

US 301 (Gall Blvd.) Project Development & Environment Study

from SR 56 (Proposed) to SR 39 (Buchman Hwy.)

Pasco County, Florida

Work Program Item Segment Number: 416564-1

Draft Preliminary Engineering Report



August 2015

DRAFT

**PRELIMINARY ENGINEERING REPORT (PER)
PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY
US 301 (GALL BOULEVARD) FROM SR 56 (PROPOSED)
TO SR 39 (PAUL BUCHMAN HIGHWAY)
PASCO COUNTY, FLORIDA**

Work Program Item Segment Number: 416564-1

Prepared for:



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August 2015

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with **URS**, and that I have supervised the preparation of and approved the analysis, findings, opinions, conclusions, and technical advice reported in:

REPORT: Preliminary Engineering Report
PROJECT: US 301 (Gall Boulevard)
Project Development and Environment Study
From SR 56 (Proposed) to SR 39 (Buchman Hwy.)
LOCATION: Pasco County, Florida
WPI SEGMENT NO.: 416564-1
CLIENT: Florida Department of Transportation - District Seven
District Environmental Management Office

The following duly authorized engineering business performed the engineering work represented by this report:

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This report includes a summary of data collection efforts, corridor analysis and conceptual design analysis for the proposed roadway widening of US 301 from SR 56 (Proposed) to the proposed realigned SR 39.

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 design standards and criteria set forth by the federal, state, and local regulatory agencies as well as professional judgment and experience.

Name: Christopher Lovett Signature: _____
P.E. Number: 63020 Date: _____

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ACRONYM LIST

AADT	Average Annual Daily Traffic
ADT	Average Daily Traffic
CCC	Chairs Coordinating Committee
CDMS	Crash Data Management System
CFR	Code of Federal Regulation
CO	Carbon Monoxide
CSER	Contamination Screening Evaluation Report
dB(A)	A-weighted Decibels
DDHV	Directional Design Hourly Volume
DOE	Degree of Effect
EPA	US Environmental Protection Agency
ETAT	Environmental Technical Advisory Team
ETDM	Efficient Transportation Decision Making
F.S.	Florida Statutes
FSC	Florida State Clearinghouse
FDACS	Florida Department of Agriculture & Consumer Services
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FLUCFCS	Florida Land Use, Cover and Forms Classification System
FSC	Florida State Clearinghouse
FNAI	Florida Natural Areas Inventory
FPC	Flood Plain Compensation
FWC	Florida Fish and Wildlife Conservation Commission
FWS	U.S. Fish and Wildlife Service
FY	Fiscal Year
HCM	Highway Capacity Manual
LHR	Location Hydraulics Report
LOS	Level of Service
LRE	Long Range Estimates
MEV	Million Entering Vehicles
MOCF	Model Output Conversion Factor
MOT	Maintenance of Traffic
MP	Mile Post
mph	Miles Per Hour
MPOs	Metropolitan Planning Organizations
MPOs	Metropolitan Planning Organizations

MVMT	Million Vehicle Miles Traveled
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OFW	Outstanding Florida Waters
PCPT	Pasco County Public Transportation
PD&E	Project Development and Environment
PER	Professional Engineering Report
PPM	Plans Preparation Manual
PPSR	Preliminary Pond Sizing Report
PSWADT	Peak Season Weekday Average Daily Traffic
ROW	Right-of-Way
SCS/NRCS	Soil Conservation Service/ National Resource Conservation Service
SEIR	State Environmental Impact Report
SF	Seasonal Factor
SHGWT	Seasonal High Ground Water Table
SR	State Road
TAZs	Traffic Analysis Zones
TBRPM-ML	Tampa Bay Regional Planning Model for Managed Lanes
TNM	Traffic Noise Model
TSM&O	Transportation System Management & Operations
TSP	Transit Signal Priority
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	US Geological Survey
vpd	Vehicles Per Day
WBID	Watershed Basin I.D.
WEBAR	Wetland Evaluation and Biological Assessment Report
UAR	Utility Assessment Report

Section 1.0

SUMMARY OF PROJECT

1.1 COMMITMENTS AND RECOMMENDATIONS

To be completed after the Public Hearing.

1.2 DESCRIPTION OF PROPOSED ACTION

To be completed after the Public Hearing.

Section 2.0

INTRODUCTION

2.1 PROJECT DESCRIPTION

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to consider the proposed widening of a portion of US 301 (Gall Boulevard). The PD&E Study includes a State Environmental Impact Report (SEIR) for the study corridor. Located in Pasco County, the limits of this study are the proposed future connection of State Road (SR) 56 on the south (approximately Mile Post (MP) 1.600) to just south of the proposed future realigned SR 39 (Buchman Highway) intersection on the north (MP 3.554), a distance of approximately two miles. The project location map is included as **Figure 2-1**. Within the project limits, the existing roadway is a principal arterial, and the improvements would expand the current two-lane facility to four lanes. US 301 is a major north-south arterial roadway. US 301 (Gall Boulevard) is located in Sections 22, 23, and 27 of Township 26 South, Range 21 East (U.S. Geological Survey [USGS] Zephyrhills, Fla. 1975, PR 1987).

This project was evaluated through the FDOT's Efficient Transportation Decision Making (ETDM) process, designated as ETDM project #3107. An ETDM Final Programming Screen Summary Report was published on March 7, 2014, containing comments from the Environmental Technical Advisory Team (ETAT) on the project's effects on various natural, physical and social resources. Based on the ETAT comments included in the Summary Report and undertaking the public involvement process to date, it has been determined that the proposed improvements to US 301 (Gall Boulevard) would not create any significant impacts to the environment. Also, when the project went through the ETDM Programming Screen process, the FDOT planned to seek approval of the PD&E study's environmental document by the Federal Highway Administration (FHWA). In the meantime, the FDOT determined that it would instead process the study's environmental document as a SEIR. The project is currently fully funded for design in the FDOT's District 7 Five-year Work Program for Fiscal Year (FY) 2018. All subsequent phases, right-of-way (ROW) and construction are being considered to be added in future updates of the Department's Work Program.

**FIGURE 2-1
PROJECT LOCATION MAP
FROM SR 56 (PROPOSED) TO SR 39 (BUCHMAN HIGHWAY)**



Source: URS, 2015.

2.2 PURPOSE OF REPORT

The purpose of this report is to document the engineering and environmental analysis performed to support decisions related to evaluation of the project alternatives. In addition, it summarizes existing conditions, documents the purpose of and need for the project, and documents other data related to preliminary design concepts. These preliminary design concepts establish the functional or conceptual requirements that will be the starting point for the final design phase. The concept plans for this project are included as **Appendix A**.

Section 3.0

PROJECT PURPOSE AND NEED

3.1 REGIONAL CONNECTIVITY

US 301 (Gall Boulevard) is a major north-south arterial located in East Pasco County. It is a regional truck route and provides excellent north-south access to distribution centers. US 301 (Gall Boulevard) is an important connection to the regional and statewide transportation network that links the Tampa Bay region to the remainder of the state and the nation. US 301 (Gall Boulevard) was identified as a regional roadway by the West Central Florida Metropolitan Planning Organizations (MPOs) Chairs Coordinating Committee (CCC) and is included in the Regional Roadway Network. The 2040 design year expected Average Annual Daily Traffic (AADT) is 39,500 vehicles per day (vpd). The measured percentage of daily truck traffic is 15.10 percent. Therefore, the projected truck traffic on US 301 (Gall Boulevard) is approximately 6,000 trucks per day in the year 2040.

3.2 PLAN CONSISTENCY

The widening of US 301 (Gall Boulevard) from SR 56 (Proposed) to the proposed realignment of SR 39 (Buchman Highway) is identified as a ‘Cost-Affordable Capital Improvement’ (construction 2031 – 2040) in the *Pasco County MPO Mobility 2040*. The project has also been identified on the latest *Pasco County Transportation Capital Improvement Projects (2014-2028)* map. It should additionally be noted that \$2.5 million is programmed for the design phase in FY 2018 within the FDOT Five Year Work Program. Further, the project is reflected on *Map 7-22: Future Number of Lanes (2035)* in the Transportation Element of the adopted Pasco County Comprehensive Plan.

3.3 EMERGENCY EVACUATION

US 301 (Gall Boulevard) is designated as a parallel evacuation route to I-75 for the length of Pasco County.

3.4 FUTURE POPULATION AND EMPLOYMENT GROWTH IN CORRIDOR

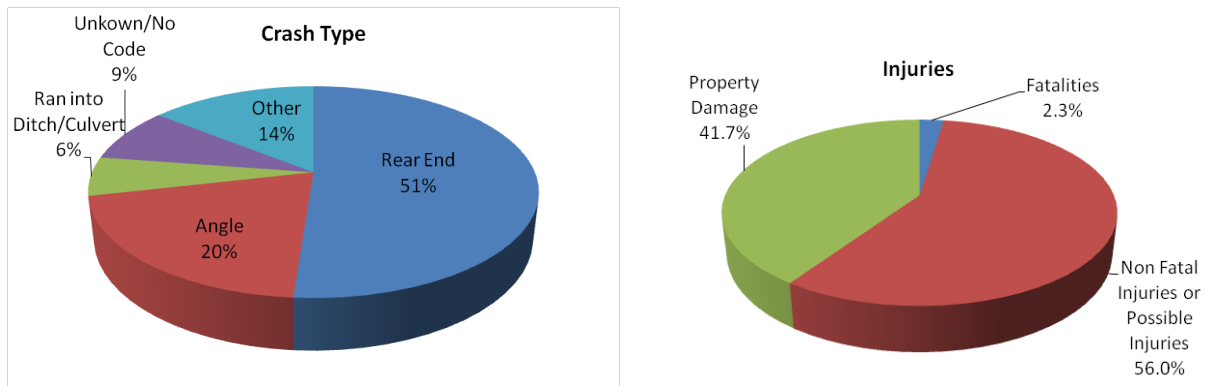
In the Tampa Bay Regional Planning Model for Managed Lanes (TBRPM-ML) “Starter Projects” Traffic Analysis Zones (TAZs) located within one quarter-mile of the US 301 (Gall Boulevard) project corridor were used to document the socioeconomic data. The study area’s population is projected to grow from 4,973 in year 2006 to 13,638 in year 2035 (an increase of 8,665). Employment is also expected to increase during the same period from 1,337 to 5,392 (an increase of 4,055).

3.5 FUTURE TRAFFIC

In 2013, US 301 (Gall Boulevard) from Chancey Road to SR 39 (Buchman Highway) carried 12,500 vpd. By the design year 2040, segments within this section of US 301 (Gall Boulevard) are expected to reach a volume of 39,500 vpd. The roadway segment was analyzed using the FDOT’s HIGHPLAN software which incorporates methodologies contained within the 2010 Highway Capacity Manual (HCM) 2010. Based on this analysis, the existing Level Of Service (LOS) is C. Without the proposed improvement, the operating conditions will continue to deteriorate to a failing LOS of F. With the proposed improvement to widen this roadway to four lanes and other proposed improvements, the LOS for 2040 is projected to be C; with one exception in the northbound PM peak hour, the LOS would be D.

3.6 SAFETY

For the five-year period (2009-2013), there were 84 crashes reported along the corridor with an average of 16.8 crashes per year. Rear-end collisions were the most common crash type recorded for the corridor with 43 or 51.2 percent of total crashes, followed by 17 angle collisions (including two left-turn collisions) or 20.2 percent of the total crashes. Out of the 84 total crashes, 47 or 56.0 percent were crashes with injuries and 35 or 41.7 percent were crashes with property damage only.



Source: FDOT Unified Base Map Repository, 2014.

There were two fatal crashes recorded along the US 301 (Gall Boulevard) corridor (2.3 percent). Further, four out of 84 total crashes (4.8 percent) were related to medium or heavy trucks. Among the truck-related incidents, three crashes involved injuries.

Safety within the US 301 (Gall Boulevard) corridor would be enhanced due to the additional capacity that would be provided. Roadway congestion would be reduced, thereby decreasing potential conflicts with other vehicles.

3.7 TRANSIT

The existing Pasco County Public Transportation (PCPT) bus Route 30 terminates at Tucker Road just north of the study area, and serves activity centers to the north including downtown Zephyrhills and Dade City from 4:45 am to 7:45 pm. In addition, this segment of US 301 (Gall Boulevard) to downtown Zephyrhills is part of the proposed SR 54 Cross County Express Route that is included in the *Pasco County's Mobility 2040 Cost Affordable Transit Plan* for implementation in 2031. Also planned is a Major Transit Station/Stop and Transit Signal Priority (TSP) project along the corridor.

3.8 ACCESS TO INTERMODAL FACILITIES AND FREIGHT ACTIVITY CENTERS

Access to intermodal facilities and movement of goods and freight are important considerations in the development of the Pasco County transportation system. US 301 (Gall Boulevard) is a regional truck route. The Zephyrhills Airport Industrial Area, a designated freight activity center, is located just northeast of the northern terminus of the study area. This industrial area has five major manufacturing facilities with approximately 700,000 square feet of industrial space. These companies generate approximately 200 trucks per day. Improvements to US 301 (Gall Boulevard) would enhance access to activity centers in the area and the movement of freight in eastern Pasco County.

3.9 RELIEF TO PARALLEL FACILITIES

The planned widening of US 301 (Gall Boulevard) between proposed SR 56 and the proposed realigned SR 39 (Buchman Highway) intersection is part of an overall plan to improve access and relieve traffic congestion on such parallel facilities as I-75, the Suncoast Parkway, and US 41. Safety, emergency access, and truck access would all be enhanced by this improvement.

3.10 BIKEWAYS AND SIDEWALKS

Integration of bicycle facilities and sidewalks are planned on all Pasco County and State road projects; including, new roads, widening of existing roads, and the resurfacing of State roads. These projects are planned to be constructed to include a minimum of a 7-foot wide paved shoulder to allow for bicycle safety, as well as, 5-foot sidewalks on both sides.

Section 4.0

EXISTING CONDITIONS

4.1 EXISTING ROADWAY CONDITIONS

4.1.1 Roadway Classification

US 301 (Gall Boulevard) is functionally classified as a *Rural Principal Arterial - Other* from MP 1.600 (project southern termini) to MP 2.452 (just north of Shamrock Place), for a distance of 0.852 mile. From MP 2.452 (just north of Shamrock Place) to MP 3.554 (project northern termini), the corridor is functionally classified as an *Urban Principal Arterial – Other*, for a distance of 1.102 mile. US 301 (Gall Boulevard) is designated as Access Class 3 within the study limits.)

4.1.2 Access Management

The FDOT has developed minimum driveway and connector spacing, median opening spacing, and signalized intersection spacing standards for limited access and controlled access facilities on the State Highway System. Currently, US 301 (Gall Boulevard) within the study area is classified as a controlled access facility, Access Class 3. The minimum spacing standards for the applicable Access Management Classification are summarized in **Table 4-1**.

**TABLE 4-1
ACCESS MANAGEMENT CLASSIFICATION**

Roadway	Access Class	Facility Design Features (Median Treatment and Access Roads)	Minimum Connection Spacing (feet)		Minimum Median Opening Spacing (feet)		Minimum Signal Spacing (feet)
			>45 mph	≤45 mph	Directional	Full	
US 301	3	Restrictive	660	440	1,320	2,640	2,640

Source: FDOT District Seven Access Management Classification System

Median Openings

US 301 (Gall Boulevard) within the study area is a two-lane undivided roadway. Although there are striped median treatments located at Palmview Drive, Blue Lagoon Drive and the southern entrances of the Zephyrhills Correctional Institution and Zephyrhills Festival Park, these treatments exist as safety measures for the exclusive turn-lanes at these locations. As such, there are no major or closed median openings located along the corridor.

Driveway Connections

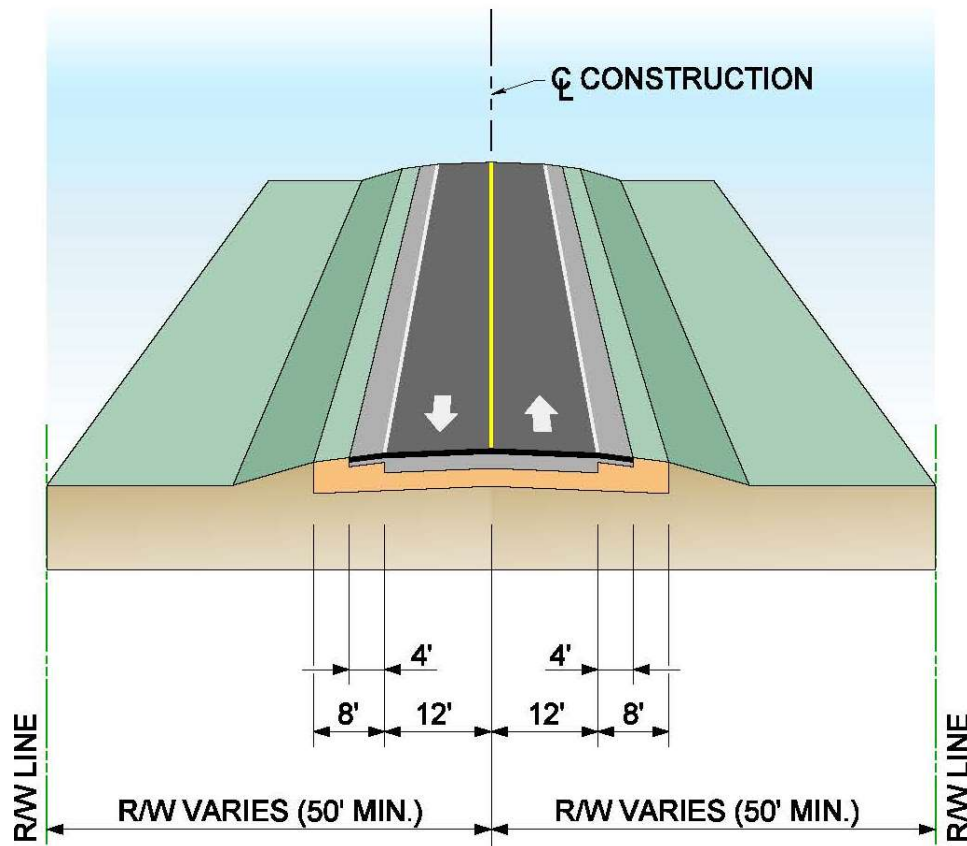
Numerous driveway connections, which do not comply with the current standards for a facility designated as Access Class 3 are present along the US 301 (Gall Boulevard) corridor. Several driveways serving independent businesses/parcels are located along the corridor, including the

Zephyrhills Correctional Institution, Zephyrhills Festival Park, and the Moose Lodge #2276. In addition, access abutting residential developments is provided via stop-controlled access to local streets including Palmview Drive (Palm View Gardens RV Travel Resort), Blue Lagoon Drive (Tropical Acre Estates), Old Crystal Springs Road (The Ramblewoods Active 55+ Community) and Shamrock Place (private residences).

4.1.3 Existing Roadway Facility

The existing US 301 (Gall Boulevard) corridor within the study area is currently a two-lane undivided facility with 12-foot travel lanes and 8-foot outside shoulders (four feet paved). The existing posted speed limit is 55 miles per hour (mph) south and 45 mph north of Chancey Road, respectively. The existing ROW width is approximately 100 feet. **Figure 4-1** depicts the existing roadway typical section.

**FIGURE 4-1
EXISTING TYPICAL SECTION**



Source: URS, 2015.

4.1.4 Existing Structures

There are no existing structures within the study area.

4.1.5 Existing Cross Drains

There are seven cross drains within the study limits as summarized in **Table 4-2**.

**TABLE 4-2
SUMMARY OF CROSS DRAINS**

Name	Sub-Basin	Approx. Station	Material	Approx. Size	Approx. Length (feet)	U.S. Invert (feet-NAVD)	D.S. Invert (feet-NAVD)
CD-1	SB-1	260+76	CBC	4' X 3'	119.23	63.00	62.90
CD-2	SB-2	288+95	CBC	4' X 2'	84.02	65.25	64.88
CD-3	SB-3	301+80	RCP	(2) 30" dia.	84.94	61.57	61.51
CD-4	SB-3	314+64	RCP	30" dia.	74.13	64.04	63.87
CD-5 *	SB-4	353+95	RCP	30" dia.	78.02	70.78	70.59
CD-6 *	SB-4	353+95	RCP	24" dia.	74.81	70.78	70.59
CD-7 ^{#%}	SB-5	368+56	CBC	(2) 4' x 2'	122.46	N – 68.85 C – 68.85 S - blocked	N – 67.67 C – 67.73 S – 67.58

Source: Pasco County, 2014; URS, 2014.

NOTES:

* Denotes existing cross drains that share an existing headwall

CD-7 comprises three CBCs, but only two are operational per SWFWMD requirements

% Survey data for CD-7 obtained from URS study “Zephyr Creek Unit 1, Design & Permitting”, dated April 2011.

CBC = Concrete Box Culvert

RCP = Reinforced Concrete Pipe

4.1.6 Pedestrian and Bicycle Facilities

There are no dedicated bicycle lanes currently provided along the corridor or within the study area; however, shoulders are available to accommodate bicycles. While there are pedestrian cross-walks provided on all legs of the intersection of US 301 (Gall Boulevard) and Chancey Road, there are no pedestrian facilities provided along these roadways or within the study area.

4.1.7 Horizontal and Vertical Alignments

It has been determined that the project construction area would need to be higher than existing elevation to provide the necessary hydraulic grade from the existing US 301 roadway corridor; therefore, all viable alternatives reflect a total reconstruction of US 301.

4.1.8 Crash Data and Safety Analysis

Crash data for the US 301 (Gall Boulevard) corridor from the proposed future connection of SR 56 to south of SR 39 (Buchman Highway) was obtained from the Pasco County Crash Data Management System (CDMS) for the five-year period from 2009 to 2013. Crash data is provided in Appendix E of the DTTM. Analysis of the available crash data within the study area is described in this section.

4.1.8.1 US 301 (Gall Boulevard) Corridor Crash Analysis

The study corridor includes US 301 (Gall Boulevard) segments from the proposed future connection of SR 56 to south of SR 39 (Buchman Highway) for a total length of approximately 1.954 miles. For the five-year period (2009-2013), there were 84 crashes reported with approximately towage of 16.8 crashes per year. Rear-end collisions were the most common crash type recorded for the corridor with 51.2 percent of total crashes followed by angle collisions (including left- and right-turn collisions) with 20.2 percent of the total crashes. Out of 84 total crashes, 47 (or 56.0 percent) were crashes with injuries and 35 (or 41.7 percent) were crashes with property damage only. There were two (or 2.3 percent) fatal crashes recorded along the corridor. Further, four out of 84 total crashes (4.8 percent) were related to medium or heavy trucks. Among the truck-related incidents, three crashes involved injuries. The corridor crash summary in terms of crash frequency by year and severity is shown in **Table 4-3**.

