

**FINAL
PRELIMINARY ENGINEERING REPORT**

**SR 55 (US 19) PD&E STUDY
FROM SOUTH OF ALTERNATE US 19 IN PASCO COUNTY TO NORTH OF
COUNTY LINE ROAD IN HERNANDO COUNTY**

**Work Program Item Segment No: 418860-1
Federal Aid Project No: S138-001-R**

**This project's Project Development and Environment Study evaluated capacity
improvement alternatives for SR 55 (US 19) from south of Alternate US 19 in
Pasco County to north of County Line Road in Hernando County, Florida**

Prepared for:

**Florida Department of Transportation
District Seven
11201 North McKinley Drive
Tampa, Florida 33612-6456**

November 2008

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November 2008

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SECTION 1

SUMMARY

1.1 RECOMMENDATIONS

The Florida Department of Transportation (FDOT) conducted a Project Development and Environment (PD&E) Study to evaluate improvement alternatives along the SR 55 (US 19) corridor in Pasco County, Florida. The limits of the study extend from south of Alternate US 19 in Pasco County to north of County Line Road in Hernando County. The length of the study is approximately 19.85 miles. The design year for the study is 2030.

Both the existing and design year conditions were evaluated, and various improvement alternatives were considered, including a No-Build Alternative, in order to determine the most appropriate recommendation for this project. After a thorough technical analysis and a comprehensive public involvement process, the study concluded that, without capacity improvements made to the existing roadway facility, future increases in traffic volume will further exacerbate current deficient levels of service (LOS) on SR 55 (US 19). The following proposed improvement concepts are, therefore, recommended to improve existing and future traffic conditions.

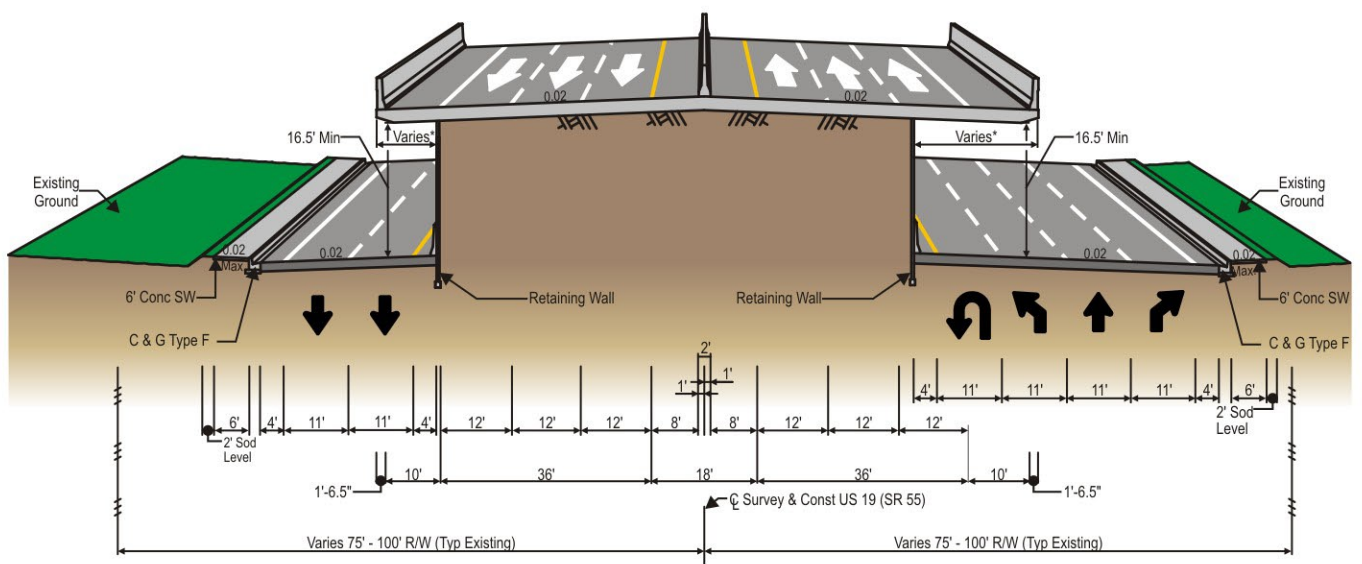
1. The Recommended Alternative consists of grade separating the SR 55 (US 19) mainline over the intersections of SR 54, Ridge Road, SR 52 and County Line Road. A modified Tight Urban Diamond Interchange (TUDI) with provisions for u-turn movements is the recommended concept for accomplishing the proposed grade separation. This alternative is recommended because it minimizes the need to acquire costly ROW within the SR 55 (US 19) study limits. The Recommended Alternative utilizes pier supported concrete slabs to cantilever the SR 55 (US 19) mainline over the at-grade travel lanes at the four intersection locations. The use of the cantilevered structure reduces ROW impacts.
2. The recommended roadway typical section is grade-separated and provides for a six-lane SR 55 (US 19) mainline section constructed on pile supported concrete slabs. A cantilevered overhang is provided on both sides of the mainline section to allow at-grade travel lanes to be placed beneath the elevated structure. The use of a cantilevered overhang and 11-foot (ft)

at-grade travel lanes minimize the overall footprint to 200 ft. **Figure 1-1** provides an illustration of the recommended typical section used for grade separating the SR 55 (US 19) mainline at the intersections of SR 54, Ridge Road, SR 52 and County Line Road. The 200-ft footprint coincides with the existing minimum ROW width of 200 ft along the SR 55 (US 19) mainline at the intersections of SR 54, SR 52 and County Line Road. The length of the overhang varies by location in order to maintain the typical section within existing ROW. The overhang at SR 54, SR 52, and County Line Road varies between 5 ft and 17 ft. The width of the cantilever at the Ridge Road location would need to be 27 ft on the west side and 27 ft on the east side to fit within the existing 150 ft ROW envelope. In addition, 4-ft wide undesignated bicycle lanes and 6-ft wide sidewalks are provided on both sides of the at-grade portion of the typical section to safely accommodate pedestrians and bicyclist. The proposed design speed for this typical section is 50 miles per hour (mph).

1.2 COMMITMENTS

To minimize the impacts of this project on local residents and business owners, and optimize the effectiveness of the improvements, the following commitments were made during the PD&E study process:

1. In accordance with FDOT guidelines, Level II hazardous materials investigations shall be performed prior to letting the project to construction at all “Medium” and “High” rated sites in order to identify any involvement with soil/groundwater contamination which could impact construction of the Recommended Alternative concept.
2. Impacts to wetlands shall be avoided to the extent feasible. Unavoidable construction-related wetland impacts will be mitigated through the FDOT Mitigation Program (Chapter 373.4137 F.S.).



**RECOMMENDED BUILD TYPICAL
SECTION
(SR 54, RIDGE ROAD, SR 52,
COUNTY LINE ROAD)**

FIGURE 1-1

SECTION 2

INTRODUCTION

2.1 INTRODUCTION

The Florida Department of Transportation (FDOT) conducted a Project Development and Environment (PD&E) Study to evaluate capacity alternative improvements along SR 55 (US 19). The project limits are from south of Alternate US 19 in Pasco County (south project limits) to north of County Line Road in Hernando County (north project limits). The study limits length is 19.85 miles. The project location map, as shown on **Figure 2-1**, illustrates the location and limits of the PD&E study.

2.2 PURPOSE AND NEED

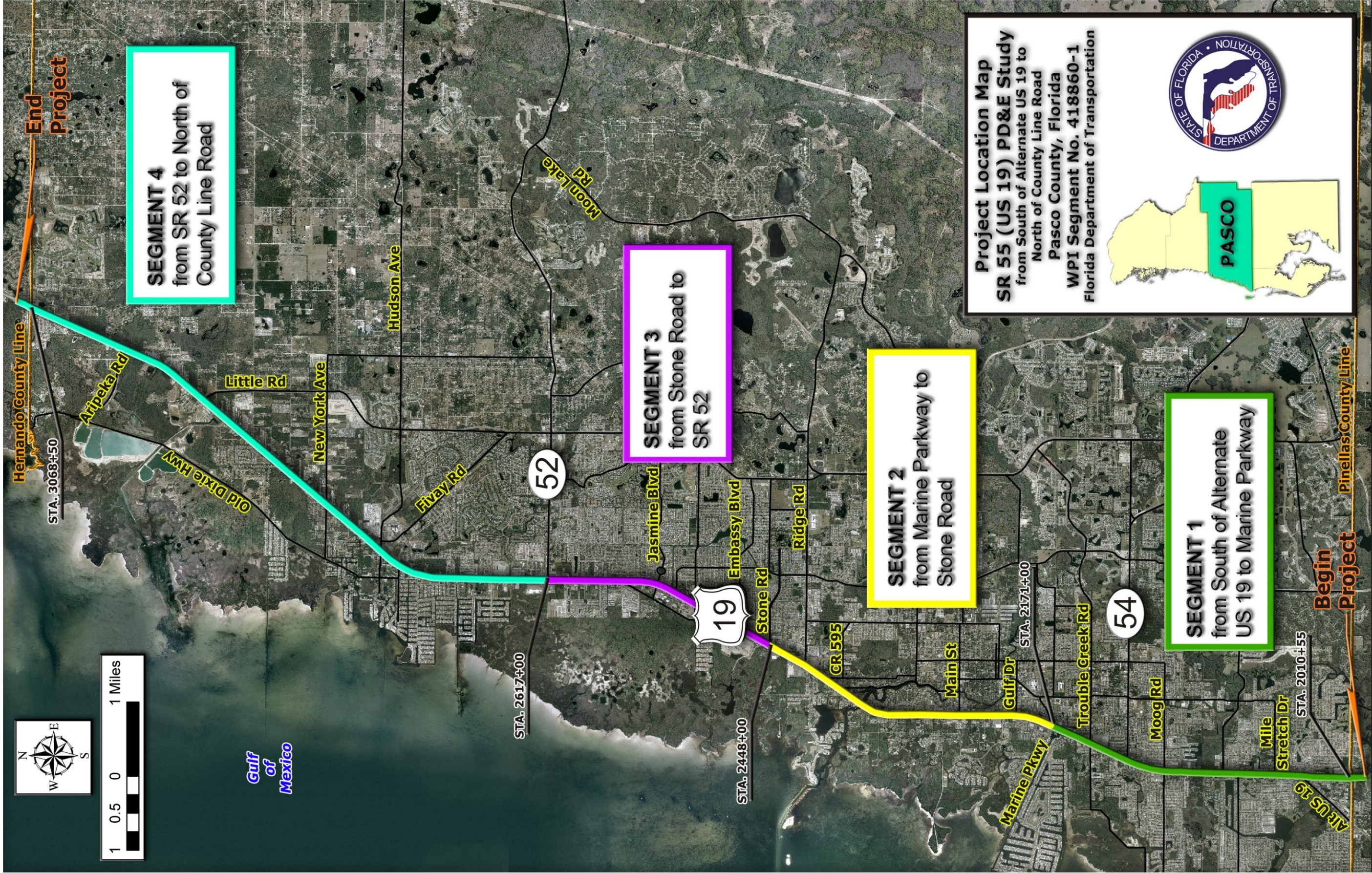
The objective of the PD&E study was to provide documented environmental and engineering analyses, which would help the Department and the Federal Highway Administration (FHWA) reach a decision on the type, conceptual design and location of the necessary improvements within the SR 55 (US 19) PD&E Study limits to accommodate future transportation needs in a safe and efficient manner.

This report documents the need for the project and presents the procedures used to develop and evaluate various improvement alternatives as they relate to the transportation facility.

2.3 PROJECT DESCRIPTION

SR 55 (US 19) is a federal highway that initially served regional travel throughout the west coast of Florida. Due to the tremendous residential and commercial growth along the corridor over the past twenty years, the role of SR 55 (US 19) in Pasco County has expanded. SR 55 (US 19) has evolved into a commuter corridor and a roadway for local traffic destined to commercial establishments along the corridor. The high speed, high volume commuter traffic competes with tourist and local traffic entering and exiting the roadway, creating mobility and safety concerns.

This study evaluated various capacity improvements and documented the proposed access management plan to the existing SR 55 (US 19) corridor. SR 55 (US 19) currently exists as a six-lane facility with significant right-of-way (ROW) constraints along the corridor. Therefore, the



PROJECT LOCATION MAP
SR 55 (US 19) PD&E STUDY

FIGURE 2-1

various capacity evaluation improvements do not include any additional through lanes. Early in the study phase, Continuous Right-Turn Lanes (CRTL) in both directions of the SR 55 (US 19) mainline were evaluated throughout the entire length of the project corridor. The results of the CRTL evaluation efforts indicated that they could be constructed within the existing ROW along SR 55 (US 19) without requiring any additional mainline ROW or for stormwater treatment facility areas. Based on this evaluation effort, the CRTLs are no longer planned to be part of the proposed project concepts. Additional capacity evaluations include Transportation System Management (TSM) improvements and potential interchanges at the SR 55 (US 19) intersections of SR 54, Ridge Road, SR 52 and County Line Road.

The project study limits are from south of Alternate US 19 in Pasco County (southern limits) to north of County Line Road in Hernando County (northern limits). SR 55 (US 19) is a controlled access facility and is part of the Florida Intrastate Highway System (FIHS) and Strategic Intermodal System (SIS). Within the study limits, there are currently 29 signalized intersections, approximately 820 driveways and unsignalized cross streets, 102 full median openings and 22 directional median openings.

The SR 55 (US 19) study area is part of the Tampa/St. Petersburg Urbanized Area. This urbanized area had a year 2002 estimated population of over 2.1 million. Therefore, the SR 55 (US 19) study area is designated as an urbanized area with over 500,000 population. The importance of this designation is that the FIHS minimum Level of Service (LOS) standards are based on facility type, area type and population.

Existing (2006) traffic volumes on SR 55 (US 19) within the study area range from 58,800 to 78,100 Annual Average Daily Traffic (AADT) from Alternate US 19 to SR 52 and from 33,300 to 55,900 AADT from SR 52 to the vicinity of County Line Road. Future increases in travel demand for SR 55 (US 19) in Pasco County projected in the latest version of the Tampa Bay Regional Planning Model (TBRPM 5.1) are expected to be moderate compared to historical trends, due to the land uses approaching buildout, particularly in the southern portion of the project limits. In addition, in recent years north-south parallel facilities like CR 1 (Little Road) have been improved (two to six lanes) and a new facility, SR 589 (Suncoast Parkway), has come online to provide increased capacity for the north-south travel through western Pasco County. The northern portion of SR 55 (US 19) will more than likely see more aggressive growth due to potential developable vacant land. It is anticipated that the existing traffic volumes in the

northern section, which are significantly lower than in the southern section, will approach the magnitude of traffic volumes that currently exist in the southern portion of the project.

Safety issues for motorists and pedestrians have been a concern within the SR 55 (US 19) study area. The crash rate along this facility has been consistently higher than the statewide average for similar facility types. Ongoing projects designed to improve safety include the installation of additional street lighting, sidewalks, pedestrian push buttons and cross walks, block number sign program, and the continuation of education and enforcement activities.

Access management issues documented in this study have implications for safety and traffic operations as well. Potential solutions that address access management issues include conversion of existing full median openings to directional median openings, closure of median openings and reduction of curb cuts (driveways) through the implementation of joint and cross access for adjacent commercial developments.

SECTION 3

NEED FOR IMPROVEMENT

The need for improvement along SR 55 (US 19) within the study limits was established based on the evaluation of the following:

- Existing and future quality of traffic operations along SR 55 (US 19) assuming the existing roadway conditions
- Traffic safety conditions for the time period between the years 2000 and 2004
- Hurricane evacuation
- Consistency with local government plans
- Projected future socioeconomic growth of Pasco County

3.1 DEFICIENCIES

The quality of existing and future traffic operations, assuming no improvements, was evaluated by completing capacity analyses and determining the deficiencies along the SR 55 (US 19) study corridor. Since SR 55 (US 19) is a controlled access facility and is part of the Florida Intrastate Highway System (FIHS) and the Strategic Intermodal System (SIS), the minimum standard used by the Florida Department of Transportation (FDOT) to measure the quality of traffic conditions is Level of Service (LOS) D. The following paragraphs provide a brief overview of the quality of traffic conditions along the study corridor without improvements. The detailed traffic analyses effort is documented in the *Final Traffic Technical Memorandum*¹ prepared for this Project Development and Environment (PD&E) Study.

3.1.1 Existing and Future Traffic Conditions

The existing (2006) annual average daily traffic (AADT) volumes range between 33,300 vehicles per day (vpd) and 78,100 vpd. The lowest AADT volume is located south of CR 1 (Little Road) and the greatest volume is located north of Alternate US 19. In 2030, the AADT volumes range between 44,300 vpd south of CR 1 (Little Road) and 83,000 vpd north of Alternate US 19. Hence, revealing a 33.0% and 6.0% growth in AADT volumes between years 2006 and 2030 at the respective locations.

Currently, 29 signalized intersections are located along the 19.85 mile study corridor. Results of the existing (2006) capacity analyses show that 21 of the 29 signalized intersections are currently operating deficiently (i.e., LOS E or F) during the AM and/or PM peak hours. Due to the continued growth expected along the corridor, the design year (2030) operational analyses shows that four additional intersections are expected to operate deficiently. The 2030 results show that 25 of the 29 signalized intersections are expected to operate at worse than the LOS D standard during the AM and/or PM peak hours.

The existing arterial analyses indicate that the roadway segment between Alternate US 19 to SR 52 is also currently experiencing deficient operating conditions. The arterial analyses for the entire study limits reveals similar deficient operating conditions; LOS E in the southbound direction during the AM peak hour and LOS E in the northbound direction during the PM peak hour. In the design year (2030), assuming no improvements, the arterial analyses indicate that the segment between Alternate US 19 to SR 52 is expected to continue to worsen and the deficiencies are expected to extend further north of SR 52 to the end of the study limits. Overall, the 2030 arterial analyses results indicate that the LOS is expected to degrade to LOS F in the southbound direction during the AM peak hour and LOS F in the northbound direction during the PM peak hour.

3.2 SAFETY

To evaluate the safety of traffic operations in the study area, crash records for the five-year period between the years 2000 and 2004 were obtained for the intersections and roadway segments located within the study area.

The crash records revealed that 4,260 crashes occurred along the SR 55 (US 19) mainline (an average of 852 crashes per year) over the five-year study period. There were 125 fatalities and over 5,000 injuries during this same time period. The average crash rate, crashes per million vehicle miles traveled (VMT), for the entire SR 55 (US 19) corridor was 2.106; however, for the SR 55 (US 19) segment between Alternate US 19 and SR 54 the average crash rate was 3.136. The average crash rates for SR 55 (US 19) are currently lower than the statewide average crash rate (3.279) for similar roadway facilities.

The analysis indicates that the highest frequency crashes were rear-end and angle crashes. These prevalent crash types are likely due to excess levels of traffic congestion and a lack of adherence to access management standards. Higher levels of traffic congestion and associated delays

increase the propensity for drivers to run red lights. Likewise, increased frequency and reduced spacing of driveways and median openings create speed differential and disrupt traffic flow. To counter these less than desirable operating conditions, adequate access management and Transportation System Management (TSM) strategies should be sought to potentially reduce the number of crashes along the study corridor.

3.3 HURRICANE EVACUATION

The current hurricane evacuation roadway network is reflected in the *Pasco County Comprehensive Plan*², Transportation Element and the *Pasco County Metropolitan Planning Organization (MPO) 2025 Long Range Transportation Plan (LRTP) Update*³. SR 55 (US 19) is identified as a hurricane evacuation route in both of these documents. This roadway is critical to the western portion of Pasco County, providing a north/south roadway for coastal residents to access critical east/west routes (e.g., SR 52 and SR 54), serving destinations in eastern Pasco County with higher elevations. The Coastal Element of the *Pasco County Comprehensive Plan*² states that it is pertinent to “Maintain or reduce hurricane evacuation clearance times of 18 hours for an average response scenario within the hurricane vulnerability area.” The Comprehensive Plan also indicates that the County shall encourage capital improvement expenditures for critical evacuation routes lacking adequate capacity to clear the Hurricane Vulnerability Zone (Evacuation Zones A-C).

3.4 CONSISTENCY WITH TRANSPORTATION PLANS

The Transportation Element of the *Pasco County Comprehensive Plan*² and the *Pasco County MPO 2025 LRTP Update*³ designate SR 55 (US 19) as an urban principal arterial. Both plans display SR 55 (US 19) as a six-lane divided roadway in the year 2025. The 2025 Cost Affordable Plan component of the Long Range Transportation Plan (LRTP) identifies median channelization improvements in addition to Continuous Right-Turn Lane (CRTL) improvements for SR 55 (US 19). The 2025 Needs Plan component of the LRTP identifies the widening of SR 55 (US 19) to an eight-lane divided roadway with new interchanges located at SR 54, Ridge Road and SR 52. The *Pasco County Transportation Capital Improvement Projects Draft 2008-2012 Map*⁴ indicates that the SR 55 (US 19) channelization improvements are funded for construction for fiscal year 2011. The *FDOT District 7 Adopted 5-Year Work Program*⁵ shows funding for construction of the CRTL project in fiscal year 2011.

3.5 SOCIAL AND ECONOMIC DEMANDS

Pasco County, with 745 square miles (sq mi) in land area is considered medium size when compared to the remainder of the counties in the State of Florida. Presently, Pasco County has more than 546 persons per sq mi, ranking it 11th in the state for population density. According to the 2000 Census of Population, Housing and Employment, the County's population of 344,768 represents a 22.6% increase over the 1990 population of 281,131. This level of growth is comparable to the State of Florida growth trend of 23.0% over the same period. For 2005, the *Florida Statistical Abstract 2006*⁶ estimated population to be 406,898, an increase of 18.0% over the 2000 population. These growth trends are anticipated to continue with a permanent population of 650,997 projected in the year 2030, representing a 60.0% increase over 2005. Population growth has been fueled by tourism, an active second home market, and retirement communities plans. The nature of this growth has resulted in Pasco County having a high percentage of retirement-age persons. Approximately 24.3% of the population is 65 years of age or older. The average purchase price for homes in Pasco County is ranked in the top 20 counties in the State of Florida. This and other socioeconomic information is presented in **Table 3-1**.

Table 3-1
Pasco County Socioeconomic Information

Statistic	Value
Population – 1990	281,131
Population – 2000	344,768
Population – 2005 (estimate)	406,898
Projected population – 2030 (median projection)	650,997
% increase in population – 1990-2000	22.6%
% increase in population – 2000-2005	18.0%
% increase in population – 2005-2030	60.0%
Median age – 2005	44.8
% 65 and older – 2005	24.3%
Average Household Size – 2005 (persons/household)	2.3
Average house purchase price – 2005	\$224,427 (15th highest among FL counties)
Per capita income – 2004	\$25,153

Source: 2006 Florida Statistical Abstract

3.6 REFERENCES

1. *Final Traffic Technical Memorandum*; HDR Engineering, Inc.; 2007.
2. *Pasco County Comprehensive Plan*; Pasco County Board of County Commissioners; Adopted June 27, 2006.
3. *Pasco County Metropolitan Planning Organization (MPO) 2025 Long Range Transportation Plan (LRTP) Update*; Tindale Oliver & Associates, Inc.; Final Report January 2005.
4. *Pasco County Transportation Capital Improvement Projects Draft 2008-2012 Map⁴*; Pasco County Engineering Services; August 2007.
5. *FDOT District 7 Adopted 5-Year Work Program for FY 2009 – FY 2013*; FDOT District 7; Adopted July 1, 2008.
6. *Florida Statistical Abstract 2006*; Bureau of Economic and Business Research; University of Florida College of Business Administration, 2006.

SECTION 4

EXISTING CONDITIONS

4.1 EXISTING ROADWAY CHARACTERISTICS

SR 55 (US 19) is developed with mixed commercial, industrial and residential land uses along both sides of the roadway for the entire length of the project. Several large commercial developments are scattered along the project corridor. The existing posted speed limits along the SR 55 (US 19) corridor vary between 45 miles per hour (mph) and 55 mph throughout the project limits.

This section will examine the existing roadway typical sections during the analysis of the proposed alternatives for this Project Development and Environment (PD&E) Study along SR 55 (US 19) and in the vicinity of the proposed interchanges. These existing roadway and bridge typical sections describe or define the following facilities located within the project limits:

- Roadway sections along SR 55 (US 19) from South of Alternate US 19 (to the South) to North of County Line Road (to the North).
- Roadway sections for the cross roads where new interchange alternatives will be evaluated (SR 54, Ridge Road, SR 52 and County Line Road).
- The existing bridge over the Pithlachascotee River.
- The proposed ramps and bridges associated with the interchanges.

4.1.1 Functional Classification

SR 55 (US 19) is functionally classified as an urban principal arterial.

4.1.2 Typical Sections

SR 55 (US 19) throughout the project study limits has various typical section characteristics. Since some project segments have a unique existing typical section, they will be used to define the various pieces of existing SR 55 (US 19) within the project study limits. See Section 8.3.1 for a description of the project segments.

4.1.2.1 Segment 1 (from Alternate US 19 to Marine Parkway)

As shown in **Figure 4-1**, the existing roadway typical section is a divided six-lane roadway with 4-foot (ft) paved outside shoulders. In addition, there is an open ditch on the right side of the roadway. This section contains three 12-ft travel lanes in each direction and a 28-ft raised median. The existing right-of-way (ROW) width is 207 ft.

The existing land use in this section is generally a mix between residential and commercial. The Annual Average Daily Traffic (AADT) for this segment ranges from 59,300 vehicles per day (vpd) to 78,100 vpd. The existing posted speed in this segment is 45 mph.

4.1.2.2 Segment 2 (from Marine Parkway to Stone Road)

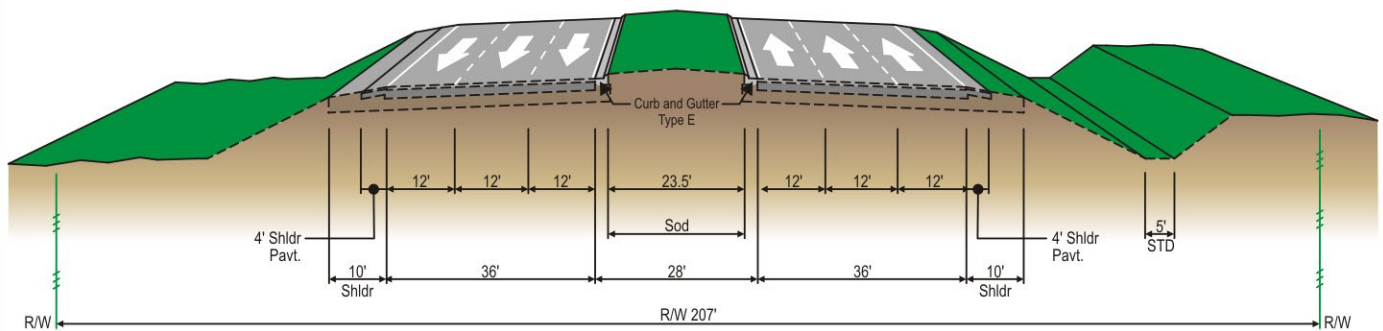
As shown in **Figure 4-2**, the existing typical section is a divided six-lane roadway with curb and gutter and 5-ft sidewalks on both sides of the roadway. This section contains three 12-ft travel lanes in each direction and a raised median that varies between 15.5 ft and 28 ft. The existing ROW width varies between 150 ft and 207 ft.

As shown in **Figure 4-3**, the existing bridge typical section along SR 55 (US 19) over the Pithlachascotee River is a divided six-lane roadway with 4 ft 6 inch (in) outside shoulders on both sides of the roadway. Adjacent to the shoulder is 1 ft 3 in wide traffic railing, an 8-ft sidewalk, and a 1-ft pedestrian/bicycle railing. This section contains three 12-ft travel lanes in each direction and a 12.5-ft raised median. The existing ROW width is 200 ft.

The existing land use in this section is generally a mix between residential and commercial. The AADT for this segment ranges from 61,500 vpd to 67,600 vpd. The existing posted speed in this segment is 45 mph.

4.1.2.3 Segment 3 (from Stone Road to SR 52)

As shown in **Figure 4-4**, the existing typical section is a divided six-lane roadway with 4-ft paved outside shoulders. In addition, there is an open ditch on the right side of the roadway. This section contains three 12-ft travel lanes in each direction and a 28-ft raised median. The existing ROW width varies between 191 ft to 242 ft.

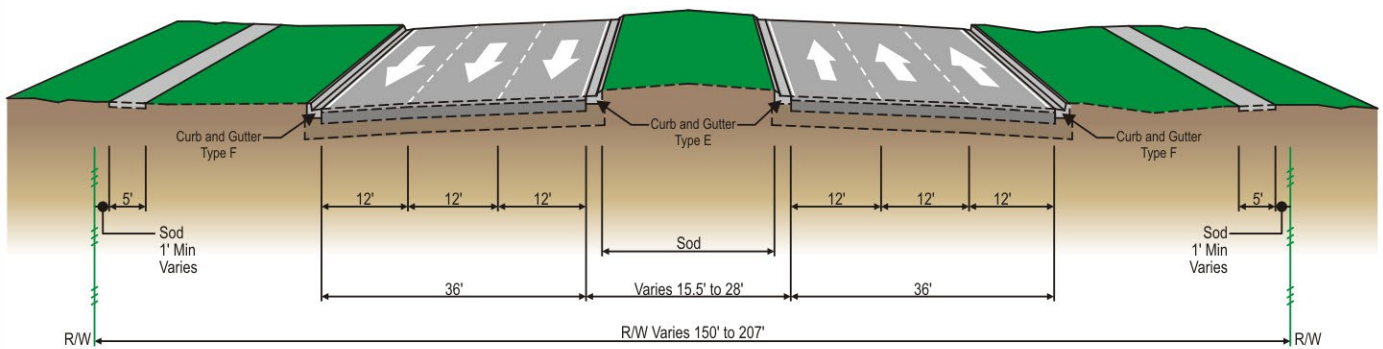


EXISTING TYPICAL SECTION



EXISTING TYPICAL SECTION
FROM SOUTH OF ALTERNATE
US 19 TO MARINE PARKWAY
SEGMENT 1

FIGURE 4-1

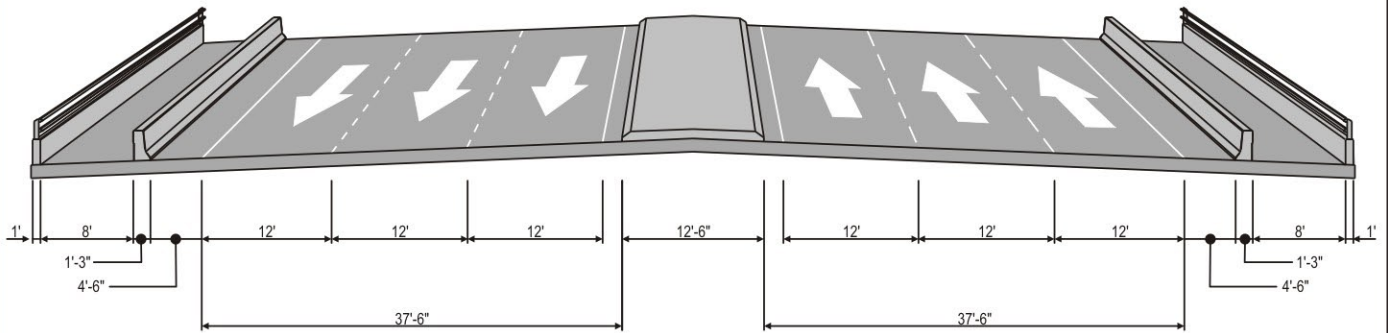


EXISTING TYPICAL SECTION



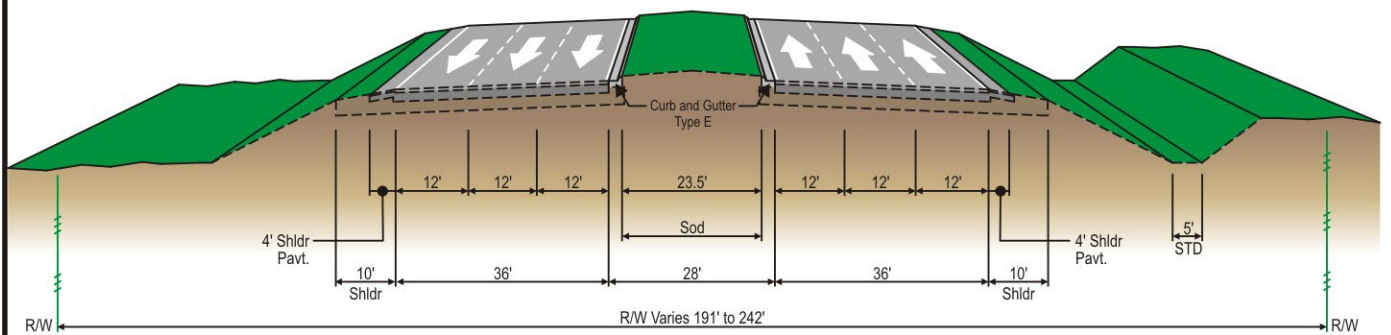
EXISTING TYPICAL SECTION
FROM MARINE PARKWAY
TO STONE ROAD
SEGMENT 2

FIGURE 4-2



**EXISTING BRIDGE
TYPICAL SECTION OVER THE
PITHLACHASCOTEE RIVER**

FIGURE 4-3



EXISTING TYPICAL SECTION



**EXISTING TYPICAL SECTION
FROM STONE ROAD TO
HUDSON AVENUE
SEGMENTS 3 AND 4**

FIGURE 4-4

The existing land use in this section is generally a mix between residential and commercial. The AADT for this segment ranges from 41,600 vpd to 64,300 vpd. The existing posted speed in this segment is 45 mph.

4.1.2.4 Segment 4 (from SR 52 to north of County Line Road)

The existing roadway varies between three typical sections within this Segment. The existing typical section from SR 52 to Hudson Avenue is the same as Segment 3 shown in **Figure 4-4**. As shown in **Figure 4-5**, the existing typical section from Hudson Avenue to Houston Avenue and from Jesup Lane to north of County Line Road is a divided six-lane roadway with 4-ft paved shoulders on both sides of the roadway. This existing section also has open drainage ditches on both sides of the roadway. This section contains three 12-ft travel lanes in each direction and a 28-ft raised median. The existing ROW width varies between 200 ft to 252 ft. As shown in **Figure 4-6**, the existing typical section along SR 55 (US 19) from Houston Avenue to Jesup Lane is a divided six-lane roadway with 4-ft paved outside shoulders. In addition, there is an open ditch on the left side of the roadway. This section contains three 12-ft travel lanes in each direction and drainage swales in the median. The existing ROW width is 232 ft.

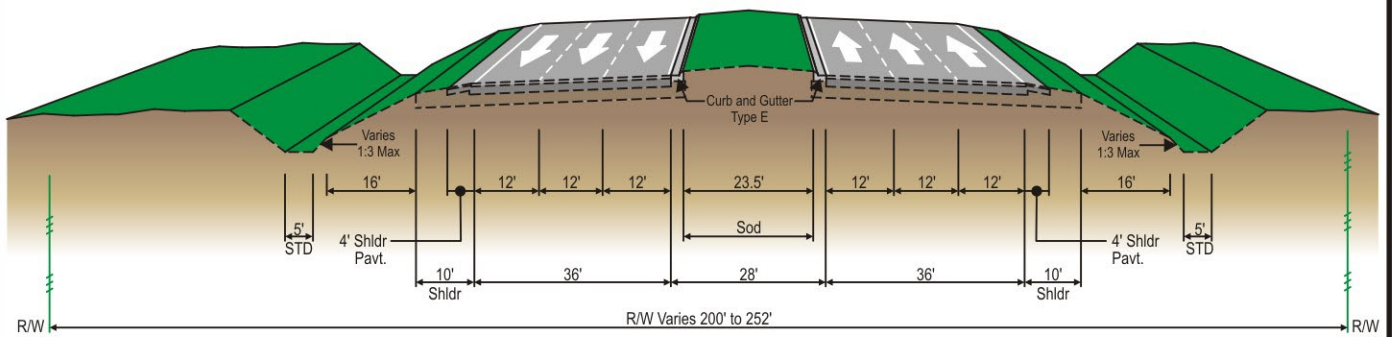
The existing land use in this section is generally a mix between residential and commercial. The AADT for this segment ranges from 33,300 vpd to 43,200 vpd. The existing posted speed in this segment varies from 50 mph to 55 mph.

4.1.2.5 Existing Cross Road Typical Sections

The *Final Traffic Technical Memorandum*¹ indicates that interchanges are needed at SR 54, Ridge Road, SR 52 and County Line Road by the design year 2030. Roadway sections for these cross roads are described, since new interchange alternatives have been evaluated as part of this study.

4.1.2.6 SR 54

As shown in **Figure 4-7**, the existing typical section of SR 54 east of SR 55 (US 19) is a divided six-lane urban roadway. This section contains three 12-ft travel lanes in each direction with a raised median. The existing ROW width is typically 122 ft. The existing land use for this section east of SR 55 (US 19) is a mix between residential and commercial. SR 54 becomes Old Bailey's Bluff Road on the west side of SR 55 (US 19). The existing typical section along Old Bailey's Bluff Road is an undivided two-lane roadway. This section contains one 12-ft travel lane in each

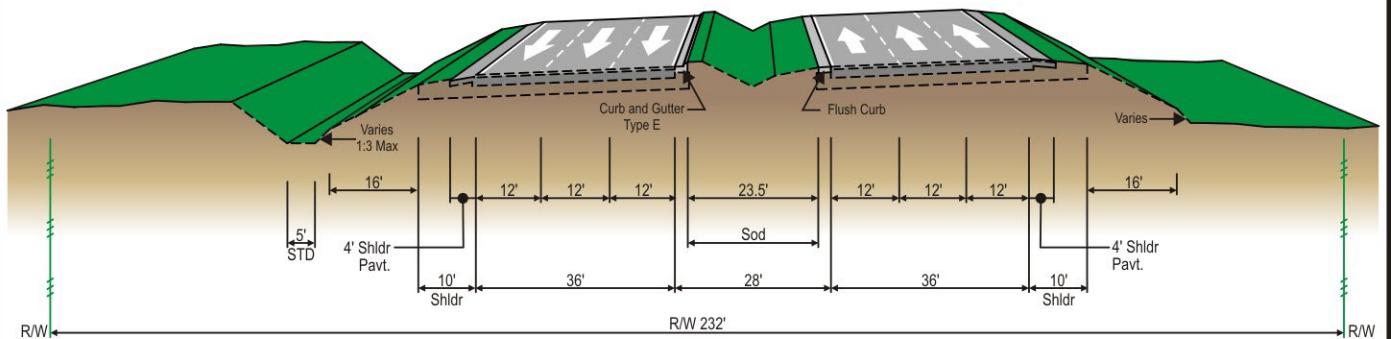


EXISTING TYPICAL SECTION



**EXISTING TYPICAL SECTION FROM
HUDSON AVENUE TO HOUSTON
AVENUE AND FROM JESUP LANE
TO NORTH COUNTY LINE ROAD
SEGMENT 4**

FIGURE 4-5

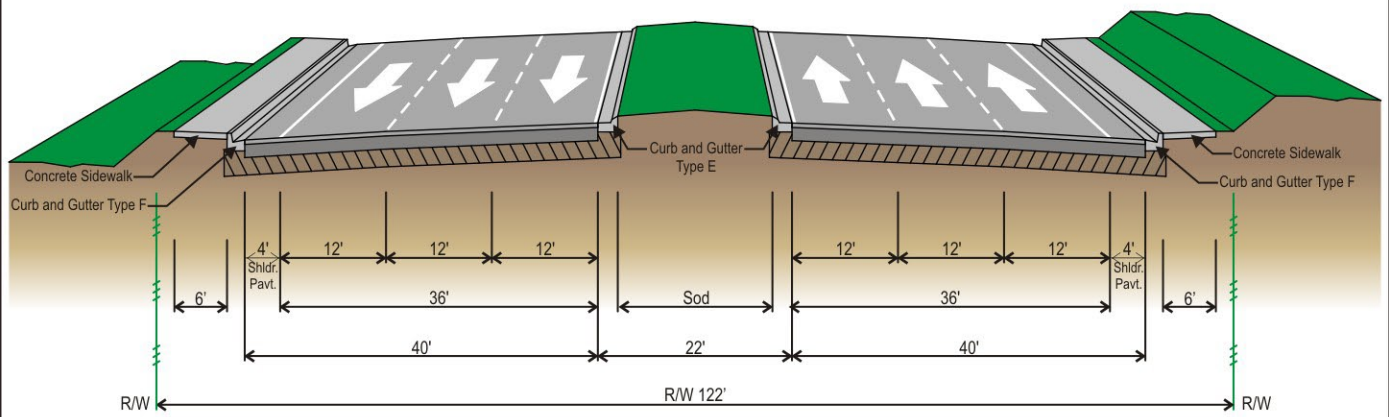


EXISTING TYPICAL SECTION



EXISTING TYPICAL SECTION
FROM HOUSTON AVENUE
TO JESUP LANE
SEGMENT 4

FIGURE 4-6



direction. The existing ROW width is typically 40 ft. The existing land use for this section west of SR 55 (US 19) is a mix between residential and commercial.

4.1.2.7 Ridge Road

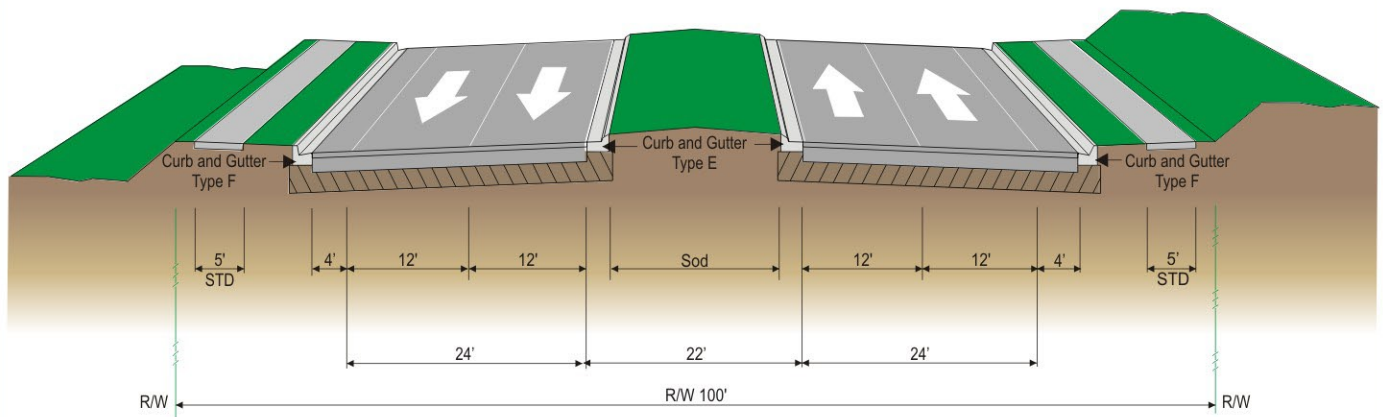
As shown in **Figure 4-8**, the existing typical section along Ridge Road is a divided four-lane urban roadway. This section contains two 12-ft travel lanes in each direction with a raised median. The existing ROW width is typically 100 ft. The existing land use for this section east of SR 55 (US 19) is a mix between residential and commercial. Ridge Road becomes Richey Drive on the west side of SR 55 (US 19). The existing typical section along Richey Drive is an undivided two-lane urban roadway. This section contains one 12-ft travel lane in each direction. The existing ROW width is typically 60 ft. The existing land use for this section on the west side of SR 55 (US 19) is a mix between residential and commercial.

4.1.2.8 SR 52

The existing typical section along SR 52 differs on the east and west side of SR 55 (US 19). As shown in **Figure 4-9**, the existing typical section east of SR 55 (US 19) is a divided six-lane urban roadway. This section contains three 12-ft travel lanes in each direction with a raised median. The existing ROW width is typically 128 ft. The existing land use for this section east of SR 55 (US 19) is a mix between residential and commercial. The existing typical section along SR 52 west of SR 55 (US 19) is an undivided two-lane roadway with 10 ft of unpaved shoulders on both sides of the roadway. This section contains one 12-ft travel lane in each direction. The existing ROW width is typically 66 ft. The existing land use for this section west of SR 55 (US 19) is commercial.

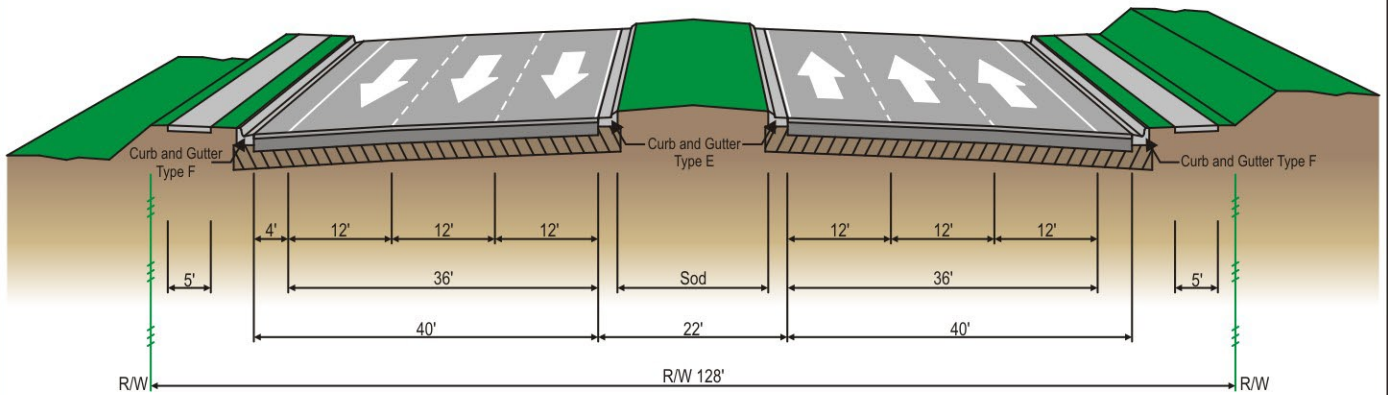
4.1.2.9 County Line Road

The existing typical section along County Line Road east of SR 55 (US 19) consists of a two-lane undivided roadway as shown in **Figure 4-10**. This section contains one 12-ft travel lane and a 10-ft outside shoulder in each direction. The existing ROW width is typically 50 ft. The existing land use in this section is mainly residential. On the west side of the SR 55 (US 19) County Line Road intersection is a RV park.



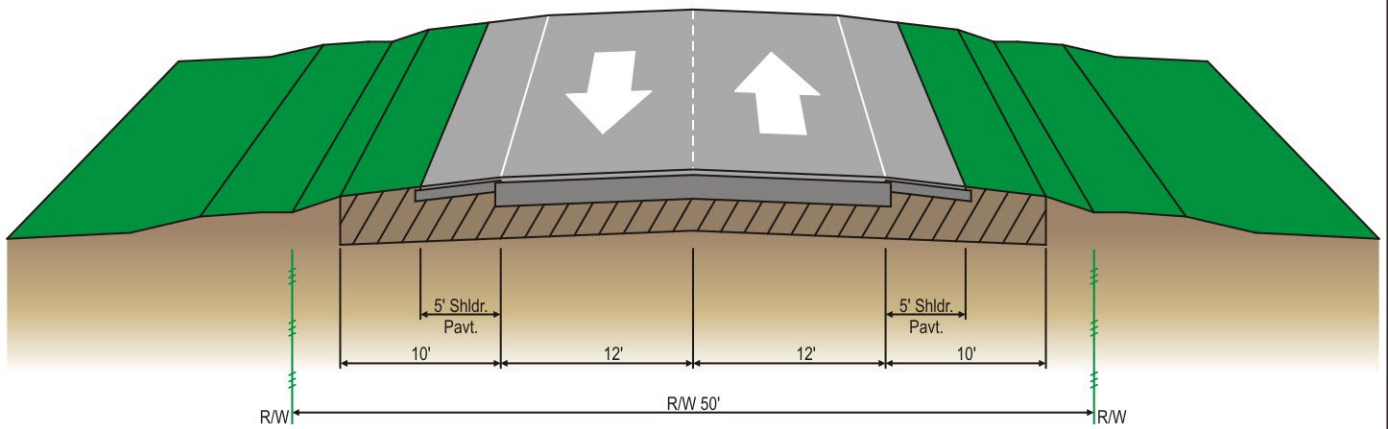
**EXISTING TYPICAL SECTION
RIDGE ROAD**

FIGURE 4-8



**EXISTING TYPICAL SECTION
SR 52**

FIGURE 4-9



**EXISTING TYPICAL SECTION
COUNTY LINE ROAD**

FIGURE 4-10

4.1.3 Pedestrian and Bicycle Facilities

The existing pedestrian facilities along the SR 55 (US 19) corridor are limited. Sidewalks are provided in the following locations:

- SR 54 and SR 55 (US 19) intersection
- From Marine Parkway to Stone Road (both sides)
- From Regency Park Boulevard to Jasmine Boulevard (right side)
- SR 52 and SR 55 (US 19) intersection

The existing bicycle accommodations along the SR 55 (US 19) corridor consist of an outside 5-ft paved shoulder. These undesignated bicycle lanes are provided in the following locations:

- From Alternate US 19 to Marine Parkway (both sides)
- From Stone Road to County Line Road (both sides)

4.1.4 Right-of-Way

The existing ROW for SR 55 (US 19) within the study limits ranges from a minimum of 150 ft to a maximum of 252 ft. **Table 4-1** contains details of existing ROW.

