

PRELIMINARY ENGINEERING REPORT

Osceola County



Old Lake Wilson Road Project Development and Environment (PD&E) Study

From County Road 532 to Sinclair Road

Osceola County, Florida

Financial Project ID Number: 448781-1-22-01

ETDM Number: 14456

December 2023

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 the Federal Highway Administration and FDOT.

PROFESSIONAL ENGINEER CERTIFICATION PRELIMINARY ENGINEERING REPORT

Project: Old Lake Wilson Road PD&E Study

ETDM Number: 14456

Financial Project ID: 448781-1-22-01

Federal Aid Project Number: N/A

This preliminary engineering report contains engineering information that fulfills the purpose and need for the Old Lake Wilson Road Project Development & Environment Study from CR 532 to Sinclair Road in Osceola County, Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Inwood Consulting Engineers, 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 David S. Dangel, PE on the date adjacent to the seal.

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1.0 PROJECT SUMMARY

1.1 Project Description

Osceola County conducted a Project Development and Environment (PD&E) Study to evaluate the proposed widening of Old Lake Wilson Road from CR 532 to Sinclair Road from 2 to 4 lanes, a distance of approximately 2.5 miles. The project also involves widening or replacing the existing bridge over Interstate 4 (I-4) [Bridge #924179] and will add bicycle and pedestrian accommodations since none are provided within the project limits today. The project limits are within Osceola County near the Town of Celebration and are shown in **Figure 1-1**.

In the existing condition, Old Lake Wilson Road, also known as County Road 545, hereinafter referred to as Old Lake Wilson Road, is a 2-lane undivided, rural roadway from CR 532 to approximately one-quarter mile south of Sinclair Road, the project's northern terminus.

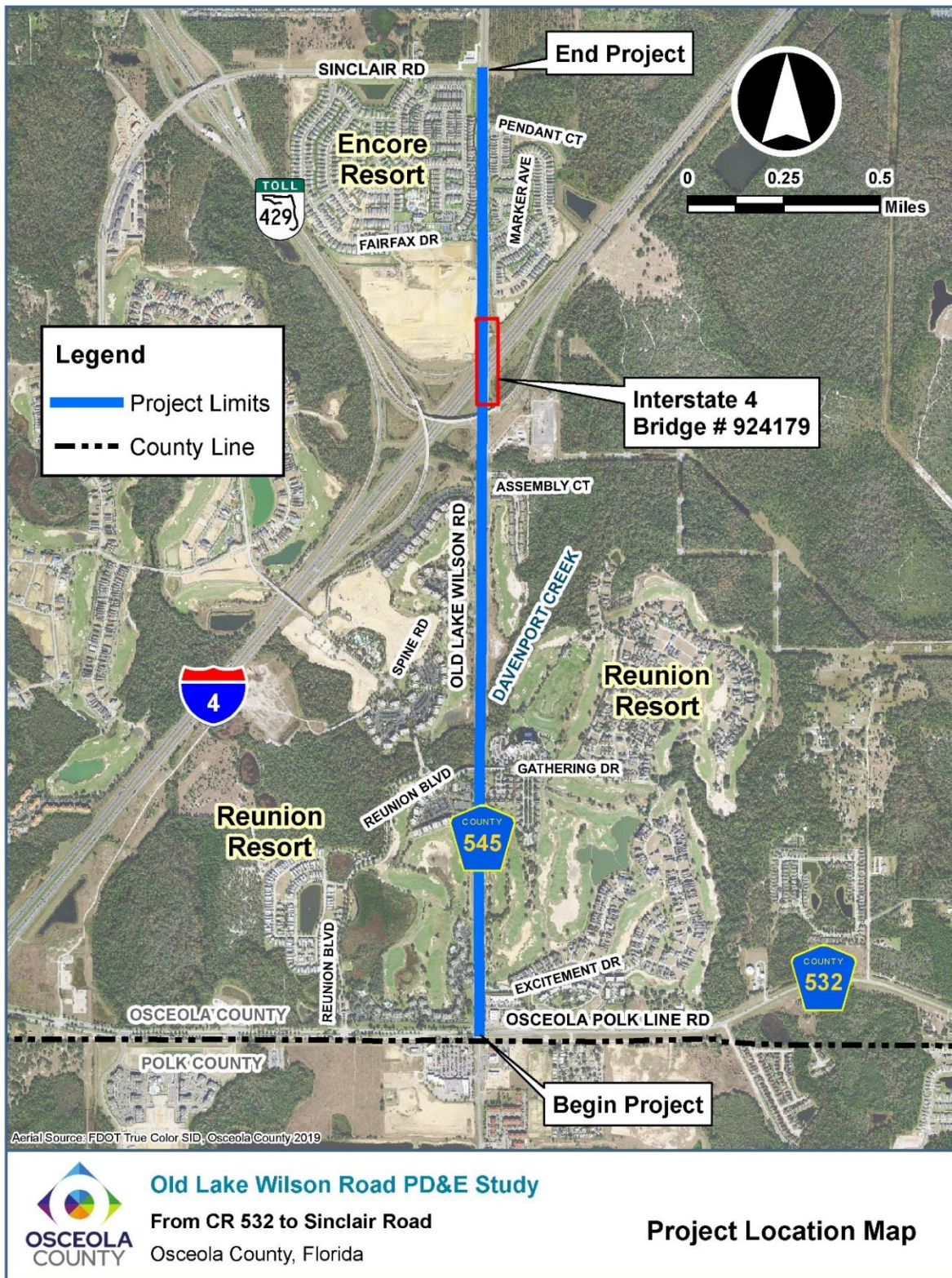
The existing typical section includes two 12-foot-wide travel lanes, one in each direction, and 4-foot-wide unpaved shoulders. The right-of-way (ROW) width is generally 130-feet; however, beginning approximately 900 feet south of Assembly Court to approximately 1,230-feet south of Fairfax Drive/Marker Avenue the ROW width increases incrementally and ultimately reaches a maximum of 250-feet in the vicinity of the I-4 overpass.

Starting approximately one quarter mile south of Sinclair Road, Old Lake Wilson Road transitions to an urban roadway with type E curb on the inside shoulders and type F curb on the outside shoulders. Approaching Sinclair Road, two, 12-foot-wide travel lanes are provided in the northbound direction while one 12-foot-wide travel lane is provided in the southbound direction.

Both termini, CR 532 and Sinclair Road, are signalized intersections. Additionally, there are five unsignalized intersections within the study limits. These include Excitement Drive, Spine Road, Assembly Court, Fairfax Drive / Marker Avenue and Pendant Court.

There are three bridges within the study limits: Gathering Drive/Reunion Boulevard over Old Lake Wilson Road, the southbound onramp from SR 429 to eastbound I-4 and Old Lake Wilson Road over I-4. Additionally, there are three bridge culverts within the study limits: Old Lake Wilson Road over Golf Cart Crossing #1, Old Lake Wilson Road over Golf Cart Crossing #2 and Old Lake Wilson Road over Davenport Creek.

Figure 1-1: Project Location Map



1.2 Purpose & Need

The purpose and need for the project is based on two main elements: increasing capacity and completing the 2.5-mile constrained segment of Old Lake Wilson Road between CR 532 and Sinclair Road. The need for these improvements is described below.

Project Status

The project is located within the jurisdiction of MetroPlan Orlando, the Metropolitan Planning Organization (MPO) covering Orange, Osceola and Seminole Counties. The PD&E Study is documented in MetroPlan Orlando's Fiscal Year (FY) 2023-2027 Transportation Improvement Program (TIP). The project is also documented in MetroPlan Orlando's 2045 Long Range Transportation Plan (LRTP) / Metropolitan Transportation Plan (MTP). According to the latest adopted TIP FY 23-27, approximately \$7M in local funding was programmed for design in FY 23. There is currently no funding programmed for the ROW or construction phase; therefore, additional coordination will take place closer to the end of the design phase.

Transportation Demand/Capacity

In the future year (2050) No-Build condition, this segment of Old Lake Wilson Road is projected to operate at Level of Service (LOS) F with Annual Average Daily Traffic (AADT) exceeding 30,000 vehicles. In the existing condition, this section of Old Lake Wilson Road operates at a LOS F with an AADT of approximately 20,000 vehicles, exceeding the current 2-lane capacity of 15,900 vehicles. This PD&E Study will utilize a LOS D target for Old Lake Wilson Road from CR 532 to Sinclair Road.

System Linkage

Old Lake Wilson Road begins as Lake Wilson Road at CR 54 in Polk County, becomes Old Lake Wilson Road at CR 532, and terminates at US 192 in Osceola County, a distance of approximately 6-miles. Polk County is in the final design phase for the four-lane widening of Lake Wilson Road from CR 54 to CR 532; moreover, the segment from Sinclair Drive to US 192 is currently a four-lane divided facility. This leaves a 2.5-mile two-lane segment from CR 532 to south of Sinclair Road, which constrains the overall capacity of Old Lake Wilson Road. Additionally, the two-lane section of roadway creates a gap for bicycle and pedestrian features.

1.3 Commitments

This section presents a list of commitments made during the Old Lake Wilson Road PD&E Study.

1. The most recent version of the USFWS Standard Protection Measures for the Eastern Indigo Snake will be utilized during construction.
2. Osceola County is committed to the construction of feasible and reasonable noise abatement measures identified for SB 1 at Heritage Crossing (NSA 3) contingent upon the following conditions:

- a) Final recommendations on the construction of abatement measures are determined during the project's final design and through the public involvement process;
- b) Detailed noise analyses during the final design process support the need, feasibility, and reasonableness of providing abatement;
- c) Cost analysis indicates that the cost of the noise barrier(s) will not exceed the cost reasonable criterion;
- d) Community input supporting types, heights, and locations of the noise barrier(s) is provided to the FDOT District Office; and
- e) Safety and engineering aspects related to the roadway user and the adjacent property owner have been reviewed, and any conflicts or issues resolved.
- f) During the design phase, the design team will coordinate with Osceola County Fire Rescue regarding alternative access to the Heritage Crossing development off of Old Lake Wilson Road.
- g) The proposed bridge culvert widening over the regulatory floodway at Davenport Creek will require a FEMA No-Rise Certification be processed through Osceola County Floodplain Management.

1.4 Alternatives Analysis Summary

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

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

In conducting the alternatives analysis, a full range of typical section, intersection, and alignment alternatives were first identified to meet the capacity needs. These alternatives were developed with consideration of future traffic needs, input from the public, input from local governments, Florida Design Manual (FDM), and compliance with requirements of the Americans with Disabilities Act (ADA). The alternatives analysis involved consideration of two roadway and bridge typical sections / alignments, and intersection evaluations.

Roadway and Bridge Typical Sections

Two alternative typical sections were considered for this project. Typical Section 1, shown on **Figure 1-2**, is a four-lane divided typical section with two 11-foot-wide travel lanes, 5-foot-wide bike lane in each direction, and a 37.5 foot raised median. A 10-foot-wide sidewalk is provided on the west side with 3-feet of sod between the curb and sidewalk, and a 6-foot-wide sidewalk is provided on the east side with a 3-foot sod strip between the curb and the sidewalk. This typical section requires a minimum of 117.5 feet of right of way and has a design speed of 45 mph and a posted speed of 45 mph.

SECTION 1 – PROJECT SUMMARY

Typical Section 2, shown on **Figure 1-3**, similar to Typical Section 1, is a four-lane divided section with two 11-foot-wide travel lanes, a wider 7-foot-wide buffered bike lane in each direction, and a 37.5 foot raised median. An 8-foot-wide sidewalk is provided on the west side with 3-feet of sod between the curb and sidewalk, and a 6-foot-wide sidewalk is provided on the east side with a 3-foot-wide sod strip between the curb and the sidewalk. This typical section requires a minimum of 119.5 feet of right of way and has a design speed of 45 mph and a posted speed of 45 mph.

For the bridge over I-4, two alternatives were evaluated. Bridge Typical Section 1, shown on **Figure 1-4**, includes maintaining the existing Old Lake Wilson Road bridge over I-4 to serve as the future northbound bridge. It includes the addition of a raised sidewalk along the east side of the bridge. This typical section includes two 11-foot-wide travel lanes and a 2.5-foot-wide inside shoulder and 8.3-foot-wide outside shoulder/bike lanes. The new southbound bridge will be constructed at a higher elevation to accommodate the future I-4 Beyond the Ultimate improvements. It is comprised of two 11-foot-wide travel lanes, a wide 19 foot inside shoulder and an 8.3 foot outside shoulder/bike lanes separated from a 10-foot sidewalk by a concrete traffic railing. The wider inside shoulder is required to allow this new bridge to temporarily accommodate four lanes of traffic when the existing Old Lake Wilson Road bridge is demolished and rebuilt at a higher elevation as part of the I-4 Beyond the Ultimate project. The total width of the new bridge is 62.8 feet.

Figure 1-2: Roadway Typical Section 1

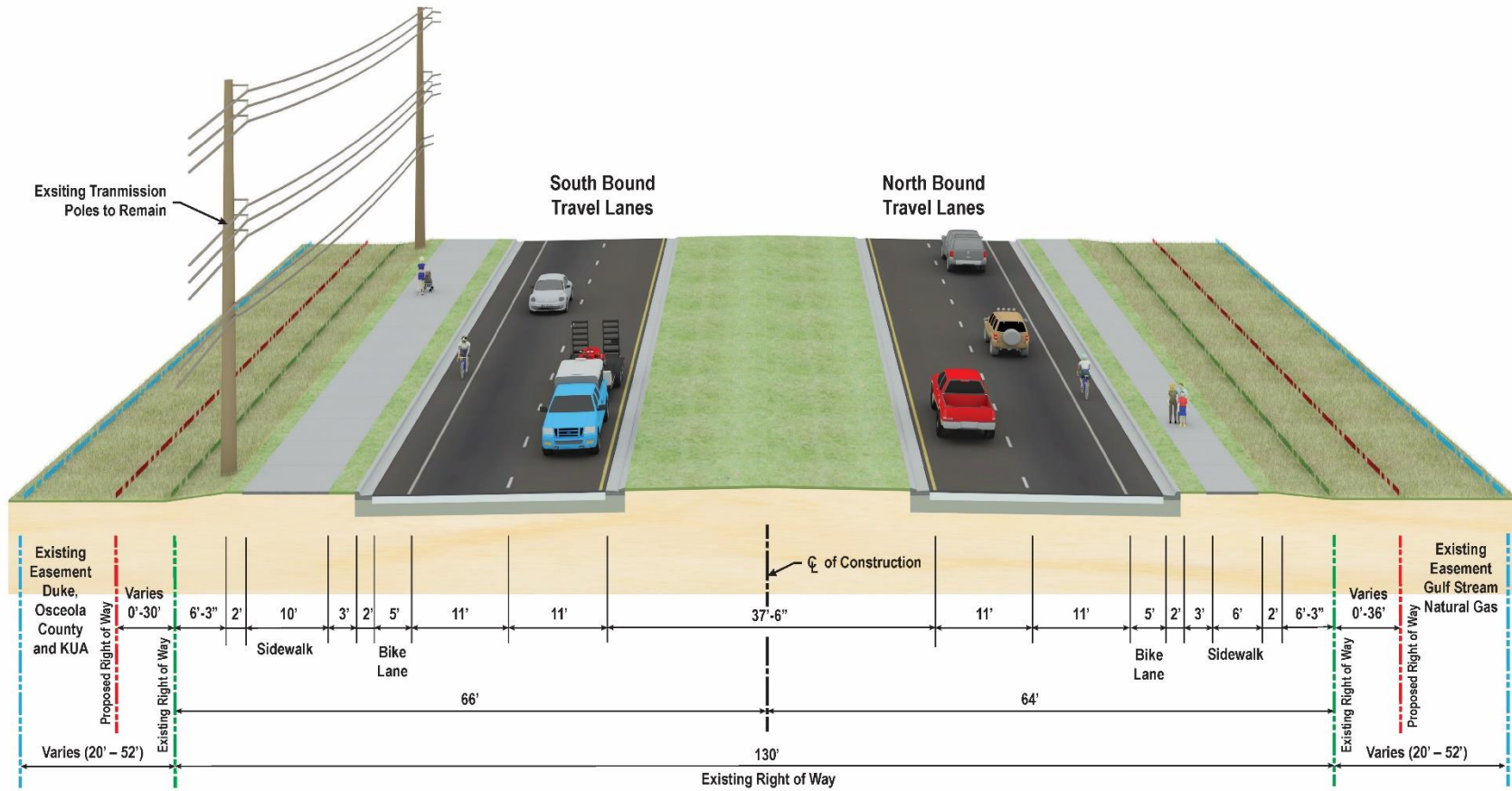


Figure 1-3: Roadway Typical Section 2

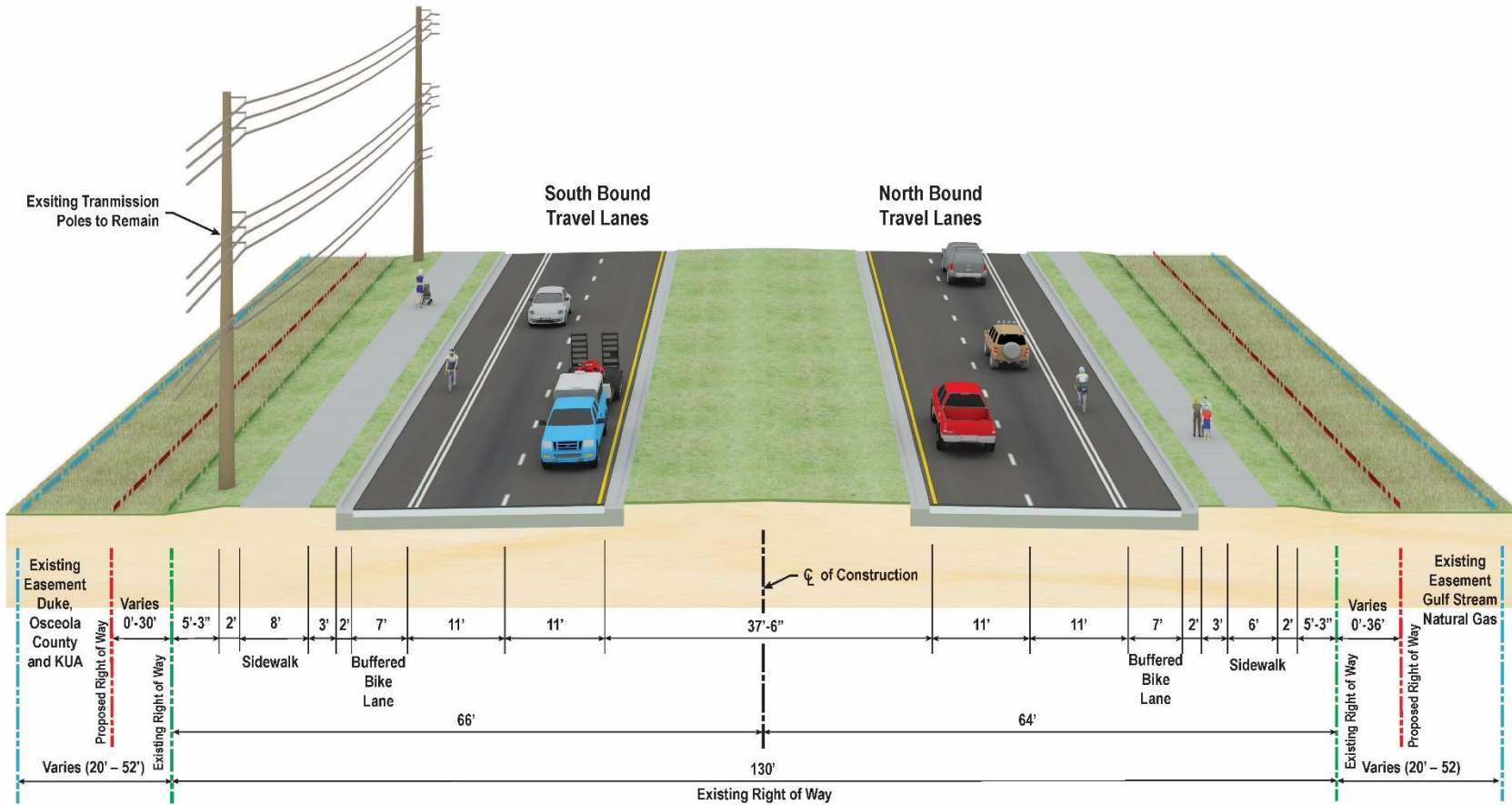
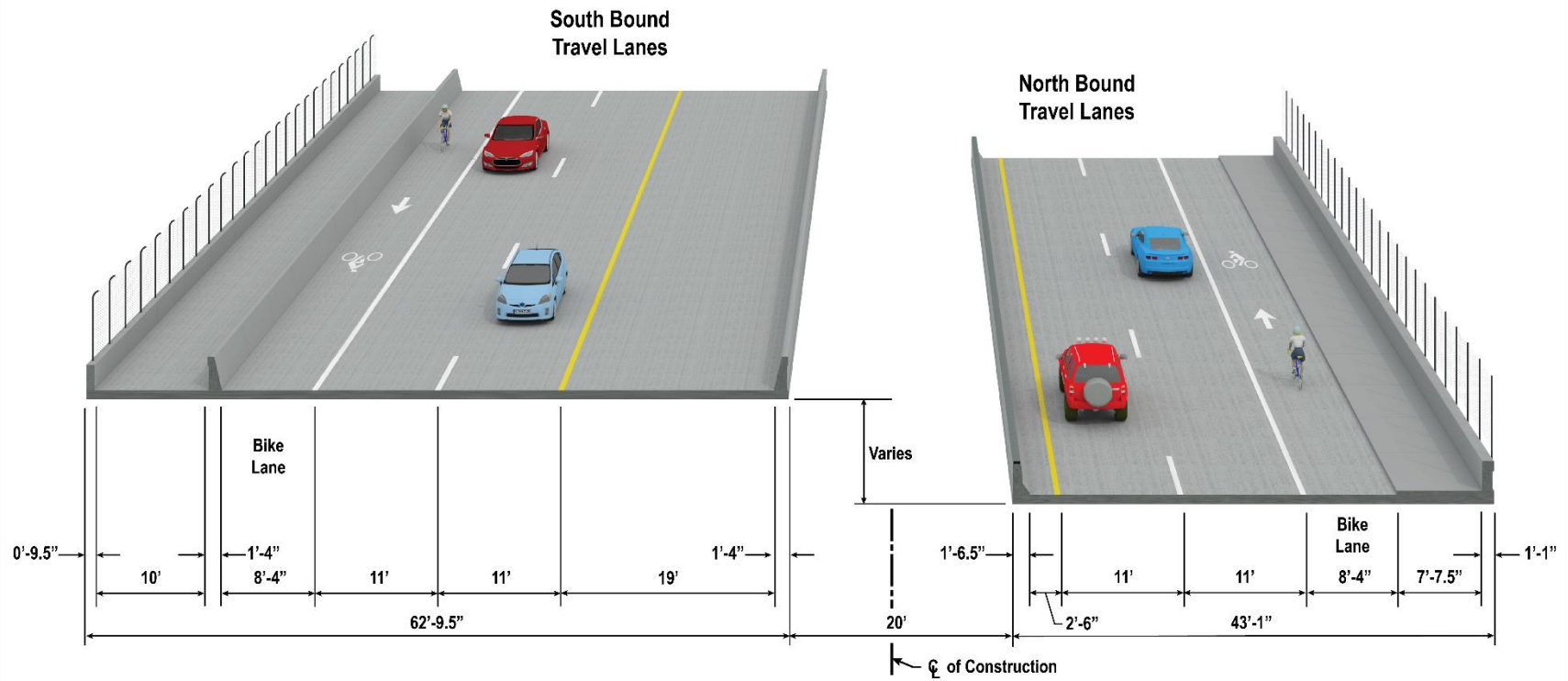


Figure 1-4: Bridge Typical Section 1

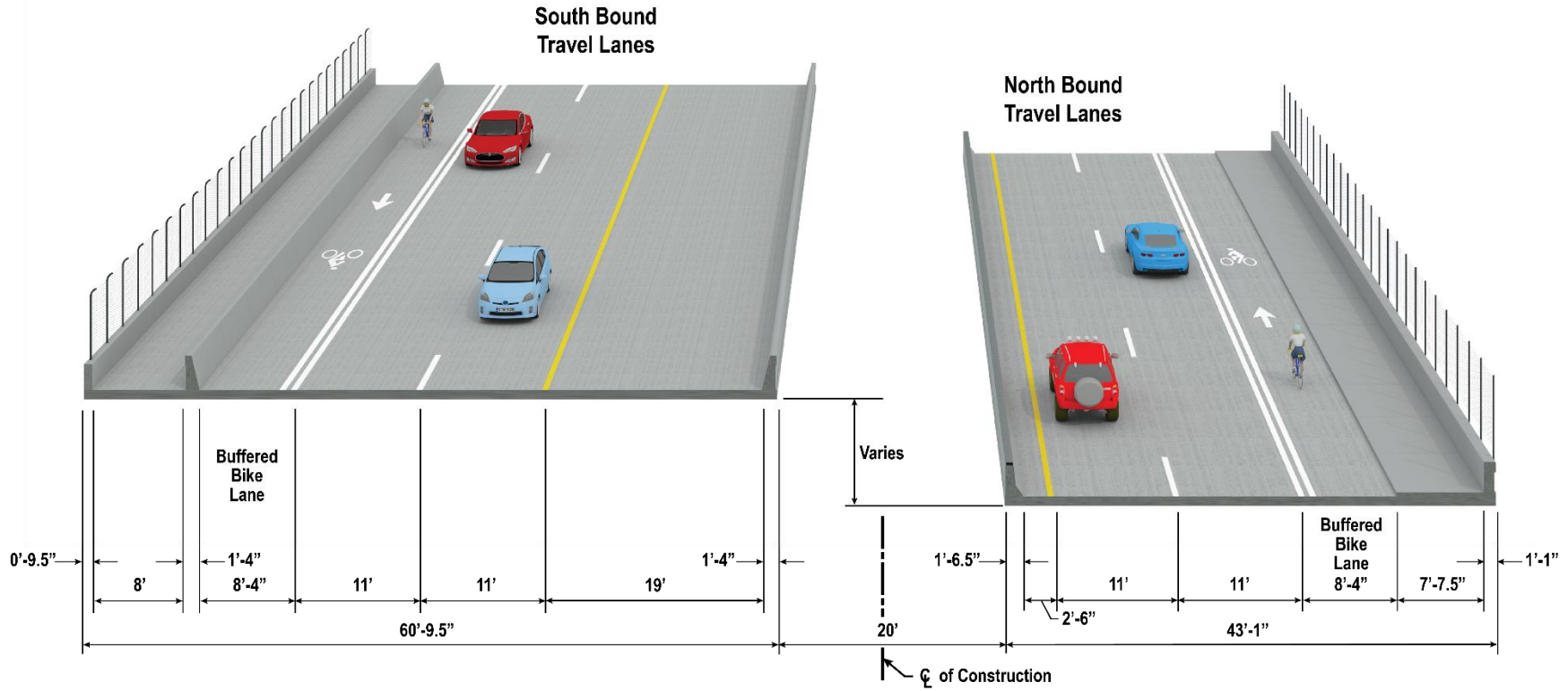


SECTION 1 – PROJECT SUMMARY

Bridge Typical Section 2 over I-4 is very similar to Bridge Typical Section 1; however, the sidewalk on the new southbound bridge is only 8-feet-wide and the total bridge width is 60.8 feet. Bridge Typical Section 2 is shown in **Figure 1-5**.

Finally, as shown in **Table 4-14**, three alternatives; one for each typical section, and the No-Build alternative, were evaluated for the project length.

Figure 1-5: Bridge Typical Section 2



The selection of the preferred alternative included the avoidance and minimization of impacts to businesses, residents, cultural resources, potential contamination sites, floodplains, wetlands, and species habitat, costs, consistency with the Old Lake Wilson Road typical section to the north and the proposed Lake Wilson Road to the south, and input received from the public and stakeholders.

The preferred alternative for the roadway and bridge is Alternative 1. It provides on-road bicycle lanes for experienced cyclists, but also provides the wider 10-foot sidewalk on the west side of the road that can accommodate both pedestrians and inexperienced/casual bicyclists. Concept plans for the preferred alternative are included in **Appendix C**.

1.5 Description of Preferred Alternative

The preferred improvement for Old Lake Wilson Road includes reconstructing the existing two-lane roadway to a four-lane divided roadway. The preferred typical section includes two 11-foot-wide travel lanes and a 5-foot-wide bike lane in each direction separated by a 37.5 foot raised median. A 10-foot-wide sidewalk is provided on the west side with 3-feet of sod between the curb and sidewalk, and a 6-foot-wide sidewalk is provided on the east side with a 3-foot sod strip between the curb and the sidewalk. This typical section requires a minimum of 117.5 feet of right of way and has a design speed of 45 mph and a posted speed of 45 mph.

The preferred typical section for the bridge over I-4 retains the existing Old Lake Wilson Road bridge over I-4, which will serve as the future northbound bridge. A raised sidewalk will be added along the east side of the existing bridge. The two travel lanes will be 11 feet wide, with a 2.5 foot inside shoulder and an 8.3-foot outside shoulder/bike lane. The new southbound bridge will be constructed at a higher elevation to accommodate the future I-4 Beyond the Ultimate (BtU) improvements. It includes two 11-foot-wide travel lanes, a 19-foot-wide inside shoulder, and an 8.3 foot outside shoulder/bike lane. A raised concrete traffic railing separates the 10-foot sidewalk and the bicycle lane. The wider inside shoulder is required to allow this new bridge to temporarily accommodate four lanes of traffic while the existing Old Lake Wilson Road bridge is demolished and rebuilt at a higher elevation as part of the I-4 BtU project. The total width of the new bridge is 62.8 feet.

It is estimated that the preferred alternative will impact approximately 0.49 acres of wetlands. Other environmental impacts are considered minor. The total estimated project cost of the preferred alternative is \$123,928,000. **Table 1-1** summarizes the impacts and costs of the preferred alternative.

Table 1-1: Impacts and Costs of Preferred Alternative

Evaluation Criteria	No-Build Alternative	Preferred Alternative
Relocations		
Number of residential relocations	0	0
Number of business relocations	0	0
Natural, Environmental & Physical Impacts		
Threatened and endangered species impacts	None	Low
Potential archaeological/historic site impacts	None	Moderate
Potential contamination sites	None	7 medium
Wetland impacts (acres)	None	0.49
Floodplain impacts (acre-feet)	None	0
Potential noise impacts	None	103 residences / 10 recreational areas
Estimated Present Day Costs		
Design	No cost	\$9,709,000
Right-of-Way	No cost	\$7,349,000
Non-reimbursable utility relocation*	No cost	\$9,601,000
Wetland mitigation	No cost	\$74,000
Construction	No cost	\$97,087,000
Construction engineering & inspection	No cost	\$9,709,000
Total cost	No cost	\$123,928,000

* - not included in the total cost

1.6 List of Technical Documents

The following is a list of the technical documents prepared for the Old Lake Wilson Road PD&E Study:

- *Public Involvement Plan- February 2021*
- *Comments and Coordination Report – November 2023*
- *Project Traffic Analysis Report- January 2023*
- *Utility Assessment Package- June 2022*
- *Noise Study Report- July 2022*
- *Geotechnical Memorandum- January 2021*
- *Location Hydraulics Report- March 2022*
- *Pond Siting Report-June 2022*
- *Bridge Hydraulics Assessment-March 2022*
- *Water Quality Impact Evaluation- September 2022*
- *Contamination Screening Evaluation Report- January 2022*
- *Cultural Resources Assessment Survey- June 2022*
- *Typical Section Package- June 2023*
- *Design Variation Memo – June 2023*
- *Natural Resources Evaluation- September 2022*
- *Type 2 Categorical Exclusion – December 2023*

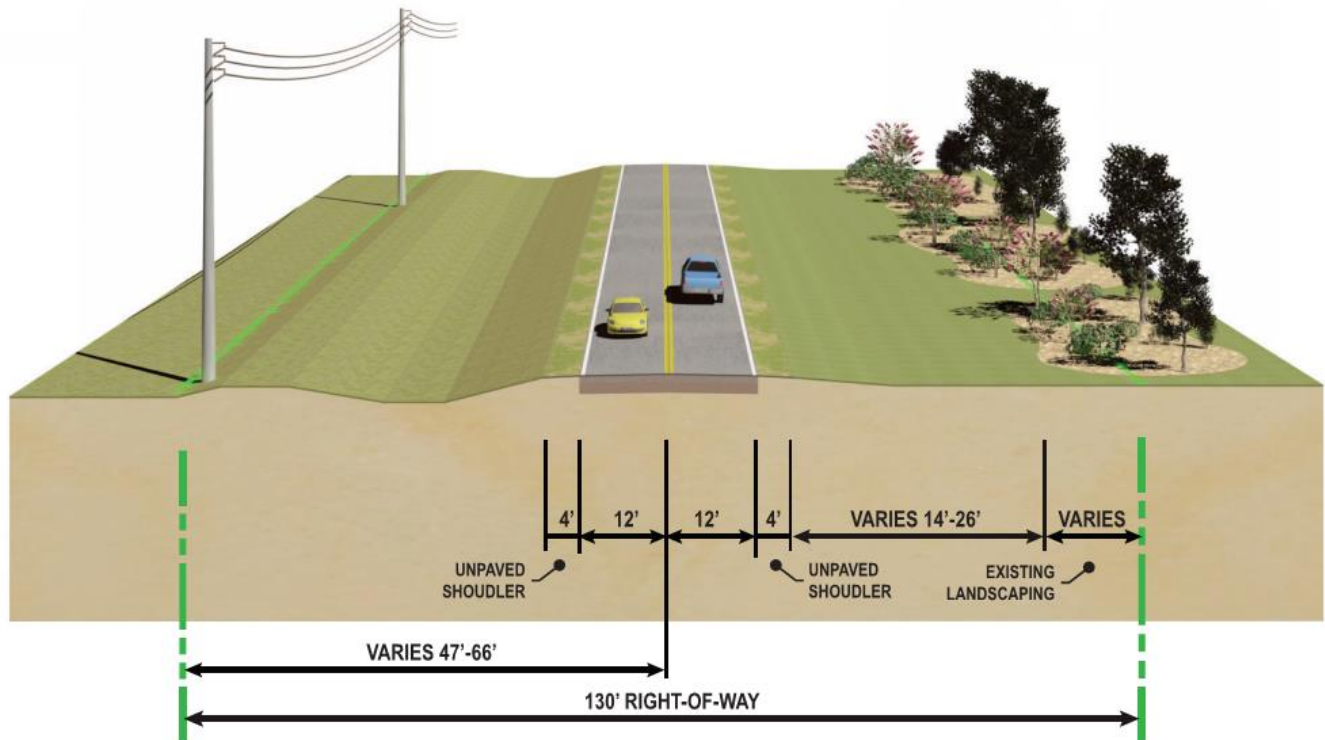
2.0 EXISTING CONDITIONS

2.1 Roadway

In the existing condition, Old Lake Wilson Road is generally a two-lane rural road from CR 532 to just south of Sinclair Road. As shown in **Figure 2-1**, for most of the project, the existing typical section is characterized by two 12-foot-wide travel lanes, one in each direction, and 4-foot-wide unpaved shoulders. Approximately 930 feet south of Assembly Court, paved shoulders are present, except for a short segment north of Fairfax Drive /Marker Avenue on the east side of the corridor.

Approximately one quarter mile south of Sinclair Road, Old Lake Wilson Road begins to transition from a two-lane undivided roadway to a four-lane divided urban roadway with type E curb adjacent to the median and type F curb on the outside of the 4-foot-wide paved shoulder. Immediately south of Sinclair Road, the two southbound lanes begin to merge into one lane. Approximately 700 feet south of Sinclair Road the second northbound travel lane opens for use.

Figure 2-1: Existing Typical Section



2.2 Right of Way

The right of way width is 130 feet throughout the corridor, however, beginning approximately 900 feet south of Assembly Court, the right of way width gradually increases to a maximum width of 250 feet in the vicinity of the I-4 overpass. From the I-4 overpass, the right of way width gradually decreases from 250 feet eventually returning to 130 feet approximately 400 feet north of Fairfax Drive / Marker Avenue.

2.3 Roadway Classification & Context Classification

Old Lake Wilson Road does not have a designated functional classification; however, it has the characteristics of a minor arterial that provides a connection between residential development and major highways like I-4 and US 192. The provisional context classification identified by the FDOT is a C3R-Suburban Residential from CR 532 to Sinclair Road.

2.4 Adjacent Land Use

The existing land uses were identified using the South Florida Water Management District (SFWMD) 2017-2019 Land Cover / Land Use data. As shown on **Figure 2-2**, most of the study area south of the I-4 / SR 429 interchange is classified as “urban and built up”. This area is comprised primarily of development associated with the Reunion Resort. Similarly, the area north of the I-4/SR 429 interchange is categorized as “urban and built up”. Development in this area makes up the Encore Resort.

The future land uses were identified using Osceola County’s 2040 Future Land Use data. As shown in **Figure 2-3**, most of the future land uses in the study area are designated tourist commercial. Additionally, there are also areas designated as conservation lands located north of the Reunion Boulevard / Gathering Drive overpass and in the vicinity of Assembly Court. Future land uses north of the I-4 / SR 429 interchange also contain a mixture of tourist/commercial and conservation.

Figure 2-2: Existing Land Use Map

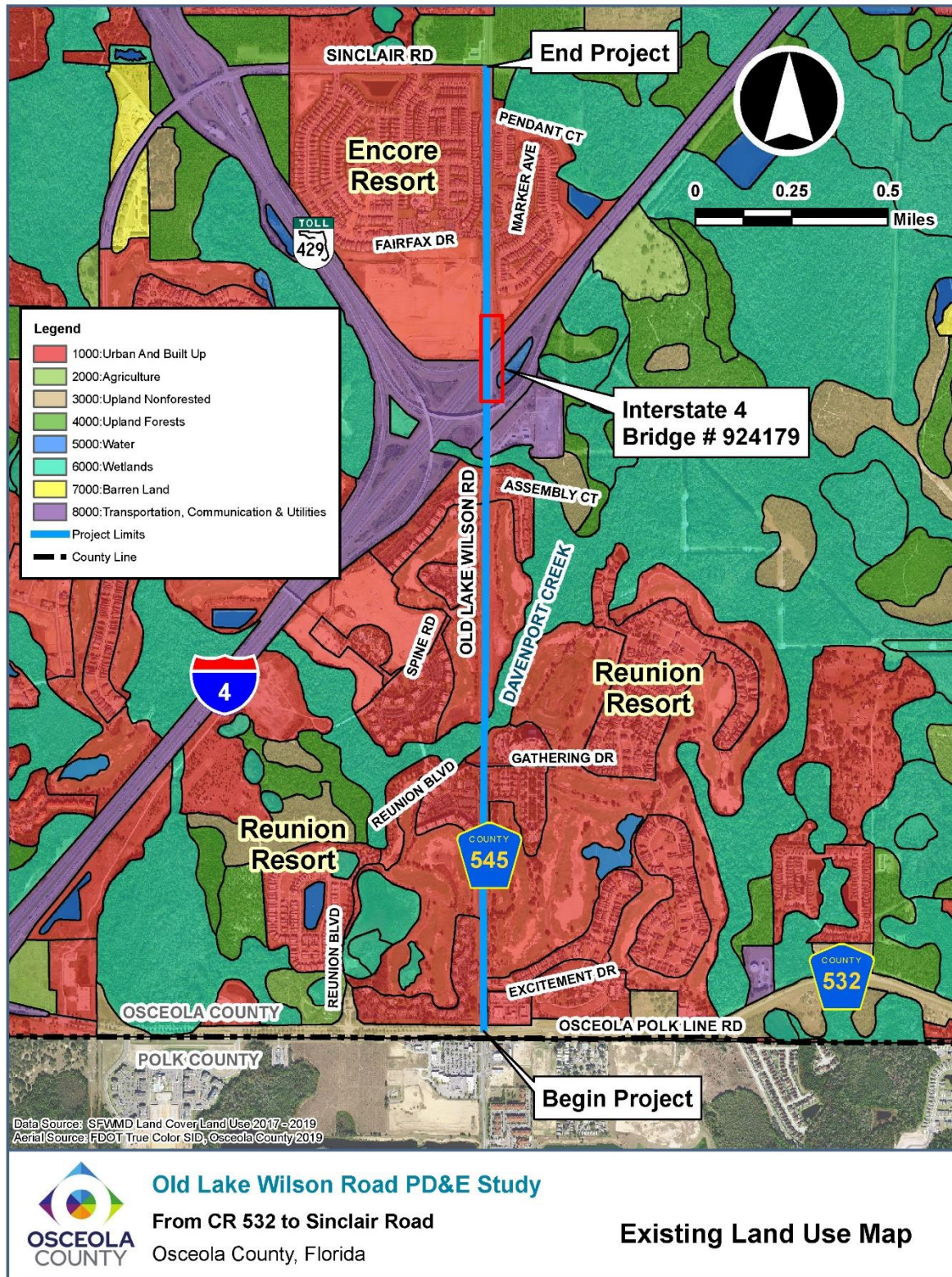
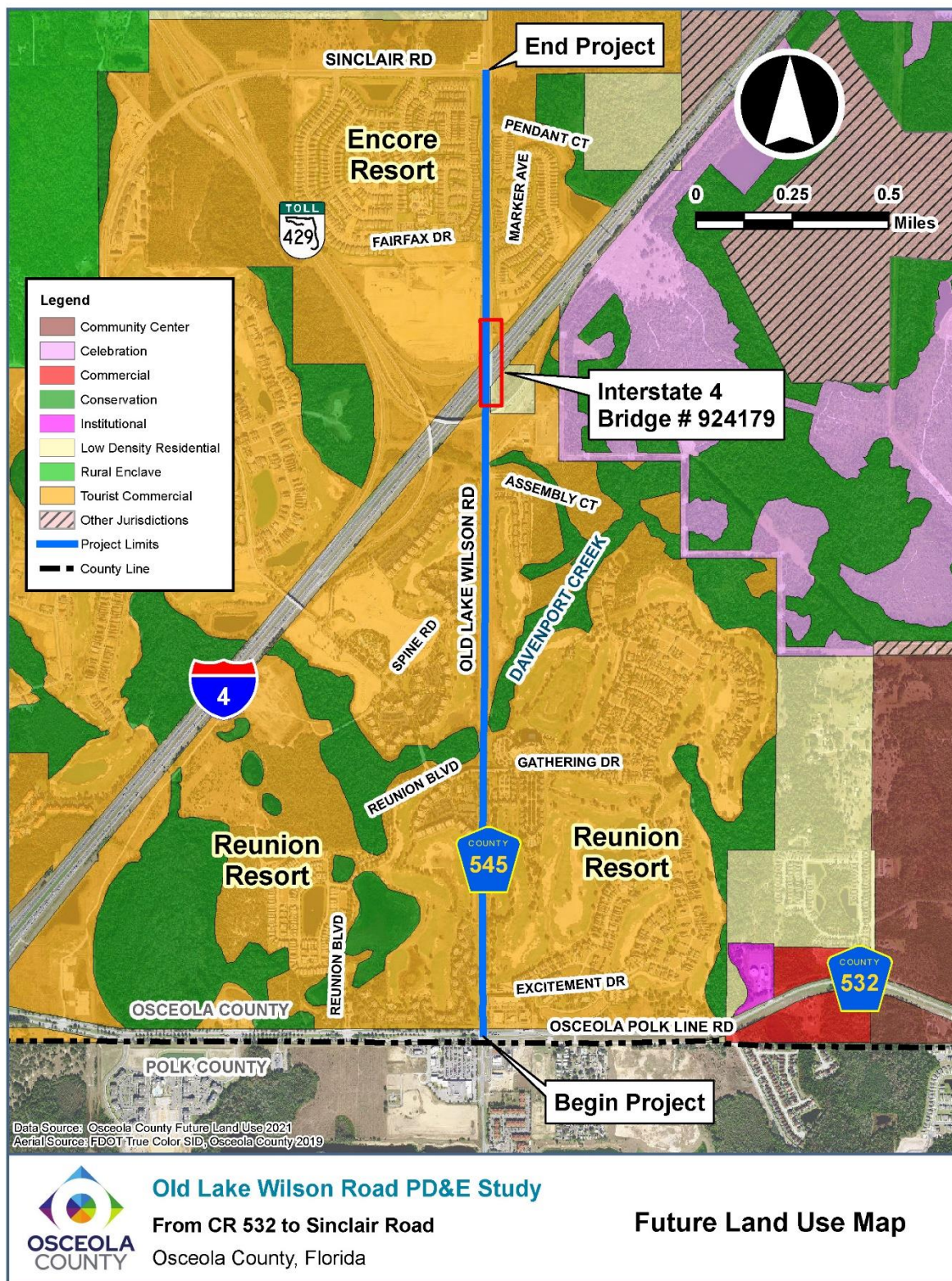


Figure 2-3: Future Land Use Map



2.5 Access Management Classification

While Old Lake Wilson Road is not a state roadway, the existing access management classification most closely resembles an Access Class Four (non-restrictive) facility per Table 201.4.2 of the 2022 Florida Design Manual (FDM). The access management spacing criteria are as follows:

- Connection Spacing: 660 feet for > 45 miles per hour, 440 feet for \leq 45 miles per hour
- Signal Spacing: 2,640 feet

2.6 Design and Posted Speeds

The existing posted speed is 45 miles per hour (mph) from CR 532 to approximately 360 feet north of Excitement Drive. North of Excitement Drive the posted speed increases to 55 mph until approximately 275 feet north of Assembly Court. North of Assembly Court the speed limit reduces to 45 mph until reaching the project terminus at Sinclair Road. The current design speed could not be determined due to unavailability of the original design plans.

2.7 Vertical and Horizontal Alignment

Due to the lack of available existing plans, the existing horizontal alignment was recreated based on recent (2019) county aerials. The alignment consists of a continuous tangent which begins at CR 532 and extends north toward the Gatherings Drive Overpass. Near the overpass, the alignment goes through a series of deflections, which shift the alignment to the east as it passes under the overpass. Beginning 860 feet south of Assembly Court, the roadway goes through a series of back-to-back curves shifting the alignment farther east as it passes under the SR 429 to I-4 east ramp. There is a short tangent as Old Lake Wilson Road passes through the I-4 at SR429 interchange (no connection to Old Lake Wilson Road). Finally, there is another series of back-to-back curves which shift the alignment back to the west followed by a tangent section which continues to Sinclair Road. **Table 2-1** below displays the best-fit existing horizontal alignment created based on the project aerials.

The information is based on a best fit profile generated from available Light Detection and Ranging (LiDAR) data. The existing vertical profile varies along the corridor. The profile begins on a hill near CR 532, and slowly decreases in elevation through a series of vertical curves. The profile reaches its lowest point as it crosses Davenport Creek. North of the creek, the profile steadily climbs until south of the I-4 interchange. At the interchange, the profile first dips under the SR 429 overpass and then rises quickly as it bridges over I-4 (No. 924179). North of I-4, the profile goes over one more hill with a series of vertical curves before reaching Sinclair Road. The existing vertical geometry is summarized in **Table 2-2** below.

SECTION 2 – EXISTING CONDITIONS

Table 2-1: Horizontal Alignment Information

Existing Horizontal Alignment ⁽¹⁾											
Segment	Bearing	POT / PI / PC / PT Station				Deflection Angle and Direction	Degree of Curve	Curve Radius (ft)	Curve Length (ft)	Super Elevation (ft/ft) ⁽²⁾	Notes
		POT	100+00.00								45 mph posted speed
Tangent 1	N 0° 09' 7" W										
Approximate speed change = Station 115+00.00											
Tangent 2	N 0° 43' 37" E	PI	133+48.40			0° 53' 05" (RT)					55 mph posted speed, does not meet criteria, ($\Delta_{max} = 00^\circ 45' 00''$)
Tangent 3	N 0° 53' 48" E	PI	144+80.51			0° 09' 50" (RT)					
Tangent 4	N 0° 17' 15" E	PI	152+04.49			0° 36' 40" (LT)					
Curve 1		PC	172+66.30	PRC	181+25.78	4° 17' 51" (RT)	0° 30' 00"	11459	859.48	NC	
Curve 2		PRC	181+25.78	PT	190+04.09	4° 23' 30" (LT)	0° 30' 00"	11459	878.31	NC	
Tangent 5	N 0° 11' 35" E										
Curve 3		PC	201+79.54	PRC	208+91.41	3° 33' 34" (LT)	0° 30' 00"	11461	711.87	NC	
Curve 4		PRC	208+91.41	PT	223+46.74	3° 38' 18" (RT)	0° 15' 00"	22918	1455.33	NC	
Tangent 6	N 0° 16' 20" E					0° 17' 37" (LT)					
		POT	248+73.74								

(1) Existing alignment is a "best fit" representation of the existing roadway based on the available aerial.

(2) Super elevation rate shown is based on criteria in the 2022 FDM (Table 210.9.1). Survey data was not available to verify.

SECTION 2 – EXISTING CONDITIONS

Table 2-2: Existing Vertical Geometry

Existing Vertical Alignment ⁽¹⁾									
Vertical Point of Intersection	Station	Elevation	Grade (%)	Change in Grade	Vertical Curve			Posted Speed (mph)	Notes
					Crest / Sag	Length (ft)	K		
1	105+01.65	140.72						45	
2	109+54.37	147.35	1.464%	2.126%	Crest	350	165		
3	114+87.68	143.82	-0.662%	3.339%	Sag	350	105		
Approximate speed change location = Station 115+00									
4	119+99.84	157.53	2.677%	4.855%	Crest	600	124	55	Does not meet criteria, (Kmin = 185)
5	128+72.55	138.52	-2.178%	2.178%	Sag	400	184		
6	136+69.56	138.52	0.000%	5.936%	Crest	800	135		Does not meet criteria, (Kmin = 185)
7	145+89.20	83.93	-5.936%	9.684%	Sag	550	77		Does not meet criteria, (Kmin = 115) (Max Grade = 5%)
8	151+41.53	104.63	3.748%	2.828%	Crest	300	106		Does not meet criteria, (Lmin = 350') (Kmin = 185)
9	173+31.10	124.77	0.920%	5.155%	Crest	800	155		Does not meet criteria, (Kmin = 185)
10	182+66.20	85.17	-4.235%	8.164%	Sag	850	104		Does not meet criteria, (Kmin = 185)
11	196+96.16	141.35	3.929%	7.143%	Crest	1000	140		Does not meet criteria, (Kmin = 185)
12	206+38.11	111.07	-3.215%	5.219%	Sag	600	115		
13	221+69.54	141.77	2.005%	5.495%	Crest	1200	218		
14	231+34.60	108.09	-3.490%	4.677%	Sag	500	107		Does not meet criteria, (Kmin = 115)
15	243+06.57	122.00	1.187%						

(1) Existing alignment is a "best fit" representation of the existing roadway based on the available LiDAR.

2.8 Pedestrian Accommodations

On the west side of the road, there is an 8-foot-wide sidewalk beginning approximately 580 feet south of Fairfax Drive / Marker Avenue. On the east side of the road, there is a 5-foot-wide sidewalk beginning approximately 680 feet south of Fairfax Drive / Marker Avenue. Both sidewalks continue through the northern terminus at Sinclair Road. There is a sidewalk gap for the remainder of the project limits.

2.9 Bicycle Facilities

There are no designated bicycle lanes or facilities along this portion of Old Lake Wilson Road. However, there are 4-foot-wide paved shoulders for a portion of the corridor beginning approximately 930 feet south of Assembly Court. These facilities continue north through the project terminus at Sinclair Road. It should be noted that the shoulders on the bridge over I-4 are approximately 8-feet-wide.

2.10 Transit Facilities

There is no transit service or facilities along the corridor in the existing condition.

2.11 Pavement Condition

The existing pavement is exhibiting signs of distress. Field observations revealed block cracking, transverse cracking, and severe raveling in numerous locations. It also appears that over the years, maintenance has placed asphalt along the edge of the pavement to avoid erosion and loss of asphalt. Beginning a few hundred feet south of the I-4 overpass, it appears that some pavement rehabilitation has occurred. Near the Encore Development, evidence of pavement widening, and multiple final pavement materials is evident. Even with continual maintenance, the service life of the existing asphalt is near its end.

2.12 Traffic Volumes and Operational Conditions

This section reviews the traffic volumes and operational analysis conducted for the existing conditions along Old Lake Wilson Road. More information on these topics can be found in the *Old Lake Wilson Road Project Traffic Analysis Report*.

2.12.1 COVID-19 Impacts

Traffic data was collected at the study intersections and along various roadway segments to provide a comprehensive snapshot of existing conditions and inform decisions regarding access management. Since these traffic counts were collected in December 2020 during the COVID-19 pandemic, a thorough review of these traffic volumes was conducted to determine potential impacts on the existing traffic volumes. Various historical counts collected by FDOT, and Osceola County were reviewed, both for daily traffic and peak hour traffic. After this review, it was determined the counts collected in December 2020 were reasonable and the traffic analysis would proceed without any traffic volume adjustments related to COVID-19. Axle correction factors and seasonal factors were applied to the traffic counts where appropriate, per FDOT guidance from the *2014 Traffic Analysis Handbook*.

2.12.2 Existing Peak Hour Intersection Operations

Seven total intersections along the study corridor were analyzed in the existing condition. Of the study intersections, two are signalized: Osceola Polk Line Road (CR 532) and Sinclair Road, and the remaining five are two-way stop controlled (TWSC) intersections. The existing lane configurations for each intersection are shown in **Figure 2-4**. A field review was conducted on December 16, 2020, to verify the intersection geometrics.

Existing intersection level-of-service (LOS) analyses were conducted using *Highway Capacity Manual 6th Edition (HCM6)* methodologies as implemented by Synchro 10.

Figure 2-5 summarizes the existing AM and PM peak hour intersection operations and turning movement volumes. For the TWSC intersections, the critical movement is shown, along with the volume-to-capacity (v/c) ratio and delay for the critical movement. For the signalized intersections, the delay and LOS shown are representative of the overall intersection.

The intersection of Old Lake Wilson Road and CR 532 operates at LOS E in both peak periods, with the northbound left turn movement in the AM peak period being the only over capacity movement. Sinclair Road operates at LOS B in both peak periods. Each of the unsignalized intersections had movements operating with a v/c ratio of less than 1.0 and with a LOS of E or better during both peak periods.

Figure 2-4: Existing 2020 Lane Configurations

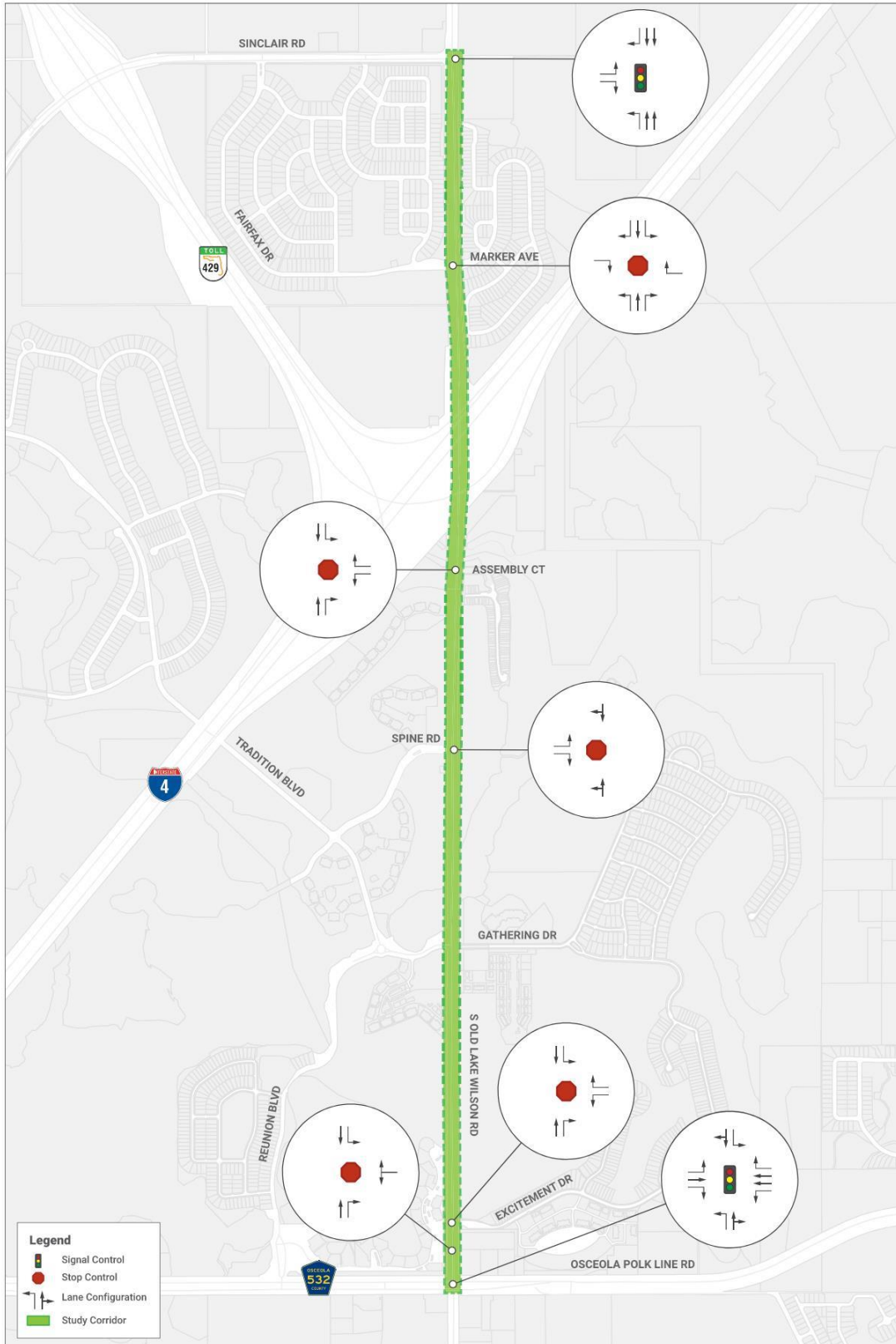
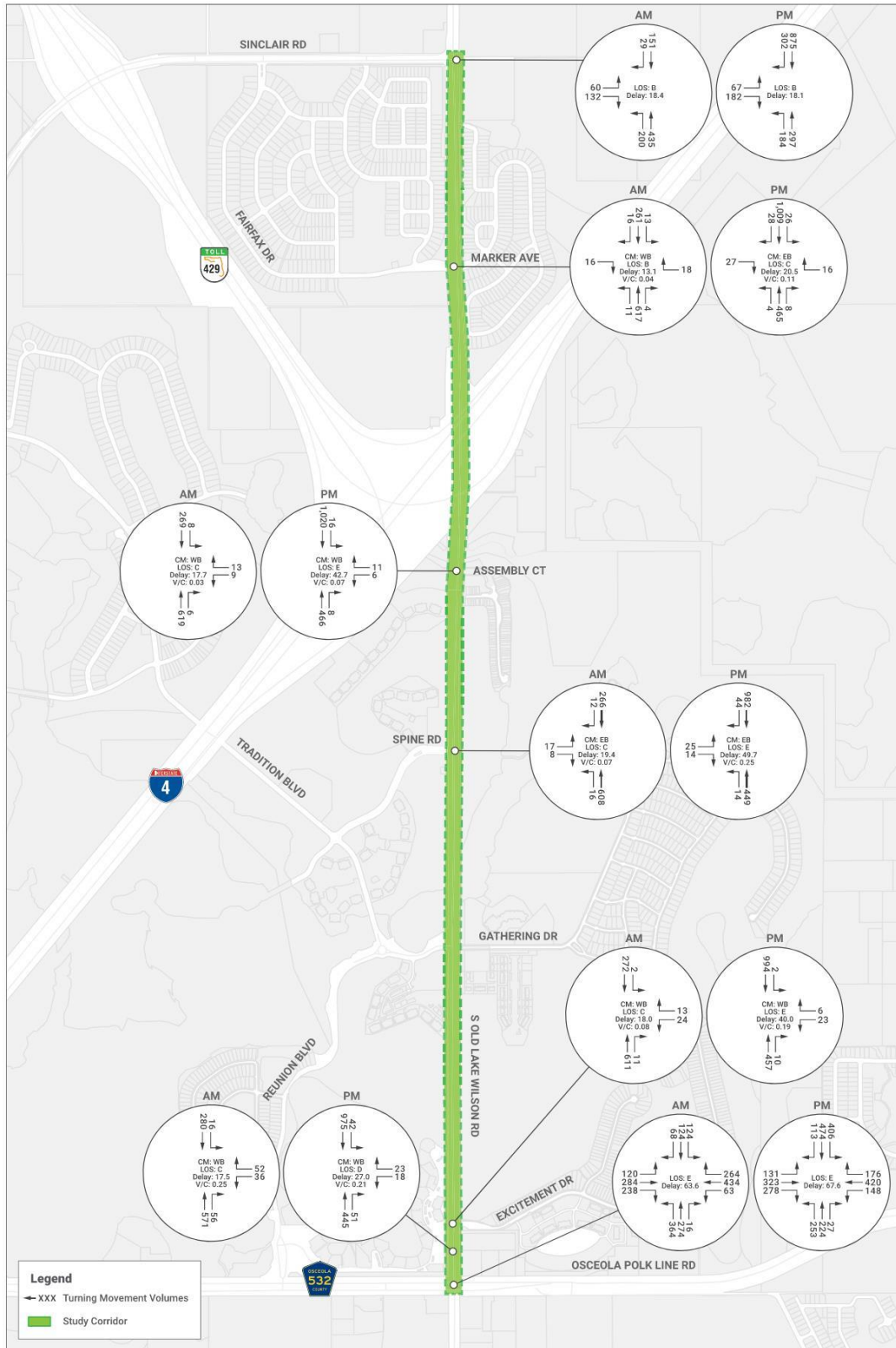


Figure 2-5: Existing 2020 Turning Movement Volumes and Operational Performance



2.12.3 Existing Peak Hour Segment Operations

Old Lake Wilson Road is an urban minor arterial for the length of the study corridor. Two signals bookend the study corridor and are more than two miles apart, which led to this corridor being analyzed as an uninterrupted flow two-lane highway for the entire corridor limits. Analysis of the uninterrupted flow two-lane highway segment was performed using the *HCM 6th Edition* procedures as implemented in HCS software. The results of the operational analysis are shown in **Table 2-3**.

In the AM period, both the northbound and southbound segments operate at LOS C. During the PM period, the northbound segment also operates at LOS C. For the PM southbound segment, congestion/queuing was observed extending from CR 532 to Sinclair Road (the entire 2.5-mile study corridor) during a field review in December 2020. The field review occurred the same day traffic counts were collected along the study corridor. The HCS analysis reported LOS D for this analysis but was determined to be unrepresentative of the actual segment performance based on the field observations. Thus, the segment LOS has been defaulted to LOS F as shown in **Table 2-3**.

SECTION 2 – EXISTING CONDITIONS

Table 2-3: Existing 2020 Segment LOS – (Uninterrupted Flow)

Segment #	Segment Limits	Analysis Direction	AM Peak Hour				PM Peak Hour			
			BFFS (mph)	ATS (mph)	PFFS* (%)	LOS	BFFS (mph)	ATS (mph)	PFFS* (%)	LOS
1	Old Lake Wilson Road, CR 532 to Sinclair Road	Northbound	59.6	45.0	80.2	C	59.6	43.1	76.5	C
1	Old Lake Wilson Road, Sinclair Road to CR 532	Southbound	59.6	46.4	82.7	C	N/A	N/A	N/A	F*

Note: *BFFS* is Base Free Flow Speed, *ATS* is Average Travel Speed, and *PFFS* is Percent Free Flow Speed

*Southbound PM congestion/queuing was observed extending from CR 532 to Sinclair Road (the entire 2.5-mile study corridor) during a field review in December 2020. The field review occurred the same day traffic counts were collected along the study corridor. The HCS analysis reported LOS D for this analysis but was determined to be unrepresentative of the actual segment performance based on the field observations. Thus, the segment LOS has been defaulted to LOS F as shown in the table.

2.13 Railroad Crossings

There are no railroads in the study corridor.

2.14 Crash Data and Safety Analysis

Crash records were obtained for Old Lake Wilson Road from 350 feet south of CR 532 to 300 feet north of Sinclair Road for the most recent five-year period on record (2016 through 2020). The crash data was obtained from the University of Florida's Signal Four (S4) Analytics crash database because this is a non-state roadway. The FDOT State Safety Office Geographic Interface Software (SSOGis) (2016-2018) was also cross referenced for additional crashes that may not have been reported in the S4 dataset. This led to an additional 24 crashes being added to the analysis dataset. Note that 2019 and 2020 SSOgis data was not verified by FDOT at the time of this report; therefore, 2019 and 2020 SSOgis data was not utilized.

A total of 263 crashes were reported from 2016 through 2020; 81 (31 percent) of which resulted in at least one injury. There were no fatalities along the study corridor within the study period. As displayed in

Figure 2-6, the crashes per year along the corridor generally increased between 2016 (40 crashes) and 2019 (68 crashes). The 2020 crash data saw a decrease to 37 crashes.

Figure 2-7 shows rear end crashes accounting for nearly 60 percent of the study corridor crashes, while sideswipe, left turn, and angle crashes accounted for approximately 10 percent of crashes each. No pedestrian or bicycle crashes occurred on Old Lake Wilson Road during the study period. More information on the crash analysis can be found in the *Old Lake Wilson Road Project Traffic Analysis Report*.

