

FINAL UTILITY ASSESSMENT PACKAGE

Florida Department of Transportation

District Five

SR 535 PD&E Study

Limits of Project: FROM US 192 TO NORTH OF WORLD CENTER DRIVE (SR 536)

Orange and Osceola Counties, Florida

Financial Management Number: 437174-2

ETDM Number: 14325

Date: November 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.

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1.0 Introduction

1.1 Project Description

The Florida Department of Transportation (FDOT) is planning to provide roadway improvements along a 2.2 mile segment of State Road 535 (SR 535), a four-lane divided minor arterial facility located within unincorporated Osceola and Orange Counties in central Florida. SR 535 is known as Vineland Road in Osceola County and Kissimmee-Vineland Road in Orange County. The proposed improvements are needed to address serious existing and projected capacity and safety deficiencies prevalent within the study corridor.

SR 535 begins at the US 192 intersection in Kissimmee and extends generally in a northwest direction ending at the I-4 interchange in Lake Buena Vista. The project limits extend from the US 192 intersection to just north of the SR 536 intersection. It should be noted that the northernmost SR 535 segment from SR 536 to just south of I-4 was originally intended to also be widened but due to policy constraints from local jurisdictions, it was removed from consideration for this study.

Figure 1-1 depicts the project vicinity.

Principal crossing/intersecting roadway facilities:

As shown on **Figure 1-1**, there are four principal roadway facilities crossing or intersecting SR 535 within the project limits. A short description follows: 1) US 192 (W. Irlo Bronson Memorial Highway) US 192 is a 75 mile long four-to-six lane east-west divided facility extending from Four Corners in Lake County in the west to Indialantic in Brevard County in the east. Within the project vicinity, US 192 serves a significant proportion of tourist related traffic associated with Walt Disney World and Epcot Center, located north and west of the project limits. 2) Osceola Parkway (CR 522) provides a tolled alternate to US 192 between Walt Disney World and Kissimmee on the east. Within the project confines, Osceola Parkway features a modified split diamond interchange providing access to and from the west at Poinciana Boulevard (just west of the SR 535 intersection) and access to and from the east via SR 535 (on-ramp) and Poinciana Boulevard (off-ramp) just east of the SR 535 intersection. 3) SR 417 (Central Florida Greene Way) is a tolled limited-access facility owned by CFX and the Turnpike providing an eastern beltway around the city of Orlando. SR 417 overpasses SR 535 but does not provide any connections to it. 4) World Center Drive (SR 536) is an east-west 6-lane facility extending from an I-4 interchange near the Epcot theme park on the west to an interchange with SR 417 to the east.

Figure 1-1 Project Location



1.2 Purpose & Need

1.2.1 Purpose

The purpose of this study is to generate and evaluate alternate solutions to provide relief to the existing and projected congestion and operational conditions. These conditions coupled with the existing lack of effective corridor multimodal features are a major cause of serious safety issues for all facility users.

1.2.2 Need

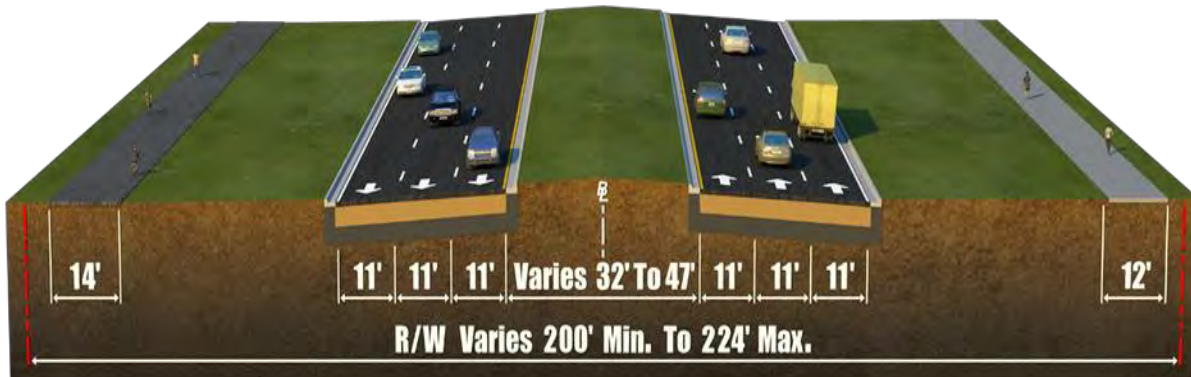
The overall study was initiated with a detailed comprehensive analysis of existing/projected substandard conditions. In general terms, some of the most critical potential needs include Transportation Demand and Multimodalism.

