



# Project Development & Environment Study

## I-75 (SR 93A)

From Moccasin Wallow Road (CR 6)  
to South of US Highway 301 (SR 43)

# Draft Project Development Engineering Report

WPI Segment No. 419235-2  
Manatee & Hillsborough Counties

Prepared for the

**Florida Department of Transportation  
District Seven**



April 2010

**Manuel Santos, E.I.  
FDOT Project Manager**



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Prepared by:  
**American Consulting Engineers of Florida, LLC**



2818 Cypress Ridge Blvd, Suite 200  
Wesley Chapel, FL 33544

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Jeffrey S. Novotny, PE  
Florida PE # 51083  
Certificate of Authorization No.: 9302

**April 2010**  
**Manuel Santos, E.I.**  
**FDOT Project Manager**

## EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to evaluate capacity improvements along approximately 25 miles of Interstate 75 (I-75) (State Road (SR) 93A) from Moccasin Wallow Road in Manatee County to south of US 301 (SR 43) in Hillsborough County, Florida. The design year for the improvements is 2035.

This PD&E Study is being conducted concurrently with the PD&E Study for the portion of I-75 that extends from south of US 301 (SR 43) to north of Fletcher Avenue (CR 582A) in Hillsborough County (WPI Segment No. 419235-2).

The objective of this PD&E Study is to assist the FDOT and the Federal Highway Administration (FHWA) reach a decision on the type, location, and conceptual design of the necessary improvements for I-75 to safely and efficiently accommodate future travel demand. This study will document the need for the improvements as well as the procedures utilized to develop and evaluate various improvements including elements such as proposed typical sections, preliminary horizontal alignments, and interchange enhancement alternatives. The social, physical, and natural environmental effects and costs of these improvements will be identified. The alternatives will be evaluated and compared based on a variety of parameters utilizing a matrix format. This process will identify the alternative that will best balance the benefits (such as improved traffic operations and safety) with the impacts (such as environmental effects and construction costs).

The PD&E Study satisfies all applicable requirements, including the National Environmental Policy Act, in order for this project to qualify for federal-aid funding of subsequent development phases (design, right-of-way acquisition, and construction costs).

The project was evaluated through the FDOT's Efficient Transportation Decision Making (ETDM) process. This project is designated as ETDM Project #8001. An ETDM

Programming Screen Summary Report was published on March 29, 2007, containing comments from the Environmental Technical Advisory Team (ETAT) on the project's effects on various natural, physical, and social resources. Based on the ETAT comments, the FHWA has determined that this project qualifies as a Type 2 Categorical Exclusion (CE).

This *Project Development Engineering Report (PDER)* has been prepared to document existing conditions and the alternatives analysis process. A *Project Development Summary Report (PDSR)* has also been prepared that documents the selection of the recommended alternative, and the impact associated with the recommended build alternative. The purpose of these two reports is to document the project development decision-making process and make future roadway designers aware of the project history as well as pertinent design issues.

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*\*separately bound volume*

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## Section 1 - INTRODUCTION

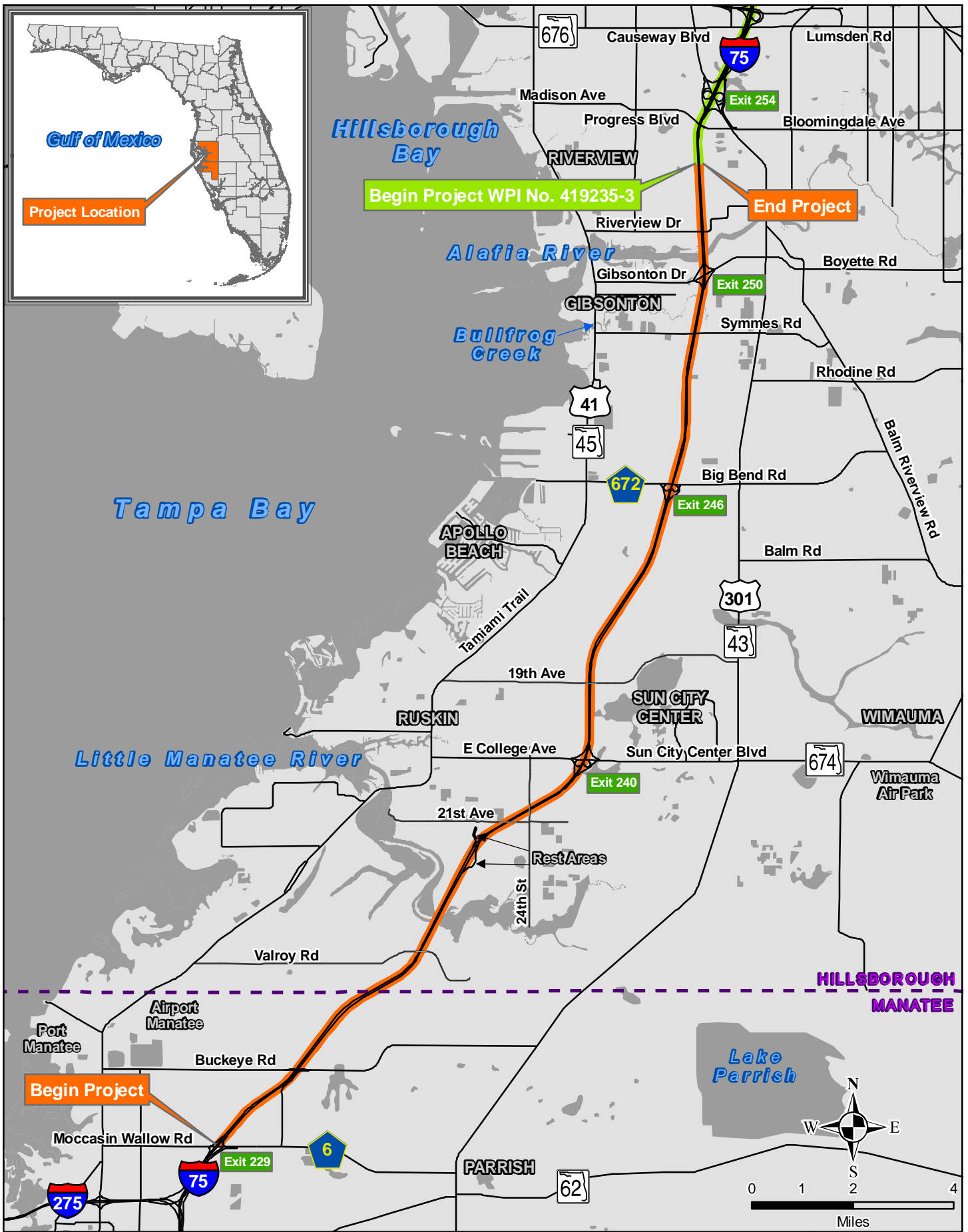
### 1.1 Description of Proposed Action


The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to evaluate alternate improvements for Interstate 75 (I-75)(State Road (SR) 93A) from Moccasin Wallow Road in Manatee County to south of US 301 (SR 43) in Hillsborough County. The total project length is approximately 25 miles. The design year for the improvements is 2035. A project location map is shown in **Figure 1-1**. A study aerial map is shown in **Figure 1-2**.

The objective of this PD&E Study is to help the FDOT and the Federal Highway Administration (FHWA) reach a decision on the type, location, and conceptual design of the necessary improvements for I-75 to safely and efficiently accommodate future travel demand. This study will document the need for the improvements as well as the procedures utilized to develop and evaluate various improvements including elements such as proposed typical sections, preliminary horizontal alignments, and interchange enhancement alternatives. The social, physical, and natural environmental effects and costs of these improvements will be identified. The alternatives will be evaluated and compared based on a variety of parameters, utilizing a matrix format. This process will identify the alternative that will best balance the benefits (such as improved traffic operations and safety) with the impacts (such as environmental effects and construction costs).

The PD&E Study satisfies all applicable state and federal requirements, including the National Environmental Policy Act (NEPA), in order for this project to qualify for federal-aid funding of subsequent development phases (design, right-of-way (ROW) acquisition, and construction).

Existing rest area facilities for northbound and southbound travelers are situated approximately three miles south of SR 674.




**I-75 (SR 93A) PD&E Study**  
*Moccasin Wallow Road to US 301*  
 WPI Segment No.: 419235-2  
 Hillsborough and Manatee Counties

**Project Location Map**

**Figure 1-1**





The sections, townships and ranges where the project is located are summarized in **Table 1-1**.

**Table 1-1 Sections, Townships and Ranges within Project Area**

Sections	Townships	Ranges
<b>Hillsborough County</b>		
06,07,18,19,30,31	30 S	20 E
01,12,13,23,24,25,26,35	31 S	19 E
02,10,11,15,16,20,21,29,30,31,32	32 S	19 E
<b>Manatee County</b>		
01,02,10,11,15,16	33 S	18 E

A concurrent PD&E Study is underway for the segment from south of US 301 to north of Fletcher Avenue (WPI Segment No. 419235-3; ETDM #8002).

This study is considering both interim and ultimate improvements; interim improvements may include interchange improvements. The proposed ultimate improvements include widening I-75 to an ultimate configuration of 10 lanes with six general use lanes (GUL) (three of each direction) and four special use lanes (SUL) (two in each direction), along with improvements to all interchanges within the project limits. There are three interchanges along I-75 within the project limits. They are located at:

- SR 674
- Big Bend Road (CR 672)
- Gibsonton Drive

Mainline widening will generally occur within the existing FDOT ROW, but additional ROW will be required for some interchange improvements, stormwater management facilities, and floodplain compensation sites.

## **1.2 Project Purpose and Need**

Interstate 75 (I-75) is the longest Interstate highway in the state of Florida. Starting in Hialeah, just north of Miami, I-75 parallels Interstate 95 for its first several miles, and then turns west along the Alligator Alley toll road to cross the Everglades Swamp. I-75

resumes its northward journey at Naples, just after the interchange with Florida 951. I-75 then serves the Gulf Coast of Florida, connecting Naples with Fort Myers, Cape Coral, Venice, Sarasota, Bradenton, and Tampa. From Tampa northward, I-75 moves away from the Gulf Coast, but it provides the primary route to Atlanta and points north, including the Midwest. I-75 ultimately terminates in Sault Sainte Marie, Michigan.

In the 1958 original plan, I-75 was not slated to extend south of Tampa; the major north-south freeway was instead planned to culminate its southbound journey in Tampa at an interchange with Interstate 4 (I-4) near downtown. However, it became clear that Southwest Florida needed a freeway connection. To that end, in 1968, the extension to Miami was made part of the planned I-75 network for Florida; it would take approximately 25 years until the route was fully completed to Hialeah. At the same time, I-4's western terminus was retracted to Tampa, since a proposed extension to St. Petersburg Beach on the Gulf Coast was never constructed.

The following are key dates in the history of I-75 within the northern and southern study project limits in Florida:

- 1968 - All of I-75 north of Tampa was opened except for the short segment in Tampa between the Hillsborough River and Fowler Avenue.
- 1969 - I-75 was extended southwest along I-4 into St. Petersburg. I-75 had a new proposed routing up from Bonita Springs (north of Naples) to Rubonia. The Sunshine Skyway was also added to I-75.
- 1971 - Initial proposal to extend I-75 south from Naples to Miami considered along U.S. 41 (Tamiami Trail) corridor and Florida 836 (Dolphin East-West Expressway) in Miami. This proposed route was shifted to the Alligator Alley alignment in 1977. As a result of the truncation of I-4, I-75 was extended southwest through Tampa to St. Petersburg.
- 1972 - The southern terminus of I-75 was at the junction with Florida 689 (54th Avenue North and Haines Road) in St. Petersburg.

- 1973 - I-75 in St. Petersburg opened from 38th Avenue North to 54th Avenue North. Shortly thereafter, the I-75 designation was shifted to the bypass route, while Interstate 275 (I-275) replaced I-75 on the city route.
- 1977 - Proposed route of I-75 from Naples to Miami shifted to the two-lane Alligator Alley (Everglades Parkway). Signs for I-75 were placed on the Alligator Alley. Another new proposed route for I-75 linked Golden Gate to Bonita Springs.
- 1978 - I-75 under construction from Estero to Tropical Gulf Acres.
- 1979 - I-75 opened from Estero to Bayshore and under construction from (1) near Opa-locka to near Andytown (Junction U.S. 27), (2) Florida 951/Golden Gate north to Estero, and (3) from Tropical Gulf Acres to U.S. 301 near Ellenton.
- 1980 - I-75 opened (1) from Bayshore to Harbour Heights and (2) North Port to Ellenton. I-75 under construction from Ellenton to Florida 672.
- 1981 - I-75 opened from County Route 846 north to U.S. 301. I-75 is under construction from U.S. 301 north to Lutz (Junction I-275).
- 1982 - I-75 opened from Ellenton to Florida 672.
- 1983 - I-75 opened from Florida 672 to U.S. 301 near Temple Terrace.
- 1984 - I-75 opened (1) from Florida 820 to County Route 818 and (2) from Bruce B. Downs Boulevard north to I-275 near Lutz.
- 1985 - I-75 opened from Florida 672 north to Bruce B. Downs Boulevard, thus linking the northern and southern sections of I-75 and completing the Tampa Bay Bypass.

Interstate 75 is a vital link in the local and regional transportation network as well as a critical evacuation route as shown on the Florida Division of Emergency Management's evacuation route network. As a major north/south corridor, I-75 links the Tampa Bay region with the remainder of the state and the nation, supporting commerce, trade, and tourism. I-75 is part of the FIHS, a statewide transportation network that provides for the movement of goods and people at high speeds and high traffic volumes. The FIHS is comprised of interconnected limited and controlled access roadways, such as Florida's Turnpike, selected urban expressways, and major arterial highways. The FIHS is the Highway Component of the SIS, which is a statewide network of highways, railways, waterways, and transportation hubs that handle the bulk of Florida's passenger and freight traffic. As an SIS/FIHS facility and part of the regional roadway network, I-75 is included in the 2025 Regional Long-Range Transportation Plan (LRTP) developed by the West Central Florida Metropolitan Planning Organization's (MPO) Chairs Coordinating Committee (CCC). Preserving the operational integrity and regional functionality of I-75 is critical to mobility, as it is a vital link in the transportation network that connects the Tampa Bay region to the remainder of the state and the nation.

A portion of the study corridor, from SR 674 to Big Bend Road, is included in the FIHS 2025 Cost Feasible Plan Update, dated August 2003. Due to the intense traffic growth and high levels of congestion, the remaining portions of the study corridor are proposed to be included in the latest update of the FIHS 2025 Cost Feasible Plan. This project is identified in the SIS Multimodal Unfunded Needs Plan (May 2006) and in the earlier SIS 2030 Highway Component Unfunded Needs Plan (April 2004). This project is consistent with the Transportation Element of the Hillsborough County Local Government Comprehensive Plan adopted in March 2001 and last amended in January 2005. It is also included in the Hillsborough County MPO's 2035 LRTP Needs Assessment adopted on December 9, 2009 indicating the need for managed lanes throughout the length of the project and a total of 10 lanes south of Gibsonton Drive and 12 lanes north of Gibsonton Drive. The Sarasota/Manatee MPO's 2030 Needs Assessment adopted November 28, 2005 indicates the need for the addition of two special use lanes (SULs) in each direction throughout the length of the project. This project is also consistent with other similar projects planned along the I-75 corridor throughout the state and provides continuity with



these projects. This study is being conducted concurrently with the PD&E Study for the section of I-75 that extends from south of US 301 to north of Fletcher Avenue in Hillsborough County (WPI Segment No. 419235-3). Also, FDOT's District One is currently completing two PD&E Studies for the widening of two contiguous portions of I-75, which when combined extend from SR 681 in Sarasota County to Moccasin Wallow Road in Manatee County (WPI Segment Nos. 201277-1 and 201032-1). FDOT, District Seven, is currently designing capacity improvements to I-75 from Fowler Avenue in Hillsborough County to the Pasco/Hernando Line (WPI Segment Nos. 408459-2, 408459-3, 408459-4, 258736-2 and 41014-2) and from the Pasco/Hernando County Line north to the Sumter County Line (WPI Segment Nos. 411011-2 and 411012-2).

In 2007, the traffic volumes along I-75 in the study area ranged from 58,000 vehicles per day (vpd) north of Moccasin Wallow Road to 115,200 vpd north of Gibsonton Drive. These volumes included truck traffic that varied from 9.0 to 16.0 percent of the daily volumes. As a result of this high travel demand, several sections of I-75 already operate at congested conditions and levels of service (LOS) worse than the FHHS minimum LOS standard for both "urbanized areas" and "rural areas", which are LOS "D" and LOS "B", respectively. Without improvements, the operating conditions along I-75 and connecting roadways will continue to deteriorate, resulting in unacceptable LOS throughout the entire study corridor. Capacity improvements could also enhance travel safety by reducing congestion, thereby decreasing vehicle conflicts.

According to the crash records for the years 2003 through 2007, obtained from the FDOT's crash database, a total of 1,562 crashes were reported along I-75 within the project limits. The 1,562 crashes involved a total of 1,035 reported injuries and 34 fatalities. The total economic loss from these crashes is estimated to be approximately \$60 million.

A Programming Screen Summary Report was published as part of the FDOT's ETDM process on March 29, 2007. This project is designated as ETDM Project #8001. The Federal Highway Administration (FHWA) has determined that the project qualifies as a Type 2 Categorical Exclusion.

This *Project Development Engineering Report (PDER)* is one of several reports prepared as part of this PD&E study. This report documents the existing conditions, the need for improvements and the procedures used to evaluate the alternatives developed for this study. This report also presents a summary of the alternatives analysis. The *Project Development Summary Report (PDSR)* documents the selection of the recommended build alternative, and the impacts associated with the recommended build alternative.

### **1.3 Other Programmed Projects**

This project is consistent with other similar projects planned along the I-75 corridor throughout the state and provides continuity with these projects. This study is being conducted concurrently with the PD&E Study of the section of I-75 that extends from south of US 301 to north of Fletcher Avenue, in Hillsborough County (WPI Segment No. 419235-3). Also, FDOT District One is currently completing two PD&E studies for the widening of two continuous portions of I-75, which, when combined, extend from SR 681 in Sarasota County to Moccasin Wallow Road in Manatee County (WPI Segment Nos. 201277-1 and 201032-1). FDOT District Seven is currently designing capacity improvements to I-75 from Fowler Avenue in Hillsborough County to the Pasco/Hernando County Line (WPI Segment Nos. 408459-2, 408459-3, 408459-4, 258736-2, and 411013-2, and from the Pasco/Hernando County line north to the Sumter County Line (WPI Segment Nos. 411011-2 and 411012-2). In addition, several minor construction projects are included in the 5-year work program, as shown in **Table 1-2**. Recently completed projects are shown in **Table 1-3**.

**Table 1-2 Other Programmed Interstate Projects within Study Limits**

Work Description	Work Program Item No.	Project Limits	Length (mi)	Fiscal Year(s)
<b>Hillsborough County</b>				
Ramp Widening – Add left turn lane	425946-1	I-75 at Gibsonton Drive	0.212	2010
ITS Freeway Mgt.	410909-6	From Manatee Co L. to Bloomingdale Avenue	19.454	2011, 2012
<b>Manatee County</b>				
ITS Freeway Mgt.	410909-7	From I-275 to Hills. Co. Line	5.821	2011, 2012

Source: FDOT's Adopted Work Program FY 2010-2014

**Table 1-3 Recently Completed Interstate Projects within Study Limits**

Location	Work Program Item No.	Work Description	Length (mi)	Fiscal Year(s)
<b>Hillsborough County</b>				
I-75 Bridges over Alafia River	254659-1	Repairs to bridge decks and timber fender system		2001, 2002
I-75 at Gibsonton SB off ramp	411201-1	Traffic Signal Installation	0.001	2002
I-75 over SR 674	411535-1	Concrete bridge decks replaced	0.198	2006
I-75 over Big Bend Road	411534-1	Concrete bridge decks replaced	0.174	2004, 2005
I-75 from Manatee Co Line to SR 674	403742-1	Resurfacing (completed 11/04)	6.8	2004, 2005
I-75 from SR 674 to Big Bend Road	403743-1	Resurfacing (completed 6/06) Included median guardrail installation	5.7	2005, 2006
I-75 from Big Bend Road to Bloomingdale Ave (Progress Blvd)	403741-1	Resurfacing (completed 8/05) Included some guardrail installation in median.	6.9	2004, 2005
<b>Manatee County</b>				
Guardrail Installation	419804-1	From N of University Pkwy to S of Curiosity Creek	18.429	2009

## Section 2 – EXISTING CONDITIONS

### 2.1 Functional Classification

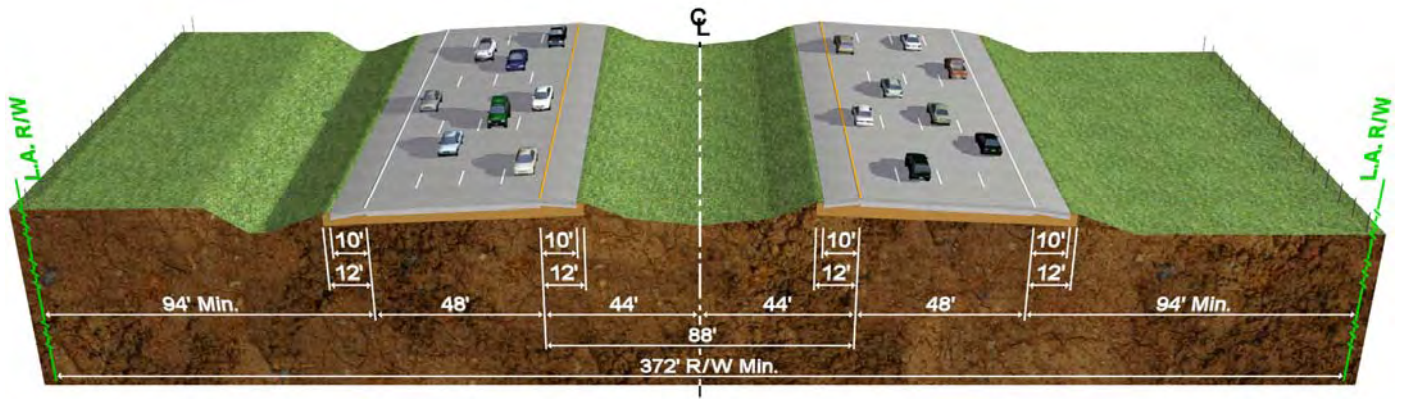
The project location and study area are shown in **Figures 1-1** and **1-2** respectfully. Based on the 2000 Urban Area Boundaries and Federal Functional Classification Map (**Appendix A**) obtained from the FDOT, I-75 is classified as a “Rural (south of 21<sup>st</sup> Avenue SE) and Urban (north of 21<sup>st</sup> Avenue SE) Principal Arterial – Interstate”. I-75 is part of the FIHS, which is comprised of interconnected limited and controlled access roadways including interstate highways, Florida’s Turnpike, selected urban expressways and major arterial highways. The FIHS is the *highway component* of the SIS, which is a statewide network of highways, railways, waterways and transportation hubs that handle the bulk of Florida’s passenger and freight traffic. As an SIS/FIHS facility and part of the regional roadway network, I-75 is included in the 2025 Regional LRTP developed by the West Central Florida MPO’s CCC. This corridor is also designated as an emergency evacuation route.

### 2.2 Typical Sections

Existing roadway typical sections are illustrated in **Figure 2-1**. The roadway is generally six lanes south of Gibsonton Drive and eight lanes; including auxiliary lanes, north of Gibsonton Drive. All travel lanes are 12-foot wide and 12-foot inside and outside shoulders are provided, including 10-foot paved. The median width is a minimum of 88-foot wide; several areas near the south end of the project have a wider median where the roadway has been partially bifurcated.

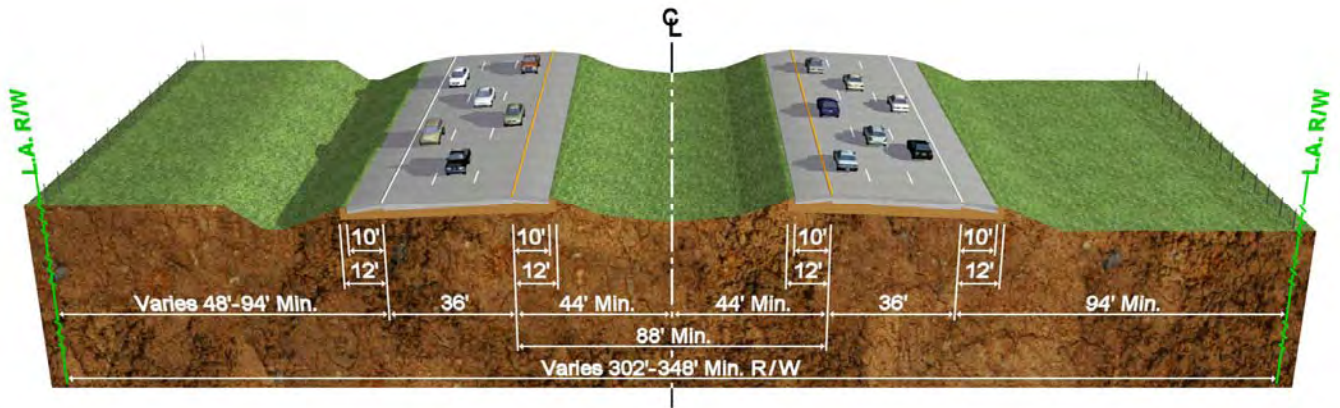
### 2.3 Pedestrian Facilities

There are no pedestrian facilities on I-75 itself, since pedestrians are prohibited. Several of the cross roads, generally to the east and west of I-75 include sidewalks.



**Typical Section #2**

From Gibsonton Drive to South of US 301  
 Design Speed = 70 mph



**Typical Section #1**

From Moccasin Wallow Road to Gibsonton Drive  
 Design Speed = 70 mph



However, only Symmes Road has a continuous sidewalk whereby the pedestrian is able to walk from one side of the interstate to the other. A planned multiuse trail, the South Coast Greenway (**Figure 2-2**), will be located parallel and west of I-75 and include trail connections on Big Bend Road and SR 674. This project is partially funded and is to be constructed in phases, with one phase to be built by a developer. This trail is classified as a *regional trail* by the West Central Florida MPO's CCC.

