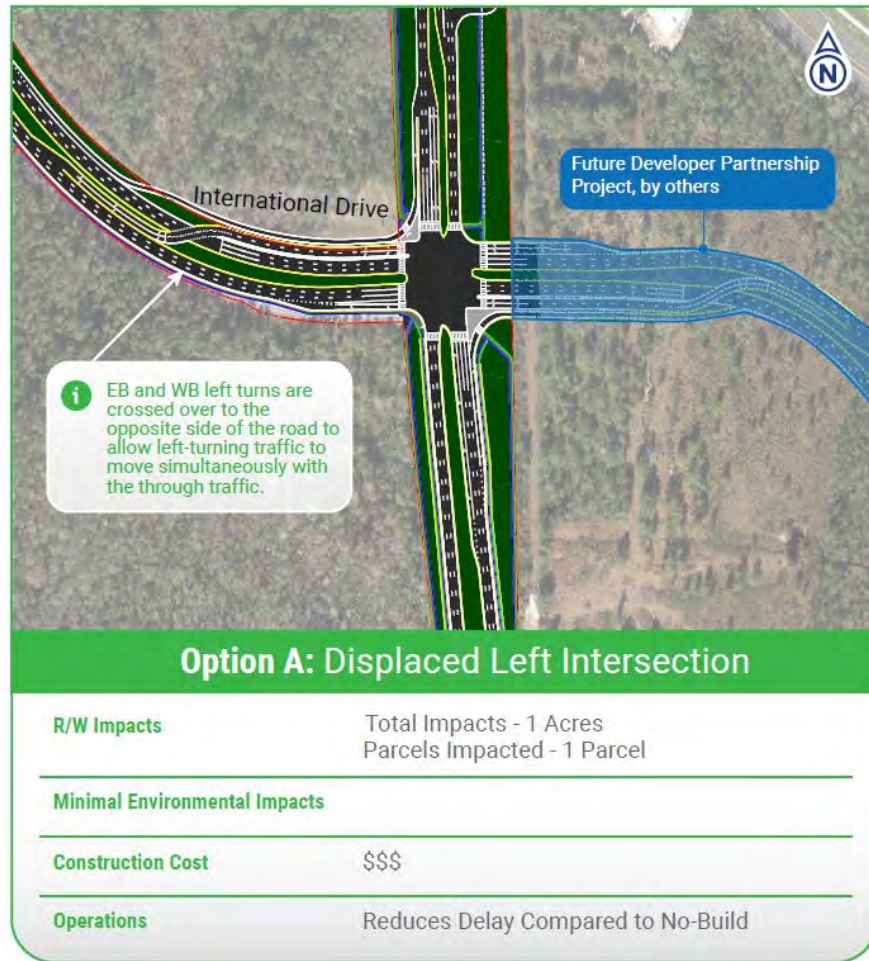
SR 535 and International Drive Alternatives

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 R/W 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 R/W, floodplain and wetland impacts and has the highest cost thus was eliminated.

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Figure 5-4 - SR 535 and International Drive Alternatives



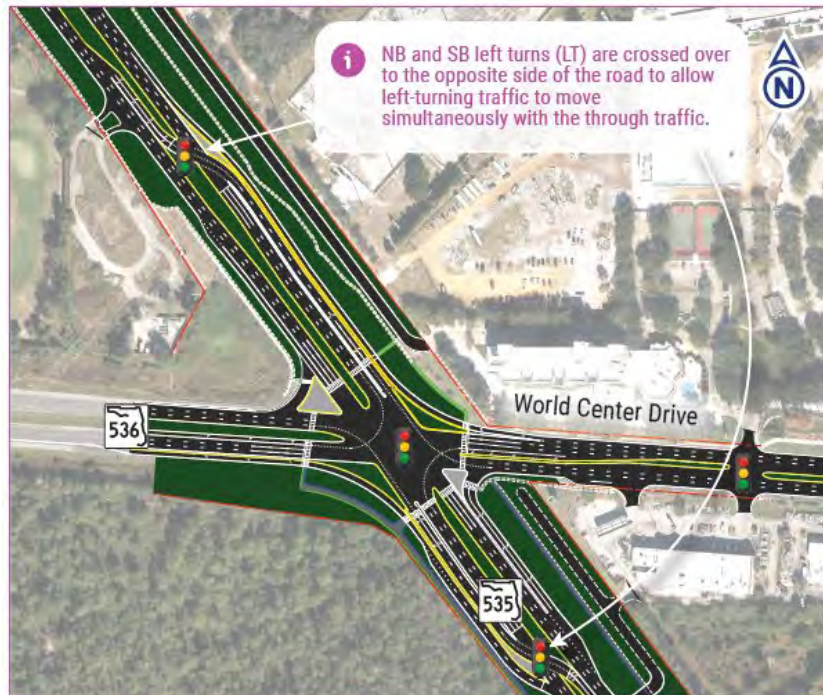
SR 535 and SR 536/World Center Drive

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 R/W 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 R/W, floodplain and wetland impacts and has the highest cost thus was eliminated.

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



Option A: Displaced Left Intersection

No R/W Impacts

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

5.2.5.3 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. |
| LBV 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 a brief comparison of the overall intersection delay and LOS for design year 2045. Overall, for Build Alternative 1, the design year condition shows significant 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 significantly 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 the 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 significantly improved under Alternative 1 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 a brief comparison of the overall intersection delay and LOS for design year 2045. Design year (2045) results reveal that overall, both the AM and PM peak hour conditions perform similarly.

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Under both the AM and PM peak hour conditions, all signalized intersections meet or exceed the LOS D Target, showing that operations significantly 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 the 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 significantly 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 & LBV 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 | Kynqs Heath Rd | D | D | C | E | D | D | D | E | F | F | E | E | E | E |
| Kynqs 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 | F | F | | |
| Qd. Rd. to Polynesian Isle Blvd | Median Opening N | D | D | F | E | C | D | | | F | F | E | E | C | C |
| Median Opening N | LBV Factory Stores | | | | | | | D | D | | | | | D | E |
| LBV 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 | LBV Factory Stores | | | | | | | C | D | | | | | D | D |
| LBV 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 | Kynqs Heath Rd | C | C | E | C | B | C | C | C | C | D | C | C | C | C |
| Kynqs 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 significant reduction in delay for displaced movements when compared to No-Build conditions.

5.2.6 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 D-5, Alternative A was recommended as the Preferred Alternative 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.

- Based on the limited survey available during this study, inside widening would minimize potential impacts to base clearance.
- Concerns were raised by the agencies and the public about the safety of the separated bicycle lanes at the crossing streets.
- Alternative A garnered the most support from the public at the Alternatives Public Information Meeting (APIM).

After Alternative A was selected as the preferred alternative, the following modifications were made in coordination with local agencies and FDOT D-5.

- The study started with 9-ft sidewalks on both sides of the typical section. Due to sufficient R/W and to address the need for adequate bicycle facilities, a wider shared use path of 14-feet was selected for the west side of the typical section and a 12-foot shared use path will be provided on the east side of the roadway.
- Due to the limited survey available during this study, the Preferred Alternative will be assumed to be full reconstruction and not milling/resurfacing and widening. An investigation should be conducted during the design phase to determine which sections can be widening and not full reconstruction to reduce costs. Current unverified design elements include longitudinal slope and cross slopes.
- Because the target speed was approved for 45 mph safety measures such as horizontal deflections for bringing down the posted speed from 50 mph to 45 mph should be investigated during the design phase.

Please see **Figure 5-6** for the preferred alternative typical section.

Figure 5-6 - Preferred Typical Section



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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 Department. 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) has been developed and is being carried out as an integral part of the project and provides an overview of the outreach approach for the PD&E Study. The PIP was signed on May 4, 2020. 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.

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 recommended 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 generated by the ETDM Coordinator for the SR 535 PD&E Study. The purpose of this report is to summarize the results of the ETAT 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 CPS. 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 includes participation from the following groups: Orange County, Osceola County, MetroPlan Orlando, LYNX, East Central Florida Regional Council, Florida Department of Transportation 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 to adjacent property owners within 300 feet of the study corridor, elected officials, agencies, and interested parties in November 2020, in lieu of a Kick-Off Meeting. 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 before developing a recommended set of improvements 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 Ad. A total of 11 people signed into the meeting excluding staff members at the in-person location and 5 people attended virtually.

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 on www.cflroads.com/project/437174-2.

Overall, comments focused on:

- The need for SR 535 Improvements
- Intersection Comments
- Informational Requests
- Comments on other area projects

A summary of the meeting including the comments and more information are available in the Comments and Coordination Report, a companion document to this report.

6.2.5 Public Hearing

The Public Hearing is currently anticipated for June 18, 2024 (virtual) and June 20, 2024 (in-person). This section will be updated after the Public Hearing.

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7.0 DESIGN FEATURES OF THE PREFERRED ALTERNATIVE

The results of the Alternative Selection Process, as seen in Section 5, 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**.

7.1 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 R/W of SR 535. For additional information the typical section package is in **Appendix F**.

Figure 7-1 - Preferred Typical Section



7.2 Intersections

SR 535 and Poinciana Boulevard – Signalized Intersection Alternative

The SR 535 and Poinciana Boulevard traffic signal concept (see **Figure 7-2**) involves the installation of an additional lane along SR 535 for northbound and southbound movements and provision of triple eastbound left turn lanes.

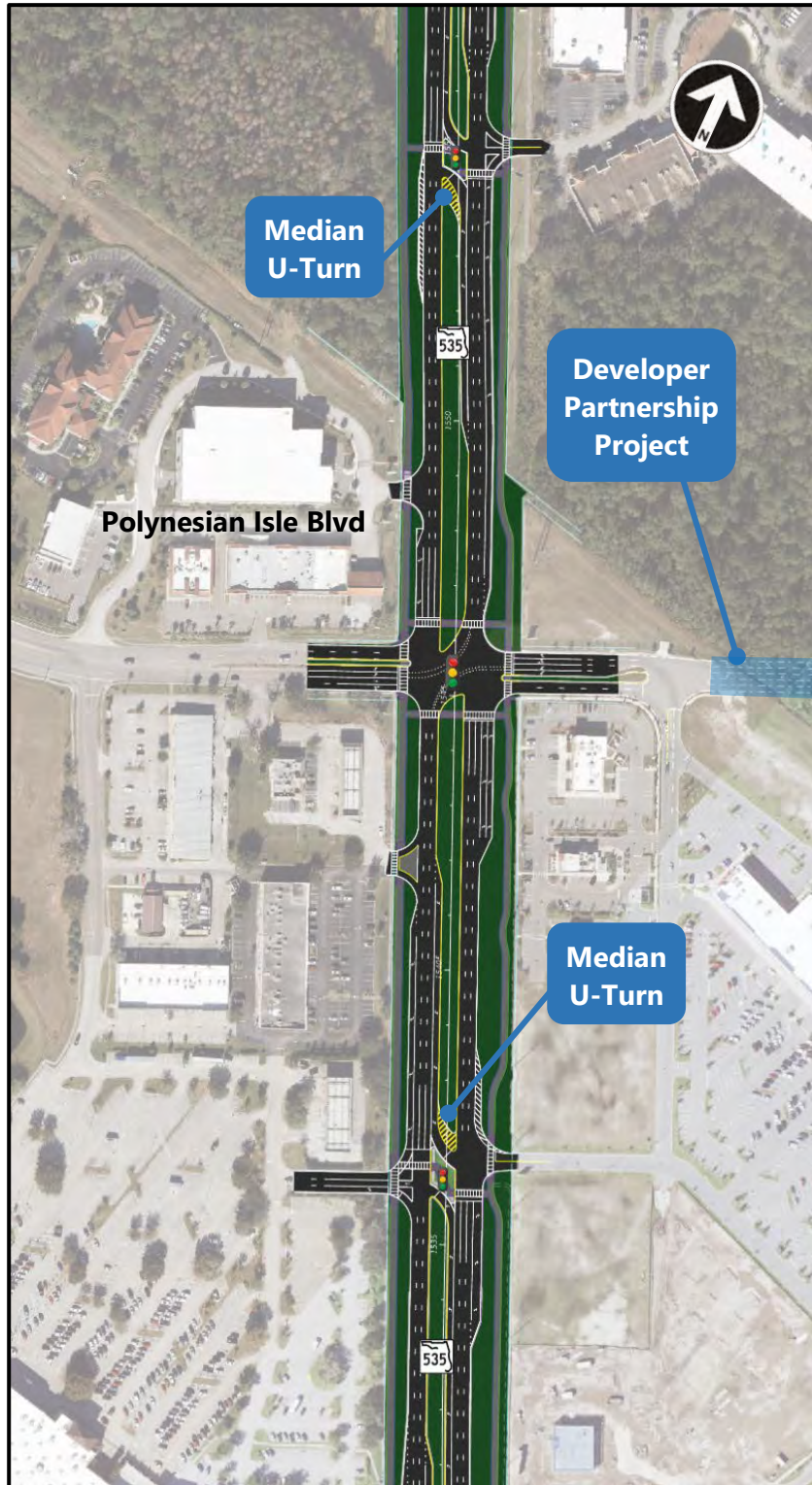
Figure 7-2 - SR 535 and Poinciana Blvd Signalized Intersection Alternative



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

The 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 on SR 535 and the addition of U-turn storage bays at the existing median openings located just north and south of the intersection.

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

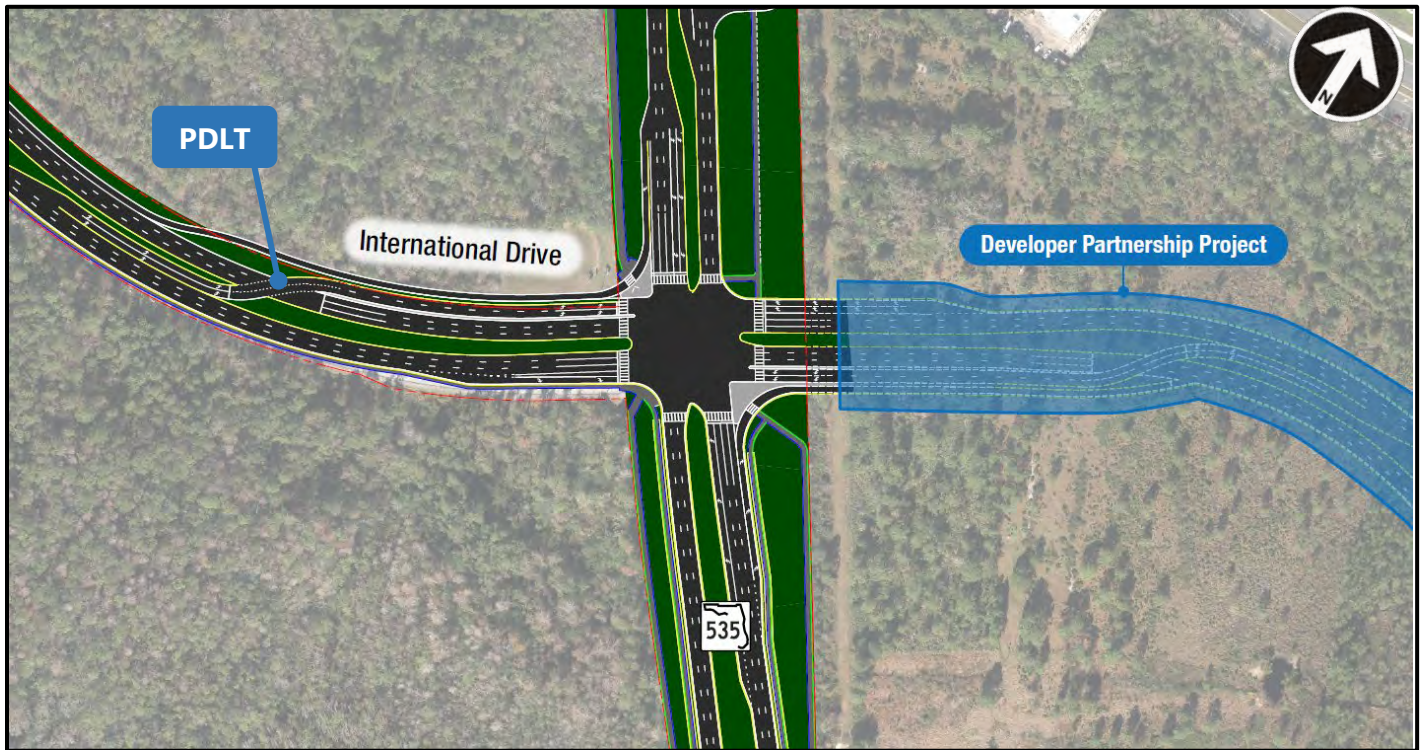


SECTION 7 – DESIGN FEATURES OF THE PREFERRED ALTERNATIVE

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

The SR 535 and International Drive Partial Displaced Left Turn concept (see **Figure 7-4**) 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.

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



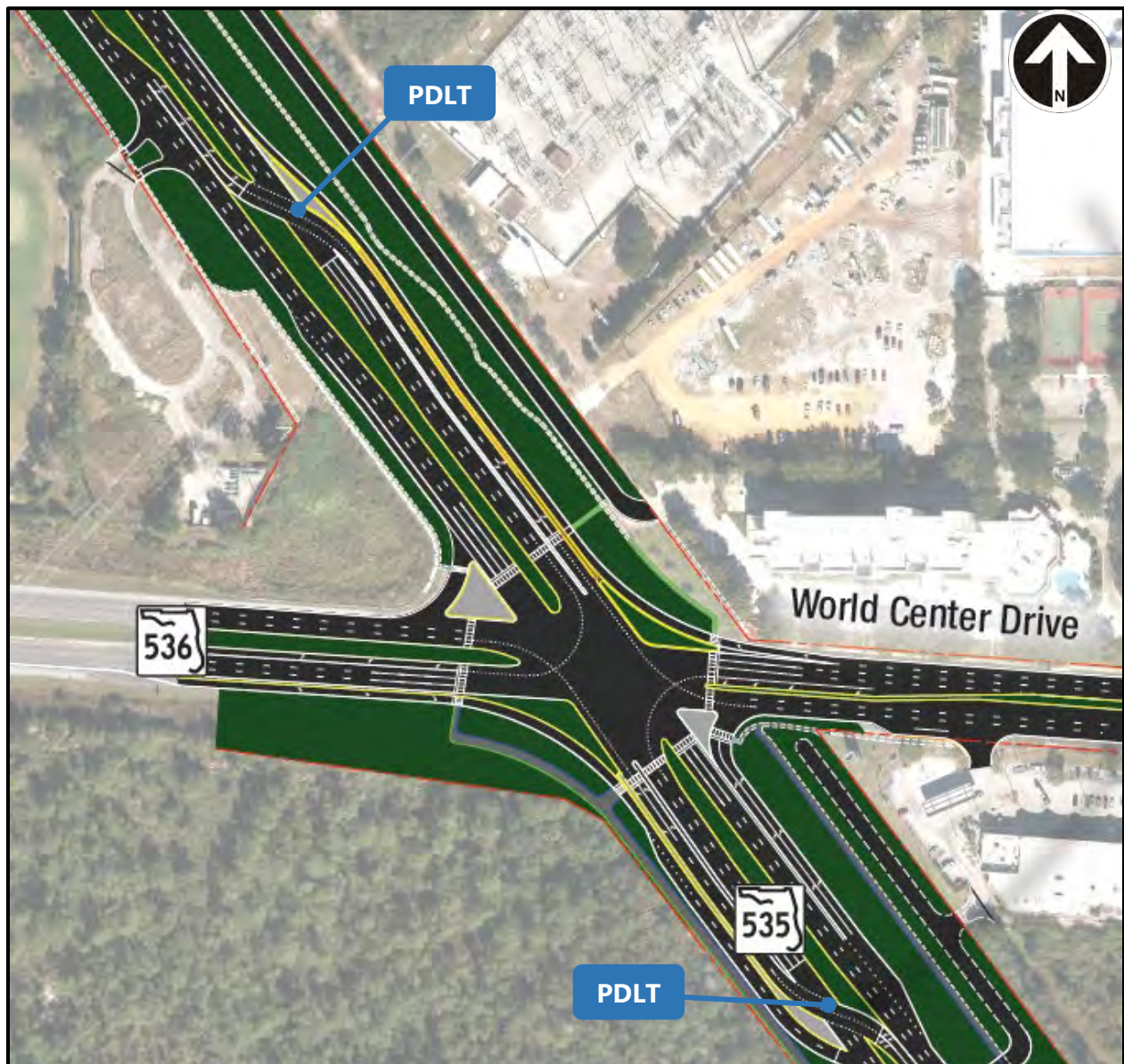
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SECTION 7 – DESIGN FEATURES OF THE PREFERRED ALTERNATIVE

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

The SR 535 and SR 536/World Center Drive Partial Displaced Left Turn concept (see **Figure 7-5**) 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.

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



7.3 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 and two (2) bridges carry SR 417 traffic over SR 535. Roadway improvements would not require extending or reconstructing these bridges as all improvements will fit under the existing structures (see **Figure 7-6** and **Figure 7-7**)

Figure 7-6 - Osceola Parkway over SR 535

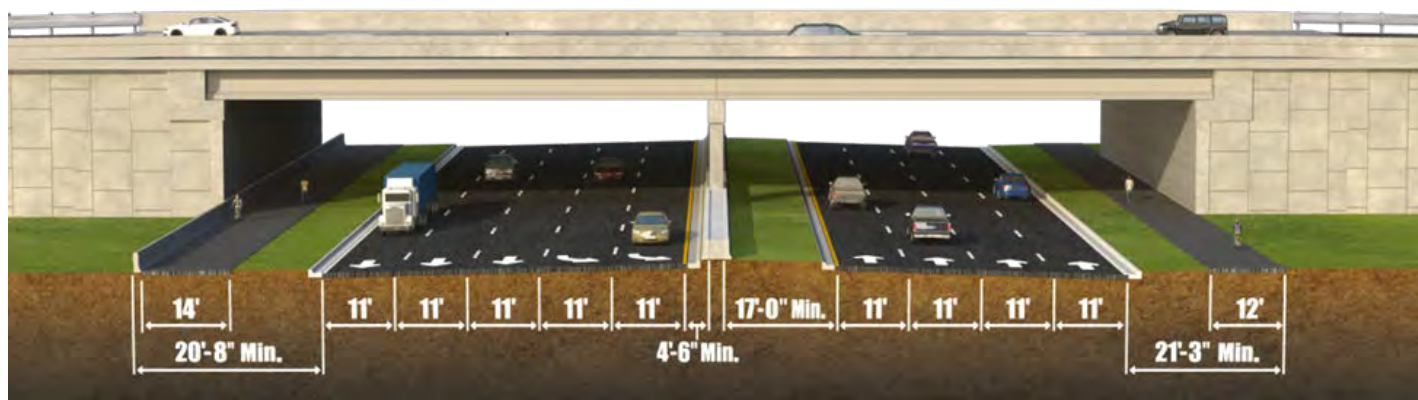
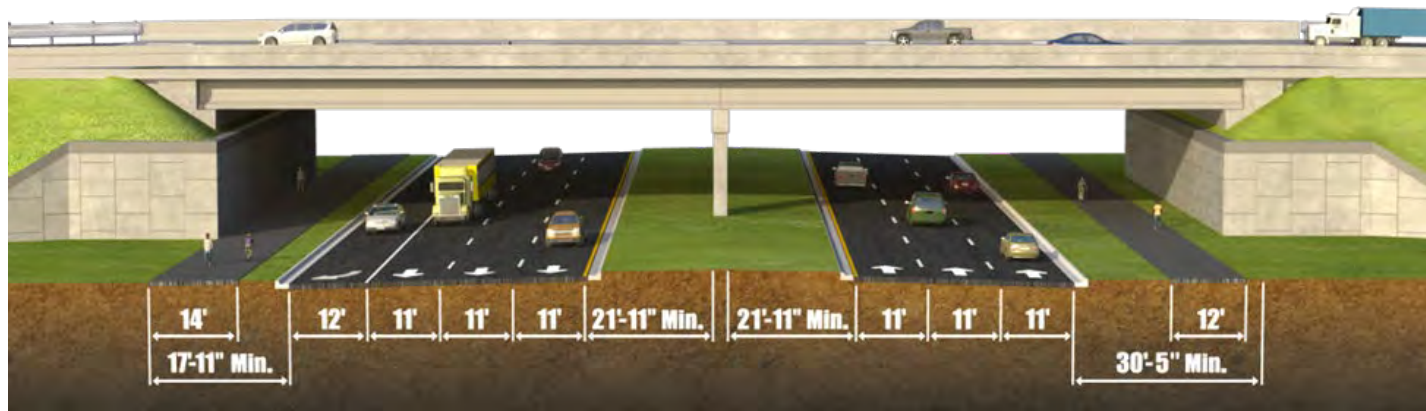


Figure 7-7 - SR 417 over SR 535



7.4 Right-of-way

As previously mentioned, there are no R/W impacts anticipated from the preferred typical section directly. Approximately 2.5 acres of R/W impacts are associated with improvements at the SR 535/International Drive and SR 535/World Center Drive (SR 536) intersections. Additionally, approximately eight (8) acres of additional R/W will be required for stormwater ponds. The additional R/W requirements cost will be provided for the Final PER. Approximately 9 parcels are

expected to be impacted from the preferred alternative. Coordination during final design will continue to determine if these locations are feasible. There are no relocations required.

7.5 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**. Due to limited survey and as-built information available, the vertical geometry was not developed at this time. Further analysis of the proposed vertical alignment including potential base clearance issues, longitudinal slope and cross slope will be done in the design phase.

7.6 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.

7.7 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.

7.8 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**).

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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 |

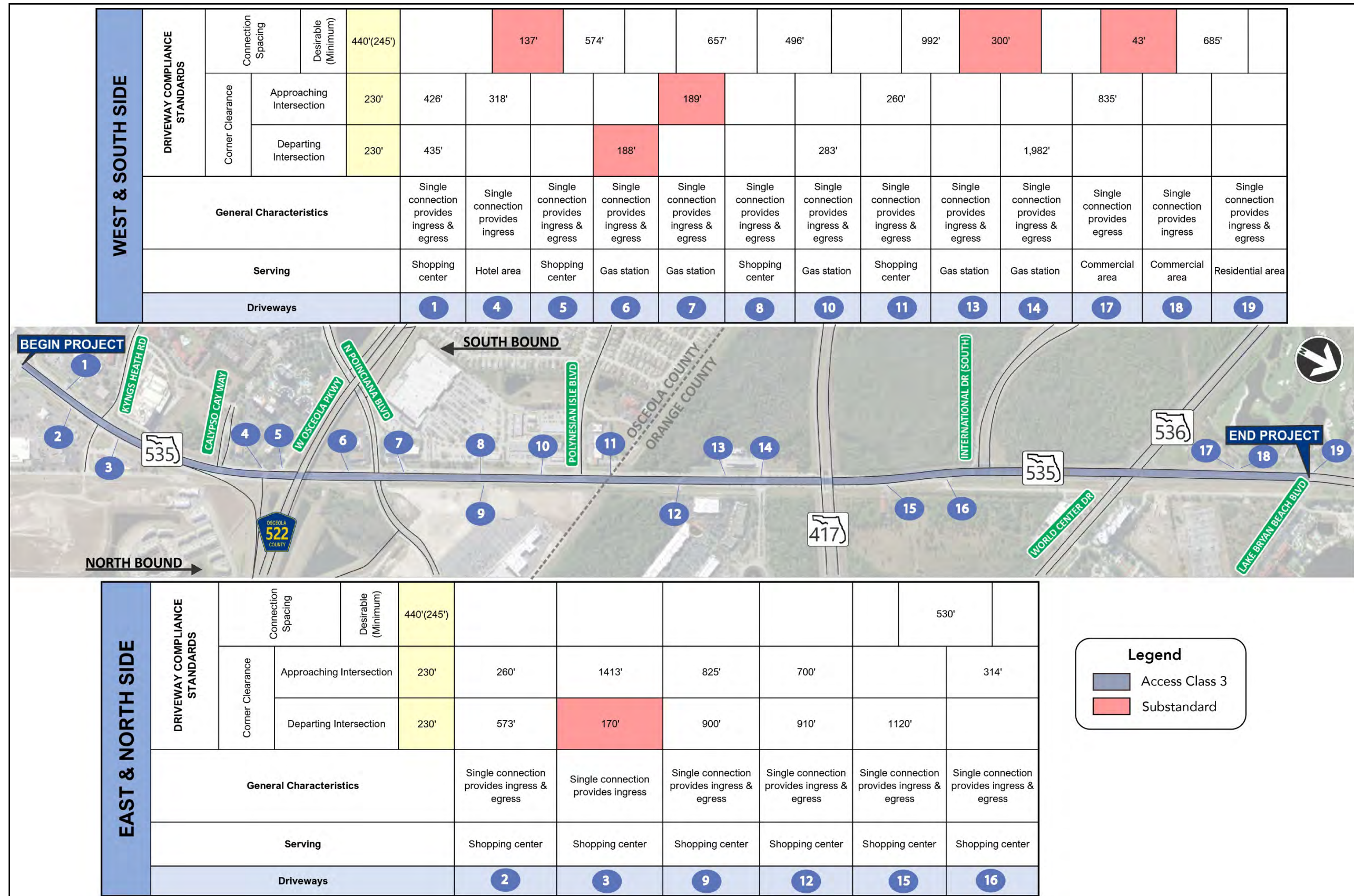
*Note: 2,640 for > 45 mph; 1,320 for ≤ 45 mph

7.8.1 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 no proposed changes to the existing driveway connections along the project corridor.

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Figure 7-8 - Driveway Connections Spacing Compliance



7.8.2 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.

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 | 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 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 | 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 | 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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7.8.2.1 Median Closure Analysis

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



7.8.3 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**. All the signal spacings do not comply with the standards of 2,640 feet.

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Table 7-3 – Signal Spacing Compliance

| FROM | TO | SPACING (feet) | MEETS STANDARD |
|-----------------------------|--------------------------|-------------------|-------------------|
| W Irlo Bronson Memorial Hwy | Kyngs Health Rd | 980 | No |
| Kyngs Health 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 | LBV Factory Stores Dr | 1720 | No |
| LBV Factory Stores Dr | International Dr | 2114 | No |
| International Dr | World Center Dr (SR 536) | 1390 | No |

7.8.4 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

7.8.5 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 is currently underway 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.

7.8.5.1 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 R/W 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.

7.8.6 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 |

7.8.7 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**.

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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 R/W 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 significant 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 significantly 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.

7.8.7.1 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 public R/W 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 R/W is required based on the calculations contained herein. Proposed ponds are shown on **Figure 7-10**.

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. |

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. R/W |
| 2 | 2A | Exist. Pond 2-1 and Pond 2-2 | 4.3 | Exist. Pond 2-1 within exist. R/W. Estimated R/W needs for Pond 2-2 provided (excluding public 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 public R/W used for pond). |
| 4 | 4A | Exist. Pond 4-1 | 0.0 | Pond within exist. R/W |

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Figure 7-10 - 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 |

7.8.8 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 7-11**.

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 7-11 - Floodplain Map

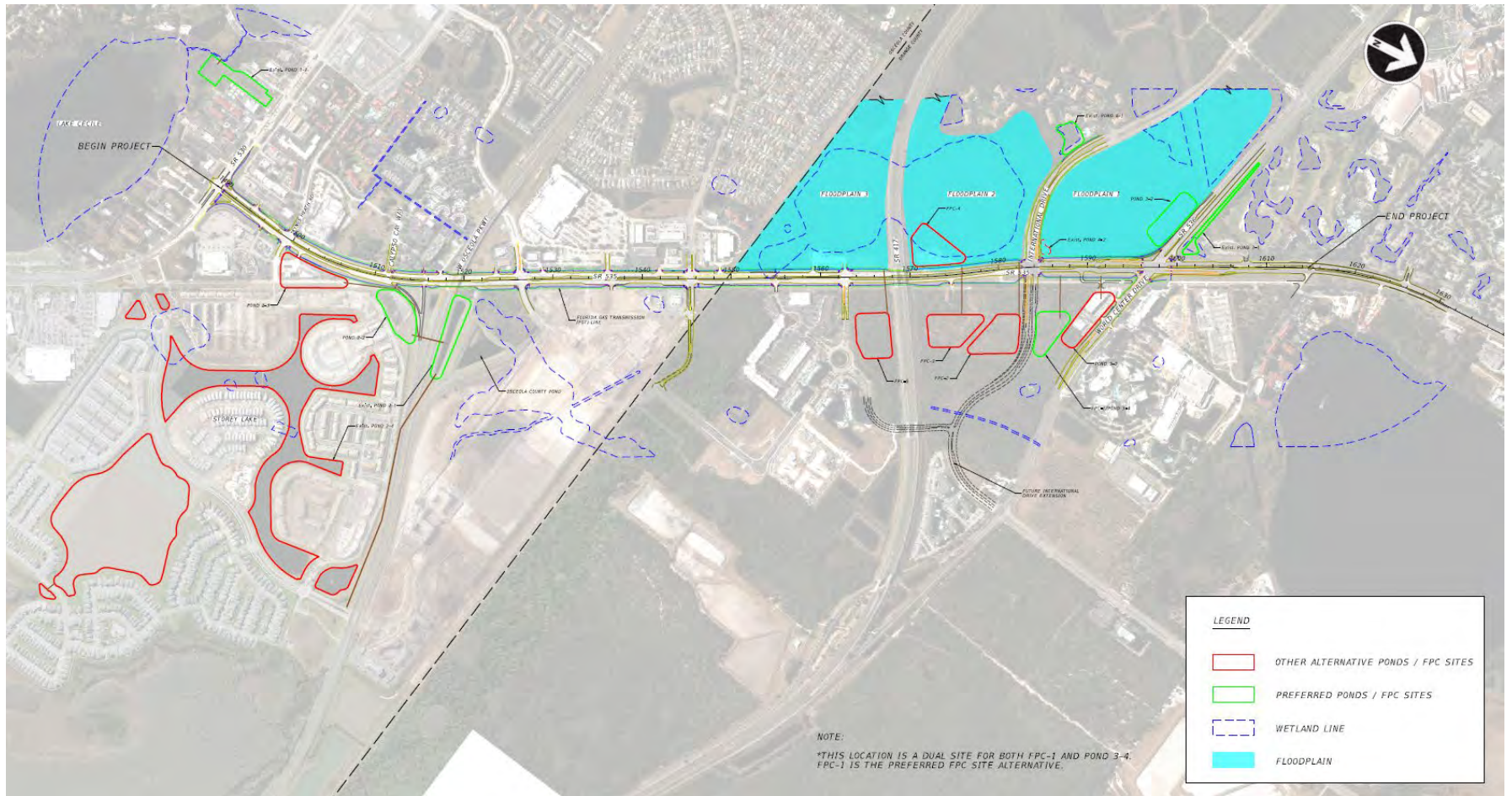


Table 7-8 - Base Flood Elevations and Floodplain Impacts

| 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 |

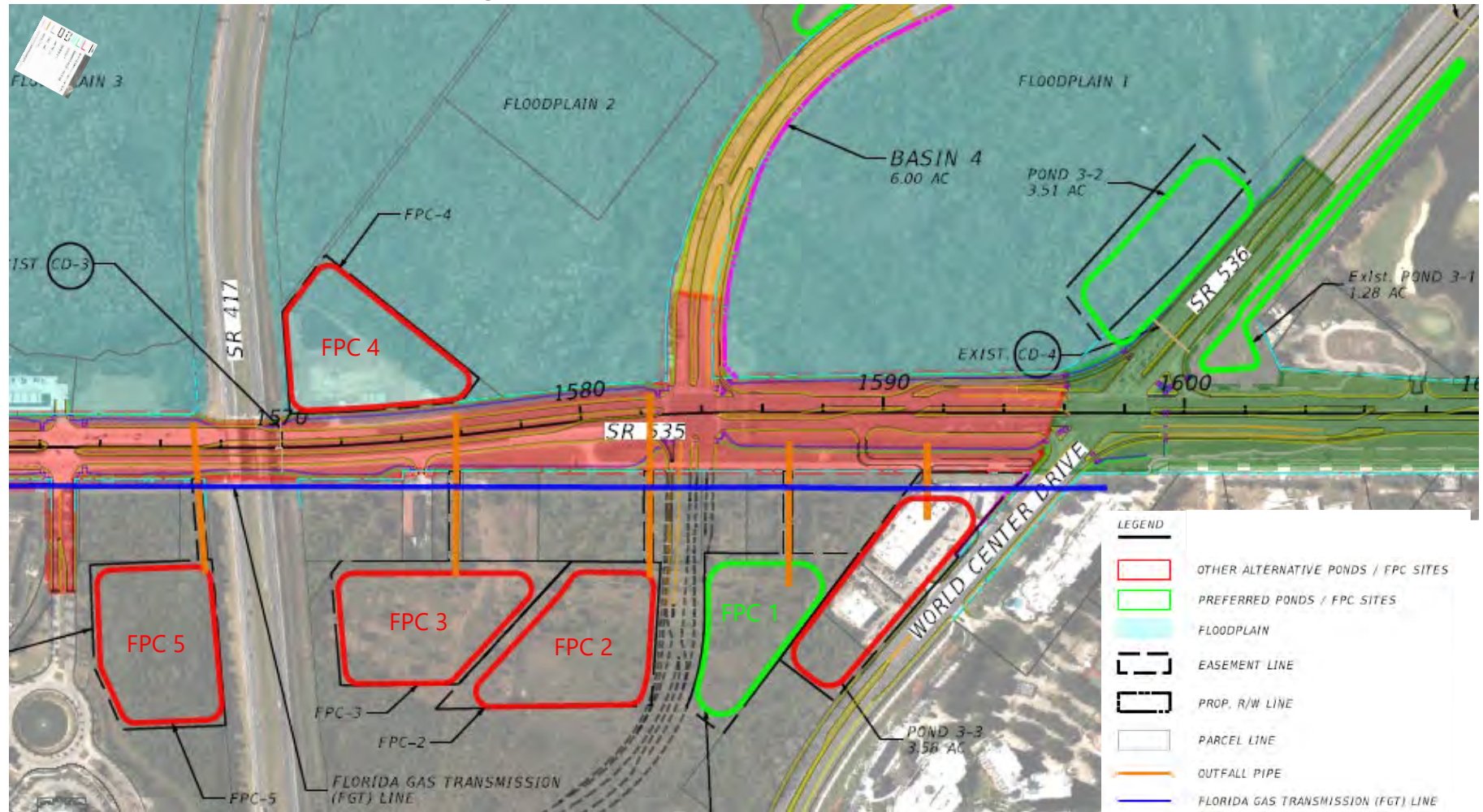
*reference numbers as noted on the calculations and exhibits

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 7-12** 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 7-12 - 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.

7.8.9 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. **Figure 7-13** depicts the conceptual construction sequence schemes along SR 535 for the preferred alternative.

7.8.10 Special Features

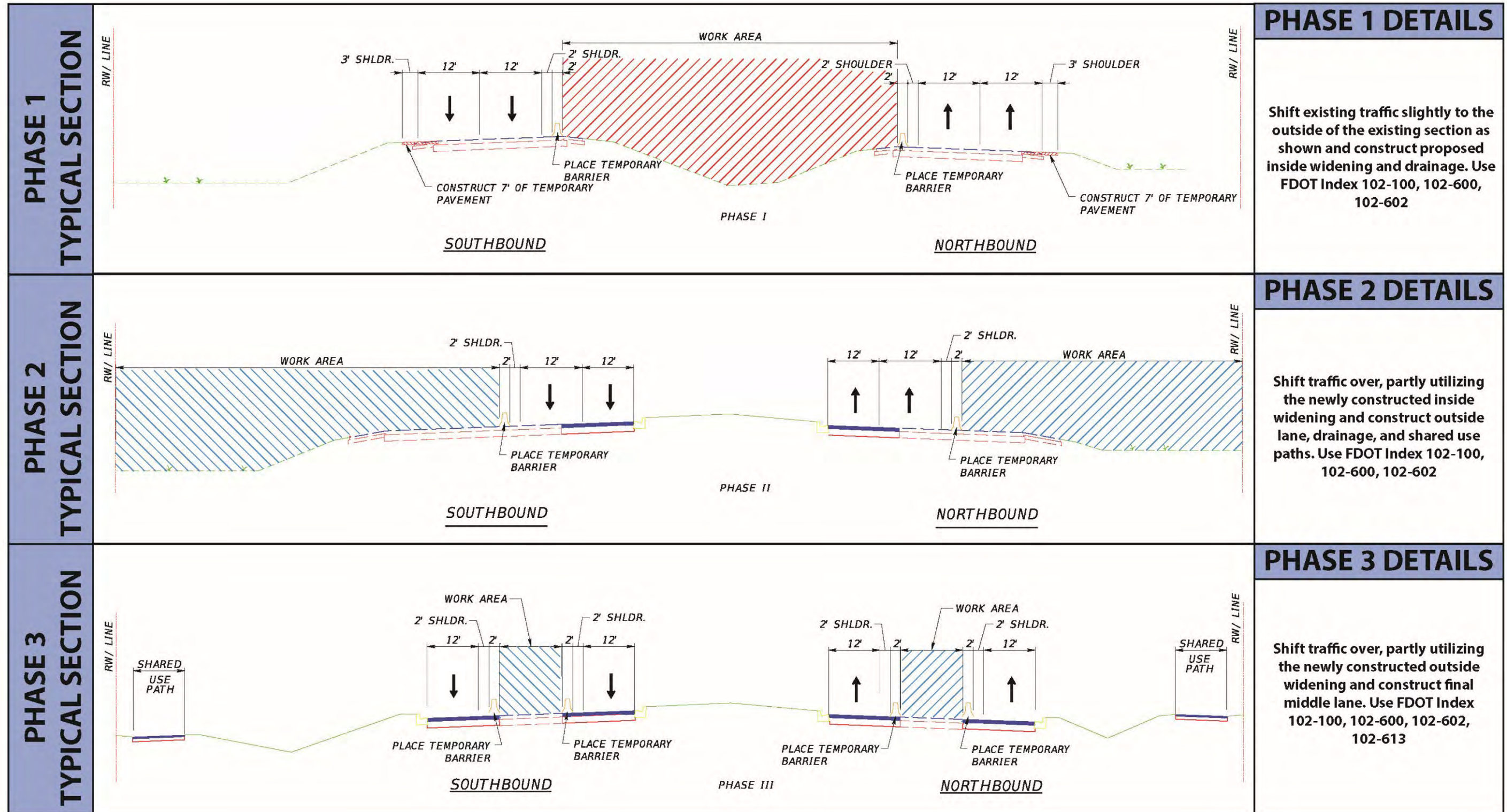
Since a Lighting Justification Study was not conducted as part of this PD&E effort, the potential need for installation of continuous roadway lighting along the study corridor cannot be ascertained at this time. This task remains as part of the final design phase.

7.8.11 Design Variations and Design Exceptions

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

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Figure 7-13 – SR 535 Conceptual MOT



7.8.12 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 |
| R/W | \$38.1M |
| Utility Relocation | \$7M |
| Sub Total | \$121.6M |
| Design (15%) | \$11.5M |
| CEI (10%) | \$7.7M |
| Total Estimated Project Cost | \$140.8M |

7.8.13 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 \$25 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.

7.9 Summary of Environmental Impacts

7.9.1 Section 4(f)

No publicly owned lands, cemeteries, historic sites or other critical land uses that would qualify under the 4(f) Criteria would be affected by the project.

7.9.2 Cultural Resources

A Phase I Cultural Resource Assessment Survey (CRAS) was conducted in support of improvements to SR 535. A project Area of Potential Effects (APE) was developed to consider any visual, audible, and atmospheric effects that the project may have on historic properties. The APE was defined to include the existing and proposed new right-of-way including the proposed pond sites. The architectural history APE included the existing R/W and was extended to the back or side property lines of parcels adjacent to the R/W or no more than 100 meters (328 feet) from the R/W 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 archaeological survey was conducted within the construction footprint (i.e., the proposed pond footprints and existing R/W).