1.3 Description of Preferred Alternative

Preferred Typical Section:

After a comprehensive alternative generation and evaluation process, one (1) alternative was selected as being the most effective option throughout the project corridor (see **Figure 1-2**). The preferred typical section consists of total reconstruction with the widening of the additional lane towards the median. This inside widening helps minimize potential impacts to the Florida Gas Transmission Line and at the various innovative intersections. The following information is a brief description of the preferred typical section. The typical section consists of three (3) 11-foot travel lanes in each direction with a 14-foot shared use path on the west side and a 12-foot sidewalk on the east side with a right-of-way varying between 200-feet to 224-feet.

Figure 1.2 Preferred Typical Section



Innovative Intersections

Alternative intersection evaluations are governed by the Intersection Control Evaluation (ICE) Process. A summary of the following innovative intersection results are provided below:

SR 535 and Poinciana Boulevard – Signalized Intersection Alternative

The SR 535 and Poinciana Boulevard traffic signal concept (see **Figure 1-3**) involves the installation of an additional lane along SR 535 for northbound and southbound movements and provision of triple eastbound left turn lanes.

Figure 1-3 SR 535 and Poinciana Blvd Signalized Intersection Alternative



SR 535 and Polynesian Boulevard– Partial Median U-Turn

The SR 535 and Polynesian Isle Boulevard Partial Median U-Turn concept (see **Figure 1-4**) involves the removal of northbound and southbound direct left turn movements on SR 535 and the addition of U-turn storage bays at the existing median openings located just north and south of the intersection.

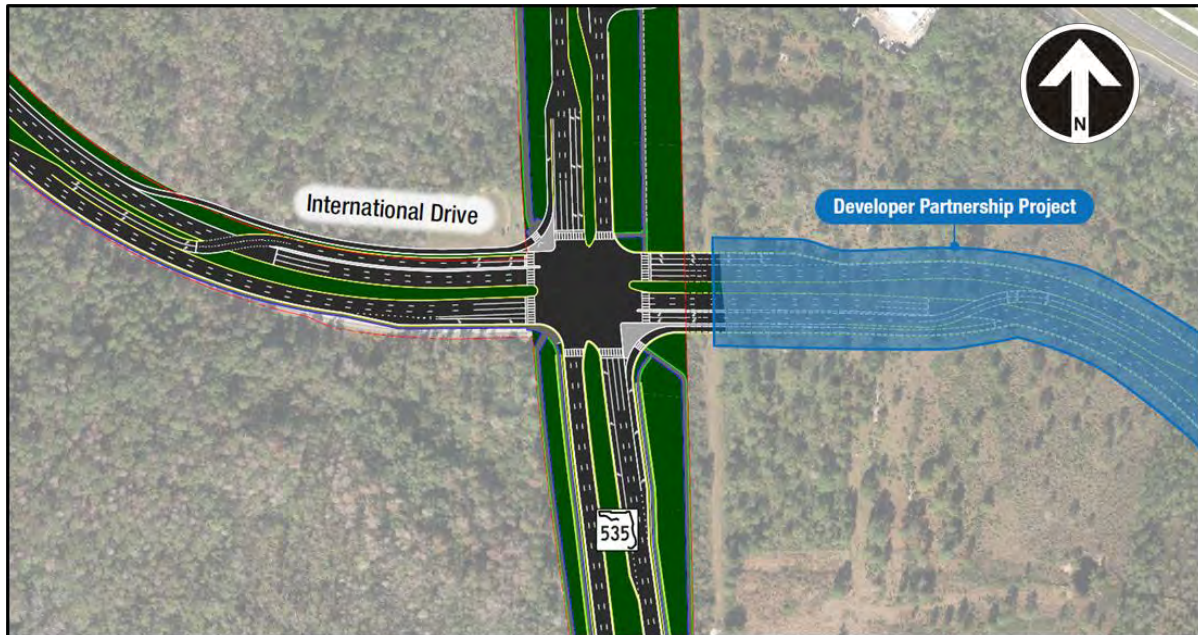
Figure 1-4 SR 535 and Polynesian Isle Blvd Partial Median U-Turn Alternative



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

The SR 535 and International Drive Partial Displaced Left Turn concept (see **Figure 1-5**) involves the removal of direct eastbound and westbound left turns on International Drive with the displaced left turns installed on both legs of this minor street. The northbound and southbound left turn movements for the major street on SR 535 continue to take place at the main intersection.