Table 4-1 Existing Right-of-Way Data

West Side of Baseline Survey			East Side of Baseline Survey		
Station to Station		Width	Station to Station		Width
2010+55.5	2240+11.61	107	2010+55.5	2167+47.42	100
2240+11.61	2245+00.00	103	2167+47.42	2171+85.27	110
2245+00.00	2249+00.00	87	2171+85.27	2194+99.82	91
2249+00.00	2353+01.47	81	2194+99.82	2256+75.52	101
2353+01.47	2361+00.00	65	2256+75.52	2295+32.88	83
2361+00.00	2367+71.43	81	2295+32.88	2299+32.26	96
2367+71.43	2371+34.78	100	2299+32.26	2303+31.61	94
2371+34.78	2440+40.83	76	2303+31.61	2328+80.46	90
2440+40.83	2445+97.52	87	2328+80.46	2349+98.71	75
2445+97.52	2611+70.44	103	2349+98.71	2357+01.55	83
2611+70.44	2613+75.57	84	2357+01.55	2372+83.48	94
2613+75.57	2617+25.00	100	2372+83.48	2374+91.68	88
2617+25.00	2702+17.45	115	2374+91.68	2440+98.93	75
2702+17.45	2724+39.08	129	2440+98.93	2444+95.14	85
2724+39.08	2739+00.00	89	2444+95.14	2610+09.66	103
2739+00.00	2744+97.79	113	2610+09.66	2617+20.71	109
2744+97.79	3005+00.00	125	2617+20.71	2645+99.28	123
3005+00.00	3076+30.49	138	2645+99.28	2700+01.20	133
			2700+01.20	2715+00.52	120
			2715+00.52	2740+00.00	113
			2740+00.00	2744+74.83	94
			2744+74.83	2796+17.21	109
			2796+17.21	2798+48.99	75
			2798+48.99	2819+43.08	109
			2819+43.08	2823+80.12	74
			2823+80.12	2860+04.04	109
			2860+04.04	2865+55.55	74
			2865+55.55	2867+40.53	119
			2867+40.53	2877+32.94	109
			2877+32.94	2879+73.26	74
			2879+73.26	2882+11.75	109
			2882+11.75	2884+50.95	75
			2884+50.95	2914+18.83	109
			2914+18.83	2918+78.74	76
			2918+78.74	3078+11.01	109

4.1.5 Horizontal Alignment

The existing horizontal alignment was obtained from survey data. SR 55 (US 19) contains ten (10) curves and **Table 4-2** summarizes the existing horizontal alignment characteristics.

Table 4-2
Existing Horizontal Alignment Characteristics Within the Study Limits

Curve Number	Degree of Deflection	Radius
1	1° 16' 12.14" (RT)	34834.48 ft
2	4° 40' 03.05" (RT)	5729.58 ft
3	4° 38' 56.78" (LT)	5729.58 ft
4	22° 38' 53.13" (RT)	7571.44 ft
5	23° 59' 09.91" (LT)	3819.72 ft
6	34° 38' 48.24" (RT)	2864.79 ft
7	6° 02' 04.15" (LT)	11459.14 ft
8	28° 16' 25.91" (LT)	5729.58 ft
9	39° 07' 26.20" (RT)	5729.58 ft
10	16° 19' 23.56" (LT)	5729.58 ft

Source: GEOPAK horizontal alignment output file provided by survey

4.1.6 Vertical Alignment

The existing vertical alignment was obtained from Southwest Florida Water Management District (SWFWMD) contour maps. The elevations along the roadway centerline range from a low point of less than 5.0 ft above sea level in the area north of Trouble Creek Road and south of Embassy Road, to a high point of more than 30.0 ft above sea level around the SR 54 intersection. The profile grade primarily consists of tangent sections with sag and crest vertical curves.

4.1.7 Drainage

The project area is located within the Coastal Rivers drainage basin, which outfalls into the Gulf of Mexico. In the rural segments, roadway runoff is collected in a conveyance system that includes roadside ditches, side drains and storm sewer systems. In the urban segment, runoff is collected and conveyed away from the project by closed storm sewer systems.

Review of the Florida Department of Transportation (FDOT) construction plans and straight line diagrams indicates there are 39 existing cross drains within the project study limits. The cross drain locations and sizes are summarized in **Table 4-3**.

**Table 4-3
Existing Cross Drains**

Station	Size (Pipe Diameter or Dimension of Box Culvert)
2012+00	1 - 18"
2020+40	2 - 24"
2035+00	1 - 19" x 30" Box Culvert
2044+40	1 - 36"
2081+30	2 - 36"
2098+00	1 - 36"
2108+50	1 - 9' x 4' Box Culvert
2150+20	1 - 30"
2169+70	1 - 24"
2183+00	1 - 24"
2207+00	1 - 24"
2222+00	2 - 24"/1 - 36"
2222+50	1 - 60"
2240+80	2 - 30"
2262+50	1 - 30"
2316+00	1 - 42"
2403+30	2 - 36"
2415+00	1 - 18"
2433+00	1 - 10' x 4' Box Culvert
2444+20	2 - 36"
2471+00	2 - 7' x 4' Box Culvert
2497+30	2 - 42"
2527+00	2 - 7' x 6'/1 - 9' x 6' Box Culvert
2544+00	1 - 36"
2574+00	1 - 48"
2630+00	2 - 30"
2643+80	3 - 10' x 5' Box Culvert
2692+10	2 - 36"
2703+50	2 - 36"
2767+50	2 - 30"
2805+30	1 - 24"
2843+50	1 - 24"
2888+50	2 - 30"
2945+00	1 - 36"
2961+80	1 - 30"
2970+00	1 - 6' x 3' Box Culvert
2978+50	1 - 18"
3007+50	1 - 30"
3041+00	1 - 36"

FDOT District 7 (Brooksville Maintenance) was contacted to determine the history of flooding problems within the project limits. The most common issues are ponding of water at driveway turnouts, cross streets, and the ROW line. FDOT believes that these ponding issues are related to the reduced ditch capacity and alterations to the historic drainage patterns due to recent roadway

and sidewalk improvement projects. These issues have been addressed as they were reported. Other known problem areas include:

- Flooding of the northbound (NB) right-turn lane (approximately ½ of the lane) before Continental Drive
- Flooding at the Alternate US 19 intersection, which is slow to drain off
- Flooding southbound (SB) at the Darlington Road intersection
- Flooding of the outside NB through lane near Washington Street
- Flooding of the two outside SB through lanes just south of the Hernando/Pasco County Line

After a large rain event, significant maintenance activities were conducted to correct the flooding issue just south of the Hernando/Pasco County line. A similar rain event has not occurred since the maintenance activities to determine if further action is required.

A *Pond Siting Report*² was prepared for this PD&E study. This section summarizes the finding presented in that document.

This project lies within the jurisdiction of the SWFWMD and will require an Environmental Resource Permit (ERP) for the stormwater management systems. The systems must be designed to provide the required water quality treatment and peak discharge attenuation. FDOT design and construction guidelines for stormwater management facilities must also be met.

Water quality treatment will be required for the first inch of runoff from the contributing area for wet detention, or for the directly connected impervious area for widening of existing roadways. Water quantity requirements shall comply with both the SWFWMD peak discharge criteria and Chapters 14-86 of the *Florida Administrative Code of the Department of Transportation*³. Both criteria require the post-development peak discharge rates to be equal to or less than pre-development rates. Compensation storage will be provided for encroachments to the local 100-year floodplain if required by SWFWMD.

As part of this study, a *Drainage Technical Memorandum*⁴ was prepared to identify areas where stormwater management areas would be required for the proposed improvements. As noted previously, during the early phases of this study, Continuous Right-Turn Lanes (CRTL) were evaluated and this Memorandum evaluated areas where it appeared feasible to provide stormwater management areas within existing FDOT ROW. Options that were investigated

included linear ponds located adjacent to the roadway, modification of existing FDOT stormwater management facilities located within the project limits, and new pond sites located within FDOT owned parcels. All of these options were considered based on expected adherence to SWFWMD regulations. Results of the drainage evaluation were considered in the Memorandum, along with preliminary cost estimates and traffic analysis, to divide the CRTL locations into three categories. The categories include: recommended right turn lane location, feasible location but not recommended and right turn lane not feasible.

Preliminary pond ROW requirements were determined to account for the increase in stormwater runoff due to the proposed roadway improvements. These improvements include the CRTLs that were categorized as “not feasible” and the proposed interchange locations. Pond ROW requirements were also estimated for segments that were deemed “feasible but not recommended” in the case that FDOT does not want to use linear ponds.

The ponds were analyzed as wet detention systems and were sized to accommodate the estimated treatment and attenuation volumes for each basin. Attenuation volumes were calculated using post-development minus pre-development runoff volumes for the 100-year/24-hour storm event. Based on existing topography within the project limits, both the maximum treatment depth and attenuation depth were assumed to be one ft. A 20-ft maintenance berm was included in the pond areas. Estimated storage volumes and pond sizes for each basin are summarized in **Table 4-4**

**Table 4-4
Pond Area Summary**

Segment No.	Basin No.	Basin Area (ac)	Est. Treatment Vol (ac-ft)	Est. Attenuation Vol (ac-ft)	Est. Pond Size (ac)
1	1	11.0	0.6	0.9	1.5
	2	19.0	1.0	1.0	1.6
	3	39.7	2.1	1.6	3.1
	4	16.4	1.0	2.9	4.1
	5	6.1	0.5	1.0	1.6
	6	13.7	0.9	1.6	2.4
1 & 2	7	19.8	1.0	0.5	1.7
2	8	14.2	0.8	2.1	3.1
	9	5.6	0.3	1.1	1.8
	10	10.5	0.6	2.2	3.3
	11	11.6	0.7	2.4	3.5
	12	3.9	0.2	0.5	0.9
	13	8.8	0.5	0.9	1.5
	14	10.1	0.6	2.3	3.3
	15	16.3	1.0	3.4	4.8

**Table 4-4 (Cont.)
Pond Area Summary**

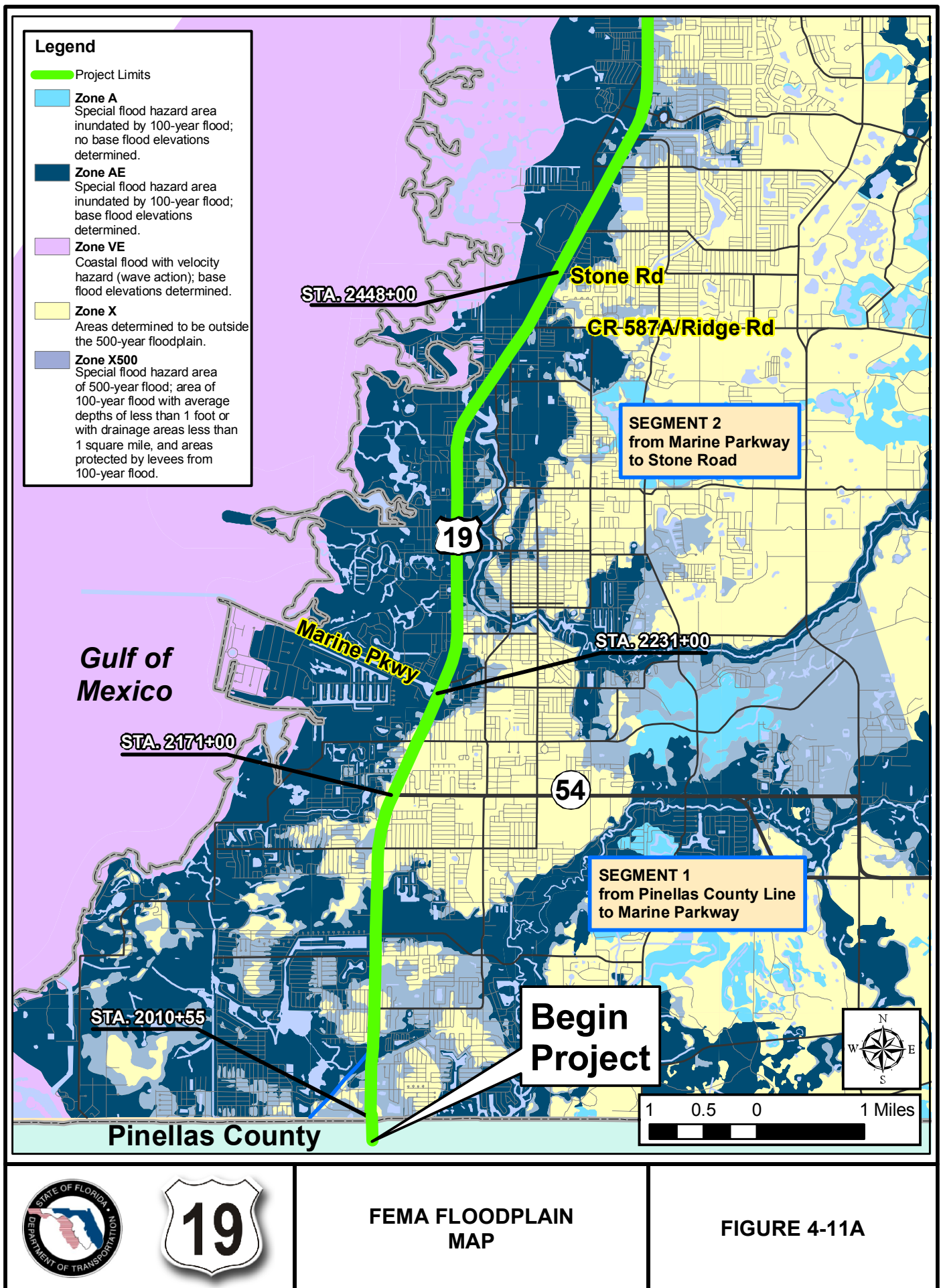
Segment No.	Basin No.	Basin Area (ac)	Est. Treatment Vol (ac-ft)	Est. Attenuation Vol (ac-ft)	Est. Pond Size (ac)
	16	7.9	0.4	0.6	1.1
	17	5.2	0.3	0.8	1.4
	18	11.1	0.7	2.0	3.0
	19	11.2	0.8	3.1	4.4
	20	12.1	0.9	3.1	4.5
	21	8.7	0.9	1.2	1.9
2 & 3	22	12.1	1.0	0.5	1.6
3	23	13.8	0.9	0.3	1.6
	24	23.2	1.6	1.1	2.4
	25	15.0	1.1	0.3	1.8
	26	7.3	0.5	0.3	1.0
	27	27.3	1.9	2.6	3.7
3 & 4	28	33.6	2.9	2.9	4.2
4	29	26.8	1.2	1.6	2.4
	30	6.5	0.3	0.3	0.7
	31	30.0	1.3	1.4	2.1
	32	58.6	2.6	2.0	3.8
	32-1	10.7	0.5	0.3	0.9
	32-2	44.3	1.9	1.5	2.9
	32-3	17.1	0.8	0.8	1.4
	32-4	10.3	0.4	0.5	0.9
	32-5	13.5	0.6	1.4	2.3
	32-6	13.9	0.6	0.9	1.5
	32-7	31.9	1.7	6.2	8.3

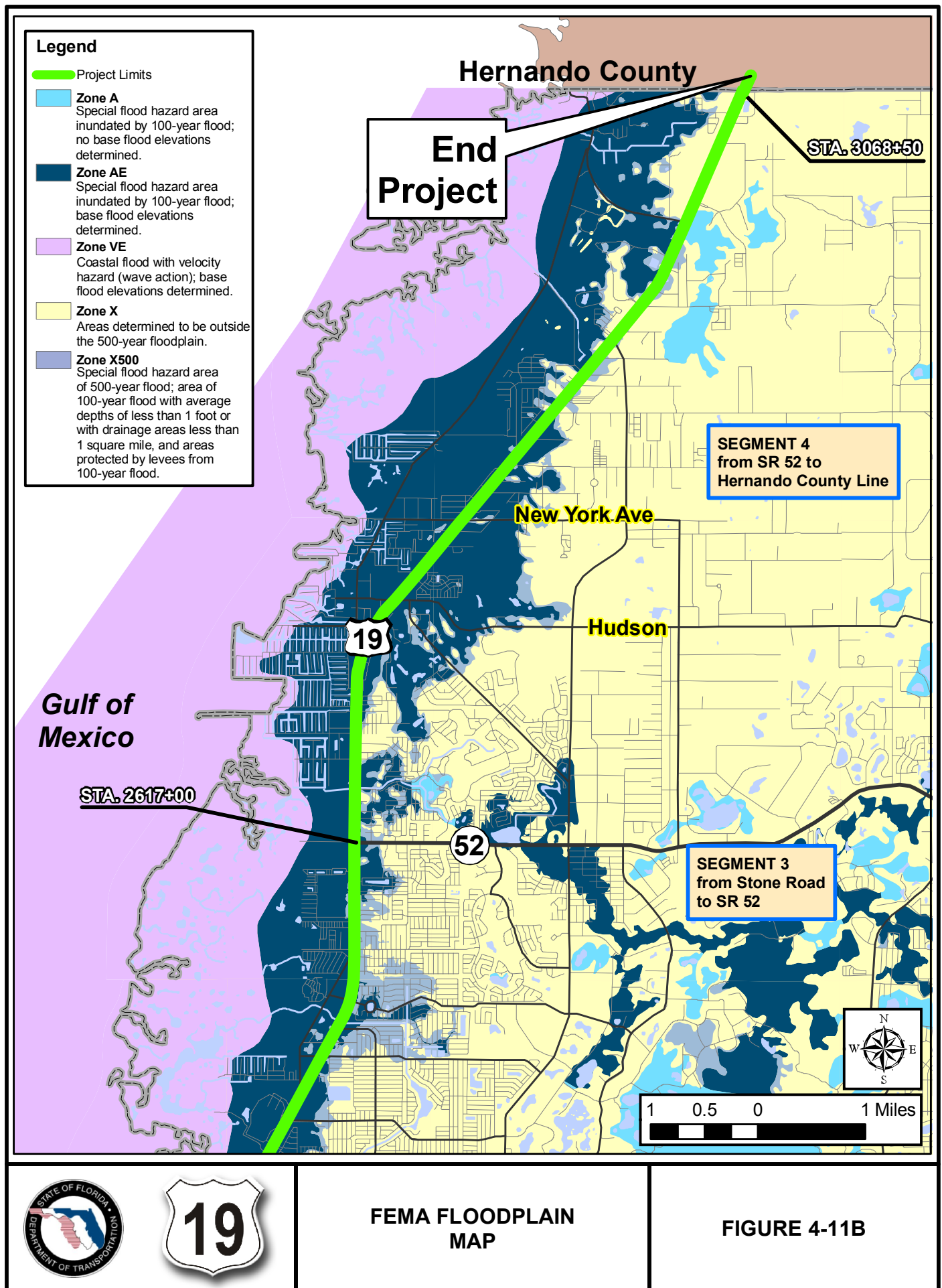
Notes: Pond area includes 20-ft berms plus 20% increase. Attenuation Depth (assumed) = 1 ft. Treatment Depth (assumed) = 1 ft.

Most of these pond locations are no longer required for the proposed project since the CRTLS concept is to be implemented as a separate project.

4.1.8 Floodplains

The project traverses existing 100-year floodplains defined by the Federal Emergency Management Agency (FEMA) as shown in **Figures 4-11A** and **4-11B**. Portions of the project area are within Zone A6, Zone A9, Zone A13 and Zone A14 (areas of 100-year flood; base flood elevations and flood hazard factors determined) based on FEMA Flood Insurance Rate Map (FIRM) Community Panels 120230 0361 C, 120230 0353 C, 120230 0351 C, 120232 0003 D, 120232 0001 D, 120234 0003 B, 120234 0004 B, 120234 0002 B, 120230 0187 C, 120230 0180 C, 120230 0185 D and 120230 0020 C. The base flood elevations as determined by FEMA vary from elevation 11 ft to 14 ft National Geodetic Vertical Datum (NGVD) and are due to tidal inundation. There are no regulatory floodways within the project limits.





4.1.9 Geotechnical Data

The soils associated within the Pasco County limits of the project can be categorized according to the U.S. Department of Agriculture Soil Conservation Service (SCS) *Soil Survey of Pasco County, Florida*.⁵ The soil survey summary maps indicate that there are nineteen (19) mapping units along the corridor.

In general, the major areas within the study area consist of the following soil types:

- **Urban Land (38)** - Urban land soil has been modified by activities associated with urban development. Urban facilities such as paved parking areas, streets, industrial buildings, houses, shopping centers and underground utilities have been constructed on 75 percent or more of the mapped area. In places not covered by urban facilities, such as isolated shopping centers, small business areas, and intersections of major primary roads, the soils generally have been altered so much that identification is not feasible.
- **Narcoossee Fine Sand (26)** - This soil is somewhat poorly draining and is on low knolls and ridges in the flatwoods where slopes are less than 2 percent. The surface layer is about 3 inches thick. The subsoil is fine sand about 9 inches thick. In most years, under natural conditions, the water table is at a depth of 2 to 3.5 ft for 4 to 6 months.
- **Tavares Sand (6)** – This soil is generally located on level to gently sloping knolls and ridges and is considered moderately well draining. The soil is sand to a depth of 80 inches or more. The surface layer is generally 3 inches thick. In most years, under natural conditions, the water table is at a depth of 40 to 60 inches for 6 to 12 months.
- **Adamsville Fine Sand (11)** – This soil is generally located on low broad flats that are less than 2 ft higher than the adjacent sloughs and is somewhat poorly draining. The surface layer is about 3 inches while the subsurface is approximately 5 inches thick. The underlying material to a depth of 80 inches or more is fine sand. In most years, under natural conditions, the water table is at a depth of 20 to 40 inches for 2 to 6 months.
- **Immokalee Fine Sand (17)** – This nearly level, poorly drained soil is in broad flatwood areas. Slopes are smooth to convex and range from 0 to 2 percent. Typically, the surface layer is about 4 inches thick while the subsurface layer reaches a depth of about 16 inches. The water table is at a depth of less than 10 inches for 2 months in most years and is between 10 and 40 inches for a period of more than 8 months each year.

All nineteen mapping units are referenced in **Table 4-5**.

Table 4-5
Summary of Pasco County USDA Soil Survey

USDA Soil Series	Seasonal High Groundwater Table		Soil Classifications		
	Depth Feet	Months	Depth Inches	Unified	AASHTO
Pasco County					
Urban Land (38)		-	-	-	-
Narcoosee Fine Sand (26)	2.0-3.5	June-Nov	0-75	SP-SM, SP, SM,	A-3, A-2-4,
Tavares Sand (6)	3.5-6.0	June-Dec	0-86	SP, SP-SM	A-3
Udalfic Arents-Urban Land Complex (31)	-	-	-	-	-
Aripeka Fine Sand (20)	1.5-2.5	July-Sept	0-26	SP-SM, SM, SM-SC, SC	A-3, A-2-4, A-2-6
Adamsville Fine Sand (11)	2.0-3.5	June-Nov	0-80	SP, SP-SM	A-3, A-2-4
Immokalee Fine Sand (17)	0-1.0	June-Nov	0-80	SP, SP-SM, SM	A-3, A-2-4
Quartzipsammments (24)	-	-	-	-	-
Jonesville Fine Sand (25)	>6.0	-	0-28	SP-SM, SM, SM-SC, SC	A-2-4, A-2-6
Chobee Soils, Frequently Flooded (39)	0.0-1.0	Jun-Feb	0-80	SP-SM, SM, SC, SM-SC	A-2-4, A-2-6, A-6, A-7, A-2-7
Tavares Urban Land Complex (15)	3.5-6.0	June-Dec	0-86	SP, SP-SM	A-3
Candler-Urban Land Complex (36)	>6.0	-	0-80	SP, SP-SM	A-3, A-2-4
EauGallie Fine Sand (35)	0.0-1.0	Jun-Oct	0-80	SP, SP-SM, SM, SM-SC, SC	A-3, A-2-4, A-2-6
Paola Fine Sand (19)	>6.0	-	0-80	SP	A-3
Paola-Urban Land Complex (37)	>6.0	-	-	SP	A-3
Pompano Fine Sand (34)	0.0-1.0	Jun-Nov	0-80	SP, SP-SM	A-3, A-2-4
Vero Variant Fine Sand (57)	0-1.0	Jun-Oct	0-45	SP-SM, SM, SM-SC, SC	A-3, A-2-4, A-2-6, A-6, A-4
Candler Fine Sand (13)	>6.0	-	0-82	SP, SP-SM, SM	A-3, A-2-4
Astatula Fine Sand (12)	>6.0	-	0-80	SP, SP-SM	A-3

4.1.10 Crash Data

4.1.10.1 Crash Analysis

Crash data for the project study limits was collected for the five most recent years (2000 to 2004) from FDOT District Seven. Data collected includes crash locations, number and type of crashes, number of fatalities and number of injuries.

As displayed in **Table 4-6**, the crash records indicate that over the period of five years studied, 4,260 crashes occurred (an average of 852 crashes per year). There were 125 fatalities and over

5,000 injuries for this five-year period. The average crash rate for the study area limits, crashes per million vehicle miles traveled (VMT) was 2.106; however, for the segment between the Pinellas County Line and SR 54 the average crash rate was 3.136.

Safety ratios were also computed in order to identify locations with safety concerns. Safety ratios above 1.000 indicate the corridor segment experience vehicle collisions above average and, therefore, traffic safety at these locations may need to be improved. The safety ratios for the five year period are summarized in **Table 4-6**

Table 4-6
SR 55 (US 19) Crash History Overview

Segment	2000	2001	2002	2003	2004	Total	Average
From south of Alternate US 19 to SR 54							
Fatal Crashes (Fatalities)	8 (8)	9 (9)	5 (5)	3 (3)	5 (5)	30 (30)	6 (6)
Injury Crashes (Injuries)	129 (284)	117 (274)	130 (220)	135 (263)	221 (436)	732 (1477)	146 (296)
Property Damage Only	45	49	52	57	143	346	69
Total Crashes	182	175	187	195	369	1108	222
AADT	59,500	66,300	63,800	66,500	64,000	-	64,000
Distance (miles)	3.03	3.03	3.03	3.03	3.03	-	3.03
VMT (million vehicle miles)	65.80	73.32	70.56	73.55	70.78	354.01	70.80
Crash Rate	2.766	2.387	2.650	2.651	5.213	-	3.136
Statewide Avg. Crash Rate	3.685	3.749	3.590	3.290	3.344	-	3.279
Critical Crash Rate	4.424	4.455	4.294	3.950	4.023	-	3.951
Safety Ratio	0.625	0.536	0.617	0.671	1.296	-	0.794
SR 54 to Main Street							
Fatal Crashes (Fatalities)	1 (1)	4 (4)	4 (4)	4 (4)	1 (1)	14 (14)	3 (3)
Injury Crashes (Injuries)	87 (149)	85 (119)	92 (139)	81 (140)	107 (185)	452 (732)	90 (146)
Property Damage Only	40	30	58	42	45	215	43
Total Crashes	128	119	154	127	153	681	136
AADT	62,600	65,600	66,500	68,000	65,600	-	65,700
Distance (miles)	2.41	2.41	2.41	2.41	2.41	-	2.41
VMT (million vehicle miles)	55.07	57.71	58.50	59.82	57.71	288.79	57.76
Crash Rate	2.324	2.062	2.633	2.123	2.651	-	2.353
Statewide Avg. Crash Rate	3.685	3.749	3.590	3.290	3.344	-	3.279
Critical Crash Rate	4.493	4.545	4.364	4.023	4.097	-	4.024
Safety Ratio	0.517	0.454	0.603	0.528	0.647	-	0.585
Main Street to Ridge Road							
Fatal Crashes (Fatalities)	4 (6)	8 (8)	2 (2)	2 (2)	4 (4)	20 (22)	4 (4)

Table 4-6 (Cont.)
SR 55 (US 19) Crash History Overview

Segment	2000	2001	2002	2003	2004	Total	Average
Injury Crashes (Injuries)	71 (125)	41 (76)	59 (90)	65 (101)	69 (105)	305 (497)	61 (99)
Property Damage Only	51	56	41	63	42	253	51
Total Crashes	126	105	102	130	115	578	116
AADT	64,000	68,500	69,500	71,500	64,500	-	67,600
Distance (miles)	2.28	2.28	2.28	2.28	2.28	-	2.28
VMT (million vehicle miles)	53.26	57.01	57.84	59.50	53.68	281.28	56.26
Crash Rate	2.366	1.842	1.764	2.185	2.142	-	2.062
Statewide Avg. Crash Rate	3.685	3.749	3.590	3.290	3.344	-	3.279
Critical Crash Rate	4.507	4.550	4.368	4.025	4.125	-	4.034
Safety Ratio	0.525	0.405	0.404	0.543	0.519	-	0.511
Ridge Road to SR 52							
Fatal Crashes (Fatalities)	1 (1)	5 (6)	5 (5)	2 (2)	8 (8)	21 (22)	4 (4)
Injury Crashes (Injuries)	141 (283)	121 (231)	148 (290)	119 (218)	202 (396)	731 (1418)	146 (284)
Property Damage Only	46	57	67	62	124	356	71
Total Crashes	188	183	220	183	334	1108	222
AADT	54,500	63,500	63,000	61,000	62,500	-	60,900
Distance (miles)	3.76	3.76	3.76	3.76	3.76	-	3.76
VMT (million vehicle miles)	74.80	87.15	86.46	83.72	85.78	417.90	83.58
Crash Rate	2.514	2.100	2.544	2.186	3.894	-	2.656
Statewide Avg. Crash Rate	3.685	3.749	3.590	3.290	3.344	-	3.279
Critical Crash Rate	4.378	4.396	4.225	3.909	3.960	-	3.897
Safety Ratio	0.574	0.478	0.602	0.559	0.983	-	0.682
SR 52 to north of County Line Road							
Fatal Crashes (Fatalities)	8 (9)	9 (12)	7 (7)	4 (4)	4 (5)	32 (37)	6 (7)
Injury Crashes (Injuries)	110 (209)	87 (184)	86 (146)	92 (164)	135 (239)	510 (942)	102 (188)
Property Damage Only	43	52	33	35	84	247	49
Total Crashes	161	148	126	131	219	785	157
AADT	45,700	48,000	43,000	45,800	44,800	-	45,500
Distance (miles)	8.21	8.21	8.21	8.21	8.21	-	8.21
VMT (million vehicle miles)	136.95	143.84	128.86	137.25	134.25	681.14	136.23
Crash Rate	1.176	1.029	0.978	0.954	1.631	-	1.151
Statewide Avg. Crash Rate	3.685	3.749	3.590	3.290	3.344	-	3.279
Critical Crash Rate	4.196	4.251	4.110	3.772	3.835	-	3.762
Safety Ratio	0.280	0.242	0.238	0.253	0.425	-	0.306
Total – Within Study Limits							
Fatal Crashes (Fatalities)	22 (25)	35 (39)	23 (23)	15 (15)	22 (23)	117 (125)	23 (25)
Injury Crashes (Injuries)	538 (1050)	451 (884)	515 (885)	492 (886)	734 (1361)	2730 (5066)	546 (1013)
Property Damage Only	225	244	251	259	438	1417	283

Table 4-6 (Cont.)
SR 55 (US 19) Crash History Overview

Segment	2000	2001	2002	2003	2004	Total	Average
Total Crashes	785	730	789	766	1190	4260	852
Distance (miles)	19.67	19.67	19.67	19.67	19.67	-	19.67
VMT (million vehicle miles)	385.87	419.02	402.21	413.83	402.19	2023.12	404.62
Crash Rate	1.908	1.629	1.796	1.704	2.749	-	2.106
Statewide Avg. Crash Rate	3.685	3.749	3.590	3.290	3.344	-	3.279
Critical Crash Rate	3.988	4.042	3.883	3.567	3.627	-	3.558
Safety Ratio	0.478	0.403	0.463	0.478	0.758	-	0.592

Source: FDOT District Seven, 2000–2004 Crash Data

The types of crashes are summarized in **Table 4-7**. The analysis indicates that the highest frequency crashes were rear-end and angle crashes. This reflects the fact that as SR 55 (US 19) becomes more congested, the excessive driveways and median openings that do not meet the access management standards create speed differentials within traffic flows leading to a greater propensity for rear-end crashes. The angle crashes represent increased propensity for drivers to run red lights due to increased levels of traffic congestion and associated delays. Therefore, adequate access management and Transportation System Management (TSM) strategies potentially could help reduce the number of crashes.

Table 4-7
SR 55 (US 19) Crash Type

Segment	2000	2001	2002	2003	2004	Total	%	Average
From south of Alternate US 19 to SR 54								
Rear-end	73	70	80	81	181	485	43.8	97
Head-on	3	0	1	1	2	7	0.6	1
Angle	49	34	45	53	107	288	26.0	58
Left-turn	16	28	16	11	16	87	7.8	17
Right-turn	7	4	2	2	6	21	1.9	4
Sideswipe	11	10	14	5	21	61	5.5	12
Collision with Pedestrian	10	11	6	10	7	44	4.0	9
Collision with Bicycle	5	4	4	3	2	18	1.6	4
Other	8	14	19	29	27	97	8.7	19
Total	182	175	187	195	369	1108	100	222
SR 54 to Main Street								
Rear-end	70	64	81	72	80	367	53.9	73
Head-on	3	0	1	2	0	6	0.9	1
Angle	26	24	20	20	23	113	16.6	23
Left-turn	7	2	8	2	15	34	5.0	7
Right-turn	2	1	2	0	2	7	1.0	1
Sideswipe	9	8	6	8	11	42	6.2	8
Collision with Pedestrian	2	8	9	6	6	31	4.5	6
Collision with Bicycle	4	4	2	1	1	12	1.8	2
Other	5	8	25	16	15	69	10.1	14
Total	128	119	154	127	153	681	100	136
Main Street to Ridge Road								
Rear-end	57	50	41	57	51	256	44.3	51
Head-on	1	1	0	2	1	5	0.9	1
Angle	26	14	17	23	21	101	17.5	20
Left-turn	4	8	7	7	5	31	5.4	6
Right-turn	2	1	0	5	5	13	2.2	3
Sideswipe	11	11	10	12	4	48	8.3	10
Collision with Pedestrian	5	7	9	6	10	37	6.4	7
Collision with Bicycle	5	3	1	0	4	13	2.2	3
Other	15	10	17	18	14	74	12.8	15
Total	126	105	102	130	115	578	100	116
Ridge Road to SR 52								
Rear-end	94	102	124	104	179	603	54.4	121
Head-on	2	1	4	1	2	10	0.9	2
Angle	29	30	39	32	66	196	17.7	39
Left-turn	23	16	8	9	27	83	7.5	17
Right-turn	4	4	3	1	5	17	1.5	3
Sideswipe	11	11	15	10	17	64	5.8	13
Collision with Pedestrian	3	5	7	10	13	38	3.4	8
Collision with Bicycle	7	2	2	0	3	14	1.3	3
Other	15	12	18	16	22	83	7.5	17

**Table 4-7 (Cont.)
SR 55 (US 19) Crash Type**

Segment	2000	2001	2002	2003	2004	Total	%	Average
Total	188	183	220	183	334	1108	100	222
SR 52 to north of County Line Road								
Rear-end	47	59	54	49	96	305	38.8	61
Head-on	3	2	1	2	3	11	1.4	2
Angle	47	31	20	26	49	173	22.0	35
Left-turn	25	19	14	13	12	83	10.6	17
Right-turn	1	1	4	2	3	11	1.4	2
Sideswipe	8	8	5	9	21	51	6.5	10
Collision with Pedestrian	5	7	10	5	6	33	4.2	7
Collision with Bicycle	3	0	2	3	4	12	1.5	2
Other	22	21	16	22	25	106	13.5	21
Total	161	148	126	131	219	785	100	157
Total – Within Study Limits								
Rear-end	341	345	380	363	587	2016	47.3	403
Head-on	12	4	7	8	8	39	0.9	8
Angle	177	133	141	154	266	871	20.4	174
Left-turn	75	73	53	42	75	318	7.5	64
Right-turn	16	11	11	10	21	69	1.6	14
Sideswipe	50	48	50	44	74	266	6.2	53
Collision with Pedestrian	25	38	41	37	42	183	4.3	37
Collision with Bicycle	24	13	11	7	14	69	1.6	14
Other	65	65	95	101	103	429	10.1	86
Total	785	730	789	766	1190	4260	100	852

Source: FDOT District Seven, 2000–2004 Crash Data

Table 4-8 shows crashes that occur in close proximity (within 250 ft) to the signalized intersections within the study limits. Based on the last five year crash average, the following ten ranked signalized intersections had the highest spot crash rate (crashes per million entering vehicles) within the study limits:

- | | |
|-----------------------|-----------------------|
| 1. Moog Road | 6. Main Street |
| 2. SR 52 | 7. Hudson Avenue |
| 3. Ridge Road | 8. Flora Avenue |
| 4. Mile Stretch Drive | 9. Jasmine Boulevard |
| 5. Trouble Creek Road | 10. Embassy Boulevard |

Table 4-8
SR 55 (US 19) Intersection Crashes

Segment	Crashes on SR 55 (US 19) within 250 Feet of the Intersection								
	2000	2001	2002	2003	2004	Average	AADT	Spot Crash Rate	Rank
Flora Avenue	20	14	13	16	25	18	62,750	0.786	8
Alt. 19	16	19	17	13	28	19	72,150	0.721	11
Mile Stretch Drive	13	19	23	17	51	25	74,700	0.917	4
Darlington Road	11	13	15	20	30	18	71,450	0.690	14
Sunray Drive	14	17	14	21	28	19	72,250	0.720	12
Moog Road	18	28	25	26	59	31	71,200	1.193	1
SR 54	10	12	13	10	21	13	67,350	0.529	23
Trouble Creek Road	26	14	21	26	21	22	66,050	0.913	5
Floramar Terrace	13	10	13	11	11	12	67,700	0.486	24
Marine Parkway	14	15	19	10	26	17	68,050	0.684	15
Gulf Drive	11	8	12	10	7	10	67,600	0.405	25
Cross Bayou Boulevard	9	7	10	11	6	9	66,250	0.372	26
Main Street	17	24	23	18	12	19	64,250	0.810	6
Grand Boulevard	12	17	10	16	14	14	61,600	0.623	18
Ridge Road	26	26	25	30	24	26	63,000	1.131	3
Holiday Hills Boulevard	8	9	13	7	23	12	61,550	0.534	22
Embassy Boulevard	10	8	17	11	32	16	59,000	0.743	10
Scenic Drive	5	14	5	13	22	12	59,200	0.555	20
Fox Hollow Drive	9	8	18	11	15	12	59,950	0.548	21
Regency Park Drive	7	9	18	10	23	13	62,350	0.571	19
Jasmine Boulevard	14	12	18	18	26	18	63,350	0.778	9
Ranch Road	10	15	17	11	21	15	62,650	0.656	16
SR 52	21	23	21	27	31	25	59,250	1.156	2
Beacon Woods Drive	14	10	11	9	21	13	50,450	0.706	13
Hudson Avenue	11	15	11	12	13	12	41,000	0.802	7
New York Avenue	5	18	5	4	13	9	38,850	0.635	17
Denton Avenue	4	2	2	5	2	3	35,250	0.233	29
Little Road	0	0	0	7	15	4	38,250	0.287	27
County Line Road (south leg only)	2	4	4	3	7	4	39,400	0.278	28

Source: FDOT District Seven, 2000–2004 Crash Data

4.1.11 Intersection and Signalization

There are 29 signalized intersections along the project corridor which are summarized in **Table 4.9**.

Table 4-9
SR 55 (US 19) Intersection Signalization

Signalized Intersection	Signalized Intersection	Signalized Intersection
Flora Avenue	Gulf Drive	Jasmine Boulevard
Alternate US 19	Cross Bayou Blvd.	Ranch Road
Mile Stretch Drive	Main Street	SR 52
Darlington Road	Grand Boulevard	Beacon Woods Drive
Sunray Drive	Ridge Road	Hudson Avenue
Moog Road	Holiday Hills Blvd.	New York Avenue
SR 54	Embassy Boulevard	Denton Avenue
Trouble Creek Road	Scenic Drive	Little Road
Floramar Terrace	Fox Hollow Drive	County Line Road
Marine Parkway	Regency Park Boulevard	

The existing lane geometry of each signalized intersection along the project corridor is illustrated schematically in the *Traffic Report Technical Memorandum*¹.

4.1.12 Railroad Crossings

There are no railroad crossings along the SR 55 (US 19) corridor within the study limits.

4.1.13 Transit

Existing transit services provided by Pasco County Public Transportation (PCPT) consists of fixed bus routes within the study limits. The majority of bus routes throughout Pasco County currently run with 60 minute headways. However, the headway for the route along SR 55 (US 19) has recently been reduced to 30 minutes. Hours of operation are Monday through Friday from 5:30 AM to 8:25 PM. There are four buses currently servicing this route. Route connections consist of 14A, 14B, 16, 18, 23, 25, 27 and additional transit services provided by the Pinellas Suncoast Transit Authority (PSTA). Major destinations serviced by this route are Bayonet Point Plaza, Gulf View Square Mall, Tarpon Mall, Southgate Plaza, Holiday Mall, Super Wal-Mart, Hollywood 18 Theaters, Embassy Crossing, Universal Plaza, Papas Plaza, U.S.A. Flea Market, The Piers and the Social Security Administration.

4.1.14 Lighting

Highway lighting is currently provided along both sides of SR 55 (US 19) within the study limits from Alternate US 19 to just north of Denton Avenue. The lighting consists of 50 ft aluminum

poles with Mongoose fixtures in a staggered configuration. The exception to this design is from the Pithlachascotee River to Leo Kid Avenue. This segment has cobra head fixtures on 8 to 12 ft arms mounted on concrete poles along the east side, and concrete power poles along the west side spaced about 30 ft in a staggered configuration. From Denton Avenue north to the end of the study limits, lighting does not exist.

4.1.15 Utilities

In order to evaluate potential surface and subsurface utility conflicts associated with the proposed project, information was obtained pertaining to the type, location and ownership of the existing utilities within the project area. The following utility organizations were contacted via letter to request they identify the type and location of any existing or proposed utilities within the project corridor:

Aloha Utilities, Inc.	Hudson Water Works, Inc.
Clearwater Gas Systems	Level 3 Communications LLC
Colonial Manor Utility	C/O New Port Richey Public Works
Holiday Utility - Westwood	Pasco County Traffic Operations Division
Florida Gas Trans – Safety Harbor	Pasco County Utilities
Progress Energy	TECO: Peoples Gas
Florida Power Corporation	Pinellas County Utilities
Bright House Networks	City of Port Richey
Aqua Utilities Florida, Inc.	Bellsouth – AT&T FL
Verizon Florida, Inc.	Utilities, Inc. of Florida
Knology Broadband of Florida, Inc.	Withlacoochee River Electric Cooperative
Hudson Utilities, Inc.	

4.1.16 Pavement Conditions

A flexible pavement condition survey is typically conducted by FDOT for certain sections of roadway. The pavement program provides ratings based on cracking, rideability and rutting conditions. A scale of one to ten is used in rating the pavement condition of a roadway, with a rating of six or less considered deficient. Ratings for SR 55 (US 19) are provided in **Table 4-10**.

**Table 4-10
Pavement Condition Rating**

Location	Milepost	Roadway Side	Cracking Rating	Ride Rating	Rutting Rating
SR 55 (US 19)	0.000 - 13.810	RIGHT	9.0	7.9	9.0
	13.810 - 19.673	RIGHT	8.1	8.1	9.0
	0.000 - 13.810	LEFT	8.0	8.0	9.0
	13.810 - 19.673	LEFT	9.0	7.9	8.0

4.2 EXISTING BRIDGES

The study limits include two existing bridges. These bridges are shown in **Table 4-11**.

**Table 4-11
Existing Bridges**

Bridge Name	Bridge Number	Mile Post
SR 55 (US 19) over Pithlachascotee River	140005	6.737
SR 55 (US 19) over Bayonet Point Drain	140029	11.990

4.2.1 Type of Structure

SR 55 (US 19) over Pithlachascotee River

This structure carries SR 55 (US 19) over Pithlachascotee River and consists of six simple spans. The vertical clearance above the high water level of Pithlachascotee River is approximately 11.75 ft. The bridge has a total length of 269 ft and a 97.5 ft clear roadway width. The superstructure consists of AASHTO beams with a concrete deck.

SR 55 (US 19) over Bayonet Point Drain

The structure carrying SR 55 (US 19) over Bayonet Point Drain is a concrete box culvert. It consists of three cells. The bridge culvert has a total length of 31 ft.

4.2.2 Current Conditions and Year of Construction

Typically the bridge inspection reports are obtained from the FDOT Bridge Management System to evaluate the bridge sufficiency and the year of construction. The bridge inspection reports were not available for this study. Therefore, the following information was taken from the National Bridge Inventory provided by the Federal Highway Administration (FHWA).

The following bridges were evaluated using a sufficiency rating which is indicative of bridge sufficiency to remain in service. The result of this method is a percentage in which 100% would represent an entirely sufficient bridge and zero would represent an entirely insufficient or deficient bridge. The bridge rating summary is found in **Table 4-12**.

Table 4-12
Bridge Rating Summary

Bridge Name	Bridge Number	Sufficiency Rating
SR 55 (US 19) over Pithlachascotee River	140005	93.5
SR 55 (US 19) over Bayonet Point Drain	140029	70.0

SR 55 (US 19) over Pithlachascotee River

The initial construction of SR 55 (US 19) over Pithlachascotee River was in 1970 and has since been widened. The inspection report obtained from the FDOT Bridge Management System, dated February 2005, indicates that this structure has a sufficiency rating of 93.5 and an inventory rating of 50.0 tons.

SR 55 (US 19) over Bayonet Point Drain

The construction of SR 55 (US 19) over Bayonet Point Drain was completed in 1970. The inspection report obtained from the FDOT Bridge Management System, dated February 2005, indicates that this structure has a sufficiency rating of 70.0 and an inventory rating of 60.0 tons.

4.2.3 Channel Data

A United States Coast Guard permit will not be required since the project will not involve any improvements or modifications to the structure over the Pithlachascotee River.

4.2.4 Bridge Openings

The structure over the Pithlachascotee River is a fixed span with no openings. The navigation horizontal clearance of the bridge is 47.5 ft wide.

4.2.5 Ship Impact Data

Ship impact data is not required for this report since the project will not involve any improvements or modifications to the structure over the Pithlachascotee River.

4.3 ENVIRONMENTAL CHARACTERISTICS

4.3.1 Land Use Data

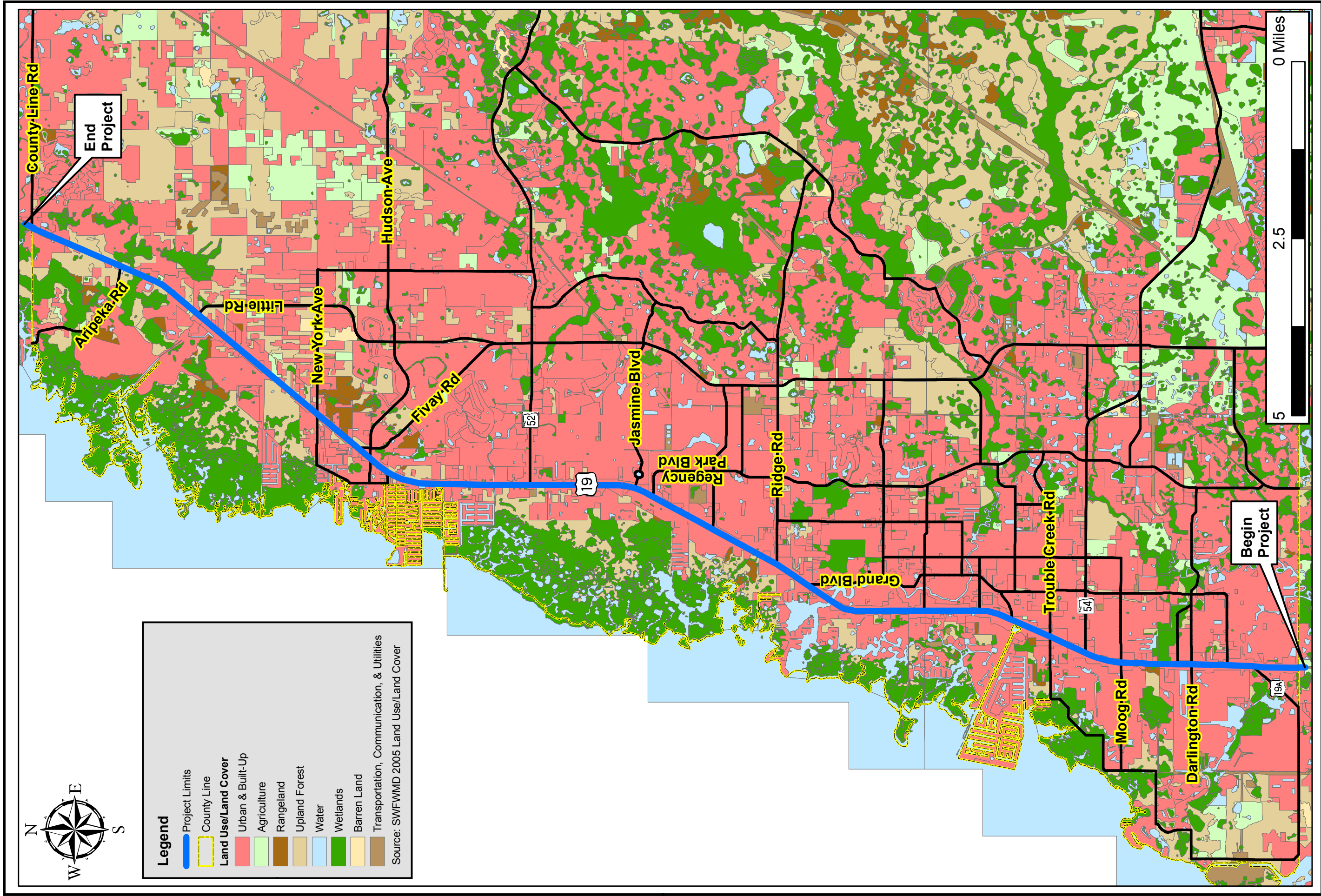
4.3.1.1 Existing Land Use

SR 55 (US 19) study limits bisect the City of New Port Richey and unincorporated areas in Pasco County. As noted on **Figure 4-12** the majority of the land within the study limits is classified as urban development. A field review of the study corridor revealed that the existing land use consists of a significant amount of strip commercial with intermittent office development located immediately adjacent to the study corridor. There are a variety of commercial/retail establishments, including restaurants, automobile dealerships, shopping centers and various small businesses. Just east and west of the strip commercial development are residential neighborhoods which assist in sustaining the adjacent retail and office establishments.

