FINAL
PRELIMINARY ENGINEERING REPORT

PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
SR 60 / ADAMO DRIVE
FROM WEST OF 50TH STREET (US 41)
TO EAST OF FALKENBURG ROAD
HILLSBOROUGH COUNTY, FLORIDA

FPID: 405525-1-22-01

Prepared For:

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1 EXECUTIVE SUMMARY

1.1 COMMITMENTS

The Florida Department of Transportation (FDOT) is committed to the following measures:

1. To assure the protection of the manatee during construction, the FDOT will incorporate the "Standard Manatee Protection Construction Conditions For Aquatic – Related Activities" into the final project design and will require that the construction contractor will abide strictly to the guidelines during construction. The guidelines include the following:

A. The contractor instructs all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel are responsible for observing water-related activities for the presence of manatee(s), and shall implement appropriate precautions to ensure protection of the manatee(s).

B. All construction personnel are advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and the Florida Marine Sanctuary Act. The permittee and/or contractor may be held responsible for any manatee harmed, harassed, or killed as a result of construction activities.

C. Prior to commencement of construction, the prime contractor involved in the construction activities shall construct and display at least two temporary signs (placard) concerning manatees. For all vessels, a temporary sign (at least 8½" X 11") reading "Warning, Manatee Habitat/Idle Speed in Construction Area" will be placed in a prominent location visible to employees operating the vessels. In the absence of a vessel, a temporary sign (at least 2'X 2') reading "Warning: Manatee Habitat" will be posted in a location prominently visible to land-based, water-related construction crews.

D. A second temporary sign (at least 8½" X 11") reading "Warning, Manatee Habitat: Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment. Any collision with and/or injury to a manatee shall be reported immediately to the Florida Marine Patrol at 1-800-DIAL-FMP" will be located prominently adjacent to the displayed issued construction permit. Temporary notices are to be removed by the permittee upon completion of construction.

E. Siltation barriers are properly secured so that manatees cannot become entangled, and are monitored at least daily to avoid manatee entrapment. Barriers must not block manatee entry to or exit from essential habitat.

F. All vessels associated with the project operate at "idle speed/no wake" at all times while in the construction area and while in waters where the draft of the vessel provides less than a four foot clearance form the bottom. All vessels will follow routes of deep water, whenever possible.

G. If manatees are seen within 100 yards of the active daily construction/dredging operation, all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a

H. manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment.

I. Any collision with and/or injury to a manatee shall be reported immediately to the Florida Marine Patrol (1-800-DIALFMP) and to the Florida Fish and Wildlife Conversation Commission, Protected Species Management at (850) 922-4330.

J. The contractor maintains a log detailing sightings, collisions, or injuries to manatees should they occur during the contract period. A report summarizing incidents and sightings shall be submitted to the Florida Fish and Wildlife Conservation Commission, Protected Species Management, 620 South Meridian Street, Tallahassee, Florida 32399, and to the US Fish and Wildlife Service, 6620 Southpoint Drive South #310, Jacksonville, Florida 32216-0912. This report must be submitted annually or following the completion of the project, if the contract period is less than a year.

2. In addition, the "Manatee And Sea Turtle Watch Program Guidelines" will also be included in the final project design. These guidelines include the following:

The contractor and subcontractors shall ensure that care is taken to conduct all construction and related activities with caution relative to any endangered or threatened species protected by the Federal Endangered Species Act of 1973, the Florida Manatee Act, and the Federal Marine Mammal Protection Act of 1972, as amended. All construction personnel shall be advised of the potential presence of these species, of their endangered or threatened status, of their federal or state protection, and of the need to refrain from any action that would jeopardize the well being of these species.

To minimize the potential impacts of bridge construction on manatees and sea turtles, a continuous Manatee and Sea Turtle Watch Program (MWP) will be established. The following conditions constitute the MWP and shall be included as special provisions; no blasting or demolition activities are required.

A. Seven days prior to the first bridge related construction event, the contractors will provide the U.S. Fish and Wildlife Service (USFWS) and the Florida Fish and Wildlife Conservation Commission (FWC), Bureau of Protected Species Management a list of the chief and primary observers for the MWP and their qualifications. An outline of the MWP will also be submitted seven days prior to the first such event.

The outline will include time tables for any dredging, or construction watercraft activity; time tables for the MWP (start times for aerial survey as hereinafter required, and other survey positions); observer positions; a copy of the MWP log sheet; and map to record manatee sightings.

B. A formal MWP coordination meeting will be held at least two days prior to the first bridge related construction event. Attendees will include the MWP chief and primary observers, construction contractors, FDOT, USFWS, FWC and other interested parties, such as the U.S. Coast Guard. All will be informed about the possible presence of manatees/sea turtles in the area, and that civil or criminal penalties can result from intentional or negligent annoyance, disturbance, harassment, molestation, capture, collection, injury and/or death of an endangered species or any part thereof. The construction contractors, and primary observer will present the protocol and logistics of bridge related construction activities and the outline specified in condition No. 1.

C. All observers will follow the protocol established for the MWP and will conduct the watch in good faith and to the best of their ability.

D. Each observer will be equipped with a two-way radio that will be dedicated exclusively to the MWP. Observers will also be equipped with polarized sunglasses, binoculars, a red flag for a backup visual communication system, and a sighting log with a map to record sightings at the bridge construction site and vicinity.

E. Any problems encountered during bridge construction events will be evaluated by the observers and contractors and logistical solutions will be presented to the USFWS and FWC. Corrections to the MWP will be made prior to the next event.

F. If an injured or dead manatee/sea turtle is sighted during construction, an observer will contact the Florida Fish and Wildlife Conservation Commission, Division of Law Enforcement, Tampa Office (813) 272-2516. In any such case, an observer will also call the USFWS Jacksonville Field Office at (904) 232-2580. The observer will act according to the situation and will maintain contact with the injured or dead manatee/sea turtle. The foregoing telephone numbers shall be posted at all on site telephones.

G. If an injured or dead manatee/sea turtle is rescued/recovered within three miles up or down the waterway from the bridge site during construction or if the injury/death of any manatee/sea turtle in the vicinity is documented to be caused by construction activity, that activity will be postponed until cause of injury or mortality can be determined by FWC and USFWS. If injuries are substantially documented, all contributing construction activities will be suspended and the principle parties will meet to determine a better way to conduct the activity.

H. Operators of watercraft will be responsible for any collisions with manatees/sea turtles. Vessels associated with the project should operate at slow (no wake) speed while in shallow water, especially where the draft of the boat provides less than 3 feet of clearance with the bottom. Workboats should load and off-load at designated sites. Vessels used to transport personnel shall be shallow-draft vessels of the light displacement category, and shall follow routes of deep water to the maximum extent possible where navigational safety permits.

I. When turbidity barriers are used to prevent or minimize degradation of water quality, the barriers shall be of appropriate dimension to restrict the animals' access to the work area and to allow egress of any manatees/sea turtles that may enter the work area. Under such conditions, the barriers should use tangle resistant or hemp rope when anchoring, or employ surface anchors to prevent entangling manatees. Continuous surveillance will be maintained in order to free animals that may become trapped in silt or turbidity barriers.

J. Construction debris shall not be discarded into the water.

K. Signs will be posted on-site warning of the presence of manatees/sea turtles, their endangered status, and precautions needed.

L. Within two weeks (14 days) after completion of all bridge related construction, the chief observer will submit a report to the USFWS and FWC providing the names of the observers and their positions during the event, number and location of manatees/sea turtles seen and what actions were taken.

M. If any one of the above conditions is not met prior to or during the applicable activity, the chief observer of the MWP will have the authority to terminate the activity. Any liability for a violation of the above protective measures will be assumed by the construction contractors.

1.2 RECOMMENDATIONS

The proposed project involves the widening of the existing four lane rural section on SR 60 from west of 50th Street to west of Falkenburg Road in Hillsborough County, Florida, as shown in **Figure 1-1** on the following page.

Recommended Alternatives by Segments

Segment 1 – West of 50th Street to East of CSX Railroad
Alternative 1B modified with sidewalks is recommended for Segment 1. This alternative consists of a Single Point Urban Interchange (SPUI) at 50th Street, a grade separation of mainline SR 60 over the CSX Railroad and one-way frontage roads on the north and south sides of SR 60 that require crossing the railroad at-grade. The bridge over the CSX Railroad consists of two 12-foot travel lanes with 6-foot inside and 10-foot outside shoulders in both directions. The structure also spans two connections of the north and south side frontage roads to allow circulation without affecting mainline traffic. The SPUI has single lane on-and off-ramps from SR 60 except for the westbound off-ramp, which has two lanes. These ramps function as the access to local properties, and widens to two lanes to allow right-in and right-out turning movements for adjacent properties. There are three through lanes, two left-turn lanes, and a right-turn lane along 50th Street with two left-turn lanes and one through / right-turn lane from the SR 60 ramps. The SPUI bridge at 50th Street consists of two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. There is a provision for a u-turn movement under the east end of the bridge over 50th Street. The third outside lane, in both directions for the six-lane section, is added and dropped at the ramps west of 50th Street. Additional right-of-way will be required for the ramps/frontage roads on the north and south of SR 60. New equipment for the railroad crossing will need to be installed for both the north and south frontage roads in each direction. The sidewalk is located along the north side of SR 60 west of 50th Street. Sidewalks are locate along all ramps/frontage roads and on both sides of SR 60 east of 50th Street.

Segment 2 – East of CSX Railroad to East of 78th Street
Alternative 1 with sidewalks is recommended for Segment 2 from east of CSX Railroad to east of 78th Street. This alternative consists of six lanes at-grade with two signalized intersections at Orient Road and 78th Street. At the intersection of Orient Road, there are three through lanes and a left-turn lane in each direction with a right-turn lane from westbound to northbound. Orient Road is a two-lane section that opens up to four lanes at the intersection with one left-turn and one right-turn lane to SR 60. Reconstruction of Orient Road is required for approximately 600-feet north of SR 60. The proposed structure over Palm River will have four12-foot lanes eastbound (three through lanes and one right-turn lane) and three 12-foot lanes westbound with 10-foot inside and outside shoulders in each direction. At the intersection of 78th Street, there are three through lanes and a left-turn lane in each direction. There is an eastbound to southbound right-turn lane with a shared through / right-turn lane from westbound to northbound. There are two northbound lanes on 78th Street with a left-turn and a shared through / right-turn lane northbound south of SR 60. North of SR 60, 78th Street is two lanes with two-way operations. No additional right-of-way will be needed for these roadway improvements.

Figure 1-1: Project Location Map

Segment 3 – East of 78th Street to East of Phillip Lee Boulevard
Alternative 1B modified 2 right with sidewalks is recommended for Segment 3 from east of 78th Street to east of Phillip Lee Boulevard. This alternative consists of six lanes at-grade on SR 60 with a SPUI that carries four through lanes of US 301 over SR 60 with free-flow right-turn lanes at-grade at the intersection. The alignment of US 301 is shifted to the right (east) holding the existing west right-of-way line. The ramps for the SPUI also provide access to local properties and allow right-in and right-out turning movements. The four-lane cantilever bridge over SR 60 is approximately 1,050 feet in length. The bridge has two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. The cantilever bridge is utilized to minimize right-of-way requirements by allowing the left-turn lanes to SR 60 to be pulled in under the bridge. The ramps at SR 60 consist of two left-turn lanes, one through lane and a free-flow right-turn lane. The westbound and eastbound approach of SR 60 has three through lanes, two left-turn lanes and a right-turn lane. The improvements to US 301 extend 1,700 feet to the south and 3,000 feet to the north of SR 60 and will require the US 301 bridges over the CSX Railroad to be replaced. Additional right-of-way will be required along the east side of US 301.

Given the current amount of funding contained in the MPO LRTP Cost Feasible Plan, it appears that providing a grade separation alternative may not be cost feasible. Therefore, consideration should be given to Alternative 1 modified with sidewalks. Alternative 1 modified with sidewalks consists of six lanes at-grade with a signalized intersection at US 301. There are three through lanes, two left-turn lanes and a right-turn lane in all four quadrants. The improvements to US 301 begin 850 feet south of SR 60 and extend north of SR 60 for 1,150 feet, just south of the structure over the CSX Railroad. Sidewalks are located on both sides of SR 60. Right-of-way will be required in the southeast quadrant of the US 301 intersection.

The existing SR 60 alignment between US 301 and Falkenburg Road is not centered in the 182 feet of existing right-of-way. The existing alignment is shifted to the north. The widening of SR 60 will be needed on both sides of the westbound lanes and on the south side of the eastbound lanes for the additional through lane. The eastbound lanes will also require widening to the north for right-turn lanes. The Recommended Alternative when constructed will be located in the center of the existing 182 feet of right-of-way. New shoulders, shoulder gutters, sidewalks and driveway connections will be constructed or modified to adjacent properties. Due to the limited amount of right-of-way and the large area of offsite drainage flowing to the roadway, two closed drainage systems will be needed. The first is needed to collect the stormwater runoff from the roadway and convey the runoff to the stormwater ponds for treatment and attenuation. This system will collect the onsite runoff through the use of shoulder gutter and gutter inlets and convey to the stormwater ponds through pipes. The second closed drainage system is required to collect the offsite runoff flowing to the FDOT right-of-way in back of sidewalk inlets and convey the water to an outfall. Therefore, the stormwater ponds will not have to be sized for the additional offsite runoff because the onsite and offsite runoff did not commingle. SWFWMD requires the stormwater ponds to be sized to treat both the onsite and offsite stormwater runoff when the runoff cannot be separated.

Segment 4 – East of Phillip Lee Boulevard to East of Falkenburg Road
Alternative 1 modified 2 with sidewalks is recommended for Segment 4 from east of Phillip Lee Boulevard to east of Falkenburg Road. This at-grade alternative consists of three lanes westbound and four lanes eastbound. The four eastbound lanes are shown connecting to the existing four through lanes east of Business Entrance.

Table 1-1 identifies the costs and effects associated with the recommended improvements. To minimize the impacts of this project and optimize the effectiveness of the improvements, the following recommendations were made as part of the PD&E Study Process:

1. Access Management for Segments 1 and 2 should be developed in detail during the design phase. The existing land use in these segments is primarily commercial industrial with a large number of heavy

trucks using the corridor. The analysis should include detailed analyses of alternative median opening locations and should include peak-hour traffic counts by vehicle type, trip generation and intersection analyses based on the land use anticipated at the time of design.

2. A Pond Siting Report should be prepared to revisit drainage design and pond sizing for the project. The use of a double closed drainage system was required in some areas to eliminate commingling of project and off-site runoff without requiring additional right-of-way. The cost of this type of system should be evaluated and compared to right-of-way that may be available at the time of design. In addition, the box culvert and cross drains should be analyzed in detail. This should include a thorough field review and televideo survey to determine the remaining service life due to the highly corrosive environment and because they have been extended one or more times.

3. Implementation of at-grade improvements to the SR 60 and US 301 intersection should be considered in the context of providing additional capacity in the future. Providing maximum at-grade improvement to this intersection within the right-of-way now would preclude the ability to add capacity without the need for additional right-of-way specifically for maintenance of traffic.

Table 1-1: Recommended Alternatives Evaluation Matrix

Evaluation Criteria [1]	Segment 1 West of 50th St to East of CSX Railroad	Segment 2 East of CSX Railroad to East of 78th St	Segment 3 East of 78th St to East of Philip Lee Blvd		Segment 4 East of Philip Lee Blvd to East of Falkenburg Rd
	Alternative 1	Alternative 1	Alternative 1		Alternative 1
	B modified with sidewalks	Base with sidewalks	B modified 2 with sidewalks	modified with sidewalks	modified 2 with sidewalks
	grade separation	at-grade	grade separation	at-grade	at-grade
	SR 60 over 50th St and CSX railroad with frontage rds crossing CSX	Six lanes	Reduced Six lane typical at-grade on SR 60 with interchange over SR60	Reduced six lane typical	Reduced six lane typical
Segment Length (miles)	**1.53**	**1.70**	**1.47**		**0.77**
Potential Relocations					
Number of Businesses estimated to be relocated	3	1	2	2	0
Number of Residences estimated to be relocated	0	0	0	0	0
Right-of-way Involvement					
Estimated Area of ROW to be acquired (Acres)	10.79	6.92	13.88	11.49	7.30
Cultural / Historic Resources Involvement					
Estimated Number of historic sites / structures within or adjacent to ROW	0	0	0	0	0
Potential to encounter archaeological sites	Low	Low	Low	Low	Low
Natural Environment Involvement					
Estimated Wetlands (Acres)	2.04	0	2.85	2.85	0.56
Estimated Surface Waters (Acres)	1.16	0.03	2.59	0	0.2
Estimated Base Floodplain Encroachment (Acres)	0	0	0	0	0
Threatened/Endangered Species (Potential)	Low	Low	Low	Low	Low
Physical Environment Involvement					
Estimated number of noise sensitive sites affected	0	0	0	0	1
Estimated number of potential pollutant and hazardous materials contaminated sites ranked medium and high	8	13	8	6	1
Estimated Project Costs[3]					
Design[2]	$4,104,000	$2,268,000	$6,052,000	$2,239,000	$455,000
Right-of-Way[1]	$28,242,700	$5,670,500	$52,089,300	$13,221,100	$4,035,500
Construction	$27,359,000	$15,123,000	$40,346,000	$14,926,000	$3,030,000
Construction Engineering Inspection (CEI)[2]	$4,104,000	$2,268,000	$6,052,000	$2,239,000	$455,000
Total Estimated Project Costs[3]	**$63,809,700**	**$25,329,500**	**$104,539,300**	**$32,625,100**	**$7,975,500**

(1) Includes stormwater management facilities
(2) 15% of Construction Cost
(3) Present Day Costs - Construction Costs Updated May 2005

2 INTRODUCTION

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to evaluate capacity improvements for SR 60 from west of 50th Street to east of Falkenburg Road in Hillsborough County, Florida.

The project has been divided into four distinct segments, as shown in **Figure 2-1** (on the following page) and described below:

- Segment 1 – extends from west of 50th Street to east of the CSX railroad, a distance of approximately 1.53 miles;
- Segment 2 – from east of the CSX railroad to east of 78th Street, a distance of approximately 1.70 miles;
- Segment 3 – from east of 78th Street to east of Philip Lee Boulevard, a distance of approximately 1.47 miles; and
- Segment 4 - from east of Philip Lee Boulevard to East of Falkenburg Road, a distance of approximately 0.77 miles.

The total project length is approximately 5.47 miles. The proposed improvements will include widening the existing four-lane divided facility and evaluating potential grade separations at 50th Street/CSX railroad and US 301.

2.1 PURPOSE

The objectives of this PD&E Study are to develop a multi-lane improvement that is economically efficient and environmentally sound. This study will document the results of the environmental and engineering analyses conducted in order to assist the FDOT and the Federal Highway Administration (FHWA) in reaching a decision on the location and conceptual design for the improvements to SR 60. In addition, this study will comply with the National Environmental Policy Act (NEPA)[1] and other applicable requirements to qualify the proposed project for Federal funding.

This report documents the need for improvements and the procedures used to evaluate the alternatives developed for this study. Using the engineering and environmental data collected for the project, a comparison of the Build Alternatives verses the No-Build Alternative will be detailed in a matrix format that will identify the effects that each alternative has on the community and environment. The design year for the proposed improvements is 2030.

2.2 PROJECT DESCRIPTION

SR 60 is an east/west facility with a functional classification of an urban principle arterial-other. The study corridor traverses an array of urban land uses including industrial and commercial development inter-mixed with parcels of vacant land. There are existing wetlands systems both within and adjacent to the existing right-of-way.

From west of 50th Street to Philip Lee Boulevard, SR 60 is a four-lane divided facility with a depressed 40-foot median, 5-foot inside unpaved shoulders, 10-foot outside shoulders with 5-foot paved and open roadside

Figure 2-1: Project Location Map

ditches. The right-of-way width varies from 128 feet to 228 feet. The posted speed limit is 50 miles per hour. From Philip Lee Boulevard to I-75, SR 60 begins as a four-lane divided facility and develops into an eight-lane divided section with a depressed 40-foot median, 5-foot inside unpaved shoulders, 10-foot outside shoulders with 5-foot paved and open roadside ditches. There are two eastbound travel lanes from Philip Lee Blvd. to west of Business Entrance where a third lane is added. A fourth eastbound lane is added east of Business Entrance and continues east to the I-75 interchange. The four westbound travel lanes reduce to three lanes at the I-75 southbound on-ramp. The third lane drops as a right-turn lane at Philip Lee Blvd. The right-of-way width for this segment varies from 132 feet to 300 feet. The posted speed limit is 50 miles per hour.

There are six signalized intersections within the study limits. They are:

- 50th Street;
- N. Orient Road;
- 78th Street;
- US 301;
- Business Entrance; and
- Falkenburg Road.

2.3 REFERENCES

1. National Environmental Policy Act (NEPA), Council on Environmental Quality, Executive Office of the President, 1978. Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act. Reprint 43 FR 55978-56007, 40 CFR Parts 1500-1508.

3 NEED FOR IMPROVEMENT

3.1 SYSTEM LINKAGE

SR 60 is a major east west corridor that extends through central Hillsborough County. Within the FDOT District Seven, it runs from Mandalay Avenue in Clearwater eastward to the Hillsborough / Polk County Line. To accommodate future traffic within the corridor, the existing roadway must be widened to six or eight lanes in the future.

3.2 TRANSPORTATION DEMAND

Future-year traffic projections were developed for the year 2030 based on the Tampa Bay Regional Planning Model (TBRPM)[1] and adjusted using design traffic procedures adopted by FDOT. Within the study area, the projected Average Annual Daily Traffic Volumes (AADT) are projected to grow annually, resulting in a future-year LOS of E and F along mainline SR 60. This is below the acceptable LOS Standard of D for this facility. Based on these results, which are contained in the Draft Technical Traffic Memorandum (August 2004) [2], additional capacity will be required through the project area.

3.3 CONSISTENCY WITH TRANSPORTATION PLAN

Currently, the Hillsborough County's Adopted 2025 Long Range Transportation Plan (LRTP)[3] and the County's Comprehensive Plan shows the segment from US 301 to Falkenburg Road to be improved from four to six lanes. Resurfacing improvements are currently programmed from 50th Street to US 301. There is no interim safety or intersection improvements currently programmed within the project limits.

3.4 SAFETY

With the increase in congestion forecasted for this segment of SR 60, an increase in accidents can be expected without capacity improvements within the project limits. Providing additional capacity, intersection improvements and implementing access management, the safety within the project limits will be improved.

3.5 REFERENCES

1. Tampa Bay Regional Planning Model (TBRPM), Gannett Fleming, Tampa, Florida.

2. Draft Traffic Technical Memorandum, Florida Department of Transportation, Tampa, Florida, 2004.

3. Hillsborough County's Adopted 2025 Long Range Transportation Plan (LRTP), Hillsborough County MPO, Tampa, Florida 2004.

4 EXISTING CONDITIONS

4.1 EXISTING ROADWAY CHARACTERISTICS

4.1.1 Functional Classification

Based on the FDOT's Functional Classification System, SR 60 is classified as an urban principal arterial-other. The 2002 intersection geometry for the SR 60 project is shown in **Figure 4-2** on the following page.

4.1.2 Typical Sections

The following section describes the existing roadway typical sections for SR 60 and the major connecting cross streets. Figure 4-1 shows the existing intersection geometry for the project.

SR 60 – west of 50th Street to Philip Lee Boulevard -The roadway typical section for these limits of SR 60 is a four-lane divided facility with a depressed 40-foot median, 5-foot inside unpaved shoulder, 10-foot outside shoulders with 5-foot paved and open roadside ditches, as shown in **Figure 4-1**. The right-of-way width varies from 128 feet to 228 feet. The posted speed limit is 50 miles per hour.

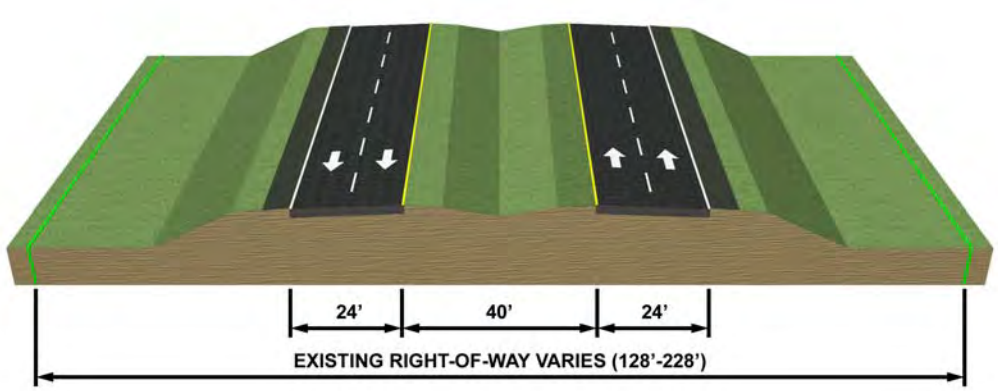


Figure 4-1: SR 60 Existing Typical Section

SR 60 - Philip Lee Boulevard to east of Falkenburg Road - The roadway typical section for these limits of SR 60 begins as a four-lane divided facility and develops into an eight-lane divided section with a depressed 40-foot median, 5-foot inside unpaved shoulders, 10-foot outside shoulders with 5-foot paved and open roadside ditches. There are two eastbound travel lanes from Philip Lee Blvd. to west of Business Entrance where a third lane is added. A fourth eastbound lane is added east of Business Entrance and continues east to the I-75 interchange. The four westbound travel lanes reduce to three lanes at the I-75 southbound on-ramp. The third lane drops as a right-turn lane at Philip Lee Blvd. The right-of-way width for this segment varies from 132 feet to 300 feet. The existing alignment of SR 60 from US 301 to Falkenburg Road is not centered within the existing right-of-way and is shifted to the north. The posted speed limit is 50 miles per hour.

50th Street -The roadway typical section for 50th Street is a six-lane divided facility with a raised median varying in width from 15.5 to 30 feet. North of SR 60, there is curb and gutter and a closed drainage system. A portion of the curb and gutter section, to the north of SR 60, has a grass utility strip and a 5-foot sidewalk on both sides of 50th Street near the intersection. South of SR 60, there is an open drainage system with open roadside ditches. The right-of-way width south of SR 60 is 290 feet and varies from 155 feet to 100 feet north of SR 60. The posted speed limit is 40 miles per hour.

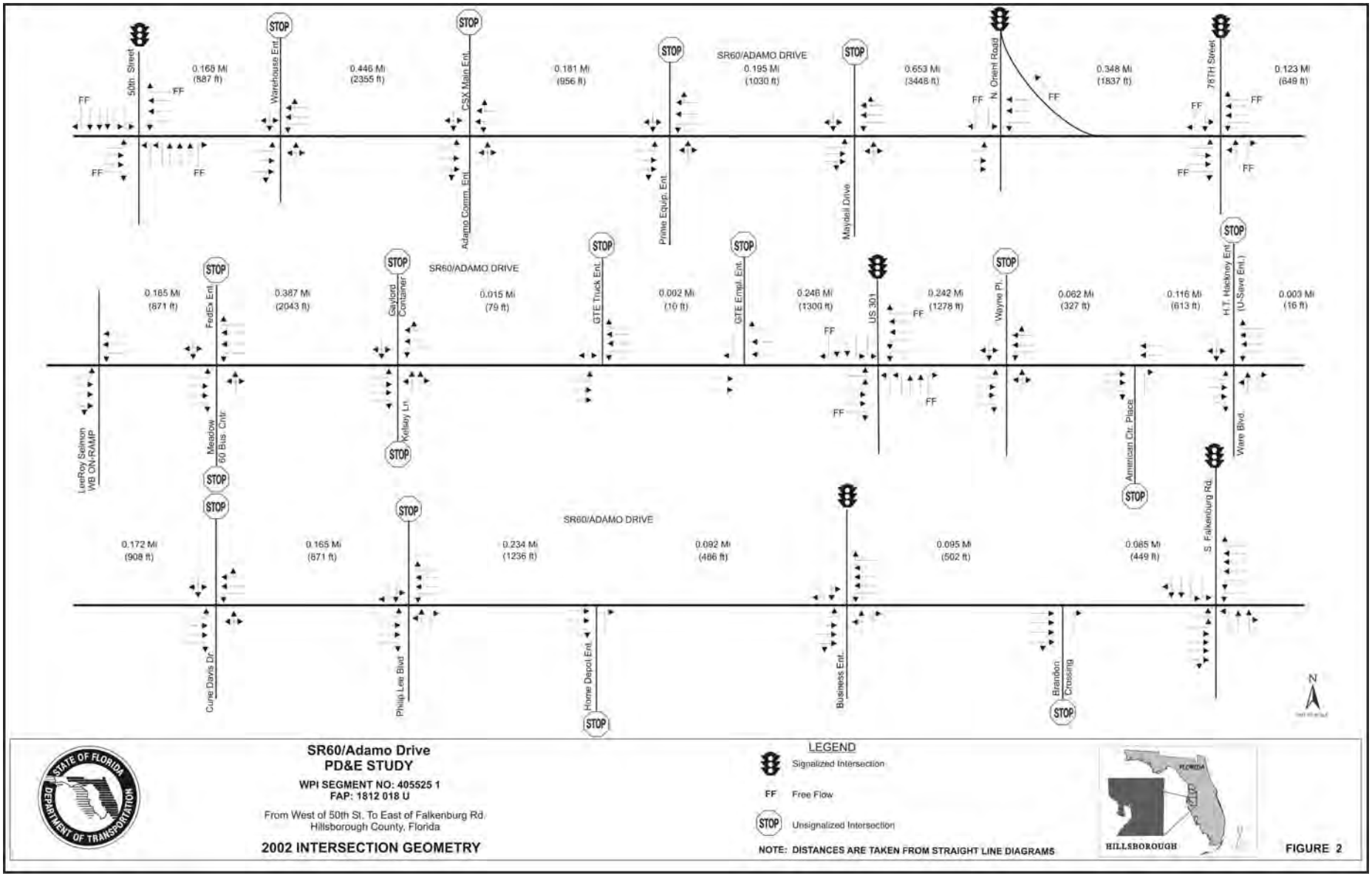


Figure 4-2: SR 60 2002 Intersection Geometry

Orient Road -The roadway typical section for Orient Road is a two-lane two-way facility with 10-foot paved shoulders and open roadside ditches. The right-of-way varies from 110 feet to 200 feet. The posted speed limit is 30 miles per hour.

78th Street -The roadway typical section for 78th Street north of SR 60 is a two-lane access road with open roadside ditches. South of SR 60 is a five-lane section, which includes a two-way center left-turn lane, a closed drainage system with curb and gutter and sidewalk on the west side. The right-of-way varies from 50 feet to 80 feet. The posted speed limit, south of SR 60, is 45 miles per hour.

US 301 -The roadway typical section for US 301 is a four-lane divided facility with a 30-foot raised median, 4-foot outside paved shoulders with open roadside ditches both north and south of SR 60. The median width reduces to 18-feet on the approaches to the CSX Railroad bridge north of SR 60. The posted speed limit is 50 miles per hour south of SR 60 and 45 miles per hour north of SR 60. The right-of-way varies from 140 feet to 200 feet.

Falkenburg Road -The roadway typical section for Falkenburg Road north of SR 60 is a five-lane section, which includes a two-way center left-turn lane, curb and gutter on the outside with a grass utility strip, five foot sidewalks and a closed drainage system. South of SR 60, Falkenburg Road is a four-lane divided section with a 22-foot raised median, curb and gutter on the outside with a grass utility strip, five-foot sidewalks and a closed drainage system. The right-of-way varies from 100 feet to 115 feet. The posted speed limit is 45 miles per hour.

4.1.3 Pedestrian and Bicycle Facilities

Currently, there are no existing pedestrian or designated bicycle facilities on SR 60.

4.1.4 Right-of-Way

The existing right-of-way information was obtained from the right-of-way survey performed for this project. **Table 4-1** summarizes the existing right-of-way for this project with stationing and offsets based on the centerline of survey.

Table 4-1: SR 60 Existing FDOT Right-of-Way

STATION	OFFSET FROM CENTERLINE OF SURVEY		TOTAL
	LEFT	RIGHT	
270+00	52	75	128
279+64	52	75	128
280+09	63	75	138
286+70	65	73	138
290+94	100	100	200
305+00	100	100	200
305+00	117	100	217
307+12	117	100	217
309+90	100	100	200
322+74	100	100	200
322+74	100	128	228
335+06	100	128	228
335+06	100	100	200
Station Equation 334+89.09 BK = 334+89.03 AH			
342+00	Segment 1 / Segment 2		
Station Equation 387+91.23 BK = 387+91.86			
394+21	100	100	200
397+00	115	100	215
403+00	115	100	215
403+00	100	100	200
405+50	100	100	200
405+50	100	110	210
413+32	100	110	210
415+78	100	100	200
Station Equation 416+35.54 BK = 416+36.43 AH			
432+00	Segment 2 / Segment 3		
Station Equation 434+51.06 BK = 434+67.82 AH			
Station Equation 458+91.64 BK = 458+71.47 AH			
462+75	100	100	200
Station Equation 463+95.29 BK = 60+86.82 AH			
61+98	82	58	140
64+00	82	50	132
64+00	82	100	182
106+50	Segment 3 / Segment 4		
113+86	82	100	182
118+01	99	100	199
125+01	120	138	258
127+26	126	138	264
130+00	162	138	300
133+51	162	138	300

4.1.5 Horizontal Alignment

The existing horizontal alignment was obtained from field survey in conjunction with the right-of-way survey performed for this project. **Table 4-2** summarizes the existing horizontal alignment. The maximum degree of horizontal curvature for a 55 mile per hour (mph) rural design speed facility is 6°-30' with superelevation of 0.10 ft./ft. per the FDOT's Plans Preparation Manual[1]. The maximum degree of horizontal curvature for an urban section with design speed of 45 miles per hour is also 8°-15' with a superelevation of 0.05 ft./ft.

Table 4-2: SR 60 Horizontal Alignment

LOCATION	PI STATION	BEARING		DEGREE OF CURVATURE	RADIUS (FT)	LENGTH (FT)	PC STATION	PT STATION
		BACK	AHEAD					
39th Street 261+00.00								
	281+93.14	S 65°35'28" E	S 89°54'48" E	1° 58' 40" (LT)	2,896.79	1,229.70	275+68.89	287+98.59
50th Street 308+55.73								
Orient Road 395+70.87	Station Equation 334+89.09 BK = 3324+89.03 AH							
78th Street 414+00.49	Station Equation 387+91.23 BK = 387+90.86 AH							
	413+96.54	N 89°12'17" E	S 89°11'56" E	0°20'02" (RT)	17,156.73	478.03	411+57.51	416+35.54
	Station Equation 416+35.54 BK = 416+36.43 AH							
	427+26.68	S 89°11'56" E	S 59°11'28" E	2°01'21" (RT)	2,832.79	1,483.63	419+67.43	434+51.06
	Station Equation 434+51.06 BK = 434+67.82 AH							
	450+10.28	S 59°11'28" E	N 84°41'57" E	1°58'40" (RT)	2,896.79	1,825.65	440+65.99	458+91.64
	Station Equation 458+91.64 BK = 458+71.47 AH							
US 301 61+10.64	Station Equation 463+95.29 BK = 60+86.82 AH							
	86+53.10	N 84°41'57" E	S 53°14'02" E	2°01'21" (RT)	2,832.79	2,079.85	75+63.80	96+43.65
	112+45.49	S 53°14'02" E	S 65°36'22" E	4°23'23" (LT)	1,305.24	281.30	111+04.02	113+85.87
Falkenburg Road 128+15.74								
I-75 148+94.91								

4.1.6 Vertical Alignment

The as-built plans were reviewed for the existing vertical geometry; however, minimal vertical profile data was contained within these plans. Additional vertical information was obtained from the one-foot Southwest Florida Water Management District (SWFWMD) Contour Maps[2]. The roadway ranges from a low of 7.6 feet west of 50th Street and a high of 32.1 feet east of Falkenburg Road. The existing elevation on the east side of the bridge over Palm River is 11.6 feet and the intersection of SR 60 / US 301 is at elevation 28.2 feet. The vertical clearance for the Palm River Bridge is 5'-10" above mean high water. Additional survey information will be needed to evaluate the existing vertical alignment and verify that it meets current standards.

The vertical alignment along US 301, north of SR 60, first increased at a grade of 0.03% from the intersection and then to a grade of (+) 4.00% with a 600-foot vertical curve and a downgrade of 3.75% for the grade separation over the CSX Railroad. The existing US 301 alignment over CSX Railroad has a crest K factor of 78, which does not meet the FDOT's Plans Preparation Manual K factor of 98 for a crest vertical curve with a design speed of 45 mph. The minimum vertical clearance of a roadway bridge over a railroad is 23.5 feet per the FDOT Plans Preparation Manual Table 2.10.1.

4.1.7 Drainage

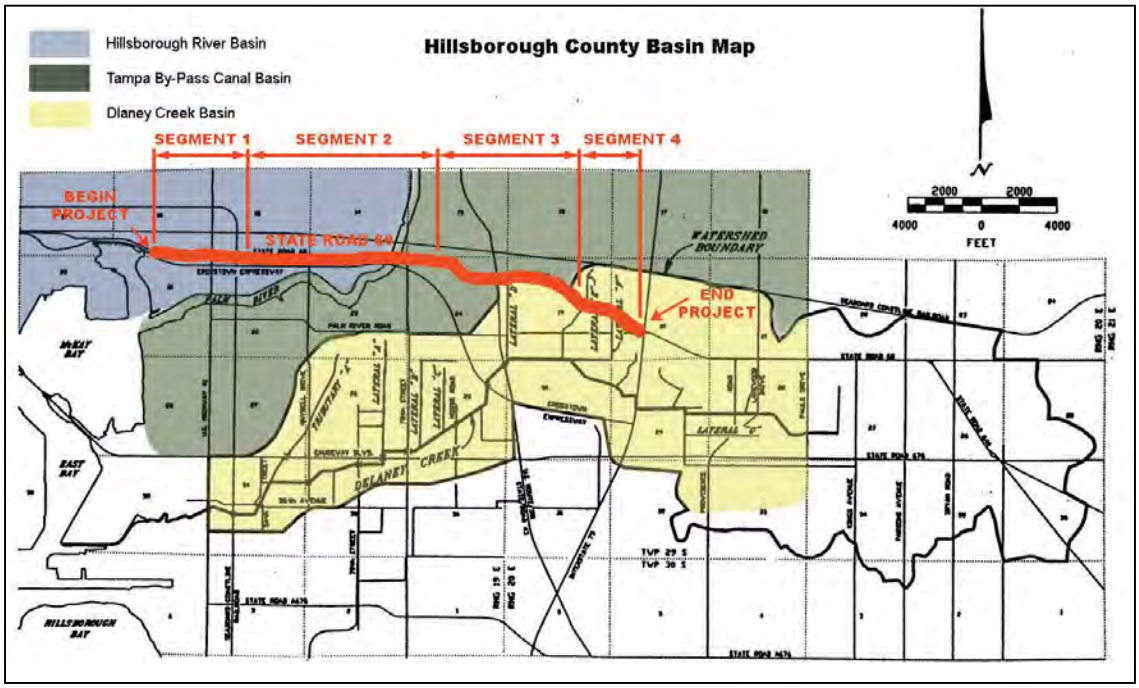
4.1.7.1 Existing Drainage Conditions

The SR 60 project lies entirely within the Tampa Bay Watershed according to the SWFWMD basin data. The project corridor traverses three primary sub-basins within Hillsborough County. (see **Figure 4-3)** These basins are the Hillsborough River Basin, which encompasses the entire section of SR 60 from west of 50th Street to the Six-Mile Creek Bridge, the Tampa By-Pass Canal Basin (from Six-Mile Creek Bridge to US 301), and the Delaney Creek Basin from US 301 to I-75. The Tampa By-Pass Canal Basin also includes an area just north of the SR 60 right-of-way between US 301 and Philip Lee Boulevard.

Project Corridor Sub-Basin Limits:

1. Segments 1 and 2 of the SR 60 project lie within the Hillsborough River Drainage Basin, the surface runoff drainage pattern is generally from north to south, through the SR 60 corridor, with ultimate discharge to either McKay Bay or the Palm River.
2. Segment 3 traverses two of the three drainage sub-basins, the Tampa By-Pass Canal Basin and the Delaney Creek Basin. The western section, from the Six-Mile Creek Bridge to US 301, drains from south to north through the SR 60 corridor and ultimately discharges to the Palm River. The eastern section, from US 301 to just east of Philip Lee Boulevard, generally drains from north to south through existing SR 60 cross-drains and ultimately discharges to Delaney Creek via Delaney Creek Laterals D & E.
3. In Segment 4 the surface runoff drainage pattern is generally from north to south, through the SR 60 corridor with ultimate discharge to Delaney Creek via Delaney Creek Laterals E & F.

Figure 4-3: Hillsborough County Basin Map



The existing drainage patterns and discharge points will be maintained for this project when submitted for permitting. The primary outfall points for the SR 60 corridor are provided in **Table 4-3**. The roadway generated storm-water runoff drains into the existing SR 60 roadside ditches where it is conveyed to the outfall point as described in **Table 4-3** and **Table 4-4**.

Table 4-3: SR 60 Existing Outfall Locations

BASIN	OUTFALL DESCRIPTION	STATION LOCATION
1	Man-made canal associated with crossdrain (CD)-2	301+00
2	SHARED: Man-made canal associated with CD-2 and man-made canal associated with CD-3	301+00 and 321+71
3	Wetland and man-made canal associated with CD-4	332+00
4	Wetland and man-made canal associated with CD-4	332+00
5	CD-5 and piped conveyance to Cross-town Expressway right-of-way.	374+50
6	SHARED: CD-5 and piped conveyance to Cross-town Expressway right-of-way, and Discharge to Palm River	374+50 and 404+00
7	SHARED: CD-6, CD-7, & CD-8 to man made canal along southside of CSX Railroad	433+40, 442+00, & 457+50
8	CD-8 to man-made canal along southside of CSX Railroad	457+50
9	Outfall pipe to Lateral "D" of Delaney Creek	69+20 RT
10	CD-9 and piped conveyance to Lateral "E" of Delaney Creek	114+00
11	CD-9 and piped conveyance to Lateral "E" of Delaney Creek	114+00
12	CD-10 and piped conveyance to Lateral "F" of Delaney Creek	129+50
13	Direct to man-made canal along southside of CSX Railroad	422+00 (CL US 301)

According to the online (Sept. 2004) State of Florida F.A.C., Chapters 62-302.400 & 700[3], there are no Surface Waters requiring special water quality criteria within or along the project corridor. The majority of the Surface Waters are classified as Class III pursuant to F.A.C. Chapter 62-302.400. There are no issued Environmental Resources Permit (ERP) /Stormwater permits for this section of SR 60 and the storm-water runoff for SR 60 receives no formal water quality treatment or attenuation.

4.1.7.2 Existing Drainage Structures

There are 10 existing cross-drains located along this section of SR 60 whose sizes range from 30-inch reinforced concrete pipe (RCP) to a Double 8-foot by 5-foot Concrete Box Culvert (CBC). **Table 4-4** contains the existing drainage structure data for each of the cross-drains within the project corridor. A recent field review found no visible failures, however, most of the existing cross-drains are from the original construction of SR 60 and have been extended to accommodate the past widening projects.

4.1.7.3 Local Drainage Considerations

There are specific issues that require special attention due to the potential impact to this project and more specifically the proposed stormwater management system that will be designed for SR 60. These issues are:

<u>Stormwater Management Facilities:</u>

1. Pond Design Criteria: The soil and subsurface hydrogeology within this corridor are defined as "B/D" & "D" soils which are commonly associated with a seasonal high ground water table (SHGWT) at or near the existing ground surface elevation (SHGWT = +/- 12" below existing grade, source; USDA-SCS Hillsborough County Soil Survey[4]). Based on the local site conditions, the proposed method for water quality treatment and attenuation favors the use of wet detention ponds.

Table 4-4: SR 60 Existing Drainage Structures

STRUCT. ID	STATION	SIZE	TYPE	LENGTH (ft)	OUTFALL DESCRIPTION
CD-1	280+00	Double (8' x 7')	Concrete Box Culvert	375 feet	CBC under both SR 60 and the Cross Town Expressway, discharges south to existing ditch that ultimately outfalls to McKay Bay.
CD-2	301+00	Double (8' x 8')	Concrete Box Culvert	145 feet	CBC under SR 60, discharges south to existing ditch that ultimately outfalls at the confluence of the Palm River with McKAY Bay.
CD-3	321+71	36-inch	RCP	153 feet	Cross drain under SR 60, discharges south to existing ditch that ultimately outfalls to the Palm River.
CD-4	332+00	(6' x 5')	Concrete Box Culvert	145 feet	CBC under SR 60, discharges south to existing ditch that ultimately outfalls to the Palm River.
CD-5	374+50	36-inch	RCP	162 feet	Cross drain under SR 60 with continued pipe conveyance and discharge south to the Cross Town Expressway right-of-way. Ultimate outfall is to the Palm River.
CD-6	433+40	30-inch	RCP	148 feet	Cross drain under SR 60 with continued pipe conveyance and discharge to the Cross-town Expressway right-of-way. Ultimate outfall is to the Palm River.
CD-7	442+00	Double 30-inch	RCP	147 feet	Cross drain under SR 60, discharges north to a man-made canal that parallels the CSX Railroad. Ultimate outfall is to the Palm River (south of the control structure).
CD-8	457+50	36-inch	RCP	155 feet	Cross drain under SR 60, discharges north to a man-made canal that parallels the CSX Railroad. Ultimate outfall is to the Palm River (south of the control structure).
CD-9	114+00	(4' x 3')	Concrete Box Culvert	155 feet	CBC under SR 60 with continued pipe conveyance and discharge south of the Power Substation (this pipe system/man-made canal is Lateral "E" of the Delaney Creek System). Ultimate outfall is to East Bay.
CD-10	129+50	Double (6' x 4')	Concrete Box Culvert	256 feet	CBC under SR 60 with continued pipe conveyance and discharge south to Palm River Road ditch (this pipe system/man-made canal is Lateral "F" of the Delaney Creek System). Ultimate outfall is to East Bay.