**TABLE 4-3
US 301 (GALL BOULEVARD) CORRIDOR CRASH SUMMARY**

Year	Crashes	Crash Severity		
		Fatality	Injury	Property Damage
2013	13	0	2	11
2012	10	0	5	5
2011	24	1	16	7
2010	19	1	16	2
2009	18	0	8	10
Total	84	2	47	35

Source: Pasco County Crash Data Management System (2009 - 2013)

In order to assess the corridor at a more detailed level, US 301 (Gall Boulevard) has been divided into three segments for the crash analysis. The highest number of crashes occurred for the segment from Shamrock Place (MP 2.367) to Chancey Road (MP 3.067), with 38 crashes reported. The calculated crash rate for the segment classified as rural principal arterial from the future SR 56 (MP 1.6) to Shamrock Place is 0.992 crashes per million vehicle miles traveled (MVMT). The crash rates for the two segments designated as urban-other principal arterial from Shamrock Place to Chancey Road (MP 2.367 to 3.067) and from Chancey Road to south of SR 39 (Buchman Highway) (MP 3.067 to MP 3.764) are 2.479 MVMT and 1.747 MVMT, respectively. The average crash rate for the corridor is 1.7391 MVMT. The FDOT statewide average crash rates for similar facilities are 0.588 (rural principal arterial-other) and 2.116 (urban-other principal arterial) crashes per MVMT. **Table 4-4** presents the crash rate for each segment in comparison to the statewide averages for similar facilities.

**TABLE 4-4
US 301 (GALL BOULEVARD) SEGMENT CRASH SUMMARY**

Corridor Segment	Length	AADT	Number of Crashes	Segment Crash Rates	
				Segment Crash Rate	Statewide Crash Rate
Future SR 56 to Shamrock Place	1.061	12,500	24	0.992	0.588
Shamrock Place to Chancey Road	0.700	12,000	38	2.479	2.116
Chancey Road to south of SR 39 (Buchman Highway)	0.697	9,900	22	1.747	2.116

Source: Pasco County Crash Data Management System (2009 – 2013).

As shown in Table 4-4, the highest crash rate occurred along the segment from Shamrock Place (MP 2.367) to Chancey Road (3.067) with a rate of 2.479 crashes per MVMT, which is higher than the FDOT statewide average crash rate of 2.116 for similar facilities. Within the corridor, the rural arterial segment between the future SR 56 and Shamrock Place has also experienced a crash rate higher than the FDOT statewide average crash rate of 0.588 for similar facilities.

Based on the five-year crash history for the corridor, two fatal crashes were reported. Details regarding these incidents are summarized in **Table 4-5**.

**TABLE 4-5
US 301 (GALL BOULEVARD) CORRIDOR FATAL CRASH SUMMARY**

Date	Crash Location	Description/Contributing Cause
5/7/2011	US 301 (Gall Boulevard) @ Shamrock Place	Ran into a ditch/culvert and hitting a fence under dark conditions
2/18/2010	US 301 (Gall Boulevard) @ Old Crystal Springs	Bicyclist making a right turning under dark conditions (other details not coded)

Source: Pasco County Crash Data Management System (2009 - 2013).

4.1.8.2 Intersection Crash Analysis

A review of the crashes occurring within 250 feet of the US 301 (Gall Boulevard) intersection at Chancey Road was conducted; a summary of the intersection crash analysis results is presented in **Table 4-6**. The intersection crash rate was calculated as crashes per million entering vehicles (MEV) and was compared with the statewide average for similar roadways. The formula used to calculate the intersection crash rate is as follows:

$$R = \frac{C \times 1,000,000}{V \times 365 \times N}$$

Where: R = Crash rate for intersection expressed as crashes per MEV
 C = Total number of intersection-related crashes. N = Number of years of data
 V = Traffic volumes entering the intersection

**TABLE 4-6
US 301 (GALL BOULEVARD) INTERSECTION CRASH SUMMARY**

Mile Post	Location	Crashes Per Year						Intersection Crash Rates	
		2009	2010	2011	2012	2013	Total	Intersection Crash Rate (MEV)	Statewide Crash Rate (Crashes/MEV)
3.067	US 301 (Gall Boulevard) @ Chancey Road	8	5	13	6	8	40	0.545	0.369

Source: Pasco County Crash Data Management System (2009 - 2013).

The US 301 (Gall Boulevard) intersection at Chancey Road had 40 crashes occurring between 2009 and 2013. The crash rate for this location exceeds the FDOT average crash rates for similar facilities. Of the 40 crashes, 18 crashes resulted in an injury and 22 resulted in property damage. There were no fatalities recorded for the five-year period within the 250-foot intersection buffer area.

For crashes identified as occurring at or influenced by the intersections along the US 301 (Gall Boulevard) corridor, 28.6 percent were attributed to careless driving. The primary contributing causes for incidents in the study area include careless driving, failure to yield, and disregard for traffic signal/stop sign.

Detailed crash data and reports are included in Appendix E of the DTTM.

4.1.9 Intersections and Signalization

The project study area currently includes one signalized intersection at US 301 (Gall Boulevard) and Chancey Road.

4.1.10 Lighting

Currently, there is no lighting along US 301 within the project limits.

4.1.11 Utilities and Railroads

The existing and proposed utilities located within the project limits were identified as part of this PD&E Study. A list of existing utility companies within the project limits was obtained from the Sunshine 811 system. The list of existing utilities is summarized in **Table 4-7**.

There are no at-grade railroad crossings within the project limits.

**TABLE 4-7
EXISTING UTILITIES**

Utility	Contact	Address	Phone Number	Facility within Study Area
Bright House Networks	Ms. Helen Fife	30432 State Road 54 Wesley Chapel, FL 33543	(813) 862-0522 x: 84266	Fiber optic cables
CenturyLink	Mr. Mike Fitzgerald	5908-A Hampton Oaks Pkwy. Tampa, FL 33610	(941) 661-7557	Fiber optic cables
City of Zephyrhills	Mr. C.J. Funnell	39421 South Ave. Zephyrhills, FL 33542	(813) 780-0000 x: 3582	None
Duke Energy Distribution	Ms. Sharon Dear	452 E. Crown Point Rd. Winter Garden, FL 34787	(407) 905-3321	Electric
Duke Energy Transmission	Ms. Jennifer Williams	20525 Amberfield Dr. Suite 201 Land O' Lakes, FL 34638	(813) 909-1210	None
Pasco County Utilities	Mr. Martin Ramirez	7536 State St., Suite 205 New Port Richey, FL 34654	(727) 847-8145 x: 7391	Water & Sanitary Sewer (Force Main)
TECO Peoples Gas	Mr. Chris Uria	1400 Channelside Dr. Tampa, FL 33605	(813) 275-3731	Gas
Verizon Florida, LLC.	Mr. Mike Little	7701 E. Telecom Pkwy. Temple Terrace, FL 33637	(813) 978-2161	Copper & Fiber optic cables
Withlacoochee River Electric Cooperative	Mr. Corey Littlefield	30461 Commerce Dr. San Antonio, FL 33526	(813) 588-5115 x: 1131	Electric
Zephyrhills Spring Water	Mr. Robert Sarmiento	6403 Harney Rd. Tampa, FL 33610	(813) 778-0594	Water

Source: OMNI, 2015.

4.1.12 Weigh Station

There are no weigh stations within the study area.

4.1.13 Pavement Conditions

Based on a review of the Department's Pavement Condition Forecast Report, currently US 301 has a Cracking Rating of 7.0 and a Ride Rating of 6.7. Also, US 301 from the Pasco County Line to SR 39 (Buchman Highway) was resurfaced in 2006, and is in generally good condition.

4.1.14 Soils and Geotechnical

The USDA Soil Survey provides indications of what a soil may be useful for and can provide clues as to possible uses and potential environmental issues. Additionally, maps of the soil units provided in the surveys often show historical land features such as mines, borrow pits, railroads, etc. These can also be indications of areas of concern.

The USDA's Soil Conservation Service/ National Resource Conservation Service (SCS/NRCS) "Soil Survey of Pasco County, Florida" issued in May 1982 and the Web Soil Survey were reviewed for general climate and near surface soil information. According to the Soil Survey, the mean annual rainfall for the county is approximately 55 inches with 60 percent falling in the summer months, June through September. The climate of the area is generally subtropical with maximum daily temperature of about 90 degrees Fahrenheit in the summer months and frost/freezing temperatures expected two to three days in winter months.

The Soil Survey's *General Soil Map* indicates two soil groups are located within the study area:

1. Soils of the Upland Ridges include the Tavares-Sparr-Adamsville series, which are nearly level to sloping, moderately well drained and somewhat poorly drained soils; some are sandy throughout and others are sandy to a depth of 40 to 80 inches and loamy below.
2. Soils of the Flatwoods and Depressions include the Pomona-EauGallie-Sellers series, which are nearly level, poorly drained and very poorly drained soils, some have subsoil that is dark colored and sandy within a depth of 30 inches and loamy below; some are sandy throughout and have a thick dark colored surface layer.

The Soil Survey indicates that there are eleven (11) detailed soil-mapping units located along the project corridor. The general engineering properties of the soil-mapping units as indicated in the Soil Survey is summarized in **Table 4-8**. A reproduction of the Pasco County Soil Survey published by the USDA for the project vicinity is illustrated on the NRCS Soils Map in **Figure 4-2**.

**TABLE 4-8
SUMMARY OF COUNTY SOIL SURVEY**

SUMMARY OF USDA SOIL SURVEY PASCO COUNTY, FLORIDA									
USDA MAP SYMBOL AND SOIL NAME	SOIL CLASSIFICATION				PH	SEASONAL HIGH WATER TABLE		RISK OF CORROSION	
	DEPTH (INCHES)	USCS	AASHTO	PERMEABILITY (INCHES/HOUR)		DEPTH (FEET)	MONTHS	UNCOAT ED STEEL	CONCRETE
(1) Wauchula, non-hydric - Wauchula, hydric	0-8	SP-SM	A-2-4, A-3	6.0 - 20.0	4.5-5.5	0.5-1.5	May-Oct	High	High
	8-19	SP-SM	A-2-4, A-3	6.0 - 20.0	4.5-5.5				
	19-26	SM, SP-SM	A-2-4, A-3	0.6 - 6.0	4.5-5.5				
	26-34	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	4.5-5.5				
	34-80	SC, SC-SM, SM	A-2-4, A-2-6, A-4, A-6	0.6 - 6.0	4.5-5.5				
	0-8	SP-SM	A-2-4, A-3	6.0 - 20.0	4.5-5.5	0.0-0.5	May-Oct	High	High
	8-19	SP-SM	A-2-4, A-3	6.0 - 20.0	4.5-5.5				
	19-26	SM, SP-SM	A-2-4, A-3	0.6 - 6.0	4.5-5.5				
	26-34	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	4.5-5.5				
	34-80	SC, SC-SM, SM	A-2-4, A-2-6, A-4, A-6	0.6 - 6.0	4.5-5.5				
(2) Pomona, non-hydric - Pomona, hydric	0-6	SP, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5	1.0-3.5; 0.5-1.5; 1.0-3.5	Feb-June; July-Sept; Oct	High	High
	6-22	SP, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	22-36	SM, SP-SM	A-2-4, A-3	0.6 - 2.0	3.5-5.5				
	36-52	SP, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	52-60	SC, SC-SM, SM	A-2-4, A-4, A-6	0.2 - 0.6	3.5-5.5				
	0-6	SP, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5	0.0-0.5	Feb-Oct	High	High
	6-22	SP, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	22-36	SM, SP-SM	A-2-4, A-3	0.6 - 2.0	3.5-5.5				
	36-52	SP, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	52-60	SC, SC-SM, SM	A-2-4, A-4, A-6	0.2 - 0.6	3.5-5.5				
	60-80	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	60-80	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
(6) Tavares	0-3	SP, SP-SM	A-3	20.0 - 50.0	5.1-6.0	3.5->6.0	June-Dec	Low	High
	3-80	SP, SP-SM	A-3	20.0 - 50.0	5.1-6.0				

**TABLE 4-8
SUMMARY OF COUNTY SOIL SURVEY (CONTINUED)**

SUMMARY OF USDA SOIL SURVEY PASCO COUNTY, FLORIDA									
USDA MAP SYMBOL AND SOIL NAME	SOIL CLASSIFICATION				PH	SEASONAL HIGH WATER TABLE		RISK OF CORROSION	
	DEPTH (INCHES)	USCS	AASHTO	PERMEABILITY (INCHES/HOUR)		DEPTH (FEET)	MONTHS	UNCOAT ED STEEL	CONCRETE
(10) Wabasso, non-hydric - Wabasso, hydric	0-6	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5	1.0-3.5; 0.5-1.5; 1.0-3.5	Feb-May; June-Sept; Oct-Nov	Moderate	High
	6-23	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	23-30	SM	A-2-4	0.0 - 0.2	4.5-7.3				
	30-80	SC, SC-SM, SM	A-2-4, A-2-6, A-4, A-6	0.0 - 0.2	6.6-8.4				
	0-6	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5	0.0-0.5	June-Sept	Moderate	High
	6-23	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	23-30	SM	A-2-4	0.0 - 0.2	4.5-7.3				
	30-80	SC, SC-SM, SM	A-2-4, A-2-6, A-4, A-6	0.0 - 0.2	6.6-8.4				
(16) Zephyr	0-13	PT	A-8	6.0 - 20.0	3.5-5.5	0	June-Nov	High	High
	13-31	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	31-61	SC-SM, SM	A-2-4, A-2-6	0.1 - 0.2	3.5-5.5				
	61-80	SC-SM, SM	A-2-4	0.6 - 6.0	3.5-5.5				
(17) Immokalee, non- hydric - Immokalee, hydric	0-4	SP, SP-SM	A-3	6.0 - 20.0	4.5-6.0	1.0-3.5; 0.5-1.5; 1.0-3.5	Jan-March, June; July-Aug; Sept-Dec	High	High
	4-33	SP, SP-SM	A-3	6.0 - 20.0	4.5-6.0				
	33-45	SM, SP-SM	A-2-4, A-3	0.6 - 2.0	4.5-6.0				
	45-80	SP, SP-SM	A-3	6.0 - 20.0	4.5-6.0				
	0-4	SP, SP-SM	A-3	6.0 - 20.0	4.5-6.0	0.0-0.5	Aug-Sept	High	High
	4-33	SP, SP-SM	A-3	6.0 - 20.0	4.5-6.0				
	33-45	SM, SP-SM	A-2-4, A-3	0.6 - 2.0	4.5-6.0				
	45-80	SP, SP-SM	A-3	6.0 - 20.0	4.5-6.0				
(18) Electra variant	0-5	SP, SP-SM	A-3	6.0 - 20.0	4.5-5.5	2.0-3.5	July-Oct	Low	High
	5-39	SP, SP-SM	A-3	6.0 - 20.0	4.5-5.5				
	39-51	SM, SP-SM	A-2-4, A-3	2.0 - 6.0	4.5-5.5				
	51-70	SP, SP-SM	A-3	6.0 - 20.0	4.5-5.5				
	70-78	SC, SC-SM, SM	A-2-4, A-2-6	0.1 - 0.2	5.6-7.3				
	78-82	---	---	2.0 - 20.0	---				

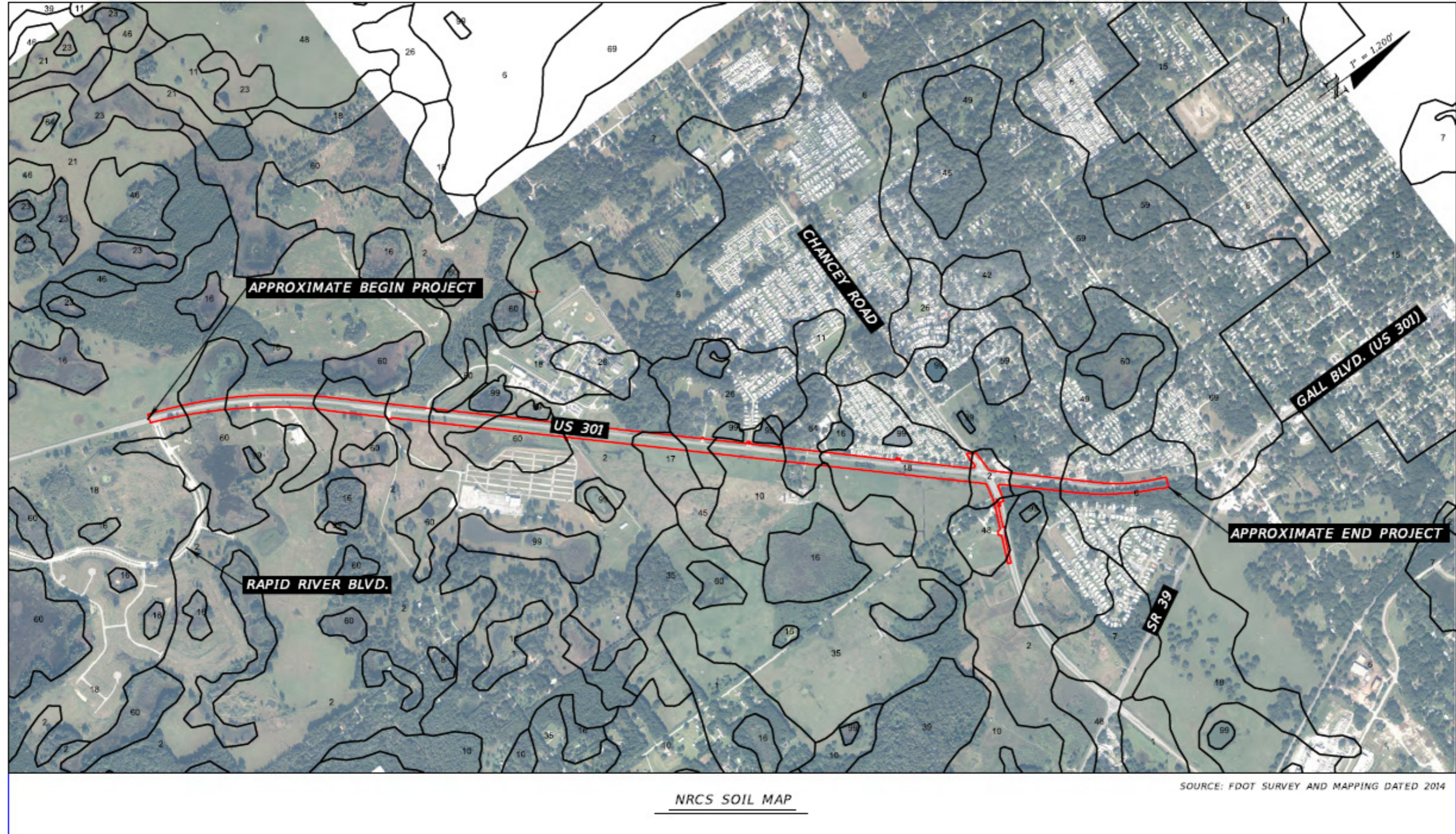
**TABLE 4-8
SUMMARY OF COUNTY SOIL SURVEY (CONTINUED)**

SUMMARY OF USDA SOIL SURVEY PASCO COUNTY, FLORIDA									
USDA MAP SYMBOL AND SOIL NAME	SOIL CLASSIFICATION				PH	SEASONAL HIGH WATER TABLE		RISK OF CORROSION	
	DEPTH (INCHES)	USCS	AASHTO	PERMEABILITY (INCHES/HOUR)		DEPTH (FEET)	MONTHS	UNCOAT ED STEEL	CONCRETE
(26) Narcoosse	0-3	SP-SM	A-3	6.0 - 20.0	3.5-6.0	2.0-3.5	June-Nov	Moderate	High
	3-9	SP, SP-SM	A-3	6.0 - 20.0	3.5-6.0				
	9-12	SM, SP-SM	A-2-4, A-3	2.0 - 6.0	3.5-6.0				
	12-75	SP, SP-SM	A-3	6.0 - 20.0	3.5-6.0				
(60) Palmetto-Sellers- Zephyr	0-4	SP, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5	0.5-2.5	June-Nov	High	High
	4-10	SP, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	10-28	SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	28-46	SP, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	46-80	SC, SC-SM, SM	A-2-4, A-2-6	0.2 - 0.6	4.5-5.5	0.0	May-Oct	High	High
	0-5	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	5-28	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	28-80	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	0-5	PT	A-8	6.0 - 20.0	3.5-5.5	0.0	May-Oct	High	High
	5-22	SP-SM	A-2-4, A-3	6.0 - 20.0	3.5-5.5				
	22-59	SC, SC-SM, SM	A-2-4, A-2-6	0.1 - 0.2	3.5-5.5				
	59-80	SC-SM, SM	A-2-4	0.6 - 6.0	3.5-5.5				
(64) Nobleton	0-5	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	4.5-6.0	1.5-3.5	June-Sept	High	High
	5-29	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	4.5-6.0				
	29-36	SC	A-2-6, A-6	0.2 - 2.0	3.5-5.5				
	36-47	CH, CL, SC	A-6, A-7	0.2 - 0.6	3.5-5.5				
	47-80	SC	A-2-6, A-6	0.2 - 2.0	3.5-5.5				
(69) Millhopper	0-7	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	4.5-6.5	3.5-5.0; 5.0>6.0	June-Sept; Oct-Dec	Low	Moderate
	7-59	SM, SP-SM	A-2-4, A-3	6.0 - 20.0	4.5-6.5				
	59-64	SM	A-2-4	2.0 - 6.0	4.5-6.0				
	64-80	SC, SC-SM, SM	A-2-4, A-4	0.6 - 2.0	4.5-6.0				

⁽¹⁾ AASHTO and USCS do not provide classification for weathered/unweathered bedrock.

Source: USDAA.SCC/NRCS, 1982

FIGURE 4-2
NRCS SOIL MAP



4.2 NATURAL AND PHYSICAL ENVIRONMENT

4.2.1 Air Quality

The project is located in Pasco County, Florida, an area currently designated by the US Environmental Protection Agency (EPA) as being in attainment for all of the criteria air pollutants. Because the project is in an attainment area and the project would reduce congestion, it is not likely that the proposed improvements would have an impact on local or regional air pollutant/pollutant precursor emissions or concentrations.

The project was subjected to a localized carbon monoxide (CO) screening analysis and “passed” the screening test.

4.2.2 Contamination and Hazardous Materials Sites

Thirteen (13) mainline locations were investigated as sites that may present the potential for finding petroleum contamination or hazardous materials, and therefore may impact the proposed improvements for this project. Specific details for each site can be found in the study’s *Draft Contamination Screening Evaluation Report (CSER)*.

Of the thirteen (13) mainline sites investigated, the following risk rankings have been applied: three (3) “High” ranking sites, two (2) “Medium” ranking sites, five (5) “Low” ranking sites, and three (3) sites ranked “No” for potential contamination concerns.

For the sites ranked “No” for potential contamination, no further action is planned. These sites have been evaluated and determined not to have any potential environmental risk to the study area at this time.

For sites ranked “Low” for potential contamination, no further action is required at this time. These sites/facilities have the potential to impact the project in the future, but based on select variables have been determined to have low risk, at this time. Variables that may change the risk ranking include a facility’s non-compliance to environmental regulations, new discharges to the soil or groundwater, and modifications to current permits. Should any of these variables change, additional assessment of the facilities will be conducted to determine if the low risk ranking is still appropriate.

For those locations with a risk ranking of “Medium” or “High”, Level II field screening will be conducted if it is determined during the project’s design that its construction activities could be within their vicinity. These sites have been determined to have potential contaminants, which may impact the proposed roadway improvement project. A soil and groundwater sampling plan could be developed for each site, if applicable. The sampling plan would provide sufficient detail as to the number of soil and groundwater samples to be obtained and the specific analytical test to be performed. A site location sketch for each facility showing all proposed boring locations and groundwater monitoring wells would be prepared.