4.3.1.2 Future Land Use

Local government comprehensive plans are developed to provide guidance in planning for the future. The adopted future land uses for the project corridor are shown in **Figure 4-13**. The future land use map is consistent with the existing land use patterns that are present today. **Figure 4-13** displays the future land use category of retail/office/residential located within the study limits. Also, located just east and west of the retail/office/residential land use, medium density residential land uses (i.e., six to nine dwelling units per gross acres) are delineated on the future land use map.

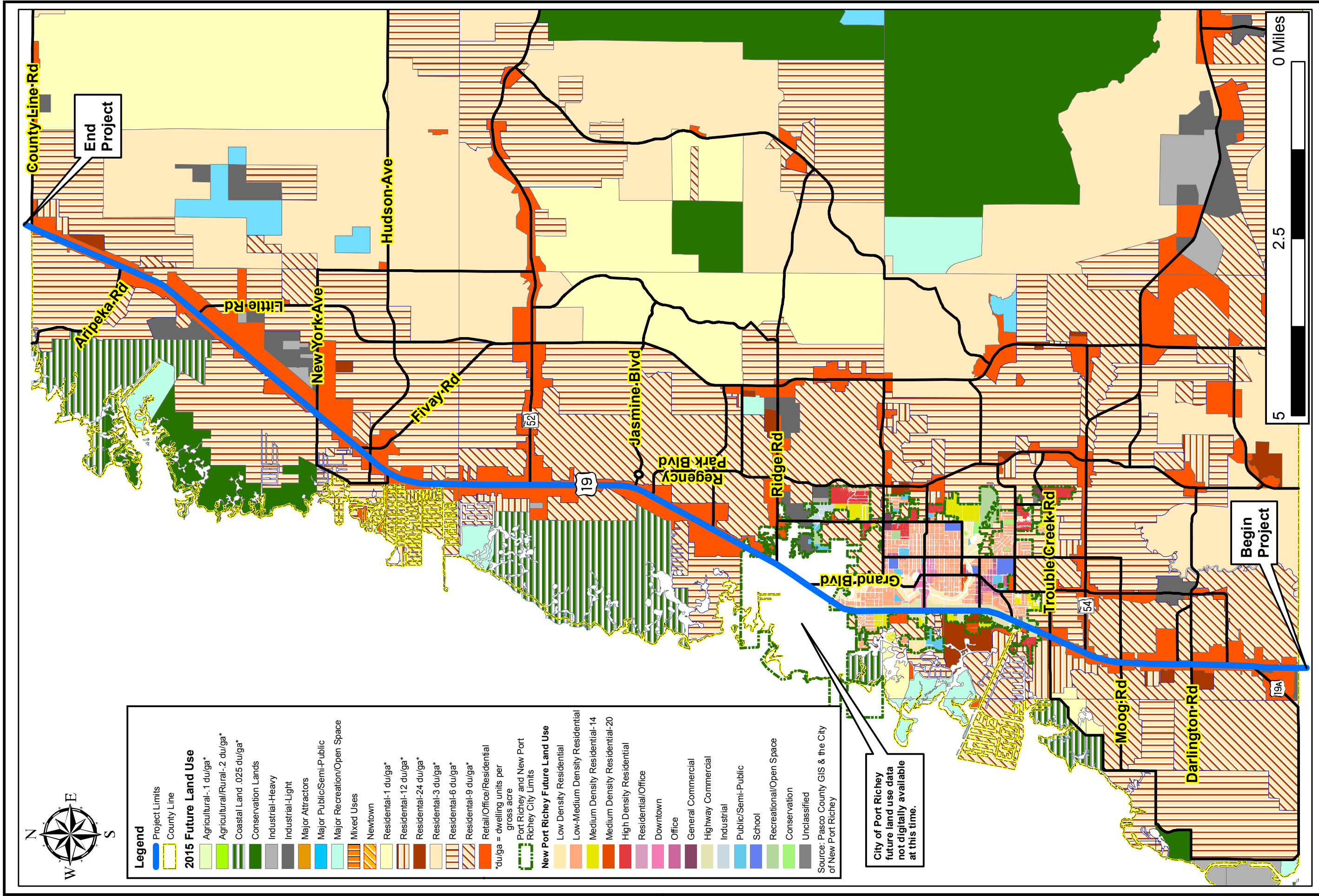
The Pasco County Comprehensive Plan, Future Land Use Element identifies the study limits area as a key economic corridor. Due to its economic significance, the land surrounding the entire lengths of SR 55 (US 19) was identified as an Urban Infill/Redevelopment Target Area in the Pasco County Comprehensive Plan. This designation provides an opportunity for Pasco County to protect and also enhance the economic significance through the means of developing an urban infill and redevelopment plan. The Comprehensive Plan further indicates that Pasco County shall develop an urban infill and redevelopment plan (pursuant to Section 163.2517, Florida Statutes) for the SR 55 (US 19) target area. Once the plan is initiated the objective will be to work with the citizens and key decision makers to develop strategies that protect and enhance the dynamics of the land use surrounding the roadway corridor. There are a number of strategies that would be focused on during the development of the urban infill and redevelopment plan for the SR 55 (US 19) target area. Examples of the strategies include economic development, transportation enhancements, neighborhood revitalization/preservation and incentives to encourage urban infill and redevelopment along the SR 55 (US 19) target area.



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EXISTING LAND USE/LAND COVER

FIGURE 4-12



FUTURE LAND USE/LAND COVER

FIGURE 4-13

4.3.2 Cultural Resources and Community Services

4.3.2.1 Cultural Resources Assessment Survey

As part of the PD&E study, a *Cultural Resource Assessment Survey (CRAS)*⁶ was performed. The purpose of the CRAS was to locate, identify and bound any cultural resources within the project area of potential effect (APE) and to assess their significance in terms of eligibility for listing in the National Register of Historic Places (NRHP). The specific findings of the CRAS are incorporated by reference into this PER. In a letter dated April 16, 2008, the State Historic Preservation Officer (SHPO) concurred with the results of the CRAS and its recommendations.

Segment 1 (South of Alternate US 19 to Marine Parkway)

Two previously recorded archaeological sites located within this segment could not be located anymore. Both sites were originally recorded in 1964 and were probably destroyed by subsequent development activities. No previously unrecorded archaeological sites were encountered during the survey. Five previously unrecorded historic structures were recorded within this study segment. None of the structures are considered potentially eligible for listing in the NRHP. In addition, the historic West Elfers Cemetery is located within the visual APE associated with the proposed interchange at SR 54. The cemetery, however, does not appear to be eligible for listing in the NRHP.

In summary, the proposed project improvements within this Segment will involve no cultural resources listed, determined eligible for listing, or considered potentially eligible for listing, in the NRHP.

Segment 2 (Marine Parkway to Stone Road)

A previously recorded archaeological site located within this segment could not be located anymore. The site was originally recorded in 1962 and was probably destroyed by subsequent development activities. No newly discovered archaeological sites were encountered during the survey. Two historic architectural resource groups¹ - the Edgewater Motel and the Port Richey Mobile Home Park - were identified within this study segment. Twenty-seven individual historic structures were also identified. None of these resources are considered potentially eligible for

¹ Resource groups are historical districts, archaeological districts or building complexes.

listing in the NRHP. In addition, two historic structures are located within the visual APE associated with the proposed bridge over Ridge Road but do not appear to be eligible for listing in the NRHP.

In summary, the proposed project improvements within this Segment will involve no cultural resources listed, determined eligible for listing, or considered potentially eligible for listing, in the NRHP.

Segment 3 (Stone Road to SR 52)

No previously recorded or newly discovered archaeological sites were found within this study segment. Two historic structures were identified within Segment 3. Neither resource is considered potentially eligible for listing in the NRHP. In addition, two historic structures are located within the visual APE associated with the proposed bridge over SR 52 but do not appear to be eligible for listing in the NRHP.

In summary, the proposed project improvements within this Segment will involve no cultural resources listed, determined eligible for listing, or considered potentially eligible for listing, in the NRHP.

Segment 4 (SR 52 to north of County Line Road)

A previously recorded archaeological site (PA43) located within this segment could not be located anymore. The site was originally recorded in 1979 and was probably destroyed by subsequent development activities. No newly discovered archaeological sites were encountered during the survey. One historic cemetery, two resource groups, and 11 historic structures were identified within this study segment. The Hudson Cemetery, Suncoast Motel, and the Star Motel are not considered potentially eligible for listing in the NRHP, nor are any of the individual historic structures. No historic structures were observed within the visual APE associated with the proposed bridge over SR 54.

In summary, the proposed project improvements within this Segment will involve no cultural resources listed, determined eligible for listing, or considered potentially eligible for listing, in the NRHP. However, the Hudson Cemetery is considered a historic resource of special concern. Proposed roadway improvements have the potential to adversely impact possible unmarked burials.

4.3.2.2 Cultural Features and Community Services

4.3.2.2.1 Community Facilities

Community facilities provide a focal point for adjacent neighborhoods and communities, as well as serve the needs of surrounding areas. For the purpose of this study, community facilities include churches and other religious institutions, parks and recreation areas, other neighborhood gathering places, fire stations, police stations, public and private schools, medical and emergency treatment facilities, cemeteries, and public buildings and facilities. Information for mapping the community facilities in the project vicinity was derived from results of a GIS analysis and a combination of data sources: 2007 Pasco Parcels, 2005 GIS layers from Pasco County and the US Post Office web site.

- Churches: There are six churches within the study limits. Two churches are adjacent to SR 55 (US 19); King of Kings Lutheran Church and House of Faith. The four other churches fall within the study limits, however are not adjacent to SR 55 (US 19).
- Schools: Hudson Elementary and The Genesis School fall within the study limits, however neither are adjacent to SR 55 (US 19).
- Cemeteries: There are three cemeteries located along the corridor, West Elfers Cemetery, Hudson Cemetery, and Grace Memorial Cemetery. The West Elfers cemetery is not adjacent to SR 55 (US 19).
- Hospitals: Three hospital/surgical facilities are located within the study limits; Bonati Institute for Advanced Arthroscopic, Gulf Coast Medical Center and Family Medical Centers. Only Gulf Coast Medical Center is adjacent to SR 55 (US 19).
- Public Services: There are six public service facilities located along the corridor. There are three fire stations, one sheriffs' substation, two post offices and the Port Richey City Hall.
- Recreation Areas: There is one park, The Werner-Boyce Salt Springs State Park, located within the study limits. However, this park is not adjacent to SR 55 (US 19).

4.3.2.3 Section 4(f) Properties

In accordance with Section 4(f) of the DOT Act of 1966 (Title 49, U.S.C., Section 1653 (f), amended and recodified in Title 49, U.S.C., Section 303, in 1983), the project was examined for

possible Section 4(f) properties. No Section 4(f) resources are involved with the proposed project.

4.3.3 Natural and Biological Features

4.3.3.1 Wetlands

As indicated in **Table 4-13**, approximately 0.79 acres of wetland impacts could occur due to the construction of both the proposed CRTL and interchange improvements. A total of 11 wetlands and 26 man-made swales/wet retentions would potentially be impacted. Impacts will be primarily to forested systems adjacent to the proposed right-turn lanes requiring additional ROW. These fringe wetlands vary in quality from moderate to high depending on their location on the west or east side of SR 55 (US 19). Some of the wetlands on the west side are adjacent to large tracts of undeveloped land associated with conservation lands and/or OFW (Outstanding Florida Waters). The actual areas of impact are small slivers of the wetland fringe adjacent to existing SR 55 (US 19) maintained ROW. As noted previously, during the early phases of this study, CRTLs were evaluated and this wetland evaluation included wetland areas that would be affected by construction of this project component. Most of these wetland impacts are no longer expected since the CRTLs concept is to be implemented as a separate project.

It is anticipated that the following permits will be required for this project:

<u>Type of Permit</u>	<u>Governing Agency</u>
Environmental Resource Permit (ERP)	SWFWMD
Section 404 Dredge and Fill Permit (404)	U.S. Army Corps of Engineers (USCOE)
National Pollutant Discharge Elimination System Permit (NPDES)	Environmental Protection Agency (EPA)

Impacts to wetlands will be avoided to the extent feasible. Unavoidable construction-related wetland impacts are planned to be mitigated through the FDOT Mitigation Program (Chapter 373.4137 F.S.). For ERP purposes of mitigating any adverse wetland impacts within the same drainage basin, the project is located within the Upper Coastal Basin.

Table 4-13
Wetland and Other Surface Water Potential Impacts (acres)

Description	NWI	FLUCFCS	Segment 1	Segment 2	Segment 3	Segment 4	Total Project Impacts
Man-Made Swale & Wet Retention	PEMx	641	--	--	0.01	4.59	4.60
Freshwater Pond	PUB	530	--	--	--	.009	0.09
Freshwater Marsh	PEM	641	--	0.01	--	--	0.01
Freshwater Forested Wetland	PFO	630	0.55	--	--	0.04	0.59
Riverine (excavated)	R2UBx	510	--	--	--	0.09	0.10
Total Wetland Impacts by Interchange			0.55	0.01	0.01	0.22	0.79

4.3.3.2 Threatened and Endangered Species

The growing urban nature of the corridor increasingly discourages wildlife usage. There is a potential for federally-listed species to occur within or adjacent to the project limits (**Table 4-14**).

The federally-threatened Florida scrub-jay (*Aphelocoma coerulescens coerulescens*) historically persists in atypical overgrown scrubs at lower densities with tenuous survivorship. Scrub jays have been documented historically (FNAI, FFWCC) in the northern segment of the project corridor in the Hudson area from the vicinity of Fivay Road north to Aripeka Road and the County Line (**Figure 4-14**). The SR 55 (US 19) Project lies within the USFWS Florida Scrub-Jay Consultation Area. Although there is a moderate potential for the scrub-jay within the project vicinity, there is a low potential for adverse effect to this species. A finding of “May affect, not likely to adversely affect” is appropriate for this species.

The federally-threatened eastern indigo snake (*Drymarchon corais couperi*) also utilizes the scrub habitat as well as other large tracts of habitat from xeric oak scrub to wet prairies. Large uninterrupted tracts of land occur sparsely within the project vicinity. Habitat does potentially exist primarily in the northern portion (Segment 4) of the project area, particularly west of SR 55 (US 19) within public lands. The eastern indigo snake has not been documented in the vicinity of the Project. Suitable habitat exists in the vicinity; however construction will occur primarily within existing ROW. A finding of “May affect, not likely to adversely affect” is appropriate for this species.

The federally-endangered wood stork (*Mycteria americana*) is a large wading bird nesting colonially in inundated forested wetlands and foraging in shallow water. Several wood stork rookeries have been identified within the project area including a rookery on the east side of SR 55 (US 19) behind the Embassy Crossings Shopping Mall. This inundated retention pond with “stunted cypress” was observed during summer 2007 field reviews. Other wading birds including white ibis, little blue heron, great egret, tri-colored heron and black-crowned night heron have been documented (FNAI and field review) along SR 55 (US 19) and/or within the observed rookery. If the project results in altered wetlands within the core foraging area (CFA) of a wood stork colony, wetland mitigation will include a temporal lag factor with type for type mitigation to compensate for adverse effects to the wood stork CFA. The CFA is identified as an 18.6 mile radius from identified rookeries (CFA recently reduced to 15 miles for Central Florida). A finding of “May affect, not likely to adversely affect” is therefore appropriate for the wood stork and other wading birds.

Table 4-14
State and Federal Listed Threatened and Endangered Species
With the Potential to Occur Within the Mainline’s Project Limits

Common Name	Designated Status		Habitat Preference	Potential to Occur in the Project Limits ⁴
	Federal Status ²	State Status ³		
Avian				
Bald Eagle <i>Haliaeetus leucocephalus</i>	N	LT	Close to large water bodies, habitat can be variable	Moderate
Black-crowned Night heron <i>Nycticorax nycticorax</i>	N	N	Shallow freshwater and brackish marshes	Low
Black Rail <i>Laterallus jamaicensis</i>	N	N	Higher parts of tidal marshes, which are rarely inundated	Low
Florida Scrub-jay <i>Aphelocoma coerulescens</i>	LT	LT	Oak scrub	Moderate
Florida Sandhill Crane <i>Grus canadensis pratensis</i>	N	LT	Wet prairies, marshy lake bottoms	High
Great Egret <i>Ardea alba</i>	N	N	Shallow brackish, freshwater and saltwater habitats	High
Little Blue Heron <i>Egretta caerulea</i>	N	LS	Shallow brackish, freshwater and saltwater habitats	High
Scott’s Seaside Sparrow <i>Ammodramus maritimus peninsulae</i>	N	LS	Salt and brackish marshes	Low
Snowy Egret <i>Egretta thula</i>	N	LS	Shallow freshwater and brackish marshes	High
Tricolored Heron <i>Egretta tricolor</i>	N	LS	Shallow freshwater and brackish marshes	High

Table 4-14 (Cont.)
State and Federal Listed Threatened and Endangered Species
With the Potential to Occur Within the Mainline's Project Limits¹

Common Name	Designated Status		Habitat Preference	Potential to Occur in the Project Limits ⁴
	Federal Status ²	State Status ³		
Wood Stork <i>Mycteria americana</i>	LE	LE	Woody vegetation over standing water, or island	High
Mammals				
Florida Long-tailed Weasel <i>Mustela frenata peninsulae</i>	N	N	Pine flatwoods, sandhills, hardwood forests and sand pine scrub habitats	Low
Florida Black Bear <i>Ursus americanus floridanus</i>	N	LT*	Mixed hardwood pine, cabbage palm hammock, upland oak scrub, and forested wetlands, such as cypress and riverine	Moderate
Manatee <i>Trichechus manatus</i>	LE	LE	Freshwater, brackish and marine habitats	Low
Reptiles				
Eastern Indigo Snake <i>Drymarchon couperi</i>	LT	LT	Mesic flatwoods, upland pine forest, sandhill scrub	Moderate
Gopher Tortoise <i>Gopherus polyphemus</i>	N	T	Sandhill, scrubby, flatwoods, xeric hammock	Moderate
Southern Hognose Snake <i>Heterodon simus</i>	N	N	Sandhills, pine flatwoods, dry woodlands	Low
Flora				
Piedmont Jointgrass <i>Coelorachis tuberculosa</i>	N	LT	Depression marsh and dome swamp	Low
Natural Communities				
Sandhill	N	N		Moderate
Scrub	N	N		Moderate

Legend

¹Based on a review of existing literature, GIS and FNAI's "Biodiversity Matrix Report for US 19, Pasco County"

²As listed by the U.S. Fish and Wildlife Service in 50 CFR 17. NL = Not Listed.

³Plant species listed by the Florida Department of Agriculture pursuant to Chapter 5-40, FAC. Animal species listed by the FFWCC pursuant to Rules 39-27.003, 39-27.004, and 39-27.005 FAC.

⁴The potential for occurrence was ranked from high to low using the following guidelines:

Low - Little or no suitable habitat

Moderate - Suitable habitat present within, or adjacent to, the project limits and historical species record of occurrence (based on FNAI and literature review) within one mile of the project limits.

High - Suitable habitat present within, or adjacent to, the project limits, species record of occurrence within one mile of the project limits and species recently observed/documented.

E = Endangered

LT = Threatened

LS = Species of Special Concern

PDL = Species currently listed Threatened but has been proposed for delisting



The federally-endangered (potentially down-listed to threatened) Florida manatee (*Trichechus manatus*) is a large wide-ranging aquatic mammal in coastal waters. There is a low potential for the occurrence of the manatee at the SR 55 (US 19) bridge over the Pithlachascotee River (Segment 2). There have been no documented occurrences or observations and there are no protected “aggregate areas” of manatee in the project vicinity. A finding of “no affect” is appropriate for this species.

The recently delisted bald eagle (*Haliaeetus leucocephalus*) is still protected by the U. S. Migratory Bird Treaty Act and the Bald Eagle and Golden Eagle Protection Act and state Wildlife Code. Bald eagle habitat generally includes areas near large bodies of water, usually nesting in tall pine trees. Though several active, inactive, and abandoned nests are documented in the project corridor (four in Segment 4 and one in Segment 3), no active nests are documented within 330 ft of the proposed project construction limits. Communication with FWC documented that the nest for eagle pair PS003, within 330 ft of the existing ROW in 2003 no longer exists. In addition, during field visits in May 2007, SWFWMD environmental scientists did not observe any eagle nests in this location. Additional eagle nest surveys should be performed during final design, prior to construction, to confirm the eagle nest status on this Project. Due to the distance of documented nests from roadway limits of construction, a “no effect” finding on the bald eagle is appropriate.

Although habitat in the vicinity of this project may support listed species, construction of this project predominantly within existing ROW with minimal proposed adjacent ROW, is unlikely to adversely affect resources protected by the Endangered Species Act of 1973, as amended (16 U.S.C. 1513 et. seq.).

As noted previously, during the early phases of this study, CRTLS were evaluated and this threatened and endangered species evaluation included areas adjacent to SR 55 (US 19) that would be affected by construction of this project component. Most of these species and their habitat are not likely to be encountered since the CRTLS concept is to be implemented as a separate project.

4.3.4 Potential Hazardous Materials and Petroleum Products Contaminated Sites

A Contamination Screening Evaluation Memorandum (CSEM)⁷ was prepared for this PD&E study. A summary of the findings contained in that report are presented in this section. Each property within and/or adjacent to the project corridor must have a conscious determination of the

contamination potential. All properties should be assigned a rating of (1) None; (2) Low; (3) Medium, or (4) High. The four contamination ratings are explained as follows:

- **None** – After a review of all available information, there is nothing to indicate contamination would be a problem. It is possible that contaminants could have been handled on the property; however, all information (Florida Department of Environmental Protection (FDEP) reports, monitoring wells, water and soil samples, etc.) indicates problems should not be expected.
- **Low** – The former or current operation has a hazardous waste generator identification (ID) number or deals with hazardous materials; however, based on all available information there is no reason to believe there would be any involvement with contamination. This is the lowest possible rating a gasoline station operating within current regulations could receive. This could also be applied to a retail hardware store that blends paint.
- **Medium** – After a review of all available information, indications are found (reports, Notice of Violations, consent orders, etc.) that identify known soil and/or water contamination and that the problem does not need remediation, is being remediated (i.e., air stripping of ground water, etc.), or that continued monitoring is required. The complete details of remediation requirements are important to determine what must be done if the property were to be acquired. A recommendation should be made on each property falling into this category to its acceptability for use within the proposed project, what actions might be required if the property is acquired, and the possible alternatives if there is a need to avoid the property.
- **High** – After a review of all available information, there is a potential for contamination problems. Further assessment will be required after the alignment section to determine the actual presence and/or levels of contamination and the need for remedial action. A recommendation must be included for what further assessment is required. Conducting the actual Contamination Assessment is not expected to begin until alignment is defined; however, circumstances may require additional screening assessments (i.e., collecting soil and/or water samples for laboratory analysis that may be necessary to determine the presence and/or levels of contaminants) begin earlier. Properties that were previously used as gasoline stations and have not been evaluated or assessed would probably receive this rating.

Several field reviews of the project corridor were conducted to verify information obtained from the regulatory file and historical aerial photographs reviews; as well as to identify other potential environmental conditions in the corridor. A regulatory review (records search) of federal and

state environmental records was conducted in July 2007. The records reviewed include information compiled by the United States Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP). Environmental Data Management Inc. (EDM) of Largo, Florida conducted a database search of potential hazardous and petroleum sites within the SR 55 (US 19) corridor. Some of the USEPA and FDEP data bases that were reviewed include: The Underground/Aboveground Storage Tanks List (TANKS), The Leaking Underground Storage Tanks List (LUST), and The State Designated Brownfields List (BRWNFLDS).

Along the corridor there were 249 potential contamination sites (See **Table 4-15** for breakdown by segment). Among those sites, 132 were designated None, 54 were designated Low, 43 were designated Medium, and 20 were designated High. The vast majority of the “High” and “Medium” sites were ranked based on their involvement with petroleum products and leaking underground storage tanks. The high number of “None” and “Low” sites can be attributed to a large number of small quantity generators and categorically exempt small quantity generators.

The contamination screening results are summarized below for the study’s four segments:

Segment 1 (South of Alternate US 19 to Marine Parkway)

The corridor screening evaluation for Segment 1 resulted in a “High” ranking for five sites, a “Medium” ranking for 19 sites, a “Low” ranking for nine sites, and a “None” risk ranking for 35 sites. The vast majority of the “High” and “Medium” sites were ranked based on their involvement with petroleum products and leaking underground storage tanks. The high number of “No” sites can be attributed to a large number of small quantity generators and categorically exempt small quantity generators located along the corridor.

Segment 2 (Marine Parkway to Stone Road)

The corridor screening evaluation for Segment 2 resulted in a “High” ranking for seven sites, a “Medium” ranking for 10 sites, a “Low” ranking for 18 sites, and a “None” risk ranking for 44 sites. The vast majority of the “High” and “Medium” sites were ranked based on their involvement with petroleum products and leaking underground storage tanks. The high number of “No” sites can be attributed to a large number of small quantity generators and categorically exempt small quantity generators located along the corridor and for this segment the high density of commercial facilities.

Segment 3 (Stone Road to SR 52)

The corridor screening evaluation for Segment 3 resulted in a “High” ranking for four sites, a “Medium” ranking for six sites, a “Low” ranking for 12 sites, and a “None” risk ranking for 16 sites. The vast majority of the “High” and “Medium” sites were ranked based on their involvement with petroleum products and leaking underground storage tanks.

Segment 4 (SR 52 to north of County Line Road)

The corridor screening evaluation for Segment 4 resulted in a “High” ranking for four sites, a “Medium” ranking for eight sites, a “Low” ranking for 15 sites, and a “None” risk ranking for 37 sites. The vast majority of the “High” and “Medium” sites were ranked based on their involvement with petroleum products and leaking underground storage tanks.

Table 4-15
Contamination Sites

Contamination Ratings	Segments				
	1	2	3	4	Totals
None	35	44	16	37	132
Low	9	18	12	15	54
Medium	19	10	6	8	43
High	5	7	4	4	20
Totals	68	79	38	64	249

4.4 REFERENCES

1. *Final Traffic Technical Memorandum*; HDR Engineering, Inc.; Tampa, Florida; 2007.
2. *Pond Siting Report*; HDR Engineering, Inc.; Tampa, Florida; 2008.
3. *Florida Administrative Code of the Department of Transportation*; Tallahassee, Florida; 2007.
4. *Drainage Technical Memorandum*; HDR Engineering, Inc.; Tampa, Florida; 2007.
5. *Soil Survey of Pasco County, Florida*; U.S. Department of Agriculture, National Cooperative Soil Survey; 1980.

6. *Cultural Resource Assessment Survey (CRAS)*; ACI; 2007.
7. *Contamination Screening Evaluation Memorandum (CSEM)*; HDR Engineering, Inc.; Tampa, Florida; 2008.

SECTION 5

DESIGN CRITERIA

In order for the proposed roadway improvements to fulfill their objective of accommodating motorized vehicles, and where appropriate, pedestrians and bicyclists in a safe and efficient manner, the proposed typical sections must adhere to specific design standards. The Florida Department of Transportation's (FDOT) *Plans Preparation Manual (PPM)*¹, *AASHTO – A Policy on Geometric Design of Highways and Streets*², and the District Seven Straight Line Diagram (SLD) were used as the references for development of proposed typical section design criteria for this project. **Table 5-1** presents the pertinent criteria used for this effort and their respective values or designations. A discussion of each criterion follows below.

5.1 FUNCTIONAL CLASSIFICATION

The functional classification of a roadway affects elements of design such as design speed, Level of Service (LOS) requirements, and local access accommodations. According to the FDOT SLD, SR 55 (US 19), SR 54, and SR 52, are classified as urban principal arterials. The Pasco County Comprehensive Plan, Transportation Element lists the existing (2003) functional classification as “Arterial” for both Ridge Road and County Line Road. SR 55 (US 19) is a controlled access facility and is part of the Florida Intrastate Highway System (FIHS) and Strategic Intermodal System (SIS).

5.2 DESIGN SPEED

The design speed affects design elements such as horizontal and vertical alignments, superelevation, and typical section dimensions (clear zone, median width, etc.). The assumed design speed should be logical with respect to factors such as topography, adjacent land use, and the functional classification of the highway. As indicated in *AASHTO-A Policy on Geometric Design of Highways and Streets*², the design speed control applies to a lesser degree on arterial streets than on other type of facilities such as rural highways since the top speeds for several hours a day on arterial streets are limited or regulated to that which the recurring peak volumes can be handled. Speeds along these types of roadways are governed by the presence of other vehicles traveling in groups both in and across the through lanes. The speeds are also governed

Table 5-1
Typical Section Design Criteria

Design Element	SR 55 (US 19) Segments 1, 3, 4	SR 55 (US 19) Segment 2	Ramps One Lane	Ramps Two Lane	Sources	Comments
Roadway Classification	Urban Principal Arterial	Urban Principal Arterial	Urban Principal Arterial Ramp	Urban Principal Arterial Ramp	FDOT SLD	
Basic No. of Lanes	6 (3 in each direction)	6 (3 in each direction)	1	2	FDOT SLD	
Design Vehicle	WB-62FL	WB-62FL	WB-62FL	WB-62FL	P.P.M. Volume I 1.12 Jan. 2008	
Design Year	2030	2030	2030	2030	I-75 Final Preliminary Engineering Report (April 2004)	
Design Speed (mph)	50	50	50	50	FDOT	
Proposed Posted Speed (mph)	45	45	45	45		
Maintenance of Traffic (mph)	45	45	45	45		
Lane Widths (feet [ft])	12	12	15	12	P.P.M. Volume I Table 2.1.1, 2.1.3 Jan. 2008	
Typical Roadway Cross Slopes (ft / ft)	0.02 and 0.03	0.02 and 0.03	0.02	0.02	P.P.M. Volume I Figure 2.1.1 Jan. 2008	
Bicycle Lane Width (ft)	4	4	N/A	N/A	P.P.M. Volume I Table 2.1.2 Jan. 2008	
Median Width (ft)	40	40	N/A	N/A	P.P.M. Volume I Table 2.2.1 Jan. 2008	
Outside Curb and Gutter (Yes/No)	No	Yes	Seg 1, 3, 4 – No Seg 2 – Yes	Yes		
Shoulder Width (ft) Median without Shoulder Gutter	N/A	N/A	6 2 (paved)	6 2 (paved)	P.P.M. Volume I Table 2.3.2 Jan. 2008	
Shoulder Width (ft) Outside without Shoulder Gutter	12 5 (paved)	N/A	6 4 (paved)	10 5 (paved)	P.P.M. Volume I Table 2.3.2 Jan. 2008	
Cross Slope: Maximum algebraic difference between edge of pavement and shoulder in (%)	7	N/A	7	7	P.P.M. Volume I Figure 2.3.1 Jan. 2008	

**Table 5-1 (Cont.)
Typical Section Design Criteria**

Design Element	SR 55 (US 19) Segments 1, 3, 4			SR 55 (US 19) Segment 2		Ramps One Lane		Ramps Two Lane		Sources	Comments
Roadside Slopes: Front Slopes	Height of Fill:	Rate:	Height of Fill:	Rate:	Height of Fill:	Rate:	Height of Fill:	Rate:		P.P.M. Volume I Table 2.4.1 Jan. 2008	
	0.0 – 5.0	1:6	All	1:2 or to suit property owner, not flatter than 1:6. ROW cost must be considered for high fill sections in urban areas.	0.0 – 5.0	1:6	0.0 – 5.0	1:6			
	5.0 – 10.0	1:6 to edge of CZ and 1:4		5.0 – 10.0	1:6 to edge of CZ and 1:4	5.0 – 10.0	1:6 to edge of CZ and 1:4				
	10.0 – 20.0	1:6 to edge of CZ and 1:3		10.0 – 20.0	1:6 to edge of CZ and 1:3	10.0 – 20.0	1:6 to edge of CZ and 1:3				
	> 20.0	1:2 (with guardrail)		> 20.0	1:2 (with guardrail)	> 20.0	1:2 (with guardrail)				
Roadside Slopes: Back Slopes	Height of Fill:	Rate:	Height of Fill:	Rate:	Height of Fill:	Rate:	Height of Fill:	:		P.P.M. Volume I Table 2.4.1 Jan. 2008	
	All	1:4 or 1:3 with a standard width trapezoidal ditch and 1:6 front slope	All	1:4 when ROW permits or 1:3	All	1:4 or 1:3 with a standard width trapezoidal ditch and 1:6 front slope	All	1:4 or 1:3 with a standard width trapezoidal ditch and 1:6 front slope			
Roadside Slopes: Transverse Slopes	Height of Fill:	Rate:	Height of Fill:	Rate:	Height of Fill:	Rate:	Height of Fill:	Rate:		P.P.M. Volume I Table 2.4.1 Jan. 2008	Design variation will be required for curb and gutter areas and ramps (18' min.).
Minimum Border Width (ft)	All	1:4	All	1:4	All	1:4	All	1:4		P.P.M. Volume I Table 2.5.1, 2.5.2 Jan. 2008	
Maximum Profile Grade (%)	6	40	6	12	3 to 5	40	3 to 5	40		P.P.M. Volume I Table 2.6.1 Jan. 2008	
Maximum change in grade without vertical curve (%)	0.6	40	0.6	0.6	0.6	40	0.6	0.6		P.P.M. Volume I Table 2.6.2 Jan. 2008	
Minimum Profile Grade for Curb & Gutter Sections (%)	N/A	40	0.3	0.3	N/A	40	0.3	0.3		P.P.M. Volume I Table 2.6.4 Jan. 2008	
Minimum Distance between VPIs (ft)	N/A	40	250	250	N/A	40	250	250		P.P.M. Volume I Table 2.6.4 Jan. 2008	
Minimum Stopping Sight Distance (ft) (grade≤ 2%)	425	40	425	425	425	40	425	425		P.P.M. Volume I Table 2.7.1 Jan. 2008	
Maximum Deflection without Horizontal Curve	0° 45'	40	1° 00'	1° 00'	0° 45'	40	1° 00'	1° 00'		P.P.M. Volume I Table 2.8.1a Jan. 2008	

**Table 5-1 (Cont.)
Typical Section Design Criteria**

Design Element	SR 55 (US 19) Segments 1, 3, 4	SR 55 (US 19) Segment 2	Ramps One Lane	Ramps Two Lane	Sources	Comments
Desirable Length of Horizontal Curve (ft)	15V=750	15V=750	15V=750	15V=750	P.P.M. Volume I Table 2.8.2a Jan. 2008	
Minimum Length of Horizontal Curve (ft)	400	400	400	400	P.P.M. Volume I Table 2.8.2a Jan. 2008	Design variation will be required for ramps (400' min.)
Maximum Curvature of Horizontal Curve	6° 30'	6° 30'	6° 30'	6° 30'	P.P.M. Volume I Table 2.8.3 Jan. 2008	
Maximum Horizontal curvature using normal cross slope (ft)	0° 30'	2° 00'	2° 00'	2° 00'	P.P.M. Volume I Table 2.8.4 Jan. 2008	
Maximum ratio of radius for compound curve R_1 , R_2	2:1	2:1	2:1	2:1	AASHTO (2004) Pg. 201	
K Values for Crest Vertical Curves	136	136	136	136	P.P.M. Volume I Table 2.8.5 Jan. 2008	Using all other facilities for ramp proper
Minimum Length of Crest Vertical Curves (ft)	3V = 150	3V = 150	3V = 150	3V = 150	P.P.M. Volume I Table 2.8.5 Jan. 2008	
K Values for Sag Vertical Curves	96	96	96	96	P.P.M. Volume I Table 2.8.6 Jan. 2008	Using all other facilities for ramp proper.
Minimum Length of Sag Vertical Curves (ft)	3V = 150	3V = 150	3V = 150	3V = 150	P.P.M. Volume I Table 2.8.6 Jan. 2008	
Desirable Superelevation Transition Split In Tangent In Curve	0.8L 0.2L	0.8L 0.2L	0.8L 0.2L	0.8L 0.2L	P.P.M. Volume 1 Section 2.9 Jan. 2008	
Maximum e (ft/ft)	0.05	0.05	0.05	0.05	P.P.M. Volume 1 Section 2.9 Jan. 2008	
Superelevation Transition Slope Rates	1:150	1:150	1:150	1:150	P.P.M. Volume I Table 2.9.4 Jan. 2008	
Airspace Obstructions	N/A	N/A	N/A	N/A	P.P.M. Volume I Section 2.10.2 Jan. 2008	
Clear Zone (Minimum from edge of way in ft)	24	24	14	20	P.P.M. Volume I Table 2.11.11 Jan. 2008	
Horizontal Clearance: For Traffic Control Signs (Placement)	In accordance with the Design Standards.	In accordance with the Design Standards.	In accordance with the Design Standards.	In accordance with the Design Standards.	P.P.M. Volume I Table 2.11.1 Jan. 2008	

**Table 5-1 (Cont.)
Typical Section Design Criteria**

Design Element	SR 55 (US 19) Segments 1, 3, 4	SR 55 (US 19) Segment 2	Ramps One Lane	Ramps Two Lane	Sources	Comments
Horizontal Clearance: For Traffic Control Signs (Supports)	> 24'	4' back of face of curb	> 18'	> 30'	FDOT Index 700 FDOT Index 17302 Jan. 2008	
Horizontal Clearance: For Light Poles	20 ft from travel lane, 14 ft from auxiliary lane	4 ft back of face of curb	20 ft from travel lane, 14 ft from auxiliary lane	20 ft from travel lane, 14 ft from auxiliary lane	P.P.M. Volume I Table 2.11.2 Jan. 2006	Criteria for Conventional Lighting
Horizontal Clearance: For Utility Installations (Above Ground Fixed Objects)	> 24'	4' back of face of curb	> 18'	> 30'	P.P.M. Volume I Table 2.11.3 Jan. 2006	
Horizontal Clearance: For Utility Installations (Frangible and Breakaway Objects)	As close to the ROW as practical	1.5 ft back of face of curb	As close to the ROW as practical	As close to the ROW as practical	P.P.M. Volume I Table 2.11.3 Jan. 2006	
Horizontal Clearance: Signal Poles and Controller Cabinets for Signals	> 24'	4' back from face of curb	> 18'	> 30'	P.P.M. Volume I Table 2.11.4 Jan. 2006	
Horizontal Clearance: Trees	> 24'	4' back of face of curb 6' from edge of inside traffic lane	> 18'	> 30'	P.P.M. Volume I Table 2.11.5 Jan. 2006	
Horizontal Clearance: Bridge Piers and Abutments	> 24'	16' from edge of travel lane	> 18'	> 30'	P.P.M. Volume I Table 2.11.6 Jan. 2006	
Horizontal Clearance: Railroad Grade Crossing Traffic Control Devices	10' min.	2' min from back of sidewalk or 2'6" from face of curb if sidewalk not immediately next to curb- and-gutter.	N/A	N/A	FDOT Index 17882 Jan. 2008	
Horizontal Clearance: Canal Hazards	50 ft from the travel lane.	40 ft from the edge of the travel lane.	60 ft from the travel lane.	60 ft from the travel lane.	P.P.M. Volume I Table 2.11.8 Jan. 2006	
Horizontal Clearance: Drop-offs	See Design Standards, Index 700.	22 ft from traveled way to the point that is 6 ft below the hinge point.	See Design Standards, Index 700.	See Design Standards, Index 700.	P.P.M. Volume I Table 2.11.8 Jan. 2006	
Horizontal Clearance: Other Roadside Obstacles	> 24'	4 ft back of face of curb. May be 2.5 ft back of face of curb when all other alternatives are deemed impractical.	> 18'	> 30'	P.P.M. Volume I Table 2.11.9 Jan. 2006	
Minimum Vertical Clearance for Roadway over Roadway	16'-6"	16'-6"	16'-6"	16'-6"	P.P.M. Volume I Figure 2.10.1 Jan. 2006	

by traffic devices rather than by the physical characteristics of the street. During periods of low to moderate traffic volumes, speeds are governed by such factors as speed limits, intersectional frictions, and mid-block frictions such as a high density of driveways.

Within the project limits, the SR 55 (US 19) corridor is a combination of both commercial and residential land use. The area is heavily developed with major generators including Home Depot, Winn Dixie, Publix, Sam's Club, Big K-Mart, Super Wal-Mart, Hollywood 18 Theaters, Circuit City, several shopping centers, and residential neighborhoods. The northern portion of SR 55 (US 19) will most likely see more aggressive growth due to potential development of vacant land. There are numerous driveways throughout the project corridor.

Although SR 55 (US 19) may be widened by adding a continuous right turn lane throughout the project limits in the future, it is anticipated that the increasing traffic volumes and the expected future redevelopment will serve to further urbanize this environment which will influence the operating speed of SR 55 (US 19). The existing posted speed limit on SR 55 (US 19) ranges between 45 and 55 mph throughout the project limits. Field observations indicate that the posted speed appears to be on the high end of the operating speed during much of the day. This is due primarily to the high traffic volume combined with the existing urban conditions and frequent traffic control devices. It is based on these factors that a proposed design speed of 50 mph has been selected for this project. This design speed is in conformance with the FDOT *PPM*¹ for an urban arterial on the FIHS . A design speed of 50 mph has been selected for this project along the cross roads where proposed new interchanges would be located. This design speed conforms to the FDOT *PPM*¹ for an urban arterial type highway. A design speed of 50 mph has been selected for the proposed interchange ramps.

5.3 LANE WIDTHS

According to the FDOT *PPM*¹, Table 2.1.1, travel lane widths for an urban arterial facility should be 12 ft.

For interchange ramps, FDOT *PPM*¹ Table 2.1.3 states that the standard width of a one-lane ramp should be 15 ft and the standard width for a two-lane ramp should be 24 ft.

5.4 BIKE LANES

As indicated in the FDOT *PPM*¹, Section 8.4, a bike lane is an important element for consideration in the highway design process. A bike lane can be designated or undesignated. In the FDOT *PPM*¹, Table 2.1.2 lists the minimum width of a bike lane to be 4 ft for an urban arterial.

5.5 MEDIAN WIDTHS

According to the FDOT *PPM*¹, Table 2.2.1, the desirable raised median width for an arterial facility is 40 ft. However, the existing median width along the rural sections of SR 55 (US 19) is 28 ft. Therefore, the median width for the SR 54, SR 52, and County Line Road interchanges will also be 28 ft. Similarly, the median width for the Ridge Road interchange will be 17.5 ft to match the existing median width at this location. Design variances may be required as part of the final design.

5.6 SHOULDER WIDTHS

According to the FDOT *PPM*¹, Table 2.3.2, the minimum shoulder width for a divided six-lane arterial facility will vary from 8 ft to 12 ft depending on the projected design year traffic volumes. However, since the existing shoulder width is 10 ft, the minimum shoulder width will actually range from 10 ft to 12 ft. The *Final Traffic Technical Memorandum*³ indicates that the design year 2030 traffic projections along the SR 55 (US 19) corridor will vary between low, normal, and high volume highway criteria as listed on page 2-22 of the FDOT *PPM*¹. Therefore, the high volume shoulder width of 12 ft has been selected.

According to the FDOT *PPM*¹, Table 2.3.2, the minimum shoulder width for a one-lane interchange ramp is 6 ft, of which 2 ft should be paved on the inside and 4 ft should be paved on the outside. The minimum outside shoulder width for a two-lane interchange ramp is 10 ft, of which 5 ft should be paved, while the minimum left shoulder width should be 6 ft, of which 2 ft should be paved.

5.7 SIDEWALK WIDTHS

As indicated in the FDOT *PPM*¹, Section 8.3.1, the minimum width of a sidewalk shall be 5 ft when separated from the curb by a buffer strip. The minimum separation for a 5 ft sidewalk from the back of curb is 2 ft. The buffer strip should be 6 ft where possible to eliminate the need to

narrow or reroute sidewalks around driveways. If the sidewalk is located adjacent to the curb, the minimum width of the sidewalk is 6 ft.

5.8 BORDER WIDTHS

The minimum border widths for highways with flush shoulders are listed in the FDOT *PPM*¹, Table 2.5.1., while the minimum border widths for highways with curb and gutter are listed in Table 2.5.2. The minimum border width for an arterial with flush shoulders and a design speed greater than 45 mph is 40 ft. The minimum border width for an arterial with curb and gutter at a design speed of 45 mph is 14 ft for travel lanes and 12 ft when a bike lane or other auxiliary lane is located at the curb or curb and gutter. There is no specific border width for an arterial with curb and gutter in urban areas. As per FDOT *PPM*¹, Section 2.5, the absolute minimum border width under limited ROW availability is 8 ft.

5.9 REFERENCES

1. *Plans Preparation Manual (English)*; Florida Department of Transportation, Tallahassee, Florida; January 2006, Revised – January 1, 2008.
2. *AASHTO-A Policy on Geometric Design of Highways and Streets*; American Association of State Highway and Transportation Officials; 2004.
3. *Final Traffic Technical Memorandum*; HDR Engineering, Inc.; Tampa, Florida 2007.

SECTION 6

TRAFFIC

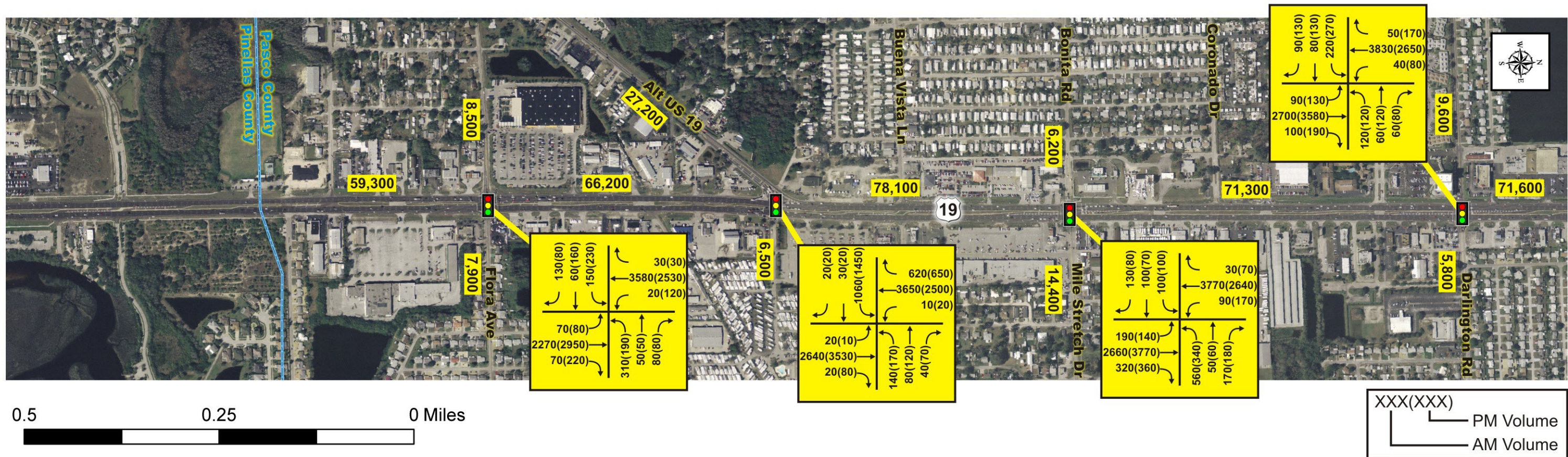
The existing and future (design year 2030) traffic conditions in the SR 55 (US 19) study area were addressed in the *Final Traffic Technical Memorandum*¹. The traffic projections for the design year (2030) were evaluated for four alternatives: 1) No-Build (i.e., existing six-lane divided roadway), 2) Continuous Right-Turn Lane (CRTL) improvements with the existing six-lane divided roadway, 3) Transportation System Management (TSM) improvements at the study area intersections and 4) Interchanges at SR 54, Ridge Road, SR 52 and County Line Road. The following sections present a summary of the findings from this report.

6.1 EXISTING TRAFFIC VOLUMES

6.1.1 Traffic Counts

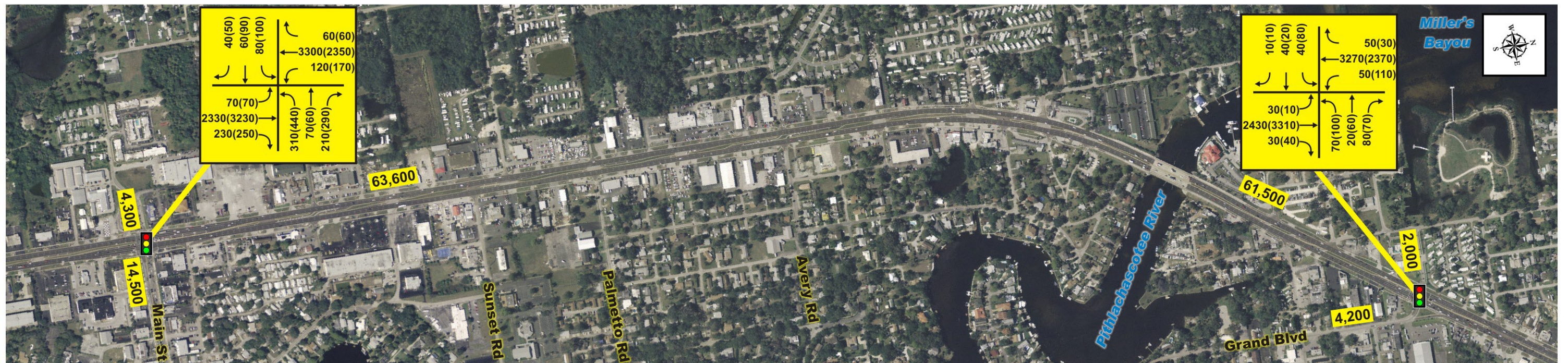
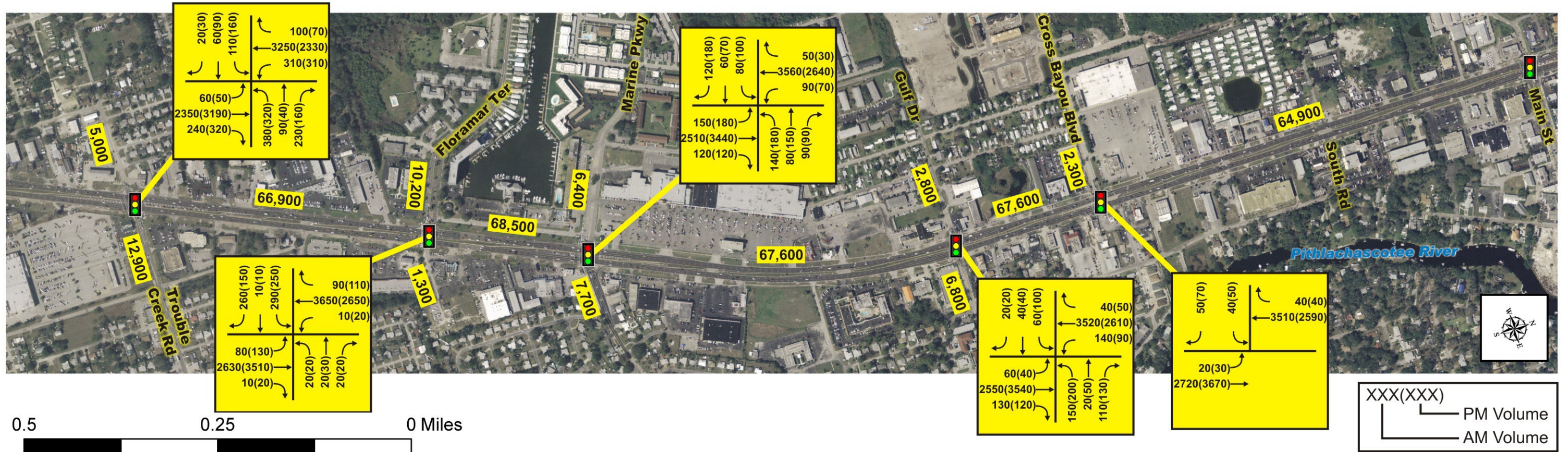
Traffic counts were collected during the month of March 2006; these counts included 72-hour automatic traffic counts and eight-hour manual turning movement counts conducted at each intersection approach along the SR 55 (US 19) study corridor. The collected field traffic count sheets are included in *US 19 PD&E Study Traffic Counts (Pinellas County Line to SR 52)*². In addition, the count data was supplemented with previously collected data for eight of the twenty nine intersections in the study area.