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 project team recommends no further archaeological survey in support of the SR 535 project.

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 is recommended ineligible for the National Register of Historic Places (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 State Historic Preservation Officer (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 is recommended ineligible for listing in the NRHP.

No historic properties were identified within the APE. No further work is required.

7.9.3 Wetlands

No wetlands are located in the project corridor, where direct impacts would occur under the Preferred Alternative. Wetlands do occur in the larger Project Area, including a particularly large patch of forested wetlands west of SR 535, extending both north and south of SR 417. There are no wetland impacts associated with the preferred alternative of this PD&E Study.

7.9.4 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, Part 2, Protected Species and Habitat, 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.

There is no Critical Habitat present within the project area. Field investigations of the project area were conducted on multiple days and in different seasons to evaluate the potential presence of protected species and habitats. No adverse impacts are anticipated to any listed species from the Preferred Alternative, see **Table 7-11** for effect determination.

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

| Common Name | Scientific Name | Federal Status | State Status | Effect Determination |
|-------------------------------|--|----------------|--------------|----------------------|
| Audubon's crested caracara | <i>Polyborus plancus audubonii</i> | FT | - | MANLAA |
| Blue-tail mole skink | <i>Eumeces egregius lividus</i> | FT | - | NLAA |
| Eastern black rail | <i>Laterallus jamaicensis ssp. jamaicensis</i> | FT | - | No Effect |
| Eastern indigo snake | <i>Drymarchon corais couperi</i> | FT | - | NLAA |
| Everglade snail kite | <i>Rostrhamus sociabilis plumbeus</i> | FE | - | MANLAA |
| Florida burrowing owl | <i>Athene cunicularia</i> | - | ST | NAEA |
| Florida grasshopper sparrow | <i>Ammodramus savannarum floridanus</i> | FE | - | MANLAA |
| Florida pine snake | <i>Pituophis melanoleucus mugitus</i> | - | ST | NAEA |
| Florida sandhill crane | <i>Grus canadensis pratensis</i> | - | ST | NAEA |
| Florida sand skink | <i>Neoseps reynoldsi</i> | FT | - | NLAA |
| Florida scrub-jay | <i>Aphelocoma coerulescens</i> | FT | - | No Effect |
| Gopher tortoise | <i>Gopherus polyphemus</i> | - | ST | NAEA |
| Little blue heron | <i>Egretta caerulea</i> | - | ST | NAEA |
| Red-cockaded woodpecker | <i>Picoides borealis</i> | FE | - | No Effect |
| Roseate spoonbill | <i>Platalea ajaja</i> | - | ST | NAEA |
| Southeastern American kestrel | <i>Falco sparverius paulus</i> | - | ST | NAEA |
| Tricolored heron | <i>Egretta tricolor</i> | - | ST | NAEA |
| Wood stork | <i>Mycteria americana</i> | FE | - | No Effect |
| Beautiful pawpaw | <i>Deeringothamnus pulchellus</i> | FE | - | No Effect |
| Britton's beargrass | <i>Nolina brittoniana</i> | FE | - | No Effect |
| Florida greeneyes | <i>Berlandiera subacaulis</i> | FT | - | No Effect |
| Gray's beaksedge | <i>Rhynchospora grayi</i> | FT | - | No Effect |
| Lewton's polygala | <i>Polygala lewtonii</i> | FE | - | No Effect |

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

7.9.5 Essential Fish Habitat

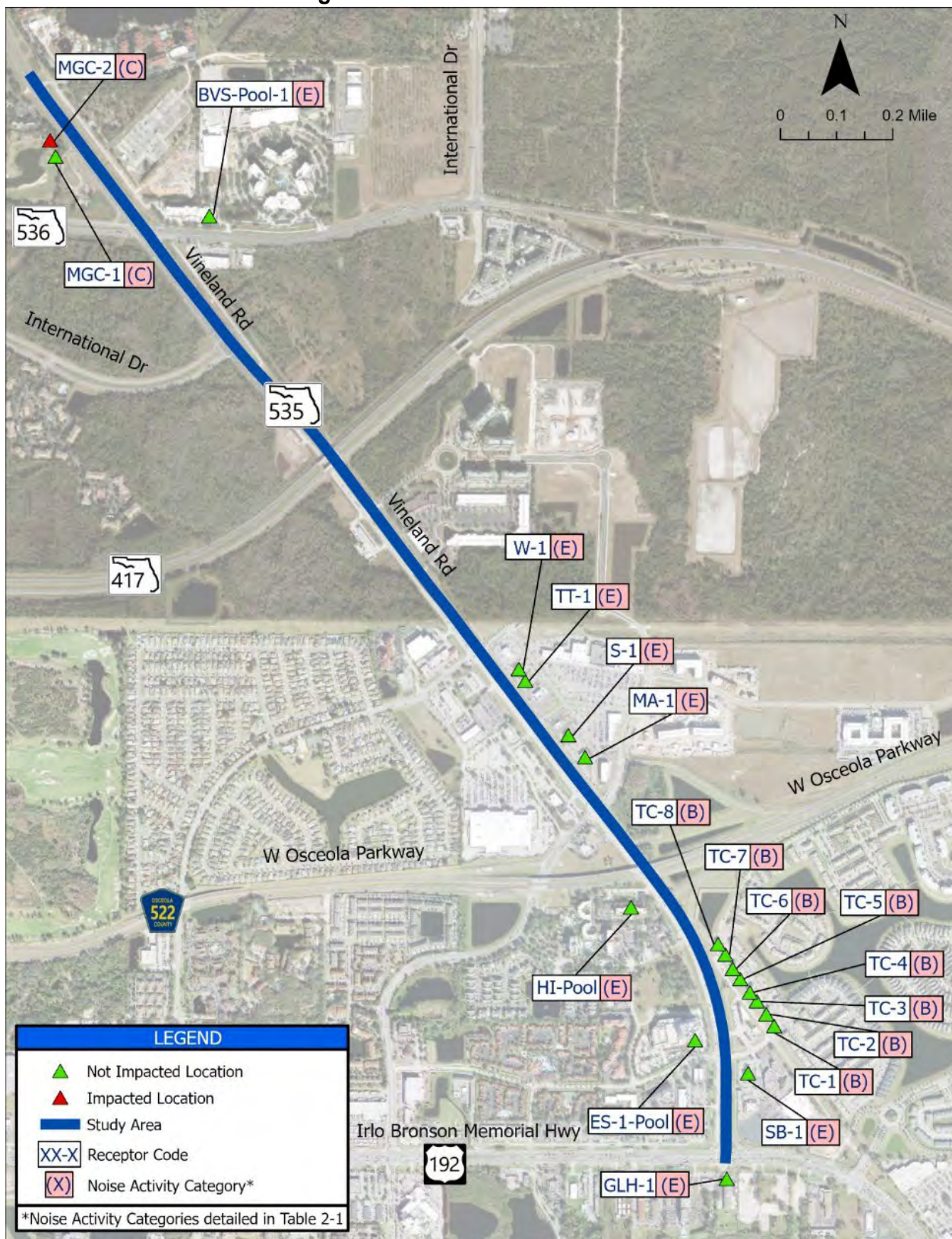
There is no Essential Fish Habitat in the project area thus no significant cumulative impacts are anticipated.

7.9.6 Highway Traffic Noise

The following information presented in this report documents and identifies 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. This traffic noise analysis was performed following the Federal Highway Administration (FHWA) and FDOT procedures along with the most recent version of *Chapter 18 of the FDOT PD&E Manual* (currently the version dated July 1, 2023) and *FDOT Traffic Noise Modeling and Analysis Practitioners Handbook* (dated December 1, 2018). The FHWA additionally, 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. Traffic noise levels were predicted along the project corridor for the Existing Conditions, No-Build, and the Preferred Alternative.

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 7-14**.

Figure 7-14 - Noise Sensitive Sites



Traffic noise levels were predicted 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 Marriot 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. Noise abatement has no further consideration at the moment.

7.9.7 Contamination

A total of 19 sites of potential contamination risk were identified, including 2 High Risk, 8 Medium Risk, and 9 Low Risk sites (see **Table 7-12**). Level II Contamination Assessment investigations are recommended where proposed dewatering or subsurface work (e.g., pole foundations, drainage features, soil excavation, etc.) would occur at or adjacent to any sites rated High or Medium Risk. If dewatering is necessary during construction, a FDEP Dewatering Permit will be required. The contractor will be held responsible for ensuring compliance with any necessary dewatering permit(s). A dewatering plan will be necessary to avoid potential contamination plume exacerbation. All permits will be obtained in accordance with Federal, state, and local laws and regulations, and in coordination with the District Contamination Impact Coordinator.

Table 7-12 - Risk Rating Summary

| Risk Rating | Number of Sites | Number of Sites proposed for R/W acquisition |
|-------------|-----------------|--|
| Low | 9 | 0 |
| Medium | 8 | 0 |
| High | 2 | 1 |

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

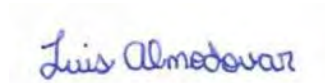
The SHGWT levels at the hand auger boring locations performed along the roadway alignments and within the borings completed within the proposed stormwater ponds and FPC sites were estimated based on a review of the soil samples including natural soil indicators such as stain lines, mottling, the depth 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.

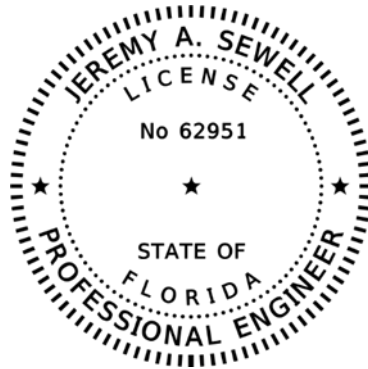
Tierra appreciates the opportunity to be of service to Metric and the Florida Department of Transportation (FDOT) on this project. If you have any questions or comments regarding this report, please contact our office at your earliest convenience.

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)**

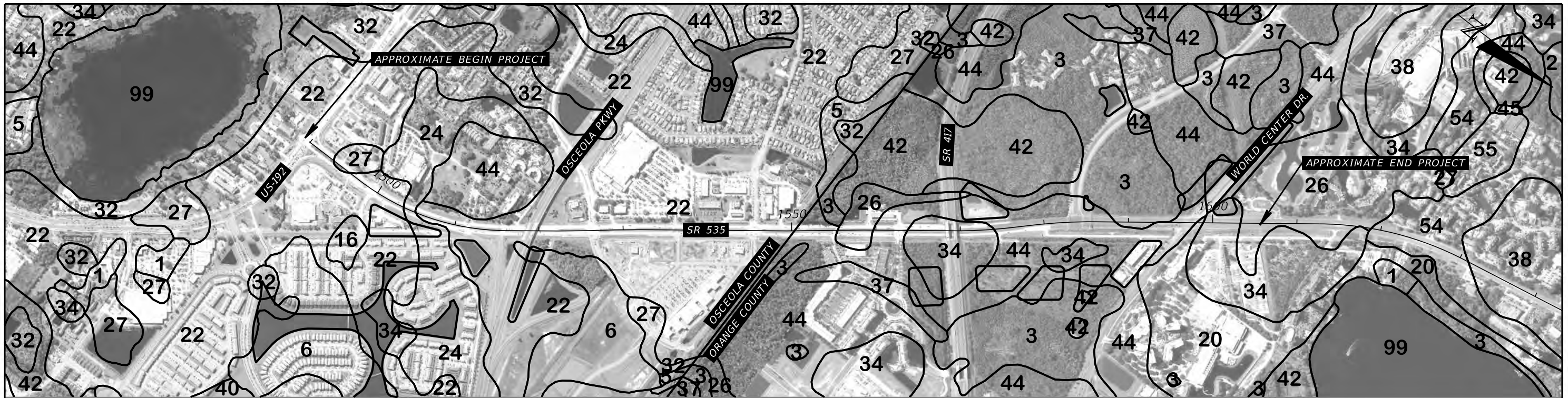
APPENDIX A

USDA Soil Survey & USGS Quadrangle Maps **(1 Sheet)**

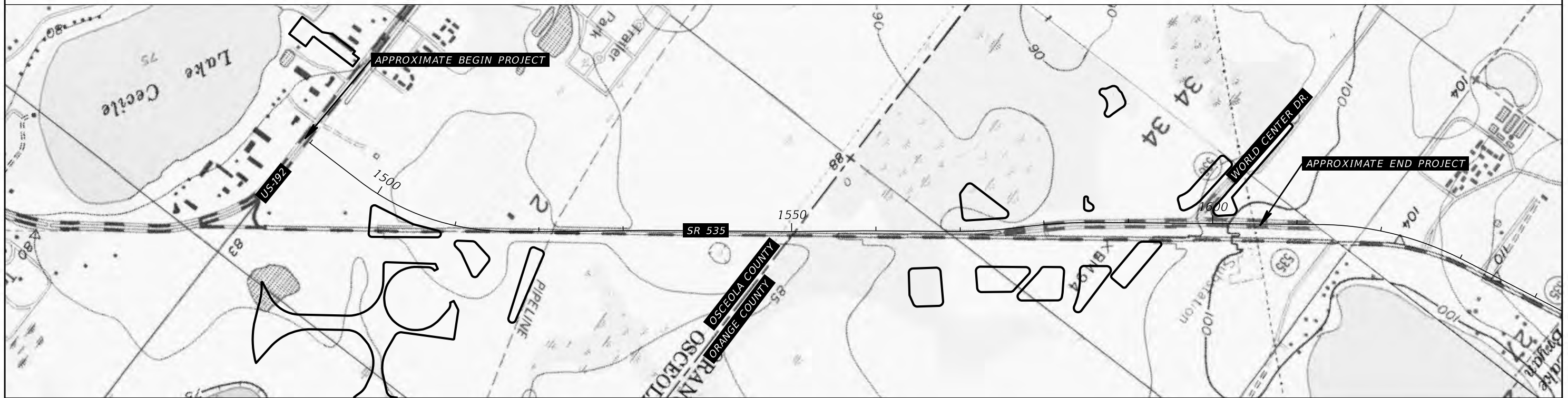
Boring Location Plan **(8 Sheets)**

Roadway Soil Profiles **(1 Sheet)**

Pond Soil Survey **(9 Sheets)**



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

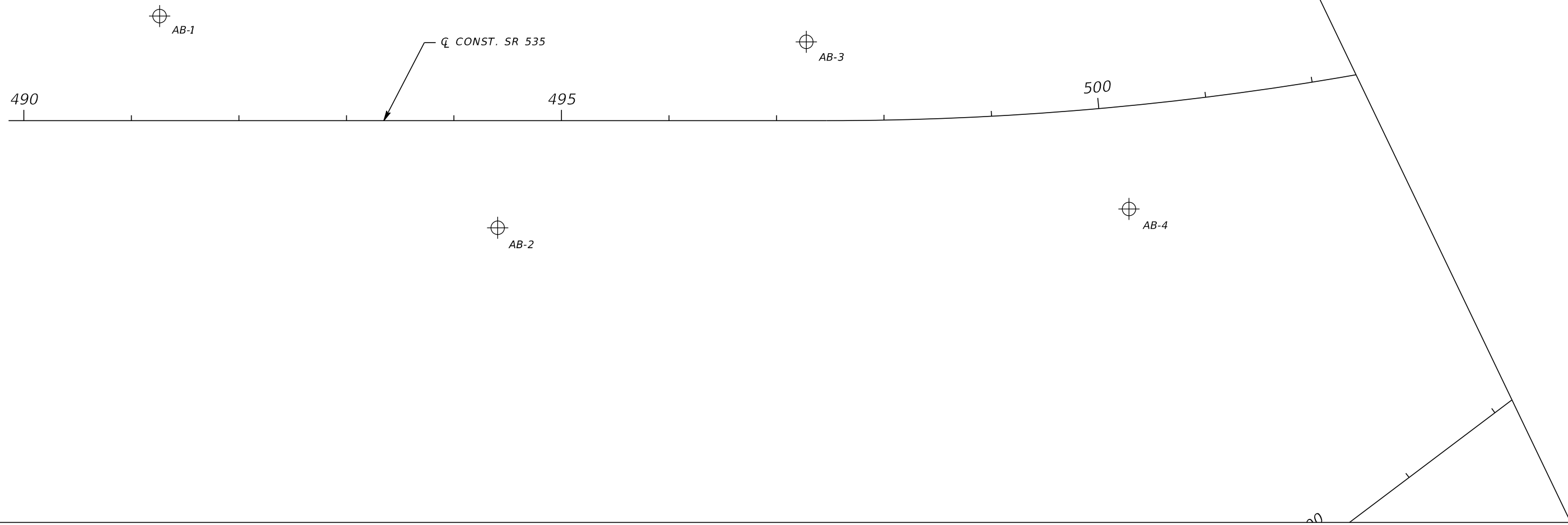
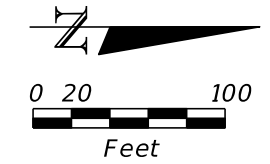


REFERENCE: USGS QUADRANGLE MAP OF "KISSIMMEE, FLORIDA"



TOWNSHIP: 24S 25S
 RANGE: 28E 28E
 SECTION: 34, 35 2

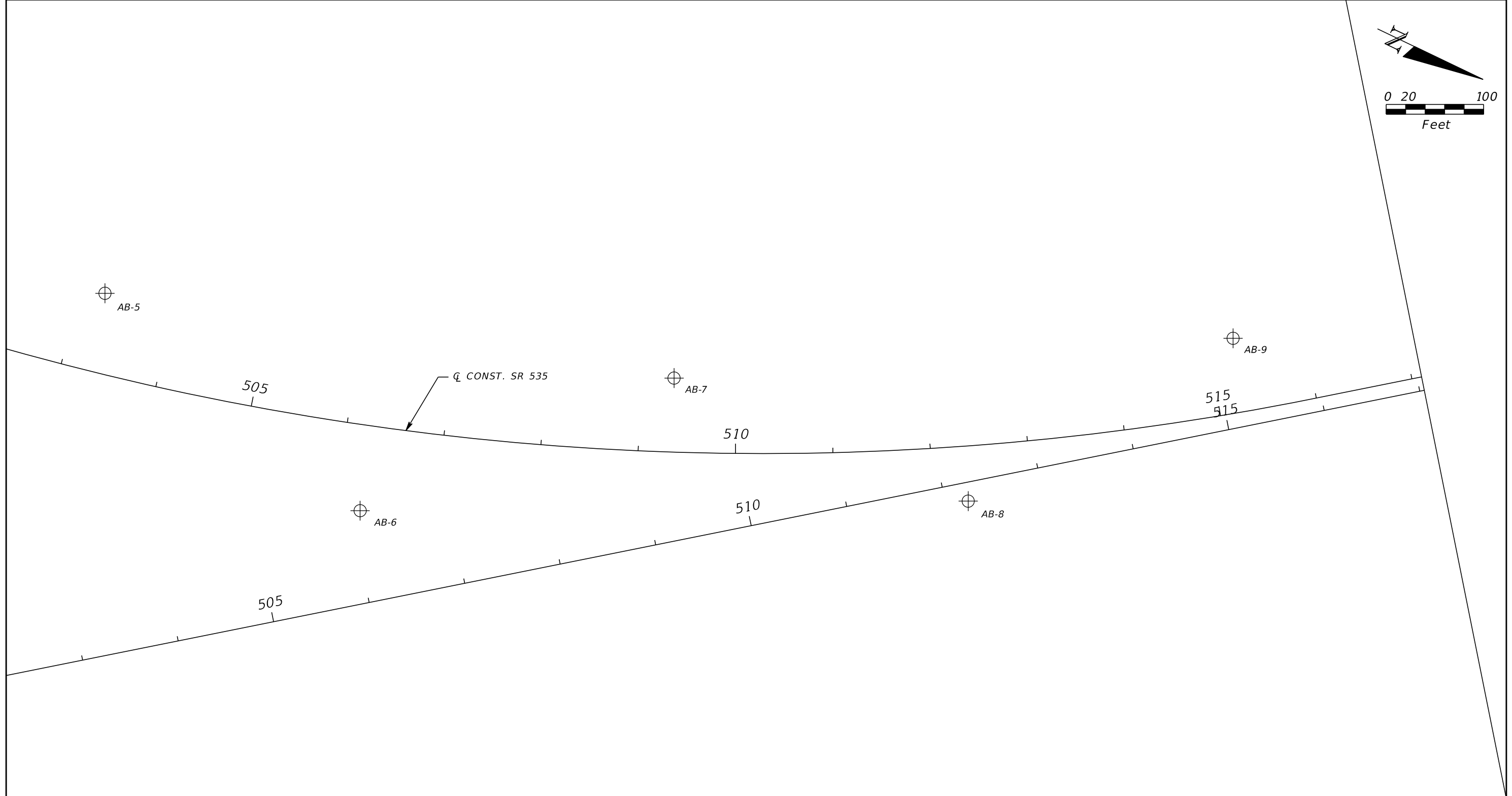
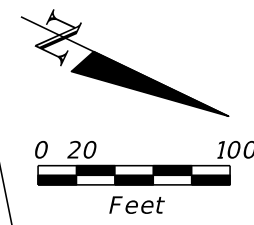
| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | USDA SOIL SURVEY & USGS QUADRANGLE MAP | SHEET NO. |
|-----------|-------------|------|-------------|---|--|-------------------|----------------------|---|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | |



LEGEND

⊕ APPROXIMATE AUGER BORING LOCATION

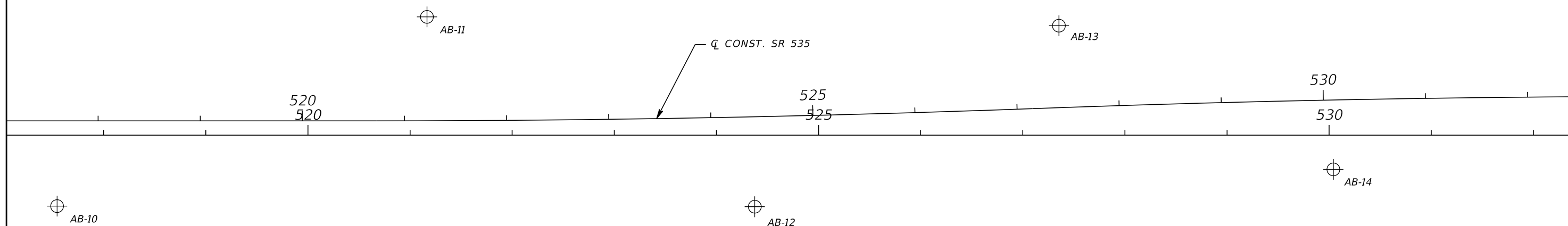
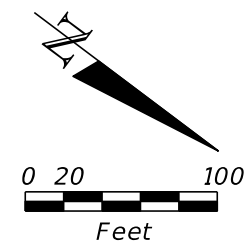
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|-----------|-------------|------|-------------|---|--|----------------|----------------------|---------------------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | | |



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⊕ APPROXIMATE AUGER BORING LOCATION

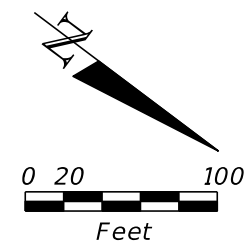
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|-----------|-------------|------|-------------|---|--|----------------|----------------------|---------------------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | | |



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 APPROXIMATE AUGER BORING LOCATION

| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | <i>BORING LOCATION PLAN (3)</i> | SHEET NO. |
|-----------|-------------|------|-------------|---|--|----------------|----------------------|---------------------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | | |



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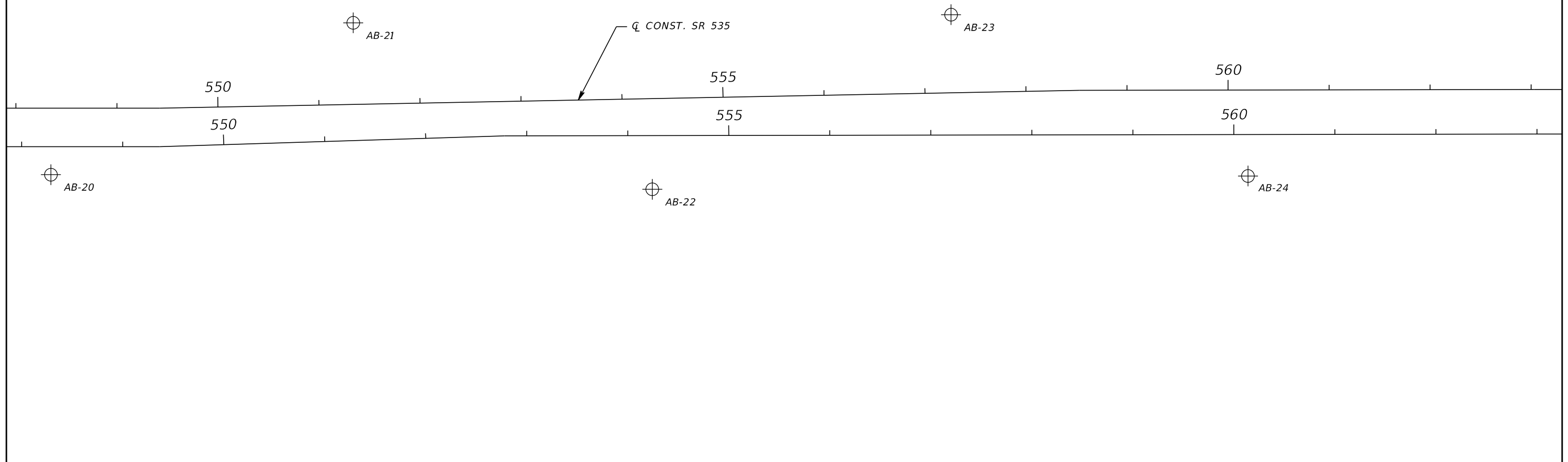
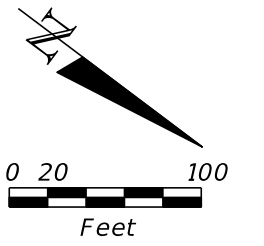
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⊕ APPROXIMATE AUGER BORING LOCATION

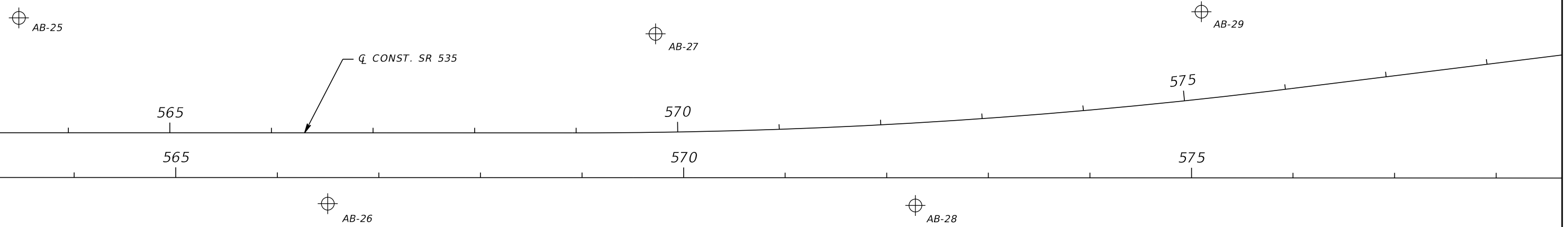
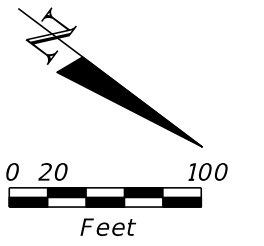
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|-----------|-------------|------|-------------|---|--|-------------------|----------------------|--------------------------|-----------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | |



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⊕ APPROXIMATE AUGER BORING LOCATION

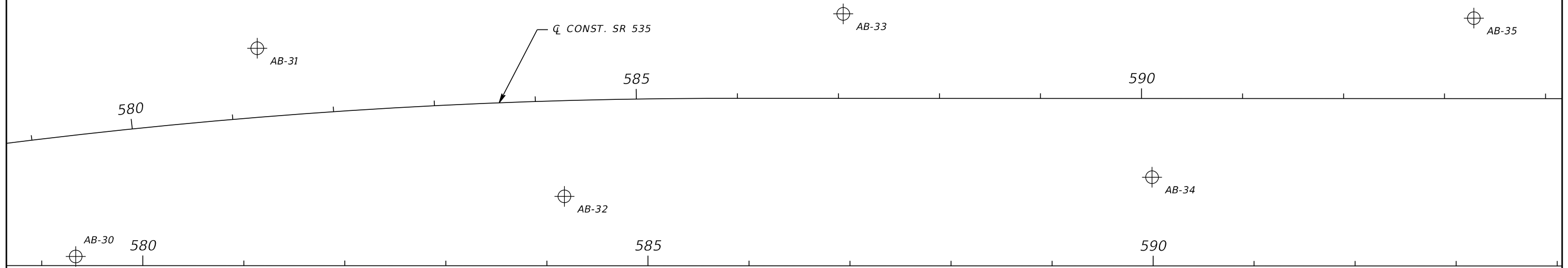
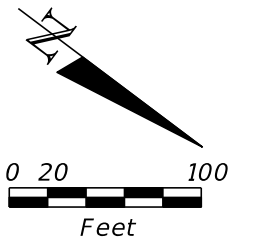
| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | <i>BORING LOCATION PLAN (5)</i> | SHEET NO. |
|-----------|-------------|------|-------------|---|--|----------------|----------------------|---------------------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | | |



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 APPROXIMATE AUGER BORING LOCATION

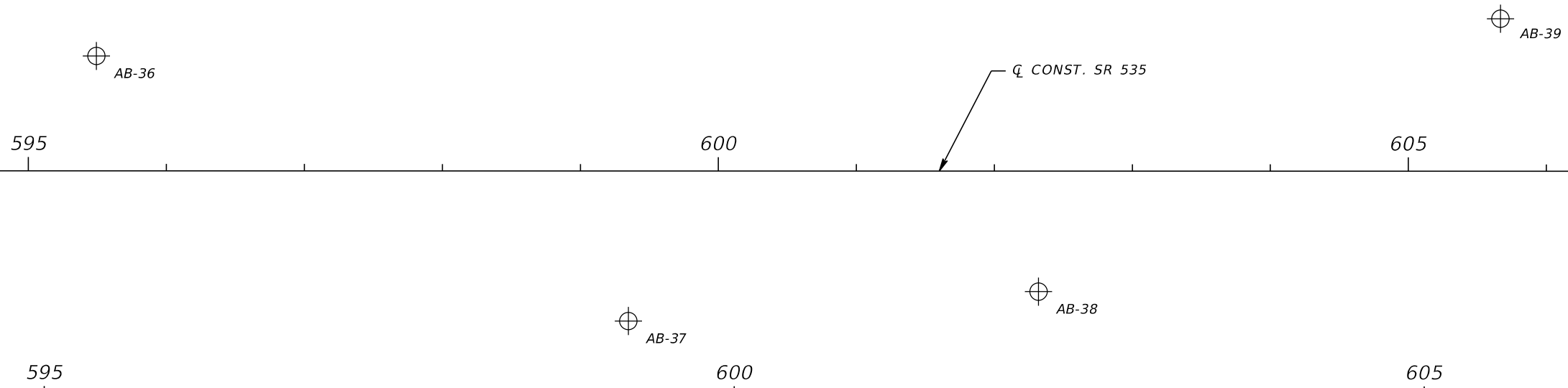
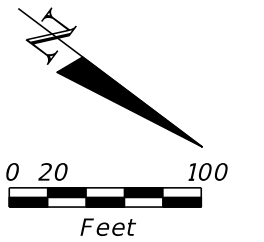
| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | <i>BORING LOCATION PLAN (6)</i> | SHEET NO. |
|-----------|-------------|------|-------------|---|--|----------------|----------------------|---------------------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | | |



LEGEND


 APPROXIMATE AUGER BORING LOCATION

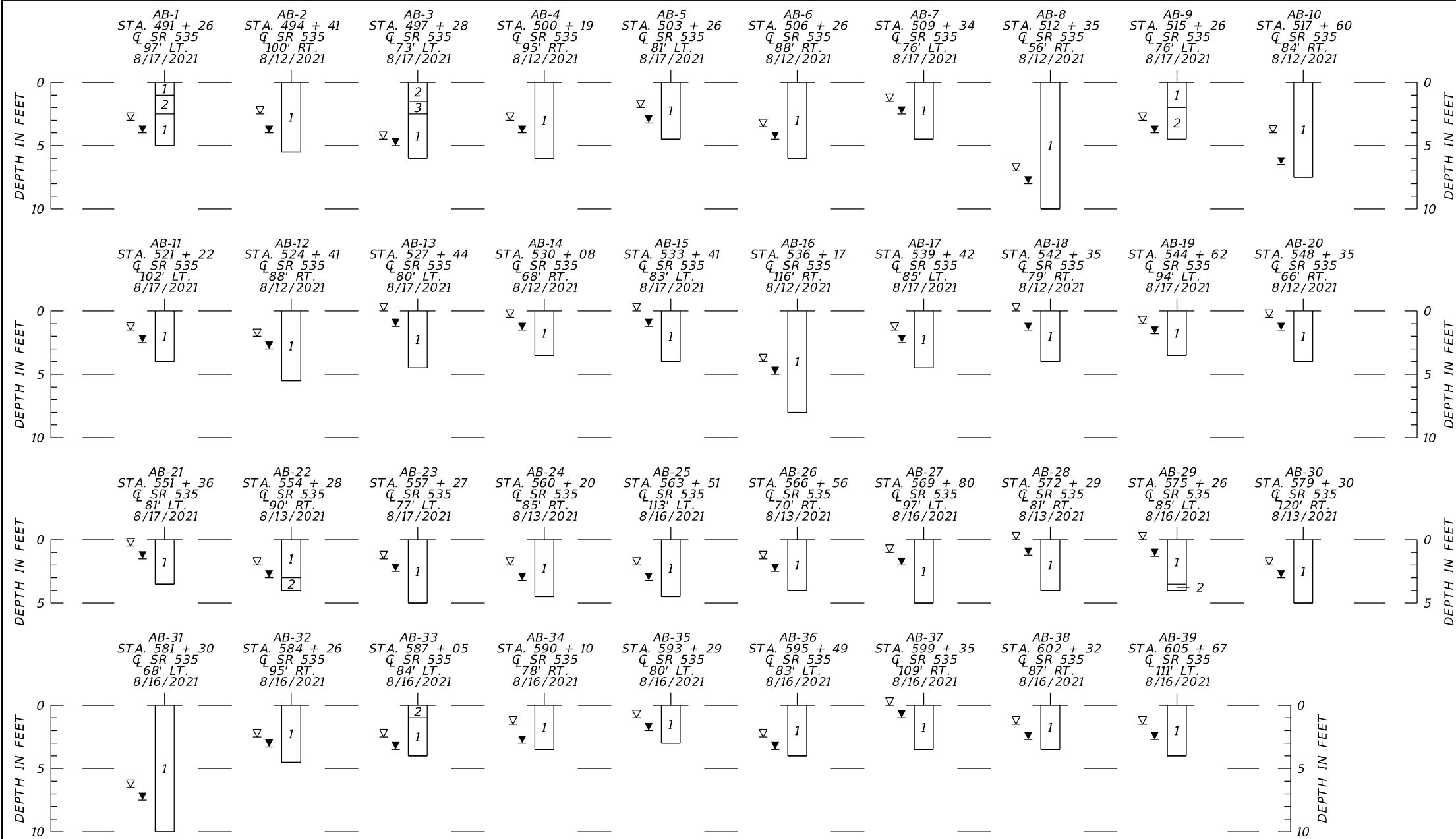
| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | <i>BORING LOCATION PLAN (7)</i> | SHEET NO. |
|-----------|-------------|------|-------------|---|--|----------------|----------------------|---------------------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | | |



LEGEND

⊕ APPROXIMATE AUGER BORING LOCATION

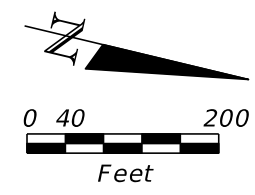
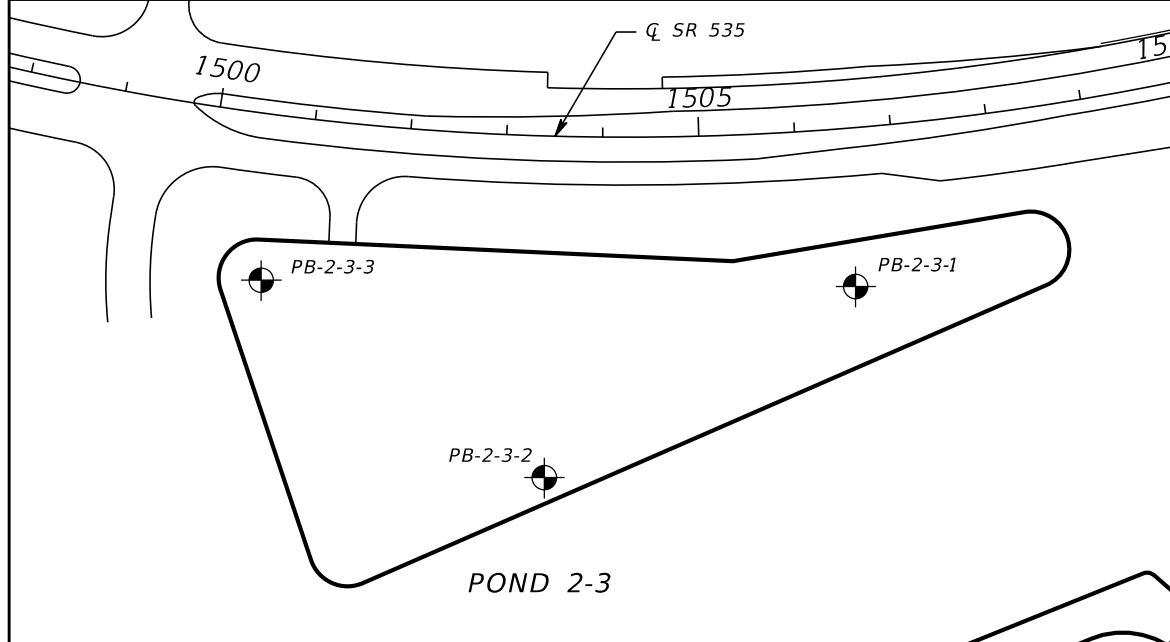
| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | <i>BORING LOCATION PLAN (8)</i> | SHEET NO. |
|-----------|-------------|------|-------------|---|--|----------------|----------------------|---------------------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | | |



LEGEND

- 1. DARK BROWN TO BROWN, AND DARK GRAY-BROWN TO GRAY SAND TO SAND WITH SILT (A-3)
- 2. DARK BROWN TO BROWN SILTY SAND (A-2-4)
- 3. GRAY-BROWN CLAYEY SAND (A-2-6)
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- ▽ ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- ◻ GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS
- Q SR 535 CENTERLINE OF CONSTRUCTION SR 535

| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | ROADWAY SOIL PROFILES | SHEET NO. |
|-----------|-------------|------|-------------|---|--|-------------------|----------------------|-----------------------|-----------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | |



LEGEND

- 1. DARK BROWN TO BROWN, AND DARK GRAY-BROWN TO GRAY SAND TO SAND WITH SILT (A-3)
- 2. DARK BROWN TO BROWN SILTY SAND (A-2-4)
- 3. GRAY-BROWN CLAYEY SAND (A-2-6)
- 4. DARK GRAY TO DARK BROWN ORGANIC SAND TO MUCK (A-8)

- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- 200 PERCENT PASSING #200 SIEVE
- NMC NATURAL MOISTURE CONTENT (%)
- OC ORGANIC CONTENT (%)

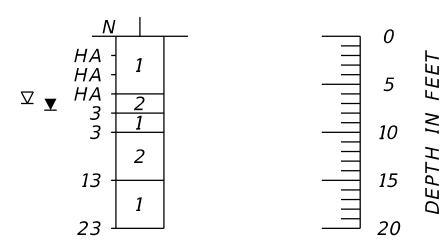
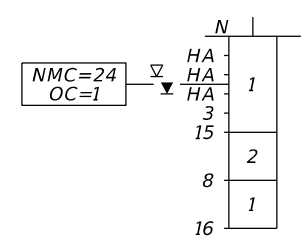
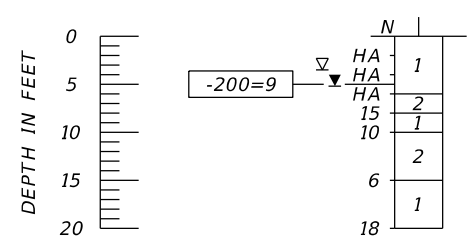
- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS

BORING LOCATION PLAN

BOR # PB-2-3-3
 STA. 1500+65
 REF. Q SR 535
 OFF. 173' RT.
 DATE 10/26/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # PB-2-3-2
 STA. 1503+49
 REF. Q SR 535
 OFF. 356' RT.
 DATE 10/2/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # PB-2-3-1
 STA. 1506+51
 REF. Q SR 535
 OFF. 165' RT.
 DATE 10/2/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

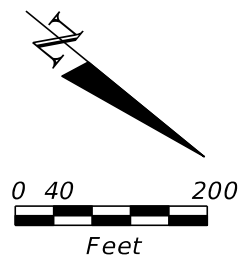
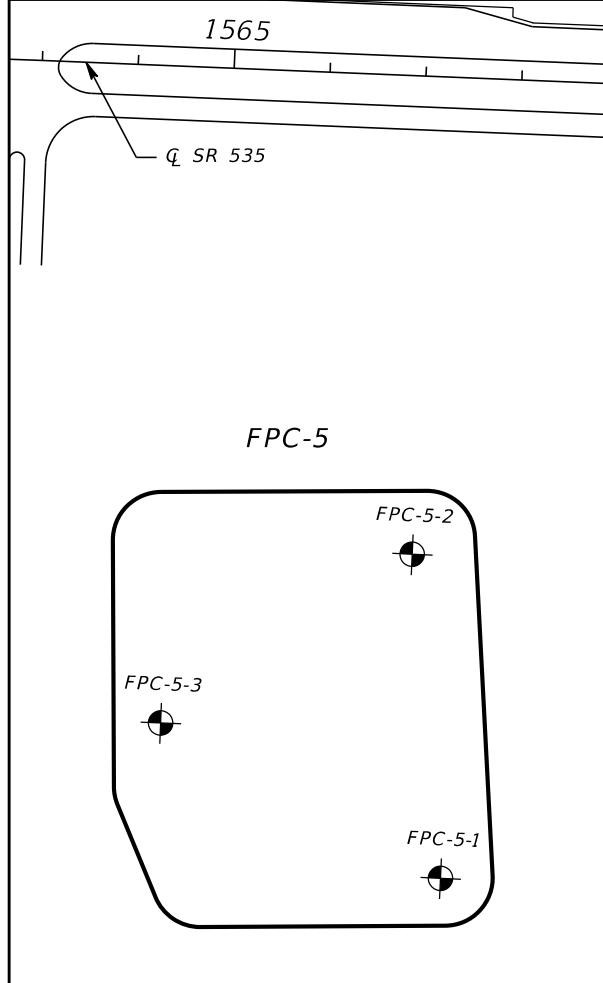


| | SAFETY HAMMER | AUTOMATIC HAMMER |
|---|----------------------------|----------------------------|
| GRANULAR MATERIALS- RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE | LESS THAN 4 | LESS THAN 3 |
| LOOSE | 4 to 10 | 3 to 8 |
| MEDIUM DENSE | 10 to 30 | 8 to 24 |
| DENSE | 30 to 50 | 24 to 40 |
| VERY DENSE | GREATER THAN 50 | GREATER THAN 40 |
| SILTS AND CLAYS CONSISTENCY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT | LESS THAN 2 | LESS THAN 1 |
| SOFT | 2 to 4 | 1 to 3 |
| FIRM | 4 to 8 | 3 to 6 |
| STIFF | 8 to 15 | 6 to 12 |
| VERY STIFF | 15 to 30 | 12 to 24 |
| HARD | GREATER THAN 30 | GREATER THAN 24 |