## **2.4 Bicycle Facilities**

There are no bicycle facilities on I-75 itself, since bicyclists are prohibited. Several of the cross roads, generally to the east and west of I-75 include bicycle lanes. There is no continuous connection from one side of I-75 to the other that currently accommodates bicycle lanes. A multiuse trail is planned in south Hillsborough County as described above in Section 2.3.

## **2.5 Right-of-Way**

The existing limited access (L.A.) ROW varies throughout the study limits; however, in most areas, the minimum ROW width is 348-feet. For a segment north of SR 674, the ROW on the west side narrows by as much as 46 feet just north of the interchange, yielding a total ROW of only 302-feet. Several areas near the south end have a ROW as wide as 556-feet, where the two roadways are partially bifurcated with a wider median. Existing ROW is shown on the conceptual design plans included as **Appendix B** (a separately bound appendix to this report).

## **2.6 Geometric Elements**

### **2.6.1 Cross Section**


There are no unique areas involving steep slopes, canals, etc. Existing typical sections are discussed in Section 2.2.




**Legend**

- Proposed South Coast Greenway (Non-motorized Paved Trail)
- Proposed Bike-Ped Enhanced Transportation Corridor
- Proposed Future Connection
- Proposed Trailhead
- Attractor / Destination
- Road Crossing
- Phase Beginning / Ending
- Preserve
- Park

**South Coast Greenway Design Concept Exhibit O**




Hillsborough County  
Florida  
Parks, Recreation & Conservation Department



**Wilson Miller**  
New Directions In Planning, Design & Engineering

February 2007

0 2000 4000 6000  
Scale: 1" = 2000'



### **2.6.2 Horizontal Alignment**

There are a total of 13 horizontal curves within the study limits, as shown in **Figure 2-3** and **Table 2-1**. The existing alignment meets 70 mph design speed requirements for an Interstate facility. The I-75 mainline was constructed between 1981 and 1990.

### **2.6.3 Vertical Alignment**

Existing vertical curves are summarized in **Table 2-2**. The vast majority of vertical curves meet the minimum standards for 70 miles per hour (mph) design speed requirements. One exception is the crest vertical curve bridge over SR 674, which has a K value approximately 1.2 percent less than the minimum K value required for 70 mph design speed.

### **2.6.4 Horizontal and Vertical Clearances**

Horizontal and vertical clearances associated with bridge structures are discussed in Section 2.13.

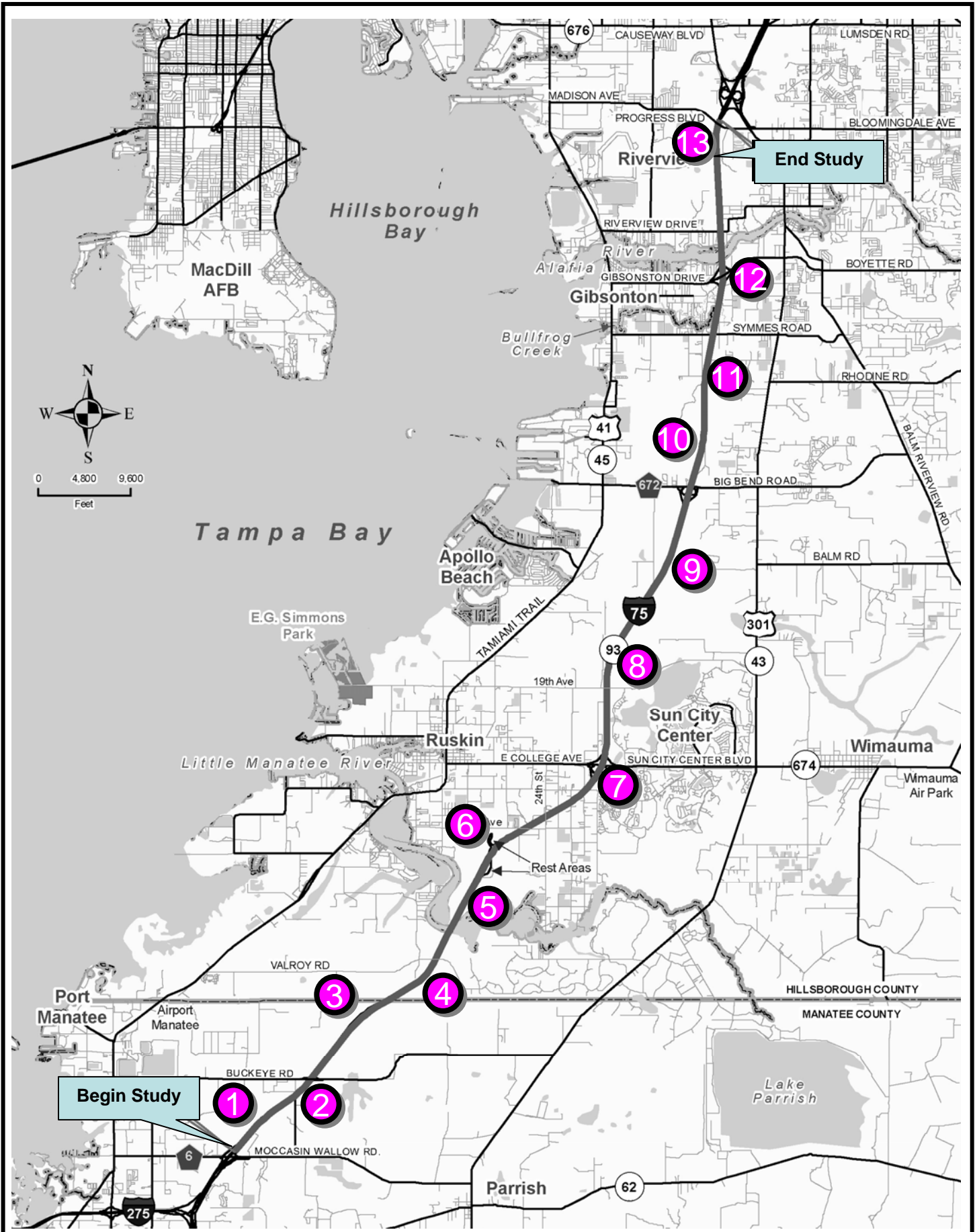
### **2.6.5 Posted Speeds and Roadway Signing**

The existing posted speed limit is 70 mph. The posted speed limits on the cross roads at the three interchanges are as follows:

- Gibsonton Drive: 45 mph
- Big Bend Road : 55 mph
- SR 674 : 50 mph

Existing signage on the I-75 is shown in **Appendix C**, based on a field inventory conducted in early 2008.





**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

**Existing Horizontal Curves**

**Figure 2-3**

**Table 2-1 Existing I-75 Horizontal Curves**

Curve No. in Fig.	Curve Direction	Southbound Roadway				Northbound Roadway				
		Milepost of PI Station	Degree of Curve	Δ (Deflection Angle)	Curve Length (ft)	Milepost of PI Station	Degree of Curve	Δ (Deflection Angle)	Curve Length (ft)	
<b>Hillsborough County <sup>(1)</sup></b>										
13	R	19.382	1° 00'	29° 00' 37"	2898	19.382		Same as southbound		
12	L	16.389	0° 30'	13° 50' 40"	2767	16.389		Same as southbound		
11	R	14.457	0° 29'	10° 30' 01"	2175	14.457		Same as southbound		
10	L	13.282	0° 30'	15° 40' 05"	3136	13.282		Same as southbound		
9	L	10.698	0° 30'	17° 50' 35"	3569	10.693	0° 30'	17° 04' 20"	3416	
8	R	8.611	0° 30'	33° 18' 35"	4440	8.559	0° 45'	32° 32' 20"	4340	
7	L	6.303	0° 45'	59° 51' 28"	7988	6.303		Same as southbound		
6	R	3.802	1° 00'	33° 09' 59"	3316	3.851	1° 00'	32° 03' 00"	3205	
5	R	--	--	--	--	2.428	0° 06'	1° 06' 59"	1119	
4	L	0.922	1° 00'	33° 20' 52"	3332	0.909	1° 00'	32° 40' 36"	3263	
<b>Manatee County <sup>(2)</sup></b>		0.00								
3	R	19.987	0° 45'	23° 24' 6.75"	3120	20.007	0° 30'	21° 440' 50.085"	2201	
2	L	18.057	0° 45'	18° 15' 57.92"	2435	18.042	0° 45'	17° 16' 57.39"	2304	
1	R	17.113	1° 00'	15° 22' 10.81"	1537	17.172	0° 30'	14° 30' 37.55"	2902	
	Moccasin Wallow Road	16.162				16.162				

Sources: (1) Hillsborough County information from straight-line diagrams;

(2) Manatee County information from Alignment Control drawing prepared in March 1975 by Watson and Company

Note: All curves meet current FDOT and AASHTO standards for 70 mile per hour design speed.

**Table 2-2 Evaluation of Existing I-75 Mainline Vertical Curves**

**Table 2-2 Evaluation of Existing I-75 Mainline Vertical Curves (Continued)**

County and State Project No (SPN)	Vertical Curve Location (VPI Station)	Crest (C) or Sag (S)	Curve Length (ft)	In (%)	Out (%)	K Value (L/A)	Min. K per PPM for 70 mph	Is Min. Std. Met?	Comments
SPN 10075-3403 Bridge over SR 674	619+20	S	800	-2.00000	0.12000	377	206	Yes	1.2% off
	605+75	C	2000	2.00000	-2.00000	500	506	No	
	589+50	S	800	-0.10000	2.00000	381	206	Yes	
SPN 10075-3413	560+00	C	1000	0.10000	-0.10000	5000	506	Yes	
	540+00	C	1000	0.65000	0.10000	1818	506	Yes	
	510+00	S	800	-0.26000	0.65000	879	206	Yes	
	481+92.63	C	1000	0.00000	-0.26000	3846	506	Yes	
	481+92.63	C	1000	0.00000	-0.26000	3846	506	Yes	
	460+00 SB	C	1000	0.14000	0.00000	7143	506	Yes	
	460+00 NB	C	1000	0.14000	0.00000	7143	506	Yes	
	440+00 SB	S	800	0.00000	0.14000	5714	206	Yes	
	440+00 NB	S	800	0.00000	0.14000	5714	206	Yes	
	400+00 SB	S	1000	-0.10000	0.05000	6667	206	Yes	
	400+00 NB	S	1000	-0.10000	0.05000	6667	206	Yes	
SPN 10075-3402	390+00	S	800	0.00000	0.05000	16000	206	Yes	
	360+00	C	1000	0.29150	0.00000	3431	506	Yes	
	340+00	S	1600	-0.29000	0.29150	2752	206	Yes	
	300+00	S	800	0.00000	0.54900	1457	206	Yes	
	290+00	S	800	0.00000	0.37500	2133	206	Yes	
<b>Manatee County</b>									
SPN_13075-3409	751+00 NB	C	800	-0.28000	0.00000	2857	506	Yes	
	718+00 NB	C	1000	0.00000	-0.64000	1563	506	Yes	
	686+00 NB	C	1000	0.62500	0.00000	1600	506	Yes	
	674+00 NB	S	800	0.00000	0.62500	1280	206	Yes	
	649+00 NB	C	800	-0.12500	0.00000	6400	506	Yes	
	625+00 NB	S	1000	0.00000	-0.12500	8000	206	Yes	
	254+50 SB	C	800	-0.20000	0.00000	4000	506	Yes	
	238+00 SB	S	800	-0.32150	0.20000	1534	206	Yes	
	218+00 SB	C	1000	0.00000	0.62100	1610	506	Yes	
	186+00 SB	C	1000	0.62500	0.00000	1600	506	Yes	
	174+00 SB	S	800	0.00000	0.62500	1280	206	Yes	
	149+00 SB	C	800	-0.12500	0.00000	6400	506	Yes	
	125+00 SB	S	1000	0.00000	-0.12500	8000	206	Yes	
SPN_13075-3406	105+00	C	1000	0.00100	-0.10000	9901	506	Yes	
	99+00 SB	C	1000	0.15700	0.00000	6369	506	Yes	
	89+00 SB	S	800	0.00000	0.15700	5096	206	Yes	
	50+75 SB	S	940	-2.20000	0.05000	418	206	Yes	

Source: As-Built Plans. Minimum K Values per Plans Preparation Manual (PPM) for 70 mph = 506 for crest vertical curves and 206 for sag vertical curves

**Table 2-2 Evaluation of Existing I-75 Mainline Vertical Curves (Continued)**

County and State Project No (SPN)	Vertical Curve Location (VPI Station)	Crest (C) or Sag (S)	Curve Length (ft)	In (%)	Out (%)	K Value (L/A)	Min. K per PPM for 70 mph	Is Min. Std. Met?	Comments
SPN 10075-3403 Bridge over SR 674	619+20	S	800	-2.00000	0.12000	377	206	Yes	1.2% off
	605+75	C	2000	2.00000	-2.00000	500	506	No	
	589+50	S	800	-0.10000	2.00000	381	206	Yes	
SPN 10075-3413	560+00	C	1000	0.10000	-0.10000	5000	506	Yes	
	540+00	C	1000	0.65000	0.10000	1818	506	Yes	
	510+00	S	800	-0.26000	0.65000	879	206	Yes	
	481+92.63	C	1000	0.00000	-0.26000	3846	506	Yes	
	481+92.63	C	1000	0.00000	-0.26000	3846	506	Yes	
	460+00 SB	C	1000	0.14000	0.00000	7143	506	Yes	
	460+00 NB	C	1000	0.14000	0.00000	7143	506	Yes	
	440+00 SB	S	800	0.00000	0.14000	5714	206	Yes	
	440+00 NB	S	800	0.00000	0.14000	5714	206	Yes	
	400+00 SB	S	1000	-0.10000	0.05000	6667	206	Yes	
400+00 NB	S	1000	-0.10000	0.05000	6667	206	Yes		
SPN 10075-3402	390+00	S	800	0.00000	0.05000	16000	206	Yes	
	360+00	C	1000	0.29150	0.00000	3431	506	Yes	
	340+00	S	1600	-0.29000	0.29150	2752	206	Yes	
	300+00	S	800	0.00000	0.54900	1457	206	Yes	
	290+00	S	800	0.00000	0.37500	2133	206	Yes	
<b>Manatee County</b>									
SPN_13075-3409	751+00 NB	C	800	-0.28000	0.00000	2857	506	Yes	
	718+00 NB	C	1000	0.00000	-0.64000	1563	506	Yes	
	686+00 NB	C	1000	0.62500	0.00000	1600	506	Yes	
	674+00 NB	S	800	0.00000	0.62500	1280	206	Yes	
	649+00 NB	C	800	-0.12500	0.00000	6400	506	Yes	
	625+00 NB	S	1000	0.00000	-0.12500	8000	206	Yes	
	254+50 SB	C	800	-0.20000	0.00000	4000	506	Yes	
	238+00 SB	S	800	-0.32150	0.20000	1534	206	Yes	
	218+00 SB	C	1000	0.00000	0.62100	1610	506	Yes	
	186+00 SB	C	1000	0.62500	0.00000	1600	506	Yes	
	174+00 SB	S	800	0.00000	0.62500	1280	206	Yes	
	149+00 SB	C	800	-0.12500	0.00000	6400	506	Yes	
125+00 SB	S	1000	0.00000	-0.12500	8000	206	Yes		
SPN_13075-3406	105+00	C	1000	0.00100	-0.10000	9901	506	Yes	
	99+00 SB	C	1000	0.15700	0.00000	6369	506	Yes	
	89+00 SB	S	800	0.00000	0.15700	5096	206	Yes	
	50+75 SB	S	940	-2.20000	0.05000	418	206	Yes	

Source: As-Built Plans. Minimum K Values per Plans Preparation Manual (PPM) for 70 mph = 506 for crest vertical curves and 206 for sag vertical curves

## 2.7 Drainage and Floodplains

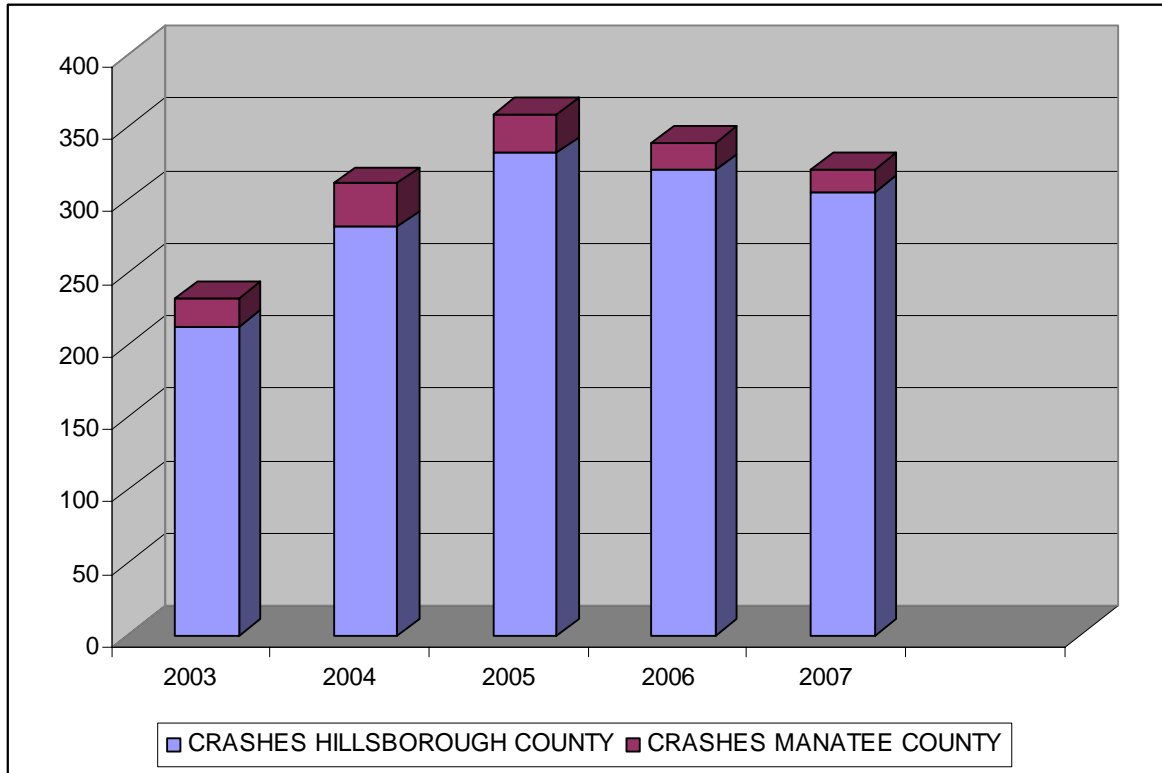
The existing conveyance system consists of open ditch conveyance to points of discharge from the ROW, generally coinciding with cross drain locations. The proposed conveyance system will generally consist of open ditch conveyance, with closed pipe conveyance elements, draining to stormwater management facilities. Proposed stormwater management facilities will discharge to the same stormwater receptors as under the existing conditions, substantially maintaining existing drainage patterns. Information on existing watersheds, drainage basins and outfalls, floodplains, and impaired waters, etc. is included in the *Draft Pond Sizing Technical Memorandum*, and in the *Draft Location Hydraulic Report*, both prepared by American Consulting Engineers of Florida, LLC.

## 2.8 Crash Data

Traffic crash data for years 2003 through 2007 for the Hillsborough County and the Manatee County segments were obtained from the FDOT crash database. Information included the crash location, type of crash, road surface condition, time of day, influence of drug and alcohol, lighting condition, and other data.

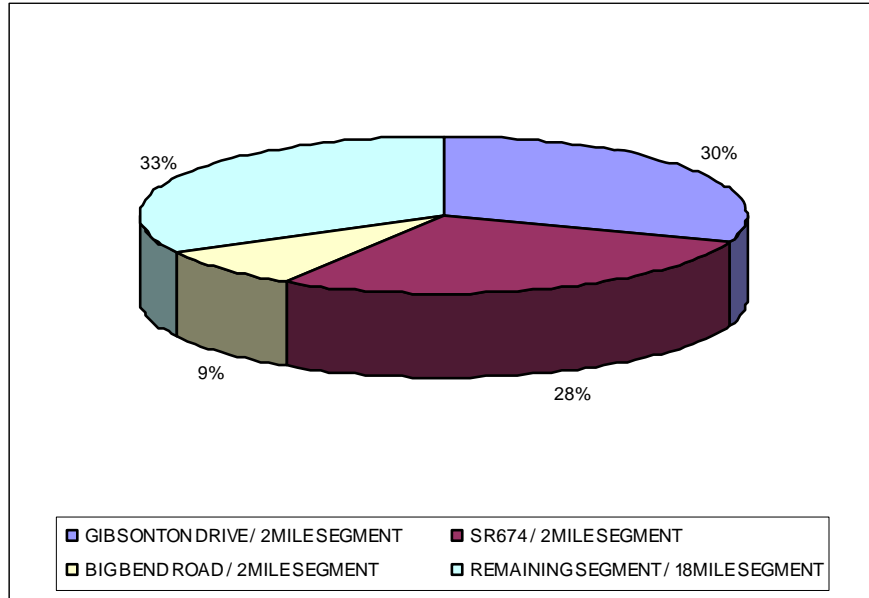
A total of 1,450 traffic crashes were reported within the Hillsborough County portion of the study limits for 2003 through 2007 inclusive, for an average of 290 crashes per year for this approximately 19.7 mile highway segment. This translates to 15 crashes per mile per year. These crashes involved a total of 927 injuries and 27 fatalities.

For the Manatee County segment, a total of 112 traffic crashes were reported for 2003 through 2007 inclusive, for an average of 22 crashes per year for this approximately 4.5 mile highway segment. This translates to an average of five crashes per mile per year. These crashes involved a total of 108 injuries and seven fatalities. Traffic crashes by year are summarized in **Figure 2-4**.



**Figure 2-4 Number of Crashes per Year**

A closer look at the location of the crashes revealed that more crashes occurred within one mile influence of the interchanges than at other locations. For example in the Hillsborough County segment, 441 or 30 percent of total crashes occurred within a mile of the Gibsonton Drive interchange, 407 or 28 percent occurred within a mile of the SR 674 interchange, and 124 or 9 percent occurred at the Big Bend Road interchange. The remaining 478 or 33 percent occurred within the remaining segment within Hillsborough County. Traffic crashes by location are summarized in **Figure 2-5**.



**Figure 2-5 Number of Crashes at Interchanges**

The distribution of crashes by segment type was also investigated. It was found that 67 percent of the crashes occurred within 30 percent of the length of the highway at the influence of the interchanges (six miles total) while only 33 percent of the crashes occurred within the remaining 70 percent (14 miles) of the highway.

The 1,562 crashes involved a total of 34 fatalities and 1,035 reported injuries. The economic loss, or cost to society of these crashes, is estimated to be approximately \$60 million, as shown in **Table 2-3**, based on unit costs from the National Safety Council for 2006.

**Table 2-3 Estimated Economic Loss from Crashes**

	Estimated 2006 Unit Cost	Estimated Number, 2003 thru 2007	Economic Loss (\$millions)
Death	\$1,210,000	34	41.1
Nonfatal Disabling Injury	\$55,000	140 (est. at 10% of 1035 injuries)	7.7
Property Damage Crash (incl. Non-disabling injuries)	\$8,200	1388	11.4
Totals			60.2

Unit costs based on National Safety Council costs for 2006

## 2.9 Intersections/Interchanges

I-75 currently has interchanges at the following cross roads (south to north):

- SR 674
- Big Bend Road
- Gibsonton Drive

Each of the existing interchanges is described in detail below. In addition, two potential new interchanges are currently being studied; these are discussed in Section 3. One of these includes a connection to the proposed Port Manatee Connector. Presently possible corridors within the limits of the study range from between Moccasin Wallow Road and the vicinity of the Manatee-Hillsborough County line. This Connector is being studied under WPI Segment No. 422724-1 by FDOT District One. Local entities have indicated desires for the other potential interchange to be located between 19th Avenue and Rhodine Road. This is being studied by Hillsborough County concurrently with this PD&E Study.

### **SR 674**

State Road 674 is the southernmost access point to I-75 in Hillsborough County. SR 674 provides access to Ruskin on the west side of I-75 and to Sun City Center (a large retirement community) and Wimauma on the east side of I-75.

This interchange (**Figure 2-6**) is a combination diamond-partial cloverleaf configuration with loop ramps in the southwest and southeast quadrants of the interchange. An auxiliary lane on SR 674 connects the two loop ramps. All ramp termini on SR 674 are *unsignalized* intersections. An acceleration lane is provided in the median on westbound SR 674 to receive northbound I-75 exiting traffic. All on/off-ramps are single-lane ramps. The existing loop ramps design speed is 30 mph. Channelized right-turn lanes are provided on all ramps. SR 674 is a six-lane divided arterial in the immediate area of the interchange and narrows to a four-lane divided roadway approximately 0.5 mile on either side of I-75.