The three days worth of count data was averaged for a 24-hour period and then multiplied by an axle adjustment factor and a weekly seasonal adjustment factor to derive the Annual Average Daily Traffic (AADT) volumes. These factors were obtained from the year 2004 Florida Department of Transportation (FDOT) Traffic Information CD. The axle adjustment factors applied were 0.99 for counts located from the south of Alternate US 19 to SR 52 and 0.98 for counts located from SR 52 to north of County Line Road. The seasonal adjustment factor of 0.93 was applied for the entire corridor. As indicated in **Figures 6-1 (A through F)**, the existing (2006) AADT volumes within the study limits range between 33,300 vehicles per day (vpd) and 78,100 vpd.



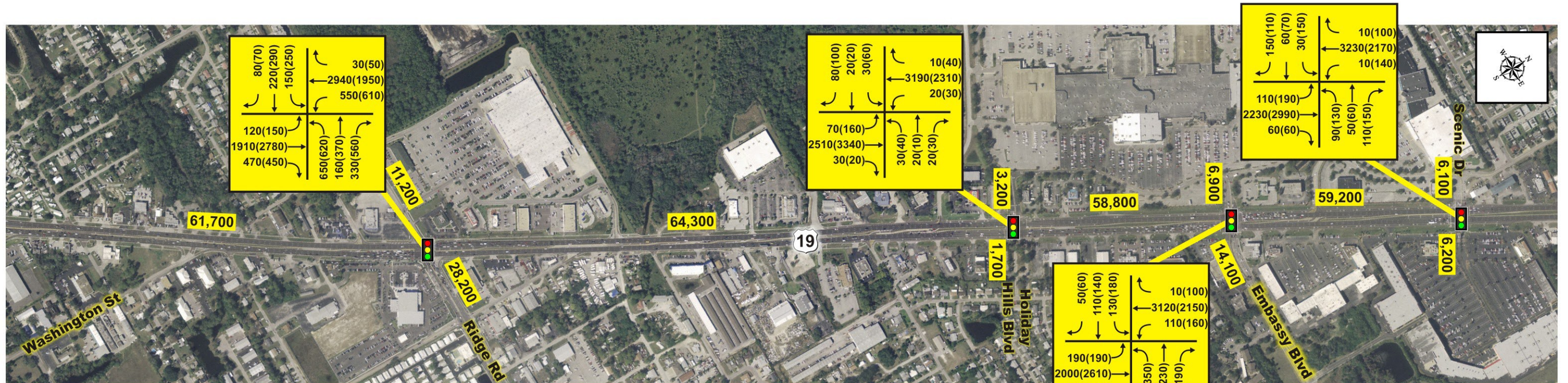
EXISTING YEAR (2006) TRAFFIC VOLUMES

FIGURE 6-1A



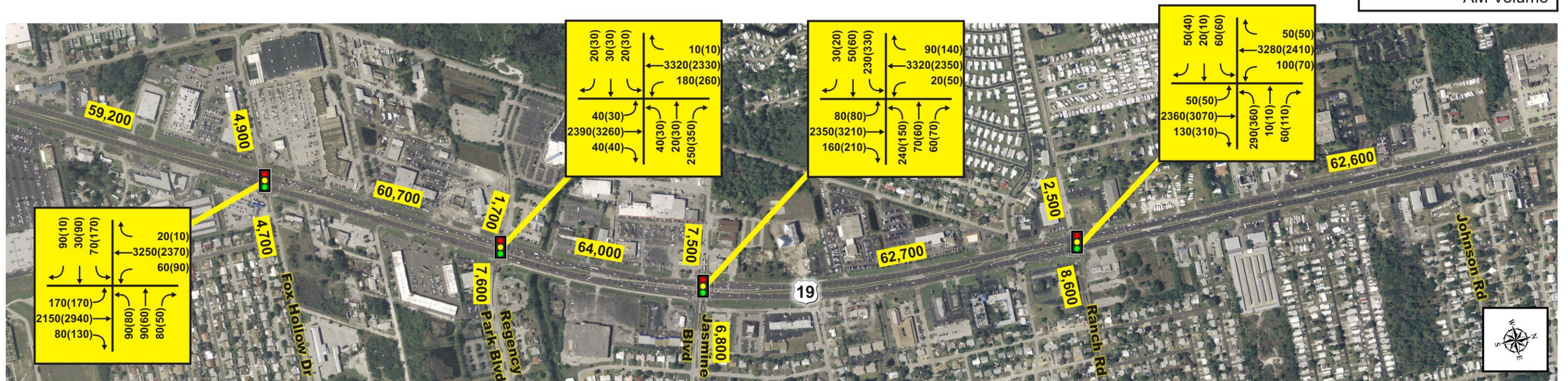
EXISTING YEAR (2006) TRAFFIC VOLUMES

FIGURE 6-1B



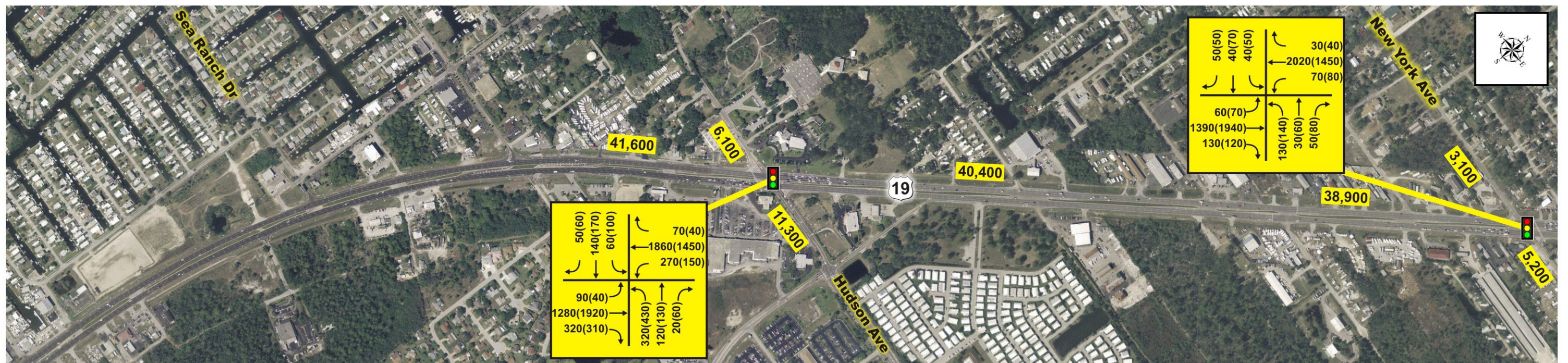
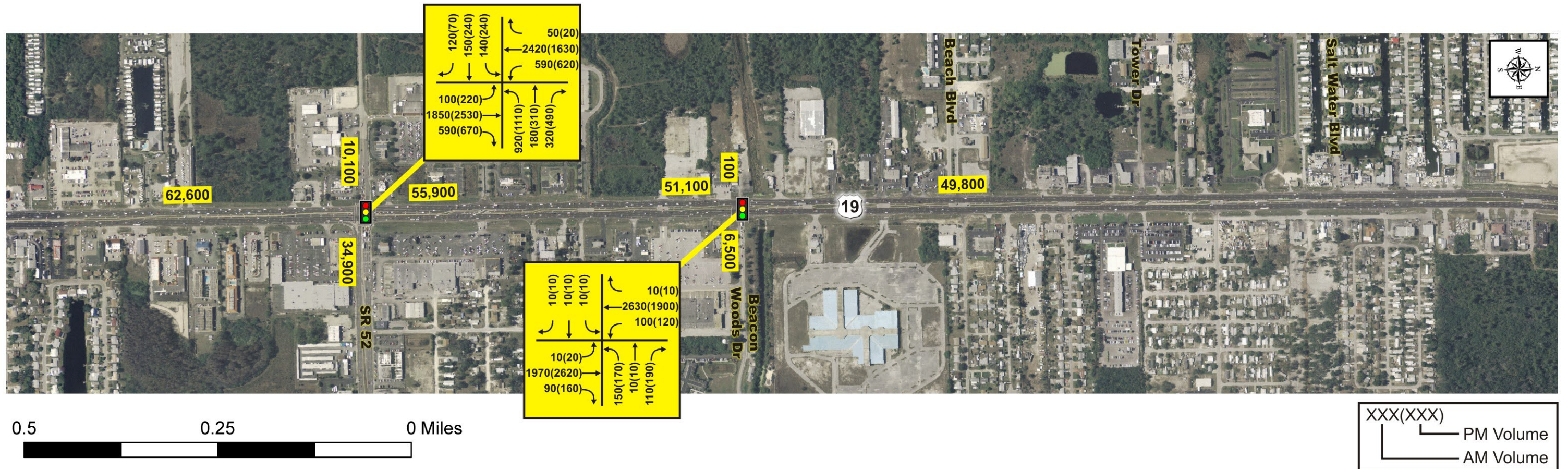
0.5 0.25 0 Miles

XXX(XXX)
 PM Volume
 AM Volume



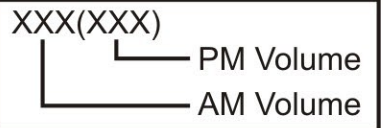
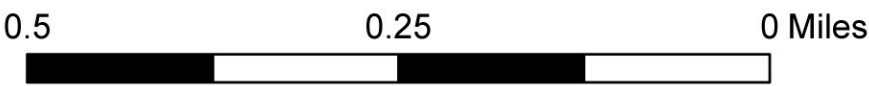
EXISTING YEAR (2006) TRAFFIC VOLUMES

FIGURE 6-1C



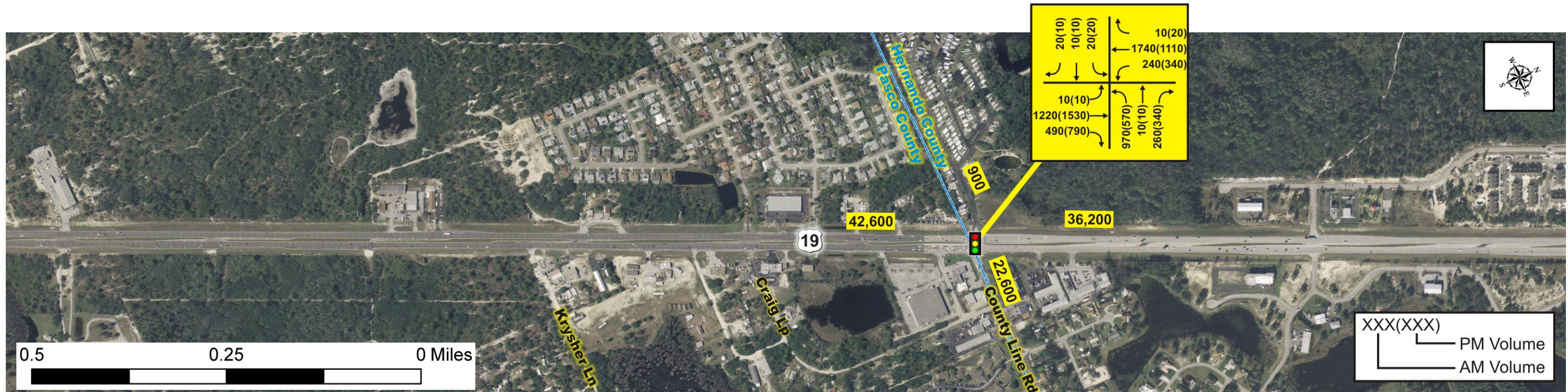
EXISTING YEAR (2006) TRAFFIC VOLUMES

FIGURE 6-1D



EXISTING YEAR (2006) TRAFFIC VOLUMES

FIGURE 6-1E



EXISTING YEAR (2006) TRAFFIC VOLUMES

FIGURE 6-1F

6.1.2 Development of Design Hour Traffic Volumes

The existing year (2006) directional design hour volumes (DDHV) were obtained by multiplying the AADT volumes first by the K_{30} factor of 9.52 percent and then by the D_{30} factor of 57.43 percent (peak direction). These design factors are further discussed in the next section. The AM and PM design peak hour intersection turning movement volumes were estimated by multiplying the DDHV by the AM and PM field collected manual turning movement percentages, respectively. The developed existing year (2006), AM and PM design peak hour turning movement volumes are shown on **Figures 6-1 (A through F)**.

6.1.3 Traffic Characteristics

The factors displayed in **Table 6-1** describe the peak hour traffic flow characteristics along the SR 55 (US 19) study corridor. The assumptions used to determine the factors are documented in the *Final Traffic Technical Memorandum*¹. These characteristics were used for both the existing and future traffic analyses.

Table 6-1
Traffic Characteristics

Traffic Characteristics	Value
Design Hour (K_{30}) Factor	9.52%
Directional (D_{30}) Factor	57.43%
24-Hour Truck (T_{24}) Factor	5.00%
Design Hour Truck (DHT) Factor	2.50%

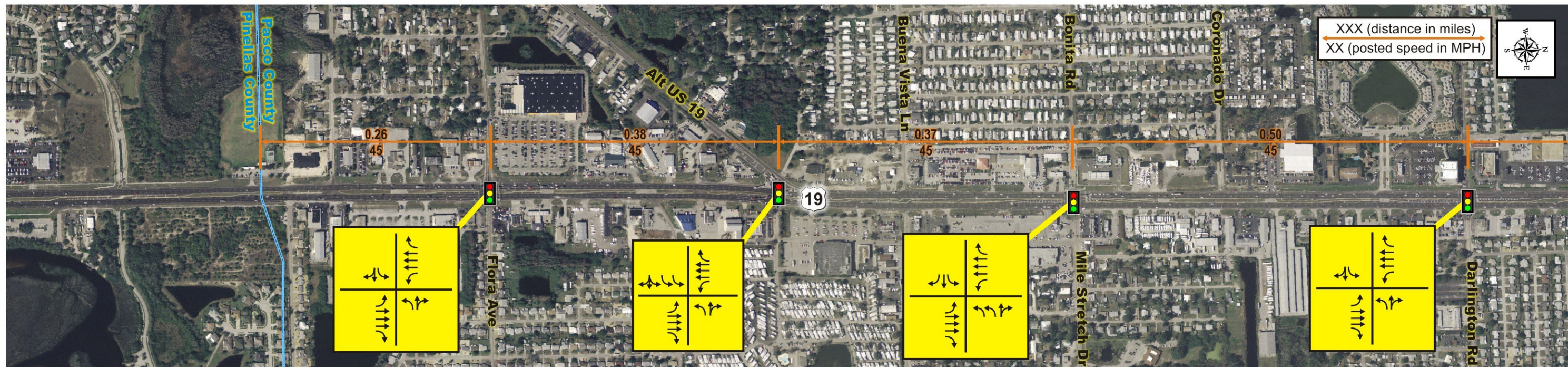
The peak direction of travel was determined to be in the southbound direction during the AM peak hour and the northbound direction during the PM peak hour.

6.2 EXISTING ROADWAY CHARACTERISTICS

SR 55 (US 19) is a six-lane divided roadway within the study limits. Twenty-nine signalized intersections were evaluated as part of this study. The signalized intersections include the following (listed from south to north):

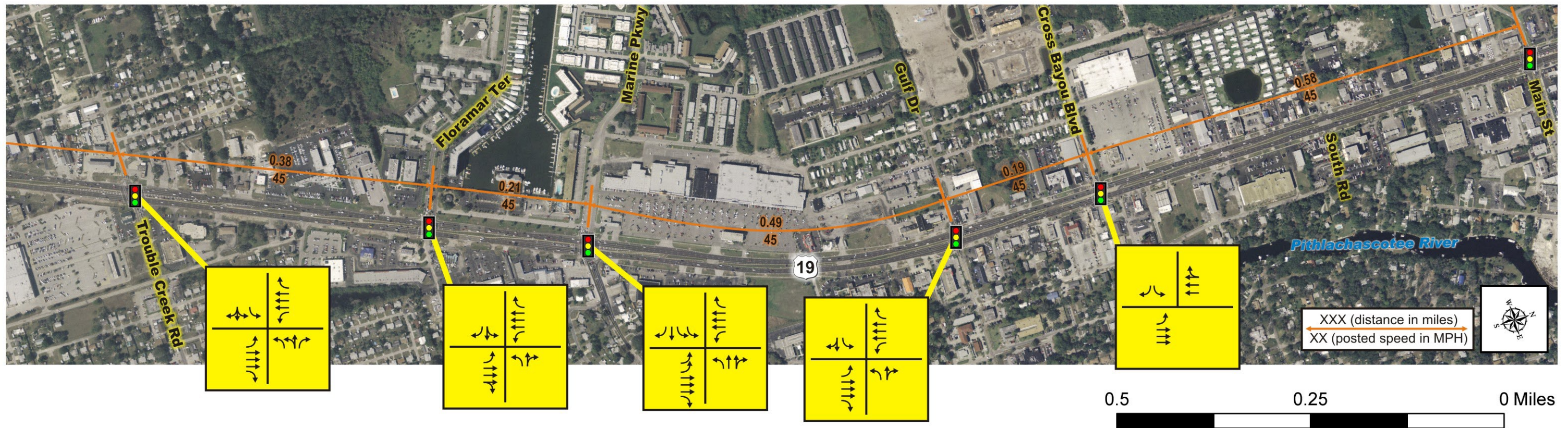
Signalized Intersection	Signalized Intersection	Signalized Intersection
Flora Avenue	Gulf Drive	Jasmine Boulevard
Alternate US 19	Cross Bayou Blvd.	Ranch Road
Mile Stretch Drive	Main Street	SR 52
Darlington Road	Grand Boulevard	Beacon Woods Drive
Sunray Drive	Ridge Road	Hudson Avenue
Moog Road	Holiday Hills Blvd.	New York Avenue
SR 54	Embassy Boulevard	Denton Avenue
Trouble Creek Road	Scenic Drive	Little Road
Floramar Terrace	Fox Hollow Drive	County Line Road
Marine Parkway	Regency Park Boulevard	

The existing lane geometry of these 29 intersections is displayed in **Figures 6-2 (A through F)**.



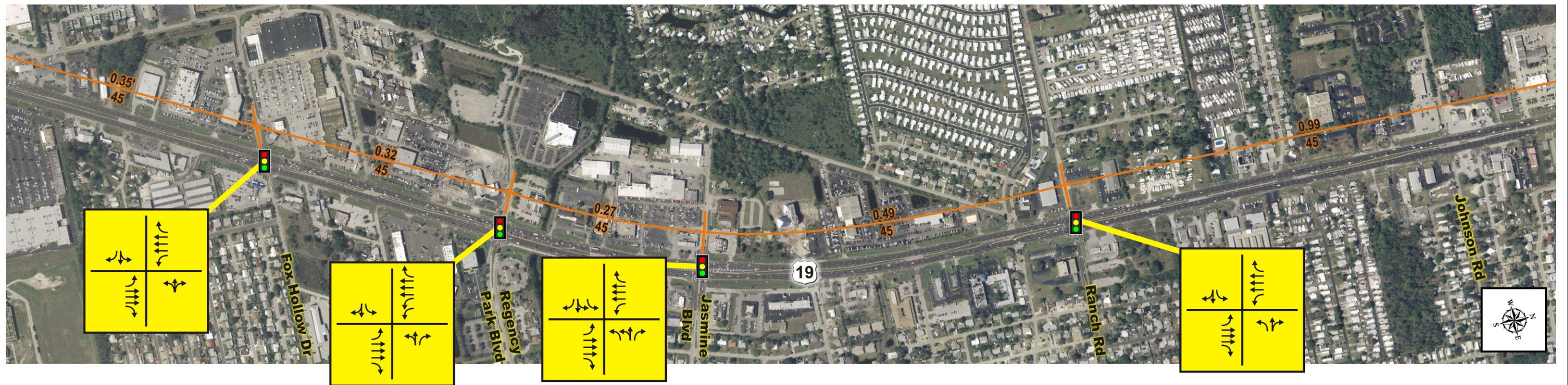
EXISTING YEAR (2006) CORRIDOR LANE GEOMETRY

FIGURE 6-2A



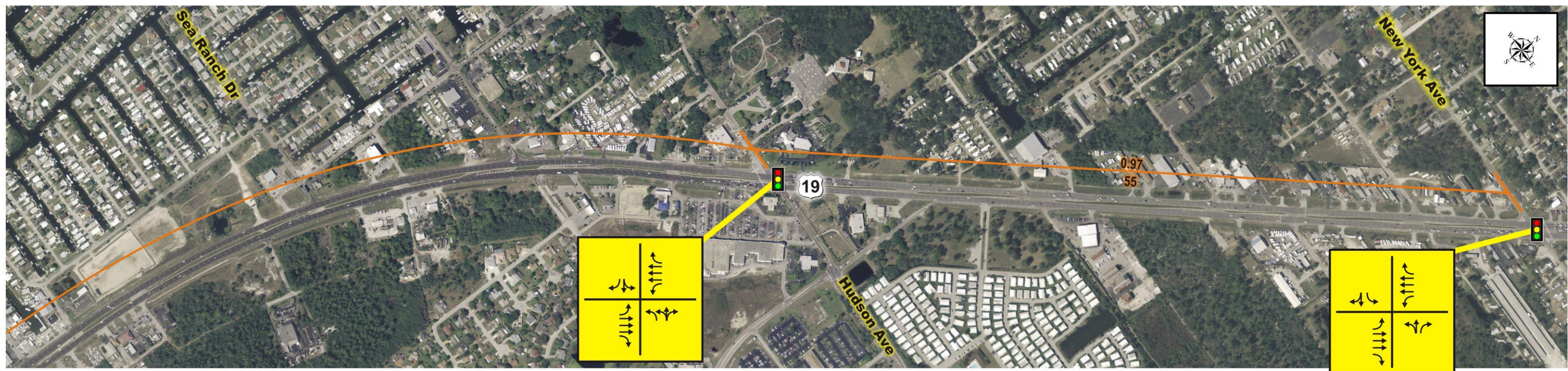
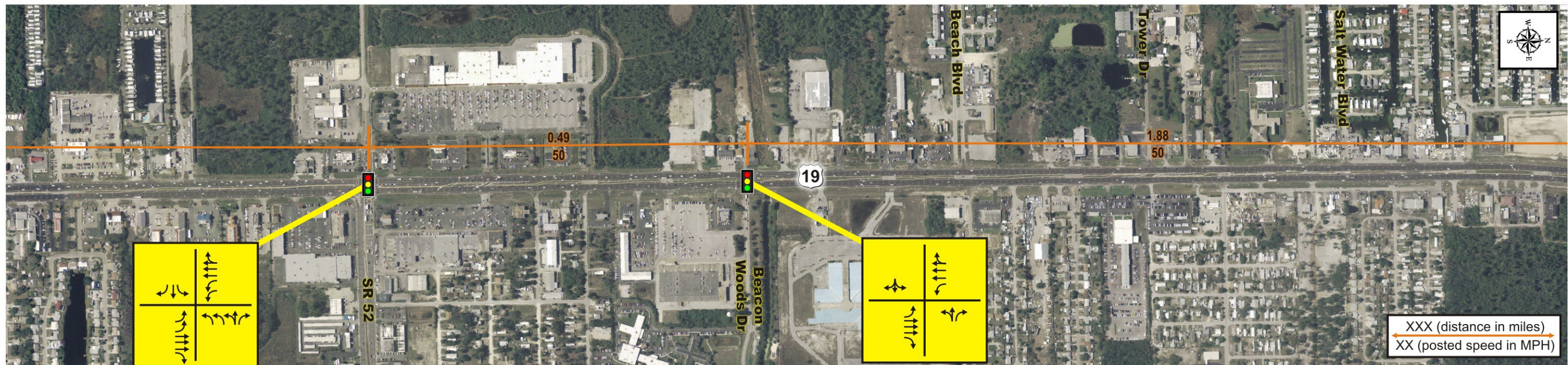
EXISTING YEAR (2006) CORRIDOR LANE GEOMETRY

FIGURE 6-2B



EXISTING YEAR (2006) CORRIDOR LANE GEOMETRY

FIGURE 6-2C



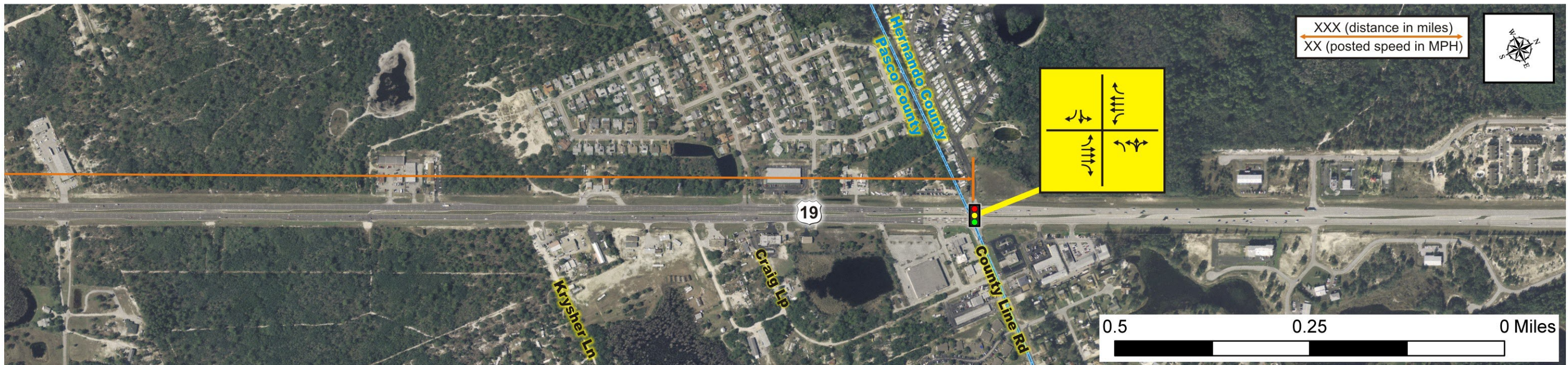
EXISTING YEAR (2006) CORRIDOR LANE GEOMETRY

FIGURE 6-2D



EXISTING YEAR (2006) CORRIDOR LANE GEOMETRY

FIGURE 6-2E



EXISTING YEAR (2006) CORRIDOR LANE GEOMETRY

FIGURE 6-2F

6.3 EXISTING ACCESS MANAGEMENT

This section addresses access management issues within the study limits.

The FDOT has developed access management regulations to help achieve safer and more efficient traffic flow on the State Highway System (SHS). The major documents that pertain to the regulation of access on the SHS are listed below:

- Florida Statute 335.18 - The Access Management Act (adopted 1988 and revised 1992),
- Administrative Rule 14-96 (regulating the access permitting process), and
- Administrative Rule 14-97 (the access management classification system and standards).

Administrative Rule 14-97 categorizes state highways into seven access management classes, with each class having its own standard. The most stringent standard applies to Access Class 1 roadway facilities, which covers limited access freeways. Access Classes 2 through 7 encompasses controlled access highways and are organized from the most restrictive (Class 2) to the least restrictive (Class 7).

6.3.1 Access Standard

SR 55 (US 19) is classified as a Access Class 3 roadway facility on the FIHS/SIS. **Table 6-2** describes the access spacing standards for an Access Class 3 roadway.

Table 6-2
Access Class 3 Standards

Facility Design Features (Median Treatment)	Restrictive
Minimum Connection Spacing - With posted speed over 45 mph - With posted speed at or less than 45 mph	660 feet (ft) 440 ft
Minimum Directional Median Opening Spacing	1,320 ft
Minimum Full Median Opening Spacing	2,640 ft
Minimum Signal Spacing	2,640 ft

Source: Chapter 14-97.03, Florida Administrative Code

6.3.2 Access Management Plan

The location and type of the existing and recommended median openings within the study limits are summarized in **Table 6-3**. The recommended median treatment is based on the *SR 55 (US 19) Pasco County Access Management Study*³ which was presented to FDOT in August 2006. Additional detailed information and graphical representation of the approved SR 55 (US 19) access management plan is contained in the *Final Traffic Technical Memorandum*¹.

Table 6-3
Median Openings Within the Study Limits

Median Opening No.	Cross Street	Mile Post	Existing Median Type	Recommended Median Type
1	Phoenix Avenue	0.006	Full	Close Median Opening
2	Louis Avenue	0.081	Full	Bi-Directional
3	New Hope Baptists	0.162	Full	NB-Directional
4	Flora Avenue	0.259	Signal	Signal
5	Sunoco Station	0.330	Full	Close Median Opening
6	Panorama Avenue	0.469	Full	Bi-Directional
7	Allied Tires	0.540	Full	Close Median Opening
8	Alternate US 19	0.636	Signal	Signal
9	Bartelt Road	0.793	Bi-Directional	Bi-Directional
10	Mile Stretch Drive	1.009	Signal	Signal
11	Bank Of America	1.119	Full	Close Median Opening
12	Salvation Army	1.250	Full	Bi-Directional
13	Tahitian Gardens	1.405	Full	Close Median Opening
14	Darlington Road	1.510	Signal	Signal
15	Sunray Drive	1.707	Signal	Signal
16	Plaza Drive	1.897	Bi-Directional	Close Median Opening
17	Gulf Trace Boulevard	1.959	Full	NB-Directional
18	Palm Grove Church	2.126	Full	Full / Signal
19	Westwood Drive	2.231	Full	Close Median Opening
20	Eastwood Lane	2.299	Full	Bi-Directional
21	Check Cash	2.394	NB-Directional	NB-Directional
22	Moog Road	2.511	Signal	Signal
23	Indoor Flea Market	2.621	Full	Close Median Opening
24	Manor Drive	2.751	Full	Bi-Directional
25	Beacon Hill Drive	2.890	Full	Close Median Opening
26	SR 54	3.028	Signal	Signal
27	Westminister	3.171	Full	Close Median Opening
28	Flamingo Drive	3.275	Full	NB-Directional
29	Sam's Club Entrance	3.360	Full	SB-Directional
30	Trouble Creek Road	3.587	Signal	Signal
31	Bank Of America	3.730	SB-Directional	Close Median Opening
32	Lincoln Dealership	3.773	Na	NB-Directional
33	Shamrock Drive	3.812	Full	SB-Directional

**Table 6-3 (Cont.)
Median Openings Within the Study Limits**

Median Opening No.	Cross Street	Mile Post	Existing Median Type	Recommended Median Type
34	Floramar Terrace	3.966	Signal	Signal
35	Marine Parkway	4.171	Signal	Signal
36	Badcock Store	4.262	Bi-Directional	Close Median Opening
37	Wachovia Bank	4.323	Full	Bi-Directional
38	Clarion Hotel	4.442	Full	Bi-Directional
39	Gulf Drive	4.658	Signal	Signal
40	Lemon Street	4.790	Full	Close Median Opening
41	Cross Bayou Boulevard	4.851	Signal	Signal
42	Linder Place	4.877	Bi-Directional	Close Median Opening
43	Imperial Drive	5.019	Full	Bi-Directional
44	South Road	5.160	Full	Bi-Directional
45	Sun Trust Bank	5.293	Full	Close Median Opening
46	Main Street	5.435	Signal	Signal
47	Bridge Road	5.488	Full	Close Median Opening
48	Wing House	5.598	Full	Close Median Opening
49	Green Key Road	5.656	Bi-Directional	Bi-Directional
50	Thomasville Furniture	5.754	Full	Close Median Opening
51	Sunset Road	5.866	Full	Close Median Opening
52	Beau Lane	5.911	Full	Bi-Directional
53	Palmetto Drive	6.023	Full	Bi-Directional
54	Richey Plaza	6.137	Full	Close Median Opening
55	Avery Road	6.271	Bi-Directional	Bi-Directional
56	Luna Vista Drive	6.402	Full	Close Median Opening
57	Limit Drive	6.520	Full	NB-Directional
58	Bellview Avenue	6.557	Full	SB-Directional
59	Cedar Lane	6.611	Full	Close Median Opening
60	Lark Lane	6.696	Full	Close Median Opening
61	River Gulf Road	6.936	Bi-Directional	Bi-Directional
62	Cottee Street	7.021	Bi-Directional	Close Median Opening
63	Grand Boulevard	7.141	Signal	Signal
64	Pasco Way	7.256	Full	Close Median Opening
65	Washington Street	7.409	Full	Bi-Directional
66	K Of C Drive	7.567	Full	Close Median Opening
67	Bay Boulevard	7.632	NB-Directional	NB-Directional
68	Ridge Road	7.710	Signal	Signal
69	Springer Drive	7.960	Full	Bi-Directional
70	Self Storage Driveway	8.055	Bi-Directional	Close Median Opening
71	Haverty's Driveway	8.127	Bi-Directional	Close Median Opening
72	Golden Corral Drive	8.215	Full	Bi-Directional
73	Stone Road	8.283	Bi-Directional	Close Median Opening
74	Salt Springs Road	8.373	Bi-Directional	Close Median Opening
75	Holiday Hills Boulevard	8.482	Signal	Signal

Table 6-3 (Cont.)
Median Openings Within the Study Limits

Median Opening No.	Cross Street	Mile Post	Existing Median Type	Recommended Median Type
76	Mel's Dinner Driveway	8.544	Full	Close Median Opening
77	Embassy Boulevard	8.750	Signal	Signal
78	Tacoma Drive	8.857	Bi-Directional	Bi-Directional
79	Scenic Drive	9.051	Signal	Signal
80	Butch Street	9.223	Full	Close Median Opening
81	Fox Hollow Drive	9.403	Signal	Signal
82	Graphic Drive	9.549	Bi-Directional	Bi-Directional
83	Regency Park Blvd	9.722	Signal	Signal
84	J & R Carpet Driveway	9.848	Full	Close Median Opening
85	Jasmine Boulevard	9.992	Signal	Signal
86	Bougenville Drive	10.134	Full	SB-Directional
87	Coventry Drive	10.267	Full	Bi-Directional
88	Palisade Drive	10.402	NB-Directional	NB-Directional
89	Ranch Road	10.483	Signal	Signal
90	Burr Oaks Circle	10.583	Full	Close Median Opening
91	Seward Drive	10.646	Full	Close Median Opening
92	Sandra Drive	10.751	Full	NB-Directional
93	Commons Boulevard	10.782	Full	SB-Directional
94	San Marco Drive	10.976	Full	Bi-Directional
95	Colfax Road	11.029	Full	Close Median Opening
96	Gulf Highlands Drive	11.105	Full	Bi-Directional
97	Travelodge Driveway	11.248	Full	Bi-Directional
98	SR 52	11.474	Signal	Signal
99	Point Plaza Driveway	11.630	Bi-Directional	Bi-Directional
100	Edna Avenue	11.756	Full	SB-Directional
101	Big K Entrance	11.861	Full	Close Median Opening
102	Beacon Woods Drive	11.961	Signal	Signal
103	Leisure Lanes Driveway	12.047	Full	Close Median Opening
104	Peeco Plaza Driveway	12.149	Full	SB-Directional
105	Beach Boulevard	12.238	Full	Bi-Directional
106	Country Club Drive	12.389	Full	SB-Directional
107	Tower Dr. / Clarita Drive	12.480	Bi-Directional	Bi-Directional
108	Terrace Drive	12.572	Full	Close Median Opening
109	Methodist Lane	12.634	Full	NB-Directional
110	Signal Cove Drive	12.693	Full	Close Median Opening
111	Saltwater Boulevard	12.735	Full	NB-Directional
112	Florestate Drive	12.800	Full	SB-Directional
113	Sanderling Lane	12.818	Full	Close Median Opening
114	Puffin Lane	12.895	Full	NB-Directional
115	Division Avenue	12.984	Full	SB-Directional
116	Stahl Drive	13.170	Bi-Directional	Close Median Opening
117	Sea Ranch Drive	13.236	Full	Full / Signal

Table 6-3 (Cont.)
Median Openings Within the Study Limits

Median Opening No.	Cross Street	Mile Post	Existing Median Type	Recommended Median Type
118	Babson Avenue	13.349	Full	Close Median Opening
119	Windsor Mill Road	13.519	Bi-Directional	Bi-Directional
120	Citgo Gas Station	13.714	Bi-Directional	Close Median Opening
121	Hudson Avenue	13.838	Signal	Signal
122	Sunoco Station Driveway	13.995	Full	Close Median Opening
123	Flounder Drive	14.155	Full	Bi-Directional
124	New Jersey Avenue	14.397	Full	NB-Directional
125	Rhodes Road	14.492	Full / Emergency Signal	Full / Emergency Signal
126	Maryland Avenue	14.660	Full	Bi-Directional
127	New York Avenue	14.807	Signal	Signal
128	Palatine Drive	15.016	Full	Close Median Opening
129	Arcola Avenue	15.151	Full	Bi-Directional
130	Sunnydale Drive	15.296	Full	Close Median Opening
131	Bolton Avenue	15.474	Full	Full / Signal
132	Sea Pines Drive	15.625	Full	NB-Directional
133	Casper Avenue	15.802	Full	NB-Directional
134	Viva Via	15.947	Full	NB-Directional
135	Denton Avenue	16.126	Signal	Signal
136	RV Resort Driveway	16.286	Full	Close Median Opening
137	Eden Avenue	16.457	Full	SB-Directional
138	Phelps Road	16.577	Full	Bi-Directional
139	Scheer Boulevard	16.773	Full	Bi-Directional
140	Little Road	16.966	Signal	Signal
141	Surplus Sale Driveway	17.268	Full	Close Median Opening
142	Houston Avenue	17.423	Full	Full / Signal
143	Ideal Lane	17.614	Full	Close Median Opening
144	Jessup Lane	17.842	Full	Full
145	Jc Sod & Plants	18.061	Full	Close Median Opening
146	Aripeka Road	18.301	Full	Full / Signal
147	Meridian Boulevard	18.511	Full	Bi-Directional
148	Vacant	18.699	Full	Close Median Opening
149	Osprey Point	18.902	Full	SB-Directional
150	Discount Beverage	18.956	Full	NB-Directional
151	Landmark Drive	19.371	Full	Bi-Directional
152	Crafters Drive	19.504	Full	Close Median Opening
153	County Line Road	19.673	Signal	Signal

6.4 EXISTING TRAFFIC CONDITIONS

The *Highway Capacity Manual (HCM)*⁴ component of the Synchro software was used to evaluate the signalized intersections located along the study corridor. The HCM's methodology and procedures were used to evaluate the quality of traffic flow currently experienced along the SR 55 (US 19) arterial segments. The morning and evening peak hour LOS were determined for the 29 signalized intersections and corresponding arterial segments. The LOS standard specified by the FDOT from south of Alternate US 19 to SR 52 is LOS D, while the LOS standard for the remaining portion of the study area is designated as LOS C. The following sections summarize the results of the existing capacity analyses.

6.4.1 Existing Intersection Levels of Service

The LOS analyses for existing (2006) conditions, as shown in **Table 6-4**, indicate that the majority of the intersections are operating at unacceptable LOS. Of the 29 signalized intersections, 21 intersections are currently operating below the LOS standard. Additional detail regarding the existing signalized operations analyses is provided in the *Final Traffic Technical Memorandum*¹.

Table 6-4
Existing (2006) SR 55 (US 19) Signalized Intersections LOS Summary

SR 55 (US 19) Intersection	Overall LOS AM / PM	Overall Delay (Sec / Veh) AM / PM
Flora Avenue	F / E	106 / 55
Alternate US 19	F / F	100 / 143
Mile Stretch Drive	F / F	125 / 87
Darlington Road	E / F	67 / 98
Sunray Drive	E / F	69 / 112
Moog Road	E / F	59 / 89
SR 54	D / F	47 / 109
Trouble Creek Road	E / F	57 / 82
Floramar Terrace	E / D	63 / 41
Marine Parkway	D / D	36 / 35
Gulf Drive	C / D	30 / 43
Cross Bayou Boulevard	A / B	4 / 11
Main Street	D / E	55 / 67

Table 6-4 (Cont.)
Existing (2006) SR 55 (US 19) Signalized Intersections LOS Summary

SR 55 (US 19) Intersection	Overall LOS AM / PM	Overall Delay (Sec / Veh) AM / PM
Grand Boulevard	C / D	28 / 46
Ridge Road	F / F	122 / 167
Holiday Hills Boulevard	B / B	12 / 18
Embassy Boulevard	D / E	48 / 60
Scenic Drive	E / E	62 / 60
Fox Hollow Drive	F / E	86 / 59
Regency Park Drive	D / E	36 / 64
Jasmine Boulevard	F / F	81 / 99
Ranch Road	E / E	73 / 56
SR 52	F / F	120 / 189
Beacon Woods Drive	B / C	17 / 23
Hudson Avenue	D / F	55 / 94
New York Avenue	B / C	19 / 21
Denton Avenue	B / B	14 / 11
Little Road	F / D	89 / 43
County Line Road	E / E	63 / 63

6.4.2 Existing Arterial Levels of Service

The results of the signalized intersection analysis were used to determine the LOS for roadway segments within the study corridor. Each arterial segment was examined in both directions, as the LOS for a segment can vary depending on the direction of travel analyzed. As noted in **Table 6-5**, the majority of the northbound segments experience deficient LOS conditions during the PM peak hour. As shown in **Table 6-6**, the majority of the southbound segments experience deficient LOS conditions during the AM peak hour. Additional detail regarding the existing arterial analyses is provided in the *Final Traffic Technical Memorandum*¹.

Table 6-5
Existing Year (2006) SR 55 (US 19) Arterial
Northbound Level of Service Summary

SR 55 (US 19) Section */ Segment	Arterial Class **	Segment Length (miles)	Arterial Speed (mph)		LOS	
			AM	PM	AM	PM
South of Alternate US 19 to SR 54 *		3.03	26.8	9.0	D	F
Pinellas County Line to Flora Avenue	I	0.26	16.8	9.3	E	F
Flora Avenue to Alternate 19		0.38	26.3	5.9	D	F
Alternate 19 to Mile Stretch Drive		0.37	21.5	8.4	D	F
Mile Stretch Drive to Darlington Road		0.50	37.0	9.7	B	F
Darlington Road to Sunray Drive		0.20	18.5	4.2	E	F
Sunray Drive to Moog Road		0.80	31.3	15.7	C	F
Moog Road to SR 54		0.52	32.2	10.7	C	F
SR 54 to Main Street *		2.41	26.1	16.5	D	E
SR 54 to Trouble Creek Road	I	0.56	19.9	12.9	E	F
Trouble Creek Road to Floramar Terrace		0.38	34.5	15.9	B	F
Floramar Terrace to Marine Parkway		0.21	27.4	15.3	C	F
Marine Parkway to Gulf Drive		0.49	26.3	18.6	D	E
Gulf Drive to Cross Bayou Boulevard		0.19	32.9	27.8	C	C
Cross Bayou Boulevard to Main Street		0.58	27.4	18.4	C	E
Main Street To Ridge Road *		2.28	35.6	17.0	B	E
Main Street to Grand Boulevard	I	1.71	41.6	31.5	B	C
Grand Boulevard to Ridge Road		0.57	24.8	7.1	D	F
Ridge Road To SR 52 *		3.76	28.1	12.3	C	F
Ridge Road to Holiday Hills Boulevard	I	0.77	39.9	35.5	B	B
Holiday Hills Boulevard to Embassy Boulevard		0.27	27.2	8.3	C	F
Embassy Boulevard to Scenic Drive		0.30	28.2	9.4	C	F
Scenic Drive to Fox Hollow Drive		0.35	28.0	14.3	C	F
Fox Hollow Drive to Regency Drive		0.32	30.2	8.3	C	F
Regency Drive to Jasmine Boulevard		0.27	19.4	5.0	E	F
Jasmine Boulevard to Ranch Road		0.49	21.7	15.5	D	F
Ranch Road to SR 52		0.99	29.0	14.0	C	F
SR 52 to north of County Line Road *		8.21	41.4	34.7	B	B
SR 52 to Beacon Woods Drive	I	0.49	32.1	27.1	C	C
Beacon Woods Drive to Hudson Avenue		1.88	37.6	23.1	B	D
Hudson Avenue to New York Avenue		0.97	45.3	41.8	A	B
New York Avenue to Denton Avenue		1.32	48.7	48.7	A	A
Denton Avenue to Little Road		0.87	39.1	36.9	B	B
Little Road to County Line Road		2.68	43.2	42.1	A	A
Within Study Limits		I	19.9	32.7	17.0	C

Notes:

* An arterial section is a composite of the associated arterial segments. The section overall average speed was estimated by totaling the arterial section signal delays for each through movement; then dividing by the total arterial section length. The LOS was determined by using the HCM, Exhibit 15-2.

** Arterial class is established based on the criteria provided in the HCM, Exhibits 10-3 and 10-4.

Table 6-6
Existing Year (2006) SR 55 (US 19) Arterial
Southbound Level of Service Summary

SR 55 (US 19) Section */ Segment	Arterial Class **	Segment Length (miles)	Arterial Speed (mph)		LOS	
			AM	PM	AM	PM
North of County Line Road To SR 52 *		8.21	37.2	43.1	B	A
County Line Road to Little Road	I	2.68	48.9	49.5	A	A
Little Road to Denton Avenue		0.87	44.7	48.4	A	A
Denton Avenue to New York Avenue		1.32	45.6	46.5	A	A
New York Avenue to Hudson Avenue		0.97	30.1	34.3	C	B
Hudson Avenue to Beacon Woods Drive		1.88	46.6	47.5	A	A
Beacon Woods Drive to SR 52		0.49	11.0	22.4	F	D
SR 52 to Ridge Road *		3.76	12.1	25.2	F	D
SR 52 to Ranch Road	I	0.99	20.3	35.2	E	B
Ranch Road to Jasmine Boulevard		0.49	10.2	22.9	F	D
Jasmine Boulevard to Regency Drive		0.27	12.2	29.5	F	C
Regency Drive to Fox Hollow Drive		0.32	6.7	17.8	F	E
Fox Hollow Drive to Scenic Drive		0.35	9.4	21.5	F	D
Scenic Drive to Embassy Boulevard		0.30	11.0	19.0	F	E
Embassy Boulevard to Holiday Hills Boulevard		0.27	25.9	24.4	D	D
Holiday Hills Boulevard to Ridge Road		0.77	11.0	26.0	F	D
Ridge Road to Main Street *		2.28	30.4	35.6	C	B
Ridge Road to Grand Boulevard	I	0.57	24.7	32.1	D	C
Grand Boulevard to Main Street		1.71	32.9	36.9	C	B
Main Street to SR 54 *		2.41	20.0	29.1	E	C
Main Street to Cross Bayou Boulevard	I	0.58	41.8	33.8	B	C
Cross Bayou Boulevard to Gulf Drive		0.19	16.9	22.4	E	D
Gulf Drive to Marine Parkway		0.49	21.5	31.9	D	C
Marine Parkway to Floramar Terrace		0.21	6.6	22.0	F	D
Floramar Terrace to Trouble Creek Road		0.38	20.8	30.2	E	C
Trouble Creek Road to SR 54		0.56	24.7	28.5	D	C
SR 54 to south of Alternate US 19 *		3.03	11.2	28.8	F	C
SR 54 to Moog Road	I	0.52	17.7	29.0	E	C
Moog Road to Sunray Drive		0.80	19.1	31.7	E	C
Sunray Drive to Darlington Road		0.20	6.7	19.4	F	E
Darlington Road to Mile Stretch Road		0.50	7.9	36.4	F	B
Mile Stretch Road to Alternate 19		0.37	8.0	22.4	F	D
Alternate 19 to Flora Avenue		0.38	7.4	27.3	F	C
Flora Avenue to Pinellas County Line		0.26	34.9	34.9	B	B
Within Study Limits		I	19.9	19.7	33.3	E

Notes:

* An arterial section is a composite of the associated arterial segments. The section overall average speed was estimated by totaling the arterial section signal delays for each through movement; then dividing by the total arterial section length. The LOS was determined by using the HCM, Exhibit 15-2.

** Arterial class is established based on the criteria provided in the HCM, Exhibits 10-3 and 10-4.

6.5 MULTIMODAL TRANSPORTATION SYSTEM CONSIDERATIONS

6.5.1 Transit

Existing transit services provided by Pasco County Public Transportation (PCPT) consists of fixed bus routes along SR 55 (US 19). The majority of bus routes throughout Pasco County currently run with 60 minute headways. However, the headway for the route along SR 55 (US 19) has recently been reduced to 30 minutes. Hours of operation are Monday through Friday from 5:30 AM to 8:25 PM. There are four buses currently servicing this route. Routes connections consist of 14A, 14B, 16, 18, 23, 25, 27 and additional transit services provided by the Pinellas Suncoast Transit Authority (PSTA). Major destinations serviced by this route are Bayonet Point Plaza, Gulf View Square Mall, Tarpon Mall, Southgate Plaza, Holiday Mall, Super Wal-Mart, Hollywood 18 Theaters, Embassy Crossing, Universal Plaza, Papas Plaza, U.S.A. Flea Market, The Piers and the Social Security Administration.