Figure 2-6: Crashes by Year (Corridor Wide)

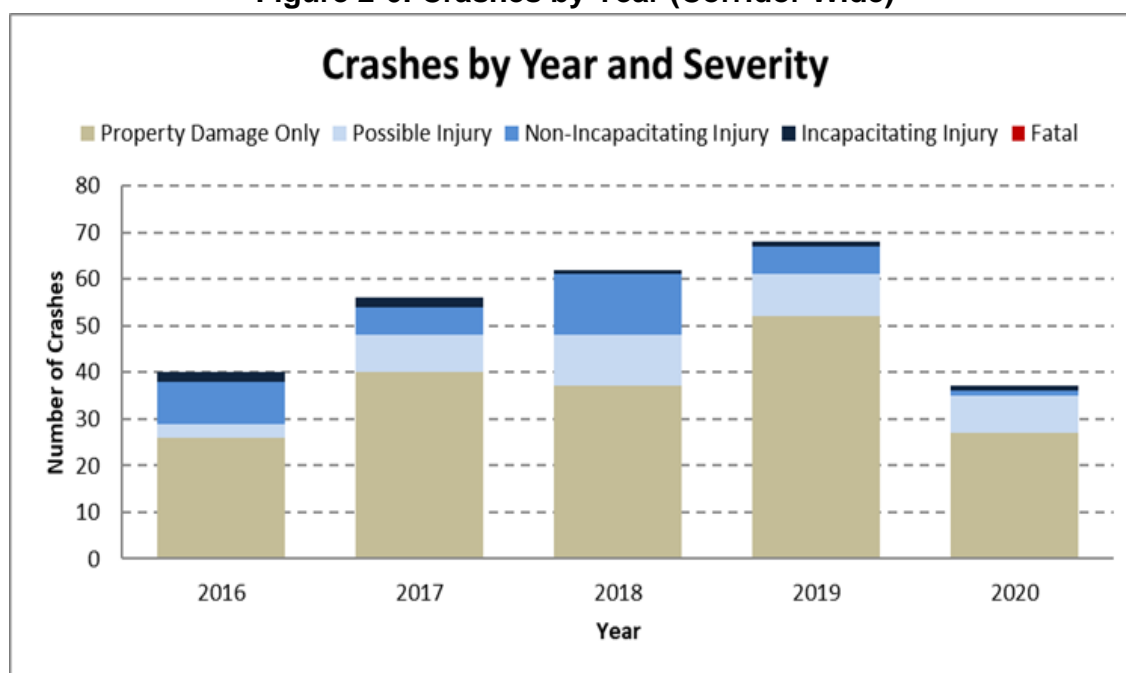
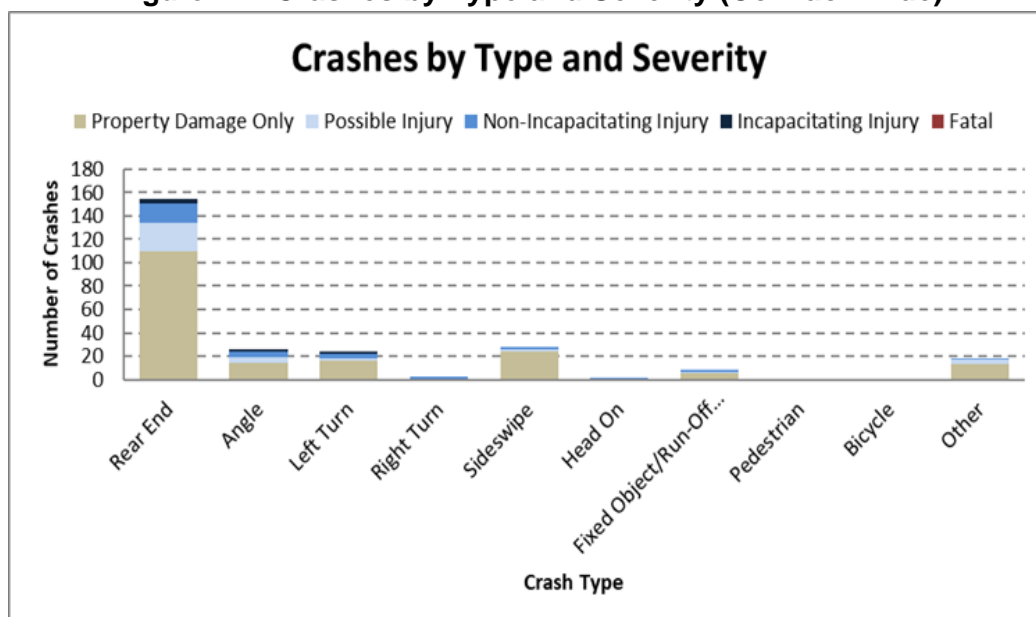


Figure 2-7: Crashes by Type and Severity (Corridor Wide)

A crash rate/safety ratio analysis was performed for the Old Lake Wilson Road study corridor. The corridor's safety ratio was calculated to compare the annual crash rates to critical crash rates of similar facilities throughout FDOT District Five and the State of Florida. The results of the analysis showed average crash rates (crashes per million entering vehicles) at the intersections of Old Lake Wilson Road and CR 532, Excitement Drive, and Spine Road exceeded the FDOT district-wide and statewide average crash rates. None of the segments along the Old Lake Wilson Road study corridor exceeded the district-wide or statewide average crash rates. Additionally, a review of the crash data along the corridor identified several crash patterns and possible contributing causes for those patterns:

Rear End Crashes

Fifty-nine (59) percent of crashes along the study corridor were rear end crashes. Nearly half of the rear end crashes occurred at the signalized intersections, which is indicative of congestion. The remainder of the rear end crashes are likely caused by drivers slowing to make left or right turns along the two-lane roadway. With limited turn lanes along the corridor and a speed limit of 45 mph to 55 mph, slowing to make turns could also be a contributing cause for rear end crashes.

Left Turn and Angle Crashes

Left turn crashes and angle crashes combined for 19 percent of crashes along Old Lake Wilson Road. More than 90 percent of the left turn and angle crashes occurred at intersections along the corridor. Limited turn lanes at unsignalized intersections along the corridor and a speed limit of 45 mph to 55 mph may contribute to the high number of left turn and angle crashes.

Sideswipe Crashes

Sideswipe crashes accounted for the second highest crash type (11 percent) along Old Lake Wilson Road. The majority (79 percent) of sideswipe crashes occurred at the signalized

intersections, again indicative of congestion or insufficient advanced lane configuration signage.

AM and PM Peak Period Crashes

In addition to crash types, the time of day was also reviewed. It was observed that the highest number of crashes occurred during the peak periods. Fifteen (15) percent of crashes occurred between 7 AM to 10 AM and 32 percent of crashes occurred from 3 PM to 6 PM, suggesting peak hour congestion is contributing to crashes during peak travel times.

2.15 Drainage

The project is within the jurisdiction of the SFWMD and Florida Department of Environmental Protection (FDEP) and lies within the Davenport Creek basin (WBID 3170K) in the Kissimmee River watershed. While Davenport Creek is not currently impaired for nutrients, the project ultimately discharges to Reedy Creek, which has a discharge limitation of 13 cubic feet per second per square mile (cfs/sq. mi.) for a 50-year, 72-hour storm event per Reedy Creek Improvement District (RCID) requirements. Additionally, the project is located within the Lake Okeechobee Basin Management Action Plan (BMAP), which has targeted loads for total phosphorus (TP) to help address the nutrient impairment.

The vertical profile of Old Lake Wilson Road varies throughout the corridor. For the majority of the project limits, stormwater runoff sheet flows off the roadway. At the bridge approaches at I-4, runoff is collected in shoulder gutter inlets and conveyed to the existing infield stormwater pond or roadside ditches.

The project is divided into seven subbasins based on the existing permits, roadway profile, and culvert locations. All basins within the project limits are open basins, ultimately discharging to Reedy Creek. The project limits are included in the following SFWMD environmental resource permits (ERPs):

- Permit No. 49-01107-P – Reunion Master Stormwater Plan – The master stormwater plan for the Reunion development provides treatment and attenuation for 70% impervious area within four subbasins that include the Old Lake Wilson Road right-of-way from the Osceola/Polk County line to I-4. Stormwater management is provided within wet detention and dry retention ponds within the Reunion development.
- Permit No. 49-00954-P – Old Lake Wilson Road Widening (County Road 545) – The stormwater management system is permitted for a future six lane expansion of Old Lake Wilson Road, allowing up to 82% impervious area. This permit includes Old Lake Wilson Road from 1,600 feet south of Sinclair Road to Westgate Boulevard, with one subbasin within the PD&E Study limits.

Additionally, the I-4 Beyond the Ultimate (BtU) segment within the Davenport Creek basin is currently under design and has identified infield pond sites (105A/105B and 108A/108B) within two subbasins of the SR 429 interchange that account for the future widening of Old Lake Wilson Road.

There are two major culverts within the study limits: a bridge culvert at Davenport Creek and a triple 42-inch cross drain at Davenport Creek Tributary. The major cross drains are summarized in **Table 2-4**.

Table 2-4: Summary of Existing Major Cross Drains

Structure No.	Station	Description	Remarks
924147	147+00	Quad 11' x 7' CMPC	Davenport Creek (FEMA Regulatory Floodway)
CD-17 (per I-4 BtU Concept Plans)	183+00	Triple 42" RCP	Davenport Creek Tributary

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 12097C0040G (dated June 18, 2013) identifies a Zone A floodplain at the Davenport Creek Tributary and a Zone AE floodplain at Davenport Creek. Davenport Creek is designated as a regulatory floodway at the crossing of Old Lake Wilson Road, with elevation 92 west of the bridge culvert and elevation 90 east of the bridge culvert.

There are no known drainage problems within the project limits.

2.16 Soils and Geotechnical Data

An inventory of the existing soils was obtained from the U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) Soil Survey of Osceola County, Florida. The primary soil types within the project area are presented in **Table 2-5**. The primary soil types are displayed in **Figure 2-8**.

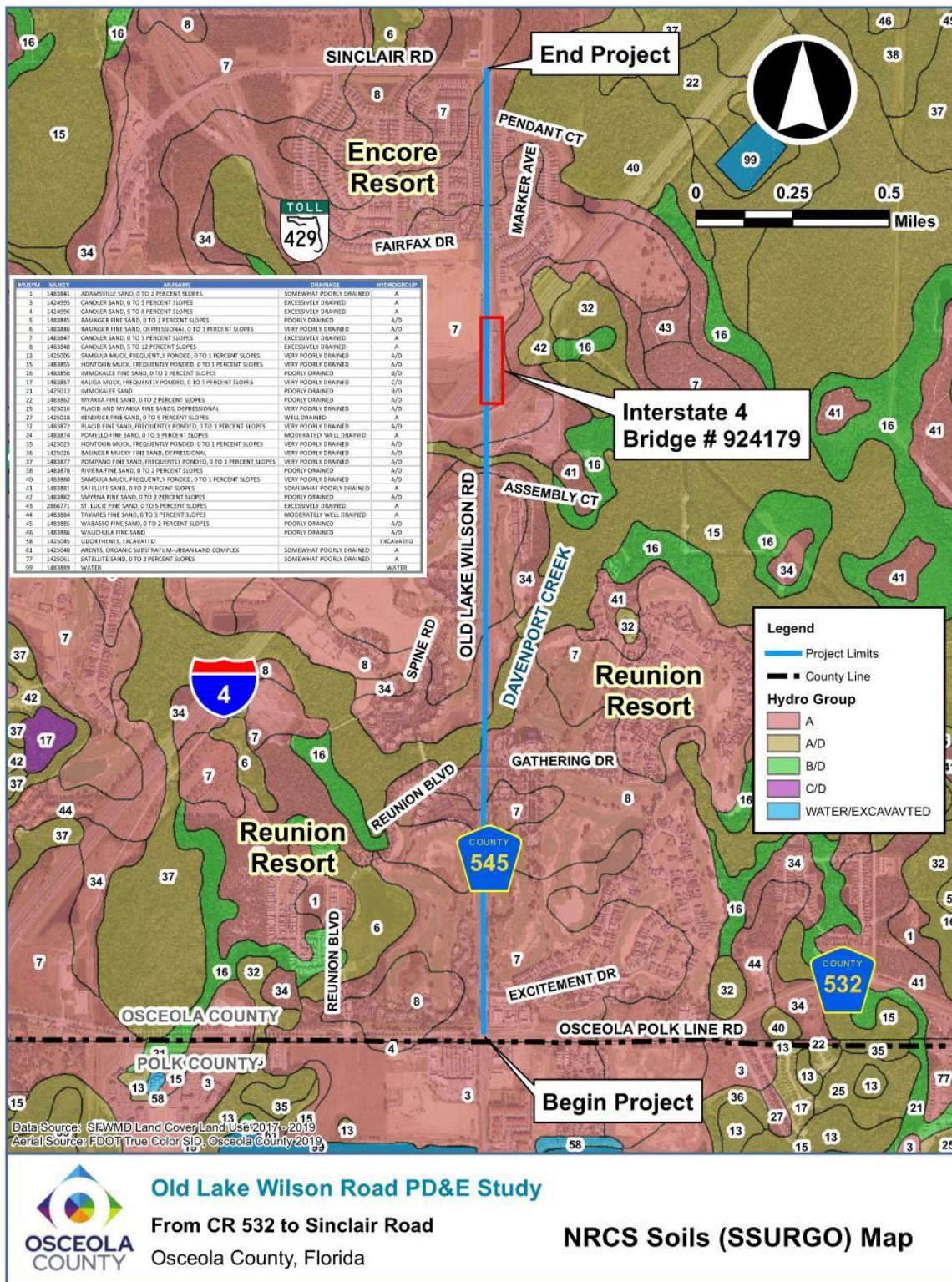
The shallow subsurface soil conditions primarily consist of sands to silty sands (A-3/A-2-4) in the upper soil profile. An isolated area of organic soils (up to 5½ feet below natural ground surface) is noted within the creek crossing just north of Assembly Court. The seasonal high groundwater table (SHGWT) levels along most of the project corridor are reported to range between two and six feet below the natural ground surface. The SHGWT is reported to range from above to one foot below natural ground surface in isolated areas on the north side of Reunion Boulevard / Gathering Drive and the north side of Assembly Court. Candler sand (7) is the predominant soil mapping unit covering approximately 60 percent of the project corridor, however, the soil and groundwater conditions reported by the USDA have likely been modified by the placement of fill materials and construction of the existing roadways and ditches/canals associated with adjacent developed parcels of land.

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Table 2-5: Osceola County USDA NRCS Soil Survey Information

Map Number	Soil Name	Soil Classification			
		Depth (in)	USCS	AASHTO	Permeability (in/hr)
7	Candler sand, 0 to 5 percent slopes	0-6	SP, SP-SM	A-3	6.0 - 50.0
		6-63	SP, SP-SM	A-3, A-2-4	6.0 - 50.0
		63-80	SP-SM	A-3, A-2-4	6.0 - 20.0
8	Candler sand, 5 to 12 percent slopes	0-67	SP, SP-SM, SM	A-3, A-2-4	20.0 - 50.0
		67-80	SP-SM, SM-SC	A-3, A-2-4	6.0 - 20.0
15	Hontoon muck, frequently ponded, 0 to 1 percent slopes	0-60	PT	A-8	6.0 - 20.0
		60-65	PT	A-8	6.0 - 20.0
34	Pomello fine sand, 0 to 5 percent slopes	0-47	SP-SM	A-3	20.0 - 50.0
		47-58	SP-SM	A-2-4	0.6 - 6.0
		58-65	SP-SM	A-3	0.6 - 20.0
		65-80	SP	A-3	6.0 - 20.0
37	Pompano fine sand, frequently ponded, 0 to 1 percent slopes	0-80	SP-SM, SM	A-3, A-2-4	6.0 - 20.0

Figure 2-8: NRCS Soils (SSURGO) Map



2.17 Utilities

Utility/agency owners (UAOs) were contacted in January 2021 and asked to assist in locating and identifying existing and planned facilities within the study area. Through mark-ups, written and/or verbal descriptions, the UAOs provided information on the location and type of existing facilities and information on the planned facilities anticipated in the future. A description of the existing facilities and associated utility contacts are outlined in **Table 2-6**.

Table 2-6: Existing Utility Information

Utility Agency/Owner	General Description of Facilities
<p style="text-align: center;">LUMEN/CenturyLink David Brynes 407-814-5379 david.r.byrnes@lumen.com</p>	<ul style="list-style-type: none"> • All Facilities are inside the ROW • 2-4” conduits cross S. Old Lake Wilson Rd. to the north of CR 532 • Out of Service BT 100 from STA 101 to STA 135 (west side of Old Lake Wilson Rd.) • BT 50 from STA 101 to STA 103+50 (east side of Old Lake Wilson Rd.) • BT 100 from STA 103+50 to STA 105 (east side of Old Lake Wilson Rd.) • BFO 120 from STA 101 to STA 216 (west side of Old Lake Wilson Rd.) • 200 BT from STA 101 to STA 135 (west side of Old Lake Wilson Rd.) • 24 FOC from STA 130 to STA 137 (west side of Old Lake Wilson Rd.) • 288 FOC and 96 FOC from STA 136 to STA 137 (west side of Old Lake Wilson Rd.) • 200 BT and FOC 36 in Conduit from STA 135 to STA 177 the runs down the south side of Assembly Ct. (east side of Old Lake Wilson Rd.) • Duct carrying FOC 288, FOC 48 and FOC 96 crosses Old Lake Wilson Rd. north of Gathering Dr. • 100 BT from STA 140 to STA 180 (crosses Old Lake Wilson Rd. and runs along the west side of Old Lake Wilson Rd.) • 100 BT from STA 172 to STA 180 (west side of Old Lake Wilson Rd.) • BFO 12 at STA 180 that crosses Old Lake Wilson Rd. • BFO 24 and BFO 48 from STA 180 to STA 183+50 (west side of Old Lake Wilson) • BFO 24 from the north side of Makers Ave. and BFO 48 from the north side of Fairfax Dr. combine on the west side of Old Lake Wilson Rd. into one

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Utility Agency/Owner	General Description of Facilities
	<p>BFO 48 from STA 210 to STA 216</p> <ul style="list-style-type: none"> • 25 BT from STA 214 to STA 232 (west side of Old Lake Wilson Rd.) • BFO 144 from STA 216 to STA 232+43.29 (west side of Old Lake Wilson Rd.) • STA 100 BT from STA 231+50 to STA 232+43.29 • Out of Service 200 BT, 100 BT, and BFO 144 from STA 199 to STA 220 (west side of Old Lake Wilson Rd.) • Out of Service 200 BT and 100 BT from STA 220 to STA 232 (west side of Old Lake Wilson Rd.)
<p>Charter Communications Larry Webb (407) 215-5006 larry.webb@charter.com</p>	<ul style="list-style-type: none"> • BFO from STA 101 to STA 220 on the east side of Old Lake Wilson Rd. and inside of the ROW • BFO from STA 220 to STA 232+43.29 on the east side of Old Lake Wilson Rd. and outside of the ROW
<p>Enterprise Community Development District Kathy Leo k.leo@gaiconsultants.com</p>	<ul style="list-style-type: none"> • No Response
<p>Florida Gas Transmission Joe Sanchez (407) 838-7171 joseph.e.sanchez@energytransfer.com</p>	<ul style="list-style-type: none"> • 18" OD x 0.375" WT Grade X-52, Natural Gas pipeline crosses Old Lake Wilson Rd. between STA 185 and STA 190 running at a diagonal which is perpendicular to SR 400
<p>Duke Energy Trans. Scott Vanvelzor 803 909-1241 SVanvelzor@pike.com</p>	<ul style="list-style-type: none"> • 69 kV transmission line runs on the west side of S. Old Lake Wilson Rd. • 230 kV transmission line crosses S. Old Lake Wilson Road on the south side of the I-4 and SR 429 interchange • 230 kV transmission line crosses S. Old Lake Wilson Road on the north side of the I-4 and SR 429 interchange
<p>Duke Energy Distribution Thomas Macias (407) 938-6619 Tomas.Macias@duke-energy.com</p>	<ul style="list-style-type: none"> • 12.4/7.2 kV buried electric runs on the west side of S. Old Lake Wilson Rd. in an easement from STA 100 to STA 106+25 • 12. 4/7.2 kV buried electric crosses S. Old Lake Wilson Rd. at STA. 106+25 (Excitement Dr.) and continues running north on the east side of S. Old Lake Wilson Rd. in an easement until just south of Sinclair Rd. where it crosses to the west side of N. Old Lake Wilson Rd., transitions to overhead electric temporarily (from STA 225+25 to STA

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Utility Agency/Owner	General Description of Facilities
	<p>230+75), and is within the ROW</p> <ul style="list-style-type: none"> • South of Gathering Dr./Reunion Blvd. buried electric crosses under S. Old Lake Wilson Rd. • On the north side of Spine Rd. buried electric crosses under S. Old Lake Wilson Rd. and runs on the north side of Spine Rd. • Just south of and just north of Assembly Ct. buried electric lines cross under S. Old Lake Wilson Rd., additionally an overhead electric line runs northeast and stops west of S. Old Lake Wilson Rd. and turns to buried electric before paralleling S. Old Lake Wilson Rd. and stopping at SR 400 (these lines continue along the west side of Old Lake Wilson Rd. across I-4 but are not claimed by Duke in their RGBs) • Just north of I-4 a buried electric line crosses under N. Old Lake Wilson Rd. • At Fairfax Dr./Marker Ave. two buried electric lines cross on the north and south side of Fairfax. Dr.
<p>Zayo Group Dean Pate 352-250-1959 dean.pate@zayo.com</p>	<ul style="list-style-type: none"> • No Response
<p>TOHO Water Authority-Zone 1 Robert Pelham (407) 944-5132 RPelham@tohowater.com</p>	<ul style="list-style-type: none"> • 24" water main runs on the west side of S. Old Lake Wilson Rd. in an easement from CR 532 to I-4. • 10" water main crosses under S. Old Lake Wilson Rd. approximately 200 ft north of CR 532 • 12" water main crosses under S. Old Lake Wilson Rd. 600 ft north of CR 532 • 24" sanitary FM runs on the west side of S. Old Lake Wilson Rd. in an easement from CR 532 to I-4.
<p>Gulfstream Natural Gas System Fred Deloach 941-723-7108 fred.deloach@williams.com</p>	<ul style="list-style-type: none"> • 16" steel gas main runs from STA 106 to STA 180 on the east side of S. Old Lake Wilson Rd. in an easement
<p>Frontier Comm. Fred Valdes (863) 688-9714 fred.n.valdes@ftr.com</p>	<ul style="list-style-type: none"> • No facilities inside of project limits • 2-4" and 1-1.5" on the south side of CR 532

SECTION 2 – EXISTING CONDITIONS

Utility Agency/Owner	General Description of Facilities
<p>Comcast Comm. Cesar Rivera 407-352-5944 cesar_rivera@comcast.com</p>	<ul style="list-style-type: none"> • BTV within the ROW on the east side of S. Old Lake Wilson Rd. from CR 532 to STA 106 at Excitement Dr.
<p>Summit Broadband Michelle Daniel (407) 996-1183 mdaniel@summit-broadband.com</p>	<ul style="list-style-type: none"> • No Response
<p>Orlando Utilities Commission – Lighting Robert Sceuerle (407) 236-9651 rscheuerle@ouc.com</p>	<ul style="list-style-type: none"> • No Response
<p>Duke Energy Fiber Mark Hurst (727) 820-5280 mark.hurst@duke-energy.com</p>	<ul style="list-style-type: none"> • No Response
<p>TECO Peoples Gas – Orlando Shawn Winsor (407) 420-6663 swinsor@tecoenergy.com</p>	<ul style="list-style-type: none"> • 2" PE Gas Main runs along the north of CR 532 • A 4" coated steel gas main crosses S. Old Lake Wilson Rd. just north of CR 532, turns into an 8" coated steel gas main, then turns south along S. Old Lake Wilson Road • A 4" coated steel gas main runs along the west side of S. Old Lake Wilson Rd. • A 2" PE gas main runs on the west side of Old Lake Wilson Rd outside of the ROW from STA 106 to STA 115 crossing S. Old Lake Wilson Rd. at Excitement Dr. and a short run of 2" PE gas main running on the east side of S. Old Lake Wilson Rd. from STA 104 to STA 108 • From STA 115 to STA 177 a 4" coated steel gas main runs along the west side of S. Old Lake Wilson Rd. • Just north of Gathering Dr. a 2" coated steel gas main crosses S. Old Lake Wilson Rd. • At Spine Rd, a 2" coated steel gas main briefly parallels S. Old Lake Wilson Rd. on the west side, then turns up the north side of Spine Rd. • From STA 177 to STA 216+50 a 6" coated steel gas main runs on the west side of N. Old Lake Wilson Rd.

SECTION 2 – EXISTING CONDITIONS

Utility Agency/Owner	General Description of Facilities
	<ul style="list-style-type: none"> • Just north of Assembly Ct. a 4" PE and a 6" coated steel gas main cross S. Old Lake Wilson Rd. • At Fairfax Dr./Marker Ave. a 2" PE gas main runs on the south on either side of N. Old Lake Wilson Rd. and crosses N. Old Lake Wilson Rd. as a 4" PE gas main. and a 4" PE gas main runs on the north and crossed N. Old Lake Wilson Rd. Once the 4" PE gas main crosses N. Old Lake Wilson Rd. it reduces to a 2" PE gas main along Marker Ave. • The 4" PE gas main on the north side of Fairfax Dr. turns north on the W side of N. Old Lake Wilson Rd. and continues on W side to Sinclair Rd. • At STA 216+50, the 6" coated steel gas main crosses N. Old Lake Wilson Rd and runs along the east side of the road to Sinclair Rd. • At STA 223+25 a 4" coated steel gas main runs under N. Old Lake Wilson Rd. • On the south side of Sinclair Rd. a 4" coated steel gas main crosses under N. Old Lake Wilson Rd., turns into a 4" PE gas main and runs along the south side of Sinclair Rd.
<p>Polk County Utilities Ryan Bengsch (863) 298-4193 RyanBensch@polk-county.net</p>	<ul style="list-style-type: none"> • No Facilities
<p>Spectra Energy – Sabal Trail Erica Jacobson (407) 966-2928 erica.jacobson@enbridge.com</p>	<ul style="list-style-type: none"> • On the north side of Sinclair Rd., a 36" high pressure natural gas transmission line runs in a 50' easement
<p>Uniti Fiber Bob Mensching (904) 718-8152 bob.mensching@uniti.com</p>	<ul style="list-style-type: none"> • (3) 1 ¼" HDPE Ducts and ¾" fiber cable runs on the east side of S. Old Lake Wilson Rd. from CR 532 to just south of SR 400
<p>Kissimmee Utility Authority Tom Ulmer (772) 778-2255 tulmerjr@transtate.us</p>	<ul style="list-style-type: none"> • KUA has a 20" pipeline that runs along the north side of CR 532, crossed S. Old Lake Wilson Rd., and runs on the west side of S. Old Lake Wilson Rd. until just south of I-4 where it crosses S. Old lake Wilson Rd. again, briefly runs along the east side of S. Old Lake Wilson Rd. and ends at a facility

2.18 Lighting

Street lighting is co-located on the traffic signals at the intersection of Old Lake Wilson Road and Sinclair Road. There is no additional lighting along the corridor.

2.19 Signs

There are no overhead signs within the study limits. Standard signage identifying the speed limits is present throughout the corridor. Additionally, there is one intersection warning sign (a W2-1 augmented with a flashing beacon) located approximately 445 feet south of Fairfax Drive and Marker Avenue.

2.20 Aesthetic Features

There is substantial landscaping present along the east side of the roadway from Excitement Drive to just north of the Reunion Blvd. /Gathering Drive overpass.

2.21 Bridges and Structures

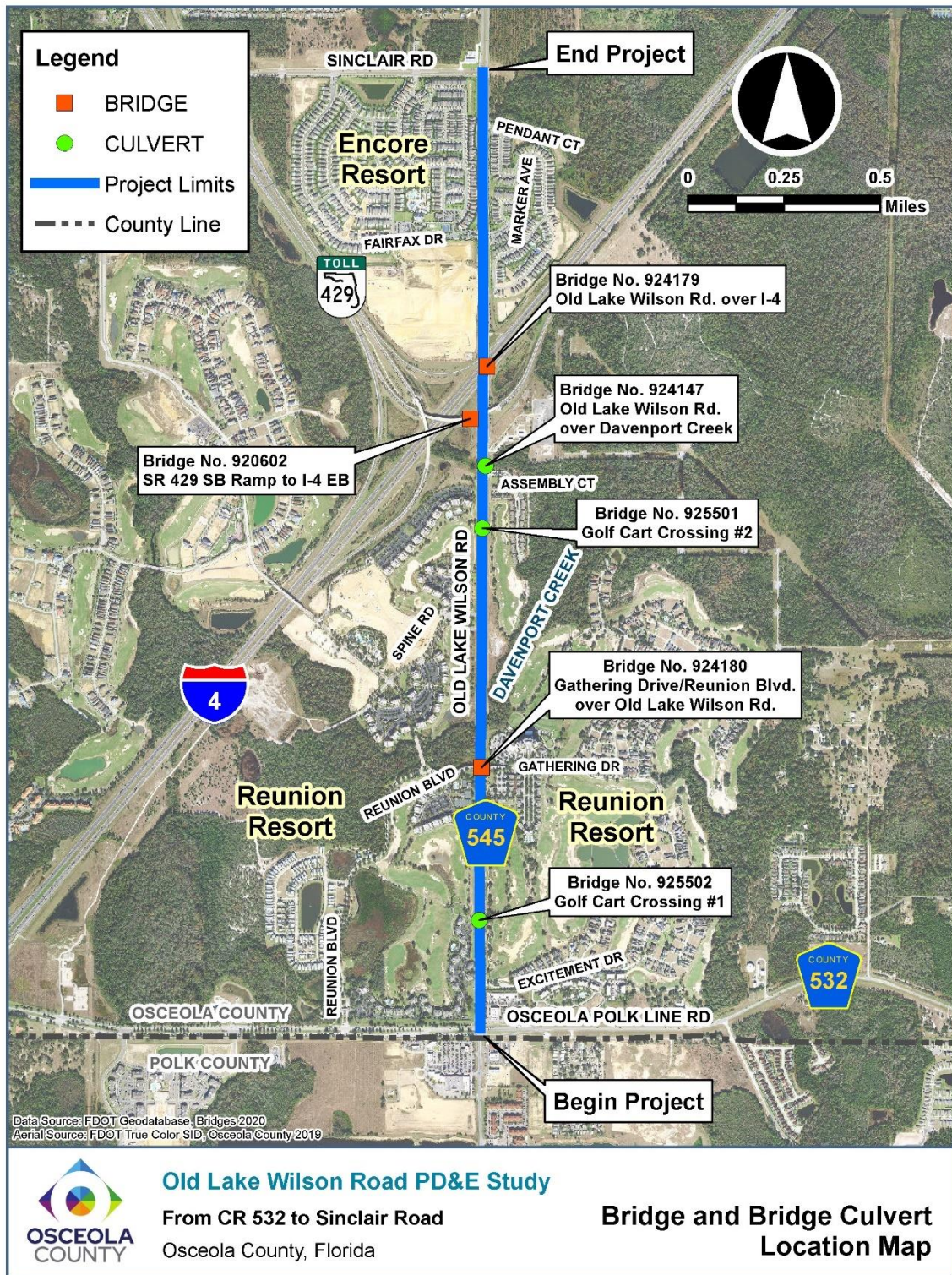
There are three bridges and three bridge culverts within the study limits. See **Figure 2-9** for the locations of the bridges and culverts. Additionally, the bridges are described below and summarized in **Table 2-7**, while the bridge culverts are described below and summarized in **Table 2-8**.

Bridge Culvert number 925502 is located over Golf Cart Crossing #1. The culvert is located approximately 900 feet north of Excitement Drive. The one span, three-sided arched concrete box culvert is 24 feet wide, 10.6 feet tall, and 131 feet long. The culvert was constructed in 2005 and is under the jurisdiction of Osceola County. It has a sufficiency rating of 97.0 and a health index of 90.95.

Bridge number 924180 is located on Reunion Blvd. / Gathering Drive over Old Lake Wilson Road. The bridge is approximately 230 feet long, consists of three simple spans and has a deck width of approximately 46 feet. The superstructure consists of prestressed concrete beams sitting on a multi-column concrete substructure. The bridge was constructed in 2005 and is under the jurisdiction of the Reunion East Community Development District and has a sufficiency rating of 91.0 and a health index of 99.80. The bridge has a Level One aesthetic effort.

Bridge Culvert number 925501 is located over Golf Cart Crossing #2. The culvert is located approximately 750 feet south of Assembly Court. The one span, three-sided arched concrete box culvert is 24 feet wide, 10.6 feet tall, and 137 feet long. The culvert was constructed in 2005 and is under the jurisdiction of Osceola County. This structure has a sufficiency rating of 97.0 and a health index of 88.09. The culvert was damaged due to a golf cart fire in 2020; however, a Special Accident Inspection was performed on October 7, 2020, and the culvert was deemed structurally sound. The post-fire inspection report recommends repairs to an area on the underside of the concrete arch with fire-induced spalls and delaminations.

Figure 2-9: Bridge Locations Map



SECTION 2 – EXISTING CONDITIONS

Table 2-7: Bridge Summary

Bridge Name Bridge Information	Gathering Dr./Reunion Blvd. over Old Lake Wilson Rd.	SR 429 SB Ramp C over I-4 and Old Lake Wilson Rd.	Old Lake Wilson Rd. over I-4
Bridge Number	924180	920602	924179
Existing Bridge Length	230 feet 0 inches	1167 feet 9-7/16 inches	880 feet 0 inches
No. of Existing Spans	3 Spans	7 Spans	4 Spans
Existing Span Arrangements	47 feet 6 inches, 127 feet, 55 feet 6 inches	131 feet, 187 feet 1 3/16 inches, 131 feet, 168 feet 7 inches, 233 feet 0 5/8 inches, 186 feet 0 5/8 inches, 131 feet	171 feet 7 3/4 inches, 253 feet, 253 feet, 202 feet 4 1/4 inches
Existing Deck Width	46 feet out-to-out	49 feet-1 inches out-to-out	43 feet-1 inches out-to-out
Existing Superstructure Type	Precast Concrete Beam	Steel Box Girder	Steel I-Girder
Sufficiency Rating	91.0	99.2	96.5
Year Built	2005	2006	2005
Year Widened	N/A	N/A	N/A
NBI Channel	N/A	N/A	N/A
NBI Deck Rating	7 (Good)	7 (Good)	7 (Good)
NBI Superstructure Rating	7 (Good)	7 (Good)	7 (Good)
NBI Substructure Rating	8 (Very Good)	7 (Good)	7 (Good)
Operating Rating (HS)	Open, No Restriction	Open, No Restriction	Open, No Restriction
Posting	Not Posted	Not Posted	Not Posted

Table 2-8: Bridge Culvert Summary

Bridge Name Bridge Information	Old Lake Wilson Rd. over Golf Cart Crossing #1	Old Lake Wilson Rd. over Golf Cart Crossing #2	Old Lake Wilson Rd. over Davenport Creek
Bridge Number	925502	925501	924147
Existing Bridge Length	24 feet 0 inches	24 feet 0 inches	57 feet 4 inches
No. of Existing Spans	1 Span	1 Span	4 Spans
Existing Span Arrangements	24 feet	24 feet	4-11.5 feet Spans
Existing Structure Type	3- Sided, Arched Concrete Box Culvert	3- Sided, Arched Concrete Box Culvert	Corrugated Steel Elliptical Pipe
Sufficiency Rating	97.0	97.0	85.3
Year Built	2005	2005	1954
Year Widened	N/A	N/A	N/A
NBI Channel	N/A	N/A	5 (Bank Protection Eroded)
NBI Culvert	7 (Minor Deterioration)	7 (Minor Deterioration)	5 (Moderate Damage)
Operating Rating (HS)	Open, No Restriction	Open, No Restriction	Open, No Restriction
Posting	Not Posted	Not Posted	Not Posted

SECTION 2 – EXISTING CONDITIONS

Bridge Culvert number 924147 carries Old Lake Wilson Road over Davenport Creek. The culvert is located approximately 550 feet north of the Reunion Boulevard / Gathering Drive overpass. The approximately 57.3-foot-long culvert consists of four 11.5-foot-wide by 7.5-foot-tall, corrugated steel elliptical pipes. The culvert was constructed in 1954, is under the jurisdiction of Osceola County, and has a sufficiency rating of 85.3 and a health index of 31.82. The inspection report dated July 20, 2020, noted that two out of four of the pipes are currently blocked, the steel pipes are experiencing section loss and corrosion, and the sand cement rip rap is failing at the wingwalls.

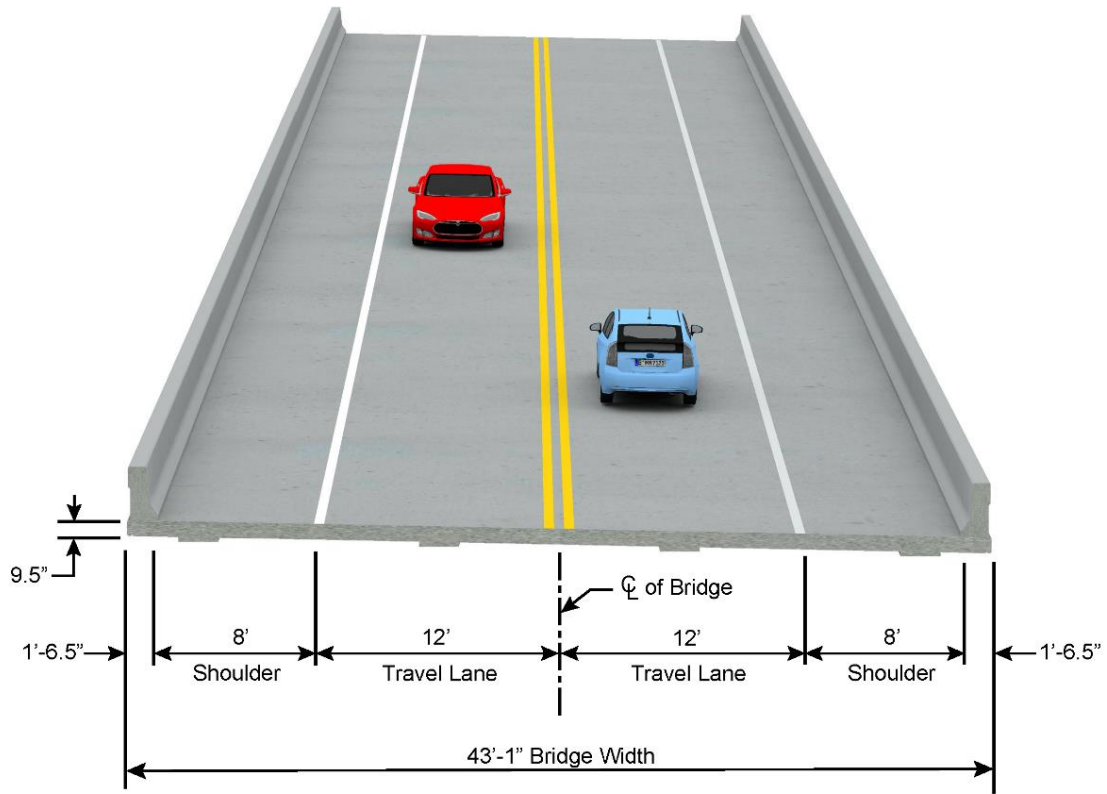
Bridge number 920602 is located on the on-ramp from southbound SR 429 to eastbound I-4. The curved flyover bridge spans both I-4 and Old Lake Wilson Road. The bridge is approximately 1,168 feet long, consists of seven spans and has a deck width of approximately 49 feet. The bridge consists of a three-span continuous unit and a four-span continuous unit. The superstructure consists of curved steel box girders sitting on a concrete column substructure. The bridge typical section consists of one 15-foot-wide travel lane, with a 21-foot-wide inside shoulder and a 10-foot-wide outside shoulder. The bridge was constructed in 2006, is under the jurisdiction of Florida's Turnpike Enterprise, and has a sufficiency rating of 99.2 and a health index of 99.08.

Bridge number 924179 carries Old Lake Wilson Road over I-4. The bridge is 880 feet long, consists of four continuous spans and has a deck width of approximately 43 feet. The superstructure is a 96-inch Steel I-Girder with a 9.5-inch slab sitting on hammerhead piers. The end bents have a skew angle of 90 degrees, while the piers have a skew of approximately 50 degrees. The bridge typical section consists of two 12-foot-wide travel lanes, one in each direction in addition to 8-foot-wide shoulders. The bridge was constructed in 2005 and is under the jurisdiction of Osceola County. It has a sufficiency rating of 96.5 and a health index of 99.73. The existing bridge typical section is shown in **Figure 2-10**.

2.22 Future Project Considerations

The current proposed SR 429 interchange with I-4 as part of the I-4 Beyond the Ultimate (I-4 BtU) concept includes a westbound to northbound ramp for the proposed I-4 express lanes. This ramp begins east of the Old Lake Wilson Road crossing of I-4. This is the current approved concept that the improvement alternatives for this project are based on. However, as a result of a CRAVE Workshop for the Poinciana Parkway Extension Connector PD&E Study, FDOT and Florida's Turnpike Enterprise are currently evaluating a new interchange alternative that removes this separate express lane ramp. The removal of this ramp will greatly reduce the required length and height of the new Old Lake Wilson Road bridge over I-4 for the future southbound lanes. It is recommended that the Old Lake Wilson Road design team coordinate the status of the VE concept with FDOT and Florida's Turnpike Enterprise.

Figure 2-10: Old Lake Wilson Road over I-4



3.0 PROJECT DESIGN CONTROLS & CRITERIA

3.1 Roadway Context Classification

Old Lake Wilson Road is classified within the project limits as C3R-Suburban Residential.

3.2 Design Control and Criteria

Based on the provisional context classification described above, the design controls and criteria, shown in **Table 3-1** were developed.

Table 3-1: Roadway Design Criteria

Subject	4 lane C3R Suburban Residential Design Speed = 45 mph Curbed Roadway	Reference
		FDM ¹
Typical Section Elements		
Travel Lane Widths (Minimum)	11 ft.	Table 210.2.1
Bicycle Lane Widths	7 ft. buffered	Section 223.2.1.1
Median Widths (Minimum)	22 ft.	Table 210.3.1
Sidewalk Widths (Minimum)	6 ft.	Table 222.2.1
Lane Cross Slopes	-0.02, -0.02 (4 Lane Typical)	Figure 210.2.1
Border Width (Minimum)	14 ft.	Table 210.7.1
Clear Zone	N/A - use Minimum Lateral Offset Criteria	Table 215.2.1 & Section 215.2.4
Lateral Offset	4 ft.	Table 215.2.2
Front Slope	1:2 or to Suit Property Owner, Not Flatter than 1:6	Table 215.2.3
Back Slope	1:2 or to Suit Property Owner, Not Flatter than 1:6	Table 215.2.3
Horizontal Geometrics		
Maximum Deflection (Without Horizontal Curve)	1° 00' 00"	Section 210.8.1
Desired Length of Horizontal Curve (Based on Design Speed)	675 ft.	Table 210.8.1
Desired Length of Horizontal Curve (Based on Deflection)	1° = 900 ft. 2° = 800 ft. 3° = 700 ft. 4° = 600 ft. 5° = 500 ft.	Table 210.8.1
Minimum Curve Length	400 ft.	Table 210.8.1
Superelevation	$e_{\max} = 0.05$	Section 210.9 & Table 210.9.2
Maximum Degree of Curve (D)	8° 15' 00"	Table 2.10.9.2

SECTION 3 – PROJECT DESIGN CONTROLS & CRITERIA

Roadway Transitions • Merging Taper = L • Shifting Taper = L/2 • Shoulder Taper = L/3	L = WS	Section 210.2.5
Vertical Geometrics		
Maximum Grade	4% - Controlled by Truck Volumes	Table 210.10.1
Minimum Grade	0.30%	Section 210.10.1.1
Maximum Change in Grade Without Vertical Curve	0.70%	Table 210.10.2
Minimum VPI Spacing	250 ft.	Section 210.10.1.1
Stopping Sight Distance (min) (Grade ≤ 2%) (Upgrade & Downgrade)	360 ft.	Table 210.11.1
Vertical Curves	L = KA A = g ₁ - g ₂ L _{min} = 135 ft. Crest K _{min} = 98 Crest L _{min} = 135 ft. Sag K _{min} = 79 Sag	Table 210.10.3 & 210.10.4
Vertical Clearance (Overhead DMS)	19.5 ft.	Section 210.10.3
Vertical Clearance (Sign Structure)	17.5 ft.	Section 210.10.3
Shared Use Path		
Width of Pavement	14 ft. Max 12 ft. Standard 10 ft. Min - Constrained R/W	Section 224.4
Design Speed ≤4% Downgrade >4% Downgrade	18 mph 30 mph	Section 224.9
Maximum Cross Slope	2%	Section 224.5
Minimum Cross Slope Transition Length	75 ft.	Section 224.5
Horizontal Clearance	4 ft.	Section 224.7
Vertical Clearance	10 ft. Standard 8 ft. Constrained	Section 224.8
Minimum Radii 18 mph, +2% 18 mph, -2% 30 mph, +2% 30 mph, -2%	74 ft. 86 ft. 261 ft. 316 ft.	Table 224.10.1
Minimum Stopping Sight Distance	Varies (See Table 224.10.2)	Table 224.10.2
Maximum Grade	5%	Section 224.6
Minimum Length of Vertical Curve s>L s<L	L = 2s - (900/A) L = As ² /900	Section 224.11

References: 1 – FDOT Design Manual (2022), FDM standards were agreed to by all project stakeholders

L = Length (feet)

g = Grade (%)

W = Width of Lateral Transition (feet)

S = design Speed (mph)

A = Algebraic Grade Difference

s = Stopping Sight Distance

4.0 ALTERNATIVES ANALYSIS

4.1 Previous Planning Studies

There were no previous planning studies completed in support of the development of this study.

4.2 No-Build (No-Action) Alternative

Under the No-Build alternative, Old Lake Wilson Road would remain in its existing condition, with some routine maintenance. The No-Build option remains a viable option throughout the duration of the study. The primary advantages of the No-Build Alternative include no capital cost, and results in no impacts to the social, natural, cultural, or physical environment.

4.2.1 Advantages of the No-Build (No-Action) Alternative

Advantages of the No-Build Alternative include:

- No right-of-way acquisition
- No design, right-of-way, or construction costs
- No inconvenience to the traveling public and property owners during construction
- No impacts to utilities
- No impacts to the natural, social, cultural, or physical environment

4.2.2 Disadvantages of the No-Build (No-Action) Alternative

Disadvantages of the No-Build Alternative include:

- It is not consistent with local government plans or the MetroPlan Orlando TPO's LRTP or TIP
- It is not consistent with the Osceola County Comprehensive Plan
- It does not improve levels of service or address traffic congestion
- It does not improve multi-modal mobility
- Safety is not improved

4.3 Transportation Systems Management and Operations Alternative (TSM&O)

TSM&O alternatives involve improvements designed to maximize the utilization and efficiency of the existing facility through improved system and demand management. TSM&O options generally include traffic signal and intersection improvements, access management, transit improvements and other low impact improvements such as the implementation of Intelligent Transportation System (ITS) components. The additional capacity needed to meet the projected travel demand and acceptable Level of Service (LOS) standards along Old Lake Wilson Road in the 2050 design year cannot be provided solely through the implementation of TSM&O improvements; however, the TSM&O strategies of access management and intersection improvements are included as part of the Build Alternatives for the corridor. In conclusion, the TSM&O alternative alone does not satisfy the purpose and need for the project.

4.4 Future Conditions

This section summarizes the traffic forecasting, future No-Build traffic evaluation, and future build traffic evaluation for the Old Lake Wilson Road study corridor.

4.4.1 Traffic Forecasting

Future traffic conditions were modeled using the Central Florida Regional Planning Model (CFRPM) version 7.0. The model was validated and then used to determine model growth rates for the Old Lake Wilson Road corridor. These annual growth rates were applied to the existing Annual Average Daily Traffic volumes (AADTs) to determine the 2030 (opening year) and 2050 (design year) future volumes. Base, opening and design year AADTs are shown in **Figure 4-1**.

4.4.2 Future No-Build Evaluation

4.4.2.1 Intersections

The future No-Build condition assumed the two-lane roadway that exists today. The estimated future No-Build turning movement volumes were used to analyze the traffic operations at each intersection along Old Lake Wilson Road during the weekday AM and PM peak hour traffic conditions. There are three signalized intersections and four unsignalized intersections in the future No-Build condition. In the future No-Build condition (with Old Lake Wilson Road as a two-lane roadway), several geometric changes are anticipated and described below:

- Old Lake Wilson Road & CR 532
 - Planned widening projects on the south and east legs of the intersection will change the geometry of each leg at the intersection.
- Old Lake Wilson Road & Shoppes at Reunion
 - The planned widening of Lake Wilson Road will limit access to the Shoppes at Reunion, prohibiting the existing southbound and westbound left turn movements.
- Old Lake Wilson Road & Fairfax Drive / Marker Avenue
 - The intersection will be signalized thus through and left movements will be allowed on the eastbound and westbound approaches.
- Old Lake Wilson Road & Sinclair Road
 - A development will be built to the east of the intersection, changing the intersection from a three-leg intersection to a four-leg intersection. Various lanes will be added to serve this new leg.

The traffic analysis showed that all three signalized intersections and four unsignalized intersections are projected to perform at LOS F. These intersections had a volume to capacity (V/C) ratio greater than 1.0 during the AM and PM peak hour in the future 2050 No-Build condition. **Table 4-1** includes the future No-Build intersection operations.

Figure 4-1: Base, Opening, and Design Year AADTs

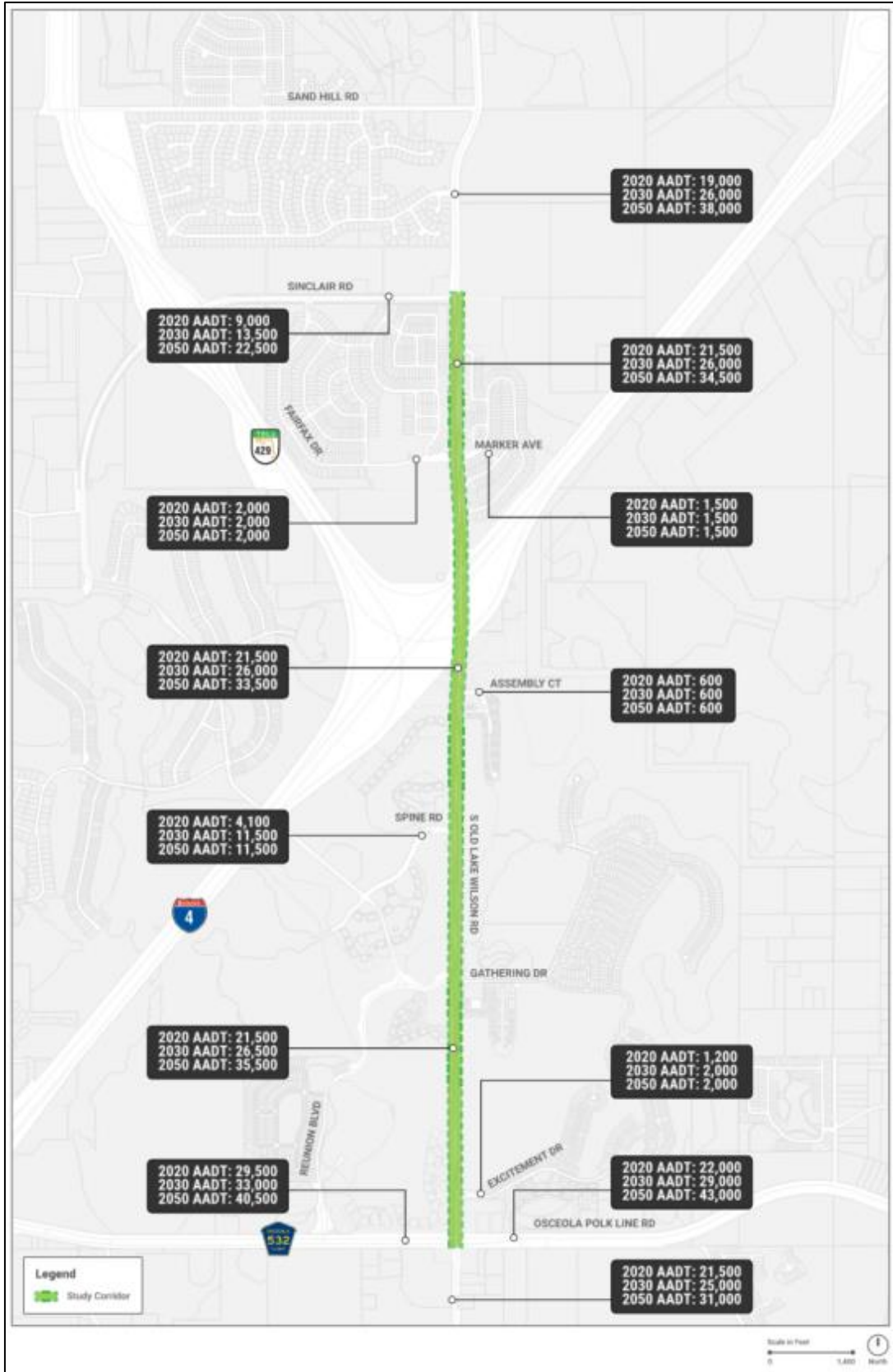


Table 4-1: No Build 2030 and 2050 AM/PM Peak Hour Intersection LOS

Intersection	Control Type	2030 LOS (AM/PM)	2030 Overcapacity Movements (AM/PM)	2050 LOS (AM/PM)	2050 Overcapacity Movements (AM/PM)
Old Lake Wilson Rd. & CR 532	Signal	E/E	1/1	F/F	5/6
Old Lake Wilson Rd. & Shoppes at Reunion	TWSC ¹	D/C	0/0	F/C	0/0
Old Lake Wilson Rd. & Excitement Dr.	TWSC ¹	F/F	1/1	F/F	1/1
Old Lake Wilson Rd. & Spine Rd.	TWSC ¹	F/F	1/1	F/F	1/2
Old Lake Wilson Rd. & Assembly Ct.	TWSC ¹	F/F	0/0	F/F	1/0
Old Lake Wilson Rd. & Fairfax Dr./Marker Ave.	Signal	F/F	1/1	F/F	1/1
Old Lake Wilson Rd. & Sinclair Rd.	Signal	C/E	0/1	F/F	1/3

¹ LOS shown for TWSC intersection is for the worst movement.

4.4.2.2 Roadway Segments

The segment of Old Lake Wilson Road from CR 532 to Fairfax Drive / Marker Avenue was analyzed as uninterrupted flow and the segment from Fairfax Drive / Marker Avenue to Sinclair Road was analyzed as interrupted flow. The 2030 and 2050 results of this analysis are shown in **Table 4-2** through **4-5**. The uninterrupted flow segment from CR 532 to Fairfax Drive / Marker Avenue is anticipated to operate at LOS F in both directions in the 2050 AM/PM peak hours. The interrupted flow segment from Fairfax Drive / Marker Avenue to Sinclair Road is anticipated to operate at LOS F in the southbound direction in the 2050 PM peak hour.

4.4.3 Future Build Evaluation

4.4.3.1 Intersections

The build alternative is the four-lane widening of Old Lake Wilson Road along the entire study corridor. Traffic signals were considered at each existing signalized intersection, plus each intersection that may warrant future signalization. There are four signalized intersections and three unsignalized intersections in the future build condition. The signalized intersections include:

- Old Lake Wilson Road & CR 532 - existing
- Old Lake Wilson Road & Spine Road – may warrant for signalization in the future
- Old Lake Wilson Road & Fairfax Drive / Marker Avenue – planned signal
- Old Lake Wilson Road & Sinclair Road - existing

SECTION 4 – ALTERNATIVES ANALYSIS

Table 4-2: 2030 No-Build Segment LOS – Uninterrupted Flow

Segment #	Segment Limits	Analysis Direction	AM Peak Hour				PM Peak Hour			
			BFFS* (mph)	ATS* (mph)	PFFS* (%)	LOS	BFFS* (mph)	ATS* (mph)	PFFS* (%)	LOS
1	Old Lake Wilson Road, CR 532 to Fairfax Dr./Marker Ave.	Northbound	61.0	35.3	63.3	E	61.0	35.6	63.9	E
1	Old Lake Wilson Road, Fairfax Dr./Marker Ave. to CR 532	Southbound	61.0	35.8	64.2	E	61.0	35.1	62.9	E

*Note: BFFS is Base Free Flow Speed, ATS is Average Travel Speed, and PFFS is Percent of Free-Flow Speed

Table 4-3: 2030 No-Build Segment LOS – Interrupted Flow

Segment #	Segment Limits	Analysis Direction	AM Peak Hour				PM Peak Hour			
			BFFS (mph)	Synchro Travel Speed (mph)	P _{BFFS} * (%)	LOS	BFFS (mph)	Synchro Travel Speed (mph)	P _{BFFS} * (%)	LOS
2	Old Lake Wilson Road, Fairfax Dr./Marker Ave. to Sinclair Rd.	Northbound	46.7	26.3	56.3	C	46.7	28.5	61.1	C
2	Old Lake Wilson Road, Sinclair Rd. to Fairfax Dr./Marker Ave.	Southbound	46.7	29.0	62.1	C	46.7	10.7	22.9	F

*Note: PBFFS is the Percent of Base Free Flow Speed

Table 4-4: 2050 No-Build Segment LOS – Uninterrupted Flow

Segment #	Segment Limits	Analysis Direction	AM Peak Hour				PM Peak Hour			
			BFFS* (mph)	ATS* (mph)	PFFS* (%)	LOS	BFFS* (mph)	ATS* (mph)	PFFS* (%)	LOS
1	Old Lake Wilson Road, CR 532 to Fairfax Dr./Marker Ave.	Northbound	61.0	29.6	53.0	F	61.0	29.6	53.1	F
1	Old Lake Wilson Road, Fairfax Dr./Marker Ave. to CR 532	Southbound	61.0	29.9	53.5	F	61.0	29.3	52.6	F

*Note: BFFS is Base Free Flow Speed, ATS is Average Travel Speed, and PFFS is Percent of Free-Flow Speed

Table 4-5: 2050 No-Build Segment LOS – Interrupted Flow

Segment #	Segment Limits	Analysis Direction	AM Peak Hour				PM Peak Hour			
			BFFS (mph)	Synchro Travel Speed (mph)	P _{BFFS} * (%)	LOS	BFFS (mph)	Synchro Travel Speed (mph)	P _{BFFS} * (%)	LOS
2	Old Lake Wilson Road, Fairfax Dr./Marker Ave. to Sinclair Rd.	Northbound	46.7	18.1	38.8	E	46.7	24.9	53.3	C
2	Old Lake Wilson Road, Sinclair Rd. to Fairfax Dr./Marker Ave.	Southbound	46.7	24.4	52.3	C	46.7	5.5	11.8	F

*Note: PBFFS is the Percent of Base Free Flow Speed

SECTION 4 – ALTERNATIVES ANALYSIS

Level of service improvements are anticipated at the Shoppes at Reunion, Spine Road, Fairfax Drive / Marker Avenue, and Sinclair Road in the future 2050 build condition. While Old Lake Wilson Road and CR 532 are anticipated to experience LOS E/F operations in the future build condition, no individual movements are anticipated to be over capacity. The TWSC intersections at Excitement Drive and Assembly Court are anticipated to experience LOS F operations in the 2050 AM peak hour. **Table 4-6** includes the future build AM and PM Peak Hour intersection levels of service.

Roundabouts were also analyzed at three intersections:

- Old Lake Wilson Road & Excitement Drive
- Old Lake Wilson Road Assembly Court
- Old Lake Wilson Road & Fairfax Drive / Marker Avenue

A roundabout analysis was conducted using SIDRA 8.0 software for these three intersections and the results indicated that roundabouts operate at LOS B or better in the 2030 and 2050 AM and PM peak hours.

Table 4-6: Build 2030 and 2050 AM/PM Peak Hour Intersection LOS

Intersection	Control Type	2030 LOS (AM/PM)	2030 Over Capacity Movements (AM/PM)	2050 LOS (AM/PM)	2050 Over Capacity Movements (AM/PM)
Old Lake Wilson Rd. & CR 532	Signal	E/F	0/0	E/F	0/4
Old Lake Wilson Rd. & Shoppes at Reunion	TWSC ¹	C/B	0/0	C/B	0/0
Old Lake Wilson Rd. & Excitement Dr.	TWSC ¹	E/C	0/0	F/E	0/0
Old Lake Wilson Rd. & Spine Rd.	Signal	B/C	0/0	C/C	0/0
Old Lake Wilson Rd. & Assembly Ct.	TWSC ¹	E/C	0/0	F/D	0/0
Old Lake Wilson Rd. & Fairfax Dr./Marker Ave.	Signal	A/A	0/0	B/B	0/0
Old Lake Wilson Rd. & Sinclair Rd.	Signal	D/D	0/0	E/D	0/0

¹ LOS shown for TWSC intersection is for the worst movement

4.4.3.2 Roadway Segments

The study corridor was divided into three analysis segments as described in **Table 4-7**. Each of the three Old Lake Wilson Road segments are anticipated to perform at LOS D or better in the future build condition with traffic signals and TWSC intersections. The build roadway segment LOS for the opening year (2030) and build year (2050) are summarized in **Table 4-8** and **Table 4-9**.

Table 4-7: Future Build Segment Analysis Limits

Segment #	Segment Limits	Flow Type
1	Old Lake Wilson Road, CR 532 to Spine Road	Interrupted
2	Old Lake Wilson Road, Spine Road to Fairfax Drive/Marker Avenue	Interrupted
3	Old Lake Wilson Road, Fairfax Drive/Marker Avenue to Sinclair Road	Interrupted

If roundabouts are implemented at the proposed locations along the corridor, the segment operations are also anticipated to be acceptable since Old Lake Wilson Road has irregular intersection spacing (per NCHRP Report 772).

A summary of the No-Build, build alternative 1 (with signalized intersections), and build alternative 2 (with roundabouts) can be seen in **Table 4-10**.

SECTION 4 – ALTERNATIVES ANALYSIS

Table 4-8: 2030 Build Segment LOS

Segment #	Segment Limits	Analysis Direction	AM Peak Hour				PM Peak Hour			
			BFFS (mph)	Synchro Travel Speed (mph)	P _{BFFS} * (%)	LOS	BFFS (mph)	Synchro Travel Speed (mph)	P _{BFFS} * (%)	LOS
1	Old Lake Wilson Road, CR 532 to Spine Road	Northbound	47.8	45.5	95.2	A	47.8	47.1	98.5	A
2	Old Lake Wilson Road, Spine Road to Fairfax Drive/Marker Avenue	Northbound	46.0	42.2	91.8	A	46.0	44.0	95.7	A
3	Old Lake Wilson Road, Fairfax Drive/Marker Avenue to Sinclair Road	Northbound	43.9	28.8	65.6	C	43.9	30.5	69.4	B
3	Old Lake Wilson Road, Sinclair Road to Fairfax Drive/Marker Avenue	Southbound	43.9	33.0	75.1	B	43.9	31.2	71.0	B
2	Old Lake Wilson Road, Fairfax Drive/Marker Avenue to Spine Road	Southbound	46.0	36.9	80.3	A	46.0	37.3	81.2	A
1	Old Lake Wilson Road, Spine Road to CR 532	Southbound	47.8	23.1	48.3	D	47.8	25.2	52.7	C

*P_{BFFS} is the Percent of Base Free Flow Speed

Table 4-9: 2050 Build Segment LOS

Segment #	Segment Limits	Analysis Direction	AM Peak Hour				PM Peak Hour			
			BFFS (mph)	Synchro Travel Speed (mph)	P _{BFFS} * (%)	LOS	BFFS (mph)	Synchro Travel Speed (mph)	P _{BFFS} * (%)	LOS
1	Old Lake Wilson Road, CR 532 to Spine Road	Northbound	47.8	37.9	79.3	B	47.8	42.1	88.0	A
2	Old Lake Wilson Road, Spine Road to Fairfax Drive/Marker Avenue	Northbound	46.0	39.9	86.8	A	46.0	38.5	83.8	A
3	Old Lake Wilson Road, Fairfax Drive/Marker Avenue to Sinclair Road	Northbound	43.9	23.8	54.2	C	43.9	31.9	72.6	B
3	Old Lake Wilson Road, Sinclair Road to Fairfax Drive/Marker Avenue	Southbound	43.9	30.4	69.2	B	43.9	26.6	60.5	C
2	Old Lake Wilson Road, Fairfax Drive/Marker Avenue to Spine Road	Southbound	46.0	35.1	76.4	B	46.0	22.8	49.6	D
1	Old Lake Wilson Road, Spine Road to CR 532	Southbound	47.8	21.5	45.0	D	47.8	27.8	58.1	C

*P_{BFFS} is the Percent of Base Free Flow Speed

Table 4-10: Future 2050 Build Intersection Alternatives Operations Summary

Intersection	No-Build Alternative			Build Alternative 1			Build Alternative 2		
	Control Type	2050 LOS (AM/PM)	2050 Overcapacity Movements (AM/PM)	Control Type	2050 LOS (AM/PM)	2050 Overcapacity Movements (AM/PM)	Control Type	2050 LOS (AM/PM)	2050 Overcapacity Movements (AM/PM)
Old Lake Wilson Rd. & CR 532	Signal	F/F	5/6	Signal	E/F	0/4	-	-	-
Old Lake Wilson Rd. & Shoppes at Reunion	TWSC ¹	F/C	0/0	TWSC ¹	C/B	0/0	-	-	-
Old Lake Wilson Rd. & Excitement Dr.	TWSC ¹	F/F	1/1	TWSC ¹	F/E	0/0	Roundabout	B/B	0/0
Old Lake Wilson Rd. & Spine Rd.	TWSC ¹	F/F	1/2	Signal	C/C	0/0	-	-	-
Old Lake Wilson Rd. & Assembly Ct.	TWSC ¹	F/F	1/0	TWSC ¹	F/D	0/0	Roundabout	B/B	0/0
Old Lake Wilson Rd. & Fairfax Dr./Marker Ave.	Signal	F/F	1/1	Signal	B/B	0/0	Roundabout	B/B	0/0
Old Lake Wilson Rd. & Sinclair Rd.	Signal	F/F	1/3	Signal	E/D	0/0	-	-	-

¹ LOS shown for TWSC intersection is for the worst movement.

4.4.4 Intersection Control Evaluation

Intersection Control Evaluation (ICE) is a strategy used by FDOT to consider multiple context-sensitive intersection control strategies when planning a new or modified intersection. The goal of ICE is to provide a robust decision-making process to identify and select a control strategy that fits the location's context classification, provides safe travel facilities for all road users, and offers the best overall value.

The ICE Procedure is typically performed in two stages. In Stage 1, a planning level operational and safety analysis is conducted using the Capacity Analysis for Planning of Junctions (CAP-X) tool to determine which intersection control types are most suitable to the specific intersection location based on volume-to-capacity (v/c) ratio. A safety analysis is also performed utilizing the Safety Performance for Intersection Control Evaluation (SPICE) tool to predict crashes for the life cycle of the project for each alternative.

The selected control types from Stage 1 are then analyzed in more detail in Stage 2. The detailed operational results from Synchro (for unsignalized/signalized alternatives) or SIDRA (for roundabouts) and the safety results from a refined SPICE analysis will be compared against cost estimates for each control type using the FDOT ICE Tool. The ICE Tool calculates the total life cycle cost of each control type, and the most appropriate intersection type can be determined for each intersection location based on quantitative and/or qualitative measures.

4.4.4.1 ICE Intersections

Since Old Lake Wilson Road is not a state roadway, the ICE procedure is not required. However, the ICE process was used to evaluate three intersection control types (two way stop control, traffic signal, and roundabout) at the following four intersections due to future No-Build operational issues as discussed in the Old Lake Wilson Road PD&E Study PTAR:

- Old Lake Wilson Road & Excitement Drive;
- Old Lake Wilson Road & Spine Road;
- Old Lake Wilson Road & Assembly Court; and
- Old Lake Wilson Road & Fairfax Drive / Marker Avenue

The Stage 1 ICE analysis resulted in the following intersection types moving to Stage 2:

- Old Lake Wilson Road & Excitement Drive – two way stop control and roundabout
- Old Lake Wilson Road & Spine Road – traffic signal
- Old Lake Wilson Road & Assembly Court – two way stop control and roundabout
- Old Lake Wilson Road & Fairfax Drive / Marker Avenue – traffic signal and roundabout

The results of the Stage 2 ICE analysis at the three intersections that had more than one alternative are summarized in Tables **4-11**, **4-12**, and **4-13**.