Commingled Stormwater Runoff:

1. ERP Stormwater Quality Permitting Requirements: The design will need to address SWFWMD water quality rules governing the commingling of onsite (SR 60) and offsite stormwater runoff when sizing the stormwater ponds. SWFWMD requires that stormwater ponds to be sized to treat both the onsite and offsite stormwater runoff when the runoff cannot be separated. Additionally, where roadside ditches capture onsite and offsite stormwater runoff and provide functional water quality treatment, the proposed project improvements (such as piping) shall not result in a net loss of treatment. Should said loss occur, water quality compensation may be required.
2. Total Maximum Daily Loads (TMDL's): The Tampa Bay Basin and more specifically the Delaney Creek and McKay Bay Basins, as identified by the Florida Department of Environmental Protection (FDEP), are listed as priority watersheds with water bodies on the verified list of impaired waters. The design will need to address the appropriate TMDL's to ensure that the proposed ponds are sized to meet the treatment volume requirement for each parameter identified. Should the design route offsite runoff into the proposed pond, the pond will need to be sized to accommodate the additional treatment requirement(s) associated with the offsite runoff pollutant loading. The FDEP Maps for the Group-1 Basins are included for each basin. (See **Figure 4-4 - 4-7**)

Special Basin Requirements:

1. Hillsborough River Basin - no additional regulatory or special design criteria,
2. Tampa By-Pass Canal Basin- special water quality requirements not applicable to this project,

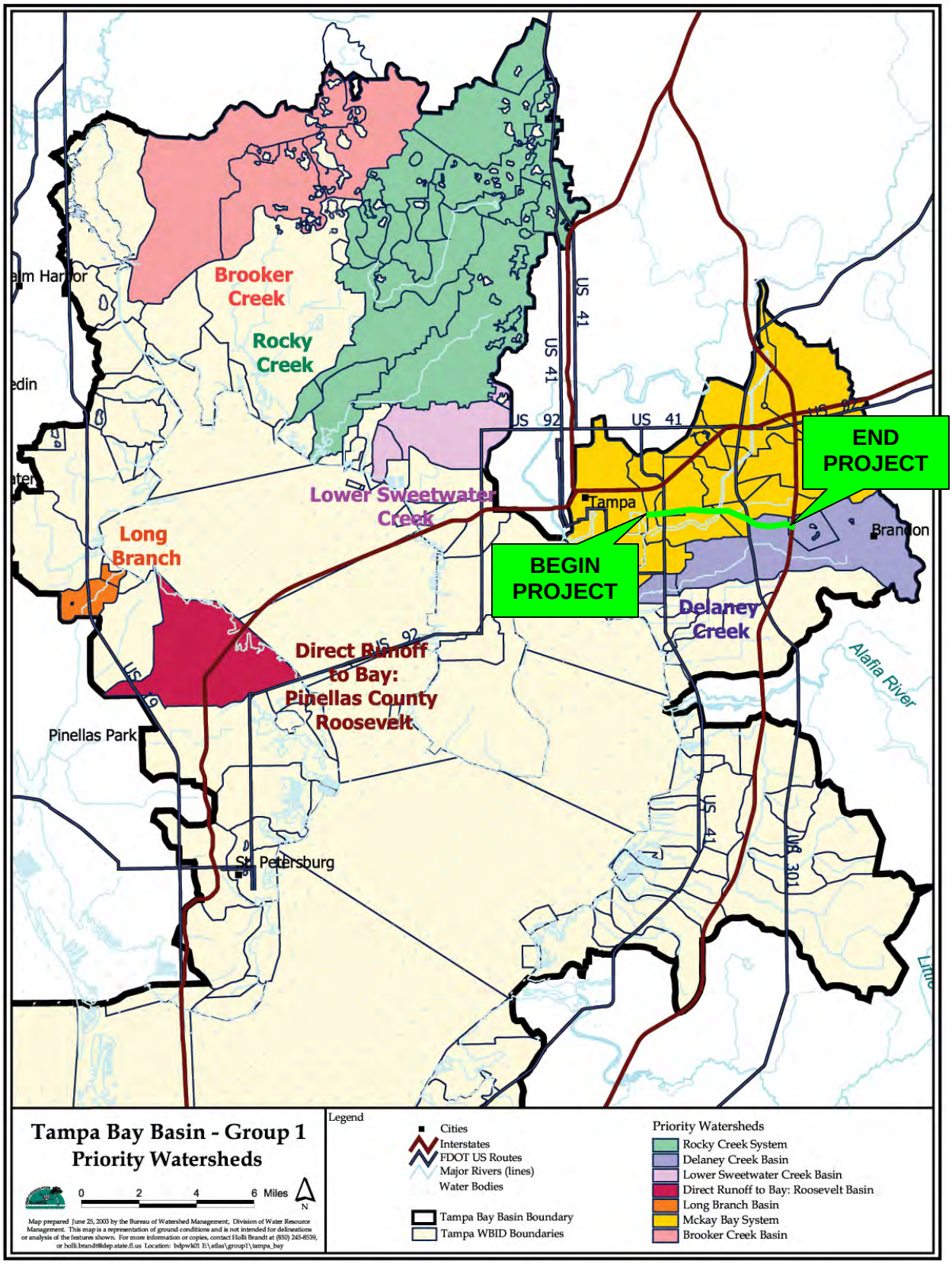


Figure 4-4: Priority Watersheds

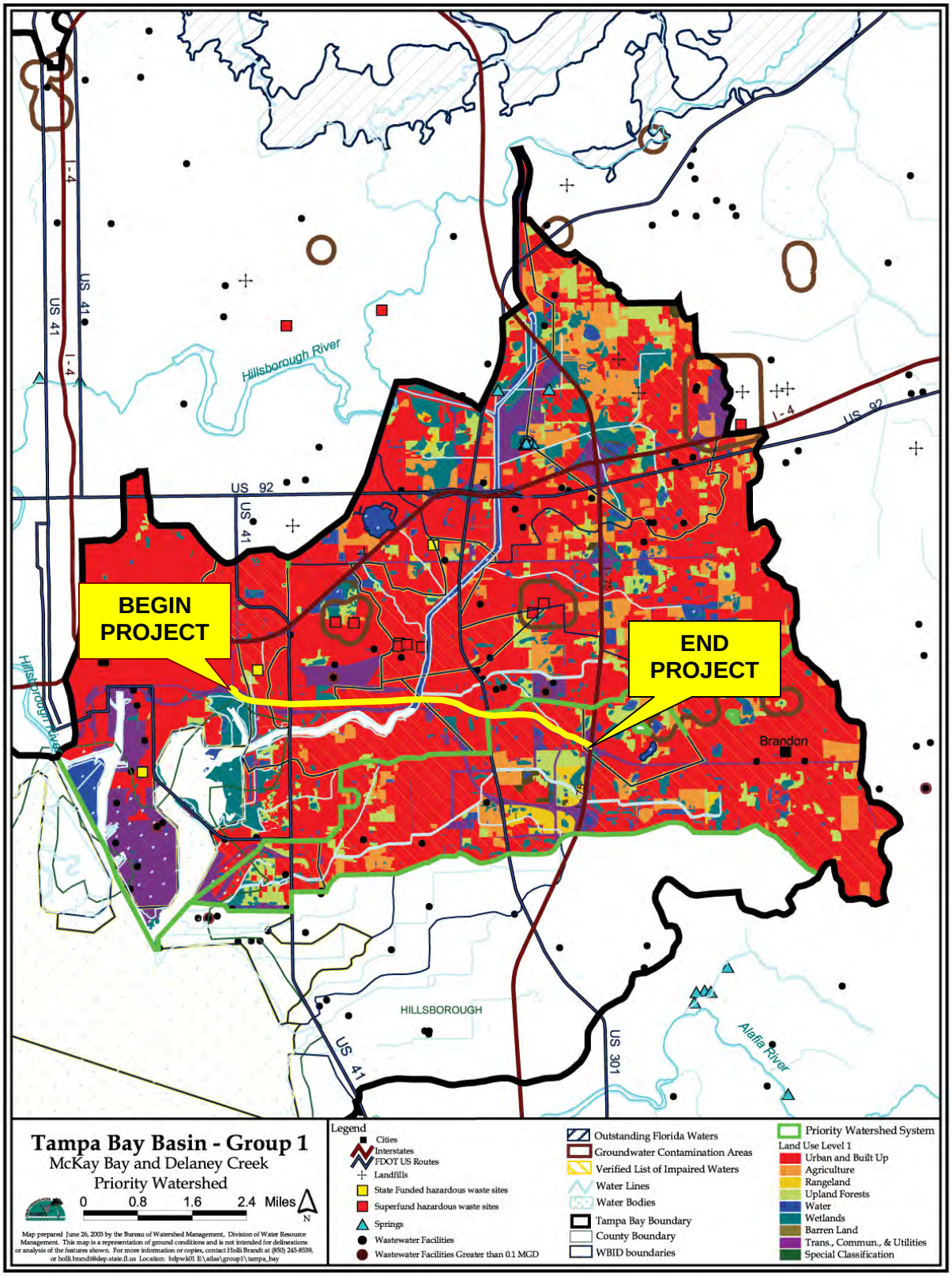


Figure 4-5: McKay Bay and Delaney Creek

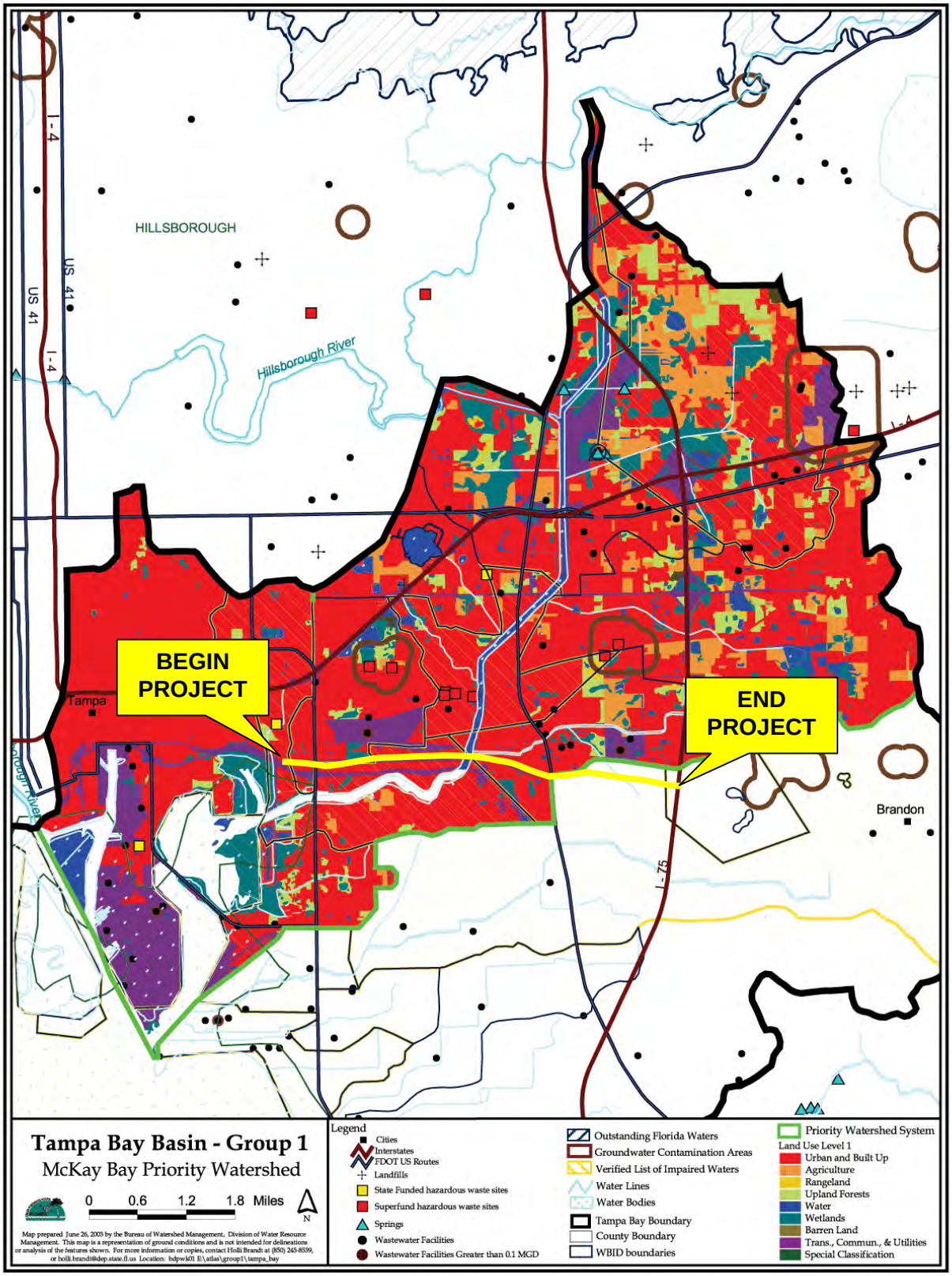


Figure 4-6: McKay Bay Priority Watershed

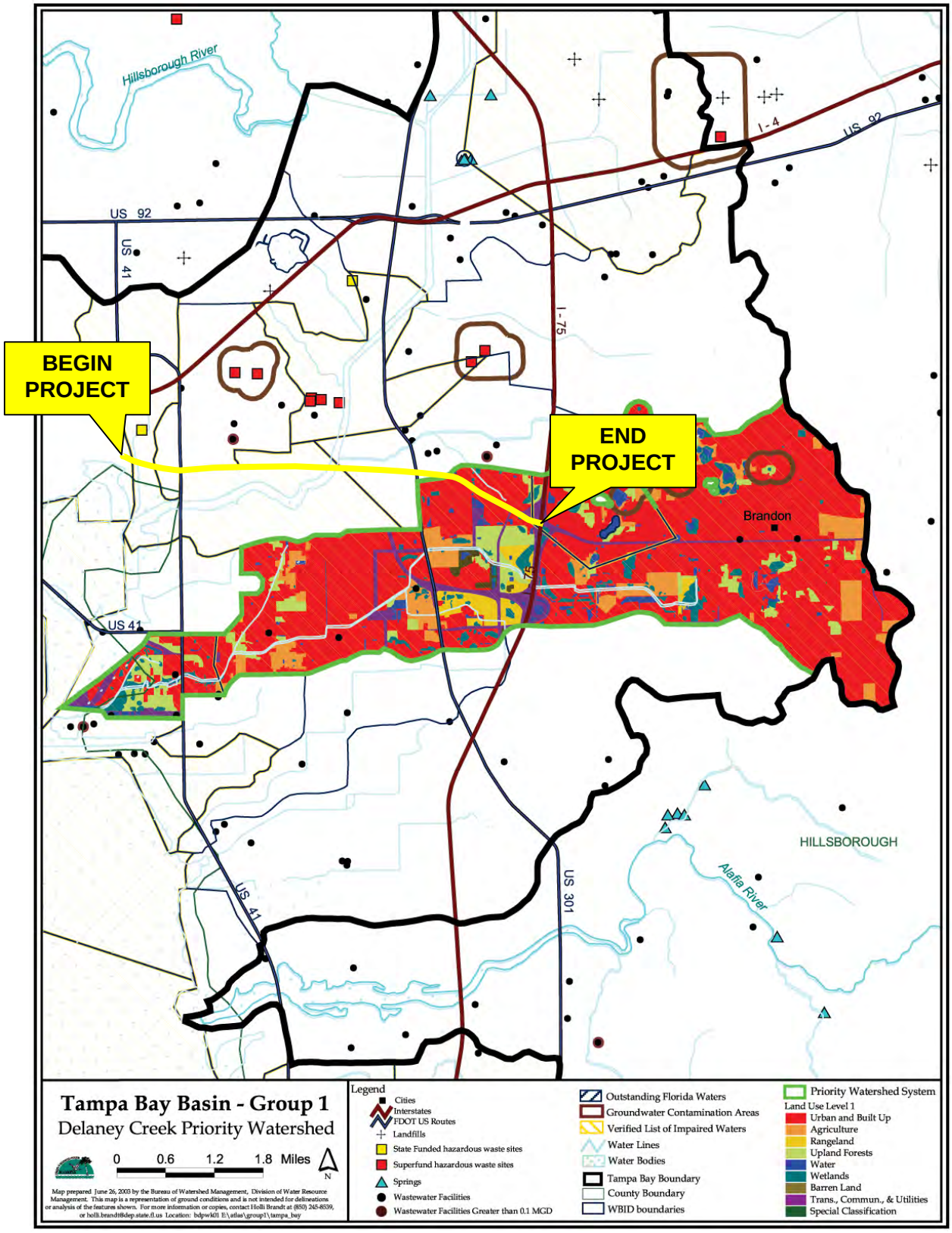


Figure 4-7: Delaney Creek Priority Watershed

3. The Delaney Creek Basin - special Pre-Post discharge requirements; Stormwater ponds for SR 60 that will discharge within the Delaney Creek Basin (generally east of US 301); the Post-developed discharge for the 25 year / 24 hour will be required to match the Pre-developed discharge for the 3 year / 24 hour storm event.

3 year / 24 hour storm	P = 4.81 inches
25 year / 24 hour storm	P = 8.00 inches

The proposed storm water management system will need to be submitted to Hillsborough County (Contact: Mr. Mark Arnold, 813 276-8339) for review of outfall locations and discharge rates.

4.1.7.4 Floodplains and Regulatory Floodways

The following Federal Emergency Management Agency (FEMA) floodplain data was reviewed for this project; FEMA Flood Insurance Rate Maps[5] (FIRM) for the City of Tampa Community Panel Numbers; 120114 0025C (Map Dated September 30 1982), 120114 0026C (Map Dated September 30 1982), & 120114 0027 C (Map Dated September 30 1982), and Hillsborough County Community Panel Numbers; 120112 0376 C (Map Dated April 17 1984), 120112 0378 E (Map Dated August 15 1989), 120112 0380 E (Map Dated August 15 1989), 120112 0386 E (Map Dated August 15 1989), & 120112 0387 E (Map Dated August 15 1989).

Portions of the existing SR 60 roadway corridor traverse the FEMA FIRM designated 100-year floodplain zones designated as A, A10, B, and C and are defined in **Table 4-5**.

Table 4-5: FEMA Zone Designation and Flood Zone Description

FEMA ZONE DESIGNATION	FLOOD ZONE DESCRIPTION
Zone A	Areas of 100-year flood: base flood elevations and flood hazard factors not determined
Zone AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet.
Zone A1-30	Areas of 100-year flood: base flood elevations and flood hazard factors determined.
Zone B	Areas between limits of the 100-year and 500-year flood; or areas subject to 100-year flooding with average depths less than one (1) foot.
Zone C	Areas of minimal flooding
Zone D	Areas of undetermined, but possible, flood hazards

The locations of the FEMA designated floodplains along the project corridor are shown in **Figure 4-8**. Based on the existing project corridor, the proposed roadway alignment, and the proposed six- and eight-lane typical sections, impacts to the designated 100-year floodplains will occur. Within Segments 1 & 2 the 100-year floodplain is associated with tidal activity and therefore no floodplain compensation will be required for impacts occurring through this section. Anticipated 100-year floodplain impacts in Segments 3 & 4 are expected to be minimal and flood plain storage compensation will be required where impacts occur.

There are no regulatory Floodways located within the SR 60 project corridor.

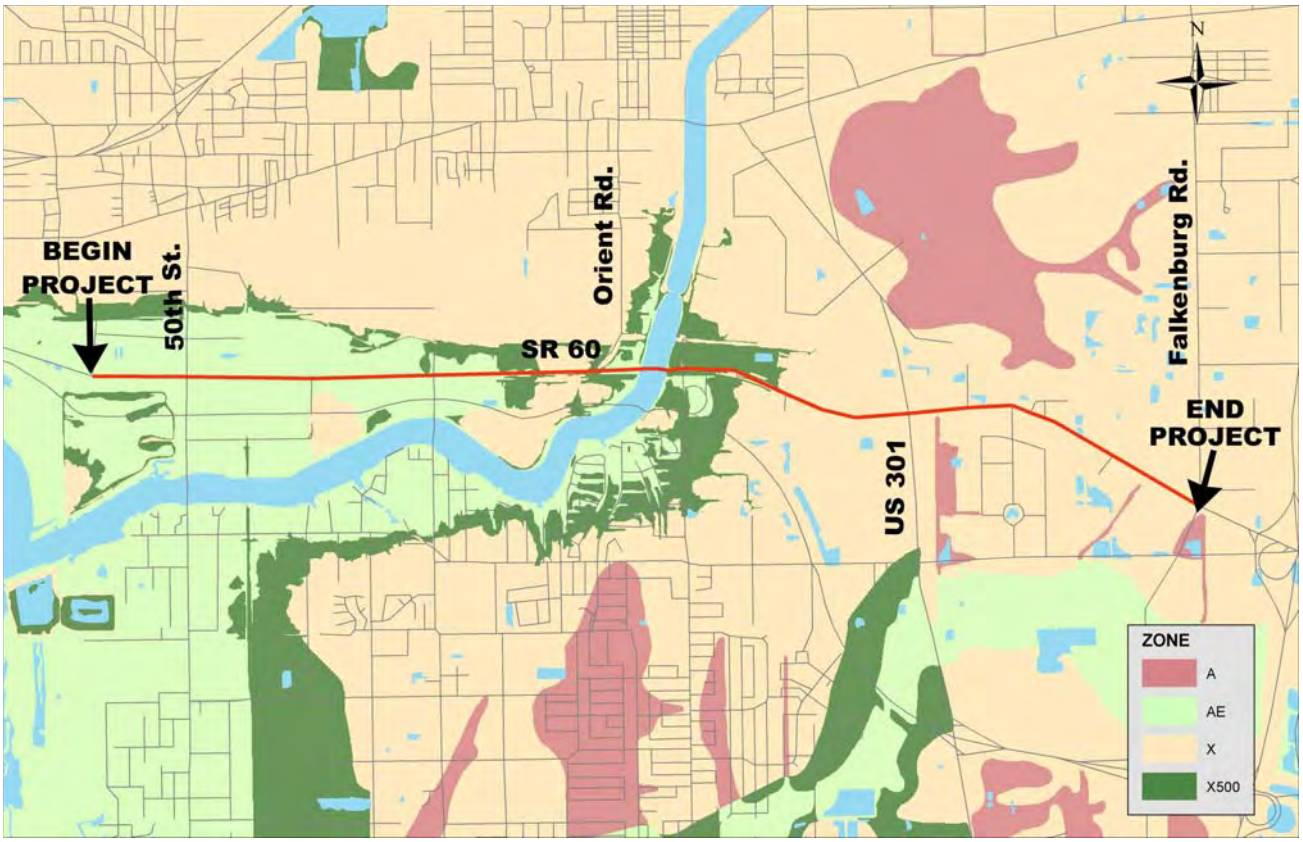


Figure 4-8: FEMA Map

4.1.8 Geotechnical Data

The soil survey for Hillsborough County indicates the prevalent soils are Myakka fines sand, Winder fine sand, and Felda. There are also areas of Kesson, Malabar, Pinellas, Wabasso and Arents.

Myakka fine sand (29) – Soil is nearly level and poorly drained. It is on broad plains on the flatwoods. Typically, the surface layer is very dark fine sand about five inches thick. The subsurface layer, to a depth of 20 inches, is gray fine sand. In most years, a seasonal high water table fluctuates from the soil surface to a depth of 10 inches for one to four months and recedes to a depth of 40 inches during prolonged dry periods. Permeability is rapid in the surface and subsurface layers, moderate or moderately rapid in the subsoil, and rapid in the substratum. Water capacity is low and the hydrologic group is B/D.

Myakka fine sand, frequently flooded (30) – Soil is level and very poorly drained. It is in tidal areas. Typically, the surface layer is very dark gray fine sand about five inches thick. The subsurface layer, to a depth of 22 inches, is grayish brown fine sand. A seasonal high water table fluctuates from the soil surface to a depth of 10 inches. This soil is subject to shallow flooding by the highest of normal tides and is also subject to occasional deep flooding by storm tides. Permeability is rapid in the surface and subsurface layers, moderate or moderately rapid in the subsoil, and rapid in the substratum. Water capacity is low and the hydrologic group is D.

Myakka-Urban land complex (32) – This complex consists of Myakka soil that is nearly level and poorly drained and in areas of urban land. This complex is on broad plains on the flatwoods. Typically, the surface layer is dark gray fine sand about five inches thick. The subsurface layer, to a depth of 20 inches, is light gray fine sand. Most areas of this soil unit are artificially drained with a seasonal high water table that fluctuates from soil surface to a depth of about 10 inches for one to four months. Permeability is rapid in the surface

and subsurface layers, moderate or moderately rapid in the subsoil, and rapid in the substratum. Water capacity is low and the hydrologic group is B/D.

Winder fine sand (59) – Soil is nearly level and poorly drained. It is on broad, low-lying sloughs on the flatwoods. Typically, the surface layer is very dark gray fine sand about four inches thick. The subsurface layer, to a depth of about 10 inches, is grayish brown fine sand. In most years, a seasonal high water table fluctuates from the soil surface to a depth of about 10 inches for two to six months. Permeability is rapid in the surface and subsurface layers. It is slow or very slow in the subsoil and in the substratum. Water capacity is moderate and the hydrologic group is B/D.

Felda fine sand (15) - Soil is nearly level and poorly drained. It is on broad, low-lying sloughs on the flatwoods. Typically, the surface layer is very dark gray fine sand about five inches thick. The upper part of the subsurface layer, to a depth of about 18 inches, is dark gray, mottled fine sand. A seasonal high water table fluctuates from the soil surface to a depth of about 10 inches for two to six months. Permeability is rapid in the surface and subsurface layers. Water capacity is moderate and the hydrologic group is B/D.

Kesson muck, frequently flooded (24) - Soil is level and very poorly drained. It is located in tidal swamps and marshes. Typically, the surface layer is black muck about five inches thick. A seasonal high water table fluctuates from the soil surface to a depth of about six inches. This soil is affected by tidal fluctuations. Permeability is rapid in the surface layer and moderately rapid or rapid in the underlying material. Water capacity is low and the hydrologic group is D.

Malabar fine sand (27) - Soil is nearly level and poorly drained. It is located in low-lying sloughs and shallow depressions on the flatwoods. Typically, the surface layer is dark gray fine sand about four inches thick. The subsurface layer is about 12 inches and is light brownish gray fine sand. In most years, a seasonal high water table fluctuates from the soil surface to a depth of about 10 inches for two to six months. Permeability is rapid in the surface and subsurface layers, slow in the subsoil, and moderately rapid or rapid in the substratum. The depressions are subject to shallow flooding during heavy rain events. Water capacity is very low or low and the hydrologic group is B/D.

Pinellas fine sand (38) - Soil is nearly level and poorly drained. It is on broad, low-lying sloughs on the flatwoods. Typically, the surface layer is black fine sand about four inches thick. The subsurface layer is about 11 inches composed of light gray fine sand. A seasonal high water table fluctuates from the soil surface to a depth of about 10 inches for less than three months and recedes to a depth of more than 40 inches during prolonged dry periods. Permeability is rapid in the surface and subsurface layers. Water capacity is low or moderate and the hydrologic group is B/D.

Wabasso fine sand (57) - Soil is nearly level and poorly drained. It is located on plains on the flatwoods. Typically, the surface layer is very dark gray fine sand about seven inches thick. The subsurface layer is about 29 inches composed of gray fine sand. A seasonal high water table fluctuates from the soil surface to a depth of about 10 inches for two months and recedes to a depth of more than 40 inches during prolonged dry periods. Permeability is rapid in the surface and subsurface layers. Water capacity is low or moderate and the hydrologic group is B/D.

Arents (4) – Soil consists of nearly level, heterogeneous soil material. The soil has been excavated, reworked and reshaped by earthmoving equipment. Arents are near urban centers, major highways and landfills. They do not normally possess an orderly sequence of soil layers and permeability and water capacity varies widely from one area to another. This soil type is not represented in the hydrologic groups category.

4.1.9 Existing Crash History

A five-year (1998-200) crash analysis was conducted for each of the six signalized intersections as well as the entire corridor within the study area. Crash records were obtained from the FDOT Crash Analysis Reporting Systems (CARS)[6].

Table 4-6 provides a summary of crashes at the six signalized intersections. A total of 638 crashes were reported at these intersections over the five-year period. Of these locations, the intersection of SR 60 at Falkenburg Road had the greatest frequency of collisions, with 36 crashes in 199, 27 in 2000, 41 in 2001, and 38 2002. The majority of collisions at all intersections were rear end collisions, which are typical of congested conditions at signalized intersections. Most crashes (73%) within the corridor occurred at the signalized intersections.

Table 4-6: Crash Data Summary

INTERSECTION	YEAR	ROADWAY TYPE*	TOTAL CRASHES	FATAL CRASHES	INJURY CRASHES
SR 60 @ 50th Street	1998	4D	24	0	15
	1999	4D	15	0	8
	2000	4D	38	0	18
	2001	4D	33	0	13
	2002	4D	31	0	16
			141	**0**	**70**
SR 60 @ N Orient Road	1998	4D	10	1	4
	1999	4D	4	0	4
	2000	4D	21	0	13
	2001	4D	12	0	7
	2002	4D	11	0	8
			58	**1**	**36**
SR 60 @ 78th Street	1998	4D	12	0	9
	1999	4D	21	0	8
	2000	4D	17	0	11
	2001	4D	14	0	10
	2002	4D	14	0	11
			78	**0**	**49**
SR 60 @ US 301	1998	4D	41	0	23
	1999	4D	26	0	13
	2000	4D	27	0	17
	2001	4D	39	0	23
	2002	4D	33	0	16
			166	**0**	**92**
SR 60 @ Business Entrance	1998	4D	1	0	0
	1999	4D	4	0	2
	2000	4D	5	0	1
	2001	4D	2	0	0
	2002	4D	5	0	3
			17	**0**	**6**
SR 60 @ Falkenburg Road	1998	6D	36	0	18
	1999	6D	36	0	15
	2000	6D	27	0	8
	2001	6D	41	1	13
	2002	6D	38	0	16
			178	**1**	**70**

*Four lane divided (4D)/Six lane divided (6D)

4.1.10 Lighting

There is currently lighting at the SR 60/50th Street intersection and from US 301 to the I-75 Interchange. The lighting is on both sides of SR 60 beginning 1,000 feet to the west of 50th Street to 400 feet east of the intersection with the poles typically spaced at 200 feet apart. The SR 60/US 301 intersection there is lighting in all four quadrants and continues east along the north side to the I-75 Interchange with poles spacing varying from 160 to 200 feet. The light poles along the south side from Philip Lee Boulevard to the I-75 Interchange vary in spacing from 215 to 260 feet apart.

4.1.11 Utilities

A Utility Assessment Package was prepared to provide the names and locations of all major utility companies within the project corridor, to determine if their are any conflicts with the proposed plans for the respective project corridor. The following is a list of utility companies within the project limits:

- AT&T Communications-North
- Broadwing
- City of Tampa Water & Sewer Department
- Florida Gas Transmission - Safety Harbor
- FPL-FiberNet
- Hartline
- Hillsborough County Traffic Services Unit
- Hillsborough Utilities
- Level 3 Communications
- Quest Communications
- Tampa Bay Water Department
- Tampa Electric
- TECO: People Gas
- Teleport Communications Group
- Verizon Florida, Inc.
- Wiltel Communications, LLC
- XO Communications
- Xspedius Fiber Group

The type, location and ownership of existing and proposed utilities within the project corridor, are summarized in the Utility Assessment Package[7] prepared as part of this PD&E Study.

4.1.12 Pavement Conditions

A flexible pavement condition survey was conducted by FDOT for the project corridor. The pavement program provides ratings based on cracking, rideability and rutting conditions. A scale of 1 to 10 is used in rating the pavement condition of the roadway with 10 being the best. Pavement conditions with a rating of six or less is considered deficient. **Table 4-7** identifies the pavement condition ratings for SR 60.

Table 4-7: All System Pavement Condition Forecast for SR 60

LOCATION	MILEPOST	STATIONS	DISTRESS RATING	2002	2003	2004	2009[1]
SR 60	0.444 - 2.100	221+12 - 308+56	Cracking	10.0	9.0	8.5	8.0
			Ride	8.8	8.6	8.1	8.0
			Rutting	9.0	9.0	9.0	9.0
SR 60 (US 41)	2.100 – 5.019	308+56 – 61+11	Cracking	1.0	1.0	1.0	0.0*
			Ride	7.5	7.4	6.5	6.5
			Rutting	8.0	8.0	8.0	8.0
SR 60 (US 301)	5.109 – 5.865[2]	61+11 – 101+03	Cracking	10.0	10.0	10.0	10.0
			Ride	8.2	8.0	7.6	6.1*
			Rutting	9.0	9.0	9.0	9.0
SR 60 Home Depot Entrance	5.865 – 6.481[3]	101+03 – 133+55	Cracking	1.0	1.0	10.0	
			Ride	7.9	7.5	7.8	
			Rutting	8.0	9.0	9.0	
SR 60	6.481 – 6.896[3]	133+55 – 155+46	Cracking	1.0	1.0	1.0	
			Ride	7.6	7.9	7.5	
			Rutting	9.0	8.0	9.0	

1 – 2009 Forecasted by simple linear regression
2 – Improvement age one year in 2002
3 – Improvement age one year in 2004
* - Indicates pavement deficient (Any rating <= 6)

4.2 EXISTING STRUCTURES

Existing plans and bridge inspection reports were obtained from the FDOT for purpose of evaluating the condition of the existing structures within the project limits. **Table 4-8** identifies the structure number, location by station, type of structure, length, width, year built, operating and sufficiency ratings, as well as comments and recommendations. As **Table 4-8** indicates, it is recommended that the southbound US 301 structure over the CSX Railroad should be replaced.

Table 4-8: SR 60 Existing Structures

STRUCTURE NO.	STATION	TYPE OF STRUCTURE	STRUCTURE LENGTH	BRIDGES								
				RDWY WIDTH	BRIDGE WIDTH	NO. OF SPANS	MAX. SPAN	DESIGN LOAD	INVENTORY RATING	OPERATING RATING	SUFFICIENCY RATING	YEAR BUILT
100080 SR 60 Westbound	404+50	Precast Panel	654’	40.4’	43’	12	54.5’	HS 20	48.9	54.9	98.0	1970
100081 SR 60 Eastbound	404+50	Precast Panel	654’	40.4’	43’	12	54.5’	HS 20	48.9	54.9	98.2	1970
100101 US 301 Northbound	412+00	Cast-in-Place	175.9’	38.7’	42’	4	49.9’	HS 20 + mod	45.97	54.9	95.1	1971
100910* US 301 Southbound	412+00	Cast-in-Place	175.2’	38.7’	42.32’	5	35.1’	H 15	51.92	85.98	94.1	1937 Rebuilt in 1971

*Functionally obsolete. Recommend replacement.

4.3 ENVIRONMENTAL CHARACTERISTICS

4.3.1 Land Use Data

4.3.1.1 Existing Land Use

The existing land uses adjacent to the study limits consist of primarily commercial and open areas containing some wetlands in both rural and urban settings, with a designation of heavy and light commercial, heavy and light industrial, public communications/utilities, agricultural and vacant land. There are no residential developments directly adjacent to the corridor throughout the study area. Commercial uses include light industrial, gas stations, restaurants, hotels, nightclubs, shopping centers, retailers, auto repair shops, banks, automotive dealerships, and various other businesses. A CSX rail yard sits adjacent to the study corridor. The existing land use is depicted in **Figure 4-9**.

4.3.1.2 Future Land Use

The project area lies within both the City of Tampa and unincorporated Hillsborough County. Anticipated growth in the project area is not anticipated to change the character of the corridor. Within the limits of the City of Tampa, from 50th street to the Tampa Bypass Canal, the City of Tampa Future Land Use (2015)[8] indicates that future land uses will remain as existing, primarily Heavy Industrial (**see Figure 4-10**).

In unincorporated Hillsborough County, the Unincorporated Hillsborough County Future Land Use (2015)[9], depicts "Light Industrial Planned" from the Tampa Bypass Canal to US 301 and "Urban Mixed Use -20"from US 301 to Falkenburg Road (**see Figure 4-11**). The widening of SR 60 in this area is not anticipated to change the future land use development identified in these plans.

4.3.2 Cultural Features and Community Services

4.3.2.1 Cultural Features

A Cultural Resource Assessment Survey (CRAS)[10] has been completed to comply with Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-655)[11], as amended, and the implementing regulations 36 CFR 800 (revised January 2001), as well as the provisions contained in the revised Chapter 267, F.S. All work has been carried out in conformity with Part 2, Chapter 12 (Archaeological and Historical Resources) of the FDOT's PD&E Manual (revised January 1999)[12] and the standards contained in the Historic Preservation Compliance Review Program of the Florida Department of State, Division of Historical Resources Manual (revised November 1990)[13].

The purpose of the CRAS is to locate and identify any cultural resources within the project's Area of Potential Effects (APE) and to assess their significance in terms of eligibility for listing in the National Register of Historic Places (NRHP). The historical/architectural field survey was conducted in March 2004.

Historic Sites

Historical background research, including a review of the Florida Master Site File (FMSF) and the NRHP was conducted. As a result of background research and field survey, two previously recorded (8HI8739 and 8HI6441) and one newly identified (8HI9649) historic properties (50 years of age or older) were identified within the SR 60/Adamo Drive historic structures APE. Of these, the circa 1950 CSX Railroad Depot (8HI8739) located at 5300 Uceta Road north of SR 60 was determined eligible for the NRHP, under Criterion A for Transportation Systems/Commerce, by the Florida State Historic Preservation Officer (SHPO) in 2003. In addition, the previously recorded Campoamor Modern Dairy Silo located at 915 US 301 (8HI6441)

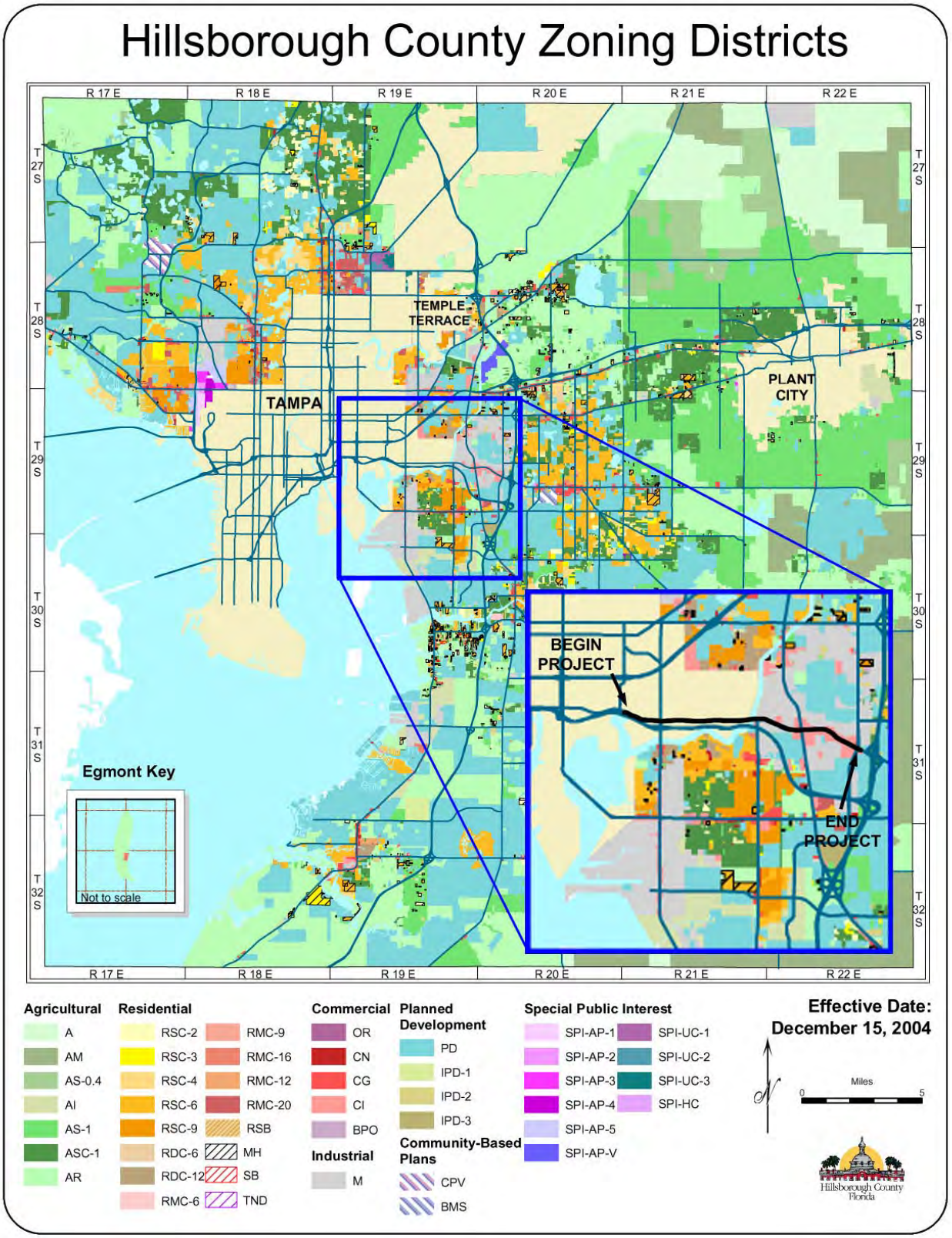


Figure 4-9: Hillsborough County Existing Land Use Map

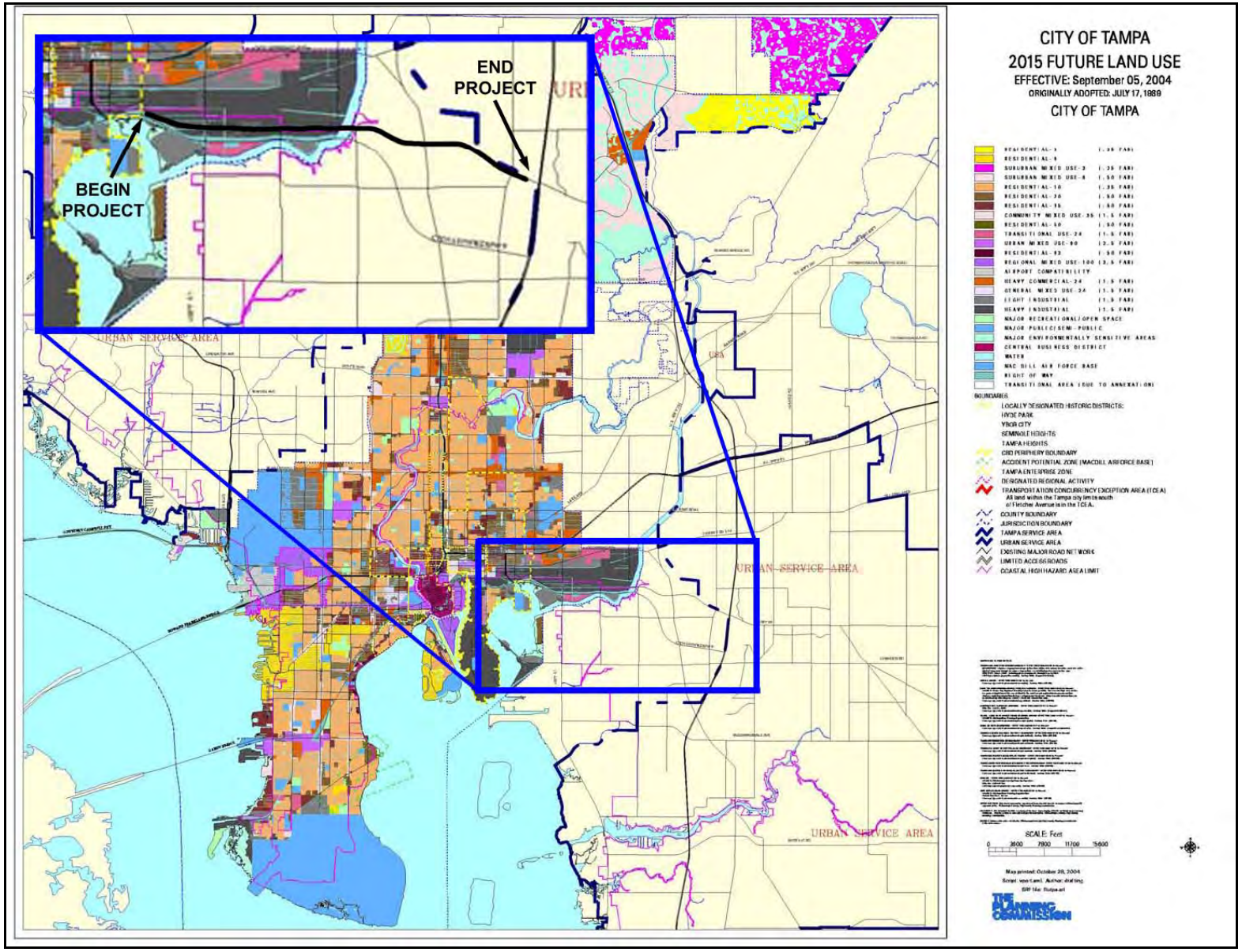


Figure 4-10: City of Tampa 2015 Future Land Use

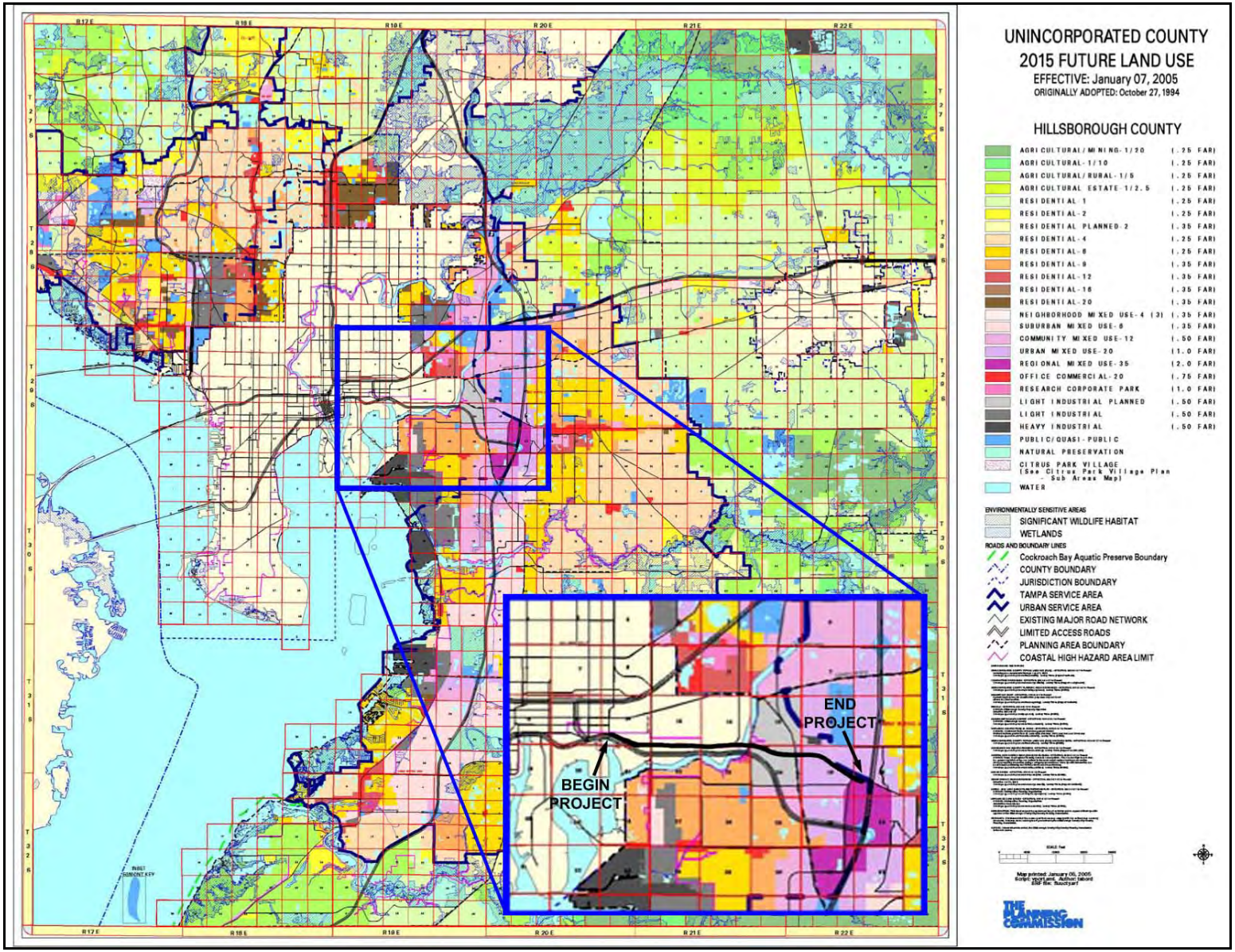


Figure 4-11: Unincorporated County 2015 Future Land Use

appears eligible for the NRHP, under Criterion C for Agriculture and Architecture, as one of the few remaining silos in Florida. In excellent condition with few alterations, the circa 1930 silo remains a fine example of a historic masonry silo constructed of hollow clay tile reinforced by steel rims. The newly identified building at 509 Falkenburg Road (8HI9649) is a ca. 1952 Masonry Vernacular style commercial structure. It is typical of post-World War II construction found throughout the region and appears to lack significant historical associations. These factors, combined with the extensive alterations and the loss of integrity, indicate that 8HI9649 does not meet the criteria of eligibility for listing in the NRHP.

Although the properties containing the two significant historic resources, the CSX Railroad Depot (8HI8739) and the Campoamor Silo (8HI6441), are located adjacent to the project, both significant structures are located far enough away (approximately 1,000 feet and 200 feet respectively) from the proposed project so that it will not affect their historic characteristics.

Archaeological Sites

Background research, including a review of the FMSF, and the NRHP, indicated that one archaeological site (8HI78) had been recorded previously within the archaeological APE, defined as the land contained within the existing and proposed rights-of-way. This site, discovered in 1952, was recorded as "destroyed" at the time it was recorded. A review of relevant site location information for environmentally similar areas within the project area and vicinity indicated a generally low probability for the occurrence of prehistoric sites, given the degree of urban development along the corridor. The background research also indicated that sites, if present, would most likely be small prehistoric (precontact) lithic or artifact scatters, or historic refuse dating from the late nineteenth to early twentieth centuries. As a result of field survey, no archaeological sites were identified within the archaeological APE.

In conclusion, improvements to SR 60/Adamo Drive will have no involvement with any archaeological sites that are listed, determined eligible, or considered potentially eligible for listing in the NRHP.

4.3.2.2 Community Facilities

Community facilities and services provide a focal point for adjacent neighborhoods and communities, as well as serving the needs of the surrounding area. Community facilities include churches, cemeteries, funeral homes, parks and recreation areas, public and private schools, medical and emergency facilities, fire and police stations, public buildings and facilities and other neighborhood gathering places as shown in **Figure 4-12** on the following page. With the existing and future land use being identified to be commercial / industrial, there are no existing or planned neighborhoods in the study area. As would be expected in an area of this nature, there are no existing or planned community facilities in the area.

4.3.2.3 Section 4(f) Resources

In accordance with Section 4(f) of the Department of Transportation Act of 1966 (Title 49, U.S.C., Section 1653 (f), amended and recodified in Title 49, U.S.C., Section 303, in 1983)[14], the project was examined for possible Section 4(f) properties. No potentially eligible properties were identified within the project limits.

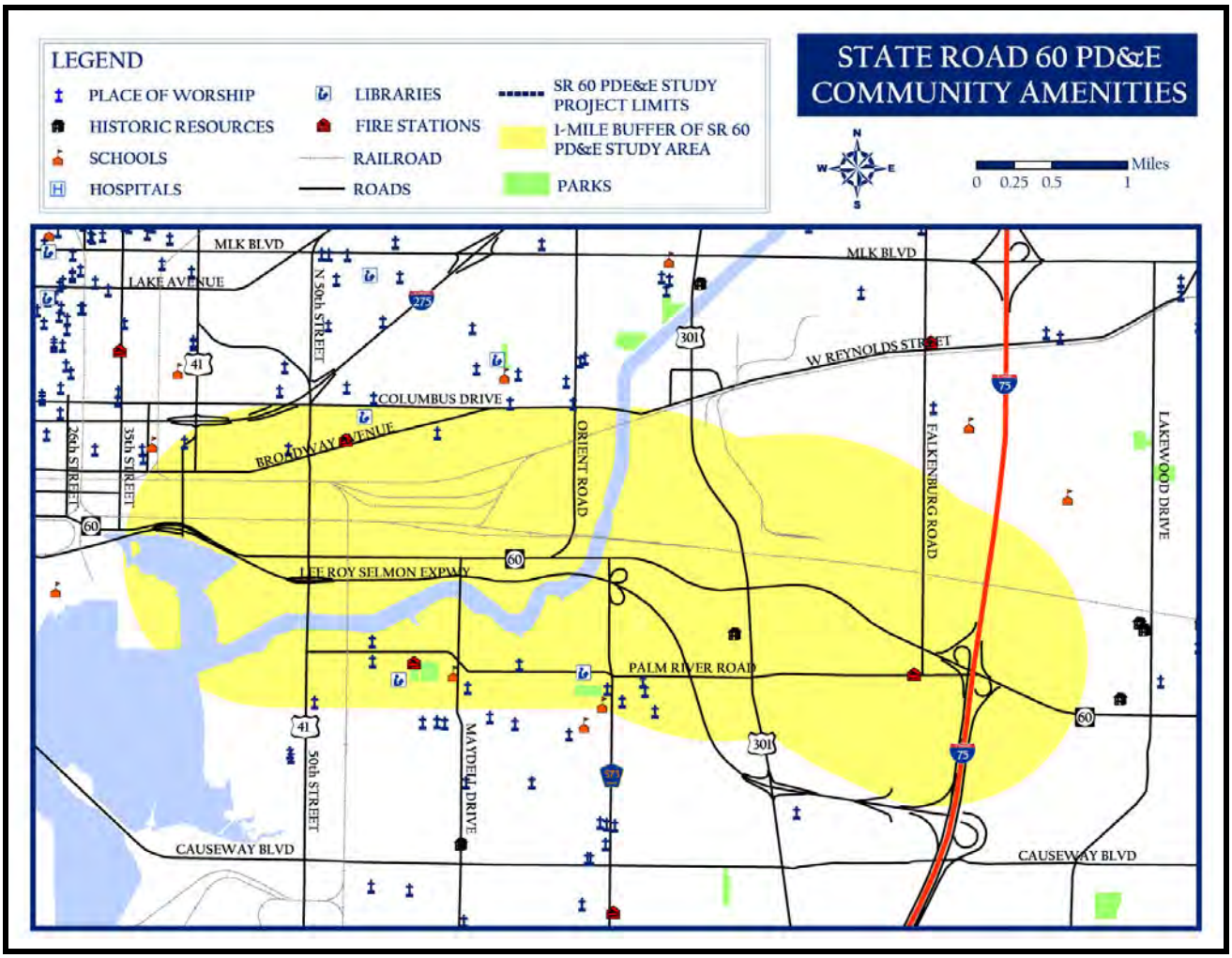


Figure 4-12: SR 60 Community Amenities

4.3.3 Natural and Biological Features

4.3.3.1 Wetlands

There are 19 wetlands located within the project corridor. Most of these systems are remnants of larger forested palustrine and scrub\shrub systems that have been severely impacted by commercial development located within the project limits. The following is a brief description by Florida Land Use, Cover and Forms Classification System (FLUCFCS).