The 2025 Transit Needs Plan was updated as part of the *Pasco County Metropolitan Planning Organization (MPO) 2025 Long Range Transportation Plan (LRTP) Update*⁵ The 2025 Transit Needs Plan identified the following two needs for the SR 55 (US 19) corridor:

- An extension of SR 55 (US 19) service to Hernando County
- Express Bus Service along SR 55 (US 19) into Pinellas County

There were no other recommendations contained in the 2025 Transit Needs Plan that would affect the transit operations along the SR 55 (US 19) corridor.

6.5.2 Rail

There is no existing railroad that crosses SR 55 (US 19) within the project limits.

6.5.3 Aviation

There is no public or private aviation facility located in the vicinity of the study corridor.

6.6 TRAFFIC VOLUME PROJECTIONS

The Tampa Bay Regional Planning Model (TBRPM) Version 5.1 was utilized to estimate future year traffic volumes on SR 55 (US 19) and the intersecting cross streets. The 2030 AADT

volumes developed by the FDOT are shown on **Figure 6-3 (A through F)**. The design year (2030) directional design hour volumes (DDHV) were obtained by multiplying the AADT volumes by the K_{30} and D_{30} factors provided in **Table 6-1**. Design hour AM and PM intersection turning movement volumes were estimated by multiplying the DDHV by AM and PM field-collected turning movement percentages.. The peak direction of travel on SR 55 (US 19) and cross streets was determined based on existing travel patterns. The resulting AM and PM turning movement traffic volumes are shown on **Figure 6-3 (A through F)**.

6.7 LEVEL OF SERVICE

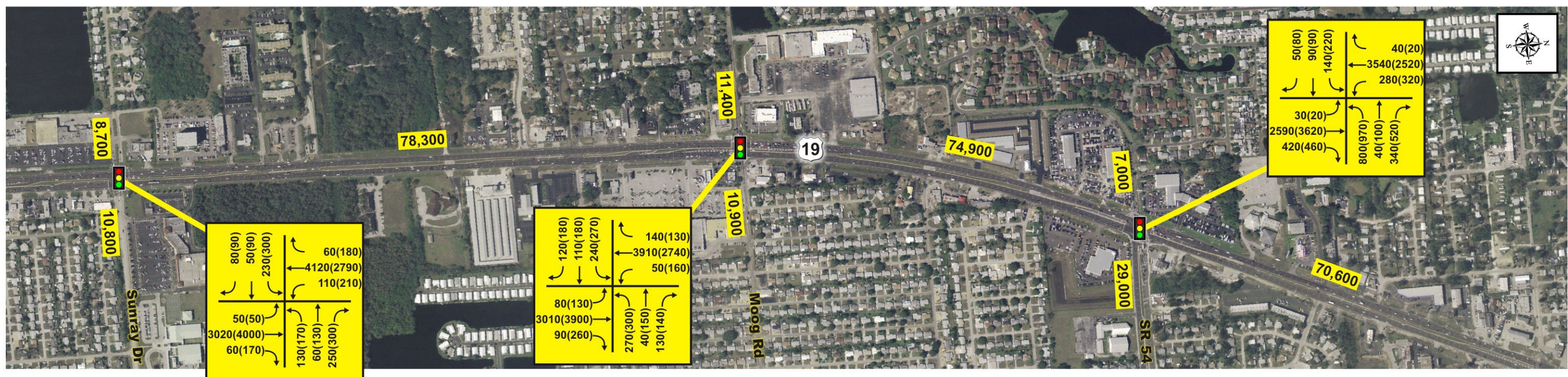
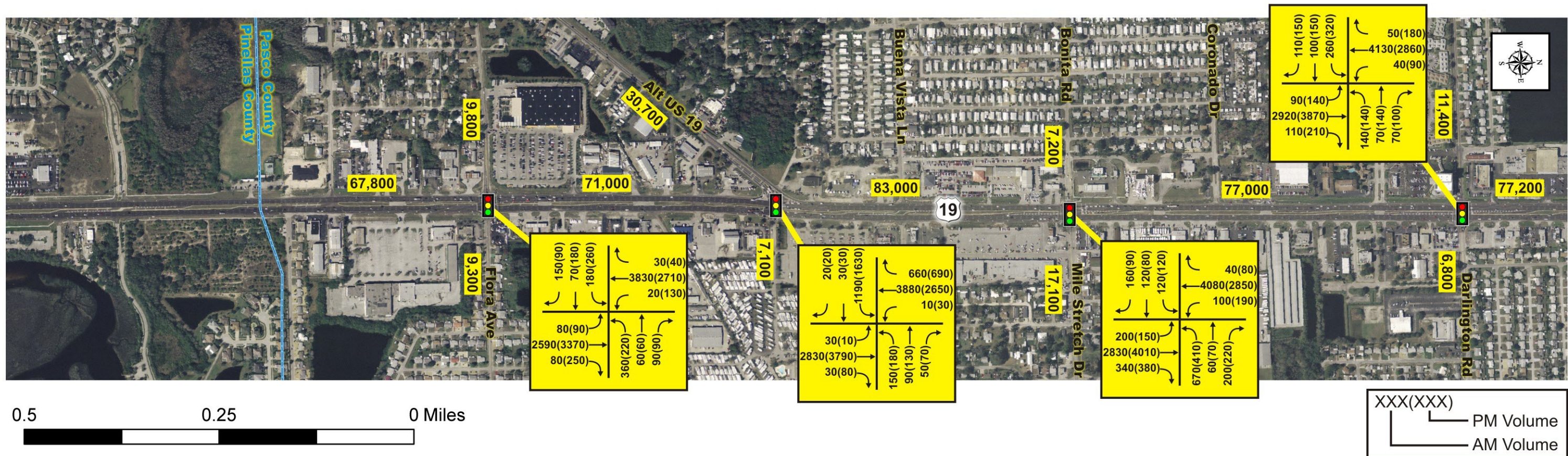
For the design year (2030), evaluation of traffic conditions were completed for the assuming the following four alternatives:

- No-Build
- Continuous Right-Turn Lane (CRTL)
- Transportation System Management (TSM)
- Interchanges at SR 54, Ridge Road, SR 52 and County Line Road intersections

A brief description of the traffic analysis assumptions used to evaluate these alternatives is provided in the following paragraphs. Detailed information regarding each alternative is provided in the *Final Traffic Technical Memorandum*¹.

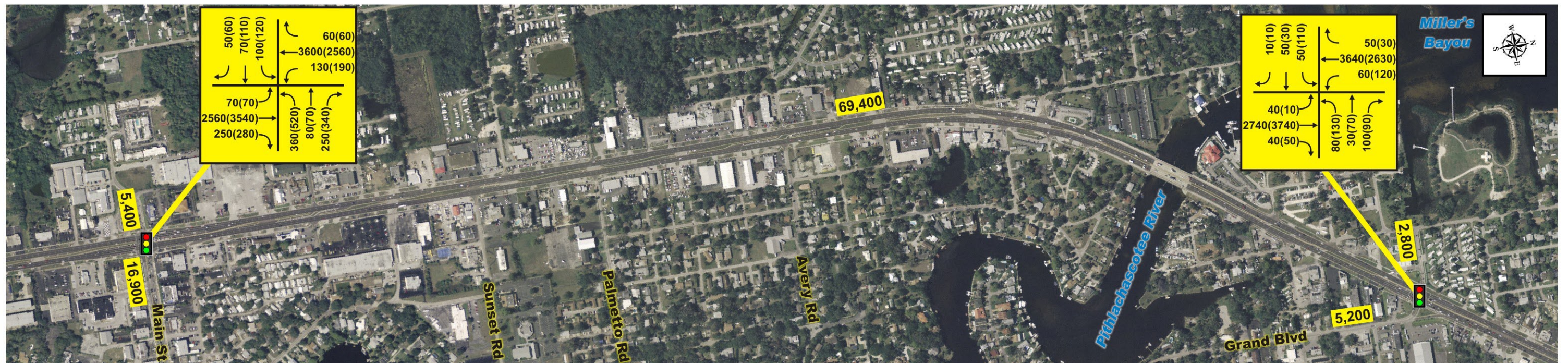
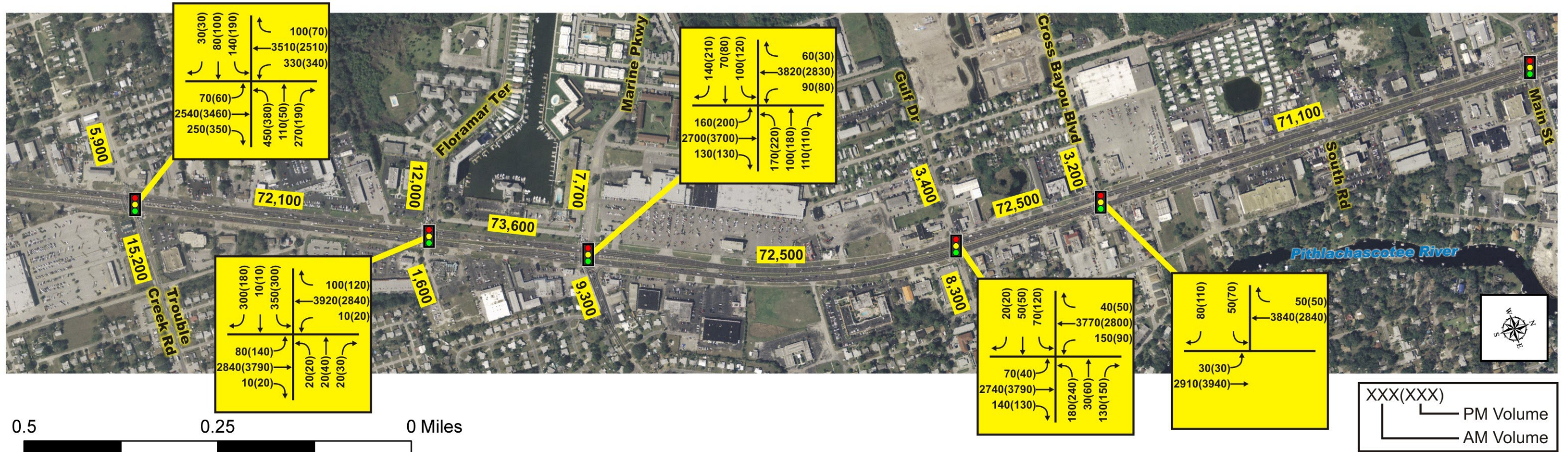
No-Build Alternative - The No-Build scenario analyzes existing year (2006) geometric conditions using design year (2030) peak hour turning movement volumes. The existing intersection lane geometry displayed in **Figures 6-2 (A through F)** was used to complete the analyses.

Continuous Right-Turn Lane (CRTL) Alternative - In this alternative, the CRTL was proposed to be built in both the northbound and southbound directions of the SR 55 (US 19) arterial. The CRTL was created by extending and connecting existing right-turn lane sections along the arterial. Through traffic movements could be made from the CRTL;



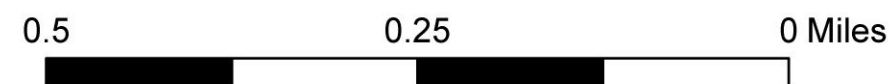
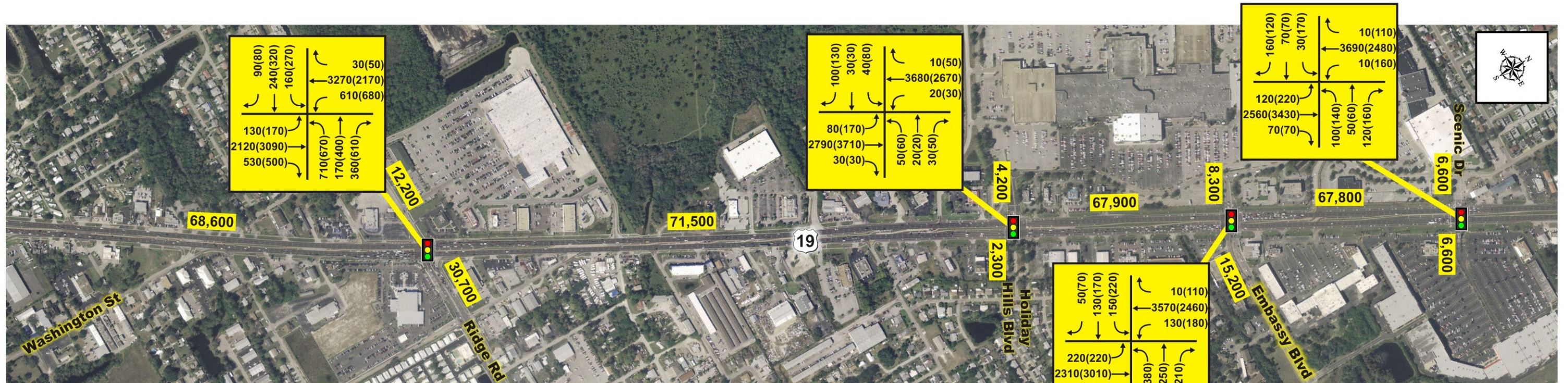
DESIGN YEAR (2030) TRAFFIC VOLUMES

FIGURE 6-3A

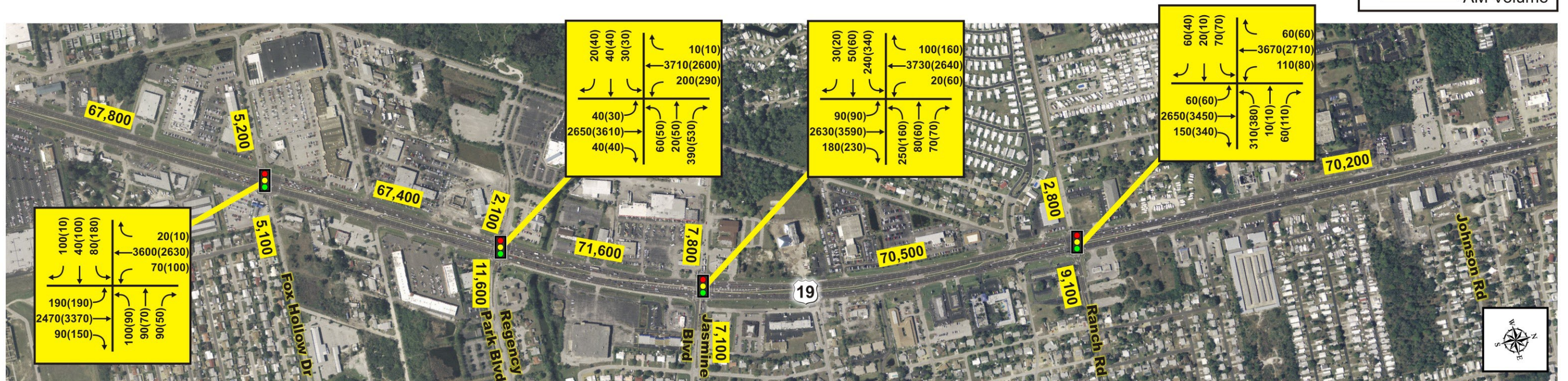


DESIGN YEAR (2030) TRAFFIC VOLUMES

FIGURE 6-3B

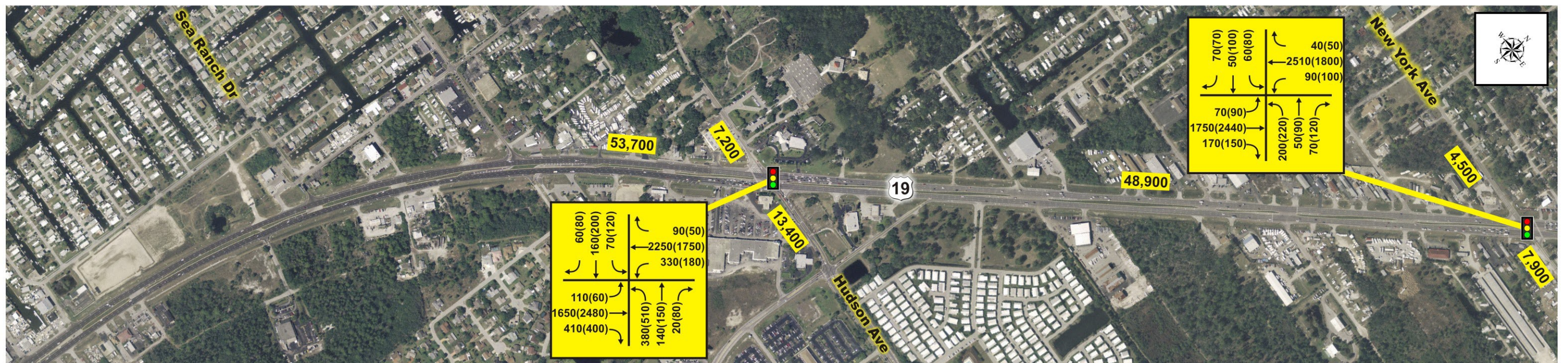
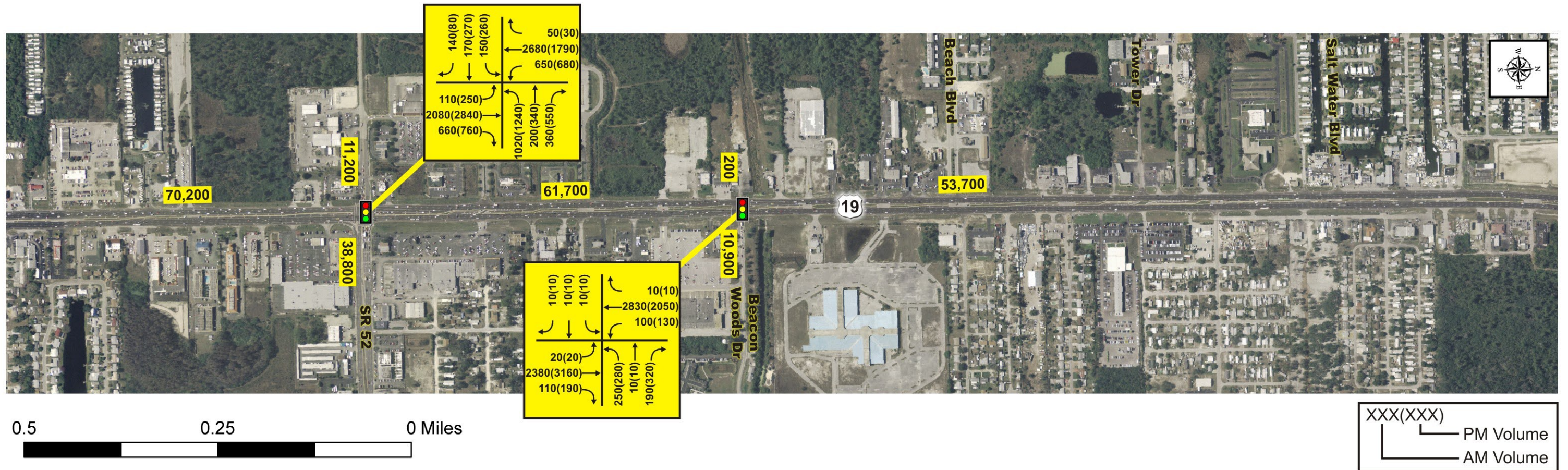


XXX(XXX)
 PM Volume
 AM Volume



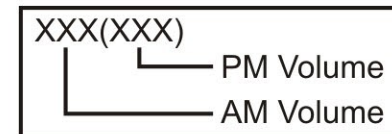
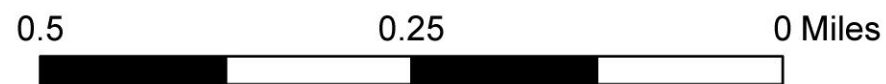
DESIGN YEAR (2030) TRAFFIC VOLUMES

FIGURE 6-3C



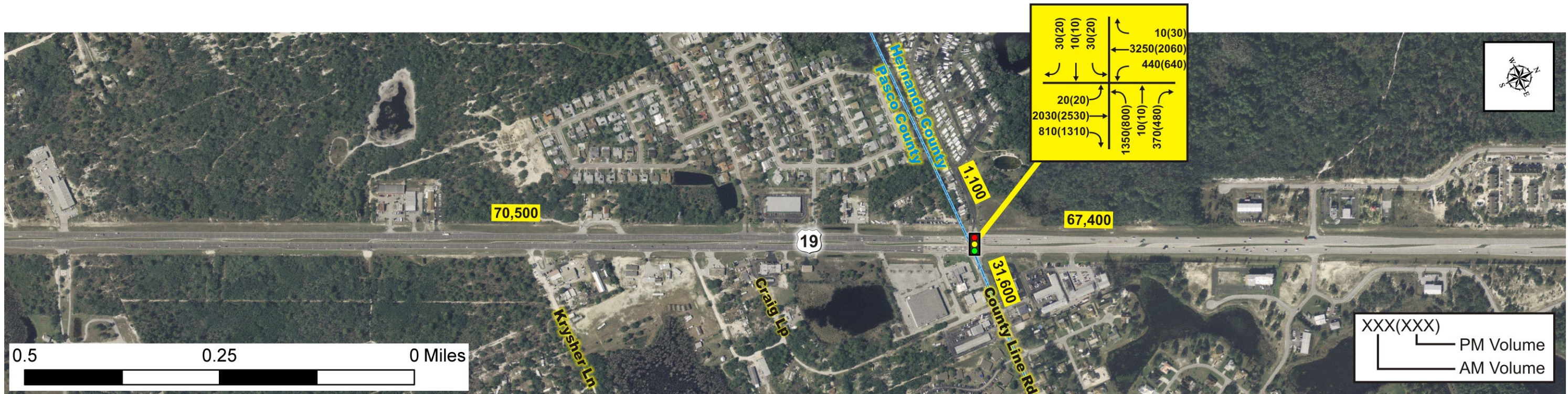
DESIGN YEAR (2030) TRAFFIC VOLUMES

FIGURE 6-3D



DESIGN YEAR (2030) TRAFFIC VOLUMES

FIGURE 6-3E



DESIGN YEAR (2030) TRAFFIC VOLUMES

FIGURE 6-3F

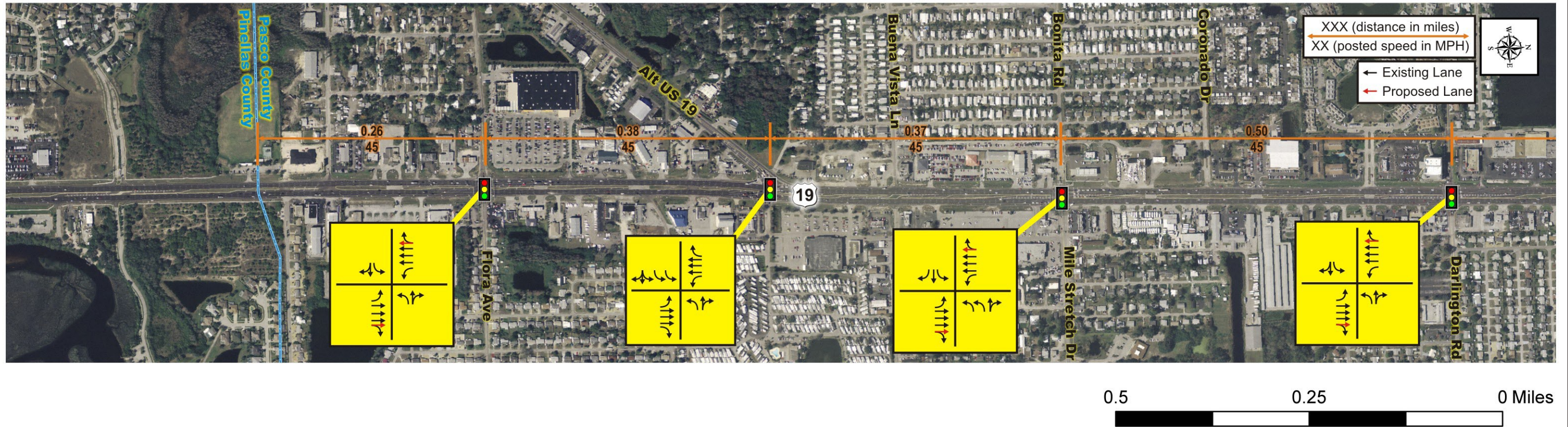
however, the CRTL would be discontinued as an exclusive right-turn lane at major intersections. In order to determine the appropriate intersections for discontinuation of the CRTL, extensive coordination occurred with FDOT. During the coordination process, consideration was given to magnitude of right-turn traffic volumes, distance between intersections and driver expectancy. Based on this effort, the following intersections were identified for CRTL discontinuation.

- Alternate US 19
- SR 54
- Main Street
- Ridge Road
- Embassy Boulevard
- SR 52
- Hudson Avenue
- Denton Avenue
- County Line Road

At these intersections, the CRTL is terminated as an exclusive right-turn lane in both the northbound and southbound directions. The proposed CRTL improvements are shown on **Figures 6-4 (A through F)**. However, as noted previously, these improvements are no longer considered to be part of the proposed project improvements.

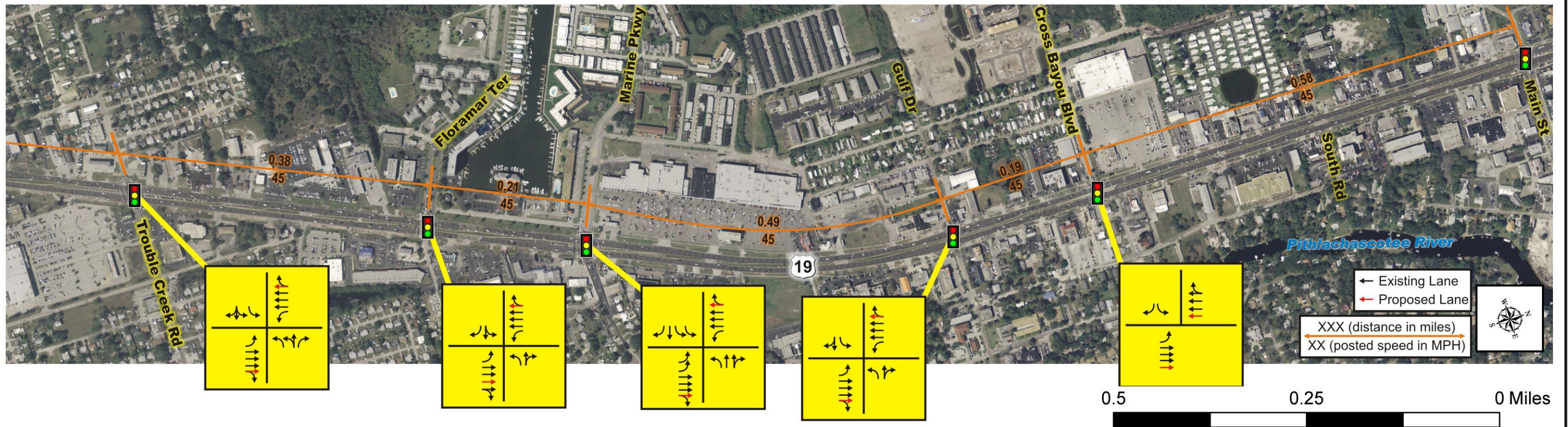
Transportation System Management (TSM) Alternative – In order to further enhance future traffic conditions, TSM improvements were considered at a number of intersections within the study limits. In the process of identifying TSM intersection improvements, the intersection turn volumes, intersection LOS and intersection signal delay for the design year (2030) were considered. The results identified the following intersections as candidates for improvement through use of TSM strategies:

- Mile Stretch Drive
- Darlington Road
- Sunray Drive
- SR 54
- Trouble Creek Road
- Ridge Road



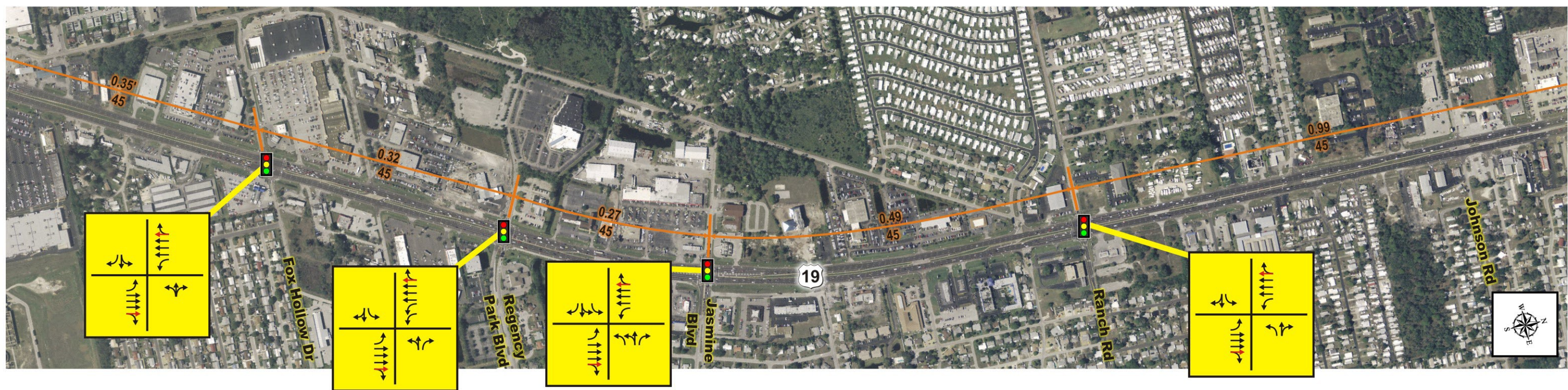
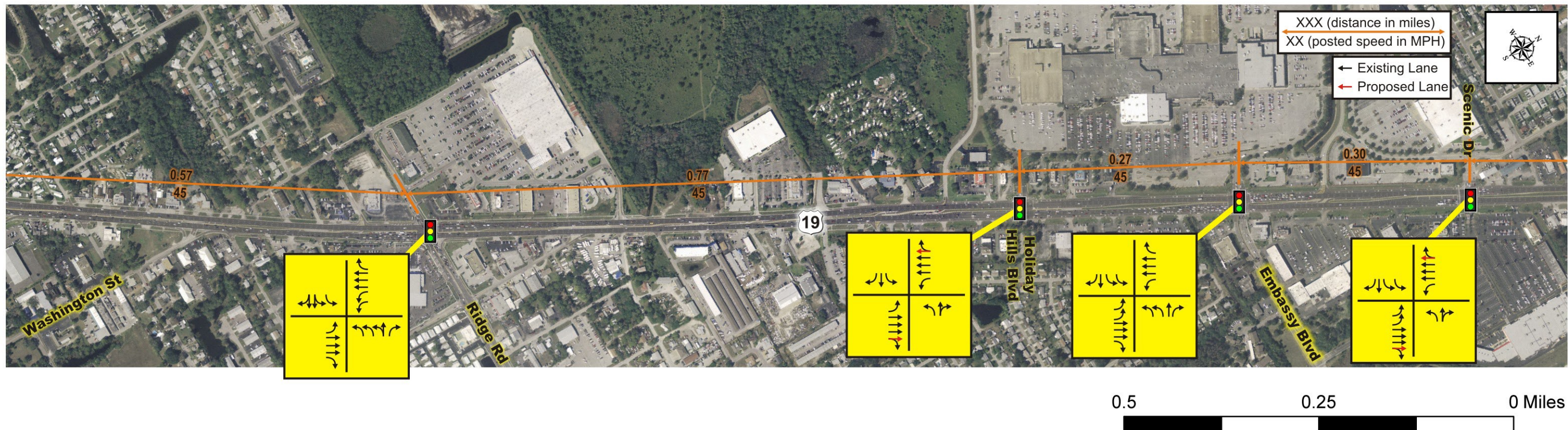
DESIGN YEAR (2030) CONTINUOUS RIGHT-TURN LANE (CRTL)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-4A



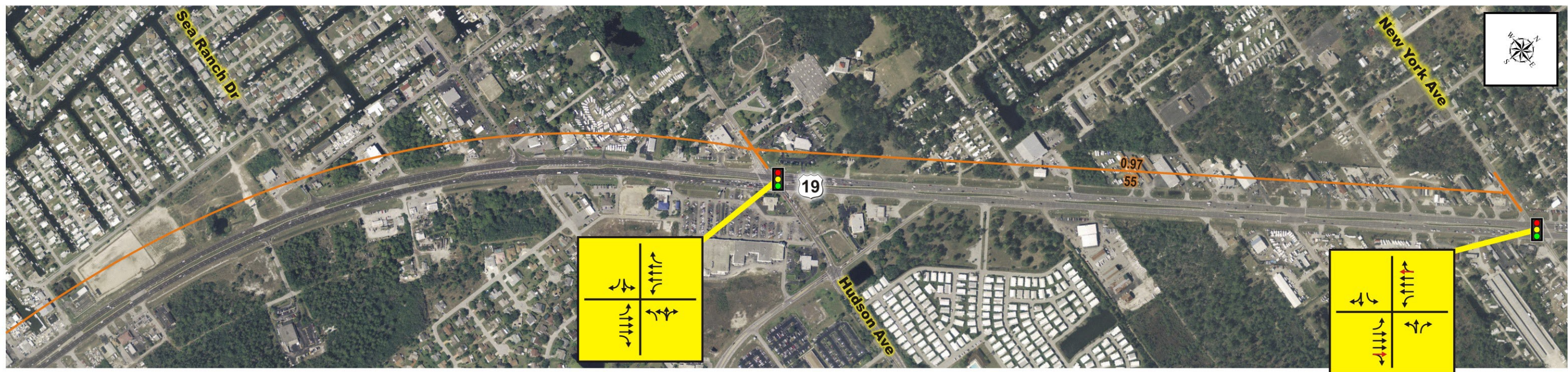
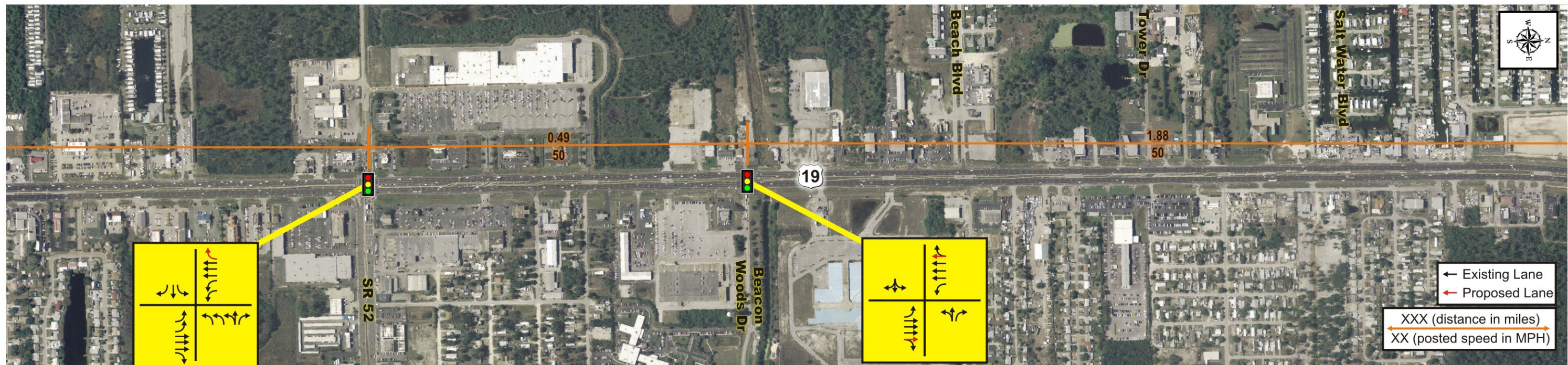
DESIGN YEAR (2030) CONTINUOUS RIGHT-TURN LANE (CRTL)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-4B



DESIGN YEAR (2030) CONTINUOUS RIGHT-TURN LANE (CRTL)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-4C



DESIGN YEAR (2030) CONTINUOUS RIGHT-TURN LANE (CRTL)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-4D



DESIGN YEAR (2030) CONTINUOUS RIGHT-TURN LANE (CRTL)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-4E



DESIGN YEAR (2030) CONTINUOUS RIGHT-TURN LANE (CRTL)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-4F

- Embassy Boulevard
- SR 52
- Hudson Avenue
- Little Road
- County Line Road

The proposed intersection improvements for the TSM alternative are shown on **Figures 6-5 (A through F)**.

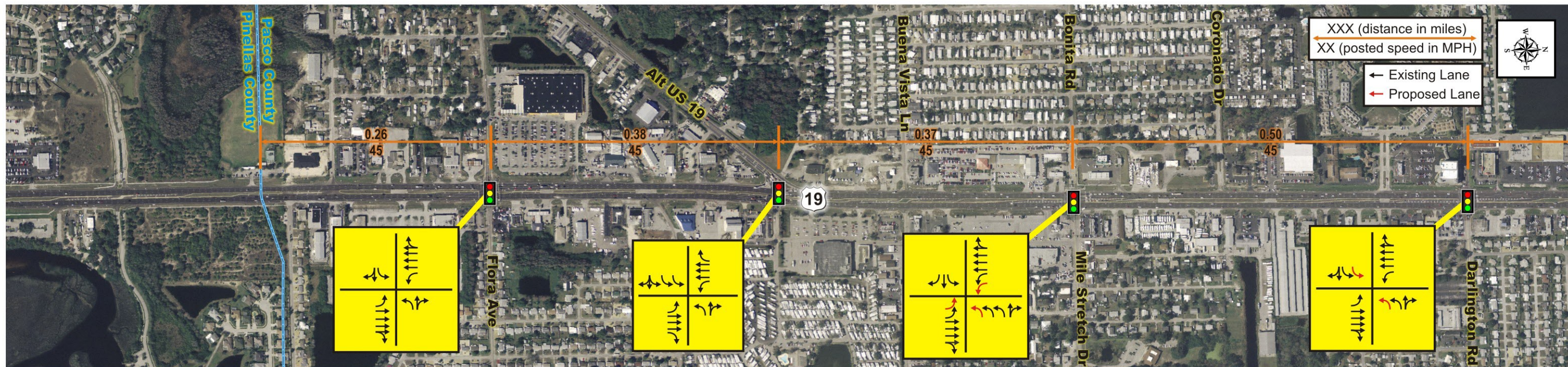
Interchange Alternative – This alternative considered the evaluation of an interchange concept at several key intersections within the study limits. In the design year (2030), there are several intersections expected to experience significant delay even with the implementation of any CRTL and TSM improvements. In coordination with FDOT, the following key intersections were selected for the interchange alternative analyses.

- SR 54
- Ridge Road
- SR 52
- County Line Road

Single-point urban interchange (SPUI) and tight urban diamond interchange (TUDI) configurations were analyzed at these intersections. Traffic signalization is assumed in both the SPUI and TUDI cases. In the SPUI, the four turning movements would be controlled by a traffic signal. In the TUDI, traffic signals would be installed at both ramp terminals. For comparative purposes, the geometric layouts of the SPUI and TUDI alternatives were kept primarily the same, with identical number of mainline and ramp lanes.

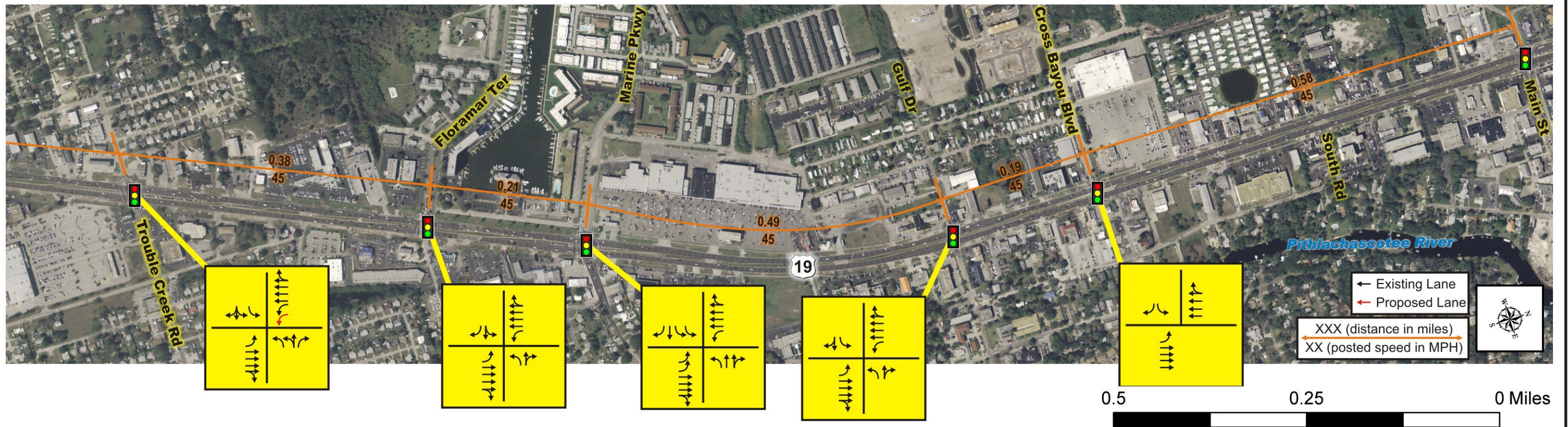
6.7.1 Design Year (2030) Traffic Analyses Comparison

Traffic analyses were performed to examine the traffic operations of the four alternatives under traffic loadings projected in the design year (2030). The analyses were broken down into two steps: the first step was conducted for non-interchange improvements (i.e., No-Build, CRTL and TSM alternatives), while the second step evaluated the implementation of interchange alternatives at the SR 54, Ridge Road, SR 52 and County Line Road intersections.



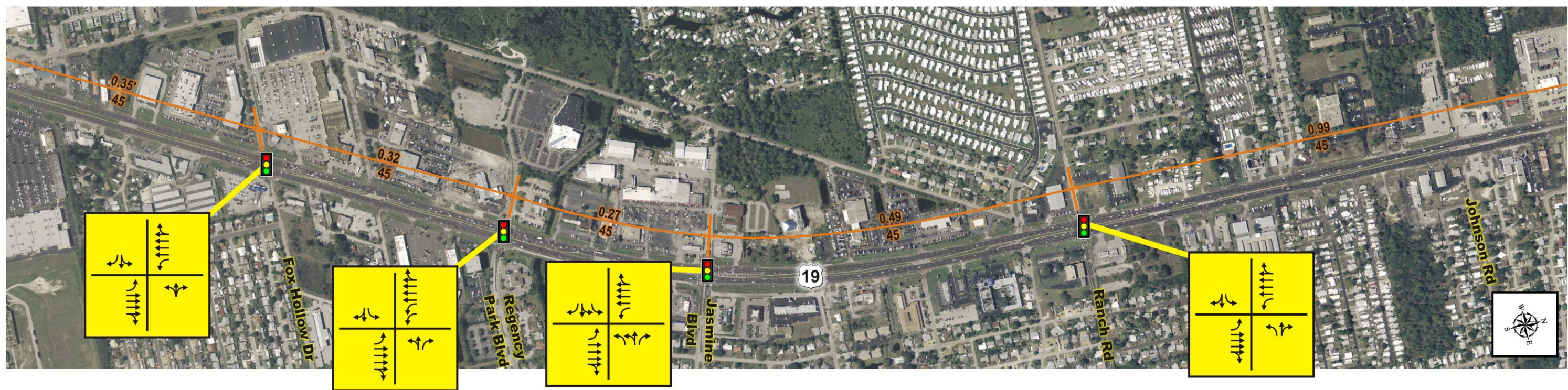
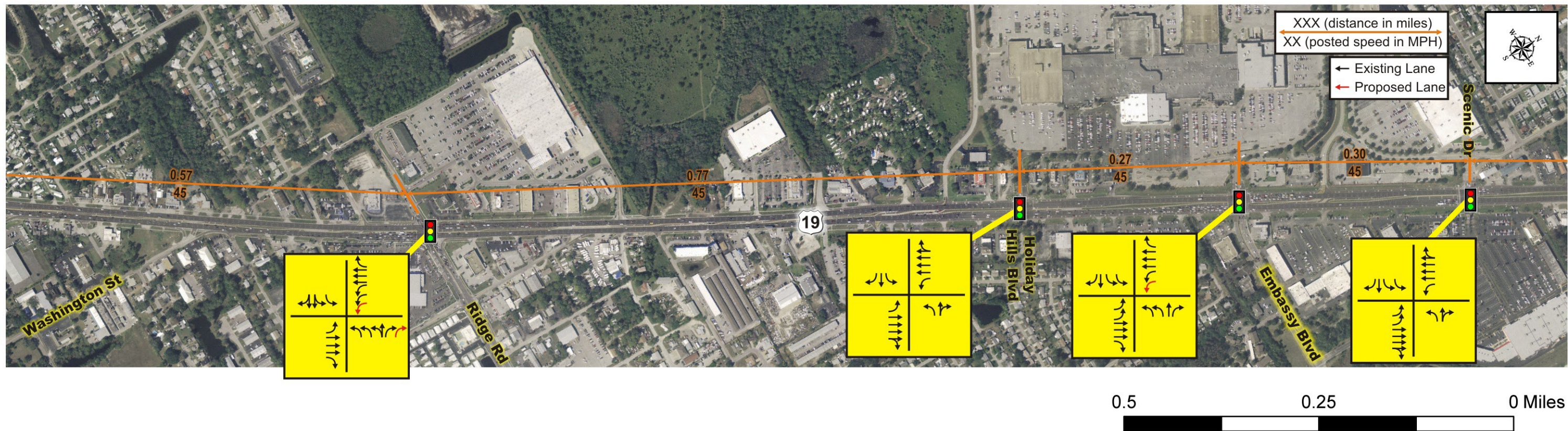
DESIGN YEAR (2030) TRANSPORTATION SYSTEM MANAGEMENT (TSM)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-5A



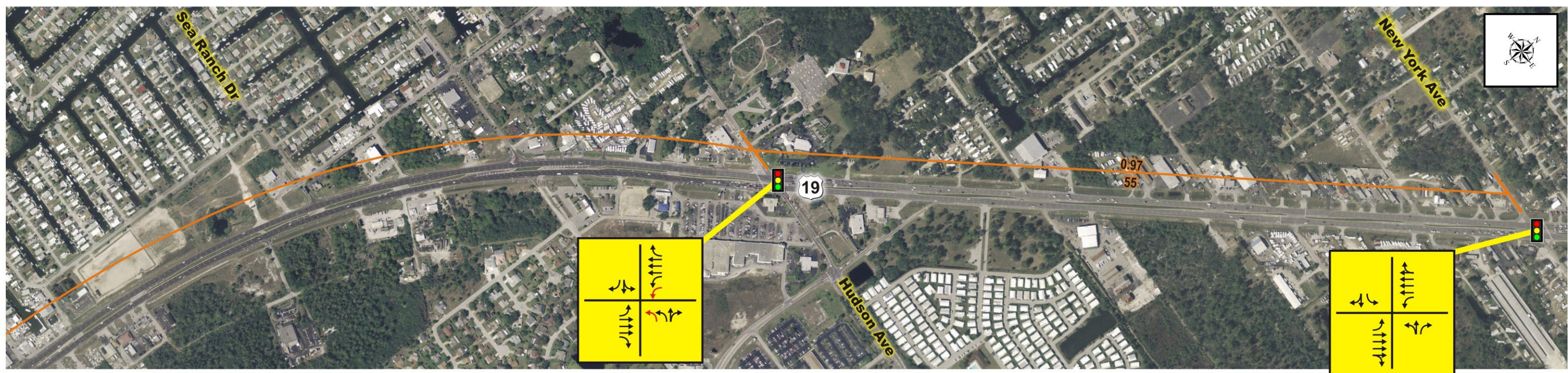
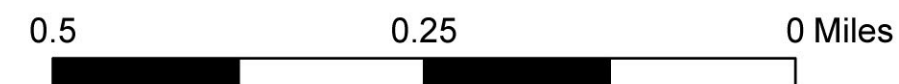
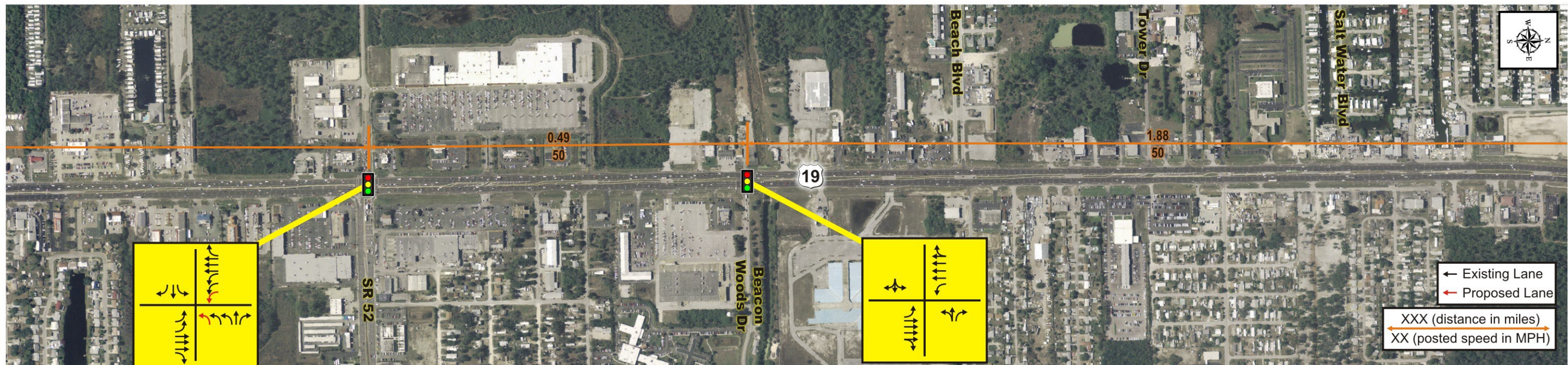
DESIGN YEAR (2030) TRANSPORTATION SYSTEM MANAGEMENT (TSM)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-5B



DESIGN YEAR (2030) TRANSPORTATION SYSTEM MANAGEMENT (TSM)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-5C



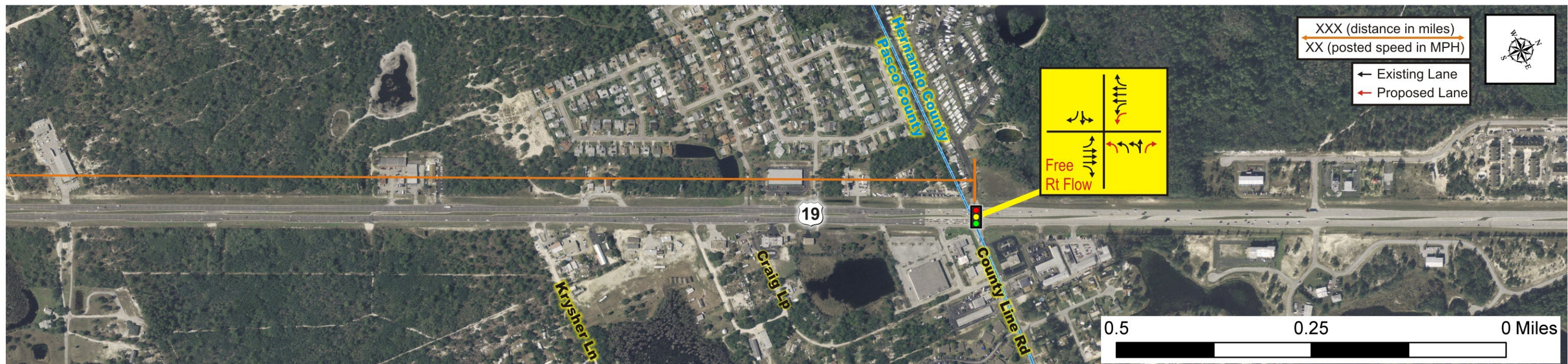
DESIGN YEAR (2030) TRANSPORTATION SYSTEM MANAGEMENT (TSM)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-5D



DESIGN YEAR (2030) TRANSPORTATION SYSTEM MANAGEMENT (TSM)
 ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-5E



DESIGN YEAR (2030) TRANSPORTATION SYSTEM MANAGEMENT (TSM)
ALTERNATIVE CORRIDOR LANE GEOMETRY

FIGURE 6-5F

The design year (2030) LOS analyses of signalized intersections and arterial segments were first completed for the non-interchange alternatives (i.e., No-Build, CRTL and TSM). These analyses were performed initially to prioritize lower cost intersection and arterial improvements capable of enhancing traffic operations in the design year 2030. The projected LOS and vehicle delays of key signalized intersections are shown in **Table 6-7** for the three alternatives. The comparison of LOS and arterial speeds between the alternatives are shown in **Table 6-8** and **Table 6-9**. The comparative analysis revealed that the TSM alternative (which includes both the CRTL and TSM improvements) provides the greatest benefit in design year (2030) LOS and reduction in vehicle delays when compared to the No-Build and CRTL alternatives. Additional detail regarding the operations analyses for the No-Build, CRTL and TSM alternatives is provided in the *Final Traffic Technical Memorandum*¹.