4.2.3 Drainage and Floodplains

As stated in the *Draft Location Hydraulics Report* (LHR) located under separate cover, the following Federal Emergency Management Agency (FEMA) FIRM panels were reviewed for the study area: 1201C0458F, 12101C0454F and 12101C0462F for Pasco County, Florida, all dated September 26, 2014. The majority of the project area is located within Flood Zone X (areas that have a 0.2% probability of flooding every year (500-year floodplain)). The proposed roadway expansion would result in a total of 0.64 acres of impacts to Flood Zone A, (areas with a 1% probability of flooding every year (100-year floodplain) and predicted flood water elevations have not been established). The proposed roadway expansion would also result in a total of 0.76 acres of impact, all located north of Chancey Road, to Flood Zone AE (areas which are 100-year flood plains with established base flood elevations).

The impacted Flood Zone AE flood plain is located in an area of high-density residential use located adjacent to Zephyr Creek, and the encroachment areas are classified as “minimal”. Minimal encroachments on a flood plain occur when there is a flood plain involvement but the impacts on human life, transportation facilities, and natural and beneficial flood plain values are not significant and can be resolved with minimal efforts. In the case of this project, flood plain compensation (FPC) areas would be created applying the FDOT drainage design standards and following the SWFWMD procedures to achieve results that would not increase or significantly change the flood elevations and/or limits.

A total of seven existing cross drains have been identified for the length of the project, see Table 4-2.

4.2.4 Special Designations

No features with a Special Designation such as Outstanding Florida Waters (OFW), Aquatic Preserves, Scenic Highways, or Wild and Scenic Rivers exist within the study area.

4.2.5 Water Quality

According to the *Preliminary Pond Sizing Report* (PPSR) under separate cover, the land use across the southern one-half of the study area (south of Chancey Road) is dominated by agricultural use (improved pastures), open land, commercial use (Festival Park) and a correctional facility (Zephyrhills Correctional Institution) with high-density residential areas located in the vicinity of the intersection of US 301 (Gall Boulevard) and Chancey Road. The northern one-half of the study area is dominated by high-density residential areas and mixed wetlands and freshwater marshes. There are no State listed or impaired water bodies within the project limits. The additional impervious surface within the project corridor would increase stormwater runoff.

Portions of the US 301 (Gall Boulevard) project corridor, from the southern end of the project to the north side of the intersection of US 301 (Gall Boulevard) and Chancey Road, are located within an area of impaired water quality. This portion of the project lies within Watershed Basin I.D. (WBID) No. 1443A (Tampa Bay Tributaries), and comprises a portion of the watershed for the Hillsborough River. This reach of the river is a Class 3F water body, and the river is

classified as impaired with respect to nutrients and dissolved oxygen. The FDEP has not adopted any TMDLs for this portion of the river.

4.2.6 Wetlands

The proposed project has been evaluated for potential effects to wetlands and a (*Draft Wetland Evaluation and Biological Assessment Report [WEBAR]*) was prepared. Wetland locations and boundaries were identified and approximated using aerial interpretation and field reconnaissance on June 26, 2013 and January 7, 2015. Wetland boundaries were visually approximated using the U.S. Army Corps of Engineers' (USACE) "Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Atlantic and Gulf Coastal Plain Region" (2010) and the Florida Department of Environmental Protection's (FDEP) "Delineation of the Landward Extent of Wetlands and Surface Waters" (1995) (Chapter 62-340, F.A.C).

Based on collected field data and in-house reviews, ten wetlands, six reservoir ponds, and four ditches occur within the project study area. Appendix C of the Draft WEBAR provides descriptions of the 20 individual wetland and other surface water habitats, as well as aerial maps depicting the location of each wetland and surface water within the project study area. As shown in **Table 4-9** below, several of the individual wetlands contain multiple Florida Land Use, Cover and Forms Classification System (FLUCFCS) and U.S. Fish and Wildlife Service (FWS) classifications, as they are comprised of various habitat types.

**TABLE 4-9
INDIVIDUAL WETLANDS AND OTHER SURFACE WATERS WITHIN THE PROJECT STUDY AREA**

WETLAND/ SW ID	FLUCFCS DESCRIPTION	FLUCFCS CODE	FWS WETLAND CLASSIFICATION	ACRES WITHIN PSA
<i>Wetlands</i>				
WL 1	Freshwater Marsh	641	PEM1C	0.7
WL 2	Freshwater Marsh	641	PEM1C	2.4
WL 3	Wet Prairie	643	PEM1J	0.2
WL 4	Wet Prairie	643	PEM1J	0.5
WL 5	Streams and Waterways	510	R2UB3J	1.9
WL 6	Mixed Wetland Hardwoods	617	PFO1C	0.1
WL 7	Freshwater Marsh	641	PEM1C	0.7
WL 8	Emergent Aquatic	644	PAB4H	1.8
WL 9	Freshwater Marsh	641	PEM1C	0.3
WL 10	Freshwater Marsh	641	PEM1C	<0.1
Subtotal for Wetlands				8.6
<i>Other Surface Waters</i>				
Ditch 1	Streams and Waterways	510	PEM1Jx	0.2
Ditch 2	Streams and Waterways	510	PEM1Jx	0.2
Ditch 3	Streams and Waterways	510	PEM1Jx	0.2
Ditch 4	Streams and Waterways	510	PEM1Jx	0.1
SW 1	Reservoirs less than 10 ac	534	POWHx	1.0
SW 2	Reservoirs less than 10 ac	534	POWHx	1.2
SW 3	Reservoirs less than 10 ac	534	POWHx	1.2
SW 4	Reservoirs less than 10 ac	534	POWHx	1.2
SW 5	Reservoirs less than 10 ac	534	POWHx	0.2
SW 6	Reservoirs less than 10 ac	534	POWHx	0.1
Subtotal for Other Surface Waters				5.6
Total				14.2

Source: Cowardin et al., 1979

Notes: FWS Wetland Classifications:

- PFO1C Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded
- PEM1C Palustrine, Emergent, Persistent, Seasonally Flooded
- PEM1J Palustrine, Emergent, Persistent, Intermittently Flooded
- PAB4H Palustrine, Aquatic Bed, Floating Vascular, Permanently Flooded
- PEM1Jx Palustrine, Emergent, Persistent, Intermittently Flooded, Excavated
- POWHx Palustrine, Open Water, Permanently Flooded, Excavated
- R2UB3J Riverine, Lower Perennial, Unconsolidated Bottom, Mud, Intermittently Flooded

4.2.7 Wildlife And Habitat

The project corridor was assessed and a *Draft WEBAR* was prepared that documented the presence of suitable habitat for federal- and/or state-listed protected species in accordance with 50 Code of Federal Regulation (CFR) Part 402 of the ESA of 1973, as amended, Chapters 5B-40 and 68A-27 F.A.C., and *Part 2, Chapter 27 - Wildlife and Habitat Impacts* of the *FDOT PD&E Manual*.

Prior to performing field reviews, a letter was sent to the Florida Natural Areas Inventory (FNAI) and Florida Fish and Wildlife Conservation Commission (FWC) requesting information on

documented occurrences of listed species within one mile of the US 301 (Gall Boulevard) project study area and wood stork rookeries located within 15 miles of the project study area. A list of threatened and endangered species with the potential for occurrence within the project study area was then compiled based on information received from the responding agencies and in-house and field research.

In addition to the literature and databases listed in **Section 4.2**, the following data sources were reviewed to assess the potential occurrence of federally- and state-listed plant and animal species within the project study area:

- FWC, Eagle Nest Locator website:
(<http://myfwc.com/eagle/eaglenests/nestlocator.aspx>)
- FWC, *Florida's Endangered Species, Threatened Species, and Species of Special Concern* (January 2013)
- FWC, Florida Black Bear Management Plan, Florida Fish and Wildlife Conservation Commission, Tallahassee, 215 p. (June 27, 2012)
- FWS, Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12
- FWS, 2012 GIS wood stork data for active colonies
- FWS, online endangered ESA library PDF species information sheets; Website (<http://www.fws.gov/endangered/esa-library/pdf/>)
- FNAI maps and database, (updated June 2014), Website: (<http://www.fnai.org/bioticssearch.cfm>)
- FNAI Element Occurrence Data Report (January 8, 2015)
- Florida Department of Agriculture & Consumer Services, Division of Plant Industry (FDACS), Notes on Florida's Endangered and Threatened Plants: Botany Contribution No. 38, 5th edition, (2010), Website: <http://freshfromflorida.s3.amazonaws.com/fl-endangered-plants.pdf>
- Atlas of Florida Vascular Plants, Institute for Systemic Botany, Website: <http://www.florida.plantatlas.usf.edu/>)

Environmental scientists familiar with Florida natural communities conducted a field review of the project study area in June 2013 and January 2015. The field review consisted of pedestrian transects throughout all habitat types found within the project study area. The purpose of this review was to verify and/or refine preliminary habitat boundaries and classification codes established through in-office literature reviews and photo interpretation. During the field review, each upland and surface water community within the project study area was visually inspected and plant species composition, exotic plant infestations, shifts in historical plant communities, and any other disturbances such as soil subsidence, clearing, canals, power lines, etc. were noted.

Wildlife and signs of wildlife usage in each upland and surface water community were also noted.

4.2.8 Noise

The traffic noise analysis was prepared in accordance with all applicable guidelines as stated within both 23 CFR 772 and Part 2, Chapter 17 of the FDOT PD&E Manual. As such, the analysis was performed using the FHWA's Traffic Noise Model (TNM, Version 2.5). Use of the TNM is required when evaluating the potential for traffic noise impacts during the design year of roadway improvement projects for which the regulations, policies and guidelines with 23 CFR 772 and Part 2, Chapter 17 of the PD&E Manual are applicable.

For properties with uses other than residential, the methodologies described in the FDOT's *A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations* were also used. Special land uses include community pools and recreational areas.

One-hundred twenty one noise sensitive receptors (i.e., discrete representative locations on a property that has noise sensitive land uses) were evaluated within eight noise sensitive areas. One-hundred eighteen receptors were evaluated on residential property, two were evaluated at community pools located at the Palm View Gardens RV Resort and Bramblewood Mobile Home Park and one receptor was evaluated at the shuffleboard court at the Palm View Gardens RV Resort.

Future traffic noise levels with the proposed improvements are predicted to approach, meet, or exceed the NAC at 70 noise sensitive sites. These sites are predicted to experience future traffic noise levels with the proposed improvements to US 301 that would range from 66.0 to 74.4 dB(A).

4.3 CULTURAL ENVIRONMENT

4.3.1 Historical/Archaeological

Historical background research indicated that nine previously recorded historic resources were located in the US 301 (Gall Boulevard) project APE: (8PA00674, 8PA00675, 8PA01164, 8PA02675, and 8PA02720 through 8PA02724). They include one resource group (8PA01164), one road segment (8PA02675), and seven buildings (8PA00674, 8PA00675, and 8PA02720 through 8PA02724). Clyde's Cottages (8PA01164), was determined eligible for the National Register of Historic Places (NRHP) listing in 2010, and a Section 106 report was prepared in 2012 as part of the previously completed PD&E Study Update (256422-2). The evaluation of effects to Clyde's Cottages (8PA01164) resulted in a finding of No Adverse Effect. The segment of US 301 (8PA02675) within the project APE was not evaluated by the SHPO, and the seven other previously recorded historic resources were determined ineligible.

In addition to the previously recorded historic resources, five historic resources were newly recorded within the US 301 (Gall Boulevard) project APE (8PA02838 through 8PA02842). They include one resource group (8PA02838) comprised of two buildings (8PA02839 and

8PA02840) and two other buildings (8PA02841 and 8PA02842). None is considered potentially eligible for listing in the NRHP.

Archaeological background research indicated that 19 previously recorded archaeological sites are located within one mile of the US 301 (Gall Boulevard) project corridor. Of these, three sites, 8PA00382, 8PA01140, and 8PA02053 are located proximate to, but outside, the US 301 (Gall Boulevard) ROW. Given the known patterns of aboriginal settlement in the vicinity, combined with the results of previous surveys, five areas along the US 301 (Gall Boulevard) PD&E Study corridor are considered to have a moderate potential for prehistoric period archaeological site occurrence.

4.3.2 Recreation Areas

No recreation areas are located within the study area.

4.4 SOCIAL ENVIRONMENT

4.4.1 Socioeconomic

The TBRPM-ML “Starter Projects” network with the Pasco County ULI SE Data was reviewed to ensure that it accurately reflects the timing of improvements to the surrounding roadway network, including the proposed future extension of SR 56 to US 301 (Gall Boulevard). In addition, note that numerous developments approved within eastern Pasco County are in various stages of planning and construction. For example, the County approved a Comprehensive Plan Amendment in 2008 for Pasadena Hills (Pasadena Hills Area Plan) consisting of 20,000 acres located adjacent to US 301 (Gall Boulevard), north of the project study area. In addition, several developments have been approved along the existing and future proposed sections of SR 56. As such, the SE data was reviewed to ensure that the latest approved development totals, including those specifically located along the US 301 (Gall Boulevard), SR 39, Chancey Road and future SR 56 corridors, are represented.

The impact of these developments is reflected in the projected increases in population, employment, and the number of dwelling units in the general area. A comparison of socioeconomic data within the study area between the 2006 base year and 2035 Pasco County ULI datasets indicates that the population in the TAZs surrounding the US 301 (Gall Boulevard) corridor is projected to grow from 4,973 in the year 2006 to 13,638 in the year 2035, with an estimated growth of 175 percent. Similarly, employment is projected to grow from 1,337 in the year 2006 to 5,392 in the year 2035, with an estimated growth of 300 percent.

4.4.2 Mobility

US 301 (Gall Boulevard) is a major north-south arterial located in East Pasco County. It is a regional truck route and provides excellent north-south access to distribution centers. US 301 (Gall Boulevard) is an important connection to the regional and statewide transportation network that links the Tampa Bay region to the remainder of the state and the nation. US 301 (Gall Boulevard) was identified as a regional roadway by the West Central Florida MPOs, CCC and

included in the Regional Roadway Network. In addition, this segment of US 301 to downtown Zephyrhills is part of the proposed SR 54 Cross County Express Route that is included in the *Pasco County's Mobility 2040 Cost Affordable Transit Plan* for implementation in 2031.

4.4.3 Aesthetics

US 301 (Gall Boulevard) within the study limits is a 2-lane rural undivided facility that includes a grassed median and border areas, which would allow for future aesthetic and landscaping features. Currently there are no landscaping or aesthetic features within the project corridor.

Section 5.0

DESIGN CRITERIA

The design criteria used to develop the build alternatives are based on the Florida Department of Transportation's Plans Preparation Manual (PPM), Volume 1, January 2015. The criteria are presented in **Table 5-1**.

TABLE 5-1
URBAN AND SUBURBAN DESIGN CRITERIA

Design Criteria	Design Standard	Source
DESIGN SPEED (V)	55/45 mph (Urban)	PPM, Table 1.9.1 & Section 2.16.1
ACCESS CLASS	Class 3	PPM, Table 1.8.2
	Median Openings: Full/Signal: 2640 ft. Directional: 1320 ft.	
	Connection Spacing: >45 MPH: 660 ft. <45MPH: 440 ft.	
Horizontal Alignment		
Max. Curvature	2° 5' 00" 3° 10' 00" (Urban)	PPM, Figure 2.16.3
Clear Zone	24 ft. - Travel Lane 20 ft. - Travel Lane (Urban)	PPM, Table 2.11.11
	14 ft. - Auxiliary Lane	PPM, Table 2.11.11
Border Width	35 ft. 14 ft. (Urban)	PPM, Section 2.16.7 & PPM, Table 2.5.2
	Traffic Control Signs - See Design Standards	PPM, Section 2.16.11 & Table 2.11.1
	Light Poles - 20 ft. - Travel Lane / 14 ft. - Auxiliary Lane 4 ft. - Face of Curb (Urban)	PPM, Section 2.16.11 & Table 2.11.2
	AFUs - Clear Zone 4 ft. - Face of Curb (Urban)	PPM, Section 2.16.11 & Table 2.11.3
Horizontal Clearance	Signal Poles and Controller Cabinet - Clear Zone 4 ft. - Face of Curb (Urban)	PPM, Section 2.16.11 & Table 2.11.4

**TABLE 5-1
URBAN AND SUBURBAN DESIGN CRITERIA (CONTINUED)**

Design Criteria	Design Standard	Source
Horizontal Clearance	Trees - Clear Zone 4 ft. – Face of Curb (Urban)	PPM, Section 2.16.11 & Table 2.11.5
	Other Roadside Obstacles - Clear Zone	PPM, Section 2.16.11 & Table 2.11.9
Max. Superelevation	0.05	PPM, Section 2.16.10
Superelevation Transition Slope Rate	1:225 & 1:200 (Urban) - 100 ft. minimum length of transition	PPM, Table 2.9.3
Max. Deflection w/o Curve	0° 45' 00" 1° 00' 00" (Urban)	PPM, Table 2.8.1a
Max. Deflection Through Intersection	3° 00' 00" Urban	PPM, Table 2.8.1b
Min. Horizontal Curve Length	15V = 825 ft. (400 ft. minimum) 15V = 675 ft. (Urban) (400 ft. minimum)	PPM, Table 2.8.2a
Max. Curvature Using Normal Cross Slopes	0° 30' 00"	PPM, Table 2.8.4
VERTICAL ALIGNMENT		
K Value for Vertical Curve (Crest)	185 98 (Urban)	PPM, Table 2.8.5
Minimum Length (Crest)	350 ft. 250 ft. (Urban)	PPM, Table 2.8.5
K Value for Vertical Curve (Sag)	115 79 (Urban)	PPM, Table 2.8.6
Minimum Length (Sag)	250 ft. 150 ft. (Urban)	PPM, Table 2.8.6
Grades	5% Maximum 6% Maximum (Urban)	PPM, Section 2.16.8 & PPM, Table 2.6.1
	0.3% Minimum	PPM, Table 2.6.4
Min. Distance Between VPI's	250 ft.	PPM, Table 2.6.4
Max. Change in Grade w/o Vertical Curve	0.50% 0.70% (Urban)	PPM, Table 2.6.2

**TABLE 5-1
URBAN AND SUBURBAN DESIGN CRITERIA (CONTINUED)**

Design Criteria	Design Standard	Source
Roadway Base Clearance	3 ft. 1 ft. (Urban)	PPM, Table 2.6.3
SIGHT DISTANCE		
Minimum Stopping Sight Distance for Grades ≤ 2%	495 ft. 360 ft. (Urban)	PPM, Table 2.7.1
ROADWAY ELEMENTS		
Number of Through Lanes	4 (2 in each direction)	
Through Lane Width	12 ft. 11 ft. (Urban)	PPM, Table 2.1.1
Turn Lane Width	12 ft. 11 ft. (Urban)	PPM, Table 2.1.1
Bicycle Lane Width	6.5 ft. 7 ft. (Urban)	PPM, Section 2.16.5 & PPM, Section 8.4.1
Shoulder Width	6.5 ft. 7 ft. (Urban)	PPM, Section 2.16.5 & PPM, Section 8.4.1
Sidewalk Width	5 ft. (6 ft. adjacent to curb)	PPM, Section 8.3.1
Median Width	30 ft.	PPM, Section 2.16.4
Side Slopes	Front Slope: Varies 1:6 to 1:2	PPM, Table 2.4.1
	Back Slope: Varies 1:6 to 1:2	PPM, Table 2.4.1
Transverse Slopes	1:4	PPM, Table 2.4.1
Travel Lane Cross Slope (ft/ft)	0.02 (0.03 Outside Lane)	PPM, Figure 2.1.1

Section 6.0

TRAFFIC

A DTTM has been prepared for the proposed project. Analysis was performed as a part of this study for the existing year (2013) and the future years – opening year (2020), interim year (2030) and design year (2040) with the existing and the projected future traffic volumes.

6.1 EXISTING TRAFFIC VOLUMES AND TRAFFIC CHARACTERISTICS

The AADT volumes for the Existing Year (2013) were developed from the 72-hour traffic counts using the Average Daily Traffic (ADT) volumes over a three-day period. The ADT volumes were adjusted using the applicable weekly Seasonal Factor (SF) and Axle Correction Factor (applied only to the volume counts), as documented in the FDOT's *Florida Traffic Information & Highway Data* (2012) and provided in Appendix D of the DTTM. All of the AADT volumes were rounded to the nearest hundredth digit. The Existing Year (2013) AADT volumes are shown on **Figure 6-1**.

The peak-hour existing traffic was derived by applying the K- and D-factors described in Section 2.3 of the DTTM to the AADT volumes. The peak direction of travel was assumed to be consistent with the existing counts. At the intersections, the existing turning movement volumes were obtained by applying the existing turning movement percentages to the approach volumes. Detailed calculations are provided in Appendix D of the DTTM. For the a.m. peak hour, existing traffic volumes were obtained by reversing the reciprocal movements from the p.m. peak hour. Note that per the traffic methodology, no adjustments were required for the existing Directional Design Hourly Volume (DDHVs). The Existing Year (2013) a.m. and p.m. peak hour traffic is shown on **Figure 6-2**.

6.2 FUTURE TRAFFIC PROJECTIONS

The Peak Season Weekday Average Daily Traffic (PSWADT) volumes obtained from the 2006 base year and 2035 design year models were converted to the respective AADT volumes through multiplication by a factor of 0.95, which is the Model Output Conversion Factor (MOCF) for Pasco County. A linear interpolation of the AADT volumes from 2006 to 2035 was used to forecast the Opening Year (2020) and Interim Year (2030) AADT volumes. Traffic projections for the Design Year (2040) were developed by applying a growth factor determined from historic traffic count data to the 2035 model volumes. Historic traffic counts for several FDOT traffic count stations within the US 301 (Gall Boulevard) study corridor were reviewed and the historic growth rates were calculated. A summary of historic growth in the study area is provided in **Table 6-1**. For locations where the historic growth rate was negative or less than one percent, a minimum growth rate of one percent was used. All of the future year AADT volumes were checked for reasonableness and verified to be greater than the Existing Year (2013) AADT volumes. **Figure 6-3** provides the future year AADT volumes for the study area; detailed calculations are included in Appendix F of the DTTM.