(618/619) Willow and Elderberry and Exotic Wetland Hardwoods (palustrine scrub/shrub, broad-leaved deciduous, seasonally flooded) (PSS1C)

In the 618 community willow is pure or the predominant species. Elderberry may be the prime associate species. The 619 communities contain a majority of exotic species such as Melaleuca or Brazilian pepper. In these project areas, the wetlands consist of a high percentage of Brazilian pepper.

(621) Cypress (palustrine needle-leaved deciduous, semi-permanently flooded) (PFO2C)

The Cypress category consists of communities that are composed of mainly bald or pond cypress, with other non-dominant species included. Many of the wetlands along this project corridor were once part of larger systems, and almost all of them have been drained, ditched, or otherwise altered.

(630/631) Wetland Forested Mixed and Wetland Scrub (palustrine forested/scrub-shrub, needle/broad-leaved deciduous) (PFOC/PSSC)
This category includes mixed wetland forested communities (630) and wetland scrub communities (631) in which neither hardwoods or conifers are dominant. Most of these types of systems within this project are remnants of larger systems. The majority of systems have been disturbed and contain exotic and invasive species.

(641) Freshwater Marshes (palustrine, emergent, persistent, seasonally flooded) (PEM1C)
The freshwater marsh is characterized by the predominance of emergent and low growing plant species, with no one species being dominant. Most of the emergent marshes in this corridor have developed in areas where the land has been cleared and altered.

(6415) Dog Fennel with Low Marsh Grass (palustrine, emergent, persistent, seasonally flooded) (PEM1C)
This category of wetland is a freshwater marsh that is 66 percent or more dominated by a single species. The majority of marshes in this corridor are fireflag or pickerelweed marshes.

(6417) Freshwater Marsh with Shrubs, Brush, and Vines (palustrine, emergent, persistent, temporarily flooded) (PEM1A)
This category of wetland is a freshwater marsh that is 66 percent or more dominated by a single species, in this case shrubby species.

4.3.3.2 Outstanding Florida waters
Identification of Outstanding Florida Waters (OFW) was determined through coordination with the Florida Department of Environmental Protection (FDEP). The OFW designation requires a higher emphasis of minimizing direct wetland impacts and higher water quality treatment standards than would be required for other wetland systems. There are no OFW's within the project study area.

4.3.3.3 Aquatic Preserves
There are no designated aquatic preserves in the SR 60 study area.

4.3.3.4 Wild and Scenic Rivers
In accordance with Part 2, Chapter 23 of the FDOT PD&E Manual, an assessment of Wild and Scenic Rivers was conducted. Following the Wild and Scenic Rivers Assessment process promulgated by Presidential Directive, it has been noted that the only rivers in Florida presently designated under the Wild and Scenic River status are the Northwest Fork of the Loxahatchee River, Myakka Florida Wild and Scenic River Segment and the Wekiva Florida Scenic and Wild River Segment, none of which are not located in Hillsborough County.

4.3.3.5 Coastal Zone Consistency
The Florida Department of Environmental Protection (FDEP) determined, through the Advance Notification process, that this project is consistent with the Florida Coastal Zone Management Program (letter dated August 20, 2003).

4.3.4 Threatened and Endangered Species
This project has been evaluated for impacts to wildlife and habitat resources, including protected species, in accordance with 50 CFR, Part 402 and the Endangered Species Act of 1973[15], as amended. The project area was surveyed during May and June of 2004. The study corridor is located in an urban area comprised mainly of commercial and light industrial services with a general lack of native habitat. Although there are parcels of undeveloped areas, they are very small in size and not connected to any corridors or natural linkages. The natural drainage feature, Six Mile Creek, was dredged and structures were erected for flood control purposes

by the Army Corps of Engineers. This feature is now known as the Tampa Bypass Canal. A more recent use of this water body is an alternative source of potable water upstream of SR 60 behind the water control structures. The immediate area around the SR 60 Bridge is a tidal body of water.

The field reconnaissance revealed no listed species present within or along the study corridor. The Department obtained written concurrence from the United States Fish and Wildlife Service (9/15/2004) and the National Marine Fisheries Service (9/22/2004) that the proposed project would not adversely affect protected resources providing that a manatee and sea turtle awareness program is implemented during the construction activities over the Tampa Bypass Canal.

4.3.5 Potential Hazardous Materials & Contaminated Sites

Businesses located along the SR 60 corridor include gas stations, restaurants, motels, shopping plazas, automotive sales and repair facilities, CSX Railroad right-of-way, and industrial entities. Power poles, overhead electrical lines, and buried gas and water lines were observed in the area. This corridor area is primarily served by municipal water and sewer systems.

Of the 51 investigated contaminated sites associated with the corridor, 27 received "Low" or "No" risk ratings either because no contamination exists onsite; the site has been rehabilitated to the satisfaction of the Florida FDEP; or the parcel is so far away from the corridor that contamination from the site could not impact construction along the corridor. Eighteen sites were assigned "Medium" risk ratings, and seven received "High" risk ratings. More information can be found in the Contamination Screening Evaluation Report[16] prepared as part of the PD&E for this project.

4.3.6 Farmlands

There are no farmlands within the study limits.

4.4 REFERENCES

1. Plans Preparation Manual, Florida Department of Transportation, Tallahassee, Florida; January 2002.

2. Southwest Florida Water Management District (SWFWMD) Contour Maps.

3. State of Florida F.A.C., (Sept. 2004) Chapters 62-302.400 & 700.

4. USDA-SCS Hillsborough County Soil Survey.

5. Executive Order 11988, "Floodplain Management", USDOT Order 5650.2, "Floodplain Management and Protection", and Federal-Aid Policy Guide 23 CRF 650A.

6. Crash Analysis Reporting Systems (CARS), Florida Department of Transportation.

7. Utility Assessment Package, Carter and Burgess, Tampa, Florida, 2005.

8. City of Tampa Future Land Use (2015).

9. Unincorporated Hillsborough County Future Land Use (2015).

10. Cultural Resource Assessment Survey Report, Florida Department of Transportation, Tampa, Florida, 2004.

11. National Historic Preservation Act of 1966 (Public Law 89-655).

12. PD&E Manual, Florida Department of Transportation, Tallahassee, Florida, Revised January 1999.

13. Historic Preservation Compliance Review Program of the Florida Department of State, Division of Historical Resources Manual (revised November 1990).

14. Department of Transportation Act of 1966 (Title 49, U.S.C., Section 1653 (f), amended and recodified in Title 49, U.S.C., Section 303, in 1983)

15. PD&E Manual (50 CFR, Part 402 and the Endangered Species Act of 1973, as amended. PD&E Manual), Florida Department of Transportation, Tallahassee, Florida, Revised January 1999.

16. Contamination Screening Evaluation Report, Florida of Transportation, Tampa, Florida 2004.

5 DESIGN CRITERIA

The proposed roadway improvements must adhere to specific design standards. The FDOT's Plans Preparation Manual (PPM)[1] and AASHTO's A Policy of Geometric Design of Highways and Streets[2] were consulted in developing the design criteria for this project. **Table 5-1** and **Table 5-2** present the design criteria applicable for this project.

Table 5-1: Arterial Access Management Classifications and Standards

ACCESS CLASS	MEDIANS	CONNECTING SPACE (FEET)		MEDIAN OPENING SPACING (FEET)		SIGNAL SPACING (FEET)
		>45 MPH	≤45 MPH	DIRECTIONAL	FULL	
2	Restrictive w/Service Roads	1,320	660	1,320	2,640	2,640
3	Restrictive	660	440	1,320	2,640	2,640
4	Non-Restrictive	660	440			2,640
5	Restrictive	440	245	660	*2,640/1,320	*2,640/1,320
6	Non-Restrictive	440	245			1,320
7	Both Median Types	125		330	660	1,320

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

Table 5-2: Design Criteria Table

DESIGN ELEMENT		PLANS PREPARATION MANUAL		
		VALUE	VALUE	TABLE
Type of Facility		Arterial	Arterial	
Typical Section		Rural Divided	Urban Divided	
Number of Lanes		6	8 / 2*	
Design Speed (mph)		55	45	1.9.1
Median Width (ft)		40	22	2.2.1
Outside Shoulders	Full Width (ft)	12	N/A	2.3.2
	Paved Width (ft)	5	N/A	2.3.2
Median Shoulders	Full Width (ft)	12	N/A	2.3.2
	Paved Width (ft)	0	N/A	2.3.2
Border Width (ft) (Urban with bike lanes)		40	12	2.5.1 & 2.5.2
Maximum Change in Grade w/o Vertical Curves (%)		0.5	0.7	2.6.2
Maximum Grades (%)		5.5	6	2.6.1
Stopping Sight Distance (ft)		495	360	2.7.1
Maximum Deflection w/o Horizontal Curve		0° 45’ 00”	1° 00’ 00”	2.8.1A
Horizontal Curves	Desirable Length (ft)	825	675	2.8.2A
	Minimum Length (ft)	400	400	2.8.2A
	Maximum Curvature E Max = 0.10 Rural / 0.05 Urban	6° 30’ 00”	8° 15’ 00”	2.8.3
	Maximum Curvature Normal Cross Slope (0.02)	0° 30’ 00”	2° 45’ 00”	2.8.4
Vertical Curves	K – Value Crest Curve	185	98	2.8.5
	K – Value Sag Curves	115	79	2.8.6
	Minimum Length Crest Curves (ft)	350	135	2.8.5
	Minimum Length Sag Curves (ft)	250	135	2.8.6
Superelevation Transition Slope Rates		1:180	1:150	2.9.3
Clear Zone Width (ft)		30	24	2.11.9
Design Vehicle		WB-50	WB-50	

* 2 Lane Frontage Roads

5.1 FUNCTIONAL CLASSIFICATION

The functional classification of a roadway affects elements of design such as design speed, level of service requirements, and local accommodations. SR 60 has a functional classification of Urban Principle Arterial – other.

5.2 ACCESS CLASSIFICATION

The purpose of the access classification is to protect safety, to enhance the functional integrity of the roadway and provide improved mobility of people and goods. SR 60 is currently Access Class 7 west of 50th Street and Access Class 5 from 50th Street to I-75. US 301 is currently Access Class 5 north and south of SR 60. An access management plan was prepared for SR 60 from US 301 to Falkenburg Road, which is included in the MPO Long Range Transportation Plan (LRTP)[3]. The access management plan for the remaining portions of the project will be prepared at a later date when added to the MPO LRTP and coordinate with FDOT Access Management Committee.

5.3 DESIGN SPEED

Design speed is principle design control that affects the selection of many design standards. A design speed of 55 mph was utilized for the rural sections and 45 mph was utilized for the urban sections of SR 60 design alternatives.

5.4 REFERENCES

1. Plans Preparation Manual, Florida Department of Transportation, Tallahassee, Florida, January 2002.

2. AASHTO's A Policy of Geometric Design of Highways and Streets, AASHTO's "Green Book", 2005.

3. Hillsborough County's Adopted 2025 Long Range Transportation Plan (LRTP), Hillsborough County MPO, Tampa, Florida 2004.

6 TRAFFIC

The existing traffic conditions and projected future (design year 2030) conditions for the SR 60/Adamo Drive PD&E Study are addressed in the Draft Traffic Technical Memorandum.[1] The analysis for the design year (2030) considered mainline widening in addition to both at-grade and urban interchange alternatives. The following sections present a summary of the findings from this report.

6.1 EXISTING TRAFFIC VOLUMES

6.1.1 Traffic Counts

Twenty-two intersections and driveways were counted for turning movement in December 2002. Six of these intersections are signalized. In addition, directional and classification counts were taken at ten other locations along the corridor during the same period. Appendix A-5 in the Draft Traffic Technical Memorandum – Volume 2 contains the raw traffic count data.

6.1.2 Annual Average Daily Traffic

The raw Average Daily Traffic (ADT) (3 day average) counts were multiplied by seasonal and axle adjustment factors from the 2001 Florida Traffic Information CD[2] (FTI 2001 CD) to determine the AADT volumes. The axle adjustment factor was 0.97 for SR 60 west of US 301 and 0.96 east of US 301. The seasonal adjustment factor was 0.99 based on the week the counts were taken. The axle and seasonal adjustment factors and documentation of the calculations to determine the AADT volumes are provided in Appendix A-1 and A-3 of the Draft Traffic Technical Memorandum – Volume 2. The existing (2002) AADT volumes are depicted in **Figure 6-1**.

6.1.3 Peak Hour Volumes

The existing AADT was multiplied by the "K" and the "D" factors to determine the peak and non peak direction traffic volumes. The turning movements were used to develop the percent turns at each intersection for the AM and PM peak hours. Appendix A-3 of the Draft Traffic Technical Memorandum – Volume 2 documents the calculations used to adjust the peak hour traffic volumes. **Figure 6-2** displays the existing (2002) PM peak hour turning movement volumes.

6.1.4 Traffic Characteristics

The "K", "D", and "T" factors were used to define the traffic characteristics used in the design hour traffic level of service (LOS) analysis, and for use in determining the traffic improvements needed in the opening and/or design year. These factors are defined as:

- K = Design Hour Factor, it is the proportion of daily traffic occurring during the design hour.
- D = Directional Distribution Factor, it is the proportion of traffic moving in the peak direction during the design hour.
- T = Truck Factor, it is the proportion of trucks occurring during the design hour.

The corresponding "K" and "D" factors are 9.2% and 57%, respectively. A "T" factor of 5% was used along SR 60, 6% for 50th Street, and 4% for all other side streets was used.

In addition, a peak hour factor (PHF) of 0.95 was used for the existing capacity analyses conducted as part of the PD&E Study.

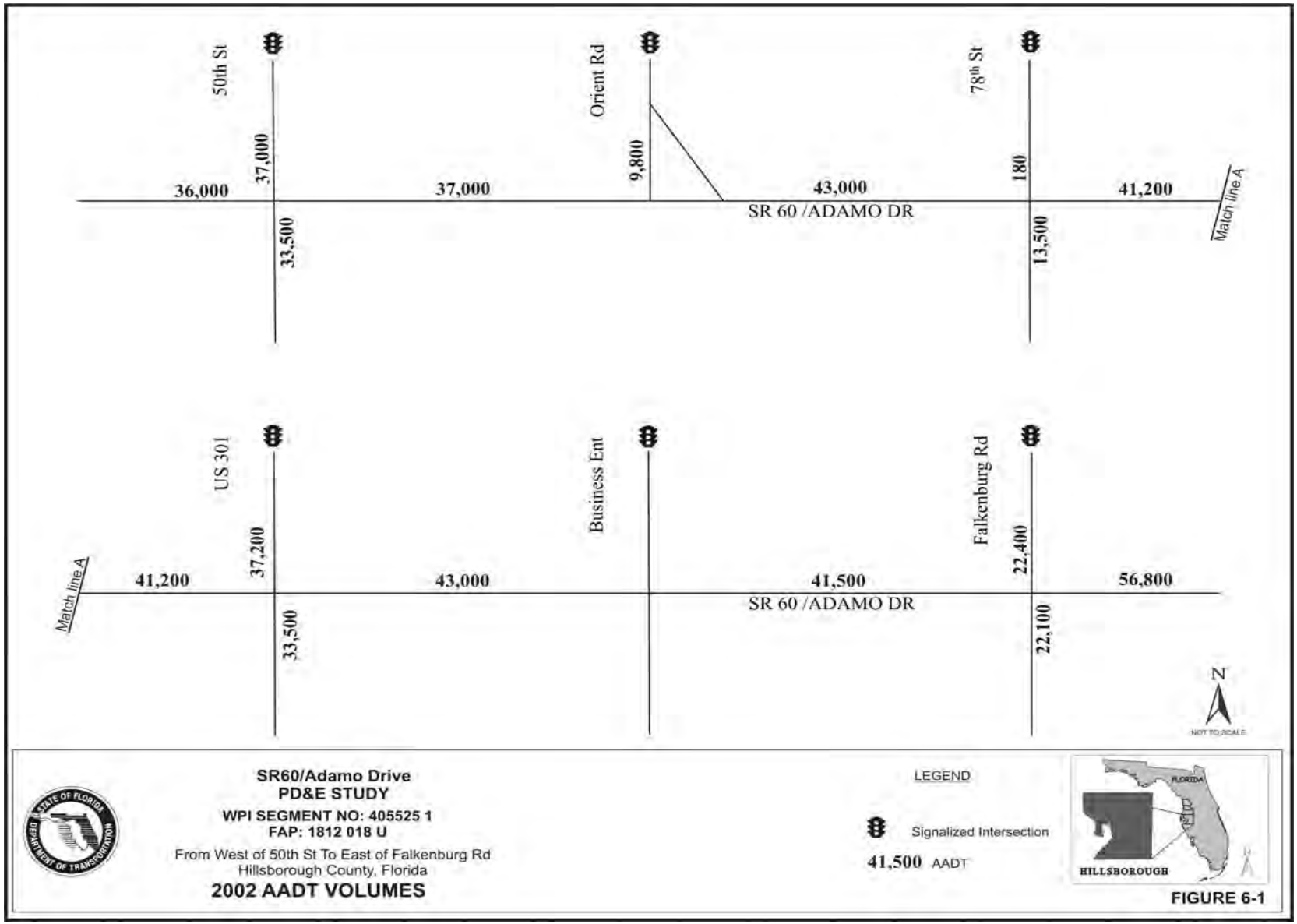


Figure 6-1: Existing 2002 AADT Volumes

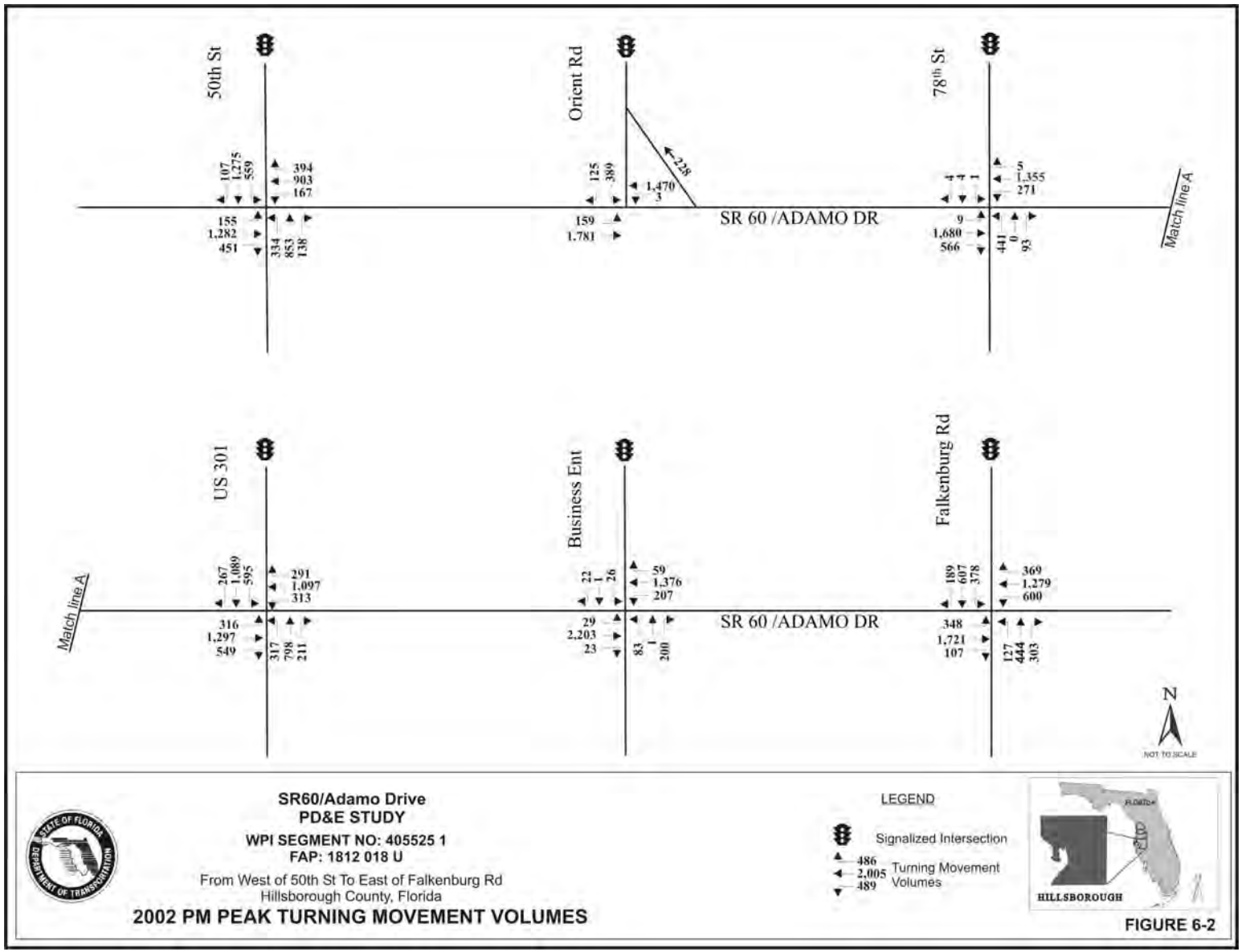


Figure 6-2: 2002 PM Peak Turning Movement Volumes

6.2 ROADWAY CHARACTERISTICS

The study area of SR 60 (Adamo Drive) is an east-west urban arterial facility located in central Hillsborough County, Florida. The length of the study limits is 4.2 miles. The existing posted speed limit for SR 60 in this area is 50 miles per hour. The current laneage of the study limits are as follows:

- From 50th Street (US 41) (milepost 2.1) eastward to US 301 (milepost 5.04), SR 60 is a 4 -lane divided facility.
- From US 301 (milepost 5.04) eastward to milepost 6.12, SR 60 is a 4 -lane divided facility.
- From milepost 6.12 eastward to Falkenburg Road (milepost 6.30), SR 60 is generally a 6-lane divided facility except at the intersection of Falkenburg Road where the westbound approach has 3 through lanes and the eastbound approach has 4.

There are currently six signalized located along the corridor. The intersections are noted in Section 2.1 and the lane geometry for the intersections is shown in Figure 2 of the Draft Traffic Technical Memorandum.

6.3 EXISTING ACCESS MANAGEMENT

This section addresses the issues concerning access management standards along SR 60 from 50th Street to Falkenburg Road. The FDOT has developed access management regulations to help achieve safer and efficient traffic flow on the state highway system. Administrative Rule 14-97 divides the state highways into seven access management classes, each class with its own standards. The most stringent standards apply to Access Class 1, which covers freeways. Access Class 2 through 7 cover controlled access highways and are organized from the most restrictive (Class 2) to the least restrictive (Class 7).

6.3.1 Access Standards

As explained in Section 5.2 of this report, SR 60 has adopted Access Class 5 and 7 classifications. **Table 5-1** summarizes the Arterial Access Management Classification and Standards.

6.3.2 Access Management Under existing (No-Build) Conditions

Currently SR 60 from 50th Street to Falkenburg Road does not meet Access Class 5 for a speed limit of 50 mph. There are a total of 115 driveways with an average spacing of 194 feet. There are 26 median openings with an average median spacing of 856 feet. These median openings and their relative spacing are summarized in **Table 6-1.**

6.4 EXISTING TRAFFIC CONDITIONS

The existing capacity analysis included evaluation of the six signalized intersections within the SR 60 corridor. As part of this study, capacity analyses were also conducted for the arterial segments between the intersections. The Highway Capacity Software (HCS) based on the Highway Capacity Manual 2000 (HCM)[3] was used for both the intersection and arterial segment analyses.

Table 6-1: Existing Median Opening Locations

LOCATION	STATION	TYPE	SIGNALIZED	DISTANCE (FEET)
50th St	308+50	Full	Yes	-
Prologis	317+50	Full	No	900
Tampa Warehouse	326+00	Full	No	850
Kaman	336+00	Full	No	1,000
CSX Railroad Entrance	341+80	Full	No	580
CSX Railroad Entrance	352+50	Full	No	1,070
Maydell Dr	361+50	Full	No	900
FL Power Train	368+50	Full	No	700
C&D Technologies	375+50	Full	No	700
AD-CO Printing	382+50	Full	No	700
S. FL Truck Equipment	390+00	Full	No	750
Orient Rd	395+00	Full	Yes	500
78th Street	414+00	Full	Yes	1,900
Crosstown Ramp	421+00	Full	No	700
Conseweld Rd	429+50	Full	No	850
FL Detroit Diesel	438+00	Full	No	850
Kelly Lane	450+00	Full	No	1,200
US 301	61+10	Full	Yes	1,400
Toyota	68+60	Full	No	750
Wayne Place	74+10	Full	No	550
S. Ware Blvd	83+10	Full	No	900
Currie Davis Dr	92+50	Full	No	940
Philip Lee Blvd	101+60	Full	No	910
Salvation Army (Entrance)	110+60	Full	No	900
Business Entrance	119+10	Full	Yes	850
Falkenburg Rd	128+10	Full	Yes	900

6.4.1 Intersection Operational Analyses

The results from the HCS signalized intersection analyses are provided in **Table 6-2**. The existing HCS signalized intersection analyses are provided in Appendix D-1 of the Draft Traffic Technical Memorandum – Volume 2.

Traffic on SR 60 currently operates at LOS F at three of the six intersections in both directions. These intersections are 50th Street, US 301, and Falkenburg Road.

6.4.2 Arterial Operational Analyses

The HCS Urban Arterial Module was used to evaluate the AM and PM peak hour operations for the arterial segments along the SR 60 corridor. The analysis was broken into two segments: from 50th Street to US 301 and from US 301 to Falkenburg Road. Based on these results, the corridor is not currently meeting LOS standards for both the AM and PM for the westbound segment between US 301 and Falkenburg Road. The HCS Arterial analyses are provided in Appendix D-9 of the Draft Traffic Technical Memorandum – Volume 2.

Table 6-2: HCS Signalized Intersection Analyses

AM Peak Hour										
Signalized Intersection	Existing (2002)		No Build (2030)		Build (2030) with SR 60 6-Lane Widening Only		Build (2030) with SR 60 Widening, Alternate Cross-Street Geometry & Optimized Signal Timing			
	Delay	LOS	Delay	LOS	Delay	LOS	SR 60	Side Street	Delay	LOS
50th St.	109.8	F	135.7	F	95.0	F	6LD [1]	6LD [1] + 2 LTL [2]	63.7	E
N.Orient Rd.	**54.4**	**D**	65.3	E	**17.2**	**B**	6LD [1]	Existing 2LU [3]	**17.6**	**B**
78th St.	64.2	E	128.0	F	61.4	E	6LD [1]	2LU [3][5]	**30.6**	**C**
US 301	151.5	F	379.6	F	261.1	F	8LD [4]	8LD [4] + 2 LTL [2]	104.5	F
Business Entr.	**15.1**	**B**	**52.7**	**D**	**48.8**	**D**	8LD [4]	Existing 2LU [3]	**24.3**	**C**
S. Falkenburg Rd.	120.1	F	284.3	F	228.4 [4]	F	8LD [4]	8LD [4] + 2LTL [2]	76.6	E

PM Peak Hour										
Signalized Intersection	Existing (2002)		No Build (2030)		Build (2030) with SR 60 6-Lane Widening Only		Build (2030) with SR 60 Widening, Alternate Cross-Street Geometry & Optimized Signal Timing			
	Delay	LOS	Delay	LOS	Delay	LOS	SR 60	Side Street	Delay	LOS
50th St.	107.7	F	120.4	F	90.8	F	6LD [1]	6LD [1] + 2 LTL [2]	68.3	E
N.Orient Rd.	**43.5**	**D**	66.7	E	**25.4**	**C**	6LD [1]	Existing 2LU [3]	**23.6**	**C**
78th St.	**42.9**	**D**	65.7	E	**35.1**	**D**	6LD [1]	2LU [3][5]	**44.2**	**D**
US 301	119.7	F	335.3	F	232.4	F	8LD [4]	8LD [4] + 2 LTL [2]	85.3	F
Business Entr.	**23.2**	**C**	78.3	E	95.2	F	8LD [4]	Existing 2LU [3]	**34.4**	**C**
S. Falkenburg Rd.	129.7	F	280.5	F	240.8 [4]	F	8LD [4]	8LD [4] + 2LTL [2]	87.2	F

(1) 6LD = 6-Lane Divided Cross-Section
(2) LTL = Left Turn Lanes
(3) 2LU = 2-Lane Undivided Cross-Section
(4) 8LD = 8-Lane Divided Cross-Section
(5) Northbound approach is a left lane plus a left shared through lane.

6.5 MULTIMODAL TRANSPORTATION SYSTEM CONSIDERATIONS

6.5.1 Transit

HARTline currently maintains a local route, which traverses SR 60 along much of the project area. This route, number 31, travels along SR 60 between 50th Street and 78th Street and between US 301 and Falkenburg Road. The segment of SR 60 from east of 78th Street to west of US 301 is not serviced by the transit system. HARTline currently has no plans to add or revise routes within the project area.

6.5.2 Rail

There is currently one existing railroad that crosses SR 60 just east (1,355 feet) of 50th Street. This is a major CSX trunk line that services areas as far south as Naples. There are currently 30 trains that cross this facility a day as it heads into the CSX Intermodal Rail Yard just north of SR 60. This location has the second highest number of crossing of at-grade crossings within the District.

6.5.3 Aviation

There are no airports in the vicinity of the SR 60 project limits.

6.6 TRAFFIC ANALYSIS ASSUMPTIONS AND LEVEL OF SERVICE

The future daily traffic volumes were developed for the opening year (2010) and the design year (2030) for the SR 60 corridor. The future daily traffic volumes were used to determine the peak hour traffic projections for this study. The following subsections summarize this data.

6.6.1 Annual Average Daily Traffic Projections

Based on the Design Traffic Procedures adopted by FDOT, the future AADT projections for the study corridor were developed for the design year (2030). The Tampa Bay Regional Planning Model (TBRPM)[4] was used to develop the future traffic projections. **Figure 6-3** contains the future traffic projections. Documentation of the calculation and methodology to determine AADT volumes are provided in Appendix B of the Draft Traffic Technical Memorandum – Volume 2.

In the opening year (2010), the AADT volumes are expected to range between 37,800 vpd to 61,100 vpd along SR 60. In the design year (2030), the AADT volumes are expected to range between 45,200 vpd to 70,200 vpd.

6.6.2 Future Traffic Assumptions

Future traffic assumptions are outlined in Section 6.1.4 of this report.

6.6.3 Peak Hour Traffic Projections

The traffic assumptions previously discussed were used to develop the peak hour traffic projections. Based on a review of the turn movement counts, the peak direction along the SR 60 corridor was determined to be westbound during the AM peak hour and eastbound during the PM peak hour. The same peak hour distribution conditions were assumed in the development of the future traffic volumes. AM and PM peak hour volumes for cross streets intersecting the SR 60 corridor were developed consistent with existing travel patterns. Appendix A-2 of the Draft Traffic Technical Memorandum documents the methodology and calculations used to develop the peak hour volumes.

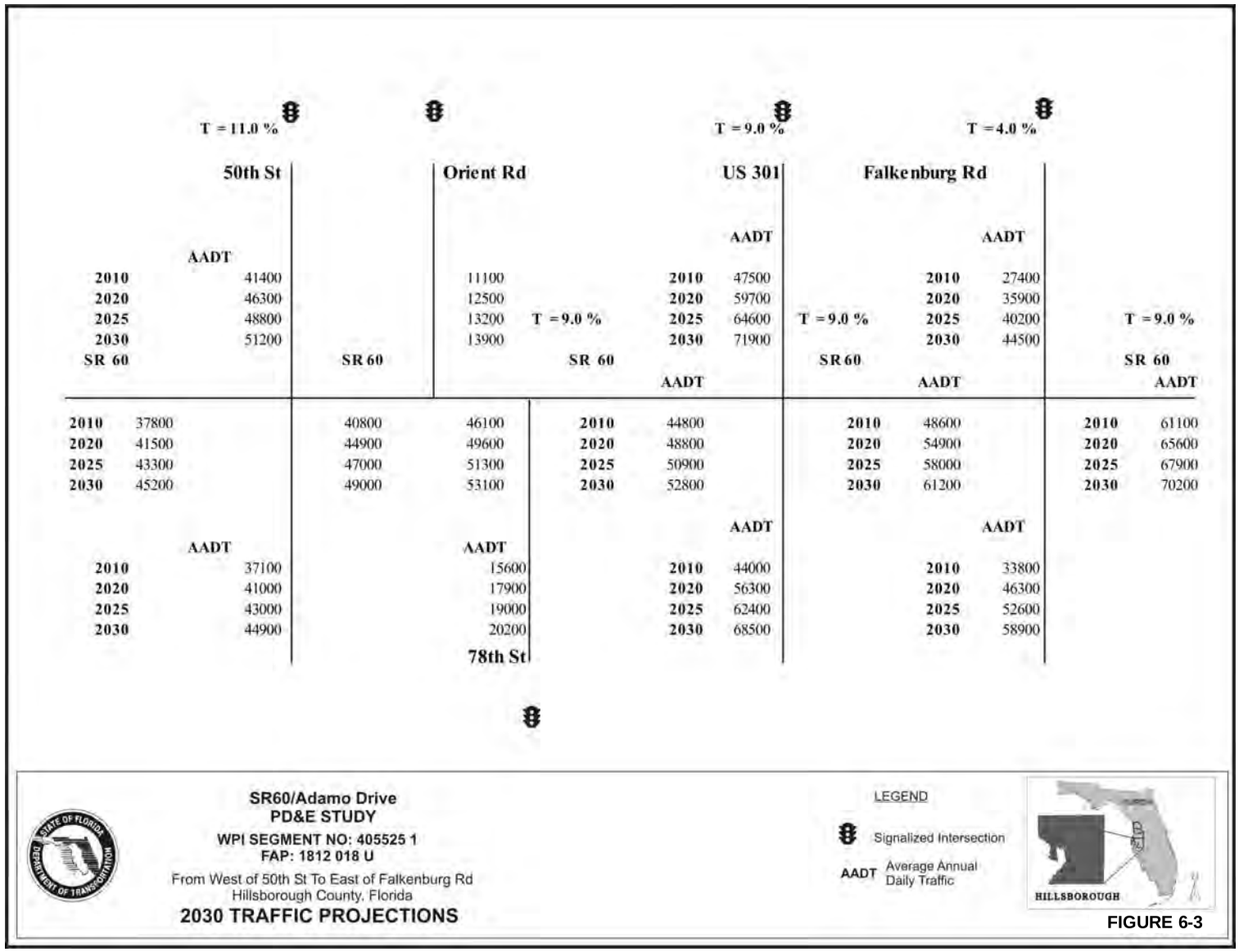


Figure 6-3: 2030 Traffic Projections

6.6.4 2030 Conditions

The future traffic analyses for 2030 conditions evaluated the operation of the corridor under four different scenarios:

- 2030 No-Build
- 2030 Build Alternatives improving SR 60 only
- 2030 Build – Improving SR 60 with intersection improvements
- 2030 Build – Improving SR 60 with urban interchanges

Each scenario builds on the previous in order to determine what improvements are needed to satisfy the minimum level of service for each intersection and arterial segment. The following subsections summarize the results of the 2030 traffic analyses.

6.6.4.1 2030 No-Build Conditions

Analysis of 2030 No-Build conditions for SR 60 indicate that a number of intersections and roadway segments will not meet LOS standards in the future. Four of the six signalized intersections are expected to fail (LOS F) in the AM and three of the six signalized intersections are expected to fail (LOS F) in the PM. All of the signalized intersections will operate below LOS standards during the AM or PM Peak Hours.

6.6.4.2 2030 Build - Alternatives Improving SR 60 Only

As outlined in Section 6.6.4.1 and highlighted in **Table 6-2**, under No-Build conditions the SR 60 corridor is currently deficient in meeting LOS standards for all of the signalized intersections. In order to address these deficiencies a six laning of SR 60 alternative from 50th Street to Falkenburg Road was analyzed.

Table 6-4 presents the results of the intersection LOS results of a Build condition that only widens SR 60 to six lanes. The accompanying HCS intersection analysis is provided in Appendix D-3 of the Draft Traffic Technical Memorandum - Volume 2.

Four of the six signalized intersections are expected to operate below LOS standards.

6.6.4.3 2030 Build – Improving SR 60 with Intersection Improvements

Building upon the six laning alternative in Section 6.6.4.2, each intersection was reviewed to determine what improvements could be done to improve the LOS. If necessary intersection configurations were maximized to four approach lanes, dual left turn lanes, and a free flow right turn lane for all four approaches.

The following signalized intersections are expected to operate below LOS standards with the improvements: 50th Street, US 301, and Falkenburg Road. Each of these intersections were reanalyzed to determine during which time frame these intersections would fall below the LOS standards.

- 50th Street (US 41) will exceed the minimum standard between years 2020-2025,
- US 301 will exceed the minimum standard between years 2015-2020,
- Falkenburg Road will exceed the minimum standard between years 2020-2025.

Table 6-5 presents the results of the signalized intersections with improvements, **Figure 6-4**/**Figure 6-5** displays the AM/PM peak turning movement volumes for each of the segments along the study area on SR 60, **Figure 6-6** shows the 2030 AM/PM at grade link level of service and **Figure 6-7** shows the recommended at-grade improvements. Based on the improvements outlined in **Table 6-3** and shown in **Figure 6-6** and the 2030 forecast peak hour volumes, queue calculations were performed. The storage length requirements are provided in **Table 6-2**.

Table 6-3: Intersection Analysis

SR 60/50th Street Intersection

Alternative	SR 60	Side Street	AM		PM		
			Delay	LOS	Delay	LOS	
At-Grade Build (2030) with SR 60 Widening, Alternate Cross-Street Geometry & Optimized Signal Timing	6LD (1)	6LD (1) + 2 LTL (2)	63.7	E	68.3	E	
Build (2030) with SR 60 Urban Interchange, Alternate Cross-Street Geometry & Optimized Signal Timing	4LF (5)	6LD (1) + 2 LTL (2)	32.1	C	38.3	D	*

SR 60/US 301 Intersection

Alternative	SR 60	Side Street	AM		PM		
			Delay	LOS	Delay	LOS	
At-Grade Build (2030) with SR 60 Widening, Alternate Cross-Street Geometry & Optimized Signal Timing	8LD (4)	8LD (4) + 2 LTL (2)	104.5	F	85.3	F	
Build (2030) with SR 60 over US 301, Alternate Cross-Street Geometry & Optimized Signal Timing	4LF (5)	6LD (1) + 2 LTL (2)	67.5	E	47.8	D	
Build (2030) with US 301 over SR 60, Alternate Cross-Street Geometry & Optimized Signal Timing	6LD (1)	4LF (5) + 2 LTL (2)	48.2	D	49.0	D	*

(1) 6LD = 6-Lane Divided Cross-Section
(2) LTL = Left Turn Lanes
(3) RTL = Right Turn Lane
(4) 8LD = 8-Lane Divided Cross-Section
(5)4LF = 4-Lane Divided Flyover

* Recommended

Table 6-4: Recommended Storage Length of Approach Lanes – 2030 Build

Turning Movement		Turning Volume (Veh/Hr)	G/C	Cycle Length (Sec)	Number of Lanes	Per-Lane Volume (VPHPL)	Percent Trucks	Arrival Factor	Calc. Lane Length (Ft)	Recommended Lane *Length (Ft)
INTERSECTION:	50 TH STREET (US 41)									
EB	Left	161	0.090	113.1	2	81	9.0%	4.0	126.5	150
EB	Thru	1287	0.340	113.1	3	429	9.0%	4.0	673.9	675
EB	FF Right	340	0.000	113.1	1	340	9.0%	4.0	126.5	150
WB	Left	300	0.090	113.1	2	150	9.0%	4.0	235.6	250
WB	Thru	1546	0.340	113.1	3	515	9.0%	4.0	809.5	825
WB	FF Right	724	0.000	113.1	1	724	9.0%	4.0	235.6	250
NB	Left	618	0.190	113.1	2	309	8.0%	4.0	485.4	500
NB	Thru	1548	0.330	113.1	3	516	8.0%	4.0	810.6	825
NB	FF Right	189	0.000	113.1	1	189	8.0%	4.0	485.4	500
SB	Left	462	0.190	113.1	2	231	8.0%	4.0	362.9	375
SB	Thru	1198	0.310	113.1	3	399	8.0%	4.0	627.3	650
SB	FF Right	206	0.000	113.1	1	206	8.0%	4.0	362.9	375
INTERSECTION:	ORIENT ROAD									
EB	Left	145	0.690	137.0	1	145	9.0%	4.0	275.9	300
EB	Thru	1793	0.690	137.0	3	598	9.0%	4.0	1,137.2	1,150
EB	Right	0	0.000	137.0	0		8.0%	4.0	0.0	0
WB	Left	5	0.690	137.0	1	5	9.0%	4.0	9.5	100
WB	Thru	2327	0.690	137.0	3	776	9.0%	4.0	1,475.9	1,500
WB	FF Right	454	0.000	137.0	1	454	9.0%	4.0	863.9	875
NB	Left	0	0.000	137.0	0		8.0%	4.0	0.0	0
NB	Thru	0	0.000	137.0	0		8.0%	4.0	0.0	0
NB	FF Right	0	0.000	137.0	0		8.0%	4.0	0.0	0
SB	Left	307	0.250	137.0	1	307	8.0%	4.0	584.2	600
SB	Thru	0	0.000	137.0	0		8.0%	4.0	0.0	0
SB	FF Right	243	0.000	137.0	1	243	8.0%	4.0	462.4	475
INTERSECTION:	78 TH STREET									
EB	Left	11	0.200	129.0	1	11	9.0%	4.0	19.7	100
EB	Thru	2352	0.570	129.0	3	784	9.0%	4.0	1,404.7	1,425
EB	FF Right	423	0.000	129.0	1	423	9.0%	4.0	757.9	775
WB	Left	370	0.200	129.0	1	370	9.0%	4.0	662.9	675
WB	Thru	1712	0.570	129.0	3	571	9.0%	4.0	1,022.4	1,025
WB	FF Right	7	0.000	129.0	1	7	9.0%	4.0	12.5	100
NB	Left	383	0.220	129.0	1	383	8.0%	4.0	686.2	700
NB	Thru	0	0.090	129.0	1		8.0%	4.0	0.0	0
NB	FF Right	416	0.000	129.0	1	416	8.0%	4.0	745.3	750
SB	Thru-Left	7	0.110	129.0	1	7	8.0%	4.0	12.5	100
SB	FF Right	5	0.000	129.0	1	5	8.0%	4.0	9.0	100

Lane Length Calculation = 2*Turning Volume* 25/ (3600/cycle length)* # lanes
*** Rounded up to nearest 25 ft. increment**

Table 6-3: Continued

Turning Movement		Turning Volume (Veh/Hr)	G/C	Cycle Length (Sec)	Number of Lanes	Per-Lane Volume (VPHPL)	Percent Trucks	Arrival Factor	Calc. Lane Length (Ft)	Recommended Lane *Length (Ft)
INTERSECTION:		US 301								
EB	Left	404	0.120	150.8	2	202	9.0%	4.0	423.1	425
EB	Thru	1661	0.270	150.8	4	415	9.0%	4.0	869.7	875
EB	FF Right	704	0.000	150.8	1	704	9.0%	4.0	423.1	425
WB	Left	562	0.120	150.8	2	281	9.0%	4.0	588.5	600
WB	Thru	1328	0.270	150.8	4	332	9.0%	4.0	695.4	700
WB	FF Right	531	0.000	150.8	1	531	9.0%	4.0	588.5	600
NB	Left	429	0.230	150.8	2	215	8.0%	4.0	449.3	450
NB	Thru	1859	0.380	150.8	4	465	8.0%	4.0	973.4	975
NB	FF Right	422	0.000	150.8	1	422	8.0%	4.0	449.3	450
SB	Left	1126	0.230	150.8	2	563	8.0%	4.0	1,179.2	1,200
SB	Thru	2312	0.380	150.8	4	578	8.0%	4.0	1,210.6	1,225
SB	FF Right	332	0.000	150.8	1	332	8.0%	4.0	1,179.2	1,200
INTERSECTION:		BUSINESS ENTRANCE								
EB	Left	166	0.120	138.5	1	166	9.0%	4.0	319.3	325
EB	Thru-Right	3043	0.640	138.5	4	761	9.0%	4.0	1,463.4	1,475
					0.53					
WB	Left	305	0.120	138.5	1	305	9.0%	4.0	586.7	600
WB	Thru	2028	0.640	138.5	4	507	9.0%	4.0	975.3	950
WB	Right	88	0.640	138.5	1	88	9.0%	4.0	169.3	175
NB	Thru-Left	289	0.160	138.5	1	289	8.0%	4.0	555.9	575
NB	Right	262	0.150	138.5	1	262	8.0%	4.0	504.0	525
SB	Thru-Left	35	0.130	138.5	1	35	8.0%	4.0	0.0	100
SB	Right	106	0.100	138.5	1	106	8.0%	4.0	203.9	225
INTERSECTION:		FALKENBURG ROAD								
EB	Left	571	0.210	101.6	2	286	9.0%	4.0	402.9	425
EB	Thru	1743	0.360	101.6	4	436	9.0%	4.0	614.9	625
EB	FF Right	107	0.000	101.6	1	107	9.0%	4.0	151.0	175
WB	Left	689	0.210	101.6	2	345	9.0%	4.0	486.1	500
WB	Thru	2306	0.360	101.6	4	577	9.0%	4.0	813.5	825
WB	FF Right	686	0.000	101.6	1	686	9.0%	4.0	968.0	975
NB	Left	316	0.100	101.6	2	158	8.0%	4.0	223.0	225
NB	Thru	2084	0.340	101.6	4	521	8.0%	4.0	735.2	750
NB	FF Right	689	0.000	101.6	1	689	8.0%	4.0	972.3	975
SB	Left	345	0.100	101.6	2	173	8.0%	4.0	243.4	250
SB	Thru	828	0.340	101.6	4	207	8.0%	4.0	292.1	300
SB	FF Right	587	0.000	101.6	1	587	8.0%	4.0	828.3	850

Lane Length Calculation = 2*Turning Volume* 25/ (3600/cycle length)* # lanes
*** Rounded up to nearest 25 ft. increment**