POND 2-3

| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | POND SOIL SURVEY (1) | SHEET NO. |
|-----------|-------------|------|-------------|---|--|-------------------|----------------------|----------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | |

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



LEGEND

- 1. DARK BROWN TO BROWN, AND DARK GRAY-BROWN TO GRAY SAND TO SAND WITH SILT (A-3)
- 2. DARK BROWN TO BROWN SILTY SAND (A-2-4)
- 3. GRAY-BROWN CLAYEY SAND (A-2-6)
- 4. DARK GRAY TO DARK BROWN ORGANIC SAND TO MUCK (A-8)

- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- 200 PERCENT PASSING #200 SIEVE
- NMC NATURAL MOISTURE CONTENT (%)
- OC ORGANIC CONTENT (%)

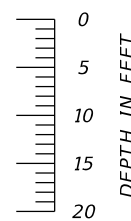
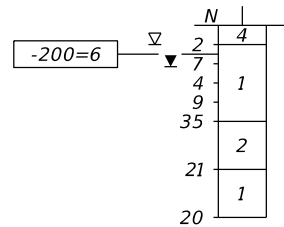
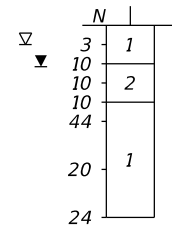
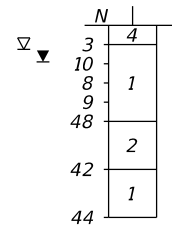
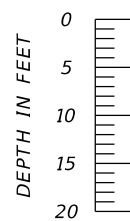
- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS

BORING LOCATION PLAN

BOR # FPC-5-1
 STA. 1567+49
 REF. Q SR 535
 OFF. 834' RT.
 DATE 10/23/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # FPC-5-2
 STA. 1567+06
 REF. Q SR 535
 OFF. 498' RT.
 DATE 10/23/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # FPC-5-3
 STA. 1564+51
 REF. Q SR 535
 OFF. 684' RT.
 DATE 10/23/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25






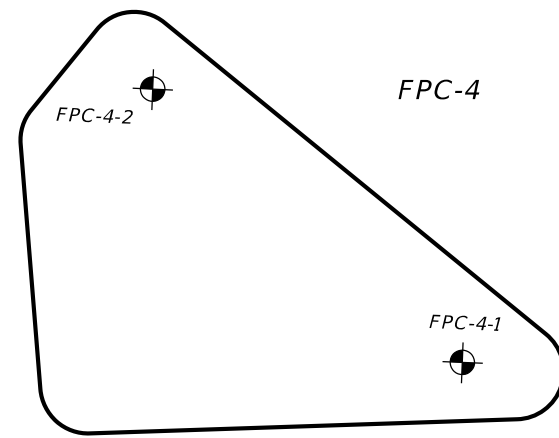
| | SAFETY HAMMER | AUTOMATIC HAMMER |
|---|----------------------------|----------------------------|
| GRANULAR MATERIALS- RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE | LESS THAN 4 | LESS THAN 3 |
| LOOSE | 4 to 10 | 3 to 8 |
| MEDIUM DENSE | 10 to 30 | 8 to 24 |
| DENSE | 30 to 50 | 24 to 40 |
| VERY DENSE | GREATER THAN 50 | GREATER THAN 40 |
| SILTS AND CLAYS CONSISTENCY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT | LESS THAN 2 | LESS THAN 1 |
| SOFT | 2 to 4 | 1 to 3 |
| FIRM | 4 to 8 | 3 to 6 |
| STIFF | 8 to 15 | 6 to 12 |
| VERY STIFF | 15 to 30 | 12 to 24 |
| HARD | GREATER THAN 30 | GREATER THAN 24 |

FPC-5

| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | POND SOIL SURVEY (2) | SHEET NO. |
|-----------|-------------|------|-------------|---|--|-------------------|----------------------|----------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | |

LEGEND

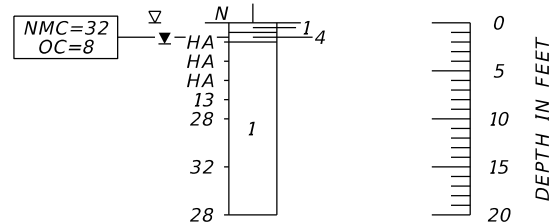
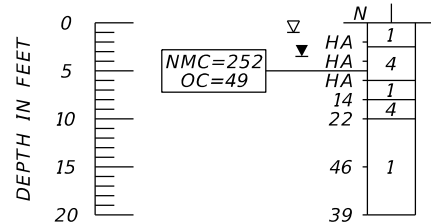
1. DARK BROWN TO BROWN, AND DARK GRAY-BROWN TO GRAY SAND TO SAND WITH SILT (A-3)
 2. DARK BROWN TO BROWN SILTY SAND (A-2-4)
 3. GRAY-BROWN CLAYEY SAND (A-2-6)
 4. DARK GRAY TO DARK BROWN ORGANIC SAND TO MUCK (A-8)
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- 200 PERCENT PASSING #200 SIEVE
NMC NATURAL MOISTURE CONTENT (%)
OC ORGANIC CONTENT (%)
-  APPROXIMATE SPT BORING LOCATION
-  ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
-  GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS



BORING LOCATION PLAN

BOR # FPC-4-2
 STA. 1571+52
 REF. Q SR 535
 OFF. 488' LT.
 DATE 11/3/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

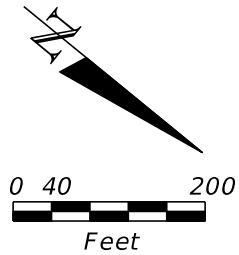
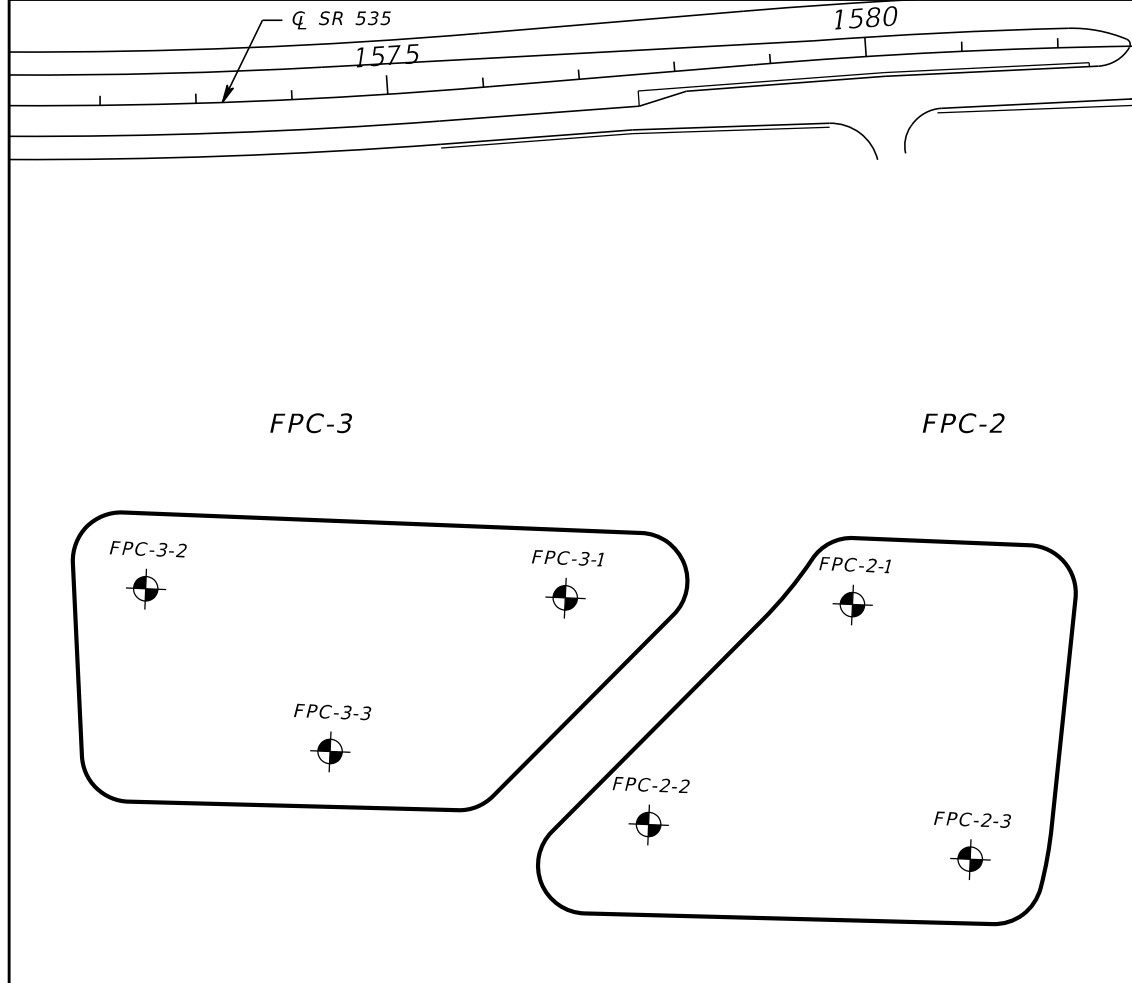
BOR # FPC-4-1
 STA. 1574+84
 REF. Q SR 535
 OFF. 192' LT.
 DATE 11/3/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25



| | SAFETY HAMMER | AUTOMATIC HAMMER |
|---|----------------------------|----------------------------|
| GRANULAR MATERIALS- RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE | LESS THAN 4 | LESS THAN 3 |
| LOOSE | 4 to 10 | 3 to 8 |
| MEDIUM DENSE | 10 to 30 | 8 to 24 |
| DENSE | 30 to 50 | 24 to 40 |
| VERY DENSE | GREATER THAN 50 | GREATER THAN 40 |
| SILTS AND CLAYS CONSISTENCY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT | LESS THAN 2 | LESS THAN 1 |
| SOFT | 2 to 4 | 1 to 3 |
| FIRM | 4 to 8 | 3 to 6 |
| STIFF | 8 to 15 | 6 to 12 |
| VERY STIFF | 15 to 30 | 12 to 24 |
| HARD | GREATER THAN 30 | GREATER THAN 24 |

FPC-4

| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | POND SOIL SURVEY (3) | SHEET NO. |
|-----------|-------------|------|-------------|---|--|-------------------|----------------------|----------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | |



LEGEND

- 1. DARK BROWN TO BROWN, AND DARK GRAY-BROWN TO GRAY SAND TO SAND WITH SILT (A-3)
- 2. DARK BROWN TO BROWN SILTY SAND (A-2-4)
- 3. GRAY-BROWN CLAYEY SAND (A-2-6)
- 4. DARK GRAY TO DARK BROWN ORGANIC SAND TO MUCK (A-8)

- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- 200 PERCENT PASSING #200 SIEVE
- NMC NATURAL MOISTURE CONTENT (%)
- OC ORGANIC CONTENT (%)

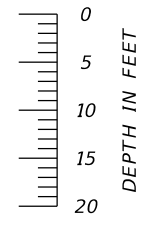
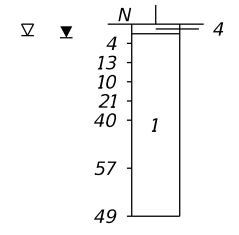
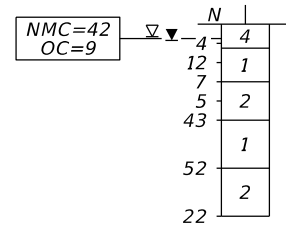
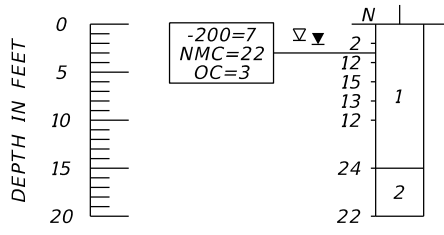
- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS

BORING LOCATION PLAN

BOR # FPC-3-2
 STA. 1572+38
 REF. Q SR 535
 OFF. 504' RT.
 DATE 10/20/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # FPC-3-3
 STA. 1574+07
 REF. Q SR 535
 OFF. 680' RT.
 DATE 10/20/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # FPC-3-1
 STA. 1576+41
 REF. Q SR 535
 OFF. 537' RT.
 DATE 10/20/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

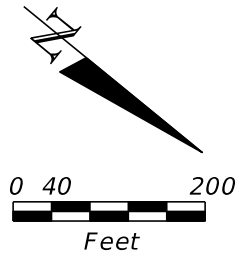
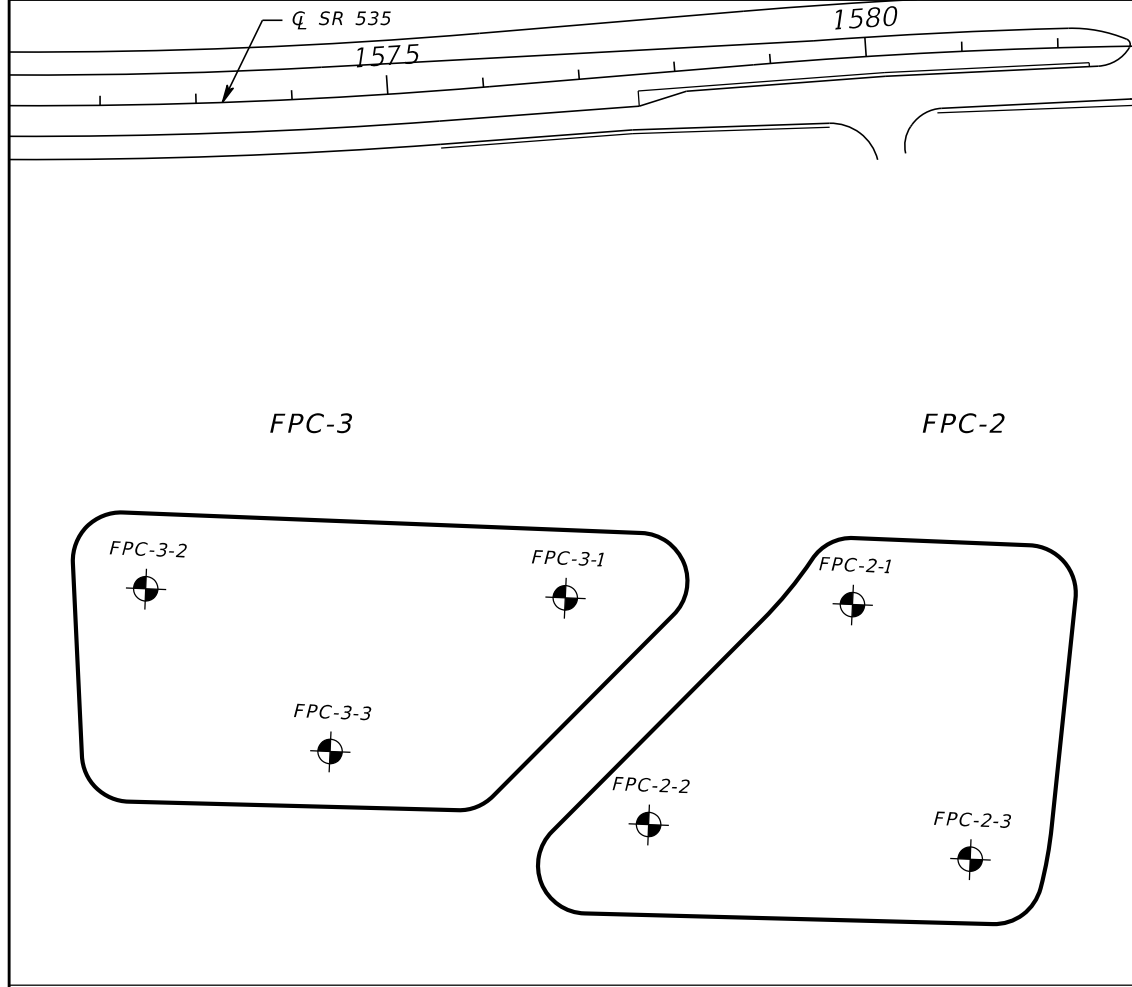


| | SAFETY HAMMER | AUTOMATIC HAMMER |
|---|----------------------------|----------------------------|
| GRANULAR MATERIALS- RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE | LESS THAN 4 | LESS THAN 3 |
| LOOSE | 4 to 10 | 3 to 8 |
| MEDIUM DENSE | 10 to 30 | 8 to 24 |
| DENSE | 30 to 50 | 24 to 40 |
| VERY DENSE | GREATER THAN 50 | GREATER THAN 40 |
| SILTS AND CLAYS CONSISTENCY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT | LESS THAN 2 | LESS THAN 1 |
| SOFT | 2 to 4 | 1 to 3 |
| FIRM | 4 to 8 | 3 to 6 |
| STIFF | 8 to 15 | 6 to 12 |
| VERY STIFF | 15 to 30 | 12 to 24 |
| HARD | GREATER THAN 30 | GREATER THAN 24 |

FPC-3

| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SHEET NO. |
|-----------|-------------|------|-------------|---|--|-------------------|----------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | |

POND SOIL SURVEY (4)



LEGEND

- 1. DARK BROWN TO BROWN, AND DARK GRAY-BROWN TO GRAY SAND TO SAND WITH SILT (A-3)
- 2. DARK BROWN TO BROWN SILTY SAND (A-2-4)
- 3. GRAY-BROWN CLAYEY SAND (A-2-6)
- 4. DARK GRAY TO DARK BROWN ORGANIC SAND TO MUCK (A-8)

- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- 200 PERCENT PASSING #200 SIEVE
- NMC NATURAL MOISTURE CONTENT (%)
- OC ORGANIC CONTENT (%)

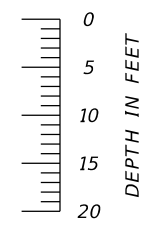
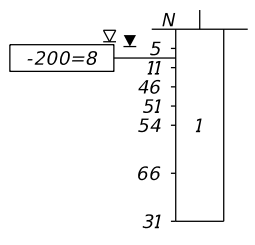
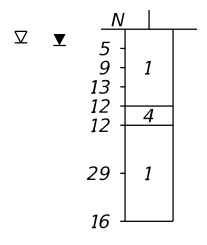
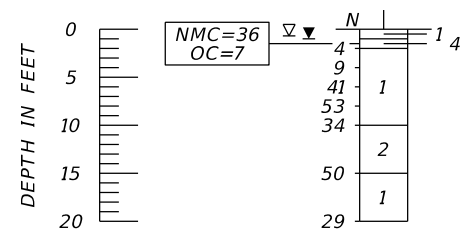
- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS

BORING LOCATION PLAN

BOR # FPC-2-2
 STA. 1577+08
 REF. Q SR 535
 OFF. 780' RT.
 DATE 10/20/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # FPC-2-1
 STA. 1579+45
 REF. Q SR 535
 OFF. 569' RT.
 DATE 10/20/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

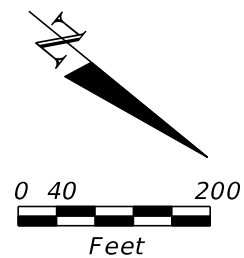
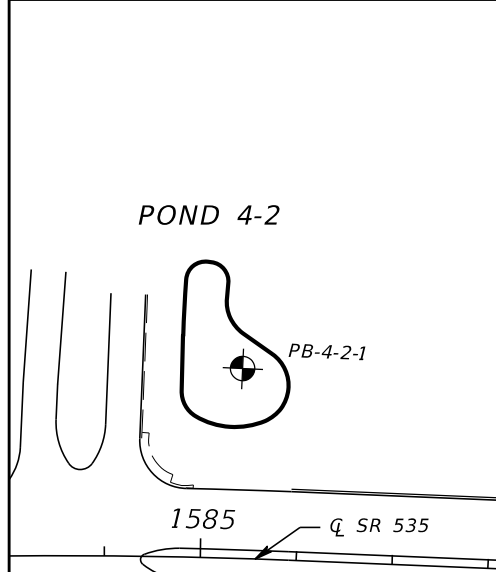
BOR # FPC-2-3
 STA. 1580+65
 REF. Q SR 535
 OFF. 841' RT.
 DATE 10/20/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25



| | SAFETY HAMMER | AUTOMATIC HAMMER |
|---|----------------------------|----------------------------|
| GRANULAR MATERIALS- RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE | LESS THAN 4 | LESS THAN 3 |
| LOOSE | 4 to 10 | 3 to 8 |
| MEDIUM DENSE | 10 to 30 | 8 to 24 |
| DENSE | 30 to 50 | 24 to 40 |
| VERY DENSE | GREATER THAN 50 | GREATER THAN 40 |
| SILTS AND CLAYS CONSISTENCY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT | LESS THAN 2 | LESS THAN 1 |
| SOFT | 2 to 4 | 1 to 3 |
| FIRM | 4 to 8 | 3 to 6 |
| STIFF | 8 to 15 | 6 to 12 |
| VERY STIFF | 15 to 30 | 12 to 24 |
| HARD | GREATER THAN 30 | GREATER THAN 24 |

FPC-2

| <table border="1"> <thead> <tr> <th colspan="2">REVISIONS</th> <th colspan="2"></th> </tr> <tr> <th>DATE</th> <th>DESCRIPTION</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> | | | | REVISIONS | | | | DATE | DESCRIPTION | DATE | DESCRIPTION | | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | | | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SHEET NO. |
|---|-------------|----------|-------------------|----------------------|--|-----------------------------|--|------|-------------|------|-------------|--|--|--|--|---|--|--|--|--|--|-----------|
| REVISIONS | | | | | | | | | | | | | | | | | | | | | | |
| DATE | DESCRIPTION | DATE | DESCRIPTION | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | POND SOIL SURVEY (5) | | | | | | | | | | | | | | | | |
| | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | | | | | | | | | | | | | | | | | |



BORING LOCATION PLAN

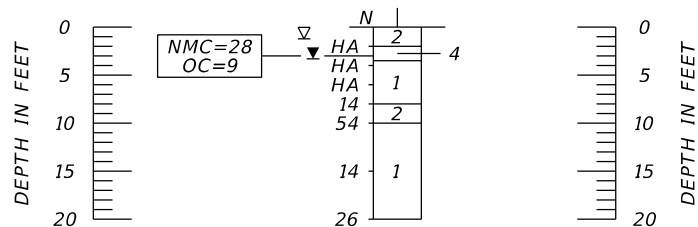
LEGEND

- 1. DARK BROWN TO BROWN, AND DARK GRAY-BROWN TO GRAY SAND TO SAND WITH SILT (A-3)
- 2. DARK BROWN TO BROWN SILTY SAND (A-2-4)
- 3. GRAY-BROWN CLAYEY SAND (A-2-6)
- 4. DARK GRAY TO DARK BROWN ORGANIC SAND TO MUCK (A-8)

- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- 200 PERCENT PASSING #200 SIEVE
- NMC NATURAL MOISTURE CONTENT (%)
- OC ORGANIC CONTENT (%)

- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS

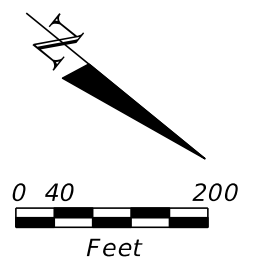
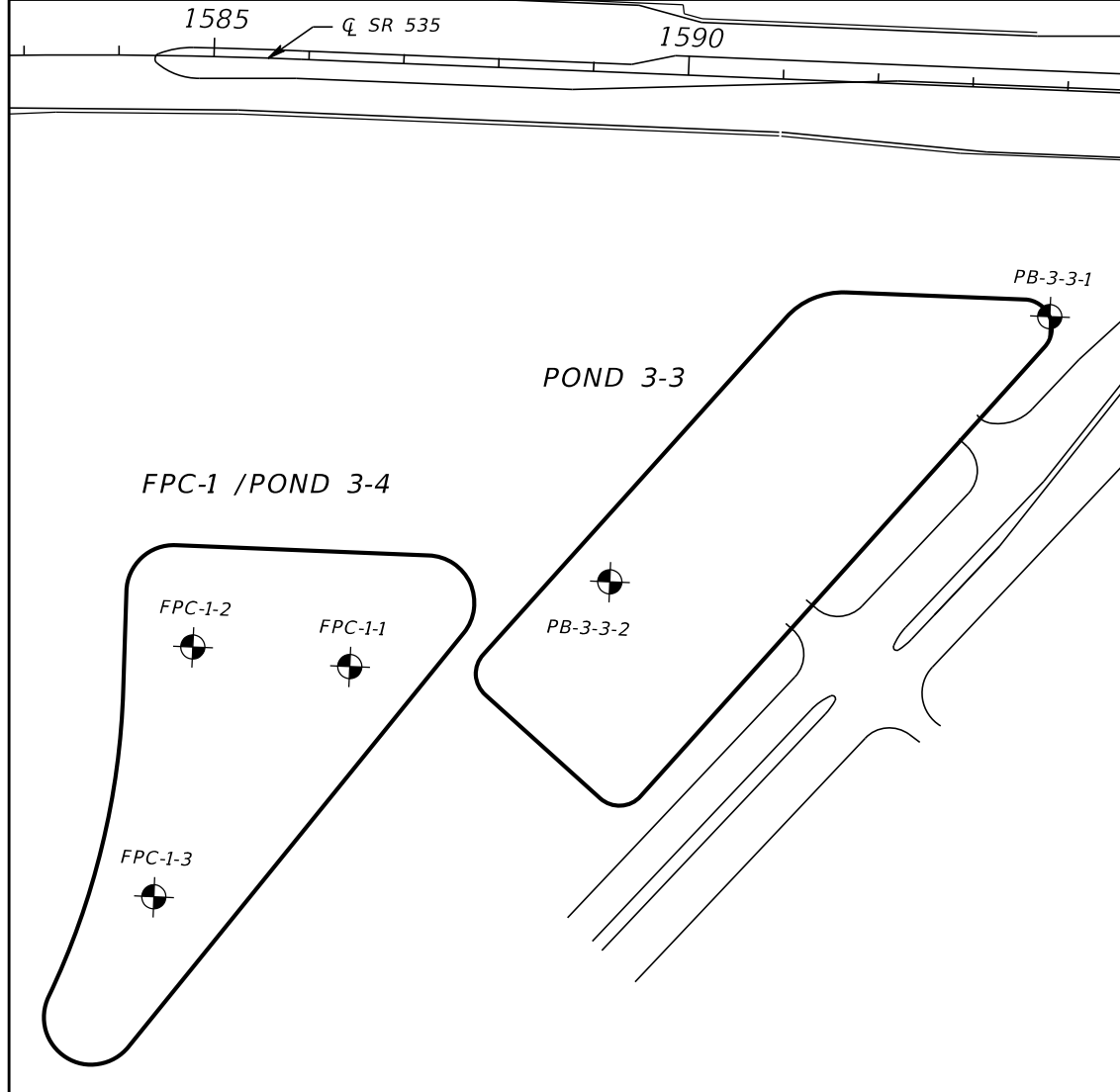
BOR # PB-4-2-1
 STA. 1585+38
 REF. Q SR 535
 OFF. 198' LT.
 DATE 10/26/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25



| | SAFETY HAMMER | AUTOMATIC HAMMER |
|---|----------------------------|----------------------------|
| GRANULAR MATERIALS- RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE | LESS THAN 4 | LESS THAN 3 |
| LOOSE | 4 to 10 | 3 to 8 |
| MEDIUM DENSE | 10 to 30 | 8 to 24 |
| DENSE | 30 to 50 | 24 to 40 |
| VERY DENSE | GREATER THAN 50 | GREATER THAN 40 |
| SILTS AND CLAYS CONSISTENCY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT | LESS THAN 2 | LESS THAN 1 |
| SOFT | 2 to 4 | 1 to 3 |
| FIRM | 4 to 8 | 3 to 6 |
| STIFF | 8 to 15 | 6 to 12 |
| VERY STIFF | 15 to 30 | 12 to 24 |
| HARD | GREATER THAN 30 | GREATER THAN 24 |

POND 4-2

| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | POND SOIL SURVEY (6) | SHEET NO. |
|-----------|-------------|------|-------------|---|--|-------------------|----------------------|----------------------|-----------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | |



LEGEND

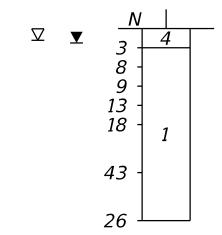
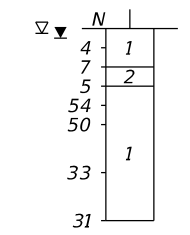
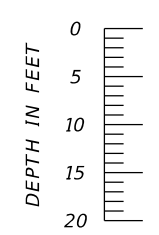
1. DARK BROWN TO BROWN, AND DARK GRAY-BROWN TO GRAY SAND TO SAND WITH SILT (A-3)
 2. DARK BROWN TO BROWN SILTY SAND (A-2-4)
 3. GRAY-BROWN CLAYEY SAND (A-2-6)
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- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- 200 PERCENT PASSING #200 SIEVE
NMC NATURAL MOISTURE CONTENT (%)
OC ORGANIC CONTENT (%)
- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS

BORING LOCATION PLAN

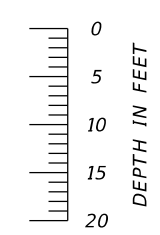
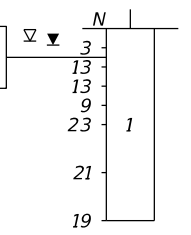
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 STA. 1584+51
 REF. Q SR 535
 OFF. 886' RT.
 DATE 10/23/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # FPC-1-2
 STA. 1584+92
 REF. Q SR 535
 OFF. 622' RT.
 DATE 10/23/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # FPC-1-1
 STA. 1586+69
 REF. Q SR 535
 OFF. 637' RT.
 DATE 10/23/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25



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 NMC=19
 OC=1



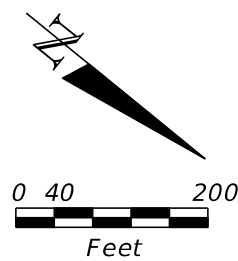
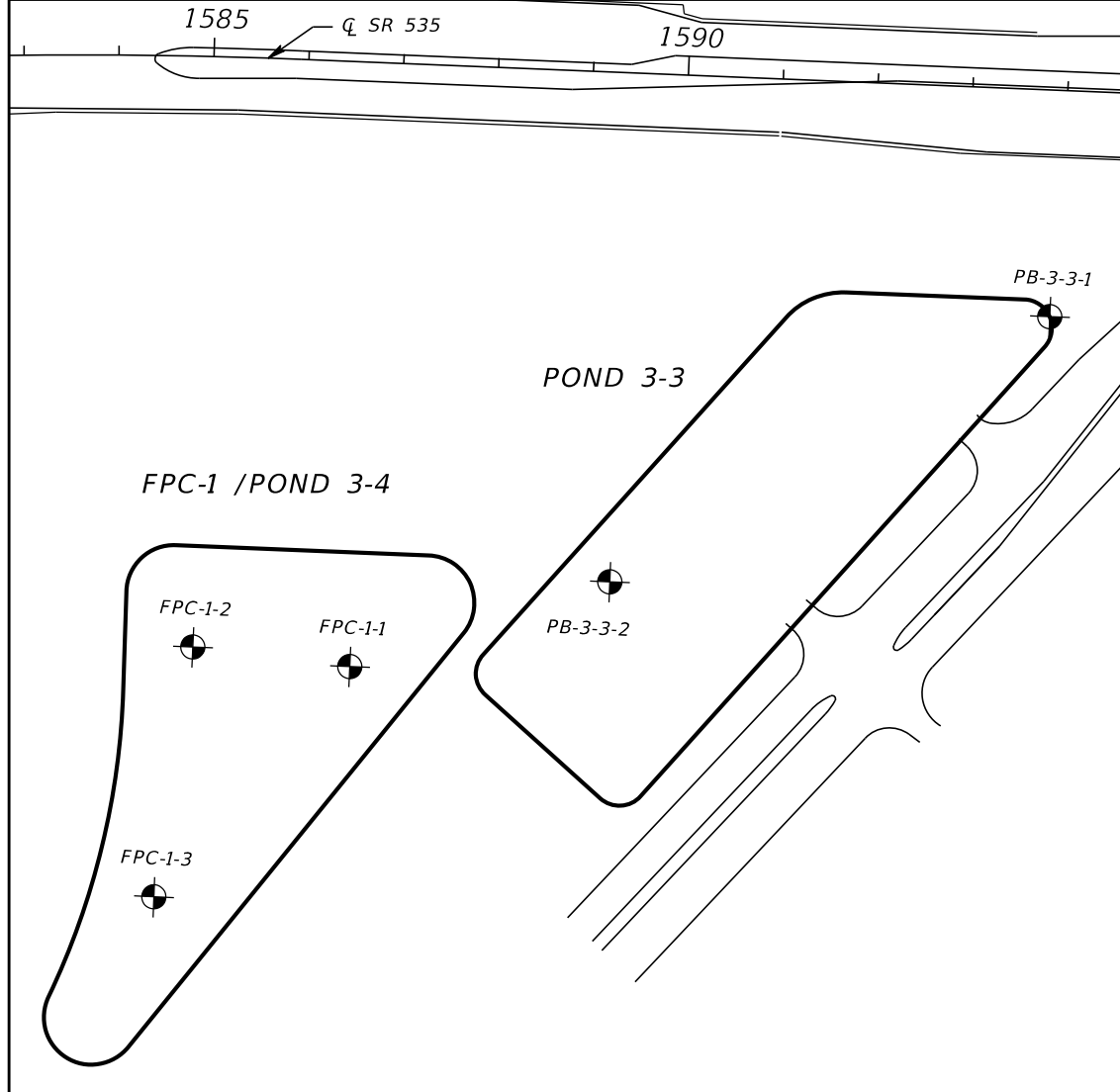
| | SAFETY HAMMER | AUTOMATIC HAMMER |
|-------------------------------------|-------------------------|-------------------------|
| GRANULAR MATERIALS-RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE | LESS THAN 4 | LESS THAN 3 |
| LOOSE | 4 to 10 | 3 to 8 |
| MEDIUM DENSE | 10 to 30 | 8 to 24 |
| DENSE | 30 to 50 | 24 to 40 |
| VERY DENSE | GREATER THAN 50 | GREATER THAN 40 |
| SILTS AND CLAYS CONSISTENCY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT | LESS THAN 2 | LESS THAN 1 |
| SOFT | 2 to 4 | 1 to 3 |
| FIRM | 4 to 8 | 3 to 6 |
| STIFF | 8 to 15 | 6 to 12 |
| VERY STIFF | 15 to 30 | 12 to 24 |
| HARD | GREATER THAN 30 | GREATER THAN 24 |

FPC-1 / POND 3-4

| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | SHEET NO. |
|-----------|-------------|------|-------------|---|--|-------------------|----------------------|-----------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | |

POND SOIL SURVEY (7)

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



LEGEND

- 1. DARK BROWN TO BROWN, AND DARK GRAY-BROWN TO GRAY SAND TO SAND WITH SILT (A-3)
- 2. DARK BROWN TO BROWN SILTY SAND (A-2-4)
- 3. GRAY-BROWN CLAYEY SAND (A-2-6)
- 4. DARK GRAY TO DARK BROWN ORGANIC SAND TO MUCK (A-8)

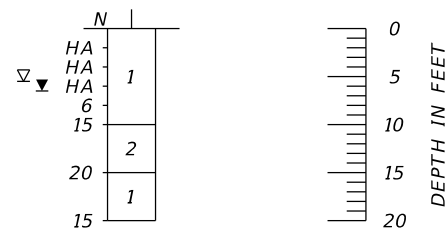
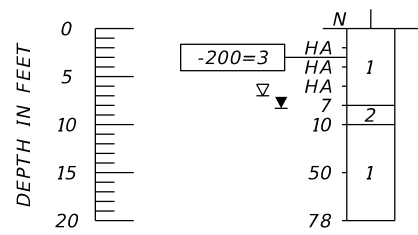
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- 200 PERCENT PASSING #200 SIEVE
- NMC NATURAL MOISTURE CONTENT (%)
- OC ORGANIC CONTENT (%)

- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS

BORING LOCATION PLAN

BOR # PB-3-3-1
 STA. 1593+91
 REF. Q SR 535
 OFF. 239' RT.
 DATE 10/26/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # PB-3-3-2
 STA. 1589+39
 REF. Q SR 535
 OFF. 536' RT.
 DATE 10/26/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25



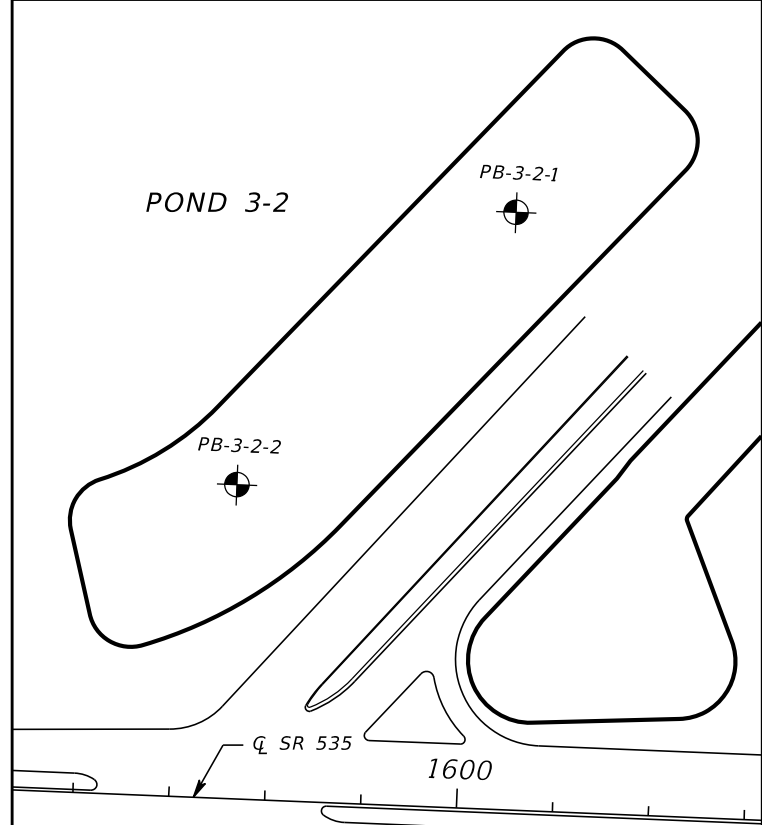
| | SAFETY HAMMER | AUTOMATIC HAMMER |
|---|----------------------------|----------------------------|
| GRANULAR MATERIALS- RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE | LESS THAN 4 | LESS THAN 3 |
| LOOSE | 4 to 10 | 3 to 8 |
| MEDIUM DENSE | 10 to 30 | 8 to 24 |
| DENSE | 30 to 50 | 24 to 40 |
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| SOFT | 2 to 4 | 1 to 3 |
| FIRM | 4 to 8 | 3 to 6 |
| STIFF | 8 to 15 | 6 to 12 |
| VERY STIFF | 15 to 30 | 12 to 24 |
| HARD | GREATER THAN 30 | GREATER THAN 24 |

POND 3-3

| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | POND SOIL SURVEY (8) | SHEET NO. |
|-----------|-------------|------|-------------|---|--|-------------------|----------------------|----------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | |

LEGEND

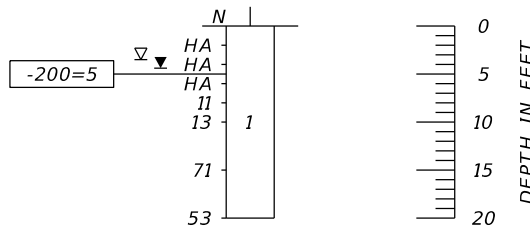
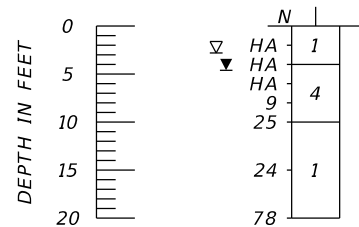
1. DARK BROWN TO BROWN, AND DARK GRAY-BROWN TO GRAY SAND TO SAND WITH SILT (A-3)
 2. DARK BROWN TO BROWN SILTY SAND (A-2-4)
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- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- 200 PERCENT PASSING #200 SIEVE
NMC NATURAL MOISTURE CONTENT (%)
OC ORGANIC CONTENT (%)
- ⊕ APPROXIMATE SPT BORING LOCATION
- ∇ ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- ▼ GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS



BORING LOCATION PLAN

BOR # PB-3-2-2
 STA. 1597+58
 REF. Q SR 535
 OFF. 327' LT.
 DATE 11/3/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25

BOR # PB-3-2-1
 STA. 1600+37
 REF. Q SR 535
 OFF. 622' LT.
 DATE 11/3/2023
 DRILLER G. SMITH
 HAMMER AUTOMATIC
 RIG D-25



| | SAFETY HAMMER | AUTOMATIC HAMMER |
|---|----------------------------|----------------------------|
| GRANULAR MATERIALS- RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE | LESS THAN 4 | LESS THAN 3 |
| LOOSE | 4 to 10 | 3 to 8 |
| MEDIUM DENSE | 10 to 30 | 8 to 24 |
| DENSE | 30 to 50 | 24 to 40 |
| VERY DENSE | GREATER THAN 50 | GREATER THAN 40 |
| SILTS AND CLAYS CONSISTENCY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT | LESS THAN 2 | LESS THAN 1 |
| SOFT | 2 to 4 | 1 to 3 |
| FIRM | 4 to 8 | 3 to 6 |
| STIFF | 8 to 15 | 6 to 12 |
| VERY STIFF | 15 to 30 | 12 to 24 |
| HARD | GREATER THAN 30 | GREATER THAN 24 |

POND 3-2

| REVISIONS | | | | JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 | STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | | POND SOIL SURVEY (9) | SHEET NO. |
|-----------|-------------|------|-------------|---|--|-------------------|----------------------|----------------------|--------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | |
| | | | | | SR 535 | ORANGE OSCEOLA | 437174-2-22-01 | | |

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/Vineland Road from US 192 to north of World Center Drive
Orange and Osceola Counties, Florida
FPID: 437174-2-22-01
Tierra Project No. 5511-19-052

| USDA Map Unit and Soil Name | Soil Classification | | | | pH | Seasonal High Water Table | | Risk of Corrosion | |
|---|---------------------|---------------|------------|----------------------|---------|---------------------------|---------------------|-------------------|----------|
| | Depth (in) | USCS | AASHTO | Permeability (in/hr) | | Depth (feet) | Months | Uncoated Steel | Concrete |
| Orange County, Florida | | | | | | | | | |
| (3) Basinger fine sand, frequently ponded, 0 to 1 percent slopes | 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 |
| (20) Immokalee fine sand | 0-35 | SP, SP-SM | A-3 | 6.0 - 20.0 | 4.5-5.5 | 0.5-1.0 | July-Sept | High | High |
| | 35-67 | SP-SM, SM | A-3, A-2-4 | 0.6 - 2.0 | 4.5-5.5 | | | | |
| | 67-80 | SP, SP-SM | A-3 | 6.0 - 20.0 | 4.5-5.5 | | | | |
| (26) Ona fine sand, 0 to 2 percent slopes | 0-4 | SP-SM, SM | A-3, A-2-4 | 6.0 - 20.0 | 4.5-6.0 | 0.5-1.5 | June-Nov | High | High |
| | 4-22 | SP-SM, SM | A-3, A-2-4 | 0.6 - 2.0 | 4.5-6.0 | | | | |
| | 22-80 | SP-SM, SM | A-3, A-2-4 | 6.0 - 20.0 | 4.5-6.0 | | | | |
| (34) Pomello fine sand, 0 to 5 percent slopes | 0-47 | SP-SM | A-3 | > 20.0 | 4.5-6.0 | 2.0-3.5 | July-Nov | Moderate | High |
| | 47-58 | SP-SM | A-2-4 | 0.6 - 6.0 | 4.3-6.0 | | | | |
| | 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 | | | | |
| (42) Sanibel muck | 0-11 | PT | A-8 | 6.0 - 20.0 | 3.5-7.3 | +1.0-0.0 | June-Sept | High | Moderate |
| | 11-80 | SP, SP-SM | A-3 | 6.0 - 20.0 | 3.5-7.3 | | | | |
| (44) Smyrna fine sand, 0 to 2 percent slopes | 0-4 | SP, SM, SP-SM | A-2-4 | 6.0 - 20.0 | 3.5-4.4 | 0.0-3.5 | June-Sept | High | High |
| | 4-17 | SP, SP-SM | A-3, A-2-4 | 6.0 - 20.0 | 3.5-4.6 | | | | |
| | 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 | | | | |