Table 4-11: ICE Results at Old Lake Wilson Road & Excitement Drive

Intersection	Costs	TWSC Alternative 1	TWSC Alternative 2	Roundabout Alternative 1	Roundabout Alternative 2
Old Lake Wilson Road & Excitement Drive	Construction Cost	\$320,708		\$485,059	
	ROW Cost	-		\$803,880	\$855,335
	Costs	\$320,708		\$1,288,939	\$1,340,394
	Future Delay Costs	\$1,198,840		\$9,687,223	
	Future Safety Costs	\$6,563,647		\$6,496,481	
	Total Future Costs to Society	\$7,762,487		\$16,183,704	

Table 4-12: ICE Results at Old Lake Wilson Road & Assembly Court

Intersection	Costs	TWSC Alternative 1	TWSC Alternative 2	Roundabout Alternative 1	Roundabout Alternative 2
Old Lake Wilson Road & Assembly Court	Construction Cost	\$367,917		\$532,269	
	ROW Cost	-		\$338,095	
	Costs	\$367,917		\$870,364	
	Future Delay Costs	\$282,165		\$10,044,759	
	Future Safety Costs	\$3,282,272		\$5,859,393	
	Total Future Costs to Society	\$3,564,437		\$15,904,151	

Table 4-13: ICE Results at Old Lake Wilson Road & Fairfax Drive/Marker Avenue

Intersection	Costs	Signal Alternative 1	Signal Alternative 2	Roundabout Alternative 1	Roundabout Alternative 2
Old Lake Wilson Road & Fairfax Drive/Marker Avenue	Construction Cost	\$999,914		\$741,051	
	ROW Cost	\$174,095	\$181,680	\$352,855	\$352,035
	Costs	\$1,174,009	\$1,181,594	\$1,093,906	\$1,093,086
	Future Delay Costs	\$11,677,166		\$11,210,880	
	Future Safety Costs	\$12,747,772		\$7,985,890	
	Total Future Costs to Society	\$24,424,938		\$19,196,770	

4.4.4.2 Initial ICE Analysis Conclusions

The results of the Stage 2 ICE analysis were presented to Osceola County staff on January 12, 2022. The following decisions were made at each study intersection location:

- Old Lake Wilson Road & Excitement Drive

- The roundabout alternative was not recommended because of the cost deficits (especially the anticipated ROW costs) as compared to the TWSC alternative and the intersection's proximity to Osceola Polk Line Road (CR 532). From the operational analysis conducted as part of the Old Lake Wilson Road PD&E Study PTAR, southbound queues are expected to extend from Osceola Polk Line Road (CR 532) to Excitement Drive in the peak periods, which may back into the roundabout alternative and limit its effectiveness.
- Osceola County requested the project team complete additional analysis to determine the feasibility of a signalized or unsignalized Restricted Crossing U-Turn (RCUT) alternative at this intersection.
- Old Lake Wilson Road & Assembly Court
 - The roundabout alternative was not recommended because of the intersection's proximity to the bridge over I-4 and the cost deficits (especially the anticipated ROW costs) as compared to the TWSC alternative.
 - Osceola County approved moving forward with the TWSC alternative at this location.
- Old Lake Wilson Road & Fairfax Drive / Marker Avenue
 - The roundabout alternative was not recommended because a signal will have already been built at this location.
 - Osceola County approved moving forward with the signal alternative at this location.

4.4.4.3 Additional ICE Analysis at Excitement Drive

Additional RCUT alternatives were considered at the intersection of Old Lake Wilson Road and Excitement Drive. These alternatives include:

- Unsignalized RCUT
 - This alternative consists of a directional median opening at Excitement Drive for vehicles making southbound left turns, which would also restrict westbound left turns. The westbound left turns would be forced to right turn then make a U-turn at a directional median opening approximately 700 feet north of Excitement Drive.
 - Both median openings are unsignalized.
- Signalized RCUT
 - The configuration would be the same as the unsignalized RCUT except the median opening 700 feet north of Excitement Drive would be signalized.

A detailed operational analysis for the RCUT alternatives was performed for the AM/PM opening (2030) and design (2050) years. The intersection delay and LOS was analyzed using HCM methodologies as implemented by Synchro 11. Operational analysis for the TWSC and two RCUT alternatives results showed:

- The combined delays for the westbound right and northbound U-turn movements for the unsignalized RCUT alternative are lower than the delay for westbound left turn movements for the TWSC alternative.
- Delay is lower at the U-turn location for the unsignalized RCUT alternative than the signalized RCUT alternative.

The Stage 2 SPICE analysis showed that the unsignalized RCUT is predicted to have a lower number of total fatal and injury crashes than the Signalized RCUT alternative.

Based on this additional analysis and coordination with Osceola County staff, the unsignalized RCUT is recommended at this intersection. The detailed analysis and documentation of the coordination with Osceola County staff is included in the *ICE Memorandum* included in **Appendix A**.

4.5 Build Alternatives

4.5.1 Multi-Modal Alternatives

Based on the projected traffic demand, there are no stand-alone multi-modal alternatives that would meet the purpose and need for the project; however, multi-modal accommodations will be incorporated into this project. These include on-road bicycle lanes and sidewalks along both sides of the road.

4.5.2 Typical Sections

To support the need for the project, the context classification of the roadway, and the proposed design speed, two typical section alternatives were developed.

Typical Section 1, as shown on **Figure 4-2**, from CR 532 to Sinclair Road, is a four-lane divided typical section consisting of two 11-foot-wide travel lanes and a 5-foot-wide bike lane in each direction. Three feet of sod separates the travel lane and a 10-foot-wide sidewalk on the west side, and 3-feet of sod separates the travel lane and a 6-foot-wide sidewalk on the east side. This typical section includes a 37.5-foot divided median with a design and posted speed of 45 mph.

Typical Section 2, as shown on **Figure 4-3**, from CR 532 to Sinclair Road, is a four-lane divided typical section consisting of two 11-foot-wide travel lanes in each direction. Three feet of sod separates the travel lanes and an 8-foot-wide sidewalk on the west side, and 3-feet of sod separates the travel lane and a 6-foot-wide sidewalk on the east side. This typical section has wider 7-foot-wide buffered bike lanes and a 37.5-foot divided median. The design and posted speed for this section is 45 mph.

Figure 4-2: Typical Section 1

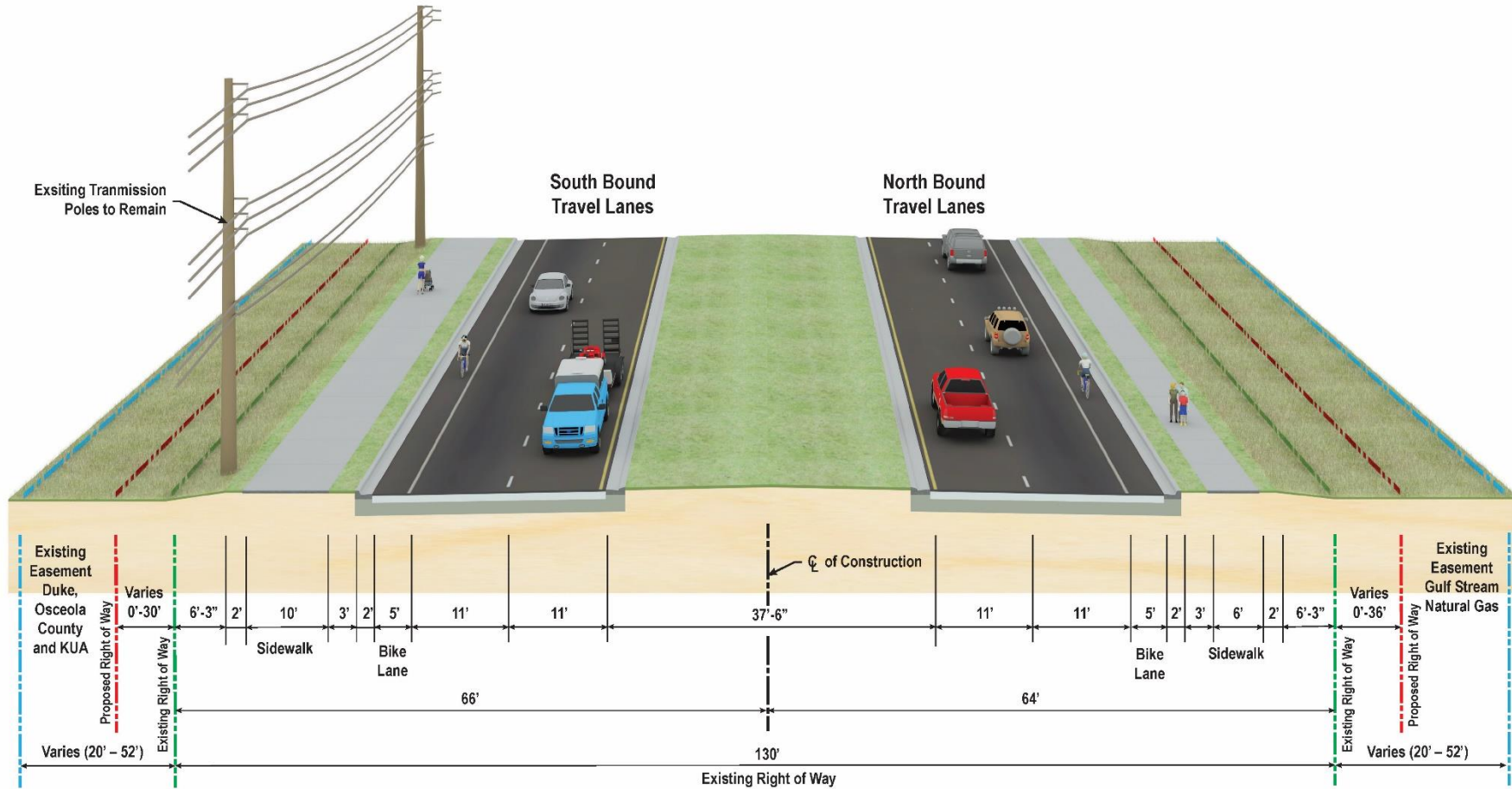
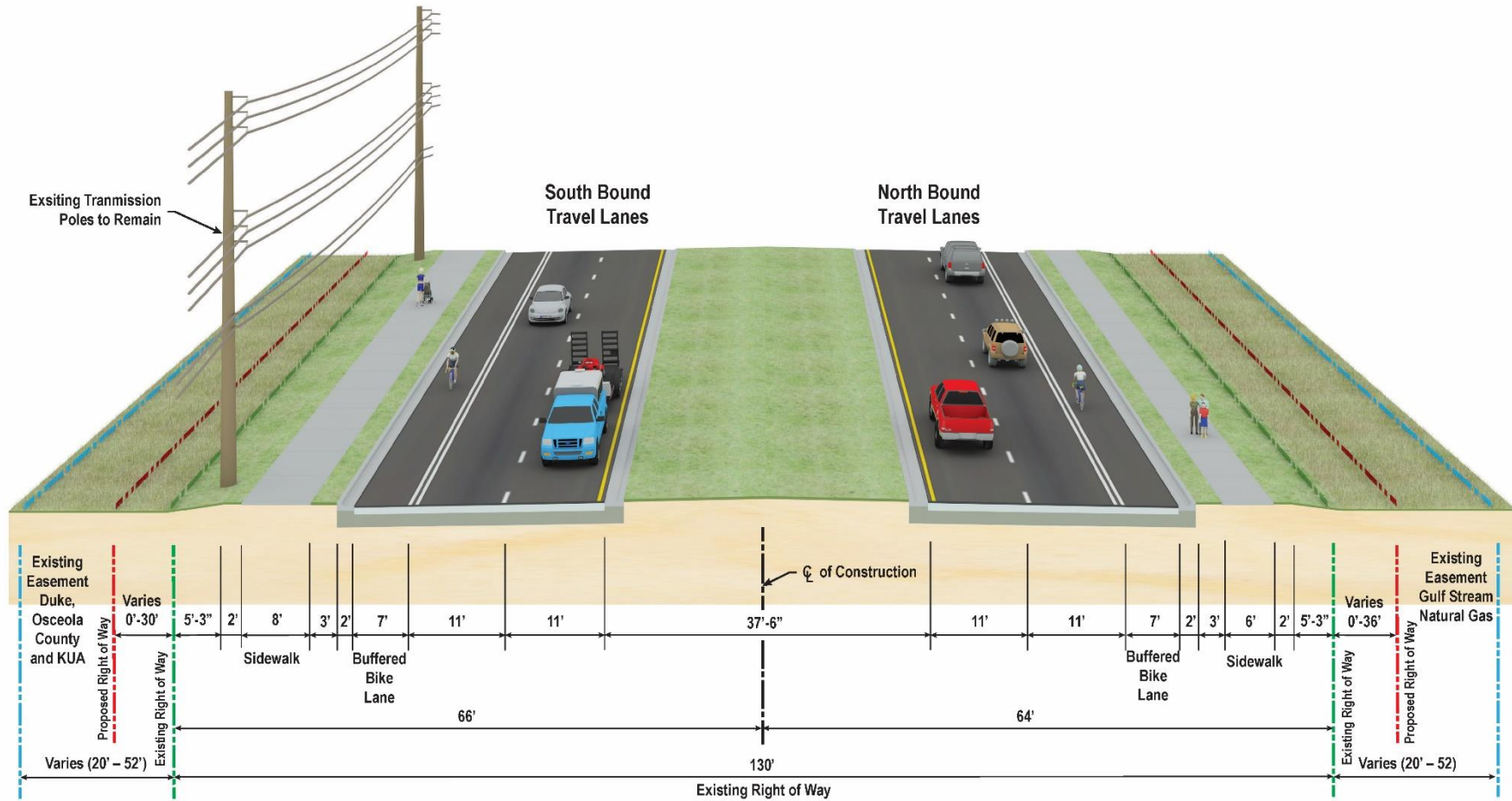


Figure 4-3: Typical Section 2



4.5.3 Bridge Typical Sections

4.5.3.1 I-4 Bridge

Two options were developed for the Old Lake Wilson Road bridge over I-4.

The first alternative evaluated included restriping the existing bridge (bridge No. 920602) to accommodate two northbound travel lanes. A raised sidewalk will also be added to the existing bridge. A new southbound bridge would be constructed at a higher elevation that would accommodate future Interstate-4 improvements. This new bridge would include two 11-foot travel lanes and a 10-foot-wide sidewalk. The bridge typical for Alternative 1 is shown in **Figure 4-4**.

The second alternative is very similar to the first alternative; however, it includes an 8-foot-wide sidewalk on the proposed southbound bridge instead of a 10-foot sidewalk to match roadway Alternative 2. The second alternative also includes restriping the existing bridge to accommodate two northbound travel lanes and adding a raised sidewalk to the existing bridge. A new southbound bridge would be constructed at a higher elevation that would accommodate future Interstate-4 improvements. This new bridge would include two 11-foot travel lanes and an 8-foot-wide sidewalk southbound. The bridge typical for Alternative 2 is shown in **Figure 4-5**.

4.5.3.2 Davenport Creek Bridge Culvert

There is also a bridge culvert at Davenport Creek (Bridge No. 924147) that is being considered for widening or replacement. The original bridge culvert was constructed in 1954 and is approximately 42 feet wide with four 11.5-foot-wide by 7.5-foot-tall, corrugated steel elliptical pipes for a total bridge length of 57.3 feet. The headwalls are sand-cement rip-rap exhibiting deterioration including settlement, open joints with vegetative growth, cracks, and missing sand-cement bags. In addition, the bituminous coating on the inside of all four cells is failing, resulting in heavy corrosion of the pipes at the waterline.

Three options are being considered. The first option considered is to maintain and extend the existing pipes. However, due to the age and condition of the existing bridge culvert, this option was eliminated. The second option is to replace the bridge culvert with a new bridge over Davenport Creek. The third option is to replace the existing bridge culvert with a new 4 cell, 12'x8' concrete box culvert to accommodate the proposed improvements.

4.5.3.3 Other Bridges within Project Limits

No proposed modifications are proposed to Golf Cart Crossing #1, Reunion Blvd./ Gathering Drive over Old Lake Wilson Road or Golf Cart Crossing #2 bridges.

4.5.4 Alignment Analysis

Two roadway alignment alternatives were developed to follow the existing roadway alignment using each of the two alternative roadway/bridge typical sections. The alignment assumes that the existing roadway will be reconstructed and the existing pavement will not be used as part of the final four-lane divided roadway since it is located where the future median would be located.

Figure 4-4: Bridge Typical Alternative 1

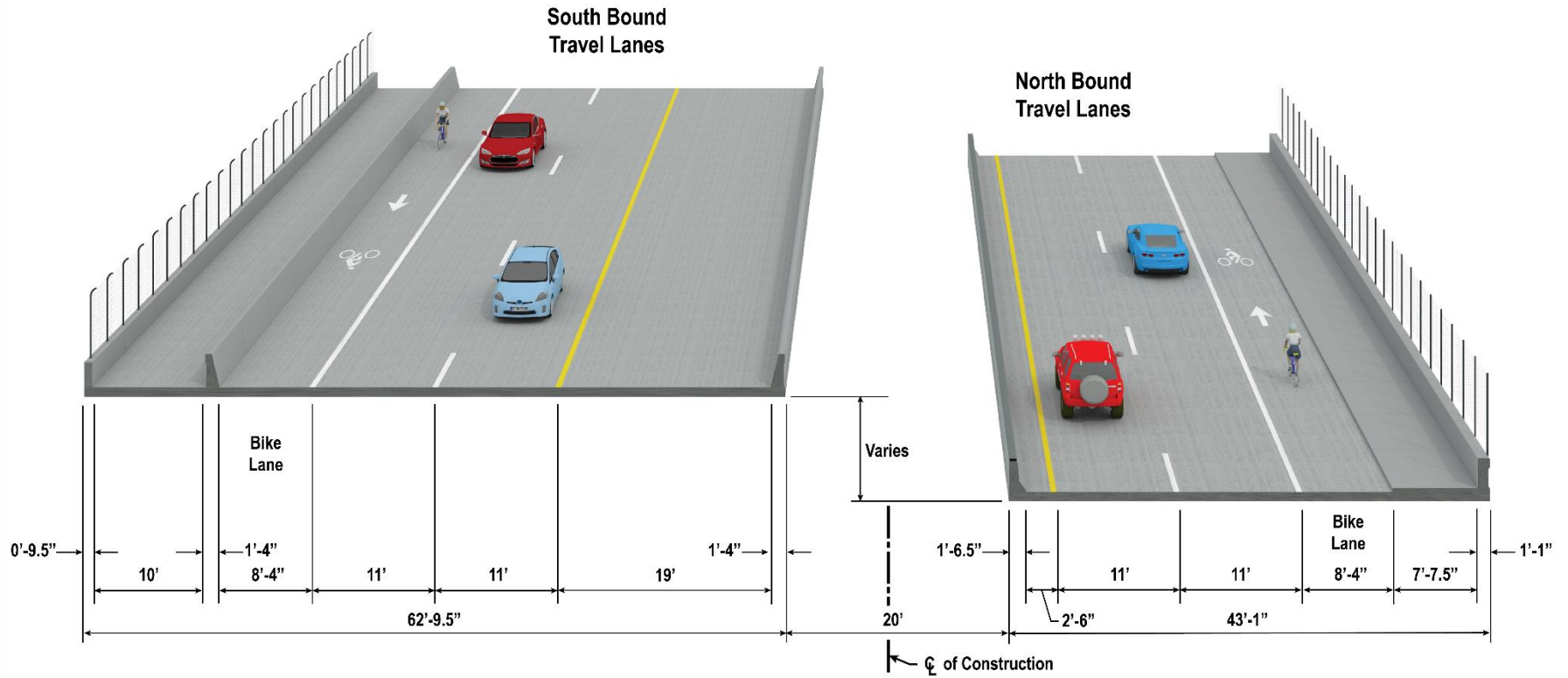
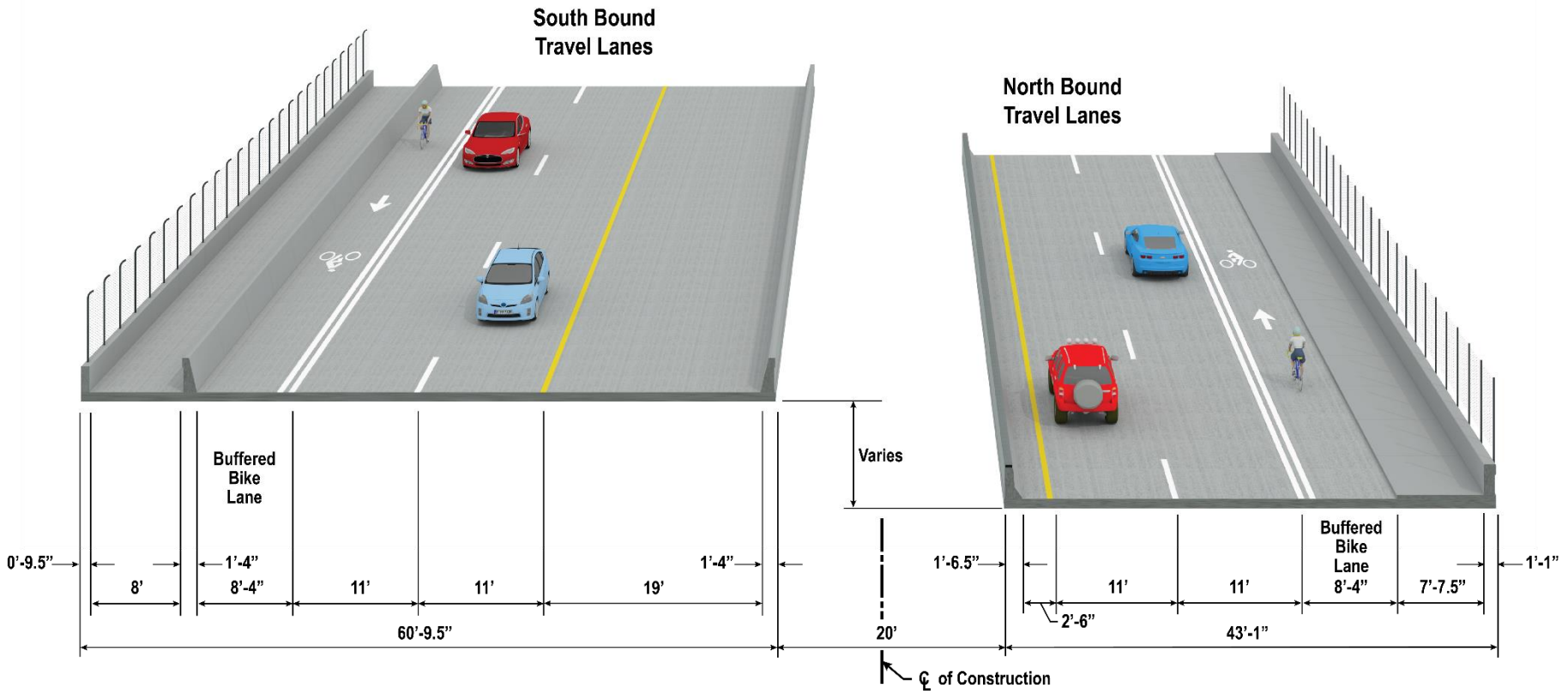


Figure 4-5: Bridge Typical Alternative 2



4.6 Comparative Alternatives Evaluation

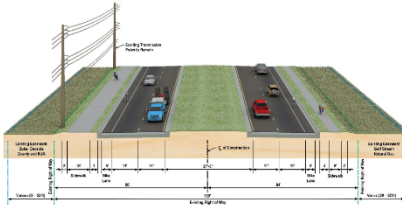
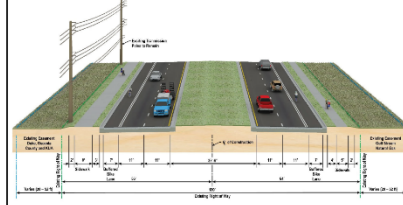
Table 4-14 provides a comparative analysis evaluation matrix of the No-Build alternative and two build alternatives. This evaluation was presented at the Alternatives Public Meeting on February 22, 2022, for public review and comment. A summary of the comparative analysis is illustrated in **Table 4-14**.

Alternative 1 would affect eight parcels. It would have low potential impacts to threatened / endangered species or their habitat and moderate potential impacts to cultural resources. Alternative 1 would impact seven potential contamination sites and 0.57 acres of wetlands. Noise impacts could affect 103 residences and 10 recreational areas. The estimated cost of Alternative 1 is \$79.9 million. Several stand-alone reports document the various environmental impacts and provide additional detail for each alternative.

Alternative 2 would affect eight parcels. It would have low potential impacts to threatened / endangered species or their habitat and moderate potential impacts to cultural resources. Alternative 2 would impact seven potential contamination sites and 0.58 acres of wetlands. Noise impacts could affect 103 residences and 10 recreational areas. The estimated cost of Alternative 2 is \$79.34 million. Several stand-alone reports document the various environmental impacts and provide additional detail for each alternative.

Three options for the Davenport Creek culvert were considered. The first option considered was to maintain and extend the existing pipes. However, due to the age and condition of the existing bridge culvert, this option was eliminated. The second option is to replace the bridge culvert with a new bridge over Davenport Creek. The third option is to replace the existing bridge culvert with a new 4 cell, 12'x8' concrete box culvert to accommodate the proposed improvements. The recommended alternative is option three, replace with a new 4 cell, 12'x8' concrete box culvert. The selection of replacing the culvert with a new 4-cell, 12'x8' box culvert is based on four reasons: (1) there is less impact to the roadway profile than a bridge option, (2) it provides adequate hydraulic efficiency, (3) the existing quadruple arch pipes are inadequate with respect to hydraulic efficiency and design service life and (4) the need to maintain existing surface water elevations in the creek to meet the FEMA no-rise certification.

Table 4-14: Alternatives Evaluation Matrix

Segment	No Build	Alternative 1 (Preferred Alternative)	Alternative 2
Description			
Property Impacts			
Parcels Impacted	0	18	18
Residential Relocations	0	0	0
Business Relocations	0	0	0
Pedestrian and Bicycle Features			
Proposed bicycle and pedestrian features	No Improvements	10 foot sidewalk along west side 5 foot sidewalk along east side 5 foot on-road bike lanes *Preferred by the public*	8 foot sidewalk along west side 5 foot sidewalk along east side 7 foot on-road bike lanes
Cultural, Natural, & Physical Impacts			
Potential Species Impacts	None	Low	Low
Potential Contamination Sites (Medium/High)	None	7 / 0	7 / 0
Wetland Impacts (ac)	None	0.49	0.58
Floodplain Impacts (ac-ft)	None	2.01	2.01
Potential Impacts to Cultural Resources	None	Moderate	Moderate
Potential Noise Impacts	None	103 residences / 10 recreational areas	103 residences / 10 recreational areas
Estimated Costs			
Design	No Cost	\$9,709,000	\$9,623,000
Right of Way	No Cost	\$7,349,000	\$7,365,168
Non-Reimbursable Utility Relocation	No Cost	\$9,601,000	\$9,601,000
Wetland Mitigation	No Cost	\$74,000	\$88,000
Roadway Construction	No Cost	\$97,087,000	\$96,226,000
Construction Engineering & Inspection	No Cost	\$9,709,000	\$9,623,000
Total Cost	No Cost	\$123,928,000	\$122,925,000

4.7 Selection of the Preferred Alternative

The selection factors for the preferred alternative included the avoidance and minimization of impacts, project costs, input received from the public at the Alternatives Public Meeting held on February 22, 2022, and input received from Osceola County staff.

The preferred alternative for the roadway and bridge is Alternative 1. The roadway typical section for Alternative 1 is a 4-lane divided roadway with two 11-foot-wide travel lanes and a 5-foot-wide bike lane in each direction. It includes a 10-foot-wide sidewalk on the west side and a 6-foot-wide sidewalk on the east side. After gathering feedback from the public and discussions with Osceola County staff, it was determined that serious cyclists would be willing to use either a 5-foot-wide bike lane (Alternative 1) or the 7-foot buffered bike lane (Alternative 2), but recreational users would benefit from the wider 10-foot-wide sidewalk with Alternative 1 as opposed to the 8-foot-wide sidewalk with Alternative 2. It was also noted that the 5-foot-wide bike lane is more consistent with the existing bike lane widths north and south of this project.

The preferred alternative for the bridge over I-4 is Alternative 1, which includes the wider 10-foot- sidewalk on the proposed southbound bridge to match the roadway typical section. The preferred alternative for the Davenport Creek crossing is replacement of the existing quadruple 11'x 7.5' arched metal pipe bridge culvert with a 4 cell, 12'X8' concrete box culvert.

5.0 PROJECT COORDINATION & PUBLIC INVOLVEMENT

The following sections provide a summary of the agency coordination and public involvement conducted during the Old Lake Wilson Road PD&E Study. Additional information is available in the Comments and Coordination Report.

5.1 Agency Coordination

This study included coordination meetings with Osceola County, FDOT and the Reunion Community Development District (CDD). Project presentations were made to the Reunion CDD East and West Boards on February 10, 2022, and September 8, 2022. Numerous virtual meetings with FDOT and Osceola County were held throughout the life of the study. The preferred alternative was presented to, and accepted by, the Osceola County Board of County Commissioners on November 6, 2023.

5.2 Public Involvement

Public involvement was conducted throughout the duration of the PD&E Study. The project included a webpage (www.ImproveOldLakeWilsonRoad.com), an Alternatives Public Meeting, and a Public Hearing. The following sections provide a summary of the public involvement activities. Additional information is available in the *Comments and Coordination Report*.

5.2.1 Alternatives Public Meeting

A hybrid Alternatives Public Meeting was held on Tuesday, February 22, 2022, at Kenzie's at the Clubhouse, located at Mystic Dunes Resort and Golf Club, 7600 Mystic Dunes Lane, Celebration, FL 34747 and online via GoToWebinar. This public meeting was advertised in compliance with all federal and state requirements. At the in-person meeting, a copy of the Title VI Civil Rights Act board was displayed, and a project handout and comment forms were given to each attendee. The purpose of the meeting was to present the initial alternatives being considered for the project. The in-person meeting was conducted in an open house format where the public was invited to attend at any time between 5:30 p.m. and 7:30 p.m. Attendees had an opportunity to view a continuous looping presentation, project displays, the alternatives evaluation matrix, and other documentation. The on-line portion of the meeting included showing the presentation two times and accepting comments and questions from the online attendees. The presentation included information regarding the PD&E Study process, the alternatives being evaluated, a matrix and other project-related information. Members of the project team were available to discuss the project with attendees at the in-person venue and answer questions. 50 people signed in at the meeting.

5.2.1.1 Notifications

The following notifications were distributed for the Alternatives Public Meeting:

- Notifications to elected officials were sent on January 26, 2022
- Notifications to appointed officials and other stakeholders were sent on January 26, 2022
- Notifications to property owners were sent on January 28, 2022

- A press release was distributed by FDOT’s Public Information Office on February 15, 2022
- An advertisement was published in the Orlando Sentinel – Osceola County Edition on February 10, 2022
- An advertisement was published in the Florida Administrative Register on February 14, 2022

5.2.1.2 Public Input

Two comment forms were submitted at the meeting, with an additional nine comments received online during the virtual public meeting on GoToWebinar. Seven emails were received after the public meeting, within the 10-day comment period. The majority of the attendees were in favor of the project and several commented on the congestion already present in the study area. Additionally, many people expressed concern over the potential 8–10-year time period to implement the four-lane widening of Old Lake Wilson Road that is needed now. A copy of the Alternatives Meeting Summary is available in the project file.

5.2.2 *Public Hearing*

A hybrid Public Hearing was held on Tuesday, June 13, 2023, at Kenzie’s at the Clubhouse, located at Mystic Dunes Resort and Golf Club, 7600 Mystic Dunes Lane, Celebration, FL 34747 and online via GoToWebinar. This public hearing was advertised in compliance with all federal and state requirements. At the in-person hearing, a copy of the Title VI Civil Rights Act board was displayed. A project handout, comment forms, and a speaker card were given to each attendee. The purpose of the hearing was to present information regarding the preferred alternative and receive input from the public and other stakeholders regarding the proposed improvements. The in-person hearing began in an open house format at 5:30 p.m. and virtual attendees were able to log in starting at 6:15 p.m.

At 6:30 p.m. the formal hearing began with a live introduction by the County Project Manager followed by a narrated PowerPoint presentation. Public testimony began with virtual comments followed by the opportunity to provide in-person comments. One member of the public provided a virtual comment. No members of the public wished to make comments in-person. The public hearing concluded at 6:54 p.m.

At the public hearing, attendees had an opportunity to view a presentation, project displays, the alternatives evaluation matrix, and other documentation. The online portion of the hearing included showing the presentation, accepting comments and questions from the online attendees, and reading them aloud for the project record. The presentation included information regarding the PD&E Study process, the alternatives that were evaluated, a comparison matrix, and the preferred alternative. Members of the project team were available to discuss the project with attendees at the in-person venue prior to the start of the formal hearing. A total of 26 people attended in-person and 31 attended online.

5.2.2.1 Notifications

The following notifications were distributed for the Hybrid Public Hearing:

- Notifications to elected officials were sent by email on May 17, 2023

- Notifications to appointed officials and other stakeholders were sent by email on May 17, 2023
- Notifications to property owners were sent via USPS on May 17, 2023
- A press release was distributed by FDOT’s Public Information Office on June 6, 2023
- An advertisement was published in the Orlando Sentinel – Osceola County Edition on Sunday, May 21, 2023, and Sunday, June 4, 2023
- An advertisement was published in the Florida Administrative Register on May 30, 2023

5.2.2.2 Public Input

There was 1 comment submitted online, 1 comment form submitted in person during the public hearing, and 11 emailed comments submitted within the 10-day comment period.

Comments and questions received included the location of noise barriers, preference for the preferred alternative, access during construction, impacts to homes and property, and concerns over traffic. A copy of the Public Hearing Summary and Hearing Transcript is available in the project file.

In addition, project staff spoke with members of the Osceola County Fire Rescue who noted that there is currently only an unpaved access point into the Heritage Crossing development and if something blocks that access point, they want to have another way to get into the neighborhood. This comment was noted and has been included as a project commitment.

6.0 PREFERRED ALTERNATIVE

This section provides a description of the design details of the Preferred Alternative, which is Alternative 1, as described in Section 4.

6.1 Engineering Details of the Preferred Alternative

6.1.1 Roadway Typical Section

The preferred roadway typical section is shown in **Figure 6-1**, and consists of a four-lane divided curbed roadway with a design speed of 45 mph and a posted speed of 45 mph. It includes two 11-foot travel lanes and 5-foot-wide bike lanes in each direction separated by a 37.5-foot median. A 10-foot sidewalk is provided on the west side of Old Lake Wilson Road and a 6-foot sidewalk is provided on the east side.

The approved Typical Section Package is provided in **Appendix B**.

6.1.2 I-4 Bridge Typical Section

The preferred I-4 bridge typical section includes maintaining the existing two-lane Old Lake Wilson Road bridge over I-4 and building a new two-lane southbound bridge. The existing bridge over I-4 would require restriping to convert the two-way traffic to two northbound lanes. The northbound bridge includes two 11-foot-wide travel lanes, an 8.3-foot-wide shoulder/bike lane, and a 7-foot raised sidewalk. There is a 2.5-foot-wide inside travel lane shoulder along the sidewalk. A new southbound bridge would be constructed at a higher elevation over I-4 to accommodate future I-4 BtU improvements. This new bridge would include two 11-foot-wide travel lanes, and 8.3-foot-wide shoulder/bike lane, and a 10-foot-wide barrier separated sidewalk. The inside shoulder for the southbound bridge is 19-feet wide to temporarily allow for four lanes of traffic (two northbound, two southbound) while the existing northbound Old Lake Wilson Road bridge is removed and replaced as part of the I-4 BtU project. The preferred I-4 bridge typical section is shown in **Figure 6-2**.

Figure 6-1: Typical Section 1

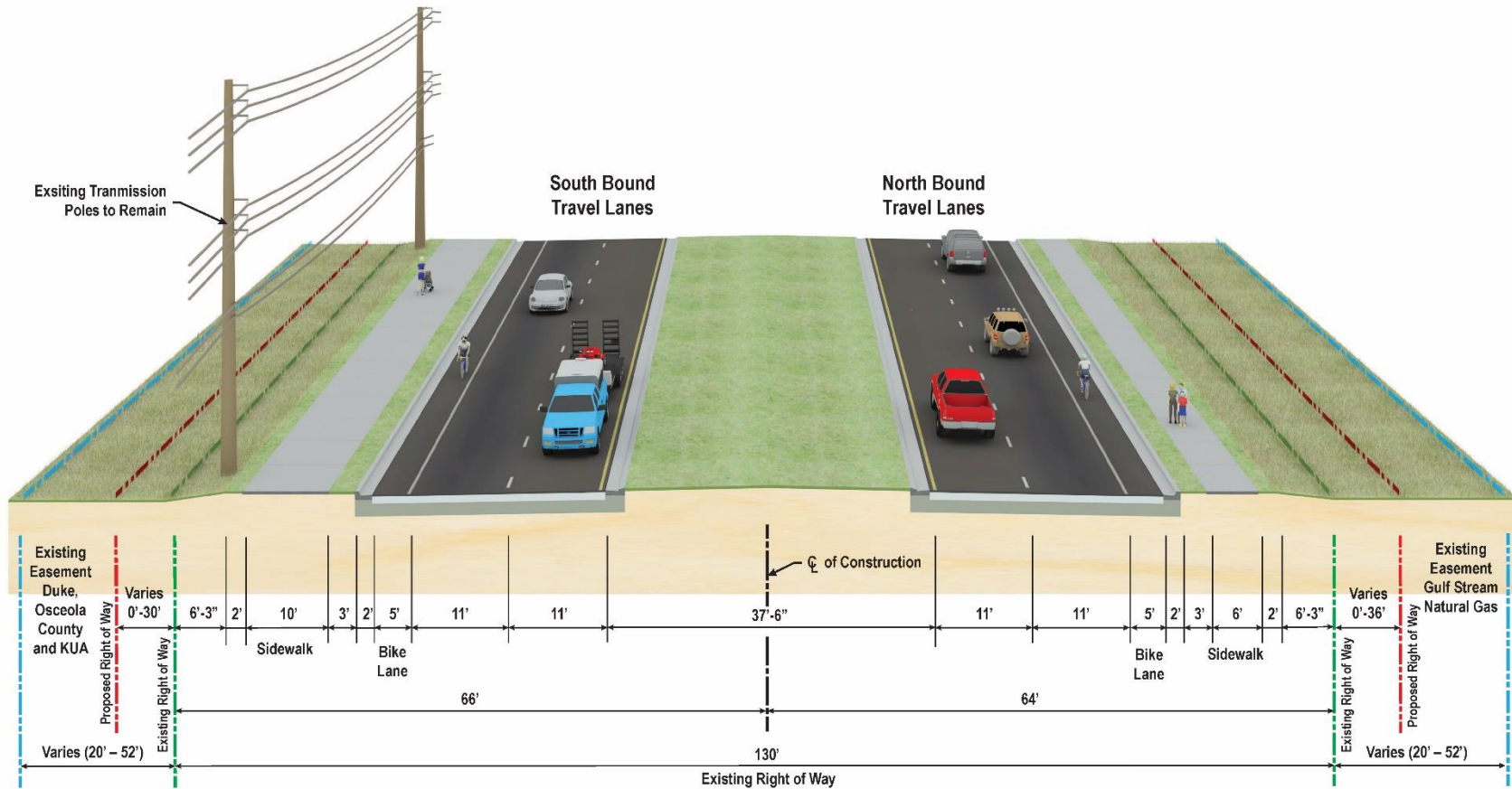
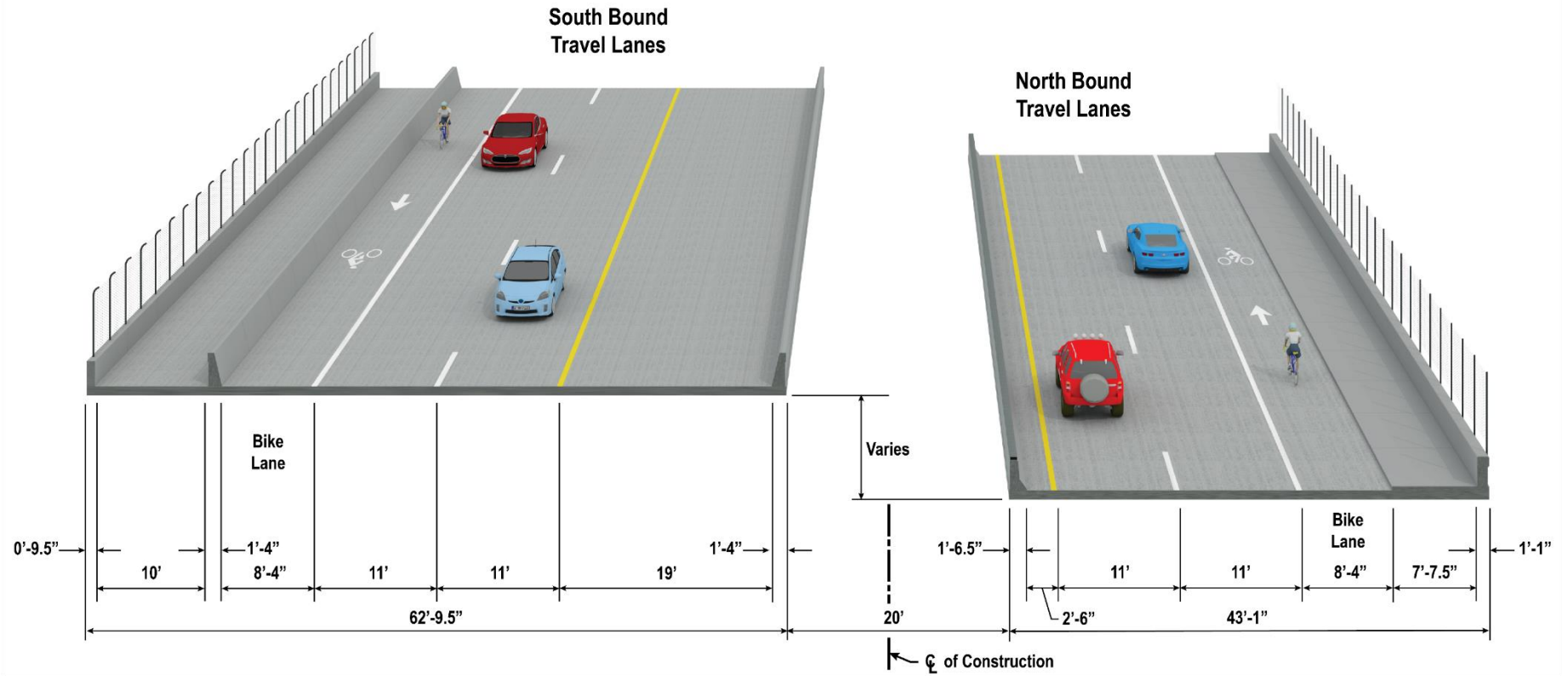


Figure 6-2: Bridge Typical Section over Interstate 4



6.1.3 *Right-of-Way and Relocations*

The preferred alternative is anticipated to impact approximately eighteen parcels. Parcels impacted by right of way include property owned by the Reunion development/common areas, a convenience store with gas, an auto repair shop and a car wash. There are no residential or business relocations with the preferred alternative. The total right of way cost for the project is estimated at \$7,349,000.

6.1.4 *Horizontal and Vertical Geometry*

The preferred alternative horizontal alignment was developed to generally stay within the existing road right-of-way, which minimized impacts to residents, businesses, and the natural and social environment surrounding the corridor, and resulted in minimal right-of-way acquisition. The proposed horizontal geometry alignment is shown in **Table 6-1**. Please see the concept plans in **Appendix C** for additional details regarding the horizontal alignment.

The proposed vertical geometry alignment, which is shown in **Table 6-2**, was developed to provide longitudinal grade for drainage and to meet criteria for the proposed design speed. The proposed profile is included in the concept plans in **Appendix C**.

SECTION 6 – PREFERRED ALTERNATIVE

Table 6-1: Proposed Horizontal Geometry Alignment

Preferred Alternative Horizontal Alignment											
Segment	Bearing	POT / PI / PC / PRC / PT Station				Deflection Angle and Direction	Degree of Curve	Curve Radius (ft)	Curve Length (ft)	⁽¹⁾ Super Elevation (ft/ft)	Notes
		POT	100+00.00								45 mph design speed
Tangent 1	N 0° 01' 58" E										
Tangent 2	N 0° 14' 16" E		108+44.44								
Curve 1		PC	169+88.48	PRC	176+58.41	2° 36' 31" (RT)	0° 23' 22"	14,714	669.93	NC	
Curve 2		PRC	176+58.41	PT	183+53.40	2° 42' 23" (LT)	0° 23' 22"	14,714	694.99	NC	
Tangent 3	N 0° 08' 25" E										
Curve 3		PC	203+35.73	PRC	208+76.25	2° 03' 37" (LT)	0° 22' 52"	15,032	540.52	NC	
Curve 4		PRC	208+76.25	PT	217+98.55	2° 08' 19" (RT)	0° 13' 55"	24,710	922.30	NC	
Tangent 4	N 0° 13' 07" E										
		POT	231+17.46								

⁽¹⁾ Super elevation rate shown is based on criteria in the 2022 FDM (Table 210.9.1 & 210.9.2).

Table 6-2: Proposed Vertical Geometry Alignment

Preferred Vertical Alignment								Notes
Vertical Point of Intersection	Station	Elevation	Grade (%)	Change in Grade	Vertical Curve			
					Crest / Sag	Length (ft)	K	
1	103+04.26	144.38						45 mph design speed
2	104+67.00	147.80	2.1	3.0	Crest	325	109	
3	109+50.00	143.45	-0.9	3.6	Sag	324	90	
4	115+20.00	158.84	2.7	5	Crest	674	135	
5	123+45.00	139.87	-2.3	1.9	Sag	200	105	
6	129+70.00	137.37	-0.4	3.6	Sag	434	121	
7	142+05.00	87.97	-4.0	7.3	Sag	664	91	
8	147+40.00	105.62	3.3	2.4	Crest	406	169	
9	168+00.00	124.16	0.9	4.6	Crest	470	103	
10	178+25.00	86.75	-3.7	8.7	Sag	720	83	
11	193+30.00	162.00	5.0	8.9	Crest	1,074	121	
12	204+45.00	118.51	-3.9	5.5	Sag	524	95	
13	217+00.00	138.59	1.6	5.0	Crest	626	125	
14	226+20.00	107.31	-3.4	4.6	Sag	456	99	
15	232+87.80	115.42	1.2					

6.1.5 Multi-Modal and Bicycle and Pedestrian Accommodations

The proposed typical sections provide a 10-foot-wide sidewalk on the west side of Old Lake Wilson Road for pedestrians and a 6-foot-wide sidewalk on the east side of Old Lake Wilson Road for pedestrians. There will be 5-foot-wide bicycle lanes in both directions. The bridge includes a raised 7-foot sidewalk on the northbound bridge and a barrier separated 10-foot sidewalk on the southbound bridge. Both bridges have bike lanes and concrete railing with bridge fencing on the outside of the pedestrian accommodations.

6.1.6 Access Management

The proposed access management classification for this section of Old Lake Wilson Road is Class 5. The median opening and signal spacing criteria for a Class 5 roadway with a speed limit of 45 mph or less is:

- Full Median Opening: 2,640 feet
- Directional Median Opening: 1,320 feet
- Signal Spacing: 2,640 feet

One full median opening, one directional media opening, and four signalized intersections are proposed within the project limits with the preferred alternative. The proposed access management plan for the preferred alternative is shown in the Concept Plans in **Appendix C** and is summarized in **Table 6-3**.

Table 6-3: Access Management Summary for the Preferred Alternative

Location & Station	Proposed Median Opening Type	Distance To/From Nearest Proposed Median Opening (FT)				Distance To/From Nearest Proposed FULL Median Opening (FT)			
		To the South		To the North		To the South		To the North	
		Distance		Distance	Variance	Distance	Variance	Distance	Variance
Osceola Polk Line Road (CR 532)	Signal	N/A	N/A	670	0%	N/A	N/A	5760	0%
Excitement Drive	Southbound Directional	670	0%	N/A ¹	N/A ¹				
U-Turn Location for Excitement Drive	Northbound Directional	N/A ¹	N/A ¹	4330	0%				
Spine Road	Signal	4330	0%	1925	0%	5760	0%	1925	0%
Assembly Court	Full	1925	0%	3280	0%	1925	0%	3280	0%
Fairfax Drive/Marker Avenue	Signal	3280	0%	2220	0%	3280	0%	2220	0%
Sinclair Road	Signal	2220	0%	N/A	N/A	2220	0%	N/A	N/A

¹ Access management spacing guidance not applicable to spacing between RCUT directional median openings.

6.1.7 *Intersection and Interchange Concepts*

As described in **Section 4.4.4**, multiple intersection types were evaluated for the intersections along the study corridor. The preferred intersection concepts are described below.

- Old Lake Wilson Road & CR 532:
 - o Due to operational performance, it was determined that the northbound approach requires an exclusive right turn lane.
 - o Due to operational performance, it was determined that the westbound approach requires a second exclusive right turn lane.
- Old Lake Wilson Road & Excitement Drive:
 - o An unsignalized R/Cut is preferred which includes a southbound directional median opening at Excitement Drive and a northbound U-turn north of Excitement Drive.
- Old Lake Wilson Road & Spine Road:
 - o A signalized intersection is the preferred improvement at this location.
- Old Lake Wilson Road & Assembly Court:
 - o A two-way stop control/full median opening with a northbound exclusive right turn lane and a southbound exclusive left turn lane is the preferred concept at this intersection.
- Old Lake Wilson Road & Fairfax Drive / Marker Avenue:
 - o The preferred improvement is a signalized intersection.
- Old Lake Wilson Road & Sinclair Road:
 - o Due to operational performance, it was determined that the northbound approach requires a second exclusive left turn lane.
 - o Due to operational performance, it was determined that the eastbound approach requires an exclusive left turn lane and a shared left-through lane.
 - o Due to operational performance, it was determined that the eastbound approach requires a second exclusive right turn lane, requiring additional right of way.

Graphical representations of the intersections for the preferred alternative can be found in the Concept Plans in **Appendix C**.

6.1.8 *Intelligent Transportation System and TSM&O Strategies*

ITS and TSM&O strategies were not analyzed in detail separate from the intersection evaluations. This is due to the purpose and need for the project being largely driven by the need for additional capacity that could not be provided solely by ITS and/or TSM&O alternatives.

6.1.9 *Utilities*

All the utility providers and operators were contacted in January 2021 and were provided conceptual plans and alternatives for review. Based on the conceptual plans, they were asked to assist in locating and identifying their existing facilities within the area of study. They were also asked to provide information on all known easements or other land ownership rights.

Detailed information on the utility coordination documents, including information provided by the UAOs is located in the project Utility Assessment Package, dated September 2021. This utility information was then evaluated with the preferred alternative to quantify utility impacts with the proposed roadway improvements.

Most of the anticipated utility impacts occur within the existing Old Lake Wilson Road right-of-way and all that are in the right-of-way are by permit. The majority of the utility impacts that are outlined in this section are due to the construction of the proposed roadway widening, drainage piping, sidewalk, and shared use path. Other than roadway crossings, existing utilities that will be located under the proposed pavement are also identified as to be relocated. A description of the utility impacts and non-reimbursable relocation costs are outlined in **Table 6-4**. There are no anticipated utility relocations that are reimbursable.

Table 6-4: Description of Utility Impacts and Relocation Cost

Company	Description of Impacts	Non-Reimbursable Relocation Cost
Lumen/CenturyLink Ty Leslie (407) 814-5293 michel.t.leslie@centurylink.com NationalRelo@centurylink.com centralfloridaroadmoves_ctl@centurylink.com relocations@lumen.com	<ul style="list-style-type: none"> • 27,000 LF of fiber 	\$2,700,000
Charter Communications Larry Webb (407) 215-5006 Dwayne Leachman Dwayne.leachman@charter.com	<ul style="list-style-type: none"> • Potential Services 	\$1,190,000
Enterprise Community Development District	<ul style="list-style-type: none"> • No Response 	
Florida Gas Transmission - Lakeland Joe Sanchez (407) 838-7171 joseph.e.sanchez@energytransfer.com	<ul style="list-style-type: none"> • No Impacts Anticipated 	
Duke Energy Transmission DDEFTransmissionsGOV@duke-energy.com	<ul style="list-style-type: none"> • 9 poles 	\$2,250,000
Duke Energy Distribution Thomas Macias (407) 938-6619 Karla Rodriguez karlarodriguez@duke-energy.com defdistributiongov@duke-energy.com	<ul style="list-style-type: none"> • 1,800 LF BFOC 	\$216,000
Zayo Group Rusty Perdieu rusty.perdieu@zayo.com	<ul style="list-style-type: none"> • 4,800 LF of BFOC 	\$528,000
TOHO Water Authority – Zone 1 Robert Pelham (407) 944-5132 rpelham@tohowater.com	<ul style="list-style-type: none"> • 4,000 LF of 24" 	\$600,000
Gulfstream Natural Gas System Shawn Deutscher Shawn.Deutscher@Williams.com	<ul style="list-style-type: none"> • No Impacts Anticipated 	
Frontier Communications Fred Valdes (863) 688-9714 fred.n.valdes@ftr.com	<ul style="list-style-type: none"> • No Impacts Anticipated 	

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<p>Comcast Communications Cesar Rivera cesar_Rivera@comcast.com CENFLR-NFL_Construction@comcast.com</p>	<ul style="list-style-type: none"> • 600 FL of buried CATV 	<p>\$45,000</p>
<p>Summit Broadband Michelle Daniel (407) 996-1183 mdaniel@summit-broadband.com permit@summit-broadband.com</p>	<ul style="list-style-type: none"> • No Response 	
<p>Orlando Utilities Commission Robert Sceuerle (407) 236-9651 rscheuerle@ouc.com</p>	<ul style="list-style-type: none"> • No Response 	
<p>Duke Energy Fiber Mark Hurst (727) 820-5280 mark.hurst@duke-energy.com</p>	<ul style="list-style-type: none"> • No Response 	
<p>TECO Peoples Gas Shawn Winsor (407) 420-6663 swinsor@tecoenergy.com</p>	<ul style="list-style-type: none"> • 15,000 LF for 4" Stl Gas 	<p>\$1,800,000</p>
<p>Polk County Utilities Ryan Bengsch (863) 298-4193 Eric Phillips ericphillips@polk-county.net</p>	<ul style="list-style-type: none"> • No Facilities 	
<p>Spectra Energy – Sabal Trail Erica Jacobson (860) 287-9090 Paul Lanius Paul.Lanius@enbridge.com Peter Kerrigan peter.kerrigan@enbridge.com</p>	<ul style="list-style-type: none"> • No Impacts Anticipated 	
<p>Uniti Fiber Bob Mensching (904) 718-8152 Michel-Lee Chapuseaux michel-lee.chapuseaux@uniti.com</p>	<ul style="list-style-type: none"> • 8,000 LF BFOC 	<p>\$800,000</p>
<p>Transtate Industrial Pipeline System Tom Ulmer (772) 778-2255 tulmerjr@transtate.us</p>	<ul style="list-style-type: none"> • No Impacts Anticipated 	

6.1.10 Drainage and Stormwater Management Facilities

The project is located within the jurisdiction of SFWMD and FDEP. The pond siting report was developed to document Osceola County, Florida Department of Transportation (FDOT), and SFWMD stormwater requirements and identify existing and/or planned stormwater management

facilities with additional storage capacity to accommodate the additional runoff from the widening of Old Lake Wilson Road. The stormwater management approach is to minimize cultural and environmental impacts, as well as right of way, maintenance, and construction costs by utilizing permitted pond sites that account for future improvements of Old Lake Wilson Road. The project is divided into eight sub-basins based on the existing roadway profile, roadside ditch profiles, and culvert and cross drain locations. Historical permit data indicates that the existing ponds were originally sized to accommodate the future (four lane) condition. The eight existing permitted ponds along the project corridor are summarized in **Table 6-5** below.

Table 6-5: Existing Permitted Pond Summary

Basin Name	Existing Permit Basin Name(s)	Proposed CR 545 Basin Area (ac)	Required Water Quality Volume (ac-ft)	Provided Water Quality Volume (ac-ft)	Existing Pond Size (ac)
Basin 1	3701 3703	7.81	0.86	20.19	2.86
Basin 2	3742	3.80	0.36	0.55	0.18
Basin 3	4913	9.80	0.94	1.34	1.28
Basin 4	3622	4.33	0.41**	38.30	10.19
Basin 5	BSN108A	4.18	2.29	6.58	3.98
Basin 6	BSN105A BSN105B	3.13	5.50	7.09	8.70
Basin 7	D008	8.20	3.93	5.12	5.26
Basin 8	Basin D001	9.32	1.87	3.46	3.34

** Basin 3622 was not included in the routing calculations for the latest permit modification to Pond 9, SFWMD Permit No. 49-102283-P (Application No. 191004-1965).

Federal Emergency Management Agency (FEMA) floodplains are located at two riverine crossings located along the project corridor. There is one regulatory floodway within the study limits: Davenport Creek (WBID 3170K). Floodplain compensation will be necessary to offset the floodplain impacts from the proposed improvements and will be further analyzed in the design

phase. Please refer to the *Location Hydraulics Report* (LHR) for additional information on the anticipated floodplain impacts.

Basin 1 (Pond 370) – For the proposed calculations, the impervious basin area is increased to match the Osceola County 4-lane widening typical section (maximum 61% impervious area). The most current update to Basin 1 for Permit 49-01107-P, Application No. 040702-5, indicates that existing Pond 370 is designed to provide treatment for up to 70% impervious area of Old Lake Wilson Road (CR 545) within the limits of Basin 1. Existing Pond 370 is a dry retention pond. Based on the permitted mass grading plans, a pipe connection to existing Pond 370 is provided within the right-of-way through an existing manhole. In the proposed condition, runoff will be collected and conveyed by a closed storm sewer system to existing Pond 370. During the design phase, the existence, size, and condition of the pipe will need to be confirmed to assess whether it provides adequate conveyance capacity for the proposed road improvements. A determination as to whether formally defined drainage easements exist for the outfall pipe and pond will be needed and appropriate easements may need to be acquired. This pond does not appear to meet current FDOT and Osceola County requirements for berms and maintenance access since it is incorporated as part of a golf course sand bunker. Based on the demonstrated ability of the O&M entity to properly maintain the permitted ponds, it is recommended that the County provide the appropriate documentation of acceptance of the as-built conditions. Existing Pond 370 discharges to an onsite wetland conservation area and ultimately discharges to Davenport Creek.

Basin 2 (Pond 374) – For the proposed calculations, the impervious basin area is increased to match the Osceola County 4-lane widening typical section (maximum 61% impervious area). The most current update to Basin 2 Permit 49-01107-P, Application No. 040702-5, proposes existing Pond 374 will provide treatment of up to 70% impervious area of CR 545 within the limits of Basin 2. Existing Pond 374 is a dry retention pond located along the north side of the Gathering Drive Bridge, adjacent to a wetland conservation area. In the proposed condition, runoff will be collected and conveyed by a closed storm sewer system to existing Pond 374. Existing Pond 374 discharges to an onsite wetland conservation area located to the northwest and ultimately discharges to Davenport Creek. It appears that all or part of this pond may have been filled from its permitted conditions. The permitted pond configuration will need to be re-established to function as the selected stormwater management facility for this basin. This pond design does not appear to meet current FDOT and Osceola County requirements for berms and maintenance access. Based on the demonstrated ability of the O&M entity to properly maintain the permitted ponds, it is recommended that the County provide the appropriate documentation of acceptance of the as-built conditions.

Basin 3 (Pond 491) – For the proposed calculations, the impervious basin area is increased to match the Osceola County 4-lane widening typical section (maximum 61% impervious area). The most current update to Basin 3 for Permit 49-01107-P Application No. 020913-3, proposes existing Pond 491 will provide treatment of CR 545 within the limits of Basin 3. Existing Pond 491 is a retention pond located along the east side of CR 545, adjacent to a wetland conservation area. In the proposed condition, runoff will be collected and conveyed by a closed storm sewer system to existing Pond 491. Existing Pond 491 discharges to an onsite wetland

conservation area and ultimately discharges to Davenport Creek. Prior to design, survey is recommended to determine if the existing pond configuration meets FDOT and Osceola County requirements.

Basin 4 (Pond 362/Pond 9) – While Basin 4 is not included in the drainage calculations in the latest permit modification, Permit No. 49-102283-P (Application No. 191004-1965), the basin is delineated in the drainage map. The permitted storage volume is significantly greater than required volume for the basins associated with the permit mod, indicating excess volume available to accommodate this basin. There is 5.17 feet of freeboard in the existing (permitted) condition. The required treatment volume is only 0.41 ac-ft, and the pond is 10.17 acres, indicating that the regulatory volume can be provided with 0.04 feet of storage depth. In previous permits, Basin 4 was included as a sub-basin draining to existing Pond 362 (later renamed Pond 9). Existing Pond 9 is a retention pond located along the west side of CR 545, near Davenport Creek Tributary. For the proposed calculations, the impervious basin area is increased to match the Osceola County 4-lane widening typical section (maximum 61% impervious area). In the proposed condition, runoff will be collected and conveyed by a closed storm sewer system and discharged to existing Pond 9. Permit No. 49-102283-P (Application No. 191004-1965) will require modification to include Basin 4. Prior to design, survey is recommended to determine if the existing pond configuration meets FDOT and Osceola County requirements. Pond 9 discharges to an onsite wetland conservation area which discharges to Davenport Creek and ultimately discharges to Reedy Creek.

Basin 5 (Pond 108A) – Existing Pond G-1 does not provide enough volume to treat and attenuate the proposed improvements to Old Lake Wilson Road, since in the existing condition it does not meet FDOT freeboard criteria. It was originally anticipated that the proposed roadway widening and corresponding storm sewer design within this basin would be constructed as part of the I-4 BtU project. However, recent news releases by the FDOT indicate that the I-4 BtU project is under re-evaluation, with only 2 out of the 5 segments “tentatively” funded (those 2 segments falling outside the 10-year horizon). Given the lack of available excess volume in the existing configurations, the recommended design approach for Basin 5 is to proceed with the pond configuration documented in FDEP Permit No. 0187636-003-EI for the I-4 Btu project. Half of Basin 5 is included in Basin BSN108A in the FDEP Permit No. 0187636-003-EI with provisions to accommodate 1.28 acres of impervious area (700 feet of Old Lake Wilson) from the proposed 4-lane widening of CR 545 within Pond 108A (a wet detention pond). The remaining half of Basin 5 (2.09 acres with 1.28 acres of impervious), is reflected as untreated area in the permit for the I-4 BtU project (FDEP Permit No. 187636-003), but can also be treated and attenuated within Pond 108A. Review of the aerial imagery of the interchange and the CADD files for the I-4 BtU project indicates that there should be sufficient room within the existing footprint of the interchange to construct the BtU pond configuration(s). It should be noted that the original permit used 12.23 inches as the rainfall amount. This value does not appear to match the published WMD rainfall maps, and 9.8 inches as recorded in the BtU permit (FDEP Permit 187636-001) appears to be a more representative rainfall amount. For this reason, our proposed calculations used 9.8 inches for consistency with the current (BtU) FDEP permit. In the proposed condition, runoff will be collected in and conveyed by a closed storm sewer system to Pond 108A and ultimately discharge to Wetland G1. It is suggested that

coordination with FDOT be initiated early in the design phase to validate this alternative for the provision of treatment and attenuation for the proposed improvements within Basin 5. The feasibility of this alternative with respect to hydraulic and/or regulatory permitting considerations will be confirmed during the final design phase.

Basin 6 (Ponds 105A and 105B) – It was originally anticipated that the proposed roadway widening and corresponding storm sewer design within this basin would be constructed as part of the I-4 BtU project. However, recent news releases by the FDOT indicate that the I-4 BtU project is under re-evaluation, with only 2 out of the 5 segments “tentatively” funded (those 2 segments falling outside the 10-year horizon). The recommended design approach for Basin 6 is to proceed with the pond configuration documented in FDEP Permit No. 0187636-003-EI for the I-4 Btu project. Basin 6 is identified as Basin BSN105B in FDEP Permit No. 0187636-003-EI which includes provisions to accommodate 1.92 acres of impervious area from the proposed 4-lane widening of CR 545 within Ponds 105B and 105A. Review of the aerial imagery of the interchange and the CADD files for the I-4 BtU project indicates that there should be sufficient room within the existing footprint of the interchange to construct the BtU pond configuration(s). As noted above, proposed conditions calculations were performed using 9.8 inches as the anticipated rainfall amount. Ponds 105B and Pond 105A are connected by an equalizer pipe. Ponds 105B and 105A are wet detention ponds with control structures. In the proposed condition, runoff will be collected in and conveyed by a closed storm sewer system to Pond 105B which discharges to an existing wetland and ultimately discharges to Davenport Creek Tributary through existing cross drain CD-16 as documented in FDEP Permit No. 0187636-003-EI.

A second alternative is to collect Basin 6 via closed storm sewer system and conveyed to the existing Ponds F-4-A and F-4-B within the existing I-4/SR429 interchange. Preliminary pond sizing calculations (based on information found in FPID Permit 0187636-001) show that Ponds F-4-A and F-4-B currently have enough volume available to provide treatment and attenuation for the Old Lake Wilson Road proposed improvements without modifications to the existing ponds. Although preliminary results indicate that this is a feasible option, it would require that the pond outfall be modified for this project, and again for the permitted (BtU) condition. To avoid the duplication of costs related to mobilization, dewatering, and construction related to the re-configuration of this outfall control structure, it is recommended that the BtU condition be constructed to avoid redundancy of design/construction efforts.

For both alternatives to provide treatment and attenuation for the proposed improvements within Basin 6, it is suggested that coordination with FDOT be initiated early in the design process. The feasibility of these alternatives with respect to hydraulic and/or regulatory permitting considerations will be assessed during the final design phase.

Basin 7 (Pond 8) – For the proposed calculations, the impervious basin area is increased to match the proposed Osceola County ultimate future condition 6-lane widening typical section as documented in Permit No. 49-01107-P-38 (Application 150331-13) as part of the Reunion West development. Basin 7 is identified as Basin D008 in the permit and includes provisions to accommodate 80% (6.56 acres) of impervious area from the proposed 6-lane widening of CR 545 within existing Pond 8. Existing Pond 8 is a dry retention pond with a control structure and is contiguous with the CR 545 right of way. Based on the permitted plans, Pond 8 appears to

meet current Osceola County standards. In the proposed condition, runoff will be collected in and conveyed by a closed storm sewer system to existing Pond 8. Existing Pond 8 discharges offsite over a weir to a spreader swale and recovers through infiltration.