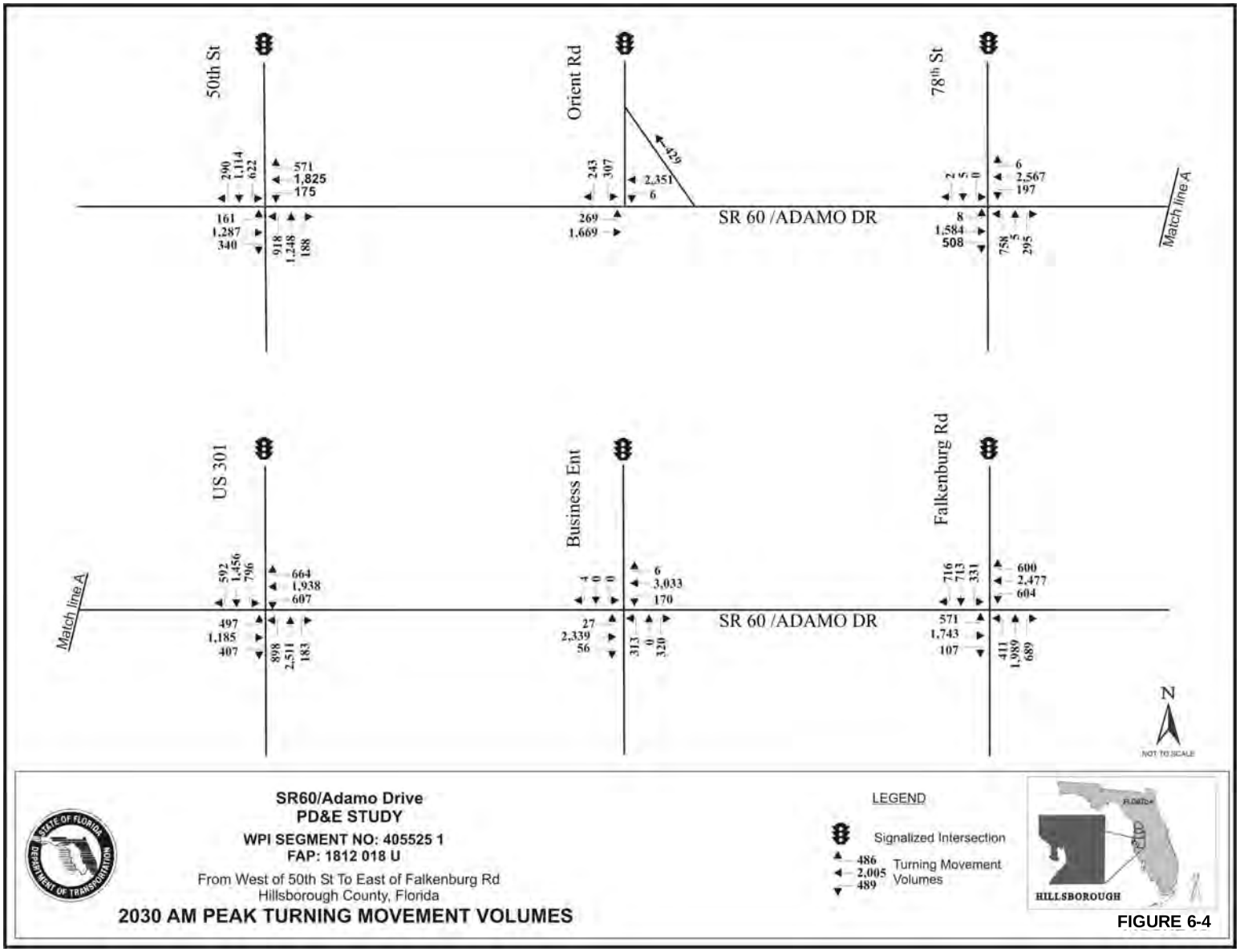


Figure 6-4: 2030 AM Peak Turning Movement Volumes

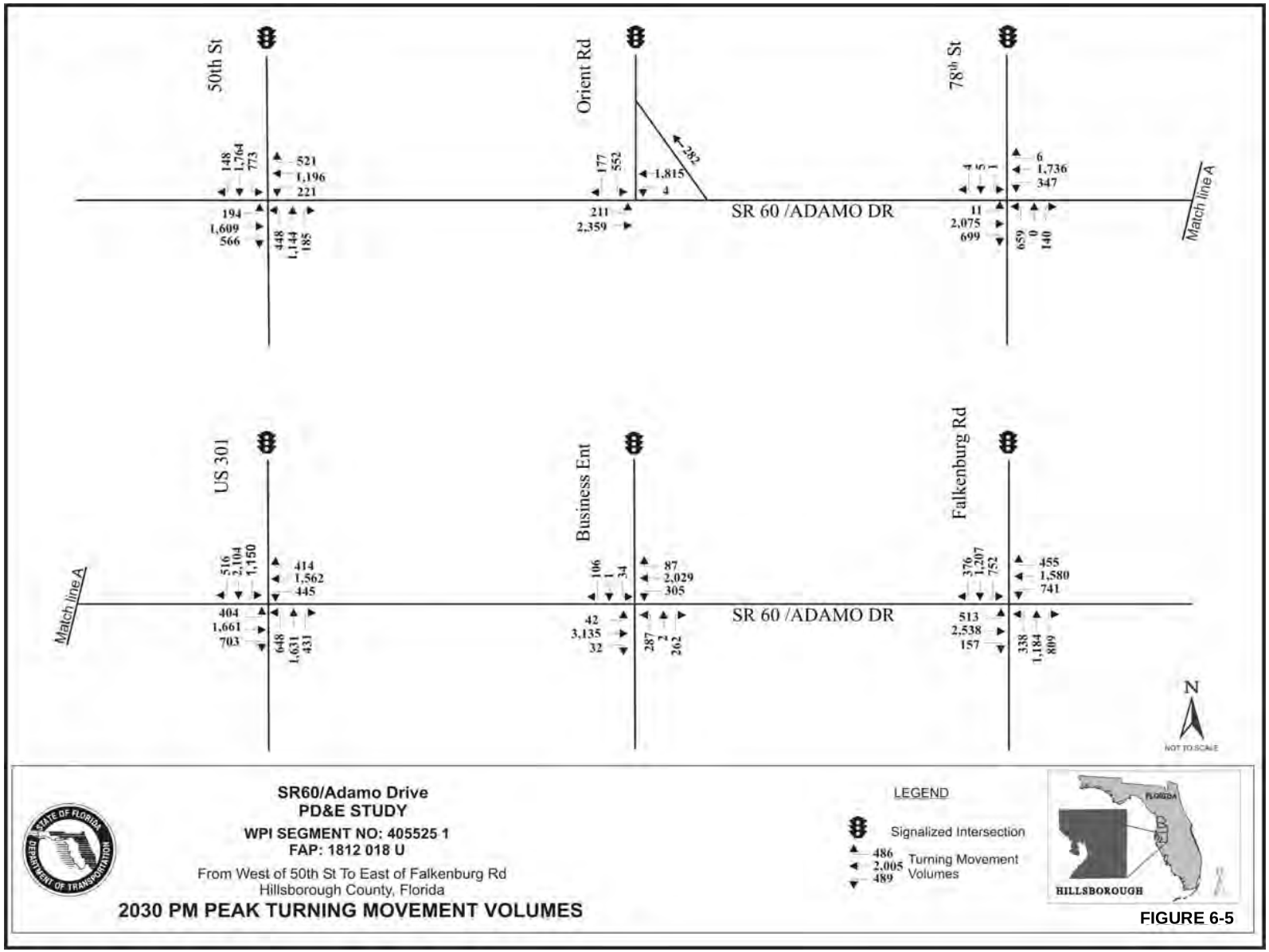


Figure 6-5: 2030 PM Peak Turning Movement Volumes

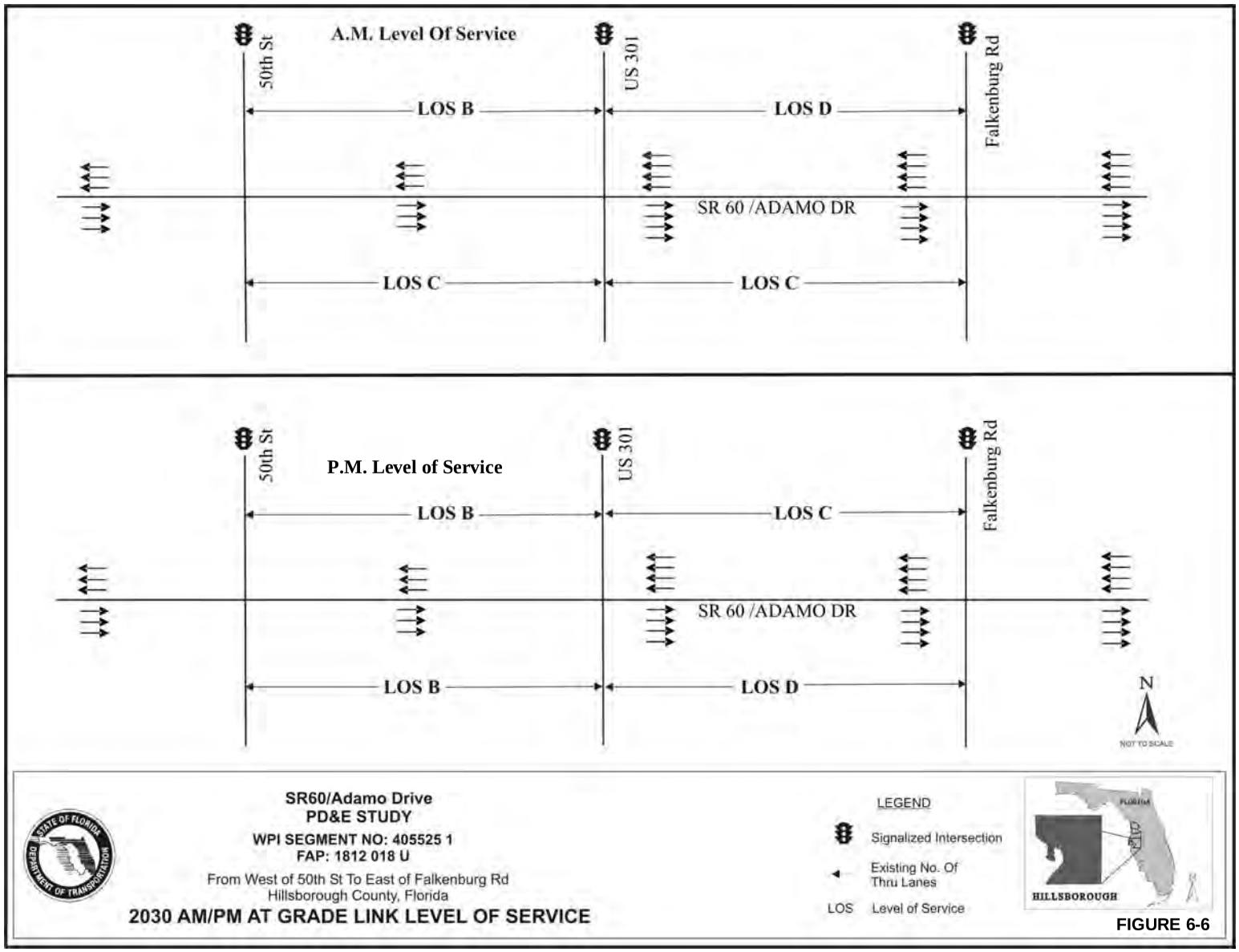

A.M. Level Of Service
50th St
US 301
Falkenburg Rd
LOS B
LOS D
SR 60 /ADAMO DR
LOS C
LOS C
P.M. Level of Service
50th St
US 301
Falkenburg Rd
LOS B
LOS C
SR 60 /ADAMO DR
LOS B
LOS D
N
NOT TO SCALE
SR60/Adamo Drive
PD&E STUDY
WPI SEGMENT NO: 405525 1
FAP: 1812 018 U
From West of 50th St To East of Falkenburg Rd
Hillsborough County, Florida
2030 AM/PM AT GRADE LINK LEVEL OF SERVICE
LEGEND
Signalized Intersection
Existing No. Of Thru Lanes
LOS Level of Service
FLORIDA
HILLSBOROUGH

FIGURE 6-6

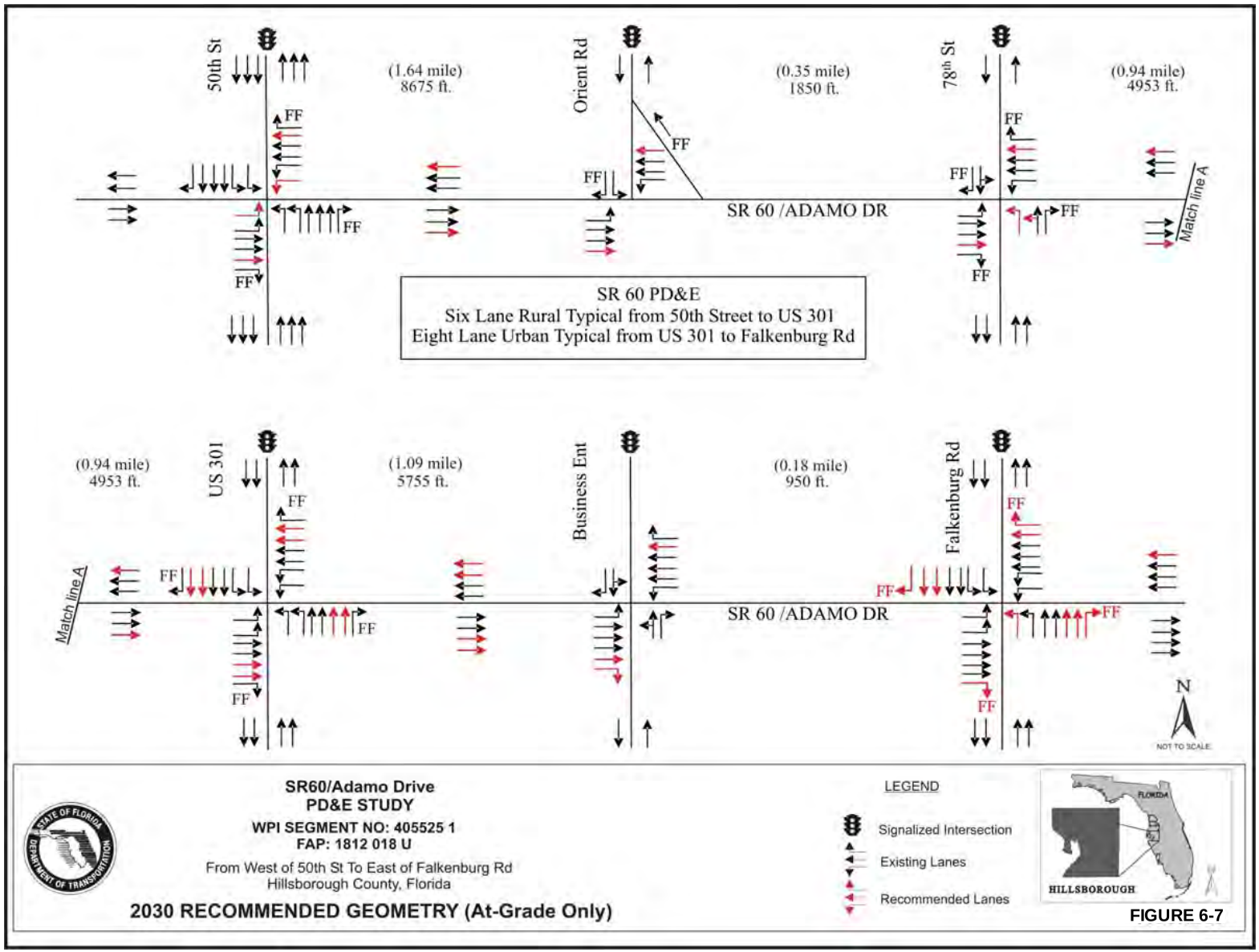


Figure 6-7: 2030 Recommended Geometry (At-Grade Only)

6.6.4.4 2030 Build – Improving SR 60 with Urban Interchanges

Since three of the intersections will not meet the minimum LOS standards in the year 2030, urban interchanges were considered for 50th Street and US 301. Falkenburg Road was not considered since it is not a state road. Because of the rail road crossing east of 50th Street and the Lee Roy Selmon Expressway to the south of SR 60, SR 60 was evaluated as being elevated over 50th Street, however both scenarios were considered for US 301 and SR 60: SR 60 over US 301 and US 301 over SR 60.

Having a build condition that has urban interchanges allows both 50th Street and US 301 to meet the minimum LOS standards in 2030. However, Falkenburg Road will exceed the minimum standard between years 2020-2025. Table 6-5 presents the signalized LOS for these interchanges. The segmentation for the HCS Arterial analysis was shifted to be from 50th Street to 78th Street and 78th Street to Falkenburg Road due to the interchange at US 301. All of the combinations of scenarios were analyzed and are shown in **Figures 6-8 to 6-12**. The recommended improvements are shown in **Figure 6-13**.

6.7 REFERENCES

1. Draft Traffic Technical Memorandum, Florida Department of Transportation, Tampa, Florida, 2004.

2. Florida Traffic Information CD, Florida Department of transportation, Tallahassee, Florida, 2001.

3. Highway Capacity Manual, Florida Department of Transportation, 2000.

4. Tampa Bay Regional Planning Model (TBRPM), Gannett Fleming, Tampa, Florida, 2004.

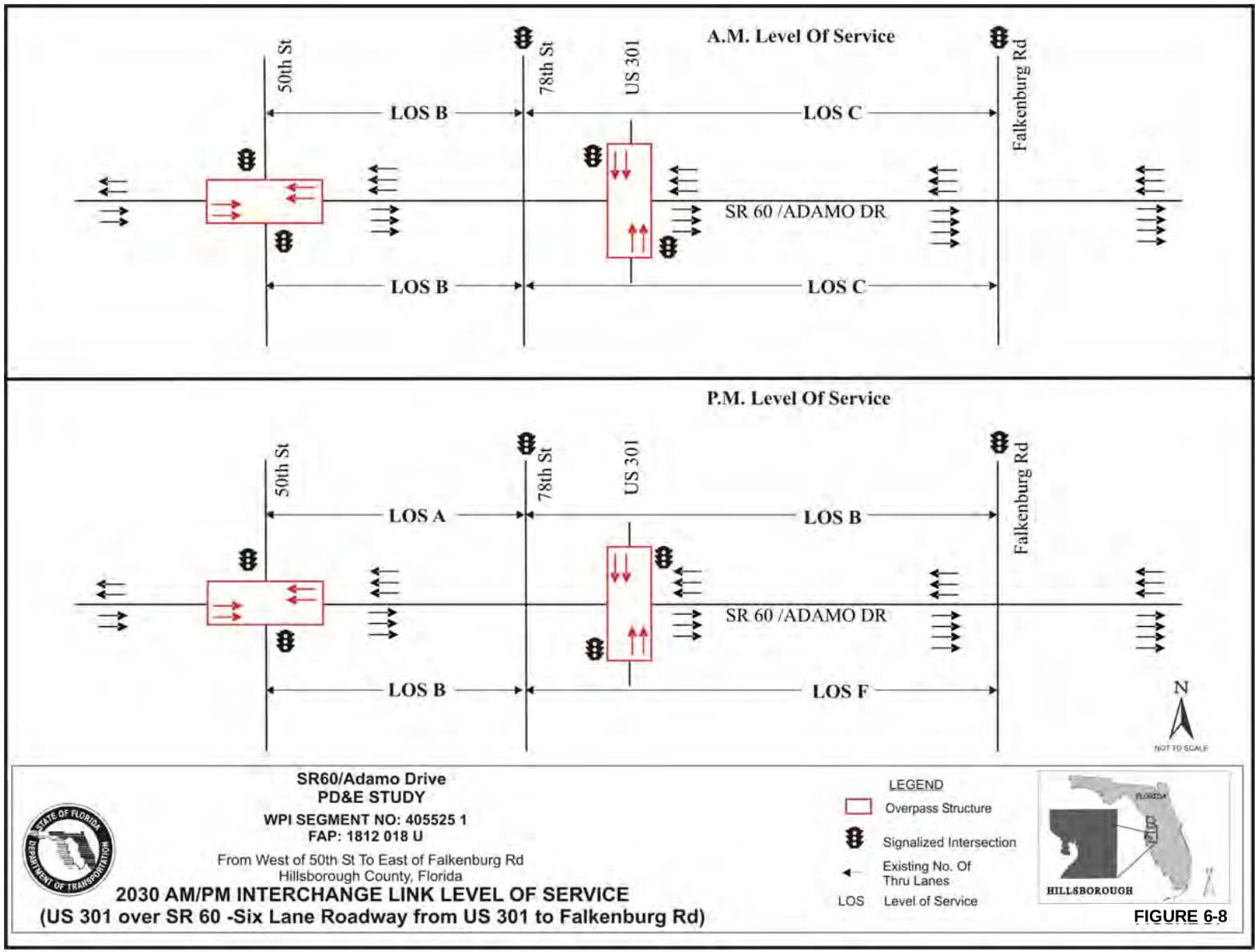


Figure 6-8: 2030 AM/PM Interchange Link Level of Service

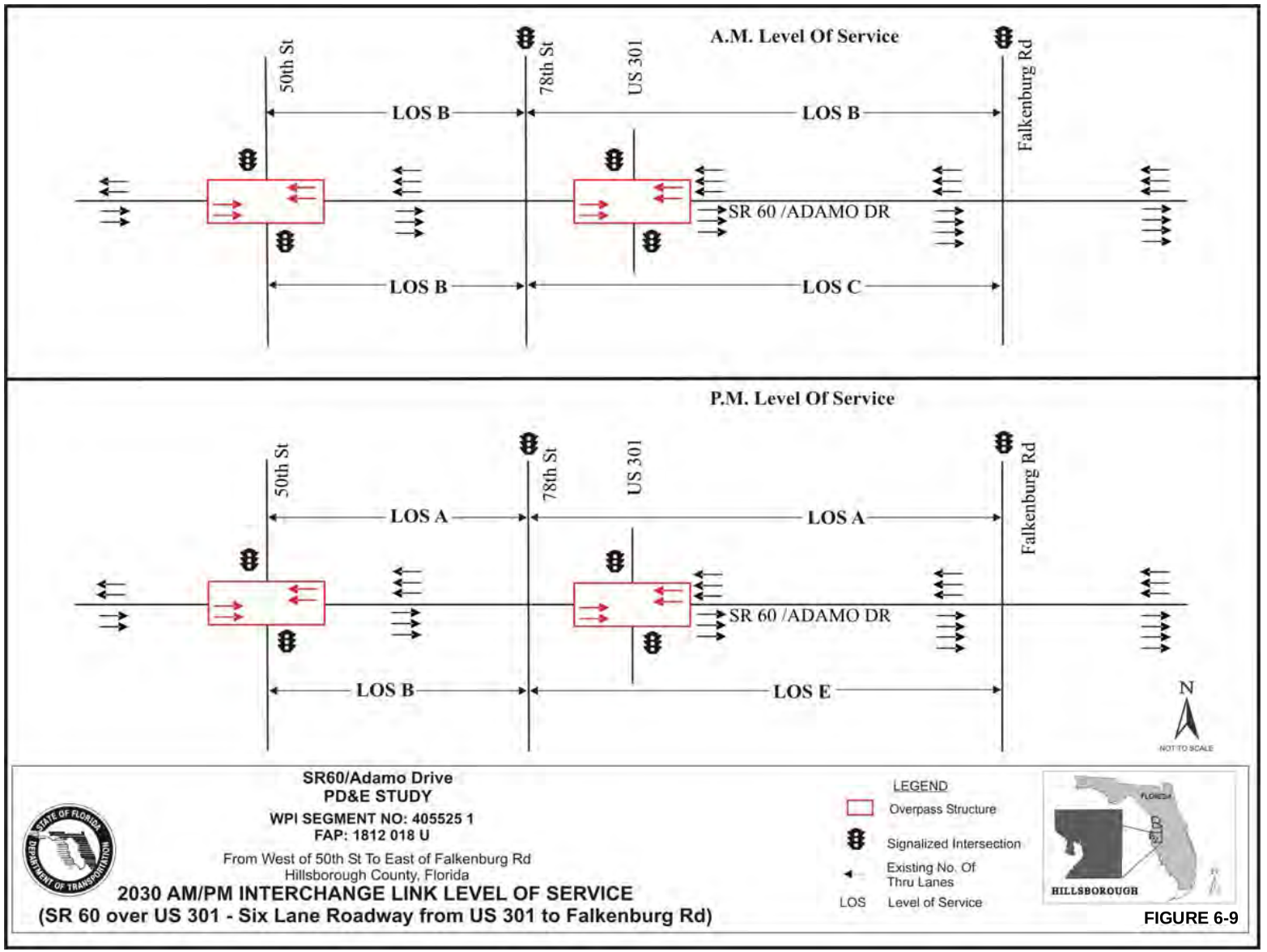


Figure 6-9: 2030 AM/PM Interchange Link Level of Service

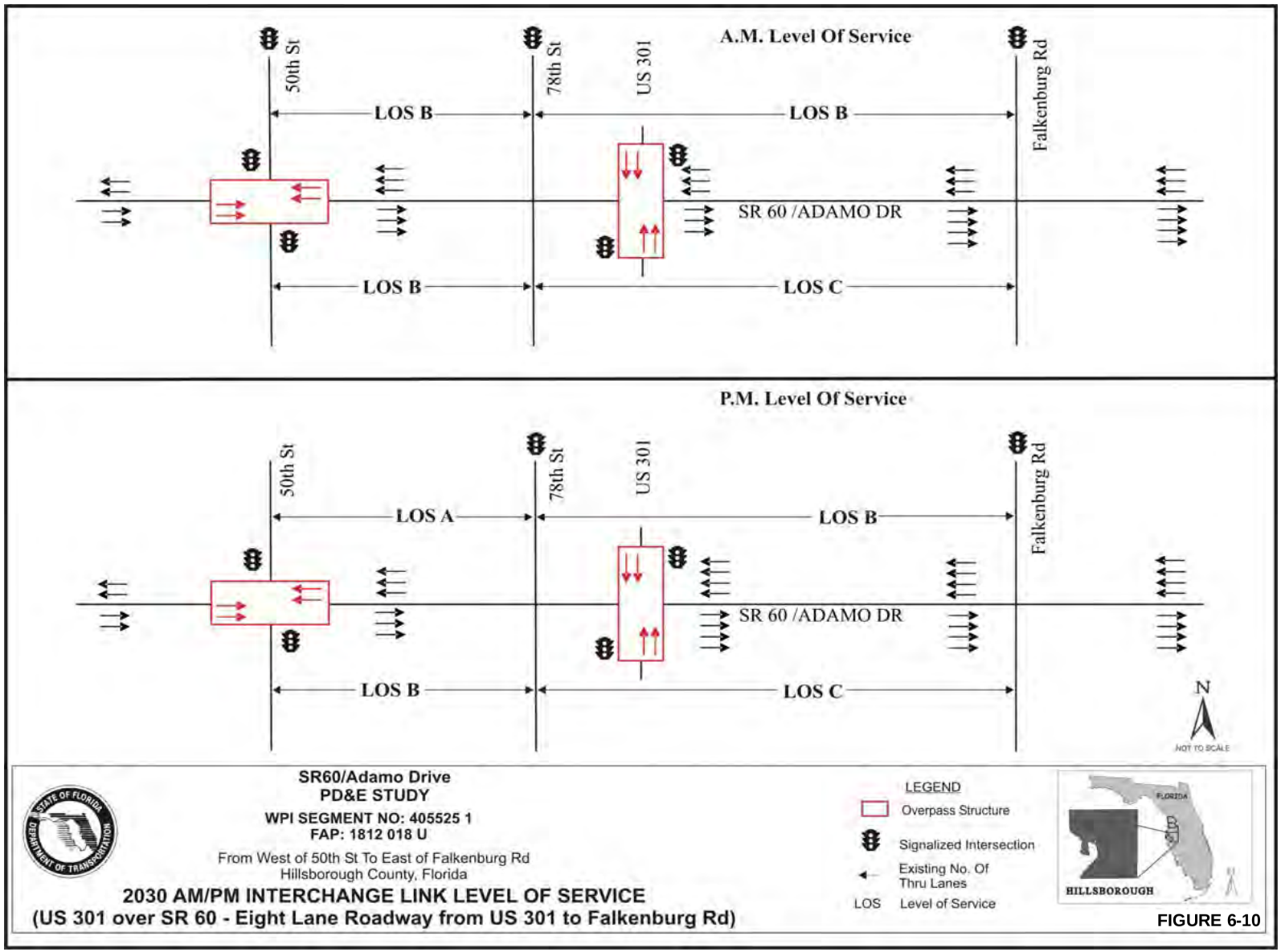


Figure 6-10: 2030 AM/PM Interchange Link Level of Service

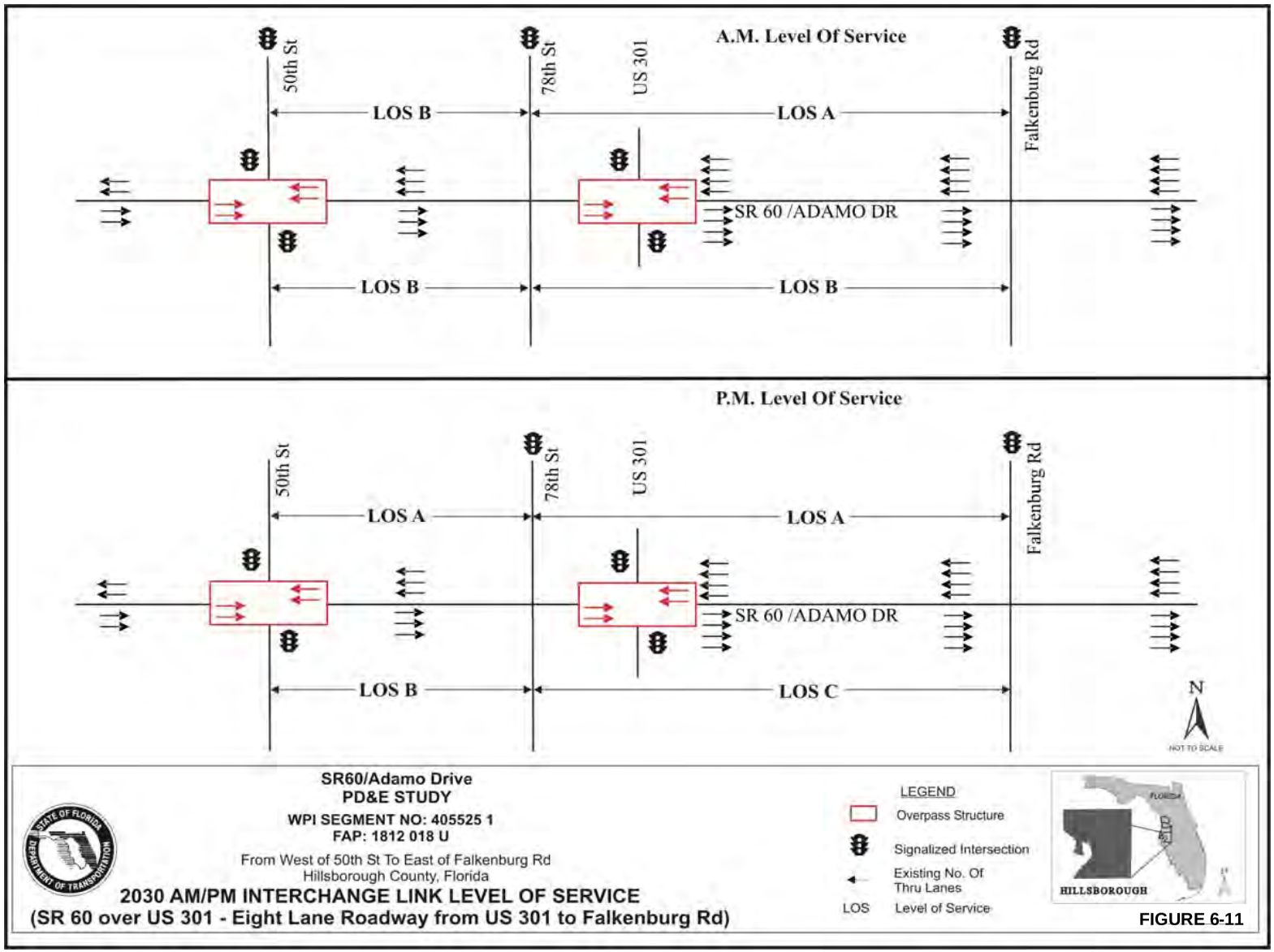


Figure 6-11: 2030 AM/PM Interchange Link Level of Service

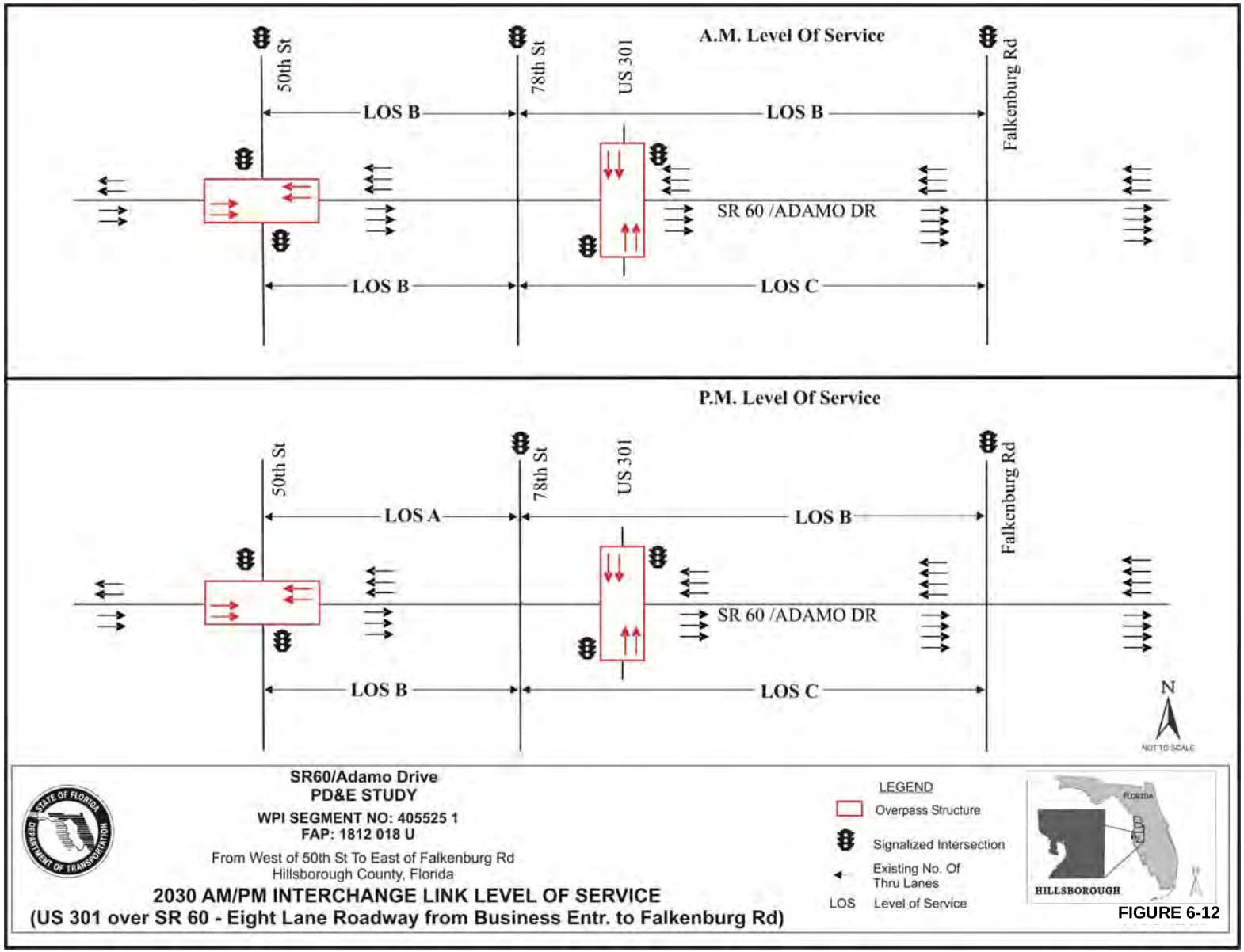


Figure 6-12: 2030 AM/PM Interchange Link Level of Service

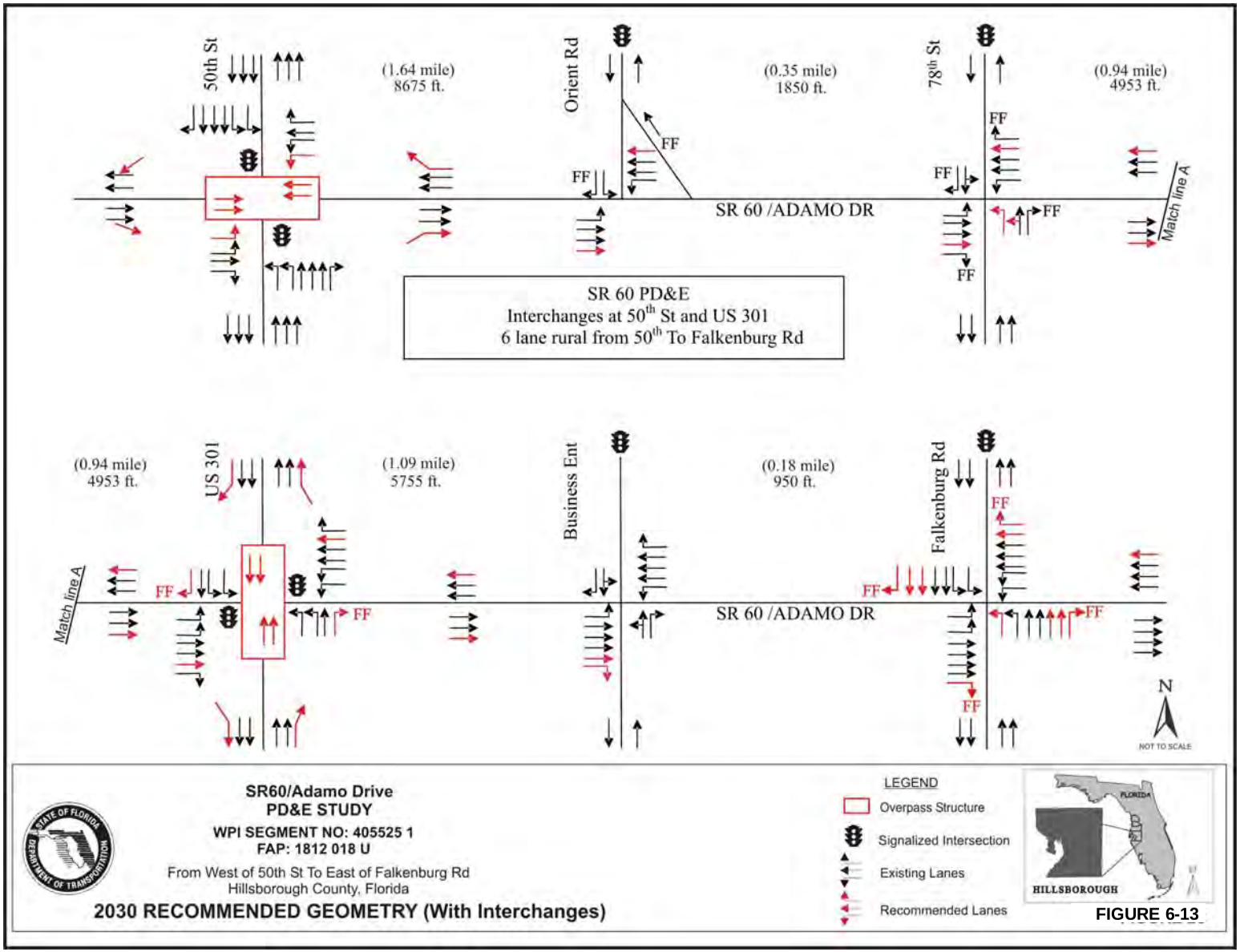


Figure 6-13: 2030 Recommended Geometry

7 CORRIDOR ANALYSIS

7.1 IMPROVEMENT OF A PARALLEL ROADWAY

A review of the corridor reveals that SR 60 is in a heavily developed and urbanized portion of Hillsborough County. Located immediately south of SR 60 is the Lee Roy Selmon Crosstown Expressway, an east/west toll facility operated by the Tampa Hillsborough Expressway Authority. This facility is also being expanded to address travel demand in the area and would not be a viable alternative to providing access to the businesses along SR 60. To the north, the first major east-west facility is SR 574, which is located over 1 mile to the north. While SR 574 is also experiencing congestion and continued growth, its location does not serve the destinations that exist and are proposed for the SR 60 corridor. As a result, there are no other parallel roadway which could be improved to address the needs or future demands of the SR 60 corridor.

7.2 DEVELOPMENT OF A NEW CORRIDOR

Due to the development of this area of Hillsborough County, building a new alignment would result in a large number of social and environmental impacts. South of SR 60 is the Lee Roy Selmon Crosstown Expressway and south of that is the Palm River. A new corridor cannot be developed within this area without significant impact to Palm River and potentially McKay Bay. To the north, the area is intensely developed and no new corridor could be provided.

7.3 IMPROVEMENT IN THE EXISTING CORRIDOR

The existing SR 60 corridor remains a viable corridor. Utilizing the existing corridor will minimize adverse impacts to area land uses and maximize the use of the existing SR 60 right-of-way and pavement.

7.4 CONCLUSION

The corridor analysis forms the basis for the selection of viable corridors to be carried forward for detailed engineering, environmental and cost evaluations in developing alignments. Based on the evaluations in Sections 7.1, 7.2, and 7.3, the existing corridor throughout the project area is the only viable corridor and will minimize impacts on the community, meet the future travel demand and improve safety of an improved SR 60.

8 ALTERNATIVES ANALYSIS

To develop an improved roadway facility for SR 60, the following factors were taken into consideration:

- Engineering - Improve mobility of the facility by reducing travel time and congestion and improving safety;
- Environmental - Preserve, protect and/or enhance the natural and social environment;
- Public Involvement - Produce a plan that is acceptable to by the public, elected officials and relevant agencies that is consistent with the adopted transportation goals; and,
- Economic Factors - Develop a cost-effective facility that assures the overall benefits warrant their overall costs throughout the corridor.

8.1 NO-BUILD ALTERNATIVES

The No-Build Alternative would involve postponing or foregoing major improvements to the existing roadway beyond the Design Year 2030. This involves leaving existing SR 60 as-is, providing only routine maintenance and safety improvements as required.

The advantages of the No-Build Alternative include the following:

- No new construction costs;
- No disruption to existing land use due to construction;
- No disruption to traffic due to construction activities;
- No right-of-way acquisition or relocations; and
- No disturbance to natural resources.

The disadvantages of the No-Build Alternative include the following:

- Increase in roadway maintenance and user costs;
- Increase in traffic congestion;
- Deterioration of air quality; and
- Inconsistency with local transportation plans between US 301 and Falkenburg Road.

These advantages and disadvantages, along with other criteria established will be used in the evaluation process with the build alternatives. The No-Build Alternative will remain a viable alternative throughout the PD&E Study.

8.2 TRANSPORTATION SYSTEM MANAGEMENT

The Transportation System Management (TSM) is a set of actions designed to achieve short-range cost effective transportation improvements. The four categories of TSM improvements are:

- Improve the efficiency of an existing roadway;
- Reduce vehicle use in congested areas;
- Improve transit service; and
- Improve internal transit management efficiency.

TSM improvements were considered but were found to not show a benefit or improve the operational function of the intersections studied. Based on the need identified in the Draft Traffic Technical Memorandum[1], the travel demand within the corridor is such that short-range TSM alternatives would not

improve the operations of the roadways within the corridor. No interim improvements are included as part of the MPO Long Range Transportation Plan[2].

8.3 BUILD ALTERNATIVES

The following procedure was utilized to develop and evaluate viable alternative alignments.

Step 1: The project was divided into four segments.
Step 2: Typical sections were developed using design criteria.
Step 3: Alternative alignments were developed using typical sections.
Step 4: The Build Alternatives were evaluated.
Step 5: A Recommended Alternative was selected.

The study area has been extended beyond the project limits from 50th Street to Falkenburg Road, with a length of 4.22 miles, to west of 50th Street and east of Falkenburg Road to Interstate 75 with a total length of 5.47 miles, as shown in **Figure 8-1**. The study area was extended both east and west due to the alternatives evaluated. The grade separations at 50th Street required the study limits to extended to the west to tie back into the existing alignment and the eight-lane alternative east of US 301 required the extension to the east to tie in with the existing eight-lane section under I-75. These overall project limits have been divided into four segments to assist in the design and evaluation of the alternatives. The limits of Segment 1 and Segment 3 were established based on the tie down points of the grade separations.

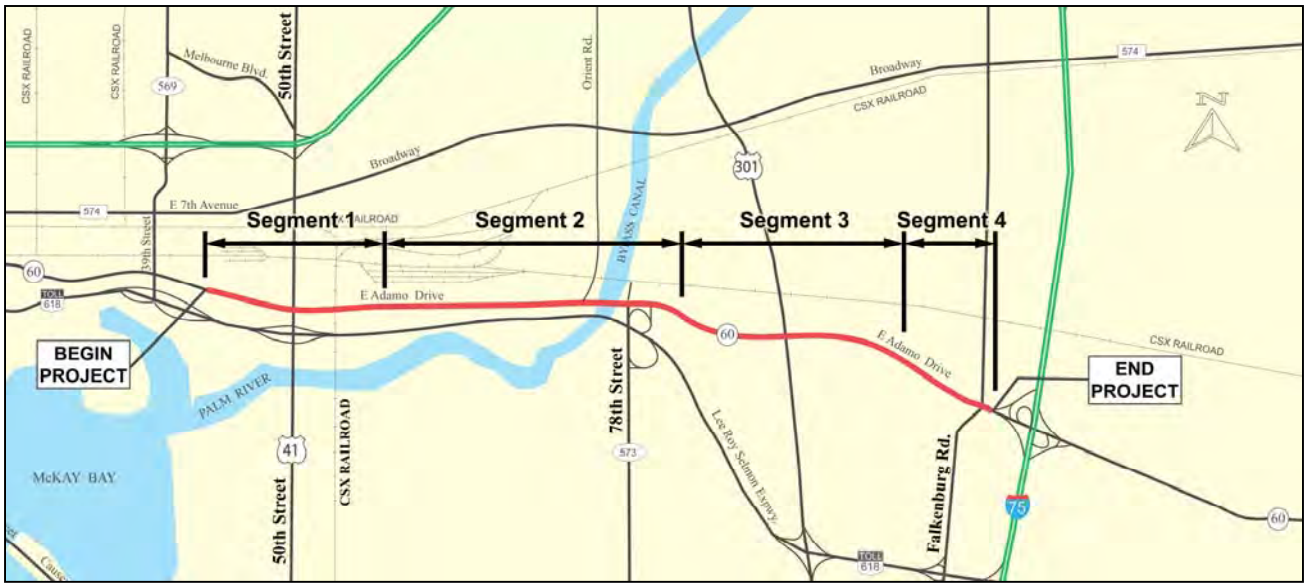


Figure 8-1: Project Location Segment Map

Segment 1 extends from the western terminus of the project west of 50th Street to east of the CSX Railroad and the existing right-of-way varies from 138 feet to 228 feet. This segment is 1.53 miles in length and is bordered by existing industrial facilities to the north and south. This segment contains the signalized intersection with 50th Street and the at-grade crossing with CSX Railroad with existing crossing lights and gates. The at-grade CSX Railroad crossing with SR 60 is 1,360 feet east of 50th Street. At this location, approximately 30 trains per day cross SR 60.

Segment 2 extends east of the CSX Railroad to just east of 78th Street and the existing right-of-way varies from 200 feet to 215 feet. This segment is 1.70 miles in length and is bordered by existing industrial facilities to the north and south. This segment contains existing signalized intersections with Orient Road and 78th Street. There is a crossing of the Palm River within this segment. SR 60 has a direct connection to the Lee Roy Selmon Crosstown Expressway westbound on-ramp. On the east end of this segment, the CSX Railroad has parallel tracks approximately 1300 feet north of SR 60. Orient Road has a grade separation over the railroad tracks while 78th Street has an at-grade crossing.

Segment 3 extends from just east of 78th Street to east of Philip Lee Boulevard and the existing right-of-way varies from 132 feet to 200 feet. This segment is 1.47 miles in length and is bordered by existing industrial facilities to the west of US 301 and Urban Mixed/Light Industrial facilities to the east. The east end of the segment is comprised mainly of car dealerships on both north and south sides of SR 60. Approximately 1,300 feet north of the signalized intersection with SR 60, US 301 has an existing grade separation over the CSX Railroad.

Segment 4 extends east of Philip Lee Boulevard to east of Falkenburg Road and the existing right-of-way varies from 182 feet to 300 feet. This segment is 0.77 miles in length and is bordered by Urban Mixed/Light Industrial facilities to the north and south. This segment contains two signalized intersections at the Business Entrance and Falkenburg Road.

8.3.1 Typical Sections

The following section describes the typical sections used in the development of the alternatives. Below the typical section name, the alternative or alternatives that utilize that typical and the segments to which they apply are listed. A detailed description of each alternative is located in section 8.3.2.

SIX LANE RURAL TYPICAL SECTION

Alternative 1 (Segments 1, 2, 3 and 4)

The proposed typical section consists of a 40-foot median with three 12-foot travel lanes, 10-foot unpaved inside shoulders and 10-foot outside shoulders with 5-foot paved in each direction. This typical section has a design speed of 55 mph. Drainage swales will be located on both sides of the roadway and the right-of-way required for this section would be 200-feet, as shown in **Figure 8-2**. The existing four lane rural section will be widened to the outside, one lane in each direction to maintain the existing 40-foot median. The existing four lanes will be milled and variable depth overlay will be used if necessary. New shoulders, drainage swales and driveway connections will be constructed or modified to adjacent properties.

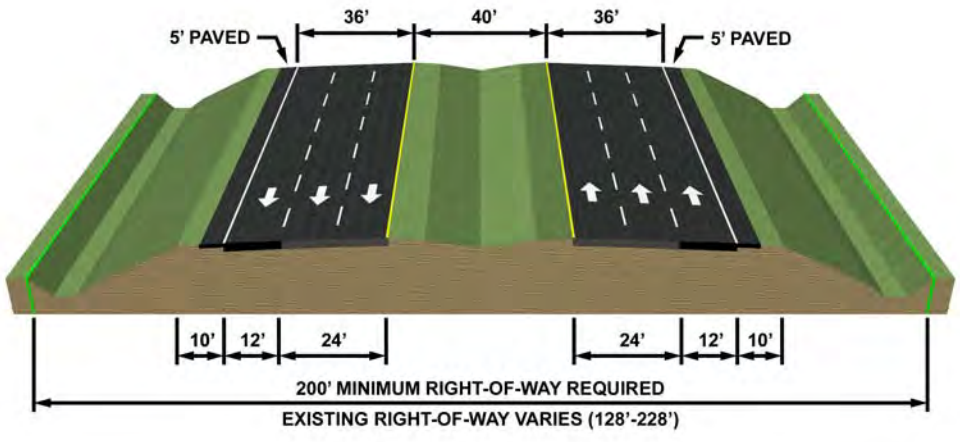


Figure 8-2: Six Lane Rural Typical Section

SIX LANE RURAL TYPICAL SECTION WITH SIDEWALKS

Alternative 1 (Segments 1, 2, 3 and 4)

The proposed typical section consists of a 40-foot median with three 12-foot travel lanes, 5-foot sidewalks, 10-foot unpaved inside shoulders and 10-foot outside shoulders with 5-foot paved in each direction. This typical section has a design speed of 55 mph. Drainage swales will be located on both sides of the roadway and the right-of-way required for this section would be 200-feet, as shown in **Figure 8-3**. The existing four lane rural section will be widened to the outside, one lane in each direction to maintain the existing 40-foot median. The existing four lanes will be milled and variable depth overlay will be used if necessary. New shoulders, drainage swales and driveway connections will be constructed or modified to adjacent properties.

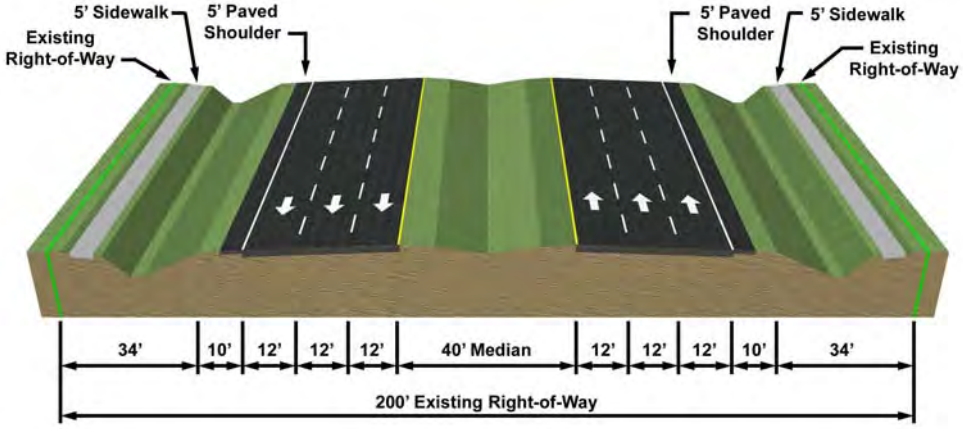


Figure 8-3: Six Lane Rural Typical Section with sidewalks

REDUCED SIX LANE RURAL TYPICAL SECTION WITH SIDEWALKS

The proposed typical section consists of a 40-foot median with three 12-foot travel lanes, 5-foot sidewalks, 10-foot unpaved inside shoulders and 10-foot outside shoulders with 5-foot paved in each direction. This typical section has a design speed of 55 mph. Drainage swales will be located on both sides of the roadway and the right-of-way required for this section would be 182-feet, as shown in **Figure 8-4**. The widening of SR 60 will be needed on both sides of the westbound lanes and on the south side of the eastbound lanes for the additional through lane. The eastbound lanes will also require widening to the north for right-turn lanes. The alternative when constructed will be located in the center of the existing 182 feet of right-of-way. The existing four lanes will be milled and variable depth overlay will be used if necessary. New shoulders, drainage swales and driveway connections will be constructed or modified to adjacent properties. This reduced six lane rural typical section should only be used when there is less than 200 feet of existing right-of-way.