Table 1
Summary of USDA NRCS Soil Survey of Orange and Osceola Counties, Florida
SR 535/Vineland Road from US 192 to north of World Center Drive
Orange and Osceola Counties, Florida
FPID: 437174-2-22-01
Tierra Project No. 5511-19-052

| USDA Map Unit and Soil Name | Soil Classification | | | | pH | Seasonal High Water Table | | Risk of Corrosion | |
|--|---------------------|-----------|------------|----------------------|---------|---------------------------|---------------------|-------------------|----------|
| | Depth (in) | USCS | AASHTO | Permeability (in/hr) | | Depth (feet) | Months | Uncoated Steel | Concrete |
| Osceola County, Florida | | | | | | | | | |
| (6) Basinger fine sand, depressional, 0 to 1 percent slopes | 0-3 | SP-SM | A-2-4 | 6.0 - 50.0 | 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) Narcoossee 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 | | | | |

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
Tierra Project No: 5511-19-052

| 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 SHGWT ⁽⁴⁾ | |
|-----------------------|--|------------------|---------------------------------------|--|--------------------------------------|-----------------------------|---------------------------------|------------------|--------------------------------------|--------------------------------------|-----------------------------|
| | Station (feet) | Offset (feet) | | | Depth Below Ground Surface (feet) | Elevation NAVD 88 (feet) | | Soil Map Unit | SHGWT Depth ⁽³⁾ (feet) | Depth Below Ground Surface (feet) | Elevation NAVD 88 (feet) |
| | | | | | | | | | | | |
| Osceola County | | | | | | | | | | | |
| 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 | 22/27 | 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 | 22/24 | 0.5-1.5/2.0-3.5 | 2.0 | 79.8 |
| AB - 6 | 506+26 | 88 RT | 6.0 | 81.7 | 4.5 | 77.2 | 8/12/2021 | 22/24 | 0.5-1.5/2.0-3.5 | 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 | 56 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+08 | 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 |

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
Tierra Project No: 5511-19-052

| 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 SHGWT ⁽⁴⁾ | |
|----------------------|--|------------------|---------------------------------------|--|--|--------------------------------|--|---------------------|---|--|--------------------------------|
| | Station (feet) | Offset (feet) | | | Depth Below Ground Surface (feet) | Elevation NAVD 88 (feet) | | Soil Map Unit | SHGWT Depth ⁽³⁾ (feet) | Depth Below Ground Surface (feet) | Elevation NAVD 88 (feet) |
| | | | | | | | | | | | |
| Orange County | | | | | | | | | | | |
| AB - 21 | 551+36 | 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 |
| SH - 26 | 566+56 | 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 | 34/44 | 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 | 3/44 | +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 | 3/44 | +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 WBQ 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⁾ C/L Construction | | Boring Depth ⁽²⁾ (feet) | Ground Surface Elevation NAVD88 ⁽¹⁾ (feet) | Measured GWT | | Date Groundwater Table Recorded | USDA Soil Survey | | Estimated SHGWT ⁽⁴⁾ | |
|-----------------------|--|----------|---------------------------------------|--|--------------------------------------|----------------------------|---------------------------------|------------------|--------------------------------------|--------------------------------------|----------------------------|
| | Station | Offset | | | Depth Below Ground Surface (feet) | Elevation NAVD88 (feet) | | Soil Map Unit | SHGWT Depth ⁽³⁾ (feet) | Depth Below Ground Surface (feet) | Elevation NAVD88 (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 | 8.3 | 89.4 | 10/26/2023 | 44 | 0.0-3.5 | 7.0 | 90.7 |
| PB - 3-3-2 | 1589+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 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⁾ C/L Construction | | Boring Depth ⁽²⁾ (feet) | Ground Surface Elevation NAVD88 ⁽¹⁾ (feet) | Measured GWT | | Date Groundwater Table Recorded | USDA Soil Survey | | Estimated SHGWT ⁽⁴⁾ | |
|---------------|--|----------|---------------------------------------|---|--------------------------------------|----------------------------|---------------------------------|------------------|--------------------------------------|--------------------------------------|----------------------------|
| | Station | Offset | | | Depth Below Ground Surface (feet) | Elevation NAVD88 (feet) | | Soil Map Unit | SHGWT Depth ⁽³⁾ (feet) | Depth Below Ground Surface (feet) | Elevation NAVD88 (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 | 834' RT. | 20.0 | 89.6 | 3.8 | 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 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 5
Summary of Laboratory Test Results for Environmental Classification
 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 Name | Depth (ft) | AASHTO 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 | 6.6* | 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 PD&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

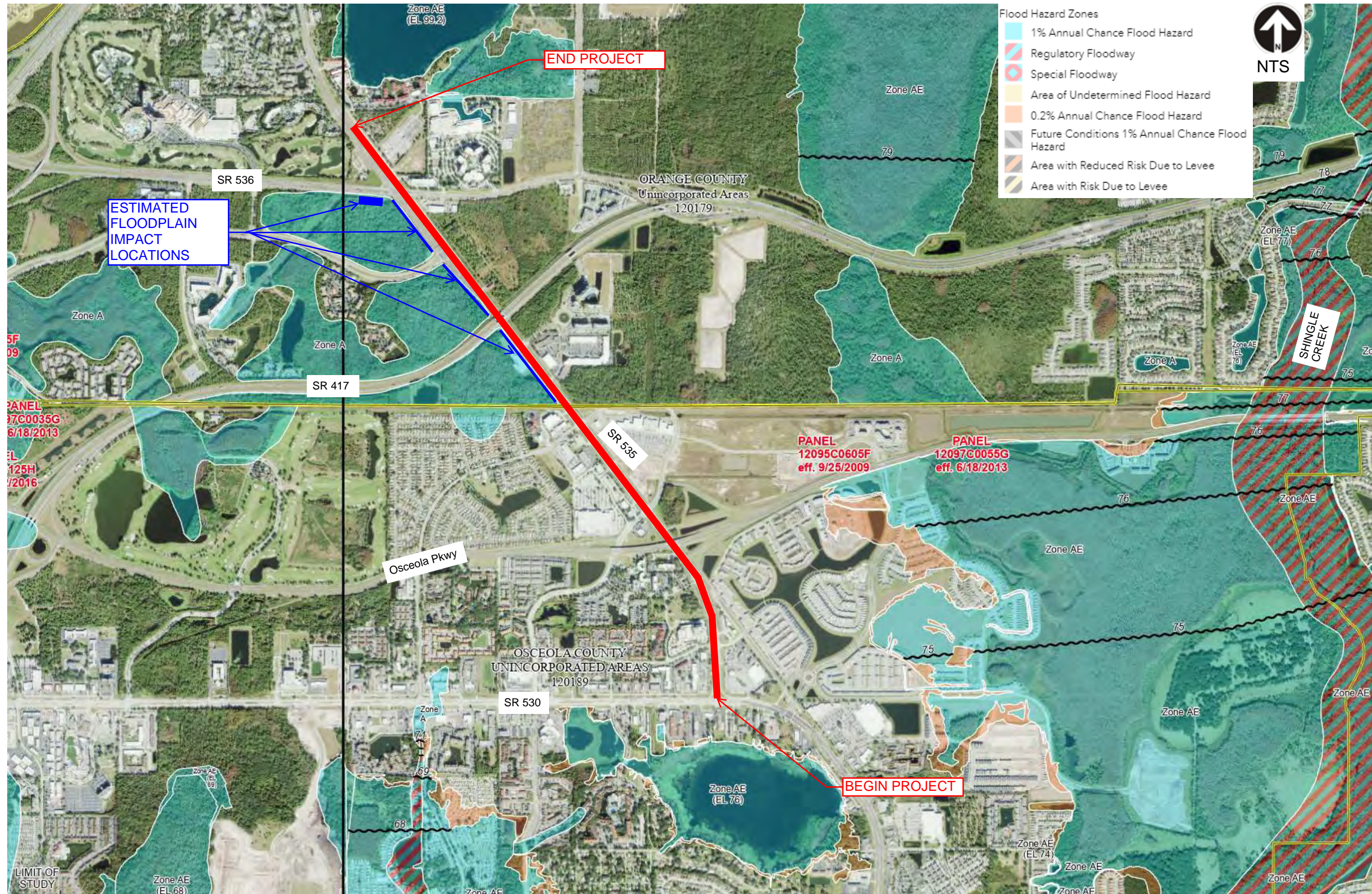
| Pond ID. | Boring No./Test Location | Boring/Test Location ⁽¹⁾ | | Ground Surface Elevation ⁽¹⁾ (feet, NAVD 88) | Test Elevation (feet, NAVD 88) | Estimated SHGW Elevation (feet, NAVD 88) | Vertical Hydraulic Conductivity ⁽²⁾ (feet/day) | Horizontal Hydraulic Conductivity (feet/day) | Confining Layer Elevation (feet, NAVD 88) | 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 Tierra, 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



NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updates or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or Floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (CBFEs) shown on this map apply only landward of 0.0 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Transverse Mercator, State Plane Florida East FIPS 0901. The horizontal datum was NAD83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane Zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NNGS12
National Geodetic Survey
SSMC-3 #0202
1315 East West Highway
Silver Spring, Maryland 20910-3292
(301) 713-3245

To obtain current elevation, description, and/or location information for beach marks shown on this map, please consult the Information Services branch of the National Geodetic Survey at (301) 713-3242 or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was provided in digital format by the Osceola County Planning Office. Orthophotography was collected in late 2007/early 2008.

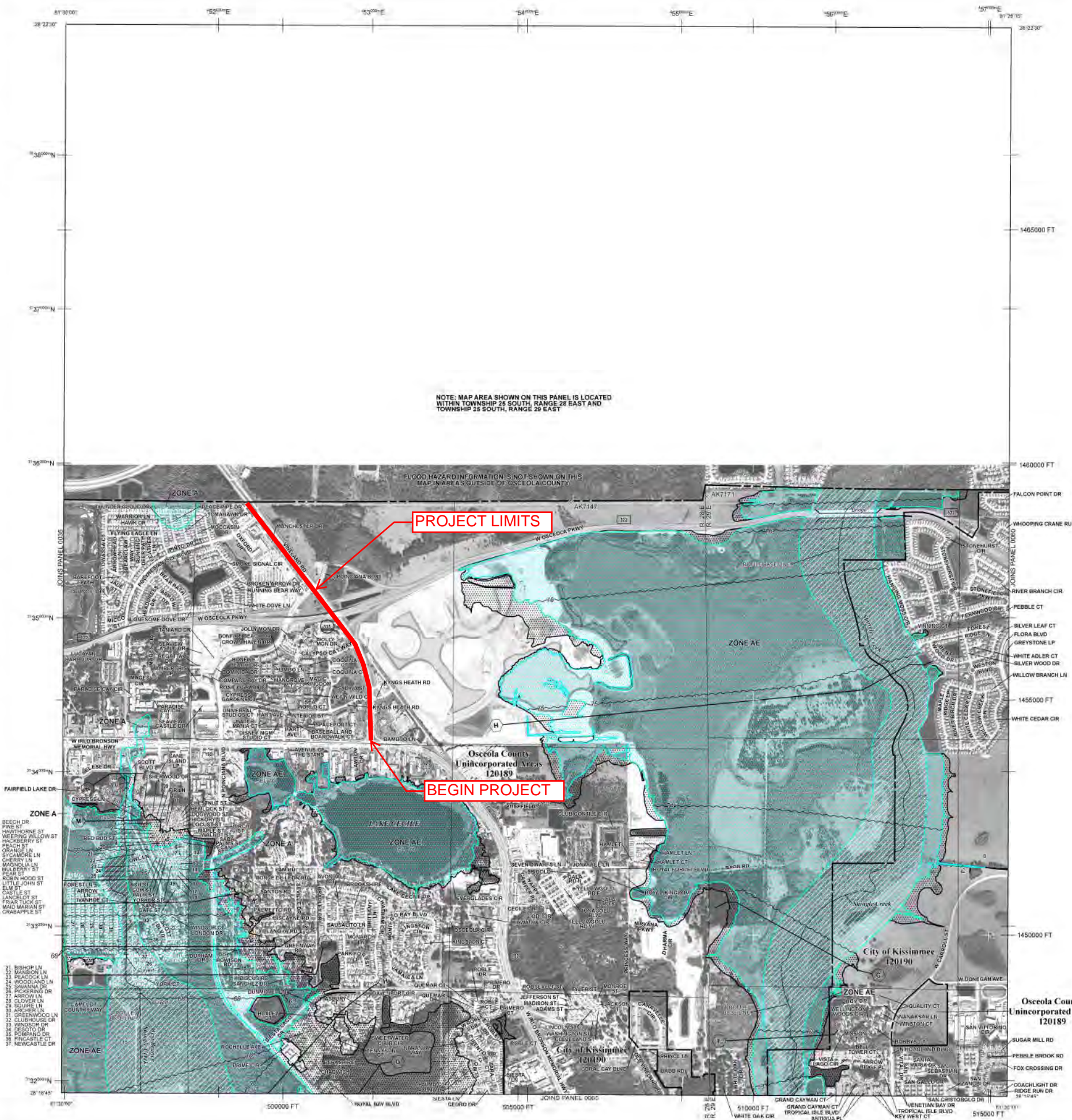
This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels, community map repository addresses, and a listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Mapping Information Exchange at 1-877-FEMA-MAP (1-877-336-2677) or visit the FEMA Map Service Center website at <http://www.msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

The "profile base lines" depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile base line" in some cases may deviate significantly from the channel centerline or appear outside the SFHA.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 28 SOUTH, RANGE 28 EAST AND TOWNSHIP 28 SOUTH, RANGE 29 EAST

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AV, VE, and V. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 5 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually short flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AV Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently determined. Zone AV indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE AVF Areas to be protected from 1% annual chance flood event by a federal flood protection system under construction, no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage basins less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities

Base Flood Elevation line and value; elevation in feet

Base Flood Elevation value where uniform within zone; elevation in feet

* Referenced to the North American Vertical Datum of 1988

A - Cross section line

Transact line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83). Within Hemisphere

47°07'30" E

6000000 FT

DX5510

M 1.5

MAP REPOSITORIES

Refer to Map Repositories List on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

MAY 7, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

JUNE 6, 2011 - To correct datum reference note.

JUNE 18, 2013 - To update corporate limits, change Base Flood Elevations, add Base Flood Elevations, change Special Flood Hazard Areas, change zone designations, update roads and road names, incorporate previously issued Letters of Map Revision, and reflect updated topographic information.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-338-6620.

MAP SCALE 1" = 1000'

0 500 1000 1500 2000 FEET

0 500 1000 1500 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0055G

FIRM

FLOOD INSURANCE RATE MAP

OSCEOLA COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 55 OF 900

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|--------------------|--------|-------|--------|
| KISSIMMEE, CITY OF | 120190 | 0055 | G |
| OSCEOLA COUNTY | 120190 | 0055 | G |

Indice to User: The Map Number given below should be used when placing flood orders. The Community Number shown should be used on insurance applications for the subject community.

MAP NUMBER
12097C0055G

MAP REVISED
JUNE 18, 2013

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only to landward of G.D. North American Vertical Datum of 1986 (NAVD 86). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for the jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was State Plane Florida East FIPS Zone 0901. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1986. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1986, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at <http://www.ngs.noaa.gov/>.

Basic map information shown on this FIRM was provided in digital format by Orange County, Florida.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

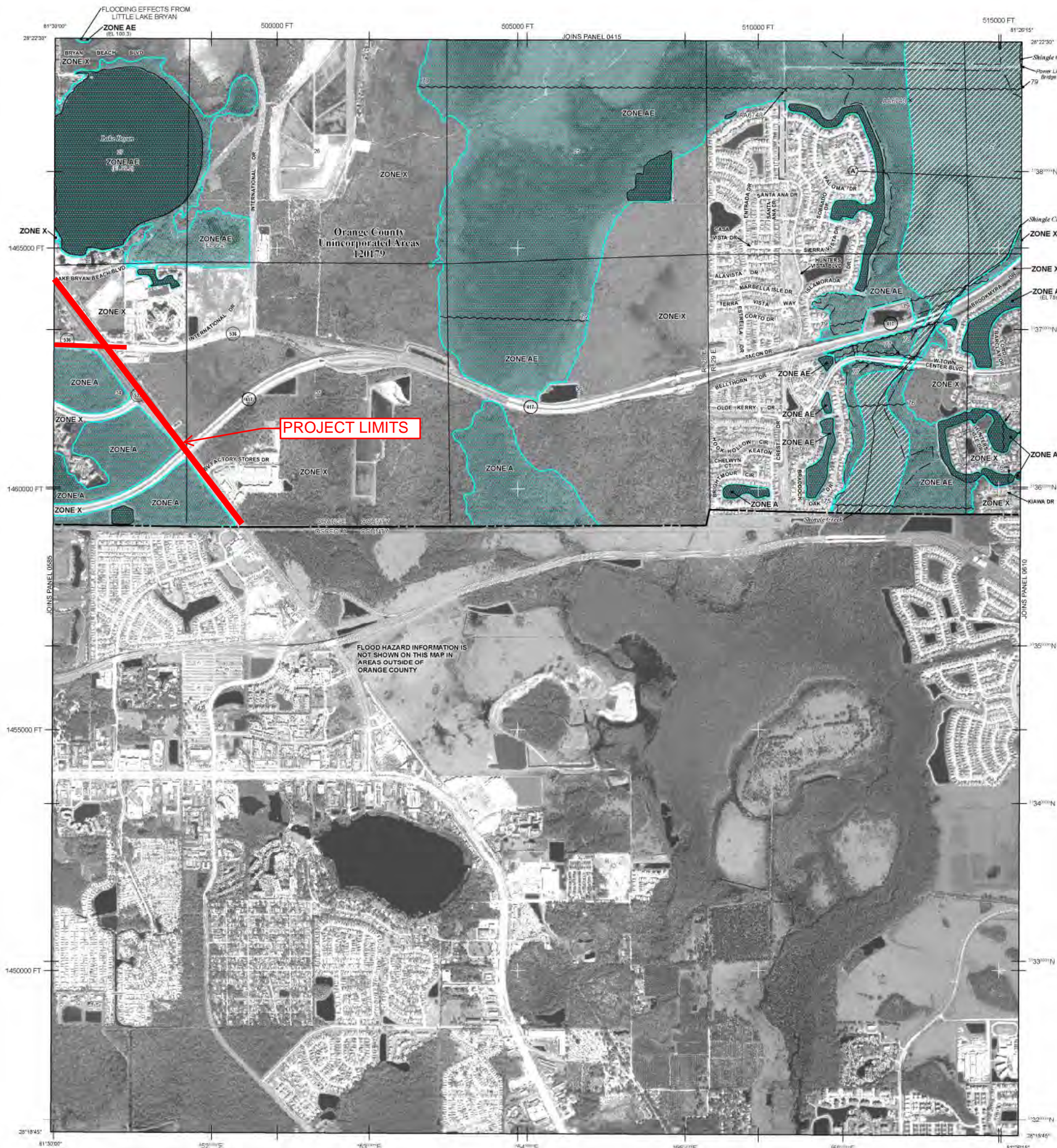
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-368-9620 and its website at <http://www.msc.fema.gov/>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/fir/>.

NGVD29 to NAVD83 Vertical Datum Conversion Table (feet)

| Watershed Name | Minimum Conversion | Maximum Conversion | Average Conversion | Maximum Offset |
|------------------------------|--------------------|--------------------|--------------------|----------------|
| Big Econlockhatchee River | -1.03 | -1.15 | -1.09 | 0.06 |
| Boggy Creek | -0.91 | -1.01 | -0.96 | 0.05 |
| Cypress Creek | -0.87 | -0.91 | -0.89 | 0.02 |
| Howell Branch | -0.90 | -1.05 | -0.88 | 0.07 |
| Lake Apopka | -0.87 | -0.97 | -0.91 | 0.06 |
| Lake Hart | -0.97 | -1.07 | -1.02 | 0.05 |
| Little Econlockhatchee River | -0.92 | -1.07 | -1.01 | 0.06 |
| Little Weepee River | -0.91 | -1.02 | -0.95 | 0.07 |
| Reedy Creek | -0.86 | -0.89 | -0.88 | 0.02 |
| Shingle Creek | -0.88 | -0.95 | -0.91 | 0.04 |
| St. Johns River | -1.08 | -1.33 | -1.19 | 0.14 |
| Weepee River | -0.88 | -1.01 | -0.94 | 0.07 |



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AP, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of atypical flow, velocities also determined.

ZONE AR Area of Special Flood Hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently identified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE ABS Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplains.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1986 (NAVD 86)

A-A Cross section line

20-20 Transsect line

81°07'30" 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

475'± E 1000-meter Universal Transverse Mercator grid ticks, zone 17

6000000 FT 5000-foot grid values: Florida State Plane coordinate system, East Zone (FIPS ZONE = 901), Transverse Mercator projection

Bench mark (see explanation in Notes to Users section of this FIRM panel)

1 Mile River Mile

MAP REPOSITORIES Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP DECEMBER 6, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL SEPTEMBER 25, 2009 - to update corporate limits, to change Base Flood Elevations, to add Base Flood Elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to update Special Flood Hazard Areas, to update map format, to add roads and road names, to incorporate previously issued Letters of Map Revision to reflect updated topographic information, and to incorporate previously issued Letters of Map Amendment.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

0 100 200 300 400 500 FEET
0 100 200 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0605F

FIRM

FLOOD INSURANCE RATE MAP

ORANGE COUNTY, FLORIDA

AND INCORPORATED AREAS

PANEL 605 OF 750

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY NUMBER PANEL SUFFIX
ORANGE COUNTY 120179 0605 F

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used for insurance applications for the subject community.

MAP NUMBER 12095C0605F

MAP REVISED SEPTEMBER 25, 2009

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **Floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only to landward of 0.0 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was State Plane Florida East FIPS Zone 0901. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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NOVD29 to NAVD88 Vertical Datum Conversion Table (feet)

| Watershed Name | Minimum Conversion | Maximum Conversion | Average Conversion | Maximum Offset |
|------------------------------|--------------------|--------------------|--------------------|----------------|
| Big Econlockhatchee River | -1.03 | -1.15 | -1.09 | 0.06 |
| Boggy Creek | -0.91 | -1.01 | -0.96 | 0.05 |
| Cypress Creek | -0.87 | -0.91 | -0.89 | 0.02 |
| Howell Branch | -0.90 | -1.05 | -0.88 | 0.07 |
| Lake Apopka | -0.87 | -0.97 | -0.91 | 0.06 |
| Lake Hart | -0.97 | -1.07 | -1.02 | 0.05 |
| Little Econlockhatchee River | -0.92 | -1.07 | -1.01 | 0.06 |
| Little Weechee River | -0.91 | -1.02 | -0.95 | 0.07 |
| Reedy Creek | -0.86 | -0.89 | -0.88 | 0.02 |
| Stringle Creek | -0.88 | -0.95 | -0.91 | 0.04 |
| St. Johns River | -1.08 | -1.33 | -1.19 | 0.14 |
| Weechee River | -0.88 | -1.01 | -0.94 | 0.07 |



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AP, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A: No Base Flood Elevations determined.

ZONE AE: Base Flood Elevations determined.

ZONE AH: Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR: Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently determined. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE AS: Areas to be protected from 1% annual chance flood event by a federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V: Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE: Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE: The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS:

ZONE X: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS:

ZONE X: Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D: Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS:

OTHERWISE PROTECTED AREAS (OPAs):

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation line and value; elevation in feet* (EL 987)
- Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

Cross section line: A-A

Transect line: 87°03' 30" 32°22'30"

Geographic coordinates: referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

1000-meter Universal Transverse Mercator grid ticks, zone 17

5000-foot grid values: Florida State Plane coordinate system, East Zone (FIPSZONE = 901), Transverse Mercator projection

Bench mark: (see explanation in Notes to Users section of this FIRM panel)

River Mile: M1.5

MAP REPOSITORIES: Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP: DECEMBER 6, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL: SEPTEMBER 25, 2009 - to update corporate limits, to change Base Flood Elevations, to add Base Flood Elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to delete Special Flood Hazard Areas, to update map format, to add roads and road names, to incorporate previously issued Letters of Map Revision, to reflect updated topographic information, and to incorporate previously issued Letters of Map Amendment.

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To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-438-6420.

MAP SCALE 1" = 1000'

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0585F

FIRM

FLOOD INSURANCE RATE MAP

ORANGE COUNTY, FLORIDA

AND INCORPORATED AREAS

PANEL 585 OF 750

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|----------------------------------|--------|-------|--------|
| LAKE BUENA VISTA, CITY OF | 120341 | 0585 | F |
| ORANGE COUNTY | 120179 | 0585 | F |
| REEDY CREEK IMPROVEMENT DISTRICT | 120577 | 0585 | T |

MAP NUMBER 12095C0585F

MAP REVISED SEPTEMBER 25, 2009

Federal Emergency Management Agency

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 =

Appendix C

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.

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Figure 5-1 Build Alternatives Selection Process

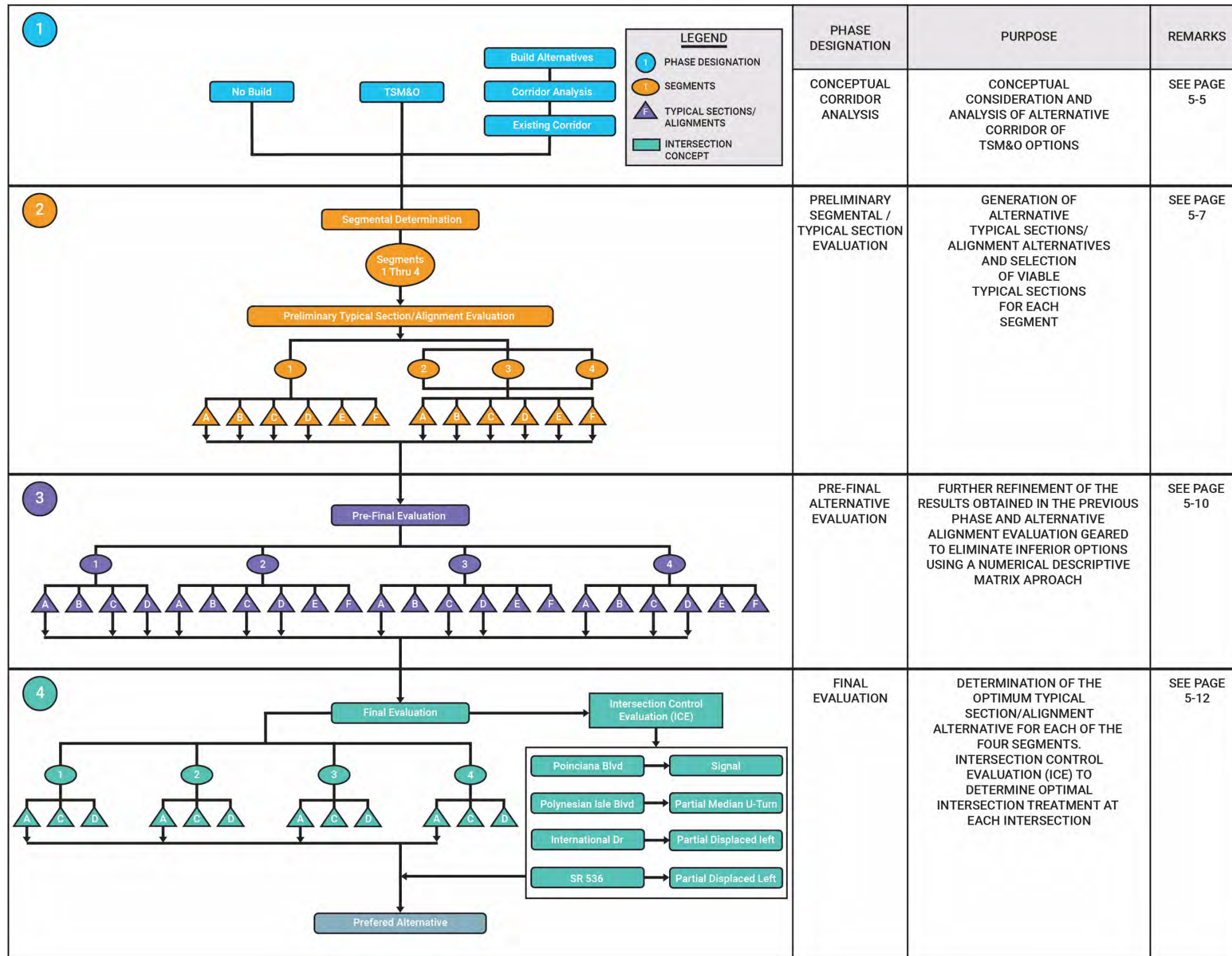


Table 1 - Preliminary Suburban Typical Section Evaluation

| ALTERNATIVES | Typical Section A - C&G Inside Widening - Shared Use Path | Typical Section B - C&G Inside Widening - Separated Bike Lane | Typical Section C - C&G Outside Widening - Shared Use Path | Typical Section D - C&G Outside Widening - Separated Bike Lane | Typical Section E - High Speed C&G Widening - Shared Use Path | Typical Section F - Flush Shoulders Widening - Shared Use Path |
|---|--|---|---|---|---|---|
| ENGINEERING | | | | | | |
| TRAFFIC SERVICE | Divided 6 lane typical section provides improved traffic service | Divided 6 lane typical section provides improved traffic service | Divided 6 lane typical section provides improved traffic service | Divided 6 lane typical section provides improved traffic service | Divided 6 lane typical section provides improved traffic service. | Divided 6 lane typical section provides improved traffic service. |
| | 8 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 |
| GEOMETRIC ISSUES | Minor geometric issues anticipated. | Potential geometric issues anticipated at the intersections due to the larger footprint required by the separated bike lanes. | Potential impacts to utilities and at the intersections caused by the wider footprint as well as base clearance considerations. | Slightly higher impacts than Typical Section C due to the wider footprint with the separated bicycle lanes. | Minor geometric issues anticipated. | Minor geometric issues anticipated. |
| | 8 | 4.8 | 3.2 | 1.6 | 4.8 | 4.8 |
| SAFETY | Generally safe typical section for vehicles, bicyclists and pedestrians. Lowering the posted speed from the existing 50 mph to 45 mph. | Generally safe typical section for vehicles, pedestrians and bicyclists due to the 8 ft separation between the bicycle lane and the travel lane while lowering the posted speed to 45 mph. However, the separated bicycle lanes may cause additional conflict points at the driveways/intersections. | Generally safe typical section for vehicles, bicyclists and pedestrians. Lowering the posted speed from the existing 50 mph to 45 mph. | Generally safe typical section for vehicles, pedestrians and bicyclists due to the 8-ft separation between the bicycle lane and the travel lane while lowering the posted speed to 45 mph. However, the separated bicycle lanes may cause additional conflict points at the driveways/intersections. | Generally safe typical section for vehicles, bicyclists and pedestrians. However, wider travel lanes with wider shoulders may encourage faster travel and safety concerns for pedestrians crossing. | Generally safe typical section for vehicles, bicyclists and pedestrians due to the extra separation between the shared use path and the travel lanes caused by the ditch. However, the wider travel lanes may encourage faster travel and safety concerns for pedestrians crossing. |
| | 10 | 8 | 8 | 8 | 4 | 4 |
| CONSTRUCTABILITY | Outside lane requires a change in slope from 0.02 to 0.03, overbuild or reconstruction may be required. | Outside lane requires a change in slope from 0.02 to 0.03, overbuild or reconstruction may be required. | Outside lane falls outside of the existing pavement where all of the milling and resurfacing of existing pavement can possibly be utilized. | Outside lane falls outside of the existing pavement where all of the milling and resurfacing of existing pavement can possibly be utilized. | Outside lane requires a change in slope from 0.02 to 0.03, portion of the existing may not be acceptable. Overbuild or reconstruction may be required. In addition requiring both inside and outside widening may be an issue. | Outside lane requires a change in slope from 0.02 to 0.03, smaller portion of the existing may be utilized. Possible widening of the inside lanes can be sloped towards the median requiring an overbuild for the outside lane. In addition requiring both inside and outside widening may be an issue. |
| | 6 | 2.4 | 2.4 | 3.6 | 2.4 | 2.4 |
| ACCESS ISSUES | Adequate median width mostly provides opportunity for effective median openings at the intersections but not as effective in comparison to Typical Sections C, D and F. | Adequate median width mostly provides opportunity for effective median openings at the intersections but not as effective in comparison to Typical Sections C, D and F. | Wider median width allows for improved u-turn operations, vehicles waiting to turn and pedestrian staged crossing. | Wider median width allows for improved u-turn operations, vehicles waiting to turn and pedestrian staged crossing. | Smaller median width mostly provides opportunity for effective median openings at the intersections. | Median width provides opportunity for effective median openings at the intersections where the median width is wider than Typical Sections A, B and E allowing for u-turns. |
| | 6 | 3.6 | 3.6 | 4.8 | 2.4 | 4.8 |
| MULTIMODAL FEATURES | Provides both a continuous 14-ft shared use path and a 9-ft sidewalk for pedestrians and bicyclists. | Provides continuous 9-ft sidewalks for pedestrians and 7-ft separated bicycle lanes on both directions. | Provides both a continuous 14-ft shared use path and a 9-ft sidewalk for pedestrians and bicyclists. | Provides continuous 9-ft sidewalks for pedestrians and 7-ft separated bicycle lanes on both directions. | Provides both a continuous 14-ft shared use path and a 8 ft sidewalk for pedestrians and bicyclists. | Provides both a 14-ft shared use path and a 8-ft sidewalk for pedestrians and bicyclists. |
| | 8 | 6.4 | 8 | 6.4 | 6.4 | 6.4 |
| WETLAND IMPACTS | Minimal wetland impacts anticipated. | Minimal wetland impacts anticipated. | Minimal wetland impacts anticipated. | Minimal wetland impacts anticipated. | Minimal wetland impacts anticipated. | Additional right-of-way impacts can potentially cause impacts to wetlands and conservation easements in Orange County. |
| | 8 | 4.8 | 4.8 | 4.8 | 4.8 | 3.2 |
| ENVIRONMENTAL | | | | | | |
| DRAINAGE IMPACTS | Storm drain systems required to convey runoff. Isolated areas may require ditch for offsite runoff, and typical provides adequate room to move in shared use path or sidewalk to accommodate within current R/W. Inside widening increases base clearance when compared to outside widening for areas with high groundwater table. | Storm drain systems required to convey runoff. Isolated areas may require ditch for offsite runoff, and typical provides least amount of room to accommodate offsite ditch so additional R/W may be required in these areas. Inside widening increases base clearance when compared to outside widening for areas with high groundwater table. Separated bike lane with C&G requires separate drainage system to collect and convey runoff. | Storm drain systems required to convey runoff. Isolated areas may require ditch for offsite runoff, and typical provides less room to move in SUP or sidewalk to accommodate within current R/W than inside widening. Outside widening decreases base clearance when compared to inside widening for areas with high groundwater table. | Storm drain systems required to convey runoff. Isolated areas may require ditch for offsite runoff, and typical provides least amount of room to accommodate offsite ditch - so additional R/W may be required in these areas. Outside widening decreases base clearance when compared to inside widening for areas with high groundwater table. Separated bike lane with C&G requires separate drainage system to collect and convey runoff. | Storm drain systems required to convey runoff. Isolated areas may require ditch for offsite runoff, and typical provides less room to move in SUP or sidewalk to accommodate within current R/W than inside widening. Addition of inside and outside shoulders increases impervious area and stormwater management volumes. Outside widening decreases base clearance when compared to inside widening for areas with high groundwater table. | Open channel systems with side drains required to convey runoff, with isolated storm drain systems anticipated. Isolated areas may require ditch for offsite runoff, and typical does not provide room to accommodate offsite ditch - so additional R/W may be required in these areas. Inside and outside widening decreases base clearance when compared to outside widening for areas with high groundwater table. |
| | 10 | 8 | 2 | 6 | 2 | 4 |
| SOCIO-ECONOMIC | | | | | | |
| VISUAL/AESTHETIC IMPACTS | Affords moderate sized area between the back of curb and the shared use path as well as the median for landscaping. | Affords moderate sized area in the median for landscaping but not as much area between the back of curb and the shared use path/sidewalk due to the separated bike lanes. | Affords moderate sized area between the back of curb and the shared use path as well as the median for landscaping. | Affords moderate sized area in the median for landscaping but not as much area between the back of curb and the shared use path/sidewalk due to the separated bike lanes. | Affords moderate sized area between the back of curb and the shared use path/sidewalk for landscaping. | Affords no area for landscaping due to the potential ditches in the median and between the outside shoulder and the shared use path/sidewalk. |
| | 4 | 3.2 | 2.4 | 3.2 | 2.4 | 0.8 |
| TRANSPORTATION PLANS COMPATIBILITY | Typical section features are compatible with adopted transportation plans. | Typical section features are compatible with adopted transportation plans. | Typical section features are compatible with adopted transportation plans. | Typical section features are compatible with adopted transportation plans. | Typical section features are compatible with adopted transportation plans. | Typical section features are compatible with adopted transportation plans. |
| | 5 | 4 | 4 | 4 | 4 | 4 |
| CONTOVERSY POTENTIAL | Minimum controversy potential. | Minimum controversy potential. | Minimum controversy potential. | Minimum controversy potential. | Minimum controversy potential. | Minimum controversy potential. |
| | 5 | 3 | 3 | 3 | 3 | 3 |
| COST | | | | | | |
| CONSTRUCTION | Generally moderate cost. | Highest cost due to the separated bicycle lanes. | Generally moderate cost. | Highest cost due to the separated bicycle lanes. | Generally high cost due to the addition of 6.5-ft inside and outside shoulder pavement with the addition of curb and gutter to the typical section. | Generally moderate cost. |
| | 6 | 2.4 | 1.2 | 2.4 | 2.4 | 3.6 |
| RIGHT-OF-WAY | Additional offsite right-of-way will be necessary for potential ponds. | Additional offsite right-of-way will be necessary for potential ponds. | Additional offsite right-of-way will be necessary for potential ponds. | Additional offsite right-of-way will be necessary for potential ponds. | Additional offsite right-of-way may be necessary for potential ponds. | Typical section requires additional r/w for the onsite ditches with potential right-of-way impacts to numerous parcels and businesses. |
| | 6 | 2.4 | 2.4 | 2.4 | 2.4 | 1.2 |
| TOTALS | Remains Viable 59.4 | 51.4 | Remains Viable 58.2 | Remains Viable 52.2 | 50.2 | 50.6 |

| LEGEND | |
|--------|---|
| ++ | SUBSTANTIALLY POSITIVE EFFECT OR BEST ALTERNATIVE |
| + | GENERALLY POSITIVE EFFECT OR GOOD ALTERNATIVE |
| = | GENERALLY NO EFFECT OR MODERATE ALTERNATIVE |
| - | GENERALLY NEGATIVE EFFECT OR INFERIOR ALTERNATIVE |
| -- | GENERALLY NEGATIVE EFFECT OR WORST ALTERNATIVE |

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: District 5

Phase: Programming Screen

County: Orange , Osceola

From: US 192 (Osceola County)

Planning Organization: FDOT District 5

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 Data From: Project Published 7/03/2019

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

| | Social and Economic | | | | | | Cultural | | | Natural | | | | Physical | | | | Emergency Response | | | |
|---|---------------------|--------|----------------------|-----------|-------------------|----------|----------|------------------------|-----------------------------------|------------------|-----------------------------|----------------------------|-------------|----------------------|--------------------|-------|-------------|--------------------|---------------|----------------|------------|
| | 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 |
| Alternative #1 From: US 192 To: N. of SR 536/World Center Dr. <i>Published: 07/03/2019 Reviewed from 05/10/2019 to 06/24/2019</i> | 2 | 3 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | N/A | 3 | 2 | 3 | 2 | N/A | 3 |

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.

TRANSPORATION 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

| Acknowledgement | 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

| Acknowledgement | 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

| Acknowledgement | 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

| Acknowledgement | 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

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

National Marine Fisheries Service

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

National Park Service

| Acknowledgement | 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

| Acknowledgement | Date Reviewed | Reviewer | Comments |
|-----------------|---------------|------------------------------------|-------------------------------------|
| Understood | 06/18/2019 | Trisha Stone (tstone@sfwmd.gov) | No Purpose and Need comments found. |

US Army Corps of Engineers

| Acknowledgement | 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

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

US Environmental Protection Agency

| Acknowledgement | 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

| Acknowledgement | 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.mtier.io.http.UnableToPingEsrimapException

Census Places Within 500 Feet

- com.esri.aims.mtier.io.http.UnableToPingEsrimapException

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 | ? 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 District 5

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: 2 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 practice, 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. Pertinent policies are summarized below.

Also, the SR 535 Corridor Planning Study recommended that TSMO and multimodal 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 Kyngs Heath Road to Vistana 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 properties. Design of the state roadway must include sidewalks, lighting, and transit opportunities - 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 CIE1.8.2, from the Osceola County line to World Center Drive/SR 536.

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 (Photenie.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 Socialcultural 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 (Xentury 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 12898 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: 2 *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: 2 *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: 2 *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 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: 1 *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: 2 *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: 1 *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: 2 *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 4f 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 1966.

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: 2 *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: 2 *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 SFWMD staff is recommended.

Direct Effects

Identified Resources and Level of Importance:

The SFWMD 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 (SFWMD). A pre-application meeting with SFWMD 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: 2 *Minimal* assigned 05/10/2019 by Adrienne Daggett, 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: 2 *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 SFWMD 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: 0 *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 Involvement 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 District 5

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 (USEPA), 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 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:

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 functional 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 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 comments and identifying the permits and mitigation bank opportunities available.

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:

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 Okeechobee 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 function, 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: 2 *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 (*Neoseps 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 USFWS 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 USFWS 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 Ulgonda Kilpatrick 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 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. 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: 2 *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 swales; 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: 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 (SFWMD). A pre-application meeting with SFWMD 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 west side 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 west side 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 (SFWMD). A pre-application meeting with SFWMD 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 useable 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 (WBID's), one of which [Shingle Creek (WBID 3169A)] is a verified impaired Florida Water for nutrients.

Degree of Effect: 2 *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: 4 *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 404.562.9474 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 Act Risk Sources, and one Super Act Risk Well. Also, FDOT acknowledged 4 water bodies within a 500-ft. buffer-Lake Cecile, 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 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 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 (SFWMD). A pre-application meeting with SFWMD staff is recommended.

Direct Effects

Identified Resources and Level of Importance:

Water quality treatment criteria of 2.5 inches of runoff times 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 SFWMD permitting. For linear projects with site constraints such as this one, compensating water quality treatment is allowed. Water quantity 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 (SFWMD). A pre-application meeting with SFWMD 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 SFWMD 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 (SFWMD). A pre-application meeting with SFWMD 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 cup-for-cup 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 (SFWMD). A pre-application meeting with SFWMD 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 floral and faunal 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: 2 *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 (*Neoseps 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 USFWS 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 USFWS 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 Ulgonda Kilpatrick in our Migratory Birds Permit Office at:

Migratory Birds Permit Office
1875 Century Boulevard, NE
Atlanta, Georgia 30345
352-406-6780 cell (MAIN)

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 (PD&E) 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 PD&E Study regarding species effect determinations and any impacts that cannot be avoided.