**FIGURE 6-1
EXISTING YEAR (2013) ANNUAL AVERAGE DAILY TRAFFIC (AADT)**

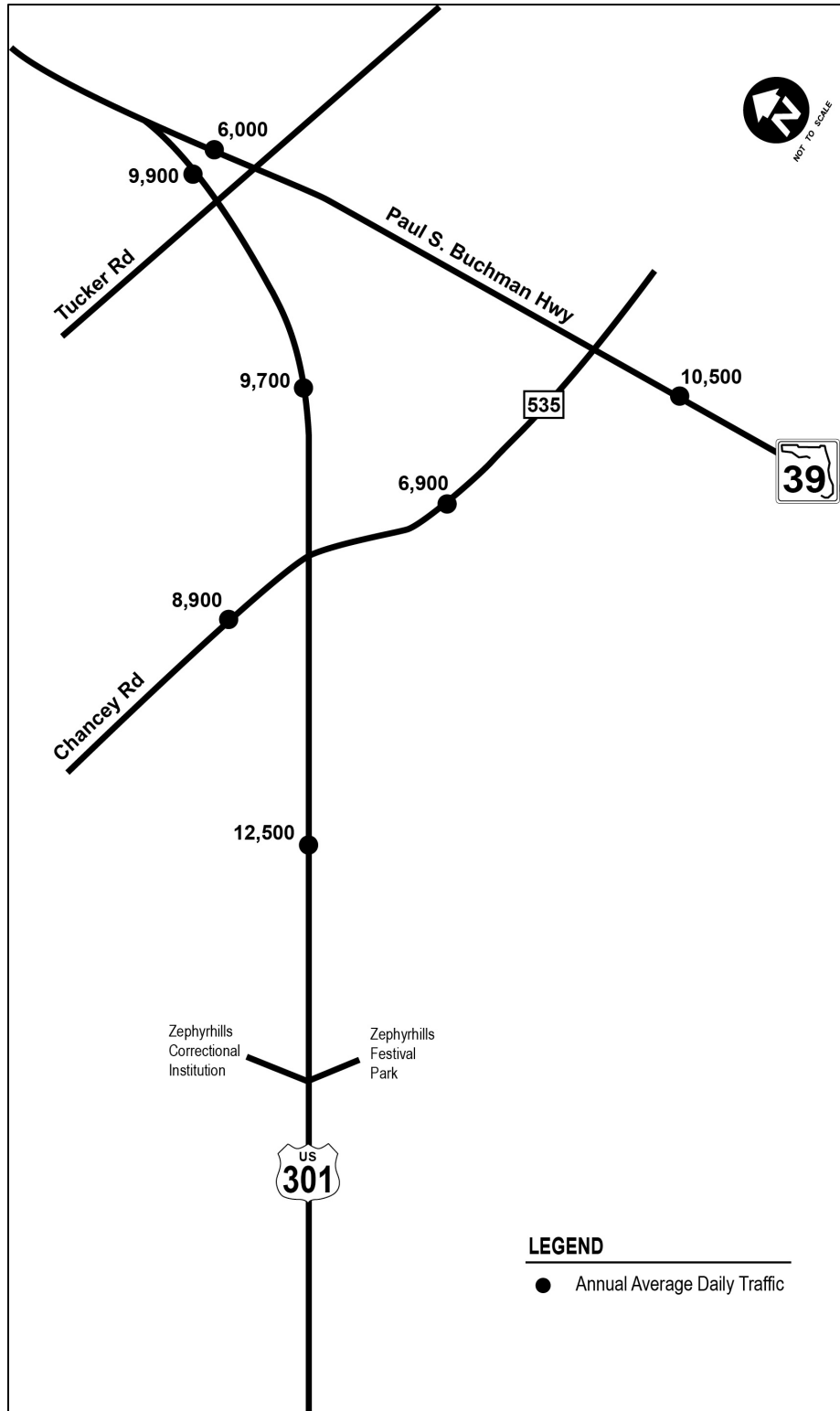
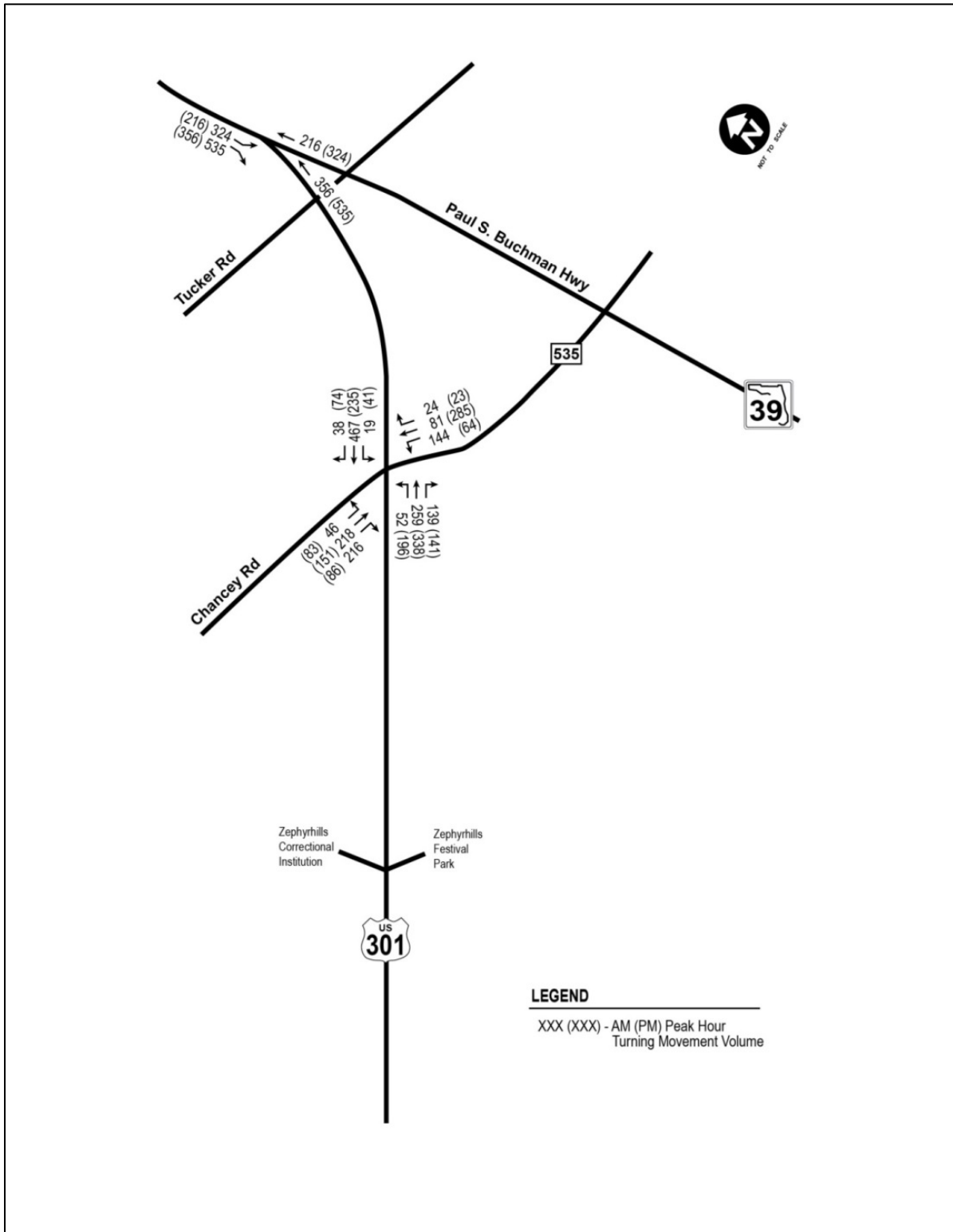


FIGURE 6-2
EXISTING YEAR (2013) AM/PM PEAK HOUR TURNING MOVEMENT VOLUMES



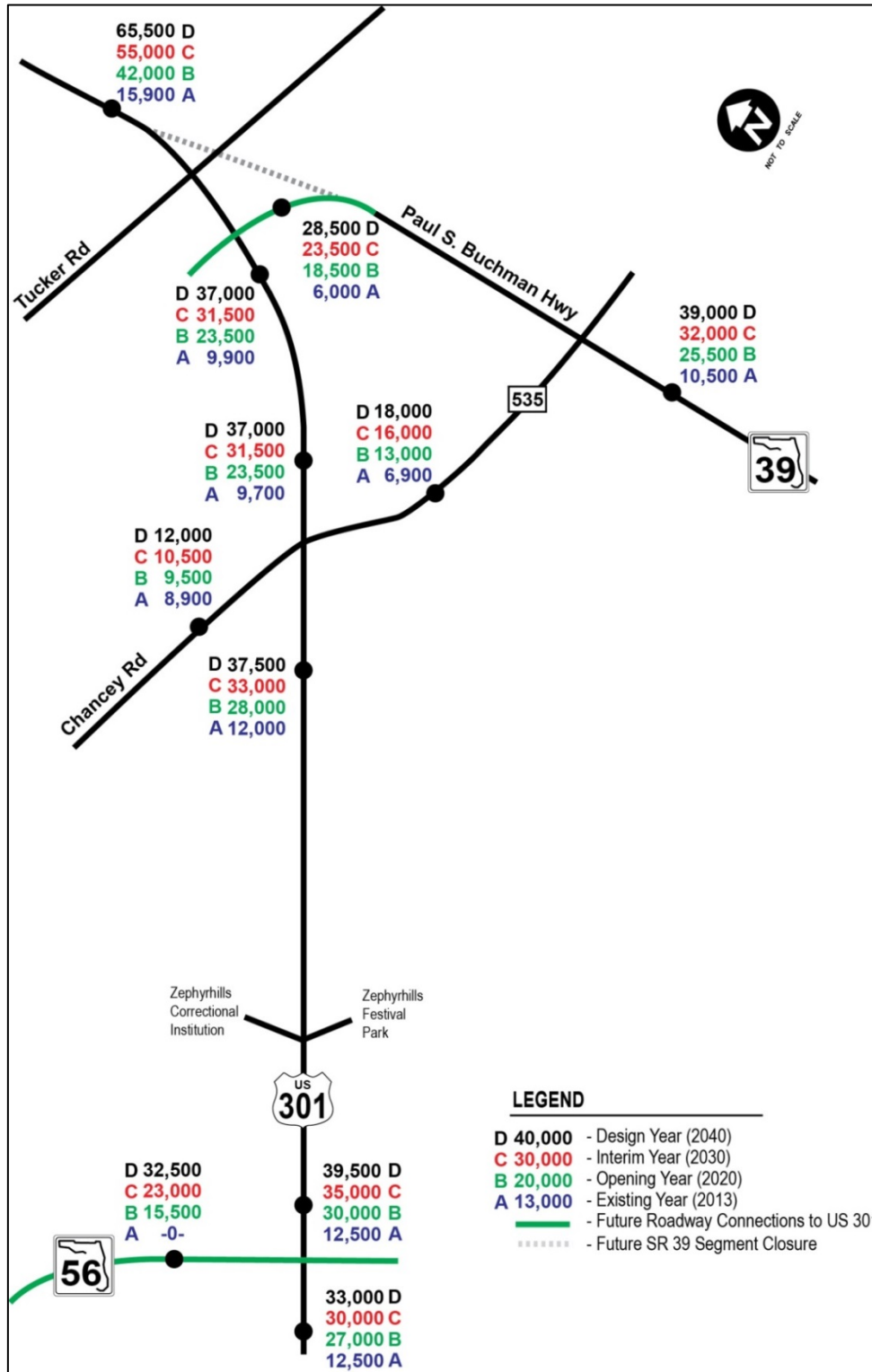
**TABLE 6-1
HISTORIC GROWTH RATES**

Count Site	Location	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Growth/Year
5501	US 301 South of Chancey Road	N/A	N/A	N/A	N/A	N/A	N/A	18200	9200	11100	14300	16500	13900	15000	12700	14400	13300	-2.99%
0016	US 301 South of SR 39	8800	9100	9800	9600	10800	11200	11200	2800	18000	15800	15700	13900	14500	13400	14200	13800	3.79%
0022	US 301 North of SR 39	17300	17800	16500	17200	17900	18100	18700	19000	36500	25500	22000	26500	22500	22500	20300	21500	1.62%
US 301 Historic Average																		0.80%
5308	SR 39 South of Chancey Road	8000	7700	7700	8300	8100	7900	8300	9300	11300	13800	12700	11600	11700	11700	10900	11600	3.00%
0023	SR 39 South of US 301	N/A	N/A	N/A	N/A	N/A	N/A	6100	6200	6200	7800	6900	6400	6700	6700	6900	6700	1.09%
SR 39 Historic Average																		2.05%
9025	Chancey Road West of US 301	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8600	8900	3.49%
6019	Chancey Road East of SR 39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7100	6500	6600	6600	6800	-1.06%
Chancey Road Historic Average																		1.22%

Source: Florida Transportation Information 2012

N/A = Not Available

**FIGURE 6-3
FUTURE YEAR AADTS**



6.3 FUTURE NO-BUILD ALTERNATIVE LEVEL OF SERVICE ANALYSIS

For the No-Build Alternative, all of the study area intersections were analyzed to evaluate operational conditions for the Opening Year (2020) and Design Year (2040). The No-Build Alternative geometry described in Section 4.1 of the DTTM and the DDHVs for the a.m. and p.m. peak period were input into SYNCHRO to obtain the LOS. The LOS for signalized intersections was considered acceptable if the overall intersection operates at or above the LOS D standard and all approaches operate at LOS E or better. **Table 6-2** provides the results of the No-Build Alternative intersection analysis for the Opening Year (2020) and Design Year (2040). The SYNCHRO output sheets are provided in Appendix G of the DTTM. As shown in **Table 6-2**, most of the intersections in the study area operate below the acceptable LOS standard under the No-Build Alternative which demonstrates the need for additional improvements by the Opening Year (2020) in order to accommodate projected growth.

**TABLE 6-2
NO-BUILD ALTERNATIVE INTERSECTION LOS**

Intersection	Control Type	Lane Group/ Approach	Opening Year (2020) (AM/PM)		Design Year (2040) (AM/PM)	
			Average Delay	LOS	Average Delay	LOS
US 301 (Gall Boulevard) at SR 39	Signal	Eastbound	44.6/59.7	D/E	163.8/189.1	F/F
		Westbound	19.3/30.8	B /C	37.5/119.0	D/F
		Northbound	29.2 /28.3	C/C	79.2/130.8	E/F
		Southbound	20.8/26.9	C/C	50.4/94.4	D/F
		Overall	22.9/29.7	C /C	56.6/115.8	E/F
US 301 (Gall Boulevard) at Chancey Road	Signal	Eastbound	173.9 /114.3	F /F	288.0/171.1	F/F
		Westbound	127.5/119.9	F /F	213.1/151.6	F/F
		Northbound	37.6/84.0	D/F	142.6/274.5	F /F
		Southbound	214.3 /49.0	F/D	399.4 /228.9	F /F
		Overall	142.2 /87.0	F/F	279.8/225.0	F/F
US 301 (Gall Boulevard) at SR 56 (Proposed)	Signal	Eastbound	106.3/180.4	F/F	284.5/287.3	F /F
		Westbound	127.4/61.7	F /E	169.0/97.9	F /F
		Northbound	66.7/68.1	E/E	99.5 /323.2	F /F
		Southbound	114.3/40.1	F/D	232.9/224.5	F /F
		Overall	99.2/80.3	F /F	215.5 /281.4	F /F

Notes: Existing plus LRTP Cost Affordable geometry was assumed for the No-Build Alternative intersection analysis US 301 (Gall Boulevard) was assumed to remain two lanes.

Arterial analysis was conducted along the US 301 (Gall Boulevard) corridor for the No-Build Alternative with the existing two lanes using SYNCHRO software. The No-Build Alternative arterial analysis results for the Opening Year (2020) and Design Year (2040) are presented in **Table 6-3**. The SYNCHRO output sheets are provided in Appendix G of the DTTM.

**TABLE 6-3
NO-BUILD ALTERNATIVE ARTERIAL ANALYSIS RESULTS**

US 301 (Gall Boulevard) Segment	Opening Year (2020)				Design Year (2040)			
	Northbound (AM/PM)		Southbound (AM/PM)		Northbound (AM/PM)		Southbound (AM/PM)	
	Average Speed (mph)	LOS	Average Speed (mph)	LOS	Average Speed (mph)	LOS	Average Speed (mph)	LOS
SR 56 (Proposed) to Chancey Road	35.3/25.7	B/D	22.3/37.3	D/B	18.2/11.6	E/F	12.3/12.6	F/F
Chancey Road to SR 39 (Buchman Highway)	26.8/27.5	D/C	7.3/21.4	F/D	15.5/11.0	F/F	4.6/7.0	F/F
Overall	30.4/22.4	C/D	15.0/30.2	F/C	16.7/9.1	E/F	9.0/10.9	F/F

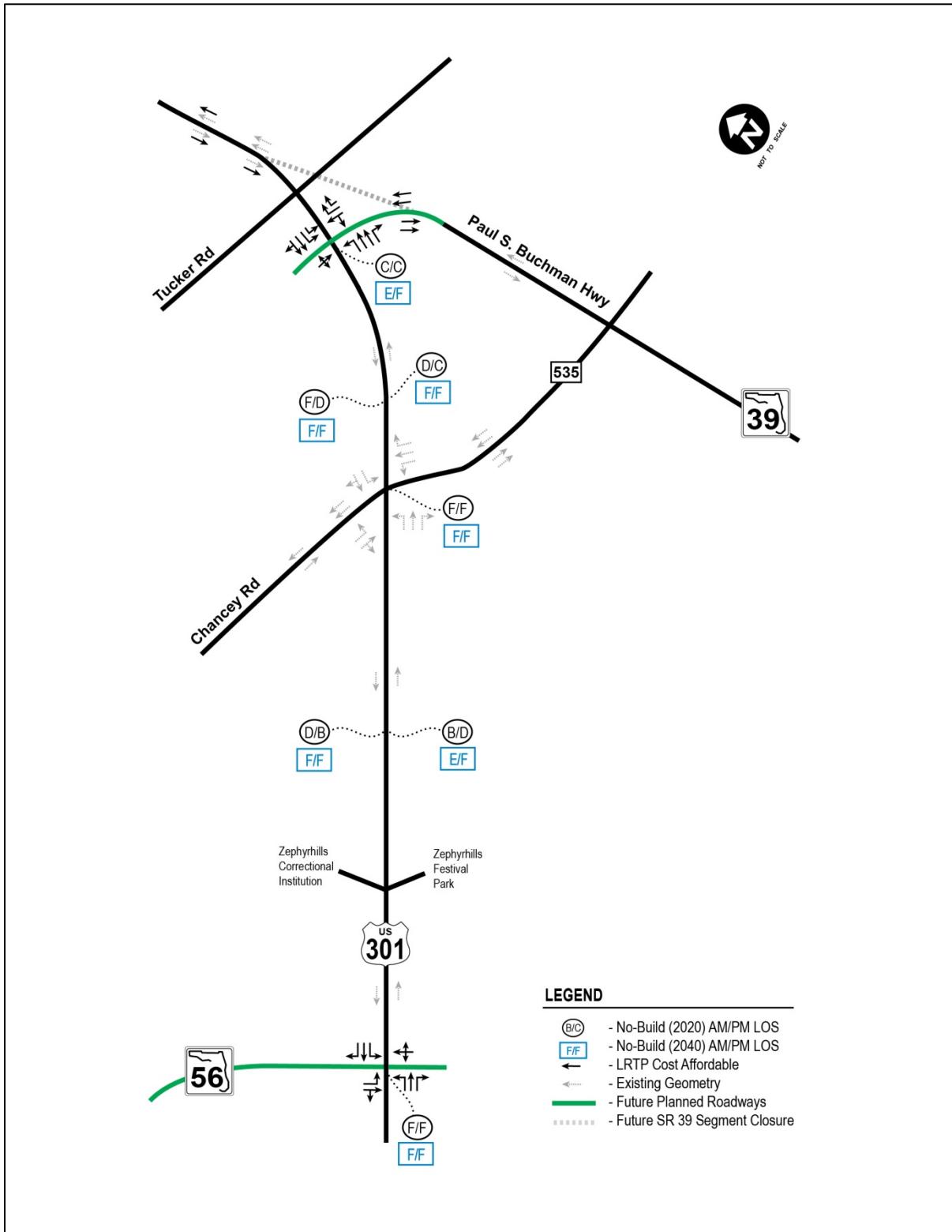
Under the No-Build Alternative, the results indicate that US 301 (Gall Boulevard) is generally anticipated to operate at or better than the LOS D standard for the Opening Year (2020), with exception being the segment between Chancey Road and SR 39 (Buchman Highway) in the southbound direction during the a.m. peak hour. For the Design Year (2040), all segments of US 301 (Gall Boulevard) are projected to operate below the LOS D standard. These results indicate the need for capacity improvements along the corridor prior to the Design Year (2040) in order to accommodate the projected growth.

The No-Build Alternative geometry and LOS results for the Opening Year (2020) and Design Year (2040) are graphically shown on **Figure 6-4**.

6.4 FUTURE BUILD ALTERNATIVE LEVEL OF SERVICE ANALYSIS

For the Build Alternative, all of the study area intersections were analyzed to evaluate operational conditions for the Opening Year (2020), Interim Year (2030) and Design Year (2040). The Build Alternative geometry described in Section 4.1 of the DTTM and the DDHVs for the a.m. and p.m. peak period were input into SYNCHRO to obtain the LOS. The analysis was initially conducted using the existing network plus the LRTP Cost Affordable improvements, which includes US 301 (Gall Boulevard) as a four-lane facility. Any additional improvements needed at the intersections were determined in order to achieve an acceptable LOS. An iterative approach was conducted assuming the improvements required to achieve acceptable LOSs in the prior analysis year(s) plus those improvements needed in the analysis year under consideration. In general terms, a “step-by-step approach” was employed by adding improvements to the intersection for each of the analysis years (2020, 2030 and 2040) until acceptable LOS were achieved. **Tables 6-4 through 6-6** provide the results of the Build Alternative intersection analysis for the Opening Year (2020), Interim Year (2030) and Design Year (2040). The SYNCHRO output sheets are provided in Appendix G of the DTTM.

**FIGURE 6-4
OPENING YEAR (2020) NO-BUILD ALTERNATIVE GEOMETRY AND LOS**



**TABLE 6-4
OPENING YEAR (2020) BUILD ALTERNATIVE INTERSECTION LOS**

Intersection	Control Type	Lane Group/ Approach	2020 AM/PM		2020 AM/PM		
			Existing Plus LRTP Cost Affordable Improvements ¹		With Additional Improvements		
			Average Delay	LOS	Proposed Improvement	Average Delay	LOS
US 301 (Gall Boulevard) and SR 39 (Buchman Highway)	Signal	Eastbound	44.6/59.7	D/E	-	-	-
		Westbound	19.3/30.8	B/C	-	-	-
		Northbound	29.2/28.3	C/C	-	-	-
		Southbound	20.8/26.9	C/C	-	-	-
		Overall	22.9/29.7	C/C	-	-	-
US 301 (Gall Boulevard) and Chancey Road	Signal	Eastbound	71.7/55.6	E/E	Exclusive Eastbound Right-Turn Lane	40.2/33.9	D/C
		Westbound	70.3/41.7	E/D		75.1/39.4	E/D
		Northbound	37.8/32.3	D/C		26.8/28.8	C/C
		Southbound	66.6/35.0	E/C		34.8/31.9	C/C
		Overall	60.0/37.5	E/D		40.0/32.5	D/C
US 301 (Gall Boulevard) and SR 56	Signal	Eastbound	48.3/63.2	C/E	-	-	-
		Westbound	33.7/28.4	C/C	-	-	-
		Northbound	24.8/23.0	C/C	-	-	-
		Southbound	25.1/23.4	C/C	-	-	-
		Overall	30.7/30.7	C/C	-	-	-

Notes: ¹ Includes the four-lane widening of US 301 (Gall Boulevard).