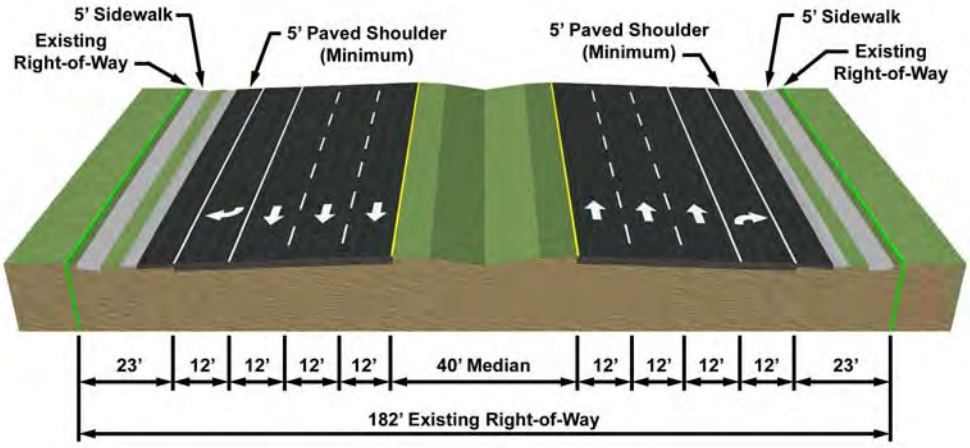


Figure 8-4: Reduced Six Lane Rural Typical Section with sidewalks

EIGHT LANE URBAN TYPICAL SECTION

Alternative 2 (Segments 3 and 4)

The proposed typical section consists of a 30-foot raised median with four 12-foot travel lanes, 4-foot bicycle lanes, curb and gutter, grass utility strip and 5-foot sidewalks on both sides. This typical section has a design speed of 45 mph. The right-of-way required for this section would be 170-feet, as shown in **Figure 8-5**. The existing four-lane rural section will be widened to the inside and outside in each direction to provided a 30-foot raised median. The existing pavement will be milled and variable depth overlay will be used to provide a longitudinal slope necessary for a closed drainage system to operate. New curb and gutter, sidewalks and connections to adjacent properties will be constructed.

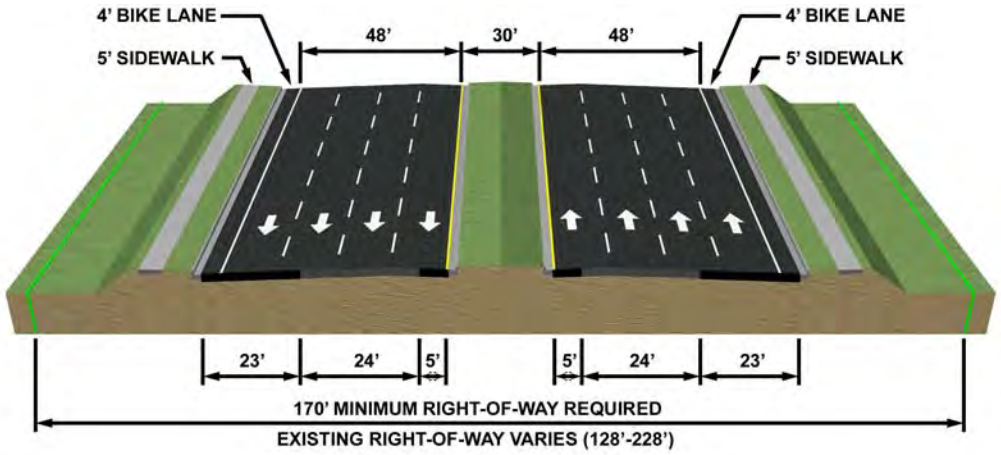


Figure 8-5: Eight Lane Urban Typical Section

8.3.2 Alternative Alignments

The design alternatives for this project were developed in two steps. The first step was to develop the at-grade alternatives for the entire project. The next step was to develop options that could be incorporated with the at-grade alternatives to improve operations and/or safety.

Step 1 - At-grade Alternatives

Two alternatives were developed for this project. Alternative 1 was developed using the six-lane rural at-grade typical section from west of 50th Street to east of Falkenburg Road. Alternative 2, was developed to address the additional travel demand from west of US 301 to east of Falkenburg Road. Alternative 2 is an eight-lane urban at-grade typical section.

Step 2 - Options

Four options were developed for this project. The first option that could be incorporated with the at-grade alternatives was adding free flow right turn lanes to the signalized intersections at 50th Street, Orient Road and US 301. The second option was adding a grade separation of SR 60 over the CSX Railroad. The third option was to add a Single Point Urban Interchange (SPUI) at 50th Street in conjunction with the grade separation at the CSX Railroad. The last option was to add a SPUI at the US 301 intersection.

The following describes the alternatives designed and evaluated for each segment of the project. All the alternatives are located in the attached CD.

8.3.2.1 Segment 1

One viable alternative has been developed for this segment, which utilizes the six lane rural typical section, denoted by Alternative 1. Seven modifications were made to Alternative 1, which included free flow right-turns, sidewalks, a grade separation of the CSX Railroad and a grade separation of both 50th Street and the

CSX Railroad. The alternative is described first and then the seven modifications will discuss the changes to the alternative. This segment does not have an access management plan because it is not contained in the current MPO LRTP. Therefore no median openings have been shown on these alternatives except for signalized intersections or proposed openings due to grade separations.

Alternative 1 consists of six lanes at-grade. At the intersection of 50th Street, there are three through lanes, two left-turn lanes, and a right-turn lane in each of the four quadrants. The extension of the two left-turn lanes from southbound 50th Street to eastbound SR 60 requires 50th Street to be widened for approximately 1,500 feet north of SR 60. Right-of-way will be required for the right-turn lanes in the northeast and northwest quadrants. New equipment will need to be installed in both directions at the railroad crossing.

Alternative 1 with free-flow right-turns consists of six lanes at-grade. At the intersection of 50th Street there are free-flow right-turn lanes in all four quadrants. Additional right-of-way will be required for the right-turn lanes in all quadrants except the southwest quadrant.

Alternative 1-A consists of six lanes at-grade with a grade separation over the CSX Railroad for mainline traffic. There are two-way frontage roads on the north and south side of SR 60 which have at-grade railroad crossings to access local properties. The frontage roads intersect with SR 60 approximately 2,700 feet east of 50th Street. The bridge over the CSX Railroad consists of three 12-foot travel lanes with 10-foot inside and outside shoulders in each direction. The structure also spans a connection of the north and south side frontage roads to allow circulation without affecting SR 60 mainline traffic. Traveling westward along SR 60 from the grade separation over CSX Railroad to 50th Street, the downgrade would tie-in at the intersection of 50th Street. This intersection may require additional advanced warning signage on the approach to the bridge over the CSX Railroad for westbound SR 60. Additional right-of-way will be required for the frontage roads north and south of SR 60. New equipment for the railroad crossing will need to be installed for both the north and south frontage roads in each direction.

Alternative 1-A with free flow right-turns consists of six lanes at-grade with a grade separation at the CSX Railroad for mainline traffic. This includes the same geometry as Alternative 1-A, with the addition of free-flow right-turn lanes in all four quadrants at the intersection of 50th Street. Additional right-of-way will be required for the right-turn lanes in all quadrants except the southwest quadrant.

Alternative 1-B consists of a SPUI at 50th Street, a grade separation of mainline SR 60 over the CSX Railroad and one-way frontage roads on the north and south sides of SR 60 that require crossing the railroad at-grade. The bridge over the CSX Railroad consists of two 12-foot travel lanes westbound, two 12-foot travel lanes and one 15-foot on-ramp eastbound with 6-foot inside and 10-foot outside shoulders in both directions. The structure also spans a connection of the north and south side frontage roads to allow circulation without affecting mainline traffic. The SPUI has single lane on-and off-ramps from SR 60 except for the westbound off-ramp, which has two lanes. These ramps function as the access to local properties, and widens to two lanes to allow right-in and right-out turning movements for adjacent properties. There are three through lanes, two left-turn lanes, and a right-turn lane along 50th Street with two left-turn lanes and one through / right-turn lane from the SR 60 ramps. The SPUI bridge at 50th Street consists of two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. There is a provision for a u-turn movement under the east end of the bridge over 50th Street. The third outside lane, in both directions for the six-lane section, is added and dropped at the ramps west of 50th Street. Additional right-of-way will be required for the ramps/frontage roads on the north and south of SR 60. New equipment for the railroad crossing will need to be installed for both the north and south frontage roads in each direction.

Alternative 1-B modified consists of a SPUI at 50th Street, a grade separation of mainline SR 60 over the CSX Railroad and one-way frontage roads on the north and south sides of SR 60 that require crossing the railroad at-grade. The bridge over the CSX Railroad consists of two 12-foot travel lanes with 6-foot inside

and 10-foot outside shoulders in both directions. The structure also spans two connections of the north and south side frontage roads to allow circulation without affecting mainline traffic. The SPUI has single lane on- and off-ramps from SR 60 except for the westbound off-ramp, which has two lanes. These ramps function as the access to local properties, and widens to two lanes to allow right-in and right-out turning movements for adjacent properties. There are three through lanes, two left-turn lanes, and a right-turn lane along 50th Street with two left-turn lanes and one through / right-turn lane from the SR 60 ramps. The SPUI bridge at 50th Street consists of two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. There is a provision for a u-turn movement under the east end of the bridge over 50th Street. The third outside lane, in both directions for the six-lane section, is added and dropped at the ramps west of 50th Street. Additional right-of-way will be required for the ramps/frontage roads on the north and south of SR 60. New equipment for the railroad crossing will need to be installed for both the north and south frontage roads in each direction.

Alternative 1-B modified with sidewalks consists of a SPUI at 50th Street, a grade separation of mainline SR 60 over the CSX Railroad and one-way frontage roads on the north and south sides of SR 60 that require crossing the railroad at-grade. The bridge over the CSX Railroad consists of two 12-foot travel lanes with 6-foot inside and 10-foot outside shoulders in both directions. The structure also spans two connections of the north and south side frontage roads to allow circulation without affecting mainline traffic. The SPUI has single lane on-and off-ramps from SR 60 except for the westbound off-ramp, which has two lanes. These ramps function as the access to local properties, and widens to two lanes to allow right-in and right-out turning movements for adjacent properties. There are three through lanes, two left-turn lanes, and a right-turn lane along 50th Street with two left-turn lanes and one through / right-turn lane from the SR 60 ramps. The SPUI bridge at 50th Street consists of two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. There is a provision for a u-turn movement under the east end of the bridge over 50th Street. The third outside lane, in both directions for the six-lane section, is added and dropped at the ramps west of 50th Street. Additional right-of-way will be required for the ramps/frontage roads on the north and south of SR 60. New equipment for the railroad crossing will need to be installed for both the north and south frontage roads in each direction. The sidewalk is located along the north side of SR 60 west of 50th Street. Sidewalks are locate along all ramps/frontage roads and on both sides of SR 60 east of 50th Street.

Alternative 1-C consists of a SPUI at 50th Street and a grade separation over the CSX Railroad with no at-grade crossings of the railroad. The frontage roads function as a one-way system on the west side of the CSX railroad and as a two-way system on the east side. The bridge over the CSX Railroad consists of two 12-foot travel lanes and two 12-foot off-ramps westbound, two 12-foot travel lanes and one 15-foot on-ramp eastbound, with 6-foot inside and 10-foot outside shoulders in each direction. The bridge for the CSX Railroad grade separation was extended to allow circulation between the north and south side of the frontage roads to eliminate all at grade crossings with the railroad. The 50th Street SPUI has single lane on and off ramps from SR 60 except for the westbound off ramp, which has two lanes. These ramps function as the access to local properties, and widen to two lanes to allow right-in and right-out turning movements for surrounding properties. There are three through lanes, two left-turn lanes, and a right-turn lane along 50th Street with two left-turn lanes and one through / right-turn lane from the SR 60 ramps. The SPUI bridge consists of two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. There is a provision for a u-turn movement under the east end of the bridge over 50th Street. The third outside lane, in both directions for the six-lane section, is added and dropped at the ramps west of 50th Street. The intersection for the frontage roads, east of the CSX Railroad, is located 2,700 feet east of 50th Street to access local properties. Additional right-of-way will be required for the ramps/frontage roads on the north and south of SR 60.

8.3.2.2 Segment 2

One viable alternative has been developed for this segment, which utilizes the six-lane rural typical section, denoted by Alternative 1. Two modifications were made to Alternative 1, which include adding free-flow right-turn lanes and sidewalks. This segment does not have an access management plan because it is not

currently contained in the MPO LRTP. Therefore no median openings have been shown on these alternatives except for signalized intersections.

Alternative 1 consists of six lanes at-grade with two signalized intersections at Orient Road and 78th Street. At the intersection of Orient Road, there are three through lanes and a left-turn lane in each direction with a right-turn lane from westbound to northbound. Orient Road is a two-lane section that opens up to four lanes at the intersection with one left-turn and one right-turn lane to SR 60. Reconstruction of Orient Road is required for approximately 600 feet north of SR 60. The proposed structure over Palm River will have four 12-foot lanes eastbound (three through lanes and one right-turn lane) and three 12-foot lanes westbound with 10-foot inside and outside shoulders in each direction. At the intersection of 78th Street, there are three through lanes and a left-turn lane in each direction. There is an eastbound to southbound right-turn lane with a shared through / right-turn lane from westbound to northbound. There are two northbound lanes on 78th Street with a left-turn and a shared through / right-turn lane northbound south of SR 60. North of SR 60, 78th Street is two lanes with two-way operations. No additional right-of-way will be needed for these roadway improvements.

Alternative 1 with sidewalks consists of six lanes at-grade with two signalized intersections at Orient Road and 78th Street. At the intersection of Orient Road, there are three through lanes and a left-turn lane in each direction with a right-turn lane from westbound to northbound. Orient Road is a two-lane section that opens up to four lanes at the intersection with one left-turn and one right-turn lane to SR 60. Reconstruction of Orient Road is required for approximately 600 feet north of SR 60. The proposed structure over Palm River will have four 12-foot lanes eastbound (three through lanes and one right-turn lane) and three 12-foot lanes westbound with 10-foot inside and outside shoulders in each direction. At the intersection of 78th Street, there are three through lanes and a left-turn lane in each direction. There is an eastbound to southbound right-turn lane with a shared through / right-turn lane from westbound to northbound. There are two northbound lanes on 78th Street with a left-turn and a shared through / right-turn lane northbound south of SR 60. North of SR 60, 78th Street is two lanes with two-way operations. No additional right-of-way will be needed for these roadway improvements.

Alternative 1 with free-flow right-turns consists of six lanes at-grade with two signalized intersections at Orient Road and 78th Street. At the intersection of Orient Road, there is a free-flow right-turn lane from southbound to westbound. Additional right-of-way is required along the north side of SR 60.

8.3.2.3 Segment 3

Two viable at-grade alternatives have been developed for this segment. Alternative 1 utilizes the six-lane rural typical section and Alternative 2 utilizes the eight-lane urban typical section east of US 301. Six modifications were made to Alternative 1 and four modifications were made to Alternative 2, which include free flow right-turns, sidewalks and grade separations at US 301. The west end of this segment west of US 301 does not have an access management plan because it is not contained within the MPO LRTP. An access management plan has been prepared from US 301 to Falkenburg Road, which is currently programmed for funding and median openings have been shown for the following alternatives.

Alternative 1 consists of six lanes at-grade with a signalized intersection at US 301. There are three through lanes, two left-turn lanes and a right-turn lane in all four quadrants. The improvements to US 301 begin 850 feet south of SR 60 and extend north of SR 60 for 1,150 feet, just south of the structure over the CSX Railroad. Right-of-way will be required in the southeast quadrant of the US 301 intersection and on the east end of the segment both north and south of SR 60.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative, the full median opening at Brandon Dodge Entrance (Sta. 68+60) will be closed, the full median opening at Wayne Place will be changed to a

westbound directional median opening to Brandon Honda (Sta. 74+10), the full median opening at S. Ware Boulevard (Sta.83+10) will remain and the two full median openings at Currie Davis Drive (Sta. 92+50) and Philip Lee Boulevard (Sta. 101+60) will be changed to dual directional median openings.

Alternative 1 modified with sidewalks consists of six lanes at-grade with a signalized intersection at US 301. There are three through lanes, two left-turn lanes and a right-turn lane in all four quadrants. The improvements to US 301 begin 850 feet south of SR 60 and extend north of SR 60 for 1,150 feet, just south of the structure over the CSX Railroad. Right-of-way will be required in the southeast quadrant of the US 301 intersection.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative, the full median opening at Brandon Dodge Entrance (Sta. 68+60) will be closed, the full median opening at Wayne Place will be changed to a westbound directional median opening to Brandon Honda (Sta. 74+10), the full median opening at S. Ware Boulevard (Sta.83+10) will remain and the two full median openings at Currie Davis Drive (Sta. 92+50) and Philip Lee Boulevard (Sta. 101+60) will be changed to dual directional median openings.

Alternative 2 consists of eight lanes at-grade with a curb and gutter closed drainage system and one signalized intersection at US 301. This segment begins at the west end as a six lane rural alternative with an open drainage system and then transitions to an eight lane urban section with curb and gutter closed drainage system approximately 1,900 feet west of US 301. At the intersection of US 301, there are four through lanes, two left-turn lanes and a right-turn lane in all four quadrants. The improvements to US 301 extend 1,500 feet south and 2,400 feet north of SR 60. A new southbound structure over the CSX railroad will be required while the northbound structure can be widened. Right-of-way will be required in the northwest and southeast quadrants of the US 301 intersection.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative, the full median opening at Brandon Dodge Entrance (Sta. 68+60) will be closed, the full median opening at Wayne Place (Sta. 74+10) will be changed to a dual directional median opening, the full median opening at S. Ware Boulevard (Sta.83+10) will remain, the full median opening at Currie Davis Drive (Sta. 92+50) will be changed to a dual directional median opening and the full median opening at Philip Lee Boulevard (Sta. 101+60) will remain.

Alternative 2 with free-flow right-turns consists of eight lanes with a curb and gutter closed drainage system and one signalized intersection at US 301 with free-flow right-turn lanes. Additional right-of-way would be required in all four quadrants of this intersection due to the addition of the free-flow right-turns.

Alternative 1-A consists of six lanes at-grade on SR 60 and a SPUI over US 301. The grade separation has four lanes over US 301 and free-flow right-turn lanes at-grade at the US 301 intersection. The structure has two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. Two lane off-ramps and single lane on-ramps allow the adding and dropping of lanes to transition from a six lane at-grade section to a four-lane grade separation over US 301. These ramps function as the access to local properties. All ramps have been developed to be two lanes after the ramp gore to allow right-in and right-out turning movements to access adjacent properties. The four-lane bridge over US 301 is approximately 1,400 feet in length. To minimize right-of-way requirements, the left-turn lanes on the ramps to US 301 have been pulled in under the bridge. The ramps at US 301 consist of two left-turn lanes, one through lane and a free-flow right-turn lane. The northbound and southbound approach of US 301 has three through lanes, two left-turn lanes and a right-turn lane. The improvements for US 301 extend 1,500 feet south and 2,450 feet north of SR 60. To the north, the US 301 bridge over the CSX Railroad will require a new southbound structure, while the northbound structure can be widened. Additional right-of-way would be required in all four quadrants of the US 301 intersection.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative, the four full median openings at Brandon Dodge Entrance (Sta. 68+60), Wayne Place (Sta. 74+10), S. Ware Boulevard (Sta.83+10) and Currie Davis Drive (Sta. 92+50) will all be closed and the full median opening at Philip Lee Boulevard (Sta. 101+60) will be changed to a dual directional median opening.

Alternative 2-A consists of a SPUI that carries four through lanes on SR 60 over US 301 with six lanes at-grade west and eight lanes at-grade east of US 301. Free flow right-turn lanes are provided from SR 60 to US 301. The grade separation is similar to Alternative 1-A. The structure has two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. There are two lane off-ramps and on-ramps in all quadrants, with the exception of a single lane on-ramp westbound. This allows the transition from a six-lane and eight-lane at-grade section to a four-lane grade separation over US 301 by adding and dropping lanes at the interchange. These ramps also serve as access to local properties. The four-lane cantilever bridge over US 301 is approximately 1,400 feet in length. The cantilever bridge is utilized to minimize right-of-way requirements by allowing the left-turn lanes to US 301, to be pulled in under the bridge. The ramps at US 301 consist of two left-turn lanes, one through lane and a free-flow right-turn lane. The northbound and southbound approach of US 301 has three through lanes, two left-turn lanes and a right-turn lane. The improvements for US 301 extend 1,500 feet south and 2,450 feet north of SR 60 and will require a new southbound US 301 structure over the CSX Railroad while the northbound structure can be widened. Additional right-of-way would be required in all four quadrants of the US 301 intersection.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative all five full median openings at Brandon Dodge Entrance (Sta. 68+60), Wayne Place (Sta. 74+10), S. Ware Boulevard (Sta.83+10), Currie Davis Drive (Sta. 92+50) and Philip Lee Boulevard (Sta. 101+60) will be closed.

Alternative 1-B consists of six lanes at-grade on SR 60 with a SPUI that carries four through lanes of US 301 over SR 60 with free-flow right-turn lanes at-grade at the intersection. The ramps for the SPUI also provide access to local properties and allow right-in and right-out turning movements. The four-lane cantilever bridge over SR 60 is approximately 1050 feet in length. The bridge has two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. The cantilever bridge is utilized to minimize right-of-way requirements by allowing the left-turn lanes to SR 60, to be pulled in under the bridge. The ramps at SR 60 consist of two left-turn lanes, one through lane and a free-flow right-turn lane. The westbound and eastbound approach of SR 60 has three through lanes, two left-turn lanes and a right-turn lane. The improvements to US 301 extend 1,700 feet to the south and 3,000 feet to the north of SR 60 and will require the US 301 bridges over the CSX Railroad to be replaced. The proposed bridges over the CSX Railroad are separated to assist in the maintenance of traffic due to the difference in the vertical profiles. Additional right-of-way will be required in all four quadrants.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative, the full median opening at Brandon Dodge Entrance (Sta. 68+60) will be closed, the full median opening at Wayne Place will be changed to a westbound directional median opening to Brandon Honda (Sta. 74+10), the full median opening at S. Ware Boulevard (Sta.83+10) will remain and the two full median openings at Currie Davis Drive (Sta. 92+50) and Philip Lee Boulevard (Sta. 101+60) will be changed to dual directional median openings.

Alternative 1B modified consists of six lanes at-grade on SR 60 with a SPUI that carries four through lanes of US 301 over SR 60 with free-flow right-turn lanes at-grade at the intersection. The ramps for the SPUI also provide access to local properties and allow right-in and right-out turning movements. The four-lane cantilever bridge over SR 60 is approximately 1,050 feet in length. The bridge has two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. The cantilever bridge is utilized to minimize right-

of-way requirements by allowing the left-turn lanes to SR 60, to be pulled in under the bridge. The ramps at SR 60 consist of two left-turn lanes, one through lane and a free-flow right-turn lane. The westbound and eastbound approach of SR 60 has three through lanes, two left-turn lanes and a right-turn lane. The improvements to US 301 extend 1,700 feet to the south and 3,000 feet to the north of SR 60 and will require the US 301 bridges over the CSX Railroad to be replaced. Additional right-of-way will be required along US 301.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative, the full median opening at Brandon Dodge Entrance (Sta. 68+60) will be closed, the full median opening at Wayne Place will be changed to a westbound directional median opening to Brandon Honda (Sta. 74+10), the full median opening at S. Ware Boulevard (Sta.83+10) will remain and the two full median openings at Currie Davis Drive (Sta. 92+50) and Philip Lee Boulevard (Sta. 101+60) will be changed to dual directional median openings.

Alternative 1B modified right with sidewalks consists of six lanes at-grade on SR 60 with a SPUI that carries four through lanes of US 301 over SR 60 with free-flow right-turn lanes at-grade at the intersection. The alignment of US 301 is shifted to the right (east) holding the existing west right-of-way line. The ramps for the SPUI also provide access to local properties and allow right-in and right-out turning movements. The four-lane cantilever bridge over SR 60 is approximately 1,050 feet in length. The bridge has two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. The cantilever bridge is utilized to minimize right-of-way requirements by allowing the left-turn lanes to SR 60, to be pulled in under the bridge. The ramps at SR 60 consist of two left-turn lanes, one through lane and a free-flow right-turn lane. The westbound and eastbound approach of SR 60 has three through lanes, two left-turn lanes and a right-turn lane. The improvements to US 301 extend 1,700 feet to the south and 3,000 feet to the north of SR 60 and will require the US 301 bridges over the CSX Railroad to be replaced. Additional right-of-way will be required along the east side of US 301.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative, the full median opening at Brandon Dodge Entrance (Sta. 68+60) will be closed, the full median opening at Wayne Place will be changed to a westbound directional median opening to Brandon Honda (Sta. 74+10), the full median opening at S. Ware Boulevard (Sta.83+10) will remain and the two full median openings at Currie Davis Drive (Sta. 92+50) and Philip Lee Boulevard (Sta. 101+60) will be changed to dual directional median openings.

Alternative 2-B consists of six lanes at-grade west of US 301 and eight lanes at-grade east of US 301 with a SPUI that carries four through lanes of US 301 over SR 60 and include free-flow right-turn lanes. The improvements to US 301 are the same as Alternative 1-B. The ramps for the SPUI also provide access to local properties and allow right-in and right-out turning movements. The four-lane cantilever bridge over US 301 is approximately 1,050-feet in length. The bridge has two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. The cantilever bridge is utilized to minimize right-of-way requirements by allowing the left-turn lanes to SR 60, to be pulled in under the bridge. The ramps to SR 60 consist of two-left turn lanes, one through lane and a free-flow right-turn lane. The westbound and eastbound approach of SR 60 has three through lanes, two left-turn lanes and a right-turn lane. The improvements to US 301 extend 1,700 feet to the south and 3,000 feet north of SR 60 and will require the replacement of the US 301 structures over the CSX Railroad. Additional right-of-way will be required in all four quadrants.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative, the full median opening at Brandon Dodge Entrance (Sta. 68+60) will be closed, the full median opening at Wayne Place (Sta. 74+10) will be changed to a dual directional median opening, the full median opening at S. Ware Boulevard (Sta.83+10) will

remain, the full median openings at Currie Davis Drive (Sta. 92+50) will be changed to a dual directional median opening and the full median opening at Philip Lee Boulevard (Sta. 101+60) will remain.

Alternative 1-C consists of six lanes at-grade on SR 60 with a SPUI that carries six through lanes over US 301 and includes free-flow right-turn lanes. This is Alternative 1-A with six lanes over US 301 instead of four. The ramps for the SPUI also serve as access to local properties and allow right-in and right-out turning movements. The six-lane cantilever bridge over US 301 is approximately 1700-feet in length. The bridge has three 12-foot lanes with 10-foot inside and outside shoulders in each direction. The cantilever bridge is utilized to minimize right-of-way requirements by allowing the left-turn lanes to US 301, to be pulled in under the bridge. The ramps consist of two left-turn lanes, one through lane and a free-flow right-turn lane. The westbound and eastbound approaches of SR 60 have three through lanes, two left-turn lanes and a right-turn lane. The improvements to US 301 extend 1,700 feet to the south and 3000 feet to the north of SR 60 and will require the replacement of the US 301 structures over the CSX Railroad. Additional right-of-way will be required in all four quadrants.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative the four full median openings at Brandon Dodge Entrance (Sta. 68+60), Wayne Place (Sta. 74+10), S. Ware Boulevard (Sta.83+10) and Currie Davis Drive (Sta. 92+50) will all be closed and the full median opening at Philip Lee Boulevard (Sta. 101+60) will be changed to a dual directional median opening.

Alternative 2-C consists of six lanes at-grade west of US 301 and eight lanes at-grade east of US 301 with a SPUI that has six lanes on SR 60 grade separated over US 301 and includes free-flow right-turn lanes. This is Alternative 2-A with six lanes over US 301 instead of four. The ramps for the SPUI serve as access to local properties and allow right-in and right-out turning movements. The six-lane cantilever bridge over US 301 is approximately 1,700 feet in length. The bridge has three 12-foot lanes with 10-foot inside and outside shoulders in each direction. The cantilever bridge is utilized to minimize right-of-way requirements by allowing the left-turn lanes to US 301 to be pulled in under the bridge. The ramps at SR 60 consist of two left-turn lanes, one through lane and a free-flow right-turn lane. The westbound and eastbound approaches of SR 60 have three through lanes, two left-turn lanes and a right-turn lane. The improvements to US 301 extend 1,700 feet to the south and 3,000 feet to the north of SR 60 and will require all new structures over the CSX Railroad. Additional right-of-way will be required in all four quadrants.

The east end of this segment from US 301 to Philip Lee Boulevard currently has five full median openings. Based on the access management plan established for this alternative all five full median openings at Brandon Dodge Entrance (Sta. 68+60), Wayne Place (Sta. 74+10), S. Ware Boulevard (Sta.83+10), Currie Davis Drive (Sta. 92+50) and Philip Lee Boulevard (Sta. 101+60) will be closed.

8.3.2.4 Segment 4

Two viable at-grade alternatives have been developed for this segment. Alternative 1 utilizes the six-lane rural typical section and Alternative 2 utilizes the eight-lane urban typical section. One modification was made to Alternative 1, which included sidewalks. An access management plan has been established for this segment and median revisions have been identified for the following alternatives.

Alternative 1 consists of six lanes at-grade. The three eastbound lanes are shown connecting to the existing three through lanes west of Business Entrance. Since the existing westbound roadway currently has three lanes only minor modifications have been shown for the full median opening at Sta. 110+00. Right-of-way is required along the south side of SR 60 for the right-turn lane. There are currently three full median openings in this segment. Based on the minor improvements to this segment no median openings were changed.

Alternative 1 modified with sidewalks consists of six lanes at-grade. The three eastbound lanes are shown connecting to the existing three through lanes west of Business Entrance. Since the existing westbound roadway currently has three lanes only minor modifications have been shown for the full median opening at Sta. 110+00. No additional right-of-way will be needed for these roadway improvements. There are currently three full median openings in this segment. Based on the minor improvements to this segment no median openings were changed.

Alternative 2 consists of eight lanes at-grade. At the intersection of Business Entrance, there are four through lanes, one left-turn lane and one right-turn lane on the westbound and eastbound approaches with a left-turn and right-turn lane from the south. At the Falkenburg Road intersection, there are four through lanes, two left-turn lanes and one right-turn lane on both the westbound and eastbound approaches. Falkenburg Road has two through lanes on both approaches with two left-turn lanes from the north and one left-turn lane from the south. At the intersection of the I-75 southbound ramp and SR60, there are three left-turn lanes and two right-turn lanes from the north. No additional right-of-way will be needed for this alternative.

There are currently three full median openings in this segment. Based on the access management plan established for this alternative, the full median opening at Sta. 110+60 will be changed to a dual direction median opening and the two full median openings at Business Entrance (Sta. 119+10) and Falkenburg Road (Sta. 128+10) will remain.

8.4 EVALUATION PROCESS

8.4.1 Criteria

An evaluation matrix was developed to evaluate the Build and No-Build Alternatives, using quantifiable criteria from categories such as socioeconomic, environmental, cultural, hazardous material/petroleum contamination and cost for right-of-way, design and construction. The matrix data was developed using the proposed right-of-way for each alternative along with the base map information collected and prepared for this study. The following is a description of the criteria used in the matrix:

Number of Parcels Impacted - The number of parcels affected by the proposed alternatives. The cost for the property, administrative fees and any incurred damages are quantified under the Estimated Project Cost.

Potential Business and Residential Relocations - The number of business and residential relocations anticipated for each alternative. The cost for the relocations and damages are located under the Estimated Project Cost.

Right-of-Way - The approximate acres of right-of-way required for each alternative but do not include stormwater ponds.

Environmental Effects – The approximate effects to wetlands and potential effects to Threatened and Endangered species associated with the proposed improvements. Potential to impact archaeological and historic resources are also qualified, as well as quantification of petroleum and contamination sites.

Estimated Project Cost - Roadway right-of-way cost reflect the combination of the parcels impacted, the acreage required and the anticipated relocations. Roadway construction costs are Long Range Estimates (LRE), which include roadway, bridge and drainage components but do not include stormwater ponds. The design cost and construction engineering and inspection costs are estimated to be 15 percent of the total construction cost.

Alternatives Evaluation Matrix - The Alternatives Evaluation Matrix is provided in **Tables 8-1 and 8-2**.

8.4.2 Alternatives Evaluation

Considering discussions with the Department and the information contained in the Alternatives Evaluation Matrix, each segment was evaluated and the recommended alternatives are described in the sections that follow. These recommendations, along with the No-Build Alternative were presented at the Public Hearing.

8.4.2.1 Segment 1

Considerations:

1. All alternatives will require 3 business relocations.
2. Six lanes at-grade provide LOS E in 2030; however it appears that the delay is near the LOS D threshold (55 sec). Fails to meet LOS D between 2020 and 2025.
3. The addition of free-flow right-turns to the six-lane at-grade alternative is $3.1 million, and therefore, given the inability to quantify the additional benefit it does not appear warranted.
4. Safety and delay associated with the CSX railroad grade separation were not evaluated as part of the Draft Traffic Technical Memorandum. The range of costs for a grade separation are:

Alternative 1-A (CSX Only)	$59.2 to $62.6 million
Alternative 1-B modified & C (CSX / 50th)	$65.8 to $81.8 million

5. This segment is not included in the MPO LRTP Cost Feasible Plan.

Recommendation:

The impacts for each of the alternatives in Segment 1 are similar; they require the same number of relocations and while the impacts to the environment will vary, they likely will not affect the selection of the recommended alternative.

Also, with this Segment not being included in the MPO LRTP Cost Feasible Plan, it should be taken into account that the design year may be later than 2030. This affects the recommendation for this segment. If considering only the design year of 2030, Alternative 1 provides the best benefit in Segment 1. While we recognize the LOS D standard will not be met at 50th Street through the design year of 2030, the additional cost of providing a grade separation at this location does not appear financially warranted given the minimal additional delay identified in 2030. The addition of free-flow right-turns to this alternative would add an additional $3.1 million (14%) to the cost, and therefore given the inability to quantify the additional benefit, does not appear warranted. The total cost of this alternative is estimated to be $22.2 million.

However, beyond 2030, the operations at 50th Street are likely to continue to deteriorate with Alternative 1. Therefore a grade-separated alternative should be considered. The benefits of a grade separation at the CSX railroad on the operations of SR 60 were not evaluated in the *Draft Traffic Technical Memorandum.* However, eliminating or reducing the at-grade crossing would improve safety and delay to the motoring public. Alternatives 1-A and Alternative 1-A with free-flow right-turns take SR 60 over the CSX railroad and back to grade at the 50th Street intersection. While this can be accomplished meeting minimum standards, the approach to 50th Street from the east would require additional advanced signing due to the crest over the CSX Railroad and does not provide the safest condition. **Alternative 1-B modified with sidewalks**, which provides a grade separation of SR 60 at both the CSX Railroad and 50th Street, is recommended at a cost of $66.6 million.

This will eliminate the at-grade crossing of mainline SR 60 with CSX and provide an acceptable level of service for the SR 60 /50th Street intersection.

Table 8-1: Alternatives Evaluation Matrix

Evaluation Factors[1]	No-Build	Segment 1 West of 50th St to East of CSX Railroad								Segment 2 East of CSX Railroad to East of 78th St		
		Alternative 1								Alternative 1		
		Base	with free flow right-turns	A	A-with free flow right-turns	B	B modified		C	Base		with free flow right-turns
		at-grade		grade separation						at-grade		
		Six lanes		SR 60 over CSX railroad with frontage rds crossing CSX	SR 60 over CSX railroad with frontage rds crossing CSX	SR 60 over 50th St and CSX railroad with frontage rds crossing CSX	SR 60 over 50th St and CSX railroad with frontage rds crossing CSX		SR 60 over 50th St and CSX railroad with no at grade crossing of CSX	Six lanes		
								Sidewalk			Sidewalk	
Segment Length (miles)		1.53								1.70		
Potential Relocations												
Number of Businesses estimated to be relocated	0	3	3	3	3	3	3	3	3	1	1	1
Number of Residences estimated to be relocated	0	0	0	0	0	0	0	0	0	0	0	0
Right-of-Way Involvement												
Estimated Area of ROW to be acquired (Acres)	0	9.41	9.93	15.74	16.28	12.05	10.79	10.79	14.9	6.92	6.92	7.35
Cultural / Historic Resources Involvement												
Estimated Number of historic sites / structures within or adjacent to ROW	0	0								0		
Potential to encounter archaeological sites	None	Low								Low		
Natural Environment Involvement												
Estimated Wetlands (Acres)	0	1.85	1.85	3.63	3.63	2.04	2.04	2.04	3.11	0	0	0
Estimated Surface Waters (Acres)	0	1.11	1.14	1.58	1.79	1.64	1.16	1.16	1.66	2.12	2.12	2.12
Estimated Base Floodplain Encroachment (Acres)	0	0	0	0	0	0	0	0	0	0	0	0
Threatened/Endangered Species (Potential)	None	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Physical Environment Involvement												
Estimated number of noise sensitive sites affected	0	0	0	0	0	0	0	0	0	0	0	0
Estimated number of potential pollutant and hazardous materials contaminated sites ranked medium and high	0	7	7	8	8	8	8	8	8	13	13	13
Estimated Project Costs												
Design[2]	$0	$1,006,000	$1,043,000	$3,117,000	$3,170,000	$4,589,000	$4,338,000	$4,428,000	$4,946,000	$1,785,000	$2,167,000	$1,810,000
Right-of-Way	$0	$13,517,000	$16,279,100	$32,164,700	$35,141,800	$36,708,500	$28,242,700	$28,242,700	$38,887,600	$5,670,500	$5,670,500	$7,438,500
Construction	$0	$6,707,200	$6,956,200	$20,781,600	$21,132,600	$30,593,600	$28,918,600	$29,524,600	$32,971,600	$11,907,600	$14,449,600	$12,069,600
Construction Engineering Inspection (CEI)[2]	$0	$1,006,000	$1,043,000	$3,117,000	$3,170,000	$4,589,000	$4,338,000	$4,428,000	$4,946,000	$1,785,000	$2,167,000	$1,810,000
Estimated Total Cost[3]	**$0**	**$22,236,200**	**$25,321,300**	**$59,180,300**	**$62,614,400**	**$76,480,100**	**$65,837,300**	**$66,623,300**	**$81,751,200**	**$21,148,100**	**$24,454,100**	**$23,128,100**

(1) Includes Stormwater Management Facility impacts
(2) 15% of Construction Cost
(3) Present Day Costs - Construction Cost Aug 2004 to Feb 2005

Table 8-2: Alternatives Evaluation Matrix

Evaluation Factors[1]	No-Build	Segment 3 East of 78th St to East of Philip Lee Blvd												Segment 4 East of Philip Lee Blvd to East of Falkenburg Rd		
		Alternative 1		Alternative 2		Alternative 1	Alternative 2	Alternative 1	Alternative 1	Alternative 1	Alternative 2	Alternative 1	Alternative 2	Alternative 1		Alternative 2
		Base	Modified	Base	with free flow right-turns	A	A	B	B modified	B modified right	B	C	C	Base	Modified	Base
		at-grade				grade separation								at-grade		
		Six lanes	Reduced six lane typical	Eight Lanes	Eight Lanes	Six lanes at-grade on SR 60 with interchange over US 301	Interchange over US 301 with six lanes on SR 60 west and Eight lanes east of US 301	Six lanes at-grade on SR 60 with interchange over SR60	Six lanes (reduced typical) at-grade on SR 60 with interchange over SR60	Six lanes (reduced typical) at-grade on SR 60 with interchange (shifted right) over SR60	Six lanes at-grade west of US 301 and eight lanes at-grade east of US 301 with a interchange over SR 60	Six lanes at-grade on SR 60 with interchange over US 301 with free flow right turn lanes	Interchange over US 301 with six lanes on SR 60 west and eight lanes east of US 301 with free flow right turn lanes	Six lanes	Reduced six lane typical	Eight lanes
			Sidewalk							Sidewalk					Sidewalk	
Segment Length (miles)		1.47												0.77		
Potential Relocations																
Number of Businesses estimated to be relocated	0	2	2	2	12	13	13	2	2	2	2	15	15	0	0	0
Number of Residences estimated to be relocated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-of-Way Involvement																
Estimated Area of ROW to be acquired (Acres)	0	13.08	11.49	12.98	13.31	13.35	12.93	15.17	13.57	13.88	13.57	14.18	13.45	7.39	7.30	7.30
Cultural / Historic Resources Involvement																
Estimated Number of historic sites / structures within or adjacent to ROW	0	0												0		
Potential to encounter archaeological sites	None	Low												Low		
Natural Environment Involvement																
Estimated Wetlands (Acres)	0	2.85	5.7	2.85	2.85	2.85	2.85	2.86	2.85	2.85	2.85	2.85	2.85	0.56	0.56	2.71
Estimated Surface Waters (Acres)	0	2.22	0	2.22	2.55	2.27	2.27	2.59	2.59	2.59	2.59	2.27	2.27	0.2	0.2	0.94
Estimated Base Floodplain Encroachment (Acres)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Threatened/Endangered Species (Potential)	None	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Physical Environment Involvement																
Estimated number of noise sensitive sites affected	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Estimated number of potential pollutant and hazardous materials contaminated sites ranked medium and high	0	6	6	8	8	8	8	8	8	8	8	8	8	1	1	2
Estimated Project Costs																
Design[2]	$0	$1,475,000	$1,802,000	$2,475,000	$2,609,000	$6,373,000	$6,449,000	$5,425,000	$5,425,000	$5,425,000	$5,529,000	$8,145,000	$8,177,000	$353,000	$372,000	$1,017,000
Right-of-Way	$0	$28,597,800	$13,221,100	$18,458,800	$35,316,900	$70,146,600	$67,790,100	$78,944,500	$63,534,900	$52,089,300	$63,534,900	$110,493,200	$101,606,600	$5,346,300	$4,035,500	$9,596,700
Construction	$0	$9,829,200	$12,012,200	$16,500,200	$17,394,200	$42,481,200	$42,991,200	$36,163,200	$36,163,200	$36,163,200	$36,860,200	$54,296,200	$54,510,200	$2,351,200	$2,477,200	$6,780,800
Construction Engineering Inspection (CEI)[2]	$0	$1,475,000	$1,802,000	$2,475,000	$2,609,000	$6,373,000	$6,449,000	$5,425,000	$5,425,000	$5,425,000	$5,529,000	$8,145,000	$8,177,000	$353,000	$372,000	$1,017,000
Estimated Total Cost[3]	**$0**	**$41,377,000**	**$28,837,300**	**$39,909,000**	**$57,929,100**	**$125,373,800**	**$123,679,300**	**$125,957,700**	**$110,548,100**	**$99,102,500**	**$111,453,100**	**$181,079,400**	**$172,470,800**	**$8,403,500**	**$7,256,700**	**$18,411,500**

(1) Includes Stormwater Management Facility impacts
(2) 15% of Construction Cost
(3) Present Day Costs - Construction Cost Aug 2004 to Feb 2005

8.4.2.2 Segment 2

Considerations:

1. Only three six-lane alternatives were considered.
2. Due to right-of-way impacts, the addition of free-flow right-turn lanes will cost an additional $2.0 million.
3. This segment is not included in the MPO LRTP Cost Feasible Plan.

Recommendation:

Alternative 1 with free-flow right-turn lanes was not selected due to the additional cost of $2.0 million to provide the free-flow right-turn lanes. **Alternative 1 with sidewalks** was selected over Alternative 1 to allow for a pedestrian facility. The cost of Alternative 1 with sidewalks is $24.5 million.

8.4.2.3 Segment 3

Considerations:

1. Included in the MPO LRTP Cost Feasible Plan ($4.98 million six-laning).
2. Eight lanes at-grade will not provide a LOS D at US 301 (exceeds LOS standard by 2020).
3. The addition of free-flow right-turn lanes increases the cost of the eight-lane at-grade alternative by $18.0 million and has 13 more business relocations.
4. The cost to provide a six-lane rural typical section alternative exceeds the cost of eight-lane urban typical section alternatives due to additional right-of-way costs.
5. Grade separating US 301 over SR 60 is less costly and has fewer impacts than SR 60 over US 301.

Recommendation:

To meet the LOS D standard at US 301, a grade separation of US 301 over SR 60 is required. Providing eight-lanes on SR 60 is also required, and Alternative 2B would provide the acceptable LOS D in the design year at a cost of $111.5 million. This high cost is due to the right-of-way costs of this intensely developed commercial area and eight-lanes is not included in the MPO LRTP Cost Feasible Plan. Alternative 1B modified right, which is a six-lane section as included in the LRTP also provided the grade separation at US 301. This section requires additional right-of-way along US 301 and has a total cost of $99.1 million, which far exceeds the amount contained in the Cost Feasible Plan. Therefore, consideration should be given to providing at-grade improvements to US 301 using the reduced six lane rural typical section.

Alternative 1 modified with sidewalks, at a cost of $28.8 million, would likely exceed the LOS D standard by 2020. This would not be a staged construction to Alternative 1B modified right (US 301 Interchange Option) because any at grade improvements along US 301, such as widening at the intersection, will require additional right-of-way to maintain traffic during construction of the grade separation.

Alternative 1B modified right with sidewalks is recommended, which provides six lanes at grade on SR 60 with a SPUI that carries four through lanes of US 301 over SR 60. The cost of this alternative is $99.1 million and requires right-of-way along US 301. In addition, **Alternative 1 modified with sidewalks** should also be considered as a cost feasible alternative, at a cost of $28.8 million.

8.4.2.4 Segment 4

Considerations:

1. This Segment is included in MPO LRTP Cost Feasible Plan (majority already six-lane)
2. Right-of-way needs in this segment are primarily just east of Philip Lee Boulevard.
3. Segment 4 should provide the same mainline capacity as Segment 3.

Recommendations:

The reduced six lane rural typical section would be used when there is less than 200 feet of existing right-of-way therefore the following alternative was added.

Alternative 1 modified with sidewalks is selected to provide a continuous six-lane facility on SR 60. The cost of this alternative is $7.26 million.

8.5 RECOMMENDATIONS

The recommended alternative consists of Alternative 1-B modified with sidewalks in Segment 1, Alternative 1 with sidewalks in Segment 2, Alternative 1 modified with sidewalks and 1-B modified right with sidewalks in Segment 3 and Alternative 1 modified with sidewalks in Segment 4. The Recommended Alternatives are highlighted in Table 8-1 and 8-2 for each segment. The details of the recommended alternative can be found in Section 8.4.2 of this report and plans of the Recommended Alternative can be found in **Appendix A**.

8.6 REFERENCES

1. Draft Traffic Technical Memorandum, Florida Department of Transportation, Tampa, Florida, 2004.

2. Hillsborough County's Adopted 2025 Long Range Transportation Plan (LRTP), Hillsborough County MPO, Tampa, Florida 2004.

9 PRELIMINARY DESIGN ANALYSIS

Based on comments received at the public hearing it was recommended that an additional eastbound lane be added from Philip Lee Boulevard to east of Business Entrance. This will increase capacity prior to the Business Entrance signal and reduce delay. This modification will affect both Segments 3 and 4. First, the SR 60 at-grade recommended alternative in Segment 3 (Alternative 1 modified with sidewalks) had the additional eastbound lane added and is called **Alternative 1 modified 2 with sidewalks**. The second recommended alternative, US 301 Interchange Option (Alternative 1B modified right with sidewalks) had the additional eastbound lane added and is called **Alternative 1B modified right 2 with sidewalks**. The additional eastbound lane was added to SR 60 in Segment 4 (Alternative 1 modified with sidewalks) and provided **Alternative 1 modified 2 with sidewalks.** The additional eastbound lane from Philip Lee Boulevard to east of Business Entrance did not require any right-of-way in either Segment 3 or 4. **Table 9-1** identifies the costs and effects associated with the recommended improvements. To provide the most current costs for the Recommended Alternative a new estimate was provided in May 2005.

This section covers the Recommended Alternative, which is described in Sections 8.4, 8.5 and above, in more detail. All aspects of the design are revisited to allow for a more comprehensive and accurate assessment of the project and impacts.

9.1 DESIGN TRAFFIC VOLUMES

The AADT volumes and PM peak hour traffic volumes were discussed previously in Section 6 of this report. The AADT volumes for the projected design year (2030) are expected to range between 45,200 vpd at the west end of the project to 70,200 vpd on the east end of the project. These volumes are illustrated in **Figure 6-3**. After consideration of the existing turning movements and the impacts of future developments on traffic flow, PM peak hour traffic volumes were developed for the signalized intersections along the project. **Figure 6-4** depicts the 2030 PM peak hour turning movement volumes.

9.2 TYPICAL SECTIONS

The following section will describe the four typical sections planned for the proposed improvements to SR 60. The conceptual plans for the SR 60 improvements are located in **Appendix A**.