Figure 1-5 SR 535 and International Drive Partial Displaced Left Turn Alternative



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

The SR 535 and SR 536/World Center Drive Partial Displaced Left Turn concept (see **Figure 1-6**) involves the removal and replacement of direct northbound and southbound left turns on SR 535 with the displaced left turns installed on both legs of SR 535 (major street). The eastbound and westbound left turn movements for the minor street on SR 536/World Center Drive continue to take place at the main intersection.

Figure 1-6 SR 535 and SR 536/World Center Dr Partial Displaced Left Turn Alternative



2.0 Existing Utilities

2.1 Utility Owners

A list of existing utility companies within the project limits was obtained from Sunshine 811. They are listed in **Table 2-1** along with their respective contact information. Preliminary utility coordination with the Utility Agency/Owners (UAO) was initiated through written communication. The contact informed the UAO of the PD&E study and requested that they provide documentation showing existing and proposed facilities within the limits of the project. They were also requested to submit any general concerns and/or comments that would be useful in the FDOT’s evaluation process. Utility companies have responded with as-builts, marked plans, GIS system maps or a letter indicating they have no facilities in the area.

Table 2-1				
Existing Utilities				
Utility Agency / Owner	Facility Type	Contact Person	Phone	Email
AT&T Distribution	Communications	Alan Reynolds	(407) 351-8180	ar2916@att.com
Charter Communications	Communications	Jonathan McLeroy	(407) 467-6147	jonathan.mcleroy@charter.com
Comcast	Communications	Cesar Rivera	(407) 312-5944	cesar_rivera@comcast.com
Duke Energy	Electric	Tomas Macias	(407) 938-6619	tomas.macias@duke-energy.com
Florida Gas Transmission	Gas	Joseph Sanchez	(407) 838-7171	joseph.e.sanchez@energytransfer.com
Kinder-Morgan (Central Florida Pipeline, LLC)	Fuel	Mark Clark	(727) 271-0024	mark_clark@kindermorgan.com
Kissimmee Utility Authority	Electric	Carlos Galindez	(407) 933-7777 x6153	cgalindez@kua.com
Lumen (Centurylink)	Communications	Bill McCloud	(850) 599-1444	william.mccloud@lumen.com
Orange County Utilities	Water/Sewer	Christina M. Crosby	(407) 254-9706	christina.crosby@ocfl.net
Osceola County	Irrigation	Juan Diaz	(407) 448-0761	juan.diaz@ferrovialservices.com
Orlando Utilities Commission	Electric	Robert Scheuerle	(407) 434-2107	rscheuerle@ouc.com
Summit Broadband	Communications	Michelle Daniel	(407) 920-7468	mdaniel@summit-broadband.com
TECO People's Gas Systems	Gas	Shawn Winsor	(407) 420-6663	swinsor@tecoenergy.com
TOHO Water Authority	Water/Sewer	Calvin Carrero	(407) 944-5044	ccarrero@tohowater.com
Uniti Fiber	Communications	James Mosley	(251) 654-8216	james.mosley@uniti.com
Verizon / MCI	Communications	Timothy Cole	(407) 506-8635	timothy.cole@verizon.com

2.2 Description of Existing Utilities

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

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

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

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

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

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

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

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

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

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

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

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

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

- 25kV BE crossing SR-535 along the south R/W of Kyngs Heath Rd.
- OE distribution line along the west R/W of SR-535 from north of Kyngs Heath Rd. to Osceola Pkwy.
- OE transmission line along the east R/W of SR-535 from south of Osceola Pkwy. to north of Osceola Pkwy.
- OE transmission line with underbuilt distribution along the east R/W of SR-535 from north of Osceola Pkwy. to Polynesian Isle Blvd.
- Various distribution-type and transmission-type poles, handholes, switch cabinets, pole-mounted and pad-mounted transformers, pole risers, down guys and other related utility appurtenances.