**TABLE 6-5
INTERIM YEAR (2030) BUILD ALTERNATIVE INTERSECTION LOS**

Intersection	Control Type	Lane Group/ Approach	2030 AM/PM		2030 AM/PM		
			Existing Plus LRTP Cost Affordable Improvements ¹		With Additional Improvements ²		
			Average Delay	LOS	Proposed Improvement	Average Delay	LOS
US 301 (Gall Boulevard) and SR 39 (Buchman Highway)	Signalized	EB Approach	61.2/79.0	E/E	Exclusive Eastbound Left- Turn Lane Exclusive Westbound Left-Turn Lane Exclusive Southbound Right-Turn Lane	45.0/63.3	D/E
		WB Approach	23.6/72.4	C/E		27.7/79.1	C/E
		NB Approach	49.9/66.6	D/E		30.1/43.5	C/D
		SB Approach	38.2/55.3	D/E		26.9/43.3	C/D
		<i>Overall</i>	38.5/64.3	D/E		28.2/53.5	C/D
US 301 (Gall Boulevard) and Chancey Road	Signalized	EB Approach	85.7/70.8	F/E	Exclusive Eastbound Right-Turn Lane Exclusive Southbound Right-Turn Lane	52.3/40.5	D/D
		WB Approach	96.4/47.1	F/D		72.1/52.1	E/D
		NB Approach	47.5/51.2	D/D		39.2/31.2	D/C
		SB Approach	195.0/48.1	F/D		51.7/25.0	D/C
		<i>Overall</i>	119.2/51.3	F/D		51.6/35.6	D/D
US 301 (Gall Boulevard) and SR 56	Signalized	EB Approach	65.1/134.0	E/F	Eastbound Left-Turn Lane (Dual) Exclusive Eastbound Right-Turn Lane Northbound Left-Turn Lane (Dual)	60.8/75.1	E/E
		WB Approach	60.5/79.1	E/E		28.2/39.3	C/D
		NB Approach	42.9/85.6	D/F		34.6/51.0	C/D
		SB Approach	47.2/71.9	D/E		37.6/26.9	D/C
		<i>Overall</i>	51.1/91.7	D/F		43.0/48.7	D/D

Notes: ¹ Includes the four-lane widening of US 301 (Gall Boulevard).

² Cumulative improvements analysis [includes additional improvements cited for the Opening Year (2020)].

**TABLE 6-6
DESIGN YEAR (2040) BUILD ALTERNATIVE INTERSECTION LOS**

Intersection	Control Type	Lane Group/Approach	2040 AM/PM		2040 AM/PM		
			Existing plus LRTP Cost Affordable Improvements ¹		With Additional Improvements ²		
			Average Delay	LOS	Proposed Improvement	Average Delay	LOS
US 301 (Gall Boulevard) and SR 39 (Buchman Highway)	Signal	EB Approach	152.9/179.3	F/F	<ul style="list-style-type: none"> • Exclusive Eastbound Left-Turn Lane • Exclusive Westbound Left-Turn Lane • Exclusive Southbound Right-Turn Lane 	43.1/58.4	D/E
		WB Approach	38.6/117.7	D/F		25.8/61.7	C/E
		NB Approach	47.8/116.0	D/F		40.0/47.5	D/D
		SB Approach	53.7/96.2	D/F		26.5/54.9	C/D
		<i>Overall</i>	51.6/111.0	D/F	<ul style="list-style-type: none"> • <i>Operational Improvement:</i> Additional Northbound and Southbound Through Lane 	29.7/54.4	C/D
US 301 (Gall Boulevard) and Chancey Road	Signal	EB Approach	158.1/113.7	F/F	<ul style="list-style-type: none"> • Exclusive Eastbound Right-Turn Lane • Exclusive Southbound Right-Turn Lane • Additional Southbound Left-Turn Lane (Dual) • Additional Westbound Left (Dual) and Right-Turn Lane (Dual) 	61.3/61.8	E/E
		WB Approach	122.6/85.6	F/F		79.4/65.2	E/E
		NB Approach	86.4/69.9	F/E		40.6/50.5	D/D
		SB Approach	173.3/51.3	F/D		51.6/34.1	D/C
		<i>Overall</i>	138.7/72.7	F/E	54.5/50.6	D/D	
US 301 (Gall Boulevard) and SR 56	Signal	EB Approach	138.1/206.9	F/F	<ul style="list-style-type: none"> • Additional Eastbound Left-Turn Lane (Dual) • Additional Eastbound Right-Turn Lane (Dual) • Additional Northbound Left-Turn Lane (Dual) • Exclusive Westbound Left and Right-Turn Lanes 	51.9/63.2	D/E
		WB Approach	157.7/97.9	F/F		35.9/45.3	D/D
		NB Approach	70.9/144.6	E/F		40.3/50.5	D/D
		SB Approach	80.0/120.1	F/F		33.5/48.0	C/D
		<i>Overall</i>	96.9/149.9	F/F	40.8/52.4	D/D	

Note: ¹ Includes the four-lane widening of US 301 (Gall Boulevard).

² Cumulative improvements analysis [includes additional improvements cited for the Opening Year (2020) and Interim Year (2030)].

As shown in Table 6-6, the analysis shows that an additional lane in both the northbound and southbound direction may be needed on US 301 (Gall Boulevard) through the SR 39 (Buchman Highway) intersection in order to meet the LOS D standard in the Design Year (2040). Note that the need for this improvement is not due to capacity constraints on the US 301 (Gall Boulevard) corridor within the study area (south of SR 39); rather, it is needed due to the heavy localized traffic demand projected to enter/exit the intersection from north of SR 39.

The arterial analysis for US 301 (Gall Boulevard) was initially conducted using the existing network plus the LRTP Cost Affordable improvements, which includes US 301 (Gall Boulevard) as a four-lane facility. Any additional improvements required in order to achieve an acceptable LOS were determined in an iterative manner for the analysis years. The Build Alternative arterial analysis results for the Opening Year (2020), Interim Year (2030), and Design Year (2040) are presented in **Tables 6-7 through 6-9**. The SYNCHRO output sheets are provided in Appendix G of the DTTM.

**TABLE 6-7
OPENING YEAR (2020) BUILD ALTERNATIVE ARTERIAL ANALYSIS RESULTS**

US 301 (Gall Boulevard) Segment	Opening Year (2020) with Existing plus LRTP Cost Affordable Improvements ¹				Opening Year (2020) with Additional Improvements ²			
	Northbound (AM/PM)		Southbound (AM/PM)		Northbound (AM/PM)		Southbound (AM/PM)	
	Average Speed (mph)	LOS	Average Speed (mph)	LOS	Average Speed (mph)	LOS	Average Speed (mph)	LOS
SR 56 (Proposed) to Chancey Road	35.8/38.0	B/B	43.1/43.0	A/A	38.8/39.0	B/B	43.1/43.0	A/A
Chancey Road to SR 39 (Buchman Highway)	27.4/28.0	C/C	18.1/25.5	E/D	27.4/28.0	C/C	25.5/26.6	D/D
Overall	31.5/32.4	C/C	30.4/34.5	C/B	32.9/32.9	C/C	34.6/35.0	B/B

Notes: ¹ Includes the four-lane widening of US 301 (Gall Boulevard).

² Refer to Table 6-4 for additional improvements at the study area intersections in the Opening Year (2020).

**TABLE 6-8
INTERIM YEAR (2030) BUILD ALTERNATIVE ARTERIAL ANALYSIS RESULTS**

US 301 (Gall Boulevard) Segment	Interim Year (2030) with Existing plus LRTP Cost Affordable Improvements ¹				Interim Year (2030) with Additional Improvements ²			
	Northbound (AM/PM)		Southbound (AM/PM)		Northbound (AM/PM)		Southbound (AM/PM)	
	Average Speed (mph)	LOS	Average Speed (mph)	LOS	Average Speed (mph)	LOS	Average Speed (mph)	LOS
SR 56 (Proposed) to Chancey Road	33.2/33.4	C/C	33.4/27.5	C/C	33.7/37.1	C/B	36.8/41.4	B/B
Chancey Road to SR 39 (Buchman Highway)	21.1/17.9	D/E	11.6/21.9	F/D	27.2/22.8	C/D	23.6/27.6	D/C
Overall	27.2/25.0	C/D	22.0/25.5	D/D	29.4/29.2	C/C	31.0/34.6	C/B

Notes: ¹ Includes the four-lane widening of US 301 (Gall Boulevard).

² Refer to Table 4-4 for additional improvements at the study area intersections in the Interim Year (2030)

**TABLE 6-9
DESIGN YEAR (2040) BUILD ALTERNATIVE ARTERIAL ANALYSIS RESULTS**

US 301 (Gall Boulevard) Segment	Design Year (2040) with Existing plus LRTP Cost Affordable Improvements ¹				Design Year (2040) with Additional Improvements ^{2,3}			
	Northbound (AM/PM)		Southbound (AM/PM)		Northbound (AM/PM)		Southbound (AM/PM)	
	Average Speed (mph)	LOS	Average Speed (mph)	LOS	Average Speed (mph)	LOS	Average Speed (mph)	LOS
SR 56 (Proposed) to Chancey Road	25.2/29.4	D/C	26.1/19.3	D/E	35.4/33.3	B/C	39.0/33.3	B/C
Chancey Road to SR 39 (Buchman Highway)	21.5/12.1	D/F	10.2/21.5	F/D	23.7/21.8	D/D	21.8/24.8	D/D
Overall	22.8/20.0	D/E	18.4/20.0	E/E	29.0/26.8	C/D	31.1/29.3	C/C

Notes: ¹ Includes the four-lane widening of US 301 (Gall Boulevard).

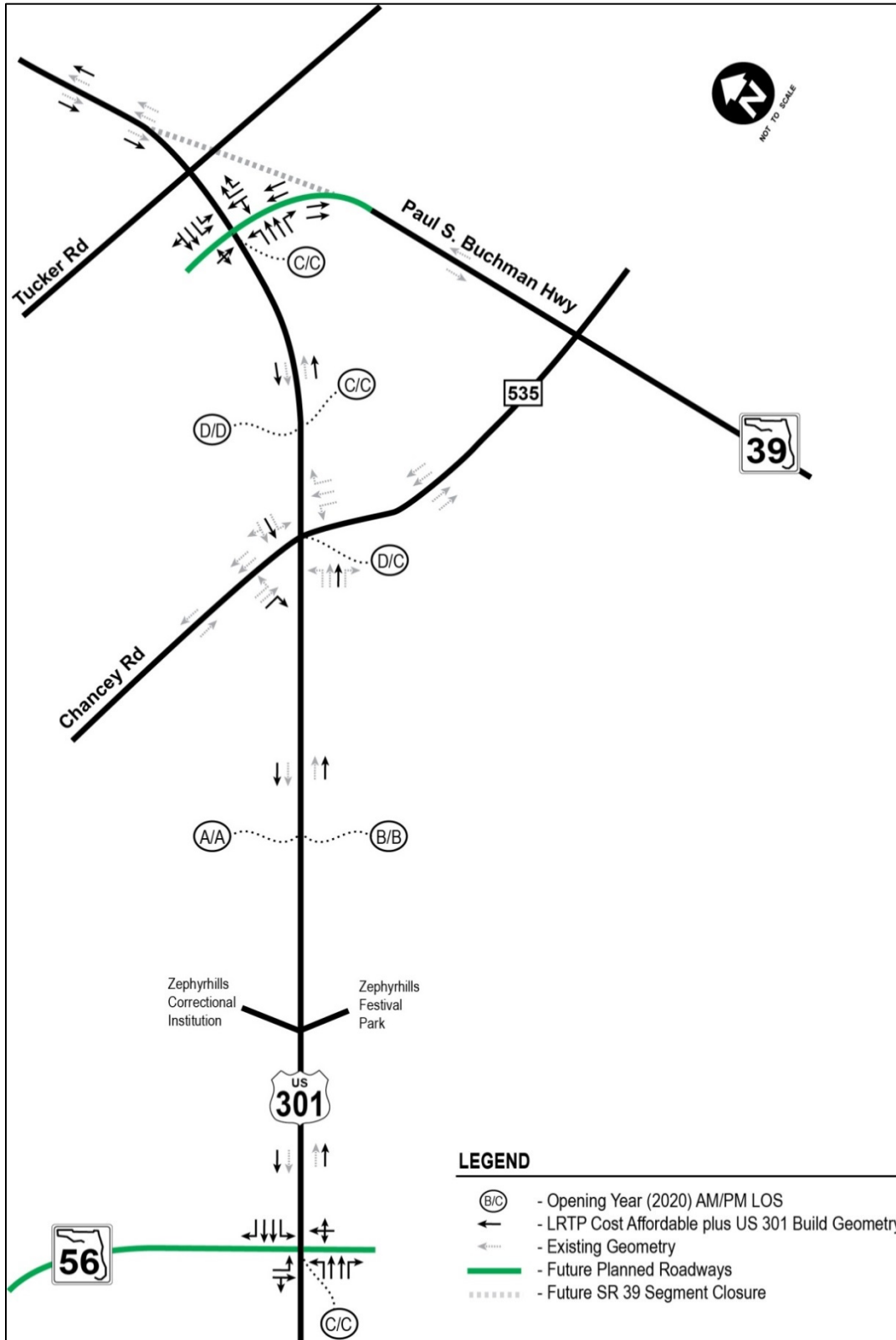
² Refer to Table 4-5 for additional improvements at the study area intersections in the Design Year (2040).

³ Includes the through-lane operational improvement provided on Table 4-5 at US 301 (Gall Boulevard) and SR 39.

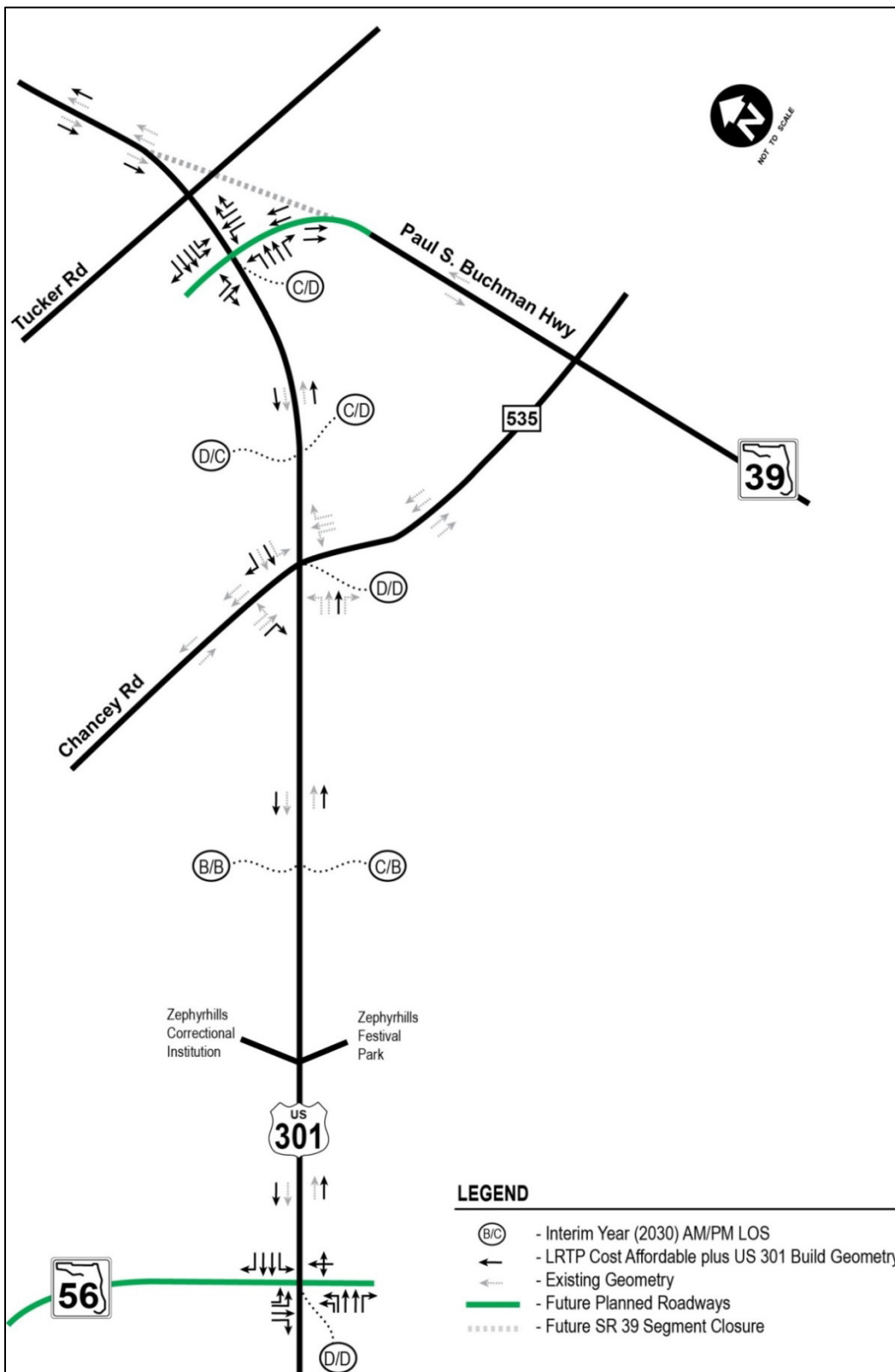
The results indicate that the US 301 (Gall Boulevard) corridor is projected to operate at or above an acceptable LOS through the Interim Year (2030). However, the segment between Chancey Road and SR 39 (Buchman Highway) may deteriorate to an unacceptable LOS by the Design Year (2040) if additional improvements are not made. Note that the deficient LOS results on this segment are due to the operational issues previously described at the US 301 (Gall Boulevard) and SR 39 (Buchman Highway) intersection.

The Build Alternative geometry and LOS results for the Opening Year (2020), Interim Year (2030) and Design Year (2040) are graphically shown on **Figures 6-5 through 6-7**.

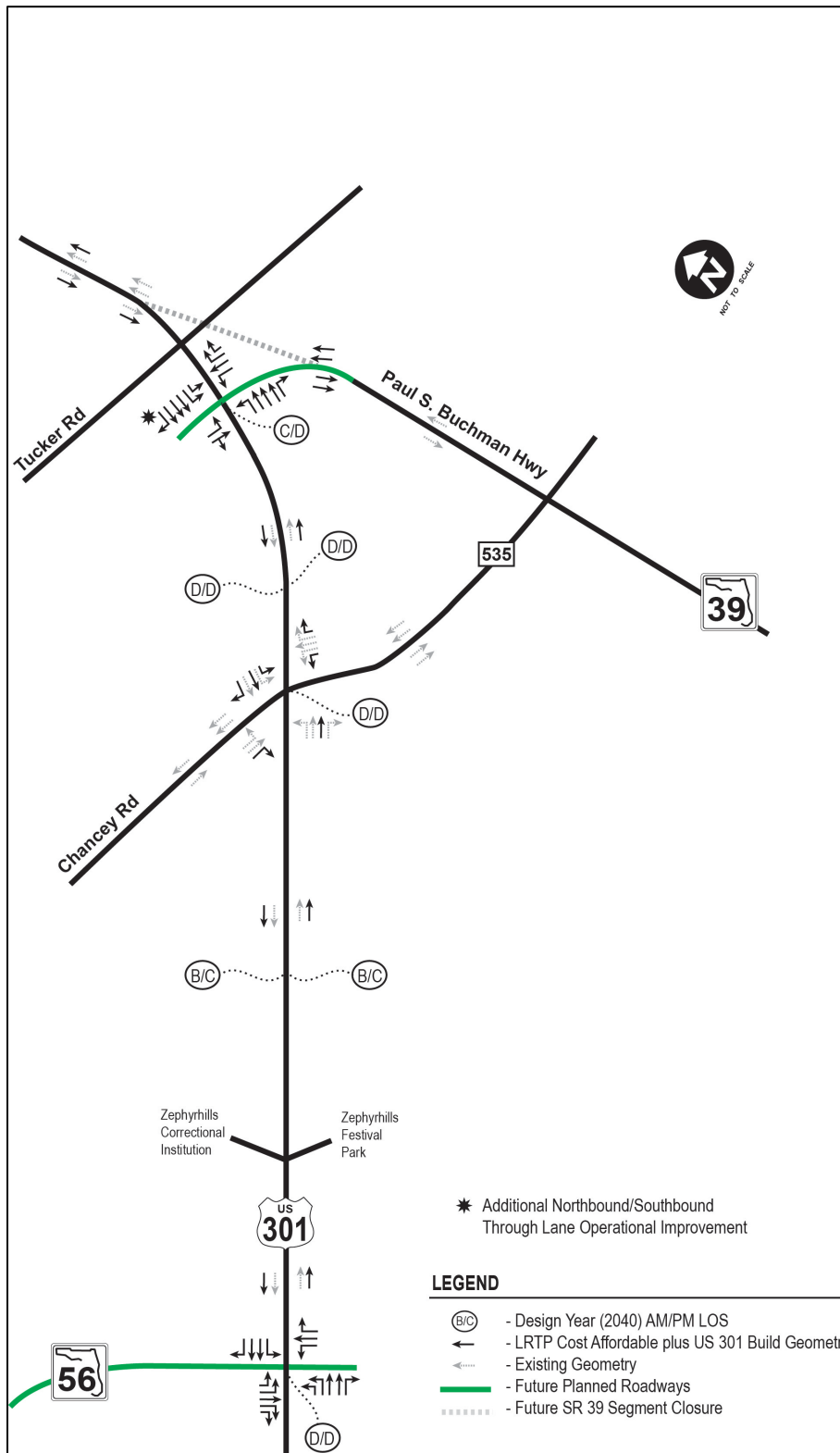
**FIGURE 6-5
OPENING YEAR (2020) BUILD ALTERNATIVE GEOMETRY AND LOS**



**FIGURE 6-6
INTERIM YEAR (2030) BUILD ALTERNATIVE GEOMETRY AND LOS**



**FIGURE 6-7
INTERIM YEAR (2040) BUILD ALTERNATIVE GEOMETRY AND LOS**



Section 7.0

ALTERNATIVES ANALYSIS

7.1 NO-BUILD ALTERNATIVE

The No-Build Alternative assumes that traffic volumes will continue to increase with no changes to US 301 within the study area. The No-Build Alternative requires no additional expenditure of funds and has no environmental impacts. Although the No-Build Alternative does not meet the purpose and need and offers no future operational improvements, it will remain a viable alternative throughout the study process and serve as the basis of comparison for the build alternatives.

7.2 TRANSPORTATION SYSTEM MANAGEMENT & OPERATIONS (TSM&O)

The objective of Transportation System Management & Operations (TSM&O) is to identify strategies that reduce existing traffic congestion and prevent its occurrence in areas that are currently congested. These strategies are designed to modify travel behavior and increase system efficiency without costly infrastructure improvements. TSM&O strategies are implemented when one or more of the following occurs:

- Insufficient funds available to meet system improvement needs,
- Increased construction costs for new roadways and transit facilities,
- Increased need to improve operational efficiency, and/or
- Changes in travel patterns.