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Aerial Photo of I-75 at SR 674

Figure 2-6

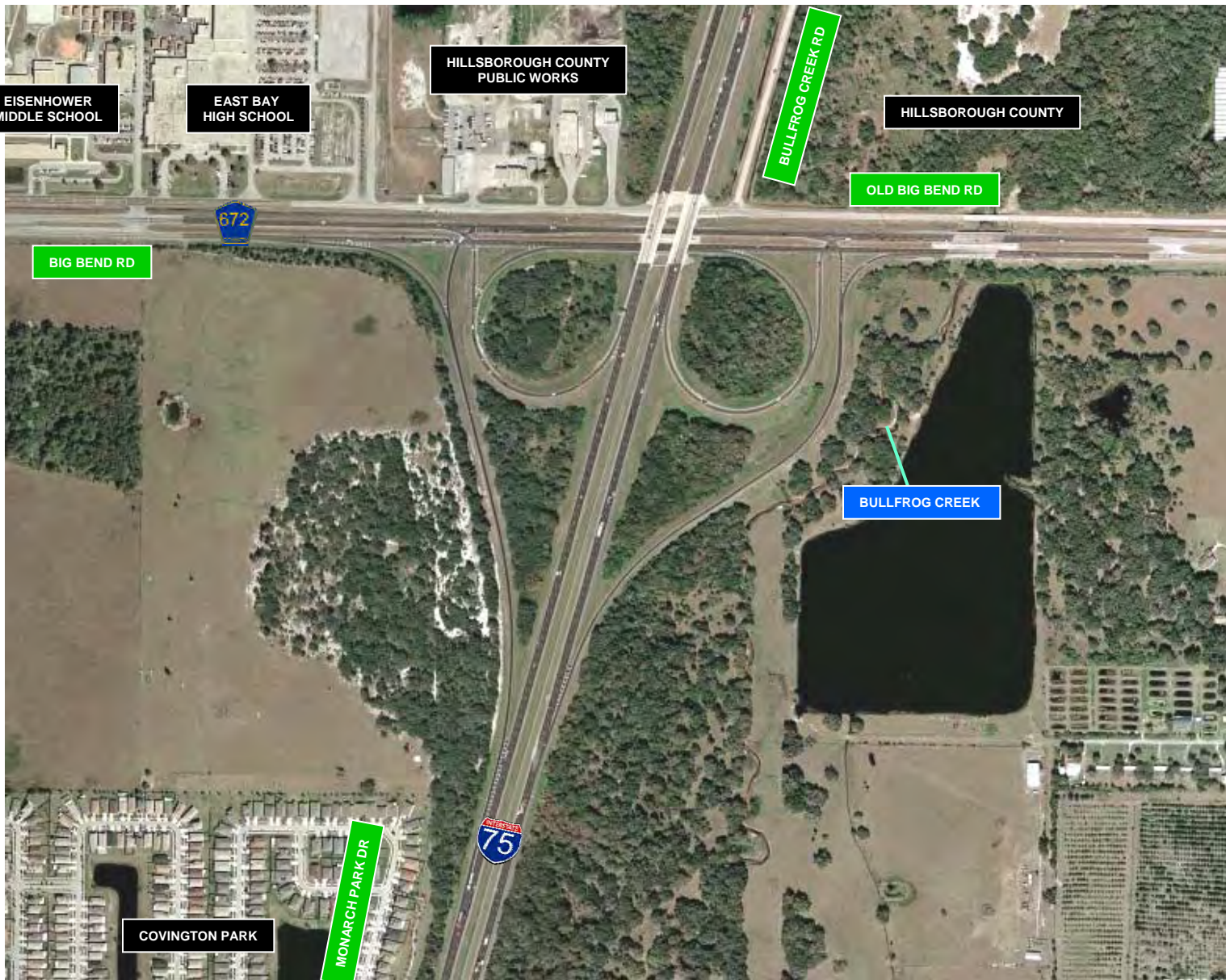
The adjacent quadrants of the subject interchange are mostly vacant; however, a cell phone tower is located within the interchange in the northeast quadrant. A traffic signal is located 2,400 feet east of I-75 at Cypress Village Boulevard/33rd Street Southeast. This signal provides access to a service road on the south side and to a number of businesses and restaurants in the immediate vicinity, as shown in **Figure 2-6**. TECO Road/33rd Street Southeast is located 2,200 feet west of I-75, which functions as a service road and provides access to a motel, a Sheriff's Office, and a county wastewater treatment plant.

### **Big Bend Road (CR 672)**

The I-75/Big Bend Road interchange is located in an urbanized area of southern Hillsborough County. Big Bend Road is a four-lane divided arterial from US 41 to east of US 301, and it provides access to Apollo Beach west of I-75 and to the Summerfield and Boyette areas east of I-75. Big Bend Road is also part of a route (SIS connector) connecting I-75 to a major industrial area that includes the Tampa Electric Power Plant and the Big Bend Port Terminal. The rural-cross section roadway is posted at 55 mph.

This interchange (**Figure 2-7**) is a half-cloverleaf configuration (sometimes referred to as a “folded diamond”) with loop ramps in the southwest and southeast quadrants connected by an auxiliary lane. Both of the ramp termini intersections are signalized. All ramps at the interchange are single-lane ramps, and channelized right-turn lanes are provided on all ramps. The existing design speeds for the loop ramps are 30 mph. In 2008, a traffic signal was added at the east ramp terminus intersection and dual left-turn lanes were added on the northbound approach at the west ramp terminus intersection.

A frontage road, Old Big Bend Road, is located less than 50 feet north of and parallel to Big Bend Road. West of I-75, this frontage road can be accessed at the signalized entrance to East Bay High School, located 1,400 feet west of I-75 on Big Bend Road. This frontage road provides access to East Bay High School, Eisenhower Junior High School, and the Hillsborough County Public Works Department Transportation Maintenance Division (South Service Unit), which are all situated in the northwest



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**Aerial Photo of I-75 at Big Bend Road**

**Figure 2-7**

quadrant of the interchange. In the northeast quadrant of the interchange, Bullfrog Creek Road connects Old Big Bend Road to Vance Vogel Park, which offers athletic facilities for East Bay High School and Little League recreational facilities for Hillsborough County. A new mall is proposed at the southwest quadrant of this interchange.

### **Gibsonton Drive**

The I-75/Gibsonton Drive interchange (**Figure 2-8**) is located in an urbanized area of south Hillsborough County. Gibsonton Drive is a four-lane divided minor arterial from US 41 to east of US 301. Gibsonton Drive provides access to the Gibsonton community on the west side of I-75 and the Riverview community on the east side of I-75.

This interchange is a diamond configuration with a *signalized* intersection at the southbound ramp termini on the west side of the interchange and an *unsignalized* intersection at the northbound ramp termini on the east side. All on/off ramps at the interchange are single-lane ramps. Channelized right-turn lanes are provided on all ramps.

Development in the immediate four quadrants of the interchange is relatively sparse. Ring Power Corporation (Caterpillar), the only large business, is located in the southeast quadrant. Access to this business is provided via Fern Lake Drive, which intersects Gibsonton Drive approximately 1,700 feet east of I-75/Gibsonton Drive northbound access ramps. This intersection is unsignalized. On the west side of I-75, the signalized intersection of Gibsonton Drive/Old Gibsonton Drive (to the north) and East Bay Road (to the south) is located approximately 1,500 feet west of the I-75 southbound access ramps. Dual bridges carrying I-75 over the Alafia River are located just north of the interchange northern ramp gore areas.

**Rest Areas** - In addition to the three existing interchanges, I-75 includes two rest areas located between Hillsborough County mileposts 3 and 4, south of 21st Avenue, which are approximately 2.5 miles south of SR 674. These are discussed in Section 2.16.



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**Aerial Photo of I-75 at Gibsonton Drive**

**Figure 2-8**

## **2.10 Lighting**

High-mast street lighting is currently provided at the three existing interchanges located within the study limits. This lighting typically includes 1,000-watt high-pressure sodium (HPS) luminaries on 120-foot poles which are typically maintained by the FDOT. In addition to the three interchanges, the on/off ramps at the rest area (located south of 21st Avenue SE) are lighted by conventional poles and HPS luminaries.

## **2.11 Utilities**

Based on Sunshine One Call design tickets dated December 30, 2008, utilities present in the Hillsborough County segment of the project are listed in **Table 2-4** and utilities in the Manatee County segment are listed in **Table 2-5**.

**Table 2-4 Existing Utilities in Hillsborough County Segment**

<b>Utility Type</b>	<b>Owner</b>	<b>Contact Person</b>
CATV	Bright House Networks	Barry Beatty
Electric	Tampa Electric Company	Heather Vitrano
Natural Gas Lines	TECO Peoples Gas Transmission	Frank Kistner
Sewer Lines	City of Tampa Wastewater	Anthony Kasper*
Telephone	Verizon Florida Inc.	David Wynns
Fiber optic Communications	AT&T*	Greg Jacobson*
Gas	TECO Peoples Gas	Duplicate - Frank Kistner
Water	Mosaic Fertilizer, LLC	Mike Wells
Gas Pipeline	Kinder Morgan/Central FL Pipeline	Calvin Lockhart
Gas Pipeline	Florida Gas Transportation - Safety	Joseph Sanchez
Traffic Service	Hillsborough County Traffic Service Unit	George Aubel*
Water	Hillsborough County Water Resource Services	Marcel Diaz
Fiber optic Communications	Level 3 Communications	Don Colt
Fiber	Progressive Casualty Insurance	No answer
Water	City of Tampa Water	Janice Davis
Ammonia Pipeline	Tampa Pipe Transport	Bruce Helms
Water/Sewer Lines	Tampa Bay Water	Rick Menzies

**Table 2-5 Existing Utilities in Manatee County Segment**

Utility Type	Owner	Contact Person
CATV	Bright House Networks	Tom Wright
Fuel Oil Pipeline	Florida Power and Light	Richard Sanger
Electric	Florida Power and Light	Greg Coker
Gas	Gulfstream Natural Gas System	Fred Deloach
Telephone	Verizon Florida Inc	Duplicate - David Wynns
Water/Sewer Lines	Manatee County Utility Operations	Kathy McMahon
Gas	TECO Peoples Gas	Danny Shanahan
Electric	Peace River Electric Cooperative	Kendell Coker
Electric	Tampa Electric Company	Arlene Brown
Electric	Florida Power and Light	Igor Didkovsky

**2.12 Pavement Conditions**

A flexible pavement condition survey was conducted by FDOT in 2008 for the project corridor. Each section of pavement is rated for cracking and ride on a 0-10 scale with 0 the worst and 10 the best. Any rating of 6.4 or less is considered deficient pavement and is marked by an asterisk. **Table 2-6** identifies the existing and projected pavement condition ratings for I-75. The existing pavement is in good condition, having been either resurfaced or milled and resurfaced in recent years.

**Table 2-6 Pavement Condition Survey Results**

Work Program Beginning Mile Post	Work Program Ending Mile Post	Condition Ratings	Year 2008	Year 2013 (projected)
<b>Hillsborough County Segments</b>				
0	6.838	Cracking	10	10
APAC-SE (R in FY 2004)		Ride	8.4 - 8.5	8.4 - 8.5
6.838	12.529	Cracking	10	--
Ajax Paving (R in FY 2006)		Ride	8.3	--
12.338	19.002	Cracking	10	10
Ajax Paving (R in FY 2004)		Ride	8.2 - 8.3	8.2 - 8.3
<b>Manatee County Segments</b>				
16.617	20.571	Cracking	10	10
Ajax Paving (M&R in FY 2003)		Ride	8.1	8

\*M&R = milling and resurfacing; R = resurfacing

Source: FDOT's Interstate System Pavement Condition Forecast report, extracted on 1/4/09



## 2.13 Existing Bridges

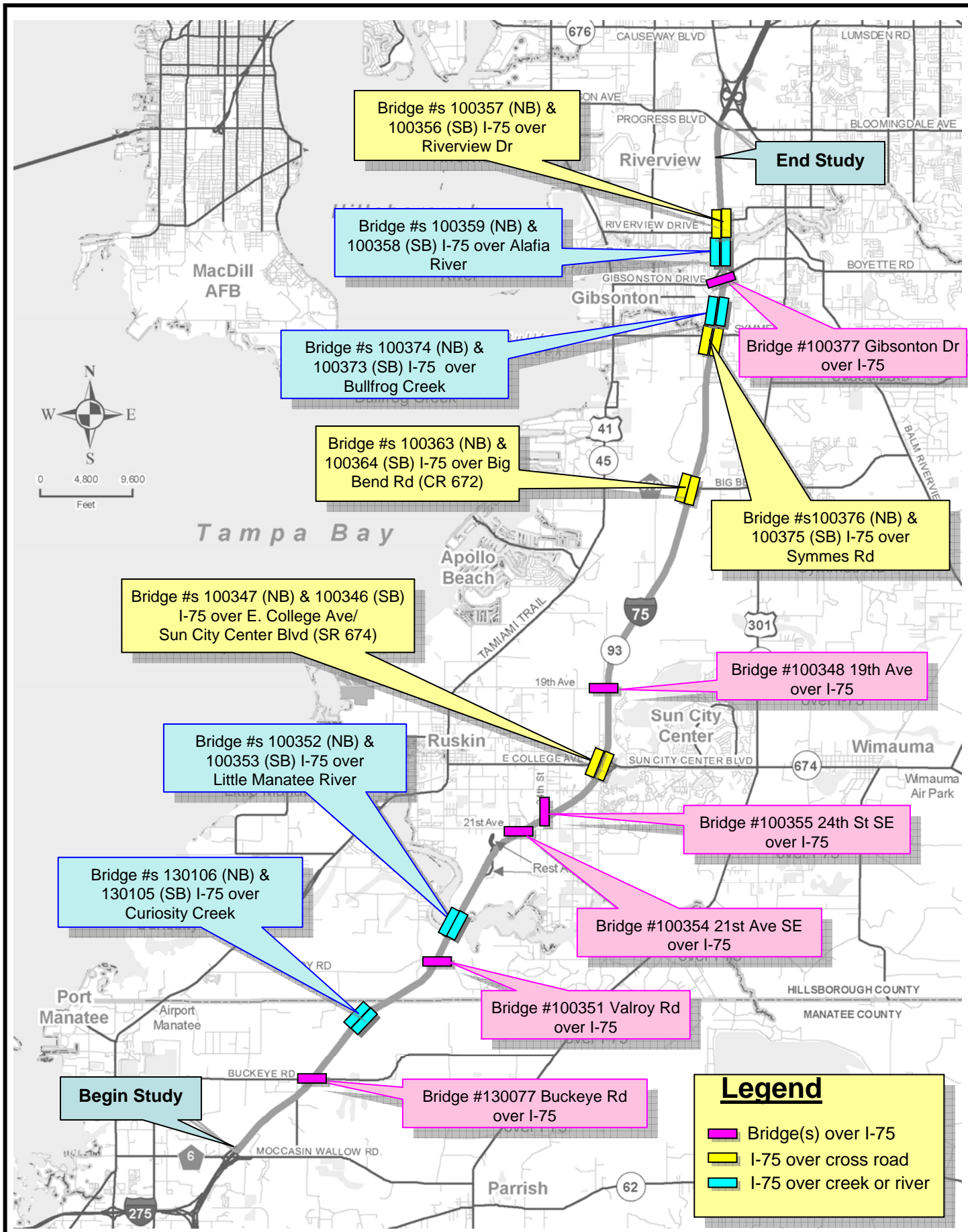
There are a total of 22 existing bridge structures located within the study limits (including twin structures), as shown in **Figure 2-9**. **Figures 2-10** and **2-11** include existing bridge typical sections, and **Figures 2-12** and **2-13** include aerial oblique photos of all bridges. **Table 2-7** includes a summary of bridge characteristics. This table lists the type of structure, current conditions, year of construction, horizontal and vertical alignment, and span arrangement (number and length of spans) among other items. Existing plan and elevation views of these bridges are shown in **Appendix D**.

All of the bridges along the project corridor are fixed-span bridges. The bridges include:

- Four pairs of I-75 mainline bridges over roadways (overpasses), including the Big Bend Road and SR 674 interchanges
- Four pairs of I-75 mainline bridges over waterways
- Six county road overpasses over I-75, including one at the Gibsonton Drive interchange

The year of original construction of the 16 mainline bridges (over water and roadways) ranges from 1980 to 1990. The types of bridge construction include steel girder, American Association of State Highway and Transportation Officials (AASHTO) beams and cast-in-place flat slabs. The existing precast deck panels on the two pair of the mainline structures at Big Bend Road and SR 674 were replaced in 2004 with a cast-in-place concrete deck. None of the existing bridges are classified as “functionally obsolete” due to inadequate shoulder widths or substandard barrier designs.

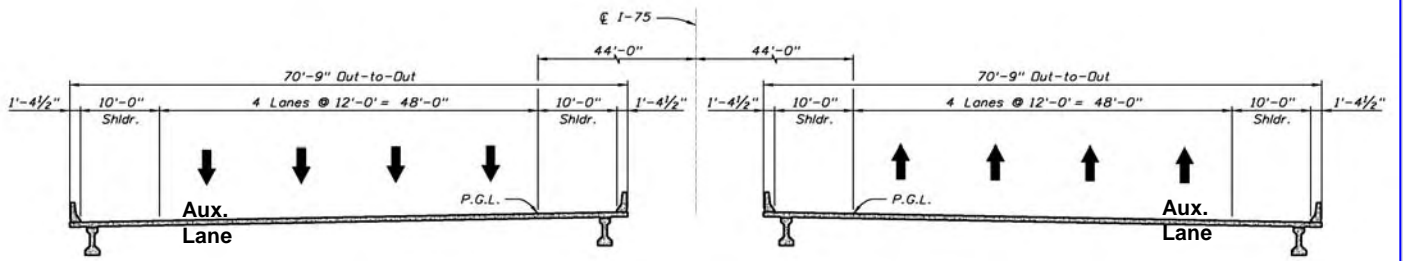
Of the eight bridges over waterways, two of the waterways are navigable, including the bridges over the Alafia River and the Little Manatee River. The bridges over the Alafia River provide a horizontal navigational clearance of 52.4-feet and a mean high water (MHW) vertical clearance of 26.2-feet at the center of the channel. The bridges over the Little Manatee River provide a horizontal navigation clearance of 50.0-feet and a MHW vertical clearance of 22.5-feet at the center of the channel. None of the eight bridges over the water are scour critical.



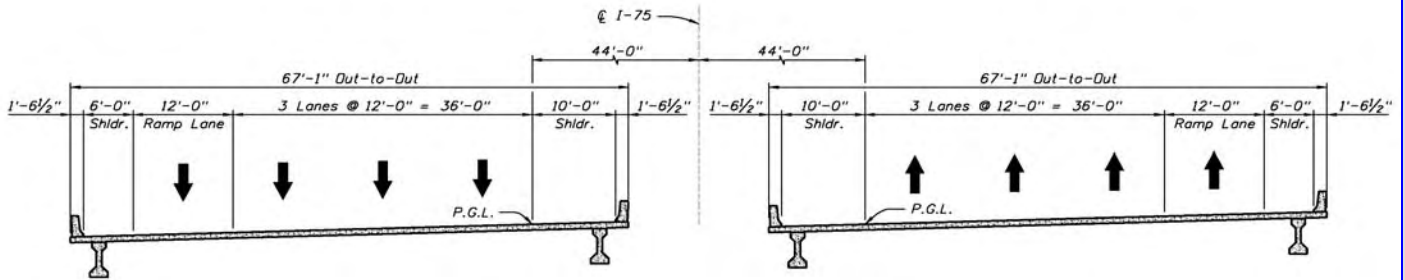
**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Rd to US 301**  
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 Hillsborough and Manatee Counties

**Bridge Structure Locations**

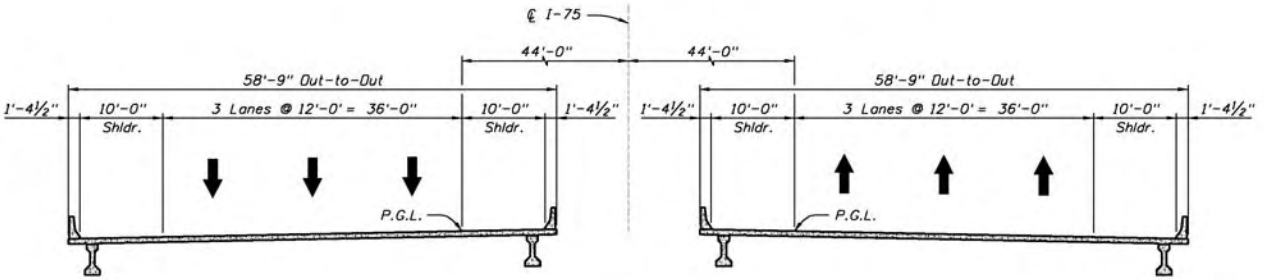
**Figure 2-9**



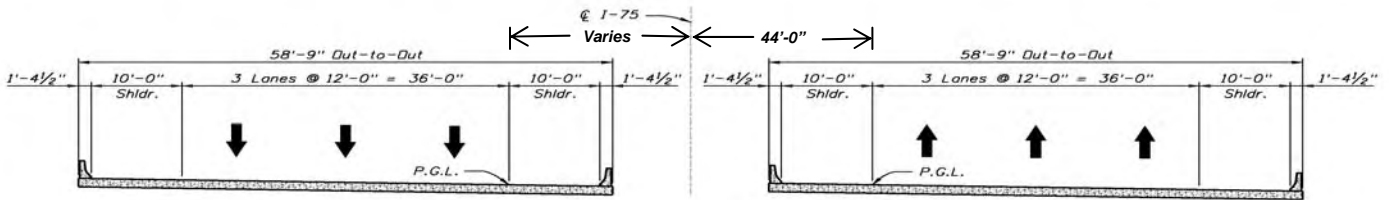
I-75 over Riverview Drive (Bridge Nos. 100356 & 100357)  
 I-75 over Alafia River (Bridge Nos. 100358 & 100359)



I-75 over SR 674 (College Ave/Sun City Center Blvd) (Bridge Nos. 100346 & 100347)  
 I-75 over Big Bend Road (CR 672) (Bridge Nos. 100363 & 100364)

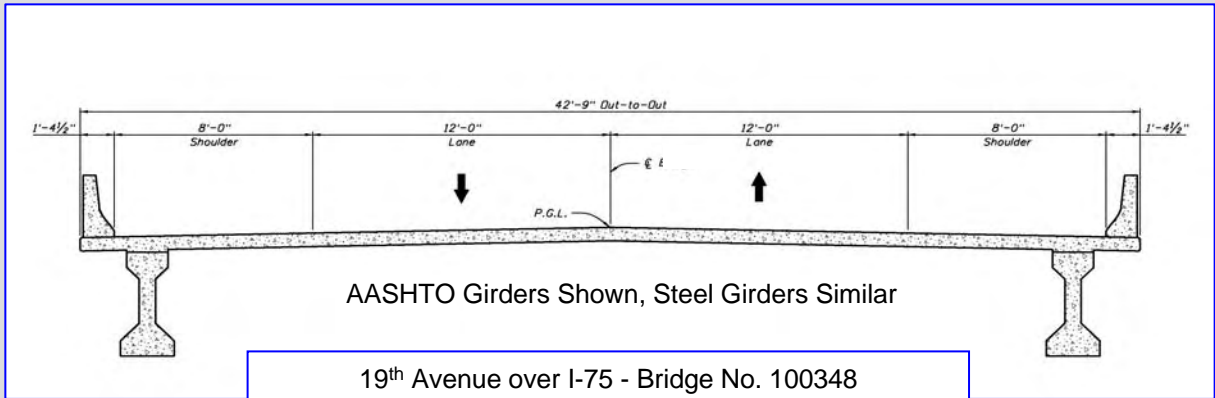


I-75 over Little Manatee River (Bridge Nos. 100352 & 100353)  
 I-75 over Bullfrog Creek (Bridge Nos. 100373 & 100374)  
 I-75 over Symmes Rd (Bridge Nos. 100375 & 100376)



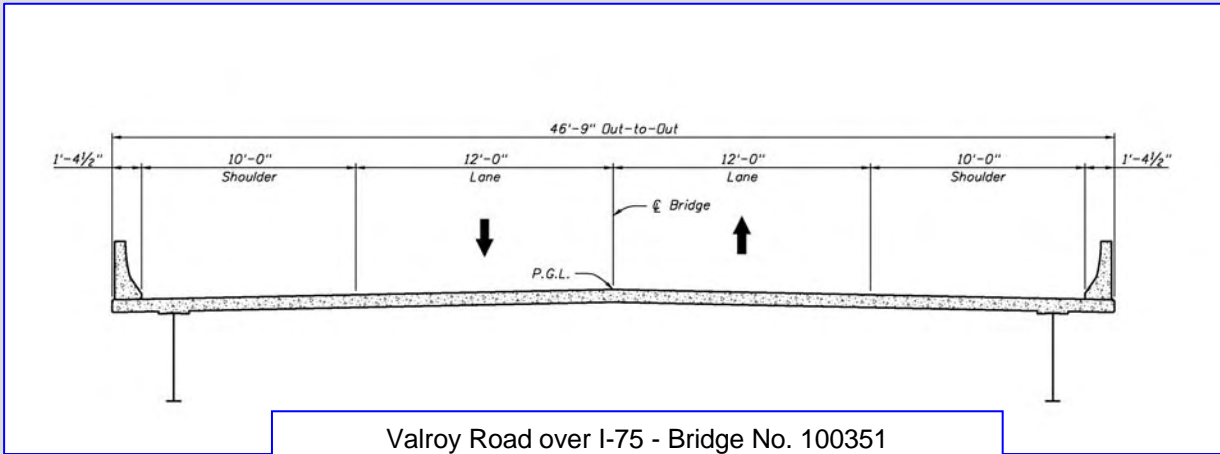
I-75 over Curiosity Creek (Bridge Nos. 130105 & 130106)



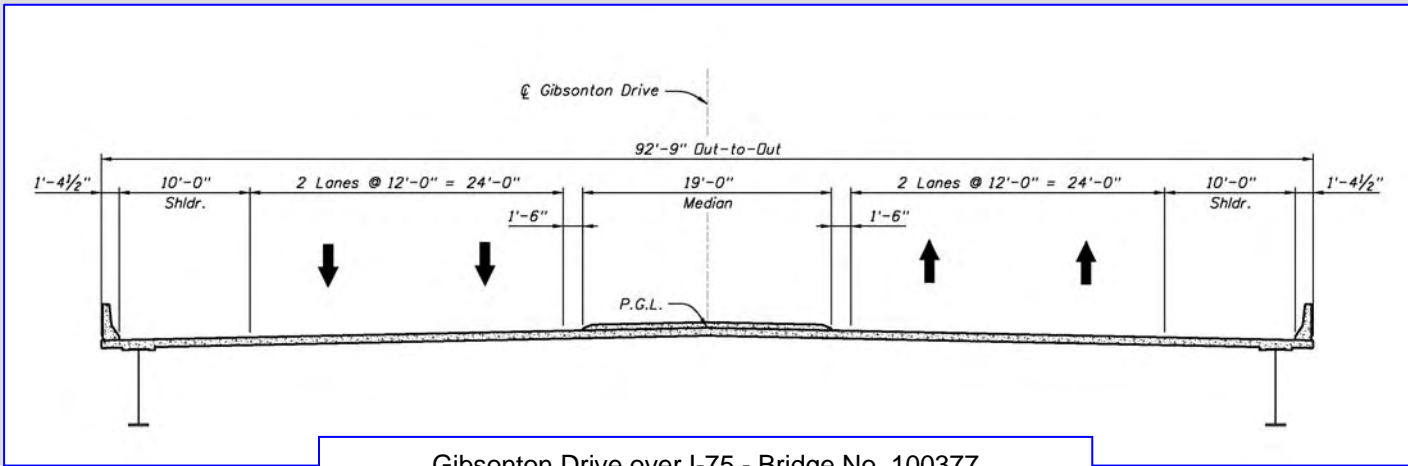


AASHTO Girders Shown, Steel Girders Similar

19<sup>th</sup> Avenue over I-75 - Bridge No. 100348  
 Buckeye Road over I-75 - Bridge No. 130077