9.2.1 Recommended Alternative

9.2.1.1 Segment 1 - Alternative 1B modified with sidewalks

West of 50th Street to East of CSX Railroad

Alternative 1B modified with sidewalks is recommended for Segment 1. This alternative consists of a Single Point Urban Interchange (SPUI) at 50th Street, a grade separation of mainline SR 60 over the CSX Railroad and one-way frontage roads on the north and south sides of SR 60 that require crossing the railroad at-grade. The bridge over the CSX Railroad consists of two 12-foot travel lanes with 6-foot inside and 10-foot outside shoulders in both directions. The structure also spans two connections of the north and south side frontage roads to allow circulation without affecting mainline traffic. The SPUI has single lane on-and off-ramps from SR 60 except for the westbound off-ramp, which has two lanes. These ramps function as the access to local properties, and widens to two lanes to allow right-in and right-out turning movements for adjacent properties. There are three through lanes, two left-turn lanes, and a right-turn lane along 50th Street with two left-turn lanes and one through / right-turn lane from the SR 60 ramps. The SPUI bridge at 50th Street consists of two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. There is a provision for a u-turn movement under the east end of the bridge over 50th Street. The third outside lane, in both directions for the six-lane section, is added and dropped at the ramps west of 50th Street. Additional right-of-way will be

Table 9-1: Recommended Alternatives Evaluation Matrix

Evaluation Criteria [1]	Segment 1 West of 50th St to East of CSX Railroad	Segment 2 East of CSX Railroad to East of 78th St	Segment 3 East of 78th St to East of Philip Lee Blvd		Segment 4 East of Philip Lee Blvd to East of Falkenburg Rd
	Alternative 1	Alternative 1	Alternative 1		Alternative 1
	B modified with sidewalks	Base with sidewalks	B modified 2 with sidewalks	modified with sidewalks	modified 2 with sidewalks
	grade separation	at-grade	grade separation	at-grade	at-grade
	SR 60 over 50th St and CSX railroad with frontage rds crossing CSX	Six lanes	Reduced Six lane typical at-grade on SR 60 with interchange over SR60	Reduced six lane typical	Reduced six lane typical
Segment Length (miles)	**1.53**	**1.70**	**1.47**		**0.77**
Potential Relocations					
Number of Businesses estimated to be relocated	3	1	2	2	0
Number of Residences estimated to be relocated	0	0	0	0	0
Right-of-way Involvement					
Estimated Area of ROW to be acquired (Acres)	10.79	6.92	13.88	11.49	7.30
Cultural / Historic Resources Involvement					
Estimated Number of historic sites / structures within or adjacent to ROW	0	0	0	0	0
Potential to encounter archaeological sites	Low	Low	Low	Low	Low
Natural Environment Involvement					
Estimated Wetlands (Acres)	2.04	0	2.85	2.85	0.56
Estimated Surface Waters (Acres)	1.16	0.03	2.59	0	0.2
Estimated Base Floodplain Encroachment (Acres)	0	0	0	0	0
Threatened/Endangered Species (Potential)	Low	Low	Low	Low	Low
Physical Environment Involvement					
Estimated number of noise sensitive sites affected	0	0	0	0	1
Estimated number of potential pollutant and hazardous materials contaminated sites ranked medium and high	8	13	8	6	1
Estimated Project Costs[3]					
Design[2]	$4,104,000	$2,268,000	$6,052,000	$2,239,000	$455,000
Right-of-Way[1]	$28,242,700	$5,670,500	$52,089,300	$13,221,100	$4,035,500
Construction	$27,359,000	$15,123,000	$40,346,000	$14,926,000	$3,030,000
Construction Engineering Inspection (CEI)[2]	$4,104,000	$2,268,000	$6,052,000	$2,239,000	$455,000
Total Estimated Project Costs[3]	**$63,809,700**	**$25,329,500**	**$104,539,300**	**$32,625,100**	**$7,975,500**

(1) Includes stormwater management facilities
(2) 15% of Construction Cost
(3) Present Day Costs - Construction Costs Updated May 2005

required for the ramps/frontage roads on the north and south of SR 60. New equipment for the railroad crossing will need to be installed for both the north and south frontage roads in each direction. The sidewalk is located along the north side of SR 60 west of 50th Street. Sidewalks are locate along all ramps/frontage roads and on both sides of SR 60 east of 50th Street.

For SR 60, the proposed rural typical section consists of a 40-foot median with three 12-foot travel lanes, 10-foot unpaved inside shoulders and 10-foot outside shoulders with 5-foot paved in each direction. This typical section has a design speed of 55 mph. Drainage swales will be located on both sides of the roadway with 5-foot sidewalks and the right-of-way required for this section would be 200-feet, as shown in **Figure 9-1**. The existing four lane rural section will be widened to the outside, one lane in each direction to maintain the existing 40-foot median. The existing four lanes will be milled and variable depth overlay will be used if necessary. New shoulders, drainage swales, sidewalks and driveway connections will be constructed or modified to adjacent properties.

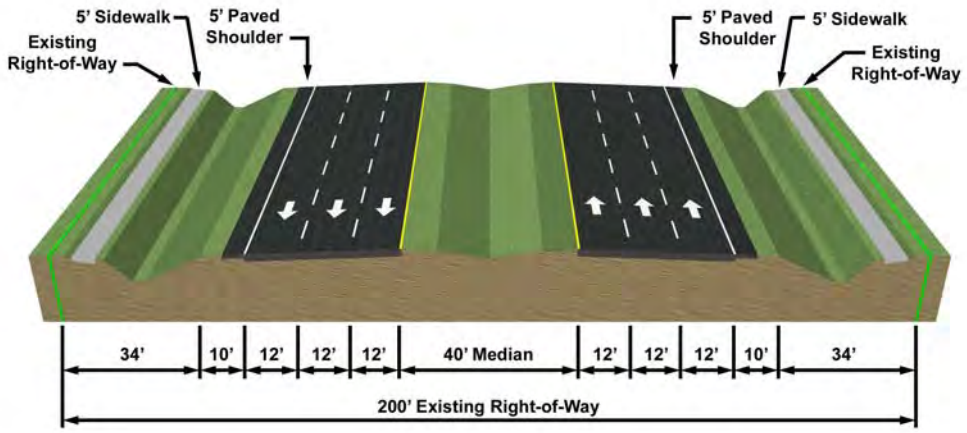


Figure 9-1: SR 60 over Six-Lane Rural Typical Section

For SR 60 over 50th Street/CSX Railroad the proposed typical section consists of a 14-foot median with two 12-foot travel lanes, 6-foot inside and 10-foot outside paved shoulders with retaining walls in each direction with a 2-foot barrier wall. The elevated mainline has a design speed of 55 mph. The frontage roads consist of two 12-foot travel lanes, 4-foot bike lane on the outside with curb and gutter and a 6-foot sidewalk on both sides of the mainline. The frontage roads have a design speed of 45 mph. This typical section requires a right-of-way width that varies from 200 to 229 feet, as shown in **Figure 9-2.**

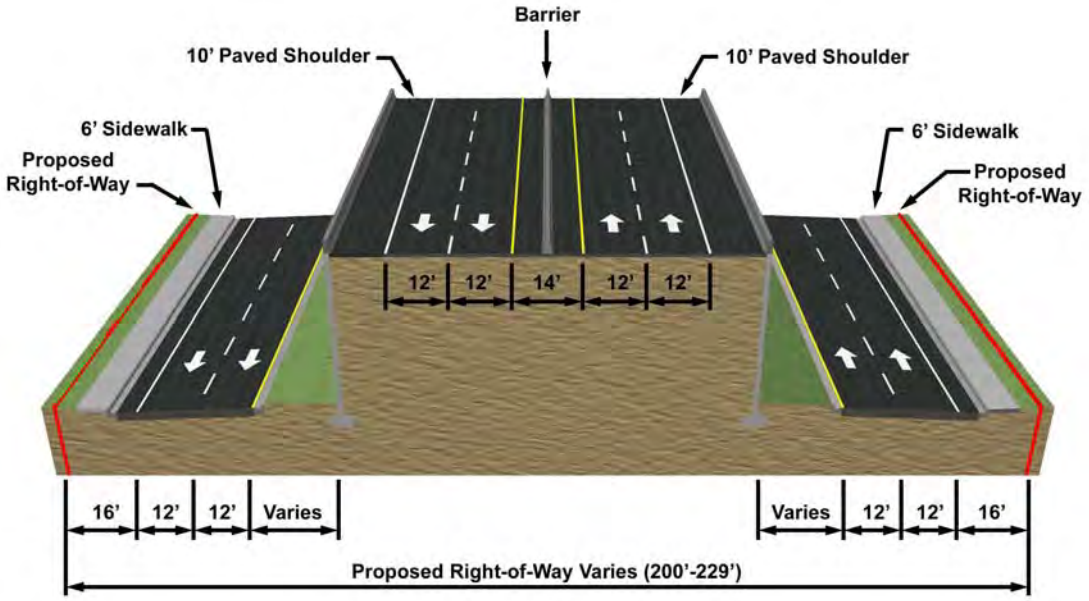


Figure 9-2: SR 60 over 50th / CSX Railroad Typical Section

9.2.1.2 Segment 2 - Alternative 1 with sidewalks

East of CSX Railroad to East of 78th Street

Alternative 1 with sidewalks is recommended for Segment 2. This alternative consists of six lanes at-grade with two signalized intersections at Orient Road and 78th Street. At the intersection of Orient Road, there are three through lanes and a left-turn lane in each direction with a right-turn lane from westbound to northbound. Orient Road is a two-lane section that opens up to four lanes at the intersection with one left-turn and one right-turn lane to SR 60. Reconstruction of Orient Road is required for approximately 600-feet north of SR 60. The proposed structure over Palm River will have four 12-foot lanes eastbound (three through lanes and one right-turn lane) and three 12-foot lanes westbound with 10-foot inside and outside shoulders in each direction. At the intersection of 78th Street, there are three through lanes and a left-turn lane in each direction. There is an eastbound to southbound right-turn lane with a shared through / right-turn lane from westbound to northbound. There are two northbound lanes on 78th Street with a left-turn and a shared through / right-turn lane northbound south of SR 60. North of SR 60, 78th Street is two lanes with two-way operations. No additional right-of-way will be needed for these roadway improvements.

For SR 60, the proposed rural typical section consists of a 40-foot median with three 12-foot travel lanes, 10-foot unpaved inside shoulders and 10-foot outside shoulders with 5-foot paved in each direction. This typical section has a design speed of 55 mph. Drainage swales will be located on both sides of the roadway with 5-foot sidewalks and the right-of-way required for this section would be 200-feet, as shown in **Figure 9-1**. The existing four lane rural section will be widened to the outside, one lane in each direction to maintain the existing 40-foot median. The existing four lanes will be milled and variable depth overlay will be used if necessary. New shoulders, drainage swales, sidewalks and driveway connections will be constructed or modified to adjacent properties.

9.2.1.3 Segment 3 - Alternative 1B modified 2 right with sidewalks

East of 78th Street to East of Phillip Lee Boulevard - US 301 Interchange Option

Alternative 1B modified 2 right with sidewalks is recommended for Segment 3. This alternative consists of six lanes at-grade on SR 60 with a SPUI that carries four through lanes of US 301 over SR 60 with free-flow right-turn lanes at-grade at the intersection. The alignment of US 301 is shifted to the right (east) holding the

existing west right-of-way line. The ramps for the SPUI also provide access to local properties and allow right-in and right-out turning movements. The four-lane cantilever bridge over SR 60 is approximately 1,050 feet in length. The bridge has two 12-foot lanes with 6-foot inside and 10-foot outside shoulders in each direction. The cantilever bridge is utilized to minimize right-of-way requirements by allowing the left-turn lanes to SR 60 to be pulled in under the bridge. The ramps at SR 60 consist of two left-turn lanes, one through lane and a free-flow right-turn lane. The westbound and eastbound approach of SR 60 has three through lanes, two left-turn lanes and a right-turn lane. The improvements to US 301 extend 1,700 feet to the south and 3,000 feet to the north of SR 60 and will require the US 301 bridges over the CSX Railroad to be replaced. Additional right-of-way will be required along the east side of US 301.

For SR 60, west of US 301 the proposed rural typical section consists of a 40-foot median with three 12-foot travel lanes, 10-foot unpaved inside shoulders and 10-foot outside shoulders with 5-foot paved in each direction. This typical section has a design speed of 55 mph. Drainage swales will be located on both sides of the roadway with 5-foot sidewalks and the right-of-way required for this section would be 200-feet, as shown in **Figure 9-1**. The existing four lane rural section will be widened to the outside, one lane in each direction to maintain the existing 40-foot median. The existing four lanes will be milled and variable depth overlay will be used if necessary. New shoulders, drainage swales, sidewalks and driveway connections will be constructed or modified to adjacent properties.

For SR 60, east of US 301 the proposed rural typical section consists of a 40-foot median with three 12-foot travel lanes, 10-foot unpaved inside shoulders and 10-foot outside shoulders with 5-foot paved in each direction. This typical section has a design speed of 55 mph. The majority of SR 60 from US 301 to Philip Lee Boulevard has 12-foot right turn lanes, shoulder gutters for roadway drainage with 5-foot sidewalks in both directions and the right-of-way required for this section would be 182-feet, as shown in **Figure 9-3**.

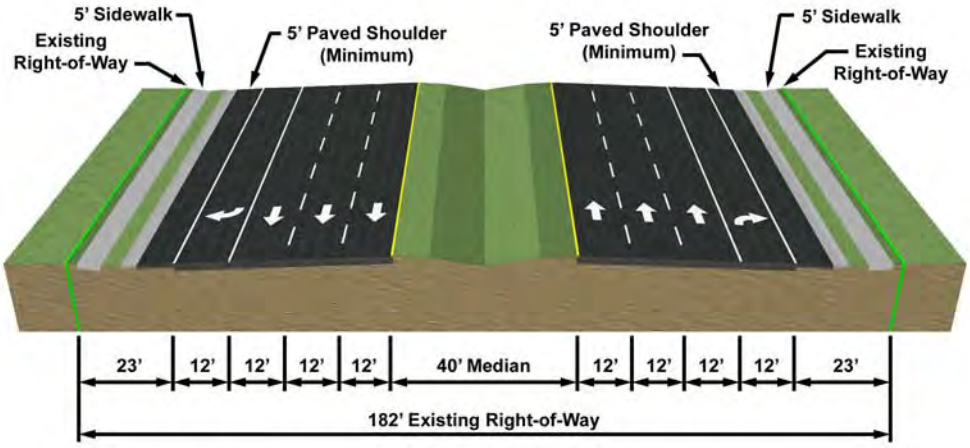


Figure 9-3: Reduced Six Lane Rural Typical Section

The existing four lane rural section will be widened on both sides, two-lanes in each direction to maintain the existing 40-foot median. The existing four lanes will be milled and variable depth overlay will be used if necessary. The existing SR 60 alignment between US 301 and Falkenburg Road is not centered in the 182 feet of existing right-of-way. The existing alignment is shifted to the north. The widening of SR 60 will be needed on both sides of the westbound lanes and on the south side of the eastbound lanes for the additional through lane. The eastbound lanes will also require widening to the north for right-turn lanes. The Recommended Alternative when constructed will be located in the center of the existing 182 feet of right-of-way as shown in **Figure 9-3**. New shoulders, shoulder gutters, sidewalks and driveway connections will be constructed or modified to adjacent properties. Due to the limited amount of right-of-way and the large area

of offsite drainage flowing to the roadway, two closed drainage systems will be needed. The first is needed to collect the stormwater runoff from the roadway and convey the runoff to the stormwater ponds for treatment and attenuation. This system will collect the onsite runoff through the use of shoulder gutter and gutter inlets and convey to the stormwater ponds through pipes. The second closed drainage system is required to collect the offsite runoff flowing to the FDOT right-of-way in back of sidewalk inlets and convey the water to an outfall. Therefore, the stormwater ponds will not have to be sized for the additional offsite runoff because the onsite and offsite runoff did not commingle. SWFWMD requires the stormwater ponds to be sized to treat both the onsite and offsite stormwater runoff when the runoff cannot be separated.

For US 301 over SR 60, the proposed typical section consists of a 14-foot median with two 12-foot travel lanes, 6-foot inside and 10-foot outside shoulders in each direction with a 2-foot barrier wall. The elevated mainline has a design speed of 55 mph. The frontage roads consist of two 12-foot travel lanes, 4-foot bike lane on the outside with curb and gutter and a 6-foot sidewalk on both sides of the mainline. The frontage roads have a design speed of 45 mph. This typical section requires a right-of-way width that varies from 175 to 206 feet, as shown in **Figure 9-4.**

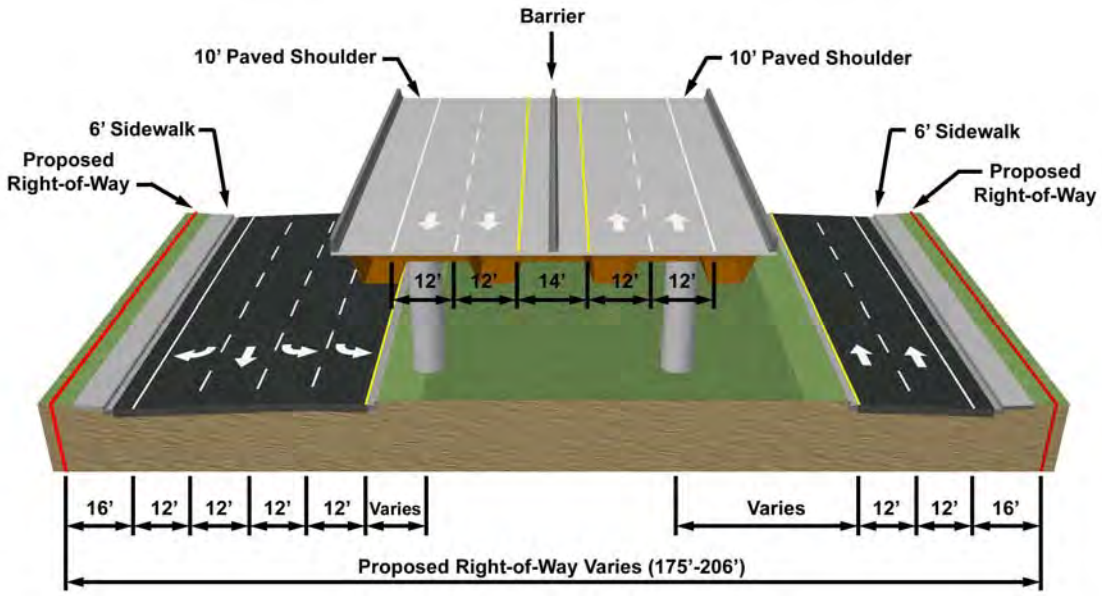


Figure 9-4: US 301 over SR 60 Typical Section

9.2.1.4 Segment 3 – Alternative 1 modified 2 with sidewalks

East of 78th Street to East of Phillip Lee Boulevard

Given the current amount of funding contained in the MPO LRTP Cost Feasible Plan, it appears that providing a grade separation alternative may not be cost feasible. Therefore, consideration should be given to Alternative 1 modified with sidewalks. Alternative 1 modified 2 with sidewalks consists of six lanes at-grade with a signalized intersection at US 301. There are three through lanes, two left-turn lanes and a right-turn lane in all four quadrants. The improvements to US 301 begin 850 feet south of SR 60 and extend north of SR 60 for 1,150 feet, just south of the structure over the CSX Railroad. Sidewalks are located on both sides of SR 60. Right-of-way will be required in the southeast quadrant of the US 301 intersection.

For SR 60, west of US 301 the proposed rural typical section consists of a 40-foot median with three 12-foot travel lanes, 10-foot unpaved inside shoulders and 10-foot outside shoulders with 5-foot paved in each direction. This typical section has a design speed of 55 mph. Drainage swales will be located on both sides of the roadway with 5-foot sidewalks and the right-of-way required for this section would be 200-feet, as shown in **Figure 9-1**. The existing four lane rural section will be widened to the outside, one lane in each direction

to maintain the existing 40-foot median. The existing four lanes will be milled and variable depth overlay will be used if necessary. New shoulders, drainage swales, sidewalks and driveway connections will be constructed or modified to adjacent properties.

For SR 60, east of US 301 the proposed rural typical section consists of a 40-foot median with three 12-foot travel lanes, 10-foot unpaved inside shoulders and 10-foot outside shoulders with 5-foot paved in each direction. This typical section has a design speed of 55 mph. The majority of SR 60 from US 301 to Philip Lee Boulevard has 12-foot right turn lanes, shoulder gutters for roadway drainage with 5-foot sidewalks in both directions and the right-of-way required for this section would be 182-feet, as shown in **Figure 9-3**.

The existing four lane rural section will be widened on both sides, two-lanes in each direction to maintain the existing 40-foot median. The existing four lanes will be milled and variable depth overlay will be used if necessary. The existing SR 60 alignment between US 301 and Falkenburg Road is not centered in the 182 feet of existing right-of-way. The existing alignment is shifted to the north. The widening of SR 60 will be needed on both sides of the westbound lanes and on the south side of the eastbound lanes for the additional through lane. The eastbound lanes will also require widening to the north for right-turn lanes. The Recommended Alternative when constructed will be located in the center of the existing 182 feet of right-of-way as shown in **Figure 9-3**. New shoulders, shoulder gutters, sidewalks and driveway connections will be constructed or modified to adjacent properties. Due to the limited amount of right-of-way and the large area of offsite drainage flowing to the roadway, two closed drainage systems will be needed. The first is needed to collect the stormwater runoff from the roadway and convey the runoff to the stormwater ponds for treatment and attenuation. This system will collect the onsite runoff through the use of shoulder gutter and gutter inlets and convey to the stormwater ponds through pipes. The second closed drainage system is required to collect the offsite runoff flowing to the FDOT right-of-way in back of sidewalk inlets and convey the water to an outfall. Therefore, the stormwater ponds will not have to be sized for the additional offsite runoff because the onsite and offsite runoff did not commingle. SWFWMD requires the stormwater ponds to be sized to treat both the onsite and offsite stormwater runoff when the runoff cannot be separated.

9.2.1.5 Segment 4 – Alternative 1 modified 2 with sidewalks

East of Phillip Lee Boulevard to East of Falkenburg Road

Alternative 1 modified 2 with sidewalks is recommended for Segment 4. This at-grade alternative consists of three lanes westbound and four lanes eastbound. The four eastbound lanes are shown connecting to the existing four through lanes east of Business Entrance.

For SR 60, the proposed typical section consists of a 40-foot median with three 12-foot travel lanes, 10-foot unpaved inside shoulders and 10-foot outside shoulders with 5-foot paved in each direction. This typical section has a design speed of 55 mph. The majority of SR 60 from US 301 to Philip Lee Boulevard has 12-foot right turn lanes, shoulder gutters for roadway drainage with 5-foot sidewalks in both directions and the right-of-way required for this section would be 182-feet, as shown in **Figure 9-3**.

9.3 INTERSECTION CONCEPTS AND SIGNAL ANALYSIS

The Draft Traffic Technical Memorandum Volume 1[1] illustrates the recommended geometry, both at-grade and with interchanges, that provides detailed information about the operation of each signalized intersection during the design hour. **Table 6-3** in Section 6 of this report provide detailed information about the projected operation of 50th Street and US 301 signalized intersections during peak hours and analysis based on the improvements outlined in **Figure 6-6**. Review of **Table 6-3** reveals that the 50th Street and US 301 intersection are expected to experience movements operating at a LOS D in the year 2030.

9.4 ALIGNMENT AND RIGHT-OF-WAY NEEDS

Appendix A includes conceptual plans illustrating the proposed improvements for the project and the anticipated right-of-way needs. The existing alignment of SR 60 will be maintained from the West of 50th Street to West of US 301 for the Recommended Alternative. The existing alignment from West of US 301 to West of Falkenburg Road will be shifted to south and located in the center of the existing 182 feet of right-of-way for the Recommended Alternative. For the Recommended Alternative US 301 Interchange Option with US 301 over SR 60 the existing alignment of US 301 is shifted to the right (east) holding the existing west right-of-way line.

The proposed roadway improvements in Segment 2 and 4 are accommodated within the existing right-of-way. However, right-of-way acquisition of approximately 6.92 acres and 7.30 acres will be required for stormwater management facilities in Segment 2 and 4 respectively. The proposed improvements for Segments 1 and 3 require an estimated 10.79 acres and 11.49 acres of right-of-way acquisition respectively to accommodate the roadway and stormwater management facilities. The option in Segment 3 of an interchange with US 301 over SR 60 requires an estimated 13.88 acres to accommodate the roadway and stormwater management facilities.

9.5 POTENTIAL RELOCATIONS

As shown in **Table 8-2**, the proposed improvements are estimated to require six potential business relocations for roadway and stormwater management facilities. The potential business relocations for the proposed improvements are denoted on the concept plans in **Appendix A** and quantified by segment as follows:

Segment 1: Three business relocations
Segment 2: One business relocations
Segment 3: Two business relocations (proposed at-grade or US 301 over SR 60 interchange)
Segment 4: No relocations

9.6 RIGHT-OF-WAY COST

The total estimated right-of-way acquisition costs for the proposed improvements are $51.2 million for the roadway and stormwater management facilities. Details are listed below in **Table 9-2**. The total estimated right-of-way acquisition cost for the proposed improvements with an interchange option at US 301 over SR 60 is $101.5 million for the roadway and stormwater management facilities. The right-of-way costs were determined using 2005 dollars.

Table 9-2: Estimated Right-of-Way Cost

SEGMENT	DESCRIPTION	ROW COST	TOTAL ROW COST
1	Roadway	$19,770,700	$28,242,700
	Stormwater Facility	$8,472,000	
2	Roadway	$17,000	$5,670,500
	Stormwater Facility	$5,653,500	
3 (at-grade)	Roadway	$3,656,900	$13,221,100
	Stormwater Facility	$9,567,200	
3 (US 301 over SR 60)	Roadway	$41,502,400	$52,089,300
	Stormwater Facility	$10,586,900	
4	Roadway	$0	$4,035,500
	Stormwater Facility	$4,035,500	

9.7 CONSTRUCTION COSTS

To provide the most current costs for the Recommended Alternative a new estimate was provided in May 2005. The total estimated construction cost for the proposed improvements is $60.4 million for the roadway and stormwater management facilities. Details are listed below in **Table 9-3.** The total estimated construction cost for the proposed improvements with US 301 over SR 60 interchange is $85.9 million for the roadway and stormwater management facilities. The construction costs were determined using 2005 dollars.

Table 9-3: Estimated Construction Cost

SEGMENT	DESCRIPTION	CONSTRUCTION COST	TOTAL CONSTRUCTION COST
1	Roadway	$24,588,000	$27,359,000
	Stormwater Facility	$2,771,000	
2	Roadway	$13,151,000	$15,123,000
	Stormwater Facility	$1,972,000	
3 (at-grade)	Roadway	$9,878,000	$14,926,000
	Stormwater Facility	$5,048,000	
3 (US 301 over SR 60)	Roadway	$34,869,000	$40,346,000
	Stormwater Facility	$5,477,000	
4	Roadway	$1,176,000	$3,030,000
	Stormwater Facility	$1,854,000	

9.8 PRELIMINARY ENGINEERING AND CONSTRUCTION COSTS

The cost of engineering (final design) and the cost of Construction Engineering and Inspection (CEI) are shown in **Table 9-4** and were estimated as 15 percent of the estimated $60.4 and $85.9 million construction costs. Therefore, these efforts are expected to cost approximately $18.1 and $25.8 million for final design and CEI.

Table 9-4: Final Design and CEI Costs

SEGMENT	DESCRIPTION	CONSTRUCTION COST	TOTAL CONSTRUCTION COST
1	Final Design	$4,104,000	$8,208,000
	CEI	$4,104,000	
2	Final Design	$2,268,000	$4,536,000
	CEI	$2,268,000	
3 (at-grade)	Final Design	$2,239,000	$4,478,000
	CEI	$2,239,000	
3 (US 301 over SR 60)	Final Design	$6,052,000	$12,104,000
	CEI	$6,052,000	
4	Final Design	$455,000	$910,000
	CEI	$455,000	

9.9 RECYCLING OF SALVAGEABLE MATERIALS

During construction of the project, recycling of reusable materials will occur to the greatest extent possible. Where possible, removal and recycling of the existing pavement for use in the new pavement will be considered. This will help reduce the volume of the materials that need to hauled and disposed of away for the project and to reduce the cost of purchasing material suitable for 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.

9.10 USER BENEFITS

The public will realize benefits after the proposed improvements are constructed. Savings in travel time, reduced vehicle operating costs, reduced traffic accident related costs and reduced emergency response times are the primary benefits. Bicyclists and pedestrians will be able to share the facility with motorists safely and efficiently. The creation of a motorist friendly facility will contribute to the economic growth of the project area.

9.11 PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian accommodation is provided with proposed sidewalks on both sides of the roadway. There are two different sidewalks proposed, a five-foot asphalt sidewalk along the edge of the right-of-way for the at-grade improvements and a six-foot concrete sidewalk behind the curb and gutter on the frontage roads/ramps for the graded separation typical sections. Bicycle lanes or paved shoulders are provided along both sides of SR 60.

9.12 SAFETY

The proposed improvements will upgrade SR 60 to a safer and more efficient transportation facility. The increased roadway capacity is expected to result in less congestion and therefore, reduce the probability of crashes. The accommodation of sidewalks, crosswalks and other safety provisions will provide safe pedestrian circulation. The design and alignment of the proposed improvements will meet applicable safety standards. Adherence to design speed as it applies to establishing and setting minimum values on critical roadway design features will be closely followed. Roadway design elements including curvature, sight distance, width and clearance will meet the applicable minimum roadway design standards. Access control techniques to promote safe and efficient traffic circulation will also be used.

9.13 ECONOMIC AND COMMUNITY DEVELOPMENT

From US 301 to Falkenburg Road, the proposed improvements are consistent with the Hillsborough County Comprehensive Plan and the improved mobility within the corridor will provide for the continued economic growth of the commercial / industrial area.

9.14 ENVIRONMENTAL EFFECTS

9.14.1 Community Facilities and Established Land Uses

There are no community facilities within the project limits, and the existing and future land uses indicate that the area is and will remain commercial / industrial. This project is consistent with these land uses and the proposed improvements will facilitate the continued commercial and industrial development of the area.

9.14.2 Community Cohesion

There are no existing or planned neighborhoods within the project area, and therefore no splitting or isolation of neighborhoods will occur.

9.14.3 Cultural Features

A Draft CRAS[2] has been prepared for this PD&E Study and the recommended improvements will have no involvement with cultural resources, including archaeological sites and historic structures, which are listed, determined eligible, or considered potentially eligible for listing on the NRHP.

9.14.4 Wetland Impact and Mitigation

The proposed roadway improvements will impact roughly 0.3 acres of wetlands as shown in **Table 9-5.** These wetlands are characterized by FLUCFCS codes of 618/619 - Willow and Elderberry and Exotic Wetland Hardwoods and 630/631 Wetland Forested Mixed and Wetland Scrub. The proposed stormwater management facilities will impact roughly 5.15 acres of wetlands as shown in **Table 9-5**. These wetlands are characterized by FLUCFCS codes of 618/619 - Willow and Elderberry and Exotic Wetland Hardwoods, 630/631 Wetland Forested Mixed and Wetland Scrub and 6417 - Freshwater Marsh with Shrubs, Brush, and Vines.

Table 9-5: SR 60 Wetland Impacts

PROJECT SEGMENT	DESCRIPTION	WETLAND ID	TOTAL WETLAND AREA ACRES	AREA OF WETLAND IMPACTS ACRES
Roadway Improvements				
1	322+55 to 325+71	2	1.42	0.10
1	322+18 to 335+47	4	3.83	0.20
Total wetland impacts for roadway improvements =				**0.30**
Stormwater Management Facilities				
1	Pond 3C	3	2.37	0.19
1	Pond 4B	5	3.51	1.55
3	Pond 8B	6	1.68	1.61
3	Pond 9C	7	1.28	1.24
4	Pond 10B	12	7.30	0.56
Total wetland impacts for stormwater management facilities =				**5.15**

Impacts from roadway improvements will be confined to the roadside edges and for possible culvert extensions. It is anticipated that only minor impacts will occur to the upland cut roadside ditches and culverts identified along the study corridor. Improvements to Segment 1, Segment 2, and Segment 3, west of US 301, are anticipated to relocate the existing ditches. Shoulder gutter will replace the water conveyance system along the facility for Segment 3, east of US 301.

9.14.5 Threatened and Endangered Species

This project has been evaluated for impacts to wildlife and habitat resources, including protected species, in accordance with 50 CFR, Part 402 and the Endangered Species Act of 1973, as amended[3]. The project area was surveyed during May and June of 2004. The study corridor is located in an urban area comprised mainly of commercial and light industrial services with a general lack of native habitat. Although there are parcels of undeveloped areas, they are very small in size and not connected to any corridors or natural linkages. The natural drainage feature, Six Mile Creek, was dredged and structures were erected for flood control purposes by the Army Corps of Engineers. This feature is now known as the Tampa Bypass Canal. A more recent use of this water body is an alternative source of potable water upstream of SR 60 behind the water control structures. The immediate area around the SR 60 Bridge is a tidal body of water.

The field reconnaissance revealed no listed species present within or along the study corridor. The bridge spanning the Tampa Bypass Canal will be widened to match the existing structure; therefore no impacts to the resource are anticipated. The Department obtained written concurrence from the United States Fish and

Wildlife Service (9/15/2004) and the National Marine Fisheries Service (9/22/2004) that the proposed project would not adversely affect protected resources providing that a manatee and sea turtle awareness program is implemented during the construction activities. More information is contained in the Draft Wetlands and Threatened and Endangered Species Memorandum[4] prepared for this project.

9.14.6 Potential Hazardous Materials and Petroleum Products Contaminated Sites

A Draft Contamination Screening Evaluation Report[5] was prepared as part of this PD&E Study. Of the 51 investigated contaminated sites associated with the corridor, 27 received "Low" or "No" risk ratings either because no contamination exists onsite; the site has been rehabilitated to the satisfaction of the Florida Department of Environmental Protection (FDEP); or the parcel is so far away from the corridor that contamination from the site could not impact construction along the corridor. Eighteen sites were assigned "Medium" risk ratings, and seven received "High" risk ratings. Further evaluation of the potential contamination sites within the project corridor should be conducted in the later stages of design.

9.14.7 Noise Impacts

The traffic noise study was prepared in accordance with Title 23 CFR Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise using methodology established by the FDOT in the PD&E Manual, Part 2, Chapter 17 (November, 2001).

For the Design Year (2030) Build condition, one noise sensitive site (the Baymont Inn pool deck) is predicted to experience noise levels that approach or exceed the FHWA Noise Abatement Criteria (NAC). Noise abatement measures were evaluated for this noise sensitive site. An evaluation of traffic system management techniques, alignment modifications and property acquisition indicated that these abatement measures were not feasible or reasonable. Providing a noise barrier as a means of abating traffic noise was also evaluated. A noise barrier situated along the proposed right-of-way line is not predicted to achieve a minimum 5 decibel reduction at this location. Therefore, there appears to be no feasible and/or reasonable abatement measure to mitigate traffic noise at this noise sensitive site.

9.14.8 Air Quality Impacts

In accordance with the Clean Air Act Amendments of 1990 and Part 2, Chapter 16 of the FDOT's PD&E Manual, an air quality analysis was conducted for this project utilizing the FDOT screening model, CO Florida 2004 (released September 7, 2004). This computer program makes a number of conservative assumptions about the project and indicates whether the project needs a more detailed computer analysis. The roadway intersection with the highest total volume was SR 60 at US 301. The Build and No-Build scenarios for both the opening year (2010) and the design year (2030) were modeled.

Estimates of Carbon Monoxide (CO) were predicted for the default receptors, which are located 10 feet to 150 feet from the edge of the roadway. The results of the screening model indicate that the worst-case CO one- and eight-hour levels are not predicted to meet or exceed the one- or eight-hour National Ambient Air Quality Standards (NAAQS) for the pollutant with either the No-Build or Build alternatives. As such, the project "passes" the screening model.

The project is located in an area that has been designated as maintenance for the ozone standards under the criteria provided in the Clean Air Act Amendments of 1990. This project is included in the urban area's current approved conforming Transportation Improvement Plan (TIP) [6] and the area's conforming long-range plan[5]. This project is included in the area's Conformity Determination Report. The project's design concept and scope are the same as the conforming plan and TIP.

9.14.9 Water Quality Impacts

A Water Quality Impact Evaluation (WQIE) has been completed for this project. The proposed stormwater facility design will include, at a minimum, the water quantity requirements for water quality impacts as required by the SWFWMD in Rule 40D-1, 40D-4, 40D-40, 40D-45, and 40D-400, FAC and the Environmental Protection Agency (EPA). Therefore, no further water quality mitigation measures will be needed.

9.14.10 Aquatic Preserves

There are no designated aquatic preserves in the SR 60 study area.

9.14.11 Section (4)f Lands

In accordance with Section 4(f) of the Department of Transportation Act of 1966 (Title 49, U.S.C., Section 1653 (f), amended and recodified in Title 49, U.S.C., Section 303, in 1983)[7], the project was examined for possible Section 4(f) properties. No potentially eligible properties were identified within the project limits.

9.14.12 Outstanding Florida Waters

Identification of Outstanding Florida Waters (OFW) was determined through coordination with the Florida Department of Environmental Protection (FDEP). The OFW designation requires a higher emphasis of minimizing direct wetland impacts and higher water quality treatment standards than would be required for other wetland systems. There are no OFW's within the project study area.

9.14.13 Floodplains

In accordance with Executive Order 11988, "Floodplain Management", United States Department of Transportation Order 5650.2, and Chapter 23, CFR 650A[8], impacts to floodplains due to the proposed improvements are being considered. Portions of the study area are located within the floodplain limits shown on the Flood Insurance Rate Maps (FIRMs) [FIRMs: Community Panel Numbers 120112 0380 E, 120112 0378 E, and 120112 0359 E] compiled by Federal Emergency Management Agency. The minor encroachment into the tidal floodplain is transversal at Six Mile Creek (Tampa Bypass Canal Bridge). There are no regulatory floodways within the project limits.

Based on the information collected during the Study, the proposed improvements can be categorized as a Category 4: "Projects on existing alignment involving replacement of existing drainage structures with no record of drainage problems, as defined in Section 3.2.4 of the FDOT's Drainage Manual Volume 2A.[9]" The proposed structures will perform hydraulically in a manner equal to or greater than the existing structures, and backwater surface elevations are not expected to increase. As a result, there will be no significant adverse impacts on natural and beneficial floodplain values; there will be no significant change in flood risk; and there will 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 considered minimal.

9.15 UTILITY IMPACTS

A Utility Assessment Package[10] has been prepared as part of this PD&E Study. The type, location and ownership of existing and proposed utilities within the project corridor, are summarized in this report. Depending on the location and depth of the utilities, implementation of the recommended improvements for the project may require adjustment of some of these facilities. Cost for utility adjustments are not included in the total estimated project costs presented in Section 9.7, since they will be incurred by the utility owners.

9.16 TRAFFIC CONTROL PLAN

SR 60 provides access to numerous businesses along this corridor. Due to its importance, SR 60 should 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 maintain traffic operations along SR 60:

- Relocate existing utilities within the right-of-way.
- Construct stormwater facilities.
- Construct temporary pavement as necessary to maintain existing two-way traffic.
- Construct and/or widen the eastbound or westbound lanes (travel lanes, shoulders, sidewalks, curb and gutter) while maintaining existing two-way traffic on a combination of the existing pavement and newly constructed or temporary pavement.
- While constructing the elevated sections the frontage roads/ramps may be used to maintain the existing two-way traffic.
- The majority of the project, from East of CSX Railroad to West of US 301, widening will be one lane in each direction to the outside.
- From West of US 301 to West of Falkenburg Road the widening will be needed on both sides of the westbound lanes and on the south side of the eastbound lanes for the additional through lane.

9.17 RESULTS OF PUBLIC INVOLVEMENT PROGRAM

A Public Involvement Program (PIP) was developed for this Study to the outline the various opportunities to Department was implementing to inform and solicit interest and ideas from interested parties, including local business owners, public officials and agencies. The program included an Advance Notification (AN) Package, a Project Alternatives Brochure and Newsletter, and a Public Hearing. The FDOT did not receive any requests for presentations to small groups or businesses. The results of the program are summarized in the Final Comments and Coordination Report.

9.17.1 Advance Notification

On May 15, 2003, in accordance with Part 1, Chapter 2 of the FDOT PD&E Manual, the FDOT District Seven Environmental Management Office forwarded the AN Package defining the project and, in general terms, describing anticipated issues and impacts, to the Florida State Clearinghouse, Department of Community Affairs (DCA). The State Clearinghouse distributed the AN package to central units of the state government that may be affected by the FDOT's proposed action. While several agencies responded with no comment, the Tampa Bay Regional Planning Council land Hillsborough County Planning and Growth Management Department did provide comments.

No significant issues that would affect the implementation of this project were identified by the agencies. Agency staff provided comments regarding issues that needed to be addressed including threatened and endangered species, wetland impacts, impacts to archaeological or historic sites, stormwater treatment, land uses, public involvement, utilities, traffic demand, traffic safety, traffic management, evacuation, and cost of the project. These comments were addressed during the study and various issues were coordinated and discussed with the appropriate agencies. A complete summary of the agency comments and responses can be found in Appendix A of the Final Comments and Coordination Report.

9.17.2 Project Alternatives Brochure and Newsletter

Two informational brochures were distributed during the PD&E Study. The SR 60 Roadway Improvement Alternatives Brochure was completed in November 2004. Its purpose was to inform the public of the various alternatives under consideration for the SR 60 corridor. Brochures were mailed to all property owners and interested citizens in November 2004. Business owners and tenants within 500 feet of the SR 60 study corridor received a hand-delivered alternatives brochure during a door-to-door outreach program conducted from December 10, 2004 to December 29, 2004.

On February 18, 2005, a project newsletter/Letter of Notification for the Public Hearing was mailed to 57 elected and appointed officials, including Federal Officials, State Officials, planning and permitting agencies, utility companies, and local officials. The newsletter was also mailed to 295 property owners and tenants, business owners and operators, and other interested citizens within the SR 60 study area in Hillsborough County. While the SR 60 project corridor is predominantly commercial in nature, the Public Hearing newsletter was mailed to the Florida Sentinel and La Gaceta newspapers. These publications serve the African American and Hispanic communities of the Tampa Bay area.

9.17.3 Public Hearing

A Public Hearing for the SR 60 (Adamo Drive) PD&E Study was conducted on March 14, 2005, from 5:00 p.m. to 7:00 p.m., at the Palm River Elementary School, 805 Maydell Drive, Tampa, Florida.

This Public Hearing was advertised in advance by mailing letters to 57 elected and appointed officials, and 295 property owners and tenants, business owners and operators, and other interested citizens within the SR 60 corridor in Hillsborough County, Florida. Display advertisements were published in the Tampa Tribune Newspaper on February 16, 2005 and March 7, 2005, and in the Florida Administrative Weekly (FAW) on February 18, 2005. A press release was also sent from the FDOT District Seven office for additional media notification. Notification was also mailed to the Florida Sentinel and La Gaceta Newspapers. The Draft Preliminary Engineering Report and other project documents were available for public review at FDOT District Seven, Modal Planning and Development, 11201 N. McKinley Drive, MS 7-500, Tampa, Florida, and the 78th Street Community Library, 7625 Palm River Road, Tampa, Florida 21 days prior to the Public Hearing.

The purpose of the Hearing was to share the project preferred alternatives (Build and No-Build) as well as the potential costs and impacts; and allow citizens and local government officials an opportunity to have their concerns, opinions, and comments regarding the SR 60 PD&E Study included as part of the official public record for the project. A copy of the Hearing Transcript can be found in Appendix B of the Final Comments and Coordination Report.

The first portion of the Hearing was conducted in an informal open house format. Two sets of aerial maps for the entire project corridor were displayed along the sides of the meeting room where attendees could discuss the project and their concerns with members of the project team.

Additional displays included:

- Preferred “Build” typical section graphics;
- Evaluation Matrix displaying business and residential impacts, right-of-way impacts, social, cultural impacts, natural environment and physical impacts, and estimated project costs for each alternative;
- Project schedule for the FDOT’s Work Program as it relates to the SR 60 improvements; and
- Statutes and citations observed by the study.

Documents on display included:

- Draft Preliminary Engineering Report;
- Draft Contamination Screening Evaluation Report;
- Draft Traffic Noise Analysis Technical Memorandum;
- Cultural Resource Assessment Survey Report;
- Draft Pond Siting and Drainage Documentation;
- Draft Wetlands and Threatened and Endangered Species Memorandum; and
- Draft Traffic Technical Memorandum.

Guests were able to view a continuously running PowerPoint slide presentation describing the project and purpose of the Public Hearing. Signs containing information regarding the Civil Rights Act Titles VI and VIII were displayed and Discrimination Complaint Forms were available.

Those wishing to make a public statement for the Official Public Hearing Record were given speaker cards at the beginning of the Hearing and were instructed to fill them out and hand them to a member of the FDOT staff or deposit them in the designated container prior to the public comments portion of the Hearing.

At 6:00 p.m., Robert Clifford, AICP, FDOT District Seven Director of Modal Planning and Development, began the formal portion of the Public Hearing by giving a brief description of the Hearing format. Citizens wishing to make a verbal statement for the public record were then invited to speak in the order in which they had handed in their speaker cards. Citizens not wishing to make a public statement were encouraged to fill out a comment form. Written statements or exhibits received postmarked no later than March 24, 2005 would become a permanent part of the public record for this project. Six (6) speaker cards were received, and those six (6) citizens made their verbal comments at this time.

Mr. Clifford concluded the verbal statement portion of the Hearing by stating that the transcript of the oral proceedings of the Hearing, written statements or exhibits, and copies of materials related to this project would be made available for public inspection and copying at the FDOT District Seven, 11201 N. McKinley Drive, MS 7-500, Tampa, Florida. Mr. Clifford also stated that written statements and exhibits would be accepted and recorded as part of the Hearing if postmarked on or before March 24, 2005. All information received as a result of the Hearing will be analyzed and added, as appropriate, to the project documents. The final documents will be submitted to the Federal Highway Administration (FHWA) for Location and Design Concept Acceptance. The results of the FHWA analysis will be published in the local newspaper.

Approximately 50 people attended the Hearing, not including the 18 Department and consultant staff members. Project information was provided to each attendee; including a project newsletter, comment form, and evaluation matrix. Six (6) written comment forms were received by the close of the Hearing from five (5) citizens. 13 written comment forms were received by mail.

The majority of the recorded comments from citizens attending the Public Hearing were regarding the grade-separated crossings at 50th Street and US 301. The general consensus was that the project area needs some type of improvement. The verbal comments, separated into subject categories, are summarized in **Table 9-6.** The comments agree with the recommended alternative, disagree with the recommended alternative or do not directly pertain to the recommended alternative.

Table 9-6: Public Hearing Summary of Verbal Comments

COMMENT/QUESTION TOPIC	NUMBER OF WRITTEN COMMENTS			TOTAL NUMBER OF COMMENTS
	AGREE	DISAGREE	OTHER	
Grade-Separated Crossing at 50th Street		5		5
Grade-Separated Crossing at US 301	1	1		2
Grade-Separated Crossing at CSX Railroad	2			2
Construction of acceleration/deceleration lanes			2	2
Traffic Signals should be installed			2	2
Greater number of turn lanes			1	1
Opposed to median closure		1		1
Construction of Sidewalks		2		2
			Total	**17**

A total of six (6) written comment sheets were received from citizens at the Public Hearing by a total of five (5) attendees. Eight (8) written comment forms/letters were received prior to the Hearing, and five (5) written comment forms/letters were received after the Hearing. The majority of citizens who submitted comments generally feel that some type of improvement(s) should be pursued within the study corridor.

Out of a total number of 49 comments received from 17 citizens, all requested some type of improvement, and a large percentage referenced the grade-separated crossings at SR 60 and 50th Street, US 301, and the CSX Railroad. The written comments, separated into subject categories, are summarized in **Table 9-7.** The comments agree with the recommended alternative, disagree with the recommended alternative or do not directly pertain to the recommended alternative.

Table 9-7: Public Hearing Summary of Written Comments

COMMENT/QUESTION TOPIC	NUMBER OF WRITTEN COMMENTS			TOTAL NUMBER OF COMMENTS
	AGREE	DISAGREE	OTHER	
Grade-Separated Crossing at 50th Street	1	9		10
Grade-Separated Crossing at US 301	1	10		11
Grade-Separated Crossing at CSX Railroad	5	2		7
Too much right-of-way being taken			2	2
Right-of way line seems incorrect on plans			1	1
Lanes should be added throughout study area	3			3
Construction of acceleration/deceleration lanes			3	3
Driveway turnouts not shown on plans			2	2
Traffic Signals should be installed			2	2
Center turn lane instead of median		1		1
Opposed to median closure		2		2
Construction of Sidewalks	1	1		2
			Total	**46**

9.18 VALUE ENGINEERING

This project is currently be reviewed by a Value Engineering (VE) team formed by FDOT.

9.19 DRAINAGE

Pond Siting and Drainage Documentation[11] has been prepared as part of this PD&E Study. This report provides the preliminary pond location, stormwater design requirements for permitting purposes, and environmental criteria. Each pond was sized to accommodate the calculated total stormwater treatment and attenuation volumes. The treatment volume for each pond site were computed based on SWFWMD and EPA (TMDL) requirements, while attenuation volumes were computed based on the SWFWMD & FDOT requirements. This approach (Volumetric Difference Analysis) is consistent with the FDOT Stormwater Management Design Handbook, Chapter 5, Section 5.2.1[12].

9.20 STRUCTURES

Existing plans and bridge inspection reports were obtained from the FDOT for the purpose of evaluating the conditions of the existing structures within the project limits. As **Table 4-8** indicates, it is recommended that the US 301 southbound structure over the CSX Railroad should be replaced. There are two proposed structures along SR 60, within Segment 1, for 50th Street and CSX Railroad mainline crossings. The existing structures over Palm River, within Segment 2, will be widened to accommodate the six lanes and sidewalks. The proposed improvements for the US 301 over SR 60 interchange option will require three proposed bridges, one for US 301 over SR 60 and two structures for US 301 over the CSX Railroad to the north of SR 60.

9.21 ACCESS MANAGEMENT

The access classification of Type 5 was utilized for SR 60. An access management plan was prepared for the Recommended Alternative in Segments 3 and 4 since these segments are included in the MPO LRTP. The access management plan for the remaining portions of the project will be prepared during the final design phase of project development. **Table 9-8** summarizes the proposed SR 60 Access Management Plan between US 301 to Falkenburg Road.

Table 9-8: SR 60 Access Management Plan – US 301 to Falkenburg Road

ROADWAY / DRIVEWAY	STATION	DISTANCE	TYPE OF MEDIAN OPENING
US 301	61+10	-	Full Median Opening
Wayne Place	74+10	1,300	EB Directional Median Opening
S. Ware Boulevard	83+10	900	Directional Median Opening
Currie Davis Drive	92+50	940	Directional Median Opening
Philip Lee Boulevard	101+60	910	Directional Median Opening
Salvation Army (Entrance)	110+60	900	Full Median Opening
Business Entrance	119+10	850	Full Median Opening
Falkenburg Road	128+10	900	Full Median Opening

9.22 CONSTRUCTION SEGMENTS

In order to create manageable construction projects and set priorities for funding and construction phasing, the overall project was divided into three construction segments, as shown in **Table 9-9**.