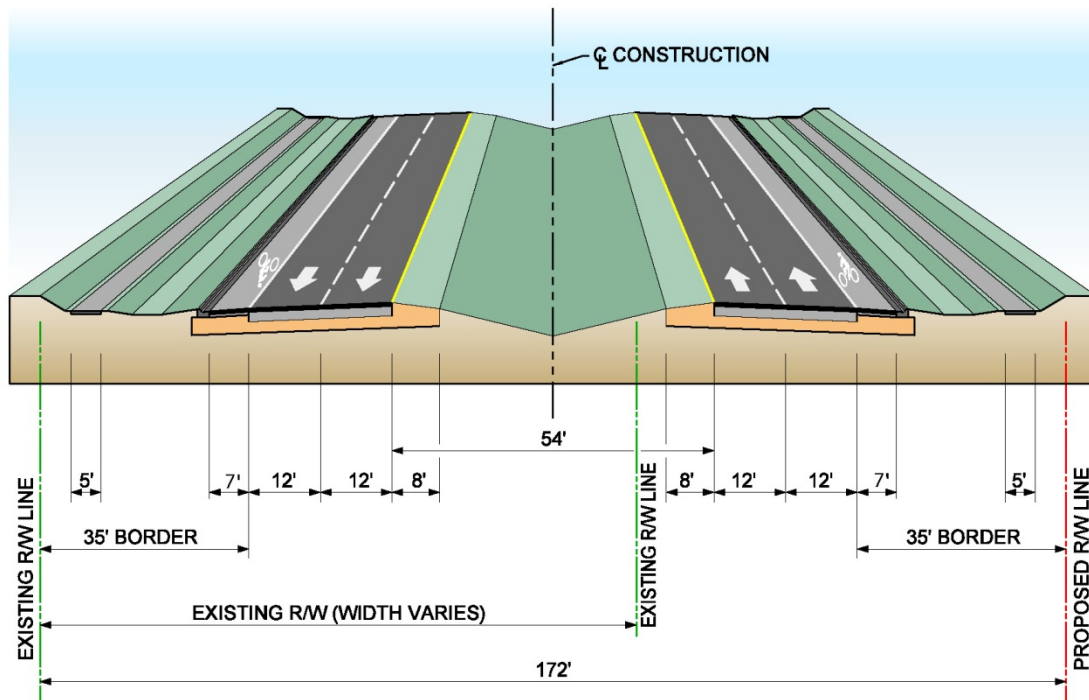
TSM&O options generally include traffic signal and intersection improvements, access management, and transit improvements. Upon analysis it was determined, the additional capacity required to meet the projected traffic volumes along US 301 (Gall Boulevard) in the Design Year 2040 cannot be provided solely through the implementation of TSM&O improvements.

7.3 BUILD ALTERNATIVE

During the US 301 (Gall Boulevard) PD&E study, two Build Alternatives were considered. Both Build Alternatives consisted of holding the existing centerline of US 301, and simply widening the US 301 corridor either to the east or the west. Also, only new construction was considered due to the inability to achieve the necessary hydraulic grade needed to convey stormwater from the project corridor to future pond sites based on a preliminary review of existing ground elevations using LIDAR, and geotechnical data.

The improvements consist of two typical sections. The first typical section, a suburban typical section, beginning at the future SR 56 intersection and ending at Chancey Road would have four 12-foot lanes, a 54-foot median, two, 7-foot paved shoulders (also buffered bicycle lanes), and Type E curb and gutter; as well as, 5-foot sidewalks, as shown in **Figure 7-1**. This typical section is expandable to six lanes by adding two lanes to the inside reducing the overall medium width to 30 feet.

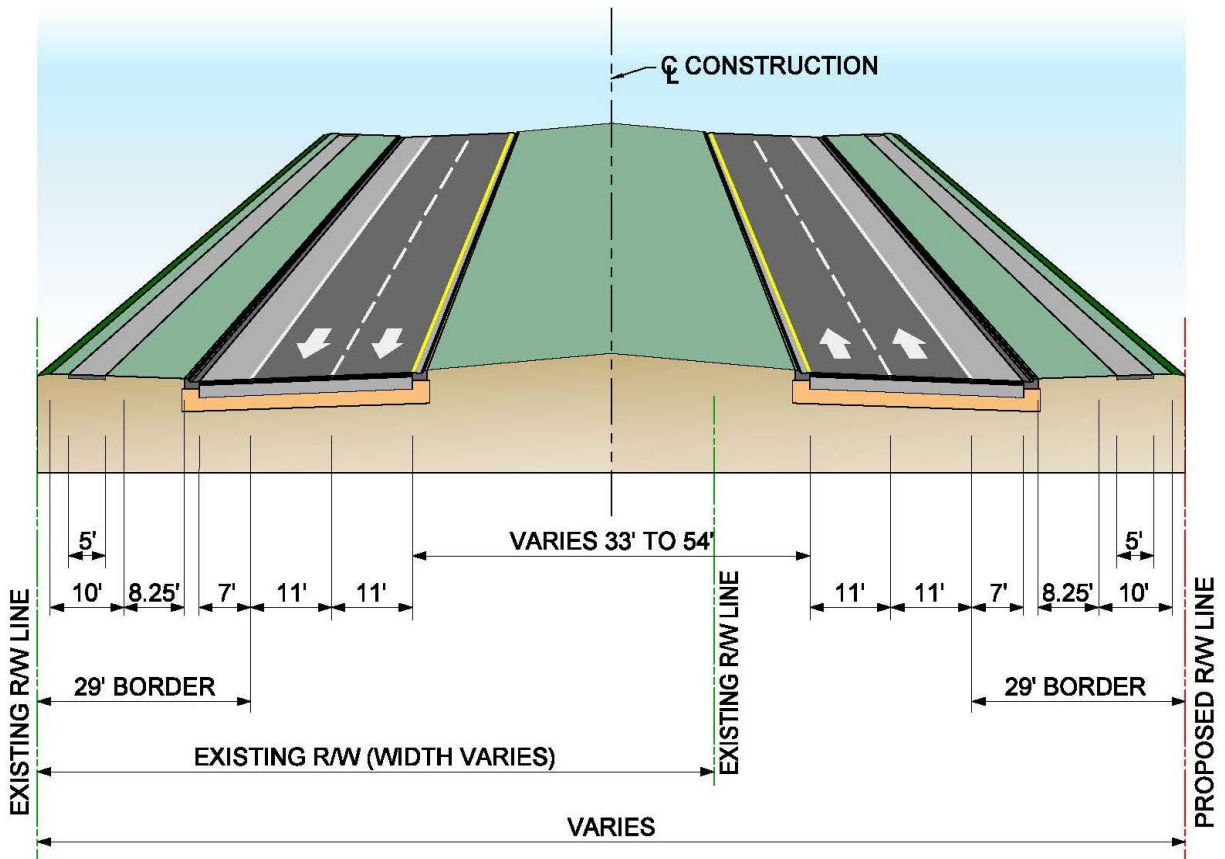
**FIGURE 7-1
PROPOSED TYPICAL SECTION (PROPOSED SR 56 TO CHANCEY ROAD)**



The second typical section, an urban typical section, begins at Chancey Road and ends just south of the proposed realigned SR 39 (Buchman Highway) and US 301 (Gall Boulevard) intersection. This typical section consists of four, 11-foot lanes, variable width median, and 10-foot shoulders (7-foot paved and buffered bicycle lanes), and bordered by Type E curb and gutter, as well as, two 5-foot sidewalks, as shown in **Figure 7-2**. This typical section would serve as a transition between the ultimate 6-lane section of US 301 (Gall Boulevard) and the ultimate 4-lane section of US 301 (Gall Boulevard). Both typical sections hold the existing west ROW line and expand the project corridor to the east.

Widening to the east would impact seven (7) property owners and impact 1.6 acres of wetlands.

**FIGURE 7-2
PROPOSED TYPICAL SECTION (CHANCEY ROAD TO SOUTH OF SR 39)**



7.4 EVALUATION MATRIX

TABLE 7-1
US 301 (GALL BOULEVARD) PD&E STUDY EVALUATION MATRIX

Evaluation Criteria	No-Build Alternative	Build Alternative
Potential Business Impacts		
Number of business relocations (includes outdoor signs)	0	1
Potential Residential Impacts		
Number of residential relocations	0	0
Potential Right-of-Way (ROW) Impacts		
Roadway: Area of ROW anticipated to be acquired (acres)	0	19.1
Drainage: Off-site ponds necessary (Yes/No)	No	Yes
Potential Environmental Effects		
Archaeological/historical sites potentially affected *	0	0
Noise-sensitive sites	0	70
Wetlands (acres)	0	0.9
Surface waters (acres)	0	0.7
Floodplains (acres)	0	0.76
Threatened and endangered species potentially affected **	0	0
Petroleum contamination or hazardous material sites (H/M/L)	0/0/0	3/2/5
Estimated Costs (in millions)		
ROW acquisition (To be Provided by FDOT)	\$0.0	\$14.8
Wetlands mitigation***	\$0.0	\$0.2
Roadway construction	\$0.0	\$9.9
Engineering design (15% of construction)	\$0.0	\$1.5
Construction engineering & inspection (15% of construction)	\$0.0	\$1.5
Preliminary Estimate of Total Costs	\$0.0	\$27.9

* NRHP eligible or potentially eligible

** FWC/USFWS listed or protected

*** Based on 2015-2016 Senate Bill Rate of \$133,000/ac.

7.5 RECOMMENDED ALTERNATIVE

Based on feedback to date from the local government, the public, and other agencies; the Build Alternative has been chosen as the Recommended Build Alternative to be presented at the public hearing.

Section 8.0

DESIGN DETAILS OF RECOMMENDED ALTERNATIVE

8.1 DESIGN TRAFFIC VOLUMES

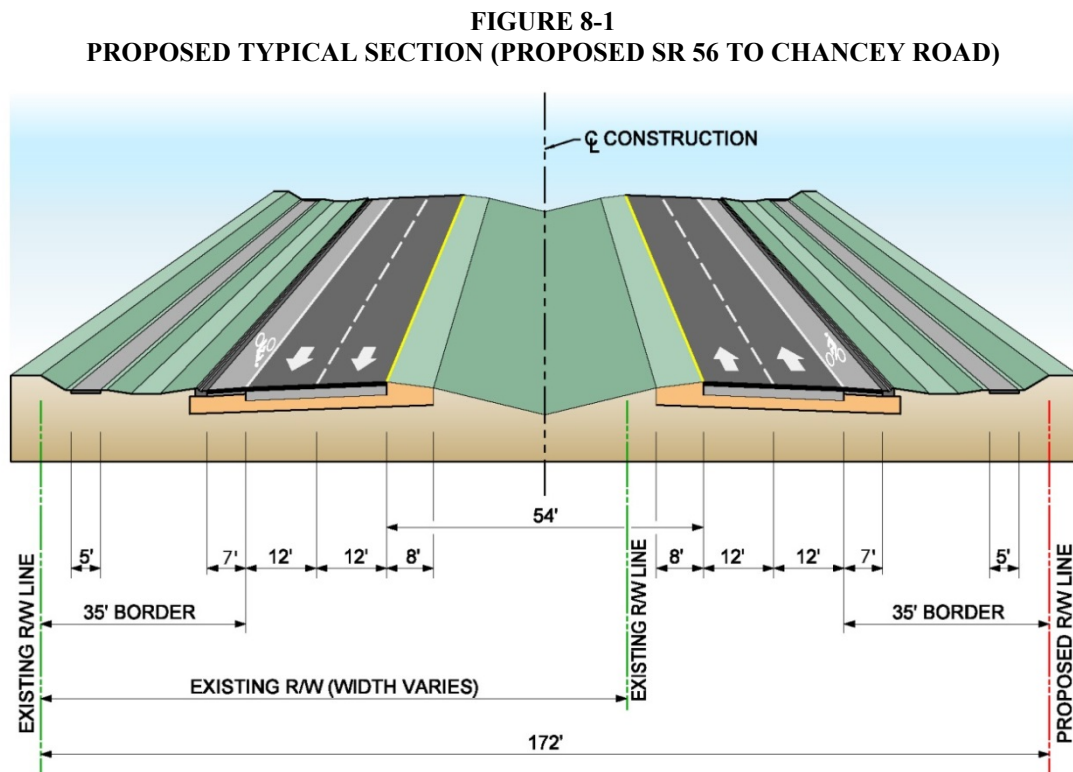
The design hour volumes are presented in **Figure 6-3**. Details on the future traffic projections are included in **Chapter 6**.

8.2 TYPICAL SECTIONS AND DESIGN SPEED

The Recommended Build Alternative consists of two typical sections. The first typical section, a suburban typical section, beginning at the future SR 56 intersection and ending at Chancey Road and an urban typical section, beginning at Chancey Road and ending just south of the proposed realigned SR 39 (Buchman Highway) and US 301 (Gall Boulevard) intersection.

8.2.1 Suburban Typical Section

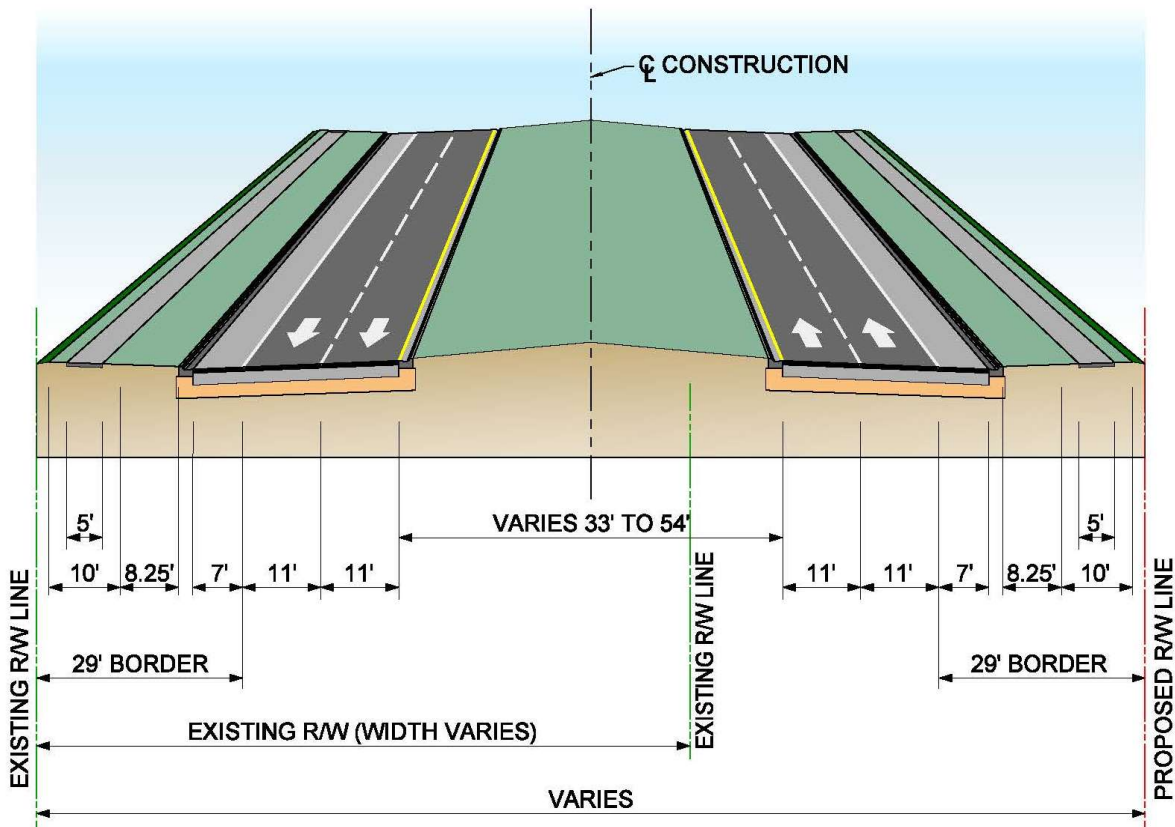
The suburban typical section is shown in **Figure 8-1**. The typical section consists of four 12-foot lanes, 10-foot should (7-foot paved), and a 5-foot sidewalk in each direction. The design speed is 50 mph.



8.2.2 Urban Typical Section

The urban typical section is shown in **Figure 8-2**. The typical section consists of four 11-foot lane, 7-foot paved shoulder, Type E Curb and gutter, and a 5-foot sidewalk in each direction. The design speed is 45 mph.

FIGURE 8-2
PROPOSED TYPICAL SECTION (CHANCEY ROAD TO SOUTH OF SR 39)



8.3 INTERSECTION CONCEPTS AND SIGNAL ANALYSIS

There is one existing signalized intersection in the study corridor located at US 301 and Chancey Road. The Recommended Build Alternative proposed traffic signals at the following locations:

- US 301 (Gall Boulevard) at the proposed SR 56
- US 301(Gall Boulevard) (Gall Boulevard) at Chancey Road
- US 301 at the proposed realigned SR 39 (Buchman Highway) (to be designed by others)

Lane geometries and turn lanes needed to accommodate the Design Year (2040) traffic volumes have been identified for the intersections. Signal timing optimization and coordination may be implemented as part of routine maintenance operations in the area.

8.4 ALIGNMENT AND RIGHT-OF-WAY NEEDS

The Recommended Build Alternative is centered on the existing roadway centerline and would require additional ROW, but would not result in any business or residential relocations.

The total amount of required ROW for the roadway is approximately 19.1 acres. In addition, approximately 10.0 acres are required for stormwater and floodplain; see the Pond Sizing Report for more information.

8.5 RELOCATIONS

The proposed project, as presently conceived, would not displace any residences or businesses within the community. Should this change over the course of the project, the Florida Department of Transportation would carry out a ROW and Relocation Program in accordance with Florida Statute 339.09 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646 as amended by Public Law 100-17). The brochures that describe, in detail, the FDOT's Relocation Assistance Program and ROW acquisition program are "Residential Relocation Under the Florida Relocation Assistance Program", "Relocation Assistance Business, Farms and Non-profit Organizations", "Sign Relocation Under the Florida Relocation Assistance Program", "Mobile Home Relocation Assistance", and "Relocation Assistance Program Personal Property Moves". All of these brochures are distributed at all public hearings and made available upon request to any interested persons.

8.6 COST ESTIMATES

A roadway construction cost estimate for the Recommended Build Alternative was developed using the FDOT's Long Range Estimates (LRE) system. The estimate includes major items such as mobilization, maintenance of traffic (MOT), pavement, earthwork, signalization, and project unknowns. The costs included in **Table 8-1** are per the LRE prepared for the Recommended Build Alternative on March 30, 2015.

In addition to the roadway construction cost estimate, costs were calculated for wetland mitigation, stormwater and floodplain compensation facility construction, and ROW acquisition. Final design costs were estimated at 10% of the total construction cost and construction engineering and inspection costs were estimated at 10% of the total construction cost. The preliminary estimate of project costs for the No-Build and the Recommended Build Alternative is shown in **Table 8-3**.

**TABLE 8-1
PRELIMINARY ESTIMATE OF PROJECT COSTS**

Estimated Project Costs (in Millions)	No-Build Alternative	Recommended Build Alternative
ROW acquisition	0	\$14.8
Wetlands mitigation*	0	\$0.2
Roadway construction	0	\$9.9
Engineering design (15% of construction)	\$0	\$1.5
Construction engineering & inspection (15% of construction)	0	\$1.5
Preliminary Estimate of Total Costs	0	\$27.9

* Based on 2015-2016 Senate Bill Rate of \$133,000/ac.

8.7 NOISE BARRIERS

The TNM was used to evaluate the ability of noise barriers to reduce traffic noise levels for the impacted noise sensitive receptors adjacent to US 301. The barriers were evaluated five feet within the FDOT’s ROW at heights from eight to 22 feet (in two-foot increments). The length of each barrier was optimized to determine if at least the minimum noise reduction requirements (i.e., a minimum reduction of 5 dB(A) for two impacted receptors and a minimum reduction of 7 dB(A) for one benefitted receptor) could be achieved.

The following provides the results of the noise barrier evaluation and discusses the potential amount of noise reduction and the cost effectiveness of providing barriers as an abatement measure for the areas in which traffic noise has been predicted to impact noise sensitive properties.

Barrier 1 - Palm View Gardens RV Resort

A noise barrier was evaluated for the sixty-one impacted residences in the Palm View Gardens RV Resort (Receptors 4-60, 64, 66 and 72). The barrier was evaluated in two segments to accommodate access to/from the properties.

The results of the barrier analysis are provided in **Table 8-2**. As shown, at barrier heights between 8 and 22 feet, at least forty-one of the impacted residences would benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT’s cost reasonable limit. Because Barrier 1 is predicted to provide the minimum noise reduction requirements at a cost below the cost effective limit, the barrier was evaluated further. The results of the evaluation are provided in **Table 8-3**.

Barrier 2 - Palm View Gardens RV Resort Shuffleboard Court

Barrier 2 was considered for the shuffleboard court located in Palm View Gardens RV Resort. The area of the shuffleboard closest to US 301 (Gall Boulevard) is predicted to be impacted by traffic noise. The highest predicted traffic noise level in this area is 66.9 dB(A). The FDOT’s “special land use” procedures were used to determine if a noise barrier could be considered a

potential abatement measure for the impacted area. The cost of a barrier at a special land use should not exceed \$995,935 per person-hour per square foot (dollars/person-hr/ft²).

A barrier was evaluated 5 feet inside the FDOT ROW in two segments to accommodate access to/from the properties. Due to limitations on the length of the barrier segments, the noise reduction design goal of 7 dB(A) could not be achieved at any of the evaluated barrier heights. Therefore, a barrier is not considered a reasonable noise abatement measure for the impacted area of the shuffleboard court.

Barrier 3 – Shady Oaks Mobile Home Park

A noise barrier was evaluated for the eight impacted residences in the Shady Oaks Mobile Home Park (Receptors 86-93). The barrier was evaluated 5 feet inside the proposed FDOT ROW.

The results of the barrier analysis are provided in **Table 8-4**. As shown, at barrier heights between 10 and 22 feet, at least three of the impacted residences would benefit from a reduction in traffic noise of 5 dB(A) or more, the noise reduction design goal of 7 dB(A) would be achieved and the cost of the barrier would be below the FDOT's cost reasonable limit. Because Barrier 3 is predicted to provide the minimum noise reduction requirements at a cost below the cost effective limit, the barrier was evaluated further. The results of the evaluation are provided in **Table 8-5**.

**TABLE 8-2
BARRIER 1: RESULTS FOR IMPACTED RESIDENCES IN THE PALM VIEW GARDENS RV RESORT**

BARRIER HEIGHT (FEET)	BARRIER LENGTH (FEET)	NOISE REDUCTION AT IMPACTED RECEPTORS (dB(A)) ¹			NUMBER OF BENEFITED RECEPTORS ²			TOTAL ESTIMATED COST ³	COST PER BENEFITED RECEPTOR ⁴	COST REASON-ABLE YES/NO
		5-5.9	6-6.9	≥7	IMPACTED	NOT IMPACTED	TOTAL			
NUMBER OF IMPACTED RECEPTORS = 61										
8	1,480	3	1	37	41	0	41	\$355,200	\$8,663	Yes
10	1,440	11	7	38	56	0	56	\$432,000	\$7,714	Yes
12	1,410	7	9	44	60	10	70	\$507,600	\$7,251	Yes
14	1,410	7	9	44	60	10	70	\$592,200	\$8,460	Yes
16	1,400	4	8	48	60	12	72	\$672,000	\$9,333	Yes
18	1,390	4	6	50	60	13	73	\$750,600	\$10,282	Yes
20	1,390	5	5	51	61	14	75	\$834,000	\$11,120	Yes
22	1,390	5	5	51	61	14	75	\$917,400	\$12,232	Yes

Source: KBE, 2015.