Valroy Road over I-75 - Bridge No. 100351  
 21st Avenue over I-75 - Bridge No. 100354  
 24th St. SE over I-75 - Bridge No. 100355



Gibson Drive over I-75 - Bridge No. 100377





Bridges 100356 & 100357



Bridge 100377



Bridges 100376 & 100375



Bridges 100364 & 100363



Bridge 100348



Bridges 100346 & 100347

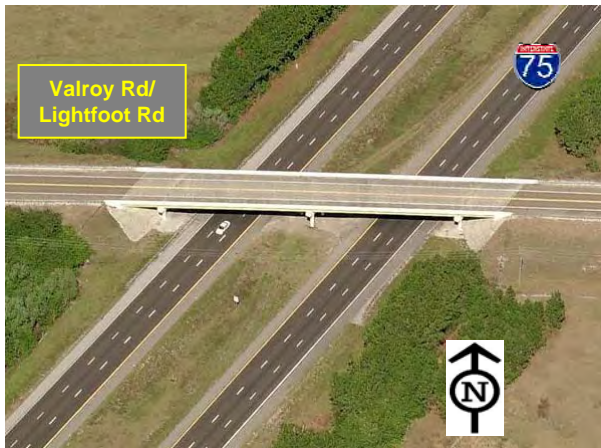




Bridge 100355



Bridge 100354



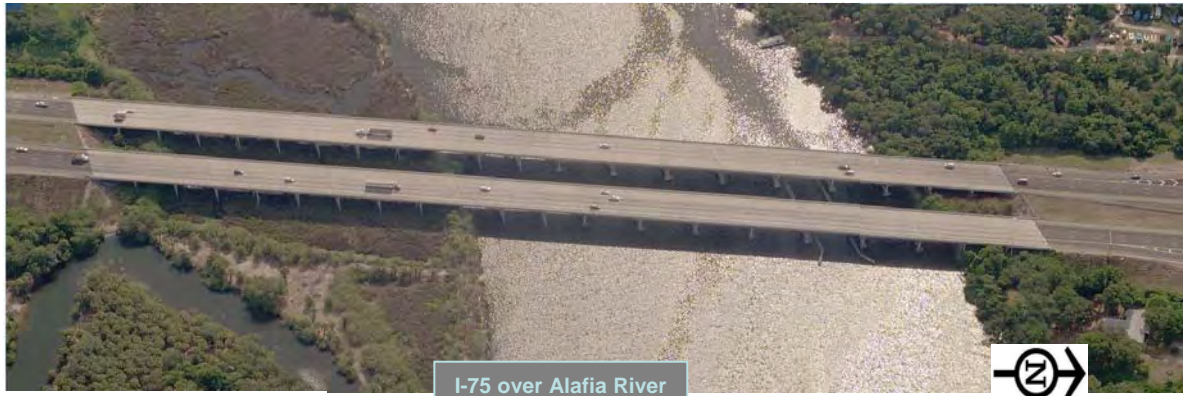
Bridge 100351



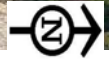
Bridge 130077



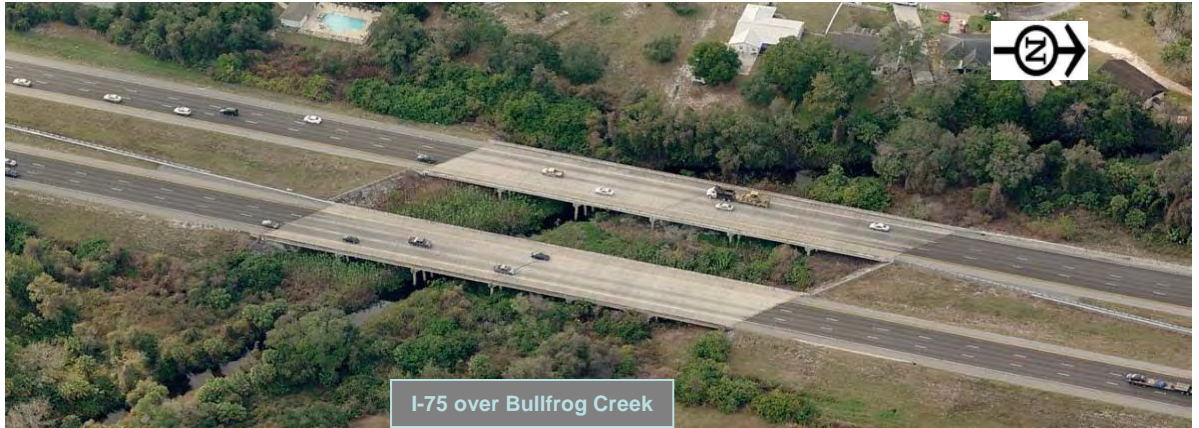
Bridges 100358  
&  
100357



I-75 over Alafia River



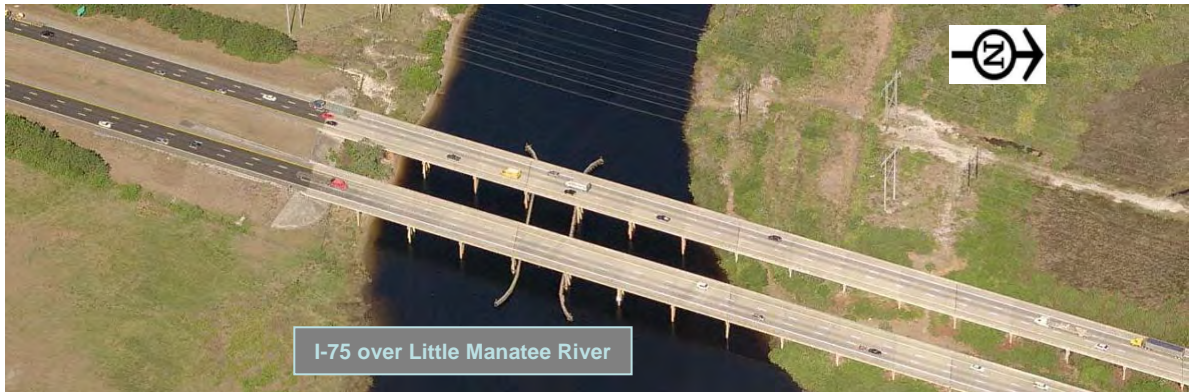
Bridges 100373  
&  
100374



I-75 over Bullfrog Creek



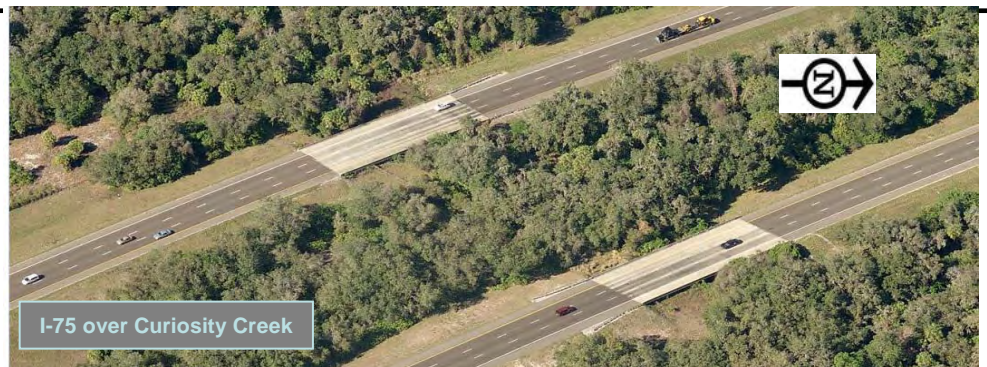
Bridges 100352  
&  
100353



I-75 over Little Manatee River



Bridges 130105  
&  
130106



I-75 over Curiosity Creek



I-75 (SR 93A) PD&E Study  
*Moccasin Wallow Rd to US 301*  
WPI Segment No. 419235-2  
Hillsborough and Manatee Counties

Photos of Bridges Over Water

Figure 2-13

**Table 2-7. Existing Bridge Structures Summary Information**

Approx. Milepost	Location Description (Structures from North to South)	Structure Number <sup>1</sup>	Year Built (Widened/ Deck Replaced) <sup>3</sup>	Structure Type <sup>2</sup>	Skew Angle (deg.) <sup>2</sup>	Structure Length <sup>1,2</sup>	Spans <sup>2</sup>	Span Lengths	Out to Out Width (ft) <sup>2</sup>	Travel Lane Widths (ft) <sup>2</sup>	Inside Shoulder Width (ft) <sup>2</sup>	Outside Shoulder Width (ft) <sup>2</sup>	Minimum Vertical Clearance (ft) <sup>2</sup>	Minimum Horizontal Clearance (ft)	Structural Ratings Operating/Inventory <sup>2</sup>	Sufficiency Rating <sup>3</sup>
<b>Hillsborough County</b>																
17.33	I-75 over Riverview Drive - SB	100356	1981	AASHTO	2°	159.583'	3	38.0' - 83.583' - 38.0'	70.75'	4x12'	10.0'	10.0'	16.3'	See Table 2-8. Bridge Horizontal Clearances Evaluation	1.94/1.61 - (HS20)	93.4
17.33	I-75 over Riverview Drive - NB	100357	1981	AASHTO	2°	159.583'	3	38.0' - 83.583' - 38.0'	70.75'	4x12'	10.0'	10.0'	16.3'		1.94/1.61 - (HS20)	93.4
16.851	I-75 over Alafia River -SB	100358	1981	AASHTO	24°	1552.5'	21	3 @ 67.5' - 6 @ 90.0' - 12 @ 67.5'	70.75'	4x12'	10.0'	10.0'	19.9'		1.83/1.58 - (HS20)	93.4
16.851	I-75 over Alafia River-NB	100359	1981	AASHTO	24°	1552.5'	21	3 @ 67.5' - 6 @ 90.0' - 12 @ 67.5'	70.75'	4x12'	10.0'	10.0'	19.9'		1.83/1.58 - (HS20)	93.4
16.47	Gibson Drive over I-75	100377	1983	Steel Girders	31°	336.0'	2	2 @ 168.0'	92.75'	4x12'	1.5'	10.0'	16.4'		1.69/1.03 - (HS20)	82
15.922	I-75 over Bullfrog Creek - SB	100373	1983	AASHTO	37.5°	414.0'	6	6 @ 69.0'	58.75'	3x12'	10.0'	10.0'	3.1'		1.58/1.39 - (HS20)	94.9
15.922	I-75 over Bullfrog Creek - NB	100374	1983	AASHTO	37.5°	414.0'	6	6 @ 69.0'	58.75'	3x12'	10.0'	10.0'	3.1'		1.58/1.39 - (HS20)	94.9
15.298	I-75 over Symmes Road - SB	100375	1983	AASHTO	12°	165.5'	3	38.0' - 89.75' - 38.0'	58.75'	3x12'	10.0'	10.0'	16.4'		1.75/1.44 - (HS20)	94.9
15.298	I-75 over Symmes Road - NB	100376	1983	AASHTO	12°	165.5'	3	38.0' - 89.75' - 38.0'	58.75'	3x12'	10.0'	10.0'	16.4'		1.75/1.44 - (HS20)	95.3
12.266	I-75 over Big Bend Road CR 672 - SB	100363	1981 (2004)	AASHTO	15°	315'	5	40.0' - 3 @ 78.33' - 40.0'	67.083'	4x12'	6.0'	10.0'	16.4'		1.75/1.50 - (HS20)	94.4
12.266	I-75 over Big Bend Road CR 672 - NB	100364	1981 (2004)	AASHTO	15°	315'	5	40.0' - 3 @ 78.33' - 40.0'	67.083'	4x12'	6.0'	10.0'	16.4'		1.75/1.50 - (HS20)	94.4
7.96	19 <sup>th</sup> Avenue over I-75	100348	1981	AASHTO	0°	283.33'	4	30.0' - 2 @ 111.67' - 30.0'	42.75'	2x12'	8.0'	8.0'	16.3'		Not Available	95.9
6.433	I-75 over SR 674 East College Ave/Sun City Center Blvd - SB	100346	1982 (2005)	AASHTO	19°	274.0'	4	44.08' - 2 @ 92.92' - 44.08'	67.08'	4x12'	10.0'	6.0'	16.3'		1.47/1.25 - (HS20)	97
6.433	I-75 over SR 674 East College Ave/Sun City Center Blvd - NB	100347	1982 (2005)	AASHTO	19°	274.0'	4	44.08' - 2 @ 92.92' - 44.08'	67.08'	4x12'	10.0'	6.0'	16.3'		1.47/1.25 - (HS20)	97
4.926	24 <sup>th</sup> ST SE over I-75	100355	1980	Steel Girders	30°	330.0'	4	35.5' - 2 @ 129.5' - 35.5'	46.75'	2x12'	10.0'	10.0'	16.5'		1.94/1.17 - (HS20)	76.2
4.437	21 <sup>st</sup> Ave SE over I-75	100354	1981	Steel Girders	59.5°	557.0'	4	56.0' - 2 @ 222.5' - 56.0'	46.75'	2x12'	10.0'	10.0'	17.0'		2.17/1.31 - (HS20)	96.9
1.955	I-75 over Little Manatee River - SB	100353	1981	AASHTO	26°	1380.0'	20	20 @ 69.0'	58.75'	3x12'	10.0'	10.0'	22.5'		1.85/1.11 - (HS20)	94.7
1.955	I-75 over Little Manatee River - NB	100352	1981	AASHTO	26°	1380.0'	20	20 @ 69.0'	58.75'	3x12'	10.0'	10.0'	22.5'		1.85/1.11 - (HS20)	94.6
1.297	Valroy Rd/ Lightfoot Rd over I-75	100351	1980	Steel Girders	27°	319.0'	4	33.75' - 2 @ 125.75' - 33.75'	46.75'	2x12'	10.0'	10.0'	16.5'		1.89/1.14 - (HS20)	81
<b>Manatee County</b>																
20	I-75 over Curiosity Creek - SB	130105	1980	Flat Reinforced Concrete Slab	4°-5°	180.0'	6	6 @ 30.0'	58.75'	3x12'	10.0'	10.0'	3.2'	2.22/1.33 - (HS20)	96.5	
20	I-75 over Curiosity Creek - NB	130106	1980	Flat Reinforced Concrete Slab	13°	180.0'	6	6 @ 30.0'	58.75'	3x12'	10.0'	10.0'	3.2'	2.22/1.33 - (HS20)	96.7	
18.4	Buckeye Rd over I-75	130077	1980	Steel Girders	37°	381.5'	2	2 @ 190.75'	42.75'	2x12'	8.0'	8.0'	16.3'	1.92/1.17 - (HS20)	96.7	

Revised 12/10/2009

Interchange area

**Sources:** 1) Straight Line Diagram Inventories from FDOT, 2005  
 2) As-Built Plans and Bridge Inspection Reports from FDOT (various years) (Minimum Vertical Clearance was obtained from As-Built Plans)  
 3) "Florida Bridge Information" spreadsheet dated January 7, 2008, FDOT

**Legend**

	I-75 mainline bridges over roadways
	I-75 mainline bridges over water bodies
	County roads crossing over I-75



## **Bridge Conditions**

Bridge sufficiency ratings are used to help determine whether a bridge that is structurally or functionally obsolete should be repaired or replaced. This rating considers a number of factors, of which only half relate to the condition of the bridge itself. The health index measures the overall condition. **Table 2-7** identifies the condition ratings of the structures along I-75. The sufficiency ratings range from 76.2 to 97.0 for all bridges. However, the I-75 structures ratings are in the 90s. The health indices ranged from 77.58 to 99.99. The load ratings can also be found in the table. All the bridges have Operating Load Ratings greater than 1.0. The Inventory Rating on all the bridges are greater than 1.0 for the AASHTO and steel girders and for the cast-in-place slab as required in Section 7.1.1 in the *Structures Design Guidelines*. These ratings were performed using either Allowable Stress or Load Factor methods. A Load and Resistance Factor Rating (LRFR) will need to be completed as required by Section 7.1.1.1.A of the *Structures Design Guidelines* to ensure that these bridges are suitable for widening.

## **Bridge Clearances**

Existing bridge vertical clearances are also shown in **Table 2-7**. *FDOT's Plans Preparation Manual (PPM)* (Table 2.10.1) requires a minimum vertical clearance over roadways of 16.5-feet (which includes a 0.5-foot allowance for future resurfacing). Existing bridge clearances over roadways range from 16.1-feet to 16.9-feet. Any clearances less than 16.0-feet are considered deficient. The minimum horizontal clearances between the edge of the nearest traffic lane and the closest bridge pier are shown in **Table 2-8** along with the clearance deficiencies. Many of the existing bridges do not meet the minimum clearance requirements as shown in **Table 2-8**. A suitable barrier, as specified in Section 4.3.2 of the *PPM* will be required to protect vehicles from these hazards when the 36.0-foot horizontal clearance for the I-75 mainline is not available in the ultimate condition. Section 3.6.5 of the *AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications* mandates that the bridge substructures be protected by barriers that are crash rated for a Test Level 5 (TL-5) if they are located within 30'-0" from the edge of the roadway and the columns are not capable of resisting the 400 kip vehicle crash load. These barriers are to be 54 inches tall if they are located within 10-feet of the column or otherwise may be 42 inches tall if at least 10-feet away from the column.

**Table 2-8 Existing Bridges Horizontal Clearances Evaluation**

Approx. Milepost	Location Description (Structures from North to South)	Structure Number	Existing Minimum Horizontal Clearance (ft)	Data Source for Min Horiz Clearance	Bottom Roadway Type: Rural vs. Curb & Gutter	Bottom Roadway Posted Speed or Est. Design Speed	Min. Req'd Horiz Clearance per PPM <sup>1</sup>	Is the minimum standard met?	Comments Regarding the Existing Conditions
<b>Hillsborough County</b>									
17.33	I-75 over Riverview Drive - SB	100356	28.7'	field verified	Rural	45 mph	24'	Yes	Rural, lower speed: road only 20' wide
17.33	I-75 over Riverview Drive - NB	100357	28.7'	field verified	Rural	45 mph	24'	Yes	Rural, lower speed: road only 20' wide
16.47	Gibson Drive over I-75	100377	23.4'	field verified	Rural	70 mph	36'	No	Center piers shielded by guardrail
15.298	I-75 over Symmes Road - SB	100375	30.6'	field verified	Rural	45 mph	24'	Yes	Rural cross road with sidewalk on north side
15.298	I-75 over Symmes Road - NB	100376	30.6'	field verified	Rural	45 mph	24'	Yes	
12.266	I-75 over Big Bend Road CR 672 - SB	100363	18.3' to aux lane	field verified	Rural	60 mph (posted 55 mph)	24' to aux lane	No	Median barrier includes bridge piers
12.266	I-75 over Big Bend Road CR 672 - NB	100364	18.3' to aux lane	field verified	Rural	60 mph (posted 55 mph)	24' to aux lane	No	
7.96	19 <sup>th</sup> Avenue over I-75	100348	30.1'	field verified	Rural	70 mph	36'	No	Center piers shielded by guardrail
6.433	I-75 over SR 674 East College Ave/Sun City Center Blvd - SB	100346	16.5' to aux lane	field verified	Rural	55 mph (posted 50 mph)	18' to aux lane	No	Median piers shielded by guardrail; no outside pier protection
6.433	I-75 over SR 674 East College Ave/Sun City Center Blvd - NB	100347	16.5' to aux lane	field verified	Rural	55 mph (posted 50 mph)	18' to aux lane	No	
4.926	24 <sup>th</sup> St SE over I-75	100355	30.1'	field verified	Rural	70 mph	36'	Yes	All piers shielded by guardrail
4.437	21 <sup>st</sup> Ave SE over I-75	100354	29.7'	field verified	Rural	70 mph	36'	Yes	All piers shielded by guardrail; crossing is severely skewed
1.297	Valroy Rd/ Lightfoot Rd over I-75	100351	30.4' outside	field verified	Rural	70 mph	36'	No	Outside piers shielded by guardrail; no median pier protection
<b>Manatee County</b>									
18.4	Buckeye Rd over I-75	130077	53.3' inside	field verified	Rural	70 mph	36'	Yes	No guardrail shielding present

<sup>1</sup>Based on Tables 2.11.1, 2.11.6 and 2.11.11 in FDOT's Plans Preparation Manual

Revised 04/02/2010

Interchange area

**Legend**

	I-75 mainline bridges over roadways
	County roads crossing over I-75

## **Boat Crashes**

According to data provided by the Florida Fish and Wildlife Conservation Commission (FFWCC), between January 1998 and August 2007, a total of three motorboat crashes occurred at the I-75 bridge over the Alafia River. During the same period, no boat crashes were reported at the I-75 bridge over the Little Manatee River.

## **Summary**

In general, all of the bridges are in good condition. An LRFR will need to be performed on all the bridges to be widened to verify they meet the current code requirements. Those that meet these requirements can be considered suitable for widening in the future but appropriate protection will still be needed to meet the horizontal clearance requirements in the *FDOT's PPM*.

### **2.14 Geotechnical Data**

The Natural Resources Conservation Services (NRCS) Soil Survey for Hillsborough County and Manatee County, Florida provides general descriptions of subsurface conditions of the county. The soils in this area are mainly poorly drained sandy soils with pine flatwoods being the dominant community type. The dominant soil types along the corridor and their identification numbers include: Myakka fine sand (29), EauGallie fine sand (20) with many areas of Pomella fine sand, 0 to 5 percent slopes (41), and St. Johns fine sand (46) dispersed throughout the corridor. Soil maps are included in **Appendix E**. A more detailed description of the dominant soil types are given below.

- **Myakka fine sand** – Nearly level, poorly drained soil in flatwoods on marine terraces. Slopes range from 0 to 2 percent. In most years, under natural conditions, the water table is within a depth of 6 to 18 inches.
- **EauGallie fine sand** – Nearly level, poorly drained soil in flatwoods on marine terraces. Slopes range from 0 to 2 percent. In most years, under natural conditions, the water table is within a depth of 6 to 18 inches.

- **Pomella fine sand** – Nearly level to gently sloping, moderately well drained soil found on ridges and knolls on marine terraces, with irregularly shaped areas. Slopes range from 0 to 5 percent. In most years, under natural conditions, the water table is at a depth of 24 to 42 inches.
- **St. Johns fine sand** – Nearly level, poorly drained soil found in flats on marine terraces. Slopes range from 0 to 2 percent. In most years, under natural conditions, the water table is at a depth of 0 to 12 inches.

## 2.15 Existing Traffic and Levels of Service

Existing Year (2007) LOS for the freeway segments are shown in **Table 2-9** while Existing Year LOS for the Ramp Termini and Ramp Merge/Diverge areas are shown in **Table 2-10**. More information on existing traffic volumes and levels of service can be found in the *Design Traffic Technical Memorandum (DTTM) – Technical Report No. 1: Evaluation of Alternatives* (September 2009) prepared by PB Americas, Inc.

**Table 2-9 Existing (2007) LOS – Freeway Segments**

Mainline Segment	LOS
<b>I-75 Northbound</b>	
Moccasin Wallow Rd. to SR 674	B
SR 674 to Big Bend Road	C
Big Bend to Gibsonton Drive	C
Gibsonton Drive to US 301	B
<b>I-75 Southbound</b>	
US 301 to Gibsonton Drive	D
Gibsonton Drive to Big Bend	D
Big Bend Road to SR 674	B
SR 674 to Moccasin Wallow Rd.	B

Source: Design Traffic Technical Memorandum – Technical Report No. 1 (September 2009)

**Table 2-10 Existing (2007) LOS – Ramp Termini & Ramp Merge/Diverge Areas**

<b>Interchange</b>	<b>Ramp Termini LOS (Best/Worse)</b>	<b>Ramp Merge/Diverge LOS (Best/Worse)</b>
Moccasin Wallow Road	A/C	B/B
SR 674	F	B/C
Big Bend Road	A/F	B/F
Gibson Drive	B/F	C/F

Source: Design Traffic Technical Memorandum – Technical Report No. 1 (September 2009)

## 2.16 Rest Areas

### Southbound Facility

The Hillsborough County Rest Area (No. 70252) services I-75 for southbound traffic and is located between Hillsborough County mileposts 3 and 4, south of 21st Avenue, which is approximately 2.5 miles south of SR 674. The closest interchange to the south is Moccasin Wallow Road which is located approximately 7.6 miles from this rest area while the closest interchange to the north is SR 674 which is located approximately 2.5 miles from this rest area. The closest rest area facilities located north and south of this facility are approximately 41 miles and 78 miles, respectively.

### Parking

The auto parking area is located immediately surrounding the rest area facilities and consists of 100 spaces, of which 12 are marked handicap accessible. There are also 43 recreational vehicle (RV) and Tractor Trailer (Truck) spaces (23 at the rear of the facility and 20 at the front of the facility). These parking spaces measure approximately 75-feet in length by approximately 20-feet in width. RV parking is confined to the 23 spaces located at the rear of the facility, while trucks have access to all 43 spaces. Due to federally regulated driving hours on truck drivers, there are not sufficient spaces available and trucks are parking on the shoulders along the exit ramp from the facility. There were no RV spaces designated as handicap accessible. The types and number of parking spaces are shown below in **Table 2-11**.

**Table 2-11 Southbound Rest Area Parking Spaces**

<b>Parking Spaces</b>	
RV/ Truck	43
Automobile	100 (12 Handicap)
<b>Total</b>	<b>143</b>

**Ancillary Facilities**

Additional amenities offered at this facility include vending, restrooms, dog walk and picnic pavilions. The vending area consists of seven vending machines and one change machine. The dog walk area is located immediately adjacent to the auto parking area and is clearly marked with directional signage. There are four covered picnic pavilions located adjacent to the auto parking area on the north and south side of the facility. The plumbing fixture counts for the restrooms are shown below in **Table 2-12**.