Table 9-9: SR 60 Construction Segments

PRIORITY	CONSTRUCTION SEGMENTS	LENGTH (MILES)	TOTAL COST[(1)]
1	Study Segment 3 & 4 (at-grade) East of 78th St. to East of Falkenburg Rd.	2.24	$40,600,600
2	Study Segment 1 West of 50th St. to East of CSX Railroad	1.53	$63,809,700
3	Study Segment 2 East of CSX Railroad to East of 78th St.	1.70	$25,329,500

9.23 REFERENCES

1. Draft Traffic Technical Memorandum, Florida Department of Transportation, Tampa, Florida, 2004.

2. Cultural Resource Assessment Survey Report, Florida Department of Transportation, Tampa, Florida, 2004.

3. PD&E Manual (50 CFR, Part 402 and the Endangered Species Act of 1973, as amended. PD&E Manual), Florida Department of Transportation, Tallahassee, Florida, Revised January 1999.

4. Draft Wetlands and Threatened Endangered Species Memorandum, Florida Department of Transportation, Tampa, Florida, 2005

5. Draft Contamination Screening Evaluation Report, Shaw Environmental Inc., Tampa, Florida, 2004.

6. Transportation Improvement Plan (TIP), Hillsborough County MPO, Tampa, Florida, 2004.

7. Department of Transportation Act of 1966 (Title 49, U.S.C., Section 1653 (f), amended and recodified in Title 49, U.S.C., Section 303, in 1983).

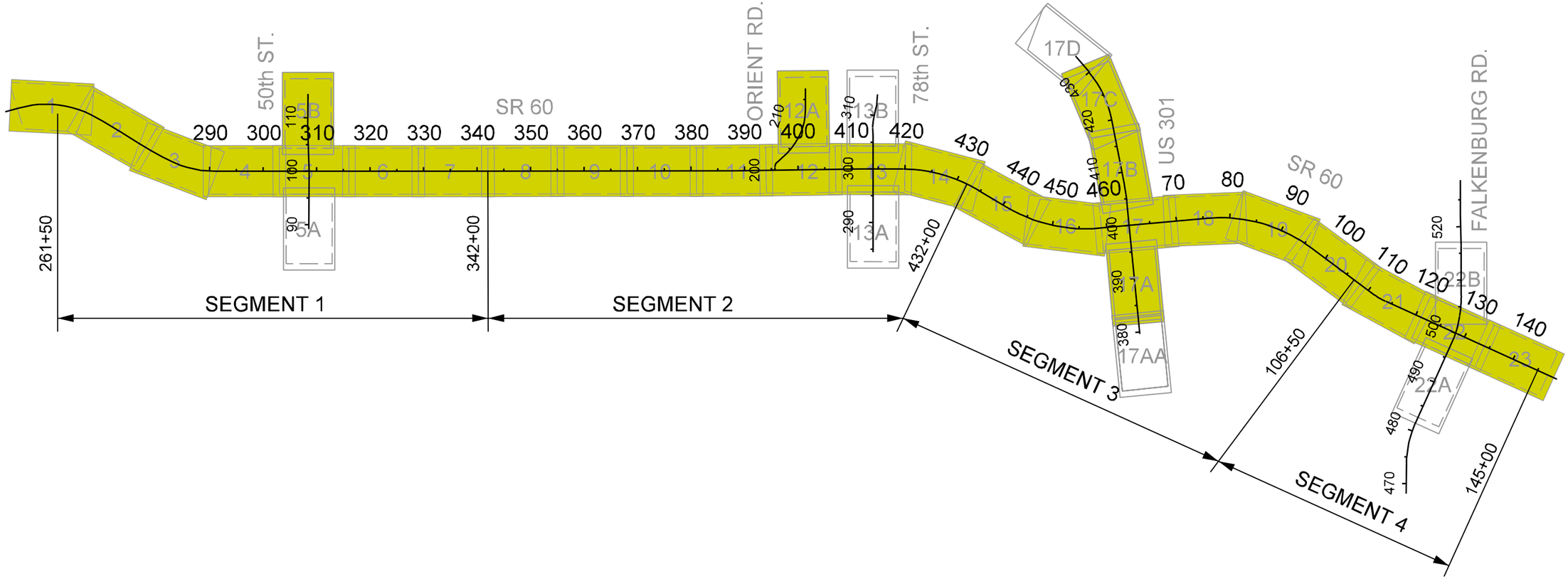
8. Executive Order 11988, "Floodplain Management", United States Department of Transportation Order 5650.2, and Chapter 23, CFR 650A.

9. Drainage Manual, Florida Department of Transportation, Tallahassee, Florida, 2003

10. Utility Assessment Package, Carter and Burgess, Inc., Tampa, Florida, 2004

11. A Pond Siting and Drainage Documentation, T.Y. Lin International, Tampa, Florida, 2004.

12. Stormwater Management Design Handbook, Florida Department of Transportation, Tallahassee, Florida, 2004.



Segment	Location	Station	Station Equation Back	Station Equation Ahead	Length Feet	Length Miles
1	West of 50th Street	261+50			8,050.06	1.525
	50th Street	308+55.73				
	CSX Railroad	322+09.31				
	East of CSX Railroad	342+00				
2			334+89.09	334+89.03	8,999.48	1.704
			387+91.23	387+90.86		
	Orient Road	395+70.87				
	Begin Bridge	404+55.63				
	Palm River					
	End Bridge	410+98.62				
	78th Street	414+00.49				
			416+35.54	416+36.43		
	East of 78th Street	432+00				
3			434+51.06	434+67.82	7,761.88	1.470
			458+91.64	458+71.47		
			463+95.29	60+86.82		
	US 301	61+10.64				
	Philip Lee Boulevard	106+50				
4	Falkenburg Road	128+15.74			4,050.00	0.767
	East of Falkenburg Road	145+00				
				Total Length =	28,861.42	5.466

Intersecton	Station	Station Equation Back	Station Equation Ahead	Length Feet	Length Miles
50th Street	308+55.73				
				1,353.57	0.256
CSX Railroad	322+09.31				
				7,361.99	1.394
		334+89.09	334+89.03		
		387+91.23	387+90.86		
Orient Road	395+70.87				
				884.77	0.168
Begin Bridge	404+55.63				
Palm River				642.99	0.122
End Bridge	410+98.62				
				301.87	0.057
78th Street	414+00.49				
		416+35.54	416+36.43	5,021.13	0.951
		434+51.06	434+67.82		
		458+91.64	458+71.47		
		463+95.29	60+86.82		
US 301	61+10.64				
				6,705.11	1.270
Falkenburg Road	128+15.74				
			Total Length =	22,271.43	4.218

$dates

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In Association with:
Carter & Burgess, Inc.
George F. Young, Inc.

110 BASELINE & STATIONS
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
ROADWAY
BRIDGE
WETLAND
SURFACE WATER
STORMWATER POND
BUSINESS RELOCATION
POTENTIAL CONTAMINATION SITE

AERIAL FLIGHT 2002

SR 60/ADAMO DRIVE PD&E STUDY
FROM WEST OF 50TH ST. TO EAST OF FALKENBURG RD.
COUNTY : HILLSBOROUGH
WPI SEGMENT NUMBER 405525-1

RECOMMENDED ALTERNATIVE PROJECT LAYOUT

SHEET: I

06/18/2005

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BASELINE & STATIONS
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PROPOSED RIGHT-OF-WAY
ROADWAY
BRIDGE
SIDEWALK
WETLAND
SURFACE WATER
STORMWATER POND
BUSINESS RELOCATION
POTENTIAL CONTAMINATION SITE

AERIAL FLIGHT 2002

SR 60/ADAMO DRIVE PD&E STUDY

FROM WEST OF 50TH ST. TO EAST OF FALKENBURG RD.

COUNTY : HILLSBOROUGH

WPI SEGMENT NUMBER 405525-1

RECOMMENDED ALTERNATIVE SEGMENT 1

SHEET: 1

06/18/2005

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BASELINE & STATIONS
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PROPOSED RIGHT-OF-WAY
ROADWAY
BRIDGE
SIDEWALK
WETLAND
SURFACE WATER
STORMWATER POND
BUSINESS RELOCATION
POTENTIAL CONTAMINATION SITE

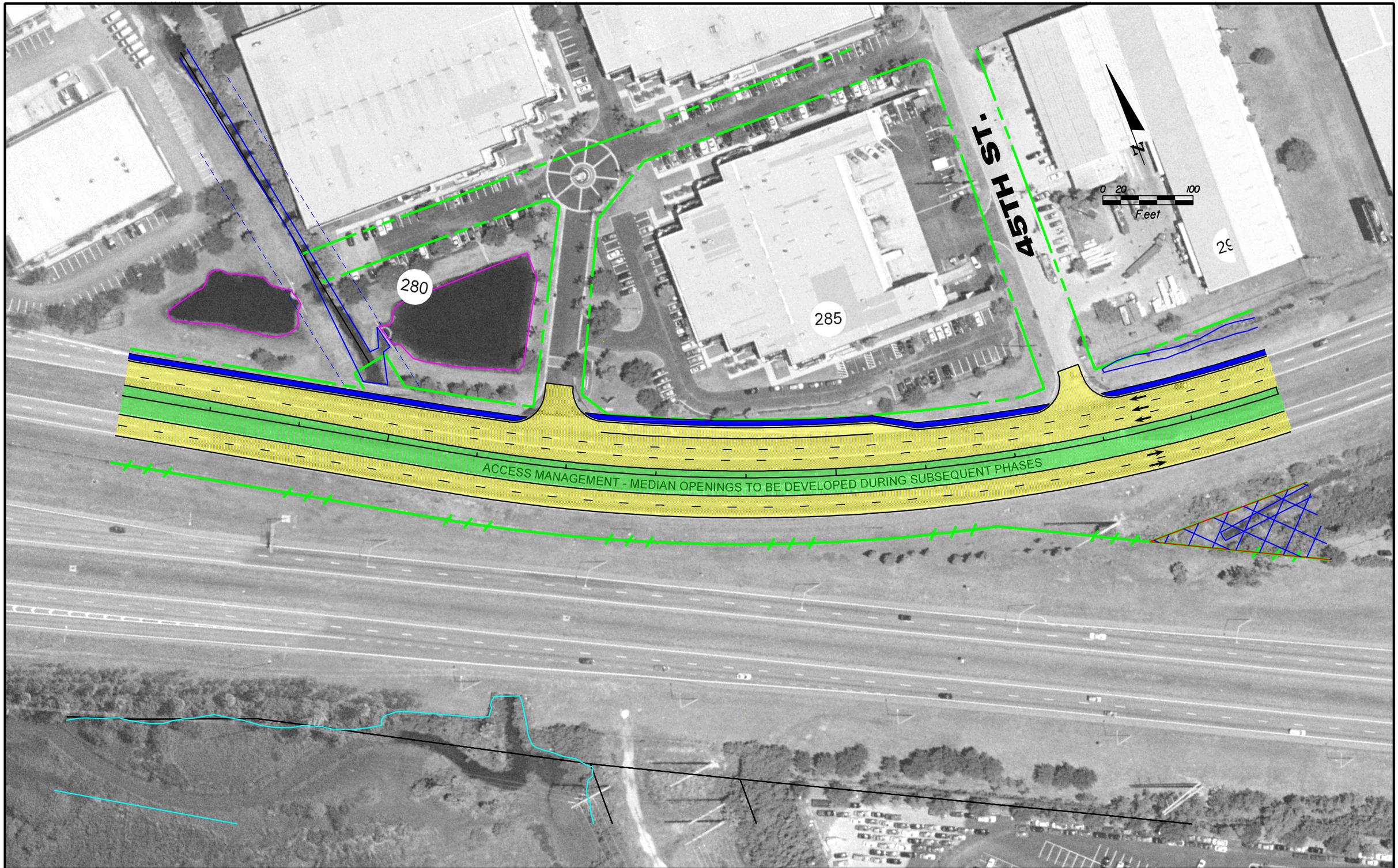
AERIAL FLIGHT 2002

SR 60/ADAMO DRIVE PD&E STUDY
FROM WEST OF 50TH ST. TO EAST OF FALKENBURG RD.
COUNTY : HILLSBOROUGH
WPI SEGMENT NUMBER 405525-1

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE SEGMENT 1

SHEET: 2



06/18/2005

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ROADWAY
BRIDGE
SIDEWALK
WETLAND
SURFACE WATER
STORMWATER POND
BUSINESS RELOCATION
POTENTIAL CONTAMINATION SITE

AERIAL FLIGHT 2002

SR 60/ADAMO DRIVE PD&E STUDY

FROM WEST OF 50TH ST. TO EAST OF FALKENBURG RD.

COUNTY : HILLSBOROUGH
WPI SEGMENT NUMBER 405525-1

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE SEGMENT 1

SHEET: 3

N

0 20 100

Feet

295

300

POND 1A

USA STORAGE
SELF STORAGE

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PROPOSED RIGHT-OF-WAY
ROADWAY
BRIDGE
SIDEWALK

WETLAND
SURFACE WATER
STORMWATER POND
BUSINESS RELOCATION
POTENTIAL CONTAMINATION SITE

AERIAL FLIGHT 2002

SR 60/ADAMO DRIVE PD&E STUDY

FROM WEST OF 50TH ST. TO EAST OF FALKENBURG RD.

COUNTY : HILLSBOROUGH

WPI SEGMENT NUMBER 405525-1

RECOMMENDED ALTERNATIVE SEGMENT 1

INSPECTION
TRAINING
ASSOC.

T.A.
MAHONEY

KING
FURNITURE

SHELL

CROSSTOWN
BUSINESS CENTER

305

310

315

2

3

100

N

0 20 100
Feet

06/18/2005

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FLIGHT
2002

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SHEET:
5

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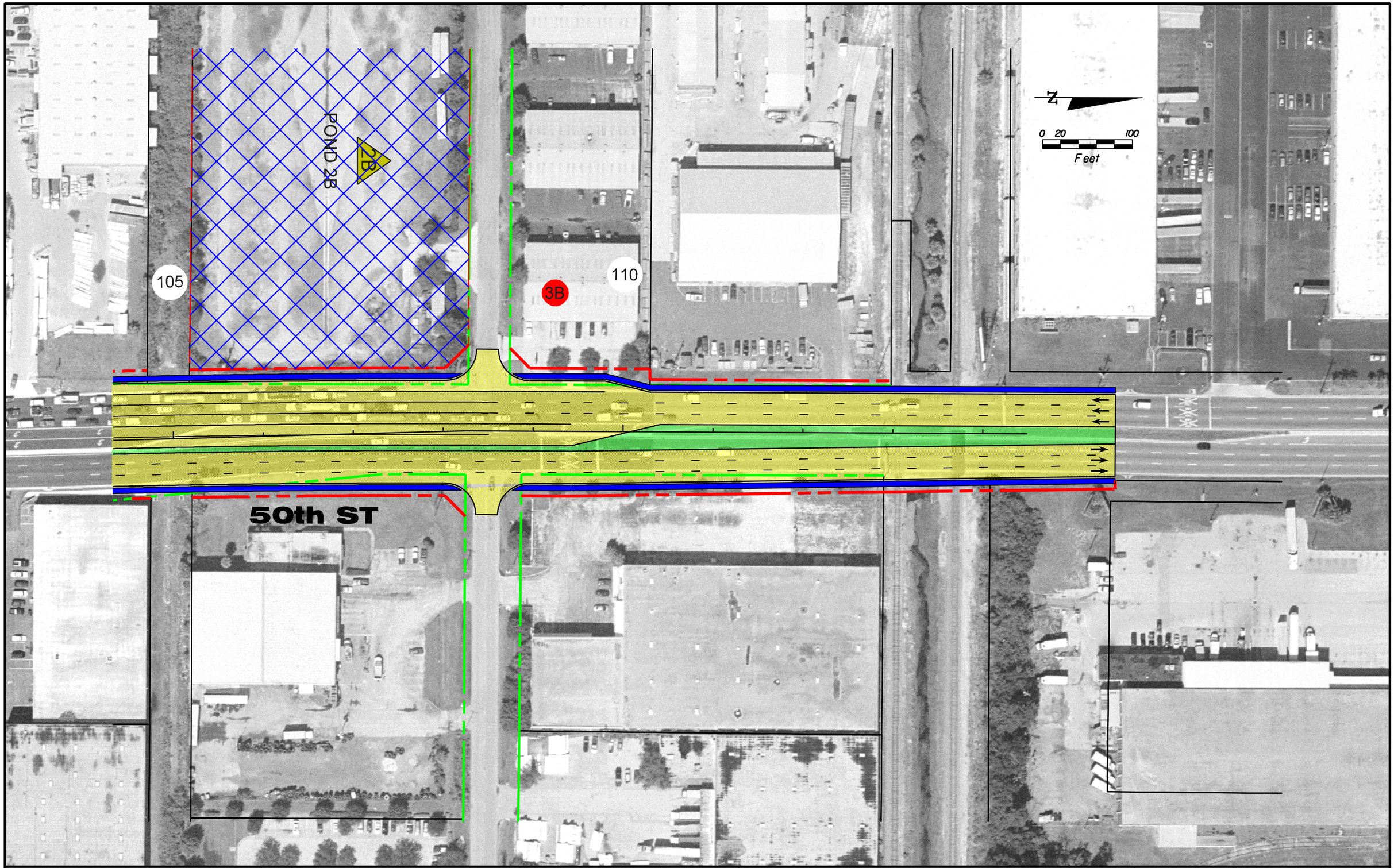
RECOMMENDED ALTERNATIVE SEGMENT 1

SHEET: 5A



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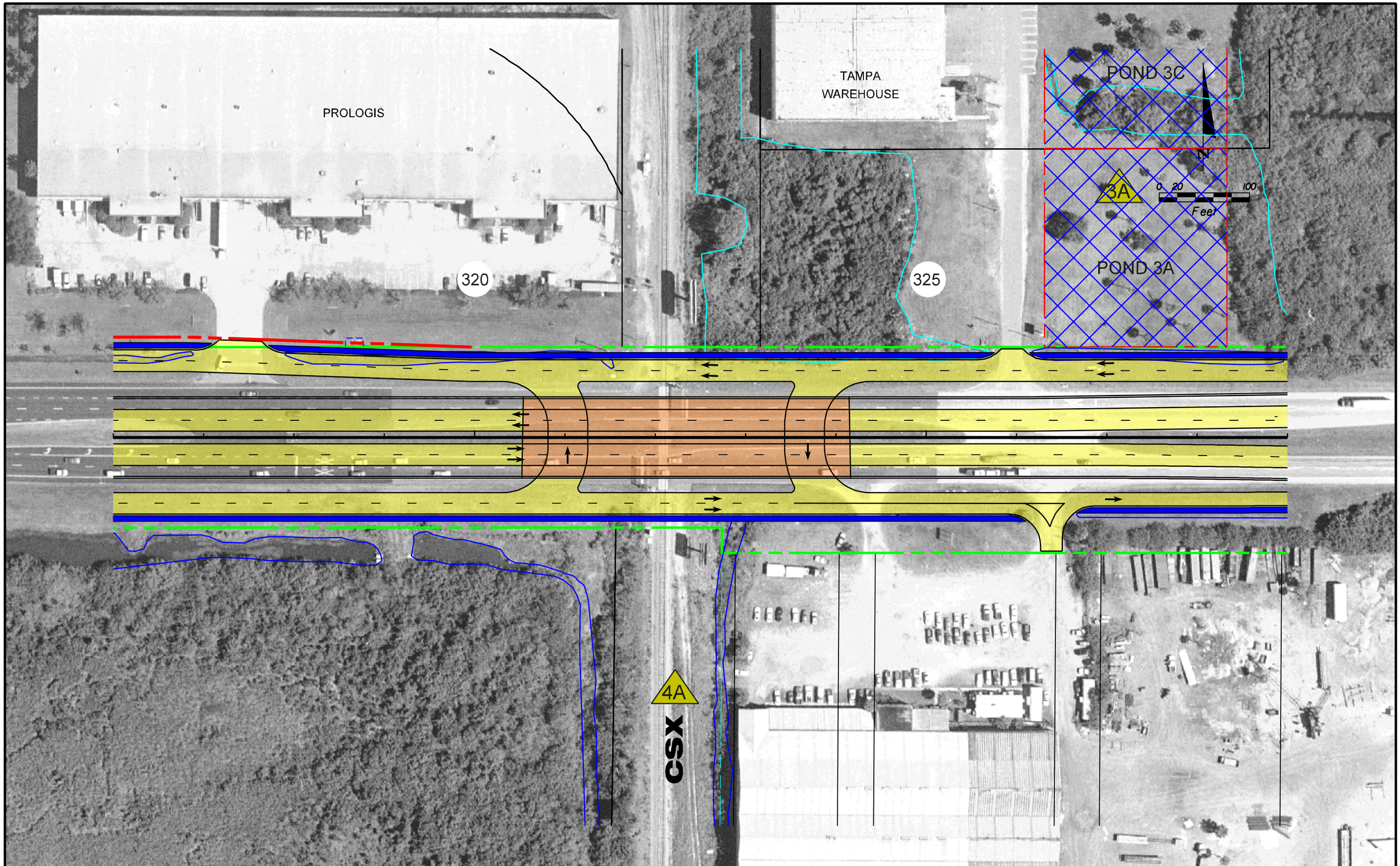
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE SEGMENT 1

SHEET: 5B



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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE SEGMENT 1

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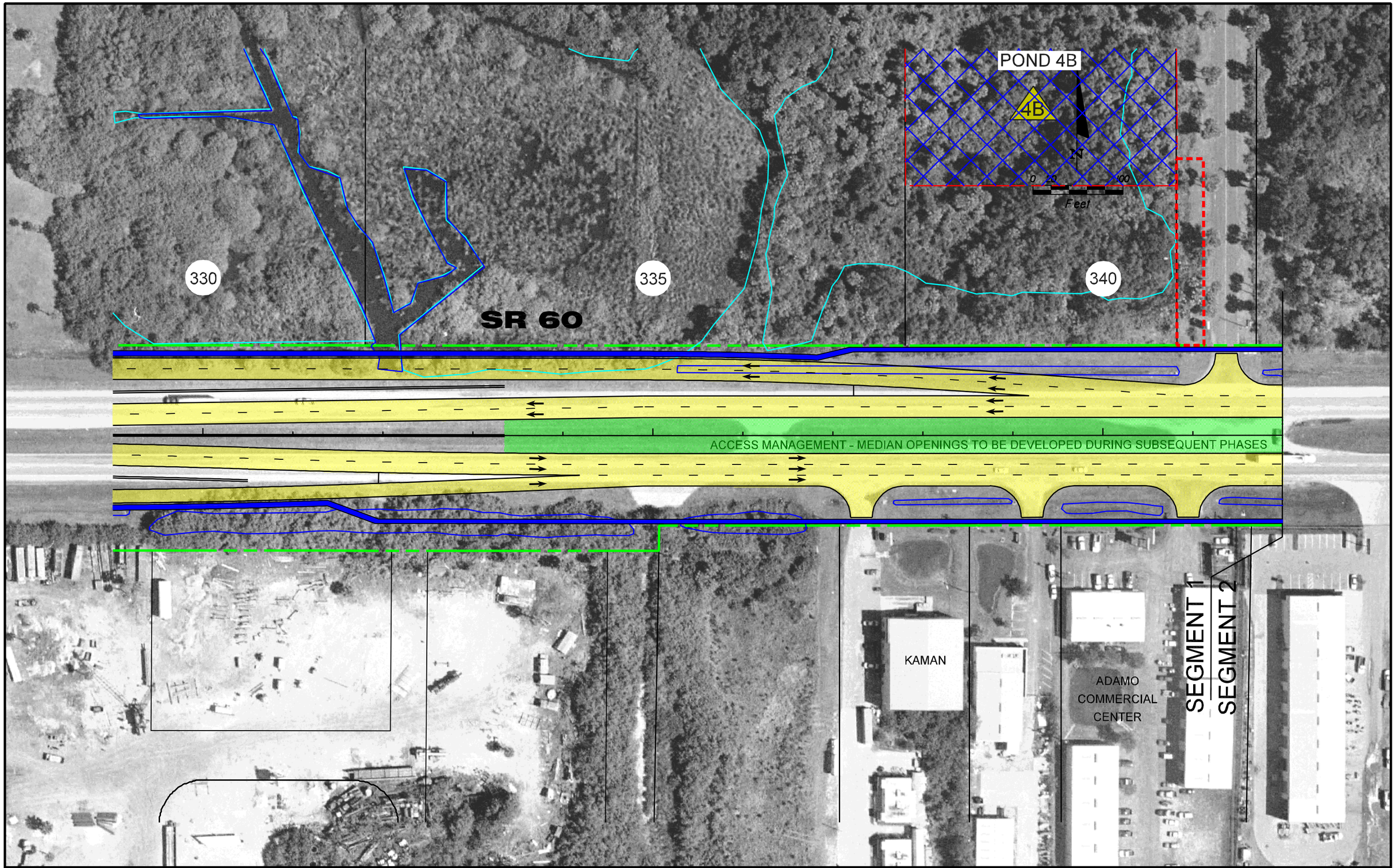

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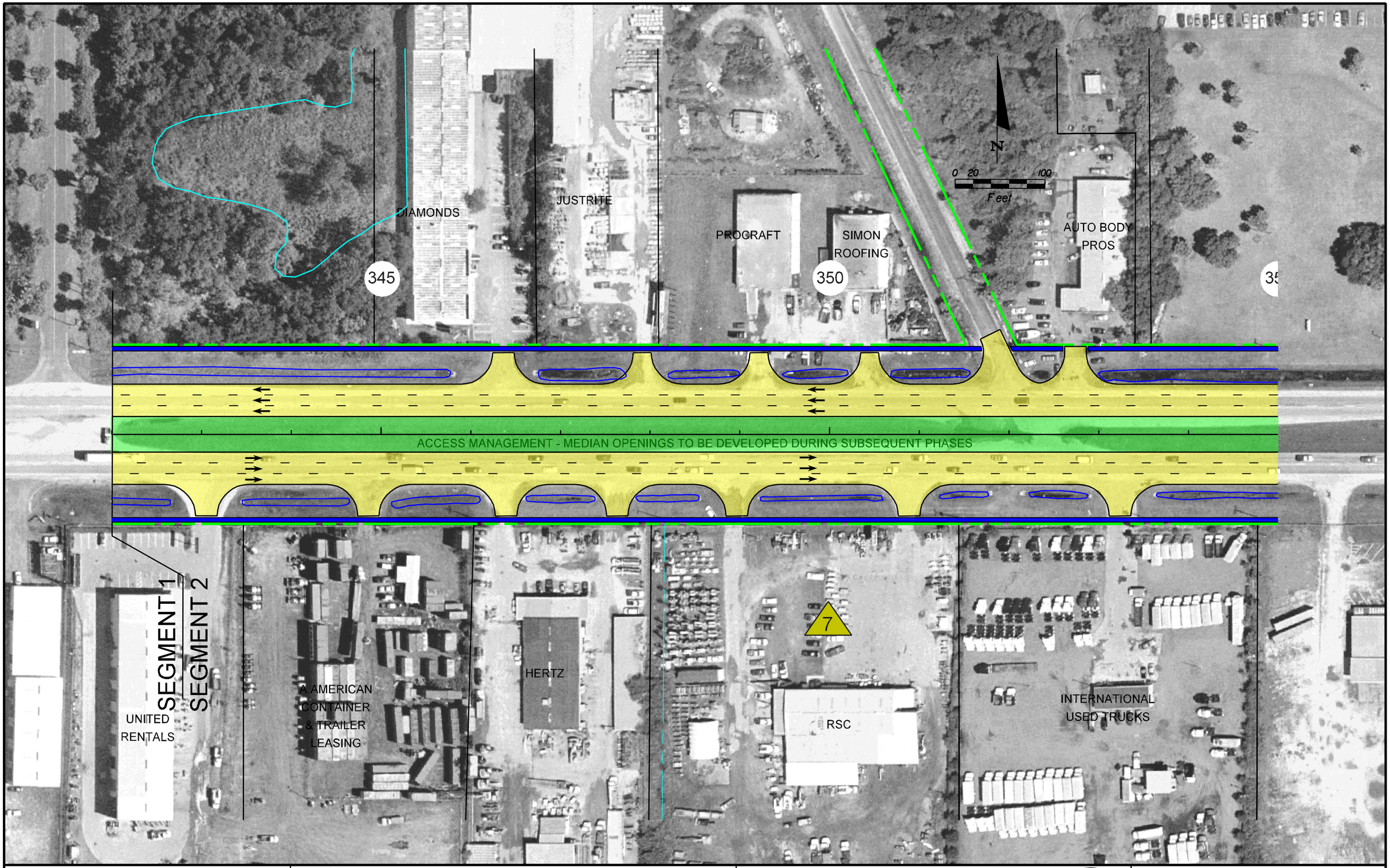
SHEET: 7



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RECOMMENDED ALTERNATIVE SEGMENT 2

SHEET: 8

SUNSTATE INTERNATIONAL

GOLD RUSH

55

360

365

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Feet

CLOSED

TEAM VEHICLE SALES

MAYDELL DR.

5A

POND 5A

MAYER ELECTRICAL SUPPLY

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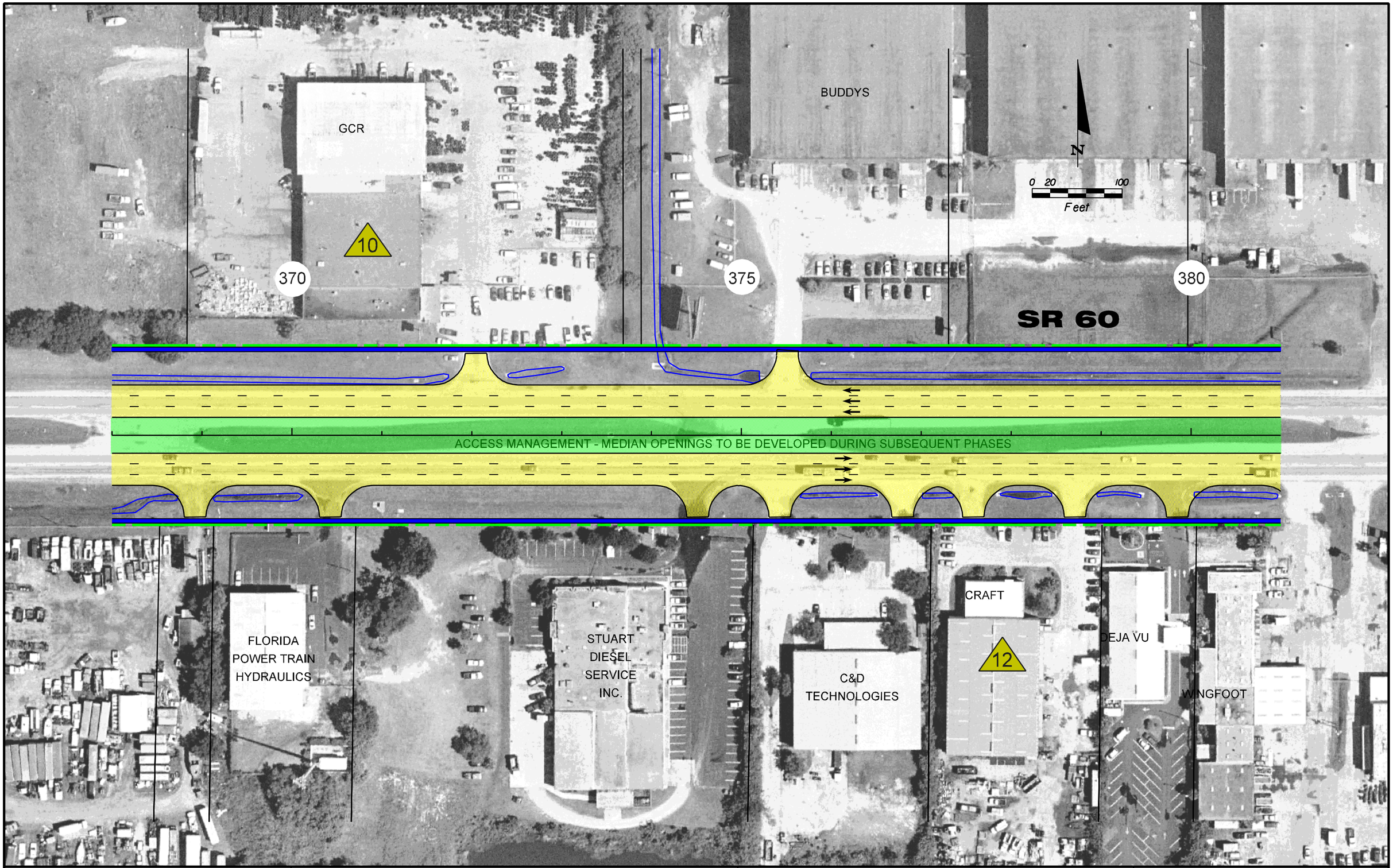

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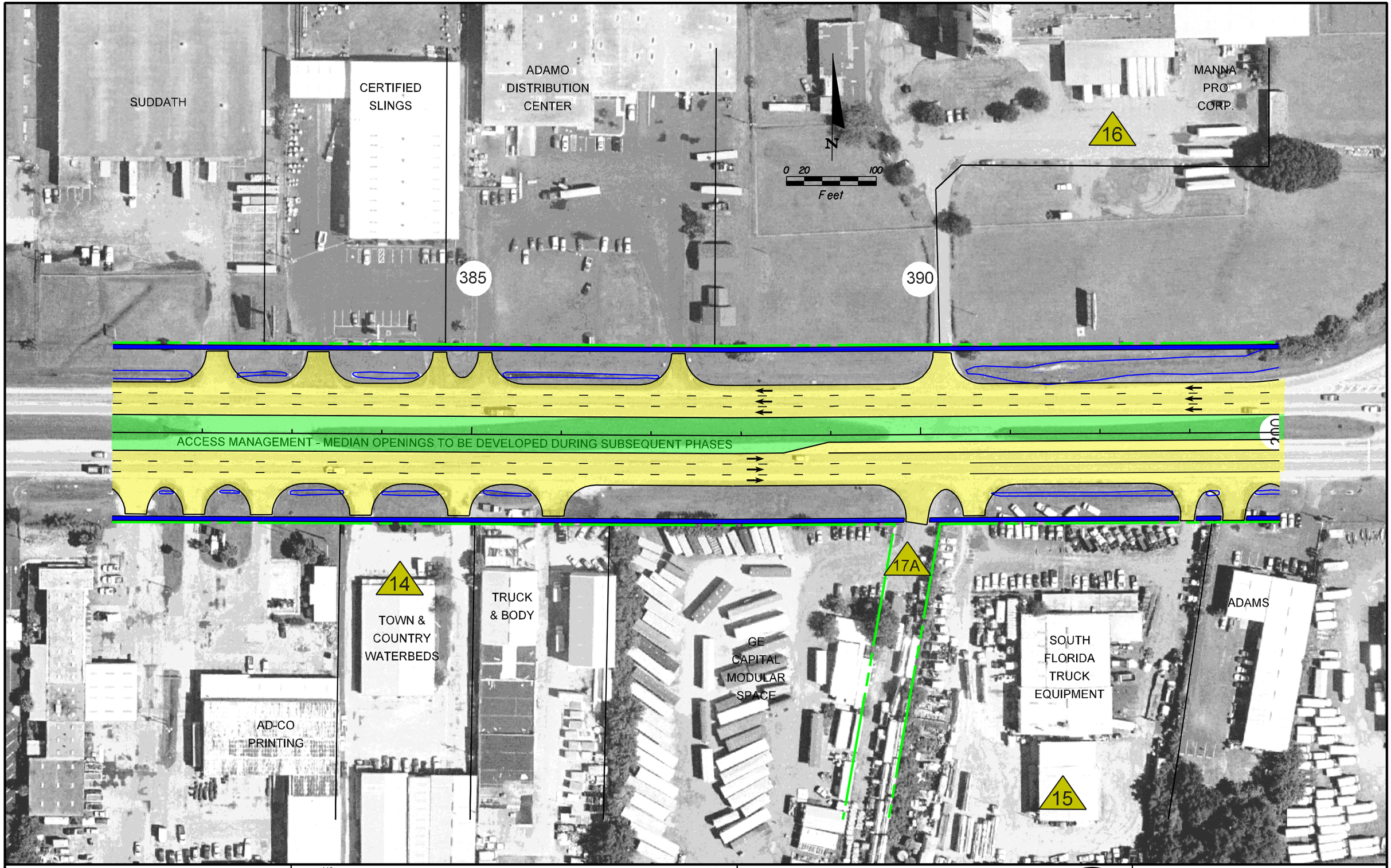

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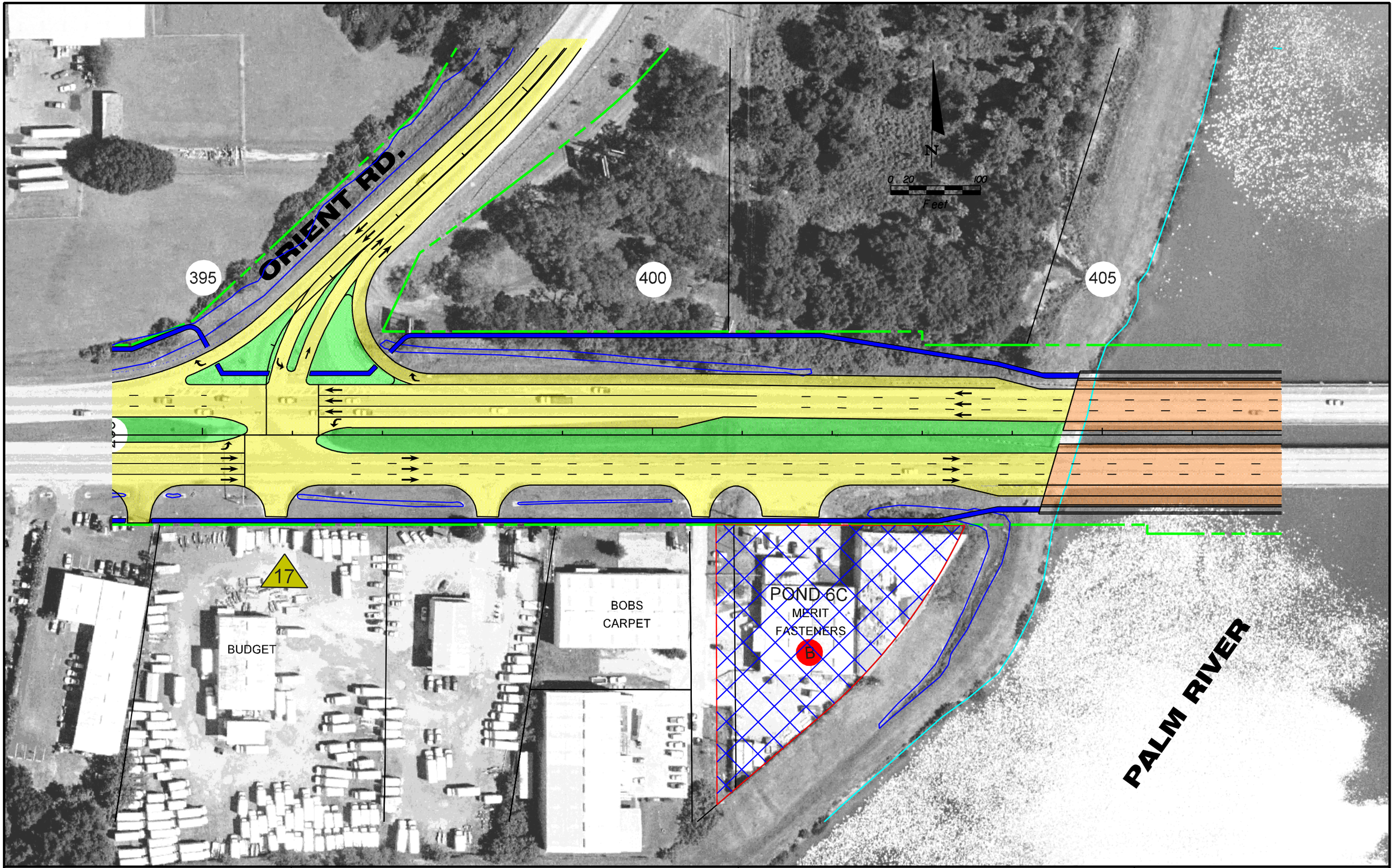
SHEET: 11



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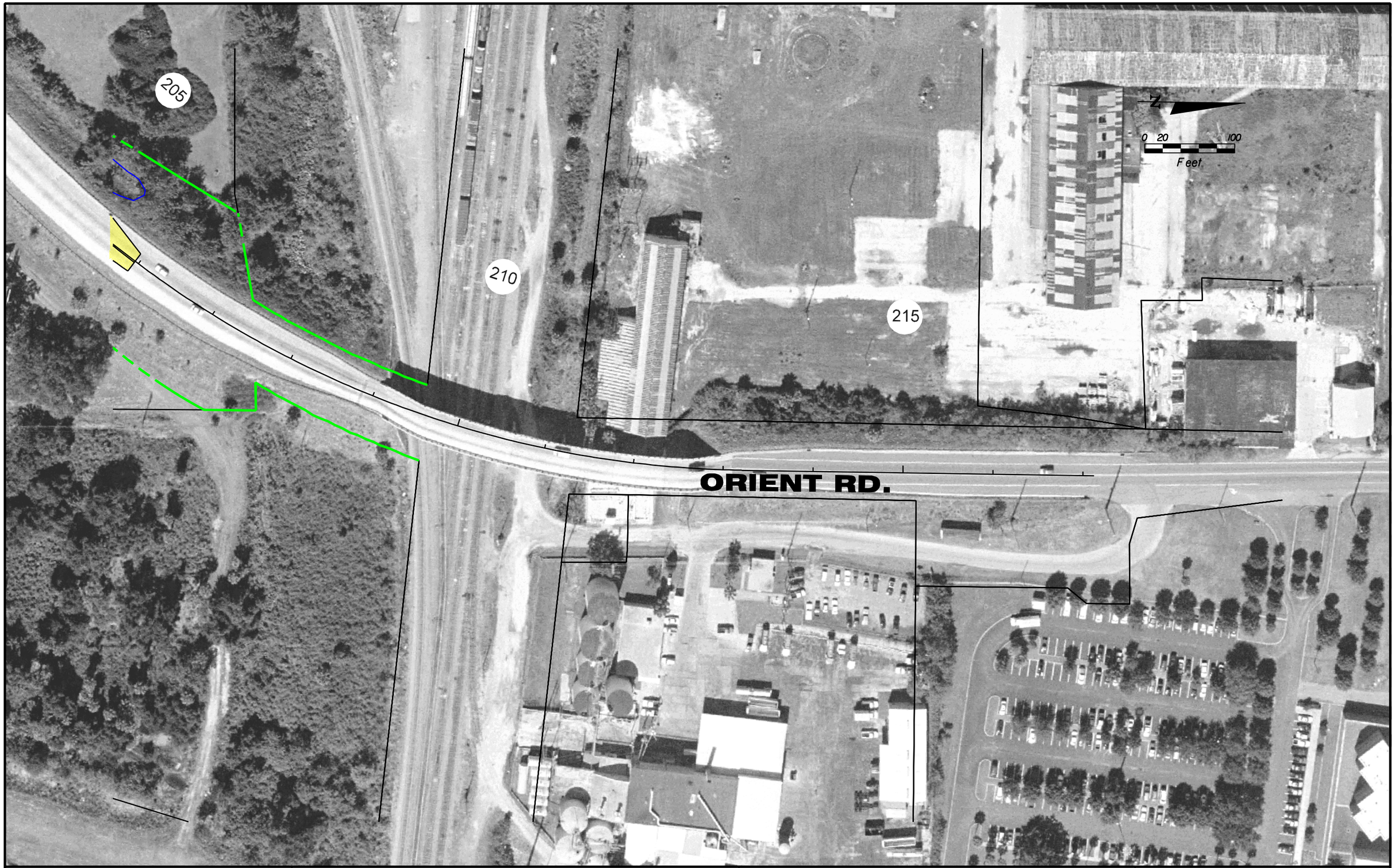
SHEET: 12



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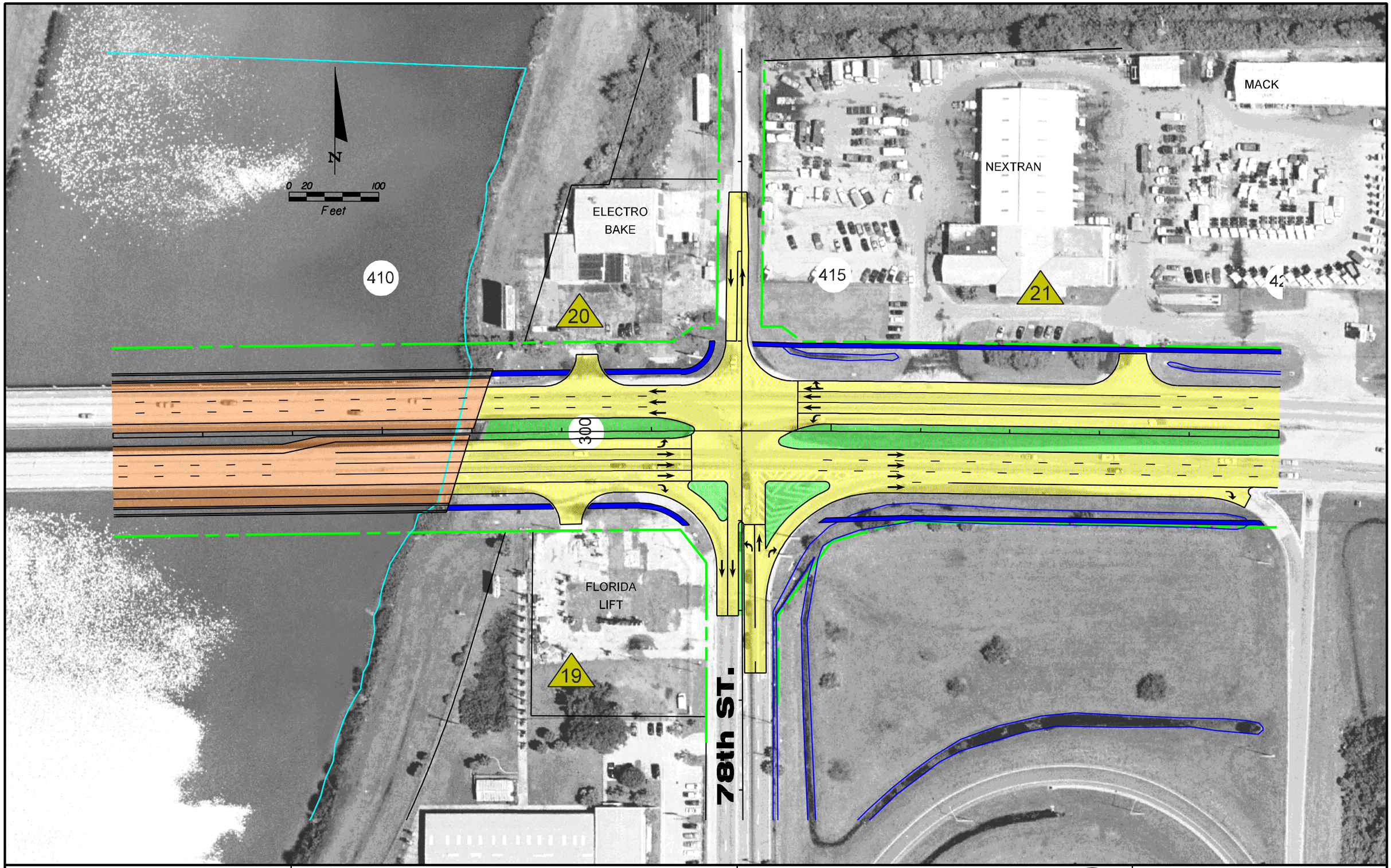
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE SEGMENT 2

SHEET: 12A



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SHEET: 13

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SHEET: 14

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SHEET: 15

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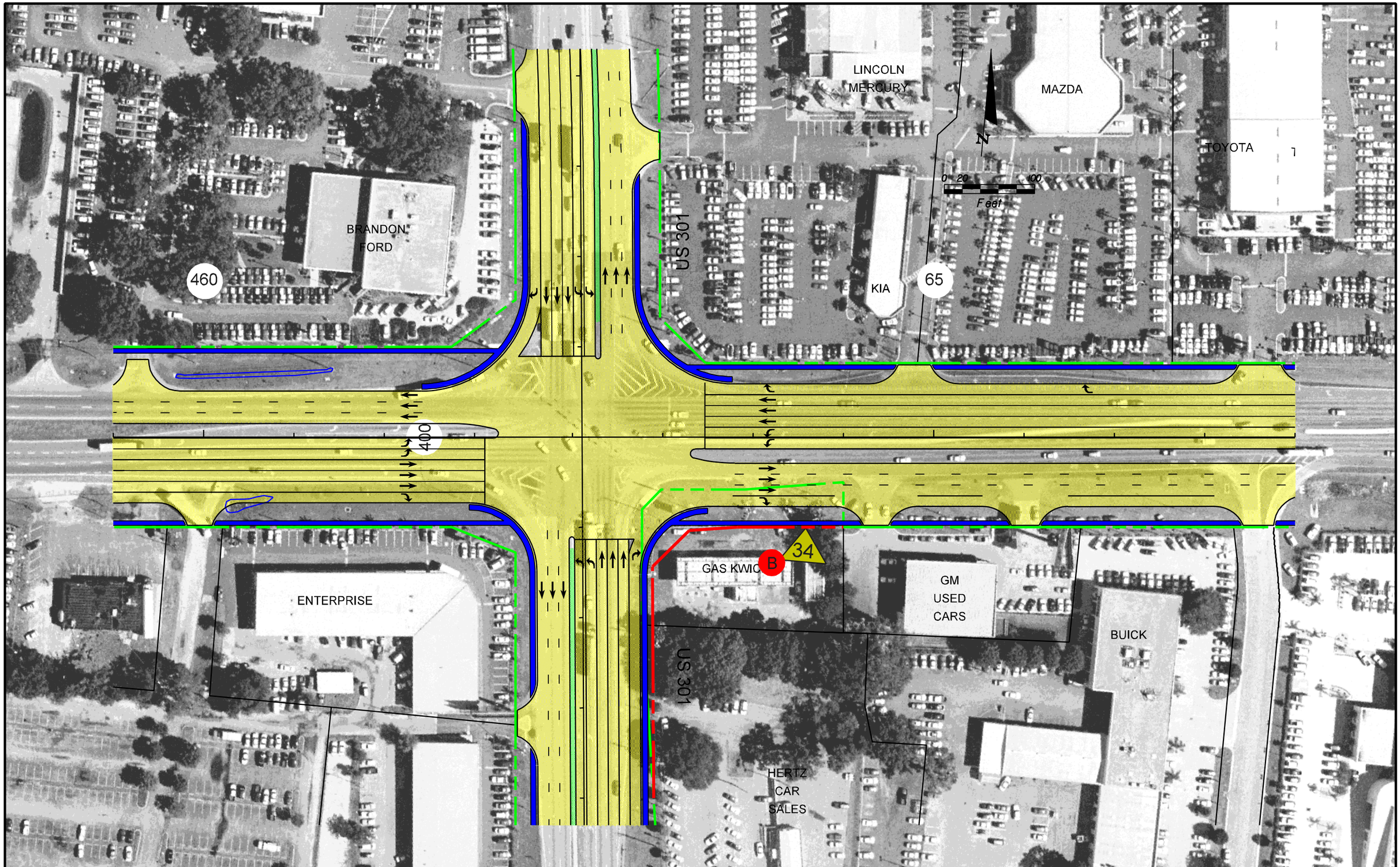
SHEET: 16