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

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

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

- 4" ductile iron pipe (DIP) force main (FM) along the west R/W of SR-535 from south of SR-417 to SR-536 and continuing west along the south R/W of SR-536.
- 12" polyvinyl chloride pipe (PVC) FM along the west R/W of SR-535 north of SR-536.
- 20" DIP FM crossing SR-535 north of SR-536 within a 36" steel casing.
- 10" PVC FM along the east R/W of SR-535 from south of SR-417 to north of SR-536 with a crossing south of SR-417.
- 20" DIP FM along the north R/W of SR-536 east of SR-535.

- 8" PVC watermain (WM) along the west R/W of SR-535 from Osceola County line and crossing SR-535 within a 30" steel casing south of SR-417.
- 16" DIP WM along the east R/W of SR-535 from south of SR-417 to SR-536.
- 16" high density polyethylene (HDPE) WM pipe crossing SR-535 north of SR-417.
- 12" PVC WM along the south R/W of International Dr. crossing SR-535 within a 30" steel casing and connecting to the 16" DIP WM along the east R/W of SR-535.
- 24" DIP WM along the east R/W of SR-535 north of SR-536 within a casing across SR-536 and connecting to the 24" DIP WM along the south R/W of SR-536 east of SR-535.
- 4" PVC Reclaimed WM along International Dr. west of SR-535.
- 12" PVC Reclaimed WM along west R/W of SR-535 north of SR-536.
- 12" PVC Reclaimed WM within a 24" steel casing crossing SR-535 north of SR-536 and connecting to an existing 24" DIP Reclaimed WM along the east R/W of SR-535 continuing east long the north R/W of SR-536.
- 6" PVC Reclaimed WM along the east R/W of SR-535 connecting to an existing 12" PVC Reclaimed WM along SR-536 east of SR-535.

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

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

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

- Irrigation lines along the SR-535 east and west R/W and along the median between US-192 and SR-417.

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

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

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

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

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

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

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

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

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

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

3.0 Estimated Utility Relocation Costs

Table 2-2 Estimate Utility Relocation Costs

UAO	ITEMIZED COST	ESTIMATED RELOCATION COST
AT&T Distribution	<i>see breakout of items below</i>	\$ 675,000.00
Charter Communications	<i>see breakout of items below</i>	\$ 252,500.00
Comcast	<i>see breakout of items below</i>	\$ 144,500.00
Duke Energy	<i>see breakout of items below</i>	\$ 2,320,000.00
Florida Gas Transmission	<i>see breakout of items below</i>	\$ -
Kinder-Morgan (Central FL Pipeline)	<i>see breakout of items below</i>	\$ -
Kissimmee Utility Authority	<i>see breakout of items below</i>	\$ 1,090,000.00
Lumen Technologies	<i>see breakout of items below</i>	\$ 195,500.00
Orange County	<i>see breakout of items below</i>	\$ 1,170,000.00
Osceola County	<i>see breakout of items below</i>	\$ -
Orlando Utilities Commission	<i>see breakout of items below</i>	\$ -
Summit Broadband	<i>see breakout of items below</i>	\$ 141,000.00
TECO Peoples Gas	<i>see breakout of items below</i>	\$ 654,000.00
TOHO Water Authority	<i>see breakout of items below</i>	\$ 275,500.00
Uniti Fiber	<i>see breakout of items below</i>	\$ -
Verizon/MCI	<i>see breakout of items below</i>	\$ 110,000.00
TOTAL:		\$ 7,028,000.00

AT&T DISTRIBUTION					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
24-ct FOC (in 4" duct)	North R/W of Kyngs Heath Rd west of SR-535	380	300	\$ 125.00	\$ 37,500.00
48-ct FOC (in 4" duct)	Along north R/W Poinciana Blvd to east R/W SR-535	900	300	\$ 125.00	\$ 37,500.00
48-ct FOC (in 4" duct)	Along east R/W SR-535 from Poinciana Blvd to SR-536	6900	2400	\$ 125.00	\$ 300,000.00
60-ct FOC (in 4" duct)	Along north R/W International Dr and east R/W SR-535 to SR-536	1900	1400	\$ 125.00	\$ 175,000.00
216-ct FOC (in 4" duct)	Along east R/W SR-535 from International Dr to SR-536 and east of SR-535 along north R/W SR-536	2100	1000	\$ 125.00	\$ 125,000.00
<i>ESTIMATED RELOCATION COST:</i>					\$ 675,000.00
CHARTER COMMUNICATIONS					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
Aerial Cable	Along east R/W SR-535 from from US-192 to Poinciana Blvd	3700	1000	\$ 50.00	\$ 50,000.00
Aerial Cable	Along east R/W SR-535 from from Poinciana Blvd to SR-536	7000	1500	\$ 50.00	\$ 75,000.00
2" Duct	Along east R/W SR-535 from from Poinciana Blvd to SR-536	7000	1500	\$ 85.00	\$ 127,500.00
<i>ESTIMATED RELOCATION COST:</i>					\$ 252,500.00