Basin 8 (Pond 6) – For the proposed calculations, the impervious basin area is increased to match the proposed Osceola County ultimate future condition 6-lane widening typical section as documented in Permit No. 49-00954-P (Application No. 090515-5). This provision is maintained and documented in Permit No. 49-01107-P-38 (Application 150331-13) as part of the Reunion West development. Basin 8 is identified as Basins D001 in Permit No. 49-01107-P-38 (Application 150331-13) and includes provisions to accommodate 82% (6.09 acres) of impervious area from the proposed 6-lane widening of CR 545 within existing Pond 6. Existing Pond 6 is a dry retention pond with a control structure. In the proposed condition, runoff will be collected in and conveyed by a closed storm sewer system to existing Pond 6. Existing Pond 6 discharges offsite over a weir to Wetland N-WL-D002 to the northeast and recovers through infiltration. Based on permitted plans, Pond 6 appears to meet current Osceola County standards.

During the design phase, a survey will be needed to confirm that the existing ponds are consistent with their permitted conditions.

For more information including descriptions of each basin, pond site alternative, and floodplain compensation site and further explanations of design and limiting discharge criteria, please refer to the *Pond Siting Report*.

6.1.11 Floodplain Analysis

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 12097C0040G (dated June 18, 2013) identifies a Zone A floodplain at the Davenport Creek Tributary and a Zone AE floodplain at Davenport Creek. Davenport Creek is designated as a regulatory floodway at the crossing of Old Lake Wilson Road, with elevation 91 west of the bridge culvert and elevation 90 east of the bridge culvert.

The anticipated floodplain impacts due to the proposed roadway widening were estimated to determine potential impacts to the 100-year floodplains and necessary compensation volumes. The anticipated impacts are provided in **Table 6-6**. The impact volume from the proposed widening will need to be assessed during the design phase, when survey of the existing ground, geotechnical data for the seasonal high water table (SHWT), and proposed cross sections are available. Off-site floodplain compensation sites shall be evaluated to provide compensation for the floodplain impacts.

Table 6-6: Mainline Floodplain Encroachment Estimates

Floodplain Description	Approximate Location (STA)	Encroachment Limits	Approximate Encroachment Area (ac)
Davenport Creek	146+94	From STA 145+08.91 to STA 151+51.51	1.29
Davenport Creek Tributary	183+16	From STA 181+74.63 to STA 184+51.36	0.72

The proposed widening of Old Lake Wilson Road from two to four lanes will result in minor impacts to the adjacent FEMA floodplains. The estimated magnitude of fill is negligible with respect to the relative size of the floodplain area (both upstream and downstream); therefore, no adverse impacts are anticipated. However, the transverse floodplain impacts associated with the proposed culvert and bridge culvert extensions and replacements will need to be further analyzed during the design phase. The proposed bridge culvert widening over the regulatory floodway at Davenport Creek will require a FEMA No-Rise Certification be processed through Osceola County Floodplain Management. The proposed improvements will have a transverse encroachment on Davenport Creek and Davenport Creek Tributary. There are no known flooding issues within the project limits.

There is one (1) bridge culvert within the study limits. The proposed bridge culvert replacement over the FEMA regulatory floodway at Davenport Creek will require a FEMA No-Rise Certification be processed through Osceola County Floodplain Management. The construction of this project is considered only a transverse encroachment on Davenport Creek and on Davenport Creek Tributary. Refer to the Conceptual Bridge Hydraulics Assessment memorandum submitted under separate cover for additional information and design considerations.

As concluded in the *Location Hydraulics Report*, the following floodplain statement is made for this project:

“Modifications to existing drainage structures such as the extension of cross drains included in this project will result in an insignificant change in their capacity to carry floodwater. These modifications will cause minimal increases in flood heights and flood limits which will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. In addition, replacement drainage structures for this project will perform hydraulically in a manner equal to or greater than the existing structure, and backwater surface elevations are not expected to increase. Thus, there will be no significant adverse impacts on natural and beneficial floodplain values. There will be no significant change in flood risk, and there will not be a significant change in the potential for interruption or termination of emergency service or emergency evacuation routes due to the modification or replacement of existing structures. Therefore, it has been determined that this encroachment is not significant.”

For more information on floodplains and proposed methods of mitigation, please refer to the *Location Hydraulics Report* prepared for this study.

6.1.12 *Transportation Management Plan*

The Temporary Traffic Control Plan (TTCP) phasing is described below.

Phase I - Maintain traffic in the existing lanes. Construct temporary pavement to provide a detour approaching and departing the existing bridge over I-4.

Phase II – Maintain traffic using the existing pavement and temporary pavement constructed in the previous phase. Construct the northbound lanes, curb and gutter barriers, sidewalk, improvements to the northbound bridge and any related drainage structures.

Phase III – Maintain traffic on the newly constructed pavement. Construct the southbound lanes, curb and gutter barriers, sidewalk, MSE, gravity, CIP walls, traffic railings and any related drainage structures. Construct the proposed southbound bridge over I-4.

Phase IV – Maintain traffic on the newly constructed northbound and southbound lanes. Construct remaining median, turn lanes and traffic separators. Construct additional turn lanes proposed on the CR 532 and the Sinclair Road intersections with Old Lake Wilson Road.

6.1.13 *Design Variations and Design Exceptions*

The preferred alternative requires one design variation related to bike lane widths. The approved design variation is included in **Appendix D**. The Florida Design Manual calls for 7-foot buffered bike lanes for new construction projects and 5-foot bike lanes are proposed for this project. A design variation was prepared and approved by FDOT for this issue. The following justification was cited:

- In the past 10 years, there were no pedestrian or bicyclist crashes within the study limits.
- The existing segment of Old Lake Wilson Road beyond the northern terminus consists of 11-foot travel lanes and 4-foot bike lanes. There have been no pedestrian or bicyclist crashes within this segment as well. The proposed 5-foot bike lanes throughout the study limits provide wider and safer bicycle facilities.
- The proposed segment by others of Old Lake Wilson Road beyond the southern terminus consists of 11-foot travel lanes and 6-foot bike lanes. There have also been no pedestrian or bicyclist crashes within this segment.
- 5-foot bike lanes will provide a gradual transition from the proposed 6-foot bike lanes beyond the southern terminus and the existing 4-foot bike lanes beyond the northern terminus.
- The proposed posted speed is 45 mph, which is significantly lower than the existing posted speed of 55 mph. This creates a safer environment for bicyclists utilizing the bike lanes.
- Providing 7-foot buffered bike lanes per FDM would require at least a 4-foot wider typical section. Due to current topographical constraints, providing 7-foot bike lanes would significantly impact the cost and feasibility of the proposed roadway segment.

6.1.14 *Right of Way*

The preferred alternative is anticipated to impact approximately 18 parcels related to right-of-way required for intersection improvements and slope tie down areas outside of the existing right-of-way. This does not result in any residential or business relocations. The total right of way cost for the project is estimated at \$7,349,000.

6.1.15 *Special Features*

One noise barrier 14 feet high and 360 feet long was found to be feasible and cost reasonable. This wall is located on the west side of the proposed road adjacent to the Heritage Crossing development. The County is committed to further evaluating the noise wall during the design phase. Additional details are provided in Section 6.2.9.

6.1.16 *Cost Estimates*

Table 6-7 below includes a summary of the cost estimate for final design, wetland mitigation, construction engineering inspections and construction. The costs were based on FDOT’s Long-Range Estimate (LRE) cost estimate system. The LRE is provided in **Appendix E**.

Table 6-7: Cost Estimate

Item	Cost
Final Design	\$9,709,000
Wetland Mitigation	\$74,000
Construction Engineering Inspection	\$9,709,000
Right-of-way	\$7,349,000
Construction Costs	\$97,087,000
Total	\$123,928,000

6.2 Summary of Environmental Impacts of the Preferred Alternative

This section summarizes the potential environmental impact of the Preferred Alternative.

6.2.1 *Future Land Use*

The future land uses were identified using Osceola County’s 2040 Future Land Use data. As shown in **Figure 2-3**, the majority of future land uses in the study area are designated tourist commercial; additionally, there are also areas designated as conservation lands located north of the Reunion Blvd. / Gathering Drive overpass and in the vicinity of Assembly Court. Future land uses north of the I-4 / SR 429 interchange also contain a mixture of tourist/commercial and conservation. It was determined that the four-lane widening of Old Lake Wilson Road will not impact these planned future land uses and is needed to support the densities and intensities of the planned future land uses.

6.2.2 Section 4(f)

The Geographic Information System (GIS) analysis did not identify any resources that may be protected under Section 4(f) of the Department of Transportation Act of 1966 located along the corridor. The project is expected to result in no involvement with Section 4(f) properties.

6.2.3 Cultural Resources

A Cultural Resource Assessment Survey (CRAS) was conducted to locate, identify, and bound any archaeological resources, historic structures, and potential districts within the project's area of potential effects (APE) and assess their potential for listing in the National Register of Historic Places (NRHP). This study was conducted to comply with Chapter 267 of the Florida Statutes and Rule Chapter 1A-46, Florida Administrative Code.

The APE was defined to include the existing and proposed Old Lake Wilson Road right-of-way and extended to the back or side property lines of adjacent parcels, or a distance of no more than 330 feet from the maximum right-of-way line. For the I-4 interchange ponds, the APE was defined as the existing pond footprints and a buffer based on the project plans. The proposed and existing right-of-way comprises the archaeological APE because ground disturbance for the project will be limited to that area. The archaeological APE associated with each pond was defined as the specific footprint of the pond in addition to a 30.5-foot buffer because that is where ground disturbance will take place. The historic structure survey was conducted within the larger APE that accounts for potential visual effects.

The archaeological survey consisted of shovel testing and pedestrian survey within the archaeological APE. No artifacts were recovered, and no archaeological sites or occurrences were identified within the APE. Three previously recorded archaeological sites (8OS00100, 8OS00594, and 8OS01867) have been documented within the archaeological APE; however, modern development has removed any trace of these resources. No further archaeological survey is recommended in support of the proposed Old Lake Wilson Road improvements.

The architectural survey resulted in the identification and evaluation of three historic resources within the Old Lake Wilson Road APE, including two previously recorded resources and one newly recorded resource. The previously recorded historic resources include one resource group (8PO08219) and one structure (8PO08220). The newly recorded historic resource is a bridge (8OS03232). None of the previously recorded resources were recommended eligible for the NRHP by the State Historic Preservation Officer (SHPO) and all three resources are ineligible for the NRHP, due to a lack of significant historic associations and architectural and/or engineering distinction. No further work is recommended.

Based on the results of the CRAS, the proposed undertaking will have no effect on NRHP-listed or NRHP-eligible historic properties. No further work is recommended. The letter with the SHPO concurrence with these findings dated July 28, 2022, is included in **Appendix F**.

6.2.4 Wetlands

Wetlands and other surface waters (OSW) with potential to be affected by the proposed project were identified within the Old Lake Wilson Road study area and are identified in **Figure 6-3**. An assessment was performed for wetlands and OSW in accordance with the Uniform Mitigation

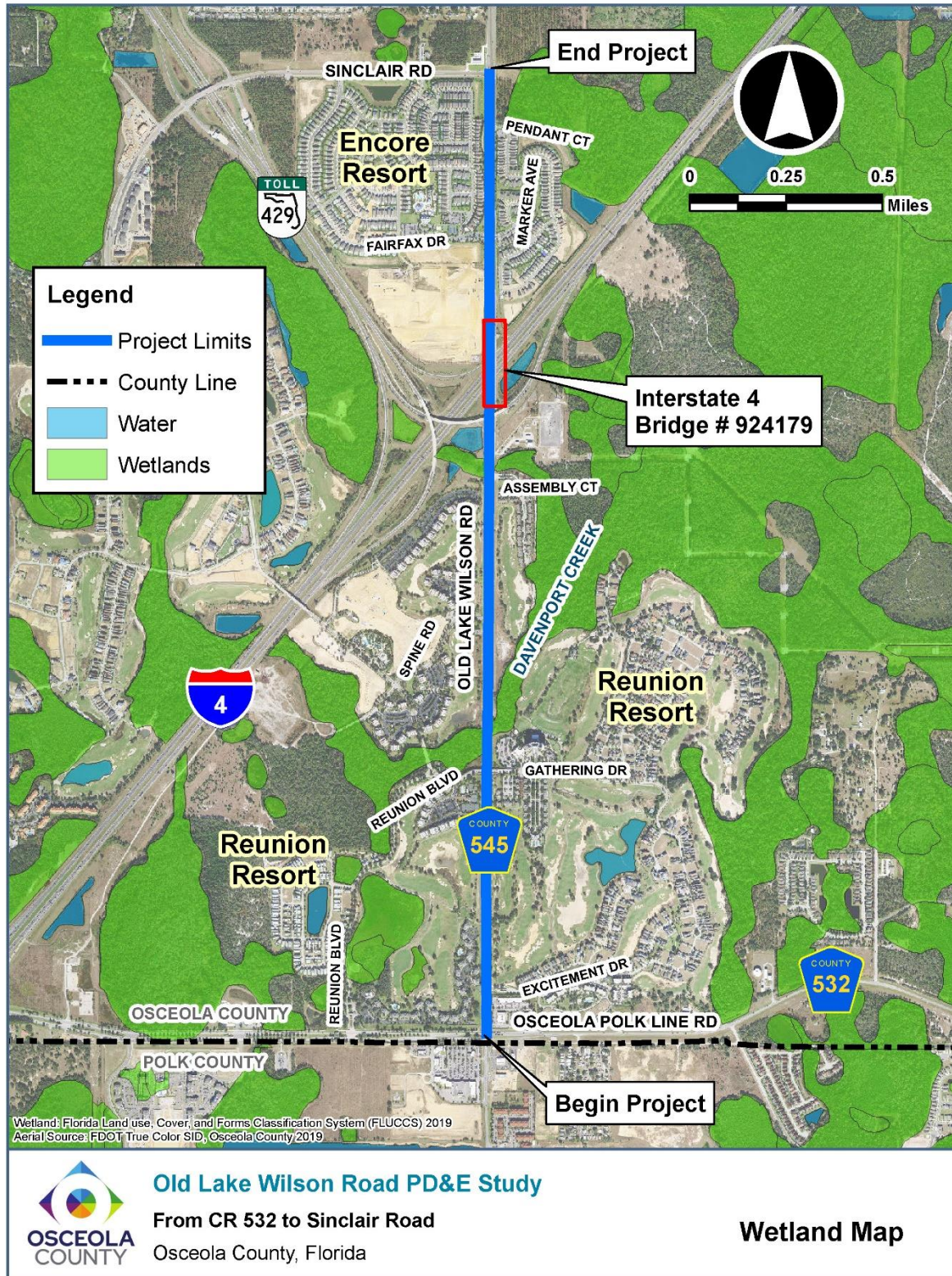
Assessment Method (UMAM) pursuant to Chapter 62-345, F.A.C., to determine the functional value provided by the wetlands and OSW and the amount of mitigation required to offset adverse impacts. OSW classified as permitted reservoirs were not included in the assessment as mitigation will not be required for impacts to these OSW. The Preferred Alternative will directly impact approximately 0.49 acres of wetlands and 0.05 acres of OSW. Secondary impacts to adjacent wetlands are approximately 0.04 acres. The total project impacts result in a functional loss of 0.302 units for state and federal jurisdictional wetlands. No cumulative impacts to wetlands or other surface waters are anticipated.

Mitigation for unavoidable adverse wetland impacts will be provided through the purchase of credits from a private mitigation bank to satisfy all mitigation requirements of Part IV, Chapter 373 F.S., and U.S.C. 1344. Compensatory mitigation for this project will be completed through the use of mitigation banks and any other mitigation options that satisfy state and federal requirements. The study area is located within the Reedy Creek Regulatory Basin. Currently, multiple mitigation banks within the impacted watershed, including Reedy Creek, Southport Ranch, Florida, and Bullfrog Bay mitigation banks, have available credits to provide the appropriate mitigation.

6.2.5 Water Quality

A Water Quality Impact Evaluation Checklist was performed for the project length. It was determined that the project discharges to various surface waters and groundwaters untreated. Closed conveyance systems thus need to be constructed to convey the runoff to stormwater management facilities. The project is within the SFWMD. Environmental resource permitting will be required. Treatment will be required for all new impervious surfaces. The Davenport Creek, WBID No. 3170K, has been verified impaired.

Figure 6-3: Wetlands



6.2.6 Protected Species and Habitat

The Preferred Alternative is located within the following United States Fish and Wildlife Service (USFWS) Consultation Areas (CA): Audubon’s crested caracara (*Polyborus plancus audubonii*), Everglade snail kite (*Rostrhamus sociabilis plumbeus*), Florida scrub-jay (*Aphelocoma coerulescens*), red-cockaded woodpecker (*Dryobates borealis*), sand skink (*Neoseps reynoldsi*) and blue-tailed mole skink (*Eumeces egregius lividus*), and Lake Wales Ridge plants. The Preferred Alternative falls within the Core Foraging Areas (CFA) for two wood stork colonies. The existing habitats in the study area may also support other federally protected species, as well as state protected species. Based on the results of the general wildlife and species-specific surveys, data collection, and USFWS’ effect determination key, the Preferred Alternative will not jeopardize the continued existence of a protected species and/or result in the destruction or adverse modification of critical habitat. However, additional coordination with wildlife agencies will be required during the design and permitting phase, and additional wildlife surveys may be required prior to construction. **Table 6-8** identifies the protected species that were evaluated in this document, their regulatory status, and the effect determination under the Preferred Alternative.

Table 6-8: Effect Determinations for Protected Species

Common Name	Scientific Name	Status	Effect Determination	Potential Occurrence
Reptiles				
American alligator	<i>Alligator mississippiensis</i>	FT (S/A)	NO EFFECT	MODERATE
Blue-tailed mole skink	<i>Plestiodon egregius</i>	FE	NO EFFECT	LOW
Eastern indigo snake	<i>Drymarchon couperi</i>	FT	MANLAA	MODERATE
Gopher tortoise	<i>Gopherus polyphemus</i>	C / ST	MANLAA	MODERATE
Sand skink	<i>Neoseps reynoldsi</i>	FT	NO EFFECT	LOW
Birds				
Audubon’s crested caracara	<i>Polyborus plancus audubonii</i>	FT	NO EFFECT	LOW
Southern bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA / MBTA	--	MODERATE
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	FE	NO EFFECT	LOW
Florida burrowing owl	<i>Athene cunicularia floridana</i>	ST	NAEA	MODERATE
Florida sandhill crane	<i>Antigone canadensis pratensis</i>	ST	NAEA	MODERATE
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	FT	NO EFFECT	LOW

SECTION 6 – PREFERRED ALTERNATIVE

Common Name	Scientific Name	Status	Effect Determination	Potential Occurrence
Little blue heron	<i>Egretta caerulea</i>	ST	NAEA	MODERATE
Red-cockaded woodpecker	<i>Dryobates borealis</i>	FE	NO EFFECT	LOW
Roseate spoonbill	<i>Platalea ajaja</i>	ST	NO EFFECT	LOW
Southeastern American kestrel	<i>Falco sparverius Paulus</i>	ST	NAEA	LOW
Tricolored heron	<i>Egretta tricolor</i>	ST	NAEA	MODERATE
Wood stork	<i>Mycteria americana</i>	FT	MANLAA	MODERATE
Mammals				
Florida black bear	<i>Ursus americanus floridanus</i>	M	--	LOW
Southern fox squirrel	<i>Sciurus niger niger</i>	M	--	LOW
Plants				
Pine-woods Bluestem	<i>Andropogon arctatus</i>	ST	NEA	LOW
Ashe's Savory	<i>Calamintha ashei</i>	ST	NEA	LOW
Avon Park Rabbit-bells	<i>Crotalaria avonensis*</i>	FE	NO EFFECT	LOW
Britton's beargrass	<i>Nolina brittonia</i>	FE	NO EFFECT	LOW
Carter's warea	<i>Warea carteri</i>	FE	NO EFFECT	LOW
Celestial Lily	<i>Nemastylis floridana</i>	SE	NEA	LOW
Chapman's sedge	<i>Carex chapmanii</i>	ST	NEA	LOW
Clasping warea	<i>Warea amplexifolia*</i>	FE	NO EFFECT	LOW
Cutthroat grass	<i>Panicum abscissum</i>	SE	NEA	LOW
Florida beargrass	<i>Nolina atopocarpa</i>	ST	NEA	LOW
Florida Bonamia	<i>Bonamia grandiflora*</i>	FT/SE	NO EFFECT	LOW
Florida jointweed	<i>Polygonella basiramia*</i>	FE	NO EFFECT	LOW
Florida spiny-pod	<i>Matelea floridana</i>	SE	NEA	LOW
Florida willow	<i>Salix floridana</i>	SE	NEA	LOW
Garrett's Scrub Balm	<i>Dicerandra christmanii*</i>	FE	NO EFFECT	LOW
Giant orchid	<i>Pteroglossaspis ecristata</i>	ST	NEA	LOW
Hartwrightia	<i>Hartwrightia floridana</i>	SE	NEA	LOW
Highlands Scrub Hypericum	<i>Hypericum cumulicola*</i>	FE	NO EFFECT	LOW
Lewton's polygala	<i>Polygala lewtonii*</i>	FE	NO EFFECT	LOW

SECTION 6 – PREFERRED ALTERNATIVE

Common Name	Scientific Name	Status	Effect Determination	Potential Occurrence
Many-flowered Grass-pink	<i>Calopogon multiflorus</i>	ST	NEA	LOW
Nodding Pinweed	<i>Lechea cernua</i>	ST	NEA	LOW
Paper-like Nailwort	<i>Paronychia chartacea</i> <i>ssp.*</i>	FT/SE	NO EFFECT	LOW
Piedmont jointgrass	<i>Coelorachis tuberculosa</i>	ST	NEA	LOW
Pine Pinweed	<i>Lechea divaricate</i>	SE	NEA	LOW
Pinescrub bluestem	<i>Schizachyrium niveum</i>	SE	NEA	LOW
Pine-woods Bluestem	<i>Andropogon arctatus</i>	ST	NEA	LOW
Plume polybody	<i>Polypodium plumula</i>	SE	NEA	LOW
Pygmy fringe tree	<i>Chionanthus pygmaeus*</i>	FE	NO EFFECT	LOW
Sand butterfly pea	<i>Centrosema arenicola</i>	ST	NEA	LOW
Scrub blazing star	<i>Liatris ohlingerae*</i>	FE	NO EFFECT	LOW
Scrub buckwheat	<i>Eriogonum longifolium</i> <i>var. gnaphalifolium*</i>	FT/SE	NO EFFECT	LOW
Scrub lupine	<i>Lupinus aridorum*</i>	FE	NO EFFECT	LOW
Scrub Mint	<i>Dicerandra frutescens*</i>	FE	NO EFFECT	LOW
Scrub pigeon-wing	<i>Clitoria fragans*</i>	FT/SE	NO EFFECT	LOW
Scrub plum	<i>Prunus geniculata*</i>	FE	NO EFFECT	LOW
Short-leaved Rosemary	<i>Conradina brevifolia*</i>	FE	NO EFFECT	LOW
Small's jointweed	<i>Polygonella myriophylla*</i>	FE	NO EFFECT	LOW
Star anise	<i>Illicium parviflorum</i>	SE	NEA	LOW
Swamp plume polybody	<i>Polypodium ptilodon</i>	SE	NEA	LOW

MANLAA = May Affect, Not Likely to Adversely Affect

NEA = No Effect Anticipated

NAEA = No Adverse Effect Anticipated

* Indicates Lake Wales Ridge plants

6.2.7 Essential Fish Habitat

There is no Essential Fish Habitat associated with this project.

6.2.8 Farmlands of Unique Importance

The Agriculture and Food Act of 1981, (Public Law 97-98) containing the Farmland Protection Policy Act (FPPA)—Subtitle I of Title XV, Section 1539-1549, is intended to minimize the impact

federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency.

The FDOT PD&E Manual Chapter 6.2.1 specifies that projects within urbanized areas are exempt from farmland coordination with NRCS. Due to preferred alternative project limits of Old Lake Wilson Road being almost entirely within the existing right of way and being mostly urban, the small land that is impacted meets one or more of the criteria for exemption since the location is in non-prime farm ground according to the Code of Federal Regulation 7CFR 658, Farmland Protection Policy Act, Section 658-2.

Correspondence with the Natural Resources Conservation Service (NRCS) is in **Appendix F**.

6.2.9 Highway Traffic Noise

A Noise Study Report (NSR) (July 2022) was prepared in accordance with FDOT procedures that comply with Title 23 CFR, Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise to evaluate the potential impacts of traffic noise on the surrounding community. The evaluation uses methodologies established by the FDOT and documented in the PD&E Manual. The prediction of traffic noise levels with and without the roadway improvements was performed using the FHWA's Traffic Noise Model (TNM Version 2.5). This project is defined as a Type I project.

The NSR documents the traffic noise impact analysis conducted for 470 noise sensitive sites (receptors) for the 2020 existing condition and the 2050 No-Build and Build Alternatives. The analysis results indicate that fifteen receptors are currently experiencing exterior noise levels that meet or exceed the FDOT Noise Abatement Criterion (NAC). The highest noise level is 68.5 dB(A) in Heritage Crossing. With the No-Build Alternative, 22 receptors are predicted to meet or exceed the NAC, with the highest noise level being 69.5 dB(A) in Heritage Crossing. Project noise levels with the Build Alternative are predicted to meet or exceed the NAC at 28 receptors, with the highest noise level being 70.2 dB(A) in Heritage Crossing. When compared to the existing condition, the proposed project increases exterior noise levels throughout the corridor by an average of 2.0 dB(A). While none of the noise increases are considered substantial (i.e., 15 dB(A) or more over existing levels), the project exceeds the NAC and requires abatement consideration of the impacts.

To mitigate these impacts, noise barriers were considered as an abatement measure. For a noise barrier to be considered acoustically feasible, at least two impacted receptor sites must achieve at least a 5.0 dB(A) reduction in traffic noise. Consequently, noise barriers were not evaluated for the four isolated/single impacted receptors.

Of the two analyzed noise barriers, one barrier (NB1) is not cost-reasonable. Based on the noise analyses performed to date, no reasonable solutions are available to mitigate the noise impacts on the two Seven Eagles townhomes.

However, further evaluation of Barrier SB1 summarized in **Table 6-9** is recommended. This barrier provides an average noise reduction of 6.4 dB(A) to 15 of the 21 impacted receptors.

SECTION 6 – PREFERRED ALTERNATIVE

This barrier meets FDOT's required 7.0 dB(A) noise reduction design goal (NRDG) for at least one benefited receptor and the \$42,000 per benefited receptor cost-reasonableness criterion.

A land use review will be performed during the future project design phase to identify all noise sensitive sites that may have received a building permit subsequent to the noise study but prior to the project's Date of Public Knowledge. The date that the Type 2 Categorical Exclusion is approved by FDOT will be the Date of Public Knowledge. If the review identifies noise sensitive sites that have been permitted prior to the Date of Public Knowledge, then those sensitive sites will be evaluated for traffic noise impacts and abatement considerations during the design phase.

Osceola County is committed to the construction of feasible and reasonable noise abatement measures identified in **Table 6-9**, contingent upon the following conditions:

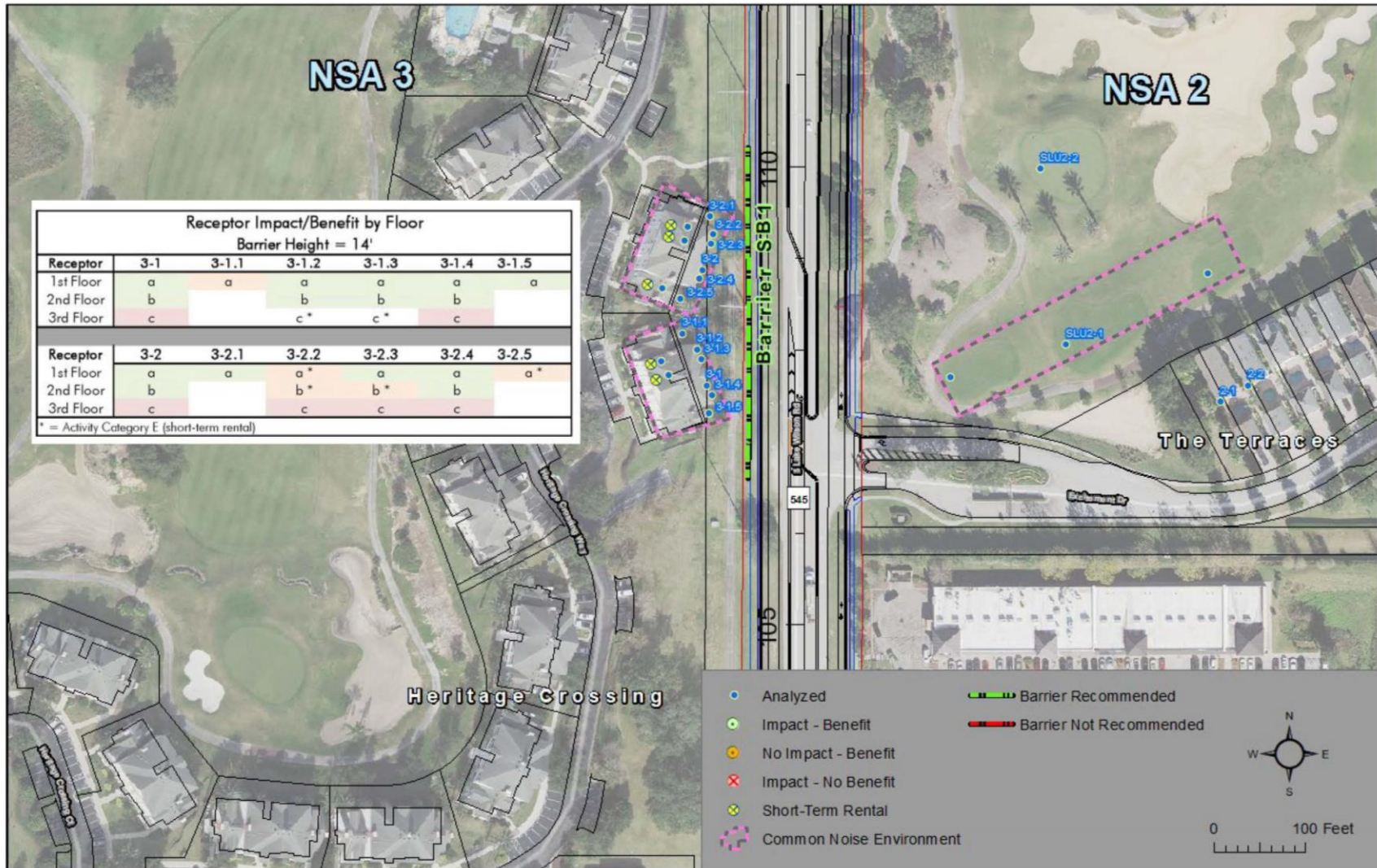
- h) The most recent version of the USFWS Standard Protection Measures for the Eastern Indigo Snake will be utilized during construction.
- i) Osceola County is committed to the construction of feasible and reasonable noise abatement measures identified for SB 1 at Heritage Crossing (NSA 3) contingent upon the following conditions:
 - j) Final recommendations on the construction of abatement measures are determined during the project's final design and through the public involvement process;
 - k) Detailed noise analyses during the final design process support the need, feasibility, and reasonableness of providing abatement;
 - l) Cost analysis indicates that the cost of the noise barrier(s) will not exceed the cost reasonable criterion;
 - m) Community input supporting types, heights, and locations of the noise barrier(s) is provided to the FDOT District Office; and Safety and engineering aspects related to the roadway user and the adjacent property owner have been reviewed, and any conflicts or issues resolved.
 - n) During the design phase, the design team will coordinate with Osceola County Fire Rescue regarding alternative access to the Heritage Crossing development off of Old Lake Wilson Road.
 - o) The proposed bridge culvert widening over the regulatory floodway at Davenport Creek will require a FEMA No-Rise Certification be processed through Osceola County Floodplain Management.

During the construction phase of the proposed project, short-term noise may be generated by construction equipment and activities. The construction noise will be temporary at any location and will be controlled by adherence to provisions documented in the most recent edition of the FDOT Standard Specifications for Road and Bridge Construction.

Table 6-9: Potentially Reasonable and Feasible Noise Barrier Summary

Noise Study Area	Impacted Development	Barrier ID	Barrier Height (ft)	Barrier Length (ft)	Impacted / Benefitted Receptors	Impacted / Not-Benefitted Receptors	Average Noise Reduction (db(A))	Barrier Offset	Estimated Barrier Cost ¹	Cost per Benefitted Receptor ²
NSA 3	Heritage Crossing	SB 1	14	360	15	6	6.4	Behind SB Sidewalk	\$151,200	\$9,450

Figure 6-4: Noise Barrier Location



6.2.10 Contamination

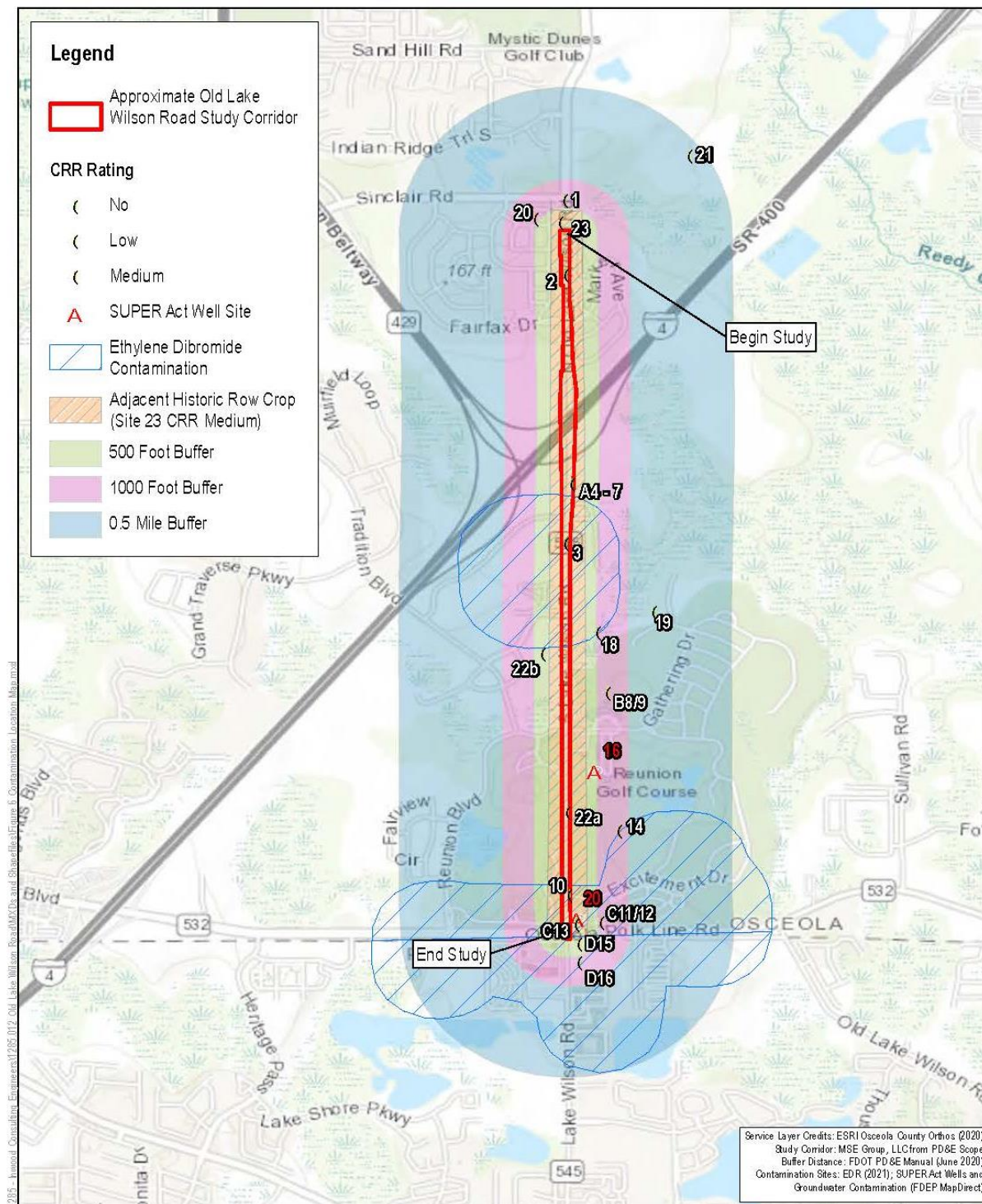
A Contamination Screening Evaluation Report (CSER) was conducted to identify potential contamination sites within the project limits, including the preferred pond sites. For each potential contamination site identified, a Contamination Risk Potential Rating (CRPR) of No, Low, Medium, or High was assigned. Seventeen locations or areas within the study area were assigned a CRPR of which eight were designated as no risk, two were designated as low risk; seven were designated as medium risk and there were no sites designated as high risk. The potential contamination sites are shown in Figure 6-5.

Sites receiving a CRPR of Medium are as follows:

- **Site C11/C12**-Facility ID 110037313485, 9810601 – 7-Eleven Food Store #34045 – 7585 Osceola-Polk County Line Road
- **Sites 14 and 18**- Ethylene dibromide (EDB) – impacted groundwater zones - Historic row crops – East and west of study corridor
- **Site D15**-Facility ID 9816099 – WAWA Food Market #5299 – 8103 Lake Wilson Road
- **Site 20**-Facility ID 9203007 – Heller Brothers Packing Corporation (Site 20) and Historic Agriculture Lands (Site 23/Study Corridor) – Potential agrochemicals in soil and groundwater – Historical aerial review indicated the study corridor consisted of row crops (i.e., citrus groves) from 1944 through 1995 (including Site 20). Based on the potential for contaminants to exist within the soil and groundwater, it is recommended that the contractor create a Soil and Groundwater Management Plan for limiting worker exposure to shallow soils. If dewatering is necessary, a permit will be required, and effluent may need to be tested.
- **Sites 22A/22B**-Reunion Golf Course – adjacent to the ROW
- **Site 23**-Former agricultural land use along site corridor

In accordance with the PD&E Manual, and based on proximity to the proposed roadway improvements, a Level 2 assessment, also known as an Impact to Construction Assessment (ICA), will be conducted at the Medium-risk sites.

Figure 6-5: Potential Contamination Sites



APPENDIX A – ICE Memorandum

INTERSECTION CONTROL EVALUATION MEMORANDUM

Old Lake Wilson Road from Osceola Polk Line Road (C.R. 532) to Sinclair Road Project Development and Environment (PD&E) Study

FPID: 448781-1

Osceola County, Florida

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INTRODUCTION

This Intersection Control Evaluation (ICE) Memorandum has been prepared as part of the Old Lake Wilson Road Project Development and Environment (PD&E) Study. The Study is considering a two to four-lane widening along Old Lake Wilson Road from Osceola Polk Line Road (CR 532) to Sinclair Road, a distance of approximately 2.5 miles. The study corridor, which is maintained by Osceola County, operates as an urban minor arterial within the study corridor limits.

ICE OVERVIEW

ICE is a strategy used by FDOT to consider multiple context-sensitive intersection control strategies when planning a new or modified intersection. The goal of ICE is to provide a robust decision-making process to identify and select a control strategy that fits the location’s context classification, provides safe travel facilities for all road users, and offers the best overall value.¹

The ICE Procedure is typically performed in two stages. In Stage 1, a planning level operational and safety analysis is conducted using the Capacity Analysis for Planning of Junctions (CAP-X) tool to determine which intersection control types are most suitable to the specific intersection location based on volume-to-capacity (v/c) ratio. A safety analysis is also performed utilizing the Safety Performance for Intersection Control Evaluation (SPICE) tool to predict crashes for the life cycle of the project for each alternative.

The selected control types from Stage 1 are then analyzed in more detail in Stage 2. The detailed operational results from Synchro (for unsignalized/signalized alternatives) or SIDRA (for roundabouts) and the safety results from a refined SPICE analysis will be compared against cost estimates for each control type using the FDOT ICE Tool. The ICE Tool calculates the total life cycle cost of each control type and the most appropriate intersection type can be determined for each intersection location based on quantitative and/or qualitative measures.

STUDY INTERSECTIONS

The following intersections, with the future no-build traffic control noted, were included for analysis in the Old Lake Wilson Road PD&E Study Project Traffic Analysis Report (PTAR):

- Old Lake Wilson Road & Osceola Polk Line Road (C.R. 532) – Signal
- Old Lake Wilson Road & Shoppes at Reunion – Unsignalized right-in/right-out driveway
- Old Lake Wilson Road & Excitement Drive – Unsignalized two-way stop control (TWSC)
- Old Lake Wilson Road & Spine Road – Unsignalized TWSC
- Old Lake Wilson Road & Assembly Court – Unsignalized TWSC
- Old Lake Wilson Road & Fairfax Drive/Marker Avenue – Signal

¹ FDOT Manual on Intersection Control Evaluation (January 2022)

- Old Lake Wilson Road & Sinclair Road – Signal

Figure 1 illustrates the study corridor and the study intersections.

ICE INTERSECTIONS

ICE was performed at the following four intersections due to future no-build operational issues as discussed in the Old Lake Wilson Road PD&E Study PTAR:

- Old Lake Wilson Road & Excitement Drive;
- Old Lake Wilson Road & Spine Road;
- Old Lake Wilson Road & Assembly Court; and
- Old Lake Wilson Road & Fairfax Drive/Marker Avenue.

OTHER INTERSECTION IMPROVEMENTS

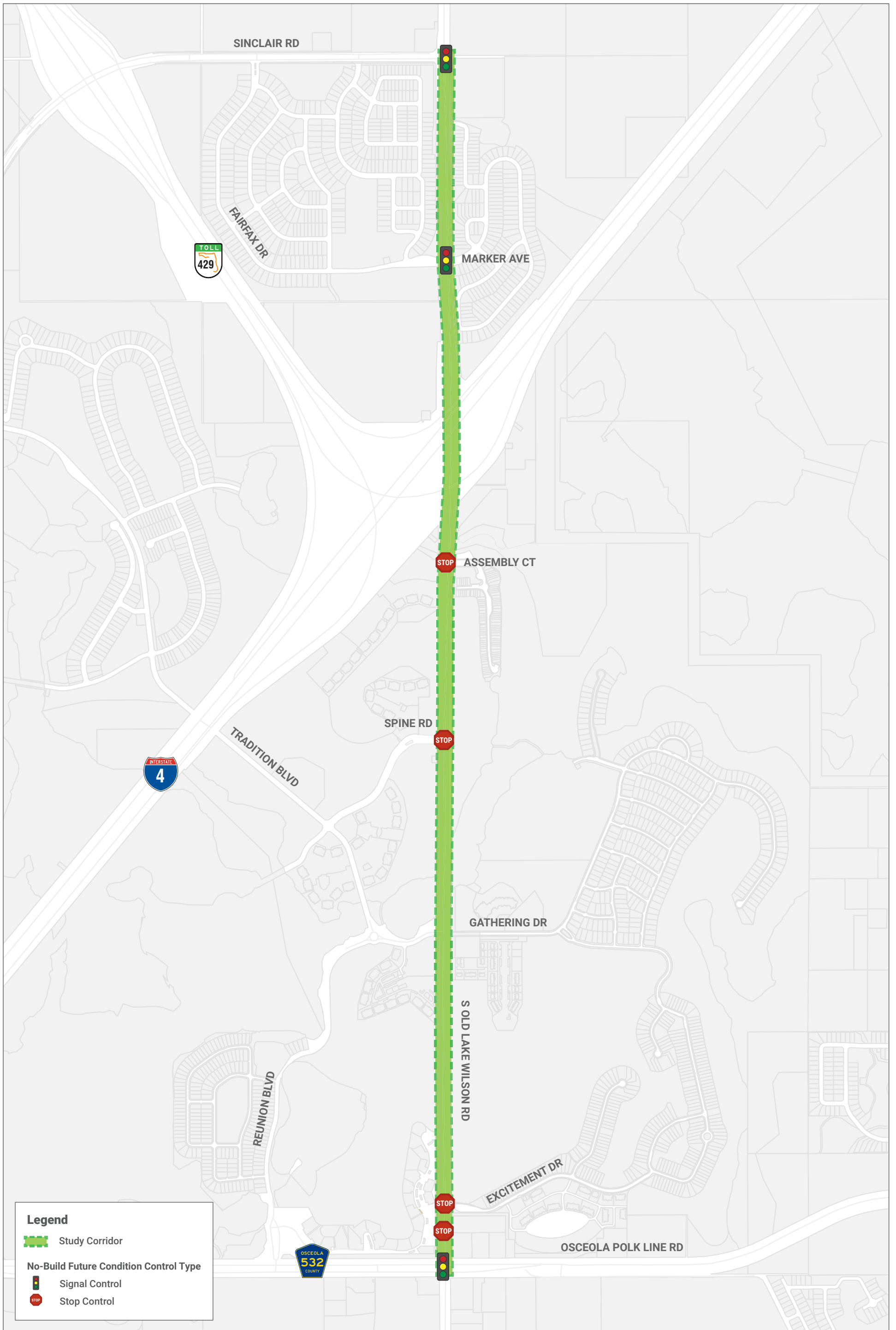
As documented in the Old Lake Wilson Road PD&E Study PTAR, turn lane improvements were identified at the intersections of Old Lake Wilson Road & Osceola Polk Line Road (C.R. 532) and Old Lake Wilson Road & Sinclair Road to address future no-build operational issues. These turn lane improvements included the following:

- Old Lake Wilson Road & Osceola Polk Line Road (C.R. 532) –
 - Add an exclusive northbound right turn lane.
 - Add a second westbound right turn lane.
- Old Lake Wilson Road & Sinclair Road –
 - Add a second northbound left turn lane.
 - Add an exclusive eastbound left turn lane and convert the existing eastbound left turn lane into a shared left-through lane.
 - Convert the existing eastbound shared through-right lane to an exclusive right turn lane and add a second eastbound right turn lane.

At Sinclair Road, the turn lane improvements are anticipated to improve the operating conditions to an acceptable level. The intersection at Osceola Polk Line Road (C.R. 532) is anticipated to experience acceptable operations during the 2050 AM peak period but four overcapacity movements are anticipated in the build 2050 PM peak period. While four movements are overcapacity in the 2050 PM peak period, none of the movements operate with a v/c ratio worse than 1.05. Improvements that could fully address this overcapacity condition were deemed to be out of the scope of this study by Osceola County. Once the build intersection improvements are constructed, the intersection should be monitored for additional improvements as necessary.

At the intersection of Old Lake Wilson Road & Shoppes at Reunion, the no-build configuration of an unsignalized right-in/right-out driveway was carried forward as the build condition.

Based on the future build operations at these locations and the improvements proposed, ICE was not performed at these three intersection locations.



SIGNAL WARRANT ANALYSIS

As discussed in the Old Lake Wilson Road PD&E Study PTAR, the following intersections were candidates for future signalization thus a preliminary signal warrant analysis using 2050 volumes was performed:

- Old Lake Wilson Road & Excitement Drive;
- Old Lake Wilson Road & Spine Road; and
- Old Lake Wilson Road & Assembly Court.

The results of the signal warrant analysis showed that only Old Lake Wilson Road & Spine Road would meet signal warrants. Therefore, a signal alternative was not considered in the Stage 1 analysis at Excitement Drive or Assembly Court. The signal warrant analysis results are presented in the Old Lake Wilson Road PD&E Study PTAR.

STAGE 1 ICE

Stage 1 ICE involved a planning level v/c ratio assessment and a planning level safety assessment. The Stage 1 ICE was conducted using the 2030 and 2050 future build volumes identified in the Old Lake Wilson Road PD&E Study PTAR.

CAP-X ANALYSIS

The CAP-X spreadsheet was developed by the Federal Highway Administration (FHWA) and customized by FDOT for use in ICE. The spreadsheet calculates a v/c ratio for each intersection control type selected to evaluate. The following intersection control types were analyzed as part of the Stage 1 ICE:

- TWSC – Maintained as the future no-build condition for Excitement Drive, Spine Road, and Assembly Court.
- Signalized Control – Utilized as the future no-build condition for Fairfax Drive/Marker Avenue. Also assessed at Spine Road.
- Roundabout – Assessed at each of the four ICE study intersections (Excitement Drive, Spine Road, Assembly Court, and Fairfax Drive/Marker Avenue).

Table 1 provides the Stage 1 CAP-X results for these intersection alternatives. Several conclusions were identified from the CAP-X results:

- TWSC – The TWSC alternative v/c ratios are anticipated to be greater than 1.0 at Excitement Drive, Spine Road, and Assembly Court.
- Signalized Control – The signal alternative v/c ratios are anticipated to be lower than 1.0 at Spine Road and Fairfax Drive/Marker Avenue.
- Roundabout – The roundabout alternative v/c ratios are anticipated to be lower than 1.0 at Excitement Drive, Assembly Court, and Fairfax Drive/Marker Avenue.

The detailed results are presented in **Appendix A**.

Table 1: Stage 1 CAP-X Results

Intersection	Control Strategy	Weekday AM v/c Ratio	Weekday PM v/c Ratio
Old Lake Wilson Road & Excitement Drive	TWSC	6.96	5.46
	2x1 Roundabout	0.75	0.76
Old Lake Wilson Road & Spine Road	TWSC	>10.00	>10.00
	Signalized Control	0.74	0.87
	2x1 Roundabout	1.01	1.31
	2x2 Roundabout	1.01	1.11
Old Lake Wilson Road & Assembly Court	TWSC	1.41	1.05
	2x1 Roundabout	0.82	0.82
Old Lake Wilson Road & Fairfax Drive/Marker Avenue	Signalized Control	0.66	0.65
	2x1 Roundabout	0.85	0.86
	2x2 Roundabout	0.85	0.86

STAGE 1 SPICE ANALYSIS

The SPICE tool is an FDOT safety performance screening tool for conventional and alternative intersection control types. The SPICE tool calculates an opening and design year crash prediction for each intersection control type selected in Stage 1 and can be used to compare the safety performance of various control types. **Table 2** provides the Stage 1 SPICE results for the selected control types. Detailed Stage 1 SPICE results are presented in **Appendix B**. Several conclusions were identified from the SPICE results:

- TWSC – The TWSC alternative is anticipated to have the lowest number of total and fatal/injury crashes at Excitement Drive, Spine Road, and Assembly Court. It should be noted that since historical crashes were not accounted for in Stage 1, the SPICE results may not fully predict the full number of crashes for this control type.
- Signalized Control – The signal alternative is anticipated to have fewer total crashes but more fatal/injury crashes than the roundabout at Spine Road and Fairfax Drive/Marker Avenue.
- Roundabout – The roundabout alternative is anticipated to have more total crashes but less fatal/injury crashes than the signal at Spine Road and Fairfax Drive/Marker Avenue.

Table 2: Stage 1 SPICE Results

Intersection	Control Strategy	Crash Type	2030 Crash Frequency	2050 Crash Frequency	Total Predicted Project Life Cycle Crashes
Old Lake Wilson Road & Excitement Drive	TWSC	Total	1.92	2.62	47.60
		Fatal & Injury	0.70	0.95	17.39
	2 Lane Roundabout	Total	8.62	11.73	213.52
		Fatal & Injury	1.59	2.29	40.67
Old Lake Wilson Road & Spine Road	TWSC	Total	6.89	9.14	168.22
		Fatal & Injury	2.05	2.69	49.69
	Signalized Control	10.71	10.71	14.37	263.21
		3.47	3.47	4.55	84.17
	2 Lane Roundabout	Total	11.83	14.74	278.86
		Fatal & Injury	2.31	3.00	55.75
Old Lake Wilson Road & Assembly Court	TWSC	Total	1.16	1.51	28.06
		Fatal & Injury	0.49	0.63	11.78
	2 Lane Roundabout	Total	8.15	10.72	197.98
		Fatal & Injury	1.49	2.06	37.18
Old Lake Wilson Road & Fairfax Drive/Marker Avenue	Signalized Control	Total	6.64	8.83	162.38
		Fatal & Injury	2.33	3.18	57.78
	2 Lane Roundabout	Total	11.04	14.87	271.86
		Fatal & Injury	1.98	2.75	49.63

STAGE 1 CONCLUSIONS

The control types moving into Stage 2 at each intersection are discussed below:

- Old Lake Wilson Road & Excitement Drive:
 - TWSC: This control type will move into Stage 2 as the future no-build condition as a comparison for the roundabout alternative.
 - Roundabout: This control type had acceptable v/c ratios and safety results and will move into Stage 2 for further analysis.
- Old Lake Wilson Road & Spine Road:
 - TWSC: This control type had v/c ratios greater than 1.0 in the CAP-X analysis. It will not move into Stage 2.

- Roundabout: This control type had v/c ratios greater than 1.0 in the CAP-X analysis. It will not move into Stage 2.
- Signalized Control: This control type had acceptable v/c ratios and safety results. Because the signal control was the only alternative with v/c ratios under 1.0, it has been selected as the preferred alternative in Stage 1, thus Stage 2 will not be performed at this intersection.
- Old Lake Wilson Road & Assembly Court:
 - TWSC: This control type will move into Stage 2 as the future no-build condition as a comparison for the roundabout alternative.
 - Roundabout: This control type had acceptable v/c ratios and safety results and will move into Stage 2 for further analysis.
- Old Lake Wilson Road & Fairfax Drive/Marker Avenue:
 - Signalized Control: This control type had acceptable v/c ratios and safety results and will move into Stage 2 for further analysis. The signal control is also the future no-build condition at this intersection.
 - Roundabout: This control type had acceptable v/c ratios and safety results and will move into Stage 2 for further analysis.

STAGE 2 ICE

Stage 2 ICE involves three analysis components: 1) A detailed operational assessment; 2) A refined safety assessment; and 3) Concept generation and planning level cost estimates. These assessments are more detailed than the Stage 1 analysis to provide enough information to calculate a total life cycle cost for the control types relative to the future no-build condition. The Stage 2 ICE was conducted using the 2030 and 2050 future build volumes identified in the Old Lake Wilson Road PD&E Study PTAR. The remainder of this section discusses the Stage 2 evaluation.

STAGE 2 OPERATIONAL ANALYSIS

A detailed operational analysis for each intersection control type selected to move into Stage 2 was performed for the AM/PM opening (2030) and design (2050) years. The intersection delay and LOS was analyzed using Highway Capacity Manual (HCM) methodologies as implemented by Synchro 11 and SIDRA 8.0. **Table 3** and **Table 4** provides the opening and design year Stage 2 operational analysis results for these control types. Detailed operational results are presented in the Old Lake Wilson Road PD&E Study PTAR.

Table 3: Stage 2 Operational Results – Design Year 2030

Intersection	Control Strategy	AM Peak Hour		PM Peak Hour	
		LOS	Overall Delay (Seconds)	LOS	Overall Delay (Seconds)
Old Lake Wilson Road & Excitement Drive	TWSC*	A	1.7	A	0.7
	2x1 Roundabout	A	7.8	A	7.7
Old Lake Wilson Road & Assembly Court	TWSC*	A	0.3	A	0.2
	2x1 Roundabout	A	8.5	A	8.5
Old Lake Wilson Road & Fairfax Drive/Marker Avenue	Signalized Control	A	9.9	A	9.8
	2x1 Roundabout	A	9.2	A	9.1

* The TWSC control types operate with higher delays for minor street movements, but the ICE tool analyzes the overall intersection delay which includes the 0 seconds of delay for the high volume northbound/southbound movements.

Table 4: Stage 2 Operational Results – Design Year 2050

Intersection	Control Strategy	AM Peak Hour		PM Peak Hour	
		LOS	Overall Delay (Seconds)	LOS	Overall Delay (Seconds)
Old Lake Wilson Road & Excitement Drive	TWSC*	A	3.5	A	0.8
	2x1 Roundabout	B	11.2	B	11.2
Old Lake Wilson Road & Assembly Court	TWSC*	A	0.4	A	0.2
	2x1 Roundabout	B	12.7	B	12.6
Old Lake Wilson Road & Fairfax Drive/Marker Avenue	Signalized Control	B	13.1	B	12.8
	2x1 Roundabout	B	14.2	B	13.8

* The TWSC control types operate with higher delays for minor street movements, but the ICE tool analyzes the overall intersection delay which includes the 0 seconds of delay for the high volume northbound/southbound movements.

STAGE 2 SPICE ANALYSIS

The Stage 2 SPICE analysis provides a refined safety evaluation of the control types recommended to move forward from Stage 1 for each study intersection. **Table 5** provides the Stage 2 SPICE results for the various intersection control types. Detailed Stage 2 SPICE results are presented in **Appendix C**.

Table 5: Stage 2 SPICE Results

Intersection	Control Strategy	Crash Type	2030 Crash Frequency	2050 Crash Frequency	Total Predicted Crashes Project Life Cycle
Old Lake Wilson Road & Excitement Drive	TWSC	Total	6.21	8.54	154.74
		Fatal & Injury	1.13	1.53	27.97
	2 Lane Roundabout	Total	5.72	7.75	141.39
		Fatal & Injury	1.10	1.58	28.03
Old Lake Wilson Road & Assembly Court	TWSC	Total	1.37	1.78	33.05
		Fatal & Injury	0.62	0.81	15.01
	2 Lane Roundabout	Total	5.30	6.98	128.89
		Fatal & Injury	1.01	1.39	25.12
Old Lake Wilson Road & Fairfax Drive/Marker Avenue	Signalized Control	Total	6.64	8.79	161.96
		Fatal & Injury	2.34	3.16	57.70
	2 Lane Roundabout	Total	7.34	9.84	180.22
		Fatal & Injury	1.37	1.89	34.22

STAGE 2 RESULTS

Planning level cost estimates were generated for each of the intersection control types assessed during the Stage 2 ICE. For the overall PD&E Study, two different typical section alternatives were assessed and while the construction cost estimates were the same for each intersection alternative, the right of way (ROW) costs varied based on the typical section alternative. The construction and ROW costs are displayed for each intersection control type in **Table 6** to **Table 8**.

The future delay and safety costs to society were calculated using the ICE Tool, as displayed in **Table 6** to **Table 8**. The lower the cost to society, generally the better the intersection alternative. Several key results for each intersection include:

- Old Lake Wilson Road & Excitement Drive and Old Lake Wilson Road & Assembly Court –
 - Construction and ROW costs are lower for the TWSC alternative.
 - Future delay costs are lower for the TWSC alternative.
 - Future safety costs are comparable for the TWSC and roundabout alternatives at Excitement Drive. Future safety costs are lower for the TWSC alternative at Assembly Court.
- Old Lake Wilson Road & Fairfax Drive/Marker Avenue –
 - Combined construction and ROW costs are comparable for the signal and roundabout alternatives.
 - Future delay costs are comparable for the signal and roundabout alternatives.

- Future safety costs are lower for the roundabout alternative.

Detailed results from the ICE Tool are presented in **Appendix D**.

Table 6: ICE Results at Old Lake Wilson Road & Excitement Drive

Intersection	Costs	TWSC Alternative 1	TWSC Alternative 2	Roundabout Alternative 1	Roundabout Alternative 2
Old Lake Wilson Road & Excitement Drive	Construction Cost	\$320,708		\$485,059	
	ROW Cost	-		\$803,880	\$855,335
	Costs	\$320,708		\$1,288,939	\$1,340,394
	Future Delay Costs	\$1,198,840		\$9,687,223	
	Future Safety Costs	\$6,563,647		\$6,496,481	
	Total Future Costs to Society	\$7,762,487		\$16,183,704	

Table 7: ICE Results at Old Lake Wilson Road & Assembly Court

Intersection	Costs	TWSC Alternative 1	TWSC Alternative 2	Roundabout Alternative 1	Roundabout Alternative 2
Old Lake Wilson Road & Assembly Court	Construction Cost	\$367,917		\$532,269	
	ROW Cost	-		\$338,095	
	Costs	\$367,917		\$870,364	
	Future Delay Costs	\$282,165		\$10,044,759	
	Future Safety Costs	\$3,282,272		\$5,859,393	
	Total Future Costs to Society	\$3,564,437		\$15,904,151	

Table 8: ICE Results at Old Lake Wilson Road & Fairfax Drive/Marker Avenue

Intersection	Costs	Signal Alternative 1	Signal Alternative 2	Roundabout Alternative 1	Roundabout Alternative 2
Old Lake Wilson Road & Fairfax Drive/Marker Avenue	Construction Cost	\$999,914		\$741,051	
	ROW Cost	\$174,095	\$181,680	\$352,855	\$352,035
	Costs	\$1,174,009	\$1,181,594	\$1,093,906	\$1,093,086
	Future Delay Costs	\$11,677,166		\$11,210,880	
	Future Safety Costs	\$12,747,772		\$7,985,890	
	Total Future Costs to Society	\$24,424,938		\$19,196,770	

INITIAL ICE ANALYSIS CONCLUSIONS

The results of the Stage 2 ICE analysis were presented to Osceola County staff on January 12, 2022. The meeting materials and summary are provided in **Appendix E**. The following decisions were made at each study intersection location:

- Old Lake Wilson Road & Excitement Drive –
 - The roundabout alternative was not recommended because of the cost deficits (especially the anticipated ROW costs) as compared to the TWSC alternative and the intersection’s proximity to Osceola Polk Line Road (CR 532). From the operational analysis conducted as part of the Old Lake Wilson Road PD&E Study PTAR, southbound queues are expected to extend from Osceola Polk Line Road (CR 532) to Excitement Drive in the peak periods, which may back into the roundabout alternative and limit its effectiveness.
 - Osceola County requested the project team complete additional analysis to determine the feasibility of a signalized or unsignalized Restricted Crossing U-Turn (RCUT) alternative at this intersection.
- Old Lake Wilson Road & Assembly Court –
 - The roundabout alternative was not recommended because of the intersection’s proximity to the bridge over I-4 and the cost deficits (especially the anticipated ROW costs) as compared to the TWSC alternative.
 - Osceola County approved moving forward with the TWSC alternative at this location.
- Old Lake Wilson Road & Fairfax Drive/Marker Avenue –
 - The roundabout alternative was not recommended because a signal will have already been built at this location.
 - Osceola County approved moving forward with the signal alternative at this location.

ADDITIONAL ICE ANALYSIS AT EXCITEMENT DRIVE

Osceola County requested the project team consider additional RCUT alternatives at the intersection of Old Lake Wilson Road & Excitement Drive. These alternatives include:

- Unsignalized RCUT
 - This alternative consists of a directional median opening at Excitement Drive for vehicles making southbound left turns, which would also restrict westbound left turns. The westbound left turns would be forced to right turn then make a U-turn at a directional median opening approximately 700 feet north of Excitement Drive.
 - Both median openings are unsignalized.
- Signalized RCUT
 - The configuration would be the same as the unsignalized RCUT except the median opening 700 feet north of Excitement Drive would be signalized.

A detailed operational analysis for the RCUT alternatives was performed for the AM/PM opening (2030) and design (2050) years. The intersection delay and LOS was analyzed using HCM methodologies as implemented by Synchro 11. Operational analysis for the TWSC and two RCUT alternatives are shown for the opening and design years in **Table 9** and **Table 10**. Several key results include:

- The combined delays for the westbound right and northbound U-turn movements for the unsignalized RCUT alternative are lower than the delay for westbound left turn movements for the TWSC alternative.
- Delay is lower at the U-turn location for the unsignalized RCUT alternative than the signalized RCUT alternative.

Detailed operational results for this analysis are presented in **Appendix F**.

Table 9: Additional Operational Analysis at Old Lake Wilson Road & Excitement Drive (2030)

Alternative	TWSC		Unsignalized RCUT		Signalized RCUT	
	2030 AM	2030 PM	2030 AM	2030 PM	2030 AM	2030 PM
Westbound Left-Turn Delay at Excitement Drive (sec)	48.2	24.3	N/A	N/A	N/A	N/A
Westbound Right-Turn Delay at Excitement Drive (sec)	15.0	10.9	17.4	11.6	17.4	11.6
Overall Delay at U-Turn Location (sec)	N/A	N/A	0.8	0.4	4.9	3.9
NB U-Turn Delay at U-Turn Location (sec)	N/A	N/A	8.8	10.0	41.0	40.2

Table 10: Additional Operational Analysis at Old Lake Wilson Road & Excitement Drive (2050)

Alternative	TWSC		Unsignalized RCUT		Signalized RCUT	
	2050 AM	2050 PM	2050 AM	2050 PM	2050 AM	2050 PM
Westbound Left-Turn Delay at Excitement Drive (sec)	142.8	39.1	N/A	N/A	N/A	N/A
Westbound Right-Turn Delay at Excitement Drive (sec)	19.5	12.5	25.3	13.6	25.3	13.6
Overall Delay at U-Turn Location (sec)	N/A	N/A	0.6	0.3	4.3	5.0
NB U-Turn Delay at U-Turn Location (sec)	N/A	N/A	9.3	11.1	40.8	41.0

A Stage 2 SPICE analysis was also performed for the RCUT alternatives. **Table 11** provides the Stage 2 SPICE results for this analysis. The detailed SPICE analysis is presented in **Appendix G**.

Table 11: Additional Stage 2 SPICE Results at Old Lake Wilson Road & Excitement Drive

Intersection	Control Strategy	Crash Type	2030 Crash Frequency	2050 Crash Frequency	Total Predicted Crashes Project Life Cycle
Old Lake Wilson Road & Excitement Drive	TWSC	Total	6.21	8.54	154.74
		Fatal & Injury	1.13	1.53	27.97
	Unsignalized RCUT	Total	3.47	4.19	80.24
		Fatal & Injury	1.48	1.77	34.20
	Signalized RCUT	Total	5.54	7.65	138.42
		Fatal & Injury	1.65	2.26	41.03

Planning level cost estimates were generated for the RCUT alternatives. The construction and ROW costs are displayed for each intersection control type in

Table 12. The future delay and safety costs to society were calculated using the ICE Tool, as displayed in

Table 12. The lower the cost to society, generally the better the intersection alternative. Several key results include:

- Construction costs are comparable for the TWSC alternative and unsignalized RCUT alternative. The costs are higher for the signalized RCUT alternative due to the added signal equipment. Both RCUT alternatives have anticipated ROW costs when compared to the TWSC alternative.
- Future delay and safety costs are lowest for the TWSC alternative.
- Future delay and safety costs are lower for the unsignalized RCUT when compared to the signalized RCUT.

The detailed ICE Tool results are presented in **Appendix H**.