Table 6-7
Comparison of Design Year (2030) Signalized Intersection
Level of Service and Delay
No- Build, CRTL and TSM Alternatives

SR 55 (US 19) Intersection	Overall Intersection Level of Service AM / PM			Overall Intersection Signal Delay (sec/veh) AM / PM		
	No-Build Alt.	CRTL Alt.	TSM Alt.	No-Build Alt.	CRTL Alt.	TSM Alt.
Flora Avenue	F / F	F / E	F / E	153 / 92	85 / 62	85 / 62
Alternate US 19	F / F	F / F	F / F	126 / 187	128 / 185	128 / 185
Mile Stretch Drive	F / F	F / F	F / E	164 / 115	106 / 86	89 / 75
Darlington Road	F / F	D / F	C / E	96 / 142	39 / 93	29 / 78
Sunray Drive	F / F	D / F	D / F	109 / 155	50 / 104	40 / 87
Moog Road	F / F	D / F	D / F	88 / 127	46 / 88	46 / 87
SR 54	F / F	F / F	F / F	101 / 161	105 / 163	100 / 138
Trouble Creek Road	F / F	D / F	D / F	90 / 110	51 / 83	49 / 77
Floramar Terrace	F / E	D / C	D / C	94 / 76	42 / 25	42 / 25
Marine Parkway	E / E	D / D	D / D	63 / 65	37 / 35	37 / 35
Gulf Drive	D / E	C / C	C / C	49 / 66	25 / 32	25 / 32
Cross Bayou Boulevard	A / B	A / A	A / A	8 / 13	5 / 6	5 / 6
Main Street	E / F	E / F	E / F	79 / 117	77 / 121	77 / 121
Grand Boulevard	D / F	C / D	C / D	55 / 95	27 / 45	27 / 45
Ridge Road	F / F	F / F	F / F	166 / 216	166 / 215	147 / 176
Holiday Hills Boulevard	C / D	B / B	A / B	32 / 38	10 / 15	9 / 15
Embassy Boulevard	F / F	F / F	F / F	89 / 108	88 / 108	87 / 94
Scenic Drive	F / F	D / D	D / D	103 / 103	42 / 49	42 / 49
Fox Hollow Drive	F / F	E / E	E / E	134 / 105	65 / 63	65 / 63
Regency Park Drive	F / F	D / E	D / E	112 / 136	36 / 70	36 / 70
Jasmine Boulevard	F / F	E / F	E / F	120 / 147	62 / 93	62 / 93
Ranch Road	F / F	E / E	E / E	121 / 97	59 / 65	59 / 65
SR 52	F / F	F / F	F / F	164 / 243	159 / 242	118 / 179
Beacon Woods Drive	C / E	C / C	C / C	25 / 58	21 / 32	21 / 32
Hudson Avenue	F / F	F / F	F / F	114 / 183	114 / 183	87 / 140
New York Avenue	D / D	C / D	C / D	38 / 52	25 / 35	25 / 35
Denton Avenue	C / C	C / C	C / C	26 / 24	26 / 24	26 / 24
Little Road	F / F	F / F	F / F	288 / 237	236 / 217	143 / 140
County Line Road	F / F	F / F	F / F	275 / 303	276 / 308	183 / 114

Table 6-8
Comparison of Design Year (2030) SR 55 (US 19)
Arterial Northbound Level of Service and Speed
No-Build, CRTL and TSM Alternatives

SR 55 (US 19) Section */ Segment	Arterial Class	Segment Length (miles)	Arterial LOS AM / PM			Arterial Speed (mph) AM / PM		
			No-Build Alt.	CRTL Alt.	TSM Alt.	No-Build Alt.	CRTL Alt.	TSM Alt.
South of Alternate US 19 to SR 54		3.03	D / F	D / F	D / F	21.9 / 6.7	22.9 / 9.1	23.1 / 9.3
Pinellas County Line to Flora Avenue	I	0.26	F / F	F / F	F / F	12.1 / 5.7	14.5 / 9.7	14.5 / 9.7
Flora Avenue to Alt. 19		0.38	D / F	D / F	D / F	24.5 / 4.7	22.1 / 4.7	22.1 / 4.7
Alt. 19 to Mile Stretch Drive		0.37	E / F	E / F	E / F	18.6 / 6.4	19.9 / 9.7	20.5 / 10.4
Mile Stretch Drive to Darlington Road		0.50	B / F	B / F	B / F	34.5 / 7.4	36.1 / 11.9	36.3 / 12.8
Darlington Road to Sunray Drive		0.20	F / F	E / F	E / F	14.3 / 3.1	19.9 / 5.9	20.3 / 6.0
Sunray Drive to Moog Road		0.80	D / F	C / E	C / E	26.7 / 12.1	29.2 / 19.1	29.7 / 19.2
Moog Road to SR 54		0.52	D / F	E / F	E / F	22.5 / 7.7	19.2 / 7.7	19.1 / 7.7
SR 54 to Main Street		2.41	D / F	C / E	C / E	26.3 / 11.1	30.9 / 17.8	30.8 / 17.7
SR 54 to Trouble Creek Road	I	0.56	E / F	D / F	D / F	18.3 / 10.2	25.9 / 15.5	25.3 / 15.3
Trouble Creek Road to Floramar Terrace		0.38	C / F	B / C	B / C	31.3 / 10.0	36.8 / 32.1	36.8 / 32.1
Floramar Terrace to Marine Parkway		0.21	D / F	D / D	D / D	25.6 / 8.3	26.8 / 26.3	26.8 / 26.3
Marine Parkway to Gulf Drive		0.49	C / F	B / D	B / D	33.2 / 13.3	35.6 / 26.7	35.7 / 26.7
Gulf Drive to Cross Bayou Blvd.		0.19	C / E	C / C	C / C	33.2 / 20.7	33.5 / 32.7	33.5 / 32.7
Cross Bayou Boulevard to Main Street		0.58	C / F	C / F	C / F	28.5 / 11.0	31.1 / 10.4	31.1 / 10.4
Main Street to Ridge Road		2.28	C / F	C / F	C / F	31.0 / 13.2	31.7 / 15.5	31.7 / 15.5
Main Street to Grand Boulevard	I	1.71	B / D	B / B	B / B	40.6 / 23.9	41.7 / 36.7	41.7 / 36.7
Grand Boulevard to Ridge Road		0.57	E / F	F / F	E / F	18.2 / 5.6	18.4 / 5.7	18.4 / 5.7
Ridge Road to SR 52		3.76	D / F	D / F	D / F	23.2 / 7.8	26.3 / 11.3	26.5 / 11.6
Ridge Road to Holiday Hills Boulevard	I	0.77	B / D	B / B	A / B	38.0 / 24.6	40.6 / 38.4	42.1 / 38.2
Holiday Hills Boulevard to Embassy Boulevard		0.27	D / F	D / F	C / F	23.4 / 4.6	25.2 / 4.5	27.1 / 5.4
Embassy Blvd. to Scenic Drive		0.30	D / F	C / F	C / F	26.6 / 5.4	28.3 / 12.2	28.3 / 12.2

Table 6-8 (Cont.)
Comparison of Design Year (2030) SR 55 (US 19)
Arterial Northbound Level of Service and Speed
No-Build, CRTL and TSM Alternatives

SR 55 (US 19) Section */ Segment	Arterial Class	Segment Length (miles)	Arterial LOS AM / PM			Arterial Speed (mph) AM / PM		
			No-Build Alt.	CRTL Alt.	TSM Alt.	No-Build Alt.	CRTL Alt.	TSM Alt.
Scenic Drive to Fox Hollow Drive		0.35	D / F	C / F	C / E	24.2 / 8.3	28.4 / 16.2	27.9 / 16.2
Fox Hollow Drive to Regency Drive		0.32	F / F	C / F	C / F	15.9 / 4.5	27.6 / 9.3	27.6 / 9.3
Regency Drive to Jasmine Blvd.		0.27	E / F	E / F	E / F	16.4 / 3.6	18.0 / 5.6	18.0 / 5.6
Jasmine Blvd. to Ranch Road		0.49	E / F	D / F	D / F	18.5 / 9.1	22.0 / 14.1	22.0 / 14.1
Ranch Road to SR 52		0.99	D / F	D / F	D / F	23.9 / 10.8	23.9 / 10.8	23.9 / 10.8
SR 52 to north of County Line Road		8.21	C / E	C / D	C / D	31.2 / 19.6	31.6 / 21.5	33.1 / 24.7
SR 52 to Beacon Woods Drive	I	0.49	C / F	C / D	C / D	28.6 / 14.7	31.1 / 25.7	31.1 / 25.7
Beacon Woods Drive to Hudson Avenue		1.88	C / F	C / F	C / E	29.3 / 14.2	29.3 / 14.2	33.1 / 16.9
Hudson Avenue to New York Avenue		0.97	B / C	A / B	A / B	41.2 / 27.2	42.2 / 37.4	42.2 / 37.4
New York Avenue to Denton Avenue		1.32	A / B	A / B	A / B	46.9 / 40.5	46.9 / 40.5	46.9 / 40.5
Denton Avenue to Little Road		0.87	B / D	B / B	B / B	36.5 / 22.8	38.9 / 35.3	38.9 / 35.3
Little Road to County Line Road		2.68	D / E	D / E	D / D	25.2 / 18.2	25.2 / 18.2	26.3 / 22.5
Within Study Limits	I	19.9	D / F	C / F	C / F	27.0 / 11.3	28.8 / 14.8	29.3 / 15.6

Notes:

* An arterial section is a composite of the associated arterial segments. The section overall average speed was estimated by totaling the arterial section signal delays for each through movement; then dividing by the total arterial section length. The LOS was determined by using the HCM, Exhibit 15-2.

** Arterial class is established based on the criteria provided in the HCM, Exhibits 10-3 and 10-4.

Table 6-9
Comparison of Design Year (2030) SR 55 (US 19)
Arterial Southbound Level of Service and Speed
No-Build, CRTL and TSM Alternatives

SR 55 (US 19) Segment	Arterial Class	Segment Length (miles)	Arterial LOS AM / PM			Arterial Speed (mph) AM / PM		
			No-Build Alt.	CRTL Alt.	TSM Alt.	No-Build Alt.	CRTL Alt.	TSM Alt.
North of County Line Road to SR 52		8.21	C / B	C / B	C / B	27.2 / 39.8	30.6 / 41.0	31.1 / 41.1
County Line Road to Little Road	I	2.68	C / A	A / A	A / A	33.4 / 44.4	46.0 / 47.6	46.0 / 47.6
Little Road to Denton Avenue		0.87	B / A	B / A	B / A	37.7 / 44.9	37.7 / 44.9	37.7 / 44.9
Denton Avenue to New York Avenue		1.32	B / A	A / A	A / A	34.9 / 42.8	43.3 / 44.2	43.3 / 44.2
New York Avenue to Hudson Avenue		0.97	E / C	E / C	E / C	16.9 / 30.4	16.9 / 30.4	18.3 / 30.8
Hudson Avenue to Beacon Woods Drive		1.88	A / A	A / A	A / A	45.6 / 47.1	46.9 / 47.6	46.9 / 47.6
Beacon Woods Drive to SR 52		0.49	F / E	F / E	F / E	7.8 / 20.3	8.3 / 20.8	8.3 / 20.8
SR 52 to Ridge Road		3.76	F / D	F / D	F / D	7.7 / 21.1	12.1 / 23.5	12.1 / 23.5
SR 52 to Ranch Road	I	0.99	F / C	D / B	D / B	13.6 / 33.0	23.8 / 36.1	23.8 / 36.1
Ranch Road to Jasmine Boulevard		0.49	F / E	F / D	F / D	7.3 / 16.8	13.9 / 23.4	13.9 / 23.4
Jasmine Boulevard to Regency Drive		0.27	F / C	F / C	F / C	4.8 / 27.6	13.1 / 29.8	13.1 / 29.8
Regency Drive to Fox Hollow Drive		0.32	F / F	F / E	F / E	4.4 / 14.7	8.7 / 18.6	8.7 / 18.6
Fox Hollow Drive to Scenic Drive		0.35	F / E	F / D	F / D	6.0 / 19.9	13.0 / 21.4	13.0 / 21.4
Scenic Drive to Embassy Blvd.		0.30	F / F	F / F	F / F	6.2 / 12.3	6.2 / 12.4	6.2 / 12.5
Embassy Boulevard to Holiday Hills Boulevard		0.27	F / D	C / D	C / D	13.2 / 22.7	27.5 / 24.4	27.5 / 24.4
Holiday Hills Boulevard to Ridge Road		0.77	F / D	F / D	F / D	8.5 / 22.9	8.5 / 22.5	8.5 / 22.5
Ridge Road to Main Street		2.28	D / C	C / B	C / B	23.4 / 34.0	27.3 / 34.7	27.3 / 34.7
Ridge Road to Grand Boulevard	I	0.57	F / C	D / B	D / B	16.0 / 31.6	25.9 / 34.3	25.9 / 34.3
Grand Boulevard to Main Street		1.71	C / B	C / B	C / B	27.7 / 34.9	27.7 / 34.9	27.7 / 34.9
Main Street to SR 54		2.41	F / D	E / D	E / D	12.4 / 26.0	20.1 / 26.9	20.1 / 26.9
Main Street to Cross Bayou Boulevard	I	0.58	B / B	A / B	A / B	38.5 / 40.2	43.0 / 41.0	43.0 / 41.0

Table 6-9 (Cont.)
Comparison of Design Year (2030) SR 55 (US 19)
Arterial Southbound Level of Service and Speed
No-Build, CRTL and TSM Alternatives

SR 55 (US 19) Segment	Arterial Class	Segment Length (miles)	Arterial LOS AM / PM			Arterial Speed (mph) AM / PM		
			No-Build Alt.	CRTL Alt.	TSM Alt.	No-Build Alt.	CRTL Alt.	TSM Alt.
Cross Bayou Boulevard to Gulf Drive		0.19	F / D	E / C	E / C	8.4 / 26.0	18.9 / 28.5	18.9 / 28.5
Gulf Drive to Marine Parkway		0.49	F / C	D / C	D / C	14.8 / 28.2	26.3 / 29.7	26.3 / 29.7
Marine Parkway to Floramar Terrace		0.21	F / E	F / E	F / E	4.6 / 16.4	11.8 / 20.2	11.8 / 20.2
Floramar Terrace to Trouble Creek Road		0.38	F / C	C / C	C / C	12.0 / 30.3	28.2 / 32.5	28.2 / 32.5
Trouble Creek Road to SR 54		0.56	F / E	F / E	F / E	11.9 / 19.9	12.0 / 18.5	12.0 / 18.5
SR 54 to South of Alternate US 19		3.03	F / D	F / C	F / C	8.6 / 24.6	15.3 / 27.5	15.6 / 27.7
SR 54 to Moog Road	I	0.52	F / D	C / C	C / C	13.3 / 25.7	31.4 / 28.4	31.4 / 28.3
Moog Road to Sunray Drive		0.80	F / D	C / C	C / C	13.7 / 26.6	28.5 / 28.0	31.9 / 28.1
Sunray Drive to Darlington Road		0.20	F / F	E / E	E / E	4.8 / 11.8	18.5 / 18.4	20.1 / 19.5
Darlington Road to Mile Stretch Road		0.50	F / B	F / B	F / B	6.5 / 35.6	11.8 / 36.0	11.8 / 35.6
Mile Stretch Road to Alt. 19		0.37	F / F	F / E	F / E	6.4 / 16.0	6.4 / 18.0	6.4 / 17.9
Alt. 19 to Flora Avenue		0.38	F / B	F / B	F / B	5.4 / 34.3	10.7 / 36.8	10.7 / 36.8
Flora Avenue to Pinellas County Line		0.26	B / B	B / B	B / B	34.9 / 34.9	34.9 / 34.9	34.9 / 34.9
Within Study Limits	I	19.69	F / C	E / C	E / C	13.7 / 29.5	20.1 / 31.4	20.2 / 31.5

Notes:

* An arterial section is a composite of the associated arterial segments. The section overall average speed was estimated by totaling the arterial section signal delays for each through movement; then dividing by the total arterial section length. The LOS was determined by using the HCM, Exhibit 15-2.

** Arterial class is established based on the criteria provided in the HCM, Exhibits 10-3 and 10-4.

The second step was to evaluate interchange alternatives at the SR 54, Ridge Road, SR 52 and County Line Road intersections. The analyses results for the interchange alternatives are summarized in **Table 6-10** and **Table 6-11** for the SPUI and TUDI interchange configurations, respectively. The analyses reveal that at all four SR 55 (US 19) intersections are projected to operate at a LOS D or better. The interchanges were analyzed assuming minimal interaction with downstream/upstream traffic signals on the arterial cross streets. Furthermore, the interchange evaluation did not include impacts to right-of-way (ROW). Additional detail regarding the operations analyses for the interchange alternatives is provided in the *Final Traffic Technical Memorandum*¹.

Table 6-10
Design Year (2030) Level of Service and Delay
Interchange Alternatives - SPUI Configuration

Interchange Location	Average Vehicle Delay (sec/veh) AM / PM	Level of Service AM / PM
SR 54	23 / 31	C / C
Ridge Road	30 / 37	C / D
SR 52	38 / 50	D / D
County Line Road	34 / 30	C / C

Table 6-11
Design Year (2030) Level of Service and Delay
Interchange Alternatives - TUDI Configuration

Interchange Location	Average Vehicle Delay (sec/veh) AM / PM	Level of Service AM / PM
SR 54 – West	18 / 22	B / C
SR 54 – East	14 / 22	B / C
Ridge Road – West	18 / 21	B / C
Ridge Road – East	24 / 34	C / C
SR 52 – West	24 / 29	C / C
SR 52 – East	19 / 33	B / C
County Line Road – West	20 / 16	B / B
County Line Road – East	10 / 12	B / B

6.7.2 Level of Service Improvement Recommendations

As noted in the future operational analyses, the No-Build alternative is expected to have deficient operating conditions along the majority of the corridor in the design year (2030). In order to significantly improve the future operating conditions, implementation of the following improvements is recommended for the SR 55 (US 19) study corridor:

- Continuous Right-Turn Lane (CRTL)
- Transportation System Management (TSM)
- Interchanges at SR 54, Ridge Road, SR 52 and County Line Road intersections

The CRTL and TSM improvements are planned to be evaluated and documented in future environmental study efforts as they proceed through their respective design phases. They are not proposed to be part of the FHWA approved environmental document that is to be prepared for this study's documentation. Only the proposed interchanges at SR 54, Ridge Road, SR 52 and County Line Road are planned to be addressed in this study's environmental documentation.

6.8 QUEUE LENGTHS

A vehicle queuing analysis was conducted to estimate the required storage lengths for intersection turn lanes within the study limits. The queue lengths were estimated for the four study alternatives (No-Build, CRTL, TSM and Interchanges). The detailed assumptions and the results of the queue analysis are documented in the *Final Traffic Technical Memorandum*¹.

6.9 REFERENCES

1. *Final Traffic Technical Memorandum*; HDR Engineering, Inc.; 2007.
2. *US 19 PD&E Study Traffic Counts (Pinellas County Line to SR 52)*; April 2006.
3. *SR 55 (US 19) Pasco County Access Management Study*; Vanus; August 2006.
4. *Highway Capacity Manual (HCM)*, Transportation Research Board/National Research Council, 2000.
5. *Pasco County Metropolitan Planning Organization 2025 Long Range Transportation Plan Update*; Tindale Oliver & Associates, Inc.; Final Report January 2005.

SECTION 7

CORRIDOR ANALYSIS

7.1 EVALUATION OF ALTERNATE CORRIDORS

In an effort to identify potential alternative corridors that could serve the future travel demand of the SR 55 (US 19) corridor, the following options were considered:

- Improvement to other existing parallel roadways within the region;
- Development of a new roadway corridor;
- Enhancement of transit service within the study limits; and
- Roadway improvements within the study limits.

7.1.1 Improvement of Parallel Roadways

A review of the existing roadway network within the study limits revealed the presence of a few north/south arterial roadways located within five miles east of the study area. The availability of existing parallel roadways to the west of SR 55 (US 19) is non-existent due to the close proximity of the Gulf of Mexico. The following paragraphs discuss if improvements to any of the parallel roadways would be feasible alternatives to the proposed improvements addressed by this study.

There is the presence of one north/south arterial roadway that traverses the majority of Pasco County. Little Road is the parallel major arterial roadway, which travels from the Pinellas County line and eventually terminates at SR 55 (US 19), 2.68 miles south of the Hernando County line. At its greatest distance, Little Road is 4.6 miles east of SR 55 (US 19). The *Pasco County Metropolitan Planning Organization (MPO) 2025 Long Range Transportation Plan (LRTP) Update*¹ identifies that the current four-lane sections of Little Road will be widened to six-lanes by the year 2015. These include the section of Little Road from the Pinellas County line to Massachusetts Avenue and Fivay Road to SR 55 (US 19), (the section from Massachusetts Avenue to Fivay Road is currently a six-lane facility). Hence, these improvements to Little Road will provide a continuous six-lane roadway from the Pinellas County line to SR 55 (US 19); providing the much needed additional roadway capacity for western Pasco County. Due to its distance from the SR 55 (US 19) and that it

terminates at SR 55 (US 19), Little Road is not expected to assist with capacity needs along the SR 55 (US 19) corridor.

There are additional parallel roadways located between SR 55 (US 19) and Little Road (i.e., Grand Boulevard, Madison Street and Seven Springs Boulevard/Rowan Road/Regency Park Boulevard). However, these roadways are classified as collectors and primarily serve the travel demand in southern Pasco County. Due to the characteristics of these parallel roadways, improving these roadways is not expected to assist with capacity needs along the SR 55 (US 19) corridor.

Based on this review, it was determined that improvements to any of the existing parallel roadways, in lieu of improving SR 55 (US 19), would not address the projected traffic demand along SR 55 (US 19). Therefore, improvements to existing parallel roadways are not considered viable alternative corridor options.

7.1.2 Development of a New Roadway Corridor

Due to the level of existing development and the close proximity to the Gulf of Mexico, there is insufficient right-of-way (ROW) to accommodate a new roadway corridor west of SR 55 (US 19). Similarly, the level of development limits the potential of a new roadway alignment east of SR 55 (US 19). Hence, the development of a new roadway corridor is not considered a feasible alternative to address the capacity needs of the SR 55 (US 19) corridor.

7.1.3 Enhancement of Transit Service

Pasco County Public Transportation (PCPT) provides existing transit service along the SR 55 (US 19) study corridor. There is one transit route (Route 19) that services residents and businesses along the study corridor. A brief description of the route is provided in Section 6.5.1.

The 2025 Transit Needs Plan was updated as part of the *Pasco County MPO 2025 LRTP Update*¹. The 2025 Transit Needs Plan identified the following two needs for the SR 55 (US 19) corridor:

- An extension of SR 55 (US 19) service to Hernando County
- Express Bus Service along SR 55 (US 19) into Pinellas County

There were no other recommendations contained in the 2025 Transit Needs Plan that would affect the transit operations along the SR 55 (US 19) corridor.

7.1.4 Improvement of the Existing Corridor

The existing SR 55 (US 19) facility consists of a six-lane divided roadway. Much of the existing ROW along SR 55 (US 19) is sufficient to accommodate CTRL and TSM improvements without purchasing additional ROW. At the proposed interchange locations, additional ROW would be required. ROW for retention ponds would also be needed to accommodate the proposed interchanges. The need for improvements along this corridor is also consistent with the *Pasco County Comprehensive Plan*², Transportation Element and complies with applicable design standards. Therefore, roadway improvements to the existing corridor are a viable corridor alternative.

7.2 CORRIDOR SELECTION

In conclusion, the existing corridor is the recommended corridor for further consideration, and a more detailed development and evaluation of alternative corridors, such as with an impacts evaluation matrix, appear to be unnecessary. Therefore, the most feasible corridor alternative identified in this PD&E study is improving the existing SR 55 (US 19) corridor.

7.3 REFERENCES

1. *Pasco County Metropolitan Planning Organization 2025 Long Range Transportation Plan Update*; Tindale Oliver & Associates, Inc.; Final Report January 2005.
2. *Pasco County Comprehensive Plan*; Pasco County Board of County Commissioners; Adopted June 27, 2006.

SECTION 8

ALTERNATIVE ALIGNMENT ANALYSIS

To develop an improved roadway facility for SR 55 (US 19) that is in the best overall public interest, the engineering, environmental, and economic factors as well as urban development conditions must be taken into consideration. The improved facility should be designed to safely and efficiently accommodate the projected design year vehicular traffic as well as multi-modal traffic. The design and alignment of the improved facility must consider environmental conditions, public recreation areas, as well as sites potentially contaminated with hazardous and/or petroleum materials. The alignment should be placed in a manner that optimizes the possibility for construction staging and traffic control. Access control techniques to promote safe and efficient operations should be used as well. All of these criteria have a direct bearing on the selection of the recommended design concept.

Included in the following sections are descriptions of the alternative improvement concepts developed for this project and the evaluation methods used to compare the alternatives. These descriptions are preceded by a presentation of the advantages and disadvantages of the No-Build Alternative.

8.1 NO-BUILD ALTERNATIVE

The advantages of the No-Build Alternative include:

- No new construction costs.
- No disruption of traffic or to the existing land uses along the corridor due to construction activities.
- No environmental degradation or disruption of natural resources.
- No right-of-way (ROW) acquisitions or relocations.

The disadvantages of the No-Build Alternative include:

- Substandard Level of Service (LOS) for the existing roadway network.

- Increased traffic congestion causing increased road user cost due to travel delay.
- Deterioration of air quality caused by traffic congestion and delays.
- Increased safety deficiencies due to the increase in traffic and the lack of any offsetting improvements.
- Potential deterioration in the emergency service response time.
- Increased roadway maintenance costs.

The No-Build Alternative will remain under consideration throughout this study process.

8.2 TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

The Transportation System Management (TSM) alternative, which consists of low cost capital improvements that maximize the efficiency of the present system, was also considered for this project.

TSM activities currently in place within the Greater Tampa Bay Area, which may reduce single occupancy vehicular trips and improve operational efficiency within the project corridor, include the following:

- Active “Transportation Management Organizations” within Pasco County, which provide car-pooling, van sharing, mass transit incentives, and flextime support services to businesses and the general public.
- Frequent bus service within the corridor, which is in compliance with the “Americans with Disabilities Act.” Additionally, the transit system has implemented various improvements and/or incentives to increase ridership. Such measures include express service, bicycle carrying racks for the buses, a bus shelter program, bus turnouts, and reduced fares for students and the elderly.

In addition to enhanced multi-modal transportation services, the TSM alternative includes turn lane improvements at eleven signalized intersections along the SR 55 (US 19) corridor. TSM activities and Continuous Right-Turn Lane (CRTL) improvements alone were not considered a viable alternative to roadway improvements.

8.3 ALTERNATIVES DEVELOPMENT

As part of the analysis process for developing an improved roadway facility for SR 55 (US 19), the following factors were taken into consideration. These factors will have a direct bearing on the selection of the recommended alternative.

- Engineering: The design and alignment of the improved facility, and accommodations for future needs;
- Environmental: Social, cultural, natural and physical factors;
- Public Involvement: Needs and concerns of the local community; and
- Economic Factors: Project costs and the opportunity to optimize expenses.

To effectively develop and evaluate all viable improvement options, the following three-step process was applied.

Step One: Typical sections were developed based on design criteria and the findings of the traffic analysis. The results of this analysis can be found in the approved Traffic Report Technical Memorandum.

Step Two: Project segments were developed based on the existing land use patterns and suitable construction segments. A description of these segments can be found in Section 8.3.1.

Step Three: Alternative alignments were developed for each segment based on the typical sections developed in Step One and the evaluation of several grade separated interchange alternatives at SR 54, Ridge Road, SR 52 and County Line Road.

8.3.1 Project Segments

For PD&E Studies, projects are divided into segments based on the existing land use, future interchange locations, and projected traffic volumes for the design year. Since similar land use characteristics and projected traffic volumes occur within the study limits, this project was divided into four segments based on the new interchanges that were proposed in the corridor. The segments of the project are identified as follows:

Segment 1: South of Alternate US 19 to Marine Parkway

Segment 2: Marine Parkway to Stone Road

Segment 3: Stone Road to SR 52

Segment 4: SR 52 to north of County Line Road

8.3.2 Proposed Typical Sections

Segment 1

The existing typical section is a divided six-lane roadway with 10 foot (ft) outside shoulders. In addition, there is an open ditch on the right side of the roadway. The existing ROW width is 207 ft. The existing land use in this section is generally a mix between residential and commercial.

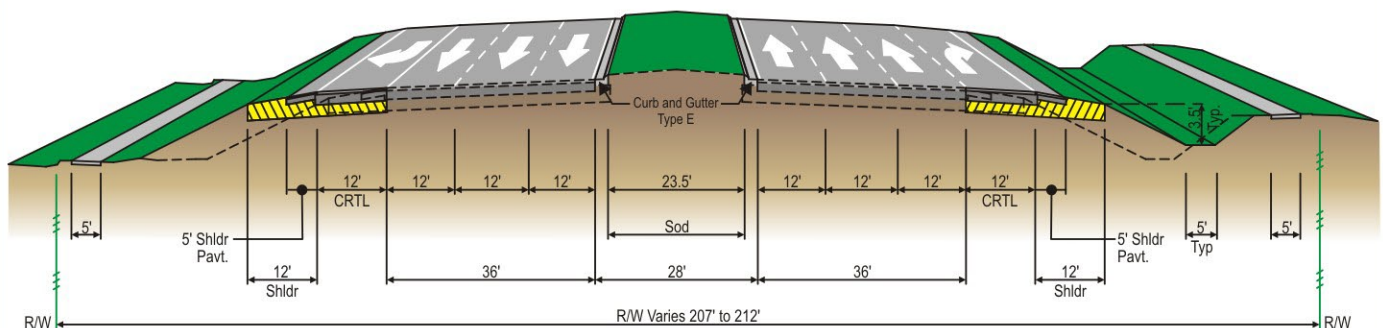
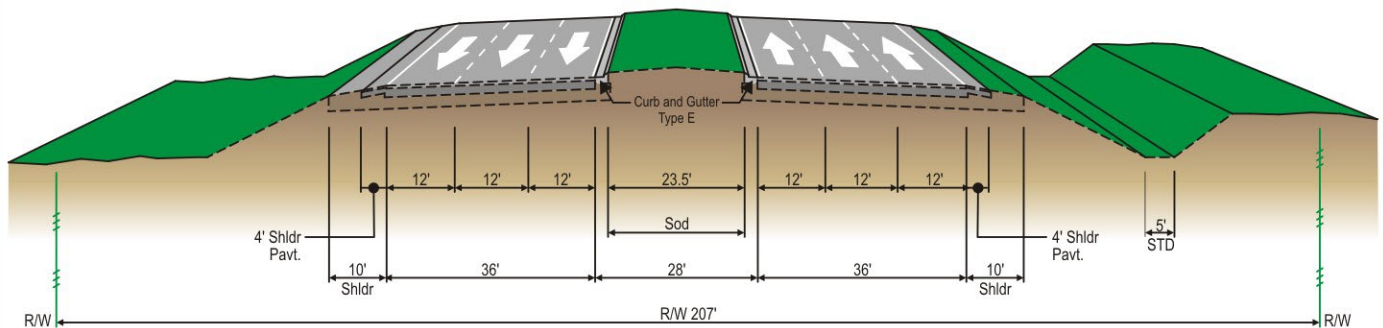
As indicated in the *Final Traffic Technical Memorandum*¹, an interchange is needed by the design year 2030 for the SR 54 intersection. The proposed typical section is discussed in this section.

Roadway Typical Section

Proposed Roadway Typical Section 1 (**Figure 8-1**) was evaluated for this project Segment. This proposed typical section is an eight-lane divided rural section with a 28 ft raised median and 12 ft outside shoulders. This typical section contains three 12 ft travel lanes and one CRTL in each direction. The typical section also includes an open ditch on the right side of the roadway and 5 ft sidewalks. The proposed design speed for this typical section is 50 mph and the minimum ROW width varies from 207 ft to 212 ft.

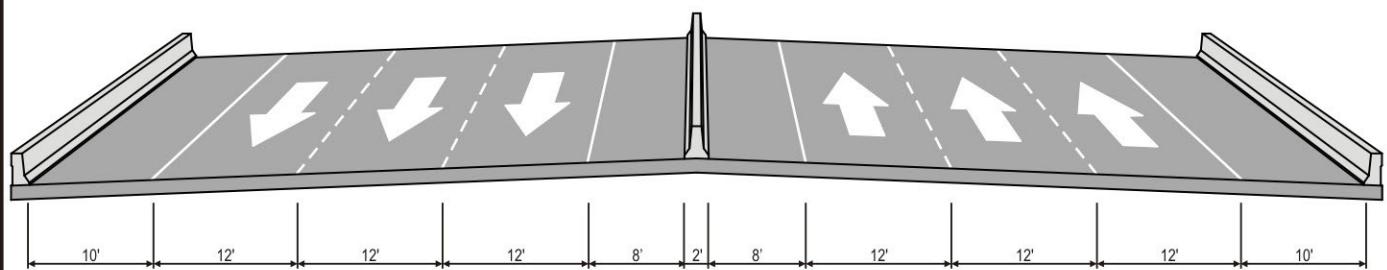
Bridge Typical Sections

Proposed Bridge Typical Section 1 (**Figure 8-2**) was evaluated for this project segment along SR 55 (US 19) over SR 54. This typical section is a six-lane divided rural bridge section with a 18 ft median including a traffic separator. This typical section contains three 12 ft travel lanes



**PROPOSED TYPICAL SECTION
FROM SOUTH OF ALTERNATE
US 19 TO MARINE PARKWAY
SEGMENT 1**

FIGURE 8-1



PROPOSED BRIDGE TYPICAL 1
DESIGN SPEED 50mph



**PROPOSED
BRIDGE TYPICAL SECTION
SR 54 INTERCHANGE
SEGMENT 1**

FIGURE 8-2

and a 10 ft outside shoulder in each direction. The proposed design speed for this typical section is 50 mph.

Segment 2

The existing typical section is a divided six-lane urban roadway. The existing ROW width varies between 150 ft and 207 ft. The existing land use in this section is a mix of commercial and residential uses.

As indicated in the *Final Traffic Technical Memorandum*¹, an interchange is needed by the design year 2030 for the Ridge Road intersection.

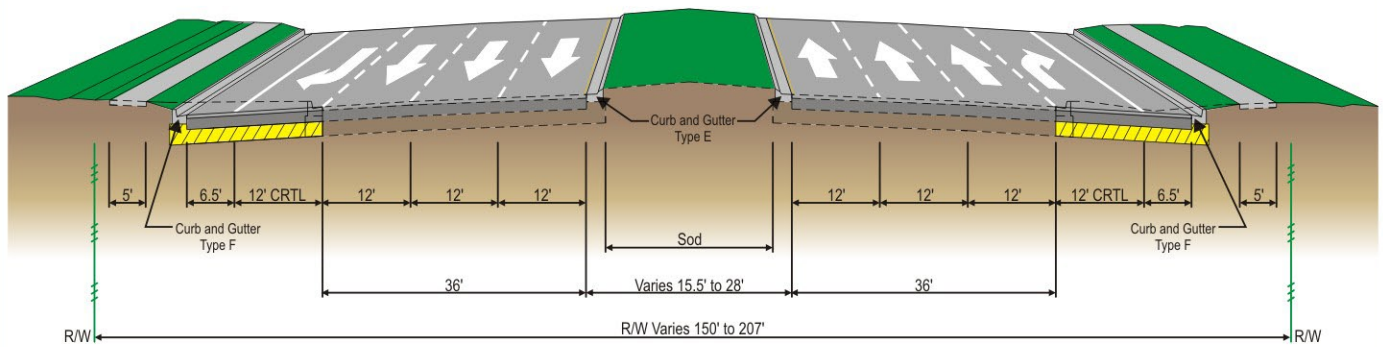
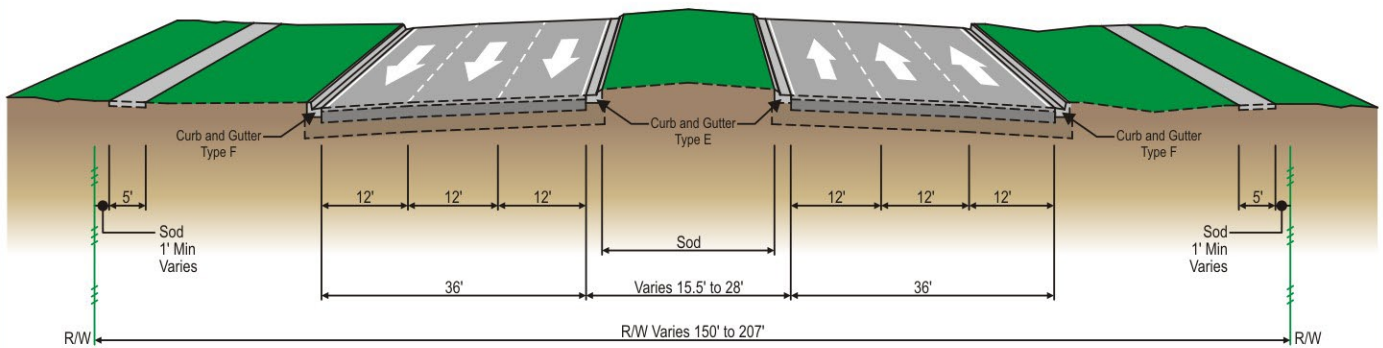
Roadway Typical Section

Proposed Roadway Typical Section 2 (**Figure 8-3**) was evaluated for this project Segment. This proposed typical section is an eight-lane divided urban section with a raised median width varying from 15 ft-6 in. up to 28 ft. This typical section contains three 12 ft travel lanes and one CRTL in each direction. The typical section also includes 6.5 ft bicycle lanes and 5 ft sidewalks along each side of the roadway. The proposed design speed for this typical section is 50 mph. This section requires a minimum ROW width between 150 ft and 207 ft.

Bridge Typical Sections

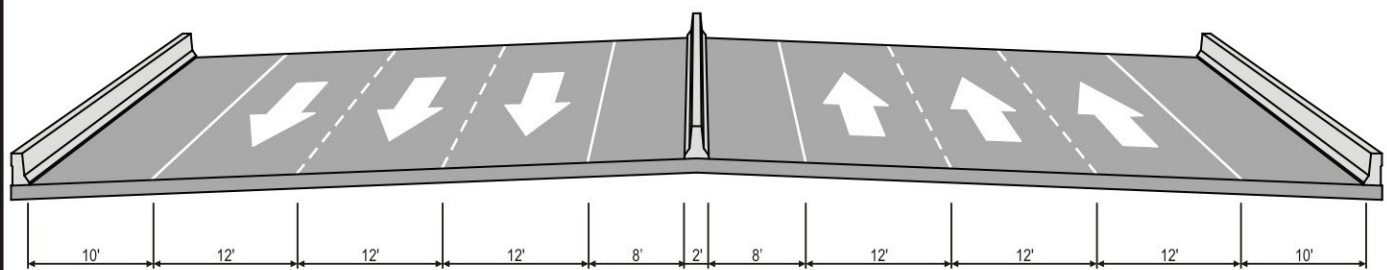
The bridge over the Pithlachascotee River will not accommodate the CRTL, the CRTL will be dropped prior to the structure and then continued after the structure. No improvements are planned for the existing bridge.

Proposed Bridge Typical Section 3 (**Figure 8-4**) was evaluated for this project Segment over Ridge Road. This typical section is a six-lane divided urban bridge section with a 18 ft median including barrier wall. This typical section contains three 12 ft travel lanes in each direction. The proposed design speed for this typical section is 50 mph.



**PROPOSED TYPICAL SECTION
FROM MARINE PARKWAY
TO STONE ROAD
SEGMENT 2**

FIGURE 8-3



PROPOSED BRIDGE TYPICAL 1
DESIGN SPEED 50mph



**PROPOSED
BRIDGE TYPICAL SECTION
RIDGE ROAD INTERCHANGE
SEGMENT 2**

FIGURE 8-4

Segment 3

The existing typical section is a divided six-lane roadway with 10 ft outside shoulders and an open ditch on the right side of the roadway. The existing ROW width varies between 191 ft and 242 ft. The existing land use in this section is a mix of commercial and residential uses.

As indicated in the *Final Traffic Technical Memorandum*¹, an interchange is needed by the design year 2030 for the SR 52 intersection. The proposed typical section is discussed in this section.

Roadway Typical Section

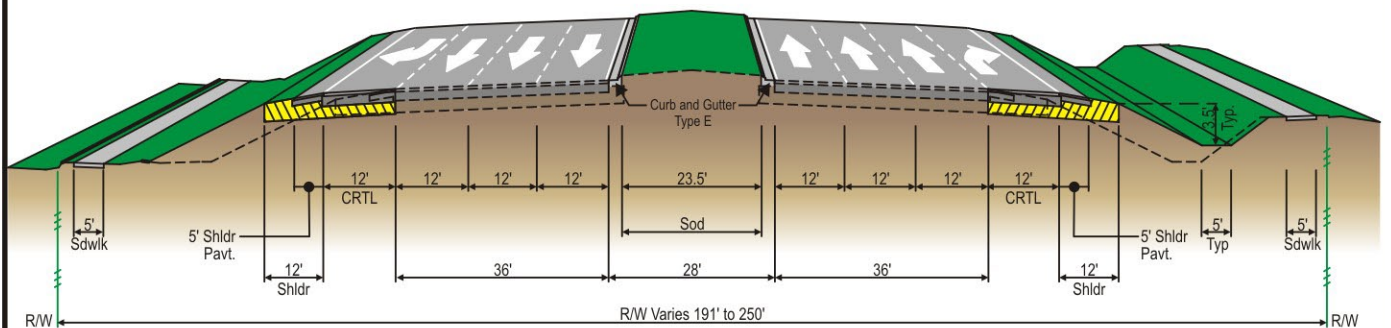
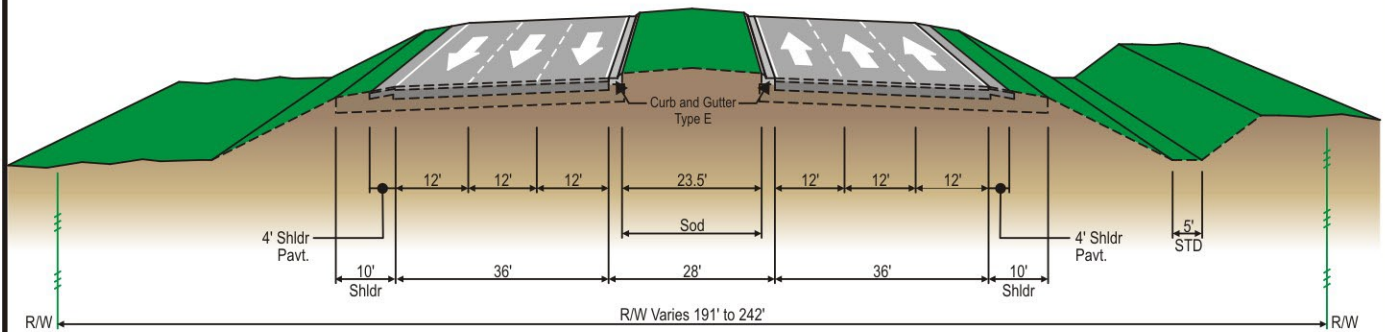
Proposed Roadway Typical Section 3 (**Figure 8-5**) was evaluated for this project Segment. This typical section contains three 12 ft travel lanes and one CRTL in each direction. The typical section also includes 12 ft outside shoulders, an open ditch on the right side of the roadway and 5 ft sidewalks. The proposed design speed for this typical section is 50 mph and the minimum ROW width varies from 191 ft to 250 ft.

Bridge Typical Section

Proposed Bridge Typical Section 4 (**Figure 8-6**) was evaluated for this project Segment over SR 52. This typical section is a six-lane divided rural bridge section with a 18 ft median including barrier wall. This typical section contains three 12 ft travel lanes and a 10 ft outside shoulder in each direction. The proposed design speed for this typical section is 50 mph.

Segment 4

The existing typical section along SR 55 (US 19) from Hudson Avenue to Houston Avenue and from Jesup Lane to the Hernando County Line is a divided six-lane roadway with 10 ft outside shoulders and open drainage ditches on both sides of the roadway. The existing ROW width varies between 200 ft to 252 ft. The existing land use in this section is a mix of commercial and residential use. The existing typical section is slightly different from Houston Avenue to Jesup Lane, as there are drainage swales in the median. In addition, there is only an open ditch on the left side of the roadway. The existing ROW width in this section is 232 ft.

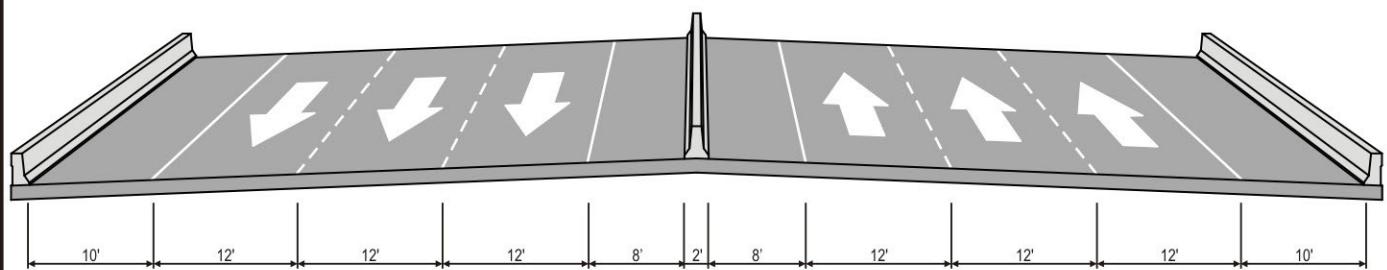


DESIGN SPEED 50mph



PROPOSED TYPICAL SECTION
FROM STONE ROAD TO
HUDSON AVENUE
SEGMENT 3

FIGURE 8-5



PROPOSED BRIDGE TYPICAL 1
DESIGN SPEED 50mph



PROPOSED
BRIDGE TYPICAL SECTION
SR 52 INTERCHANGE

FIGURE 8-6

As indicated in the *Final Traffic Technical Memorandum*¹, an interchange is needed by the design year 2030 for the intersection of SR 55 (US 19)/County Line Road. The proposed typical section is discussed in this section.