COMCAST CABLE					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
UG Cable	Along west R/W SR-535 from Polynesian Isle Blvd to north of SR-417	2800	700	\$ 85.00	\$ 59,500.00
UG Cable	Along east R/W SR-535 from north of SR-417 to SR-536	2000	700	\$ 85.00	\$ 59,500.00
UG Cable	South R/W SR-536 east of SR-535	1000	300	\$ 85.00	\$ 25,500.00
<i>ESTIMATED RELOCATION COST:</i>					\$ 144,500.00
DUKE ENERGY					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
7.2/12.47 kV OE	Along west R/W SR-535 from Polynesian Isle Blvd to International Dr.	3600	1000	\$ 200.00	\$ 200,000.00
transmission (underbuilt distribution)	Along east R/W SR-535 from Osceola County line to north of SR-536	5000	1000	\$ 2,000.00	\$ 2,000,000.00
7.2/12.47 kV BE	Crossing SR-535 north of SR-536 and west along SR-536 south R/W	1200	400	\$ 300.00	\$ 120,000.00
<i>ESTIMATED RELOCATION COST:</i>					\$ 2,320,000.00
KISSIMMEE UTILITY AUTHORITY					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
25kV BE	Crossing SR-535 along south R/W Kyngs Heath Rd	310	300	\$ 300.00	\$ 90,000.00
OE transmission (underbuilt distribution)	Along east R/W SR-535 from north of Osceola Pkwy to Polynesian Isle Blvd	2500	500	\$ 2,000.00	\$ 1,000,000.00
<i>ESTIMATED RELOCATION COST:</i>					\$ 1,090,000.00

LUMEN TECHNOLOGIES					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
UG Copper	Along east R/W SR-535 from north of Calypso Cay Way to Osceola County line	3500	1700	\$ 85.00	\$ 144,500.00
UG Copper	Along west R/W SR-535 from north of Osceola County line to SR-536 and west of SR-536	5100	300	\$ 85.00	\$ 25,500.00
UG Copper	Along east R/W SR-535 from south of SR-536 to north of SR-536	3400	300	\$ 85.00	\$ 25,500.00
<i>ESTIMATED RELOCATION COST:</i>					\$ 195,500.00

ORANGE COUNTY UTILITIES					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
4" DIP FM	Along west R/W SR-535 from south of SR-417 to SR-536 and west along SR-536	4400	1700	\$ 195.00	\$ 331,500.00
10" PVC FM	Along east R/W SR-535 from south of SR-417 to north of SR-536	4000	600	\$ 140.00	\$ 84,000.00
20" DIP FM	Along north R/W of SR-536 east of SR-535	700	100	\$ 220.00	\$ 22,000.00
16" DIP WM	Along east R/W SR-535 from south of SR-417 to north of SR-536	4500	1100	\$ 215.00	\$ 236,500.00
24" DIP WM	Crossing SR-536 along east side of SR-535 and east along SR-536	900	400	\$ 230.00	\$ 92,000.00
4" PVC Reclaim WM	Along International Dr west of SR-535	700	100	\$ 240.00	\$ 24,000.00
12" PVC Reclaim WM	Along north R/W SR-536 going north along west R/W SR-535	1500	600	\$ 300.00	\$ 180,000.00
12" PVC Reclaim WM (24" steel casing)	Crossing SR-535 north of SR-536 and going east along SR-536	1200	400	\$ 500.00	\$ 200,000.00
ESTIMATED RELOCATION COST:					\$ 1,170,000.00