Table 12: ICE Results for Additional Analysis at Old Lake Wilson Road & Excitement Drive

Intersection	Costs	TWSC	Unsignalized RCUT	Signalized RCUT
Old Lake Wilson Road & Excitement Drive	Construction Cost	\$320,708	\$336,634	\$431,907
	ROW Cost	-	\$171,000	
	Costs	\$320,700	\$507,634	\$602,907
	Future Delay Costs	\$1,198,840	\$1,304,075	\$3,730,652
	Future Safety Costs	\$6,563,647	\$7,557,440	\$9,173,434
	Total Future Costs to Society	\$7,762,487	\$8,861,515	\$12,904,086

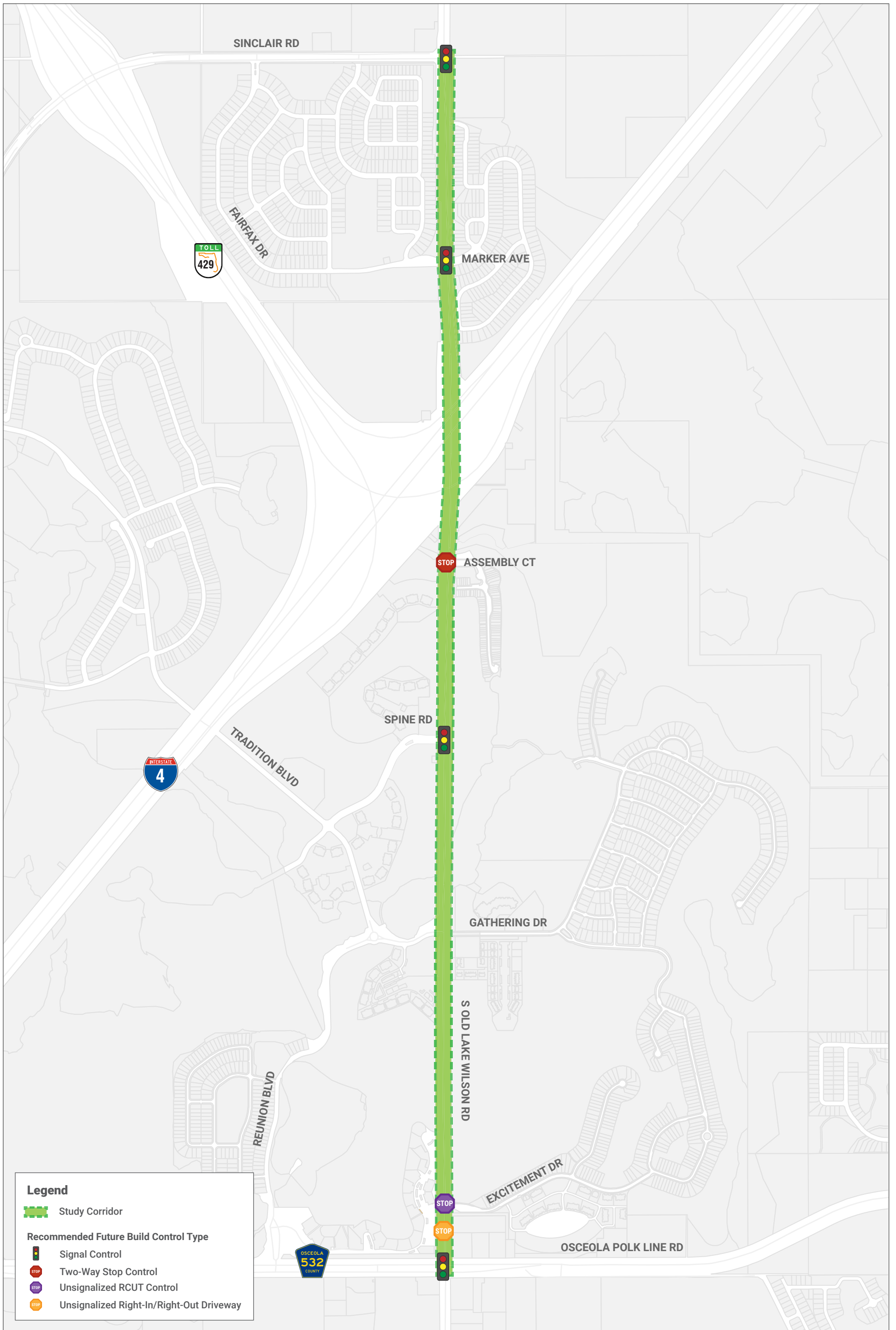
After follow up discussions with Osceola County about the additional analysis, the unsignalized RCUT was selected at the intersection of Old Lake Wilson Road & Excitement Drive.

RECOMMENDED INTERSECTION ALTERNATIVES

Based on the results presented in this memorandum and discussions held with Osceola County, the following alternatives are recommended at each of the study intersections:

- Osceola Polk Line Road (C.R. 532) – Signal with turn lane modifications
- Shoppes at Reunion – Unsignalized right-in/right-out driveway
- Excitement Drive – Unsignalized RCUT
- Spine Road – Signal
- Assembly Court – TWSC
- Fairfax Drive/Marker Avenue – Signal
- Old Lake Wilson Road & Sinclair Road – Signal with turn lane modifications

Figure 2 illustrates the recommended alternatives at the study intersections.







Old Lake Wilson Road PD&E Study ICE Appendix

Appendix A: Stage 1 CAP-X Results

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	Old Lake Wilson Road PD&E Study
Project Number:	25408
Location:	Old Lake Wilson Rd. & Excitement Dr.
Date:	2050 AM
Number of Intersection Legs:	3
Which leg is the minor street?	E

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	0	0	0	0.00%	0.00%
Westbound	0	69	0	16	0.00%	0.00%
Southbound	0	13	1025	0	7.00%	0.00%
Northbound	0	0	1801	54	4.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00	2.00	
FDOT Context Zone		C3R-Suburban Residential				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800	1800	
		3-phase signal		Suggested = 1750	1750	
		4-phase signal		Suggested = 1700	1700	

Capacity Analysis for Planning of Junctions





Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2NS X 1EW	0.75	1	5.6	Fair	Good	Good
Two-Way Stop Control N-S	6.96	2	3.7	Poor	Fair	Good
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Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	Old Lake Wilson Road PD&E Study
Project Number:	25408
Location:	Old Lake Wilson Rd. & Excitement Dr.
Date:	2050 PM
Number of Intersection Legs:	3
Which leg is the minor street?	E

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	0	0	0	0.00%	0.00%
Westbound	0	54	0	13	0.00%	0.00%
Southbound	0	16	1801	0	4.00%	0.00%
Northbound	0	0	1025	69	7.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00	2.00	
FDOT Context Zone		C3R-Suburban Residential				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800	1800	
		3-phase signal		Suggested = 1750	1750	
		4-phase signal		Suggested = 1700	1700	

Capacity Analysis for Planning of Junctions





Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2NS X 1EW	0.76	1	5.6	Fair	Good	Good
Two-Way Stop Control N-S	5.46	2	3.7	Poor	Fair	Good
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Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	Old Lake Wilson Road PD&E Study
Project Number:	25408
Location:	Old Lake Wilson Rd. & Spine Rd.
Date:	2050 AM
Number of Intersection Legs:	3
Which leg is the minor street?	W

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	346	0	140	6.00%	0.00%
Westbound	0	0	0	0	0.00%	0.00%
Southbound	0	0	898	276	2.00%	0.00%
Northbound	0	112	1705	0	6.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00	2.00	
FDOT Context Zone		C3R-Suburban Residential				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800	1800	
		3-phase signal		Suggested = 1750	1750	
		4-phase signal		Suggested = 1700	1700	

Capacity Analysis for Planning of Junctions





Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal	0.74	1	4.8	Fair	Fair	Good
2NS X 1EW	1.01	2	5.6	Fair	Good	Good
2 X 2	1.01	2	5.6	Fair	Good	Good
Two-Way Stop Control N-S	71.95	4	3.7	Poor	Fair	Good
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Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	Old Lake Wilson Road PD&E Study
Project Number:	25408
Location:	Old Lake Wilson Rd. & Spine Rd.
Date:	2050 PM
Number of Intersection Legs:	3
Which leg is the minor street?	W

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	276	0	112	6.00%	0.00%
Westbound	0	0	0	0	0.00%	0.00%
Southbound	0	0	1705	346	2.00%	0.00%
Northbound	0	140	898	0	6.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00	2.00	
FDOT Context Zone		C3R-Suburban Residential				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800	1800	
		3-phase signal		Suggested = 1750	1750	
		4-phase signal		Suggested = 1700	1700	

Capacity Analysis for Planning of Junctions





Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal	0.87	1	4.8	Fair	Fair	Good
2 X 2	1.11	2	5.6	Fair	Good	Good
2NS X 1EW	1.31	3	5.6	Fair	Good	Good
Two-Way Stop Control N-S	136.94	4	3.7	Poor	Fair	Good
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Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	Old Lake Wilson Road PD&E Study
Project Number:	25408
Location:	Old Lake Wilson Rd. & Assembly Ct.
Date:	2050 AM
Number of Intersection Legs:	3
Which leg is the minor street?	E

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	0	0	0	0.00%	0.00%
Westbound	0	8	0	16	0.00%	0.00%
Southbound	0	11	1166	0	6.00%	0.00%
Northbound	0	0	2045	6	3.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00	2.00	
FDOT Context Zone		C3R-Suburban Residential				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800	1800	
		3-phase signal		Suggested = 1750	1750	
		4-phase signal		Suggested = 1700	1700	

Capacity Analysis for Planning of Junctions





Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2NS X 1EW	0.82	1	5.6	Fair	Good	Good
Two-Way Stop Control N-S	1.41	2	3.7	Poor	Fair	Good
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Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	Old Lake Wilson Road PD&E Study
Project Number:	25408
Location:	Old Lake Wilson Rd. & Assembly Ct.
Date:	2050 PM
Number of Intersection Legs:	3
Which leg is the minor street?	E

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	0	0	0	0.00%	0.00%
Westbound	0	6	0	11	0.00%	0.00%
Southbound	0	16	2045	0	3.00%	0.00%
Northbound	0	0	1166	8	6.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00	2.00	
FDOT Context Zone		C3R-Suburban Residential				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800	1800	
		3-phase signal		Suggested = 1750	1750	
		4-phase signal		Suggested = 1700	1700	

Capacity Analysis for Planning of Junctions





Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2NS X 1EW	0.82	1	5.6	Fair	Good	Good
Two-Way Stop Control N-S	1.05	2	3.7	Poor	Fair	Good
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Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	Old Lake Wilson Road PD&E Study
Project Number:	25408
Location:	Old Lake Wilson Rd. & Fairfax Dr./Marker Ave.
Date:	2050 AM
Number of Intersection Legs:	4
Major Street Direction	North-South

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	8	5	26	5.00%	0.00%
Westbound	0	28	5	4	3.00%	0.00%
Southbound	0	10	1165	30	5.00%	0.00%
Northbound	0	27	2028	6	3.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00	2.00	
FDOT Context Zone		C3R-Suburban Residential				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800	1800	
		3-phase signal		Suggested = 1750	1750	
		4-phase signal		Suggested = 1700	1700	

Capacity Analysis for Planning of Junctions





Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal	0.66	1	4.8	Fair	Fair	Good
2NS X 1EW	0.85	2	5.6	Fair	Good	Good
2 X 2	0.85	2	5.6	Fair	Good	Good
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Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	Old Lake Wilson Road PD&E Study
Project Number:	25408
Location:	Old Lake Wilson Rd. & Fairfax Dr./Marker Ave.
Date:	2050 PM
Number of Intersection Legs:	4
Major Street Direction	North-South

Traffic Volume Demand						
	Volume (Veh/hr)				Percent (%)	
	U-Turn 	Left 	Thru 	Right 	Heavy Vehicles	Volume Growth
Eastbound	0	30	5	27	10.00%	0.00%
Westbound	0	6	5	10	10.00%	0.00%
Southbound	0	26	2028	28	3.00%	0.00%
Northbound	0	4	1165	8	5.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		
Truck to PCE Factor				Suggested = 2.00	2.00	
FDOT Context Zone		C3R-Suburban Residential				
Critical Lane Volume Threshold		2-phase signal		Suggested = 1800	1800	
		3-phase signal		Suggested = 1750	1750	
		4-phase signal		Suggested = 1700	1700	

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal	0.65	1	4.8	Fair	Fair	Good
2NS X 1EW	0.86	2	5.6	Fair	Good	Good
2 X 2	0.86	2	5.6	Fair	Good	Good
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Appendix B: Stage 1 SPICE Results

**Federal Highway Administration (FHWA)
Safety Performance for Intersection Control Evaluation Tool**

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	Old Lake Wilson Road PD&E Study	Intersection Type	At-Grade Intersections
Intersection:	Old Lake Wilson Road and Excitement Drive	Opening Year	2030
Agency:	Osceola County	Design Year	2050
Project Reference:	25408	Facility Type	On Urban and Suburban Arterial
City:	Osceola County	Number of Legs	3-leg
State:	Florida	1-Way/2-Way	2-way Intersecting 2-way
Date:	7/28/2021	# of Major Street Lanes (both directions)	5 or fewer
Analyst:	APG	Major Street Approach Speed	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Rank	AADT Within Prediction Range?	Source of Prediction
Minor Road Stop	Total	1.92	2.62	47.60	1	Yes	Calibrated SPF
	Fatal & Injury	0.70	0.95	17.39			
2-lane Roundabout	Total	8.62	11.73	213.52	2	No	Uncalibrated SPF
	Fatal & Injury	1.59	2.29	40.67			

**Federal Highway Administration (FHWA)
Safety Performance for Intersection Control Evaluation Tool**

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	Old Lake Wilson Road PD&E Study	Intersection Type	At-Grade Intersections
Intersection:	Old Lake Wilson Road and Spine Road	Opening Year	2030
Agency:	Osceola County	Design Year	2050
Project Reference:	25408	Facility Type	On Urban and Suburban Arterial
City:	Osceola County	Number of Legs	3-leg
State:	Florida	1-Way/2-Way	2-way Intersecting 2-way
Date:	7/28/2021	# of Major Street Lanes (both directions)	5 or fewer
Analyst:	APG	Major Street Approach Speed	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Rank	AADT Within Prediction Range?	Source of Prediction
Traffic Signal	Total	10.71	14.37	263.21	3	Yes	Calibrated SPF
	Fatal & Injury	3.47	4.55	84.17			
Minor Road Stop	Total	6.89	9.14	168.22	1	No	Calibrated SPF
	Fatal & Injury	2.05	2.69	49.69			
2-lane Roundabout	Total	11.83	14.74	278.86	2	No	Uncalibrated SPF
	Fatal & Injury	2.31	3.00	55.75			

**Federal Highway Administration (FHWA)
Safety Performance for Intersection Control Evaluation Tool**

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	Old Lake Wilson Road PD&E Study	Intersection Type	At-Grade Intersections
Intersection:	Old Lake Wilson Road and Assembly Court	Opening Year	2030
Agency:	Osceola County	Design Year	2050
Project Reference:	25408	Facility Type	On Urban and Suburban Arterial
City:	Osceola County	Number of Legs	3-leg
State:	Florida	1-Way/2-Way	2-way Intersecting 2-way
Date:	7/28/2021	# of Major Street Lanes (both directions)	5 or fewer
Analyst:	APG	Major Street Approach Speed	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Rank	AADT Within Prediction Range?	Source of Prediction
Minor Road Stop	Total	1.16	1.51	28.06	1	Yes	Calibrated SPF
	Fatal & Injury	0.49	0.63	11.78			
2-lane Roundabout	Total	8.15	10.72	197.98	2	No	Uncalibrated SPF
	Fatal & Injury	1.49	2.06	37.18			

**Federal Highway Administration (FHWA)
Safety Performance for Intersection Control Evaluation Tool**

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	Old Lake Wilson Road PD&E Study	Intersection Type	At-Grade Intersections
Intersection:	Old Lake Wilson Road and Fairfax Drive/Marker Avenue	Opening Year	2030
Agency:	Osceola County	Design Year	2050
Project Reference:	25408	Facility Type	On Urban and Suburban Arterial
City:	Osceola County	Number of Legs	4-leg
State:	Florida	1-Way/2-Way	2-way Intersecting 2-way
Date:	7/28/2021	# of Major Street Lanes (both directions)	5 or fewer
Analyst:	APG	Major Street Approach Speed	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Rank	AADT Within Prediction Range?	Source of Prediction
Traffic Signal	Total	6.64	8.83	162.38	2	Yes	Calibrated SPF
	Fatal & Injury	2.33	3.18	57.78			
2-lane Roundabout	Total	11.04	14.87	271.86	1	No	Uncalibrated SPF
	Fatal & Injury	1.98	2.75	49.63			

Appendix C: Stage 2 SPICE Results

Federal Highway Administration (FHWA)										
Safety Performance for Intersection Control Evaluation Tool										
Results										
Summary of crash prediction results for each alternative										
Project Information										
Project Name:	Old Lake Wilson Road PD&E Study			Intersection Type			At-Grade Intersections			
Intersection:	Old Lake Wilson Road & Excitement Drive			Opening Year			2030			
Agency:	Osceola County			Design Year			2050			
Project Reference:	25408			Facility Type			On Urban and Suburban Arterial			
City:	Osceola County			Number of Legs			3-leg			
State:	Florida			1-Way/2-Way			2-way Intersecting 2-way			
Date:	11/17/2021			# of Major Street Lanes (both directions)			5 or fewer			
Analyst:	APG			Major Street Approach Speed			Less than 55 mph			
Crash Prediction Summary										
Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Minor Road Stop	Total	6.21	8.54	154.74	1	Yes	Calibrated SPF w/ EB	46	34	2
	Fatal & Injury	1.13	1.53	27.97						
2-lane Roundabout	Total	5.72	7.75	141.39	2	No	Uncalibrated SPF	83	78	1
	Fatal & Injury	1.10	1.58	28.03						

Federal Highway Administration (FHWA)										
Safety Performance for Intersection Control Evaluation Tool										
Results										
Summary of crash prediction results for each alternative										
Project Information										
Project Name:	Old Lake Wilson Road PD&E Study			Intersection Type			At-Grade Intersections			
Intersection:	Old Lake Wilson Road & Assembly Court			Opening Year			2030			
Agency:	Osceola County			Design Year			2050			
Project Reference:	25408			Facility Type			On Urban and Suburban Arterial			
City:	Osceola County			Number of Legs			3-leg			
State:	Florida			1-Way/2-Way			2-way Intersecting 2-way			
Date:	11/17/2021			# of Major Street Lanes (both directions)			5 or fewer			
Analyst:	APG			Major Street Approach Speed			Less than 55 mph			
Crash Prediction Summary										
Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Minor Road Stop	Total	1.37	1.78	33.05	1	Yes	Calibrated SPF w/ EB	48	38	2
	Fatal & Injury	0.62	0.81	15.01						
2-lane Roundabout	Total	5.30	6.98	128.89	2	No	Uncalibrated SPF	84	80	1
	Fatal & Injury	1.01	1.39	25.12						

Federal Highway Administration (FHWA)										
Safety Performance for Intersection Control Evaluation Tool										
Results										
Summary of crash prediction results for each alternative										
Project Information										
Project Name:	Old Lake Wilson Road PD&E Study			Intersection Type			At-Grade Intersections			
Intersection:	Old Lake Wilson Road & Fairfax Drive/Marker Avenue			Opening Year			2030			
Agency:	Osceola County			Design Year			2050			
Project Reference:	25408			Facility Type			On Urban and Suburban Arterial			
City:	Osceola County			Number of Legs			4-leg			
State:	Florida			1-Way/2-Way			2-way Intersecting 2-way			
Date:	11/17/2021			# of Major Street Lanes (both directions)			5 or fewer			
Analyst:	APG			Major Street Approach Speed			Less than 55 mph			
Crash Prediction Summary										
Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Traffic Signal	Total	6.64	8.79	161.96	2	Yes	Calibrated SPF	69	59	2
	Fatal & Injury	2.34	3.16	57.70						
2-lane Roundabout	Total	7.34	9.84	180.22	1	No	Uncalibrated SPF	88	85	1
	Fatal & Injury	1.37	1.89	34.22						

Appendix D: ICE Tool Results

Outputs

This sheet compiles the data from summary tables in individual alternatives sheets. To populate the output sheet press the "Setup Worksheets" button in the Alternatives MasterList tab.

Agency:	Osceola County
Project Name:	Old Lake Wilson Road PD&E Study
Project Reference:	25408
Intersection:	Old Lake Wilson Road & Excitement Drive
City:	Osceola County
State:	Florida
Performing Department or Organization:	Kittelson
Date:	11/12/2021
Analyst:	APG
Analysis Type	At-Grade Intersection

Analysis Summary

Cost Categories	Net Present Value of Costs	
	Two-Way Stop Control	Roundabout
Planning, Construction & Right of Way Costs	\$ 320,708	\$ 645,835
Post-Opening Costs	\$ 14,590	\$ 72,952
Auto Passenger Delay	\$ 1,057,561	\$ 8,546,758
Truck Delay	\$ 141,279	\$ 1,140,465
Safety	\$ 6,563,647	\$ 6,496,481
Total cost	\$8,097,785	\$16,902,491

Select Base Case for Benefit-Cost Comparison: (Choose from list)	Two-Way Stop Control	
Benefit Categories	Net Present Value of Benefits Relative to Base Case	
	Two-Way Stop Control	Roundabout
Auto Passenger Delay		\$ (7,489,196)
Truck Delay		\$ (999,186)
Safety		\$ 67,166
Net Present Value of Benefits		\$ (8,421,217)
Net Present Value of Costs		\$ 383,489
Net Present Value of Improvement		\$ (8,804,706)
Benefit-Cost (B/C) Ratio		Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.
Delay B/C		Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.
Safety B/C		0.18

Outputs

This sheet compiles the data from summary tables in individual alternatives sheets. To populate the output sheet press the "Setup Worksheets" button in the

Agency:	Osceola County
Project Name:	Old Lake Wilson Road PD&E Study
Project Reference:	25408
Intersection:	Old Lake Wilson Road & Assembly Court
City:	Osceola County
State:	Florida
Performing Department or Organization:	Kittelson
Date:	11/12/2021
Analyst:	APG
Analysis Type	At-Grade Intersection

Analysis Summary

Cost Categories	Net Present Value of Costs	
	Two-Way Stop Control	Roundabout
Planning, Construction & Right of Way Costs	\$ 367,917	\$ 599,888
Post-Opening Costs	\$ 14,590	\$ 72,952
Auto Passenger Delay	\$ 254,054	\$ 9,043,839
Truck Delay	\$ 28,111	\$ 1,000,919
Safety	\$ 3,282,272	\$ 5,859,393
Total cost	\$3,946,944	\$16,576,991

Select Base Case for Benefit-Cost Comparison: (Choose from list)	Two-Way Stop Control	
Benefit Categories	Net Present Value of Benefits Relative to Base Case	
	Two-Way Stop Control	Roundabout
Auto Passenger Delay		\$ (8,789,786)
Truck Delay		\$ (972,808)
Safety		\$ (2,577,121)
Net Present Value of Benefits		\$ (12,339,715)
Net Present Value of Costs		\$ 290,332
Net Present Value of Improvement		\$ (12,630,047)
Benefit-Cost (B/C) Ratio		Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.
Delay B/C		Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.
Safety B/C		Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.

Outputs

This sheet compiles the data from summary tables in individual alternatives sheets. To populate the output sheet press the "Setup Worksheets" button in the Alternatives MasterList tab.

Agency:	Osceola County
Project Name:	Old Lake Wilson Road PD&E Study
Project Reference:	25408
Intersection:	Old Lake Wilson Road & Fairfax Drive/Marker Avenue
City:	Osceola County
State:	Florida
Performing Department or Organization:	Kittelson
Date:	11/12/2021
Analyst:	APG
Analysis Type	At-Grade Intersection

Analysis Summary

Cost Categories	Net Present Value of Costs	
	Traffic Signal	Roundabout
Planning, Construction & Right of Way Costs	\$ 1,034,733	\$ 811,622
Post-Opening Costs	\$ 98,229	\$ 72,952
Auto Passenger Delay	\$ 10,523,854	\$ 10,103,267
Truck Delay	\$ 1,153,312	\$ 1,107,613
Safety	\$ 12,747,772	\$ 7,985,890
Total cost	\$25,557,899	\$20,081,343

Select Base Case for Benefit-Cost Comparison: (Choose from list)	Traffic Signal	
Benefit Categories	Net Present Value of Benefits Relative to Base Case	
	Traffic Signal	Roundabout
Auto Passenger Delay		\$ 420,587
Truck Delay		\$ 45,699
Safety		\$ 4,761,882
Net Present Value of Benefits		\$ 5,228,168
Net Present Value of Costs		\$ (248,388)
Net Present Value of Improvement		\$ 5,476,556
Benefit-Cost (B/C) Ratio		Control strategy preferred. Benefits are greater than base case and cost is less than base case.
Delay B/C		Control strategy preferred. Benefits are greater than base case and cost is less than base case.
Safety B/C		Control strategy preferred. Benefits are greater than base case and cost is less than base case.

Appendix E: Osceola County ICE Results Meeting Summary



Old Lake Wilson Road

– PD&E STUDY –

Old Lake Wilson Road PD&E Study

Osceola Polk Line Road (CR 532)
to Sinclair Road

ICE RESULTS MEETING

January 12, 2022

MEETING AGENDA

- Study Intersections
- Results at Excitement Drive & Assembly Court
- Results at Fairfax Drive/Marker Avenue
- Questions



STUDY INTERSECTIONS

- Stage 1 ICE conducted for each study intersection
 - Recommended to maintain signals at CR 532 and Sinclair Road
 - Signal recommended at Spine Road due to high minor street volume
- Stage 2 ICE analysis conducted at:
 - Excitement Drive & Assembly Court
 - TWSC* Alternative
 - Roundabout Alternative
 - Fairfax Drive/Marker Avenue
 - Signal Alternative
 - Roundabout Alternative



*TWSC – Two-Way Stop Control

ICE RESULTS AT EXCITEMENT DRIVE

- Construction and ROW costs lower for TWSC

- Future delay and safety costs lower for TWSC

Costs	TWSC Alt 1	TWSC Alt 2	Roundabout Alt 1	Roundabout Alt 2
Construction Cost	\$320,700		\$485,000	
ROW Cost	-		\$803,900	\$855,300
Costs	\$320,700		\$1,288,900	\$1,340,300
Future Delay Costs	\$1,058,800		\$7,893,400	
Future Safety Costs	\$6,563,600		\$6,496,500	
Total Future Cost to Society	\$7,622,400		\$14,389,900	

ICE RESULTS AT ASSEMBLY COURT

- Construction and ROW costs lower for TWSC
- Future delay and safety costs lower for TWSC

Costs	TWSC Alt 1	TWSC Alt 2	Roundabout Alt 1	Roundabout Alt 2
Construction Cost	\$367,900		\$532,300	
ROW Cost	-		\$338,100	
Costs	\$367,900		\$870,400	
Future Delay Costs	\$295,900		\$9,352,900	
Future Safety Costs	\$3,282,300		\$5,859,400	
Total Future Cost to Society	\$3,578,200		\$15,212,300	

ROUNABOUT BENEFITS COMPARED TO TWSC

- Roundabout alternatives have benefits compared to TWSC alternatives:
 - Less delay for minor street movements
 - Eliminates need for potential two-stage left-turn maneuver from minor street – overall safer intersection control type
 - Provides speed control to slow traffic along straight corridors



ICE RESULTS AT FAIRFAX DRIVE/MARKER AVENUE

- Construction and ROW costs lower for roundabout
- Future delay and safety costs lower for roundabout

Costs	Signal Alt 1	Signal Alt 2	Roundabout Alt 1	Roundabout Alt 2
Construction Cost	\$999,900		\$741,100	
ROW Cost	\$174,100	\$181,700	\$352,900	\$352,000
Costs	\$1,174,000	\$1,181,600	\$1,094,000	\$1,093,100
Future Delay Costs	\$11,159,100		\$10,311,400	
Future Safety Costs	\$12,747,800		\$7,985,900	
Total Future Cost to Society	\$23,906,900		\$18,297,300	

QUESTIONS?



Meeting Summary

Project: Old Lake Wilson Road PD&E Study

Date: January 12, 2022

Limits: CR 532 to S. of Sinclair Road

Time: 11:00 am

Meeting: ICE Results Meeting

Location: Teams Meeting

An ICE Results Meeting was held with representatives of Osceola County for the Old Lake Wilson Road PD&E Study. The following attendees participated in the meeting:

- Josh DeVries, Kathy Lee, Steven Kane, and Isai Chavez – Osceola County
- David Dangel – Inwood Consulting Engineers, Inc.
- Travis Hills and Andrew Garrison – Kittelson & Associates, Inc.

The meeting presentation can be found attached to these meeting notes.

Travis Hills led the meeting discussion and facilitated questions during the presentation. The following are the comments, general summary, and questions from the meeting:

- Stage 1 ICE Summary
 - A brief overview of decisions made in Stage 1 was provided.
 - After Stage 1, it was recommended that the intersections at Osceola Polk Line Road (CR 532) and Sinclair Road remain signals in future.
 - After Stage 1, it was recommended that the intersection at Spine Road be signalized due to high minor street volumes
- Stage 2 ICE Summary
 - A brief overview of the alternatives considered in Stage 2 was provided.
 - A two-way stop control (TWSC) alternative and a signal alternative were considered at the intersections at Excitement Drive and Assembly Court.
 - A signal alternative and a roundabout alternative were considered at the intersection of Fairfax Drive/Marker Avenue.
- Stage 2 ICE Results
 - Excitement Drive
 - Construction and ROW costs were lower for the TWSC alternative.
 - Future delay and safety costs were lower for the TWSC alternative.

Meeting Summary

- Assembly Court
 - Construction and ROW costs were lower for the TWSC alternative.
 - Future delay and safety costs were lower for the TWSC alternative.
- Caveats for TWSC and roundabout alternatives comparison:
 - ICE Tool Analysis Weaknesses:
 - The delay analysis for TWSC intersections can be misleading as it only accounts for total delay, which minimizes minor movement delay.
 - The safety methodology for TWSC intersections is being reconsidered by ICE experts, as it may overinflate the safety benefits of TWSC intersections
 - Qualitative Benefits for Roundabouts:
 - A roundabout typically has less delay for minor movements.
 - A roundabout eliminates the need for two-stage left turns and slows speed entering the intersection, providing safety benefits.
 - A roundabout also provides speed control along straight corridors.
- Fairfax Drive/Marker Avenue
 - Construction and ROW costs were lower for the roundabout alternative.
 - Future delay and safety costs were lower for the roundabout alternative.
- Conclusions based on ICE results
 - Excitement Drive
 - The roundabout alternative was dismissed as undesirable because of the intersection's proximity to Osceola Polk Line Road (CR 532) and the cost deficits as compared to the TWSC alternative.
 - A signal alternative was briefly discussed but Kittelson noted that a signal was not warranted based on the future volumes from the PTAR.
 - Osceola County suggested using a directional median opening at the main intersection and making vehicles exiting from the minor street U-turn north of the intersection. This would essentially be an RCUT.
 - Osceola County requested that Kittelson analyze the operations and ICE results for signalized and unsignalized RCUT alternatives at this location. For the signalized RCUT, a signal would only be present at the U-turn location.
 - The idea of making the U-turn location north of Excitement Drive function as a roundabout was briefly considered but dismissed because of driver expectancy concerns.
 - Assembly Court
 - The roundabout alternative was dismissed as undesirable because of the intersection's proximity to the I-4 bridge and the cost deficits as compared to the TWSC alternative.
 - Osceola County approved moving forward with the TWSC alternative at this location.

Meeting Summary

- Fairfax Drive/Marker Avenue
 - The roundabout alternative was dismissed as undesirable because of the intersection's proximity to the I-4 bridge and because a signal will have already been built at this location. The concern is that there will be public pushback if a signal is installed and then removed.
 - Osceola County approved moving forward with the signal alternative at this location.
- Next Steps
 - Kittelson will analyze operations and ICE results for the unsignalized and signalized RCUT alternatives at Excitement Drive.
 - Once Excitement Drive RCUT results are shared with group, a final alternative selection will be made at Excitement Drive.



Old Lake Wilson Road

– PD&E STUDY –

Old Lake Wilson Road PD&E Study

Osceola Polk Line Road (CR 532)
to Sinclair Road

ICE RESULTS – RCUT
ALTERNATIVES AT EXCITEMENT
DRIVE

January 18, 2022

OPERATIONAL SUMMARY AT EXCITEMENT DRIVE

- RCUT alts. provide delay benefit vs TWSC at Excitement
- Delay lower for unsignalized RCUT vs signalized RCUT

Alternative	TWSC		Unsignalized RCUT		Signalized RCUT*	
	2050 AM	2050 PM	2050 AM	2050 PM	2050 AM	2050 PM
Overall Delay at Excitement (sec)	2.6	0.7	1.4	1.1	1.4	1.1
Overall Delay at U-Turn Location (sec)	N/A	N/A	0.6	0.3	4.2	4.6
NB U-Turn Delay at U-turn Location (sec)	N/A	N/A	9.2	10.8	41.0	40.7

* Excitement Drive will remain unsignalized but the U-turn location north of Excitement Drive is signalized

ICE SUMMARY AT EXCITEMENT DRIVE

- Future delay and safety cost lowest for TWSC
- Future delay and safety cost lower for unsignalized RCUT vs signalized RCUT

Costs	TWSC	Unsignalized RCUT	Signalized RCUT*
Construction Cost	\$320,700	TBD	TBD
ROW Cost	-	TBD	TBD
Costs	\$320,700	TBD	TBD
Future Delay Costs	\$1,058,800	\$1,618,000	\$3,542,100
Future Safety Costs	\$6,563,600	\$7,557,400	\$9,173,400
Total Future Cost to Society	\$7,622,400	\$9,175,400	\$12,715,500

* Excitement Drive will remain unsignalized but the U-turn location north of Excitement Drive is signalized

Appendix F: Additional Excitement Drive Stage 2 Operational Results

HCM Signalized Intersection Capacity Analysis

1: Old Lake Wilson Rd and SBL & U-Turn

05/19/2022


















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶					↷↷
Traffic Volume (vph)	69	0	0	0	0	744
Future Volume (vph)	69	0	0	0	0	744
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Total Lost time (s)	4.5					4.5
Lane Util. Factor	1.00					0.95
Frt	1.00					1.00
Flt Protected	0.85					1.00
Satd. Flow (prot)	1658					3463
Flt Permitted	0.85					1.00
Satd. Flow (perm)	1658					3463
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	73	0	0	0	0	783
RTOR Reduction (vph)	69	0	0	0	0	0
Lane Group Flow (vph)	4	0	0	0	0	783
Heavy Vehicles (%)	0%	0%	0%	0%	0%	7%
Turn Type	Prot					NA
Protected Phases	1					2
Permitted Phases						
Actuated Green, G (s)	4.4					76.6
Effective Green, g (s)	4.4					76.6
Actuated g/C Ratio	0.05					0.85
Clearance Time (s)	4.5					4.5
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	81					2947
v/s Ratio Prot	c0.00					c0.23
v/s Ratio Perm						
v/c Ratio	0.04					0.27
Uniform Delay, d1	40.8					1.3
Progression Factor	1.00					1.00
Incremental Delay, d2	0.2					0.2
Delay (s)	41.0					1.5
Level of Service	D					A
Approach Delay (s)	41.0		0.0			1.5
Approach LOS	D		A			A
Intersection Summary						
HCM 2000 Control Delay			4.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.25			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			64.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

4: Old Lake Wilson Rd/Old Lake Wilson Rd NB & Excitement Dr

05/19/2022

											
Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (veh/h)	0	0	85	0	1354	54	0	0	0	13	0
Future Volume (Veh/h)	0	0	85	0	1354	54	0	0	0	13	0
Sign Control	Stop				Free			Free		Yield	
Grade	0%				0%			0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	89	0	1425	57	0	0	0	14	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type											
None						None					
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	1432	1425	712	0			1482			1482	0
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1432	1425	712	0			1482			1482	0
tC, single (s)	7.5	6.5	6.9	4.1			4.1			6.5	6.9
tC, 2 stage (s)											
tF (s)	3.5	4.0	3.3	2.2			2.2			4.0	3.3
p0 queue free %	100	100	77	100			100			89	100
cM capacity (veh/h)	88	137	379	1636			460			126	1091
Direction, Lane #											
	WB 1	NB 1	NB 2	NB 3	SE 1						
Volume Total	89	712	712	57	14						
Volume Left	0	0	0	0	0						
Volume Right	89	0	0	57	0						
cSH	379	1700	1700	1700	126						
Volume to Capacity	0.23	0.42	0.42	0.03	0.11						
Queue Length 95th (ft)	22	0	0	0	9						
Control Delay (s)	17.4	0.0	0.0	0.0	37.0						
Lane LOS	C				E						
Approach Delay (s)	17.4	0.0			37.0						
Approach LOS	C				E						
Intersection Summary											
Average Delay			1.3								
Intersection Capacity Utilization			48.3%		ICU Level of Service					A	
Analysis Period (min)			15								

HCM Signalized Intersection Capacity Analysis

1: Old Lake Wilson Rd and SBL & U-Turn


















05/19/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	54	0	0	0	0	1374
Future Volume (vph)	54	0	0	0	0	1374
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Total Lost time (s)	4.5					4.5
Lane Util. Factor	1.00					0.95
Frt	1.00					1.00
Flt Protected	0.85					1.00
Satd. Flow (prot)	1658					3562
Flt Permitted	0.85					1.00
Satd. Flow (perm)	1658					3562
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	0	0	0	0	1446
RTOR Reduction (vph)	54	0	0	0	0	0
Lane Group Flow (vph)	3	0	0	0	0	1446
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%
Turn Type	Prot					NA
Protected Phases	1					2
Permitted Phases						
Actuated Green, G (s)	5.2					75.8
Effective Green, g (s)	5.2					75.8
Actuated g/C Ratio	0.06					0.84
Clearance Time (s)	4.5					4.5
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	95					2999
v/s Ratio Prot	c0.00					c0.41
v/s Ratio Perm						
v/c Ratio	0.03					0.48
Uniform Delay, d1	40.0					1.9
Progression Factor	1.00					1.00
Incremental Delay, d2	0.1					0.6
Delay (s)	40.2					2.4
Level of Service	D					A
Approach Delay (s)	40.2		0.0			2.4
Approach LOS	D		A			A
Intersection Summary						
HCM 2000 Control Delay			3.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.45			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			64.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis
 4: Old Lake Wilson Rd/Old Lake Wilson Rd NB & Excitement Dr

05/19/2022

													
Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER		
Lane Configurations													
Traffic Volume (veh/h)	0	0	67	0	731	69	0	0	0	16	0		
Future Volume (Veh/h)	0	0	67	0	731	69	0	0	0	16	0		
Sign Control	Stop				Free			Free			Yield		
Grade	0%				0%			0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly flow rate (vph)	0	0	71	0	769	73	0	0	0	17	0		
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type													
Median storage veh													
Upstream signal (ft)													
pX, platoon unblocked													
vC, conflicting volume	778	769	384	0			842			842	0		
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	778	769	384	0			842			842	0		
tC, single (s)	7.5	6.5	6.9	4.1			4.1			6.5	6.9		
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	2.2			2.2			4.0	3.3		
p0 queue free %	100	100	89	100			100			94	100		
cM capacity (veh/h)	278	334	619	1636			802			303	1091		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SE 1								
Volume Total	71	384	384	73	17								
Volume Left	0	0	0	0	0								
Volume Right	71	0	0	73	0								
cSH	619	1700	1700	1700	303								
Volume to Capacity	0.11	0.23	0.23	0.04	0.06								
Queue Length 95th (ft)	10	0	0	0	4								
Control Delay (s)	11.6	0.0	0.0	0.0	17.6								
Lane LOS	B				C								
Approach Delay (s)	11.6	0.0			17.6								
Approach LOS	B				C								
Intersection Summary													
Average Delay			1.2										
Intersection Capacity Utilization			30.4%		ICU Level of Service				A				
Analysis Period (min)			15										

HCM Signalized Intersection Capacity Analysis

1: Old Lake Wilson Rd and SBL & U-Turn
















05/19/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶					↷↷
Traffic Volume (vph)	69	0	0	0	0	1025
Future Volume (vph)	69	0	0	0	0	1025
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Total Lost time (s)						4.5
Lane Util. Factor						0.95
Frt						1.00
Flt Protected						1.00
Satd. Flow (prot)						3463
Flt Permitted						1.00
Satd. Flow (perm)						3463
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	73	0	0	0	0	1079
RTOR Reduction (vph)	69	0	0	0	0	0
Lane Group Flow (vph)	4	0	0	0	0	1079
Heavy Vehicles (%)	0%	0%	0%	0%	0%	7%
Turn Type	Prot					NA
Protected Phases	1					2
Permitted Phases						
Actuated Green, G (s)	4.6					76.4
Effective Green, g (s)	4.6					76.4
Actuated g/C Ratio	0.05					0.85
Clearance Time (s)	4.5					4.5
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	84					2939
v/s Ratio Prot	c0.00					c0.31
v/s Ratio Perm						
v/c Ratio	0.04					0.37
Uniform Delay, d1	40.6					1.5
Progression Factor	1.00					1.00
Incremental Delay, d2	0.2					0.4
Delay (s)	40.8					1.8
Level of Service	D					A
Approach Delay (s)	40.8		0.0		1.8	
Approach LOS	D		A		A	
Intersection Summary						
HCM 2000 Control Delay			4.3		HCM 2000 Level of Service A	
HCM 2000 Volume to Capacity ratio			0.35			
Actuated Cycle Length (s)			90.0		Sum of lost time (s) 9.0	
Intersection Capacity Utilization			83.6%		ICU Level of Service E	
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis
 4: Old Lake Wilson Rd/Old Lake Wilson Rd NB & Excitement Dr

05/19/2022

											
Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (veh/h)	0	0	85	0	1801	54	0	0	0	13	0
Future Volume (Veh/h)	0	0	85	0	1801	54	0	0	0	13	0
Sign Control	Stop				Free			Free		Yield	
Grade	0%				0%			0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	89	0	1896	57	0	0	0	14	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type	None					None					
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	1903	1896	948	0			1953			1953	0
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1903	1896	948	0			1953			1953	0
tC, single (s)	7.5	6.5	6.9	4.1			4.1			6.5	6.9
tC, 2 stage (s)											
tF (s)	3.5	4.0	3.3	2.2			2.2			4.0	3.3
p0 queue free %	100	100	66	100			100			78	100
cM capacity (veh/h)	36	70	265	1636			303			65	1091
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SE 1						
Volume Total	89	948	948	57	14						
Volume Left	0	0	0	0	0						
Volume Right	89	0	0	57	0						
cSH	265	1700	1700	1700	65						
Volume to Capacity	0.34	0.56	0.56	0.03	0.22						
Queue Length 95th (ft)	36	0	0	0	18						
Control Delay (s)	25.3	0.0	0.0	0.0	75.2						
Lane LOS	D				F						
Approach Delay (s)	25.3	0.0				75.2					
Approach LOS	D				F						
Intersection Summary											
Average Delay			1.6								
Intersection Capacity Utilization			60.3%		ICU Level of Service				B		
Analysis Period (min)			15								

HCM Signalized Intersection Capacity Analysis

1: Old Lake Wilson Rd and SBL & U-Turn
















05/19/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶					↷↷
Traffic Volume (vph)	54	0	0	0	0	1816
Future Volume (vph)	54	0	0	0	0	1816
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Total Lost time (s)	4.5					4.5
Lane Util. Factor	1.00					0.95
Frt	1.00					1.00
Flt Protected	0.85					1.00
Satd. Flow (prot)	1658					3562
Flt Permitted	0.85					1.00
Satd. Flow (perm)	1658					3562
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	0	0	0	0	1912
RTOR Reduction (vph)	25	0	0	0	0	0
Lane Group Flow (vph)	32	0	0	0	0	1912
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%
Turn Type	Prot					NA
Protected Phases	1					2
Permitted Phases						
Actuated Green, G (s)	6.3					74.7
Effective Green, g (s)	6.3					74.7
Actuated g/C Ratio	0.07					0.83
Clearance Time (s)	4.5					4.5
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	116					2956
v/s Ratio Prot	c0.02					c0.54
v/s Ratio Perm						
v/c Ratio	0.27					0.65
Uniform Delay, d1	39.7					2.8
Progression Factor	1.00					1.00
Incremental Delay, d2	1.3					1.1
Delay (s)	41.0					3.9
Level of Service	D					A
Approach Delay (s)	41.0		0.0			3.9
Approach LOS	D		A			A
Intersection Summary						
HCM 2000 Control Delay			5.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.62			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			84.0%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis
 4: Old Lake Wilson Rd/Old Lake Wilson Rd NB & Excitement Dr

05/19/2022

											
Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (veh/h)	0	0	67	0	1025	69	0	0	0	16	0
Future Volume (Veh/h)	0	0	67	0	1025	69	0	0	0	16	0
Sign Control	Stop				Free			Free		Yield	
Grade	0%				0%			0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	71	0	1079	73	0	0	0	17	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type	None					None					
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	1088	1079	540	0			1152			1152	0
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1088	1079	540	0			1152			1152	0
tC, single (s)	7.5	6.5	6.9	4.1			4.1			6.5	6.9
tC, 2 stage (s)											
tF (s)	3.5	4.0	3.3	2.2			2.2			4.0	3.3
p0 queue free %	100	100	86	100			100			91	100
cM capacity (veh/h)	162	220	492	1636			614			199	1091
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SE 1						
Volume Total	71	540	540	73	17						
Volume Left	0	0	0	0	0						
Volume Right	71	0	0	73	0						
cSH	492	1700	1700	1700	199						
Volume to Capacity	0.14	0.32	0.32	0.04	0.09						
Queue Length 95th (ft)	13	0	0	0	7						
Control Delay (s)	13.6	0.0	0.0	0.0	24.7						
Lane LOS	B				C						
Approach Delay (s)	13.6	0.0				24.7					
Approach LOS	B				C						
Intersection Summary											
Average Delay			1.1								
Intersection Capacity Utilization			38.3%		ICU Level of Service				A		
Analysis Period (min)			15								

HCM Unsignalized Intersection Capacity Analysis

1: Old Lake Wilson Rd and SBL & U-Turn

05/19/2022



















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶					↷↷
Traffic Volume (veh/h)	69	0	0	0	0	744
Future Volume (Veh/h)	69	0	0	0	0	744
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	73	0	0	0	0	783
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	392	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392	0			0	
tC, single (s)	*4.1	6.9			4.1	
tC, 2 stage (s)						
tF (s)	*2.6	3.3			2.2	
p0 queue free %	93	100			100	
cM capacity (veh/h)	1018	1091			1636	
Direction, Lane #	WB 1	SB 1	SB 2			
Volume Total	73	392	392			
Volume Left	73	0	0			
Volume Right	0	0	0			
cSH	1018	1700	1700			
Volume to Capacity	0.07	0.23	0.23			
Queue Length 95th (ft)	6	0	0			
Control Delay (s)	8.8	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	8.8	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			63.6%	ICU Level of Service	B	
Analysis Period (min)			15			

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
 4: Old Lake Wilson Rd/Old Lake Wilson Rd NB & Excitement Dr

05/19/2022

												
Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER	
Lane Configurations												
Traffic Volume (veh/h)	0	0	85	0	1354	54	0	0	0	13	0	
Future Volume (Veh/h)	0	0	85	0	1354	54	0	0	0	13	0	
Sign Control	Stop				Free			Free		Yield		
Grade	0%				0%			0%		0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	0	0	89	0	1425	57	0	0	0	14	0	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
None						None						
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1432	1425	712	0			1482			1482	0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1432	1425	712	0			1482			1482	0	
tC, single (s)	7.5	6.5	6.9	4.1			4.1			6.5	6.9	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			4.0	3.3	
p0 queue free %	100	100	77	100			100			89	100	
cM capacity (veh/h)	88	137	379	1636			460			126	1091	
Direction, Lane #												
	WB 1	NB 1	NB 2	NB 3	SE 1							
Volume Total	89	712	712	57	14							
Volume Left	0	0	0	0	0							
Volume Right	89	0	0	57	0							
cSH	379	1700	1700	1700	126							
Volume to Capacity	0.23	0.42	0.42	0.03	0.11							
Queue Length 95th (ft)	22	0	0	0	9							
Control Delay (s)	17.4	0.0	0.0	0.0	37.0							
Lane LOS	C				E							
Approach Delay (s)	17.4	0.0			37.0							
Approach LOS	C				E							
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			48.3%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Old Lake Wilson Rd and SBL & U-Turn

05/19/2022



















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	0	0	0	0	1374
Future Volume (Veh/h)	54	0	0	0	0	1374
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	57	0	0	0	0	1446
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	723	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	723	0			0	
tC, single (s)	*4.1	6.9			4.1	
tC, 2 stage (s)						
tF (s)	*2.6	3.3			2.2	
p0 queue free %	93	100			100	
cM capacity (veh/h)	780	1091			1636	
Direction, Lane #	WB 1	SB 1	SB 2			
Volume Total	57	723	723			
Volume Left	57	0	0			
Volume Right	0	0	0			
cSH	780	1700	1700			
Volume to Capacity	0.07	0.43	0.43			
Queue Length 95th (ft)	6	0	0			
Control Delay (s)	10.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	10.0	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization		63.7%		ICU Level of Service		B
Analysis Period (min)			15			

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
 4: Old Lake Wilson Rd/Old Lake Wilson Rd NB & Excitement Dr

05/19/2022

												
Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER	
Lane Configurations												
Traffic Volume (veh/h)	0	0	67	0	731	69	0	0	0	16	0	
Future Volume (Veh/h)	0	0	67	0	731	69	0	0	0	16	0	
Sign Control	Stop				Free		Free		Yield			
Grade	0%				0%		0%		0%			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	0	0	71	0	769	73	0	0	0	17	0	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
None						None						
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	778	769	384	0			842			842	0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	778	769	384	0			842			842	0	
tC, single (s)	7.5	6.5	6.9	4.1			4.1			6.5	6.9	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			4.0	3.3	
p0 queue free %	100	100	89	100			100			94	100	
cM capacity (veh/h)	278	334	619	1636			802			303	1091	
Direction, Lane #												
	WB 1	NB 1	NB 2	NB 3	SE 1							
Volume Total	71	384	384	73	17							
Volume Left	0	0	0	0	0							
Volume Right	71	0	0	73	0							
cSH	619	1700	1700	1700	303							
Volume to Capacity	0.11	0.23	0.23	0.04	0.06							
Queue Length 95th (ft)	10	0	0	0	4							
Control Delay (s)	11.6	0.0	0.0	0.0	17.6							
Lane LOS	B				C							
Approach Delay (s)	11.6	0.0			17.6							
Approach LOS	B				C							
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			30.4%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Old Lake Wilson Rd and SBL & U-Turn

05/19/2022



















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↱↱
Traffic Volume (veh/h)	69	0	0	0	0	1025
Future Volume (Veh/h)	69	0	0	0	0	1025
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	73	0	0	0	0	1079
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	540	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	540	0			0	
tC, single (s)	*4.1	6.9			4.1	
tC, 2 stage (s)						
tF (s)	*2.6	3.3			2.2	
p0 queue free %	92	100			100	
cM capacity (veh/h)	904	1091			1636	
Direction, Lane #	WB 1	SB 1	SB 2			
Volume Total	73	540	540			
Volume Left	73	0	0			
Volume Right	0	0	0			
cSH	904	1700	1700			
Volume to Capacity	0.08	0.32	0.32			
Queue Length 95th (ft)	7	0	0			
Control Delay (s)	9.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.3	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			83.2%	ICU Level of Service	E	
Analysis Period (min)			15			

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
 4: Old Lake Wilson Rd/Old Lake Wilson Rd NB & Excitement Dr

05/19/2022

												
Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER	
Lane Configurations												
Traffic Volume (veh/h)	0	0	85	0	1801	54	0	0	0	13	0	
Future Volume (Veh/h)	0	0	85	0	1801	54	0	0	0	13	0	
Sign Control	Stop				Free		Free			Yield		
Grade	0%				0%		0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	0	0	89	0	1896	57	0	0	0	14	0	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None					None						
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1903	1896	948	0			1953			1953	0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1903	1896	948	0			1953			1953	0	
tC, single (s)	7.5	6.5	6.9	4.1			4.1			6.5	6.9	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			4.0	3.3	
p0 queue free %	100	100	66	100			100			78	100	
cM capacity (veh/h)	36	70	265	1636			303			65	1091	
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SE 1							
Volume Total	89	948	948	57	14							
Volume Left	0	0	0	0	0							
Volume Right	89	0	0	57	0							
cSH	265	1700	1700	1700	65							
Volume to Capacity	0.34	0.56	0.56	0.03	0.22							
Queue Length 95th (ft)	36	0	0	0	18							
Control Delay (s)	25.3	0.0	0.0	0.0	75.2							
Lane LOS	D				F							
Approach Delay (s)	25.3	0.0				75.2						
Approach LOS	D				F							
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			60.3%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Old Lake Wilson Rd and SBL & U-Turn

05/19/2022



















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰					↱↱
Traffic Volume (veh/h)	54	0	0	0	0	1816
Future Volume (Veh/h)	54	0	0	0	0	1816
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	57	0	0	0	0	1912
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	956	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	956	0			0	
tC, single (s)	*4.1	6.9			4.1	
tC, 2 stage (s)						
tF (s)	*2.6	3.3			2.2	
p0 queue free %	91	100			100	
cM capacity (veh/h)	645	1091			1636	
Direction, Lane #	WB 1	SB 1	SB 2			
Volume Total	57	956	956			
Volume Left	57	0	0			
Volume Right	0	0	0			
cSH	645	1700	1700			
Volume to Capacity	0.09	0.56	0.56			
Queue Length 95th (ft)	7	0	0			
Control Delay (s)	11.1	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	11.1	0.0				
Approach LOS	B					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			83.5%	ICU Level of Service	E	
Analysis Period (min)			15			

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
 4: Old Lake Wilson Rd/Old Lake Wilson Rd NB & Excitement Dr

05/19/2022

												
Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER	
Lane Configurations												
Traffic Volume (veh/h)	0	0	67	0	1025	69	0	0	0	16	0	
Future Volume (Veh/h)	0	0	67	0	1025	69	0	0	0	16	0	
Sign Control	Stop				Free		Free			Yield		
Grade	0%				0%		0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	0	0	71	0	1079	73	0	0	0	17	0	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
None						None						
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1088	1079	540	0			1152			1152	0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1088	1079	540	0			1152			1152	0	
tC, single (s)	7.5	6.5	6.9	4.1			4.1			6.5	6.9	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			4.0	3.3	
p0 queue free %	100	100	86	100			100			91	100	
cM capacity (veh/h)	162	220	492	1636			614			199	1091	
Direction, Lane #												
	WB 1	NB 1	NB 2	NB 3	SE 1							
Volume Total	71	540	540	73	17							
Volume Left	0	0	0	0	0							
Volume Right	71	0	0	73	0							
cSH	492	1700	1700	1700	199							
Volume to Capacity	0.14	0.32	0.32	0.04	0.09							
Queue Length 95th (ft)	13	0	0	0	7							
Control Delay (s)	13.6	0.0	0.0	0.0	24.7							
Lane LOS	B				C							
Approach Delay (s)	13.6	0.0			24.7							
Approach LOS	B				C							
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			38.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Appendix G: Additional Excitement Drive Stage 2 SPICE Results

Federal Highway Administration (FHWA)										
Safety Performance for Intersection Control Evaluation Tool										
Results										
Summary of crash prediction results for each alternative										
Project Information										
Project Name:	Old Lake Wilson Road PD&E Study			Intersection Type			At-Grade Intersections			
Intersection:	Old Lake Wilson Road & Excitement Drive			Opening Year			2030			
Agency:	Osceola County			Design Year			2050			
Project Reference:	25408			Facility Type			On Urban and Suburban Arterial			
City:	Osceola County			Number of Legs			3-leg			
State:	Florida			1-Way/2-Way			2-way Intersecting 2-way			
Date:	1/18/2022			# of Major Street Lanes (both directions)			5 or fewer			
Analyst:	APG			Major Street Approach Speed			Less than 55 mph			
Crash Prediction Summary										
Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score		
								Open Year	Design Year	Rank
Minor Road Stop	Total	6.21	8.54	154.74	1	Yes	Calibrated SPF w/ EB	46	34	3
	Fatal & Injury	1.13	1.53	27.97						
Signalized RCUT	Total	5.54	7.65	138.42	3	Yes	Uncalibrated SPF	75	67	1
	Fatal & Injury	1.65	2.26	41.03						
Unsignalized RCUT	Total	3.47	4.19	80.24	2	Yes	Uncalibrated SPF	66	56	2
	Fatal & Injury	1.48	1.77	34.20						

Appendix H: Additional Excitement Drive ICE Tool Results

Outputs

This sheet compiles the data from summary tables in individual alternatives sheets. To populate the output sheet press the "Setup Worksheets" button in the Alternatives MasterList tab.

Agency:	Osceola County
Project Name:	Old Lake Wilson Road PD&E Study
Project Reference:	25408
Intersection:	Old Lake Wilson Road & Excitement Drive
City:	Osceola County
State:	Florida
Performing Department or Organization:	Kittelson
Date:	11/12/2021
Analyst:	APG
Analysis Type	At-Grade Intersection

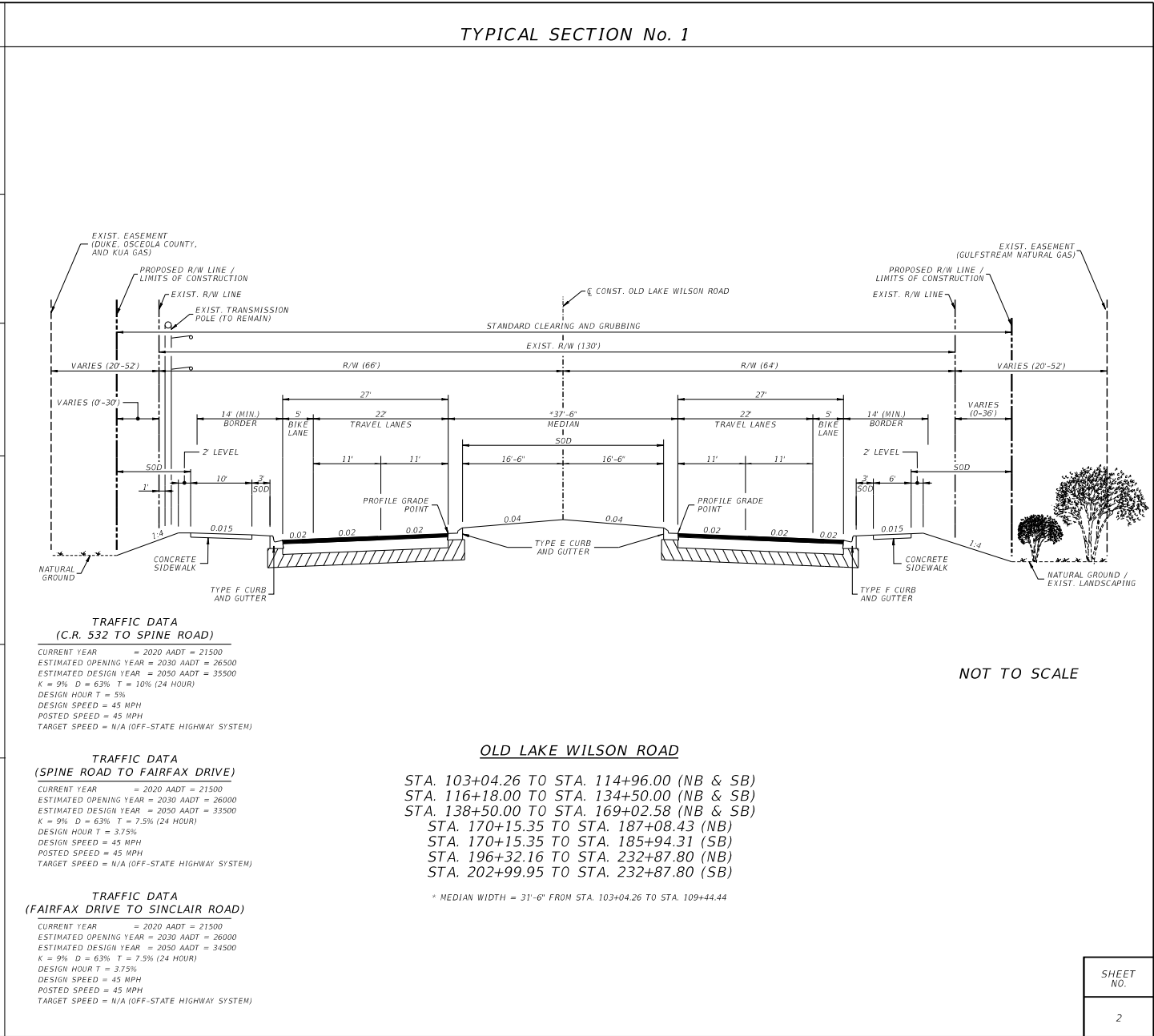
Analysis Summary

Cost Categories	Net Present Value of Costs		
	Two-Way Stop Control	Signalized Restricted Crossing U-Turn (RCUT)	Unsignalized Restricted Crossing U-Turn (RCUT)
Planning, Construction & Right of Way Costs	\$ 320,708	\$ 466,107	\$ 370,834
Post-Opening Costs	\$ 14,590	\$ 238,276	\$ 29,181
Auto Passenger Delay	\$ 1,057,561	\$ 3,291,765	\$ 1,150,365
Truck Delay	\$ 141,279	\$ 438,887	\$ 153,710
Safety	\$ 6,563,647	\$ 9,173,434	\$ 7,557,440
Total cost	\$8,097,785	\$13,608,470	\$9,261,530

Select Base Case for Benefit-Cost Comparison: (Choose from list)	Two-Way Stop Control		
Benefit Categories	Net Present Value of Benefits Relative to Base Case		
	Two-Way Stop Control	Signalized Restricted Crossing U-Turn (RCUT)	Unsignalized Restricted Crossing U-Turn (RCUT)
Auto Passenger Delay		\$ (2,234,203)	\$ (92,803)
Truck Delay		\$ (297,608)	\$ (12,432)
Safety		\$ (2,609,787)	\$ (993,793)
Net Present Value of Benefits		\$ (5,141,599)	\$ (1,099,028)
Net Present Value of Costs		\$ 369,086	\$ 64,717
Net Present Value of Improvement		\$ (5,510,685)	\$ (1,163,745)
Benefit-Cost (B/C) Ratio		Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.	Control Strategy not preferred. Benefits are less than base case and cost is greater than base case.
Delay B/C		preferred. Benefits are less than base case and cost is greater than base	preferred. Benefits are less than base case and cost is greater than base
Safety B/C		preferred. Benefits are less than base case and cost is greater than base	preferred. Benefits are less than base case and cost is greater than base

APPENDIX B – Typical Section Package

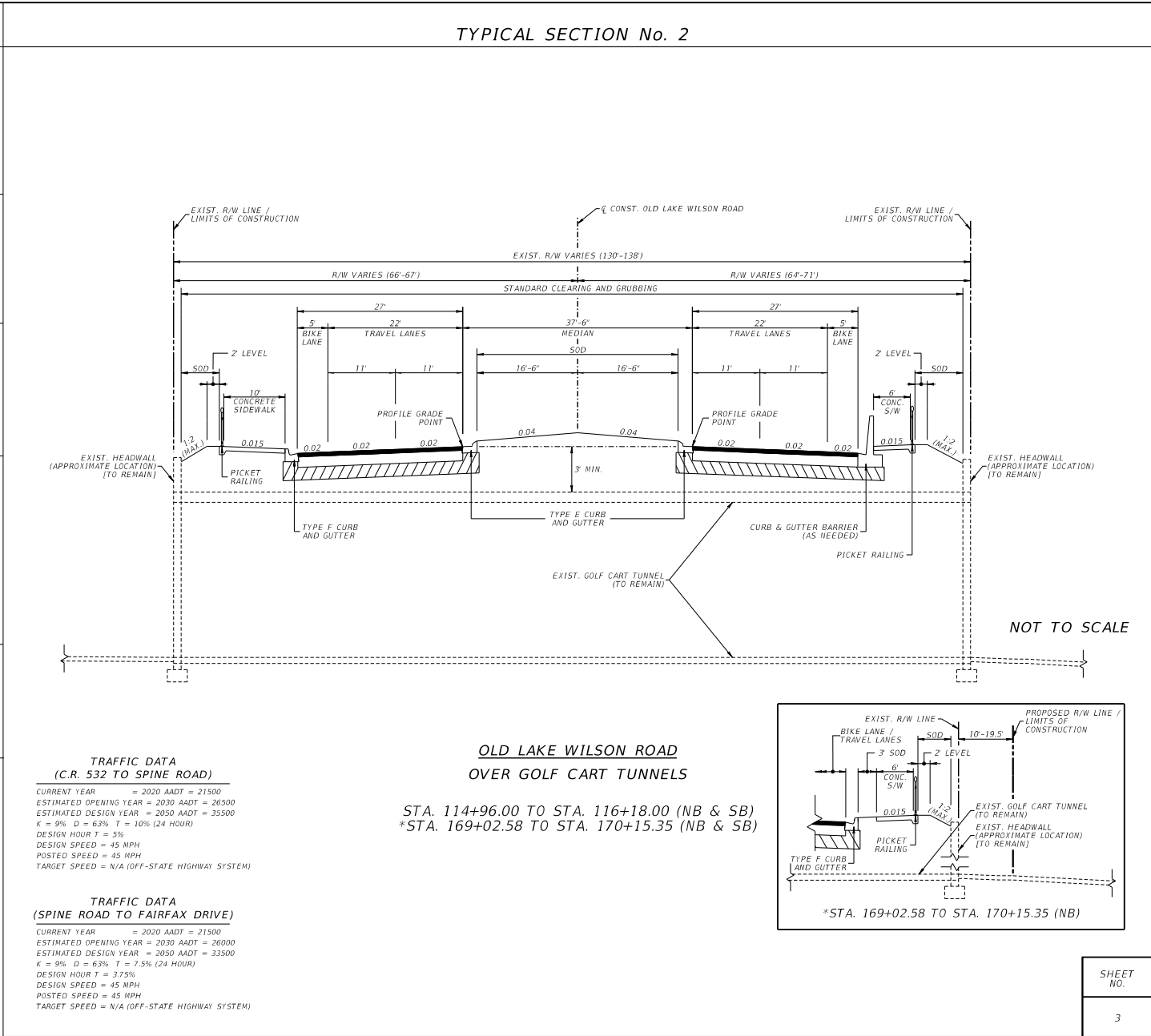
PROJECT CONTROLS	
CONTEXT CLASSIFICATION	
() C1 : NATURAL	() C3C : SUBURBAN COMM.
() C2 : RURAL	() C4 : URBAN GENERAL
() C2T : RURAL TOWN	() C5 : URBAN CENTER
() C3R : SUBURBAN RES.	() C6 : URBAN CORE
() N/A : L.A. FACILITY	(X) N/A : OFF-STATE HIGHWAY
FUNCTIONAL CLASSIFICATION	
() INTERSTATE	() MAJOR COLLECTOR
() FREEWAY/EXPWY.	() MINOR COLLECTOR
() PRINCIPAL ARTERIAL	() LOCAL
(X) MINOR ARTERIAL	
HIGHWAY SYSTEM	
() NATIONAL HIGHWAY SYSTEM	
() STRATEGIC INTERMODAL SYSTEM	
() STATE HIGHWAY SYSTEM	
(X) OFF-STATE HIGHWAY SYSTEM	
ACCESS CLASSIFICATION	
() 1 - FREEWAY	
() 2 - RESTRICTIVE w/Service Roads	
() 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	
(X) N/A - OFF-STATE HIGHWAY SYSTEM	
CRITERIA	
(X) NEW CONSTRUCTION / RECONSTRUCTION	
() RESURFACING (LA FACILITIES)	
() RRR (ARTERIALS & COLLECTORS)	
POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:	
DESIGN VARIATION: BIKE LANE WIDTH	