Degree of Effect: 2 *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

withSFWMD 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 (SFWMD). A pre-application meeting withSFWMD 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 Kristee Booth at (850) 363-6298 or email Kristee.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 ETDM #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 offsite 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, FWC 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) 363-6298 or email Kristee.Booth@MyFWC.com and ConservationPlanningServices@MyFWC.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 (PD&E) 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 useable 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 District 5

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 (PD&E) study in accordance with Part 2, Chapter 18 of the FDOT PD&E Manual.

None found

Air Quality

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 07/01/2019 by FDOT District 5

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 District 5

Comments:

The US Environmental Protection Agency assigned a DOE of "Moderate", while South Florida Water Management District assigned a Degree of Effect (DOE) of "N/A 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) 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.

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 Site
- One Brownfield location (West 192 Development Authority Area)
- 4 Onsite Sewage Sites
- 12 Storage Tank Contamination Monitoring Sits
- 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 fuels. 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 to 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: 2 Minimal assigned 07/01/2019 by FDOT District 5

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 (Magic Air Adventure), five (5) FAA obstructions, one (1) 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. 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 District 5

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 District 5

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 west side 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 (SFWMD). A pre-application meeting with SFWMD 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 (SFWMD). A pre-application meeting with SFWMD 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 PD&E 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 |
| SFWMD 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 | FFWCC | | FDOT District 5 | 07/01/19 |
| Standard (Individual) Permit | USACE | | FDOT District 5 | 07/01/19 |

Anticipated Technical Studies

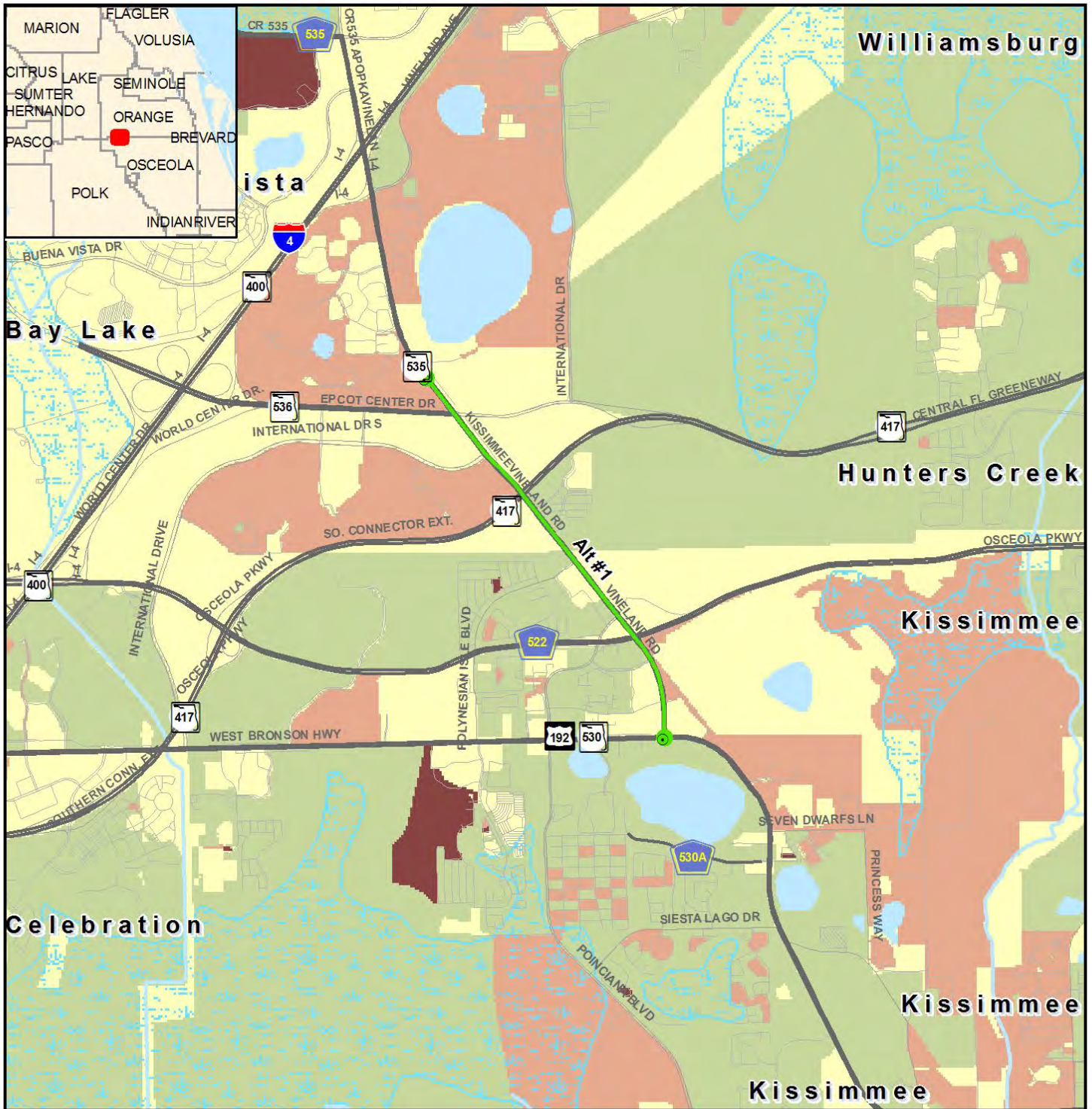
| Technical Study Name | Type | Conditions | Review Org | Review Date |
|--|---------------|------------|-----------------|-------------|
| Design Traffic Technical Memorandum | ENGINEERING | | FDOT District 5 | 07/01/2019 |
| Final Preliminary Engineering Report (signed and sealed) | ENGINEERING | | 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 Resource 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



Age Distribution Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail

Median Age

| | | | |
|--------|---------|---------|------|
| 0 - 18 | 18 - 30 | 30 - 65 | > 65 |
|--------|---------|---------|------|

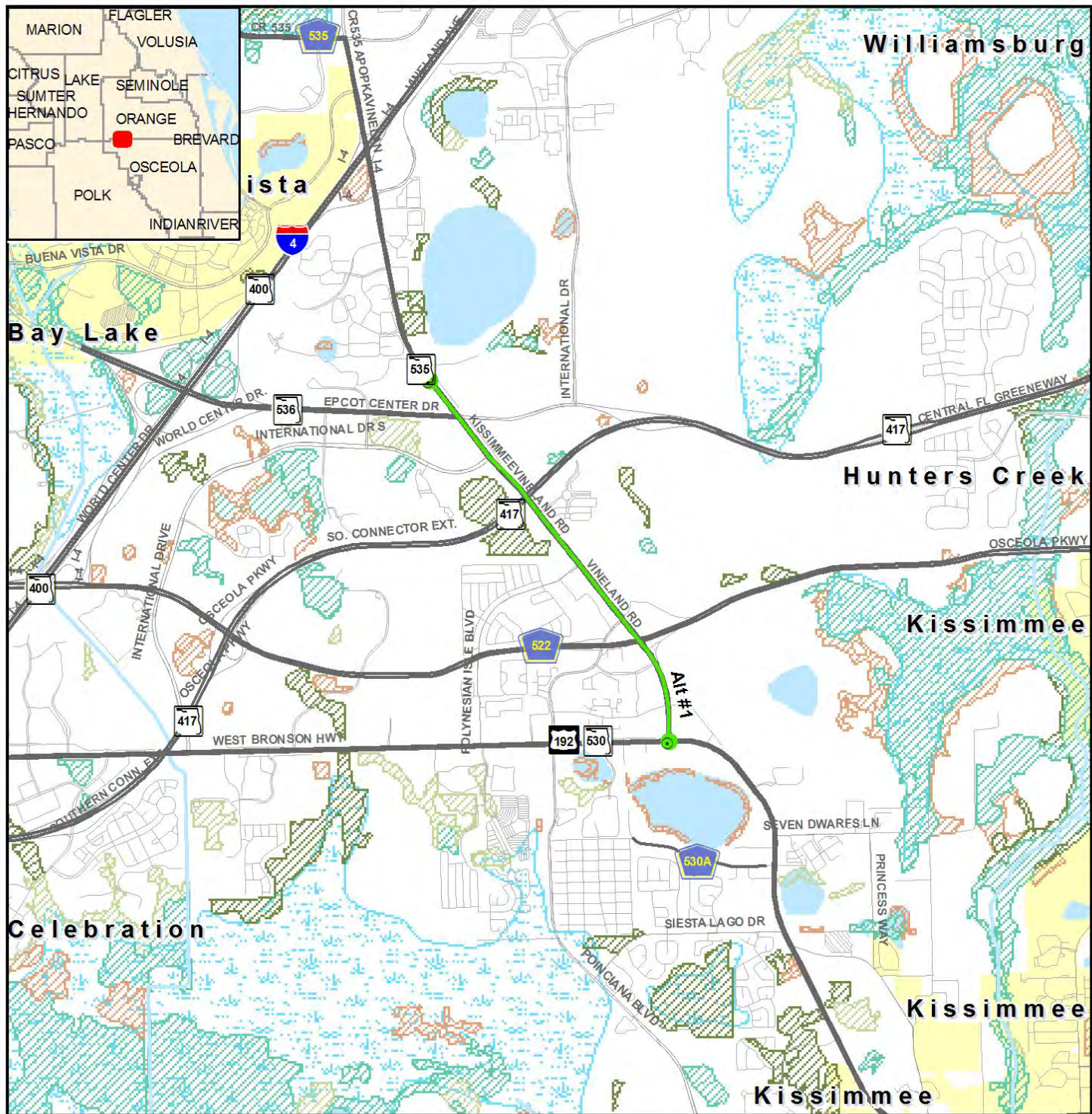
Data Sources:
 US Geological Survey
 FL Department of Transportation
 NAVTEQ
 US Census Bureau (2010)

0 0.15 0.3 0.6 Miles

N

2/12/2019

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Coastal and Marine Map

| | | | |
|---------------------------|--------------------------------------|-------------------------------|--------------------------------|
| ETDM Alternative | Swamp or Marsh | Coastal Barrier Resource Area | Non-vegetated Wetland |
| ETDM Alternative Terminus | Exposed Rocky Platform | Continuous Seagrass | Vegetated Non-forested Wetland |
| City Limits | Sand Beach | Discontinuous Seagrass | Wetland Forested Mixed |
| Navigable Water Way | Gravel Beach/Riprap | Aquatic Preserve | Wetland Coniferous Forest |
| | Exposed Tidal Flat | | Wetland Hardwood Forest |
| | Sheltered Tidal Flat | | |
| | Mixed Sand And Gravel Beach | | |
| | Sheltered Rock/Seawall/Vegetated | | |
| | Exposed Vertical Rocky Shore/Seawall | | |

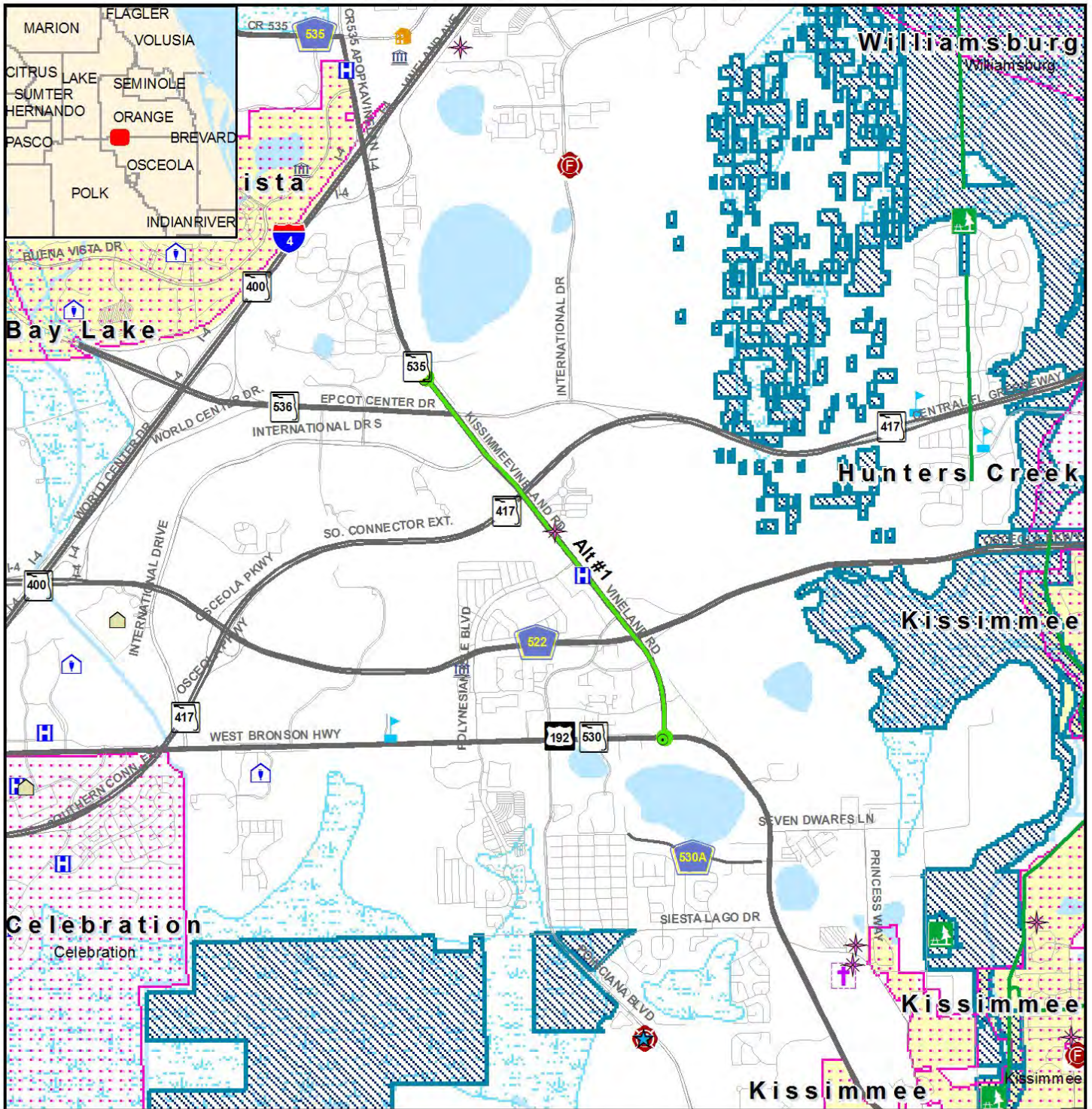
Data Sources: NAVTEQ; US Geological Survey; Florida Marine Research Institute; Florida Department of Transportation; Florida Department of Environmental Protection; National Oceanic and Atmospheric Association; Florida Water Management Districts

0 0.2 0.4 0.8 Miles N

5/2/2019

etdm Environmental Screening Tool **FDOT**

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Community Services Map

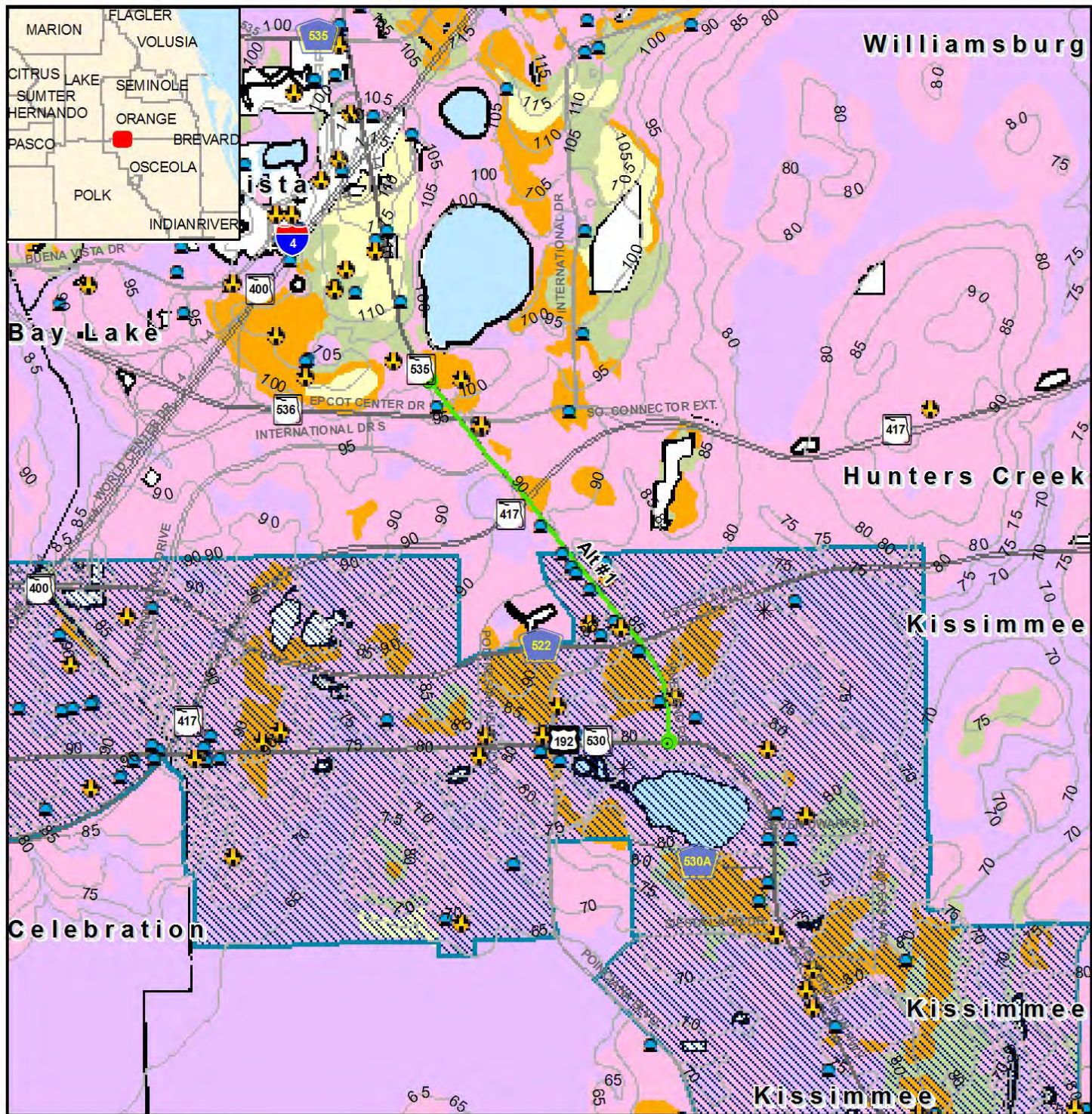
| | | | | |
|---------------------------|------------------|------------------|-------------|---------------------------------|
| ETDM Alternative | Government | Law Enforcement | Health Care | Recreational Trail |
| ETDM Alternative Terminus | Civic Center | Place of Worship | School | Community Boundary |
| 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; NAVTEQ; FL Property Appraisers; FL Natural Areas Inventory

0 0.2 0.4 0.8 Miles

5/2/2019

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Contamination Map

| | | | | |
|---------------------------|-------------------------|------------------------------|-------------------------|-------------------------|
| ETDM Alternative | Solid Waste Facility | FDEP Tanks | Soil Drainage | Somewhat Poorly Drained |
| ETDM Alternative Terminus | Hazardous Material Site | 5 FT Contour | Excessively Drained | Poorly Drained |
| Major Road | Power Plant | Brownfield Area | Well Drained | Very Poorly Drained |
| Local Road or Trail | Superfund Site | Somewhat Excessively Drained | Moderately Well Drained | Unclassified |
| Toxic Release Inventory | Nuclear Site | | | |
| Dry Cleaning Facility | | | | |

Data Sources: NAVTEQ; US Geological Survey; FL Department of Transportation; FL Department of Environmental Protection; FL Water Management Districts; US Environmental Protection Agency; Natural Resource Conservation Service

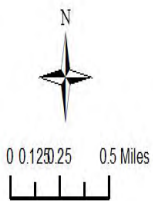
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5/2/2019

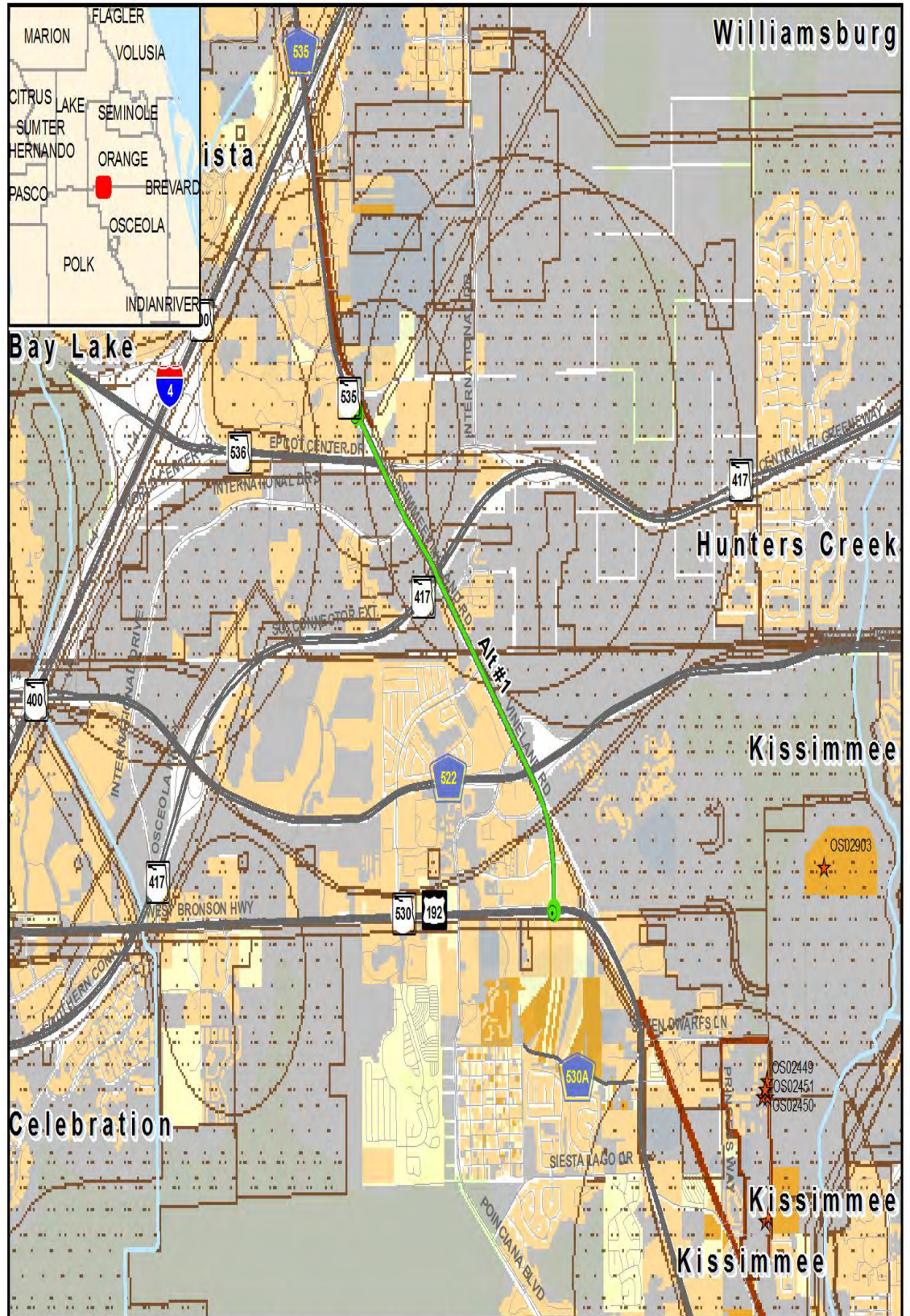
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Cultural Resources Data Map

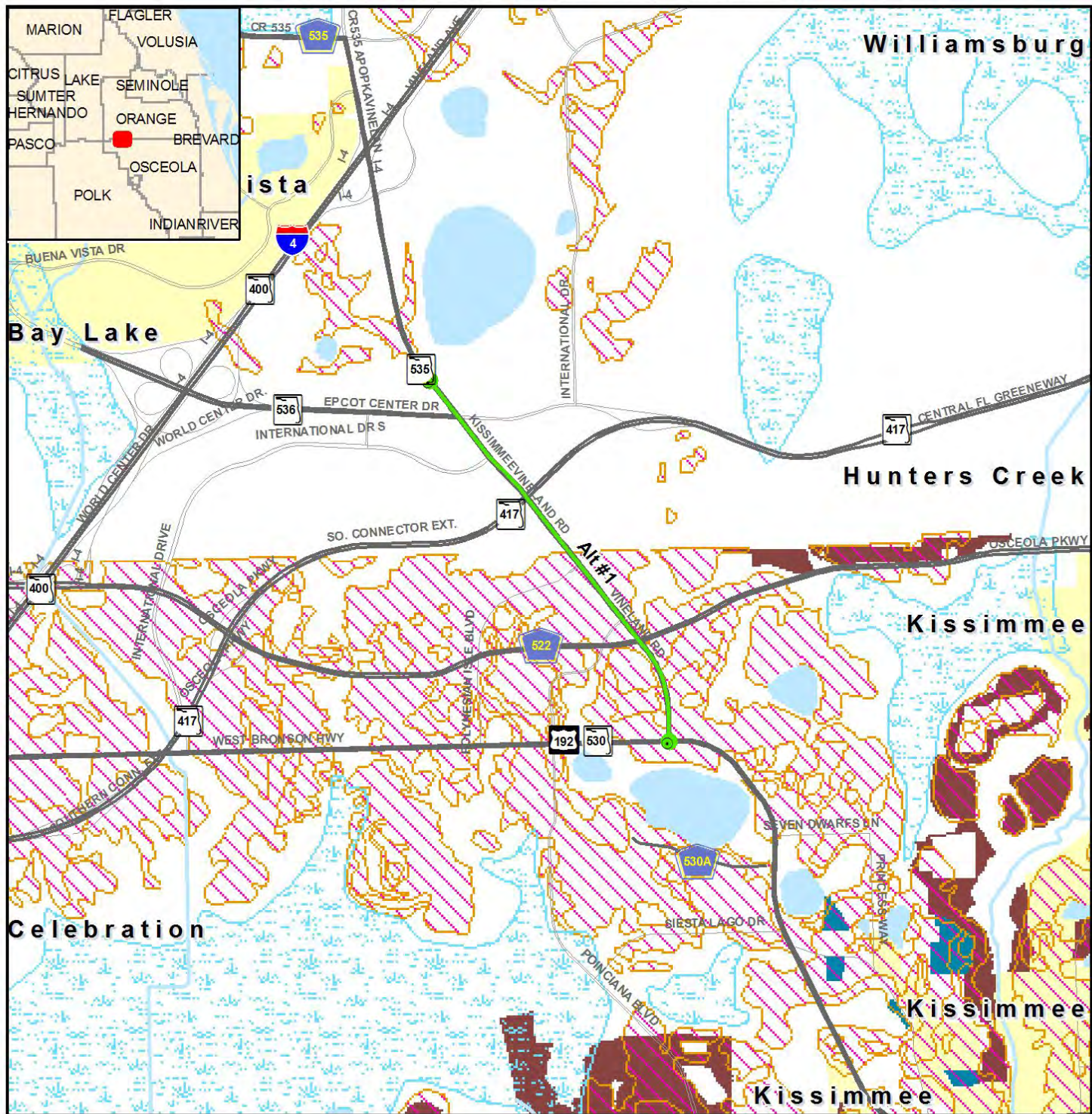
- ETDM Alternative
 - Major Road
 - Local Road or Trail
 - ★ Historic Structure
 - Historic Bridge
 - State Historic Highway
 - ⊠ Historic Cemetery
 - ⊠ Historic Resource Group
 - Cultural Resource Field Survey Area
 - ETDM Alternative
- Year Built**
- Pre 1970
 - Post 1980
 - 1970 - 1979
 - Parcels w/ no values



Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Transportation
 Florida Department of State,
 Bureau of Archaeological Research



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 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 of resources in the project vicinity.



Farmlands Map

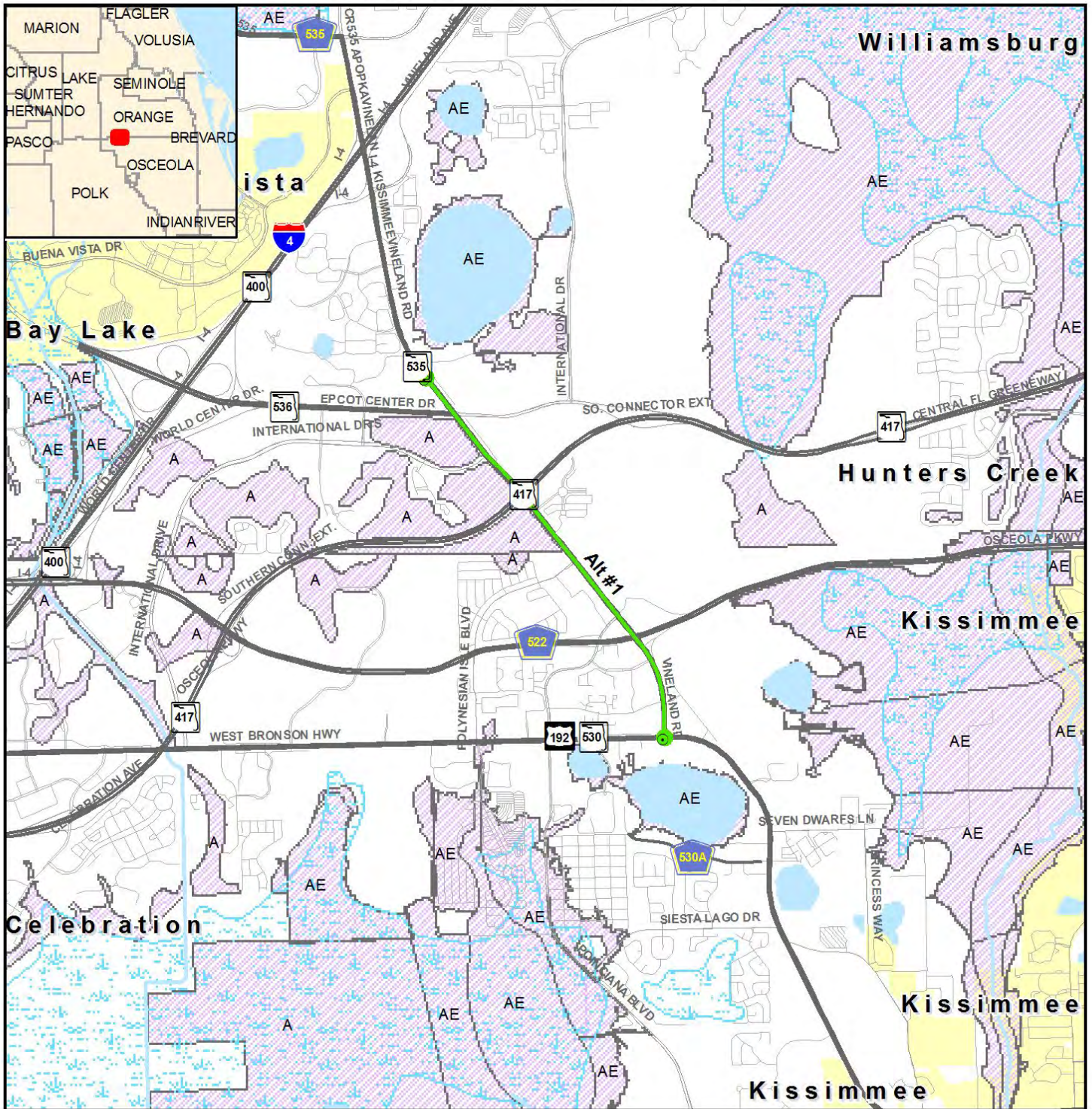
| | | |
|--|---|---|
| ■ ETDM Alternative | ■ Cropland/Pastureland | Prime Farmland Soils |
| ● ETDM Alternative Terminus | ■ Nurseries/Vineyards | |
| — Major Road | ■ Specialty Farms | |
| — Local Road or Trail | ■ Tree Crops | |
| ■ City Limits | ■ Rural Open Lands | |

Data Sources:
 NAVTEQ
 Florida Water Management Districts
 US Geological Survey
 Natural Resources Conservation Services

0 0.2 0.4 0.8 Miles

5/2/2019

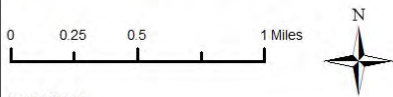
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Floodplains Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits
- Special Flood Hazard Area

Data Sources:
 NAVTEQ
 US Geological Survey
 Federal Emergency Management Agency



2/12/2019

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Historic Resource Map

| | | | |
|--|---|---------------------------|--|
| ■ ETDM Alternative | Year Built | ★ Historic Structure | Data Sources: NAVTEQ US Geological Survey Florida Department of Transportation Florida Department of State, Bureau of Archaeological Research |
| ● ETDM Alternative Terminus | ■ Pre 1970 | — Historic Bridge | |
| — Major Road | ■ Post 1980 | — State Historic Highway | |
| — Local Road or Trail | ■ 1970 - 1979 | ⊠ Historic Cemetery | |
| ■ Parcels w/ no values | ■ Cultural Resource Field Survey Area | ■ Historic Resource Group | |

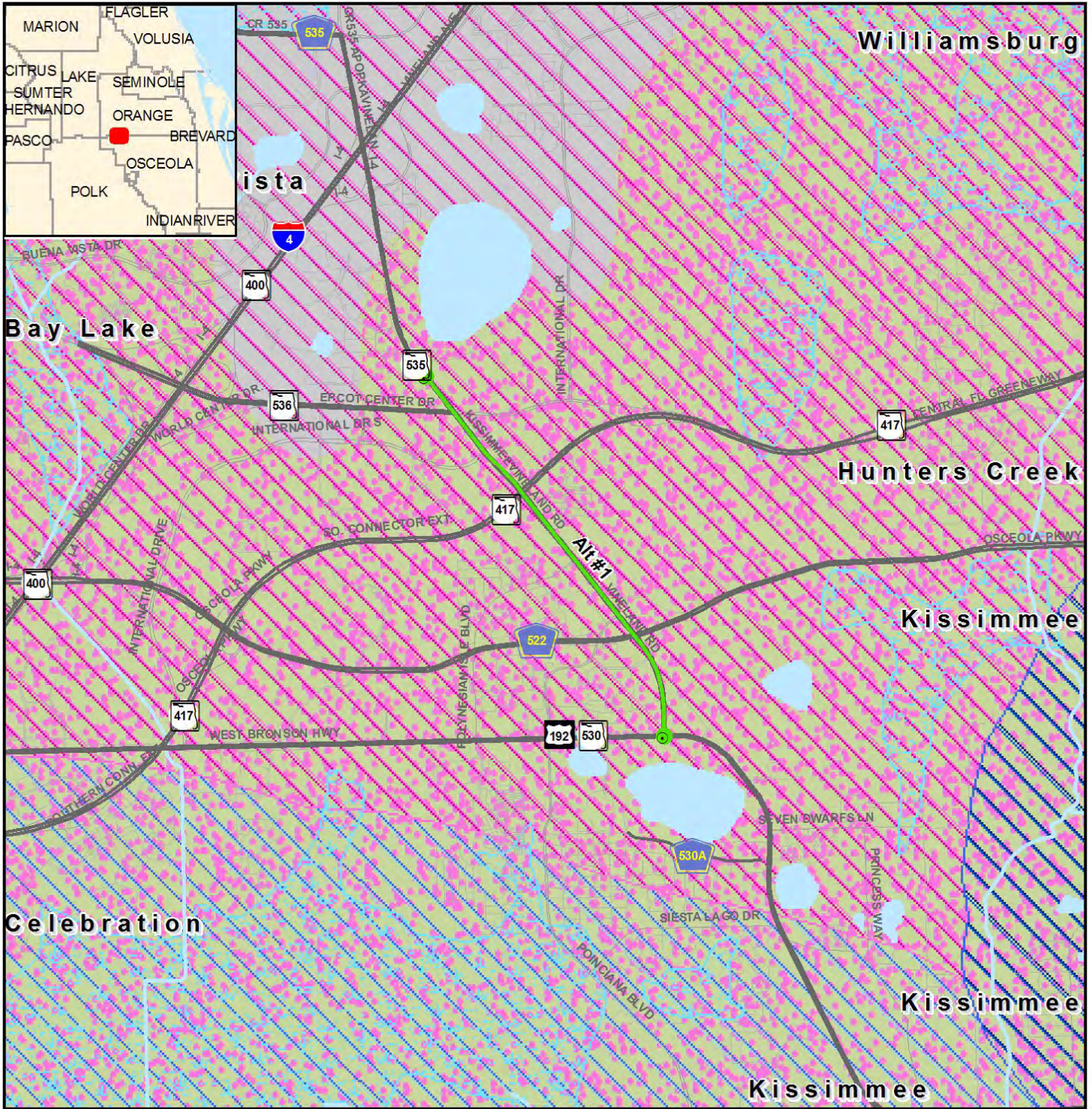
Note: Historic properties depicted on this map represent resources listed in the Florida Master Site File excluding archeological site locations, which, pursuant to Chapter 267.135, Florida Statutes, may be exempt from public record (Chapter 119.07, Florida Statutes). Absence of features on the map does not necessarily indicate an absence of resources in the project vicinity.

0 0.25 0.5 1 Miles

5/2/2019

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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"> ■ ETDM Alternative ● ETDM 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"> ■ Eocene ■ Miocene ■ Miocene/Pliocene ■ Oligocene ■ Oligocene/Miocene ■ Pleistocene ■ Holocene ■ Pleistocene/Holocene ■ Pliocene ■ Pliocene/Pleistocene |
|---|---|--|

Data Sources: NAVTEQ; US Geological Survey
Florida Department of Transportation
South West Florida Water Management District
Florida Geological Survey

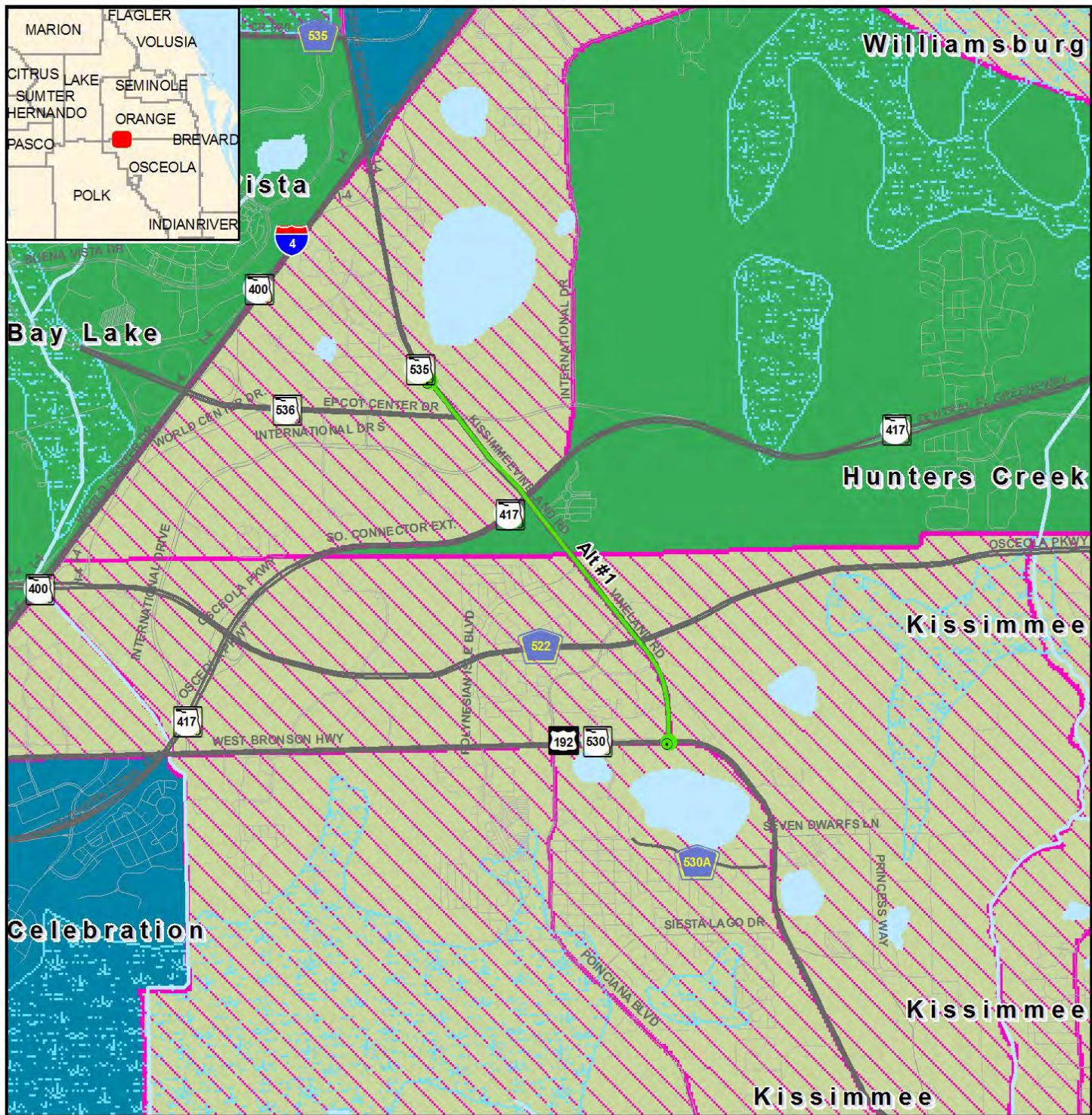
2/12/2019

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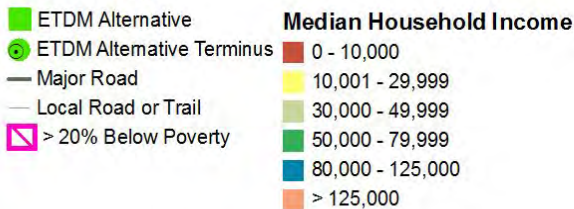
14325 SR 535 from US 192 to N. of SR 536/World

Center Dr., Alternative #1

US 192 to N. of SR 536/World Center Dr.