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SHEET: 17A

BRANDON FORD

405

410

415

US 301

CSX

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0 20 100

Feet

HOPEWELL INDUSTRIAL CENTER

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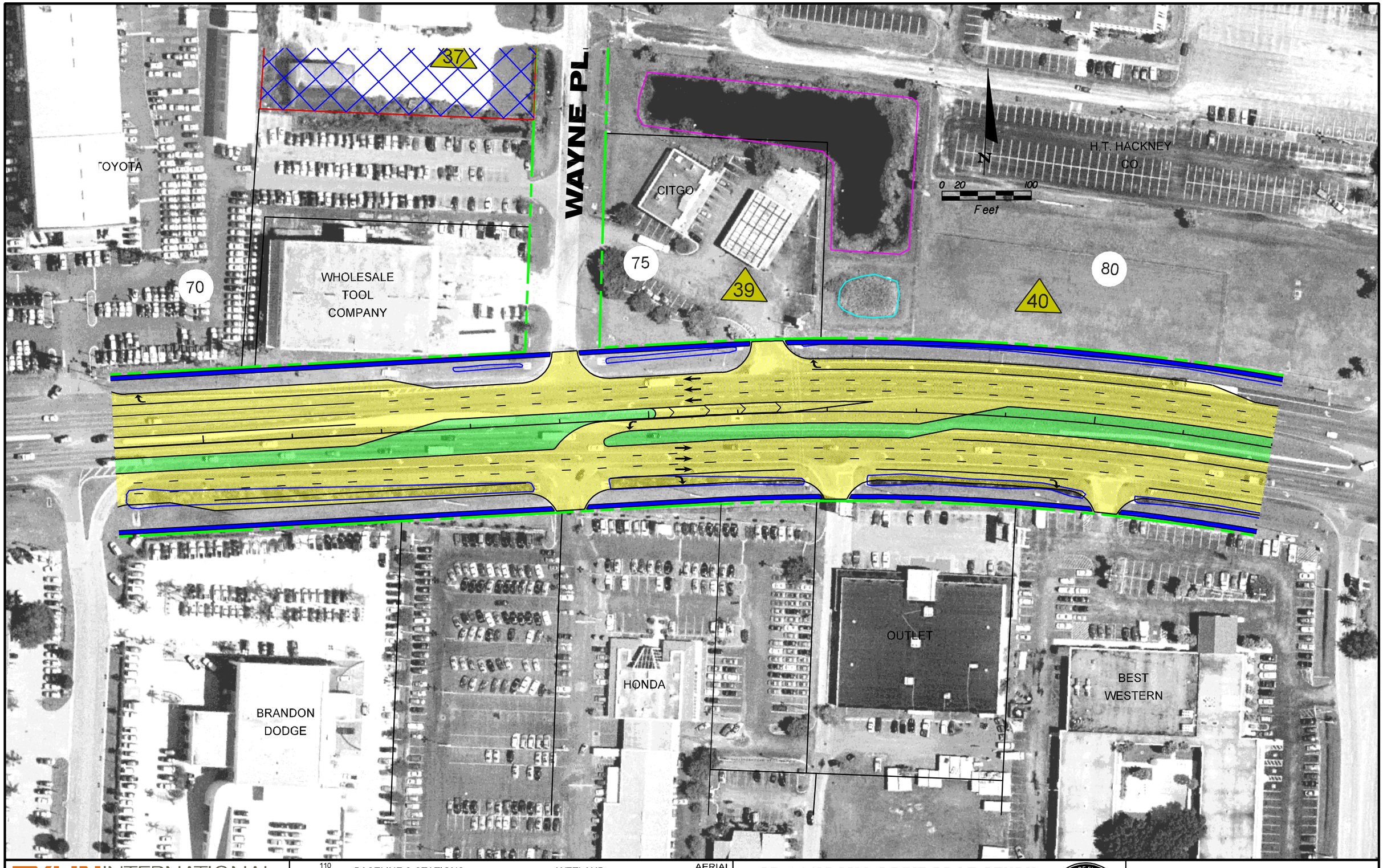

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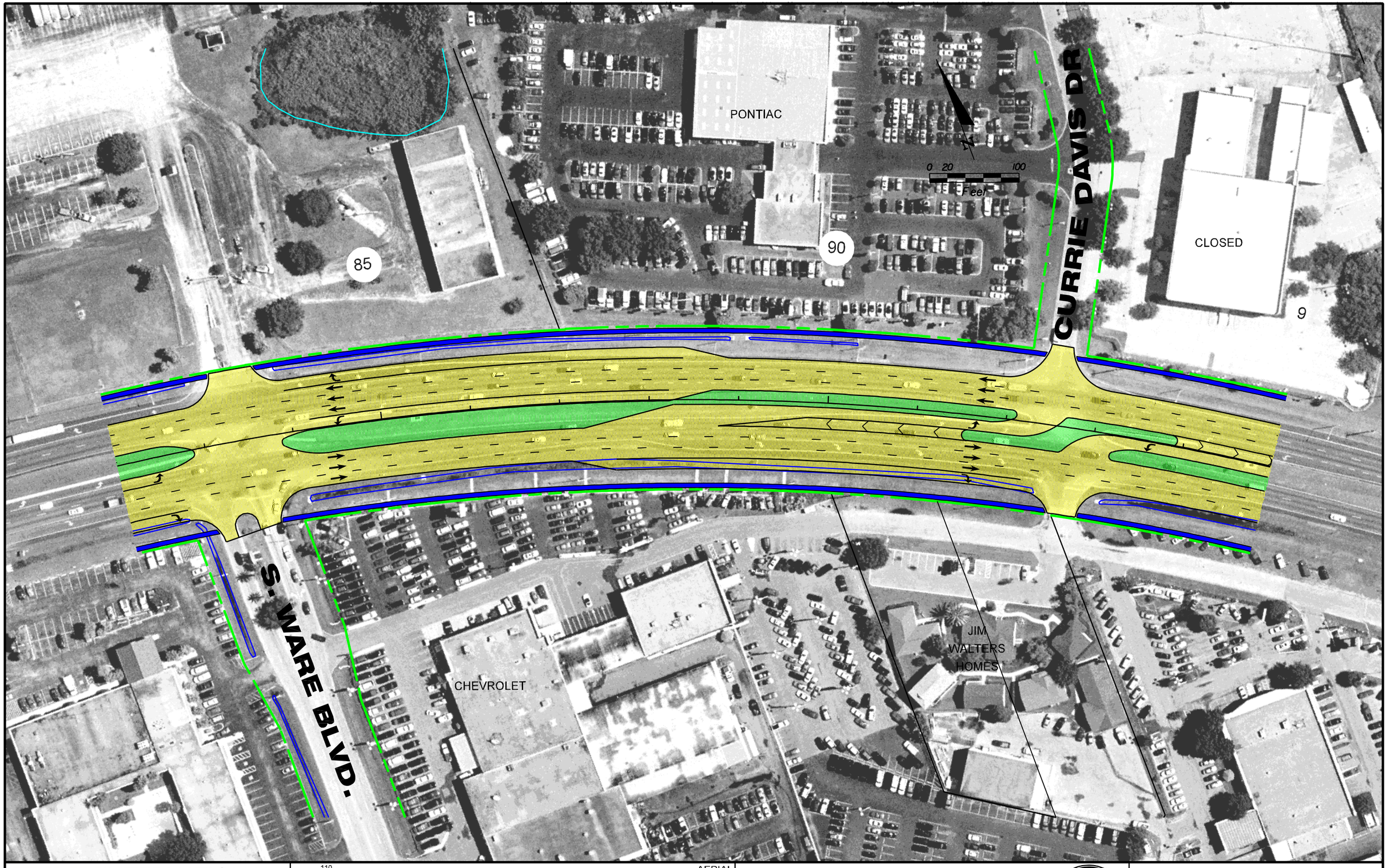

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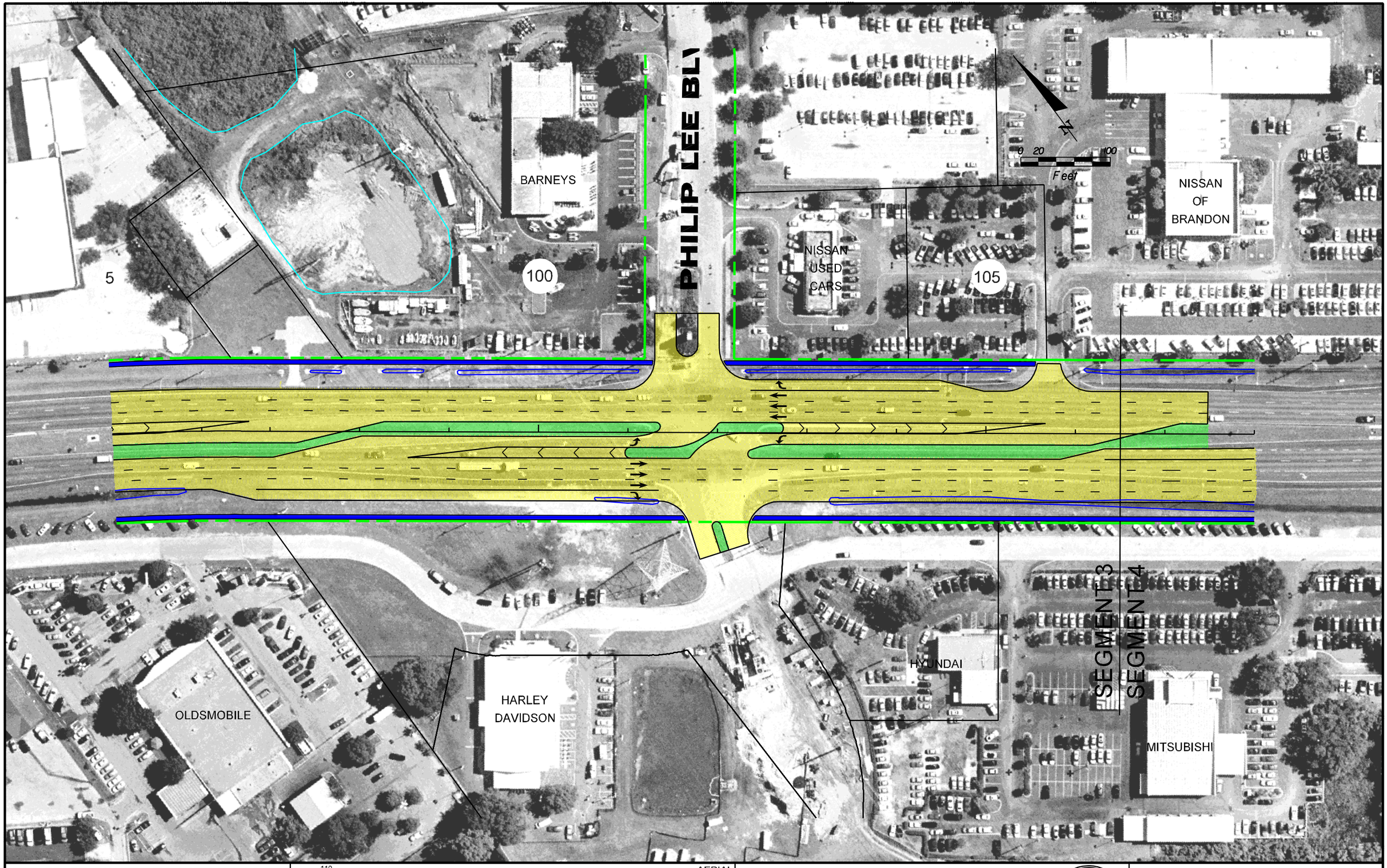

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- POTENTIAL CONTAMINATION SITE

AERIAL FLIGHT 2002

SR 60/ADAMO DRIVE PD&E STUDY

FROM WEST OF 50TH ST. TO EAST OF FALKENBURG RD.

COUNTY : HILLSBOROUGH

WPI SEGMENT NUMBER 405525-1

RECOMMENDED ALTERNATIVE SEGMENT 3

05/31/2005

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BRIDGE
SIDEWALK
WETLAND
SURFACE WATER
STORMWATER POND
BUSINESS RELOCATION
POTENTIAL CONTAMINATION SITE

AERIAL FLIGHT 2002

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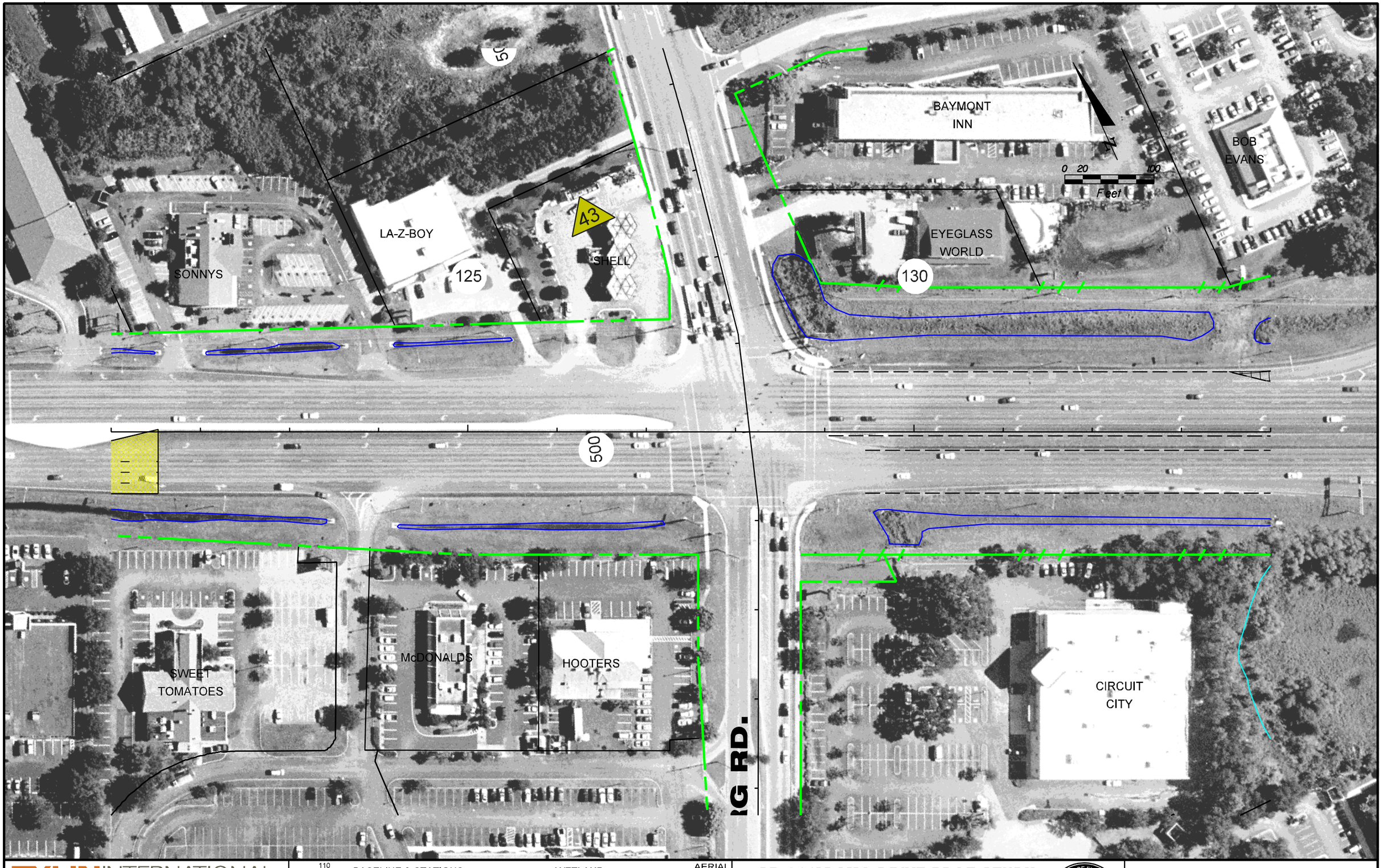
COUNTY : HILLSBOROUGH WPI SEGMENT NUMBER 405525-1

RECOMMENDED ALTERNATIVE SEGMENT 4



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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE SEGMENT 4

SHEET: 22

END PROJECT

135

140

145

THIS RAMP HAS
BEEN REMOVED

IMPROVEMENTS MADE
AFTER PHOTOGRAPHY

N

0 20' 100
Feet

05/31/2005

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AERIAL
FLIGHT
2002

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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE SEGMENT 4

SHEET:
23

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AERIAL FLIGHT 2002

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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE PRELIMINARY PONDS SEGMENT 1

SHEET: 1

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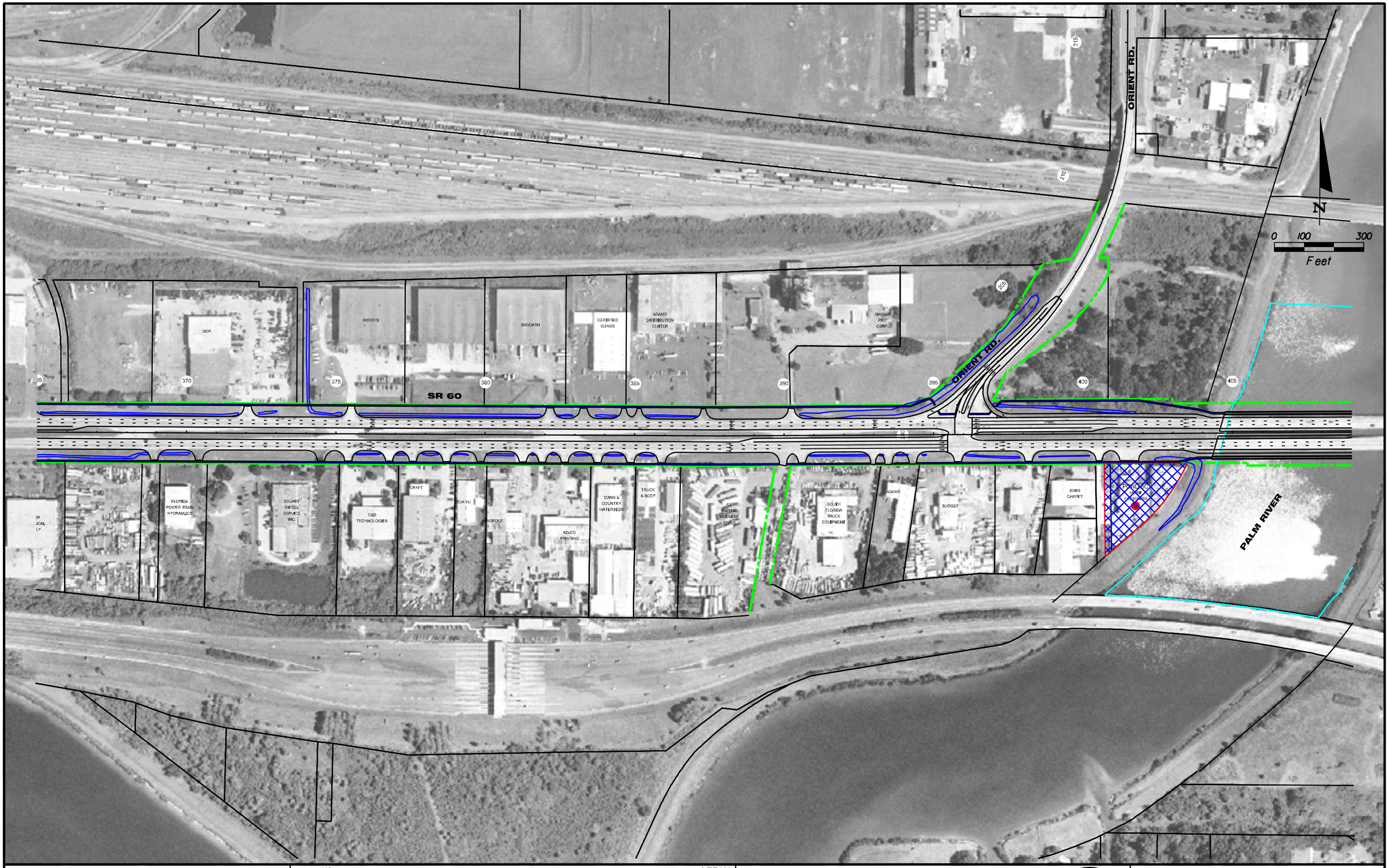
COUNTY : HILLSBOROUGH WPI SEGMENT NUMBER 405525-1

RECOMMENDED ALTERNATIVE PRELIMINARY PONDS SEGMENT 1 / 2

SHEET: 2



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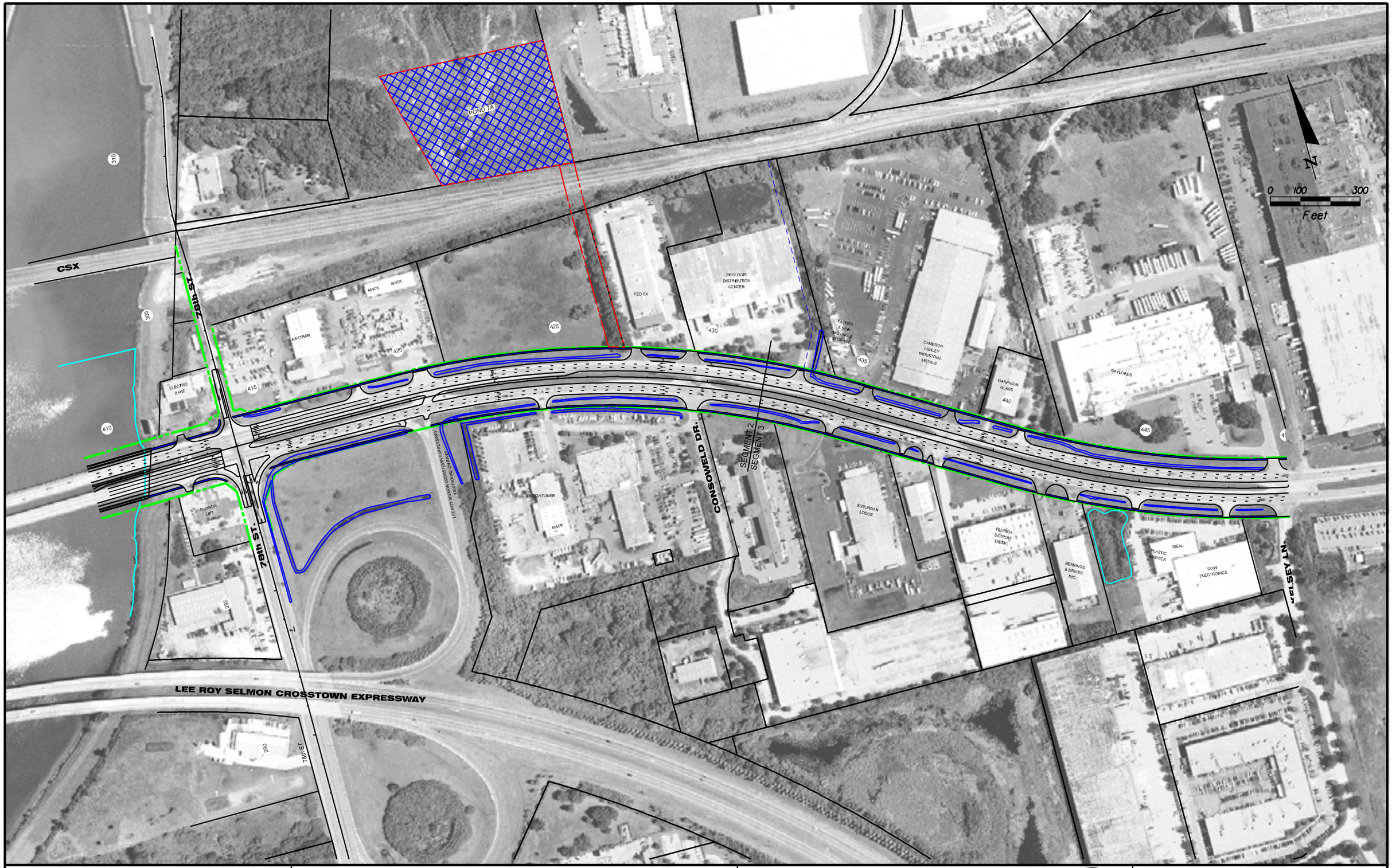
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE PRELIMINARY PONDS SEGMENT 2

SHEET: 3



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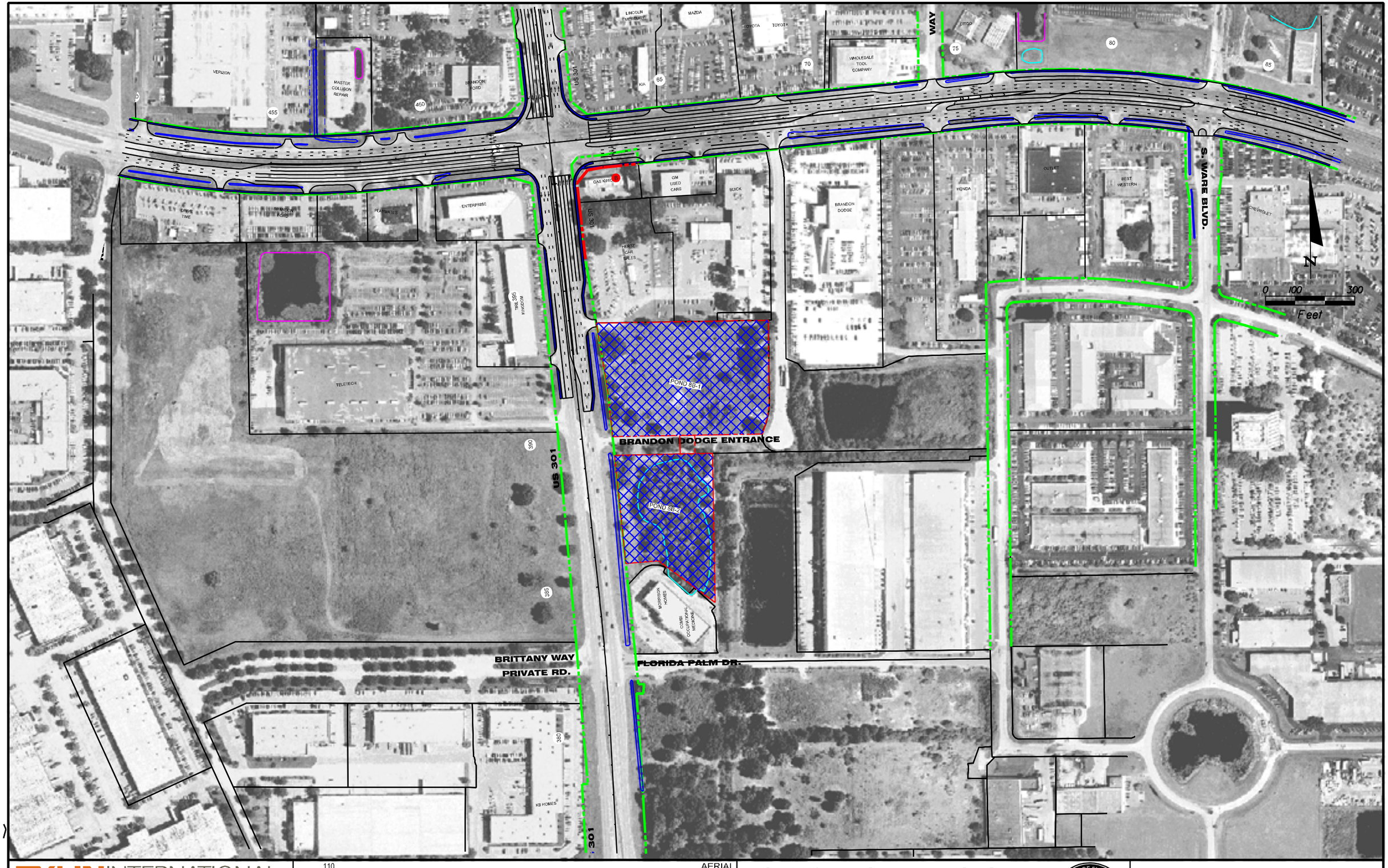
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE PRELIMINARY PONDS SEGMENT 2

SHEET: 4



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RECOMMENDED ALTERNATIVE PRELIMINARY PONDS SEGMENT 3

SHEET: 5

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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE PRELIMINARY PONDS SEGMENT 3

SHEET: 6

POND 108

CURRIE DAVIS DR.

PHILLIP LEE BLVD.

FALKENBURG RD.

SEGMENT 3

SEGMENT 4

BUSINESS ENTRANCE

N

0 100 300

Feet

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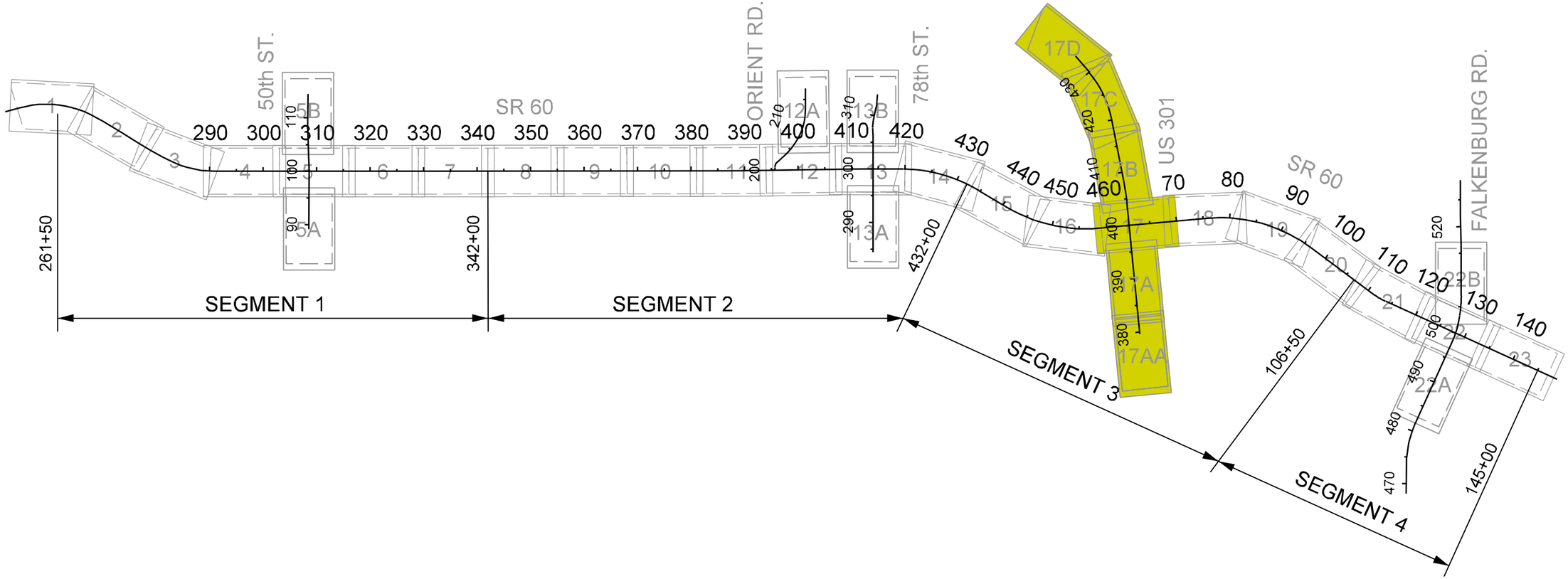
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE PRELIMINARY PONDS SEGMENT 4

SHEET: 7



Segment	Location	Station	Station Equation Back	Station Equation Ahead	Length Feet	Length Miles
1	West of 50th Street	261+50			8,050.06	1.525
	50th Street	308+55.73				
	CSX Railroad	322+09.31				
	East of CSX Railroad	342+00				
2			334+89.09	334+89.03	8,999.48	1.704
			387+91.23	387+90.86		
	Orient Road	395+70.87				
	Begin Bridge	404+55.63				
	Palm River					
	End Bridge	410+98.62				
	78th Street	414+00.49				
			416+35.54	416+36.43		
	East of 78th Street	432+00				
3			434+51.06	434+67.82	7,761.88	1.470
			458+91.64	458+71.47		
			463+95.29	60+86.82		
	US 301	61+10.64				
	Philip Lee Boulevard	106+50				
4	Falkenburg Road	128+15.74			4,050.00	0.767
	East of Falkenburg Road	145+00				
				Total Length =	28,861.42	5.466

Intersecton	Station	Station Equation Back	Station Equation Ahead	Length Feet	Length Miles
50th Street	308+55.73				
				1,353.57	0.256
CSX Railroad	322+09.31				
				7,361.99	1.394
		334+89.09	334+89.03		
		387+91.23	387+90.86		
Orient Road	395+70.87				
				884.77	0.168
Begin Bridge	404+55.63				
Palm River				642.99	0.122
End Bridge	410+98.62				
				301.87	0.057
78th Street	414+00.49				
		416+35.54	416+36.43	5,021.13	0.951
		434+51.06	434+67.82		
		458+91.64	458+71.47		
		463+95.29	60+86.82		
US 301	61+10.64				
				6,705.11	1.270
Falkenburg Road	128+15.74				
			Total Length =	22,271.43	4.218

$dates

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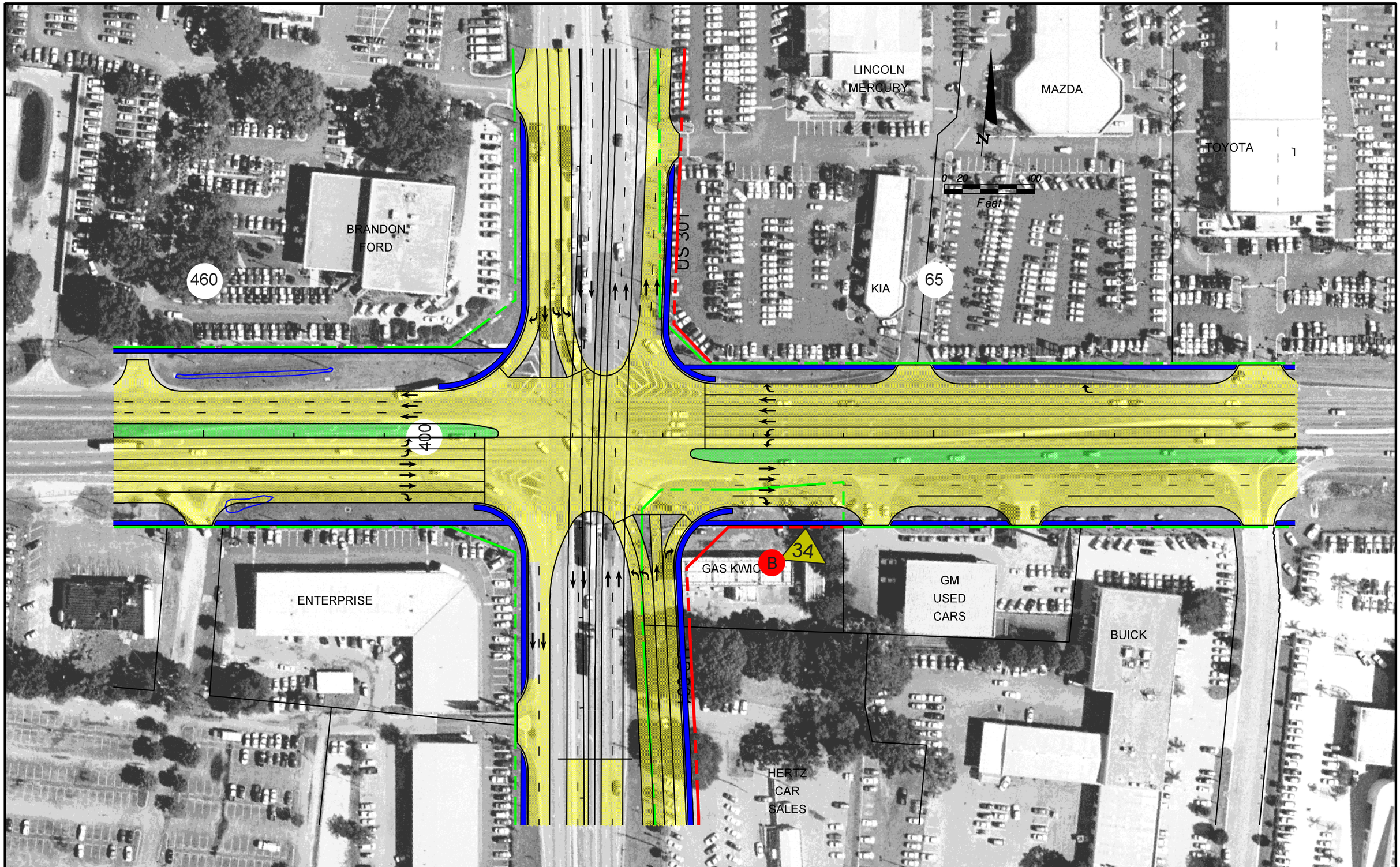
FROM WEST OF 50TH ST. TO EAST OF FALKENBURG RD.
COUNTY : HILLSBOROUGH
WPI SEGMENT NUMBER 405525-1

US 301 INTERCHANGE OPTION PROJECT LAYOUT

SHEET: I



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RECOMMENDED ALTERNATIVE US 301 INTERCHANGE OPTION SEGMENT 3

SHEET: 17

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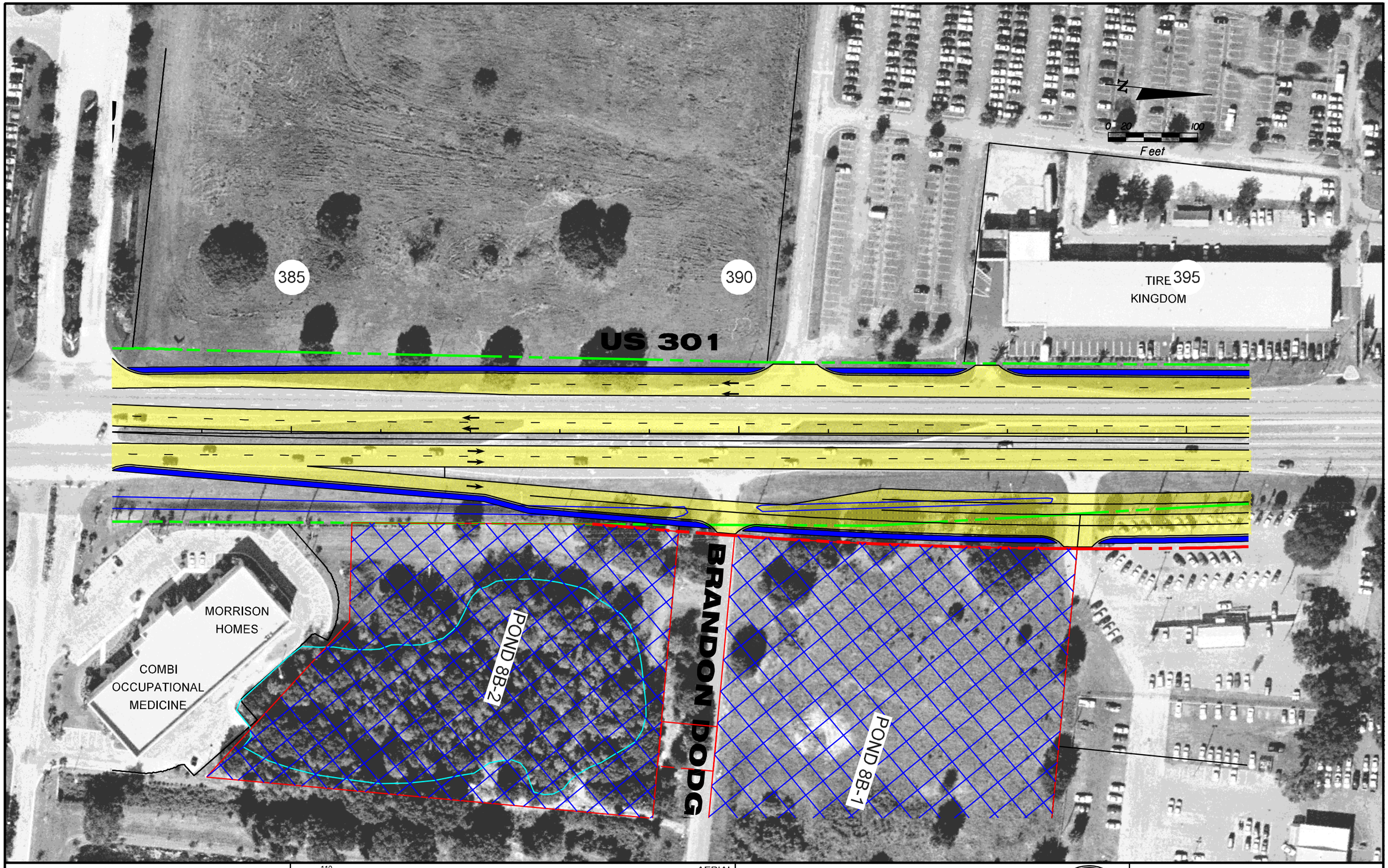
RECOMMENDED ALTERNATIVE US 301 INTERCHANGE OPTION SEGMENT 3

SHEET: 17AA



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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE US 301 INTERCHANGE OPTION SEGMENT 3

SHEET: 17A

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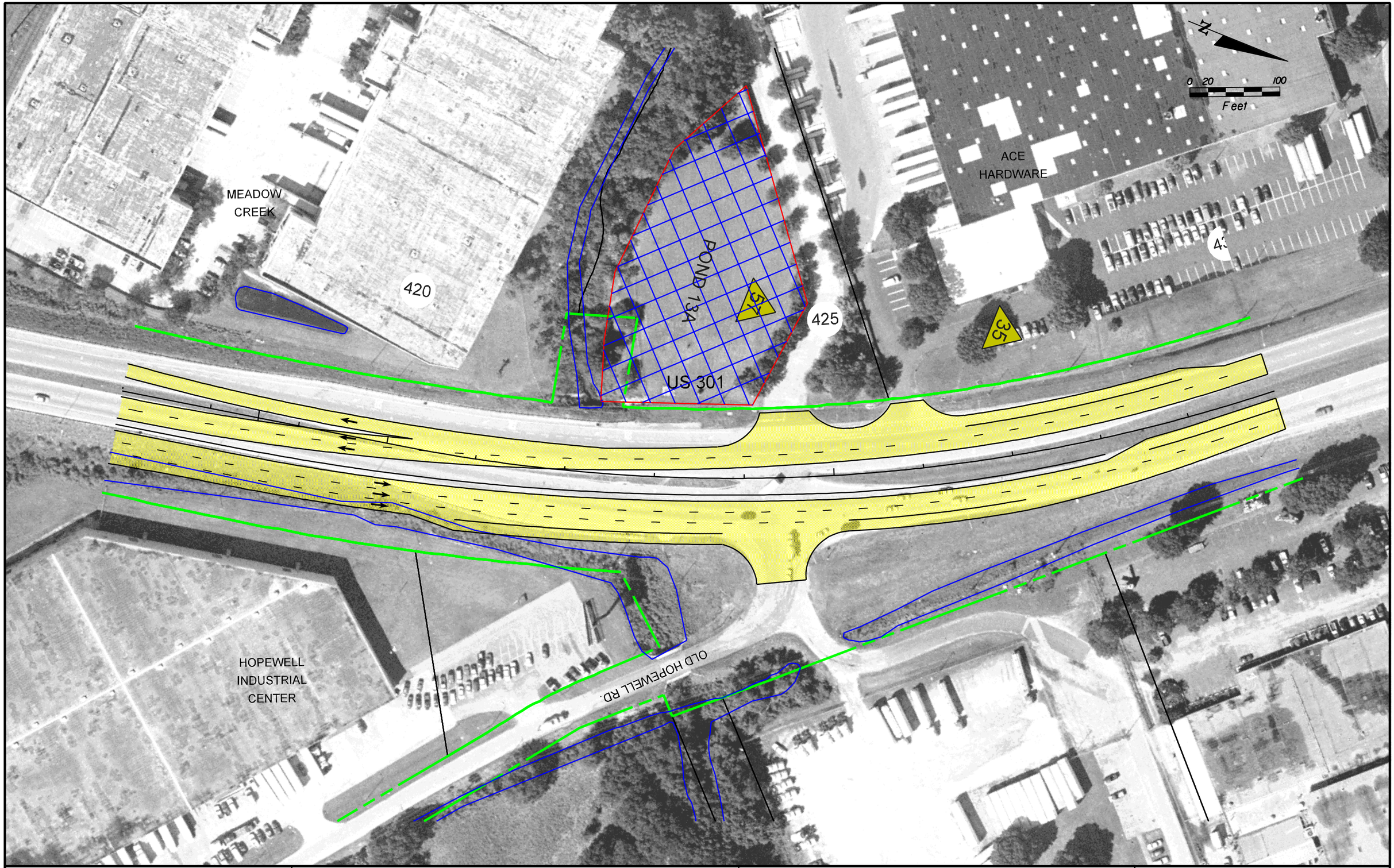
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE US 301 INTERCHANGE OPTION SEGMENT 3

SHEET: 17B



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RECOMMENDED ALTERNATIVE
US 301 INTERCHANGE OPTION
SEGMENT 3
SHEET: 17C

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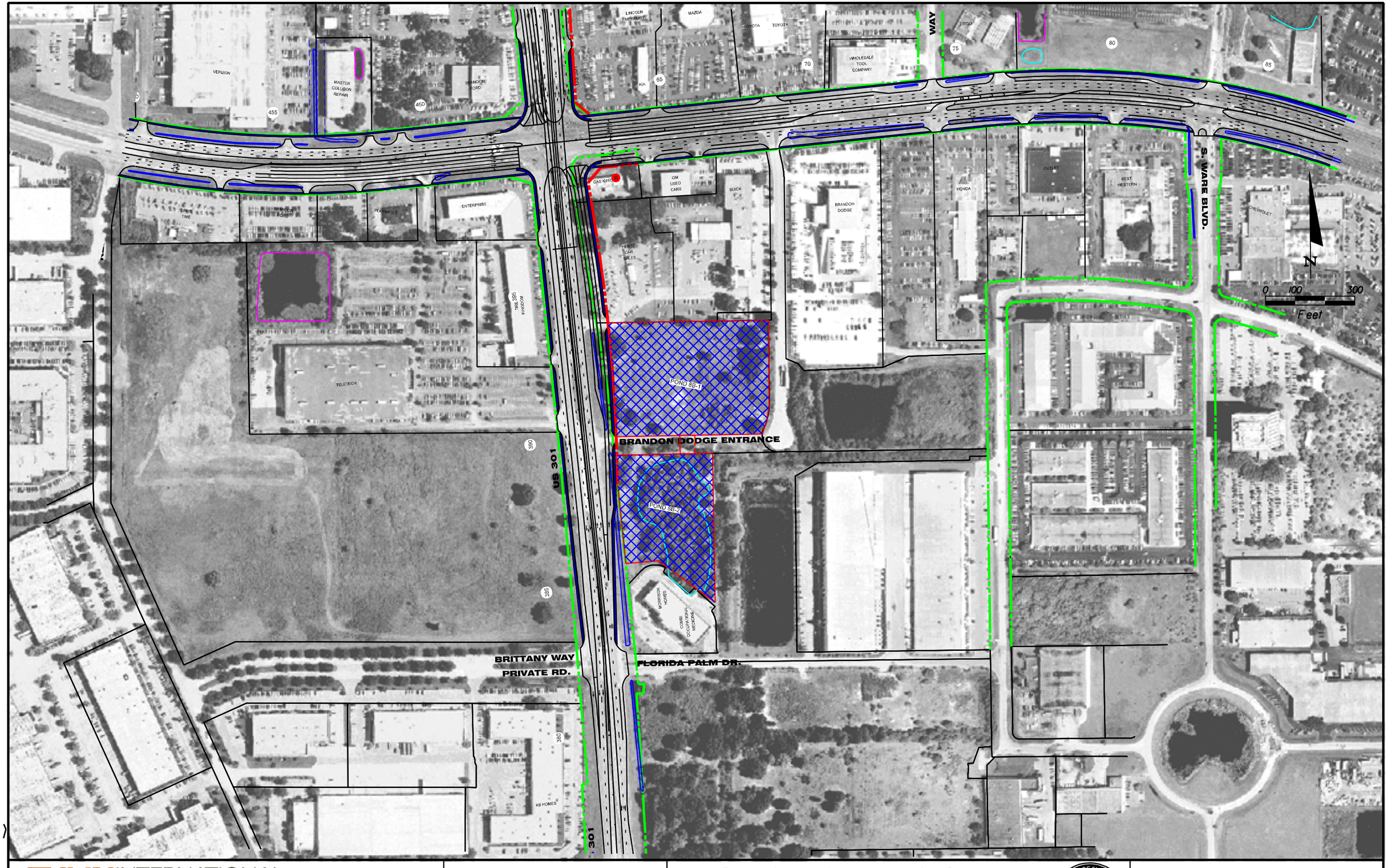
RECOMMENDED ALTERNATIVE US 301 INTERCHANGE OPTION SEGMENT 3

SHEET: 17D



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FINANCIAL PROJECT ID : 405525-1-22-01

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RECOMMENDED ALTERNATIVE US 301 INTERCHANGE OPTION PRELIMINARY PONDS PLAN SHEET

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POND 9C

WAYNE PL.

S. WAF

BRANDON FORD

LINCOLN MERCURY

MAZDA

TOYOTA

KIA

WHOLESALE TOOL COMPANY

CITGO

M.T. HACKNEY CO.

MASTER COLLISON REPAIR

VERIZON

OUTLET

BEST

GAS KING

GM USED

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MADONNA DRIVE

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RECOMMENDED ALTERNATIVE US 301 INTERCHANGE OPTION PRELIMINARY PONDS PLAN SHEET

SHEET: 6