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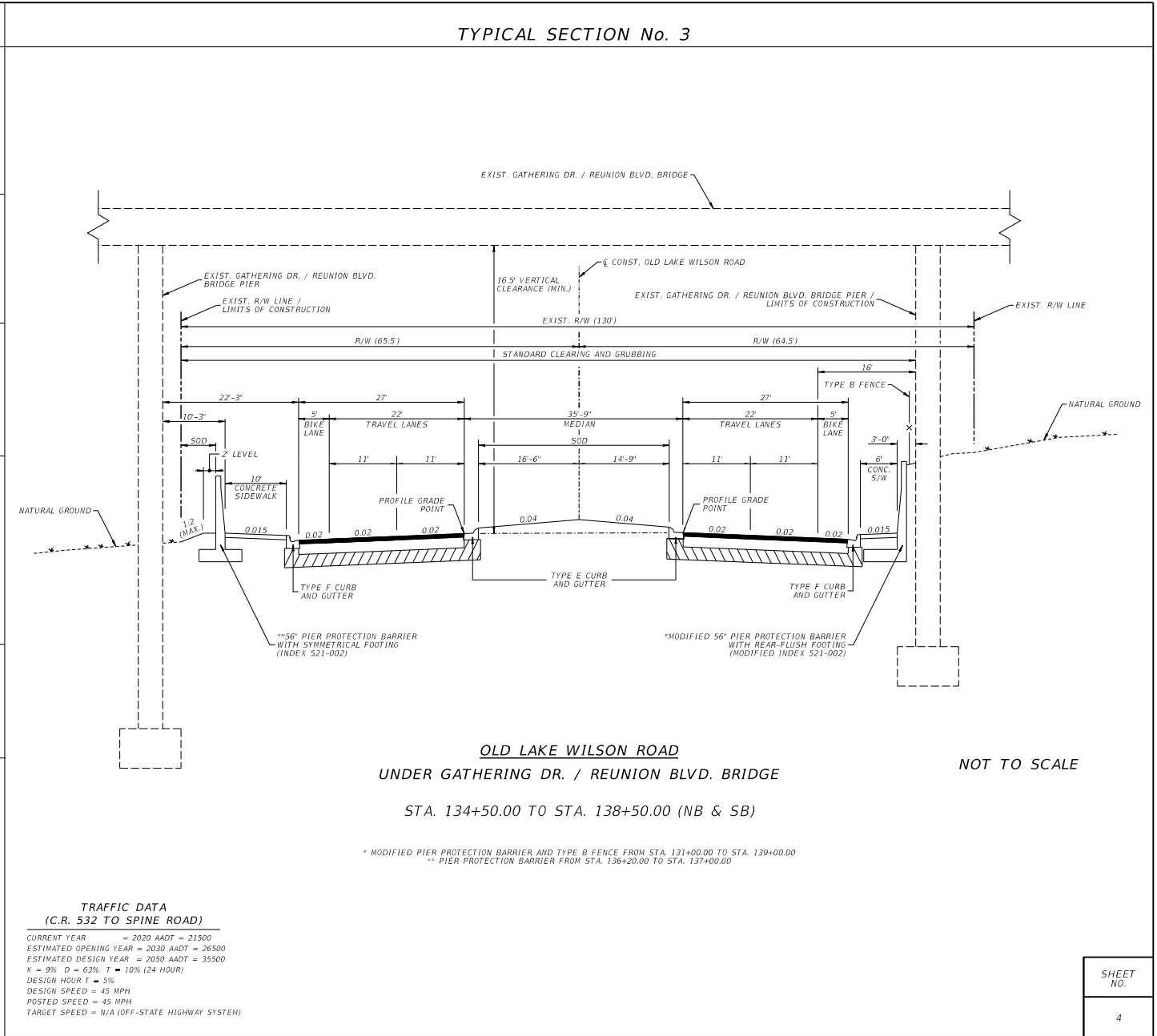
SHEET NO.
2

PROJECT CONTROLS	
CONTEXT CLASSIFICATION	
() C1 : NATURAL	() 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	(X) N/A : OFF-STATE HIGHWAY
FUNCTIONAL CLASSIFICATION	
() INTERSTATE	() MAJOR COLLECTOR
() FREEWAY/EXPWY.	() MINOR COLLECTOR
() PRINCIPAL ARTERIAL	() LOCAL
(X) MINOR ARTERIAL	
HIGHWAY SYSTEM	
() NATIONAL HIGHWAY SYSTEM	
() STRATEGIC INTERMODAL SYSTEM	
() STATE HIGHWAY SYSTEM	
(X) OFF-STATE HIGHWAY SYSTEM	
ACCESS CLASSIFICATION	
() 1 - FREEWAY	
() 2 - RESTRICTIVE w/Service Roads	
() 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	
(X) N/A - OFF-STATE HIGHWAY SYSTEM	
CRITERIA	
(X) NEW CONSTRUCTION / RECONSTRUCTION	
() RESURFACING (LA FACILITIES)	
() RRR (ARTERIALS & COLLECTORS)	
POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:	
DESIGN VARIATION: BIKE LANE WIDTH	



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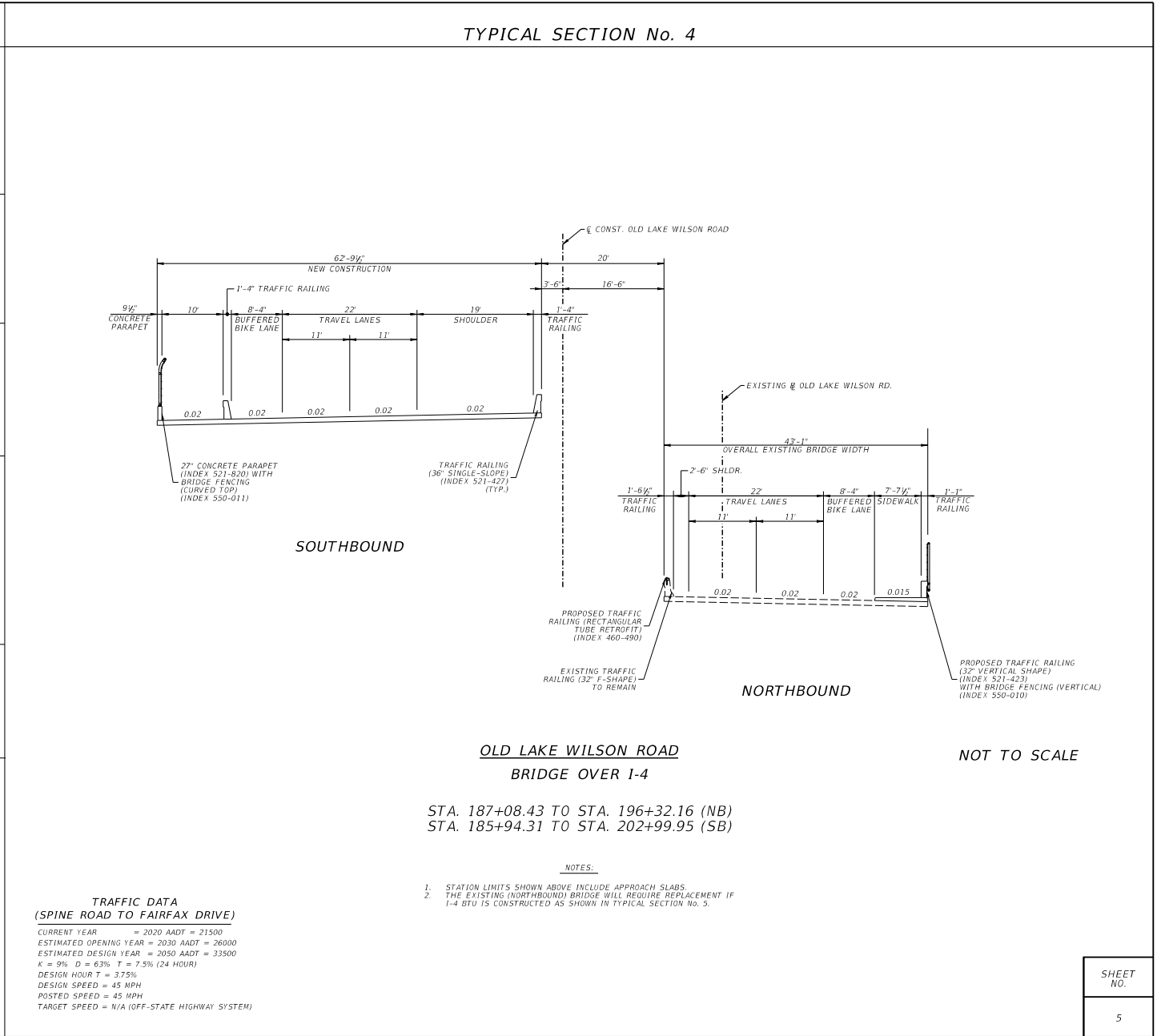
PROJECT CONTROLS	
CONTEXT CLASSIFICATION	
() C1 : NATURAL	() C3C : SUBURBAN COMM.
() C2 : RURAL	() C4 : URBAN GENERAL
() C2T : RURAL TOWN	() C5 : URBAN CENTER
() C3R : SUBURBAN RES.	() C6 : URBAN CORE
() N/A : L.A. FACILITY	(X) N/A : OFF-STATE HIGHWAY
FUNCTIONAL CLASSIFICATION	
() INTERSTATE	() MAJOR COLLECTOR
() FREEWAY/EXPWY.	() MINOR COLLECTOR
() PRINCIPAL ARTERIAL	() LOCAL
(X) MINOR ARTERIAL	
HIGHWAY SYSTEM	
() NATIONAL HIGHWAY SYSTEM	
() STRATEGIC INTERMODAL SYSTEM	
() STATE HIGHWAY SYSTEM	
(X) OFF-STATE HIGHWAY SYSTEM	
ACCESS CLASSIFICATION	
() 1 - FREEWAY	
() 2 - RESTRICTIVE w/Service Roads	
() 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	
(X) N/A - OFF-STATE HIGHWAY SYSTEM	
CRITERIA	
(X) NEW CONSTRUCTION / RECONSTRUCTION	
() RESURFACING (LA FACILITIES)	
() RRR (ARTERIALS & COLLECTORS)	
POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:	
DESIGN VARIATION: BIKE LANE WIDTH	



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SHEET NO.
4

PROJECT CONTROLS	
CONTEXT CLASSIFICATION	
() C1 : NATURAL	() 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	(X) N/A : OFF-STATE HIGHWAY
FUNCTIONAL CLASSIFICATION	
() INTERSTATE	() MAJOR COLLECTOR
() FREEWAY/EXPWY.	() MINOR COLLECTOR
() PRINCIPAL ARTERIAL	() LOCAL
(X) MINOR ARTERIAL	
HIGHWAY SYSTEM	
() NATIONAL HIGHWAY SYSTEM	
() STRATEGIC INTERMODAL SYSTEM	
() STATE HIGHWAY SYSTEM	
(X) OFF-STATE HIGHWAY SYSTEM	
ACCESS CLASSIFICATION	
() 1 - FREEWAY	
() 2 - RESTRICTIVE w/Service Roads	
() 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	
(X) N/A - OFF-STATE HIGHWAY SYSTEM	
CRITERIA	
(X) NEW CONSTRUCTION / RECONSTRUCTION	
() RESURFACING (LA FACILITIES)	
() RRR (ARTERIALS & COLLECTORS)	
POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:	
DESIGN VARIATION: BIKE LANE WIDTH	



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SHEET NO.
5

PROJECT CONTROLS

CONTEXT CLASSIFICATION

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

FUNCTIONAL CLASSIFICATION

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

HIGHWAY SYSTEM

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

ACCESS CLASSIFICATION

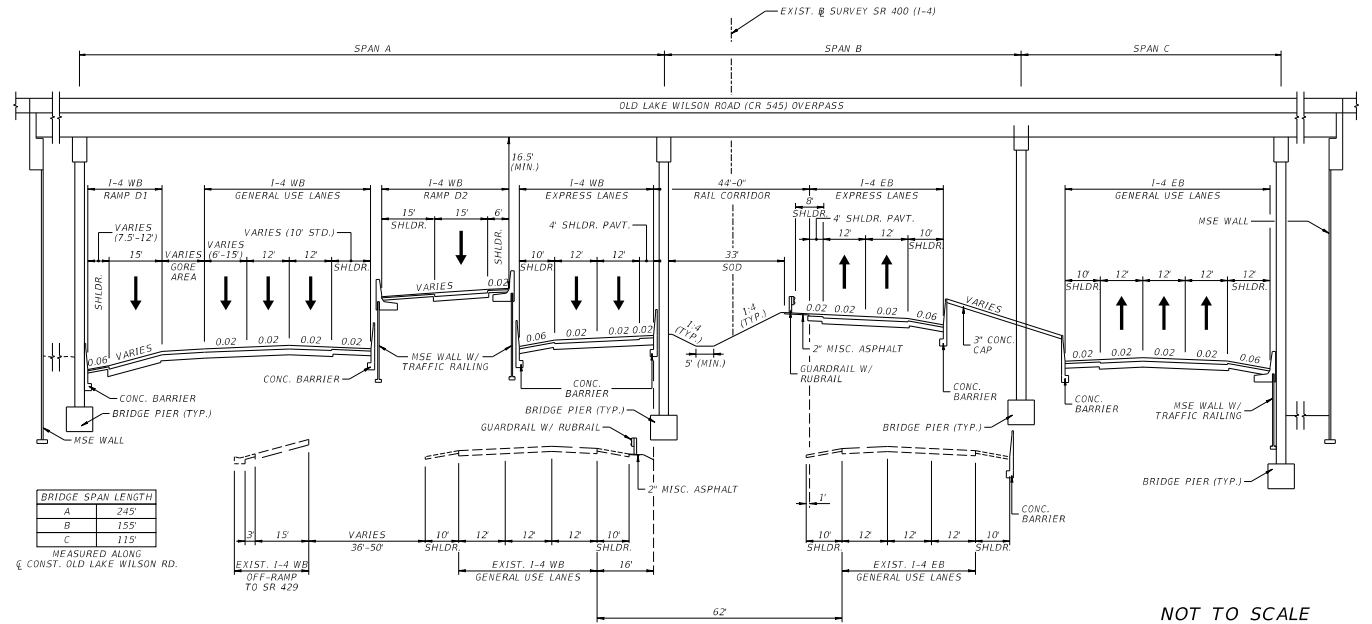
- (X) 1 - FREEWAY
- () 2 - RESTRICTIVE w/Service Roads
- () 3 - RESTRICTIVE w/660 ft. Connection Spacing
- () 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
- () 5 - RESTRICTIVE w/440 ft. Connection Spacing
- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
- () 7 - BOTH MEDIAN TYPES
- () N/A - OFF-STATE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

CRITERIA

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

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 5



SR 400 (I-4) "BEYOND THE ULTIMATE" AT OLD LAKE WILSON ROAD OVERPASS

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 161550
 ESTIMATED OPENING YEAR = 2030 AADT = 176000
 ESTIMATED DESIGN YEAR = 2050 AADT = 210400
 K = 7% D = 55% T = 6% (24 HOUR)
 DESIGN HOUR T = 3%
 DESIGN SPEED = 70 MPH
 POSTED SPEED = 60 MPH
 TARGET SPEED = N/A (L.A. FACILITY)

SHEET NO.

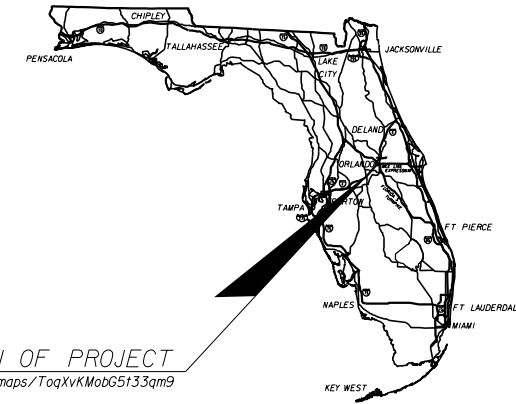
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APPENDIX C – Preferred Alternative Concept Plans



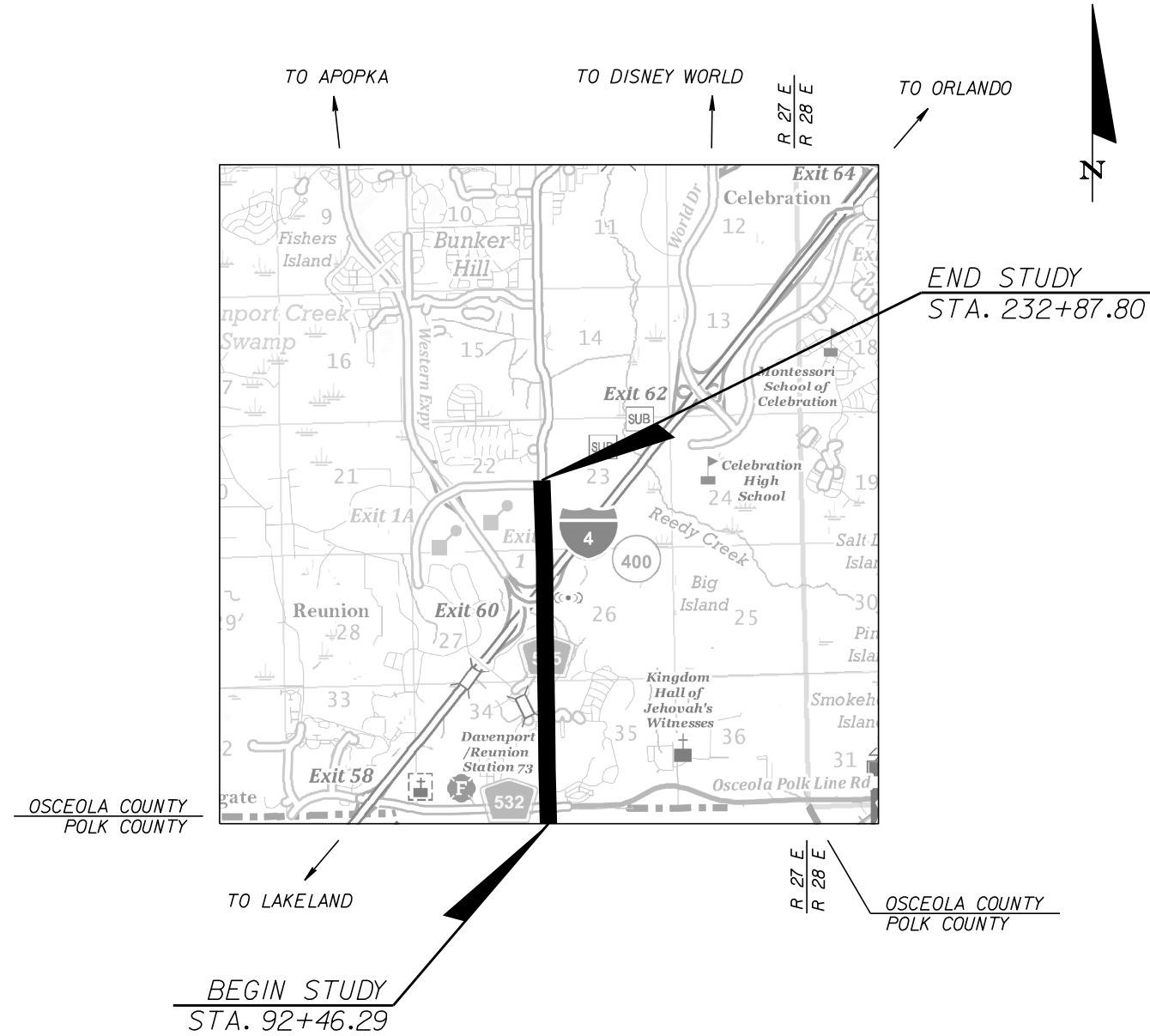
**OSCEOLA COUNTY
ENGINEERING DEPARTMENT**
1 Courthouse Square, Suite 1100
Kissimmee, Florida 34741-5488
Voice: (407) 343-2600 Fax (407) 343-2623

**BOARD OF COUNTY COMMISSIONERS
OSCEOLA COUNTY, FLORIDA
ENGINEERING DEPARTMENT**
CONCEPT PLANS FOR
COUNTY PROJECT NO. 11842
FINANCIAL PROJECT ID 448781-1-22-01
OLD LAKE WILSON ROAD RECONSTRUCTION
FROM OSCEOLA POLK LINE ROAD (CR 532) TO SINCLAIR ROAD



INDEX OF CONCEPT PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2-9	CONCEPT TYPICAL SECTIONS
10-11	CONCEPT TYPICAL SECTION DETAILS
12-23	CONCEPT PLAN
24-34	CONCEPT PROFILE

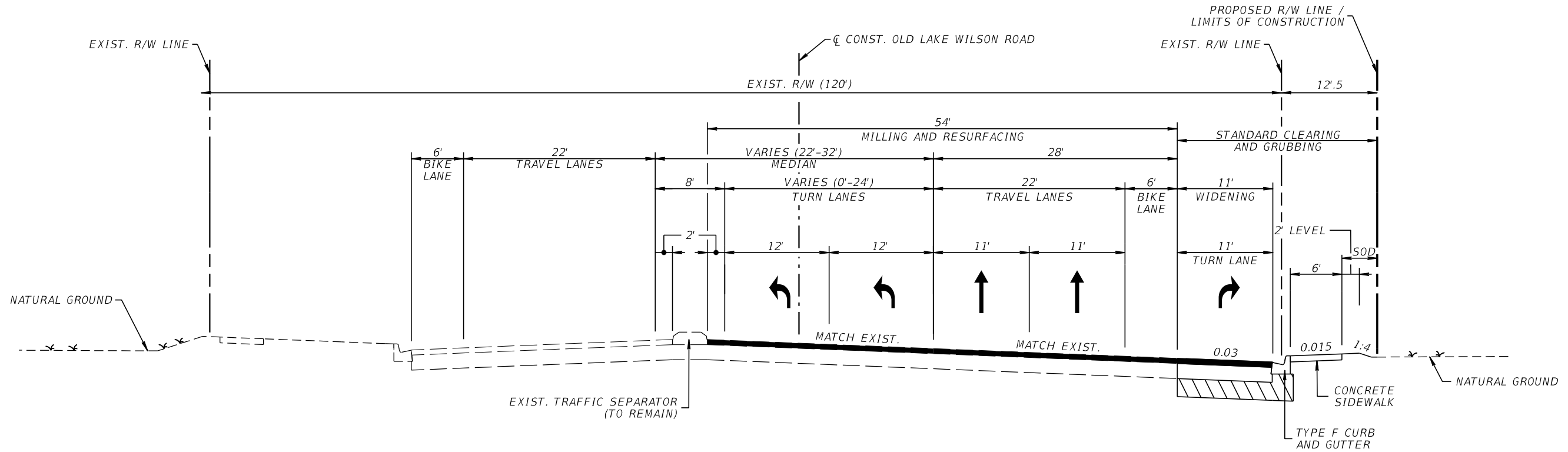


ROADWAY PLANS
ENGINEER OF RECORD:
KEVIN JOSEPH IANNARONE NO.: 71527
INWOOD CONSULTING ENGINEERS
3000 DOVERA DRIVE, SUITE 200
OVIDO, FLORIDA 32765
P: 407.971.8850 F:407.971.8955
CONTRACT NO.: C19-11-1061
VENDOR NO.: F593216593003

OSCEOLA COUNTY PROJECT MANAGER
STEPHANIE UNDERWOOD, P.E.

**PREFERRED ALTERNATIVE
CONCEPT PLANS**

FISCAL YEAR	SHEET NO.



TYPICAL SECTION 1
OLD LAKE WILSON ROAD

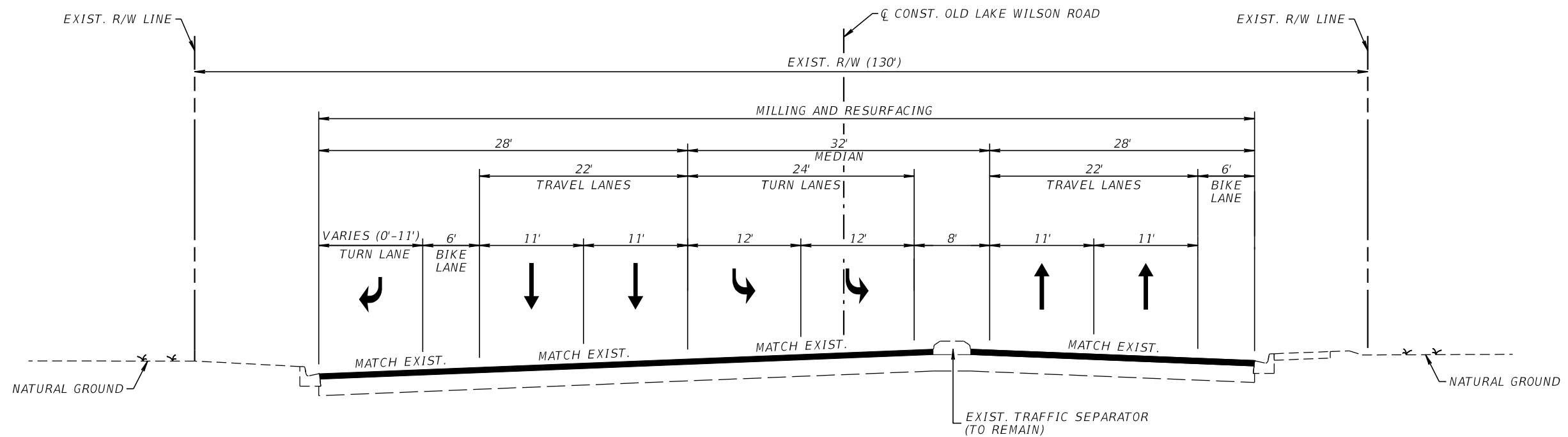
STA. 92+46.29 TO STA. 99+45.98 (NB & SB)

TRAFFIC DATA
(C.R. 532 TO SPINE ROAD)

CURRENT YEAR = 2020 AADT = 21500
 ESTIMATED OPENING YEAR = 2030 AADT = 26500
 ESTIMATED DESIGN YEAR = 2050 AADT = 35500
 K = 9% D = 63% T = 10% (24 HOUR)
 DESIGN HOUR T = 5%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

REVISIONS			ENGINEER OF RECORD	OSCEOLA COUNTY ENGINEERING DEPARTMENT	SHEET NO.
DATE	BY	DESCRIPTION			
			Kevin Joseph Iannarone, PE PE No. 71527 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765	1 Courthouse Square, Suite 1100 Kissimmee, Florida 34741-5488 Voice: (407) 343-2600 Fax (407) 343-2623	CONCEPT TYPICAL SECTIONS

OLD LAKE WILSON ROAD
PD&E STUDY



TYPICAL SECTION 2
OLD LAKE WILSON ROAD

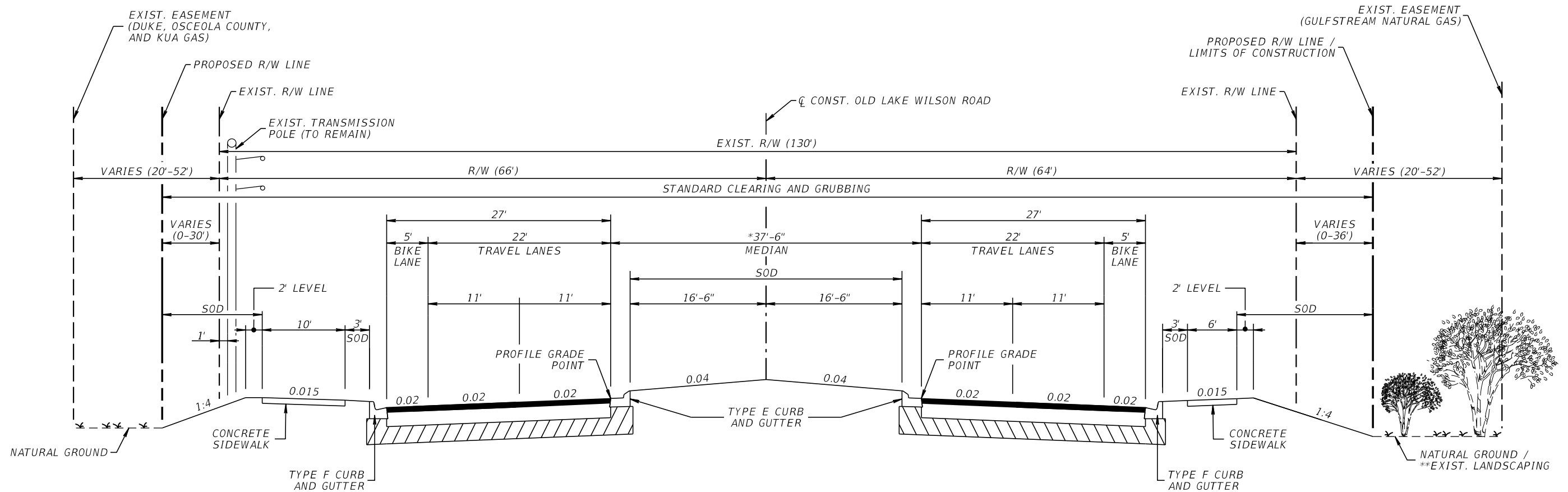
STA. 99+45.82 TO STA. 103+04.26 (NB & SB)

TRAFFIC DATA
(C.R. 532 TO SPINE ROAD)

CURRENT YEAR = 2020 AADT = 21500
 ESTIMATED OPENING YEAR = 2030 AADT = 26500
 ESTIMATED DESIGN YEAR = 2050 AADT = 35500
 K = 9% D = 63% T = 10% (24 HOUR)
 DESIGN HOUR T = 5%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

REVISIONS			ENGINEER OF RECORD	OSCEOLA COUNTY ENGINEERING DEPARTMENT	SHEET NO.
DATE	BY	DESCRIPTION			
			Kevin Joseph Iannarone, PE PE No. 71527 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765	1 Courthouse Square, Suite 1100 Kissimmee, Florida 34741-5488 Voice: (407) 343-2600 Fax (407) 343-2623	CONCEPT TYPICAL SECTIONS

OLD LAKE WILSON ROAD
PD&E STUDY



**TRAFFIC DATA
(C.R. 532 TO SPINE ROAD)**

CURRENT YEAR = 2020 AADT = 21500
 ESTIMATED OPENING YEAR = 2030 AADT = 26500
 ESTIMATED DESIGN YEAR = 2050 AADT = 35500
 K = 9% D = 63% T = 10% (24 HOUR)
 DESIGN HOUR T = 5%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

**TRAFFIC DATA
(SPINE ROAD TO FAIRFAX DRIVE)**

CURRENT YEAR = 2020 AADT = 21500
 ESTIMATED OPENING YEAR = 2030 AADT = 26000
 ESTIMATED DESIGN YEAR = 2050 AADT = 33500
 K = 9% D = 63% T = 7.5% (24 HOUR)
 DESIGN HOUR T = 3.75%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

**TRAFFIC DATA
(FAIRFAX DRIVE TO SINCLAIR ROAD)**

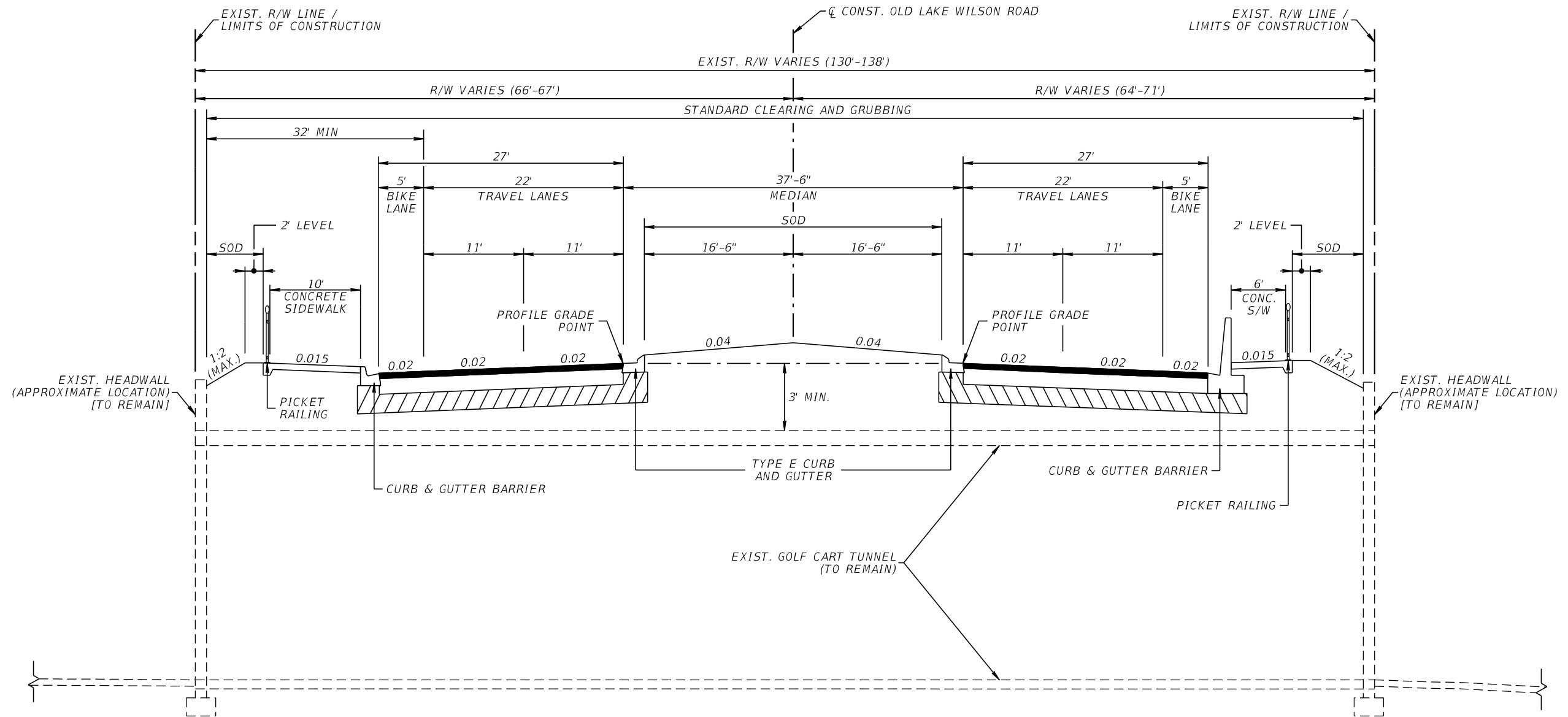
CURRENT YEAR = 2020 AADT = 21500
 ESTIMATED OPENING YEAR = 2030 AADT = 26000
 ESTIMATED DESIGN YEAR = 2050 AADT = 34500
 K = 9% D = 63% T = 7.5% (24 HOUR)
 DESIGN HOUR T = 3.75%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

**TYPICAL SECTION 3
OLD LAKE WILSON ROAD**

STA. 103+04.26 TO STA. 114+96.00 (NB & SB)
 STA. 116+18.00 TO STA. 134+50.00 (NB & SB)
 STA. 138+50.00 TO STA. 169+02.58 (NB & SB)
 STA. 170+15.35 TO STA. 187+08.43 (NB)
 STA. 170+15.35 TO STA. 185+94.31 (SB)
 STA. 196+32.16 TO STA. 232+87.80 (NB)
 STA. 202+99.95 TO STA. 232+87.80 (SB)

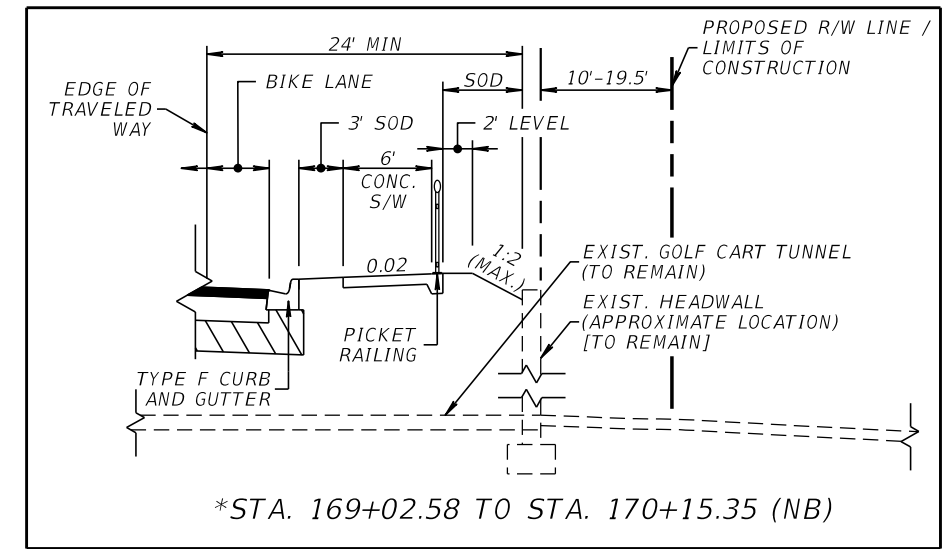
* MEDIAN WIDTH = 31'-6" FROM STA. 103+04.26 TO STA. 109+44.44
 ** STA. 109+00.00 TO STA. 141+00.00, SEE PLAN VIEW FOR POTENTIAL LANDSCAPE IMPACTS.

REVISIONS			ENGINEER OF RECORD	OSCEOLA COUNTY ENGINEERING DEPARTMENT	SHEET NO.
DATE	BY	DESCRIPTION			
			Kevin Joseph Iannarone, PE PE No. 71527 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765	1 Courthouse Square, Suite 1100 Kissimmee, Florida 34741-5488 Voice: (407) 343-2600 Fax (407) 343-2623	
OLD LAKE WILSON ROAD PD&E STUDY			CONCEPT TYPICAL SECTIONS		



TYPICAL SECTION 4
OLD LAKE WILSON ROAD
OVER GOLF CART TUNNELS

STA. 114+96.00 TO STA. 116+18.00 (NB & SB)
 *STA. 169+02.58 TO STA. 170+15.35 (NB & SB)



TRAFFIC DATA
(C.R. 532 TO SPINE ROAD)

CURRENT YEAR = 2020 AADT = 21500
 ESTIMATED OPENING YEAR = 2030 AADT = 26000
 ESTIMATED DESIGN YEAR = 2050 AADT = 35500
 K = 9% D = 63% T = 10% (24 HOUR)
 DESIGN HOUR T = 5%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

TRAFFIC DATA
(SPINE ROAD TO FAIRFAX DRIVE)

CURRENT YEAR = 2020 AADT = 21500
 ESTIMATED OPENING YEAR = 2030 AADT = 26000
 ESTIMATED DESIGN YEAR = 2050 AADT = 33500
 K = 9% D = 63% T = 7.5% (24 HOUR)
 DESIGN HOUR T = 3.75%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

REVISIONS		
DATE	BY	DESCRIPTION

OLD LAKE WILSON ROAD
PD&E STUDY

ENGINEER OF RECORD

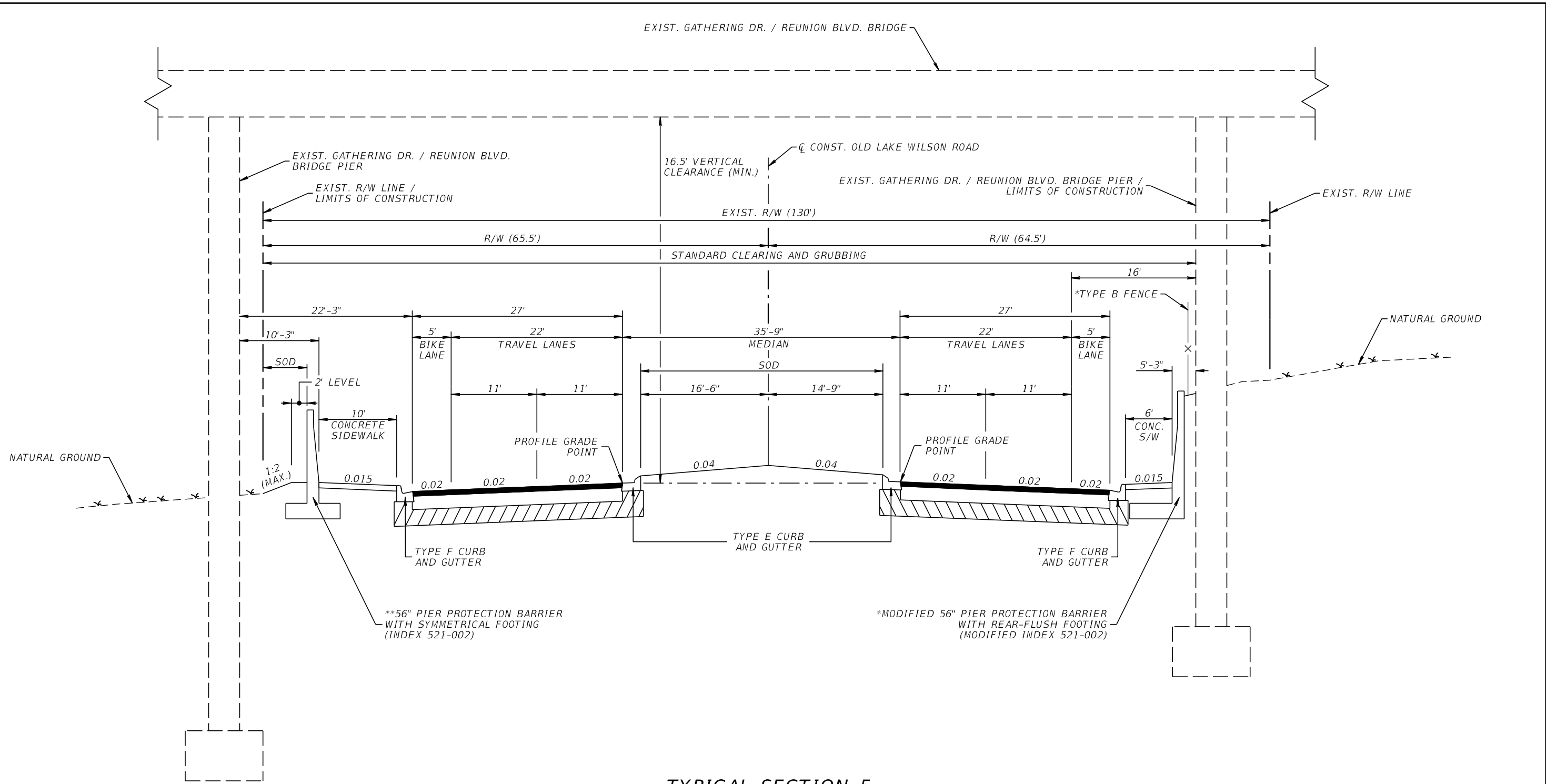
Kevin Joseph Iannarone, PE
 PE No. 71527
 Inwood Consulting Engineers, Inc.
 3000 Dovera Drive, Suite 200
 Oviedo, Florida 32765



OSCEOLA COUNTY
ENGINEERING DEPARTMENT
 1 Courthouse Square, Suite 1100
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CONCEPT TYPICAL
SECTIONS

SHEET NO.



TYPICAL SECTION 5
OLD LAKE WILSON ROAD
UNDER GATHERING DR. / REUNION BLVD. BRIDGE

STA. 134+50.00 TO STA. 138+50.00 (NB & SB)

* MODIFIED PIER PROTECTION BARRIER AND TYPE B FENCE FROM STA. 131+00.00 TO STA. 139+00.00 (NB)
 ** PIER PROTECTION BARRIER FROM STA. 136+20.00 TO STA. 137+00.00 (SB)

TRAFFIC DATA
(C.R. 532 TO SPINE ROAD)

CURRENT YEAR = 2020 AADT = 21500
 ESTIMATED OPENING YEAR = 2030 AADT = 26500
 ESTIMATED DESIGN YEAR = 2050 AADT = 35500
 K = 9% D = 63% T = 10% (24 HOUR)
 DESIGN HOUR T = 5%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

REVISIONS		
DATE	BY	DESCRIPTION

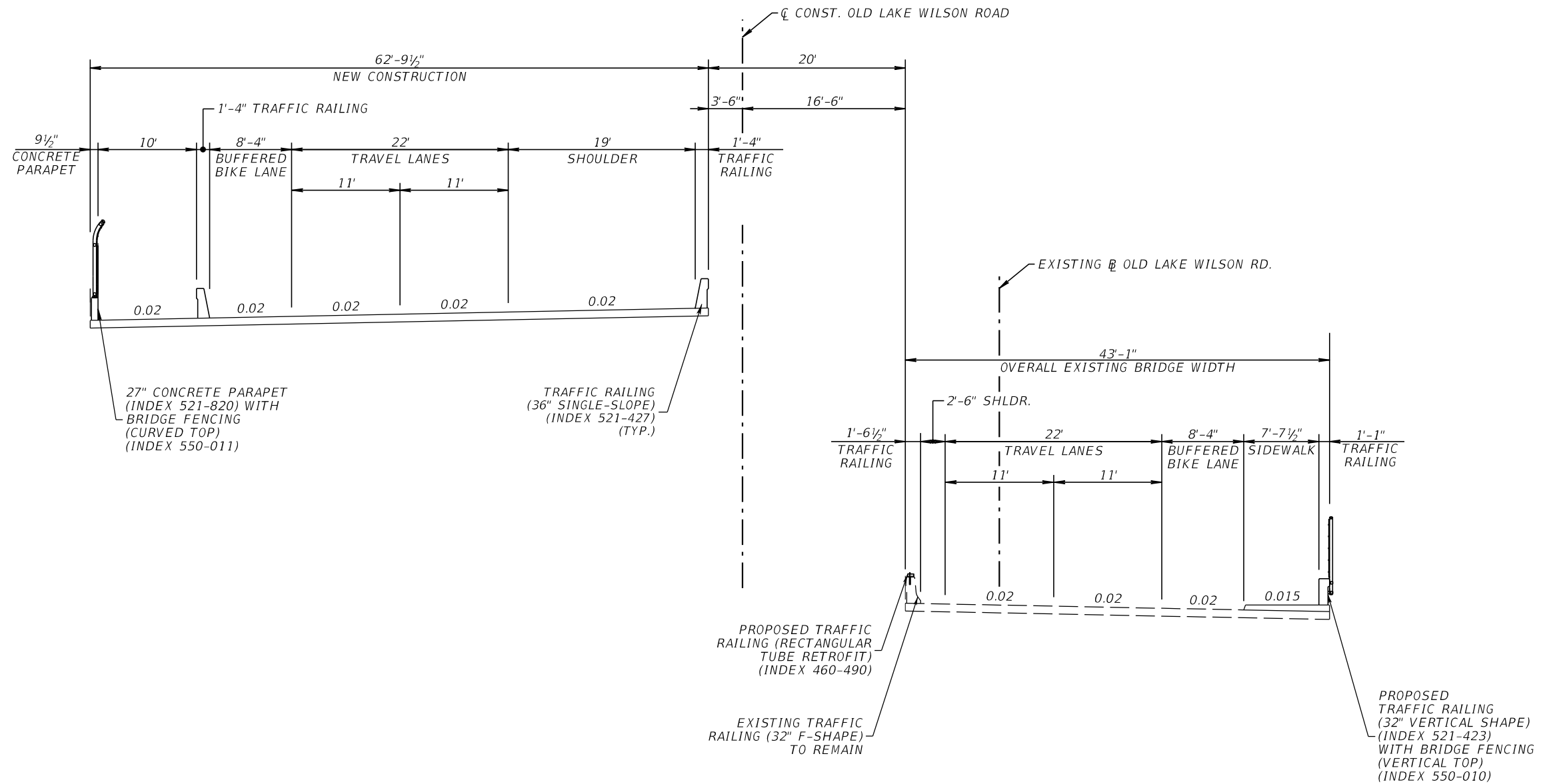
OLD LAKE WILSON ROAD
PD&E STUDY

ENGINEER OF RECORD
 Kevin Joseph Iannarone, PE
 PE No. 71527
 Inwood Consulting Engineers, Inc.
 3000 Dovera Drive, Suite 200
 Oviedo, Florida 32765

OSCEOLA COUNTY
ENGINEERING DEPARTMENT
 1 Courthouse Square, Suite 1100
 Kissimmee, Florida 34741-5488
 Voice: (407) 343-2600 Fax (407) 343-2623

CONCEPT TYPICAL
SECTIONS

SHEET
NO.



**TYPICAL SECTION 6
OLD LAKE WILSON ROAD**

STA. 187+08.43 TO STA. 196+32.16 (NB)
STA. 185+94.31 TO STA. 202+99.95 (SB)

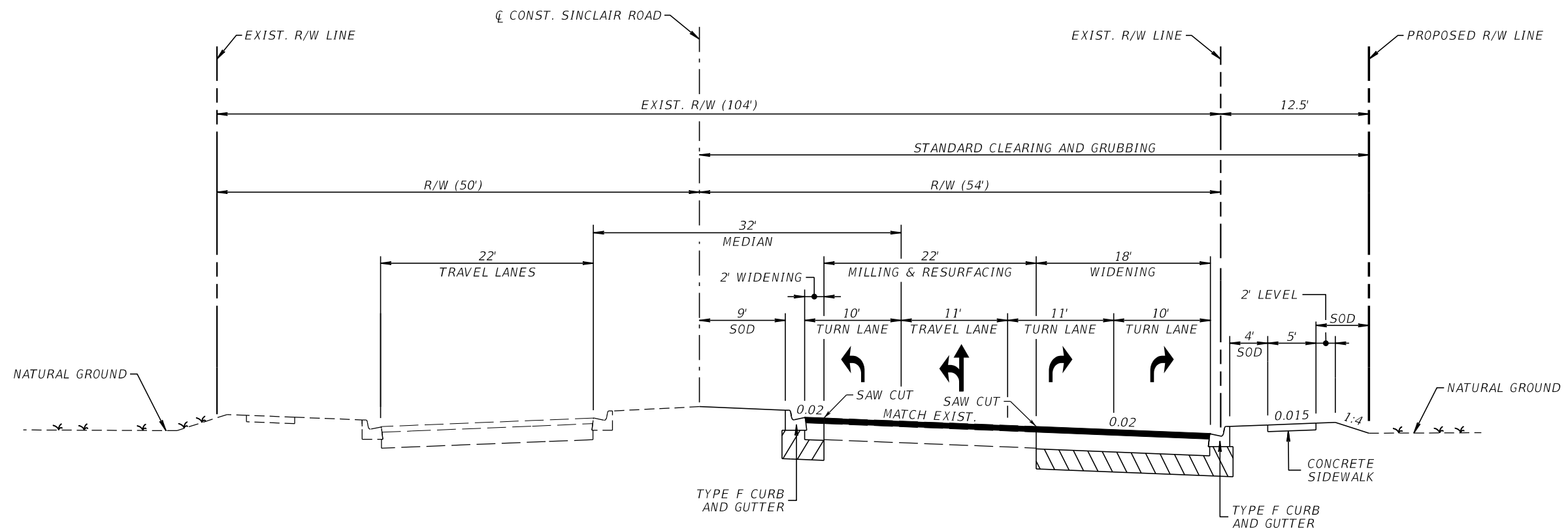
NOTES:

1. EXISTING BRIDGE WILL REQUIRE REPLACEMENT IF 1-4 BTU IS CONSTRUCTED.
2. STATION LIMITS SHOWN ABOVE INCLUDE APPROACH SLABS.

**TRAFFIC DATA
(SPINE ROAD TO FAIRFAX DRIVE)**

CURRENT YEAR = 2020 AADT = 21500
 ESTIMATED OPENING YEAR = 2030 AADT = 26000
 ESTIMATED DESIGN YEAR = 2050 AADT = 33500
 K = 9% D = 63% T = 7.5% (24 HOUR)
 DESIGN HOUR T = 3.75%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

REVISIONS			OLD LAKE WILSON ROAD PD&E STUDY	ENGINEER OF RECORD		OSCEOLA COUNTY ENGINEERING DEPARTMENT <small>1 Courthouse Square, Suite 1100 Kissimmee, Florida 34741-5488 Voice: (407) 343-2600 Fax (407) 343-2623</small>	CONCEPT TYPICAL SECTIONS	SHEET NO.
DATE	BY	DESCRIPTION						



**TYPICAL SECTION 7
SINCLAIR ROAD**

STA. 1000+24.00 TO STA. 1009+44.93

**TRAFFIC DATA
(SINCLAIR ROAD)**

CURRENT YEAR = 2020 AADT = 9000
 ESTIMATED OPENING YEAR = 2030 AADT = 13500
 ESTIMATED DESIGN YEAR = 2050 AADT = 22500
 K = 9% D = 57% T = 8.6% (24 HOUR)
 DESIGN HOUR T = 4.3%
 DESIGN SPEED = 35 MPH
 POSTED SPEED = 35 MPH

REVISIONS		
DATE	BY	DESCRIPTION

**OLD LAKE WILSON ROAD
PD&E STUDY**

ENGINEER OF RECORD

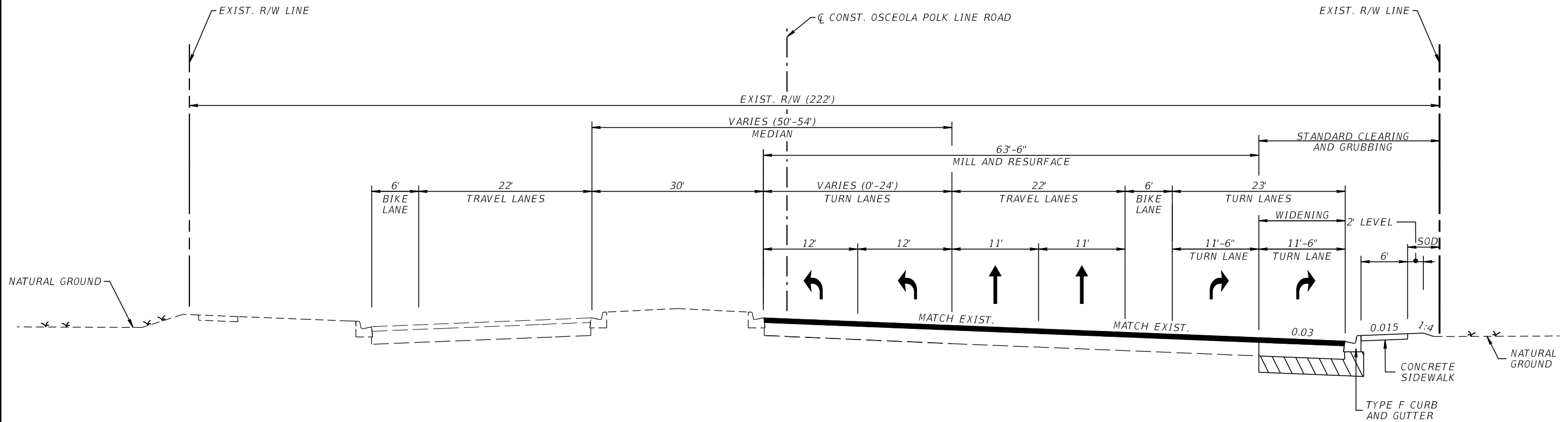
Kevin Joseph Iannarone, PE
 PE No. 71527
 Inwood Consulting Engineers, Inc.
 3000 Dovera Drive, Suite 200
 Oviedo, Florida 32765



**OSCEOLA COUNTY
ENGINEERING DEPARTMENT**
 1 Courthouse Square, Suite 1100
 Kissimmee, Florida 34741-5488
 Voice: (407) 343-2600 Fax (407) 343-2623

**CONCEPT TYPICAL
SECTIONS**

SHEET
NO.



TYPICAL SECTION 8
OSCEOLA POLK LINE ROAD (C.R. 532)
 STA. 72+30.69 TO STA. 80+04.53

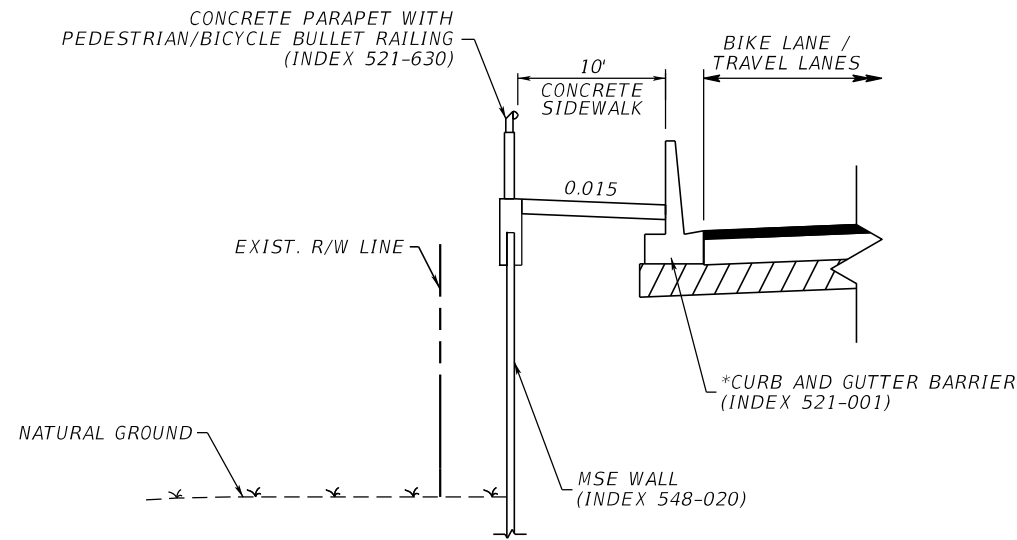
TRAFFIC DATA
(C.R. 532 TO SPINE ROAD)

CURRENT YEAR = 2020 AADT = 21500
 ESTIMATED OPENING YEAR = 2030 AADT = 26500
 ESTIMATED DESIGN YEAR = 2050 AADT = 35500
 K = 9% D = 63% T = 10% (24 HOUR)
 DESIGN HOUR T = 5%
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 45 MPH

REVISIONS			ENGINEER OF RECORD	OSCEOLA COUNTY ENGINEERING DEPARTMENT	CONCEPT TYPICAL SECTIONS	SHEET NO.
DATE	BY	DESCRIPTION				
			Kevin Joseph Iannarone, PE PE No. 71527 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765	1 Courthouse Square, Suite 1100 Kissimmee, Florida 34741-5488 Voice: (407) 343-2600 Fax (407) 343-2623		

OLD LAKE WILSON ROAD
PD&E STUDY

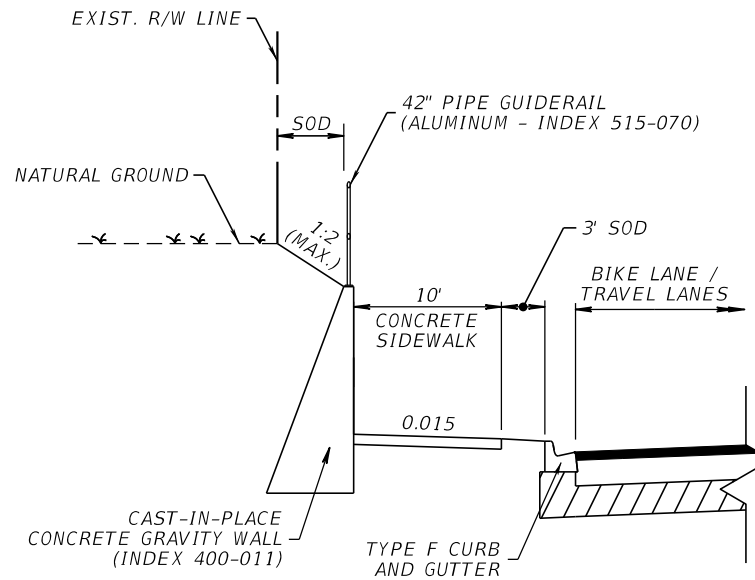
OSCEOLA COUNTY
ENGINEERING DEPARTMENT
 1 Courthouse Square, Suite 1100
 Kissimmee, Florida 34741-5488
 Voice: (407) 343-2600 Fax (407) 343-2623



MSE WALL DETAIL

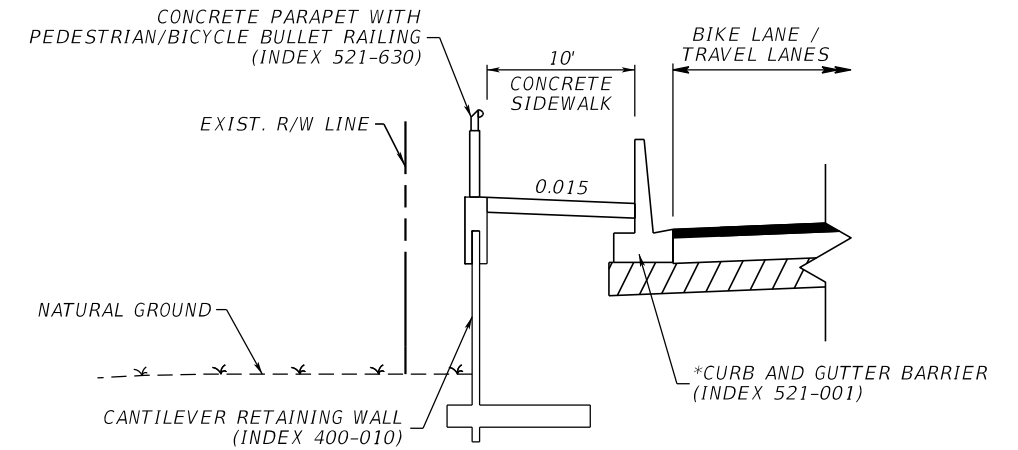
STA. 185+00.00 TO STA. 186+76.73 (SB)
 STA. 202+16.87 TO STA. 205+00.00 (SB)

* NOTE: CURB AND GUTTER BARRIER LOCATED IN THE STATION LIMITS BELOW:
 STA. 185+00.00 TO STA. 187+10.30 (SB)
 STA. 202+75.38 TO STA. 205+00.00 (SB)



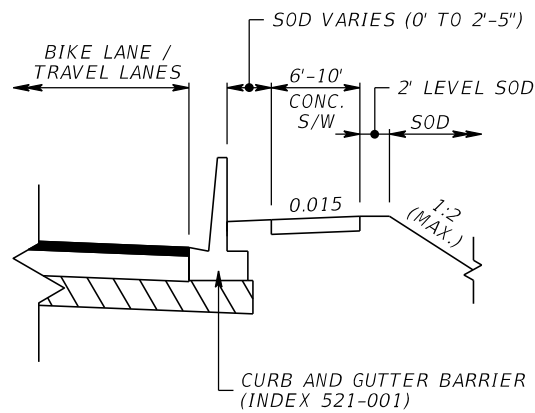
GRAVITY WALL DETAIL

STA. 133+00.00 TO STA. 135+00.00 (SB)



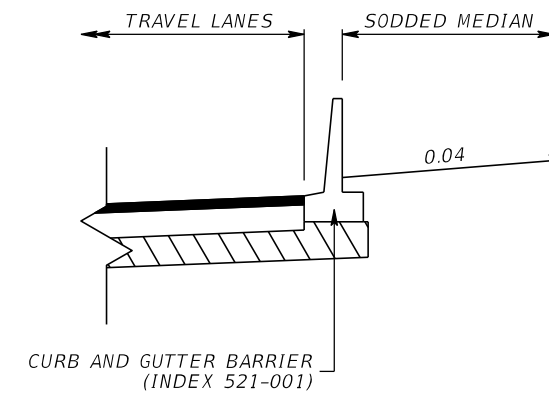
CIP WALL DETAIL

STA. 137+00.00 TO STA. 142+78.00 (SB)
 * STA. 137+22.95 TO STA. 144+13.30




CURB AND GUTTER BARRIER DETAIL (SHOULDER)

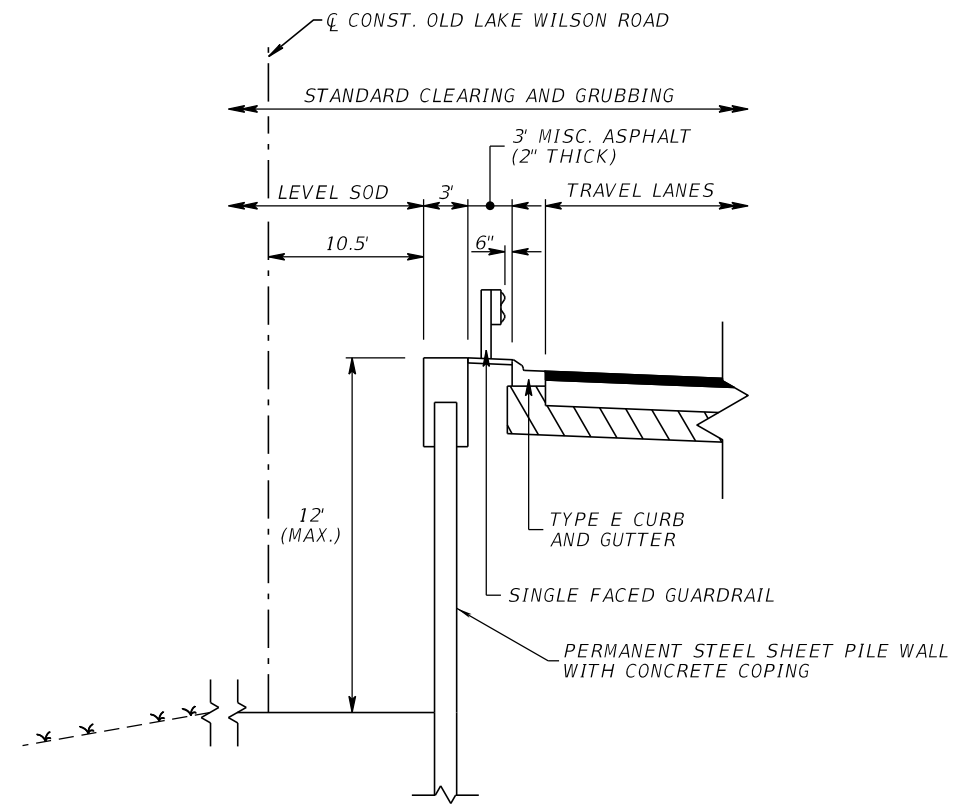
STA. 112+79.00 TO STA. 115+85.52 (NB)
 STA. 140+50.10 TO STA. 142+33.02 (NB)
 STA. 205+00.00 TO STA. 206+50.00 (SB)



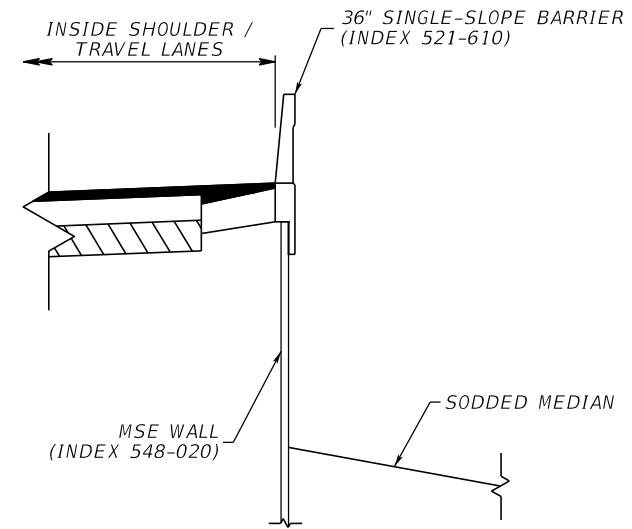
CURB AND GUTTER BARRIER DETAIL (MEDIAN)

STA. 185+13.40 TO STA. 187+08.43 (NB)
 STA. 205+00.00 TO STA. 206+50.00 (SB)

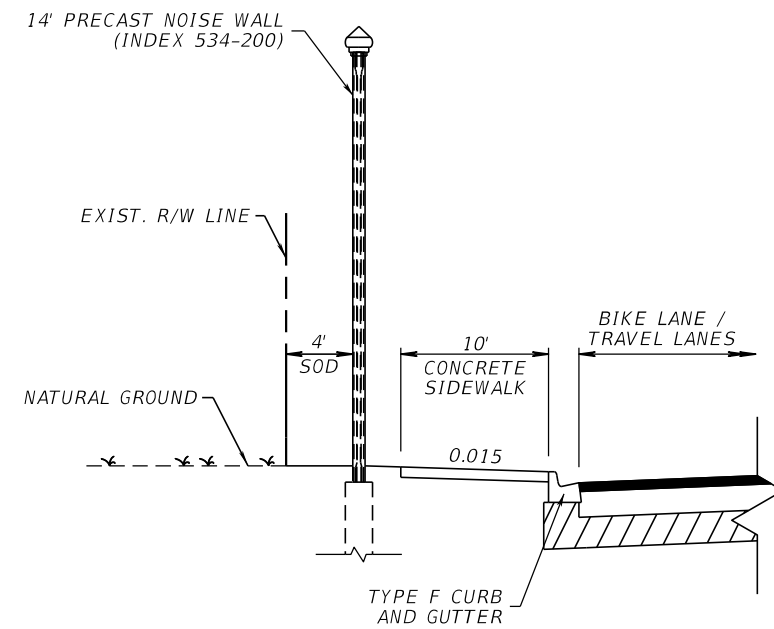
REVISIONS			DATE	BY	DESCRIPTION	OLD LAKE WILSON ROAD PD&E STUDY	ENGINEER OF RECORD Kevin Joseph Iannarone, PE PE No. 71527 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765	 OSCEOLA COUNTY ENGINEERING DEPARTMENT 1 Courthouse Square, Suite 1100 Kissimmee, Florida 34741-5488 Voice: (407) 343-2600 Fax (407) 343-2623	CONCEPT TYPICAL SECTION DETAILS	SHEET NO.