Income Map



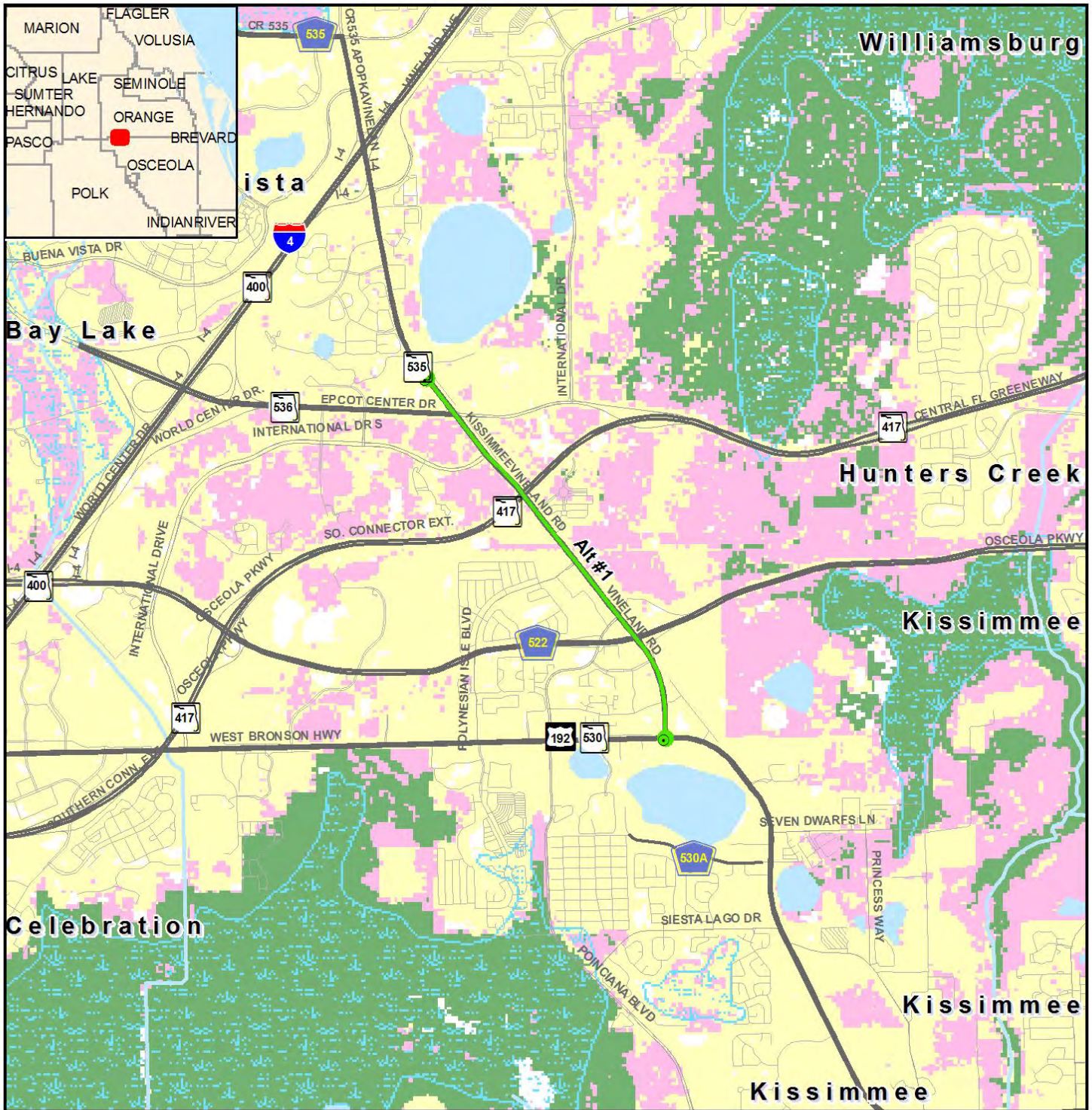
Data Sources:
 US Geological Survey
 FL Department of Transportation
 NAVTEQ
 US Census Bureau (2010)

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2/12/2019

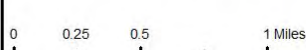
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Integrated Wildlife Model Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- Low Habitat Quality
- Medium Habitat Quality
- High Habitat Quality

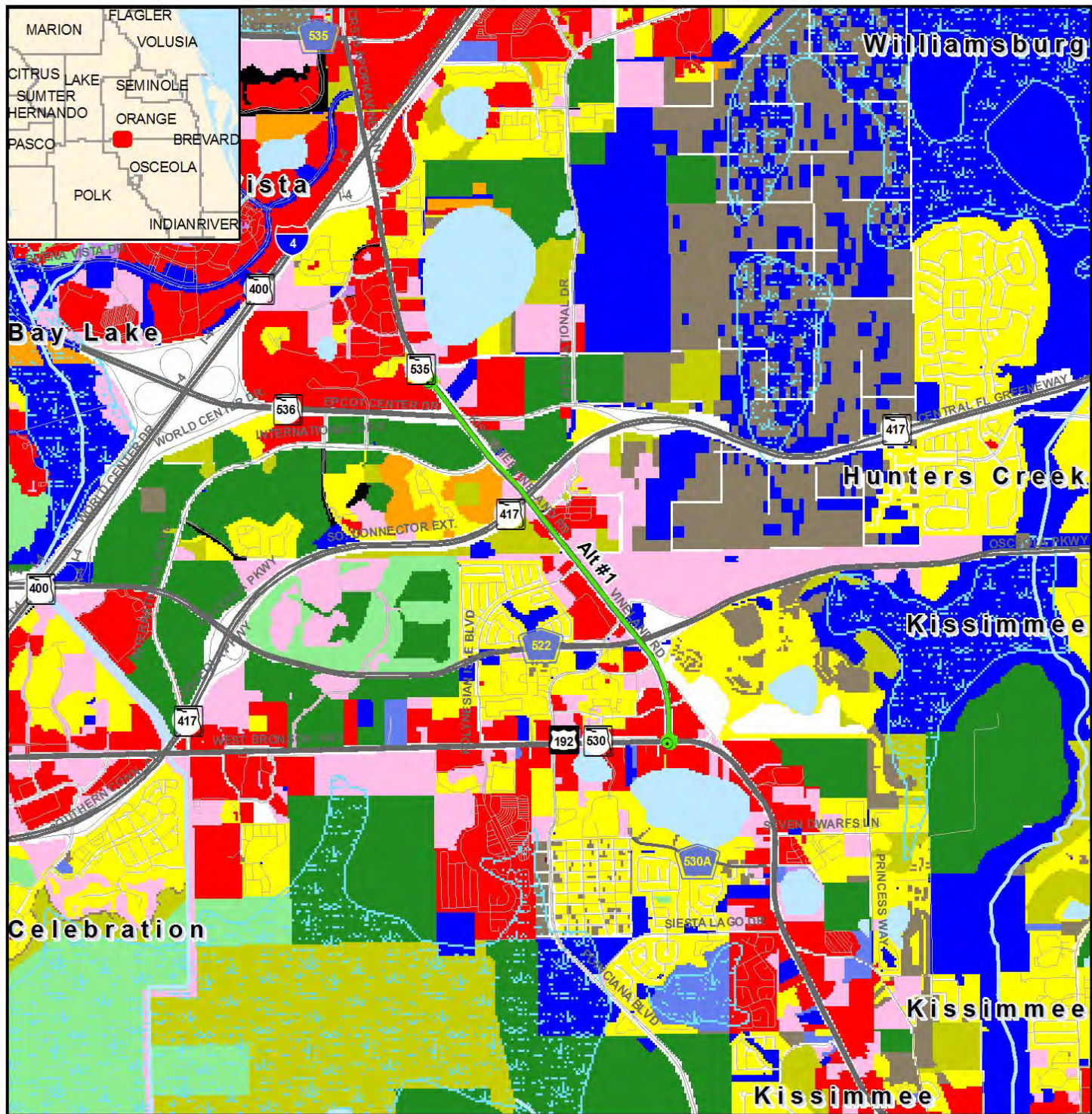
Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Transportation
 Florida Fish & Wildlife Conservation Commission



2/12/2019



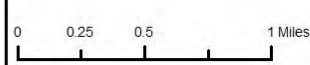
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Land Use Map

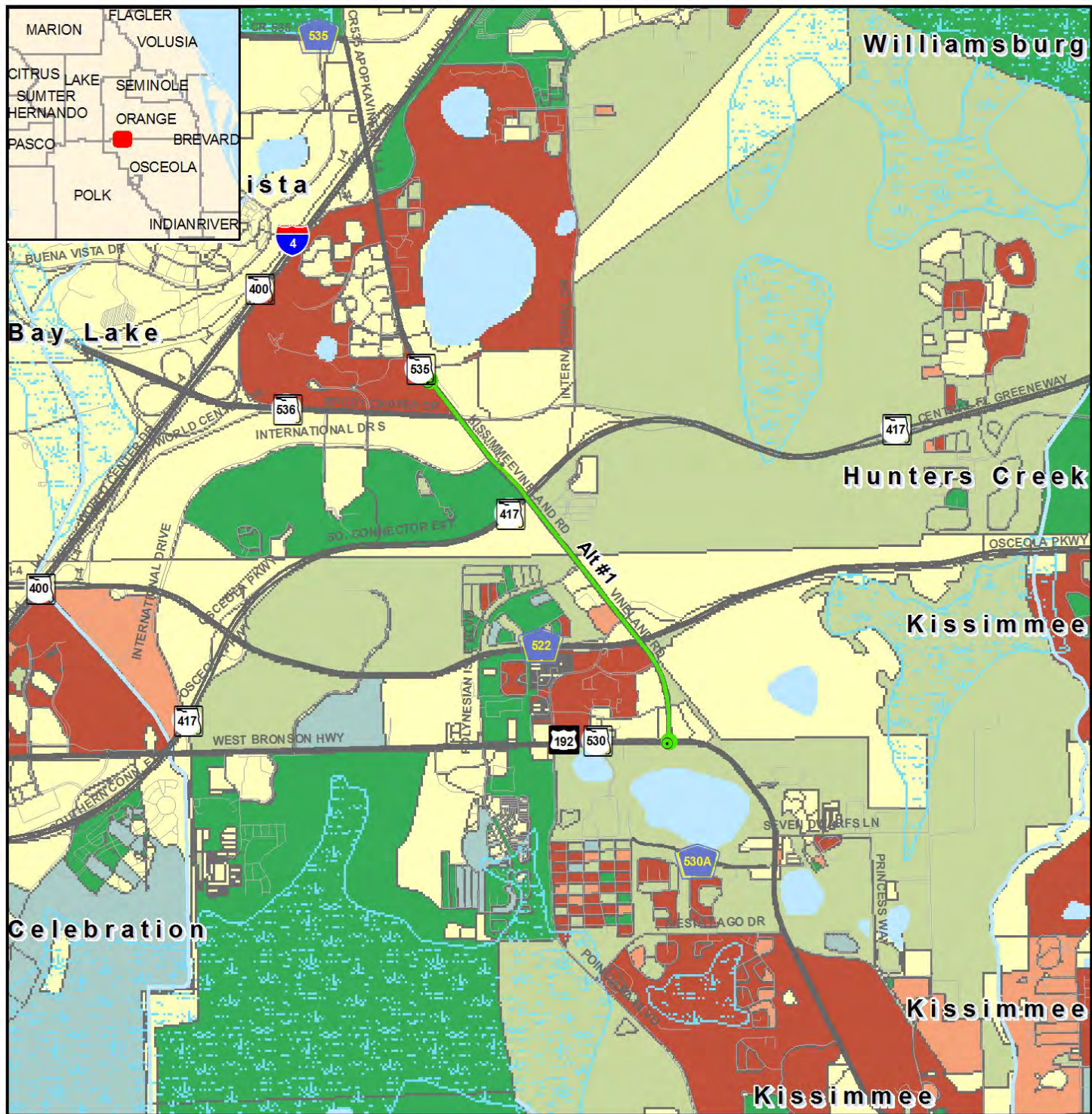
- | | | | |
|---------------------------|-------------------------|--------------|-------------------------|
| ETDM Alternative | Agricultural | Other | Retail/Office |
| ETDM Alternative Terminus | Industrial | Public | Vacant (Residential) |
| Major Road | Institutional | Right-of-Way | Vacant (Nonresidential) |
| Local Road or Trail | Mining | Recreational | Water |
| | Open (Not Agricultural) | Residential | No Data |

Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Revenue
 Florida Department of Transportation
 Florida County Property Appraiser Offices

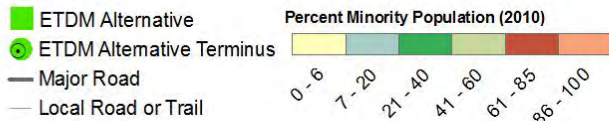


2/12/2019

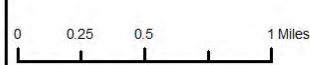
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Minority Population Map

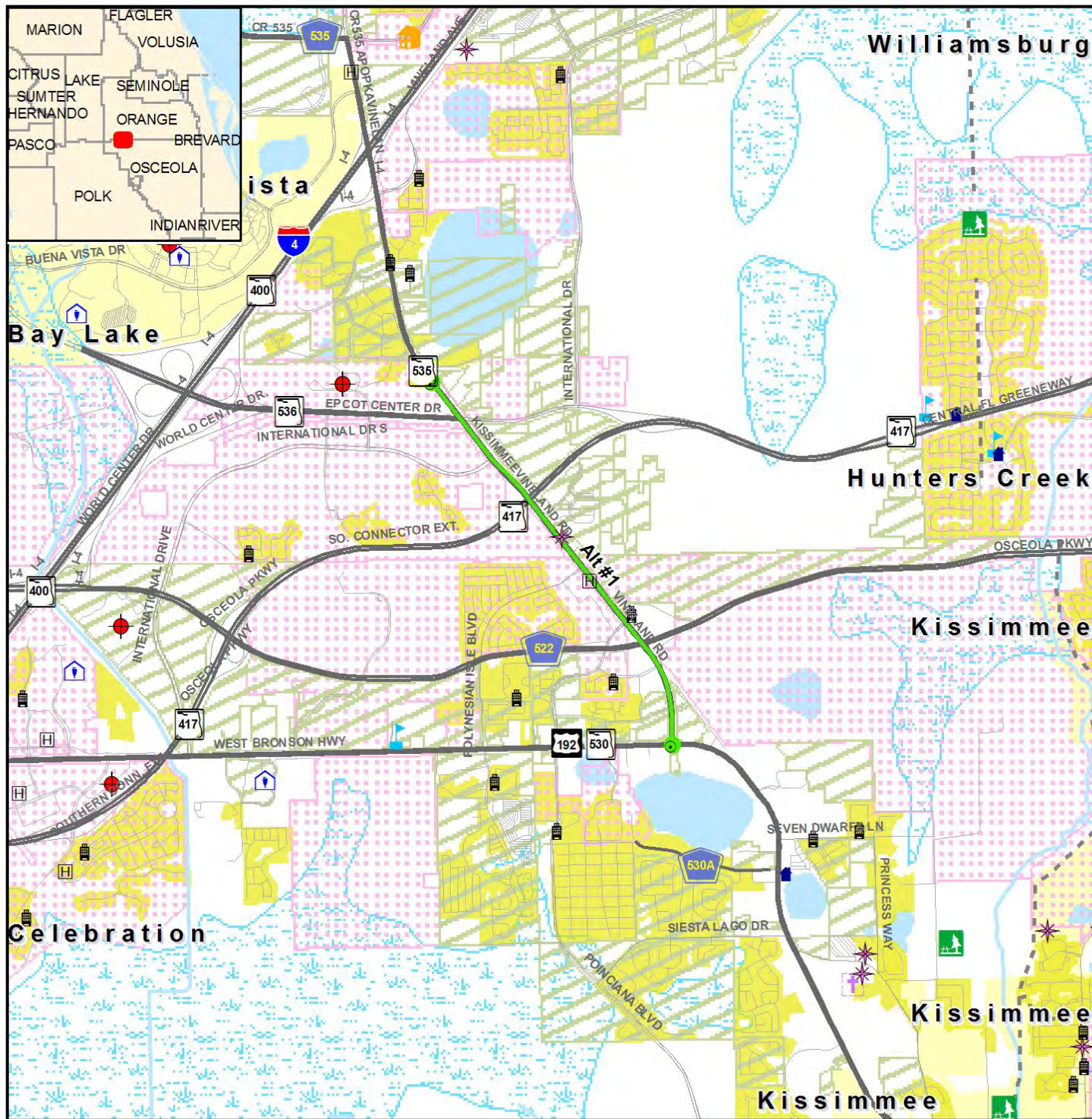


Data Sources:
 US Geological Survey
 FL Department of Transportation
 NAVTEQ
 US Census Bureau (2010)



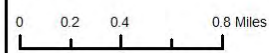
2/12/2019

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Noise Map

- | | | | | |
|---------------------------|---------------------------|------------------|---------------------------|--------------------------|
| ETDM Alternative | Condo Owners Associations | Cultural Center | Historic Cemetery | ETAT.LU_NW_INDUSTRIAL_16 |
| ETDM Alternative Terminus | Hospitals | Health Care | Planned Unit Developments | ETAT.LU_NW_RESIDENT_16 |
| City Limits | Laser On-site | Park | Wildlife Refuges | HUD Renewal |
| Noise Barriers | Group Care Facilities | Place of Worship | National Parks | Nat'l Estuarine Reserves |
| Existing Trails | Cemetery | School | National Park Projects | Enterprise Zones |
| | Community Center | | Marine Sanctuaries | DRI |
| | | | Military Installations | |

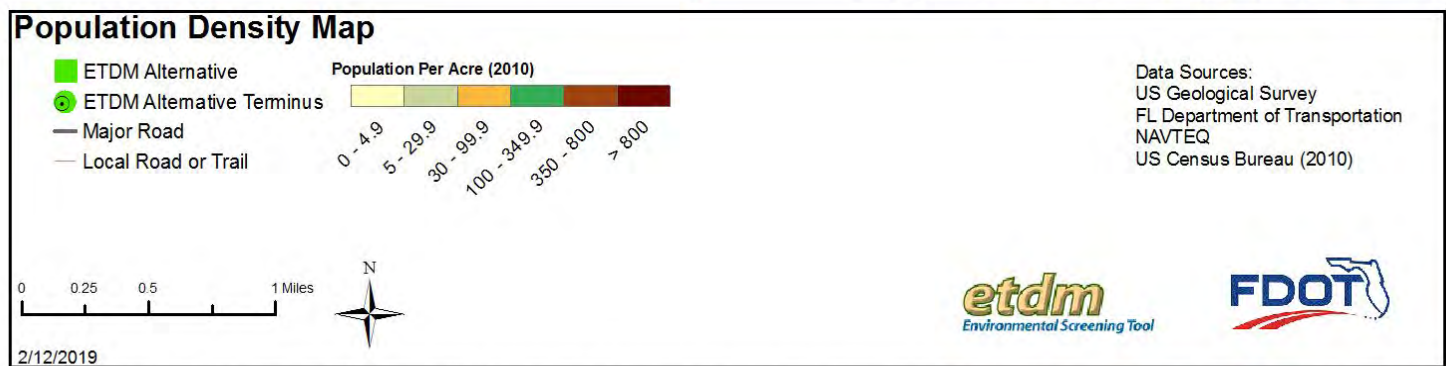


Data Sources:
 GeoPlan Center, US Geological Survey, US Census Bureau,
 HUD, Florida DOT, US Fish and Wildlife, National Park Service,
 NOAA, National Estuarine Research, Enterprise Florida



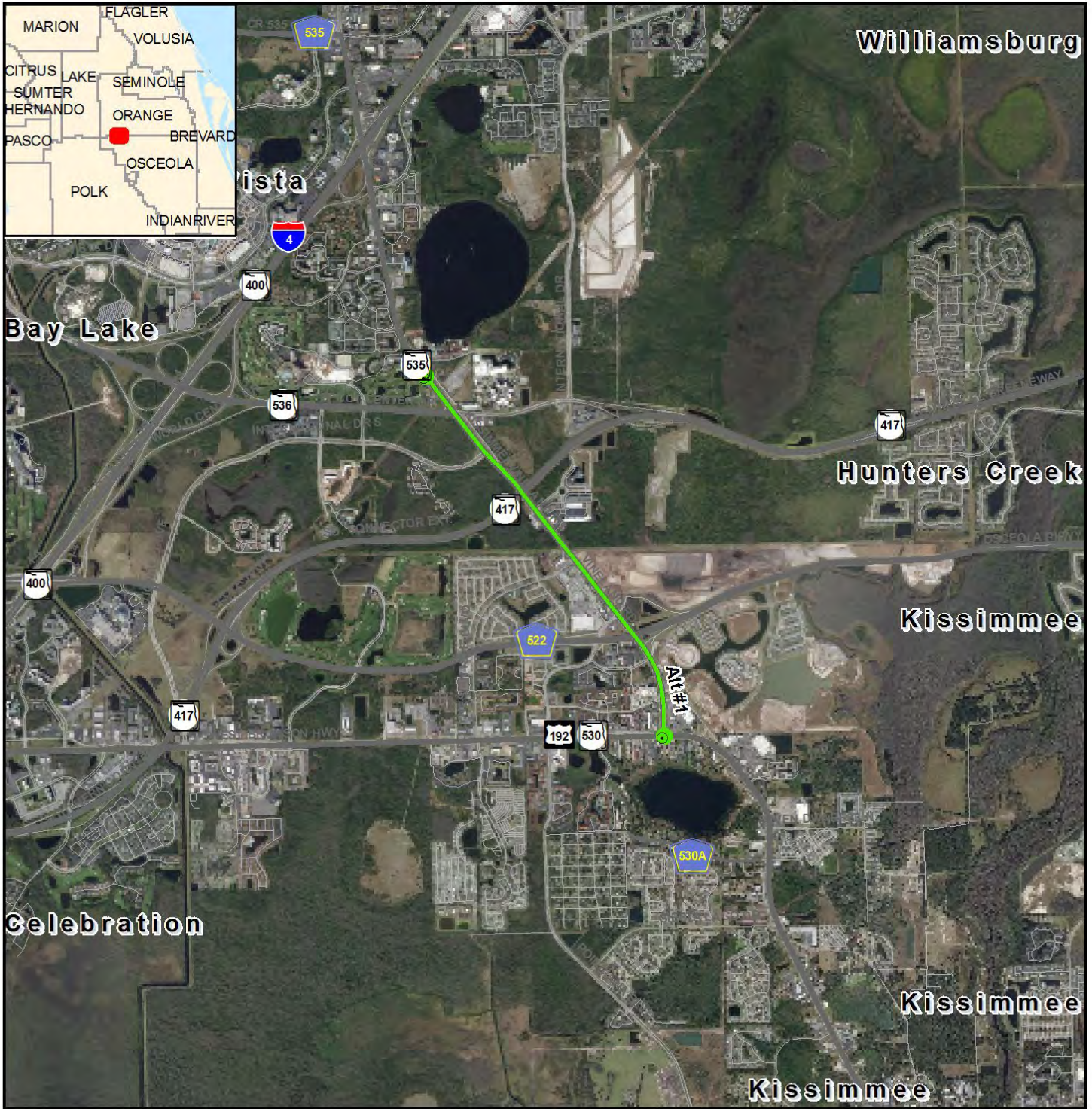
5/2/2019

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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

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail

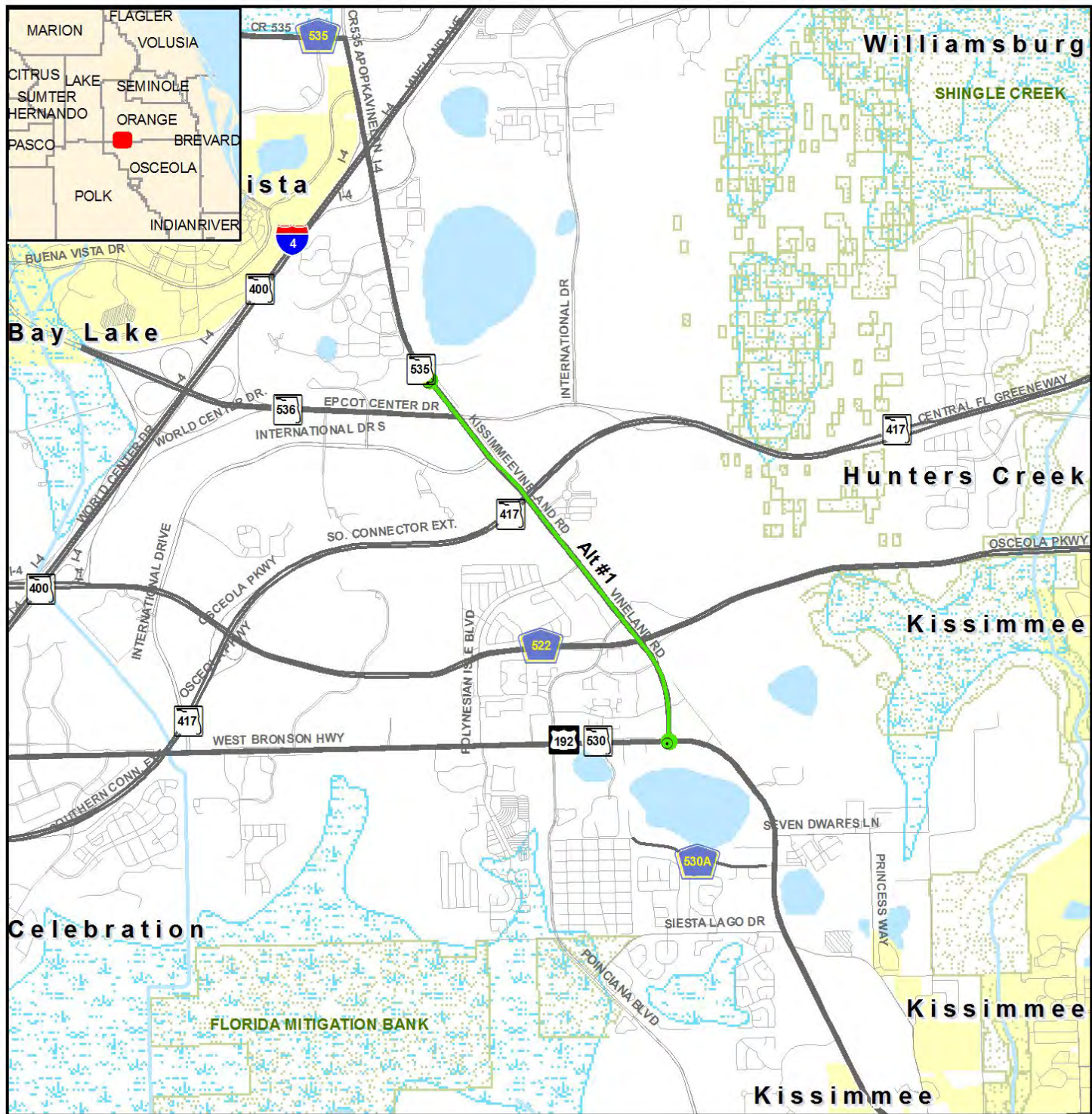
Data Sources:
Highways - NAVTEQ
Digital Orthophotograph - ArcGIS Online

0 0.25 0.5 1 Miles



2/12/2019

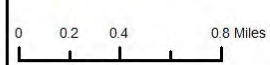
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Project Base Map

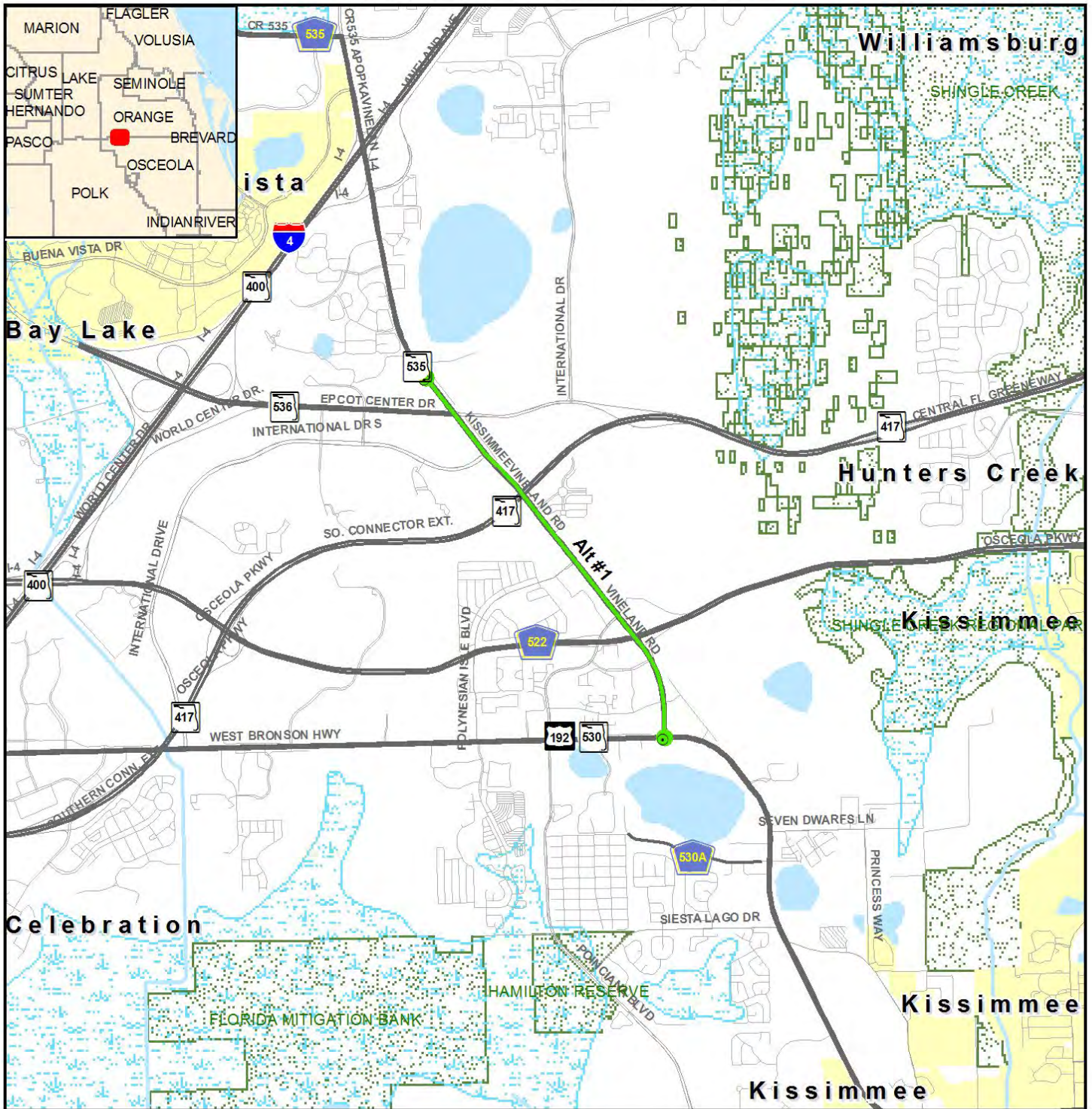
- ETDM Alternative
- ETDM Alternative Terminus
- Local Road or Trail
- Major Road
- City Limits
- ▨ Managed Conservation Lands

Data Sources:
 NAVTEQ
 US Geological Survey
 US Census Bureau
 County Property Appraisers
 Florida Natural Areas Inventory



5/2/2019

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Recreational Areas Map

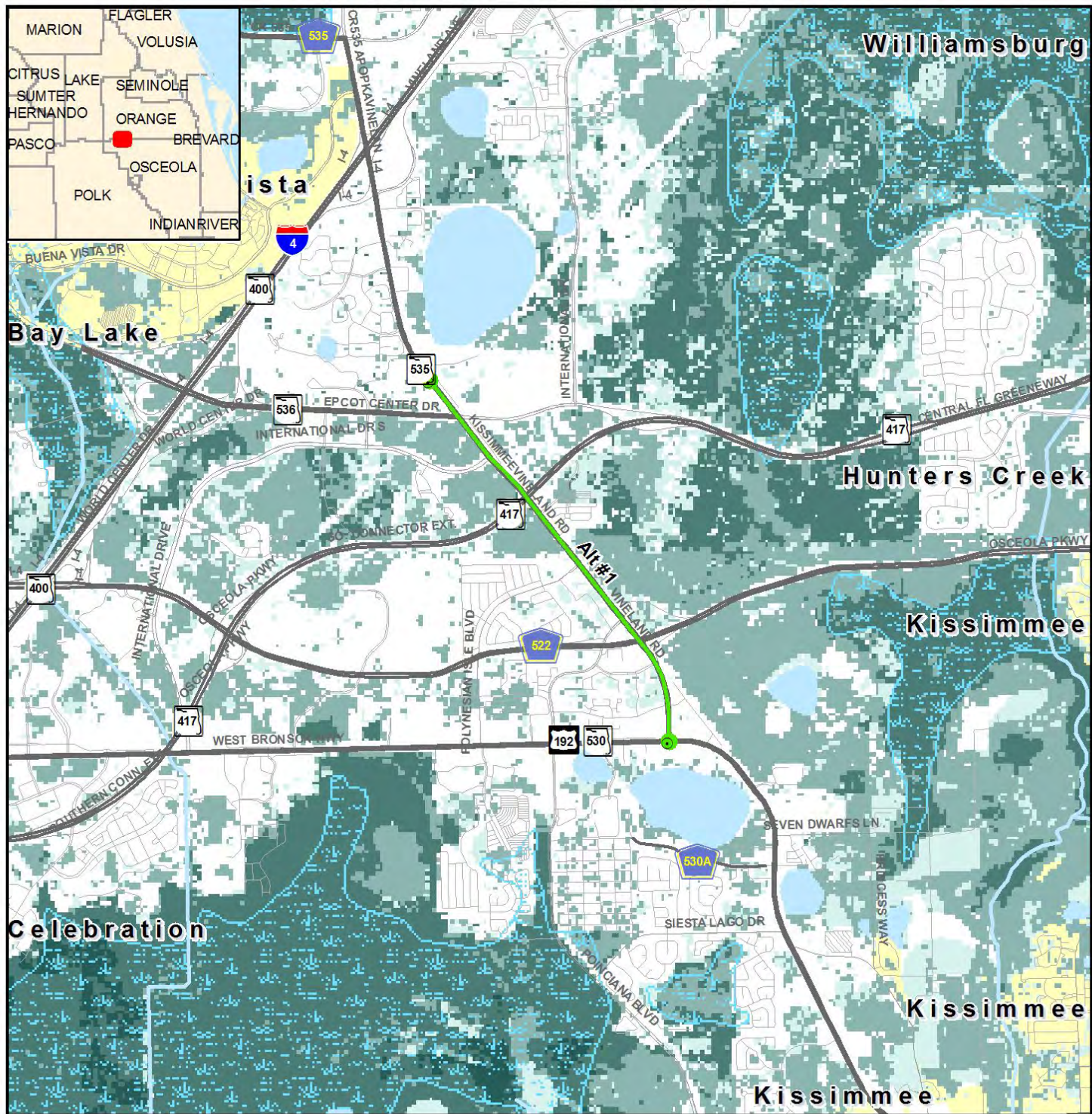
- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail
- City Limits
- Conservation or Recreation Area

Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Natural Areas Inventory

0 0.25 0.5 1 Miles

5/2/2019

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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 - 8 Species | 9 - 10 Species | 11 - 13 Species |
|---------------|---------------|---------------|----------------|-----------------|

Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Transportation
 Florida Fish & Wildlife Conservation Commission

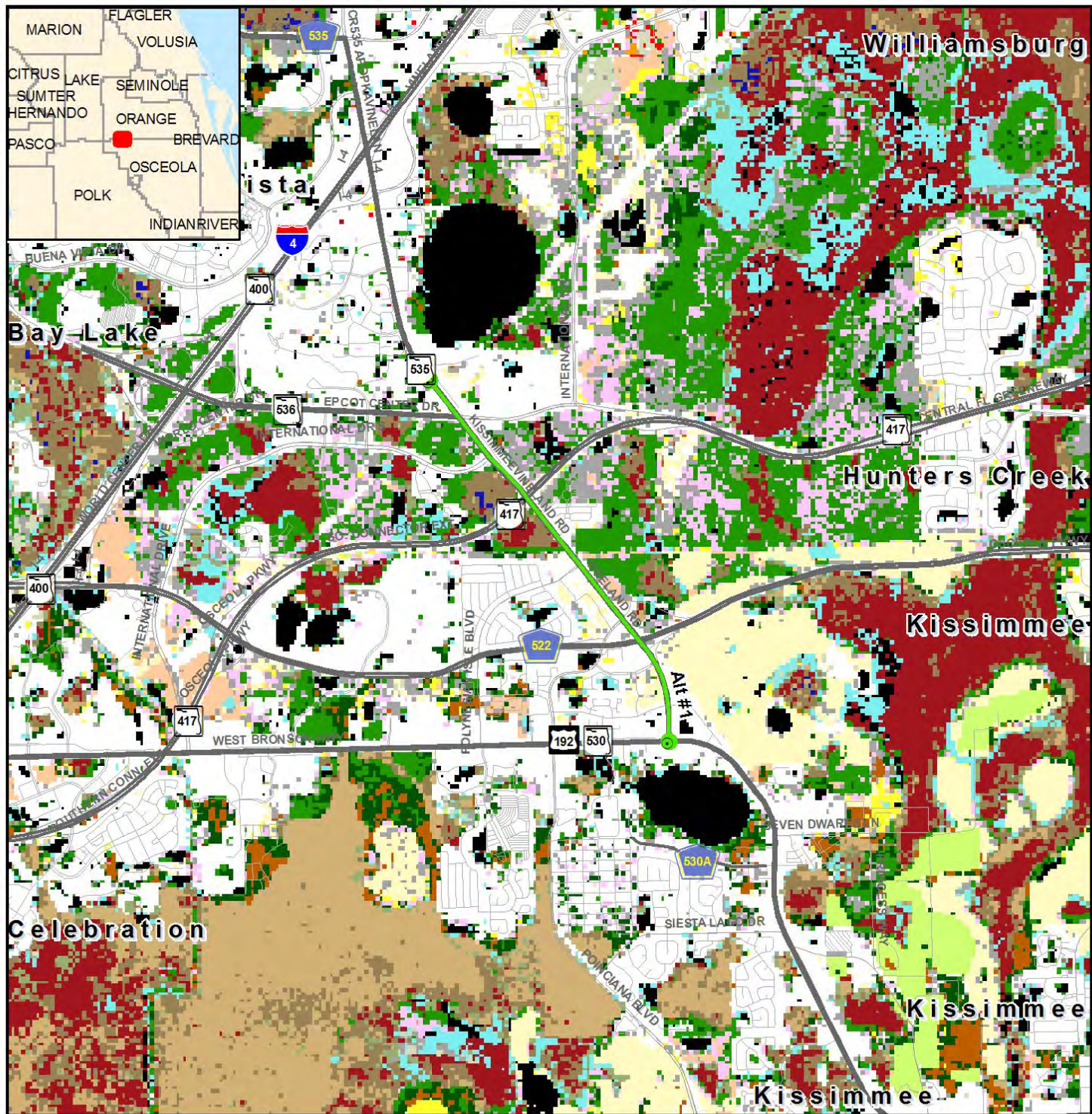
0 0.25 0.5 1 Miles

2/12/2019

etdm
Environmental Screening Tool

FDOT

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Vegetation Map

| | | | | | |
|---------------------------|----------------------------------|---------------------------|----------------------------|---------------------|-------------------|
| ETDM Alternative | Dry Prairie | Cattail Marsh | Bottomland Hardwood Forest | Bare Soil/Clearcut | Australian Pine |
| ETDM Alternative Terminus | Mixed Hardwood-pine Forest | Shrub Swamp | Salt Marsh | Improved Pasture | Melaleuca |
| Not Classified | Hardwood Hammocks and Forests | Bay Swamp | Mangrove Swamp | Unimproved Pasture | Brazilian Pepper |
| Coastal Strand | Pinelands | Cypress Swamp | Scrub Mangrove | Sugarcane | High Impact Urban |
| Sand/Beach | Cabbage Palm-live Oak Hammock | Cypress/Pine/Cabbage Palm | Tidal Flats | Citrus | Low Impact Urban |
| Xeric Oak Scrub | Tropical Hardwood Hammock | Mixed Wetland Forest | Open Water | Row and Field Crops | Extractive |
| Sand Pine Scrub | Freshwater Marsh and Wet Prairie | Hardwood Swamp | Shrub and Brushland | Other Agriculture | Exotic Plants |
| Sandhill | Sawgrass Marsh | Hydric Hammock | Grassland | | |

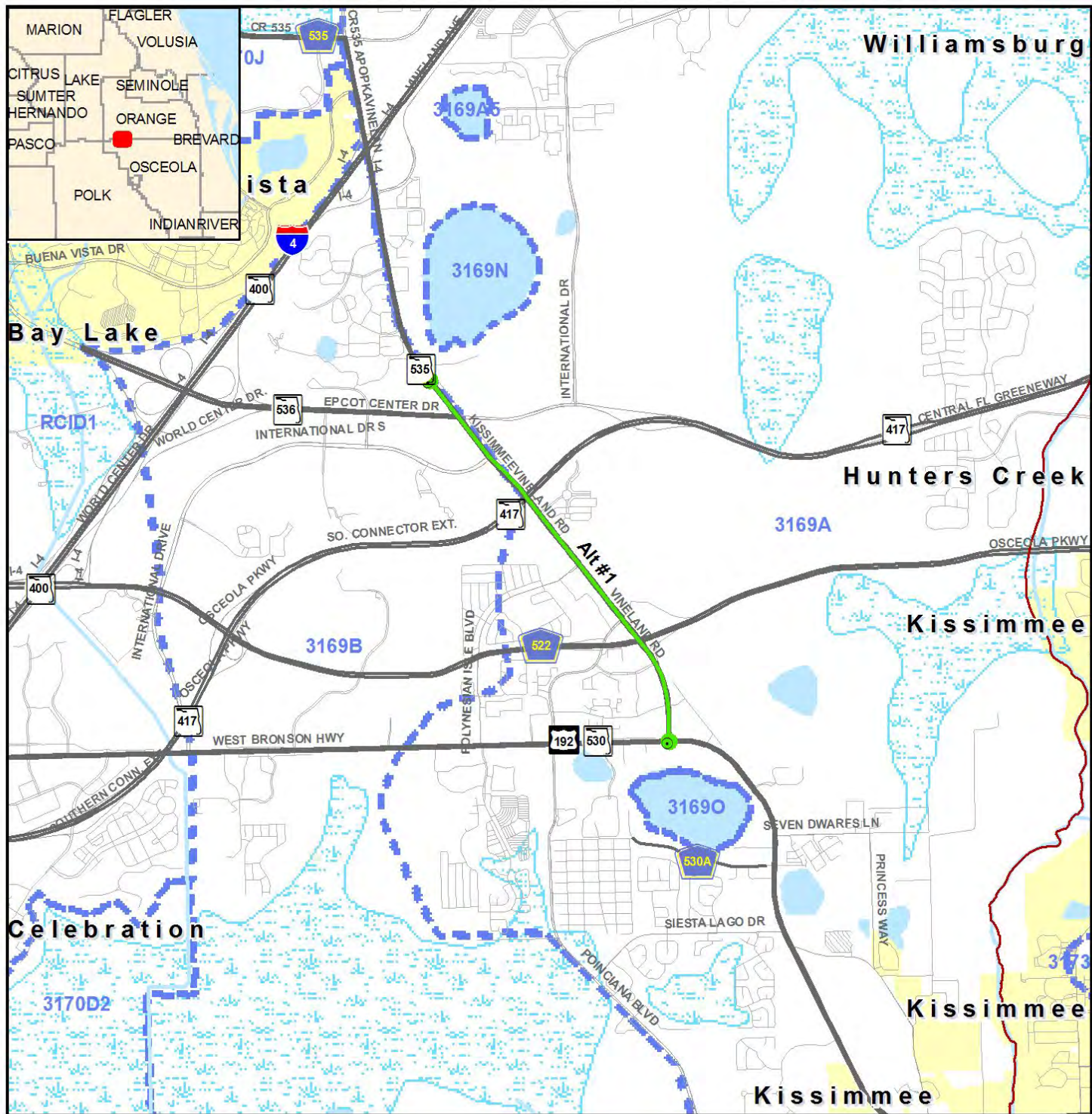
0 0.25 0.5 1 Miles

Data Sources: NAVTEQ; Florida Department of Transportation; Florida Fish and Wildlife Conservation Commission

etdm Environmental Screening Tool **FDOT**

2/12/2019

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Water Resource Map

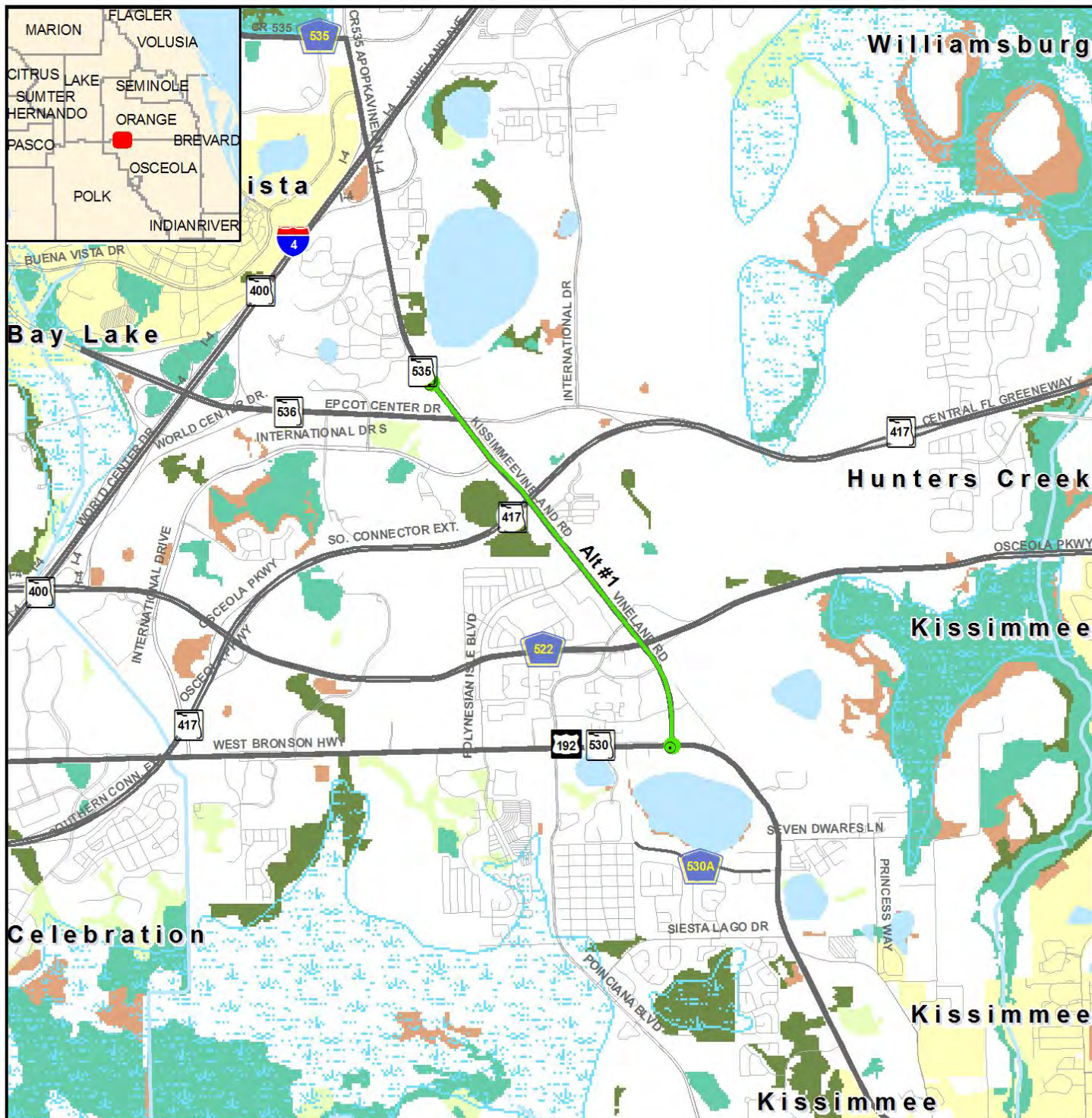
| | | | |
|---------------------------|------------------------|---------------------------|-------------|
| ETDM Alternative | 1st Magnitude Spring | Drainage Basin | Water Body |
| ETDM Alternative Terminus | River, Stream or Canal | Outstanding Florida Water | Swamp/Marsh |
| Major Road | Navigable Water Way | Surface Water Class I | |
| Local Road or Trail | SFWMD Canals | Surface Water Class II | |
| City Limits | | | |