**Table 2-12 Southbound Rest Area Fixture Counts**

<b>Men's Restroom</b>	
Lavatories	8
Water Closets	6 (4 handicap)
Urinals	8
<b>Women's Restroom</b>	
Lavatories	12
Water Closets	22 (4 handicap)
<b>Family Restroom</b>	
Lavatories	1
Water Closets	1

**Northbound Facility**

The Hillsborough County Rest Area (No. 70251) services I-75 for northbound traffic and is located between Hillsborough County mileposts 3 and 4, south of 21st Avenue, which is approximately 2.5 miles south of SR 674. The closest interchange to the north is SR 674 which is located approximately 2.5 miles from this rest area while the closest interchange to the south is Moccasin Wallow Road which is located approximately 7.6 miles from this rest area. The closest rest area facilities located north and south of this facility are 78 miles and 41 miles, respectively.

## **Parking**

The auto parking area is located immediately surrounding the rest area facilities and consists of 103 spaces, of which nine are marked handicap accessible. There are also 17 RV spaces, of which two are marked handicap accessible, and 19 truck spaces. Due to federally regulated driving hours on truck drivers, there are not sufficient spaces available and trucks are parking on the shoulders along the exit ramp from the facility. The truck and RV parking spaces measure approximately 75-feet in length by approximately 20-feet in width. RV parking is confined to the rear of the facility, while truck parking is confined to the front of the facility and along the shoulders. The types and number of parking spaces are shown below in **Table 2-13**.

**Table 2-13 Northbound Rest Area Parking Spaces**

<b>Parking Spaces</b>	
RV/ Truck	36 (2 Handicap)
Automobile	103 (9 Handicap)
<b>Total</b>	<b>139</b>

## **Ancillary Facilities**

Additional amenities offered at this facility include vending, restrooms, dog walk and picnic pavilions. The vending area consists of eight vending machines and one change machine. The dog walk area is located immediately adjacent to the auto parking area and is clearly marked with directional signage. There are seven covered picnic pavilions located to the rear of the facility along the picnic loop road. The plumbing fixture counts for the restrooms are shown below in **Table 2-14**.

**Table 2-14 Northbound Rest Area Fixture Counts**

<b>Men's Restroom</b>	
Lavatories	10
Water Closets	6 (2 handicap)
Urinals	8
<b>Women's Restroom</b>	
Lavatories	8
Water Closets	14 (2 handicap)
<b>Family Restroom</b>	
Lavatories	2
Water Closets	2

A previous study, “2005 Florida Department of Transportation Rest Area Assessment Study” was done by Bentley which document existing conditions and proposed improvements needed for the Northbound and Southbound Rest Areas. Basically, the report concluded that major deficiencies to the northbound rest area include:

- Truck & RV Parking did not meet required turning radii standards
- Significant shoulder damage due to truck parking and run-offs
- Did not meet the required number of lavatories, water closets and urinals for the men’s and women’s restrooms



## Section 3 – PLANNING PHASE/CORRIDOR ANALYSIS

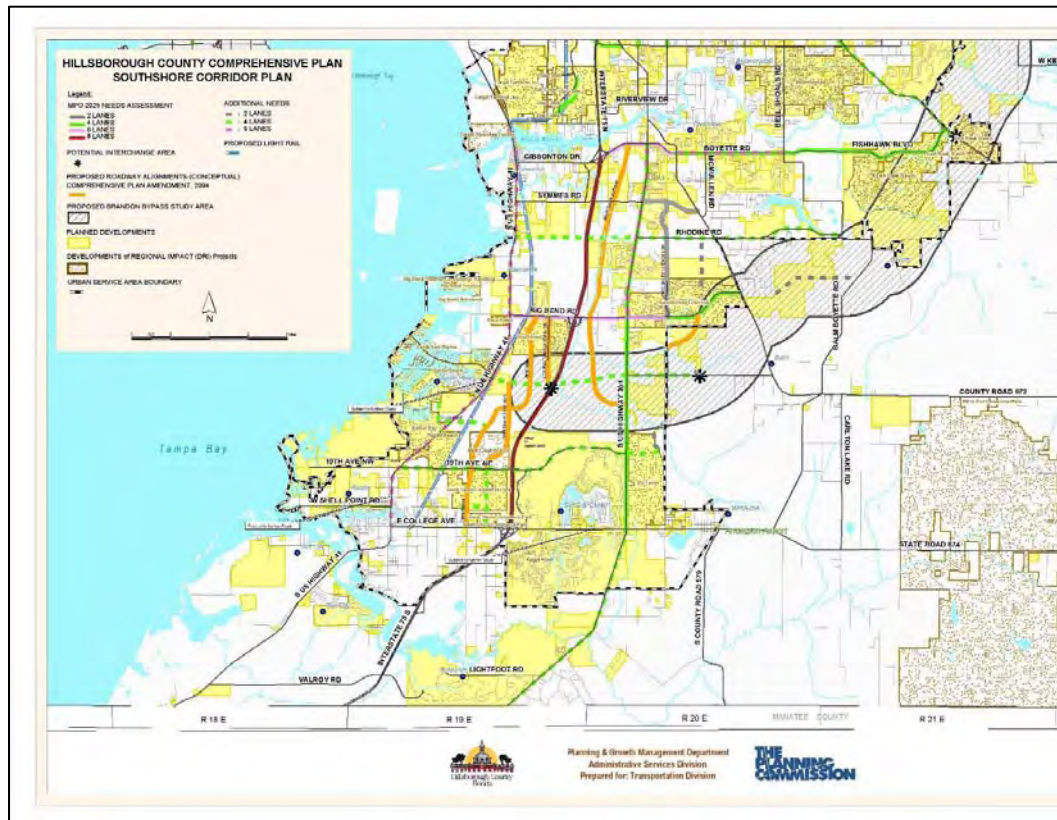
Previous plans and studies include:

- FIHS Cost Feasible Plan
- SIS Unfunded Needs Plan
- I-75 Master Plan
- Hillsborough County Comprehensive Plan
- Hillsborough County MPO LRTP
- I-75 Interchange Operational Study
- Corridor Needs Assessment Study for I-75 from North of Moccasin Wallow Road to South of Fowler Avenue

The I-75 Master Plan, dated November 1989, recommended eight general purpose lanes between US 301 and Big Bend Road, and six lanes south of Big Bend Road, based on a design year of 2010.

In addition, the MPO's CCC Regional Needs Assessment, dated August 2004, calls for two additional general purpose lanes south of the Hillsborough/Manatee County Line, and up to four additional special purpose lanes from I-275/I-75 junction in Manatee County to I-75/I-275 junction at the Hillsborough/Pasco County Line. The CCC's Cost Affordable Plan for 2025 (dated September 2004) calls for two additional special purpose lanes between SR 674 and Big Bend Road.

Another plan which includes a large part of the study area is the Hillsborough County South Shore Corridor Plan, published in January 2004. It recommended widening I-75 from SR 674 to Gibsonton Drive to eight lanes (**Figure 3-1**), in addition to other area improvements.



Includes widening I-75 from SR 674 to Gibsonton Rd and a new interchange



**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Rd to US 301**  
WPI Segment No. 419235-2  
Hillsborough and Manatee Counties

**Southshore Corridor Plan**

**Figure 3-1**

An additional plan related to the study area is the Hillsborough South County Transportation Plan, published in August 2007, which recommended new I-75 interchanges at the possible Rhodine Road Extension and at Apollo Beach Boulevard as well as various ramp improvements at other interchanges along I-75, as shown in **Figure 3-2**.

The Tampa Bay Area Regional Transportation Authority (TBARTA) Master Plan (Adopted May 22, 2009) includes Express Bus Managed Lanes along the I-75 corridor within the project limits.

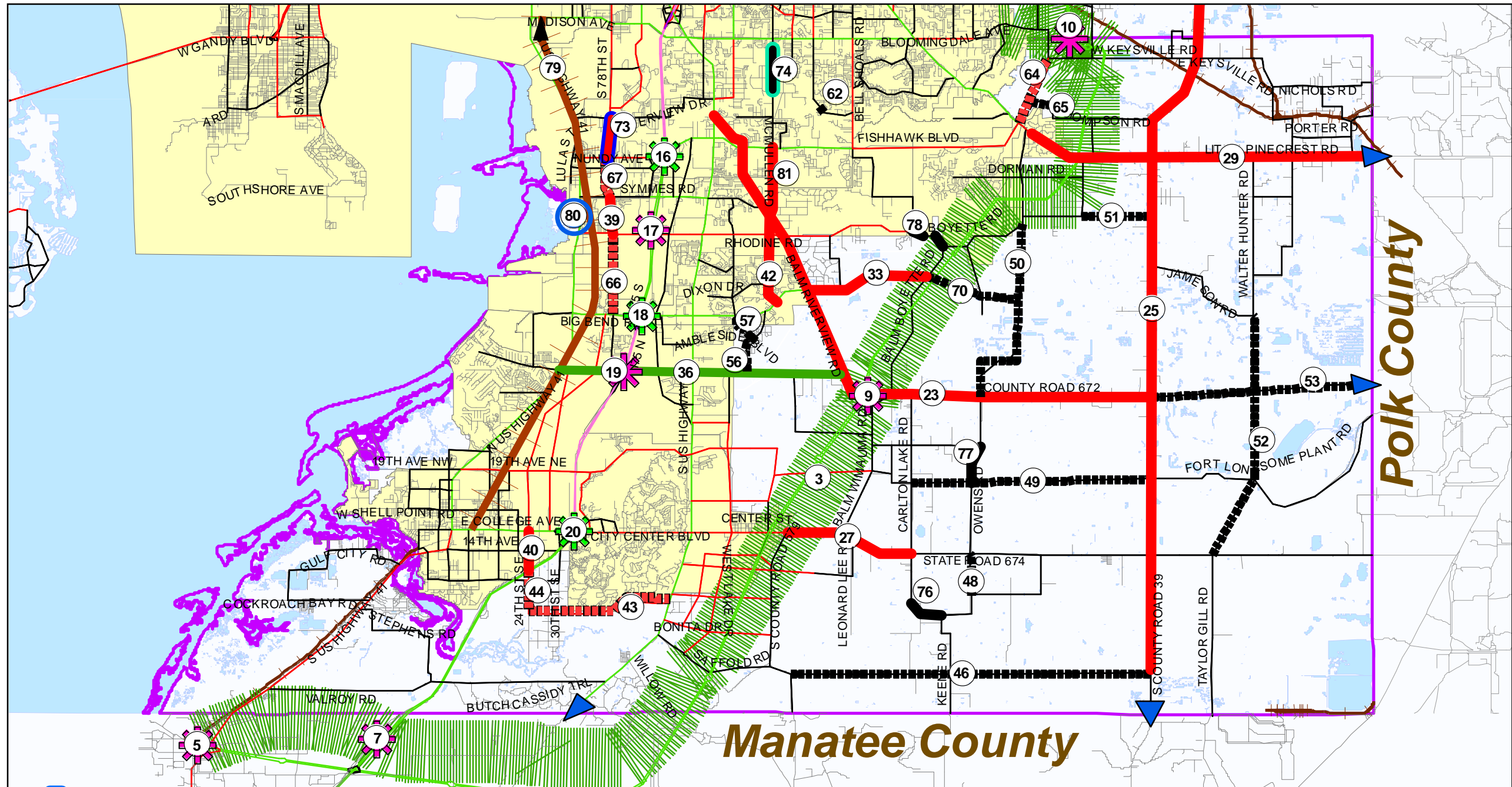
Finally, an I-75 was completed in June 2006 which recommended minor (short-term) operational improvements at 10 interchanges located between SR 674 and SR 50, including the interchanges at SR 674, Big Bend Road, and Gibsonton Drive.



As noted previously in Section 2.9, two potential *new interchanges* are currently being studied. One of these includes a connection to the proposed Port Manatee Connector ([www.portmanateeconnector.com](http://www.portmanateeconnector.com), WPI Segment # 422724-1) which could potentially be located somewhere in the vicinity of the Manatee-Hillsborough County line. Alternative corridors under study as of December 2008 are shown in **Figure 3-3**. The other potential interchange could be located anywhere between 19<sup>th</sup> Avenue and Rhodine Road, and is being studied by Hillsborough County concurrently with this PD&E Study.



With respect to a corridor analysis, no mention of corridor analysis is included in the *ETDM Programming Screen Summary Report* published March 29, 2007; however, the I-75 corridor would be classified as a Level 1 analysis: “Projects on existing alignments for which alternate corridors are not under consideration, and the development and analysis of an interconnected multimodal transportation system is not feasible. No corridor report is necessary.”

# South County Transportation Plan Final Recommendations

## Existing & New Corridors with Bypass & Interchange at Apollo Beach Blvd.



  
  
 August 29, 2007

### Final Recommendations

<ul style="list-style-type: none"> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">#</span> Project ID Number</li> <li><span style="color: magenta;">★</span> New Interchange</li> <li><span style="color: green;">★</span> Modification to Existing Interchange</li> <li><span style="border: 1px solid blue; border-radius: 50%; padding: 2px 5px;">●</span> Passenger Ferry to St. Pete, Tampa &amp; Ybor City</li> <li><span style="border-bottom: 2px solid orange; width: 20px; display: inline-block;"></span> Commuter Rail</li> <li><span style="background-color: yellow; border: 1px solid black; width: 20px; height: 10px; display: inline-block;"></span> Urban Services Area Boundary</li> <li><span style="color: blue;">▼</span> Potential Connection/Widening of Roads in Adjacent Counties</li> </ul>	<ul style="list-style-type: none"> <li><span style="border-bottom: 2px dashed green; width: 20px; display: inline-block;"></span> Conceptual Bypass Alignment</li> <li><span style="border-bottom: 2px dashed black; width: 20px; display: inline-block;"></span> New 2 Lane Roadway</li> <li><span style="border-bottom: 2px solid black; width: 20px; display: inline-block;"></span> 2 Lane Roadway Realignment</li> <li><span style="border-bottom: 2px dashed red; width: 20px; display: inline-block;"></span> New 4 Lane Roadway</li> <li><span style="border-bottom: 2px solid red; width: 20px; display: inline-block;"></span> Widen to 4 Lanes</li> <li><span style="border-bottom: 2px solid green; width: 20px; display: inline-block;"></span> Widen to 6 Lanes</li> <li><span style="border-bottom: 2px solid blue; width: 20px; display: inline-block;"></span> 2 Lane Bridge Crossing</li> <li><span style="border-bottom: 2px solid blue; width: 20px; display: inline-block;"></span> 4 Lane Bridge Crossing</li> </ul>
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Note: subsequent to the development of this plan, the green hatched line bypass was removed from the plan by the Hillsborough County BOCC and MPO.

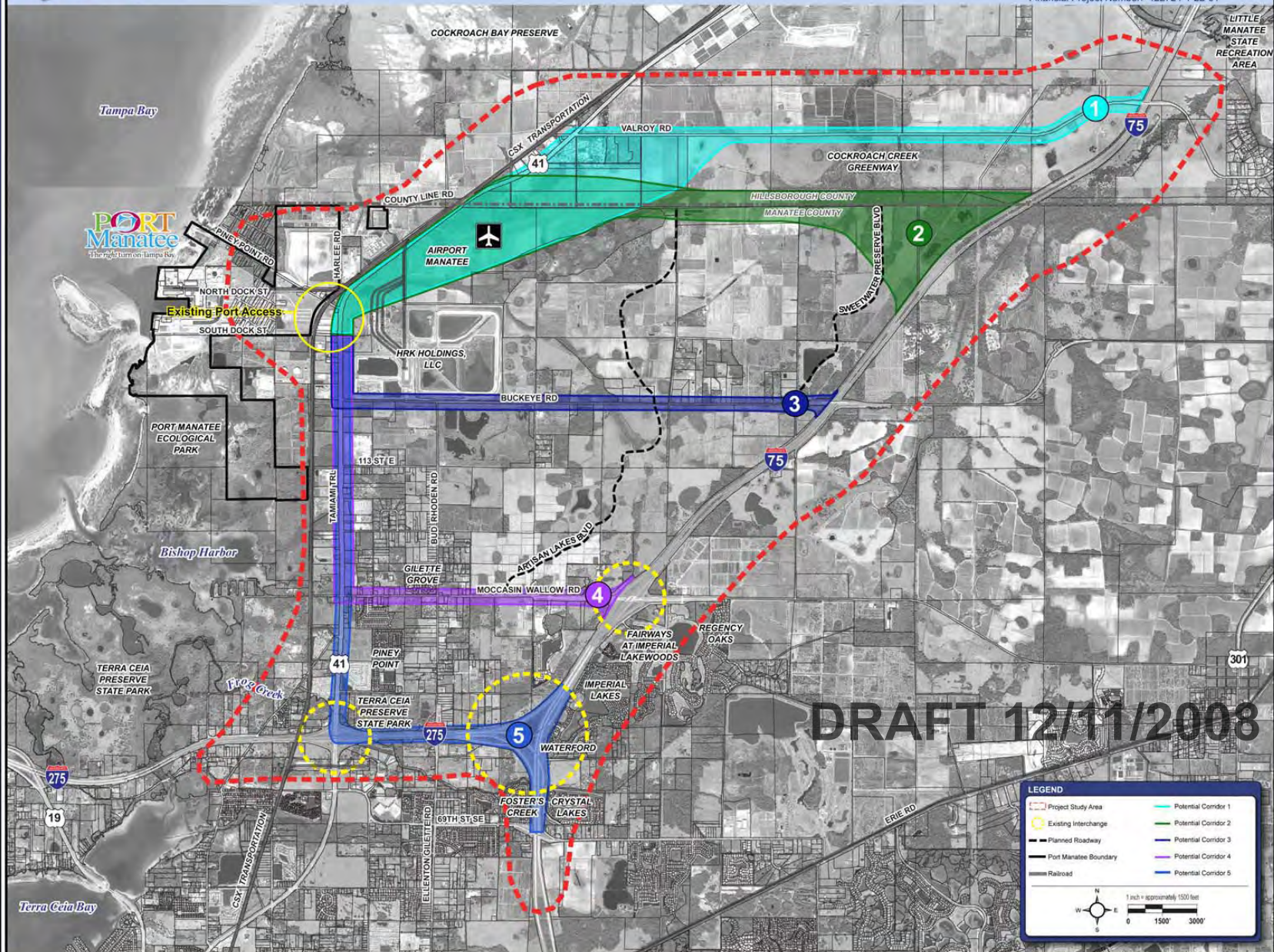
#### 2050 Model Network (Incorporates Needs Plan, Corridor Preservation Plan & Balm Wimauma Study)

<ul style="list-style-type: none"> <li><span style="border-bottom: 2px solid black; width: 20px; display: inline-block;"></span> 2 Lanes</li> <li><span style="border-bottom: 2px solid red; width: 20px; display: inline-block;"></span> 4 Lanes</li> <li><span style="border-bottom: 2px solid green; width: 20px; display: inline-block;"></span> 6 Lanes</li> <li><span style="border-bottom: 2px solid purple; width: 20px; display: inline-block;"></span> 8 Lanes</li> <li><span style="border-bottom: 2px solid pink; width: 20px; display: inline-block;"></span> 10 Lanes</li> </ul>	<ul style="list-style-type: none"> <li><span style="border-bottom: 1px solid gray; width: 20px; display: inline-block;"></span> 2007 Local Streets</li> <li><span style="border: 2px solid purple; width: 20px; height: 10px; display: inline-block;"></span> Study Area</li> <li><span style="background-color: lightblue; width: 20px; height: 10px; display: inline-block;"></span> Water Bodies</li> <li><span style="border-bottom: 1px solid brown; width: 20px; display: inline-block;"></span> Existing Railroads</li> </ul>
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# Potential Corridors

Port Manatee Connector  
 PD&E STUDY  
 from Port Manatee to I-75  
 Manatee and Hillsborough Counties, Florida

Financial Project Number: 422724-1-22-01



DRAFT 12/11/2008

**LEGEND**

- Project Study Area
- Existing Interchange
- Planned Roadway
- Port Manatee Boundary
- Railroad
- Potential Corridor 1
- Potential Corridor 2
- Potential Corridor 3
- Potential Corridor 4
- Potential Corridor 5

1 inch = approximately 1000 feet  
 0 1500 3000



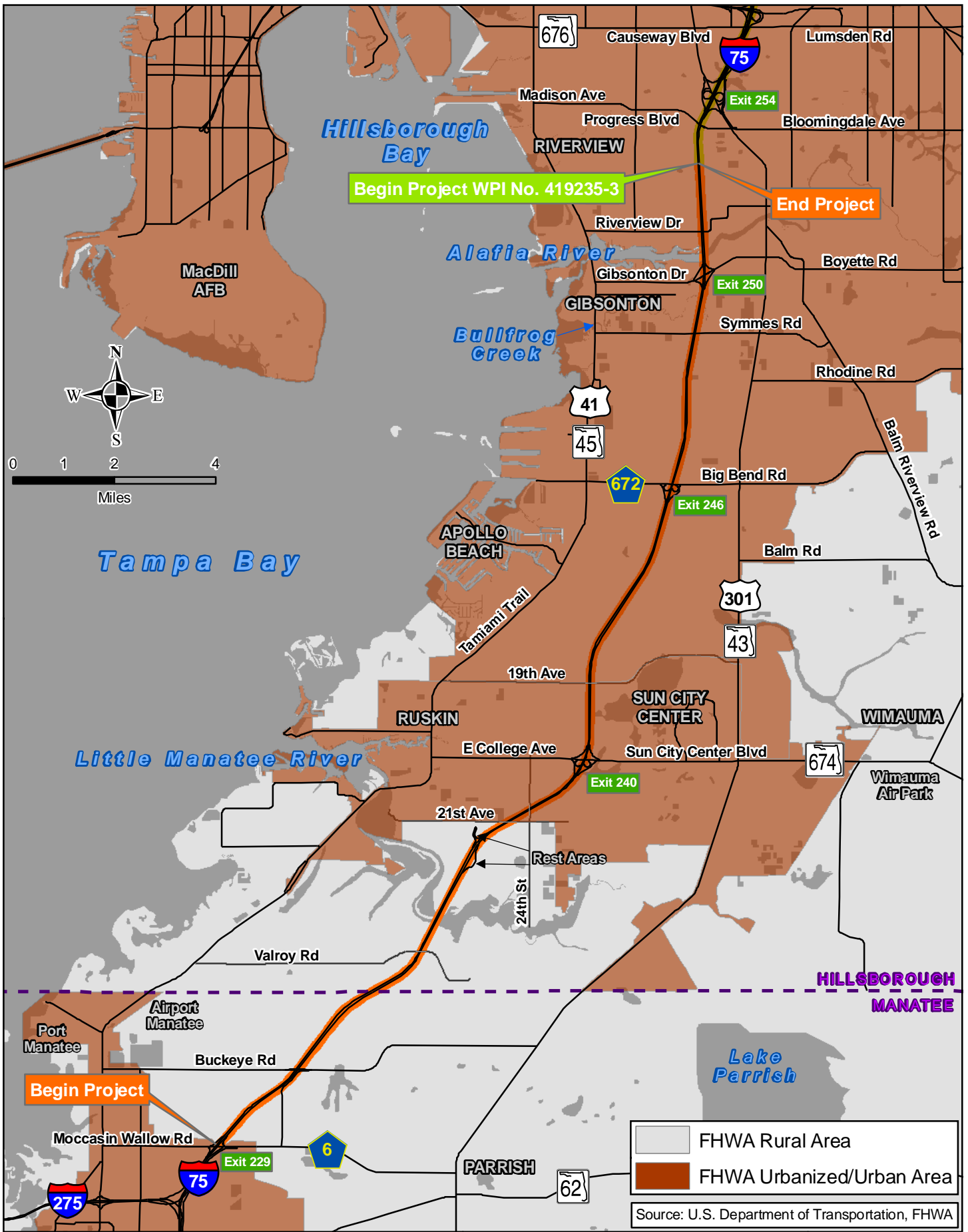
## Section 4 – PROJECT DESIGN STANDARDS


Access management standards for Interstates and other state highways are defined in Florida Statute (FS) 335.18, Florida Administrative Code (FAC) FDOT Rule 14-97, in addition to the FDOT’s adopted Median Opening and Access Management Decision Process (Topic No. 625-010-021). I-75 is classified as “Access Classification 1 (freeways)” according to FDOT’s Roadway Characteristics Inventory (RCI) database. Minimum interchange spacing criteria for freeways are given in **Table 4-1** along with a description of which area types applies to this I-75 study area. **Figure 4-1** illustrates the FHWA-classified urban and rural areas which fall within the study limits.

**Table 4-1 Interchange Spacing for Access Class 1**

<b>Area Type</b>	<b>Description</b>	<b>Applicability To This Project</b>	<b>Minimum Spacing</b>
1	CBD Fringe for Cities in Urbanized Areas	Doesn't apply	1.0 miles
2	Existing <b>Urbanized Areas</b> other than Area Type 1	<b>Applies north of 21<sup>st</sup> Avenue SE</b> on I-75	<b>2.0 miles</b>
3	Transitioning Urbanized Areas	Doesn't apply	3.0 miles
4	<b>Rural Areas</b>	<b>Applies south of 21<sup>st</sup> Avenue SE</b> on I-75 to Moccasin Wallow Road	<b>6.0 miles</b>

General design criteria for Interstate highways are given in **Table 4-2**, for both mainline and ramps. Drainage design criteria are discussed in the Draft Pond Sizing Technical Memorandum. **Table 4-3** shows a list of potential design variations and exceptions required for this Study.