Roadway Typical Section

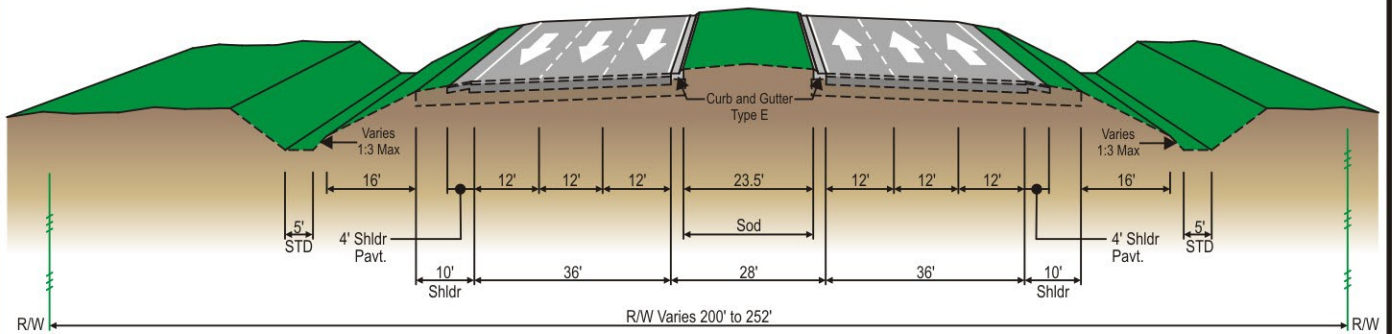
Proposed Roadway Typical Section 4 (**Figure 8-7**) was evaluated for this project Segment from Hudson Avenue to Houston Avenue and from Jesup Lane to north of County Line Road. This typical section contains three 12 ft travel lanes and one CRTL in each direction. The typical section also includes 12 ft outside shoulders, open ditches on both sides of the roadway, and 5 ft sidewalks. The proposed design speed for this typical section is 50 mph and the minimum ROW width varies from 200 ft to 252 ft. Proposed Roadway Typical Section 5 (**Figure 8-8**) has been evaluated for the segment from Houston Avenue to Jesup Lane. This typical section contains three 12 ft travel lanes and one CRTL in each direction. The typical section also includes 12 ft outside shoulders, an open ditch on the left side of the roadway, and 5 ft sidewalks. The proposed design speed for this typical section is 50 mph and the minimum ROW width is 232 ft.

Bridge Typical Section

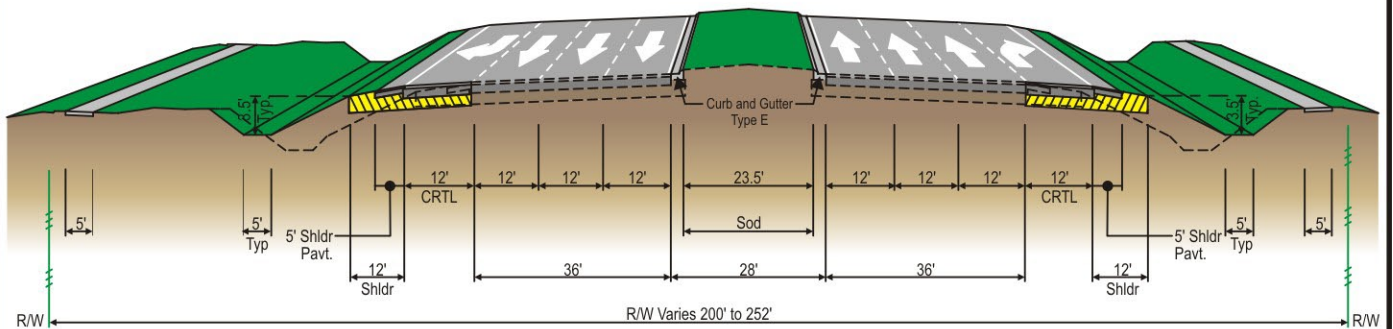
Proposed Bridge Typical Section 5 (**Figure 8-9**) was evaluated for this project segment along SR 55 (US 19) over County Line Road. This typical section is a six-lane divided rural bridge section with a 18-ft median including barrier wall. This typical section contains three 12-ft travel lanes and a 10-ft outside shoulder in each direction. The proposed design speed for this typical section is 50 mph.

8.3.3 Proposed Build Alternatives

Alternatives were established based on the interchange configurations that were recommended in the approved *Final Traffic Technical Memorandum*¹. Those locations are SR 54, Ridge Road, SR 52 and County Line Road. As noted previously, early in the study phase, Continuous Right-Turn Lanes (CRTL) in both directions were evaluated within the limits of this PD&E study. The results of the CRTL evaluation efforts indicated that they could be constructed within the existing ROW along SR 55 (US 19) without requiring any additional mainline ROW or ROW for stormwater treatment facility areas. Based on this evaluation effort, the CRTLs are no longer planned to be part of the proposed project concepts.



EXISTING TYPICAL SECTION

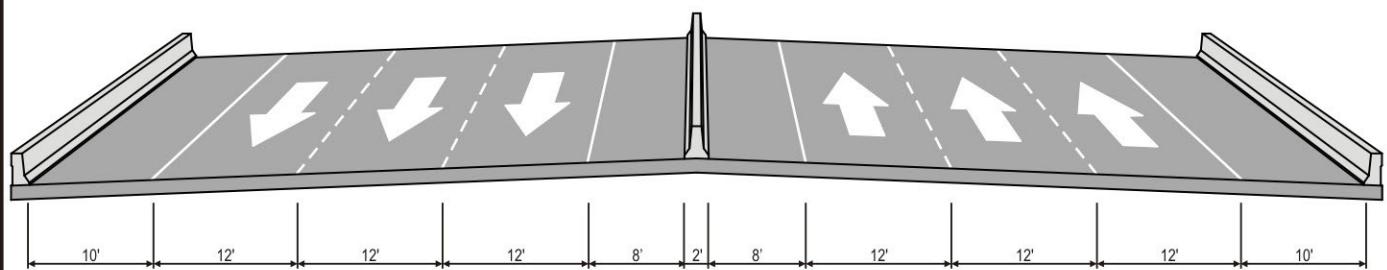


**PROPOSED TYPICAL SECTION 4
DESIGN SPEED 50mph**



**PROPOSED TYPICAL SECTION FROM
HUDSON AVENUE TO HOUSTON
AVENUE AND FROM JESUP LANE
TO NORTH OF COUNTY LINE ROAD
SEGMENT 4**

FIGURE 8-7



PROPOSED BRIDGE TYPICAL 1
DESIGN SPEED 50mph



**PROPOSED
BRIDGE TYPICAL SECTION
COUNTY LINE ROAD
INTERCHANGE
SEGMENT 4**

FIGURE 8-9

Alternative 1

Alternative 1 is the development of Single Point Urban Interchanges (SPUI) at SR 54, Ridge Road, SR 52 and County Line Road. In the SPUI, the four turning movements would be controlled by a single traffic signal. No through movements would be allowed at-grade using the SPUI alternative. This alternative would require 206 ft of ROW at each location and is shown in **Figure 8-10**.

Alternative 2

Alternative 2 is the development of Tight Urban Diamond Interchange (TUDI) at SR 54, Ridge Road, SR 52 and County Line Road. In the TUDI, traffic signals would be installed at both ramp terminals and a through movement would be allowed at-grade. This alternative would require 218 ft of ROW at each location and is shown in **Figure 8-11**.

Alternative 3

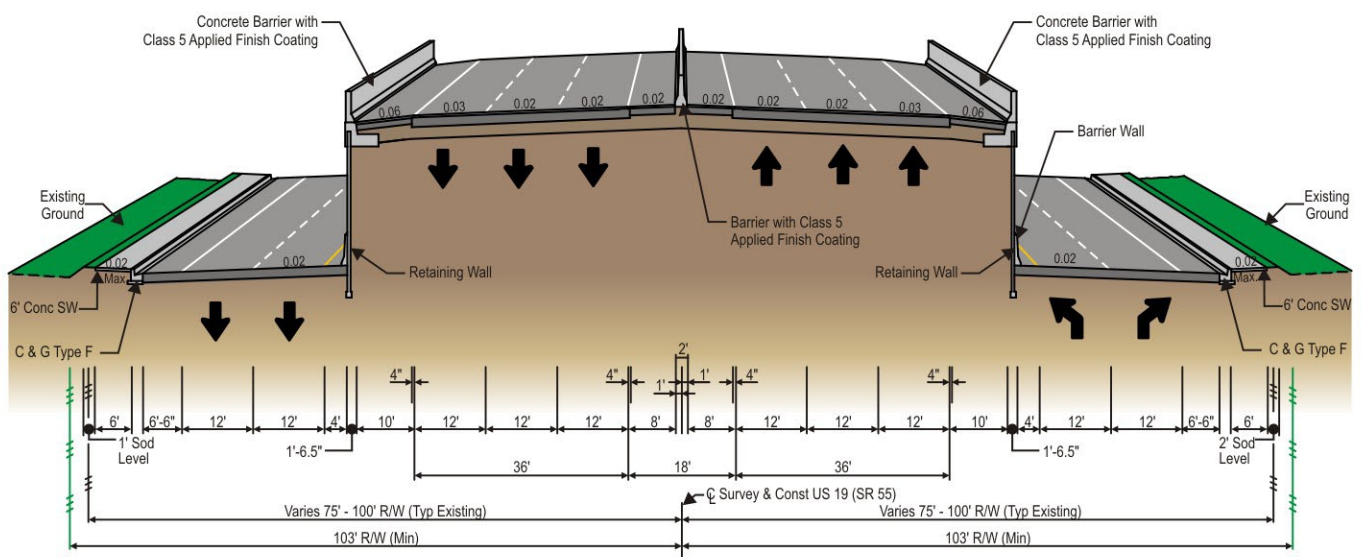
Alternative 3 is the development of a modified TUDI at SR 54, Ridge Road, SR 52 and County Line Road. In an effort to minimize ROW impacts along the corridor, the typical section was modified to move the turn lanes in and cantilever the structure in order to reduce the amount of ROW needed. In addition to the cantilever, the turn lane widths were reduced to 11 ft. This alternative would require 200 ft of ROW at each location and is shown in **Figure 8-12**.

The existing ROW width along SR 55 (US 19) at SR 54, SR 52 and County Line Road is a minimum of 200 ft. The length of the overhang varies by location in order to maintain the typical section within existing ROW. The overhang at SR 54, SR 52, and County Line Road vary between five-ft and 17-ft. However the ROW at Ridge Road is currently 150 ft and the width of the cantilever at that location would be 27-ft on the west side and 27-ft on the east side.

8.4 Evaluation Process

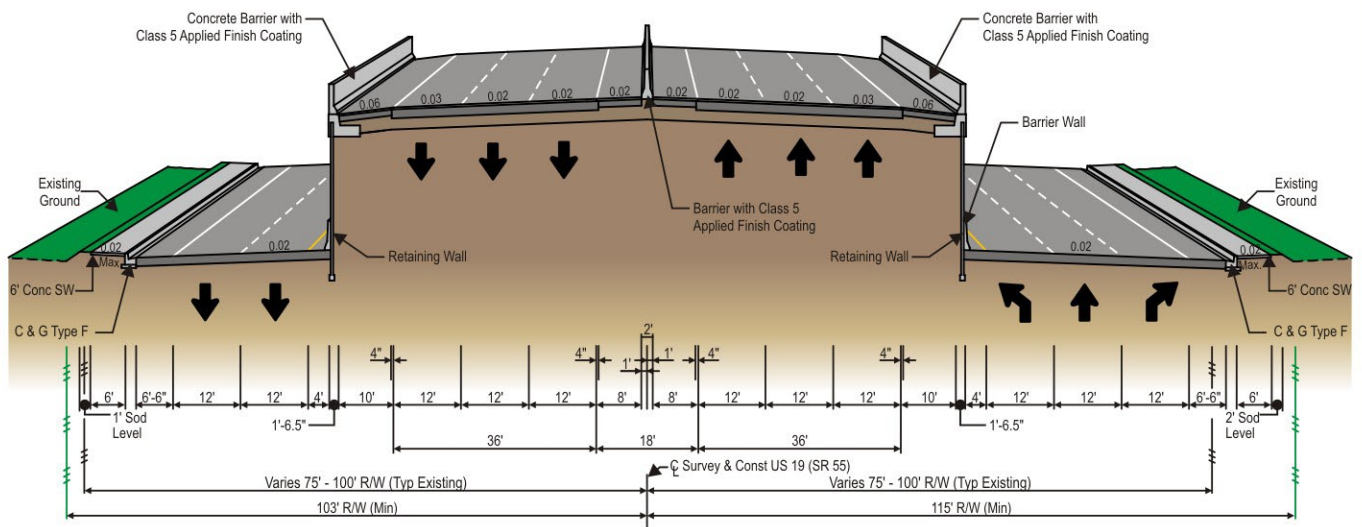
8.4.1 Quantifiable Criteria

In order to evaluate the study alternatives, the evaluation matrix shown in **Tables 8-1** through **8-3** was prepared using quantifiable criteria from a multitude of categories including socioeconomic, environmental, cultural, potential hazardous material/petroleum contamination, and costs (engineering, ROW and construction). The matrix data was developed utilizing raster-based aerial



ALTERNATIVE 1 SPUI TYPICAL

FIGURE 8-10



**ALTERNATIVE 2
TUDI TYPICAL**

FIGURE 8-11



FIGURE 8-12

Table 8-1
Evaluation Matrix – Alternative 1

Evaluation Factors*	Segments				
	1	2	3	4	Total
Business and Residential Relocations					
Number of businesses estimated to be relocated	–	–	–	–	–
Number of residencies estimated to be relocated	–	–	–	–	–
ROW Impacts					
Total number of parcels impacted	–	–	–	–	–
Area of ROW to be acquired in acres	–	–	–	–	–
Community Facility Involvement					
Community Facilities adjacent to the proposed ROW	4	3	6	8	21
Noise Sensitive Sites					
Number of noise sensitive sites within the 66dBA isopleth	22	22	0	10	54
Cultural/Historical Resources and Public Parks Involvement					
Number of historic sites/structures within or adjacent to ROW	5	31	4	11	51
Number of public parks adjacent to ROW	0	0	1	0	1
Natural Environment Involvement					
Estimated total wetland involvement area in acres	.55	.01	.01	.22	.79
Floodplain and Floodway Encroachment					
Area of base floodplain and floodway encroachment in acres	4.1	9.5	7.9	16.5	38
Potential Petroleum Pollutant and Hazardous Material Contaminated Sites (within or adjacent to ROW)					
Number of potential petroleum pollutant and hazardous materials contaminated sites (medium and high)	24	17	10	12	63
Estimated Project Costs (Present value in million \$)					
Design cost	7.0	7.7	6.2	7.2	28.1
ROW acquisition cost	–	–	–	–	–
Construction cost	46.8	51.3	41.3	48.1	187.5
Construction engineering and inspection cost	7.0	7.7	6.2	7.2	28.1
Total Cost	–	–	–	–	–

*Excludes pond ROW cost.

Table 8-2
Evaluation Matrix – Alternative 2

Evaluation Factors*	Segments				
	1	2	3	4	Total
Business and Residential Relocations					
Number of businesses estimated to be relocated	–	–	–	–	–
Number of residencies estimated to be relocated	–	–	–	–	–
ROW Involvement					
Total number of parcels involved	–	–	–	–	–
Area of ROW to be acquired in acres	–	–	–	–	–
Community Facility Involvement					
Community Facilities adjacent to the proposed ROW	4	3	6	8	21
Noise Sensitive Sites					
Number of noise sensitive sites within the 66dBA isopleth	22	22	0	10	54
Cultural/Historical Resources and Public Parks Involvement					
Number of historic sites/structures within or adjacent to ROW	5	31	4	11	51
Number of public parks adjacent to ROW	0	0	1	0	1
Natural Environment Involvement					
Estimated total wetland involvement area in acres	.55	.01	.01	.22	.79
Floodplain and Floodway Encroachment					
Area of base floodplain and floodway encroachment in acres	4.1	9.5	7.9	16.5	38
Potential Petroleum Pollutant and Hazardous Material Contaminated Sites (within or adjacent to ROW)					
Number of potential petroleum pollutant and hazardous materials contaminated sites (medium and high)	24	17	10	12	63
Estimated Project Costs (Present value in million \$)					
Design cost	6.0	6.8	5.0	6.1	23.9
ROW acquisition cost	–	–	–	–	–
Construction cost	40.0	45.1	33.2	40.5	158.8
Construction engineering and inspection cost	6.0	6.8	5.0	6.1	23.9
Total Cost	–	–	–	–	–

*Excludes pond ROW cost.

Table 8-3
Evaluation Matrix – Alternative 3

Evaluation Factors*	Segments				
	1	2	3	4	Total
Business and Residential Relocations					
Number of businesses estimated to be relocated	–	–	–	–	–
Number of residencies estimated to be relocated	–	–	–	–	–
ROW Involvement					
Total number of parcels involved	–	–	–	–	–
Area of ROW to be acquired in acres	–	–	–	–	–
Community Facility Involvement					
Community Facilities adjacent to the proposed ROW	4	3	6	8	21
Noise Sensitive Sites					
Number of noise sensitive sites within the 66dBA isopleth	22	22	0	10	54
Cultural/Historical Resources and Public Parks Involvement					
Number of historic sites/structures within or adjacent to ROW	5	31	4	11	51
Number of public parks adjacent to ROW	0	0	1	0	1
Natural Environment Involvement					
Estimated total wetland involvement area in acres	.55	0.003	.01	.22	0.79
Floodplain and Floodway Encroachment					
Area of base floodplain and floodway encroachment in acres	4.1	9.5	7.9	16.5	38
Potential Petroleum Pollutant and Hazardous Material Contaminated Sites (within or adjacent to ROW)					
Number of potential petroleum pollutant and hazardous materials contaminated sites (medium and high)	24	17	10	12	63
Estimated Project Costs (Present value in million \$)					
Design cost	7.9	17.7	7.7	6.1	39.4
ROW acquisition cost	–	–	–	–	–
Construction cost	52.9	117.7	51.1	40.5	262.2
Construction engineering and inspection cost	7.9	17.7	7.7	6.1	39.4
Total Cost	–	–	–	–	–

*Excludes pond ROW cost.

photography and depicts the proposed ROW needs for each alternative. A brief description of the quantifiable evaluation criteria follows.

- **Business Relocations:** the number of businesses estimated to be relocated by each of the Build Alternatives was identified using raster-based aerial photography and field verification. Other business effects expected to be sustained by businesses, which will not require relocation, such as parking losses, etc., were considered in the ROW acquisition cost estimates.
- **Residential Relocations:** the number of existing residences estimated to be relocated by the Build Alternatives was assessed by determining the number of residences that exist within the proposed ROW, and which residences will have to be relocated if the Build Alternative is implemented.
- **Community Facilities:** The project involvement with existing community facilities such as churches, schools, child care facilities, nursing homes, hospitals, cemeteries, fire stations, etc. were assessed.
- **Cultural/Historic Resources and Public Parks Involvement:** A thorough investigation was undertaken to determine that there are no National Register of Historic Places (NRHP) listed or eligible historic sites and structures within the study limits.
- **Natural Environment Involvement:** Affects of the proposed construction and ROW on the natural environment including involvement with bays (open water), mangroves, saltwater marches, shorelines, sea grasses, floodplains and floodways. No floodplain compensation volume is required since floodplains associated with storm surge are not considered beneficial floodplains. As a result, this project will not affect flood heights or floodplain limits.
- **Potential Hazardous Material or Petroleum Pollutant Contaminated Sites:** includes the evaluation of the number of potentially hazardous material and/or petroleum contaminated sites ranked medium or high within the study limits.
- **ROW Involvement:** Adverse property affects were quantified with two measures: the number of parcels being affected and the acreage of property to be purchased.
- **Total Estimated Project Costs:** Preliminary cost estimates were prepared for all Alternatives, including separate estimates of the ROW acquisition, maintenance of traffic, mobilization,

engineering/final design, construction, and the Construction Engineering Inspection (CEI) costs. These project costs shown in the matrices were generated using 2007 dollars.

The ROW acquisition cost includes the cost of business and residence relocations, private property purchase, and reimbursement cost for miscellaneous business damages. The construction cost includes structures, roadway, drainage system and pond construction, signing and marking, signalization adjustments, and scour protection. Utility adjustments, landscaping, and wetland mitigation are not included in this estimate.

8.5 REFERENCES

1. *Final Traffic Technical Memorandum*; HDR Engineering, Inc.; Tampa, Florida; 2007.

SECTION 9

PRELIMINARY DESIGN ANALYSIS

The final step in the study process was to define/refine the design parameters associated with the Recommended Alternative, including intersection design, drainage design, and maintenance of traffic during construction. Defining these parameters allowed for a more comprehensive and accurate evaluation of project impacts and costs. In this section of the report, project impacts and costs are presented only for the Recommended Build Alternative. The results of the CRTL evaluation efforts indicated that they could be constructed within the existing right-of-way (ROW) along SR 55 (US 19) without requiring any additional mainline ROW or ROW for stormwater treatment facility areas. Based on this evaluation effort, the CRTLs are no longer planned to be part of the proposed project concepts.

9.1 DESCRIPTION OF RECOMMENDED ALTERNATIVE

The Modified Tight Urban Diamond Interchange (TUDI), proposed Build Alternative 3, is the Recommended Alternative. It involves grade separating the SR 55 (US 19) mainline over the intersections of SR 54, Ridge Road, SR 52 and County Line Road. This Alternative is recommended since it minimizes the need to acquire costly ROW within the SR 55 (US 19) study limits. The Recommended Alternative utilizes pier supported concrete slabs to cantilever the SR 55 (US 19) mainline over the at-grade travel lanes at these four intersection locations. The use of the cantilevered structure reduces ROW impacts. Although there will be an increase in construction cost associated with the additional bridge structures for the Recommended Alternative, overall project costs are lower than the costs of implementing either proposed Build Alternatives 1 or 2 due to reduced ROW acquisition requirements.

A meeting was held at Florida Department of Transportation (FDOT), District Seven on March 12, 2008 to further define the design and operational elements of the conceptual design. In this meeting, the FDOT determined that retrofitting the conceptual design of the modified TUDI to include a Texas U-turn would be beneficial from a traffic operations standpoint. However, one issue that required further consideration involved whether the cost of modifying the interchange design to include Texas U-turns would outweigh the operational benefit of the proposed modification. Following this meeting, a *Technical Traffic Report*¹ was prepared to summarize the results of a benefit-to-cost analysis for the Texas U-turn design modification. The findings of the

Report indicated a favorable benefit-to-cost ratio (a ratio greater than 2.0) would be obtained if the Texas U-turn design modification was implemented as part of the Recommended Alternative. This Report concluded that the operational benefit the Texas U-turn would provide to the traveling public would be greater than the capital cost incurred to construct the special U-turn accommodations. Moreover, the use of the Texas U-turn concept could reduce travel delay for motorists by minimizing the effects of traffic friction, enhance circulation of traffic movements, and improve overall vehicle safety within the subject interchange areas.

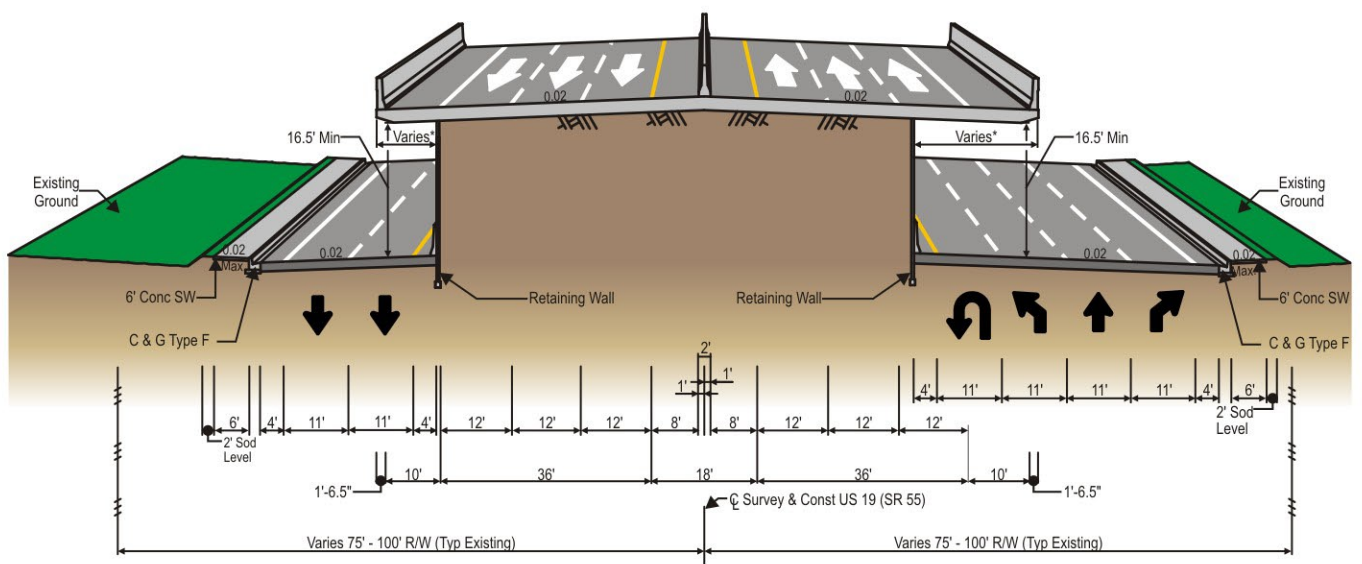
9.2 DESIGN TRAFFIC VOLUMES

The process to develop the design year (2030) traffic volumes was previously discussed in Section 6 of this report. Design hour traffic volumes were developed for the signalized intersections along the study corridor after consideration of existing travel patterns within the study area and identification of the impacts future developments would likely have on traffic flow. The design hour traffic volumes that were used to analyze the traffic operations of the at-grade signalized intersections in the No-Build Alternative are illustrated in **Figures 6-3A through 6-3F**. These same traffic volumes were also employed in the analysis of traffic operations at the ramp terminal intersections for the Build Alternatives.

9.3 TYPICAL SECTIONS

9.3.1 Recommended Alternative

The Recommended Alternative consists of a grade-separated six-lane SR 55 (US 19) mainline section constructed on pile supported concrete slabs. A cantilevered overhang is provided on both sides of the mainline section to allow at-grade travel lanes to be placed beneath the elevated structure. The use of a cantilevered overhang and 11-foot (ft) at-grade travel lanes minimize the overall footprint of the Recommended Alternative to 200 ft. **Figure 9-1** provides an illustration of the Recommended typical section recommended for grade separation of the SR 55 (US 19) mainline at the intersections of SR 54, Ridge Road, SR 52 and County Line Road. The 200-ft footprint of the Recommended Alternative coincides with the existing minimum ROW width of 200 ft along the SR 55 (US 19) mainline at the intersections of SR 54, SR 52 and County Line Road. The length of the overhang varies by location in order to maintain the typical section within existing ROW. The overhang at SR 54, SR 52, and County Line Road varies between 5 ft (foot) and 17 ft. The width of the cantilever at the Ridge Road location would need to be 27 ft on the west side and 27 ft on the east side to fit within the existing 150 ft ROW envelope.



**RECOMMENDED BUILD TYPICAL
SECTION
(SR 54, RIDGE ROAD, SR 52,
COUNTY LINE ROAD)**

FIGURE 9-1

9.4 INTERSECTION CONCEPTS AND SIGNAL ANALYSIS

Figures 6-4A through **6-4F** illustrate the recommended lane geometry at key signalized intersections along the SR 55 (US 19) study corridor. The *Final Traffic Technical Memorandum*² provides detailed information about the operation of each signalized intersection during the design hour and the projected maximum vehicle queue lengths in the design year (2030). As discussed in Section 4.6 of the Final Traffic Technical Memorandum, the SR 55 (US 19) signalized intersections at SR 54, Ridge Road, SR 52 and County Line Road are all projected to operate at Level of Service (LOS) F, with a signal delay of more than 100 seconds/vehicle during both the AM and PM peak hours of the design year (2030).

In order to improve overall operations at these intersections to acceptable levels of service (LOS D or better) in the design year, grade separation of the SR 55 (US 19) mainline over the subject cross-streets is required. Grade separation was selected for these four intersections because they represent locations along the SR 55 (US 19) study corridor where high traffic volumes intersect the mainline and the cross-streets provide regional connectivity to other areas of Pasco County. The future traffic operations of the subject intersections were analyzed assuming two different interchange configurations: a Single Point Urban Interchange (SPUI) and a Tight Urban Diamond Interchange (TUDI). The results of the traffic analysis indicated that both of the interchange configurations were projected to provide overall LOS D or better traffic operations at all four interchange locations during both the AM and PM peak hours of the design year (2030).

9.5 ALIGNMENT AND RIGHT-OF-WAY NEEDS

Conceptual plan sheet numbers 1-11 in **Appendix A** include aerial photography illustrating the Recommended Alternative and the anticipated roadway ROW needs associated with the proposed improvements. As shown in these illustrations, the proposed roadway improvements on SR 55 (US 19) are primarily accommodated within the existing ROW, except for anticipated minor corner clips and acquisitions of frontage immediately adjacent to the cross-street approaches. As previously mentioned, the Recommended Alternative minimizes ROW impacts through use of pier supported structures to cantilever the SR 55 (US 19) mainline over the cross-streets of SR 54, Ridge Road, SR 52 and County Line Road.

9.6 RELOCATIONS

Four (4) business relocations are anticipated if the Recommended Alternative is implemented. These potential relocations are within the southwest and northwest quadrants of the SR 55 (US 19)/SR 52 interchange and include the following businesses: Mattress Outlet, Collector's Den Pawn, Perkins Family Restaurant and Wendy's Restaurant. These locations are illustrated on the conceptual plan sheets in **Appendix A**.

9.7 RIGHT-OF-WAY COSTS

The estimated ROW acquisition costs to construct the Recommended Alternative at each of the proposed interchange locations are presented in **Table 9-1**. The ROW costs are displayed for the roadway and pond needs associated with the Recommended Alternative.

Table 9-1
Summary of Right-of-Way Costs for Recommended Alternative

SR 55 (US 19) Interchange	Roadway ROW Costs	Pond ROW Costs	Total ROW Costs
SR 54	\$23,526,900	\$21,353,700 – \$31,878,200	\$44,880,600 – \$55,405,100
Ridge Road	\$39,379,000	\$25,654,700 – \$38,737,100	\$65,033,700 – \$78,116,100
SR 52	\$21,730,000	\$9,377,200 – \$14,288,900	\$31,107,200 – \$36,018,900
County Line Road *	0	\$24,909,300 – \$36,305,800	\$24,909,300 – \$36,305,800
Corridor Total	\$84,635,900	\$81,294,900 – \$121,210,000	\$165,930,800 – \$205,845,900

Notes: * ROW on County Line Road east of SR 55 (US 19) is assumed to be acquired in the County Line Road widening project, FPN: 257298 2.

9.8 CONSTRUCTION COSTS

Table 9-2 includes the estimated construction cost of implementing the Recommended Alternative at each of the intersections where a grade separation is proposed. These costs were calculated using the FDOT's Long Range Estimates (LRE) computer program. The present day (2008) dollars to construct all roadway and bridge improvements along the SR 55 (US 19) study corridor is estimated as \$232.51 million.

Table 9-2
Summary of Construction Cost for Recommended Alternative

SR 55 (US 19) Interchange	Construction Cost (2008 Dollars)
SR 54	\$46,284,000
Ridge Road	\$90,674,000
SR 52	\$52,836,000
County Line Road	\$42,714,000
Corridor Total	\$232,508,000

9.9 PRELIMINARY ENGINEERING AND CONSTRUCTION ENGINEERING COSTS

The cost of engineering (final design) and the cost of Construction Engineering Inspection (CEI) were estimated as 10 percent each of the estimated \$232.51 million cost of construction for the proposed interchanges. Therefore, these efforts are expected to cost approximately \$23.25 million each, for a total of \$46.50 million.

9.10 RECYCLING OF SALVAGEABLE MATERIALS

Recycling of reusable materials will occur to the greatest extent possible during construction of the project. Removal and recycling of the existing pavement for use in the new pavement will be considered. This will aid in reducing the volume of materials hauled and disposed, as well as reducing the cost of purchasing materials suitable for pavement construction. Other materials such as signs, drainage concrete pipes, etc. will also be salvaged and reused for regular maintenance operations if they are deemed to be in good condition.

9.11 USER BENEFITS

The public will encounter numerous benefits upon completion of the Recommended Alternative. Savings in travel time, reduced vehicle operating costs, improved vehicular safety, and increased emergency response times are the primary benefits of the proposed improvements. Access to schools and community facilities, as well as to numerous commercial and residential developments will be enhanced by a reduction in congestion the Recommended Alternative is projected to provide. The creation of a motor-friendly facility will contribute to the economic growth of the area adjacent to the project.

9.12 PEDESTRIAN AND BICYCLE FACILITIES

The Recommended typical section will provide six ft wide sidewalks on both sides of the roadway adjacent to the ROW to accommodate pedestrians. Paved shoulders will be present to accommodate bicycle needs. Other pedestrian accommodations, such as crosswalks and public sidewalk curb ramps, will be located at ramp terminal intersections and designed to meet specific design requirements as set forth in the American Disabilities Act (ADA).

9.13 SAFETY

The proposed grade separation of the SR 55 (US 19) mainline over the cross-streets of SR 54, Ridge Road, SR 52 and County Line Road will upgrade the study corridor to a safer and more efficient transportation facility. The proposed improvements will enhance safety along the SR 55 (US 19) study corridor by reducing “stop-and-go” driving conditions associated with traffic congestion. Under the Recommended Alternative, existing traffic signals at the four subject intersection locations are removed, which in turn eliminates the need for heavy volumes of through traffic on the SR 55 (US 19) mainline to stop at a red signal indication to give ROW to much lesser turning volumes on the cross-street approaches. Reducing the overall number of stops on this heavily traveled roadway facility will likely lower the propensity for motorists to be involved in a rear-end collision; thus, making it a safer roadway facility for users.

9.14 ECONOMIC AND COMMUNITY DEVELOPMENT

The Needs Plan component of the *Pasco County MPO 2025 Long Range Transportation Plan (LRTP)*³ identifies the widening of SR 55 (US 19) to an eight-lane divided roadway facility with new interchanges located at SR 54, Ridge Road and SR 52. This plan was developed after a thorough evaluation of the future population and development growth within the region of the project. The proposed SR 55 (US 19) improvements respond to and fully accommodate the projected need to maintain the desired level of service. The improved traffic flow through the grade-separated intersection locations in the Recommended Build Alternative will allow easier access to businesses and residential communities along the SR 55 (US 19) study corridor.

9.15 ENVIRONMENTAL IMPACTS

The environmental effects of the recommended alternative were evaluated and are discussed in the following sections.

9.15.1 Land Use Data

9.15.1.1 Community Facilities and Established Land Uses

Community facilities provide a focal point for adjacent neighborhoods and communities, as well as serving the needs of surrounding areas. For the purpose of this study, community facilities include churches and other religious institutions, parks and recreation areas, other neighborhood gathering places, fire and police stations, public and private schools, medical and emergency treatment facilities, cemeteries, and public buildings and facilities. Community services located along the project corridor include two churches (King of Kings Lutheran Church and House of Faith, two cemeteries (Hudson Cemetery and Grace Memorial Cemetery), one hospital (Gulf Coast Medical Center), and six public service facilities (three fire stations, one sheriff's substation, two post offices and the Port Richey City Hall). None of these community facilities are anticipated to be impacted by construction of the Recommended Alternative. The existing land uses adjacent to the SR 55 (US 19) corridor are a mix of residential, commercial, office, and light industrial/warehouses. The proposed project is consistent with future land use plans. Future land uses are expected to follow the established trends.

9.15.2 Community Cohesion

The proposed project entails grade-separating the SR 55 (US 19) mainline over the cross-streets of SR 54, Ridge Road, SR 52 and County Line Road. The Recommended Alternative will require minor ROW acquisition needs. Even though there will be no splitting or isolation of neighborhoods, there would likely be an increase in circuitous travel due to implementing the Recommended Alternative. To improve safety and traffic operations within the proposed interchange areas, a Texas U-turn configuration is provided in the conceptual design of the Recommended Alternative. The Recommended Alternative will be designed to meet the needs of pedestrians and bicyclists. The project is not anticipated to harm elderly persons, handicapped individuals, non drivers and transit dependent individuals, or minorities. It is anticipated that the project improvements will not impact community cohesiveness and that the quality of life may be enhanced with added sidewalks and bike lanes that would be provided. Therefore, the proposed improvements are being developed to comply with Executive Order 12898, Environmental Justice, issued on February 1994. The proposed project is considered to have "Minimal" to "No Effect" on community cohesiveness.

9.15.3 Wetland Impact and Mitigation

In accordance with Executive Order 11990, "Protection of Wetlands," Dated May 1977, a wetland study was conducted to identify, characterize, and evaluate wetland systems that traverse or parallel the proposed grade-separated improvements on SR 55 (US 19). The details of the study are presented in the *Wetlands Evaluation and Biological Assessment Report (WEBAR)*⁴. The following is a summary of the findings.

Jurisdictional wetlands within the study area were located using the federal criteria of the COE, *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*⁵, (April 1987) and the state criteria (SWFWMD, Rule 62-340.300[1] and [2], F.A.C.). Areas in the vicinity of the project were investigated using the USDA-Natural Resources Conservation Service (formerly the Conservation Service) Soil Survey for Pinellas County, USGS Topographic Maps, NWI Maps, and recent and historical aerial photography. The classification of wetlands within and adjacent to the ROW is in accordance with the USFWS publication, *The Classification of Wetlands and Deepwater Habitats of the United States*⁶, (Cowardin, et. al., 1979).

If the proposed project is implemented, a total of 0.22 acres of wetland impacts is anticipated to occur. A total of 0.01 wetlands and 0.21 man-made swales/wet retentions would potentially be impacted; results of the analysis are shown in **Table 9-3**. Impact areas are mapped on the conceptual plans included in **Appendix A**.

Table 9-3
Wetland and other Surface Water Potential Impacts (acres)

Description	NWI	FLUCFCS	SR 55 (US 19) Interchange				Total Project Impacts
			SR 54	Ridge Rd	SR 52	Co. Line Rd	
Man-Made Swale & Wet Retention	PEMx	641	--	--	--	0.21	0.21
Freshwater Pond	PUB	530	--	--	--	--	0.00
Freshwater Marsh	PEM	641	--	0.01	--	--	0.01
Freshwater Forested Wetland	PFO	630	--	--	--	--	0.00
Riverine (excavated)	R2UBx	510	--	--	--	--	0.00
Total Wetland Impacts by Interchange			0.00	0.01	0.00	0.21	0.22

The U.S. Army Corps of Engineers (USACE) and Southwest Florida Water Management District (SWFWMD) regulate wetlands within the project limits. Other agencies including United States Fish and Wildlife Services (USFWS), the U.S. Environmental Protection Agency (USEPA), Florida Fish and Wildlife Conservation Commission (FFWCC), and NMFS review and comment on wetland permitting. It is anticipated that the following permits will be required for this project:

- Environmental Resource Permit (ERP) from SWFWMD
- Section 404 Dredge and Fill Permit from USACE
- National Pollutant Discharge Elimination System Permit (NPDES) from USEPA

Coordination with FFWCC and USFWS will be required for wetland-dependent Listed Species.

Impacts to wetlands will be avoided to the extent feasible. Unavoidable construction-related wetland impacts will be mitigated through the FDOT Mitigation Program (Chapter 373.4137 F.S.). Mitigation should be in-kind and within the same watershed basin as the proposed impact. For ERP purposes of mitigating any adverse wetland impacts within the same drainage basin, the project is located within the Upper Coastal Basin.

9.15.4 Threatened and Endangered Species

This project has been evaluated for impacts to wildlife habitat resources, including protected species, in accordance with 50CFR, Part 402 and the Endangered Species Act of 1973, as amended. **Table 9-4** shows the federally-listed species potentially occurring within or adjacent to the project limits.

Table 9-4
State and Federal Listed Threatened and Endangered Species

Common Name	Scientific Name	Designated Status		Potential to Occur within Project Limits ⁴
		Federal ²	State ³	
Avian				
Bald Eagle	<i>Haliaeetus leucocephalus</i>	N	N	Moderate
Florida Scrub-jay	<i>Aphelocoma coerulescens</i>	LT	LT	Moderate
Florida Sandhill Crane	<i>Grus canadensis pratensis</i>	N	LT	High
Little Blue Heron	<i>Egretta caerulea</i>	N	LS	High
Scott’s Seaside Sparrow	<i>Ammodramus maritimus peninsulae</i>	N	LS	Low
Snowy Egret	<i>Egretta thula</i>	N	LS	High
Tricolored Heron	<i>Egretta tricolor</i>	N	LS	High
Wood Stork	<i>Mycteria americana</i>	LE	LE	High
Mammals				
Florida Black Bear	<i>Ursus americanus floridanus</i>	N	LT	Moderate
Manatee	<i>Trichechus manatus</i>	LE	LE	Low
Reptiles				
Eastern Indigo Snake	<i>Drymarchon couperi</i>	LT	LT	Moderate
Gopher Tortoise	<i>Gopherus polyphemus</i>	N	T	Moderate
Flora				
Piedmont Jointgrass	<i>Coelorachis tuberculosa</i>	N	LT	Low
Natural Communities				
Sandhill		N	N	Moderate
Scrub		N	N	Moderate

Legend

¹Based on a review of existing literature, GIS and FNAI's "Biodiversity Matrix Report for US 19, Pasco County"

²As listed by the U.S. Fish and Wildlife Service in 50 CFR 17. NL = Not Listed.

³Plant species listed by the Florida Department of Agriculture pursuant to Chapter 5-40, FAC. Animal species listed by the FFWCC pursuant to Rules 39-27.003, 39-27.004, and 39-27.005 FAC.

⁴The potential for occurrence was ranked from high to low using the following guidelines:

Low - Little or no suitable habitat

Moderate - Suitable habitat present within, or adjacent to, the project limits and historical species record of occurrence (based on FNAI report and literature review) within one mile of the project limits.

High - Suitable habitat present within, or adjacent to, the project limits, species record of occurrence within one mile of the project limits and species recently observed/documented.

E = Endangered; LT = Threatened; and LS = Species of Special Concern

Although habitat in the vicinity of this project may support listed species, construction of this project predominantly within existing ROW with minimal proposed adjacent ROW, is unlikely to

adversely affect resources protected by the Endangered Species Act of 1973, as amended (16 U.S.C. 1513 et. seq.).

9.15.5 Historic Sites/Districts and Archaeological Sites

A Cultural Resource Assessment Survey (CRAS) was undertaken to comply with Section 106 of the *National Historic Preservation Act (NHPA)* of 1966 (Public Law 89-665), as amended, and the implementing regulations 36 CFR 800 (*Protection of Historic Properties*, revised January 2001), the *National Environmental Policy Act (NEPA)* of 1969 (Public Law 91-190), as well as the provisions contained in the revised Chapter 267, *Florida Statutes*. All work was carried out in conformity with Part 2, Chapter 12 (“Archaeological and Historical Resources”) of the Florida Department of Transportation’s *Project Development and Environment Manual* (revised January 1999), and the standards contained in *The Cultural Resource Management Standards and Operational Manual* (FDHR 2003).

Background research and a review of data at the Florida Master Site File (FMSF), and the National Register of Historic Places (NRHP) indicated that four previously recorded archaeological sites, 8PA15, 8PA17, 8PA18, and 8PA43, were located within approximately 100 ft of the existing SR 55 (US 19) ROW. Only 8PA18 is within close proximity to one of the four locations where grade separation is proposed [SR 55 (US 19)/SR 54 interchange]. Three of the four sites were recorded in the early 1960s; the fourth was identified in 1979. None were evaluated by the Florida State Historic Preservation Officer (SHPO) for its NRHP eligibility.

As a result of field survey, no evidence of any of the four previously recorded archaeological sites was found within the SR 55 (US 19) project, and no new archaeological sites were identified. The FMSF data for three of the previously recorded sites suggest that they were situated on sandy ridges outside the existing ROW. The fourth site, 8PA43, was noted by its recorder, in 1979, as destroyed within the SR 55 (US 19) ROW. Therefore, the negative findings of the archaeological survey were not unexpected. In general, the archeological Area of Potential Effect (APE) has been highly altered by development, and opportunities for systematic subsurface testing were limited. In conclusion, project development will have no involvement with any archaeological sites which are listed, determined eligible, or considered potentially eligible for listing in the NRHP, and no further archaeological work is recommended.

Background research and a review of the FMSF and NRHP indicated that no previously recorded historic resources are located within or adjacent to the project APE. As a result of field survey, 50

historic resources (8PA2482-2489, -2493, -2494, 2497-2505, 2509-2519, 2521-2538, and -2542) were identified, recorded, and evaluated along the entire limits of the PD&E study, including 45 historic structures, one cemetery, and four resource groups. Most of the newly identified historic structures are residential and commercial buildings constructed in the 1950s; none is considered potentially eligible for listing in the NRHP given their lack of significant historical associations, commonality of type and design, and in some cases, compromised integrity.

No archaeological sites or historic resources which are listed, determined eligible, or considered potentially eligible for listing in the NRHP are located within or adjacent to the SR 55 (US 19) project APE. The SHPO concurred with the recommendations contained in the CRAS on April 16, 2008.

9.15.6 Potential Hazardous Materials and Petroleum Products Contaminated Sites

A *Contamination Screening Evaluation Memorandum*⁹ was conducted to determine the potential for contamination of the SR 55 (US 19) ROW from adjacent properties and business operations.

Fourteen sites were identified as having the potential for contamination at the four interchange locations. The sites were identified by windshield survey, examination of historic aerial photography, and a regulatory review of state and federal environmental records.

Four potentially impacted sites were identified within the limits of the SR 55 (US 19)/SR 54 interchange. Of the four sites, three were ranked as Low potential for contamination and one was ranked Medium potential for contamination. Two sites which were ranked as Medium potential for contamination impacts were identified within the SR 55 (US 19)/Ridge Road interchange limits. Five potentially impacted sites were identified within the SR 55 (US 19)/SR 52 interchange limits. Of the five sites, three were ranked as Low potential for contamination and two were ranked Medium potential for contamination. Finally, two sites which were ranked as Medium potential for contamination impacts were identified within the SR 55 (US 19)/County Line Road interchange limits.

The locations of the fourteen potentially contaminated sites are shown on the conceptual plan sheets in **Appendix A**. For additional information regarding contamination, refer to the Contamination Screening Evaluation Memorandum prepared for this study.

9.15.7 Noise Impacts

A *Noise Study Report (NSR)*⁷ was prepared in accordance with Title 23 CFR, Part 772, Procedure for Abatement of Highway Traffic Noise and Construction Noise. The objectives of the NSR are to identify noise-sensitive sites adjacent to the project corridor, to evaluate the significance of existing and future traffic noise levels at the sites with the improvements, and to evaluate the need for and effectiveness of noise abatement measures. Additional objectives include the evaluation of construction noise impacts and the identification of noise level “contours” adjacent to the corridor.

The FHWA has established guidelines for the relationship between land use and design year noise levels. Noise impacts were identified for residences, churches, motels, hospitals, parks, and recreation areas using a Noise Abatement Criteria (NAC) of 66 decibels. The prediction of future traffic noise levels with the proposed roadway improvements was performed using the FHWA’s Traffic Noise Model (TNM Version 2.5). The traffic data used in the noise analysis was obtained from the project’s *Final Traffic Technical Memorandum*².

The results of the analysis indicate that Existing (2006) and No-Build (2030) exterior traffic noise levels are predicted to range from 54.8 to 68.1 dBA at the 155 noise-sensitive sites evaluated, with traffic noise levels predicted to approach, meet, or exceed the FHWA’s Noise Abatement Criteria (NAC) at 6 of the 155 sites analyzed. In the Design Year (2030), with the proposed improvements to SR 55 (US 19), exterior traffic noise levels are predicted to range from 56.5 to 68.6 dBA, with levels predicted to approach, meet, or exceed the NAC at 7 of the 155 sites analyzed. The 7 noise-sensitive sites are all single-family residences.

When compared to the Existing/No-Build condition, exterior traffic noise levels are predicted to change -0.9 to 3.3 dBA with the improvements to the SR 55 (US) 19 interchanges. As such, none of the sites are predicted to experience a substantial increase (15 dBA or more) in traffic noise as a result of the project.

Noise abatement measures were evaluated for the noise sensitive areas predicted to be affected by the proposed interchange improvements to SR 55 (US 19). The measures were traffic management, alignment modifications, property acquisition, land use controls, and noise barriers. Although feasible, traffic management, alignment modifications, property acquisitions, and land use controls were determined to be unreasonable methods to reduce the predicted traffic noise impacts for the affected sites. Based on the results of the analysis, the construction of noise

barriers along SR 55 (US 19) is not a feasible and cost-reasonable method of reducing predicted traffic noise impacts for some of the affected noise-sensitive sites.

9.15.8 Air Quality Impacts

In accordance with the Clean Air Act Amendments of 1990, an assessment of air quality impacts was conducted for this project. Using the FDOT's Air Quality Screening Test, COSCREEN, and traffic data from the *Final Traffic Technical Memorandum*², the "critical distance" was generated for both the opening year and design year No-Build and Build Alternatives. The critical distance is the closest distance a receptor can be to the proposed ramp terminal intersections in the Recommended Alternative without a significant air quality impact. The results of the test showed that no receptors were found to fall within the critical distance; thus, the project passed the Air Quality Screening Test. This project is in an area which has been designated as attainment for the ozone standards under the criteria provided in the Clean Air Act Amendments of 1990. This project is in conformance with the State Implementation Plan because it will not cause violation of the National Ambient Air Quality Standards.

9.15.9 Water Quality Impacts

No adverse impacts to water quality are anticipated. This project lies within the jurisdiction of the Southwest Florida Water Management District (SWFWMD) and will require an Environmental Resource Permit (ERP) for the stormwater management systems. The systems will be designed to provide the required water quality treatment and peak discharge attenuation. The requirement to meet FDOT design and construction guidelines for stormwater management facilities will also be realized for this project.

Water quality treatment will be required for the first inch of runoff from the contributing area for wet detention. Water quantity requirements shall comply with both the SWFWMD peak discharge criteria and Chapter 14-86 of the Florida Administrative Code of the Department of Transportation. Both criteria require the post-development peak discharge rates to be equal to or less than pre-development rates. Compensation storage will be provided for encroachments to the local 100-year floodplain if required by SWFWMD.

9.15.10 Aquatic Preserves

The Pinellas County Aquatic Preserve, located 0.5 miles south and 2.75 miles west of the proposed project, and waters within the Werner-Boyce Salt Springs State Park are within the

Wetstone/Birkovitz Outstanding Florida Waters (OFW), 100 ft to the west of the project. However, the Recommended Alternative would have no involvement with these areas.