SHEET PILE WALL DETAIL
 STA. 196+12.16 TO STA. 202+00.00 (NB)



TRAFFIC RAILING DETAIL
 STA. 185+00.00 TO STA. 186+76.73 (SB)
 STA. 202+89.01 TO STA. 205+00.00 (SB)



NOISE WALL DETAIL
 STA. 106+60.00 TO STA. 110+20.00 (SB)

REVISIONS		
DATE	BY	DESCRIPTION

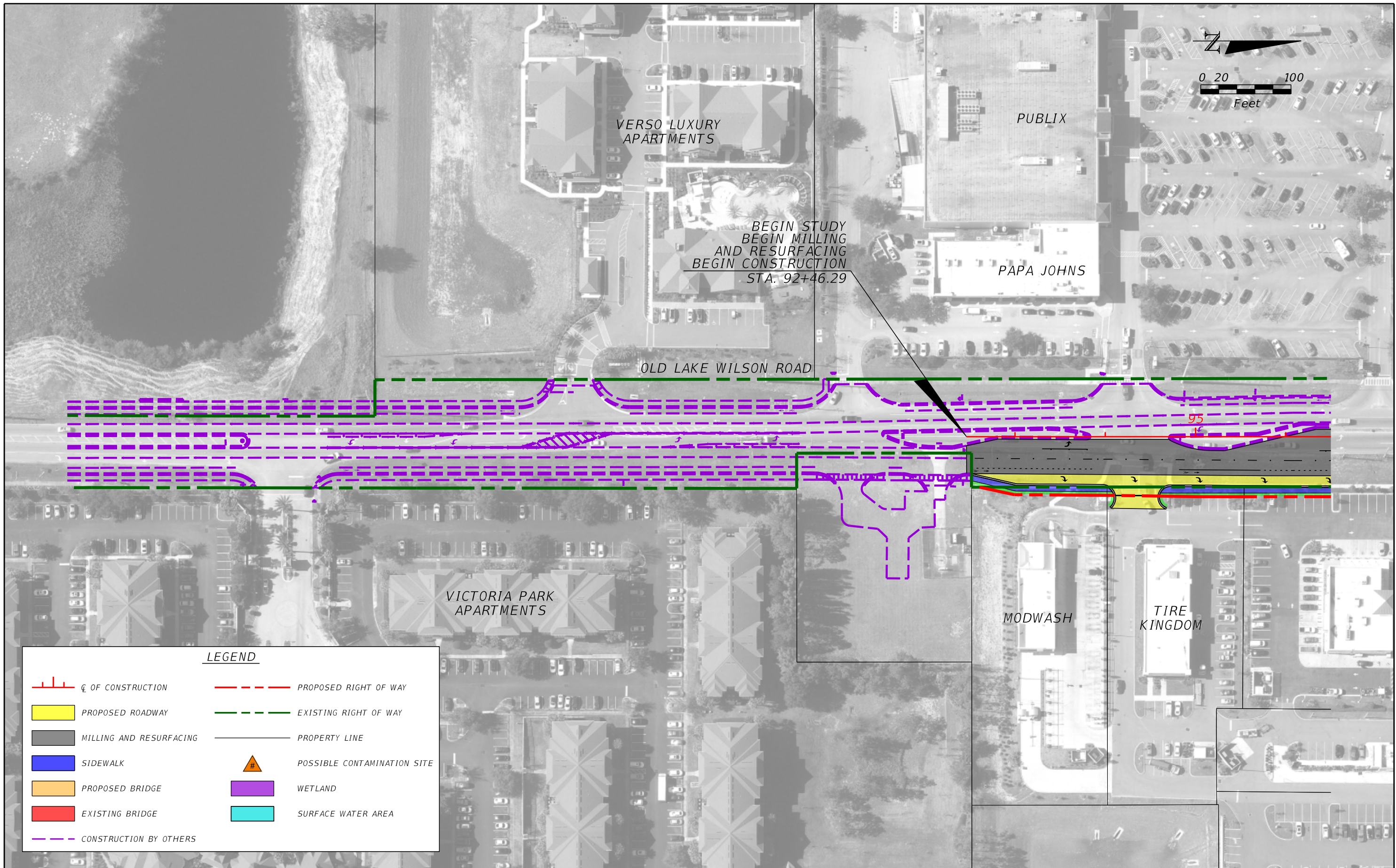
**OLD LAKE WILSON ROAD
 PD&E STUDY**

ENGINEER OF RECORD
 Kevin Joseph Iannarone, PE
 PE No. 71527
 Inwood Consulting Engineers, Inc.
 3000 Dovera Drive, Suite 200
 Oviedo, Florida 32765

**OSCEOLA COUNTY
 ENGINEERING DEPARTMENT**
 1 Courthouse Square, Suite 1100
 Kissimmee, Florida 34741-5488
 Voice: (407) 343-2600 Fax (407) 343-2623

**CONCEPT TYPICAL
 SECTION DETAILS**

SHEET
 NO.



REVISIONS		
DATE	BY	DESCRIPTION

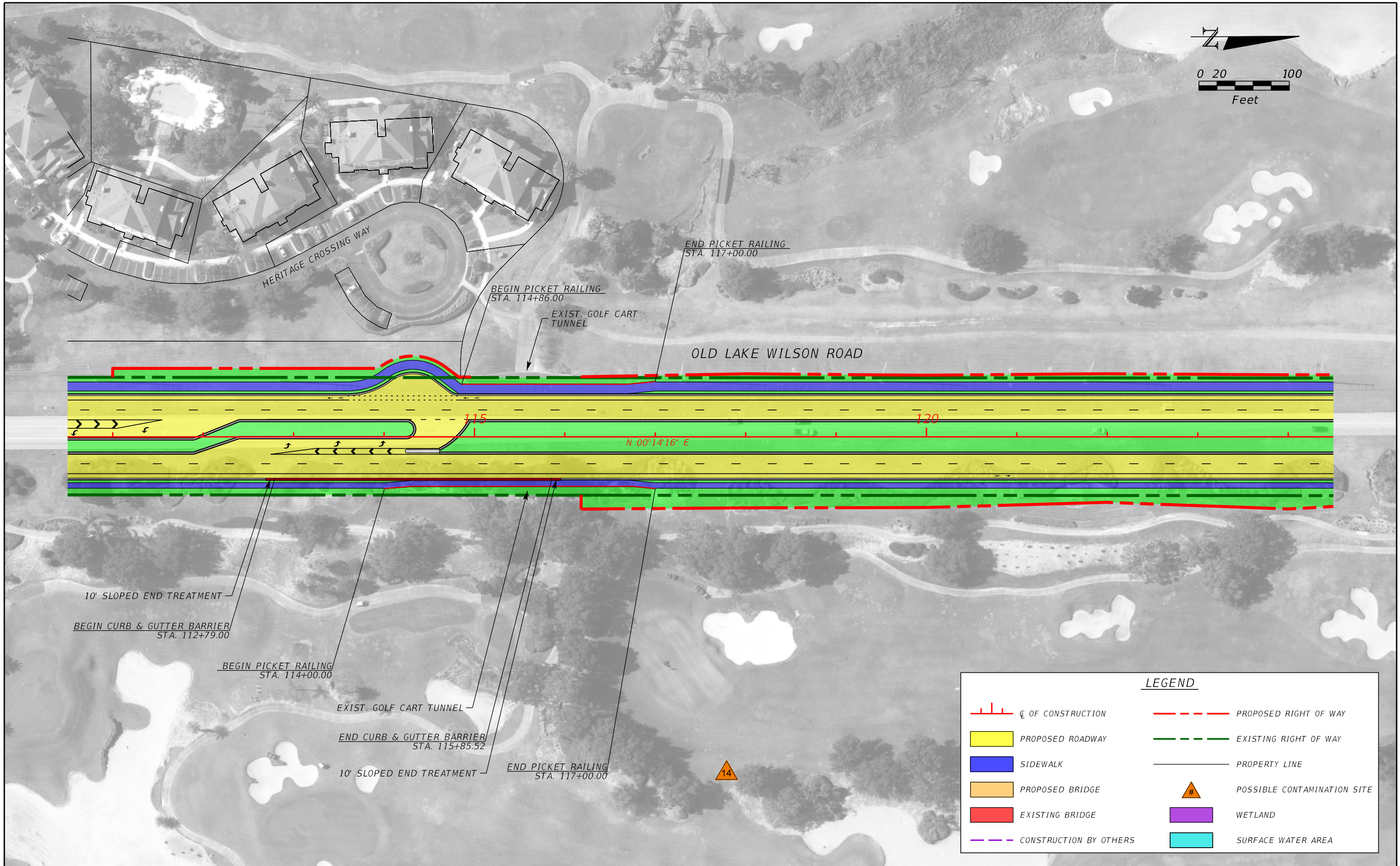
**OLD LAKE WILSON ROAD
PD&E STUDY**

ENGINEER OF RECORD
 Kevin Joseph Iannarone, PE
 PE No. 71527
 Inwood Consulting Engineers, Inc.
 3000 Dovera Drive, Suite 200
 Oviedo, Florida 32765

**OSCEOLA COUNTY
ENGINEERING DEPARTMENT**
 1 Courthouse Square, Suite 1100
 Kissimmee, Florida 34741-5488
 Voice: (407) 343-2600 Fax (407) 343-2623

CONCEPT PLAN

SHEET NO.



LEGEND	
	CL OF CONSTRUCTION
	PROPOSED ROADWAY
	SIDEWALK
	PROPOSED BRIDGE
	EXISTING BRIDGE
	CONSTRUCTION BY OTHERS
	PROPOSED RIGHT OF WAY
	EXISTING RIGHT OF WAY
	PROPERTY LINE
	POSSIBLE CONTAMINATION SITE
	WETLAND
	SURFACE WATER AREA

REVISIONS		
DATE	BY	DESCRIPTION

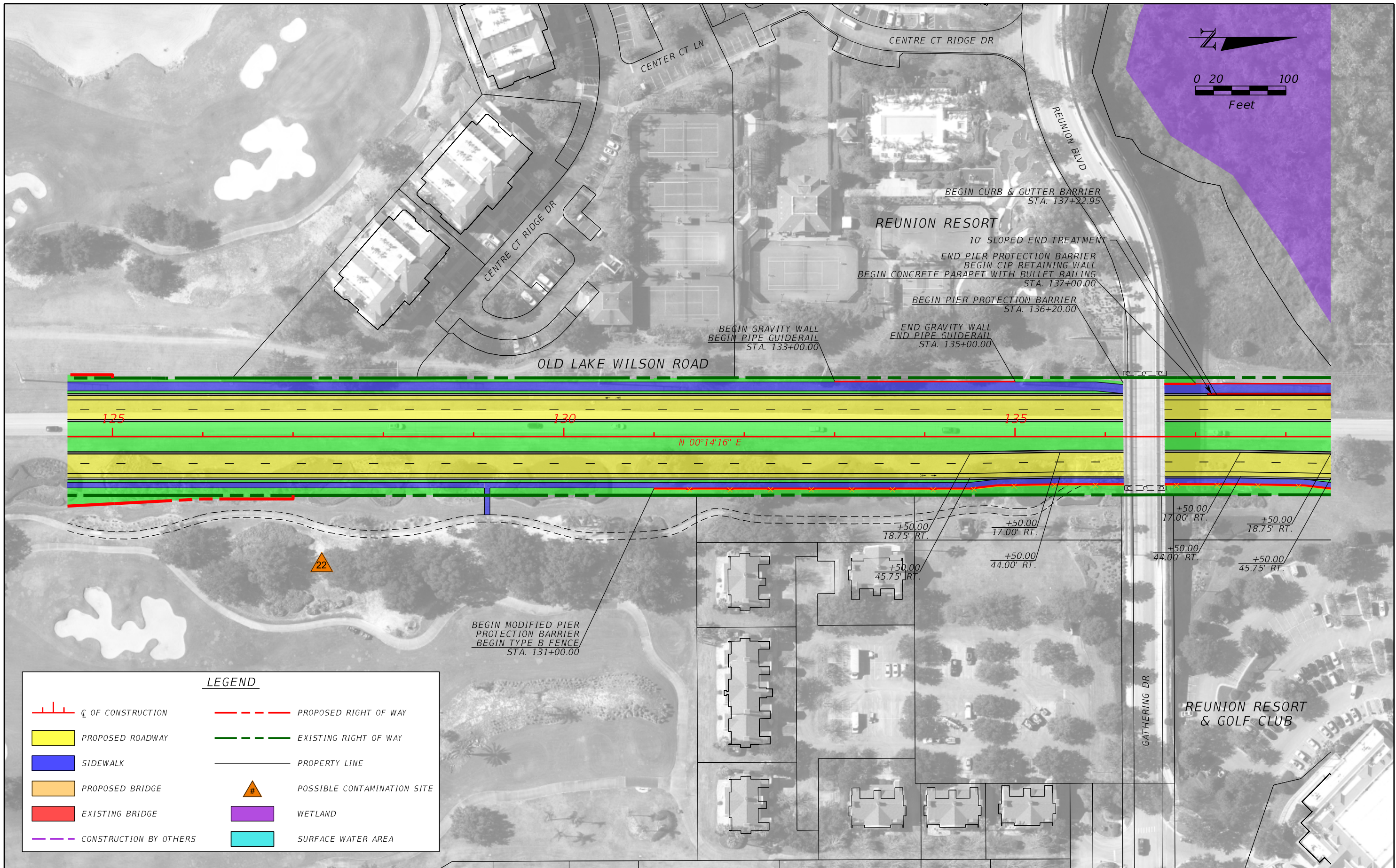
**OLD LAKE WILSON ROAD
PD&E STUDY**

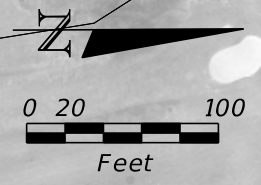
ENGINEER OF RECORD
 Kevin Joseph Iannarone, PE
 PE No. 71527
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CONCEPT PLAN

SHEET
NO.





DAVENPORT CREEK

END CIP RETAINING WALL
END CONCRETE PARAPET WITH BULLET RAILING
STA. 142+78.00

END CURB & GUTTER BARRIER
STA. 144+13.30

10' SLOPED END TREATMENT

OLD LAKE WILSON ROAD

140

145

150

N 00°14'16" E

END PICKET RAILING
STA. 143+08.00

10' SLOPED END TREATMENT

END CURB & GUTTER BARRIER
STA. 142+33.02

PROPOSED QUADRUPLE 12'x8' BRIDGE CULVERT

BEGIN PICKET RAILING
STA. 141+30.00

BEGIN CURB & GUTTER BARRIER
STA. 140+50.10

10' SLOPED END TREATMENT

END MODIFIED PIER
PROTECTION BARRIER
END TYPE B FENCE
STA. 139+00.00

REUNION RESORT
& GOLF CLUB

DAVENPORT CREEK

LEGEND	
	CL OF CONSTRUCTION
	PROPOSED ROADWAY
	SIDEWALK
	PROPOSED BRIDGE
	EXISTING BRIDGE
	CONSTRUCTION BY OTHERS
	PROPOSED RIGHT OF WAY
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REVISIONS		
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PD&E STUDY**

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LEGEND

	CL OF CONSTRUCTION		PROPOSED RIGHT OF WAY
	PROPOSED ROADWAY		EXISTING RIGHT OF WAY
	SIDEWALK		PROPERTY LINE
	PROPOSED BRIDGE		POSSIBLE CONTAMINATION SITE
	EXISTING BRIDGE		WETLAND
	CONSTRUCTION BY OTHERS		SURFACE WATER AREA

REVISIONS		
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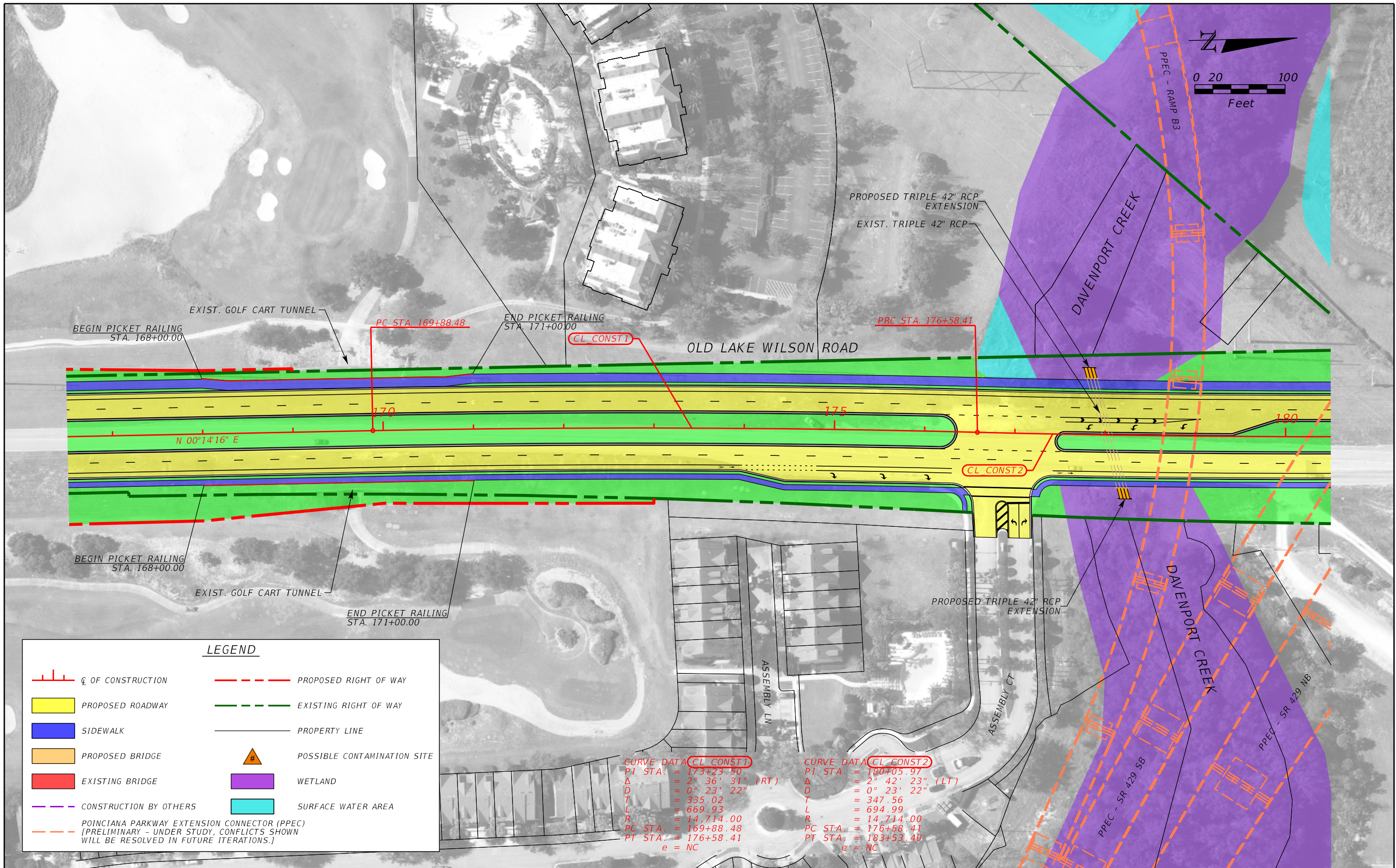
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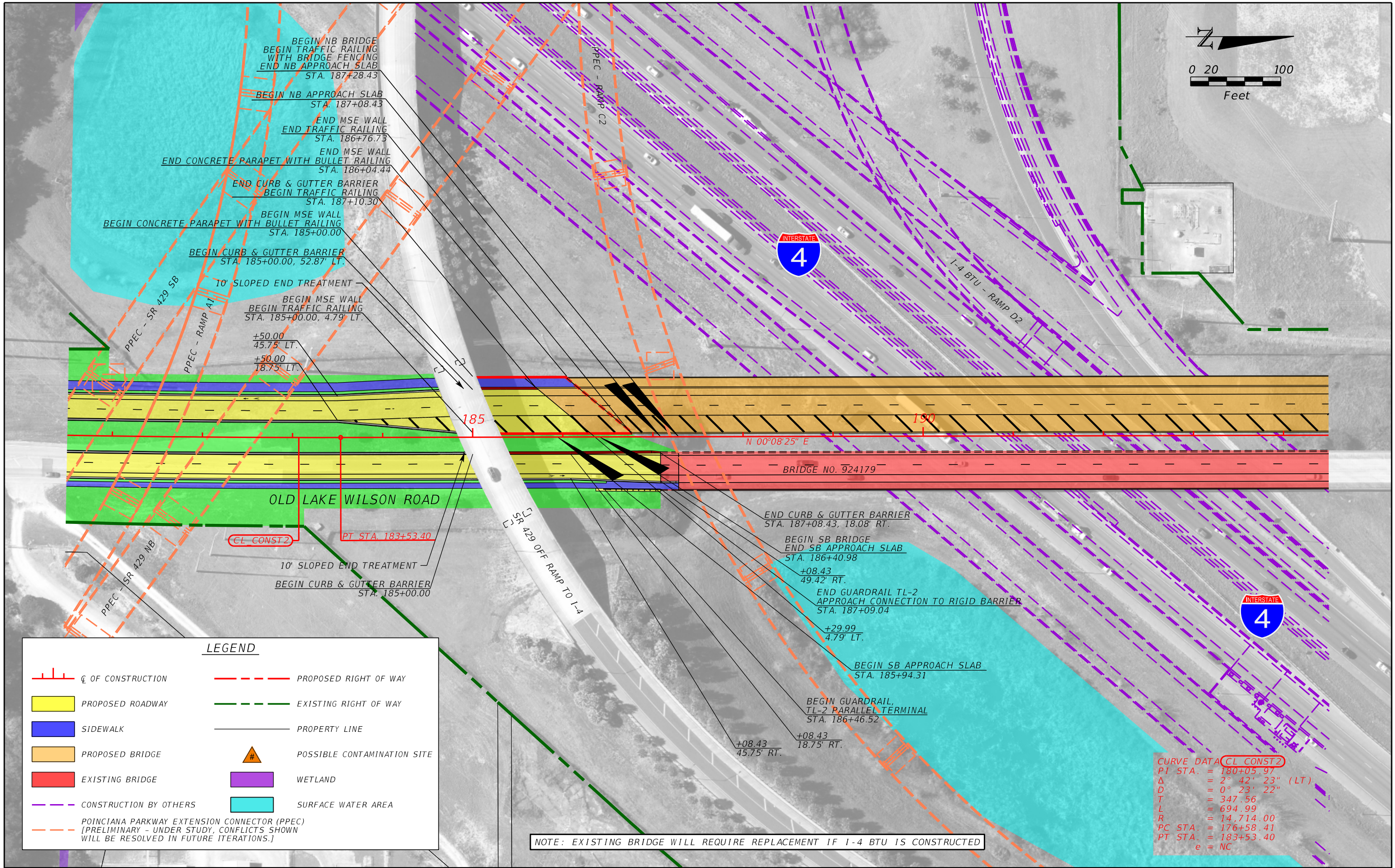
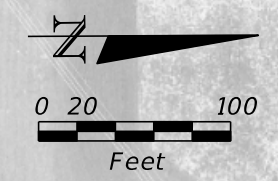
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LEGEND

- CL OF CONSTRUCTION
- PROPOSED ROADWAY
- SIDEWALK
- PROPOSED BRIDGE
- EXISTING BRIDGE
- CONSTRUCTION BY OTHERS
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPERTY LINE
- POSSIBLE CONTAMINATION SITE
- WETLAND
- SURFACE WATER AREA
- POINCIANA PARKWAY EXTENSION CONNECTOR (PPEC)
[PRELIMINARY - UNDER STUDY, CONFLICTS SHOWN
WILL BE RESOLVED IN FUTURE ITERATIONS.]

CURVE DATA (CL CONST 2)
 PI STA. = 180+05.97
 Δ = 2° 42' 23" (LT)
 D = 0° 23' 22"
 T = 347.56
 L = 694.99
 R = 14,714.00
 PC STA. = 176+58.41
 PT STA. = 183+53.40
 e = NC

NOTE: EXISTING BRIDGE WILL REQUIRE REPLACEMENT IF I-4 BTU IS CONSTRUCTED

REVISIONS		
DATE	BY	DESCRIPTION

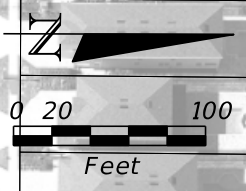
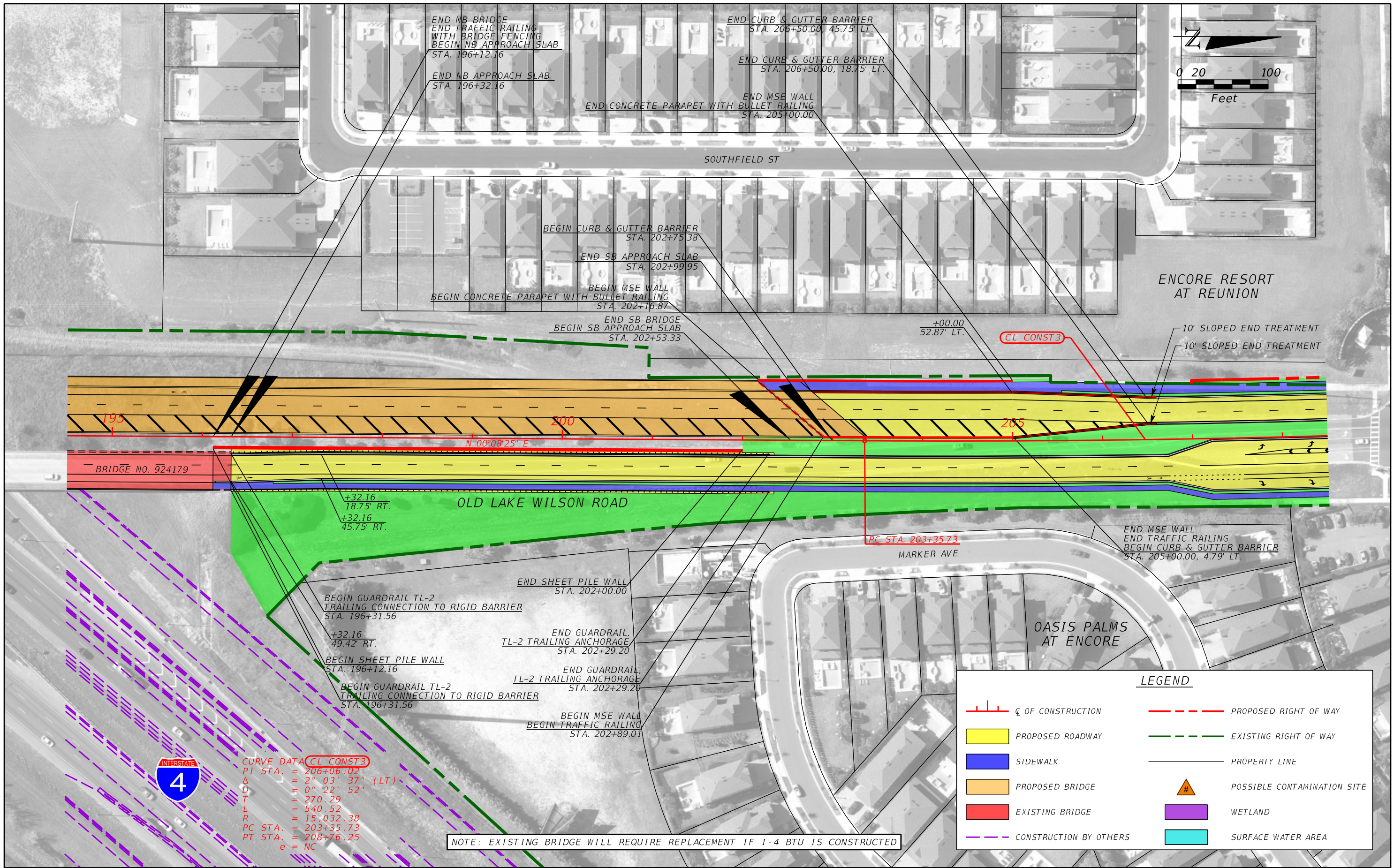
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PD&E STUDY**

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 Kevin Joseph Iannarone, PE
 PE No. 71527
 Inwood Consulting Engineers, Inc.
 3000 Dovera Drive, Suite 200
 Oviedo, Florida 32765



CONCEPT PLAN

SHEET NO.



CURVE DATA (CL CONST3)
 PI STA. = 206+06.02
 Δ = 2° 03' 37" (LT)
 D = 0° 22' 52"
 T = 270.29
 L = 540.52
 R = 15,032.38
 PC STA. = 203+35.73
 PT STA. = 208+76.25
 e = NC

NOTE: EXISTING BRIDGE WILL REQUIRE REPLACEMENT IF I-4 BTU IS CONSTRUCTED

LEGEND	
	CL OF CONSTRUCTION
	PROPOSED ROADWAY
	SIDEWALK
	PROPOSED BRIDGE
	EXISTING BRIDGE
	CONSTRUCTION BY OTHERS
	PROPOSED RIGHT OF WAY
	EXISTING RIGHT OF WAY
	PROPERTY LINE
	POSSIBLE CONTAMINATION SITE
	WETLAND
	SURFACE WATER AREA

REVISIONS		
DATE	BY	DESCRIPTION

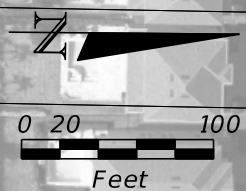
**OLD LAKE WILSON ROAD
 PD&E STUDY**

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CONCEPT PLAN

SHEET NO.



PRC STA. 208+76.25

PROPOSED SIGNALIZED INTERSECTION

CL CONST 4



MARKER AVE

CL CONST 3

OLD LAKE WILSON ROAD

PT STA. 217+98.55

OASIS PALMS AT ENCORE

MINTON LOOP

PENDANT CT

CURVE DATA (CL CONST 3)
 PI STA. = 206+06.02
 Δ = 2° 03' 37" (LT)
 D = 0° 22' 52"
 T = 270.29
 L = 540.52
 R = 15,032.38
 PC STA. = 203+35.73
 PT STA. = 208+76.25
 e = NC

CURVE DATA (CL CONST 4)
 PI STA. = 213+37.46
 Δ = 2° 08' 19" (RT)
 D = 0° 13' 55"
 T = 461.20
 L = 922.30
 R = 24,709.66
 PC STA. = 208+76.25
 PT STA. = 217+98.55
 e = NC

LEGEND	
	CL OF CONSTRUCTION
	PROPOSED ROADWAY
	SIDEWALK
	PROPOSED BRIDGE
	EXISTING BRIDGE
	CONSTRUCTION BY OTHERS
	PROPOSED RIGHT OF WAY
	EXISTING RIGHT OF WAY
	PROPERTY LINE
	POSSIBLE CONTAMINATION SITE
	WETLAND
	SURFACE WATER AREA

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DATE	BY	DESCRIPTION

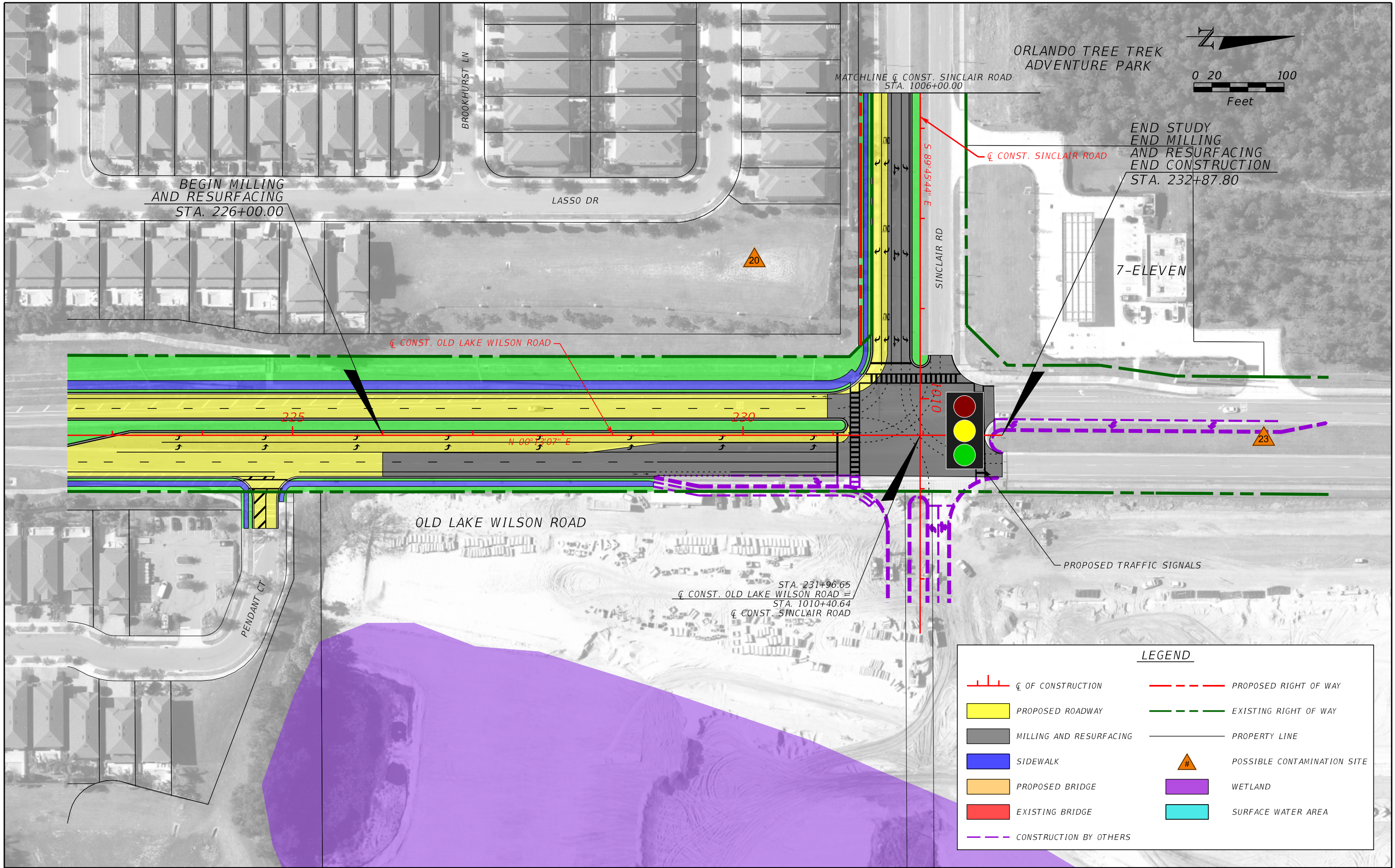
**OLD LAKE WILSON ROAD
PD&E STUDY**

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CONCEPT PLAN

SHEET NO.



LEGEND	
	& OF CONSTRUCTION
	PROPOSED ROADWAY
	MILLING AND RESURFACING
	SIDEWALK
	PROPOSED BRIDGE
	EXISTING BRIDGE
	CONSTRUCTION BY OTHERS
	PROPOSED RIGHT OF WAY
	EXISTING RIGHT OF WAY
	PROPERTY LINE
	POSSIBLE CONTAMINATION SITE
	WETLAND
	SURFACE WATER AREA

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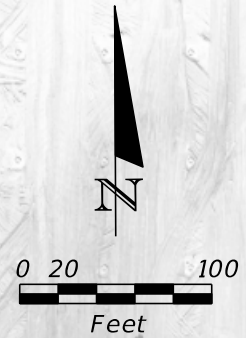
**OLD LAKE WILSON ROAD
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CONCEPT PLAN

SHEET NO.



LEGEND

	Q OF CONSTRUCTION		PROPOSED RIGHT OF WAY
	PROPOSED ROADWAY		EXISTING RIGHT OF WAY
	MILLING AND RESURFACING		PROPERTY LINE
	SIDEWALK		POSSIBLE CONTAMINATION SITE
	PROPOSED BRIDGE		WETLAND
	EXISTING BRIDGE		SURFACE WATER AREA
	CONSTRUCTION BY OTHERS		

REVISIONS		
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**OLD LAKE WILSON ROAD
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**CONCEPT PLAN
SINCLAIR ROAD**

SHEET
NO.



SCALE:
 1" = 100' HORIZ.
 1" = 10' VERT.

LIDAR SOURCE: USGS, 2015 AND 2017

REVISIONS		
DATE	BY	DESCRIPTION

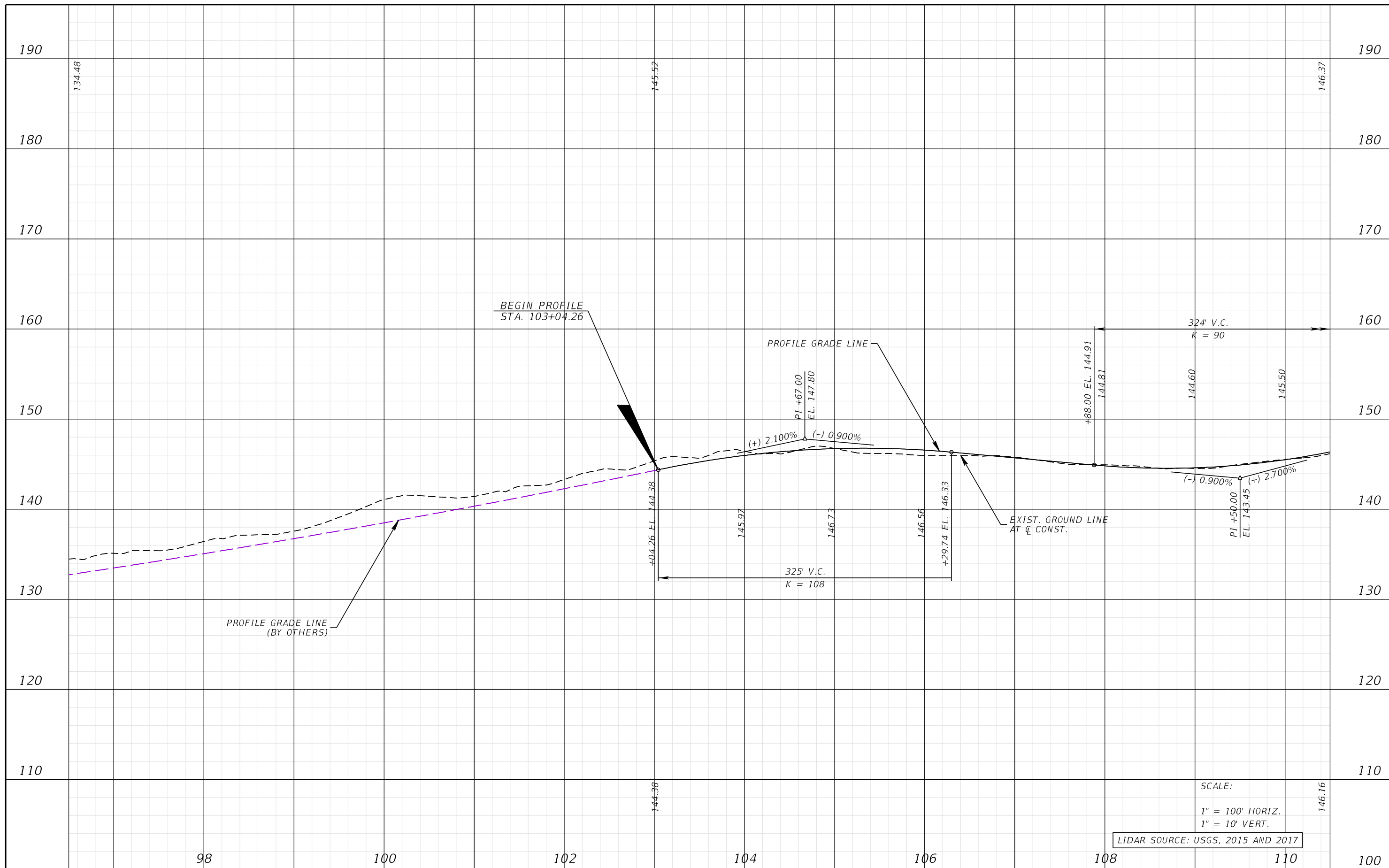
**OLD LAKE WILSON ROAD
 PD&E STUDY**

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CONCEPT PROFILE

SHEET NO.



SCALE:
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 1" = 10' VERT.

LIDAR SOURCE: USGS, 2015 AND 2017

REVISIONS		
DATE	BY	DESCRIPTION

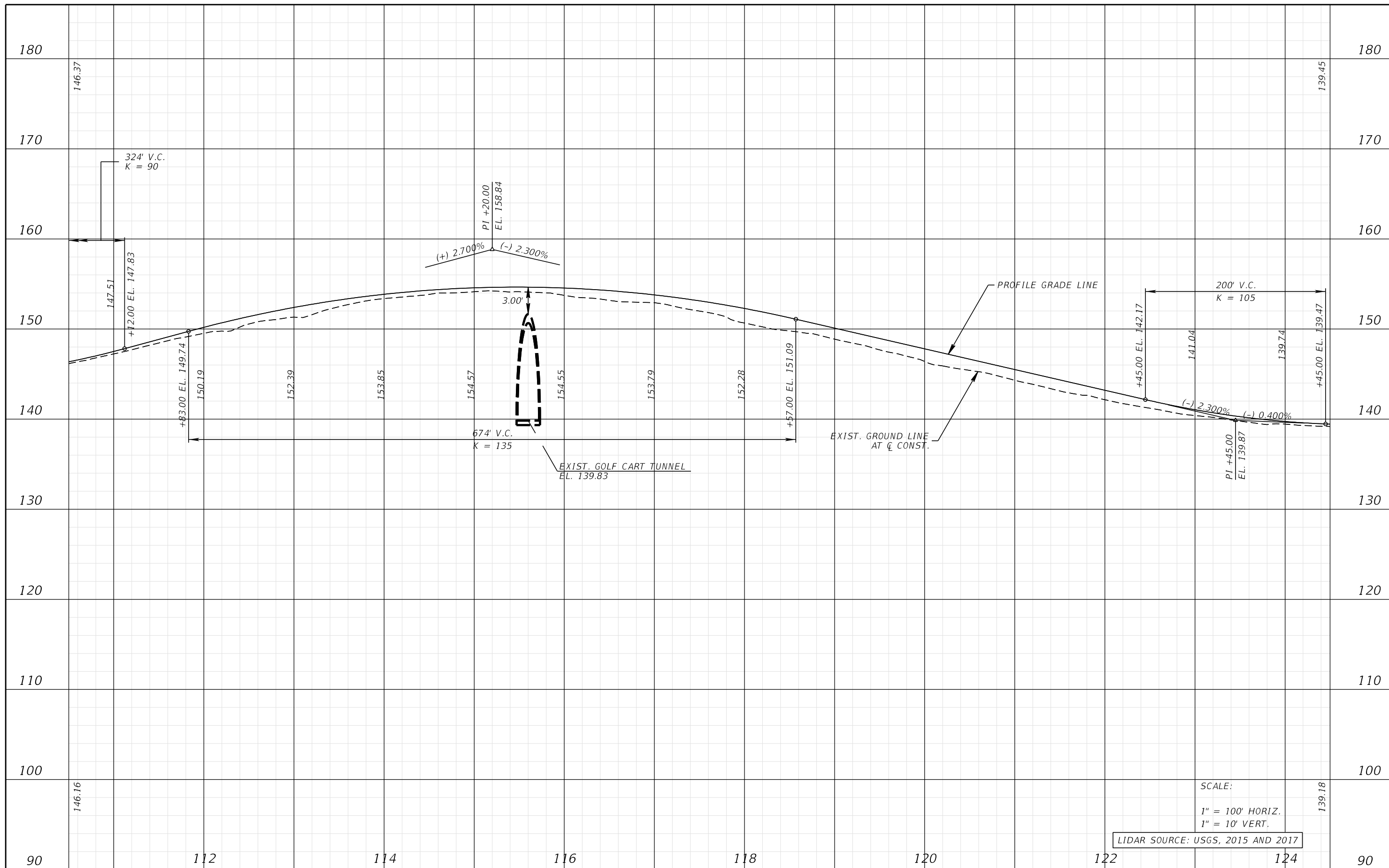
**OLD LAKE WILSON ROAD
 PD&E STUDY**

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CONCEPT PROFILE

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 1" = 10' VERT.

LIDAR SOURCE: USGS, 2015 AND 2017

REVISIONS		
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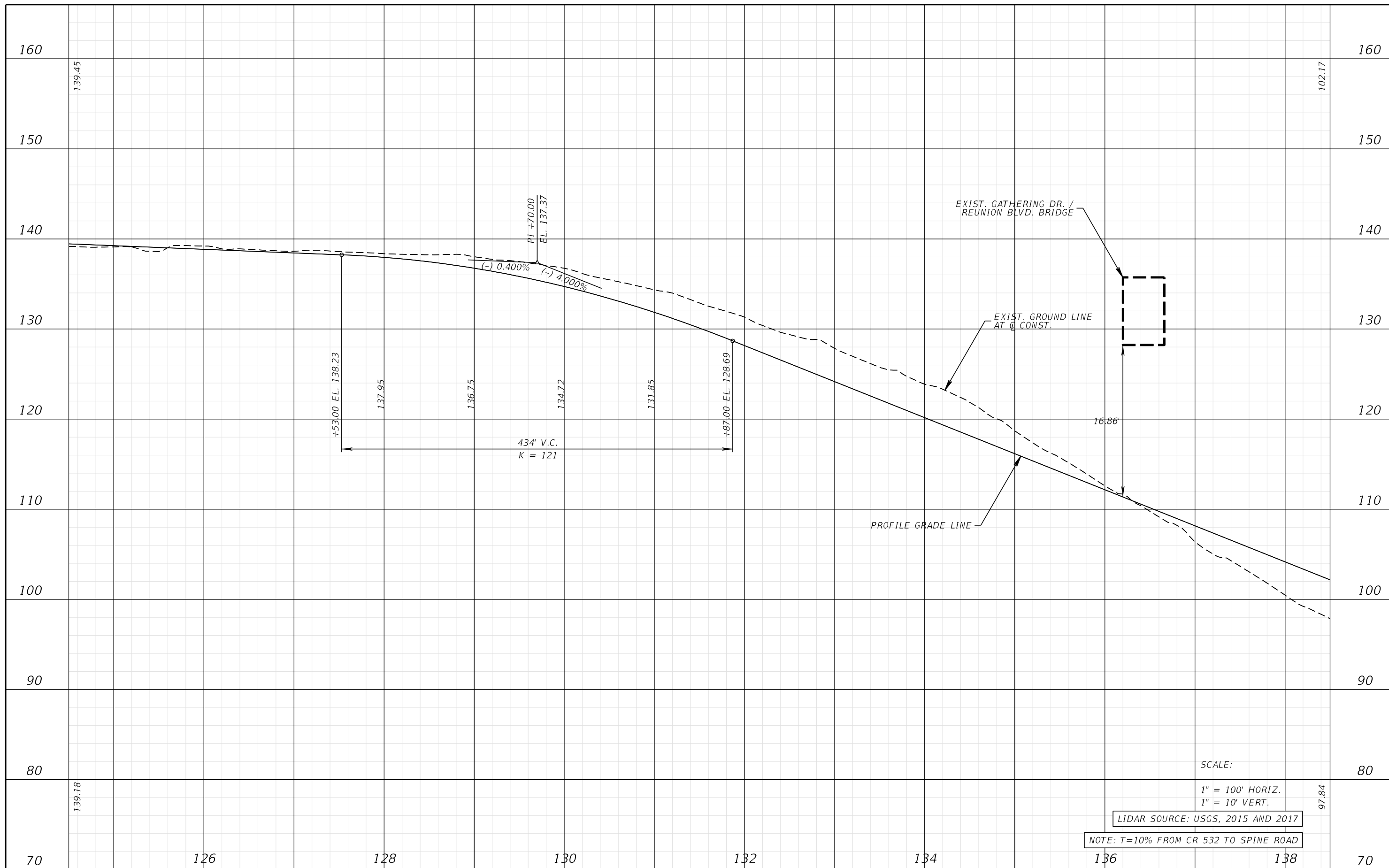
**OLD LAKE WILSON ROAD
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CONCEPT PROFILE

SHEET NO.



SCALE:

1" = 100' HORIZ.
1" = 10' VERT.

LIDAR SOURCE: USGS, 2015 AND 2017

NOTE: T=10% FROM CR 532 TO SPINE ROAD

REVISIONS		
DATE	BY	DESCRIPTION

**OLD LAKE WILSON ROAD
PD&E STUDY**

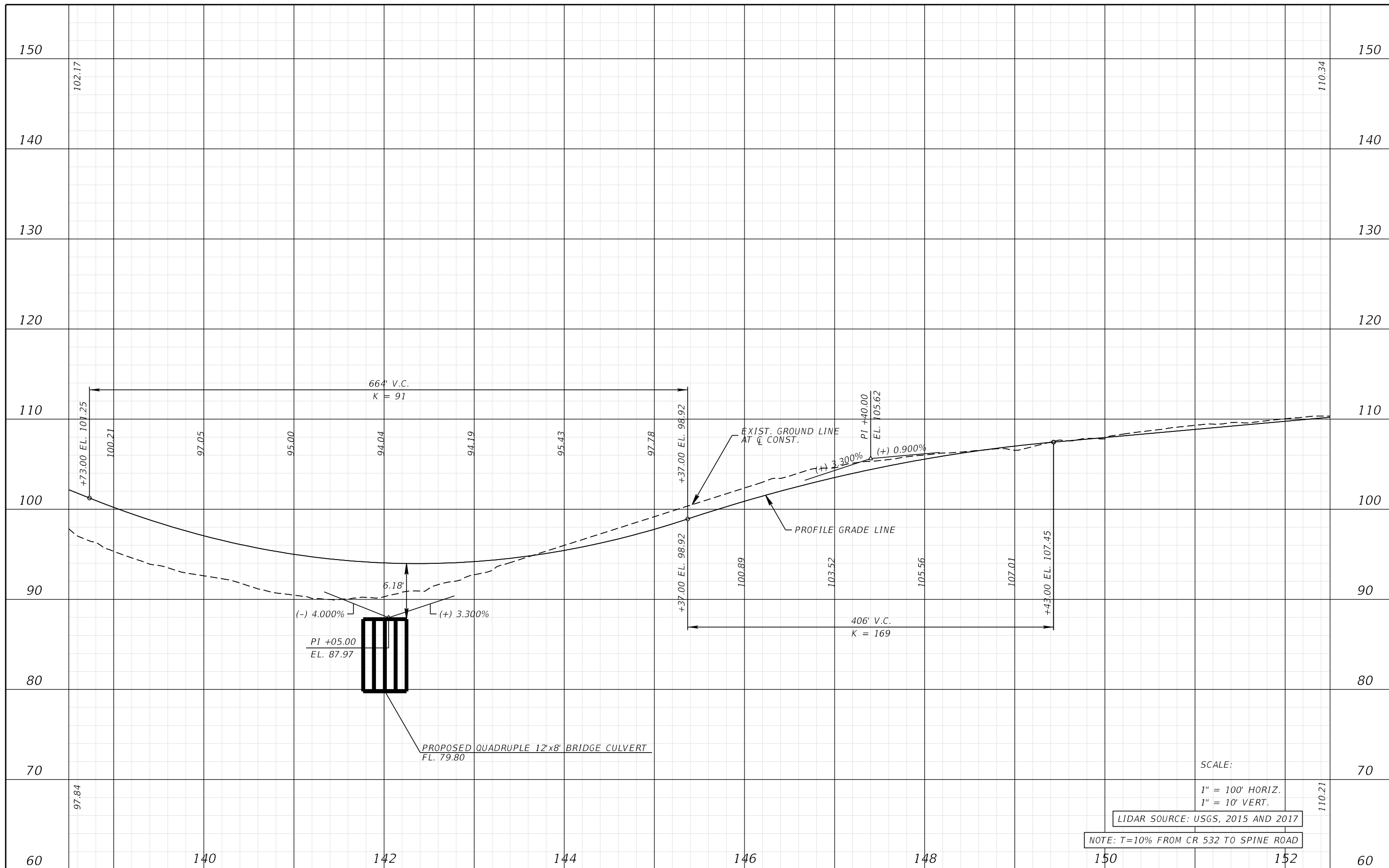
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CONCEPT PROFILE

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LIDAR SOURCE: USGS, 2015 AND 2017
 NOTE: T=10% FROM CR 532 TO SPINE ROAD

REVISIONS		
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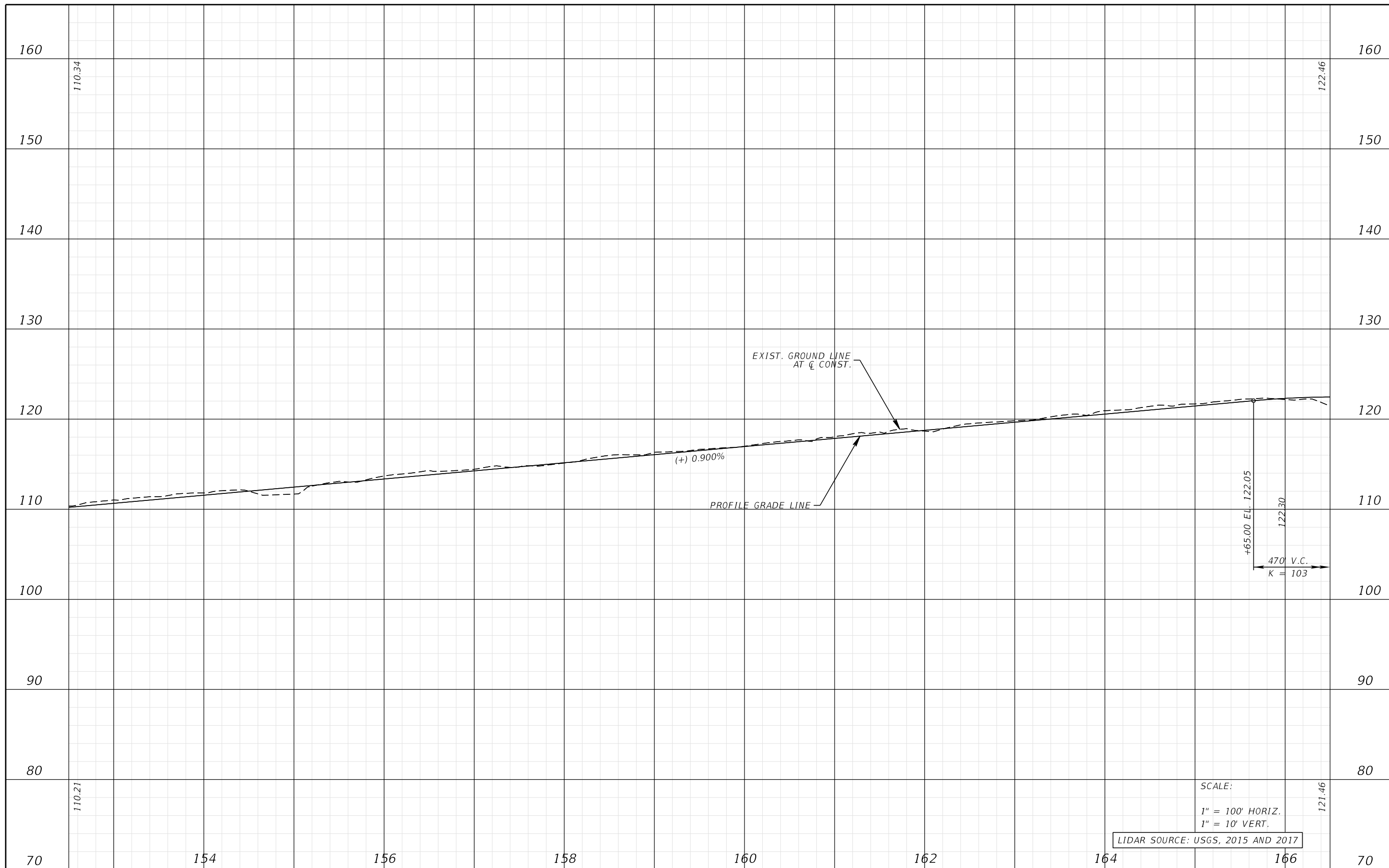
OLD LAKE WILSON ROAD
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LIDAR SOURCE: USGS, 2015 AND 2017

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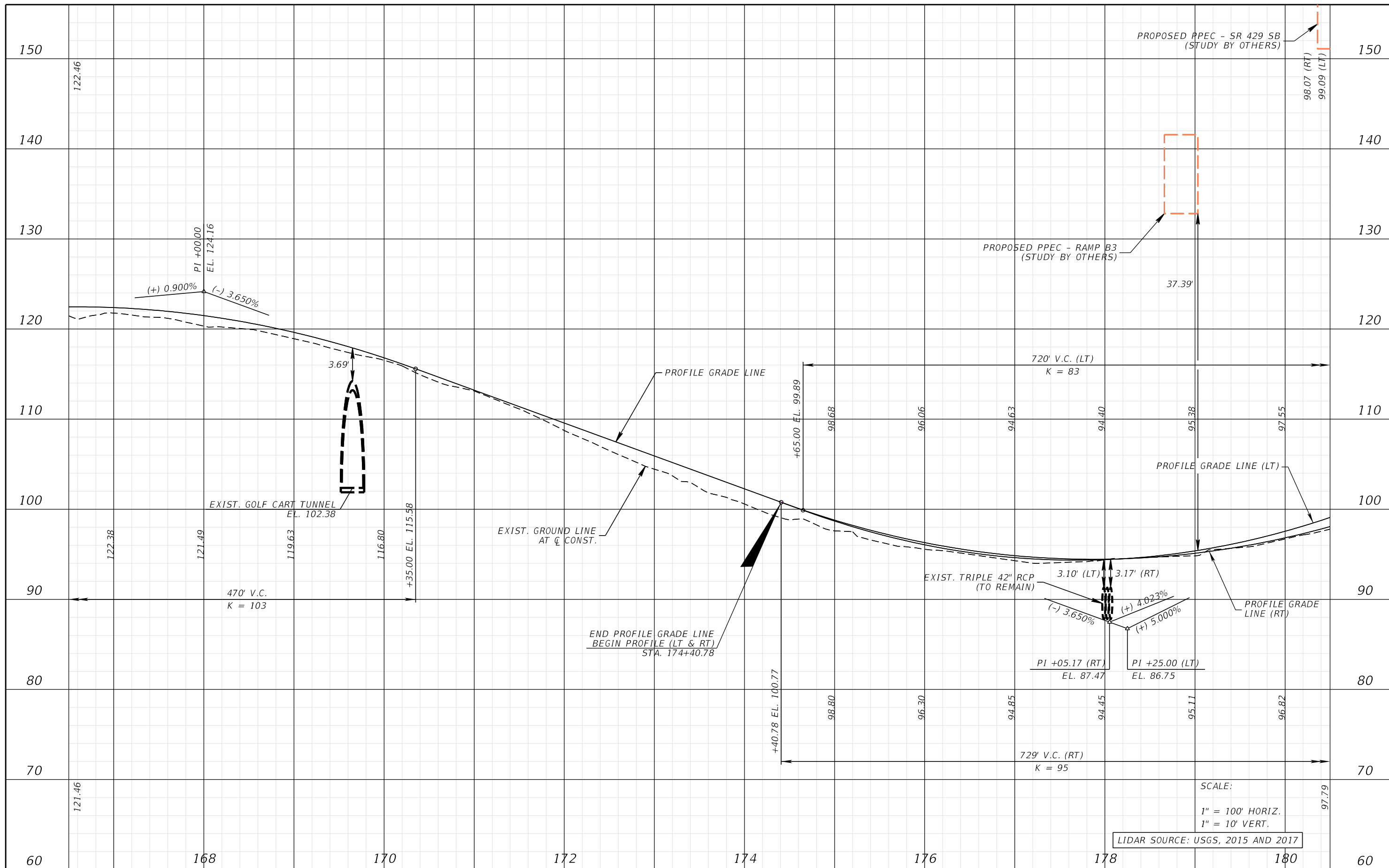
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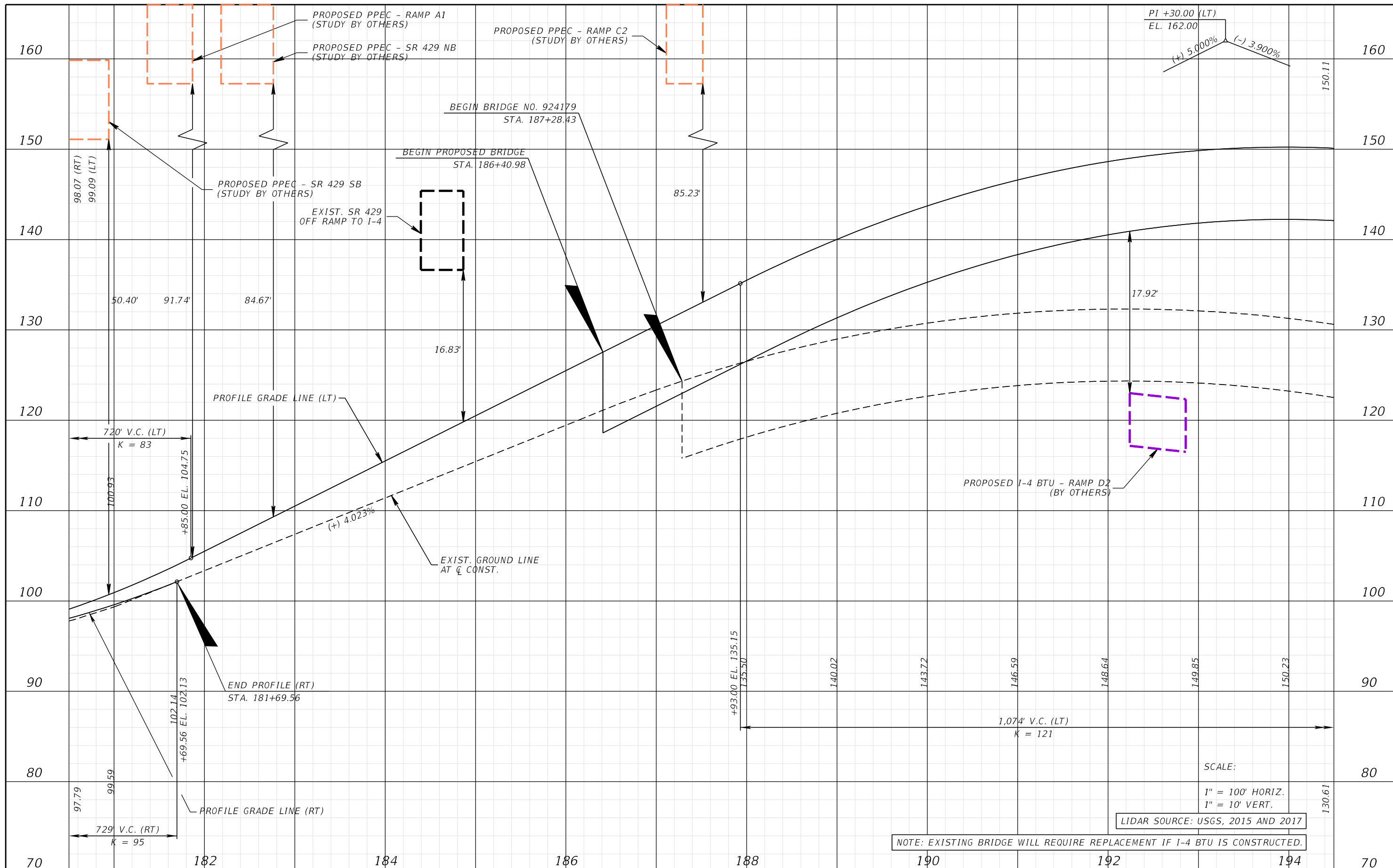
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CONCEPT PROFILE

SHEET NO.



LIDAR SOURCE: USGS, 2015 AND 2017

NOTE: EXISTING BRIDGE WILL REQUIRE REPLACEMENT IF I-4 BTU IS CONSTRUCTED.

SCALE:
1" = 100' HORIZ.
1" = 10' VERT.