**I-75 (SR 93A) PD&E Study**  
*Moccasin Wallow Road to US 301*  
 WPI Segment No.: 419235-2  
 Hillsborough and Manatee Counties

**Urban vs. Rural  
 Area Classification**

**Figure 4-1**

**Table 4-2. Design Controls and Standards for I-75**

Design Element	I-75 Mainline	Reference	I-75 Ramps	Reference
<b>Existing Functional Class.</b>	Urban Principal Arterial Interstate	Mocassin Wallow to Hillsborough Co. Line / 21st Avenue to US 301	N/A	2000 Urban Boundaries and Federal Functional Classification Map
	Rural Principal Arterial Interstate	Hillsborough Co. Line to 21st Ave.		
<b>Access Classification</b> -Interchange Spacing	Access Class I-Area Type 3 3.0 miles		Access Class I-Area Type 3 N/A	
<b>Design Classification</b>	Rural Freeway-Interstate		Ramp Interstate	
<b>Speed:</b> -Posted -Design	70 mph 70 mph	PPM Table 1.9.2 PPM Table 1.9.2	N/A 30 mph (Loop), 45 mph (Diamond)	AASHTO p.825 (Loop) AASHTO Exhibit 10-56 (Diamond)
<b>Design Vehicle</b>	WB-62FL	PPM Figure 1.12.1	WB-62FL	PPM Figure 1.12.1
<b>Horizontal Alignment</b> - Max curvature - Max curvature with NC - Max superelevation - Slope rates - Min curve length in full super. - Max deflection w/o curve - Length of curve	3° 00' 00" 0° 15' 00" 0.10 ft/ft 1:200, 100' min. (for only 6-lane) 200' 0° 45' 00" 2,100' (1,050' min)	PPM Table 2.8.3 PPM Table 2.8.4 PPM Table 2.8.3 PPM Table 2.9.3 PPM Table 2.8.2a PPM Table 2.8.1a PPM Table 2.8.2a	24° 45' 00" (30 mph), 8° 15' 00" (45 mph) 1° 30' 00" (30 mph), 0° 30' 00" (45 mph) 0.10 ft/ft 1:100 (30 mph), 1:200 (45 mph) 200' N/A 900' (450' min) 30 mph	PPM Table 2.8.3 PPM Table 2.8.4 PPM Table 2.8.3 PPM Table 2.9.4, 2.9.3 PPM Table 2.8.2a PPM Table 2.8.1a PPM Table 2.8.2a
<b>Vertical Alignment</b> - Max Grade - Max change in grade w/o curve - Min. stopping sight distance <sup>(1)</sup> - Min. "K" for crest curve - Min. "K" for sag curve - Min. crest curve length - Min sag curve length	3% 0.2% 820' 506 206 1,000' open highway 1,800' within interchanges 800'	PPM Table 2.6.1 PPM Table 2.6.2 PPM Table 2.7.1 PPM Table 2.8.5 PPM Table 2.8.6 PPM Table 2.8.5 PPM Table 2.8.6	5-7% (25-30 mph), 3-5% (45-50 mph) 1.0% (30 mph), 0.7% (45 mph) 200' (30 mph), 360' (45 mph) 31 (30 mph), 98 (45 mph) 37 (30 mph), 79 (45 mph) 90' (30 mph), 135' (45 mph) 90' (30 mph), 135' (45 mph)	PPM Table 2.6.1 PPM Table 2.6.2 PPM Table 2.7.1 PPM Table 2.8.5 PPM Table 2.8.6 PPM Table 2.8.5 PPM Table 2.8.6
<b>Cross Section Elements</b> - Travel lane width - Auxiliary lane - Outside shoulder width (mainline) - Outside shoulder width (bridge) - Inside shoulder width (mainline) - Inside shoulder width (bridge) - Median width w/o barrier wall - Median width w/ barrier wall - Travel lane cross slope - Outside shoulder cross slope - Inside shoulder cross slope - Max rollover at ramp terminal - Max rollover between travel lanes	12' 12' 12' (10' paved) 10' 12' (10' paved) 10' 64' 26' 2.0% (3.0% max) 6.0% 5.0% 5.0% 4.0%	PPM Table 2.1.1 PPM Table 2.1.1 PPM Table 2.3.1 PPM Figure 2.0.1 PPM Table 2.3.1 PPM Figure 2.0.1 PPM Table 2.2.1 PPM Table 2.2.1 PPM Figure 2.1.1 PPM Table 2.3.1 PPM Table 2.3.1 PPM Table 2.1.4 PPM Table 2.1.1	15' (single lane) N/A 6' (4' paved) 6' 6' (2' paved) 6' N/A N/A 2.0% 6.0% 5.0% 5.0% N/A	PPM Table 2.1.3 PPM Table 2.3.1 PPM Figure 2.0.1 PPM Table 2.3.1 PPM Figure 2.0.1 PPM Figure 2.1.1 PPM Table 2.3.1 PPM Table 2.3.1 PPM Table 2.1.4
<b>Roadside Slopes</b> - Front slopes - Back slopes - Transverse slopes	1:6 for 0-5' height 1:6 to CZ then 1:4 for 5-10' ht. 1:6 to CZ then 1:3 for 10-20' ht. 1:2 with guardrail for ht. over 20' 1:4 desir. (1:3 min w/1:6 front slope) 1:10	PPM Table 2.4.1 PPM Table 2.4.1 PPM Table 2.4.1 PPM Table 2.4.1 PPM Table 2.4.1 PPM Table 2.4.1	1:6 for 0-5' height 1:6 to CZ then 1:4 for 5-10' height 1:6 to CZ then 1:3 for 10-20' height 1:2 with guardrail for height over 20' 1:4 desir. (1:3 min w/1:6 front slope) 1:4	PPM Table 2.4.1 PPM Table 2.4.1 PPM Table 2.4.1 PPM Table 2.4.1 PPM Table 2.4.1 PPM Table 2.4.1
<b>Border Width</b>	94'	PPM Table 2.5.3	94'	PPM Table 2.5.3
<b>Clear Zone/Horizontal Clearance</b> - Travel lane - Auxiliary lane	36' 24'	PPM Table 2.11.11	N/A 24'	PPM Table 2.11.11
<b>Vertical Clearance</b> - Overhead signs <sup>(2)</sup> - Dynamic message sign <sup>(2)</sup> - Roadway over roadway	17.5' 19.5' 16.5'	PPM Table 2.10.2 PPM Table 2.10.4 PPM Table 2.10.1	17.5' 19.5' 16.5'	PPM Table 2.10.2 PPM Table 2.10.4 PPM Table 2.10.1
<b>Auxiliary Lanes</b> - Deceleration length - Acceleration length	520' (loop), 390' (diamond) 1,350' (loop), 820' (diamond)	AASHTO Exhibit 10-73 AASHTO Exhibit 10-70	N/A N/A	
<b>Structural Capacity</b>	HS-20		HS-20	

<sup>(1)</sup> Lengths to be adjusted for grades of 2.0% or less (PPM, Table 2.7.1)

<sup>(2)</sup> Clearance over the entire width of pavement and shoulder to the lowest sign component



**Table 4-3 Potential Design Variations and Exceptions DRAFT**

Condition							
Existing	Proposed	Design Element	Location(s)	Standard Not Met	How Standard is not met	Exception/Variation	Comments
X		Border Width	Sta. 622+00 to Sta. 642+00 Adjacent to South County Water Treatment Plant	(See design criteria Table 4-2)	Border width at SB off ramp is 52' min. (additional areas will need to be added to exception. The current border does not meet requirements in some areas)	Exception	Page 508 of AASHTO says border should be between 80-150', but narrower widths are typical in urban areas. Since this does not meet FDOT or AASHTO minimums, an exception will be required.
	X	Inside Shoulder Width	At 5 bridges crossing I-75 on County roads	(See design criteria Table 4-2)	Pier protection barriers proposed in lieu of shifting the lanes over (10' shoulder vs. 12' preferred)	Variation	Providing protection barrier will allow horizontal protection from bridge pier. Meets AASHTO min of 10' but does not meet FDOT 12' min.
X		Stopping Sight Distance (SSD) for Vertical Curve	On bridge over SR 674	(See design criteria Table 4-2)	K value is 1.2 percent less than FDOT min. K value required for 70 mph design speed. SSD=815'; Required SSD=826'	Variation	K value = 500 (crest) AASHTO min. is 247. Therefore it meets AASHTO but not FDOT, a variance will be required.
X		Horizontal Clearance	Gibsonton Drive Bridge over I-75	(See Table 2-8 )	Substandard horizontal clearance on outside under structure	N/A	Provide barrier wall or guardrail for horizontal protection, thus no variance required
X		Horizontal Clearance	I-75 over Big Bend Road	(See Table 2-8 )	Substandard horizontal clearance on outside under structure	N/A	Provide barrier wall or guardrail for horizontal protection
X		Horizontal Clearance	I-75 over SR 674	(See Table 2-8 )	Substandard horizontal clearance on outside under structure	N/A	Provide barrier wall or guardrail for horizontal protection

## Section 5 – ALTERNATIVES ANALYSIS

### 5.1 No-Build Alternative

The No-Build Alternative assumes that the existing conditions would remain within the project limits for I-75 beyond the design year 2035, with only routine maintenance activities.

The No-Build traffic analysis indicates that by the year 2035 a significant portion of the mainline freeway segments, merge/diverge areas, and ramp terminal intersections within the study limits are projected to operate below acceptable LOS.

Distinct advantages and limitations associated with the No-Build Alternative are outlined below:

#### Advantages:

- No additional relocations;
- No additional inconvenience to the traveling public and property owners during construction;
- No additional design, ROW acquisition, and construction costs; and
- No additional impacts to the adjacent natural, physical and human environment.

#### Disadvantages:

- Increase in traffic congestion and user costs associated with increased travel times;
- Increase in crash potential due to congestion;
- Inconsistency with local transportation plans;
- Increase in emergency vehicle response time;
- Increase in carbon monoxide and other pollutants due to increased traffic congestion; and
- Increased costs in the movement of goods and services.

These advantages and disadvantages, along with other established criteria, will be used in the evaluation process with the various Build Alternatives. The No-Build Alternative will remain a viable alternative through the public hearing.

## **5.2 Transportation Systems Management**

Transportation Systems Management (TSM) alternatives involve improvements designed to maximize the utilization and efficiency of the existing facility through improved system and demand management. The various TSM options generally include traffic signal and intersection improvements, Intelligent Transportation System (ITS) implementation/improvement and transit improvements. The additional capacity required to meet the projected traffic volumes along I-75 in the design year cannot be provided solely through the implementation of TSM improvements. However, the various improvements discussed in the *DTTM – Technical Report No. 2: Evaluation of Build Alternative Concepts* (September 2009) for intersections within 0.5 mile of the project interchanges enhance traffic operations on both the side streets and the mainline. Additionally, the TBARTA has taken an active approach in studying various forms of mass transit alternatives. TBARTA’s masterplan for the I-75 corridor shows Express Bus in managed lanes.

## **5.3 Projected Traffic Volumes**

*Design Traffic Technical Memorandum – Technical Reports No. 1 and 2* (September 2009) were prepared for the proposed project. *Technical Report No. 1* deals with “Evaluation of Alternatives” while *Technical Report No. 2* deals with “Evaluation of Build Alternative Concepts”. *Technical Report No. 1* documents the existing traffic operations, the traffic forecasting methodology that was used to estimate the opening year, interim year, and design year traffic volumes for the study corridor, as well as the results of the traffic analyses conducted to identify the geometric improvements required to accommodate the design year peak-hour traffic volumes. Recommended Build Alternatives LOS (2035) for the Freeway GUL segments are shown in **Table 5-1** while those for the SUL segments are shown in **Table 5-2**. **Table 5-3** summarizes the Recommended Build Alternative LOS (2035) for the Ramp Termini and Merge/Diverge Areas. Design Year (2035) Build Alternative 3 AADT volumes are shown in **Figure 5-1**.

More information on future projected traffic volumes and levels of service can be found in the *DTTM*.

**Table 5-1 Recommended Build Alternative LOS (2035) – Freeway GUL Segments**

Mainline Segment	LOS AM(PM)
<b>I-75 Northbound</b>	
Moccasin Wallow Rd. to SR 674	C(C)
SR 674 to Big Bend Road	F(D)
Big Bend to Gibsonton Drive	F(F)
Gibsonton Drive to US 301	D(D)
<b>I-75 Southbound</b>	
US 301 to Gibsonton Drive	E(F)
Gibsonton Drive to Big Bend	D(F)
Big Bend Road to SR 674	D(F)
SR 674 to Moccasin Wallow Rd.	C(D)

Source: Design Traffic Technical Memorandum – Technical Report 2 (September 2009)

**Table 5-2 Recommended Build Alternative LOS (2035) – Freeway SUL Segments**

Mainline Segment	LOS AM(PM)
<b>I-75 Northbound</b>	
Moccasin Wallow Rd. to SR 674	D(C)
SR 674 to Big Bend Road	D(C)
Big Bend to Gibsonton Drive	B(B)
Gibsonton Drive to US 301	D(D)
<b>I-75 Southbound</b>	
US 301 to Gibsonton Drive	E(F)
Gibsonton Drive to Big Bend	C(C)
Big Bend Road to SR 674	D(C)
SR 674 to Moccasin Wallow Rd.	C(C)

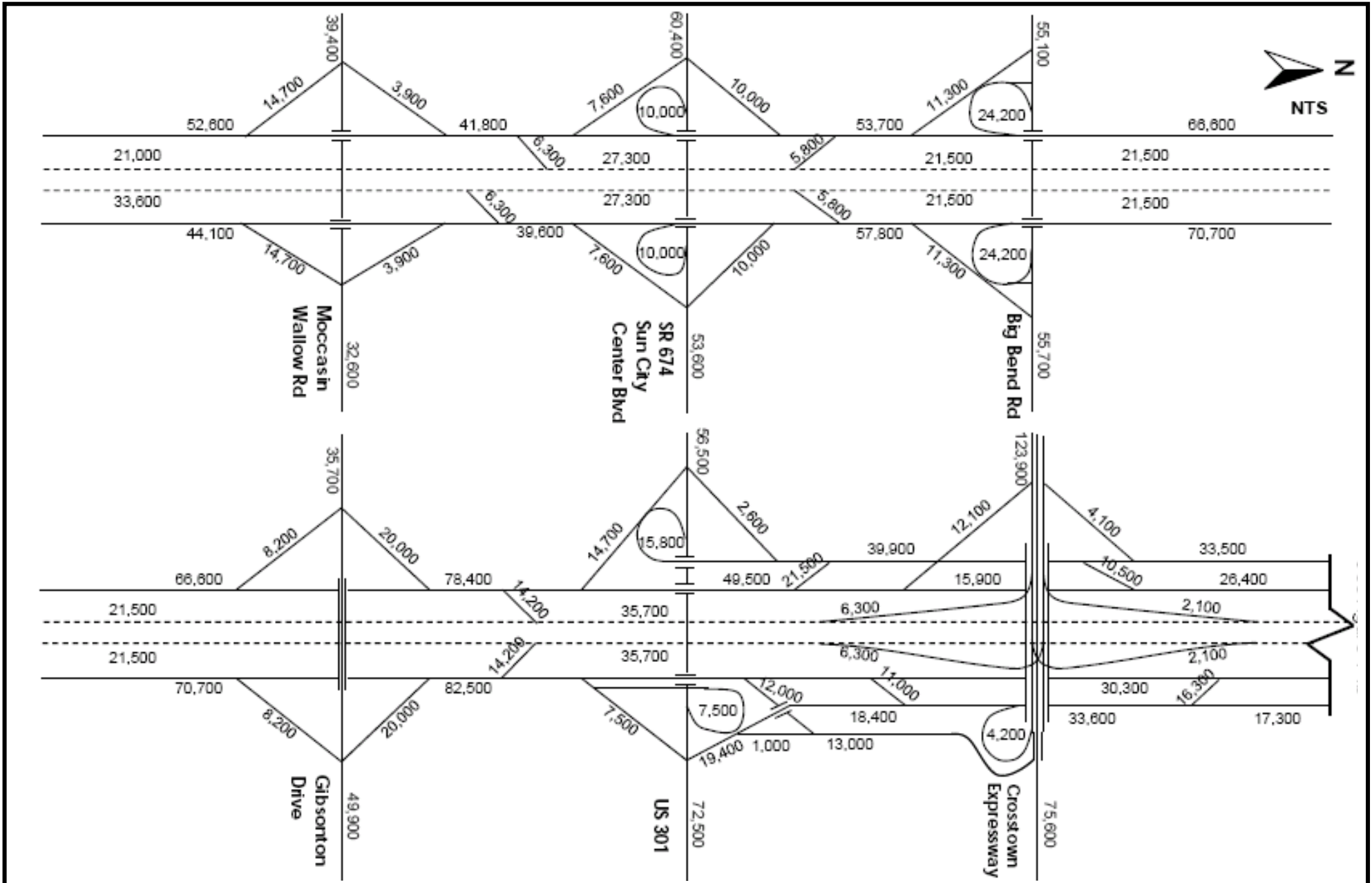
Source: Design Traffic Technical Memorandum – Technical Report 2 (September 2009)

**Table 5-3 Recommended Build Alternatives LOS (2035) Ramp Termini & Ramp Merge/Diverge Areas**

<b>Interchange</b>	<b>Ramp Termini LOS (Best/Worse)</b>	<b>Ramp Merge/Diverge LOS (Best/Worse)</b>
Moccasin Wallow Road	B/F	B/C
SR 674	F/F	A/F <sup>1</sup>
Big Bend Road	A/F	B/F <sup>1</sup>
Gibson Drive	D/F	B/F

Source: Design Traffic Technical Memorandum – Technical Report 2 (September 2009)

Note: <sup>1</sup> Deficient movements occur on a CD roadway, not on the mainline.



I-75 (SR 93A) PD&E Study  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

**Year 2035 Build Alternative 3**  
**Average Annual Daily Traffic Volumes**

**Figure 5-1**

## 5.4 Alternatives Evaluations

In addition to the No-Build and TSM alternatives, various alternatives to improve I-75 from Moccasin Wallow Road in Manatee County to south of US 301 in Hillsborough County were developed. The basic philosophy followed in developing alternative design concepts included the following principles:

### Existing Conditions:

- I-75 was originally built to convey regional traffic, thus reducing the traffic on local roads
- I-75 had free-flow condition
- Access from local to freeway (on-ramp) was free-flow and freeway to local (off-ramp) was constrained to reduce impacts to the local road
- In many cases the local traffic is using I-75 in lieu of other local routes

### Proposed Design Principles:

- Maintain coordination and design continuity with ongoing projects on I-75 both to the south and to the north
- Develop alternative designs that best protect the I-75 mainline and identify reconfiguration and analyze off-ramp capacity to determine the laneage or loop/flyover scenario
- Evaluate existing traffic flow versus future traffic projections
- Identify current configuration versus concepts to determine where it is contradictory
- Providing free-flow off-ramps may free-up the arterials capacity to handle the on-ramp signals (2-phase only)
- The ideal scenario would include two free-flow exits (not signal controlled) and 1 intermittent flow entrance (signal controlled) per direction
- Provide minimum number of ramp connections
- Minimize weaving on mainline through use of braided ramps or collector-distribution (CD) roads as required
- Prioritize regional trips over local trips

- Carefully evaluate auxiliary lanes to discourage shorter trips between interchanges
- Evaluate effectiveness of CD Roads

#### **5.4.1 Mainline Alternatives**

##### **Mainline Alternatives**

After several coordination meetings with the study team and the FDOT, as discussed in the *Preliminary Alternatives Analysis Memorandum (PAAM)* (October 2009) which can be found in **Appendix F**, two mainline build alternative alignments were developed and evaluated based on two alternate typical sections. Both typical sections generally consisted of 10 travel lanes with six GULs (three in each direction) and four SULs (two in each direction). The two main differences between the typical sections were the type of separation provided between the SULs and the GULs and whether widening takes place mainly within the median or to the outside.

One mainline alternative however, Alternative 1 comprised of two typical sections (**Figure 5-2A** and **Figure 5-2B**). Typical 1A maintains a standard border width of 94 feet, per FDOT PPM requirements, and as such, requires additional L.A. ROW. The other, Typical Section 1B, is very similar to Alternative 1A except that its footprint is intended to be constructed within the existing L.A. ROW. Additional ROW may be required, however, for interchange enhancements, slip ramps, stormwater management facilities, and floodplain compensation sites.

ROW may be required, however, for interchange enhancements, slip ramps, stormwater management facilities, and floodplain compensation sites.





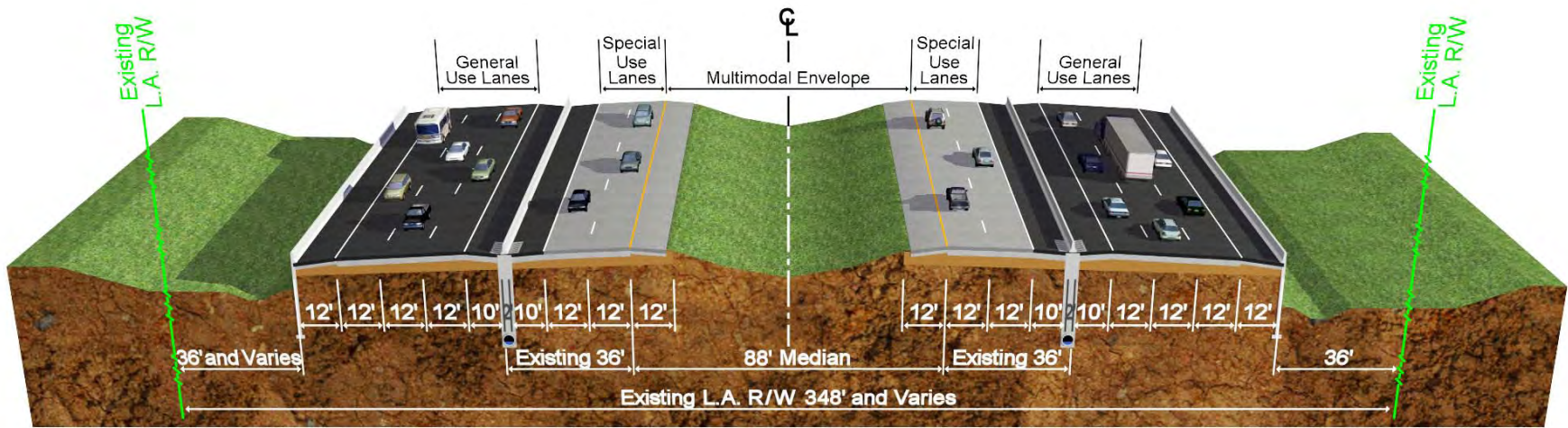
Alternative 1A



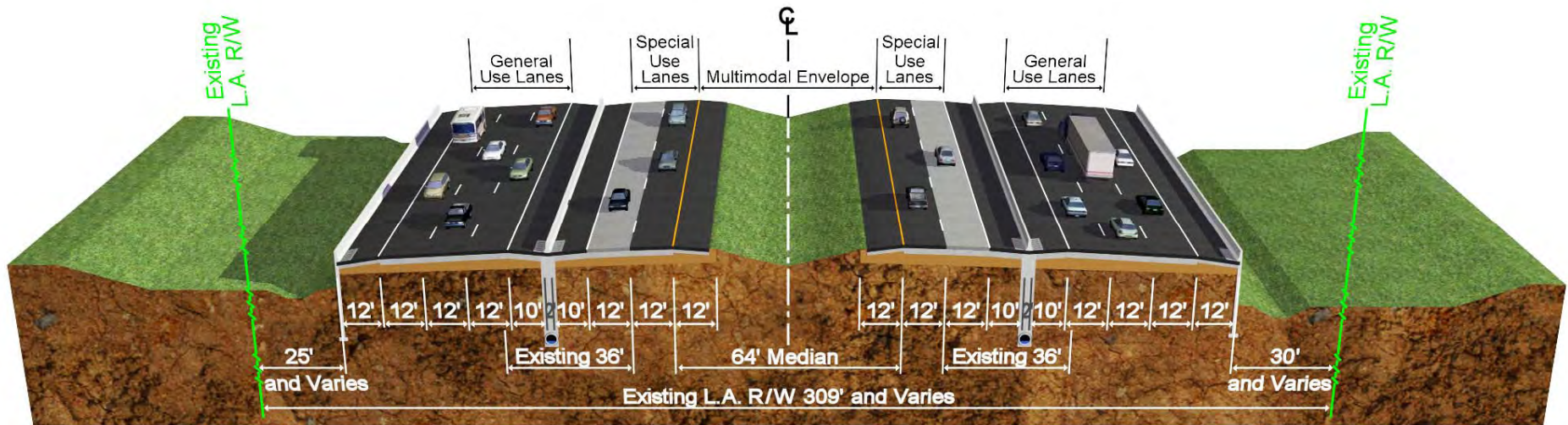
I-75 (SR 93A) PD&E Study  
*Moccasin Wallow Rd to US 301*  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

Proposed Roadway Typical Sections:  
**Alternative 1A**

Figure 5-2A



**Alternative 1B-(a) (From Begin Project to End Project except at Approx. Sta. 635+00 to Sta. 675+00)**



**Alternative 1B-(b) (From Approx. Sta. 635+00 to Sta. 675+00)**



I-75 (SR 93A) PD&E Study  
*Moccasin Wallow Rd to US 301*  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

**Proposed Roadway Typical Sections:**  
**Alternative 1B**

**Figure 5-2B**

## Mainline Alternative 1 Typical Sections

### Typical Section 1A (Figure 5-2A)

Typical 1A consists of widening to the outside and maintaining a multimodal envelope within the median. It includes a multimodal envelope in the 88-foot median and widens to the outside with each direction including two SULs and three GULs separated by 10-foot shoulders and a 2-foot barrier and outside 12-foot shoulders. The main objective for this alternative is to maintain a standard border width of 94 feet, per FDOT PPM requirements. The exceptions to this guideline are at locations where it would be impractical to relocate major facilities such as the county's wastewater treatment plant near SR 674. In these instances, a design variation for border width would be required. This alternative has longitudinal ROW acquisition requirements along the entire corridor (0-feet to 58-feet on both sides of I-75). The four innermost lanes and the inside shoulder could be reused for the proposed improvements, hence, a significant construction cost saving along the approximate 25-mile corridor.