9.15.11 Section 4(f) Lands

In accordance with Section 4(f) of the DOT Act of 1966 (Title 49, U.S.C., Section 1653 (f), amended and recodified in Title 49, U.S.C., Section 303, in 1983), the project was examined for possible Section 4(f) properties. However, the Recommended Alternative would have no involvement with any Section 4(f) protected properties.

9.15.12 Outstanding Florida Waters (OFW)

Within the project vicinity, several aquatic features have been designated as OFW, including portions of the Pinellas County Aquatic Preserve, located 0.5 miles south and 2.75 miles west of the proposed project, and waters within the Werner-Boyce Salt Springs State Park (the Wetstone/Birkovitz OFW), 100 foot (ft) to the west of the project. Degradation of water quality in an OFW is prohibited except under certain circumstances. However, the Recommended Alternative would have no involvement with these resources.

9.15.13 Floodplains

Protection of floodplains and floodways is required in accordance with Executive Order 11988, “Floodplain Management”, USDOT Order 5650.2, “Floodplain Management and Protection”, Federal-Aid Policy Guide 23 CFR 650A, and CFR 771. As outlined in Chapter 24 of the FDOT PD&E Manual, the intent of these regulations is to avoid or minimize highway encroachments within the 100-year base floodplain, where practicable, and to avoid supporting land use development which is incompatible with floodplain values. Where encroachment is unavoidable, the regulations require the Department to take appropriate measures to minimize impacts.

The FEMA 100-year floodplains identified within the project limits are due to tidal inundation. As a result, the project will not affect existing flood heights or floodplain limits. Modifications to the cross drains will perform hydraulically in a manner equal to or greater than the existing structure. The FEMA floodplain encroachments will be minimal due to the grade separation on an existing roadway and replacement of conveyance ditches adjacent to the SR 55 (US 19) mainline.

The project is a component of the County’s adopted Comprehensive Plan. Future land uses will be developed in accordance with the adopted Comprehensive Plan and Land Development

Regulations. Development in the base floodplain is prohibited by the Regulations in order to comply with the National Flood Insurance Program (NFIP).

Compensation storage will be provided for encroachments to the local 100-year floodplain if required by Southwest Florida Water Management District (SWFWMD). Based on the PD&E Manual's floodplain categories, this project would fall under Category 5 for the local floodplains: "Projects on existing alignment involving replacement of drainage structures in heavily urbanized floodplains." Replacement drainage structures for this project are limited to hydraulically equivalent structures. The limitations to the hydraulic equivalency being proposed are basically due to restrictions imposed by the geometrics of design, existing development, cost feasibility or practicability. An alternative encroachment location is not considered in this category since it defeats the project purpose or is economically unfeasible. Since flooding conditions in the project area are inherent in the topography or are a result of other outside contributing sources, and there is no practical alternative to totally eradicate flood impacts or even reduce them in any significant amount, existing flooding will continue, but not be increased. The proposed structures will be hydraulically equivalent to or greater than the existing structure, and backwater surface elevations are not expected to increase. As a result, the project will not affect existing flood heights or floodplain limits. This project will not result in any new or increased adverse environmental impacts. There will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.

9.16 UTILITY IMPACTS

As previously discussed in Section 4.1.14 of this report, several utility organizations were contacted via letter to request they identify the type and location of any existing or proposed utilities within the project corridor. After receiving responses from the utility organizations, the identified utilities located within the project corridor were evaluated based on the possibility of being impacted by the construction of the Recommended Alternative. The results of this evaluation indicate that there are no utility easements impacted outside of the existing ROW. Thus, it is expected that the utility companies will bear the costs of relocating utilities within the existing ROW.

9.17 TRAFFIC CONTROL PLAN

SR 55 (US 19) is a principal arterial on Florida's Strategic Intermodal System (SIS), having a functional purpose of transporting higher volumes of regional traffic in a safe and efficient manner. However, SR 55 (US 19) does also provide access to numerous residences and businesses in mostly urbanized areas of western Pasco County. Due to its importance, SR 55 (US 19) must remain functional throughout the duration of the construction activities. The existing number of travel lanes should be maintained to the maximum extent possible. Lane closures, if necessary, should occur during off-peak hours.

The following conceptual construction sequence will help to maintain traffic operations during construction of the Recommended Alternative:

- Relocate existing utilities within the ROW.
- Construct stormwater ponds.
- Construct temporary pavement as necessary to maintain two-way traffic.
- Construct outside shoulders, curb and gutter, closed drainage system, and sidewalks of the proposed interchange ramp typical sections while maintaining two-way traffic on the existing pavement.
- Construct new elevated mainline structure and maintain existing two-way traffic on the combination of the existing and temporary pavement of either the northbound or southbound travel lanes.
- Shift and maintain traffic on the newly completed northbound or southbound structure while constructing the remaining structure.
- Shift northbound and southbound traffic to their respective, completed roadways.

9.18 RESULTS OF PUBLIC INVOLVEMENT PROGRAM

A Public Involvement Program was approved for this PD&E Study in January 2007. The purpose of the program was to inform and solicit responses from interested parties, including local residents, public officials and agencies, and business owners. The program, which included an Advance Notification (AN) package, presentation to the Pasco County Metropolitan Planning Organization and their Technical and Citizens Advisory Committees, a Public Information Meeting and a Public Hearing, is summarized in the Comments and Coordination Report. A brief summary of the Public Involvement Program follows.

9.18.1 Advance Notification

An AN Package was prepared in accordance with Part 1, Chapter 2 of the FDOT PD&E Manual and was transmitted to the Florida State Clearinghouse in the Governor's Office of Planning and Budgeting on May 24, 2007. Several agencies, as well as the Miccosukee Tribe, responded with comments, including the SHPO, Florida Department of Community Affairs, FDEP, SWFWMD, the NMFS, USFWS, FHWA, USEPA, and the USACOE.

Generally, the comments indicated either no or minimal anticipated impacts, consistency with applicable requirements, a request that standard protective measures be used, or a request for further coordination during the project's final engineering design phase.

9.18.2 Public Information Meeting

A Public Information Meeting was held on January 15, 2008 to inform the public of the project's status, present alternatives under consideration, and receive comments. The following techniques were used to notify the public in advance about the meeting: 1) newsletter to property owners within 91m (300 ft) of centerline of the proposed project, 2) electronic mails and newsletters to elected and appointed officials, 3) newsletters to interested parties or those individuals and groups who asked to be placed on the mailing list, and 4) display advertisements in the St. Petersburg Times – Pasco Edition. The meeting was conducted in an informal open-house format which gave the public an opportunity to view project graphics and discuss the proposed project on a one-on-one basis with representatives from the FDOT and consultant teams.

In general, the majority of the written comments from the Public Information Meeting supported the need for the project improvements. Many of the attendees expressed the opinion that the proposed interchange improvements would alleviate traffic congestion on SR 55 (US 19). Several comments were received concerning safety, noise and flooding related impacts. The majority of the attendees Recommended Alternative 3, which proposed the least amount of ROW impacts.

9.18.3 Advisory Committees

A series of presentations were made to the Pasco County MPO and the MPO's Advisory Committees (Citizen and Technical). The purpose of these meetings was to present the results of the evaluation of design alternatives and outline the timeline and funding for the future improvements.

9.18.4 Public Hearing

A Public Hearing was held on August 28, 2008, to present the Recommended Build Alternative. The following techniques were used to notify the public in advance about the meeting: 1) newsletter to property owners within 91m (300 ft) of centerline of the proposed project, 2) emails and newsletters to elected and appointed officials, 3) newsletters to interested parties or those individuals and groups who asked to be placed on the mailing list, 4) display advertisements in the St. Petersburg Times – Pasco Edition, and 5) one advertisement in the Florida Administrative Weekly.

For one hour, from 6:00 pm to 7:00 pm, the public viewed displays, were given an opportunity to view a audiovisual presentation and spoke to FDOT and consultant team representatives in an informal, open house setting. At 7:00 pm the formal portion of the hearing began. Opening remarks were made by the FDOT hearing moderator, Robert Clifford, AICP, Intermodal Systems Development Manager. An opportunity for the public to offer comments was made available, and their comments were transcribed by a court reporter. Written comments were collected at the Hearing.

9.19 VALUE ENGINEERING

The Recommended Alternative of the SR 55 (US 19) is anticipated to be reviewed by a Value Engineering (VE) review team comprised of FDOT staff representing various disciplines. A Value Engineering Study may subsequently be prepared.

9.20 DRAINAGE

A *Pond Siting Report*⁸ was prepared to summarize existing drainage conditions and to determine preliminary ROW requirements for ponds along the SR 55 (US 19) study corridor. The need for ponds is as a result of the increase in stormwater runoff associated with the proposed roadway improvements. Preliminary pond ROW requirements were estimated in this PD&E Study; however, specific pond locations were not identified or analyzed due to the conceptual nature (i.e., long-term improvements) of the project and uncertainty with the project's funding (i.e., the proposed interchanges at SR 54, Ridge Road, SR 52 and County Line Road are not fully funded).

The FDOT District Seven (Brooksville Maintenance Office) was contacted to determine the history of flooding problems within the project limits. The most common issues are ponding of water at driveway turnouts, cross streets, and the ROW line. The FDOT suspects that these

ponding issues are related to the reduced ditch capacity and alterations to the historic drainage patterns as a result of recent roadway and sidewalk improvement projects. These issues have been addressed by FDOT Maintenance as they are reported. Other known problem areas include flooding of the outside northbound through lane near Washington Street (located south of Ridge Road at Station 2403+00) and flooding of the two outside southbound through lanes just south of the Hernando/Pasco County Line (south of County Line Road). Significant maintenance activities were performed after a particular large rain event to correct the flooding issue just south of the County line. A similar rain event has not transpired since the maintenance activities were conducted to determine if further action is required.

Pond ROW requirements were estimated assuming ponds are wet detention systems and sized to accommodate the estimated treatment and attenuation volumes for each basin. Attenuation volumes were calculated using post-development minus pre-development runoff volumes for the 100-year/24-hour storm event. Based on existing topography within the project limits, both the maximum treatment depth and attenuation depth were assumed to be one ft. A 20-ft maintenance berm was included in the pond areas. Estimated storage volumes and pond sizes for each basin are summarized in **Table 9-5**.

Table 9-5
Summary of Required SR 55 (US 19) Pond Areas for Recommended Alternative

SR 55 (US 19) Interchange	Basin Area (ac)	Estimated Treatment Volume (ac-ft)	Estimated Attenuation Volume (ac-ft)	Estimated Pond Size (ac)
SR 54	36.14	2.35	5.39	8.14
Ridge Road	32.02	2.53	7.39	10.78
SR 52	33.61	2.86	2.92	4.19
County Line Road	56.63	3.15	13.84	17.70
Corridor Total	158.4	10.89	29.54	40.81

Notes: Pond areas include 20-ft berms plus a 20 percent increase in acreage to account for uncertainty associated with the preliminary nature of the design. Attenuation and treatment depths are also assumed to be one ft.

9.21 STRUCTURES

There are no existing bridge structures located within the immediate area of the proposed interchanges on SR 55 (US 19) at SR 54, Ridge Road, SR 52 and County Line Road.

9.22 ACCESS MANAGEMENT

The current access management classification for the study segment of SR 55 (US 19) from the South of Alternate US 19 to the North of County Line Road is Class 3. The FDOT access management standards for directional and full median openings on a designated Class 3 roadway are 1,320 ft and 2,640 ft, respectively. Similar to the spacing criteria for full median openings, the minimum spacing of traffic signals is 2,640 ft. The proposed improvements on SR 55 (US 19) will be designed to meet access Class 3 standards.

As a result of the proposed grade separations at SR 54, Ridge Road, SR 52 and County Line Road, as many as 16 existing median openings within close proximity to the four subject cross-streets will be closed. Closing full median openings that currently operate under side-street stop control would improve vehicle safety on SR 55 (US 19), as well as support access management goals and objectives along the study corridor. Existing driveways located within the immediate area of the proposed interchange will no longer have direct access to the SR 55 (US 19) mainline, but will instead access the mainline via the proposed interchange on- and off- ramps. **Table 9-6** provides a list of the existing median openings that will be impacted by the proposed improvements.

Table 9-6
Summary of Median Closures on SR 55 (US 19) with Recommended Alternative

SR 55 (US 19) Interchange	Median Opening	Type of Median/ Traffic Control	Station Centerline
SR 54	Manor Drive	Full/Unsignalized	2156+00
	Beacon Hill Drive	Full/Unsignalized	2163+50
	Flamingo Drive	Full/Unsignalized	2184+00
	Catherine Street	Full/Unsignalized	2188+00
Ridge Road	Pasco Way	Full Unsignalized	2394+50
	Washington Street	Directional/Unsignalized	2402+50
	KFC Drive	Full/Unsignalized	2411+00
	Bay Boulevard	Directional/Unsignalized	2414+00
	Springer Drive	Full/Unsignalized	2431+00
SR 52	Flea Market	Full/Unsignalized	2605+00
	Point Plaza/Bayonet	Directional/Unsignalized	2625+00
	Edna Avenue	Full/Unsignalized	2631+50
	K-Mart Driveway	Full/Unsignalized	2637+00
County Line Road	Craig Loop	Full/Unsignalized	3035+00
	Rainbow Oaks Drive	Full/Unsignalized	3042+50
	Uhl Plaza Driveway	Directional/Unsignalized	3062+00

Although there are numerous operational benefits with grade separation, a possible shortcoming is the concentration of higher volumes of u-turn traffic at the signalized ramp terminal intersections of the proposed interchanges. To improve safety and traffic operations within the subject interchange areas, a Texas U-turn configuration is provided in the Recommended Alternative to allow traffic to perform U-turn movements without incurring additional vehicle delay during a red signal indication.

9.23 REGIONAL TRANSIT LOCATIONS

Pinellas County Public Transportation (PCPT) and Pinellas Suncoast Transit Authority (PSTA) currently provide fixed route transit buses servicing the majority of the SR 55 (US 19) study corridor. PCPT Route 19 enters Pasco County at the southern county line as PSTA Route 19 and extends service to SR 52. Route 19 exhibits the highest ridership in Pasco County and provides 0.5-hour headways. PCPT Route 21 services SR 55 (US 19) from SR 52 to Little Road and provides 1.0-hour headways. The *Pasco Transit Development Plan Major Update (FY 2009 – FY 2018)*, July 2008¹⁰ identifies future SR 55 (US 19) express bus service along Route 19, with possible implementation by the fiscal year 2013. By fiscal year 2016, bus service is anticipated to

be enhanced on SR 55 (US 19) through signal priority and reduced headways (from 0.5 hour to 0.25-hour).

9.24 AESTHETICS AND LANDSCAPING

There have been no provisions or commitments made regarding special aesthetic features for the SR 55 (US 19) study corridor.

9.25 EVALUATION SUMMARY

The project impacts and cost of the No-Build and Recommended Build Alternatives were evaluated using the matrix shown in **Tables 9-7**. As previously discussed in Section 8.4, the matrix was prepared using quantifiable criteria from a multitude of categories including socioeconomic, environmental, cultural, potential hazardous material/petroleum contamination, and costs (engineering, ROW and construction). The matrix data was developed utilizing raster-based aerial photography and depicts the proposed ROW needs for the Recommended Build Alternative.

Table 9-7
Evaluation Matrix – No-Build and Recommended Build Alternative 3

Evaluation Factors	Alternatives	
	No-Build Alternative	Recommended Build Alternative 3
Business and Residential Relocations		
Number of businesses estimated to be relocated	0	4
Number of residencies estimated to be relocated	0	0
ROW Involvement		
Total number of parcels involved	0	24
Area of ROW to be acquired in acres	0	2.2
Community Facility Involvement		
Community Facilities adjacent to the proposed ROW	11	11
Noise Sensitive Sites		
Number of noise sensitive sites within the 66dBA isopleth	6	7
Cultural/Historical Resources and Public Parks Involvement		
Number of historic sites/structures within or adjacent to ROW	7	7
Number of public parks adjacent to ROW	0	0
Natural Environment Involvement		
Estimated total wetland involvement area in acres	0	0.22
Floodplain and Floodway Encroachment		
Area of base floodplain and floodway encroachment in acres	0	28.2
Potential Petroleum Pollutant and Hazardous Material Contaminated Sites (within or adjacent to ROW)		
Number of potential petroleum pollutant and hazardous materials contaminated sites (medium and high)	14	14
Estimated Project Costs (Present value in million \$)		
Design cost	0	23.25
ROW acquisition cost	0	165.93 – 205.85
Construction cost	0	232.51
Construction engineering and inspection cost	0	23.25
Total Cost	0	444.94 – 484.86

9.26 REFERENCES

1. *Texas U-turn Benefit Cost Analysis Technical Traffic Report*; HDR Engineering, Inc.; Tampa, Florida; 2008
2. *Final Traffic Technical Memorandum*; HDR Engineering, Inc.; Tampa, Florida; 2007.
3. *Pasco County Metropolitan Planning Organization 2025 Long Range Transportation Plan Update*; Tindale Oliver & Associates, Inc.; Final Report January 2005.
4. *Wetlands Evaluation and Biological Assessment Report (WEBAR)*; HDR Engineering, Inc.; Tampa, Florida; 2008.
5. *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*, (April 1987)
6. *The Classification of Wetlands and Deepwater Habitats of the United States*⁶, (Cowardin, et. al., 1979).
7. *Noise Study Report (NSR)*; 2008.
8. *Pond Siting Report*; HDR Engineering, Inc.; Tampa, Florida; 2008.
9. *Cultural Resource Assessment Study (CSAR)*; ACI; 2007.
10. *Contamination Screening Evaluation Memorandum (CSEM)*; HDR Engineering, Inc.; Tampa, Florida; 2008.
11. *Pasco Transit Development Plan Major Update (FY 2009 – FY 2018)*; July 2008.

APPENDIX A
CONCEPT PLANS

SEGMENT 1



LEGEND:

- Existing ROW
- Proposed ROW
- Proposed EOP
- Property Lines
- Bridge/Structure
- Contamination Sites
- Wetland Boundary
- Centerline Alignment
- Place/Street Name
- Relocation

SEGMENT: ONE

FLIGHT DATE: JANUARY 2006

HDR HDR Engineering, Inc.
5426 Bay Center Drive, Suite 400
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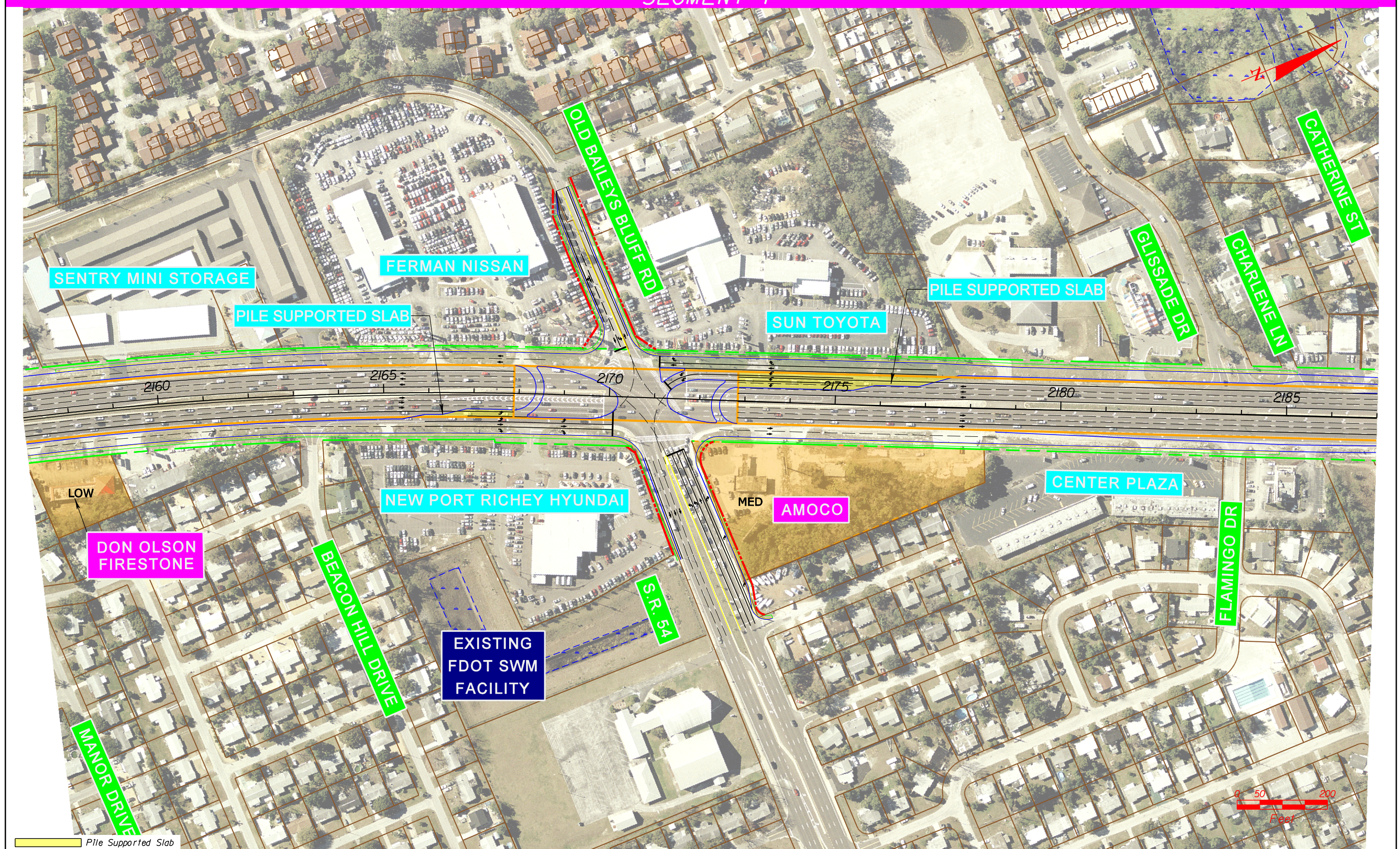
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 55	PASCO	418860-1-22-01

S.R. 55 (U.S. 19)

CONCEPT PLANS

ALT. 3 - MOD. TUDI - W/ TEXAS U-TURNS

SHEET NO. 1



LEGEND:

- Existing ROW
- Proposed ROW
- Proposed EOP
- Property Lines
- Bridge/Structure
- Contamination Sites
- Wetland Boundary
- Centerline Alignment
- Place/Street Name
- Relocation

SEGMENT: ONE

FLIGHT DATE: JANUARY 2006

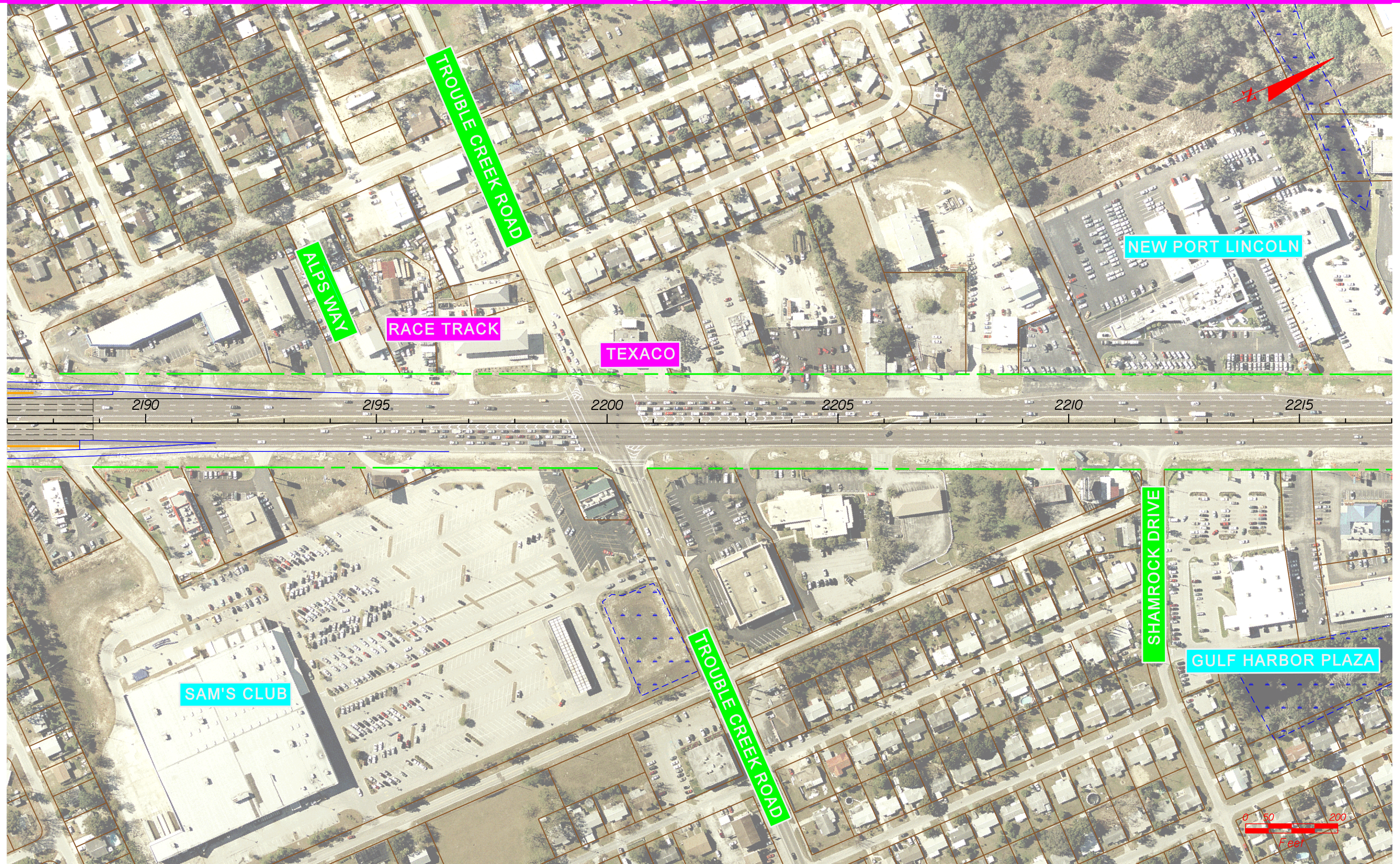
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
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CONCEPT PLANS
ALT. 3 - MOD. TUDI - W/ TEXAS U-TURNS**

SHEET NO. 2

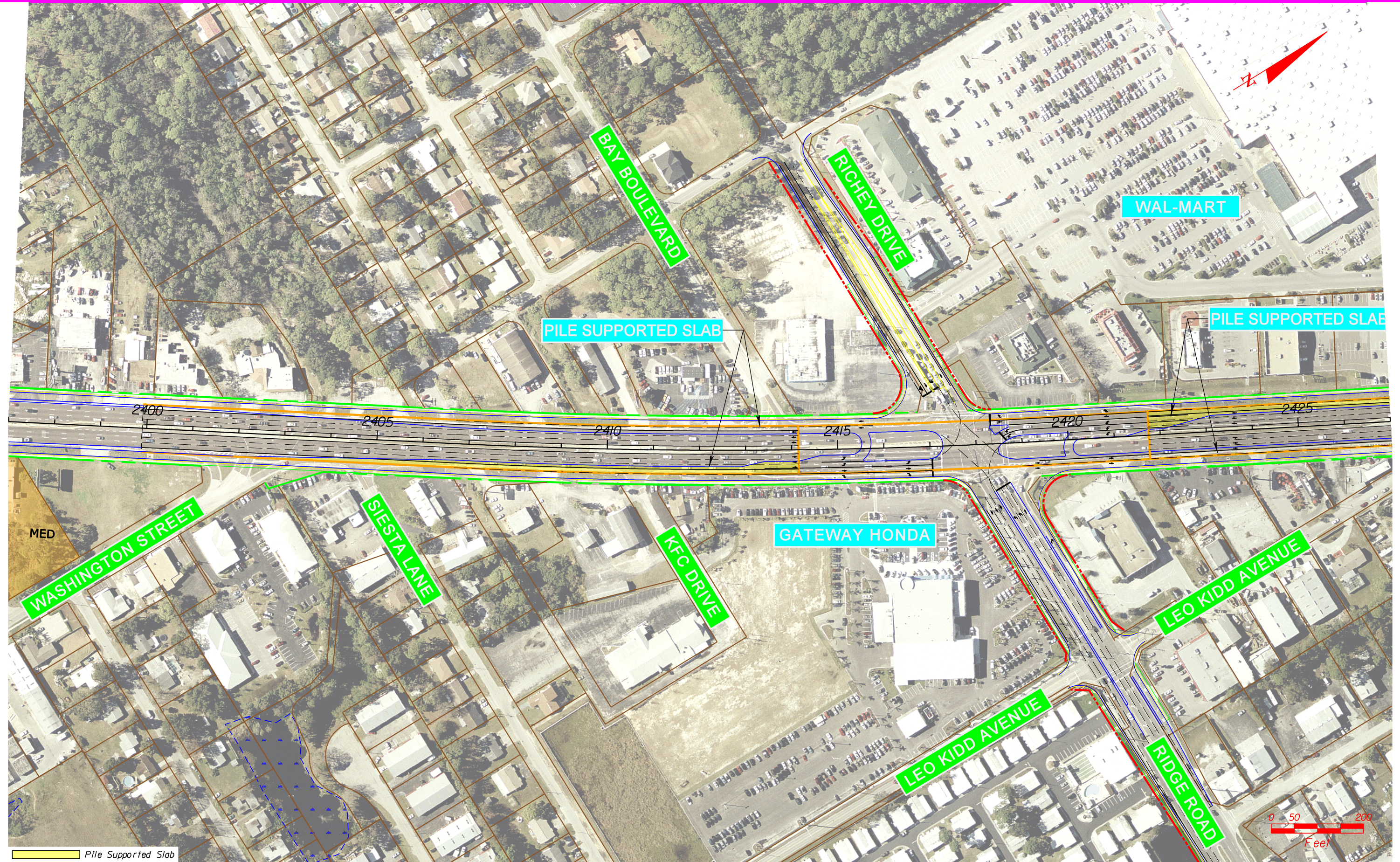
SEGMENT 1



LEGEND: Existing ROW Proposed ROW Proposed EOP Property Lines Bridge/Structure Contamination Sites Wetland Boundary 2075 Centerline Alignment FLORA AVENUE Place/Street Name (B1) Relocation	SEGMENT: ONE FLIGHT DATE: JANUARY 2006	HDR HDR Engineering, Inc. 5426 Bay Center Drive, Suite 400 Tampa, FL 33609-3444 CERTIFICATE OF AUTHORIZATION 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			S.R. 55 (U.S. 19) CONCEPT PLANS ALT. 3 - MOD. TUDI - W/ TEXAS U-TURNS	SHEET NO.
			ROAD NO.	COUNTY	FINANCIAL PROJECT ID		3
			S.R. 55	PASCO	418860-1-22-01		



LEGEND: Existing ROW Proposed ROW Proposed EOP Property Lines Bridge/Structure Contamination Sites Wetland Boundary 275 Centerline Alignment FLORA AVENUE Place/Street Name (B) Relocation		SEGMENT: TWO FLIGHT DATE: JANUARY 2006		HDR HDR Engineering, Inc. 5426 Bay Center Drive, Suite 400 Tampa, FL 33609-3444 CERTIFICATE OF AUTHORIZATION 4213		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. COUNTY FINANCIAL PROJECT ID S.R. 55 PASCO 418860-1-22-01			S.R. 55 (U.S. 19) CONCEPT PLANS ALT. 3 - MOD. TUDI - W/ TEXAS U-TURNS		SHEET NO. 4
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LEGEND:

- Existing ROW
- Proposed ROW
- Proposed EOP
- Property Lines
- Bridge/Structure
- Contamination Sites
- Wetland Boundary
- Centerline Alignment
- Place/Street Name
- Relocation

SEGMENT: TWO

FLIGHT DATE: JANUARY 2006

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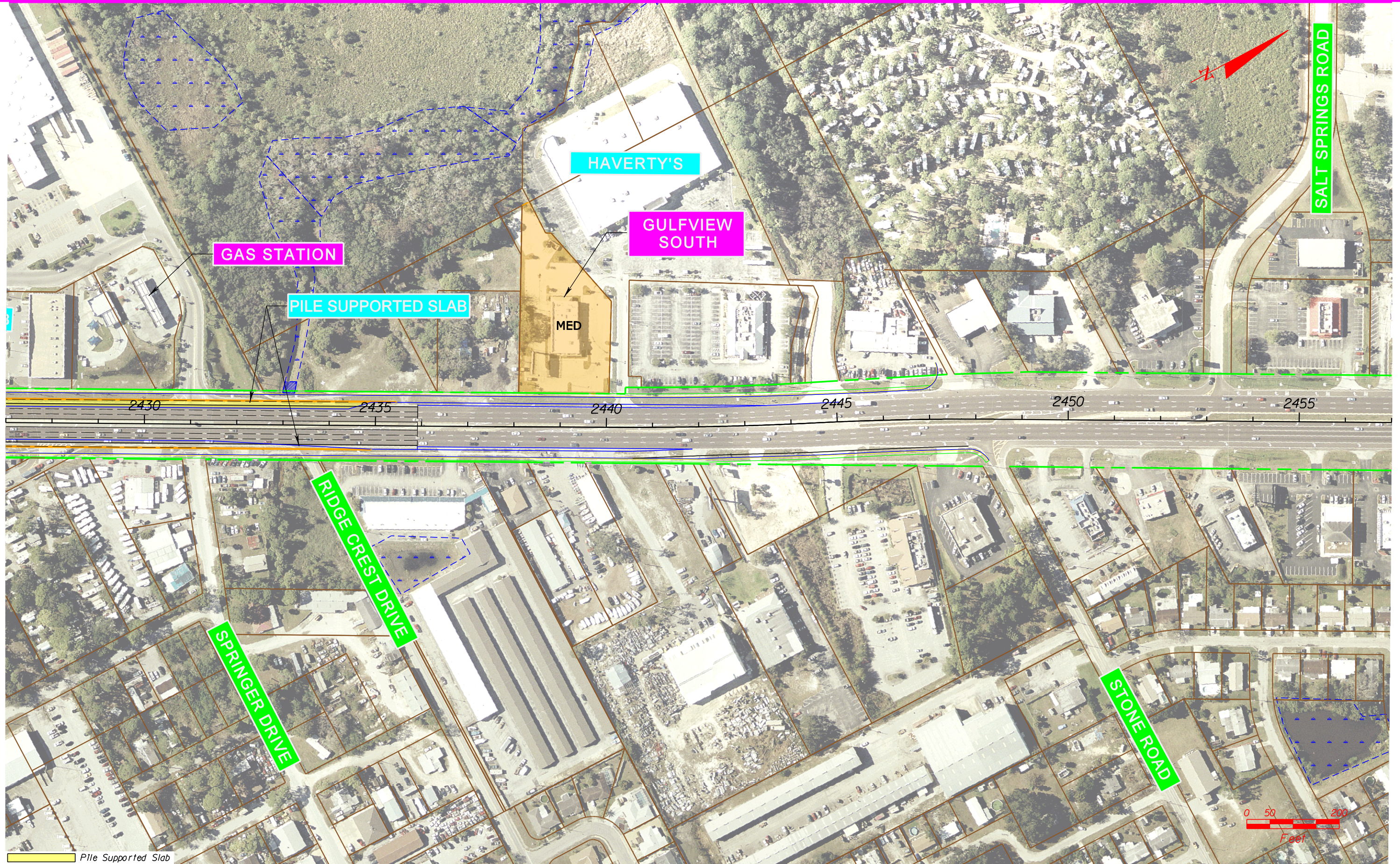
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 55	PASCO	418860-1-22-01

S.R. 55 (U.S. 19)

CONCEPT PLANS

ALT. 3 - MOD. TUDI - W/ TEXAS U-TURNS

SHEET NO. 5



LEGEND:

- Existing ROW
- Proposed ROW
- Proposed EOP
- Property Lines
- Bridge/Structure
- Contamination Sites
- Wetland Boundary
- Centerline Alignment
- Place/Street Name
- Relocation

**SEGMENT:
TWO & THREE**

**FLIGHT DATE:
JANUARY 2006**

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 55	PASCO	418860-1-22-01

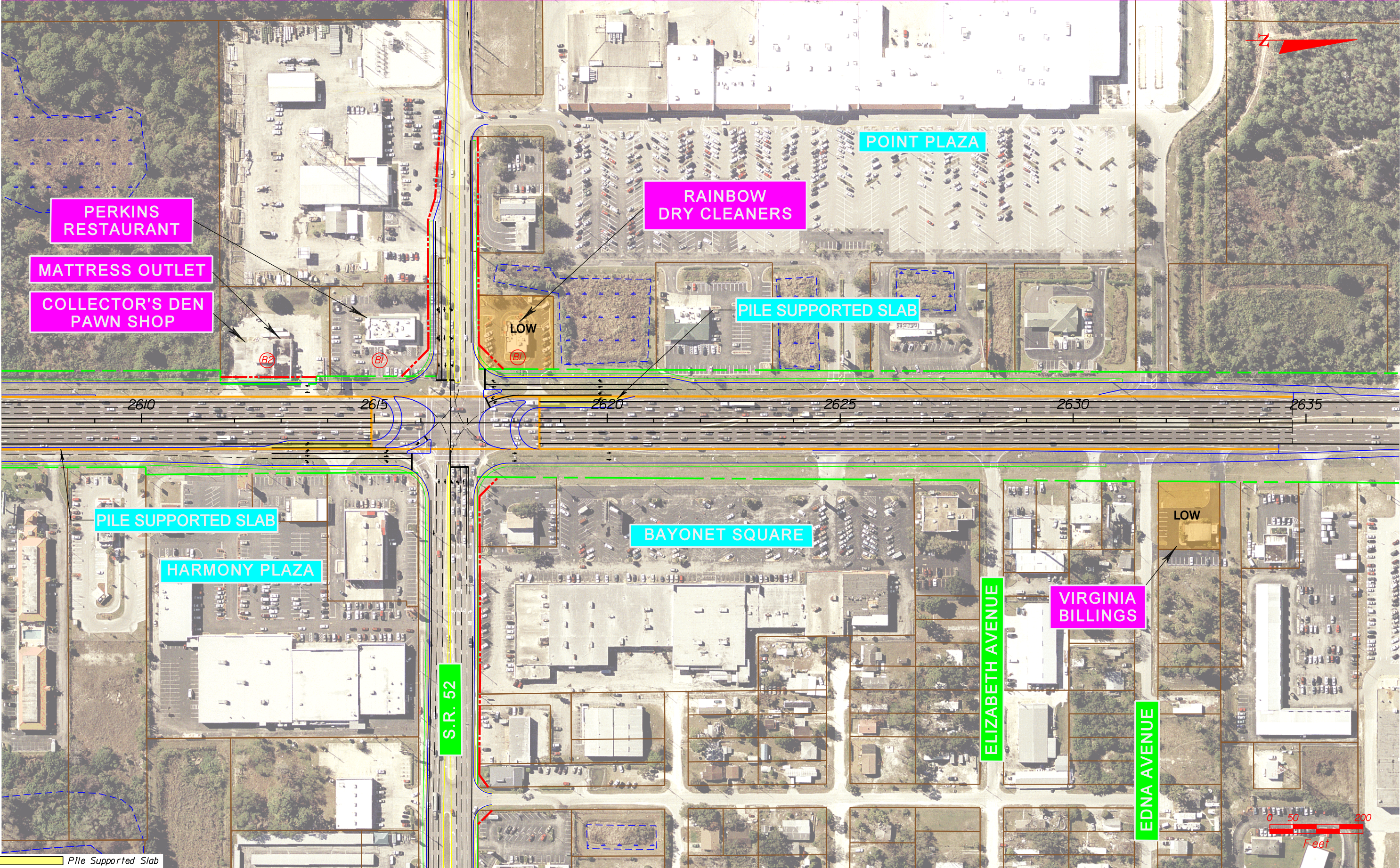
**S.R. 55 (U.S. 19)
CONCEPT PLANS
ALT. 3 - MOD. TUDI - W/ TEXAS U-TURNS**

SHEET NO.
6

SEGMENT 3



LEGEND: Existing ROW Proposed ROW Proposed EOP Property Lines Bridge/Structure		Contamination Sites Wetland Boundary 275 Centerline Alignment FLORA AVENUE Place/Street Name BI Relocation	SEGMENT: THREE FLIGHT DATE: JANUARY 2006	HDR HDR Engineering, Inc. HDR Engineering, Inc. 5426 Bay Center Drive, Suite 400 Tampa, FL 33609-3444 CERTIFICATE OF AUTHORIZATION 4213	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION <table><tr><th>ROAD NO.</th><th>COUNTY</th><th>FINANCIAL PROJECT ID</th></tr><tr><td>S.R. 55</td><td>PASCO</td><td>418860-1-22-01</td></tr></table>			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	S.R. 55	PASCO	418860-1-22-01	S.R. 55 (U.S. 19) CONCEPT PLANS ALT. 3 - MOD. TUDI - W/ TEXAS U-TURNS	SHEET NO. 7
ROAD NO.	COUNTY	FINANCIAL PROJECT ID													
S.R. 55	PASCO	418860-1-22-01													



LEGEND:

- Existing ROW
- Proposed ROW
- Proposed EOP
- Property Lines
- Bridge/Structure
- Contamination Sites
- Wetland Boundary
- Centerline Alignment
- Place/Street Name
- Relocation

SEGMENT:
THREE & FOUR

FLIGHT DATE:
JANUARY 2006

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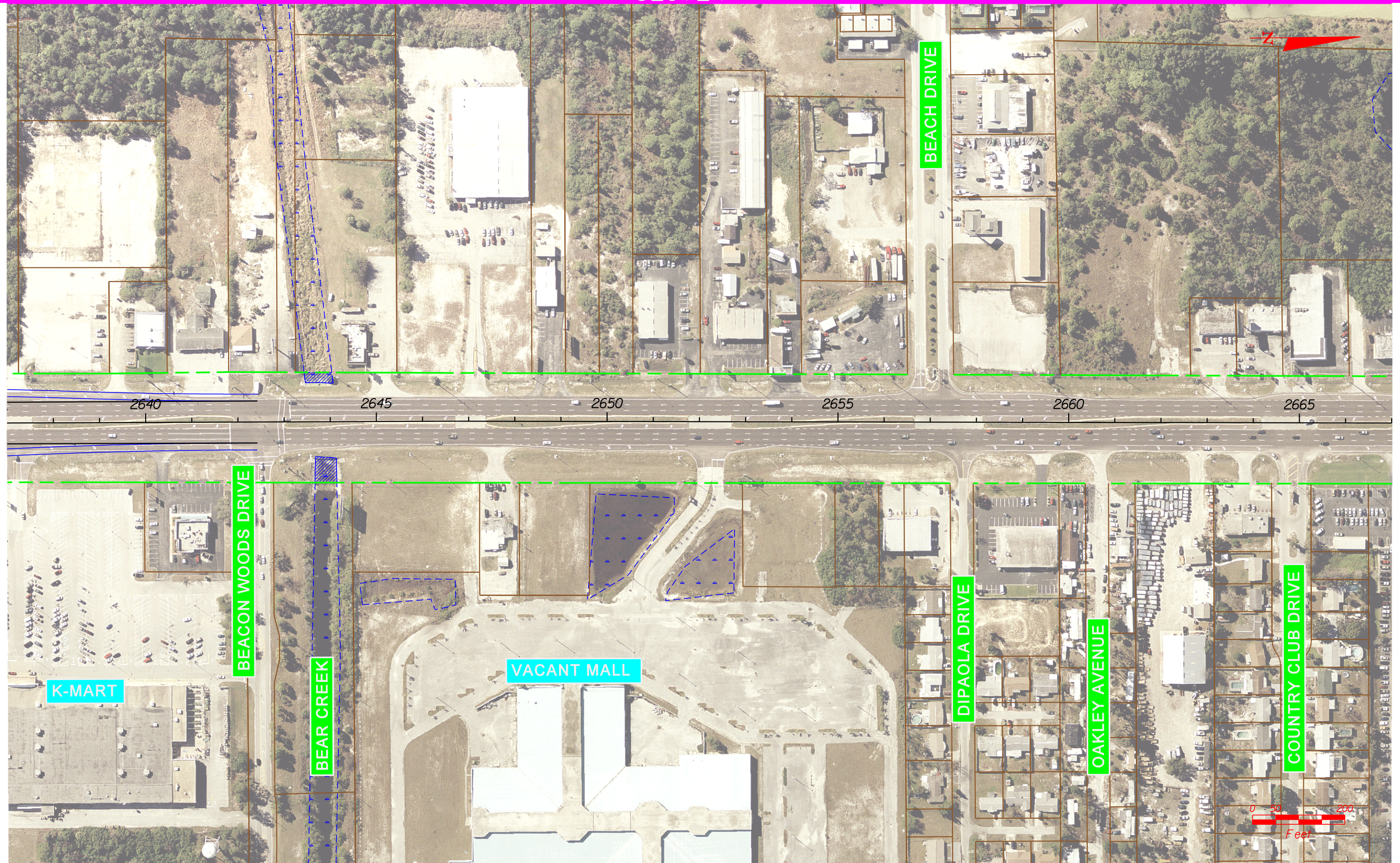
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 55	PASCO	418860-1-22-01

S.R. 55 (U.S. 19)
CONCEPT PLANS
ALT. 3 - MOD. TUDI - W/ TEXAS U-TURNS

SHEET NO.
8

SEGMENT 4



LEGEND:

-  Existing ROW
-  Proposed ROW
-  Proposed EOP
-  Property Lines
-  Bridge/Structure

 Contamination Sites
 Wetland Boundary
 Centerline Alignment
 Place/Street Name
 Relocation

**SEGMENT:
FOUR**

**FLIGHT DATE:
JANUARY 2006**

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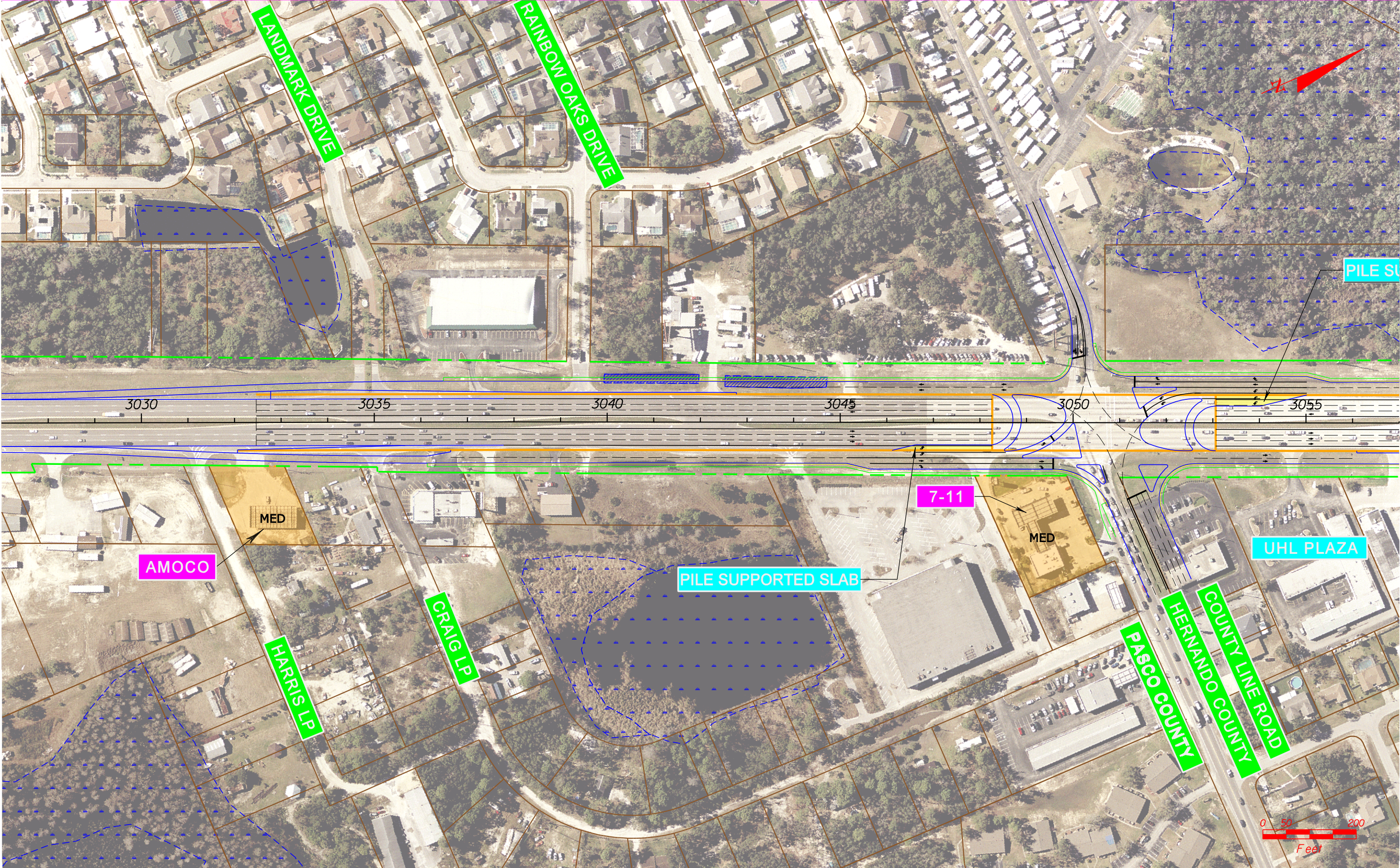
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
S.R. 55	PASCO	418860-1-22-01

S.R. 55 (U.S. 19)
CONCEPT PLANS
ALT. 3 - MOD. TUDI - W/ TEXAS U-TURNS

SHEET
NO.

9



LEGEND:

	Existing ROW		Contamination Sites
	Proposed ROW		Wetland Boundary
	Proposed EOP		Centerline Alignment
	Property Lines		Place/Street Name
	Bridge/Structure		Relocation

SEGMENT: FOUR

FLIGHT DATE: JANUARY 2006

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**S.R. 55 (U.S. 19)
CONCEPT PLANS
ALT. 3 - MOD. TUDI - W/ TEXAS U-TURNS**

SHEET NO. 10



LEGEND:
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