SUMMIT BROADBAND					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
24-ct FOC (in 3-1.25" HDPE)	Crossing SR-535 along north R/W Kyngs Heath Rd	380	300	\$ 110.00	\$ 33,000.00
288-ct FOC (in 3-1.25" HDPE)	Along west R/W SR-535 from Osceola Pkwy to Poinciana Blvd	800	300	\$ 110.00	\$ 33,000.00
144-ct & 288-ct aerial FOC	Along east R/W SR-535 from south of Poinciana Blvd to south of SR-417	3600	500	\$ 50.00	\$ 25,000.00
144-ct & 288-ct aerial FOC	Along east R/W SR-535 from north of SR-417 to north of SR-536	2300	1000	\$ 50.00	\$ 50,000.00
<i>ESTIMATED RELOCATION COST:</i>					\$ 141,000.00

TECO PEOPLES GAS					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
4" Coated Steel GM	Crossing SR-535 at Kyngs Heath Rd	320	300	\$ 215.00	\$ 64,500.00
4" Coated Steel GM	Along east R/W SR-535 from Calypso Way to south of SR-417	5200	600	\$ 215.00	\$ 129,000.00
4" Coated Steel GM	Crossing SR-535 at Poinciana Blvd	250	300	\$ 215.00	\$ 64,500.00
6" Coated Steel GM	Crossing SR-535 at International Dr	500	400	\$ 220.00	\$ 88,000.00
6" Coated Steel GM	Along east R/W SR-535 from south of SR-417 to north of SR-536	4000	700	\$ 220.00	\$ 154,000.00
6" Coated Steel GM	Crossing SR-535 north of SR-536	1200	500	\$ 220.00	\$ 110,000.00
6" Coated Steel GM	Heading east of SR-535 along SR-536	650	200	\$ 220.00	\$ 44,000.00
<i>ESTIMATED RELOCATION COST:</i>					\$ 654,000.00

TOHO WATER AUTHORITY					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
12" Gravity Sewer Main	Across SR-535 at Kyngs Heath Rd	400	300	\$ 375.00	\$ 112,500.00
12" WM	Across SR-535 at Kyngs Heath Rd	400	300	\$ 210.00	\$ 63,000.00
6" WM	Along west R/W of SR-535 from Poinciana Blvd to north of Polynesian Isle Blvd.	1900	300	\$ 200.00	\$ 60,000.00
6" WM	Extending west from SR-535 along south R/W Polynesian Isle Blvd	500	200	\$ 200.00	\$ 40,000.00
<i>ESTIMATED RELOCATION COST:</i>					\$ 275,500.00
VERIZON-MCI					
DESCRIPTION	GENERAL LOCATION	TOTAL LENGTH (LF)	CONFLICT LENGTH (LF)	UNIT COST (\$)	TOTAL (\$)
Buried Fiber Optic Cable	Along Poinciana Blvd crossing SR-535	1000	300	\$ 100.00	\$ 30,000.00
Buried Fiber Optic Cable	Crossing SR-535 at International Dr and north along east R/W SR-535 to SR-536	2000	800	\$ 100.00	\$ 80,000.00
<i>ESTIMATED RELOCATION COST:</i>					\$ 110,000.00

4.0 Mitigation Recommendations

This is a preliminary evaluation of potential utility conflicts within the project corridor based on proposed improvements under the preferred Build Alternative. Additional conflicts may be identified during final design due to proposed drainage, signals, Maintenance of Traffic, etc.

Conflict mitigation strategies should include the following:

- Subsurface Utility Engineering (SUE) for verified vertical and horizontal (Vvh) information on existing underground utilities to confirm conflicts.
- Obtaining Vvh information will also help guide the final design phase and ensure that informed decisions are made where practical to reduce potential utility relocations.
- Accurate location of all aerial utility facilities to confirm conflicts with the project final design, temporary work, MOT, and constructability of project improvements.
- Consideration of final design location to maintain Occupational Safety and Health Administration (OSHA) and National Electric Safety Code (NESC) final and temporary clearance requirements from energized overhead powerlines.
- Implementation of Utility Work by Highway Contractor Agreement (UWHCA) for any necessary relocation of water and sewer facilities.
- Completion of utility relocation work prior to the start of roadway construction activities.
- Most UAOs have the capability to adjust their facilities without causing major inconvenience to their customers. Mitigation measures to minimize service disruptions should include the following:
 - Installation and activation of new facilities prior to removal of existing.
 - Allowing service disruptions only during periods of minimum usage.
 - Limiting the duration of service disruptions.
 - Evaluation of innovative approaches to maintaining utility services in temporary work areas.