### Typical Section 1B (Figure 5-2B)

This typical is very similar to Alternative 1A except that its footprint is intended to be constructed within the existing L.A. ROW. As a result, the border width would be less than the required standard border width and would vary along the corridor depending on existing L.A. ROW; therefore, a design variation would be required. The FDOT's Design Section has agreed to evaluate the design variation for this reduced border width if it provides a significant cost savings. However, as a result of the elevation difference between the pavement and the side ditches, mechanically stabilized earth (MSE) walls (or "retaining walls") would be required at the outside shoulders, on both sides, for a significant portion of the corridor. The rest of the proposed typical section includes a multimodal envelope within the 88-foot median, two SULs and three GULs in each direction with similar separation as 1A. The existing L.A. ROW is typically 348-feet and varies along the corridor from approximately 302-feet to 556-feet. From approximately Sta 635+00 to Sta 675+00, the existing typical L.A. ROW is 302-feet. In order to avoid

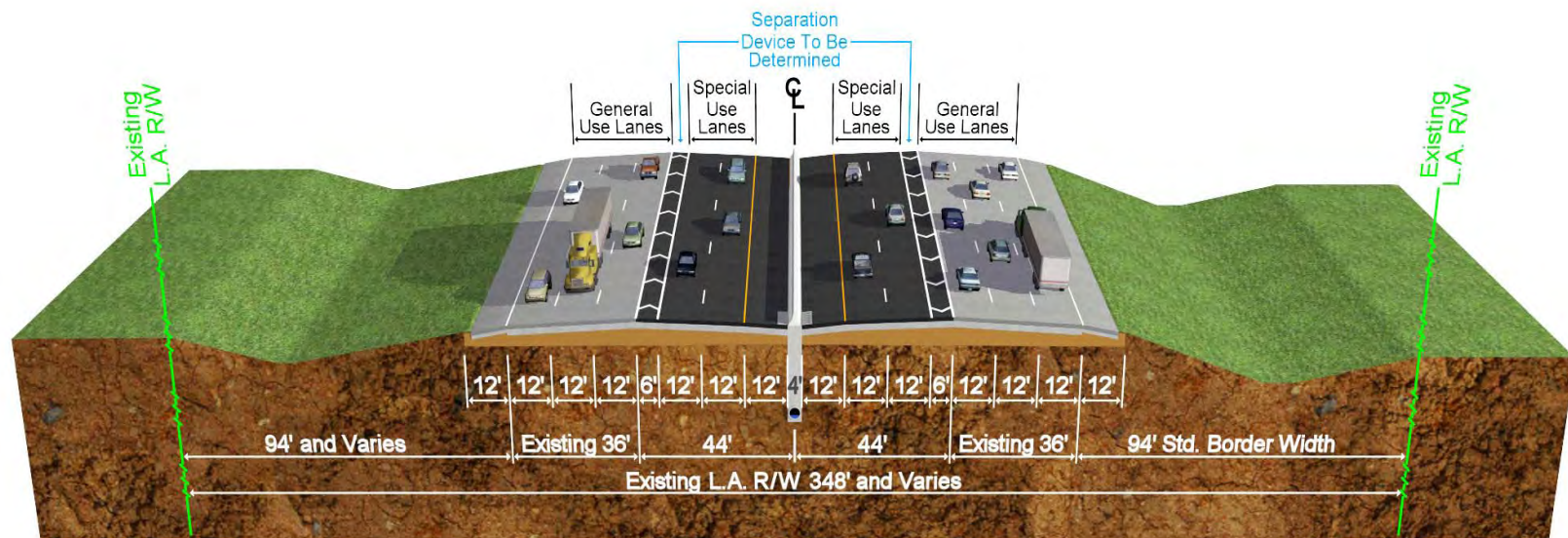
major impacts to the South County Wastewater Treatment Plant on the west side of I-75, it was necessary to reduce the typical section width. This was accomplished by reducing the 88-foot median to 64-feet (refer to bottom of **Figure 5-2B**).

#### Mainline Alternative 2 Typical Section (Figure 5-3)

Alternative Typical 2 was developed by widening towards the inside thereby moving a potential transit envelope to the outside. This typical section is achieved within the existing L.A. ROW as it generally holds the existing roadway pavement as the six GULs. It includes a median barrier separating northbound traffic from southbound traffic. It also includes two SULs and three GULs separated by 6-foot buffer (painted or pylons) in each direction. For most of the corridor, the border width would be the same as existing and equal to or greater than the standard 94-foot border width. By widening to the inside, three lanes and the outside shoulder in each direction would be reused in the proposed typical along the majority of the approximate 25 mile project, resulting in a significant construction cost savings.

#### Bridge Typical Sections

Proposed bridge typical sections were developed consistent with the proposed roadway typical sections for Alternatives 1A, 1B & 2, which are shown in **Figure 5-4A** and **Figure 5-4B**. The existing bridges on I-75 over creeks, rivers or local roads would be widened.



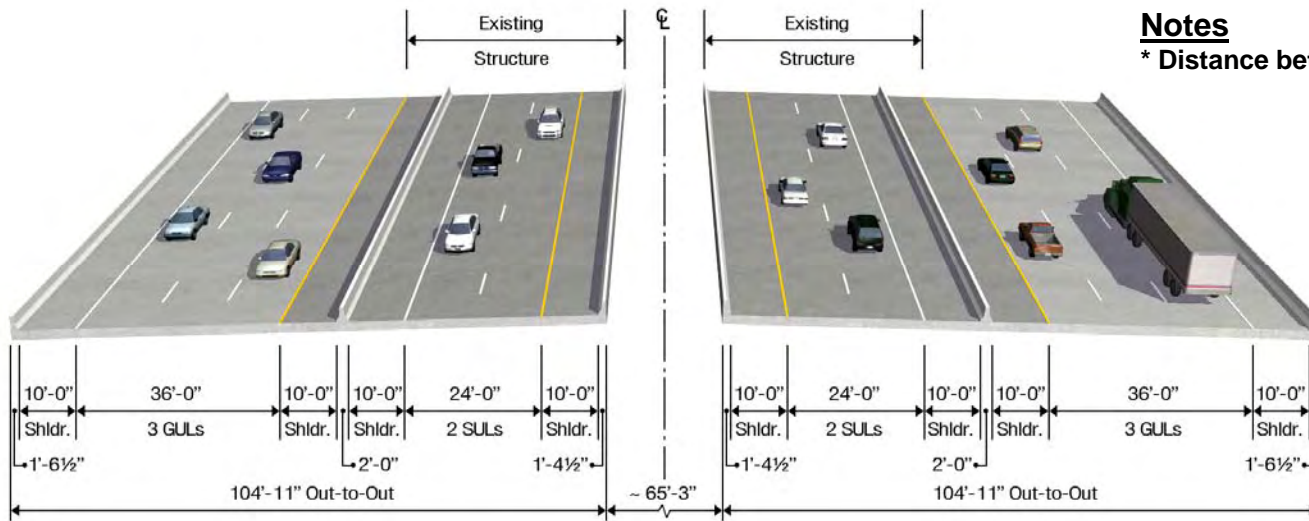
**Alternative 2**



I-75 (SR 93A) PD&E Study  
*Moccasin Wallow Rd to US 301*  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

**Proposed Roadway Typical Sections:**  
**Alternative 2**

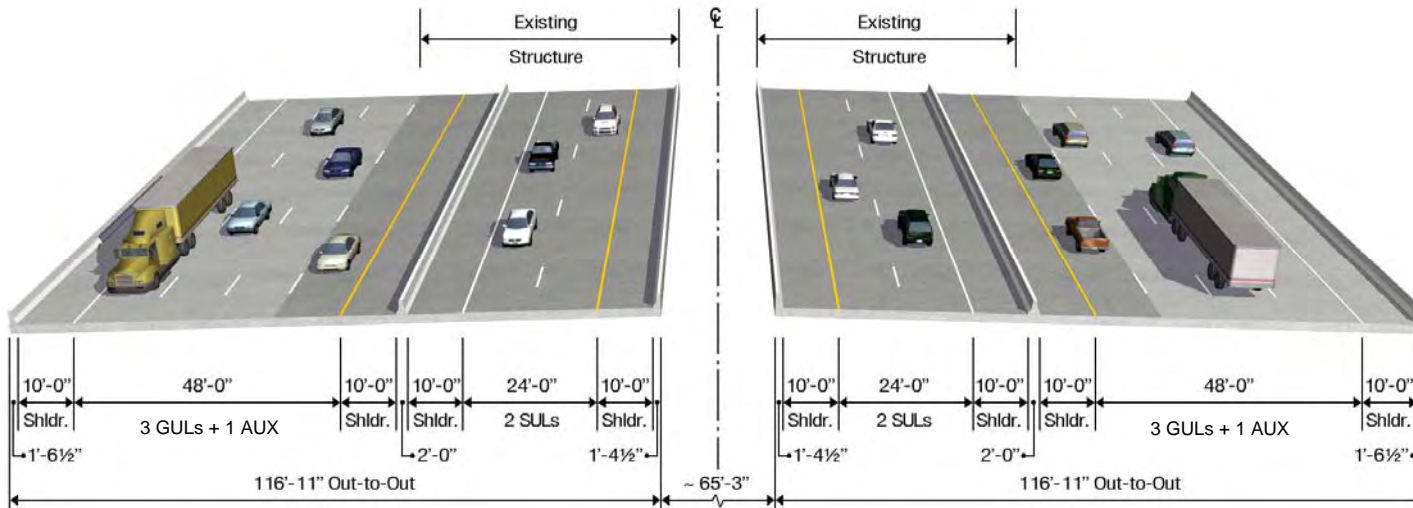
**Figure 5-3**



**Notes**

\* Distance between bridges at Curiosity Creek Varies

**I-75 Over Bullfrog Creek / Little Manatee River / Symmes Road / Curiosity Creek\***



**Notes**

Typical sections contains same basic elements for bridges stated but may differ in cross slope & shoulder dimensions

**I-75 Over Riverview Drive / Alafia River / E. College Ave. / Big Bend Road**

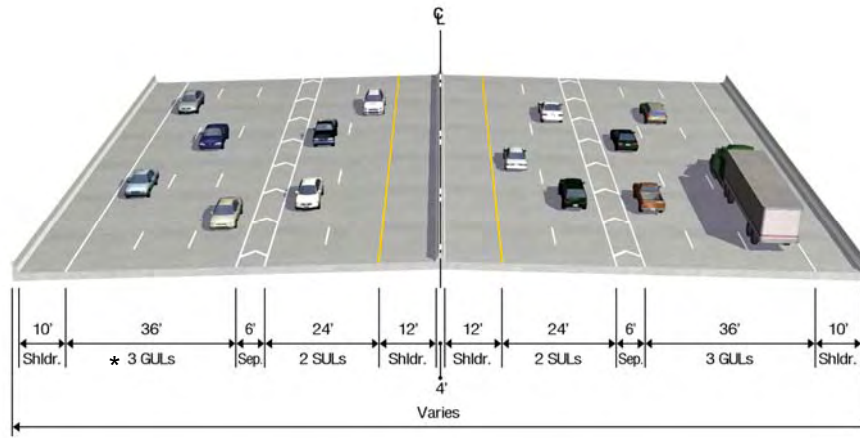


I-75 (SR 93A) PD&E Study  
 Moccasin Wallow Rd to US 301  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

**Proposed Bridges Typical Sections:**  
 Alternatives 1A & 1B

**Figure 5-4A**

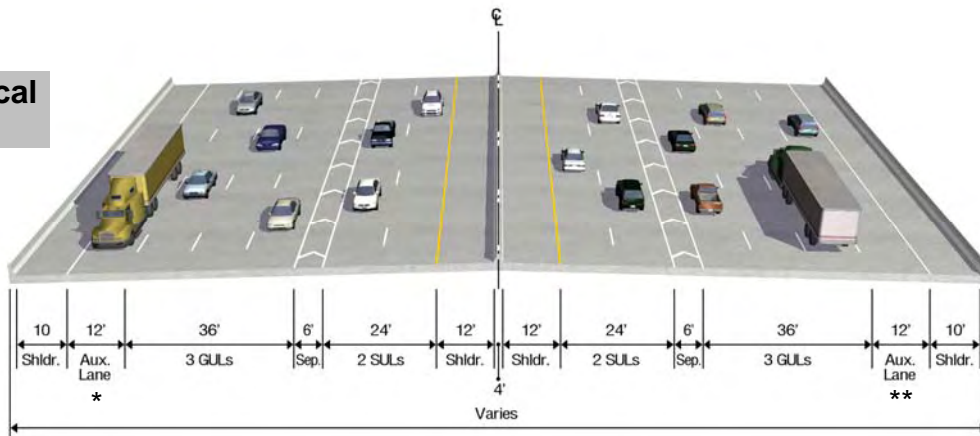
**Bridge Typical Section I**



\*Bridge over Bullfrog Creek also includes a southbound auxiliary lane

**Applies to I-75 over Bullfrog Creek, Little Manatee River, and Symmes Road**

**Bridge Typical Section II**

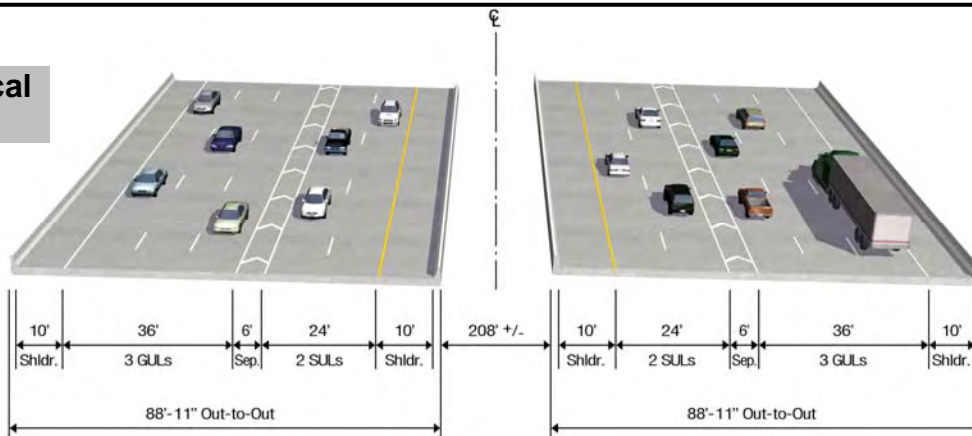


\*Bridge over E. College Ave. and Big Bend also includes a second southbound auxiliary lane

\*\*Bridge over Alafia River also includes a second northbound auxiliary lane

**Applies to I-75 over Riverview Drive, Alafia River, E. College Ave. and Big Bend Road**

**Bridge Typical Section III**



**Applies to I-75 over Curiosity Creek**

Rev. 10/21/09



#### **5.4.2 I-75 Mainline Alternative Conceptual Design Analysis**

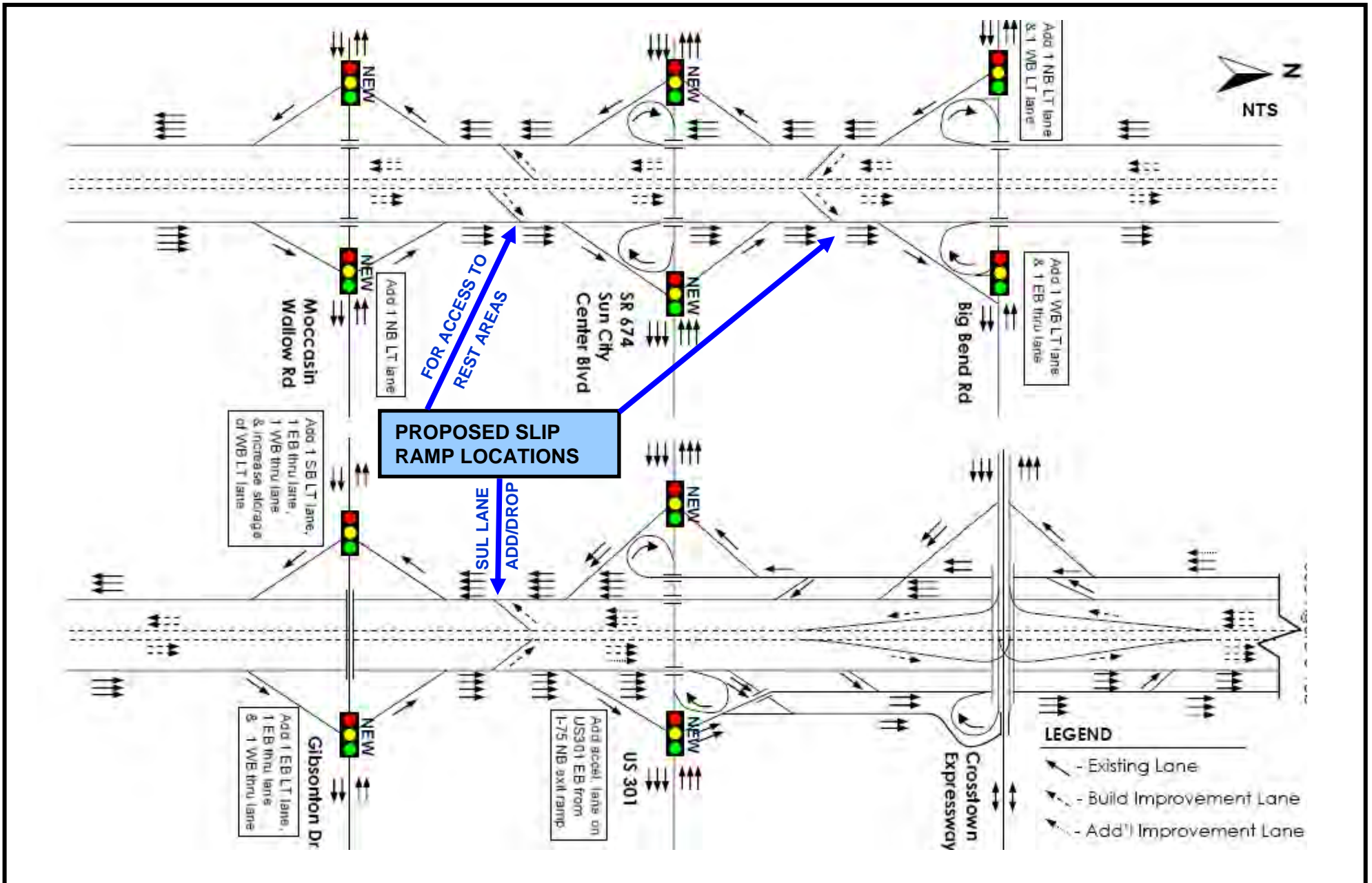
##### Mainline Alternative Concept 1A (see **Appendix B**)

Concept 1A generally utilizes Typical 1A throughout the projects limits from immediately north of Moccasin Wallow Road (at approximate Sta. 75+00) where it transitions from the I-75 PD&E Study project in Manatee County. The study to the south of this project (WPI No. 201032-1) has a 2-foot barrier wall between the GUL and SUL with 12-foot shoulders. Concept 1A holds the existing inside edge of pavement and widens to the outside. Slip ramps are provided between the SULs and the GULs at the following locations (refer to **Figure 5-5**):

- Between Moccasin Wallow Road and SR 674
- Between SR 674 and Big Bend Road; and
- Between Gibsonton Road and US 301.

In order to transition safely along the slip ramp between the SUL and GUL, the distance between the SUL and GUL needs to be 58-feet from edge of pavement (EOP) to EOP. The minimum border width is 94-feet, per FDOT's PPM. As the project proceeds northward, the proposed L.A. ROW would impact properties on both sides of I-75, including the Little Manatee River Preserve. Further north it impacts residential properties and existing local roads, which would need to be relocated. In order to avoid significant impacts to the overhead transmission lines at approximately Sta. 340+00 to Sta. 450+00 to the west, Mechanical Stabilized Earth (MSE) or retaining walls might be required to keep the proposed improvements within the existing L.A. ROW. All of the local bridges crossing I-75 are assumed to be lengthened in the short term with design variance needed for horizontal clearance. Near Sta. 625+00, the South County Wastewater Treatment Plant on the west side would be avoided by minimizing ROW acquisition and thus reducing the border width on the west side from the standard border width. Impacts in Hillsborough County would also involve wetlands and a potential Section 4(f) property (the Bullfrog Creek Mitigation Park Wildlife and Environmental Area).





I-75 (SR 93A) PD&E Study  
 Moccasin Wallow Rd to US 301  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

**Proposed Slip Ramp Locations**

**Figure 5-5**

The study to the north of this project (WPI No. 419235-3) has a 2-foot barrier wall between the GUL and SUL with 10-foot shoulders on each side of the barrier wall. The I-75 project immediately to the north proposes an ultimate three SULs in each direction; one lane would be dropped or added in each direction at the slip ramp in order to transition to this project's typical section.

#### Mainline Alternative Concept 1B (Appendix B)

Concept 1B utilizes Alternative Typical 1B and holds the existing inside EOP and widens to the outside except from approximately Sta. 635+00 to Sta. 675+00, where it widens both to the inside and outside. The typical section is similar to Concept 1A except that the border width is reduced to approximately 36-foot and varies to the west. The border width on the east is exactly 36-foot, except at the segment mentioned above, where the border width is reduced even further to approximately 25-feet and varies within the 302-foot ROW segment. Due to differences in proposed pavement elevations and the side slopes, MSE or retaining walls of varying height would be needed to avoid the need for ROW acquisition on both sides of the I-75. Even though no additional ROW is needed for the mainline, the proposed walls would contribute significantly to the overall construction cost of this alternative. Slip ramps for SUL/GUL access, and transitions on both ends of the project limits, are similar to Concept 1A.

#### Mainline Alternative Concept 2 (Appendix B)

Concept 2 utilizes Alternative Typical Section 2 and consists of holding the existing outside EOP and widening to the inside. Most of the proposed corridor consists of three GUL's and two SUL's separated by a 6-foot buffer space. Ingress and egress areas are provided between the SUL and GUL and are approximately 1300-feet in length. A barrier wall is provided between northbound and southbound traffic. Alternative 2 would require significantly less ROW acquisition than Concept 1A. The conceptual design for the Manatee County PD&E Study to the south (WPI No. 201032-1), at the southern terminus of this project, has a 2-foot barrier wall between the GUL and SUL with 12-foot shoulders. The PD&E Study at the northern terminus of this project (WPI Seg. No 419235-3) consists of three GULs and three ultimate SULs in each direction. The

conceptual design at both ends of this project has been adjusted to transition smoothly and safely to both adjacent projects.

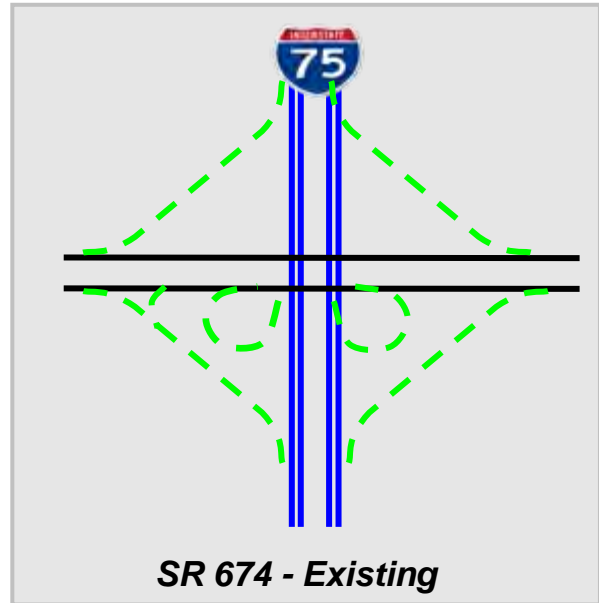
### **5.4.3 Interchange Conceptual Design Analysis**

#### **Design Philosophy**

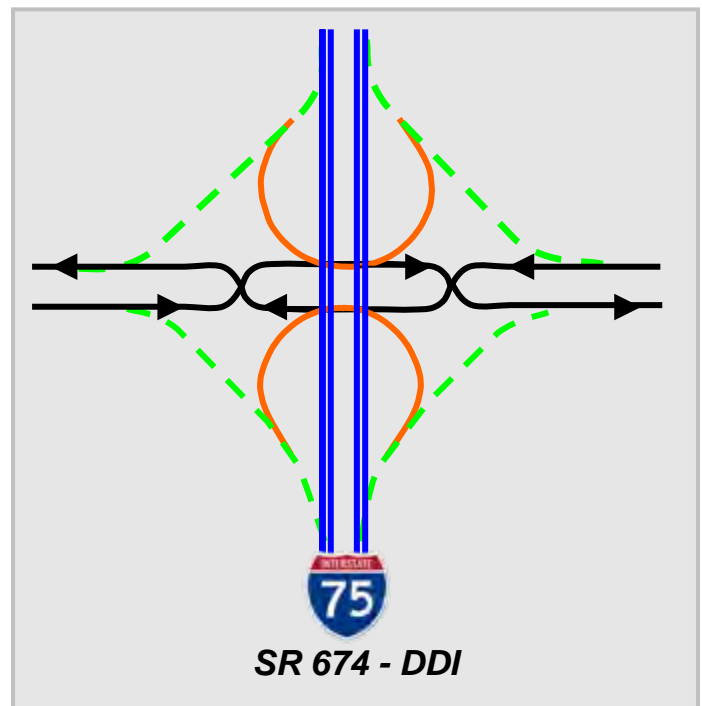
A preliminary interchange reconfiguration evaluation was conducted for the three interchanges along I-75 at SR 674, Big Bend Road and Gibsonton Drive in Hillsborough County. A preliminary CORSIM analysis was conducted to help the study team visualize the design year scenario traffic conditions using year 2035 projected traffic (“Build Alternative 3”) from the *DTTM – Technical Report No. 2* prepared under WPI Segment No. 419235-1 prepared for American Consulting Engineers, LLC WPI Segment No.: 419235-2 and PB Americas WPI Segment No.: 419235-3. Various interchange configurations including the existing configuration, Diverging Diamond Interchange (DDI), Partial Cloverleaf (PARCLO), Single-Point Urban Interchange (SPUI), Partial Cloverleaf with Loops, Grade-separated Overpass, flyovers etc. were analyzed at each location to visualize future traffic conditions. The evaluation was based solely on visual analysis of a preliminary CORSIM simulation of both AM and PM peak hours, as calibration/validation was not conducted for this preliminary analysis. The *DTTM* includes more detailed operational analyses for the interchanges. A brief summary of the different alternatives considered for the three interchanges is included in **Figures 5-6** through **Figure 5-8** along with schematics of the interchange configurations and recommendations for further evaluation. Also interchange options screened early in the study process and dropped are included in the *PAAM* included in **Appendix F**.

In general, the design criteria used for the interchanges is included in **Table 4-2**. For the ramp design speed, 30 mph was used for the loop ramps and 45 mph was used for the diamond interchange ramps. The nomenclature for naming each mainline alternative and interchange option is described as follows: **INTERCHANGE <NAME> <TYPE> / MAINLINE ALTERNATIVE <X> / INTERCHANGE OPTION <Y>**. Mainline Alternative X is sometimes referred to as “Alternative X” in some parts of the *Draft PDER* and Conceptual Plans. **Table 5-4** depicts all options evaluated for this phase of the study.

**Existing Configuration:** The existing interchange configuration for SR 674 with the proposed improvements as specified in the “Draft Design Traffic Technical Memorandum” (DTTM) was analyzed for both AM and PM Peak hour. The southbound off ramp traffic queues back to I-75 during the PM peak hour.