Data Sources:
 NAVTEQ
 US Geological Survey
 Florida Department of Transportation
 Florida Department of Environmental Protection
 Florida Geological Survey
 US Bureau of Transportation Statistics

0 0.25 0.5 1 Miles

2/12/2019

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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:
 NAVTEQ
 Florida Water Management Districts
 US Geological Survey



5/2/2019

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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",\$comment.responseTimestamp)

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",\$comment.responseTimestamp)

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 Kristee Booth at (850) 363-6298 or email Kristee.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",\$comment.responseTimestamp)

FL Department of State Comment --

No comments

--Adrienne Daggett, 5/10/2019

Response --

--, \$tools.date.format("M/d/yyyy",\$comment.responseTimestamp)

GIS Analyses

Since there are so many GIS Analyses available for Project #14325 - SR 535 from US 192 to N. of SR 536/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.a-etat.org/est/index.jsp?tpID=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 moderated 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 ETDM 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 ETDM coordinator has not assigned a summary degree of effect. | |



Florida Department of Transportation

RON DESANTIS
GOVERNOR

719 South Woodland Boulevard
DeLand, Florida 32720-6834

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: 437174-2-22-01
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

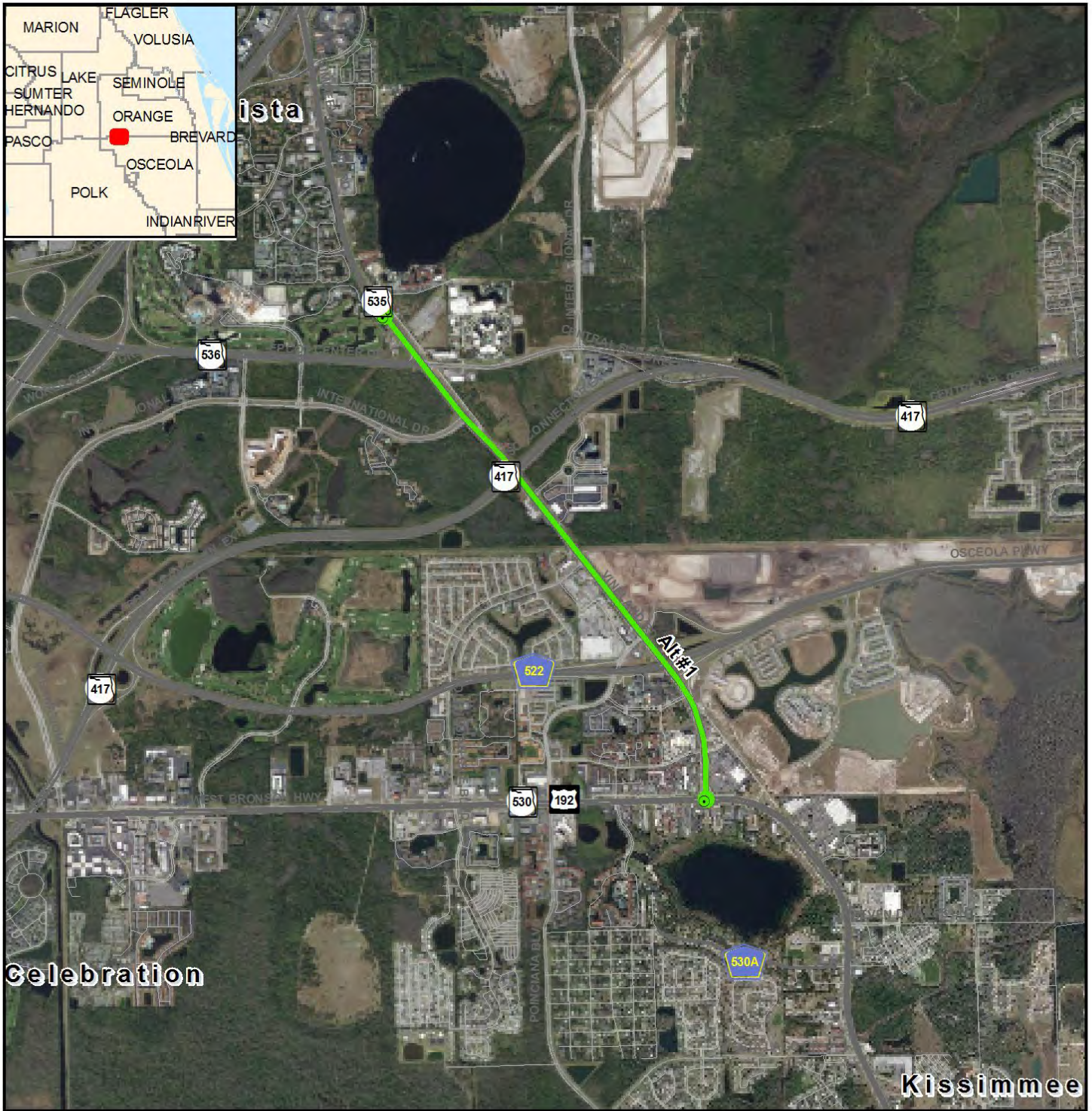
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I. Location Maps

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

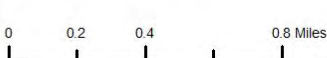
US 192 (Osceola County) to N. of SR 536/World Center Dr.



Project Aerial Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail

Data Sources:
Highways - NAVTEQ
Digital Orthophotograph - ArcGIS Online



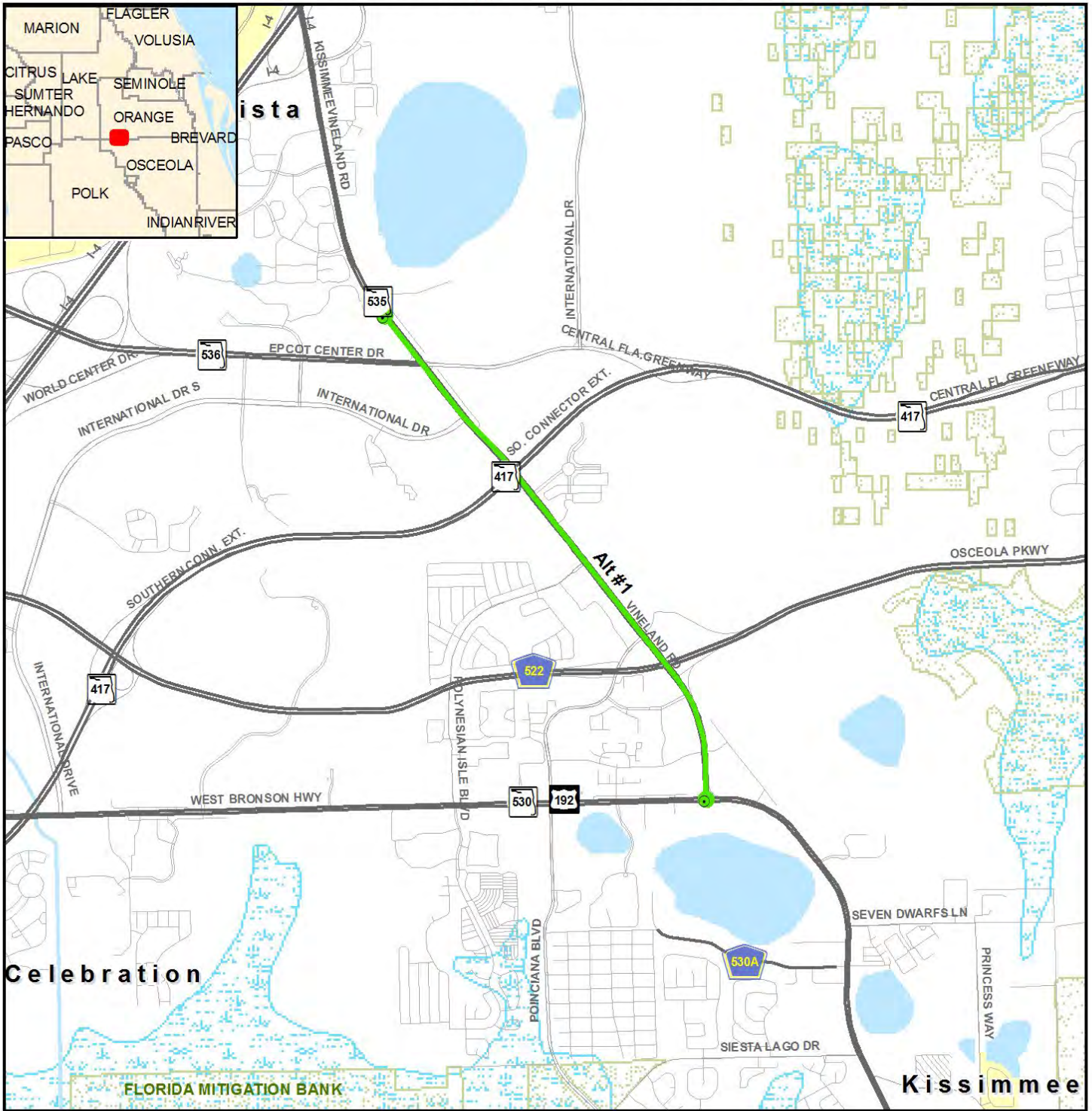
etdm
Environmental Screening Tool



2/12/2019

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

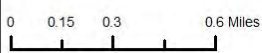
US 192 (Osceola County) to N. of SR 536/World Center Dr.



Project Base Map

- ETDM 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://etdmpub.fl.a-etat.org>

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

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

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 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.

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 Okeechobee 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 <input type="checkbox"/> Revision *Other (Specify) _____ |
| 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: | <u>386-943-5551</u> | Fax Number: <u>386-943-5718</u> |
| *Email: | <u>sarah.vangundy@dot.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:

20-205 _____

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

* Email: 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

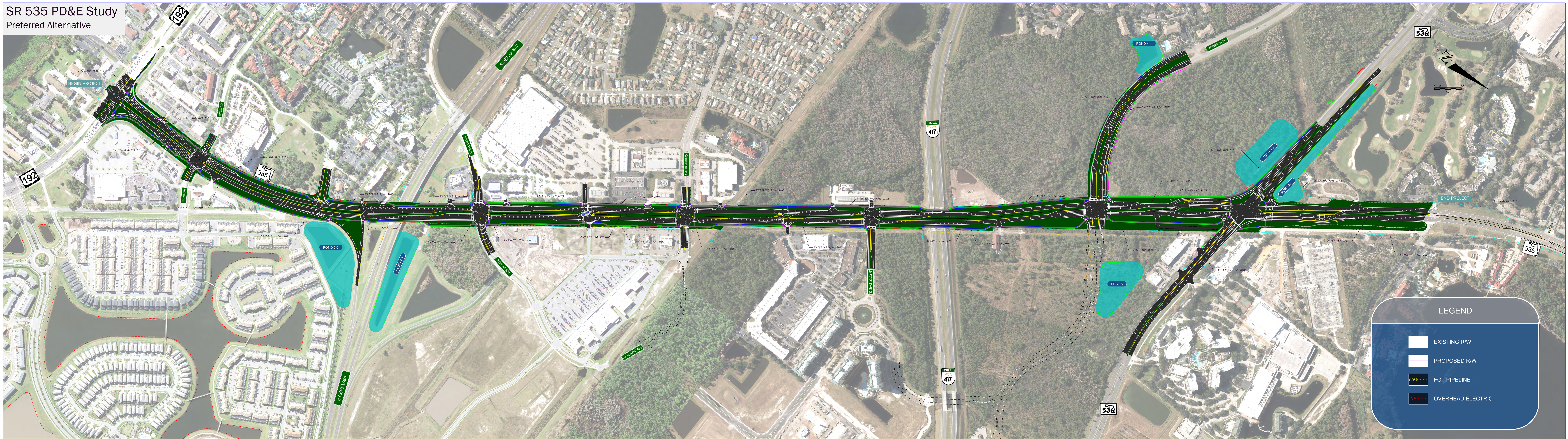
| | Organization | Name |
|-----|--|---|
| 1. | FDOT District 5 | Ganey, Jim |
| 2. | FDOT District 5 | Walsh, William G. |
| 3. | FDOT Office of Environmental Management | Britt, Katherine |
| 4. | FDOT Office of Environmental Management | Clark, Thu-Huong |
| 5. | FDOT Office of Environmental Management | Cornwell, Katasha |
| 6. | FDOT Office of Environmental Management | Kirby, Marjorie |
| 7. | FDOT Office of Environmental Management | McGilvray, Peter |
| 8. | FDOT Office of Environmental Management | Muchuruza, Victor |
| 9. | Federal Aviation Administration | * Federal Aviation Administration Orlando Airports District Office |
| 10. | Federal Transit Administration | Gosman, 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. Osceola, 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

SR 535 PD&E Study
Preferred Alternative



LEGEND

- EXISTING RW
- PROPOSED RW
- FGT PIPELINE
- OVERHEAD ELECTRIC

Appendix F – Typical Section Package

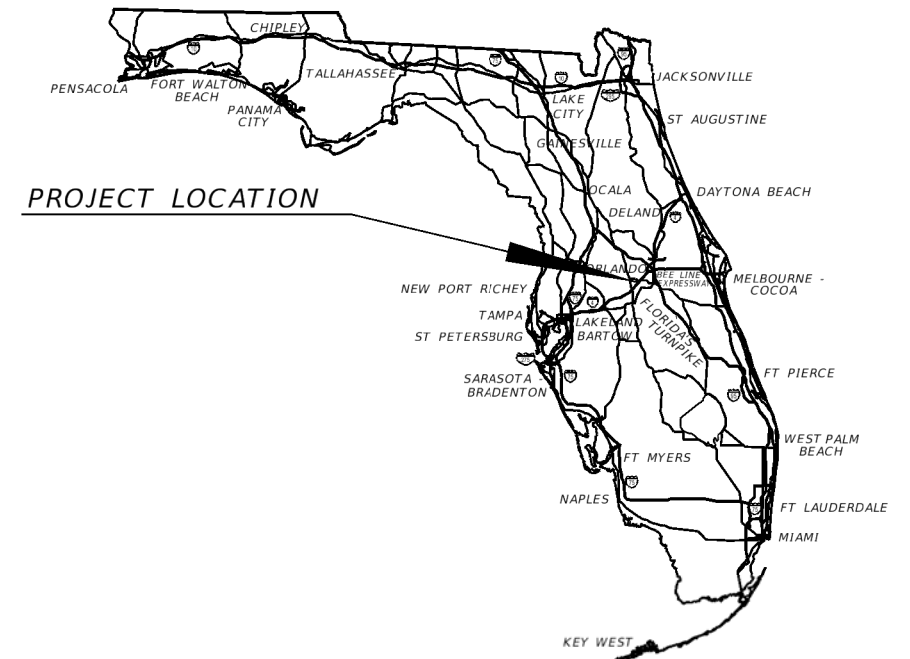
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 437174-2-22-01
(FEDERAL FUNDS)
OSCEOLA COUNTY (92040) & ORANGE COUNTY (75035)

STATE ROAD NO. 535

ADD LANES AND RECONSTRUCT FROM US 192 TO
NORTH OF WORLD CENTER DRIVE (SR 536)



| | |
|-------------------------------|---|
| FDOT DISTRICT DESIGN ENGINEER | FDOT DISTRICT TRAFFIC OPERATIONS ENGINEER |
|-------------------------------|---|

CONCURRING WITH:
TYPICAL SECTION ELEMENTS
DESIGN & POSTED SPEEDS

CONCURRING WITH:
DESIGN & POSTED SPEEDS

FDOT DISTRICT INTERMODAL SYSTEMS
DEVELOPMENT MANAGER

FDOT DISTRICT STRUCTURES
DESIGN ENGINEER

CONCURRING WITH:
CONTEXT CLASSIFICATION
TARGET SPEED

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

FHWA TRANSPORTATION ENGINEER

NOT USED

CONCURRING WITH:
TYPICAL SECTION ELEMENTS
TARGET SPEED

CONCURRING WITH:

NOT USED

NOT USED

CONCURRING WITH:

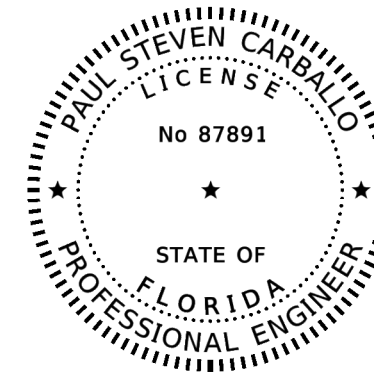
CONCURRING WITH:

PROJECT LOCATION URL: <http://tinyurl.com/SR535>

PROJECT LIMITS: OSCEOLA COUNTY
MP 0.000 TO 1.147
ORANGE COUNTY
MP 0.000 TO 1.325

EXCEPTIONS: NONE
BRIDGE LIMITS: NONE
RAILROAD CROSSING: NONE

APPROVED BY:



THIS ITEM HAS BEEN DIGITALLY
SIGNED AND SEALED BY
PAUL STEVEN CARBALLO, 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.

METRIC ENGINEERING, INC.
13940 SW 136TH ST
MIAMI, FLORIDA, 33186
PAUL STEVEN CARBALLO, P.E. NO. 87891

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE
FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

INDEX OF SHEETS

| SHEET NO | SHEET DESCRIPTION |
|----------|---------------------|
| 01 | COVER SHEET |
| 02 | TYPICAL SECTION - A |
| 03 | TYPICAL SECTION - B |
| 04 | TYPICAL SECTION - C |
| 05 | TYPICAL SECTION - D |

SHEET
NO.

01

PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL (X) C3C : SUBURBAN COMM.
- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN () C5 : URBAN CENTER
- () C3R : SUBURBAN RES. () C6 : URBAN CORE
- () N/A : L.A. FACILITY

FUNCTIONAL CLASSIFICATION

- () INTERSTATE () MAJOR COLLECTOR
- () FREEWAY/EXPWY. () MINOR COLLECTOR
- () PRINCIPAL ARTERIAL () LOCAL
- (X) MINOR ARTERIAL

HIGHWAY SYSTEM

- () NATIONAL HIGHWAY SYSTEM
- () STRATEGIC INTERMODAL SYSTEM
- (X) STATE HIGHWAY SYSTEM
- () OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

- () 1 - FREEWAY
- () 2 - RESTRICTIVE w/Service Roads
- (X) 3 - RESTRICTIVE w/660 ft. Connection Spacing
- () 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
- () 5 - RESTRICTIVE w/440 ft. Connection Spacing
- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
- () 7 - BOTH MEDIAN TYPES

CRITERIA

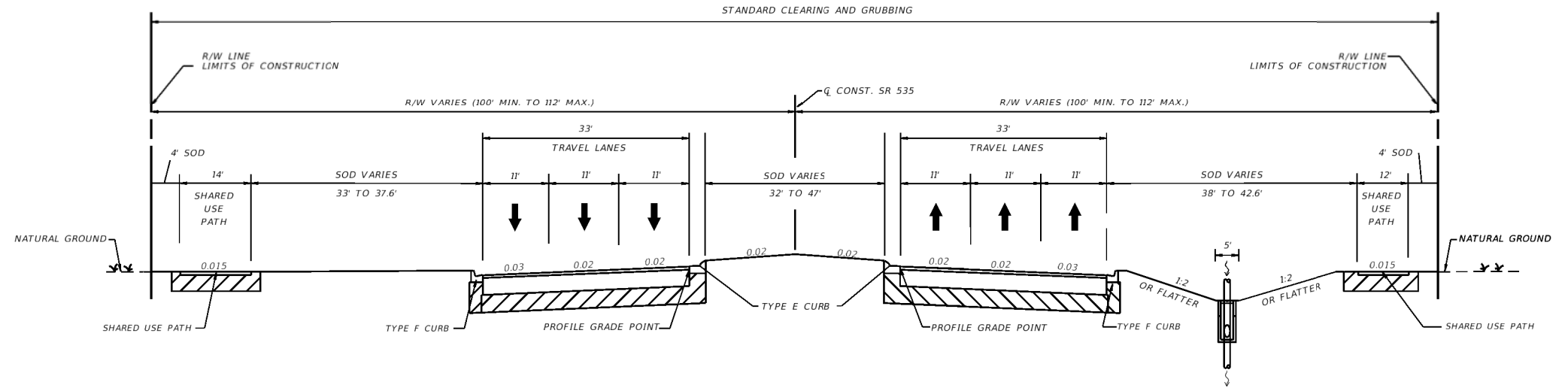
- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

DESIGN VARIATIONS

N/A

TYPICAL SECTION - A



SR 535

NOT TO SCALE

- STA. 1489+00.00 to STA. 1518+39.58
- STA. 1519+68.44 to STA. 1568+24.47
- STA. 1569+61.08 to STA. 1588+07.14

TRAFFIC DATA

EXISTING CONDITIONS =2020 AADT = 56,000
 ESTIMATED OPENING YEAR =2025 AADT = 59,500
 ESTIMATED DESIGN YEAR =2045 AADT = 73,500
 K = 7.5% D = 52.2% T = 9.4% (72 HOUR)
 DESIGN HOURS T = 12.0%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH
 TARGET SPEED = 45 MPH

FINANCIAL PROJECT ID

SHEET NO.

437174-2-22-01

02

PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL (X) C3C : SUBURBAN COMM.
- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN () C5 : URBAN CENTER
- () C3R : SUBURBAN RES. () C6 : URBAN CORE
- () N/A : L.A. FACILITY

FUNCTIONAL CLASSIFICATION

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- () FREEWAY/EXPWY. () MINOR COLLECTOR
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- (X) MINOR ARTERIAL

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- () STRATEGIC INTERMODAL SYSTEM
- (X) STATE HIGHWAY SYSTEM
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ACCESS CLASSIFICATION

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- () 2 - RESTRICTIVE w/Service Roads
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- () 5 - RESTRICTIVE w/440 ft. Connection Spacing
- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
- () 7 - BOTH MEDIAN TYPES

CRITERIA

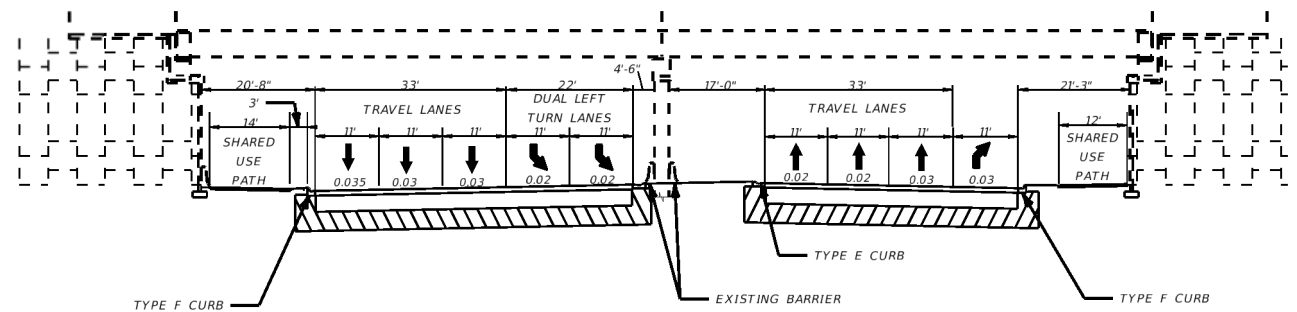
- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

DESIGN VARIATIONS

N/A

TYPICAL SECTION - B



OSCEOLA PARKWAY OVER SR 535
STA. 1518+39.58 to STA. 1519+68.44

NOT TO SCALE

TRAFFIC DATA

EXISTING CONDITIONS =2020 AADT = 56,000
 ESTIMATED OPENING YEAR =2025 AADT = 59,500
 ESTIMATED DESIGN YEAR =2045 AADT = 73,500
 K = 7.5% D = 52.2% T = 9.4% (72 HOUR)
 DESIGN HOURS T = 12.0%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH
 TARGET SPEED = 45 MPH

FINANCIAL PROJECT ID

SHEET NO.

437174-2-22-01

03

PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL (X) C3C : SUBURBAN COMM.
- () C2 : RURAL () C4 : URBAN GENERAL
- () C2T : RURAL TOWN () C5 : URBAN CENTER
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- (X) STATE HIGHWAY SYSTEM
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- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
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CRITERIA

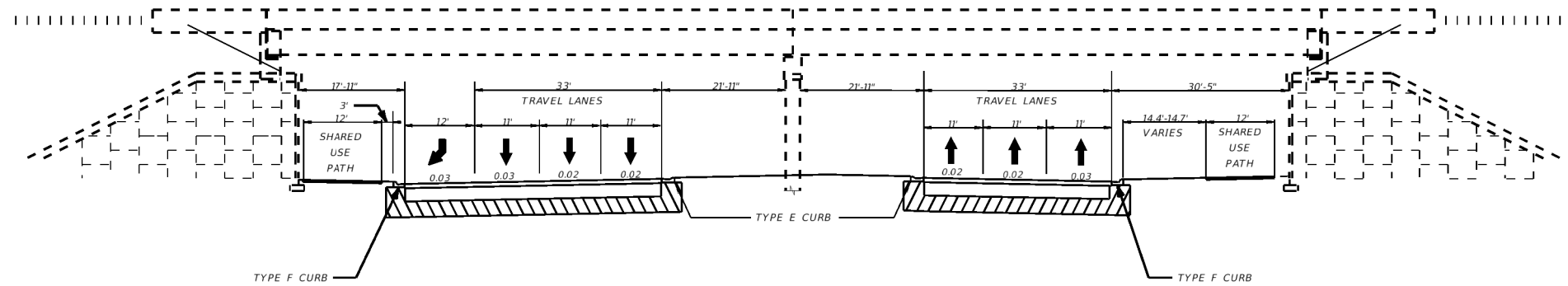
- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

DESIGN VARIATIONS

N/A

TYPICAL SECTION - C



SR 417 OVER SR 535
STA. 1568+24.47 to STA. 1569+61.08

NOT TO SCALE

TRAFFIC DATA

EXISTING CONDITIONS =2020 AADT = 56,000
 ESTIMATED OPENING YEAR =2025 AADT = 59,500
 ESTIMATED DESIGN YEAR =2045 AADT = 73,500
 K = 7.5% D = 52.2% T = 9.4% (72 HOUR)
 DESIGN HOURS T = 12.0%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH
 TARGET SPEED = 45 MPH

| | |
|----------------------|-----------|
| FINANCIAL PROJECT ID | SHEET NO. |
| 437174-2-22-01 | 04 |

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

- () C1 : NATURAL (X) C3C : SUBURBAN COMM.
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- () 5 - RESTRICTIVE w/440 ft. Connection Spacing
- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
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CRITERIA

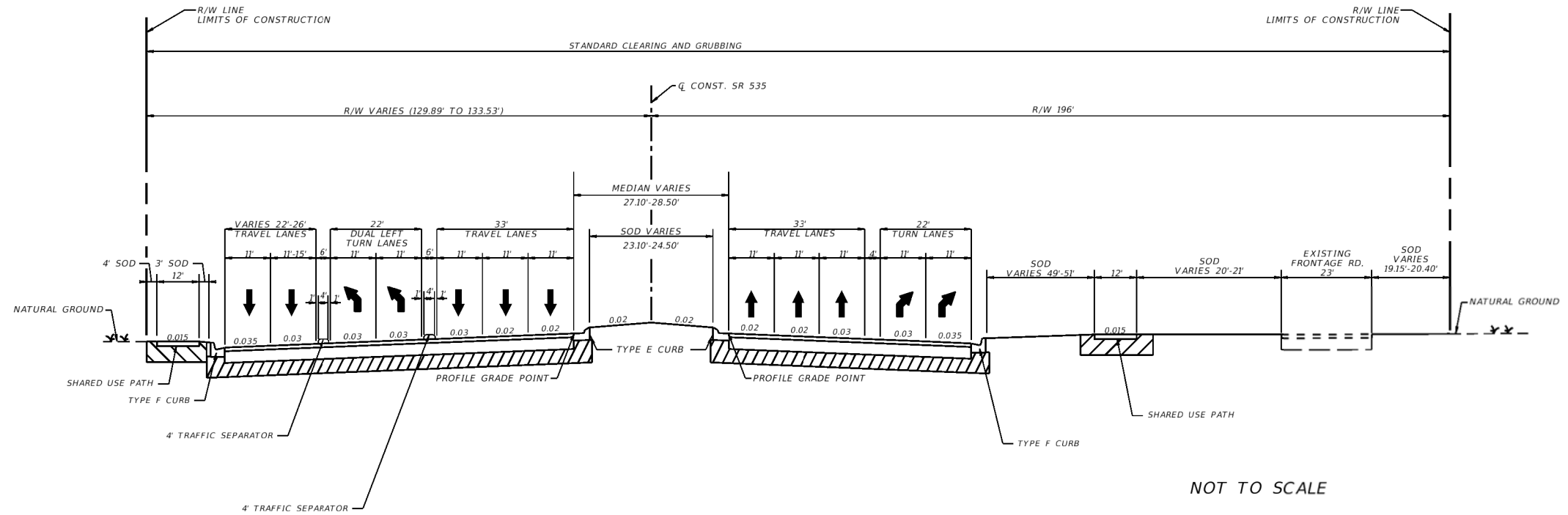
- (X) NEW CONSTRUCTION / RECONSTRUCTION
- () RESURFACING (LA FACILITIES)
- () RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

DESIGN VARIATIONS

N/A

TYPICAL SECTION - D



DISPLACED LEFT INTERSECTION ALONG SR 535 AT THE WORLD CENTER DRIVE (SR 536) INTERSECTION

STA. 1592+47.83 to STA. 1594+45.82

TRAFFIC DATA

EXISTING CONDITIONS =2020 AADT = 56,000
 ESTIMATED OPENING YEAR =2025 AADT = 59,500
 ESTIMATED DESIGN YEAR =2045 AADT = 73,500
 K = 7.5% D = 52.2% T = 9.4% (72 HOUR)
 DESIGN HOURS T = 12.0%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH
 TARGET SPEED = 45 MPH

FINANCIAL PROJECT ID

SHEET NO.

437174-2-22-01

05

Appendix G – Access Management

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.

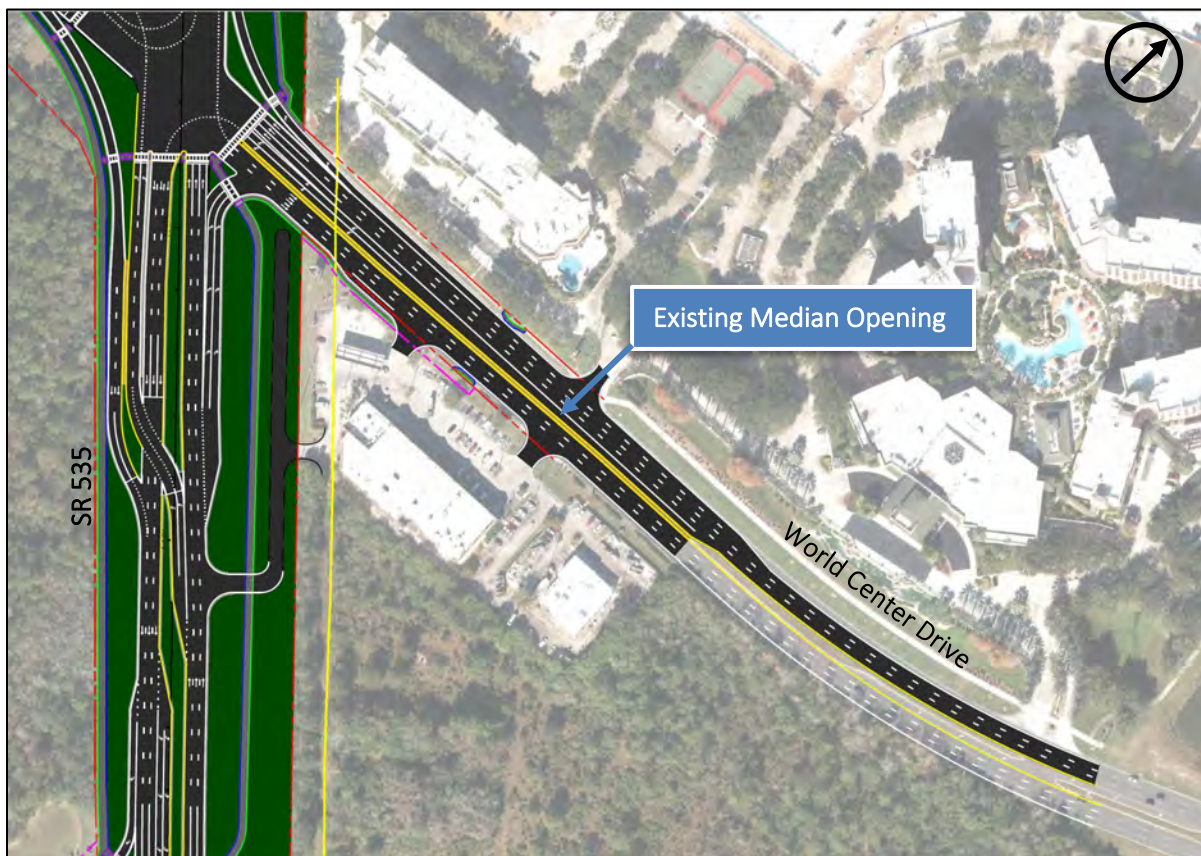


Figure 1 – Existing Median Opening Location

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.

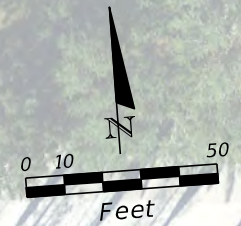
It should also be noted that the median closure does provide additional turn bay storage for the westbound left turn movement at the intersection of SR 535 and SR 536/World Center Drive to accommodate design year projected queue lengths of approximately 200-ft and 350-ft during the 2045 AM and PM peak 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



WORLD CENTER DR

Match Line 2045+00.00

Match Line 2052+50.00



| LEGEND | | | |
|--------|-------------------|---|-----------------------------|
| ⊗ | FATAL | ↶ | RIGHT TURN |
| ○ | INJURY | ↷ | LEFT TURN |
| (#) | COLLISION # | ⊠ | HIT UTILITY POLE |
| ←← | REAR END | ⊡ | OBJECT IN ROAD |
| ↔ | SIDESWIPE | 🚶 | HIT PEDESTRIAN |
| ↙ | ANGLE | 🚗 | HIT ANIMAL |
| ↻ | HIT DITCH/CULVERT | 🚲 | HIT BICYCLE |
| | | 🚚 | HIT FIXED OBJECT |
| | | 🚗 | HIT BICYCLE |
| | | | HIT ANIMAL |
| | | | OVERTURNED |
| | | | ROAD SURFACE |
| | | | C-DRY CLEAR W-WET O-OTHER |
| | | | LIGHTING |
| | | | D-DAYLIGHT N-DARK NO LIGHTS |
| | | | L-DARK WITH STREET LIGHTS |
| | | | HEAD ON |

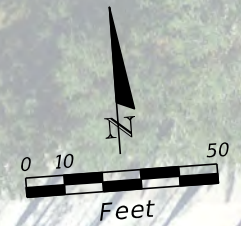
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|-----------|-------------|------|-------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION |
| | | | |

METRIC ENGINEERING, INC.

| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
|--|----------------|----------------------|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| SR 535 | OSCEOLA/ORANGE | 437174-2-22-01 |

2014 Collision Diagram

SHEET NO.
25



WORLD CENTER DR

Match Line 2045+00.00

Match Line 2052+50.00



LEGEND

| | | | | | |
|--|-------------|--|----------------|--|------------------|
| | FATAL | | RIGHT TURN | | HIT UTILITY POLE |
| | INJURY | | LEFT TURN | | OBJECT IN ROAD |
| | COLLISION # | | HIT PEDESTRIAN | | HIT ANIMAL |
| | REAR END | | OVERTURNED | | |
| | SIDESWIPE | | | | |
| | ANGLE | | | | |

ROAD SURFACE
 C-DRY CLEAR W-WET O-OTHER

LIGHTING
 D-DAYLIGHT N-DARK NO LIGHTS
 L-DARK WITH STREET LIGHTS

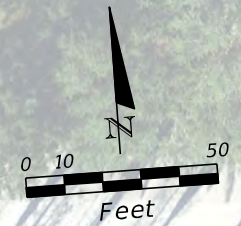
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| DATE | DESCRIPTION | DATE | DESCRIPTION |
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METRIC ENGINEERING, INC.

| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
|--|----------------|----------------------|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| SR 535 | OSCEOLA/ORANGE | 437174-2-22-01 |

2015 Collision Diagram

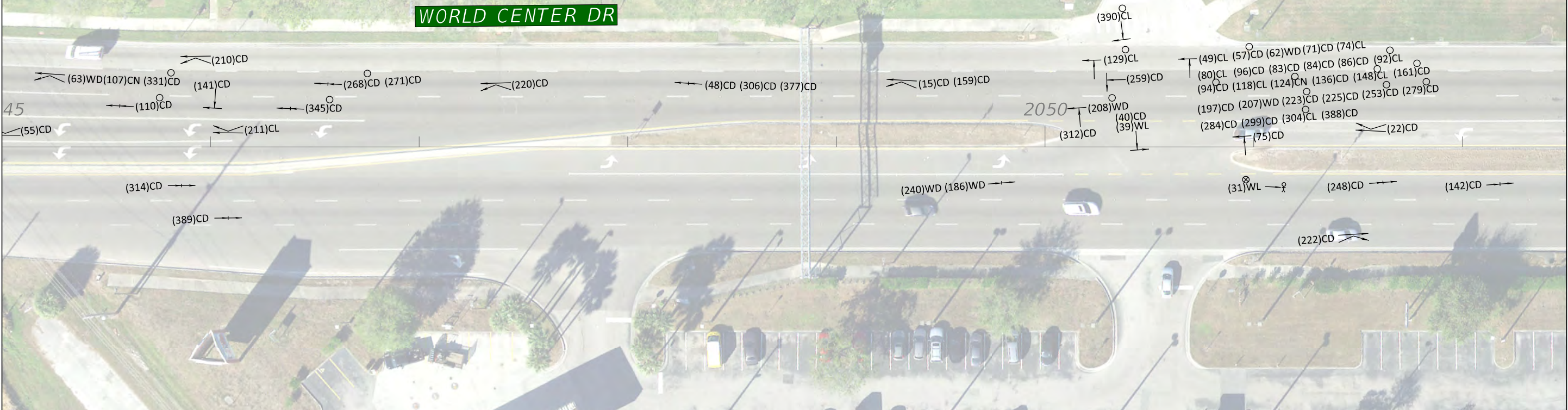
SHEET NO.
25



WORLD CENTER DR

Match Line 2045+00.00

Match Line 2052+50.00



| LEGEND | | | |
|--------|------------------|---------------------------|-------------------|
| | FATAL | | RIGHT TURN |
| | INJURY | | LEFT TURN |
| | COLLISION # | | HIT PEDESTRIAN |
| | REAR END | | OVERTURNED |
| | SIDESWIPE | | HEAD ON |
| | ANGLE | | HIT FIXED OBJECT |
| | | | HIT BICYCLE |
| | | | HIT DITCH/CULVERT |
| | HIT UTILITY POLE | | OBJECT IN ROAD |
| | HIT ANIMAL | ROAD SURFACE | |
| | | C-DRY CLEAR | W-WET |
| | | O-OTHER | |
| | | LIGHTING | |
| | | D-DAYLIGHT | N-DARK NO LIGHTS |
| | | L-DARK WITH STREET LIGHTS | |

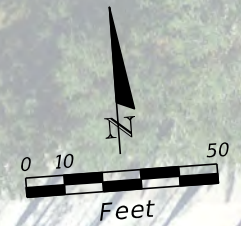
| REVISIONS | | | |
|-----------|-------------|------|-------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION |
| | | | |

METRIC ENGINEERING, INC.

| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
|--|----------------|----------------------|
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| SR 535 | OSCEOLA/ORANGE | 437174-2-22-01 |