REVISIONS		
DATE	BY	DESCRIPTION

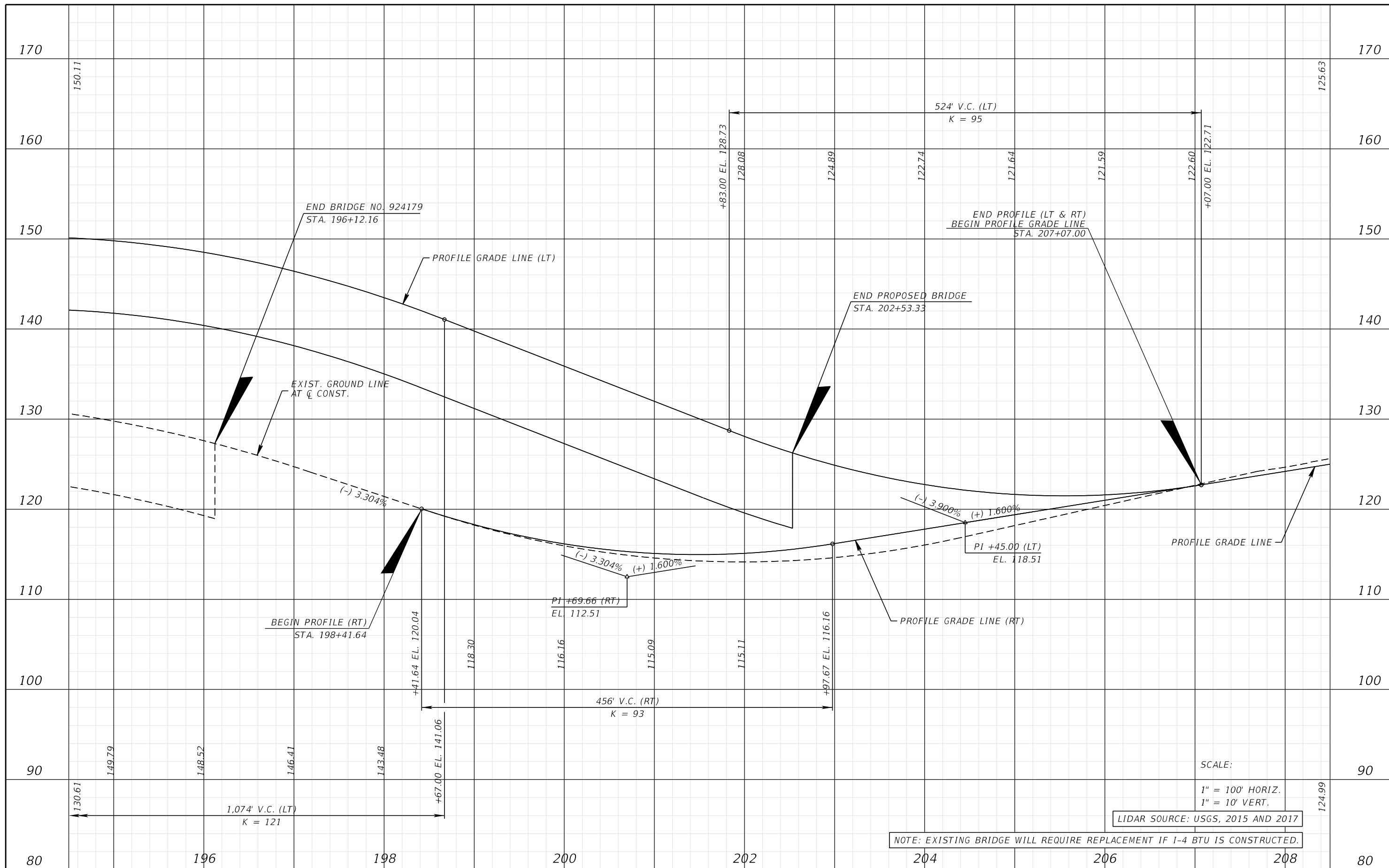
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LIDAR SOURCE: USGS, 2015 AND 2017

NOTE: EXISTING BRIDGE WILL REQUIRE REPLACEMENT IF I-4 BTU IS CONSTRUCTED.

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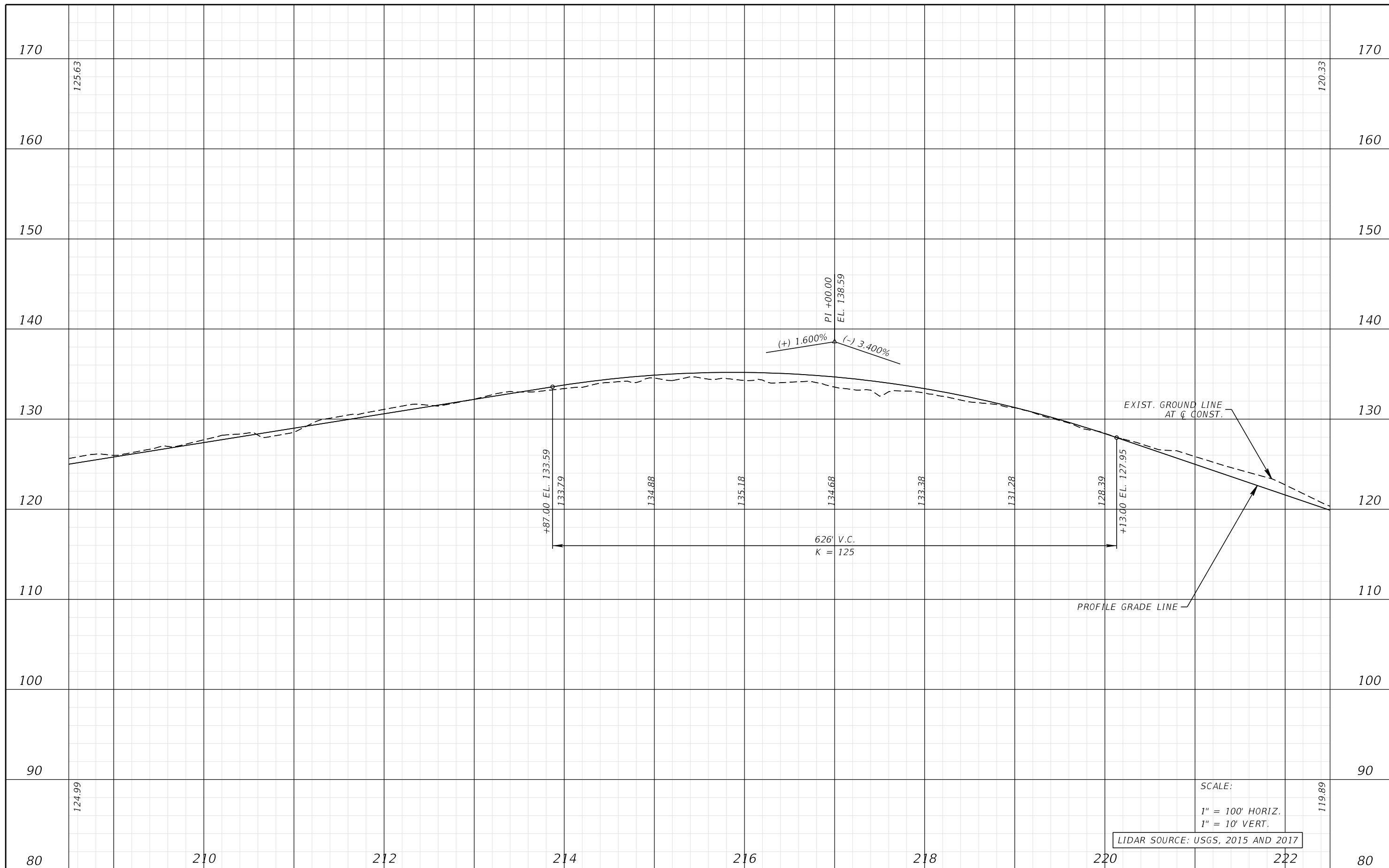
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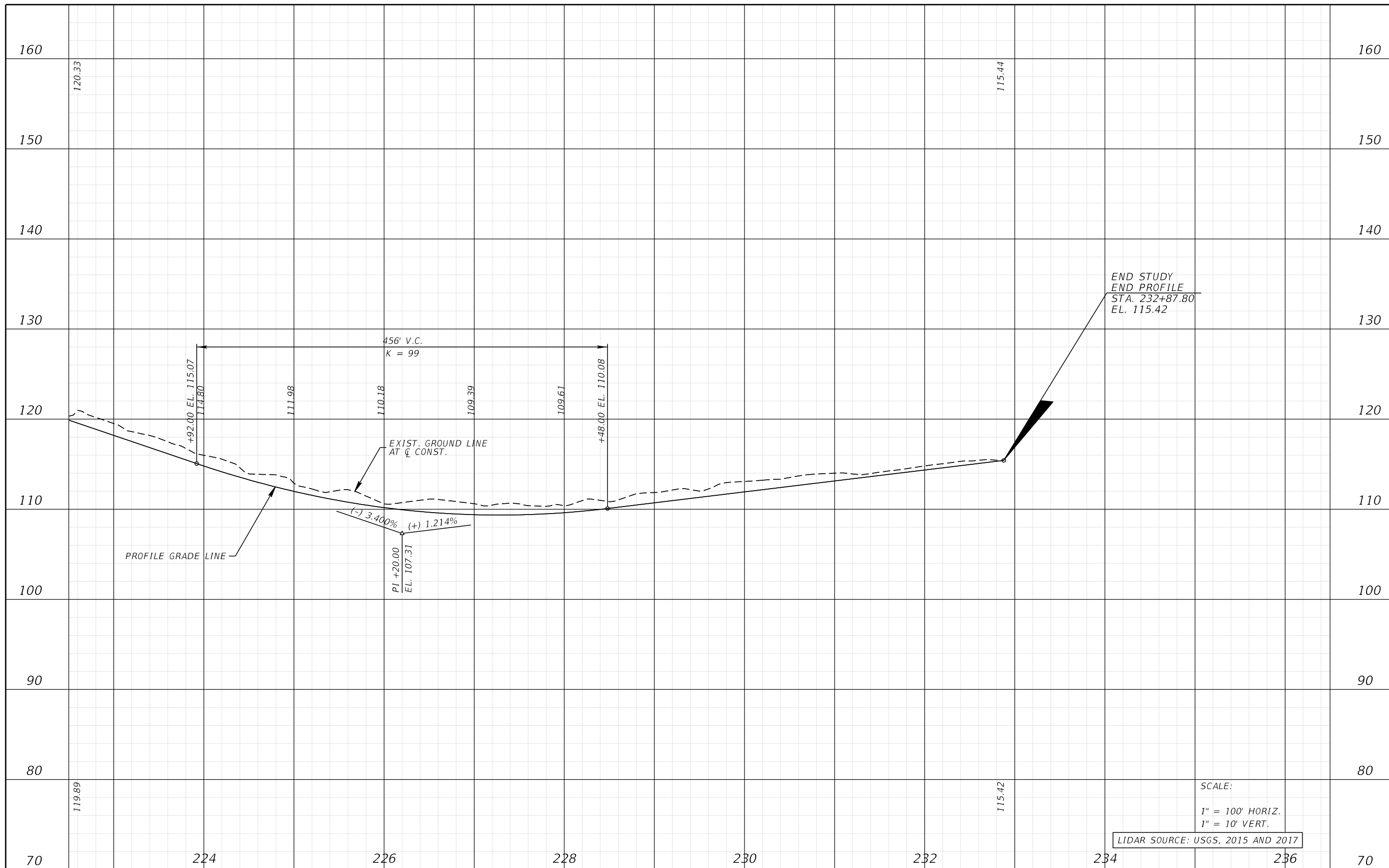
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1" = 10' VERT.

LIDAR SOURCE: USGS, 2015 AND 2017



SCALE:
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 1" = 10' VERT.

LIDAR SOURCE: USGS, 2015 AND 2017

REVISIONS		
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CONCEPT PROFILE

SHEET NO.

APPENDIX D – Design Variation

Project Design Variation Memorandum Form 122-B

To: Steven Kane, PE
 Transportation & Transit Director

Date: June 28, 2023

Financial Project ID: 448781-1-22-01 New Const. RRR Other

Federal Aid Number: N/A

Project Name: Old Lake Wilson Road (CR 545) from Osceola Polk Line Road (CR 532) to Sinclair Road

State Road Number: N/A Co./Sec./Sub. Osceola

Begin Project MP: N/A, STA. 92+46.29 End Project MP: N/A, STA. 232+87.80

Request for: Design Variation

Design Element	MP: Beg-End	Existing	Proposed	Required	Attr. Crashes	Approved	Denied	Addl. Docum.
1. Bike Lane Width	STA. 92+46.29 to STA. 232+87.80	N/A	5'	7'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Justification:

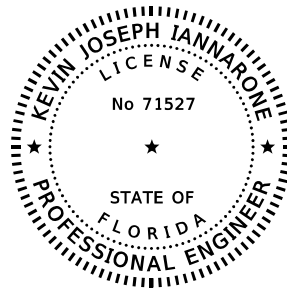
- In the past 10 years, there were no pedestrian or bicyclist crashes within the study limits.
- The existing segment of Old Lake Wilson Road beyond the northern terminus to US 192 (SR 530) consists of 11-foot travel lanes and four-foot bike lanes. Thus, the on-street bike lanes provide corridor consistency. It is worth noting that there have been no pedestrian or bicyclist crashes within this segment over the past 10 years.
- The proposed improvements to Old Lake Wilson beyond the southern terminus consist of 11-foot travel lanes and six-foot bike lanes. Thus, the on-street bike lanes provide corridor consistency.
- Five-foot bike lanes will provide a gradual transition from the proposed six-foot bike lanes south of Osceola Polk Line Road and the existing four-foot bike lanes north of Sinclair Road.
- The design and future posted speed is 45 mph. Per FDM 223.2.1, on-street bike lanes are allowable.
- The 10-foot sidewalk will accommodate bicyclists who prefer not to use the bike lanes.
- Five-foot bike lanes have been incorporated into the proposed typical section at the request of Osceola County, the owner of the roadway.

Appendices: Yes No

Recommended by:

Kevin Iannarone, PE Date 6-28-2023

Name:
Responsible Professional Engineer



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

kevin j iannarone
2023.06.28 14:26:54 -04'00'

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.

INWOOD CONSULTING ENGINEERS, INC.
3000 DOVERA DRIVE, SUITE 200
OVIEDO, FL 32765
CERTIFICATE OF AUTHORIZATION: 7074
KEVIN JOSEPH IANNARONE, P.E. NO. 71527

Approvals:

Steven Kane Digitally signed by Steven Kane
Date: 2023.06.30 17:08:49 -04'00'

Steven Kane, PE
Transportation & Transit Director

Ghassan Choueiry, PE Digitally signed by Ghassan Choueiry,
PE
Date: 2023.07.03 17:11:33 -04'00'

Ghassan Choueiry, PE
Transportation Engineer

List of Appendices

- A-I: Design Variation Memo
- A-II: Approved Typical Section Package

DATE: June 28, 2023

TO: **Steven Kane, PE, Transportation and Transit Director**

FROM: Kevin Iannarone, PE, Engineer of Record

RE: **Design Variation Memorandum for Bike Lane Width**

Financial Project ID: 448781-1-22-01
Osceola County / Section No. 92473
Road Name: Old Lake Wilson Road (CR 545)
Project Description: Old Lake Wilson Road Project Development and Environment
(PD&E) Study from Osceola Polk Line Road (CR 532) to Sinclair Road
New Construction [X] RRR []

DESCRIPTION

The Old Lake Wilson Road PD&E study begins in Polk County just south of Osceola Polk Line Road, which divides the two counties. Osceola County intends to reconstruct and widen (2-lanes to 4-lanes) the existing segment of Old Lake Wilson Road (CR 545) from Osceola Polk Line Road (CR 532) to Sinclair Road. Old Lake Wilson Road (CR 545) is a two-lane minor arterial with no paved shoulders south of Spine Road and six-foot paved shoulders north of Spine Road. Additional unique features include two underground golf cart tunnels (perpendicular to the roadway) and existing transmission poles generally paralleling the western right of way. The posted speed limit is 55 mph.

The proposed typical section has a design speed of 45 mph and consists of four 11-foot travel lanes (two per direction), five-foot bike lanes on each side of the roadway, a six-foot sidewalk on the east side and a 10-foot sidewalk on the west side (see Appendix A-VII). This is an “urban” typical section and will provide the needed capacity improvements. The proposed reconstruction and widening begins in Osceola County just north of Osceola Polk Line Road (CR 532) and continues north underneath Gathering Drive / Reunion Boulevard (Bridge No. 924180), underneath the SR 429 off-ramp to eastbound I-4 (Bridge No. 920602), bridges I-4 (Bridge No. 924179) and ends at the signalized intersection with Sinclair Road. Additional improvements include bicycle and pedestrian accommodations, signal replacement/improvements, structural walls (retaining wall, MSE wall, pier protection barrier, noise wall), and a new bridge over I-4 (SR 400).

DESIGN CRITERIA VERSUS PROPOSED CRITERIA:

- **FDM Criteria** – The applicable criteria from the 2022 FDOT Design Manual (FDM) is located in Section 223.2.1.1. Per the section, the criteria for bike lane width is:
 - New construction projects – 7-foot buffered.
- **AASHTO Criteria** - The applicable criteria for this study from the 2012 AASHTO *Guide for the Development of Bicycle Facilities* is located in Section 4.6.4 and recommends a bike lane width of:
 - 5 feet.
- **Florida Greenbook Criteria** – Per direction from Osceola County, FDM Criteria will be used.
- **Proposed Criteria** - The proposed bike lane widths will be:
 - 5 feet.

The proposed criteria will be applied to the limits summarized in the table on the next page.

LIMITS APPLICABLE

BEGIN STATION	END STATION	DESIGN SPEED	FDM CRITERIA	AASHTO CRITERIA	PROPOSED CRITERIA	REMARKS
STA. 92+46.29	STA. 168+00.00	45 mph	7'	5'	5'	No existing paved shoulders
STA. 168+00.00	STA. 232+87.80	45 mph	7'	5'	5'	6' existing paved shoulders

SAFETY IMPACTS / REVIEW OF CRASH HISTORY

- Between the years of 2011 and 2021, data retrieved from Florida Signal Four Analytics shows that there were no pedestrian or bicyclist crashes within the study limits.

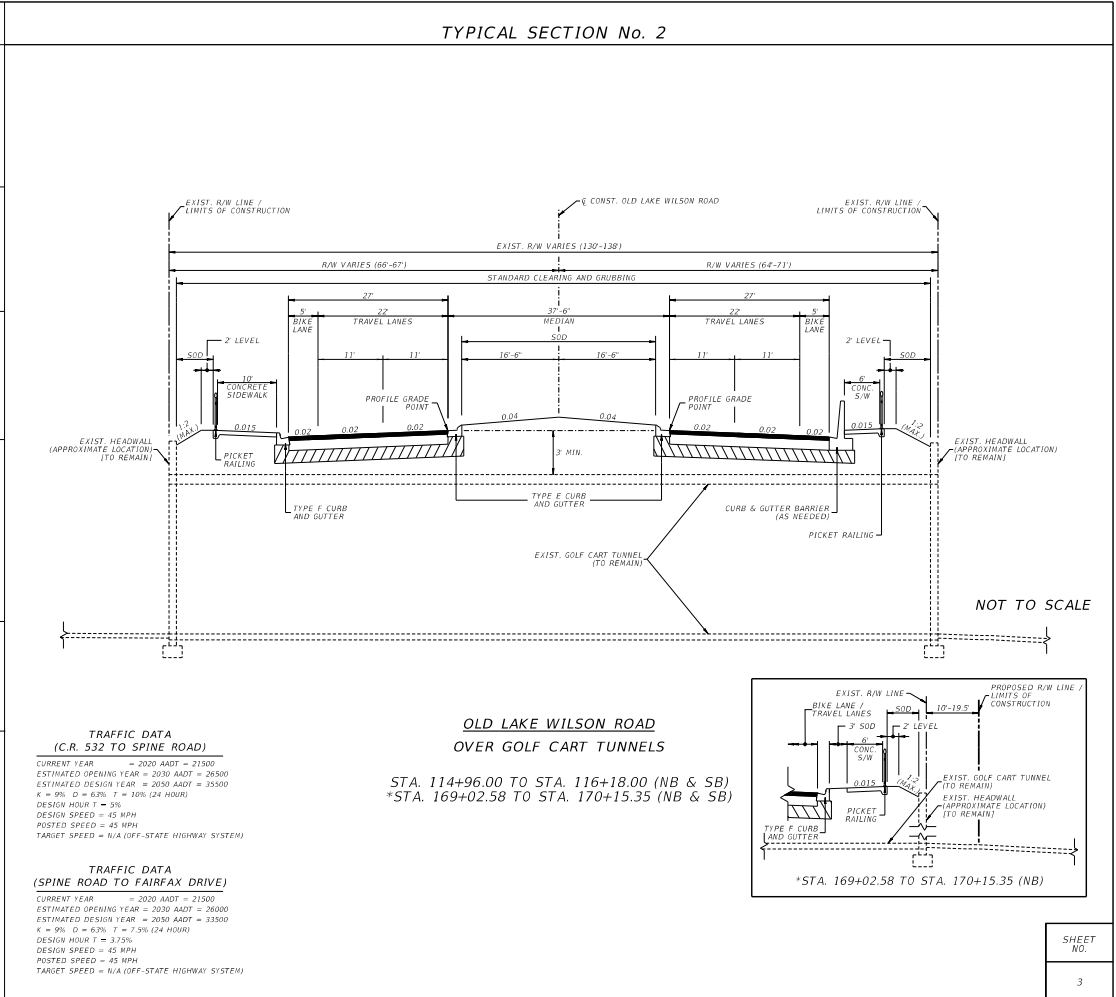
JUSTIFICATION FOR PROPOSED CRITERIA

- In the past 10 years, there were no pedestrian or bicyclist crashes within the study limits.
- The existing segment of Old Lake Wilson Road beyond the northern terminus to US 192 (SR 530) consists of 11-foot travel lanes and four-foot bike lanes. Thus, the on-street bike lanes provide corridor consistency. It is worth noting that there have been no pedestrian or bicyclist crashes within this segment over the past 10 years.
- The proposed improvements to Old Lake Wilson beyond the southern terminus consist of 11-foot travel lanes and six-foot bike lanes. Thus, the on-street bike lanes provide corridor consistency.
- Five-foot bike lanes will provide a gradual transition from the proposed six-foot bike lanes south of Osceola Polk Line Road and the existing four-foot bike lanes north of Sinclair Road.
- The design and future posted speed is 45 mph. Per FDM 223.2.1, on-street bike lanes are allowable.
- The 10-foot sidewalk will accommodate bicyclists who prefer not to use the bike lanes.
- Five-foot bike lanes have been incorporated into the proposed typical section at the request of Osceola County, the owner of the roadway.

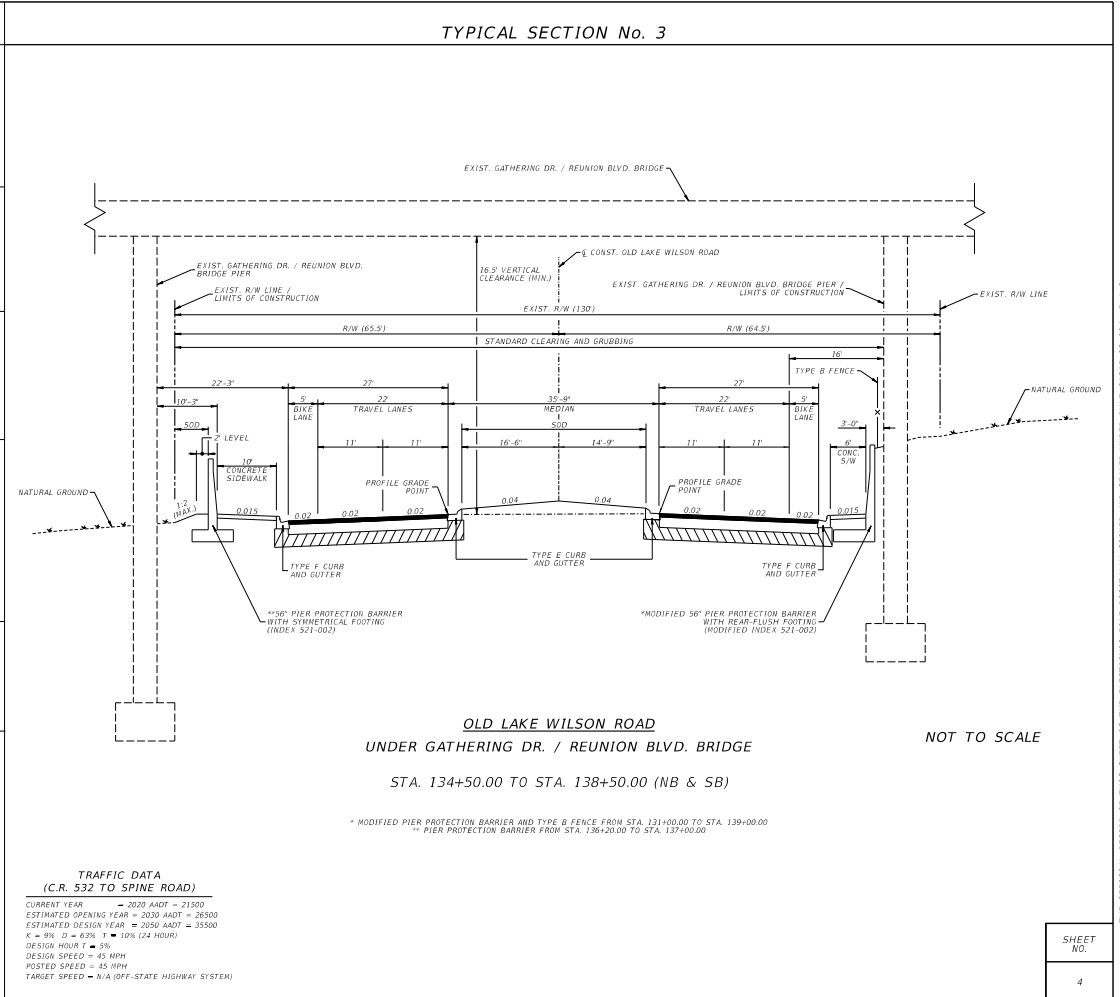
CONCLUSION AND RECOMMENDATION

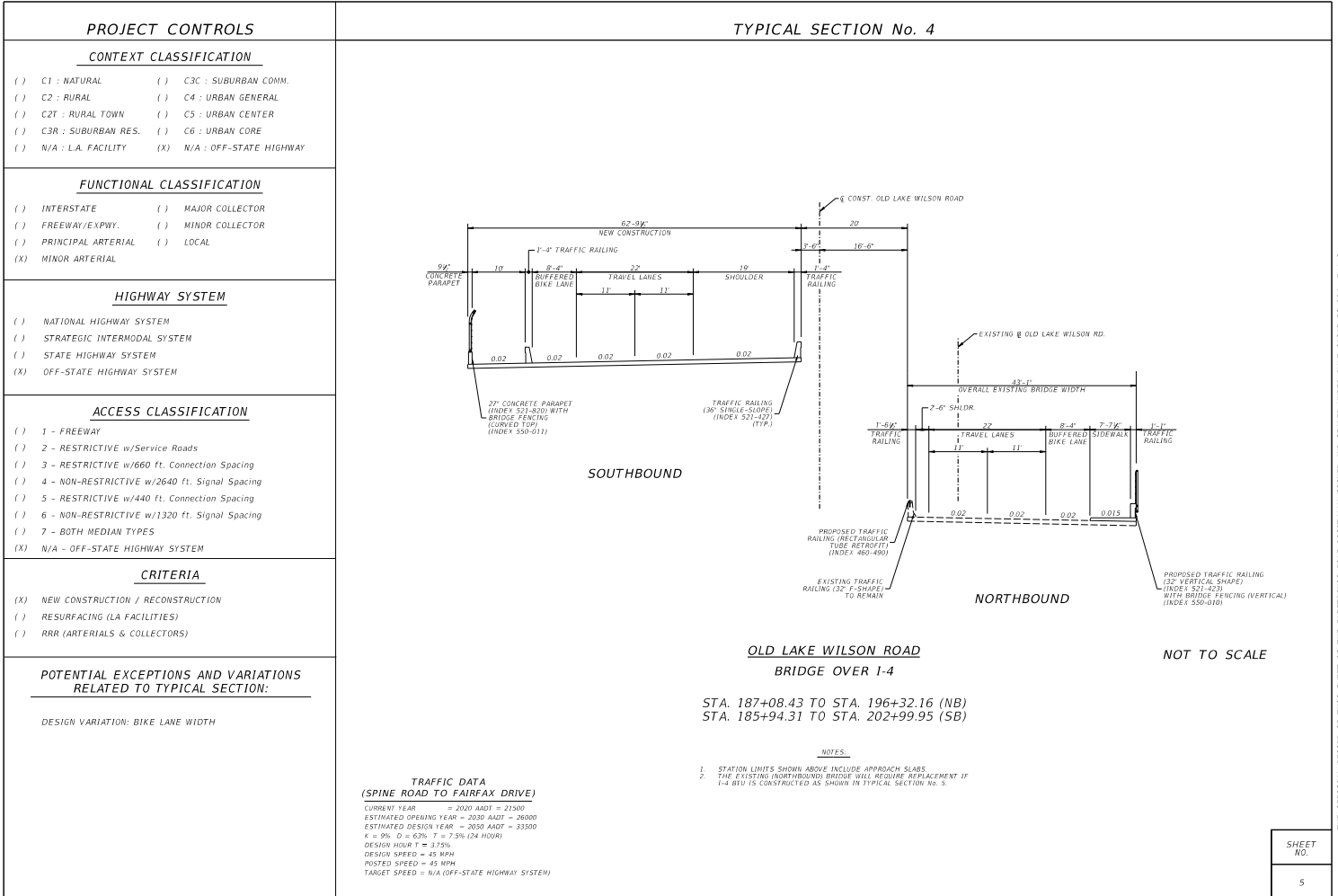
- The proposed bike lanes will ensure corridor consistency between the existing on-street bike lanes to the north and the proposed on-street bike lanes to the south (by others).
- Providing five-foot on-street bike lanes is preferred by Osceola County.
- There have been no pedestrian or bicycle crashes within the project corridor in the last 10 years.
- A 10-foot sidewalk is available on the west for bicyclists who prefer to ride on a separate facility.
- It is recommended that the design variation be approved for the limits identified to meet the scope of the study.

PROJECT CONTROLS	
CONTEXT CLASSIFICATION	
() C1 : NATURAL	() 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	(X) N/A : OFF-STATE HIGHWAY
FUNCTIONAL CLASSIFICATION	
() INTERSTATE	() MAJOR COLLECTOR
() FREEWAY/EXPWY.	() MINDER COLLECTOR
() PRINCIPAL ARTERIAL	() LOCAL
(X) MINOR ARTERIAL	
HIGHWAY SYSTEM	
() NATIONAL HIGHWAY SYSTEM	
() STRATEGIC INTERMODAL SYSTEM	
() STATE HIGHWAY SYSTEM	
(X) OFF-STATE HIGHWAY SYSTEM	
ACCESS CLASSIFICATION	
() 1 - FREEWAY	
() 2 - RESTRICTIVE w/Service Roads	
() 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	
(X) N/A - OFF-STATE HIGHWAY SYSTEM	
CRITERIA	
(X) NEW CONSTRUCTION / RECONSTRUCTION	
() RESURFACING (LA FACILITIES)	
() RRR (ARTERIALS & COLLECTORS)	
POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:	
DESIGN VARIATION: BIKE LANE WIDTH	



PROJECT CONTROLS	
CONTEXT CLASSIFICATION	
() C1 : NATURAL	() 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	(X) N/A : OFF-STATE HIGHWAY
FUNCTIONAL CLASSIFICATION	
() INTERSTATE	() MAJOR COLLECTOR
() FREEWAY/EXPWY.	() MINDER COLLECTOR
() PRINCIPAL ARTERIAL	() LOCAL
(X) MINOR ARTERIAL	
HIGHWAY SYSTEM	
() NATIONAL HIGHWAY SYSTEM	
() STRATEGIC INTERMODAL SYSTEM	
() STATE HIGHWAY SYSTEM	
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() 5 - RESTRICTIVE w/440 ft. Connection Spacing	
() 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing	
() 7 - BOTH MEDIAN TYPES	
(X) N/A - OFF-STATE HIGHWAY SYSTEM	
CRITERIA	
(X) NEW CONSTRUCTION / RECONSTRUCTION	
() RESURFACING (LA FACILITIES)	
() RRR (ARTERIALS & COLLECTORS)	
POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:	
DESIGN VARIATION: BIKE LANE WIDTH	

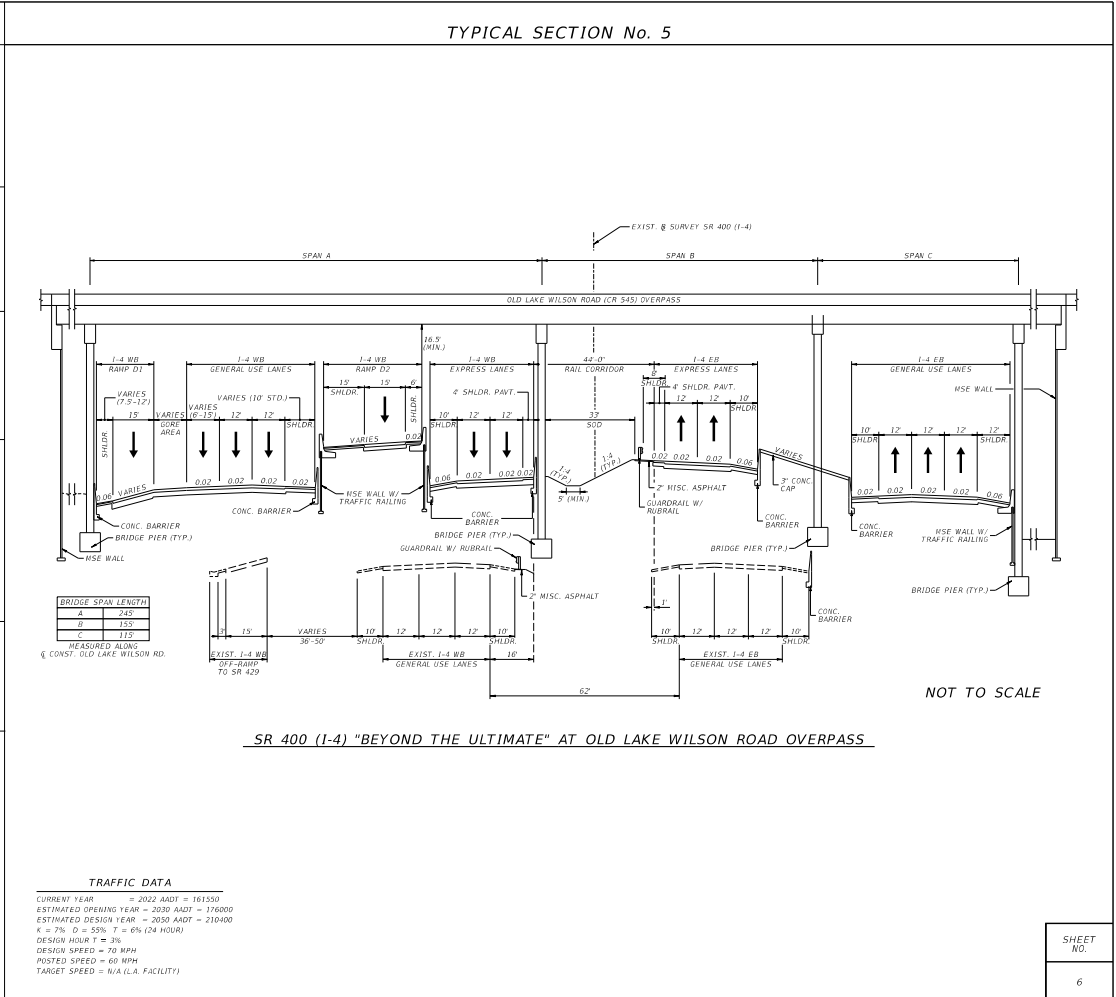




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SHEET NO.
5

PROJECT CONTROLS	
CONTEXT CLASSIFICATION	
() C1 : NATURAL	() C3C : SUBURBAN COMM.
() C2 : RURAL	() C4 : URBAN GENERAL
() C2T : RURAL TOWN	() C5 : URBAN CENTER
() C3R : SUBURBAN RES.	() C6 : URBAN CORE
(X) N/A : L.A. FACILITY	() N/A : OFF-STATE HIGHWAY
FUNCTIONAL CLASSIFICATION	
(X) INTERSTATE	() MAJOR COLLECTOR
() FREEWAY/EXPWY.	() MINDOR COLLECTOR
() PRINCIPAL ARTERIAL	() LOCAL
() MINOR ARTERIAL	
HIGHWAY SYSTEM	
(X) NATIONAL HIGHWAY SYSTEM	
() STRATEGIC INTERMODAL SYSTEM	
() STATE HIGHWAY SYSTEM	
() OFF-STATE HIGHWAY SYSTEM	
ACCESS CLASSIFICATION	
(X) 1 - FREEWAY	
() 2 - RESTRICTIVE w/Service Roads	
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() 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing	
() 7 - BOTH MEDIAN TYPES	
() N/A - OFF-STATE HIGHWAY SYSTEM	
CRITERIA	
(X) NEW CONSTRUCTION / RECONSTRUCTION	
() RESURFACING (LA FACILITIES)	
() RRR (ARTERIALS & COLLECTORS)	
POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:	



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APPENDIX E – Long Range Estimates

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 448781-1-22-01

Letting Date: 01/2099

Description: Old Lake Wilson Road From CR 532 to Sinclair Road

District: 05 **County:** 92 OSCEOLA **Market Area:** 08 **Units:** English
Contract Class: Lump Sum Project: N **Design/Build:** N **Project Length:** 2.490 MI

Project Manager:

Version 7 Project Grand Total

\$97,087,210.25

Description: 7-29-22 Update for Recommended Alt.

Sequence: 1 NDU - New Construction, Divided, Urban

Net Length: 2.459 MI
12,984 LF

Description: Alternative 1 Typical Section

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	86.00 / 84.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	2.460
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	104.00
Horizontal Elevation For End Section	104.00
Front Slope L/R	4 to 1 / 4 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	50.67 AC	\$12,902.03	\$653,745.86
120-6	EMBANKMENT	41,920.15 CY	\$20.88	\$875,292.73

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION Comment: Pond Restoration - 2,000 CY (Based on permitted volumes = 0.8, with a 1.5 foot of depth to restore), Pond Regrading - 34,913 CY, Permanent Steel Sheet Pile Wall - 14,833 CY	51,746.00 CY	\$17.48	\$904,520.08
120-6	EMBANKMENT Comment: Proposed SB I-4 Overpass, includes embankments on each side of the overpass	43,090.00 CY	\$20.88	\$899,719.20

Earthwork Component Total **\$3,333,277.87**

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	27.00 / 27.00
Structural Spread Rate	330
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	92,792.66 SY	\$11.66	\$1,081,962.42
285-709	OPTIONAL BASE,BASE GROUP 09	77,904.29 SY	\$34.41	\$2,680,686.62
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	12,854.21 TN	\$135.61	\$1,743,159.42
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	6,427.10 TN	\$122.75	\$788,926.52

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
327-70-6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH Comment: Milling of CR 532 intersection and Sinclair Road intersection	19,358.00 SY	\$2.20	\$42,587.60
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22 Comment: Resurfacing of CR 532 intersection and Sinclair Road intersection	1,597.00 TN	\$122.75	\$196,031.75
400-0-11	CONC CLASS NS, GRAVITY WALL Comment: Applicable length of 200', average height of 3'	44.00 CY	\$1,336.53	\$58,807.32
515-1-2	PIPE HANDRAIL - GUIDERAIL, ALUMINUM Comment: on top of gravity wall	200.00 LF	\$59.11	\$11,822.00
515-2-311	PED/BICYCLE RAILING, ALUM,42" TYPE 1 Comment: Picket Railing	1,293.00 LF	\$76.74	\$99,224.82
515-4-1	BULLET RAIL, SINGLE RAIL Comment: Bullet Railing associated with concrete parapets on retaining walls & bridges	2,579.00 LF	\$27.72	\$71,489.88
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	322.00 LF	\$73.34	\$23,615.48
521-6-11	CONC PARAPET, PED/BIKE, 27" Comment: On new SB OLV Bridge	1,613.00 LF	\$76.75	\$123,797.75
521-6-31	CONC PARAPET, RETAINING WALL SYS, 27"	966.00 LF	\$228.42	\$220,653.72
521-72-56	SHLDR CONC BARRIER,56" PIER PROT Comment: Pier Protection Barrier under Gathering Drive bridge	881.00 LF	\$488.86	\$430,685.66
536-8-111	CUARDR CONN TO RIGID BA, F&I, APPR N2 Comment: existing bridge / NB OLV Bridge	1.00 EA	\$2,487.30	\$2,487.30
536-8-113	GUARDRL TRANS CONN TO RIGID BA, F&I, TR Comment: existing bridge / NB OLV Bridge	2.00 EA	\$1,627.09	\$3,254.18
536-85-20	GUARDRAIL END TREAT- TRAILING ANCHORAGE	2.00 EA	\$1,422.54	\$2,845.08
550-10-325	FENCING, TYPE R, 5.1-6.0', VERTICAL Comment: NB Bridge	884.00 LF	\$76.37	\$67,511.08

550-10-354	FENCING, TYPE R, 8.1-10', W/PARTIAL ENCL Comment: SB Bridge	1,610.00 LF	\$56.92	\$91,641.20
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	3,664.00 LF	\$1.13	\$4,140.32
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	502.00 LF	\$0.79	\$396.58
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	2,973.00 LF	\$1.21	\$3,597.33
710-11-160	PAINTED PAVT MARK,STD,WHITE, MESSAGE	43.00 EA	\$36.98	\$1,590.14
710-11-170	PAINTED PAVT MARK,STD,WHITE, ARROWS	180.00 EA	\$30.74	\$5,533.20
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	5.44 GM	\$1,071.33	\$5,828.04
710-11-224	PAINTED PAVT MARK,STD,YELLOW,SOLID,18"	2,028.00 LF	\$0.63	\$1,277.64
711-11-123	THERMOPLASTIC, STD, WHITE, SOLID, 12"	3,664.00 LF	\$2.26	\$8,280.64
711-11-124	THERMOPLASTIC, STD, WHITE, SOLID, 18"	502.00 LF	\$2.84	\$1,425.68
711-11-125	THERMOPLASTIC, STD, WHITE, SOLID, 24"	2,973.00 LF	\$3.51	\$10,435.23
711-11-160	THERMOPLASTIC, STD, WHITE, MESSAGE	43.00 EA	\$140.65	\$6,047.95
711-11-170	THERMOPLASTIC, STD, WHITE, ARROW	180.00 EA	\$58.69	\$10,564.20
711-11-224	THERMOPLASTIC, STD, YELLOW, SOLID, 18"	2,028.00 LF	\$2.96	\$6,002.88

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	15.00
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	13,918.90 SY	\$11.66	\$162,294.37
285-709	OPTIONAL BASE,BASE GROUP 09	11,685.64 SY	\$34.41	\$402,102.87
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,928.13 TN	\$135.61	\$261,473.71
337-7-83	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	964.06 TN	\$122.75	\$118,338.36

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	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	996.00 EA	\$3.21	\$3,197.16

710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	4.92 GM	\$1,057.75	\$5,204.13
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	4.92 GM	\$471.82	\$2,321.35
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	4.92 GM	\$3,986.79	\$19,615.01
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	4.92 GM	\$1,268.88	\$6,242.89
711-16-201	THERMOPLASTIC, STD- OTH,YELLOW, SOLID, 6"	4.92 GM	\$3,997.20	\$19,666.22

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	360.00
Noise Barrier Wall Begin Height	14.00
Noise Barrier Wall End Height	14.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	42.27 TN	\$252.78	\$10,685.01
521-72-43	SHLDR CONC BARRIER, CURB AND GUTTER BARR	1,949.00 LF	\$328.71	\$640,655.79
534-72-101	SOUND/NOISE BARRIER-INC FOUNDATION, PERM	5,040.00 SF	\$51.18	\$257,947.20
536-1-0	GUARDRAIL- ROADWAY, GEN/LS TL-2	1,258.00 LF	\$16.10	\$20,253.80
536-85-24	GUARDRAIL END TREATMENT- PARA APP TERM	1.00 EA	\$2,999.67	\$2,999.67
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	800.00 LF	\$24.79	\$19,832.00
Roadway Component Total				\$9,759,139.19

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	21.25 / 17.25
Total Outside Shoulder Perf. Turf Width L/R	9.00 / 9.00
Sidewalk Width L/R	10.00 / 6.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	23,082.75 SY	\$63.10	\$1,456,521.52
570-1-2	PERFORMANCE TURF, SOD	25,968.10 SY	\$4.09	\$106,209.53

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	23,234.00 LF	\$38.70	\$899,155.80
Comment: Curb and Gutter Left and Right (including Sinclair Road)				

521-8-7	CONC BARRIER, W/JUNCT SL, 36 SS	388.00 LF	\$385.57	\$149,601.16
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Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	25,968.10 LF	\$1.09	\$28,305.23
104-11	FLOATING TURBIDITY BARRIER	614.78 LF	\$9.44	\$5,803.52
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	614.78 LF	\$4.05	\$2,489.86
104-15	SOIL TRACKING PREVENTION DEVICE	3.00 EA	\$2,800.00	\$8,400.00
104-18	INLET PROTECTION SYSTEM	126.00 EA	\$85.36	\$10,755.36
107-1	LITTER REMOVAL	62.58 AC	\$18.64	\$1,166.49
107-2	MOWING	62.58 AC	\$46.09	\$2,884.31

Shoulder Component Total \$2,671,292.79

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	37.50
Performance Turf Width	33.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
570-1-2	PERFORMANCE TURF, SOD	47,608.18 SY	\$4.09	\$194,717.46

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	21,128.00 LF	\$38.10	\$804,976.80
520-2-1	CONCRETE CURB, TYPE A	157.00 LF	\$30.22	\$4,744.54

Comment: Side Street Median Noses

Median Component Total \$1,004,438.80

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	89.00 EA	\$4,996.32	\$444,672.48
425-1-451	INLETS, CURB, TYPE J-5, <10'	25.00 EA	\$13,759.95	\$343,998.75
425-1-521	INLETS, DT BOT, TYPE C, <10'	13.00 EA	\$4,140.36	\$53,824.68
425-2-41	MANHOLES, P-7, <10'	13.00 EA	\$13,899.50	\$180,693.50
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	6,512.00 LF	\$125.80	\$819,209.60
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	584.00 LF	\$342.26	\$199,879.84
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	12,296.00 LF	\$269.89	\$3,318,567.44
570-1-1	PERFORMANCE TURF	747.57 SY	\$3.19	\$2,384.75

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
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425-1-549	INLETS, DT BOT, TYPE D, MODIFY	2.00 EA	\$6,565.20	\$13,130.40
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	72.00 LF	\$525.91	\$37,865.52

Box Culvert 1

Description	Value
Size	12 x 8
Length	150.00
Multiplier	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-4-1	CONC CLASS IV, CULVERTS	1,011.60 CY	\$1,586.33	\$1,604,731.43
415-1-1	REINF STEEL- ROADWAY	120,608.00 LB	\$1.34	\$161,614.72

Drainage Component Total \$7,180,573.12

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	60.00 AS	\$377.77	\$22,666.20
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00 AS	\$1,335.94	\$6,679.70
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	5.00 AS	\$7,600.90	\$38,004.50
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	5.00 AS	\$10,730.62	\$53,653.10

Signing Component Total \$121,003.50

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	Fairfax Drive (Full Signal)

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00 LF	\$10.22	\$7,665.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	\$23.11	\$5,777.50
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	\$8,712.69	\$8,712.69
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00 EA	\$773.26	\$9,279.12
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	\$3,224.83	\$3,224.83
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	\$6.02	\$361.20
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	4.00 EA	\$47,344.12	\$189,376.48
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	10.00 AS	\$1,224.55	\$12,245.50
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	\$669.09	\$5,352.72

660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	10.00 EA	\$405.04	\$4,050.40
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	10.00 AS	\$857.32	\$8,573.20
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	\$239.74	\$1,917.92
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	\$30,548.33	\$30,548.33
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	\$259.76	\$1,039.04

Signalization 2

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	Spine Road (Full Signal)

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00 LF	\$10.22	\$7,665.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	\$23.11	\$5,777.50
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	\$8,712.69	\$8,712.69
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00 EA	\$773.26	\$6,959.34
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	\$3,224.83	\$3,224.83
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	\$6.02	\$361.20
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	3.00 EA	\$47,344.12	\$142,032.36
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	7.00 AS	\$1,224.55	\$8,571.85
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	6.00 AS	\$669.09	\$4,014.54
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	7.00 EA	\$405.04	\$2,835.28
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	7.00 AS	\$857.32	\$6,001.24
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	6.00 EA	\$239.74	\$1,438.44
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	\$30,548.33	\$30,548.33
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	3.00 EA	\$259.76	\$779.28

Signalization 3

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	CR 532 and Sinclair Road (2 partial signals = 1 full)

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00 LF	\$10.22	\$7,665.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	\$23.11	\$5,777.50
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	\$8,712.69	\$8,712.69
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00 EA	\$773.26	\$9,279.12

639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	\$3,224.83	\$3,224.83
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	\$6.02	\$361.20
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	4.00 EA	\$47,344.12	\$189,376.48
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00 AS	\$1,224.55	\$9,796.40
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	\$669.09	\$5,352.72
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00 EA	\$405.04	\$3,240.32
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00 AS	\$857.32	\$6,858.56
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	\$239.74	\$1,917.92
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	\$30,548.33	\$30,548.33
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	\$259.76	\$1,039.04
Signalizations Component Total				\$800,195.92

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description		Value		
Spacing		MIN		
Pay Items		Quantity	Unit	Extended Amount
Pay item	Description		Price	
630-2-11	CONDUIT, F& I, OPEN TRENCH	12,984.05 LF	\$10.22	\$132,696.99
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	2,577.14 LF	\$23.11	\$59,557.71
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	87.00 EA	\$773.26	\$67,273.62
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	47,421.28 LF	\$2.62	\$124,243.75
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	87.00 EA	\$623.80	\$54,270.60
Subcomponent Total				\$438,042.67
Lighting Component Total				\$438,042.67

LANDSCAPING COMPONENT

User Input Data

Description	Value
Cost %	3.00
Component Detail	N
Landscaping Component Total	\$2,440,741.60

BRIDGES COMPONENT

Bridge 999999

Description	Value
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	999999

Geographic District	05
Segment Count	1
Bridge Length (LF)	1,612.35
Average Bridge Width (LF)	62.79
Average Skew Angle	0.00
Construction Type	New/Replacement
Typical Section	Urban Undivided, Flush SW
Sidewalk Width Left	10.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	Left/Right
Pedestrian/Bicycle Railing	Left
Total Design Load Demand Weight	42,165
Final Bridge Cost	\$31,032,144.75
Calculated Final Cost per SF	\$306.52

Description SB BRIDGE OVER I-4

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	141.54 CY	\$580.07	\$82,103.11
400-7-1	BRIDGE DECK GROOVING	9,480.79 SY	\$6.12	\$58,022.43
415-1-9	REINF STEEL- APPROACH SLABS	26,999.70 LB	\$1.16	\$31,319.65
515-2-311	PED/BICYCLE RAILING, ALUM,42" TYPE 1	1,672.35 LF	\$76.74	\$128,336.14
521-5-4	CONC TRAF RAIL- BRG, 32" VERT FACE	1,672.35 LF	\$132.49	\$221,569.65
521-5-4	CONC TRAF RAIL- BRG, 32" VERT FACE	1,672.35 LF	\$132.49	\$221,569.65

BRIDGE SEGMENTS

Segment 1

Segment Position	First/Last
Segment Over	Land
Segment Length (LF)	1612.35
Segment Width (LF)	62.79
Average Clearance (LF)	25
End Bent Fill Height (LF)	20
Average Pile Length (LF)	110
No. of Intermediate Supports	7
Superstructure / Beam Type	Steel Plate Girder
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 24"
Design Load Demand Weight	42,165
Total Segment Cost	\$30,289,224.12

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	2,655.97 CY	\$1,012.23	\$2,688,452.51
400-4-5	CONC CLASS IV, SUBSTRUCTURE	770.88 CY	\$1,656.39	\$1,276,877.92
400-4-5	CONC CLASS IV, SUBSTRUCTURE	1,050.00 CY	\$1,656.39	\$1,739,209.50
415-1-4	REINF STEEL- SUPERSTRUCTURE	743,671.60 LB	\$1.10	\$818,038.76
415-1-5	REINF STEEL- SUBSTRUCTURE	141,750.00 LB	\$1.28	\$181,440.00

415-1-5	REINF STEEL- SUBSTRUCTURE	165,739.20 LB	\$1.28	\$212,146.18
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	14,571.00 LF	\$154.93	\$2,257,485.03
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	1,619.00 LF	\$393.46	\$637,011.74
460-2-2	STRUCT STEEL, LOW ALLOY	5,752,405.19 LB	\$3.56	\$20,478,562.48
Bridge 999999 Total				\$31,032,144.75

Bridge 123456

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	40.00
Width (LF)	40.00
Type	Overpass Bridge
Cost Factor	2.40
Structure No.	924179
Removal of Existing Structures area	0.00
Default Cost per SF	\$120.00
Factored Cost per SF	\$288.00
Final Cost per SF	\$288.00
Basic Bridge Cost	\$460,800.00

Description DEMOLITION OF EXISTING, AND CONSTRUCTION OF
SIDEWALK, VERTICAL RAILING, VERTICAL FENCE, AND
RECTANGULAR TUBE RETROFIT ON EXISTING OLW
OVERPASS. TWEAKING #'S TO MATCH ENGINEERS
ESTIMATE

Bridge 123456 Total	\$460,800.00
Bridges Component Total	\$31,492,944.75

RETAINING WALLS COMPONENT

X-Items	Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-11		CONC CLASS II, RETAINING WALLS Comment: CIP Cantilever Retaining Wall (including reinforcing steel) - quantity adjusted to match engineers estimate	1.00 CY	\$525,000.00	\$525,000.00
451-70		PREST SOIL ANCHORS Comment: Anchors for Permanent Steel Sheet Pile Wall (North End of Existing Bridge)	74.00 EA	\$2,559.96	\$189,437.04
455-133-3		SHEET PILING STEEL, F&I PERMANENT Comment: Permanent Steel Sheet Pile Wall (North End of Existing Bridge)	21,170.00 SF	\$55.52	\$1,175,358.40

Retaining Wall 1

Description	Value
Length	105.00
Begin height	1.00
End Height	12.00
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	682.50 SF	\$36.17	\$24,686.02

Retaining Wall 2

Description	Value
Length	177.00
Begin height	1.00
End Height	11.00
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	1,062.00 SF	\$36.17	\$38,412.54

Retaining Wall 3

Description	Value
Length	62.80
Begin height	12.50
End Height	12.50
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	785.00 SF	\$36.17	\$28,393.45

Retaining Wall 4

Description	Value
Length	284.00
Begin height	16.00
End Height	1.00
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	2,414.00 SF	\$36.17	\$87,314.38

Retaining Wall 5

Description	Value
Length	211.00
Begin height	11.00
End Height	1.00
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	1,266.00 SF	\$36.17	\$45,791.22

Retaining Wall 6

Description	Value
Length	62.80
Begin height	14.00

End Height 14.00
Multiplier 1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	879.20 SF	\$36.17	\$31,800.66
Retaining Walls Component Total				\$2,146,193.72

MISCELLANEOUS COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-4-8	CONC CLASS IV, BULKHEAD Comment: Coping for Permanent Steel Sheet Pile Wall (North End of Proposed Bridge)	200.00 CY	\$1,189.23	\$237,846.00
Miscellaneous Component Total				\$237,846.00

Sequence 1 Total **\$61,625,689.93**

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 448781-1-22-01

Letting Date: 01/2099

Description: Old Lake Wilson Road From CR 532 to Sinclair Road

District: 05

County: 92 OSCEOLA

Market Area: 08

Units: English

Contract Class: Lump Sum Project: N

Design/Build: N

Project Length: 2.490 MI

Project Manager:

Version 7 Project Grand Total

\$97,087,210.25

Description: 7-29-22 Update for Recommended Alt.

Project Sequences Subtotal **\$61,625,689.93**

102-1	Maintenance of Traffic	10.00 %	\$6,162,568.99
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101-1	Mobilization	10.00 %	\$6,778,825.89
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Project Sequences Total **\$74,567,084.81**

Project Unknowns	30.00 %	\$22,370,125.44
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Justification for high %: Unknowns is high because bridge over I-4 is uncertain if it will be included in the project.

Design/Build	0.00 %	\$0.00
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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 7 Project Grand Total **\$97,087,210.25**

APPENDIX F – Agency Coordination



Florida Department of Transportation

RON DESANTIS
GOVERNOR

719 South Woodland Boulevard
DeLand, FL 32720

JARED W. PERDUE, P.E.
SECRETARY

July 19, 2022

Ms. Alissa S. Lotane
Director and State Historic Preservation Officer
Florida Division of Historical Resources
Florida Department of State
R.A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

Attn: Ms. Alyssa McManus, Transportation Compliance Review Program

RE: Cultural Resource Assessment Survey
Old Lake Wilson Road from CR 532 to Sinclair Road
Osceola and Polk Counties, Florida
Osceola County Project No. PS-20-11842-DG
Financial Management No. 448781-1-22-01

Dear Ms. Lotane,

Enclosed please find one copy of the report titled *Cultural Resource Assessment Survey for the Old Lake Wilson Road Widening from CR 532 to Sinclair Road Project Development and Environment Study, Osceola and Polk Counties, Florida*. This report presents the findings of a CRAS conducted in support of the proposed widening of Old Lake Wilson Road in Osceola and Polk Counties, Florida. The Board of County Commissioners for Osceola County is proposing to widen the existing Old Lake Wilson Road from two lanes to four lanes, as well as the potential construction of sidewalks, bike facilities, medians, closed drainage systems, and the widening or replacement of the existing bridge over Interstate 4 (I-4). No new ponds are proposed as part of this project. Four existing ponds in the Interstate 4 (I-4) interchange will be used and may be regraded as part of the current project. Total project length is approximately 4.5 kilometers (2.8 miles). This project is locally funded and the current study is being conducted in anticipation of federal or state permitting or funding with oversight through the Florida Department of Transportation (FDOT) District 5, at later stages of construction.

The Old Lake Wilson Road Area of Potential Effects (APE) was defined to include the existing and proposed right-of-way. This APE was extended to the back or side of property lines of parcels adjacent to the right-of-way or a distance of no more than 100 meters (330 feet) from the right-of-way line. For the I-4 interchange ponds, the APE was defined as the existing pond footprints and a buffer based on the project plans provided by Inwood Consulting Engineers. The proposed and existing right-of-way comprises the archaeological APE for the corridor because ground

disturbance for the project will be limited to that area. The archaeological APE associated with each pond was defined as the specific footprint of the pond in addition to a 10-meter (30.5-foot) buffer because that is the area where ground disturbance will take place. The historic structure survey was conducted within the larger APE that accounts for potential visual effects.

This CRAS was conducted in accordance with the requirements set forth in the National Historic Preservation Act of 1966, as amended, and Chapter 267, Florida Statutes (F.S.). The investigations were carried out in conformity with the standards contained in the Florida Division of Historical Resources (FDHR) Cultural Resource Management Standards and Operations Manual (FDHR 2003). In addition, this survey meets the specifications set forth in Chapter 1A-46, Florida Administrative Code.

The archaeological survey included shovel testing and pedestrian survey within the archaeological APE. No artifacts were recovered, and no archaeological sites or archaeological occurrences were identified within the APE. Three previously recorded archaeological sites (8OS00100, 8OS00594, and 8OS01867) have been recorded within the archaeological APE; however, modern development has removed any trace of these resources from the archaeological APE. No further archaeological work is recommended.

The architectural history survey resulted in the identification of three historic resources, including two previously recorded resources (8PO08219 and 8PO08220) and one newly recorded resource (8OS03232). All three resources are recommended ineligible for the NRHP. No further work is recommended.

Based on the results of this CRAS, it is the opinion of SEARCH that the proposed undertaking will have no effect on NRHP-listed or -eligible historic properties. No further work is recommended.

I respectfully request your concurrence with the findings of the enclosed report.

If you have any questions or need further assistance, please contact Catherine Owen, District Cultural Resource Coordinator, at (386) 943-5383 or me at (386) 943-5411.

Sincerely,



William G. Walsh
Environmental Manager
FDOT, District Five

The Florida State Historic Preservation Officer finds the attached Cultural Resource Assessment Survey Report complete and sufficient and concurs / does not concur with the recommendations and findings provided in this cover letter for SHPO/FDHR Project File Number 2022-4475. Or, the SHPO finds the attached document contains _____ insufficient information.

In accordance with the Programmatic Agreement among the ACHP, SHPO and FDOT Regarding Implementation of the Federal-Aid Highway Program in Florida, if providing concurrence with a finding of No Historic Properties Affected for a project as a whole, or to No Adverse Effect on a specific historic property, SHPO shall presume that FDOT may approve the project as de minimis use under Section 4(f) under 23 CFR 774.

SHPO Comments:

Kelly L. Chase, DSHPO <small>Digitally signed by Kelly L. Chase, DSHPO DN: cn=Kelly L. Chase, DSHPO, o.ou, email=kelly.chase@dos.myflorida.com, c=US Date: 2022.07.28 16:03:20 -0400</small>	7.28.2022
Alissa S. Lotane, Director Florida Division of Historical Resources	Date



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW
ATLANTA, GEORGIA 30303-3104

July 20, 2022

Mr. William G. Walsh
Environmental Administrator
Florida Department of Transportation, District 5
719 S. Woodland Boulevard
DeLand, FL 32720

Subject: Sole Source Aquifer Review/Concurrence for Old Lake Wilson Road PD&E Study project in Osceola County, Florida, Financial Project ID: 448781-1-22-01.

Dear Mr. Walsh:

The U.S. Environmental Protection Agency, Region 4 received the Florida Department of Transportation's (FDOT) request on June 9, 2022, to review the above referenced project pursuant to Section 1424(e) of the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300h-3. The objective of the EPA's review is to determine if the project lies within the boundaries, including recharge and streamflow source zones, of an EPA designated Sole Source Aquifer (SSA), and to determine if the project poses potential adverse health or environmental impacts. A SSA is the sole or principal water source for a designated area.

Old Lake Wilson Road PD&E Study project (Project) has been determined to lie inside the designated boundaries of the Biscayne Sole Source Aquifer and based on the information provided, may cause a significant impact to the aquifer system when the Project's bridge foundations are installed and/or construction dewatering is undertaken. However, with proper implementation of best management practices (BMPs), these potential impacts can be adequately reduced or properly mitigated. To that effect, when installing bridge foundations, the FDOT must adhere to the list of BMPs provided as items 1 and 2 below. The dewatering operation BMPs are listed in item 3 below:

1. FDOT Design Manual Chapter 320 Stormwater Pollution Prevention Plan (SWPPP)
2. FDOT Standard Specification for Road and Bridge Construction,
 - a. Section 6 – Control of Materials
 - b. Section 104 – Prevention, Control, And Abatement of Erosion and Water Pollution
 - c. Section 455 – Structures Foundations
3. U.S. Bureau of Reclamation Engineering Geology Field Manual – Chapter 20 Water Control.
<https://www.usbr.gov/tsc/techreferences/mands/geologyfieldmanual-vol2/Chapter20.pdf>

Furthermore, all debris from any demolition of the existing structures must be properly contained and removed from the site prior to construction of the new structure. If applicable, all county flood plain management plans and public notification processes must be followed. During construction, it is the EPA's understanding and expectation that those responsible for the project will strictly adhere to all

Federal, State, and local government permits, ordinances, planning designs, construction codes, operation, maintenance, and engineering requirements, and any contaminant mitigation recommendations outlined by federal and state agency reviews. All best management practices for erosion and sedimentation control must also be followed and State and local environmental offices must be contacted to address proper drainage and storm water designs. Additionally, the project manager should contact State and local environmental officials to obtain a copy of any local Wellhead Protection Plans. The following website provides information regarding the Florida Department of Environmental Protection's Source Water Assessment and Protection Program.
<http://www.dep.state.fl.us/swapp/Default.htm>

The EPA finds that, if the conditions outlined above are adhered to, this Project should have no significant impact to the aquifer system. Please note that this "no significant impact" finding has been determined based on compliance with the requirements outlined above and, on the information provided. Further, this finding only relates to Section 1424(e) of the SDWA, 42 U.S.C. § 300h-3. If there are any significant changes to the project, the EPA Region 4 office should be notified for further review. Other regulatory groups within the EPA responsible for administering other programs may, at their own discretion and under separate cover, provide additional comments.

Thank you for your concern with the environmental impacts of this project. If you have any questions, please contact Mr. Khurram Rafi at 404-562-9283 or Rafi.Khurram@epa.gov or Mr. Larry Cole at 404-562-9474 or Cole.Larry@epa.gov.

Sincerely,

**ALANNA
CONLEY**

Digitally signed by
ALANNA CONLEY
Date: 2022.07.20
22:54:20 -04'00'

Alanna Conley, Chief
Groundwater, UIC and GIS Section
Safe Drinking Water Branch
EPA, Region 4, Atlanta, GA



United States Department of Agriculture

May 20, 2022

Morgan Morris, EI
Engineer II & Planner
INWOOD CONSULTING ENGINEERS, INC.
3000 Dovera Dr., Suite 200, Oviedo, FL 32765

Subject: Old Lake Wilson Road Widening Farmlands

Dear Morgan Morris;

The following guidance is provided for your information.

The Natural Resources Conservation Service (NRCS) has reviewed the: Old Lake Wilson Road Widening Farmlands in Osceola County, Florida.

The Agriculture and Food Act of 1981, (Public Law 97-98) containing the Farmland Protection Policy Act (FPPA)—Subtitle I of Title XV, Section 1539-1549, is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency.

Based on the information provided for the area of interest located in Osceola County, Florida, Highlands county FL. The area in question meets one or more of the above criteria for exemption since the location *is in non-prime farm ground* according to the Code of Federal Regulation 7CFR 658, Farmland Protection Policy Act, Section 658-2. You are exempt from filling the AD1006 at this time. Use this letter as proof of exemption. No further action with regard to FPPA is required on your part.

If you have any questions for this project please email me, isabelle.giuliani@usda.gov. Any future projects, please refer me as the point of contact.

NRCS - Farmland Protection Policy Act Website:
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/>

Sincerely,

ISABELLE GIULIANI
Area Resource Soil Scientist
USDA NRCS Florida

Natural Resources Conservation Service
324 8th Avenue, West, Suite 104
Palmetto, FL 34221
941-729-6804/855-464-1961 (FAX)
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