¹ Receptors with a predicted noise level of 66 dB(A) or greater.

² Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.

³ Based on a unit cost of \$30 per square foot.

⁴ FDOT cost reasonable criterion is \$42,000 per benefited receptor.

**TABLE 8-3
BARRIER 1: ADDITIONAL BARRIER CONSIDERATIONS**

TYPE OF FACTOR	EVALUATION CRITERIA	COMMENT
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project's design phase. Notably, any additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the FDOT's ROW for US 301 (Gall Boulevard) and would not block ingress or egress to any property.
	ROW	No acquisition of ROW or easements for construction/maintenance appear to be necessary to construct a barrier within the FDOT's ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project's design phase.
	Utilities	A determination of utility conflicts will be made during the project's design phase. Notably, there are existing poles within the FDOT ROW that may cause a conflict with a noise barrier.
Reasonableness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Source: KBE, 2015.

**TABLE 8-4
BARRIER 3: ADDITIONAL BARRIER CONSIDERATIONS**

Type Of Factor	Evaluation Criteria	Comment
Feasibility	Design and Construction	A determination of whether a noise barrier can be constructed using standard construction methods and techniques will be made during the project’s design phase. Notably, additional costs to solely construct a noise barrier will be included in the final cost reasonableness evaluation of a noise barrier at this location.
	Safety	It does not appear that there would be any safety concerns (e.g., loss of sight distance).
	Accessibility	The barrier would be located within the proposed FDOT’s ROW for US 301 (Gall Boulevard) and would not block ingress or egress to any property.
	ROW	No acquisition of additional ROW or easements for construction/ maintenance appear to be necessary to construct a barrier within the FDOT’s ROW.
	Maintenance	The FDOT should be able to maintain a barrier at this location using standard practices.
	Drainage	A determination as to whether the barrier can be designed so that water would be directed along, under, or away from the barrier will be made during the project’s design phase.
	Utilities	A determination of utility conflicts will be made during the project’s design phase. Notably, there are existing poles within the FDOT ROW that may cause a conflict with a noise barrier.
Reasonableness	Community desires	The desires of the property owners and renters (if applicable) will be solicited during the design phase of the project.

Source: KBE, 2015.

**TABLE 8-5
BARRIER 3: RESULTS FOR IMPACTED RESIDENCES IN THE SHADY OAKS MOBILE HOME PARK**

BARRIER HEIGHT (FEET)	BARRIER LENGTH (FEET)	NOISE REDUCTION AT IMPACTED RECEPTORS (dB(A)) ¹			NUMBER OF BENEFITED RECEPTORS ²			TOTAL ESTIMATED COST ³	COST PER BENEFITED RECEPTOR ⁴	COST REASONABLE YES/NO
		5 -5.9	6 – 6.9	≥7	IMPACTED	NOT IMPACTED	TOTAL			
NUMBER OF IMPACTED RECEPTORS = 8										
8	NA ⁵	NA ⁵	NA ⁵	NA ⁵	NA ⁵	NA ⁵	NA ⁵	NA ⁵	NA ⁵	NA ⁵
10	707	3	4	1	8	0	8	\$212,100	\$26,513	Yes
12	577	2	4	2	8	0	8	\$207,720	\$25,965	Yes
14	557	2	2	4	8	0	8	\$233,940	\$29,243	Yes
16	547	2	1	5	8	0	8	\$262,560	\$32,820	Yes
18	547	2	1	5	8	0	8	\$295,380	\$36,923	Yes
20	537	2	1	5	8	0	8	\$322,200	\$40,275	Yes
22	537	2	1	5	8	0	8	\$354,420	\$44,303	No

Source: KBE, 2015.

- ¹ Receptors with a predicted noise level of 66 dB(A) or greater.
- ² Receptors with a predicted reduction of 5 dB(A) or more are considered benefited.
- ³ Based on a unit cost of \$30 per square foot.
- ⁴ FDOT cost reasonable criterion is \$42,000 per benefited receptor.
- ⁵ 7 dB(A) reduction not achieved at any receptor.

As previously stated, future traffic noise levels with the proposed improvements are predicted to approach, meet, or exceed the NAC at 70 noise sensitive sites. These sites are predicted to experience future traffic noise levels with the proposed improvements to US 301 (Gall Boulevard) that would range from 66.0 to 74.4 dB(A).

The results of the evaluation indicate that construction of noise barriers is a potentially reasonable and feasible noise abatement method to reduce the predicted traffic noise levels for up to 69 of the 70 impacted sites at the following locations:

- **Barrier 1:** Residences at the Palm View Gardens RV Park (Receptors 4-59, 64, 66, 72, 73, and 77)
- **Barrier 3:** Residences at the Shady Oaks Mobile Home Park (Receptors 86-93)

The estimated cost to construct the noise barriers ranges from \$207,720 to \$917,400 depending on barrier length and height.

Statement of Likelihood

The FDOT is committed to the construction of noise barriers at the locations above, contingent upon the following:

- Detailed noise analysis during the final design process supports the need for, and the feasibility and reasonableness of providing the barriers as abatement
- The detailed analysis demonstrates that the cost of the noise barrier would not exceed the cost effective limit
- The residents/property owners benefitted by the noise barrier desire that a noise barrier be constructed
- All safety and engineering conflicts or issues related to construction of the noise barriers are resolved

8.8 RECYCLING OF SALVAGEABLE MATERIALS

The Recommended Build Alternative allows for the majority of the existing roadway base and pavement to be reused as material for the new southbound lanes. The existing lanes will be excavated and used as base material for the Recommended Alternative.

8.9 MULTIMODAL CONSIDERATIONS

The existing PCPT bus Route 30 terminates at Tucker Road, just north of the study area, and serves activity centers to the north including downtown Zephyrhills and Dade City from 4:45 am to 7:45 pm. In addition, this segment of US 301 to downtown Zephyrhills is part of the

proposed SR 54 Cross County Express Route that is included in the *Pasco County's Mobility 2040 Cost Affordable Transit Plan* for implementation in 2031. Also planned are a Major Transit Station/Stop and TSP along the corridor. The location of the bus stops/stations will be determined through the separate SR 54 Cross County Express planning and have not been included in this study.

8.10 TEMPORARY TRAFFIC CONTROL PLAN

The temporary traffic control plans for this project will consist of two phases. During the first phase, the northbound lanes and ponds will be constructed. The second phase will consist of shifting traffic to the newly constructed pavement, and construct the southbound lanes.

The temporary traffic control plan will be developed during the final design phase to safely and efficiently move vehicles, bicycles, and pedestrians through and around the work zones. Advance notice will be given if street closures and detours are necessary and construction will take place during off-peak hours, whenever feasible, to minimize disruptions to the traveling public and adjacent residences and businesses.

8.11 PEDESTRIAN AND BICYCLE FACILITIES

The Recommended Build Alternative includes five-foot sidewalks on both sides of the roadway throughout the project limits with existing sidewalks salvaged wherever feasible. Buffered bicycle lanes are also included throughout the project limits, as well as 5-foot sidewalks.

8.12 UTILITIES AND RAILROAD IMPACTS

Utility identification was conducted with the use of Sunshine 811. **Table 4-7** in **Section 4.1.11** summarizes the facilities of the ten identified utility owners. Coordination has begun with these utility providers and is included as an appendix to the *Utility Assessment Report (UAR)*.

The exact locations of existing utilities and the extent of impacts will be determined during the final design phase through coordination with the utility owners; however, some impacts are expected as a result of widening the roadway to the outside. Disruptions to service and utility relocations will be minimized to the greatest extent feasible. Utility Coordination and anticipated costs are included in the UAR as an Appendix.

There are no at-grade railroad crossings that would be impacted.

8.13 RESULTS OF PUBLIC INVOLVEMENT PROGRAM

A comprehensive Public Involvement Program is being completed for this project. This program is in compliance with the FDOT Project Development and Environment Manual, Section 339.155, Florida Statutes (F.S.); Executive Orders 11990 and 11988; Council on Environmental Quality Regulations for implementing the procedural provisions of the NEPA; and 23 CFR 771.

At the start of the PD&E study, a kickoff newsletter was mailed to adjacent property owners and interested parties to notify the public that the study had commenced. Agency coordination commenced with the ETDM Programming Screen and distribution of an Advanced Notification.

The AN Package on the section of US 301 from Chancey Road to SR 39 (Buchman Highway) was transmitted to the Florida State Clearinghouse (FSC), Department of Environmental Protection/Office of Intergovernmental Programs, on September 19, 2013. During the 45 day review, the ETAT provided their comments on the project's purpose and need, and issued their Degree of Effect (DOE) findings by resource area for each of the proposed corridors. Upon completion of the ETDM Programming Screen review, a Final Programming Screen Summary Report was developed and entered into the EST which provided the FDOT's response to each DOE finding as well as discussion about the overall project. As a result of the AN and EST screening, there were no substantial comments received and no further coordination was necessary in the EST. The section of US 301 from future SR 56 to Chancey Road was included in the SR 54 EA/FONSI, from Cypress Creek to Zephyrhills East Bypass/Chancey Road, approved on January 25, 1993 so it was not included in the ETDM process.

In lieu of an alternatives public workshop, a series of small group meetings were held in the communities adjacent to the project. It was determined that, due to the demographics in the project area, residents were more likely to participate if the meetings were more convenient for them. Each of the communities adjacent to the project as well as civic organizations in the area were contacted and provided an opportunity to request a presentation. As a result, meetings were scheduled at the following locations:

- Tropical Acres Estates on February 23, 2015 at 8:30 a.m., 131 attendees, 23 written comments received;
- Ramblewoods Manufactured Home Community on March 11, 2015 at 9:30 a.m., 43 attendees, 2 written comments received;
- Moose Lodge on March 10, 2015 at 1:30 p.m., 24 attendees, 3 written comments received; and
- FDOT district headquarters on March 25, 2015 at 2:00 p.m. with the owners of Festival Park, a large outdoor event venue adjacent to the project.
- Shady Oaks Mobile Modular Estates scheduled a meeting for May 21, 2015 at 9:00 a.m., however, it was cancelled by Shady Oaks prior to the meeting date; one comment was received from a resident by email and one request for project information was received from Shady Oaks' legal representative.

The purpose of the small group meetings was to provide project information and an opportunity for the public to provide comments regarding the location and conceptual design of the proposed improvements to US 301 within the project limits.

There were no comments regarding opposition to the project and none regarding the selection of the No-Build Alternative. The majority of the comments were regarding access management needs along the project corridor. Based on the findings of the earlier EA/FONSI, ETAT comments included in the Summary Report and undertaking the public involvement process to date, it has been determined that the proposed improvements to US 301 would not create any significant impacts to the environment. Also, when the project went through the ETDM Programming Screen process, the FDOT planned to seek approval of the PD&E study's environmental document by the FHWA. In the meantime, the FDOT determined that it would instead process the study's environmental document as a SEIR. The project is currently fully funded for design in the FDOT's District 7 2016-2020 Five Year Work Program. ROW and construction, are not yet included in the Five-Year Work Plan.

A summary of the Public Hearing will be included once it is held and the comment period has ended.

8.14 VALUE ENGINEERING RESULTS

A Value Engineering Study may be scheduled during the Design Phase.

8.15 DRAINAGE AND STORMWATER MANAGEMENT

The stormwater runoff from the project limits would be collected and conveyed in roadside ditches or closed drainage systems to offsite wet detention and dry retention ponds. The ponds would discharge at or near the same cross drains that carry the roadway runoff in the existing condition. The water quality treatment and water quantity attenuation would be achieved through the construction of offsite wet detention and dry retention ponds, which would require the acquisition of additional ROW.

Required Pond ROW acreages have been calculated. Approximately 10.0 acres are required for stormwater and floodplain compensation; see the *Draft Pond Sizing Report* for more information. The analysis estimates ROW needs using a volumetric analysis, which accounts for water quality treatment and water quantity for runoff attenuation. The recommendations were based on pond sizes determined from preliminary data calculations, reasonable engineering judgment, and assumptions. Pond sizes and configurations may change during final design as more detailed information becomes available.

8.16 STRUCTURES

There are no structures within the study area.

8.17 SPECIAL FEATURES

Context sensitive solutions such as aesthetic features and landscaping will be undertaken during the Design Phase so that the project is in harmony with the community and preserves and/or enhances the natural, environmental, scenic and aesthetic values of the area. The placement and maintenance of any landscaping shall comply with the required clear zone and sight distance

criteria at intersections. No other provisions or commitments have been made to date regarding special aesthetic features or lighting.

8.18 DESIGN EXCEPTIONS AND VARIATIONS

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

8.19 ACCESS MANAGEMENT

US 301 (Gall Boulevard), in Pasco County, is designated as Access Class 3 from Hillsborough County Line to SR 39 (Buchman Highway). The proposed median openings have been designed to provide a balance between access to adjacent properties and safety based on the Access Class 3 standards. Existing driveway connections will be maintained. See **Section 5** for more information on the median and connection spacing requirements and **Appendix A** for locations of the proposed median openings and connections as summarized in **Table 8-6**.

**TABLE 8-6
RECOMMENDED ACCESS MANAGEMENT PLAN**

LOC. NO.	CROSS STREET	MILE POST	EXIST. ACCESS	PROP. ACCESS	PROPOSED SPACING (FT)			PERCENT COMPLIANCE		
					SIGNAL	FULL	DIR	SIGNAL	FULL	DIR
1	SR 56 (Future)	1.597	N/A	Signal	>2640	>2640	-	100%	100%	-
2	Driveway (Dept. of Corrections/Festival Park)	2.020	N/A	Full	-	2233	-	-	85%	-
3	Blue Lagoon Dr.	2.487	N/A	Full	-	2466	-	-	93%	-
4	Palmview Dr.	2.854	N/A	Directional	-	-	1938	-	-	100%
5	Chancey Rd.	3.067	N/A	Signal	>2640	>2640	1125	100%	100%	85%

8.20 POTENTIAL CONSTRUCTION SEGMENTS AND PHASING

Due to the small size and scale of this project there aren't any practical segments that would provide an opportunity for phased construction.

8.21 WORK PROGRAM SCHEDULE

US 301 (Gall Boulevard) from SR 56 (proposed) to SR 39 (Buchman Highway) is included in FDOT's currently adopted 2016-2020 Five-Year Work Program. There is \$2,498,000 programmed for final design in fiscal year 2018; however, there currently is no funding for either ROW acquisition or construction in the current work program.

Section 9.0

LIST OF TECHNICAL REPORTS

The following is a list of technical reports that have been prepared for the project:

- State Environmental Impact Report
- Contamination Screening Evaluation Report
- Location Hydraulics Report
- Wetlands Evaluation and Biological Assessment Report
- Cultural Resource Assessment Survey
- Noise Study Report
- Design Traffic Technical Memorandum
- Preliminary Pond Sizing Report
- Utility Assessment Report

APPENDIX A

Concept Plan Sheets

PASCO COUNTY

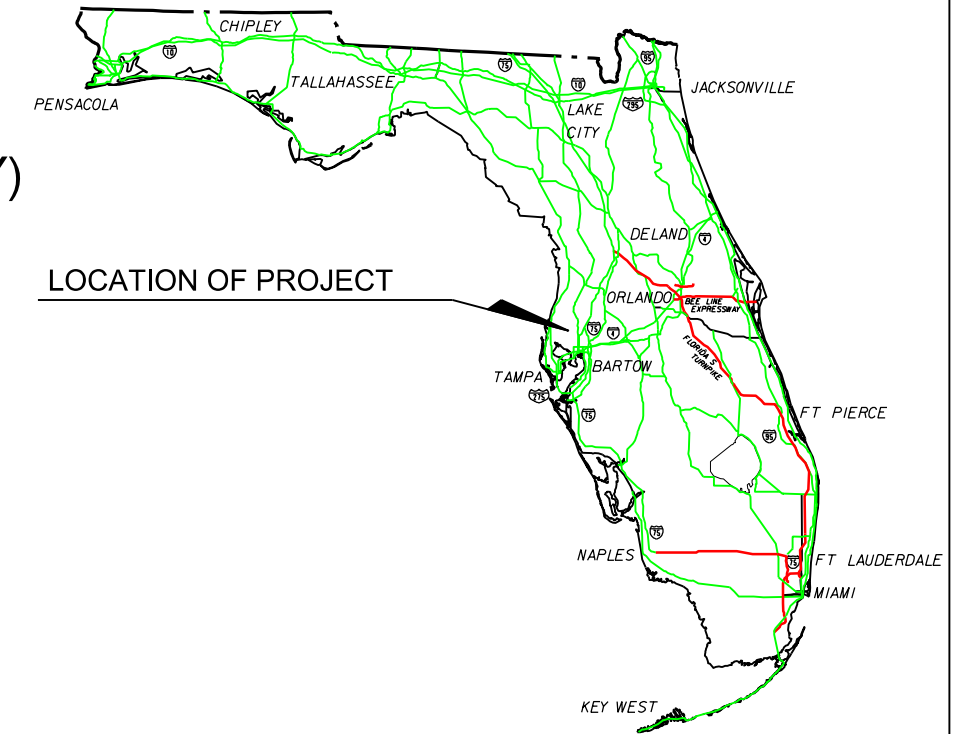
US 301 (GALL BLVD.) PD&E STUDY

FROM SR 56 (PROPOSED) TO SR 39 (BUCHMAN HWY)

WPI Segment No: 416564-1

RECOMMENDED ALTERNATIVE

PREPARED BY
URS CORPORATION SOUTHERN



INDEX OF PLANS

SHEET NO.	SHEET DESCRIPTION
I	COVER SHEET
II	LEGEND/SHEET LAYOUT
III	TYPICAL SECTIONS
1-5	PLANS

Aerial Photography Date: 2011



PROJECT LOCATION MAP

DRAFT - FOR PLANNING PURPOSES ONLY

URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
C.A. No. 00000002

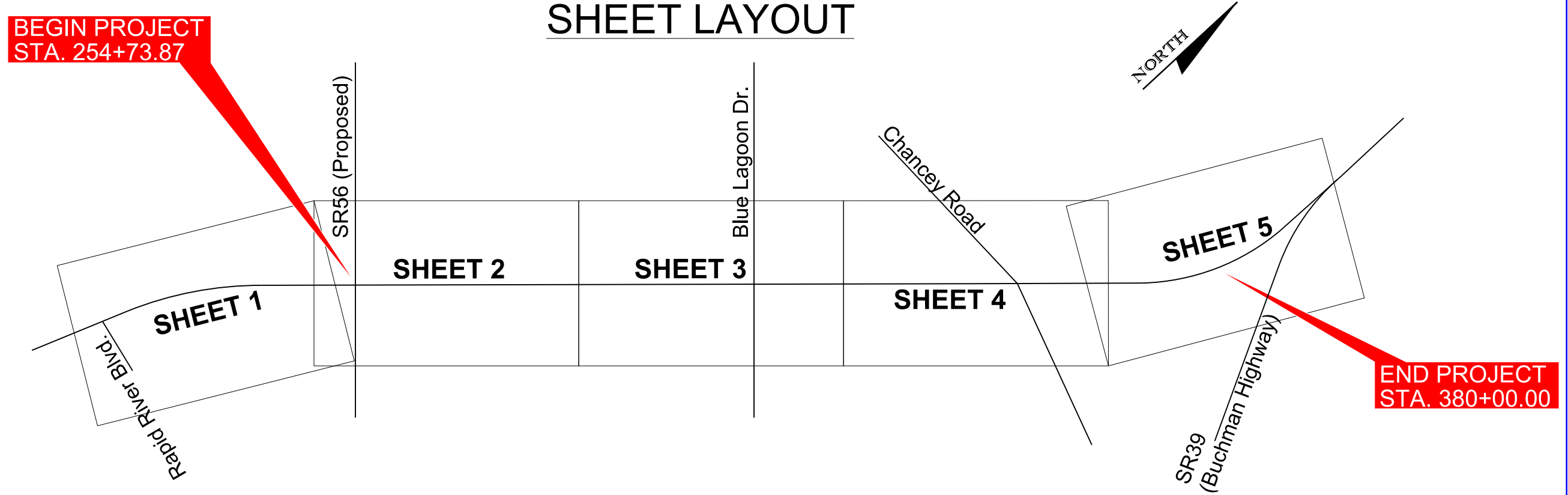
CONCEPT PLANS
ENGINEER OF RECORD: Christopher N. Lovett, P.E.