2016 Collision Diagram

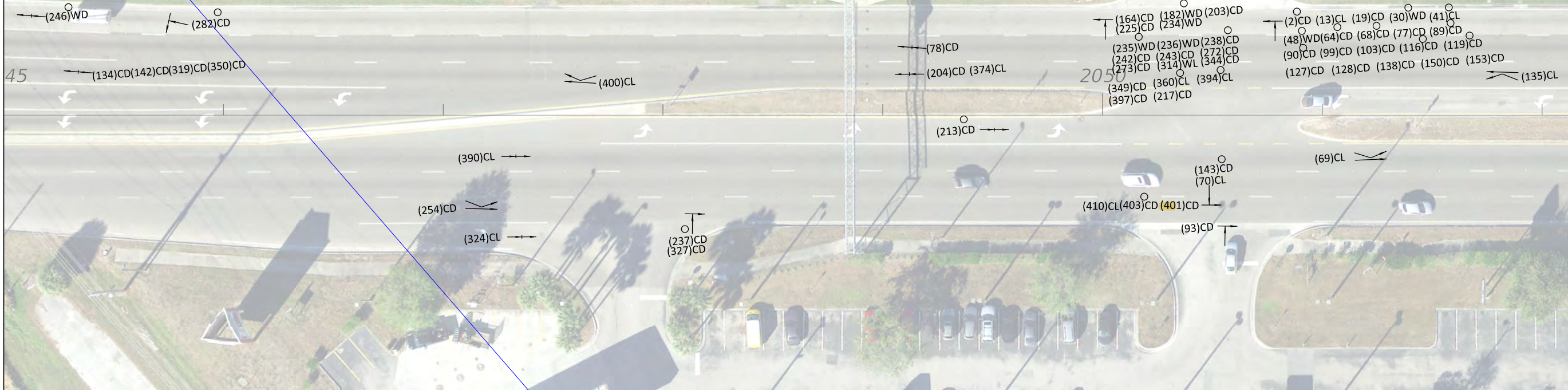
SHEET NO.
25



WORLD CENTER DR

Match Line 2045+00.00

Match Line 2052+50.00



| LEGEND | | | |
|--------|-------------|----|-------------------|
| ⊗ | FATAL | ↶ | RIGHT TURN |
| ○ | INJURY | ↷ | LEFT TURN |
| (#) | COLLISION # | ♀ | HIT PEDESTRIAN |
| ←← | REAR END | ♂ | HIT ANIMAL |
| ↔ | SIDESWIPE | ○ | OVERTURNED |
| ↙↘ | ANGLE | →→ | HEAD ON |
| | | ⊠ | HIT UTILITY POLE |
| | | ⊞ | OBJECT IN ROAD |
| | | | HIT BICYCLE |
| | | | HIT DITCH/CULVERT |
| | | | HIT FIXED OBJECT |
| | | | HIT BICYCLE |
| | | | HIT DITCH/CULVERT |

ROAD SURFACE
 C-DRY CLEAR W-WET O-OTHER
 LIGHTING
 D-DAYLIGHT N-DARK NO LIGHTS
 L-DARK WITH STREET LIGHTS

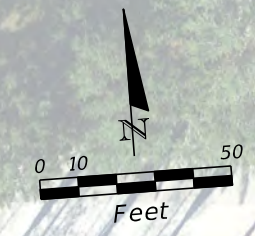
| REVISIONS | | | |
|-----------|-------------|------|-------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION |
| | | | |

METRIC ENGINEERING, INC.

| | | |
|--|----------------|----------------------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| SR 535 | OSCEOLA/ORANGE | 437174-2-22-01 |

2017 Collision Diagram

SHEET NO.
25



WORLD CENTER DR

Match Line 2045+00.00

Match Line 2052+50.00



| LEGEND | | | |
|--------|-------------|---|-------------------|
| ⊗ | FATAL | ↔ | RIGHT TURN |
| ○ | INJURY | ↖ | LEFT TURN |
| (#) | COLLISION # | ♀ | HIT PEDESTRIAN |
| ←← | REAR END | ♂ | HIT ANIMAL |
| ↔↔ | SIDESWIPE | ○ | OVERTURNED |
| ↔↔ | ANGLE | → | HEAD ON |
| | | ⊠ | HIT UTILITY POLE |
| | | ⊠ | OBJECT IN ROAD |
| | | | HIT FIXED OBJECT |
| | | | HIT BICYCLE |
| | | | HIT DITCH/CULVERT |
| | | | HIT DITCH/CULVERT |

ROAD SURFACE
 C-DRY CLEAR W-WET O-OTHER
 LIGHTING
 D-DAYLIGHT N-DARK NO LIGHTS
 L-DARK WITH STREET LIGHTS

| REVISIONS | | | |
|-----------|-------------|------|-------------|
| DATE | DESCRIPTION | DATE | DESCRIPTION |
| | | | |

METRIC ENGINEERING, INC.

| | | |
|--|----------------|----------------------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION | | |
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| SR 535 | OSCEOLA/ORANGE | 437174-2-22-01 |

2018 Collision Diagram

SHEET NO.
25

Attachment B
Crash Summary

CRASH DATA 2014

| No. | Crash_Location | MP | HSMV_Repor | Year | Crash_Date | Crash_Time | Crash_Type | Fatalities | Injuries | Alcohol_Involved | Lighting Condition | Contributing Factor | Crash Severity | Road Surface |
|-----|---|-------|------------|------|------------|------------|-------------|------------|----------|------------------|--------------------|------------------------------|----------------|--------------|
| 14 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.934 | 83718032 | 2014 | 1/24/2014 | 6:45 PM | Angle | 0 | 0 | None | Daylight | Failed to Yield Right-Of-Way | PDO | Clear |
| 15 | World Center Drive from S.R. 535 to International Drive | 0.000 | 83744646 | 2014 | 1/25/2014 | 3:56 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 29 | World Center Drive from S.R. 535 to International Drive | 0.000 | 83752224 | 2014 | 2/16/2014 | 3:08 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 41 | World Center Drive from S.R. 535 to International Drive | 0.000 | 83755143 | 2014 | 3/3/2014 | 6:15 AM | Right Angle | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 59 | S.R. 535 at World Center Dr | 0.895 | 83766831 | 2014 | 3/22/2014 | 10:25 AM | Left-Turn | 0 | 0 | None | Daylight | Careless or Negligent Manner | PDO | Clear |
| 64 | S.R. 535 at World Center Dr | 0.895 | 83771491 | 2014 | 3/26/2014 | 11:44 AM | Left-Turn | 0 | 4 | None | Daylight | Failed to Yield Right-Of-Way | Injury | Clear |
| 65 | World Center Drive from S.R. 535 to International Drive | 0.000 | 83785920 | 2014 | 3/28/2014 | 4:19 PM | Right Angle | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 83 | World Center Drive from S.R. 535 to International Drive | 0.000 | 83711776 | 2014 | 4/16/2014 | 12:15 PM | Right Angle | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 90 | World Center Drive from S.R. 535 to International Drive | 0.000 | 83787611 | 2014 | 4/29/2014 | 2:50 PM | Right Angle | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 104 | World Center Drive from S.R. 535 to International Drive | 0.000 | 83810438 | 2014 | 5/22/2014 | 7:35 AM | Right Angle | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 139 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84477412 | 2014 | 7/4/2014 | 2:13 PM | Left Rear | 0 | 0 | None | Daylight | Angle | PDO | Cloudy |
| 143 | S.R. 535 at World Center Dr | 0.895 | 84475111 | 2014 | 7/9/2014 | 4:55 PM | Left-Turn | 0 | 0 | None | Daylight | Careless or Negligent Manner | PDO | Clear |
| 146 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84477748 | 2014 | 7/12/2014 | 5:15 PM | Other | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 148 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84483927 | 2014 | 7/16/2014 | 5:54 PM | Left Rear | 0 | 0 | None | Daylight | Angle | PDO | Cloudy |
| 166 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84479642 | 2014 | 7/31/2014 | 5:29 PM | Other | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 176 | S.R. 535 at World Center Dr | 0.895 | 84490715 | 2014 | 8/8/2014 | 5:13 PM | Left-Turn | 0 | 0 | None | Daylight | Not Coded | PDO | Clear |
| 267 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84528317 | 2014 | 11/28/2014 | 5:12 PM | Left-Turn | 0 | 0 | None | Dark - Lighted | Angle | PDO | Clear |
| 279 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84546788 | 2014 | 12/19/2014 | 5:35 PM | Left-Turn | 0 | 0 | None | Dusk | Angle | PDO | Clear |
| 282 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84531249 | 2014 | 12/20/2014 | 11:02 PM | Rollover | 0 | 0 | None | Dark - Lighted | Other | PDO | Clear |
| 289 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84551906 | 2014 | 12/24/2014 | 4:00 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |

CRASH DATA 2015

| # | Crash Location | MP | HSMV_Repor | Year | Crash_Date | Crash_Time | Crash Type | Fatalities | Injuries | Alcohol Involved? | Lighting Condition | Contributing Factor | Crash Severity | Road Surface |
|-----|---|-------|------------|------|------------|------------|---------------|------------|----------|-------------------|--------------------|------------------------------|----------------|--------------|
| 1 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84561494 | 2015 | 1/2/2015 | 11:03 AM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 9 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84563027 | 2015 | 1/17/2015 | 5:00 PM | Left Rear | 0 | 0 | None | Dark - Lighted | Angle | PDO | Clear |
| 30 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84856254 | 2015 | 2/20/2015 | 1:55 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Cloudy |
| 34 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84863650 | 2015 | 2/24/2015 | 1:08 PM | Right Angle | 0 | 0 | None | Daylight | Other | PDO | Cloudy |
| 52 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84868080 | 2015 | 3/5/2015 | 3:48 PM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 70 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84883377 | 2015 | 3/20/2015 | 1:30 PM | Left Rear | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 77 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84882540 | 2015 | 3/23/2015 | 11:44 AM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 125 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85118626 | 2015 | 5/22/2015 | 4:08 PM | Left Rear | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 127 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85122768 | 2015 | 5/23/2015 | 5:36 PM | Left-Turn | 0 | 1 | None | Dusk | Angle | Injury | Clear |
| 134 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85130608 | 2015 | 5/31/2015 | 5:04 PM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 139 | S.R. 535 at World Center Dr | 2.034 | 85123912 | 2015 | 6/5/2015 | 5:07 PM | Left-Turn | 0 | 0 | None | Daylight | Careless or Negligent Manner | PDO | Clear |
| 183 | World Center Drive from S.R. 535 to International Drive | 0.000 | 84514465 | 2015 | 7/15/2015 | 2:47 PM | Sideswipe | 0 | 2 | None | Daylight | Angle | Injury | Cloudy |
| 195 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85137313 | 2015 | 7/24/2015 | 9:57 AM | Right Angle | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 229 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85174425 | 2015 | 8/22/2015 | 10:15 AM | Sideswipe | 0 | 0 | None | Daylight | Sideswipe, Same Direction | PDO | Cloudy |
| 248 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85189659 | 2015 | 9/23/2015 | 8:32 PM | Right/Through | 0 | 0 | None | Dark - Lighted | Angle | PDO | Clear |
| 254 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85194835 | 2015 | 10/2/2015 | 5:27 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 261 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85195452 | 2015 | 10/8/2015 | 10:06 AM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 263 | S.R. 535 at World Center Dr | 0.895 | 85197804 | 2015 | 10/9/2015 | 4:24 PM | Left-Turn | 0 | 2 | None | Daylight | Careless or Negligent Manner | Injury | Clear |
| 273 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85208961 | 2015 | 10/16/2015 | 5:10 PM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 279 | S.R. 535 at World Center Dr | 2.034 | 85206768 | 2015 | 10/22/2015 | 7:58 AM | Left-Turn | 0 | 2 | None | Daylight | Improper Backing | Injury | Clear |
| 281 | S.R. 535 at World Center Dr | 2.034 | 85206774 | 2015 | 10/23/2015 | 3:48 PM | Left-Turn | 0 | 0 | None | Daylight | Careless or Negligent Manner | PDO | Clear |
| 282 | S.R. 535 from N Poinciana Blvd to Polynesian Isles Blvd | 0.954 | 85217822 | 2015 | 10/24/2015 | 5:48 PM | Rear-End | 0 | 1 | None | Daylight | No Contributing Action | Injury | Clear |
| 296 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.834 | 85210147 | 2015 | 11/7/2015 | 6:10 PM | Left-Turn | 0 | 1 | None | Dark - Lighted | Improper Backing | Injury | Clear |
| 324 | S.R. 535 at World Center Dr | 0.895 | 85231953 | 2015 | 11/27/2015 | 4:15 PM | Angle | 0 | 1 | None | Daylight | Not Coded | Injury | Clear |
| 333 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85231970 | 2015 | 12/11/2015 | 4:00 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 345 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85231244 | 2015 | 12/19/2015 | 2:52 PM | Head On | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 347 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85231256 | 2015 | 12/22/2015 | 10:06 AM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 356 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85231997 | 2015 | 12/28/2015 | 8:05 PM | Left-Turn | 0 | 0 | None | Dawn | Angle | PDO | Clear |
| 357 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.834 | 85225743 | 2015 | 12/29/2015 | 11:20 PM | Rear-End | 0 | 0 | None | Dark - Lighted | Improper Turn | PDO | Clear |

CRASH DATA 2016

| # | Crash Location | MP | HSMV_Repor | Year | Crash_Date | Crash_Time | Crash Type | Fatalities | Injuries | Alcohol Involved? | Lighting Condition | Contributing Factor | Crash Severity | Road Surface |
|-----|---|-------|------------|------|------------|------------|---------------|------------|----------|-------------------|--------------------|------------------------------|----------------|--------------|
| 39 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85257476 | 2016 | 2/6/2016 | 7:08 PM | Head On | 0 | 0 | None | Dusk | Front to Front | PDO | Rain |
| 40 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85272584 | 2016 | 2/7/2016 | 2:42 PM | Left Rear | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 49 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85265483 | 2016 | 2/13/2016 | 8:06 PM | Left-Turn | 0 | 0 | None | Dark - Lighted | Angle | PDO | Clear |
| 57 | S.R. 535 at World Center Dr | 0.895 | 85276928 | 2016 | 2/18/2016 | 5:42 PM | Left-Turn | 0 | 1 | None | Daylight | Failed to Yield Right-Of-Way | Injury | Clear |
| 62 | World Center Drive from S.R. 535 to International Drive | 0.000 | 82260262 | 2016 | 2/24/2016 | 4:20 PM | Left Rear | 0 | 0 | None | Daylight | Angle | PDO | Cloudy |
| 71 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85285590 | 2016 | 3/3/2016 | 9:45 AM | Right Angle | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 74 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85285884 | 2016 | 3/4/2016 | 10:23 PM | Left-Turn | 0 | 0 | None | Dark - Lighted | Angle | PDO | Clear |
| 75 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85282658 | 2016 | 3/4/2016 | 9:20 AM | Other | 0 | 0 | None | Daylight | Other | PDO | Clear |
| 80 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85288739 | 2016 | 3/9/2016 | 8:40 PM | Rear-End | 0 | 0 | None | Dark - Lighted | Front to Rear | PDO | Clear |
| 83 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85284853 | 2016 | 3/11/2016 | 4:28 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 84 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85294642 | 2016 | 3/11/2016 | 11:34 AM | Other | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 86 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85286821 | 2016 | 3/17/2016 | 6:00 AM | Left Rear | 0 | 0 | None | Dawn | Front to Front | PDO | Clear |
| 92 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85276718 | 2016 | 3/20/2016 | 9:40 PM | Left Rear | 0 | 2 | None | Dark - Lighted | Front to Front | Injury | Clear |
| 94 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85295660 | 2016 | 3/21/2016 | 11:09 AM | Left-Turn | 0 | 1 | None | Daylight | Angle | Injury | Clear |
| 96 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85295664 | 2016 | 3/22/2016 | 9:47 AM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 118 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85281750 | 2016 | 4/1/2016 | 10:52 AM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 124 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85234175 | 2016 | 4/5/2016 | 5:01 PM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 129 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85294695 | 2016 | 4/10/2016 | 5:48 AM | Left-Turn | 0 | 0 | None | Dark - Lighted | Angle | PDO | Clear |
| 136 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85296938 | 2016 | 4/16/2016 | 6:48 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 148 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85311668 | 2016 | 4/29/2016 | 2:27 PM | Left Rear | 0 | 4 | None | Daylight | Front to Rear | Injury | Clear |
| 161 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85331817 | 2016 | 5/16/2016 | 8:56 AM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 197 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.939 | 85344401 | 2016 | 6/24/2016 | 2:43 PM | Left-Turn | 0 | 0 | None | Daylight | Improper Backing | PDO | Clear |
| 207 | S.R. 535 at World Center Dr | 0.895 | 85333680 | 2016 | 7/2/2016 | 6:31 PM | Angle | 0 | 0 | None | Daylight | Improper Backing | PDO | Rain |
| 208 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85333679 | 2016 | 7/2/2016 | 5:12 PM | Left Leaving | 0 | 0 | None | Daylight | Angle | PDO | Rain |
| 223 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85357416 | 2016 | 7/19/2016 | 1:30 PM | Left-Turn | 0 | 1 | None | Daylight | Front to Front | Injury | Clear |
| 225 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85357419 | 2016 | 7/22/2016 | 3:25 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 253 | S.R. 535 at World Center Dr | 0.895 | 85378628 | 2016 | 8/20/2016 | 3:45 PM | Left-Turn | 0 | 1 | None | Daylight | Failed to Yield Right-Of-Way | Injury | Clear |
| 279 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85395938 | 2016 | 9/19/2016 | 7:48 AM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 284 | S.R. 535 at World Center Dr | 2.034 | 85383582 | 2016 | 9/22/2016 | 7:48 AM | Left-Turn | 0 | 0 | None | Daylight | Not Coded | PDO | Clear |
| 299 | World Center Dr. at International Dr. | 2.034 | 85406469 | 2016 | 10/3/2016 | 5:40 PM | Left-Turn | 0 | 0 | None | Daylight | Failed to Yield Right-Of-Way | PDO | Clear |
| 304 | S.R. 535 at World Center Dr | 2.034 | 85396633 | 2016 | 10/8/2016 | 10:51 PM | Left-Turn | 0 | 3 | None | Dark - Lighted | Not Coded | Injury | Clear |
| 312 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85407018 | 2016 | 10/17/2016 | 5:25 PM | Other | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 388 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85447862 | 2016 | 12/28/2016 | 5:08 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 390 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85434839 | 2016 | 12/30/2016 | 10:55 AM | Right/Through | 0 | 0 | None | Daylight | Angle | PDO | Clear |

CRASH DATA 2017

| # | Crash Location | MP | HSMV_Repor | Year | Crash_Date | Crash_Time | Crash Type | Fatalities | Injuries | Alcohol Involved? | Lighting Condition | Contributing Factor | Crash Severity | Road Surface |
|-----|---|-------|------------|------|------------|------------|------------|------------|----------|-------------------|--------------------|------------------------------|----------------|--------------|
| 2 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85447873 | 2017 | 1/1/2017 | 1:20 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 13 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85466387 | 2017 | 1/14/2017 | 6:02 PM | Left-Turn | 0 | 0 | None | Dusk | Front to Front | PDO | Clear |
| 19 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.939 | 85466253 | 2017 | 1/23/2017 | 5:47 PM | Not Coded | 0 | 0 | None | Daylight | Not Coded | PDO | Clear |
| 30 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85464127 | 2017 | 1/29/2017 | 12:30 PM | Left Rear | 0 | 1 | None | Daylight | Angle | Injury | Cloudy |
| 41 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85427208 | 2017 | 2/10/2017 | 6:53 PM | Left-Turn | 0 | 1 | None | Dark - Lighted | Angle | Injury | Clear |
| 48 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85481723 | 2017 | 2/18/2017 | 3:04 PM | Other | 0 | 3 | None | Daylight | Angle | Injury | Cloudy |
| 64 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.741 | 85486341 | 2017 | 3/5/2017 | 5:36 PM | Left-Turn | 0 | 1 | None | Daylight | Improper Backing | Injury | Clear |
| 68 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85496105 | 2017 | 3/9/2017 | 8:20 AM | Rear-End | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 70 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85490328 | 2017 | 3/11/2017 | 8:09 PM | Left-Turn | 0 | 0 | None | Dark - Lighted | Angle | PDO | Cloudy |
| 77 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.750 | 85496115 | 2017 | 3/15/2017 | 7:30 AM | Left-Turn | 0 | 0 | None | Daylight | Not Coded | PDO | Clear |
| 89 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85491339 | 2017 | 3/19/2017 | 11:22 AM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 90 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85468906 | 2017 | 3/21/2017 | 9:00 AM | Left-Turn | 0 | 1 | None | Daylight | Angle | Injury | Clear |
| 99 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85507490 | 2017 | 3/25/2017 | 3:40 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 103 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.939 | 85434138 | 2017 | 3/31/2017 | 3:45 PM | Left-Turn | 0 | 0 | None | Daylight | Improper Turn | PDO | Clear |
| 116 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.784 | 85507522 | 2017 | 4/10/2017 | 6:04 PM | Left-Turn | 0 | 1 | None | Daylight | Not Coded | Injury | Clear |
| 119 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.934 | 85502866 | 2017 | 4/13/2017 | 6:30 PM | Left-Turn | 0 | 6 | None | Daylight | Improper Backing | Injury | Clear |
| 127 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.939 | 85476574 | 2017 | 4/18/2017 | 6:12 PM | Left-Turn | 0 | 0 | None | Daylight | Not Coded | PDO | Clear |
| 128 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.939 | 85493330 | 2017 | 4/20/2017 | 5:35 PM | Left-Turn | 0 | 0 | None | Daylight | Improper Backing | PDO | Clear |
| 138 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.845 | 85495969 | 2017 | 5/6/2017 | 9:40 AM | Left-Turn | 0 | 0 | None | Daylight | Not Coded | PDO | Clear |
| 143 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.784 | 85527355 | 2017 | 5/11/2017 | 2:16 PM | Angle | 0 | 6 | None | Daylight | Failed to Yield Right-Of-Way | Injury | Clear |
| 150 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85527364 | 2017 | 5/15/2017 | 6:14 PM | Other | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 153 | S.R. 535 at World Center Dr | 1.996 | 85453648 | 2017 | 5/18/2017 | 7:50 AM | Left-Turn | 0 | 0 | None | Daylight | Improper Backing | PDO | Clear |
| 164 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85532488 | 2017 | 5/26/2017 | 5:35 PM | Other | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 182 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.939 | 85532520 | 2017 | 6/11/2017 | 4:50 PM | Left-Turn | 0 | 1 | None | Daylight | Careless or Negligent Manner | Injury | Rain |
| 203 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85552652 | 2017 | 6/26/2017 | 4:14 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 217 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85546006 | 2017 | 7/6/2017 | 7:43 AM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 225 | S.R. 535 at World Center Dr | 2.034 | 85567618 | 2017 | 7/15/2017 | 12:36 PM | Angle | 0 | 0 | None | Daylight | No Contributing Action | PDO | Clear |
| 234 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85545951 | 2017 | 7/21/2017 | 2:53 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Rain |
| 235 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.934 | 85566076 | 2017 | 7/22/2017 | 2:42 PM | Left-Turn | 0 | 1 | None | Daylight | Improper Turn | Injury | Cloudy |
| 236 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.934 | 85566077 | 2017 | 7/22/2017 | 4:35 PM | Left-Turn | 0 | 0 | None | Daylight | Failed to Yield Right-Of-Way | PDO | Cloudy |
| 238 | S.R. 535 at World Center Dr | 2.006 | 85565035 | 2017 | 7/26/2017 | 4:00 PM | Left-Turn | 0 | 1 | None | Daylight | Not Coded | Injury | Cloudy |
| 242 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85566088 | 2017 | 7/28/2017 | 3:03 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Cloudy |
| 243 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85545786 | 2017 | 7/29/2017 | 6:05 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Cloudy |
| 272 | S.R. 535 at World Center Dr | 2.034 | 85567668 | 2017 | 8/18/2017 | 7:40 AM | Left-Turn | 0 | 0 | None | Daylight | Failed to Yield Right-Of-Way | PDO | Clear |
| 273 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85584796 | 2017 | 8/18/2017 | 5:45 PM | Left Rear | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 314 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85594881 | 2017 | 9/29/2017 | 7:24 PM | Left-Turn | 0 | 0 | None | Dark - Lighted | Angle | PDO | Cloudy |
| 344 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87106484 | 2017 | 11/3/2017 | 4:01 PM | Left Rear | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 349 | S.R. 535 at World Center Dr | 2.020 | 87119775 | 2017 | 11/10/2017 | 9:54 AM | Left-Turn | 0 | 0 | None | Daylight | Careless or Negligent Manner | PDO | Cloudy |
| 360 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.977 | 87107710 | 2017 | 11/19/2017 | 8:06 PM | Left-Turn | 0 | 1 | None | Dusk | Improper Turn | Injury | Clear |
| 394 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.784 | 87133585 | 2017 | 12/22/2017 | 10:28 PM | Left-Turn | 0 | 9 | None | Dark - Lighted | Improper Backing | Injury | Clear |
| 397 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87149451 | 2017 | 12/26/2017 | 3:39 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 401 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87128416 | 2017 | 12/27/2017 | 7:20 PM | Other | 0 | 0 | None | Dusk | Other | PDO | Clear |
| 403 | S.R. 536 from World Gateway Dr. to S.R. 535 | 1.977 | 87130990 | 2017 | 12/28/2017 | 3:27 PM | Left-Turn | 0 | 1 | None | Daylight | Improper Backing | Injury | Clear |
| 410 | S.R. 535 at World Center Dr | 2.015 | 87128423 | 2017 | 12/30/2017 | 8:24 PM | Left-Turn | 0 | 0 | None | Dark - Lighted | No Contributing Action | PDO | Clear |

CRASH DATA 2018

| # | Crash Location | MP | HSMV_Repor | Year | Crash_Date | Crash_Time | Crash Type | Fatalities | Injuries | Alcohol Involved? | Lighting Condition | Contributing Factor | Crash Severity | Road Surface |
|-----|---|-------|------------|------|------------|------------|------------|------------|----------|-------------------|--------------------|------------------------------|----------------|--------------|
| 7 | World Center Drive from S.R. 535 to International Drive | 0.000 | 85204372 | 2018 | 1/3/2018 | 7:43 AM | Angle | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 8 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87149293 | 2018 | 1/3/2018 | 2:27 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 29 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87151944 | 2018 | 1/26/2018 | 3:56 PM | Left-Turn | 0 | 3 | None | Daylight | Front to Rear | Injury | Clear |
| 36 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87159466 | 2018 | 2/4/2018 | 1:41 PM | Left-Turn | 0 | 5 | None | Daylight | Angle | Injury | Clear |
| 44 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87152911 | 2018 | 2/10/2018 | 7:46 AM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 45 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87180166 | 2018 | 2/14/2018 | 9:11 AM | Unknown | 0 | 0 | None | Daylight | Angle | PDO | Cloudy |
| 47 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87162917 | 2018 | 2/18/2018 | 3:00 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 52 | S.R. 535 at World Center Dr | 0.895 | 87180191 | 2018 | 2/23/2018 | 10:36 AM | Left-Turn | 0 | 0 | None | Daylight | Ran Stop Sign | PDO | Cloudy |
| 53 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87164515 | 2018 | 2/23/2018 | 6:25 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 56 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87171099 | 2018 | 2/26/2018 | 12:13 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 71 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87163491 | 2018 | 3/21/2018 | 9:09 AM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 74 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87198929 | 2018 | 3/23/2018 | 12:00 PM | Left-Turn | 0 | 1 | None | Daylight | Angle | Injury | Clear |
| 76 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87201492 | 2018 | 3/26/2018 | 10:46 AM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 100 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87205693 | 2018 | 4/14/2018 | 2:54 PM | Angle | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 101 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87211544 | 2018 | 4/14/2018 | 8:22 PM | Left-Turn | 0 | 2 | None | Dark - Lighted | Angle | Injury | Clear |
| 104 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87197658 | 2018 | 4/19/2018 | 5:20 PM | Left-Turn | 0 | 1 | None | Daylight | Angle | Injury | Clear |
| 109 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87205713 | 2018 | 4/25/2018 | 5:05 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 112 | S.R. 535 at World Center Dr | 2.028 | 87195685 | 2018 | 4/28/2018 | 5:40 PM | Left-Turn | 0 | 2 | None | Daylight | Not Coded | Injury | Clear |
| 120 | S.R. 535 at World Center Dr | 2.034 | 87201557 | 2018 | 5/4/2018 | 7:49 AM | Angle | 0 | 1 | None | Daylight | Failed to Yield Right-Of-Way | Injury | Cloudy |
| 121 | S.R. 535 at World Center Dr | 2.034 | 87215587 | 2018 | 5/5/2018 | 3:14 PM | Left-Turn | 0 | 0 | None | Daylight | Failed to Yield Right-Of-Way | PDO | Clear |
| 126 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87220444 | 2018 | 5/9/2018 | 6:00 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Cloudy |
| 149 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87237622 | 2018 | 6/3/2018 | 4:33 PM | Left-Turn | 0 | 6 | None | Daylight | Angle | Injury | Clear |
| 181 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87245024 | 2018 | 6/28/2018 | 1:35 PM | Left-Turn | 0 | 1 | None | Daylight | Angle | Injury | Clear |
| 191 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87245046 | 2018 | 7/13/2018 | 3:14 PM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 195 | S.R. 535 at World Center Dr | 0.895 | 87246138 | 2018 | 7/16/2018 | 9:00 AM | Left-Turn | 0 | 0 | None | Daylight | Failed to Yield Right-Of-Way | PDO | Clear |
| 233 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87278691 | 2018 | 8/29/2018 | 11:23 AM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 234 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87269286 | 2018 | 8/29/2018 | 8:08 AM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 244 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87299188 | 2018 | 9/9/2018 | 1:47 PM | Right Turn | 0 | 0 | None | Daylight | Angle | PDO | Cloudy |
| 247 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87259938 | 2018 | 9/14/2018 | 7:53 AM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 248 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87299194 | 2018 | 9/14/2018 | 2:50 PM | Left-Turn | 0 | 3 | None | Daylight | Angle | Injury | Clear |
| 249 | World Center Drive from S.R. 535 to International Drive | 0.000 | 87299195 | 2018 | 9/14/2018 | 3:56 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 259 | World Center Drive from S.R. 535 to International Drive | 0.000 | 83781358 | 2018 | 9/28/2018 | 12:00 AM | Left-Turn | 0 | 2 | None | Daylight | Angle | Injury | Clear |
| 267 | S.R. 535 at World Center Dr | 2.034 | 88004261 | 2018 | 10/9/2018 | 3:38 PM | Angle | 0 | 2 | None | Daylight | Improper Turn | Injury | Rain |
| 271 | S.R. 535 at World Center Dr | 2.034 | 87294162 | 2018 | 10/11/2018 | 9:15 AM | Angle | 0 | 0 | None | Daylight | Improper Backing | PDO | Clear |
| 275 | World Center Drive from S.R. 535 to International Drive | 0.000 | 88014536 | 2018 | 10/14/2018 | 4:10 PM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Cloudy |
| 286 | S.R. 535 at World Center Dr | 2.034 | 88021804 | 2018 | 10/27/2018 | 1:55 PM | Left-Turn | 0 | 0 | None | Daylight | Improper Turn | PDO | Clear |
| 287 | World Center Drive from S.R. 535 to International Drive | 0.000 | 88028069 | 2018 | 10/27/2018 | 11:13 AM | Left-Turn | 0 | 4 | None | Daylight | Angle | Injury | Clear |
| 305 | World Center Drive from S.R. 535 to International Drive | 0.000 | 88033456 | 2018 | 11/24/2018 | 11:37 AM | Angle | 0 | 1 | None | Daylight | Angle | Injury | Clear |
| 327 | World Center Drive from S.R. 535 to International Drive | 0.000 | 88033484 | 2018 | 12/15/2018 | 10:16 AM | Left-Turn | 0 | 0 | None | Daylight | Angle | PDO | Clear |
| 337 | S.R. 535 at World Center Dr | 0.895 | 88064889 | 2018 | 12/28/2018 | 9:21 PM | Left-Turn | 0 | 0 | None | Dark - Lighted | Not Coded | PDO | Clear |

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 |

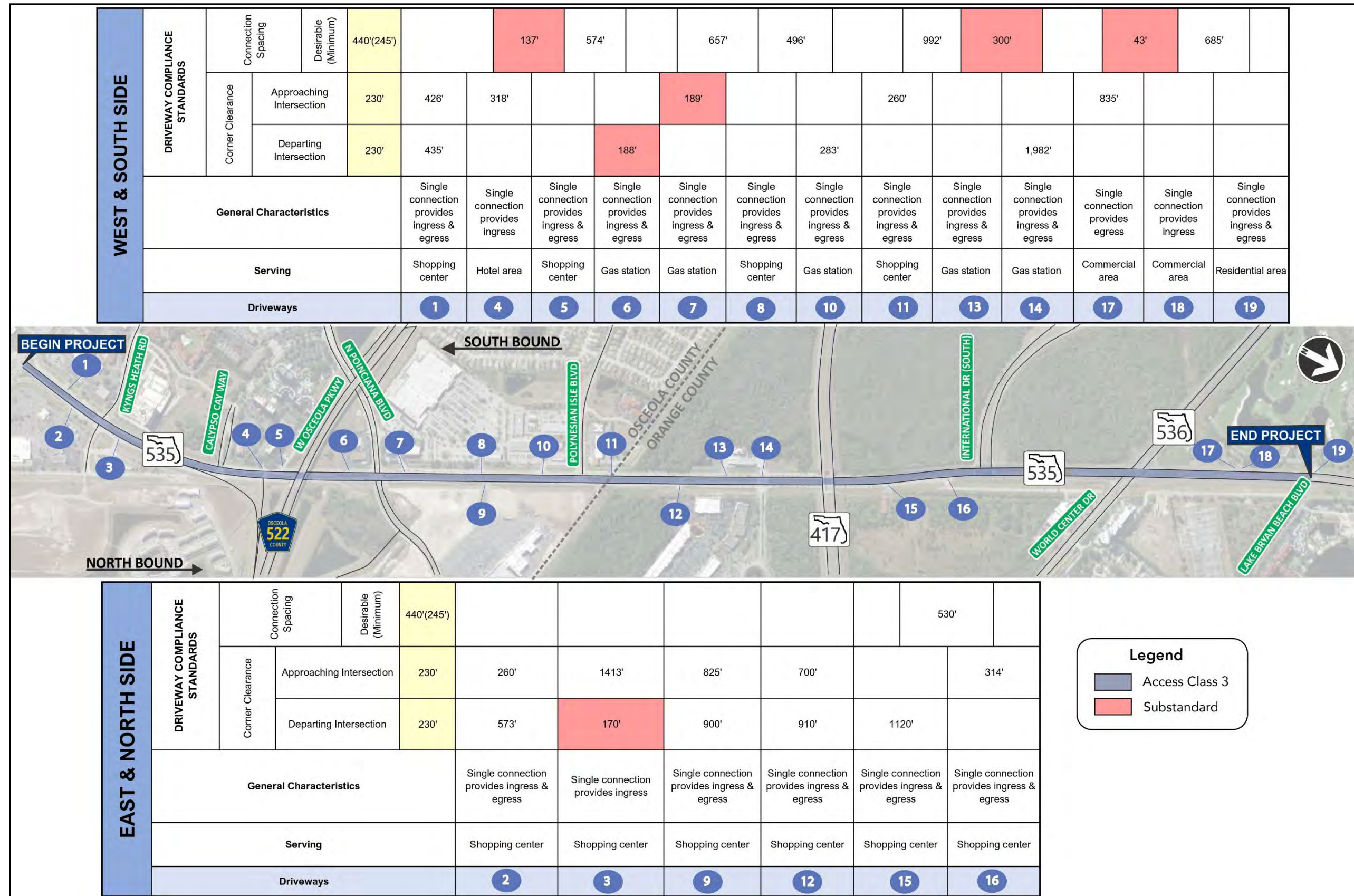
*Note: 2,640 for > 45 mph; 1,320 for ≤ 45 mph

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 Connections Evaluation.

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Figure 3 –Driveway Connections and Standard Compliance



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 | 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 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 | 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% |

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 withing 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

State Section Number: 92040000 (from US 192 to Osceola/Orange County Line) & 75035001 (from Osceola/Orange County Line to North of SR 536 (World Center Drive))
FM Number: 437174-2-22-01
State Road Number: SR 535
Limits: US 192 to North of SR 536 (World Center Drive)
Classification: C3C 2640
Speed Limit: Proposed (45 mph) 1320
Date: 5/5/2023

| Existing Opening | Proposed Design Speed | Proposed Stations | Existing Stations | Existing Opening Type | Existing Spacing (feet) | Median Type | Proposed Spacing | Deviation from Standard (%) |
|------------------|-----------------------------|-------------------|-------------------|-----------------------|-------------------------|-------------|------------------|-----------------------------|
| | | | | | | | (feet) | |
| 1 | W IRLO BRONSON MEMORIAL HWY | 45 MPH | 1489+41.87 | 1489+41.87 | Restrictive | --- | --- | ---- |
| 2 | KYNGS HEATH RD | 45 MPH | 1499+34.87 | 1499+34.87 | Restrictive | 993 | 993 | 62.4% |
| 3 | CALYPSO CAY WAY | 45 MPH | 1511+60.87 | 1511+60.87 | Restrictive | 1,226 | 1,226 | 7.1% |
| 4 | W OSCEOLA PKWY RAMP | 45 MPH | 1515+82.87 | 1515+82.87 | Restrictive | 422 | 422 | 68.0% |
| 5 | N POINCIANA BLVD | 45 MPH | 1526+50.87 | 1526+50.87 | Restrictive | 1,068 | 1,068 | 59.5% |
| 6 | SHOPPING CENTER ENTRANCE | 45 MPH | 1536+34.87 | 1536+34.87 | Restrictive | 984 | 984 | 25.5% |
| 7 | POLYNESIAN ISLE BVLD | 45 MPH | 1545+72.87 | 1545+72.87 | Restrictive | 938 | 938 | 64.5% |
| 8 | SHOPPING CENTER ENTRANCE | 45 MPH | 1554+84.87 | 1555+24.87 | Restrictive | 952 | 912 | 30.9% |
| 9 | LBV FACTORY STORES DR | 45 MPH | 1562+83.87 | 1562+83.87 | Restrictive | 759 | 799 | 69.7% |
| 10 | INTERNATIONAL DR | 45 MPH | 1583+85.87 | 1583+85.87 | Restrictive | 2,102 | 2,102 | 20.4% |
| 11 | WORLD CENTER DR | 45 MPH | 1597+43.87 | 1597+43.87 | Restrictive | 1358 | 1358 | 48.6% |
| 12 | LAKE BRYAN BEACH BLVD | 45 MPH | 1615+09.87 | 1615+09.87 | Restrictive | 1,766 | 1,766 | 33.1% |

Recommended By:

_____ Date
 Consultant Project Manager

Concurred By:

_____ Date
 FDOT Project Manager

_____ Date
 FDOT District Traffic Access Manager

| REVISIONS | | | |
|-----------|----|--|-------------|
| Date | By | | Description |
| | | | |
| | | | |
| | | | |
| | | | |

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/VINELAND RD FROM US 192 TO NORTH OF WORLD CENTER DR

District: 05 **County:** 99 DISTRICT/STATE WIDE **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 |
|----------|-------------|---------------|------------|-----------------|
|----------|-------------|---------------|------------|-----------------|

| | | | | |
|----------|---|--------------|----------|----------------|
| 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 76-22 | 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 76-22 | 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 |
|----------|-------------|---------------|------------|-----------------|
|----------|-------------|---------------|------------|-----------------|

| | | | | |
|----------|-----------------------------------|-------------|---------|--------------|
| 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 | \$11,655.39 | \$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"S/CD | 3,488.00 LF | \$228.03 | \$795,368.64 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 312.00 LF | \$236.89 | \$73,909.68 |
| 430-175-148 | PIPE CULV, OPT MATL, ROUND, 48"S/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 76-22 | 243.10 | TN | \$406.29 | \$98,769.10 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 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 |
| Intersections 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 Mast Arm |
| Multiplier | 1 |
| Description | Poinciana 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 CMLPT,STD,F&I, 40'MH,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 |
| | Subcomponent Total | | | \$1,172,606.00 |
| | Lighting Component Total | | | \$1,172,605.99 |
| <hr/> | | | | |
| | Sequence 3 Total | | | \$30,376,457.83 |
| <hr/> | | | | |

Sequence: 4 MIS - 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: 5 MIS - 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: 6 NDU - 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 |

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"S/CD | 856.00 LF | \$211.56 | \$181,095.36 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 80.00 LF | \$236.89 | \$18,951.20 |
| 430-175-148 | PIPE CULV, OPT MATL, ROUND, 48"S/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 | | | | |
|--------------------------------|--------------------------------------|----------------------|-------------------|------------------------|
| Pay item | 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 |
| Multiplier | 1 |
| Description | |

| Pay Items | | | | |
|------------------|--|----------------------|-------------------|------------------------|
| Pay item | 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 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 |

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 CNTL ASSEM, 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, 40'MH,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

Lighting Component Total \$304,425.07

Sequence 6 Total \$11,168,739.48

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 76-22 | 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 76-22 | 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 |

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"S/CD | 880.00 LF | \$211.56 | \$186,172.80 |
| 430-175-136 | PIPE CULV, OPT MATL, ROUND, 36"S/CD | 80.00 LF | \$236.89 | \$18,951.20 |
| 430-175-148 | PIPE CULV, OPT MATL, ROUND, 48"S/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 76-22 | 519.37 TN | \$406.29 | \$211,014.84 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 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 76-22 | 74.66 | TN | \$385.91 | \$28,812.04 |
| 337-7-83 | ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 | 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 | | | | |
|--------------------------------|--------------------------------------|----------------------|-------------------|------------------------|
| Pay item | 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 |
| Multiplier | 1 |
| Description | |

| Pay Items | | | | |
|------------------|--|----------------------|-------------------|------------------------|
| Pay item | 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 |
|----------|--|---------|------------|-------------|

Signalization 2

| | |
|--------------------|------------------------|
| Description | Value |
| Type | 2 Lane Mast Arm |
| 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 1 W | 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 Subcomponent

| Description | Value | | | |
|---------------------------------|---|---------------|-------------|---------------------|
| Spacing | MIN | | | |
| Pay Items | | | | |
| Pay item | Description | Quantity Unit | Unit Price | Extended Amount |
| 630-2-11 | CONDUIT, F& I, OPEN TRENCH | 1,742.93 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, 40'MH,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 | | | | \$306,891.47 |
| Lighting Component Total | | | | \$306,891.47 |

Sequence 7 Total

\$10,440,482.15

Sequence: 8 NDU - 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 | 275 |
| 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 |

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 | \$10.74 | \$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 | INLETS, CURB, TYPE P-5, <10' | 14.00 EA | \$11,155.49 | \$156,176.86 |
| 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"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 | \$10.74 | \$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 Mast Arm |
| Multiplier | 1 |

Description

Pay Items

| Pay item | 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' | 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 CNTL ASSEM, 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, OPEN TRENCH | 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 CNTLASSEM, 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 Subcomponent

| 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 | LF \$19.96 | \$40,817.00 |
| 630-2-12 | CONDUIT, F& I, DIRECTIONAL BORE | 405.89 | LF \$33.24 | \$13,491.78 |
| 635-2-11 | PULL & SPLICE BOX, F&I, 13" x 24" | 14.00 | EA \$1,281.29 | \$17,938.06 |
| 715-1-13 | LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2 | 7,468.69 | LF \$8.52 | \$63,633.24 |
| 715-61-342 | LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L | 14.00 | EA \$14,570.60 | \$203,988.40 |
| 715-500-1 | POLE CABLE DIST SYS, CONVENTIONAL | 14.00 | EA \$1,345.46 | \$18,836.44 |
| Subcomponent Total | | | | \$358,704.92 |
| Lighting Component Total | | | | \$358,704.92 |

| | |
|-------------------------|-----------------------|
| Sequence 8 Total | \$8,302,136.08 |
|-------------------------|-----------------------|

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/STATE WIDE

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