P.E. NO.: 63020

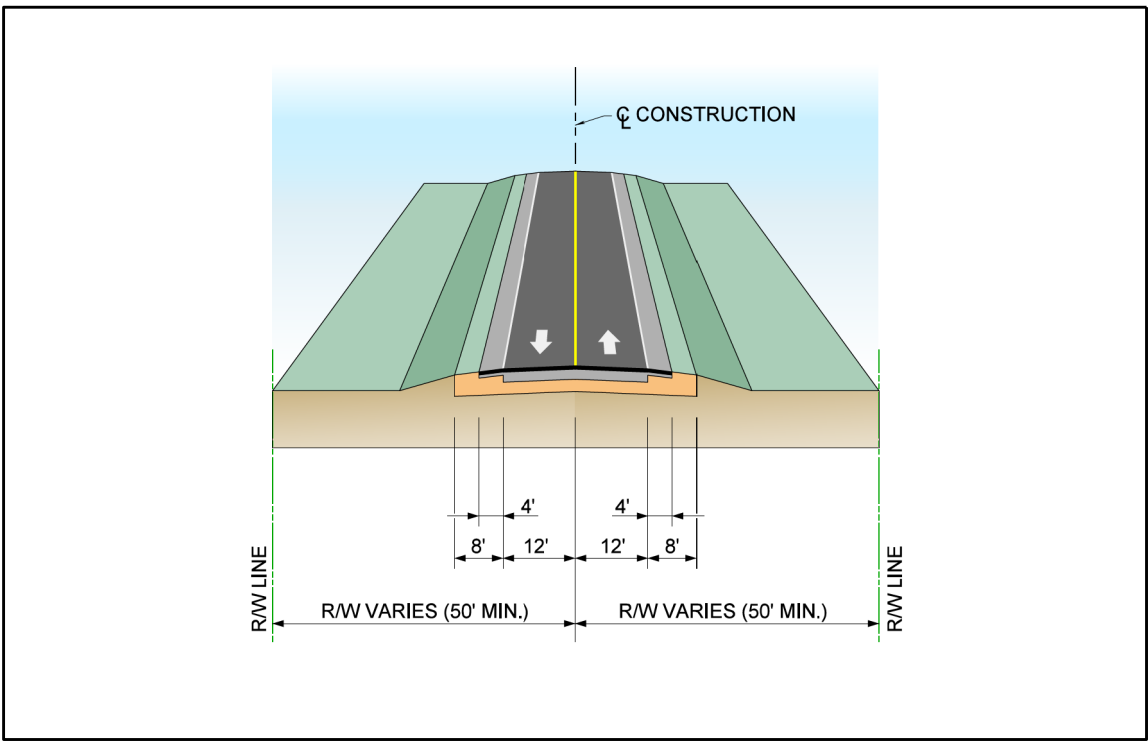
LEGEND

<p>--- EXISTING RIGHT-OF-WAY</p> <p>- - - - EXISTING L/A RIGHT-OF-WAY</p> <p>--- PROPOSED RIGHT-OF-WAY</p> <p>- - - - PROPOSED L/A RIGHT-OF-WAY</p> <p>— PROPERTY LINES</p> <p>— EXISTING CROSS DRAIN</p>	<p>ROADWAY</p> <p>MEDIAN</p> <p>SIDEWALK</p> <p>WETLAND</p> <p>FLOODPLAIN</p> <p>EXISTING SIGNAL</p> <p>PROPOSED SIGNAL</p>
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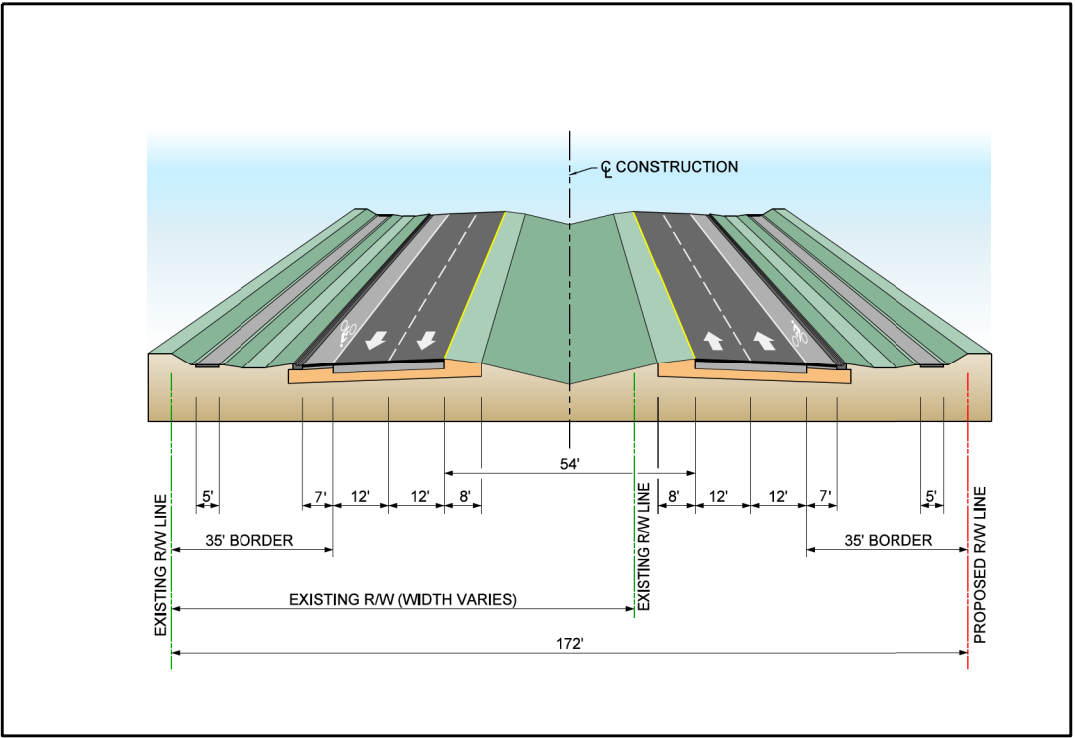
SHEET LAYOUT



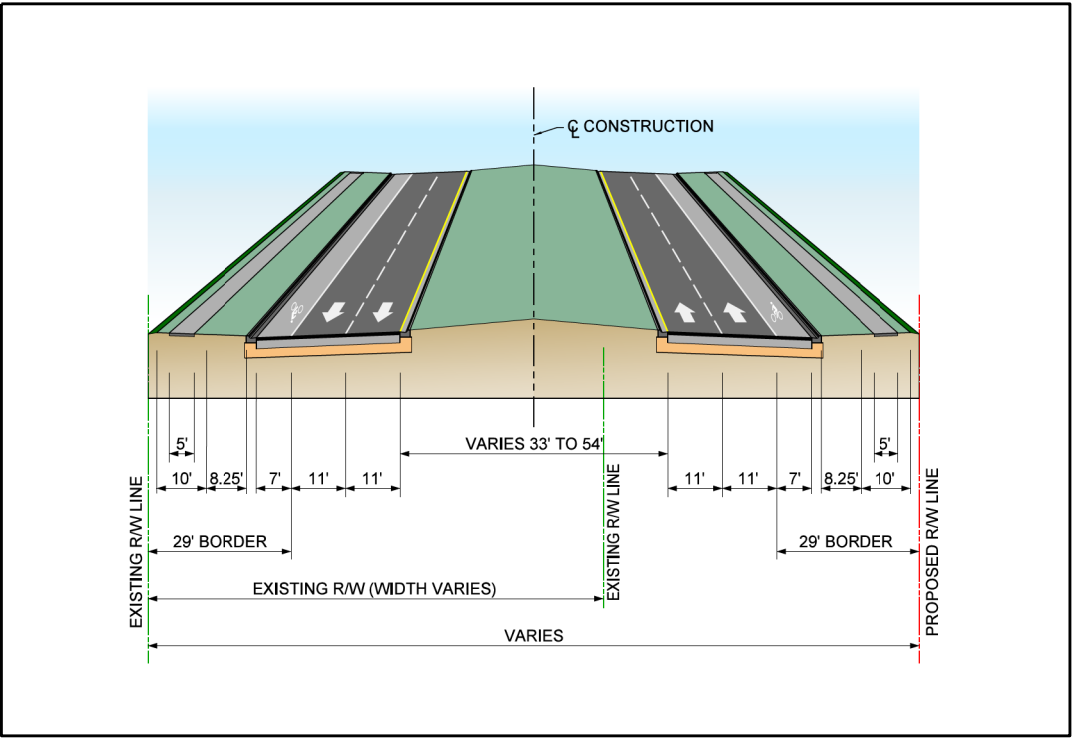
REVISIONS				URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, FL 33607-1462 C.A. No. 00000002 Christopher N. Lovett, P.E. No. 63020	US 301 (GALL BOULEVARD) PD&E STUDY FROM SR 56 (PROPOSED) TO SR 39 (BUCHMAN HIGHWAY) PASCO COUNTY, FLORIDA	RECOMMENDED ALTERNATIVE LEGEND / SHEET LAYOUT	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION				11



EXISTING
TYPICAL SECTION

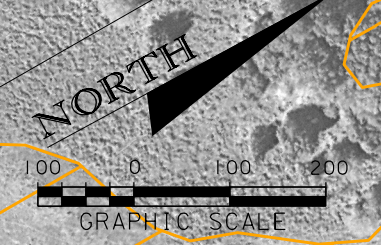


PROPOSED TYPICAL SECTION
(PROPOSED SR 56 TO CHANCEY ROAD)
55 MPH DESIGN SPEED

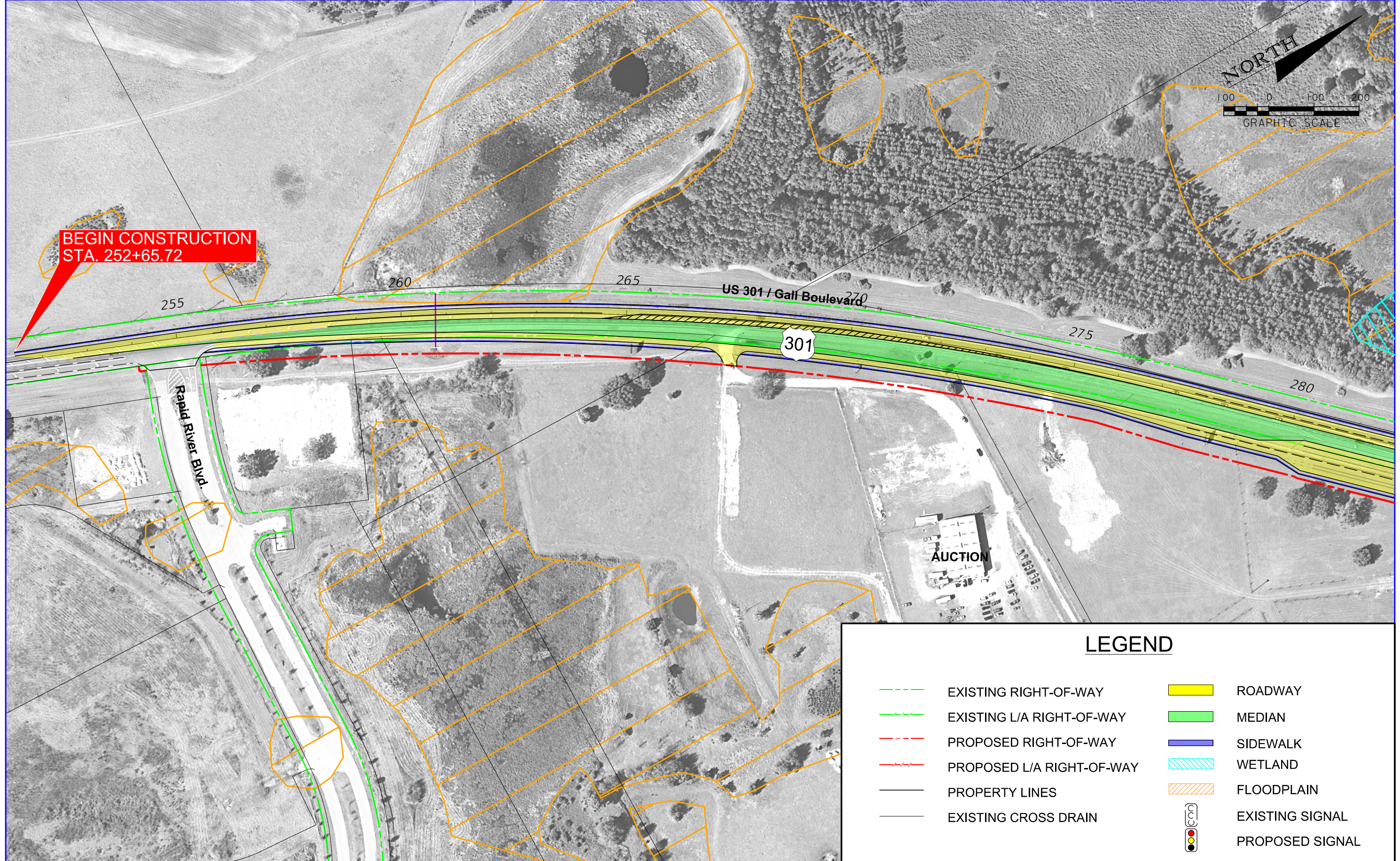


PROPOSED TYPICAL SECTION
(CHANCEY ROAD TO SOUTH OF PROPOSED REALIGNED SR 39)
55 MPH DESIGN SPEED

REVISIONS		REVISIONS		URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, FL 33607-1462 C.A. No. 00000002 Christopher N. Lovett, P.E. No. 63020	<i>US 301 (GALL BOULEVARD)</i> PD&E STUDY FROM SR 56 (PROPOSED) TO SR 39 (BUCHMAN HIGHWAY) PASCO COUNTY, FLORIDA	<i>RECOMMENDED ALTERNATIVE</i> TYPICAL SECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION				III



**BEGIN CONSTRUCTION
STA. 252+65.72**



LEGEND			
	EXISTING RIGHT-OF-WAY		ROADWAY
	EXISTING L/A RIGHT-OF-WAY		MEDIAN
	PROPOSED RIGHT-OF-WAY		SIDEWALK
	PROPOSED L/A RIGHT-OF-WAY		WETLAND
	PROPERTY LINES		FLOODPLAIN
	EXISTING CROSS DRAIN		EXISTING SIGNAL
			PROPOSED SIGNAL

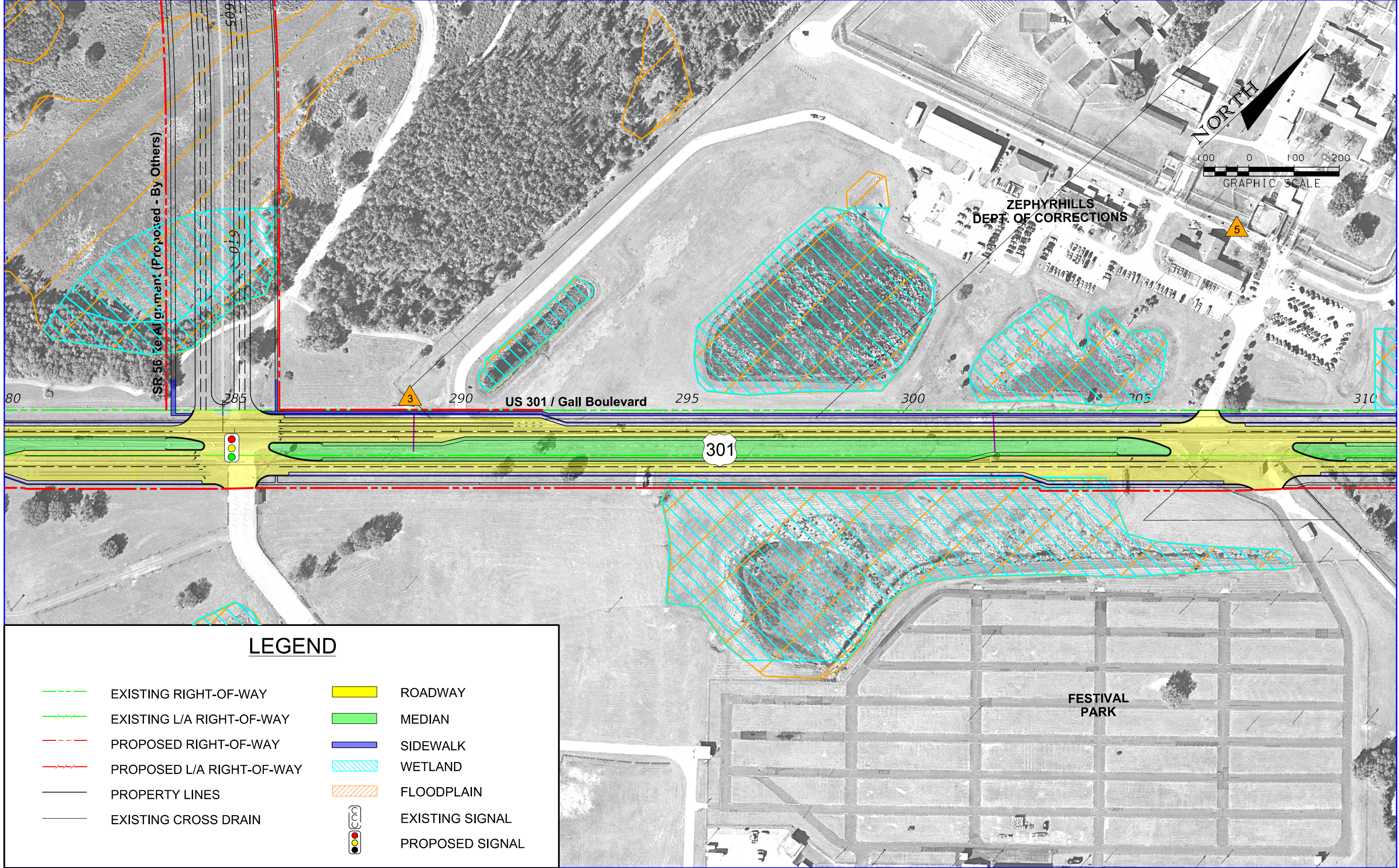
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
C.A. No. 00000002
Christopher N. Lovett, P.E. No. 63020

**US 301 (GALL BOULEVARD)
PD&E STUDY**
FROM SR 56 (PROPOSED) TO SR 39 (BUCHMAN HIGHWAY)
PASCO COUNTY, FLORIDA

**RECOMMENDED ALTERNATIVE
PLAN SHEET (1)**

SHEET NO.
1



REVISIONS	
DATE	DESCRIPTION

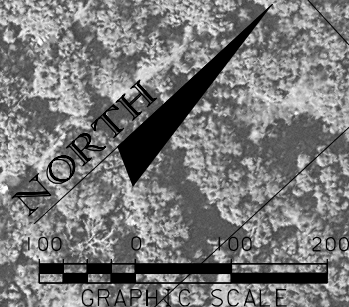
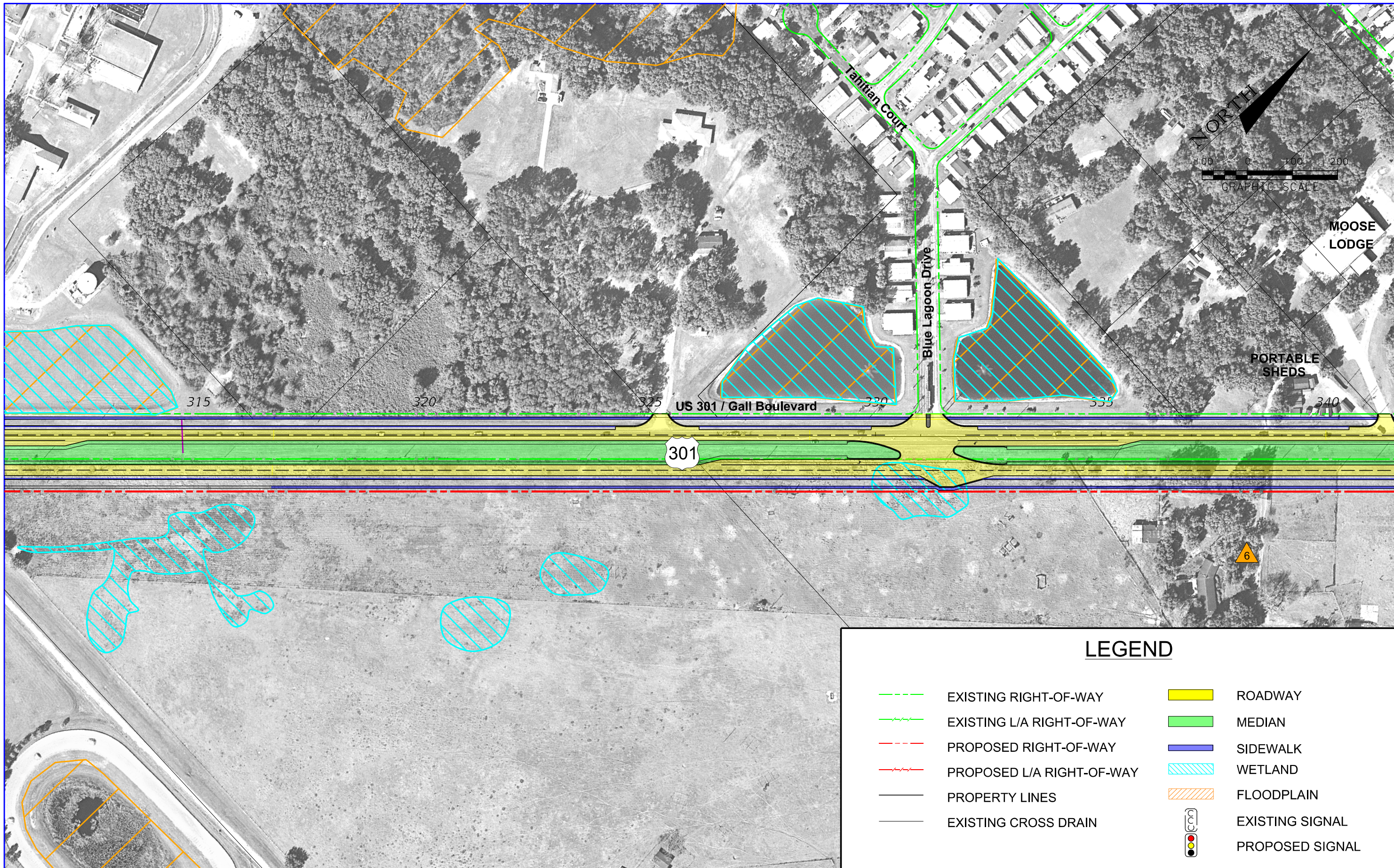
URS Corporation Southern
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**US 301 (GALL BOULEVARD)
 PD&E STUDY**

FROM SR 56 (PROPOSED) TO SR 39 (BUCHMAN HIGHWAY)
 PASCO COUNTY, FLORIDA

**RECOMMENDED ALTERNATIVE
 PLAN SHEET (2)**

SHEET NO.
 2



LEGEND			
	EXISTING RIGHT-OF-WAY		ROADWAY
	EXISTING L/A RIGHT-OF-WAY		MEDIAN
	PROPOSED RIGHT-OF-WAY		SIDEWALK
	PROPOSED L/A RIGHT-OF-WAY		WETLAND
	PROPERTY LINES		FLOODPLAIN
	EXISTING CROSS DRAIN		EXISTING SIGNAL
			PROPOSED SIGNAL

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

URS Corporation Southern
 7650 West Courtney
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 C.A. No. 00000002
 Christopher N. Lovett, P.E. No. 63020

**US 301 (GALL BOULEVARD)
 PD&E STUDY**
 FROM SR 56 (PROPOSED) TO SR 39 (BUCHMAN HIGHWAY)
 PASCO COUNTY, FLORIDA

**RECOMMENDED ALTERNATIVE
 PLAN SHEET (3)**

SHEET NO.
 3



LEGEND

- EXISTING RIGHT-OF-WAY
- - - EXISTING L/A RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- - - PROPOSED L/A RIGHT-OF-WAY
- PROPERTY LINES
- EXISTING CROSS DRAIN
- ROADWAY
- MEDIAN
- SIDEWALK
- WETLAND
- FLOODPLAIN
- C EXISTING SIGNAL
- PROPOSED SIGNAL

REVISIONS	
DATE	DESCRIPTION

URS Corporation Southern
 7650 West Courtney
 Campbell Causeway
 Tampa, FL 33607-1462
 C.A. No. 00000002
 Christopher N. Lovett, P.E. No. 63020

**US 301 (GALL BOULEVARD)
 PD&E STUDY**

*FROM SR 56 (PROPOSED) TO SR 39 (BUCHMAN HIGHWAY)
 PASCO COUNTY, FLORIDA*

**RECOMMENDED ALTERNATIVE
 PLAN SHEET (4)**

SHEET
 NO.
 4



LEGEND

- EXISTING RIGHT-OF-WAY
- - - EXISTING L/A RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- - - PROPOSED L/A RIGHT-OF-WAY
- PROPERTY LINES
- EXISTING CROSS DRAIN
- ROADWAY
- MEDIAN
- SIDEWALK
- WETLAND
- FLOODPLAIN
- C EXISTING SIGNAL
- C PROPOSED SIGNAL

**END PROJECT
STA. 385+00.00**

REVISIONS	
DATE	DESCRIPTION

URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
C.A. No. 00000002
Christopher N. Lovett, P.E. No. 63020

**US 301 (GALL BOULEVARD)
PD&E STUDY**
FROM SR 56 (PROPOSED) TO SR 39 (BUCHANAN HIGHWAY)
PASCO COUNTY, FLORIDA

**RECOMMENDED ALTERNATIVE
PLAN SHEET (5)**

SHEET
NO.
5