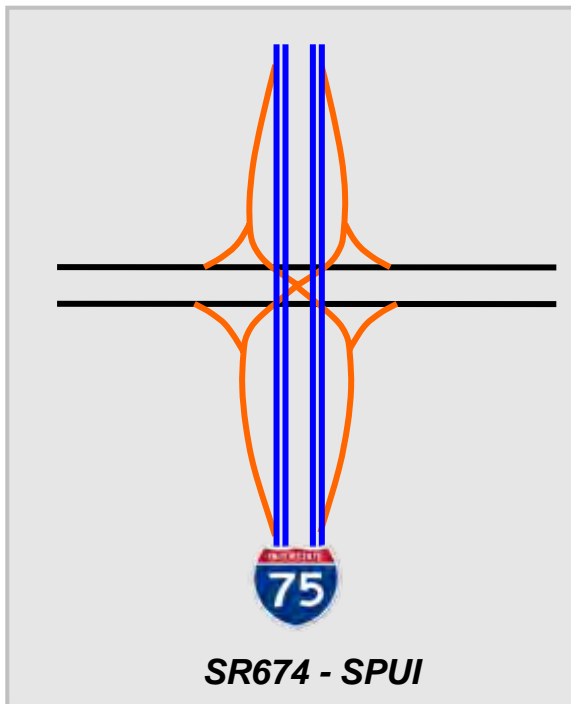


**Diverging Diamond Interchange (DDI):** The Diverging Diamond interchange configuration was analyzed for SR 674 interchange. While **this configuration works better than any other alternatives analyzed for the SR 674 interchange during both AM and PM peak hour, with dual-lane southbound off ramp**, its concept is relatively new to Florida, and would be a challenge to introduce and educate the significant older population that uses this interchange.

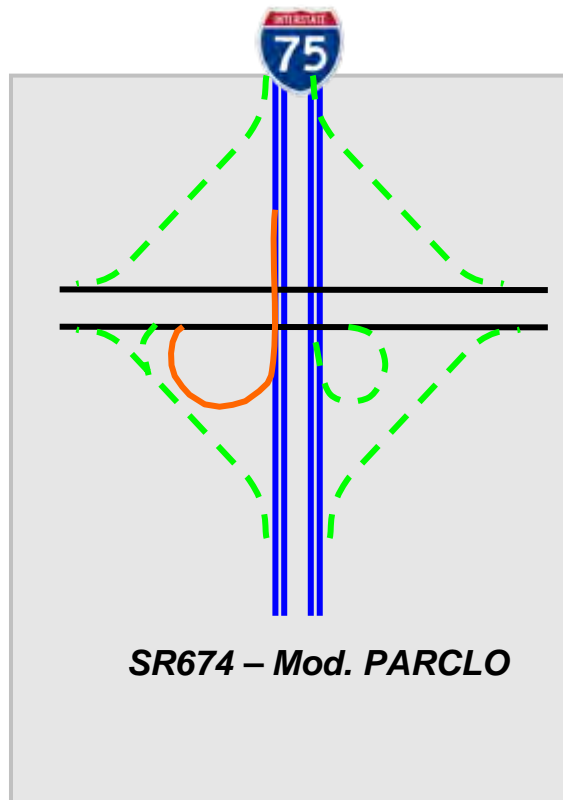


**Single Point Urban Interchange (SPUI):**

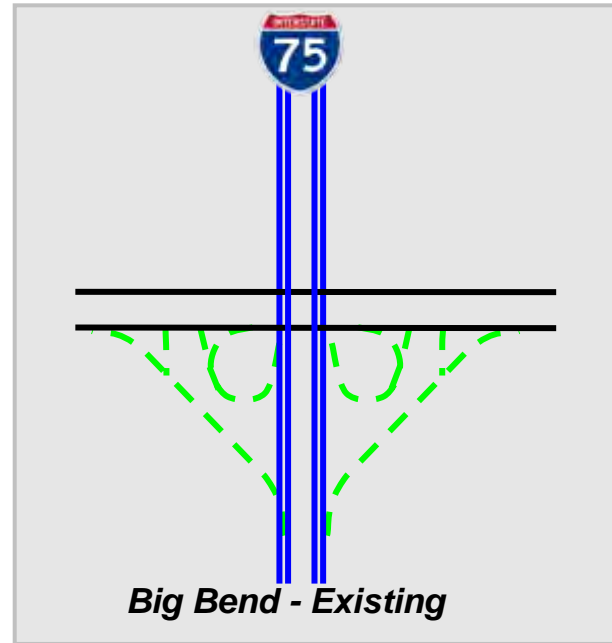
The Single Point Urban Interchange as shown in the Figure was analyzed for both AM and PM peak hour. The southbound off ramp traffic queues back to I-75 during the PM peak hour. The AM peak hour traffic is saturated along the northbound and southbound off ramps.



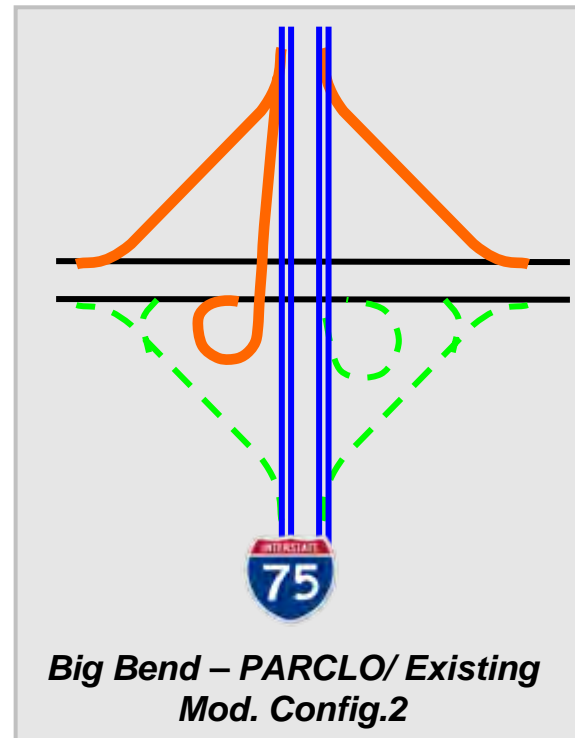
**Modified Existing PARCLO:** This scenario include combining the I-75 southbound to westbound off ramp and southbound to eastbound loop ramp with a single lane exiting westbound and two lanes exiting eastbound onto SR 674. *This configurations appears to work well without any backing ups for both AM & PM peak hours.*



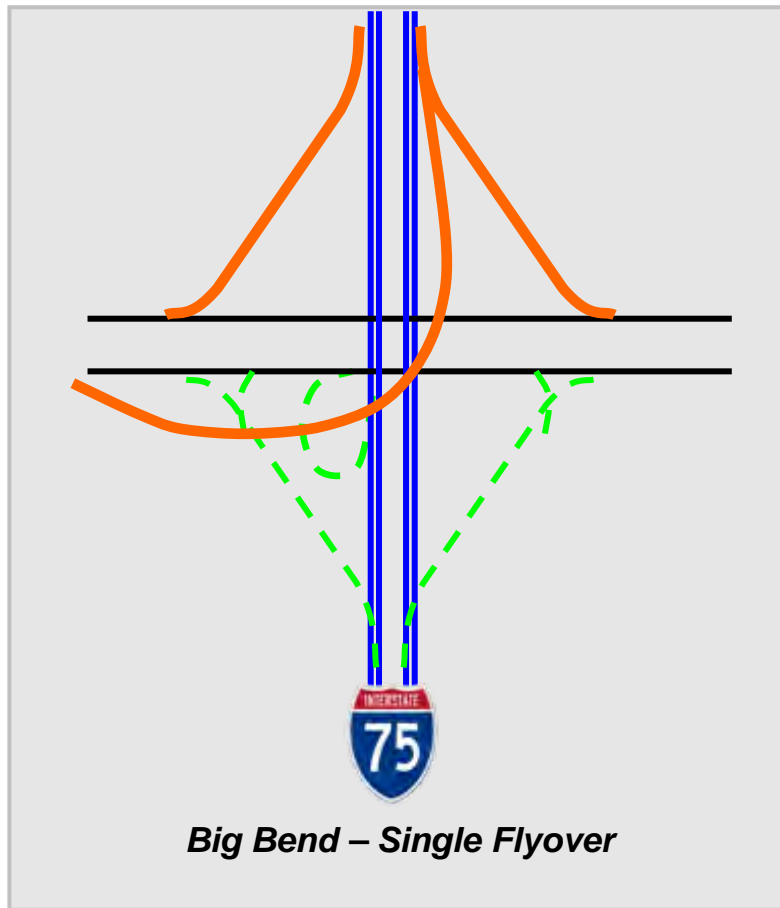
**Existing Configuration:** The existing interchange configuration for Big Bend Road with the proposed improvements as specified in the DTTM was analyzed for both AM and PM Peak hour. The southbound off ramp traffic queues back to I-75 in the AM and PM peak. The northbound off ramp traffic is saturated along ramps in AM peak hour. The southbound off ramp and the northbound on ramp traffic have conflicts in the PM peak hour.



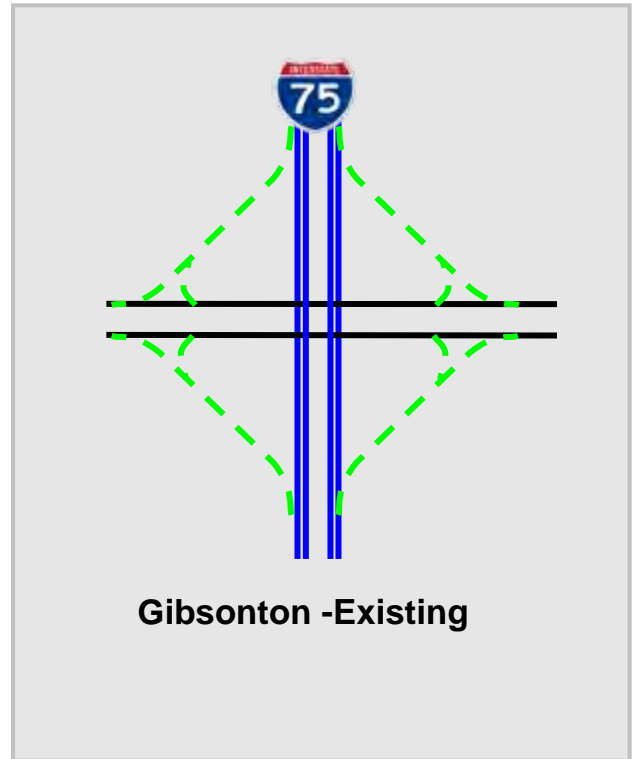
**Partial Cloverleaf with Existing Modified Configuration 2:** The Partial Cloverleaf with existing modified configuration as shown in the Figure was analyzed with AM and PM peak hour traffic. **This alternative is recommended based on the simulation.**



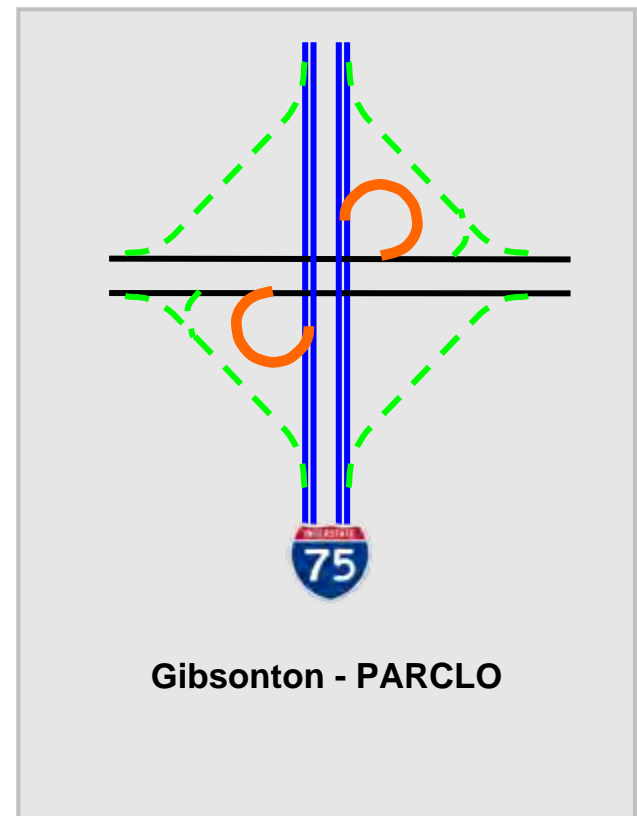
**Single Flyover:** The grade separated flyover for ONLY the northbound on ramp as shown in the Figure was analyzed with both AM and PM peak hour traffic volume. The northbound on ramp traffic saturated along the ramps.



**Existing Configuration:** The existing interchange configuration for Gibsonton Drive with the proposed improvements as specified in the DTTM was analyzed with both AM and PM Peak hour. The southbound off ramp traffic and northbound on ramp traffic is heavy in the PM peak hour. The northbound on ramp traffic is highly saturated along ramps during AM peak hour.



**Partial Cloverleaf (PARCLO):** The Partial Cloverleaf with two exit ramps (with one loop ramp) and one entrance ramp as shown in the Figure were analyzed with both AM and PM peak hour traffic at the Gibsonton Drive interchange. **This alternative operates better than any other alternatives analyzed for this interchange. This configuration is recommended for this location based on the simulation**





**Table 5-4. All Mainline Alternatives Combined with Interchange Concepts**

Interchange Name	Interchange Type	Mainline Alternative	Interchange Option	Description
<b>SR674</b>	Diverging Diamond Interc. (DDI)	Alternative 1A	A	SR674 DDI / ALTERNATIVE 1A / OPTION A
		Alternative 1B	A	SR674 DDI / ALTERNATIVE 1B / OPTION A
		Alternative 2	A	SR674 DDI / ALTERNATIVE 2 / OPTION A
<b>SR674</b>	Single Point Urban Interc. (SPUI)	Alternative 1A	B	SR674 SPUI / ALTERNATIVE 1A / OPTION B
		Alternative 1B	B	SR674 SPUI / ALTERNATIVE 1B / OPTION B
		Alternative 2	B	SR674 SPUI / ALTERNATIVE 2 / OPTION B
<b>SR674</b>	Modified (PARCLO)	Alternative 1A	C	SR674 Mod. PARCLO / ALTERNATIVE 1A / OPTION C
		Alternative 1B	C	SR674 Mod. PARCLO / ALTERNATIVE 1B / OPTION C
		Alternative 2	C	SR674 Mod. PARCLO / ALTERNATIVE 2 / OPTION C
<b>Big Bend</b>	Grade Separated - GS Frontage Road Open	Alternative 1A	A	BIG BEND GS / ALTERNATIVE 1A / OPTION A
		Alternative 1B	A	BIG BEND GS / ALTERNATIVE 1B / OPTION A
		Alternative 2	A	BIG BEND GS / ALTERNATIVE 2 / OPTION A
<b>Big Bend</b>	At-Grade - AG Frontage Road Close	Alternative 1A	B	BIG BEND AG / ALTERNATIVE 1A / OPTION B
		Alternative 1B	B	BIG BEND AG / ALTERNATIVE 1B / OPTION B
		Alternative 2	B	BIG BEND AG / ALTERNATIVE 2 / OPTION B
<b>Big Bend</b>	Flyover - FO	Alternative 1A	C MOD	BIG BEND FO / ALTERNATIVE 1A / OPTION C MOD
		Alternative 1B	C MOD	BIG BEND FO / ALTERNATIVE 1B / OPTION C MOD
		Alternative 2	C MOD	BIG BEND FO / ALTERNATIVE 2 / OPTION C MOD
<b>Gibsonton</b>	Partial Cloverleaf (PARCLO)	Alternative 1A	A	GIBSONTON PARCLO / ALTERNATIVE 1A / OPTION A
		Alternative 1B	A	GIBSONTON PARCLO / ALTERNATIVE 1B / OPTION A
		Alternative 2	A	GIBSONTON PARCLO / ALTERNATIVE 2 / OPTION A

**Alternative 1A** - Widening to the outside acq. row for a 94-foot border width

**Alternative 1B** - Widening to the outside within the existing row

**Alternative 2** - Widening to the inside

## Interchange Options Considered at SR 674 (Appendix B)

Based on preliminary CORSIM simulations, the DDI configuration initially appeared to operate better than the other three options considered and was therefore developed for further evaluation (**Figure 5-6**). The SR 674 interchange is reconfigured as a DDI under the I-75 mainline. One interchange option of the DDI type was considered at this location. In recent years, the FHWA has been advocating novel intersection designs as a way to promote intersection safety while meeting the often conflicting demands for increasing capacity, decreasing congestion, and minimizing the cost of new infrastructure (*Publication No. FHWA-HRT-07-048*). The DDI design accommodates left-turning movements at signalized, grade-separated interchanges of arterials and limited access highways while eliminating the need for left-turn phasing. This type of interchange was considered at SR 674 for its appropriateness. However, due to the required crossovers with this configuration, drivers would be required to cross over and drive on left side of the roadway for a short segment. This would require a significant effort to educate the general public utilizing this interchange. After further discussions within various disciplines of the FDOT, and based on the diversity of the population with a significant older population that would be utilizing this interchange, it was decided to evaluate more conventional type of interchange as a SPUI and modified existing PARCLO. As a result, the following scenarios were evaluated (refer to **Appendix B**):

- SR 674 DDI / Mainline Alternatives / *Option A* (keep existing bridge)
- SR 674 SPUI / Mainline Alternatives / *Option B* (replace existing bridge)
- SR 674 Modified PARCLO / Mainline Alternatives / *Option C*

SR 674 DDI / Mainline Alternative 1A / *Option A* (refer to **Appendix B**): At the northeast quadrant of this interchange, a single lane west bound (WB)-north bound (NB) on-ramp to I-75 and an east bound (EB)-NB entrance loop are proposed. On the northwest quadrant, two lanes of traffic exit from south bound (SB) I-75 with two lanes exiting from the SB-EB loop onto SR 674 and one lane exiting from the SB-WB ramp. Similarly at the southeast quadrant, one lane exits from I-75 and splits to one lane EB & WB. On the southwest quadrant, one lane each merges from SR 674 EB & WB traffic onto the entrance ramp of I-75 where it merges onto one lane before entering I-75 SB.

Along SR 674, three lanes of EB & WB traffic cross over to the left side of the roadway between the nodes of the interchange and continue under the existing bridge along SR 674 where one lane enters onto SB and NB I-75 respectively. The other mainline alternatives are similar except where it ties into the mainline.

SR 674 SPUI / Mainline Alternative 1A / Option B (refer to **Appendix B**):

The SPUI as shown in **Figure 5-6** was originally analyzed for both the AM and PM peak hours. The SB off ramp traffic queues back to I-75 during the PM peak hour. The AM peak hour traffic is saturated along the NB and SB off ramps. This occurred when two lanes were used for the off ramps as above, which further split to one lane for both EB and WB traffic at SR 674.

This option was revisited using CORSIM simulations for various scenarios. The scenario that worked best was when two lanes were used for the SB off ramp which increased to three lanes which further split to one WB lane and two EB lanes at SR 674. East bound on SR 674 three thru and three left turns onto NB I-75 are required. At the NB on ramp three lanes are used which is reduced to two and finally one before merging onto I-75. Westbound on SR 674, three thru lanes and one SB left onto I-75 are required. The other mainline alternatives are similar except where it ties into the mainline.

SR 674 Modified Existing PARCLO / Mainline Alternative 1A / Option C (refer to **Appendix B**):

This scenario (**Figure 5-6**) includes combining the I-75 SB to WB off ramp and SB to EB loop ramp with two lanes exiting EB onto SR 674. This configuration seems to work well for both the AM & PM traffic using CORSIM. The other mainline alternatives are similar except where it ties into the mainline.

### Interchange Options Considered at Big Bend Road (refer to **Appendix B**)

Initially the preferred option consisted of a PARCLO developed through reconfiguring the existing interchange by deleting the WB-NB and NB-WB at-grade intersection & deleting the EB-NB entrance loop at the southeast quadrant; deleting the SB-WB intersection (may be needed for a future Mall) at the southwest quadrant; adding a SB-WB exit ramp at the northwest quadrant; and adding a NB-WB exit loop and EB-NB entrance ramp & intersection at the northeast quadrant. After presenting this option to the study team, it was suggested that the NB-EB exit loop and the WB-NB intersection at the northeast quadrant be removed and replaced with SB-EB exit loop only at the southwest quadrant as shown in **Figure 5-7** as the *PARCLO with Existing Modified Configuration 2*. Another option evaluated is shown in **Figure 5-7 (sheet 2 of 2)**. In this option, the EB-NB entrance loop is deleted from the southeast quadrant and an EB-NB grade separated flyover is added at the southwest quadrant. Also added to the intersection is the SB-EB loop.

The following interchange options were combined with the mainline alternatives for further evaluation (refer to **Appendix F**):

- Big Bend GS / Mainline Alternatives / *Option A* (“Grade-Separated” option with frontage road open)
- Big Bend AG / Mainline Alternatives / *Option B* (“At-Grade” with frontage road closed)
- Big Bend FO / Mainline Alternatives / *Option C* (“Flyover option” )

### Big Bend GS / Mainline Alternatives 1A / *Option A* (refer to **Appendix B**)

This option allows the frontage road to be open for most part while providing grade-separated on-ramp and off-ramps at the northeast and northwest quadrant respectively. The other mainline alternatives are similar except where it ties into the mainline.

Big Bend AG / Mainline Alternatives 1A / Option B (refer to **Appendix B**)

For this option Old Big Bend Road will be closed as well as Bullfrog Creek Road as shown by the cross hatched area. At the northeast quadrant, Bullfrog Creek Road is realigned to provide access to EB traffic on Old Big Bend Road. It provides for one lane WB-NB on-ramp to I-75 at grade. At the northwest quadrant, two lanes of SB I-75 exit with one lane exiting to WB on Old Big Bend Road and two lanes exit through the loop EB on Old Big Bend Road. Access to Hillsborough County Public Works is modified as shown in **Appendix B**. The loops and the ramps at the southeast and southwest quadrants are reconfigured somewhat to provide access to both EB and WB on Big Bend Road. The other mainline alternatives are similar except where it ties into the mainline.

Big Bend FO / Mainline Alternatives 1A / Option C (refer to **Appendix B**)

For this option the frontage road is closed and an EB to NB flyover replaces the loop ramp at the southeast quadrant. At the northeast quadrant, Bullfrog Creek Road is realigned and the WB to NB on-ramp is combined with the flyover before entering NB I-75. Left turn movement is provided at the SB to EB loop. The other mainline alternatives are similar except where it ties into the mainline.

Interchange Options Considered at Gibsonton Drive (refer to **Appendix B**)

The PARCLO with two exit loops as shown in **Figure 5-8** bottom seems to work best compared to all other options simulated in CORSIM. One interchange *Option A* was developed at Gibsonton Drive. The other mainline alternatives are similar except where it ties into the mainline.

## 5.5 Evaluation Matrix

An evaluation summary matrix comparing the various roadway alternatives by mainline is included in **Table 5-5**. This matrix was developed to compare the three Build Alternatives, based on preliminary estimates of costs (ROW acquisition, wetland mitigation, engineering and construction); social and environmental factors. The data for each alternative was developed based on the proposed ROW “footprint” along with base map information collected and prepared for this study. The construction cost estimates was prepared using the Department’s Long Range Estimates (LRE) program. **Table 5-6** shows the Interchange Alternatives Evaluation Matrix.

## 5.6 Selection of Recommended Alternative

All alternatives were evaluated with regards to socio-economic, engineering, environmental and safety factors. Based on these evaluations, a Recommended Build Alternative was identified and recommended for this study. The Recommended Build Alternative is a refinement of Mainline Alternative 2 and the respective interchange options. The Recommended Build Alternative includes a combination of the Study mainline typical section(s) and interchange options, that is, Mainline Alternative Typical Section 2 and Interchange Options C, A and B, and A for segments 1, 2, and 3, respectively (refer to Appendix B). These recommendations are listed below:

- I-75 Mainline – Mainline Alternative 2
- SR 674 Interchange – Option C
- Big Bend Road Interchange – Option A (Frontage Road Open / Grade Separated)
- Gibsonton Drive Interchange – Option A (only one evaluated)

### Mainline Alternative

Mainline Alternative 2 is the Recommended Build Alternative for the following reasons:

- Allows mainline lane additions to be implemented in stages without affecting and/or requiring simultaneous modifications to the interchanges;
- Allows easy and direct access to SULs for emergency response vehicles;

- Provides easier lane use for counter-flow operations during emergency evacuations; Potentially requires lower costs for drainage (depending on requirements at time of construction) ; and
- Anticipated lower overall construction costs than the other mainline alternative.

### Interchange Options

#### SR 674 Interchange

Option C (modified PARCLO) is the Recommended Build Alternative because:

- It requires no relocations nor ROW acquisitions
- Has the lowest costs
- Provides the most improved traffic operations

#### Big Bend Road Interchange

Option A (modified PARCLO) is the Recommended Build alternatives for the Public Hearing because:

- Although the flyover option may be slightly better from an operation standpoint, it may not provide significant benefits compared to its costs
- Need to maintain frontage road access with Hillsborough County Schools and Public Works

#### Gibson Drive Interchange

Option A, a partial cloverleaf configuration, is the only viable alternative evaluated for this interchange.

**Table 5-5. Mainline Alternatives Evaluation Matrix**

EVALUATION CRITERIA	NO-BUILD ALTERNATIVE	BUILD ALTERNATIVES		
		ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 2
<b>Potential Business Impacts</b>				
Number of business relocations	0	1	0	0
<b>Potential Residential Impacts</b>				
Number of residential relocations	0	55	0	0
<b>Potential ROW Impacts (Acres) (ROW = Right of Way)</b>				
Area of ROW anticipated to be acquired	0	217 - 233	18 - 68	11 - 25
<b>Potential Environmental Effects</b>				
Archaeological/historical sites	None	None	None	None
Section 4(f) sites	0	4	4	4
Noise sensitive sites	0	1,110	778	1,393
Wetlands (acres)	0	119 - 123	96 - 99	92 - 95
Floodplains (acres)	0	376 - 385	320 - 330	310 - 322
Surface waters (acres)	0	13	11	10
Threatened and endangered species*	0	Mod	Min	Min
Petroleum or hazardous material sites	0	14	5	5
<b>Estimated Costs** (Present Day Costs in Millions)</b>				
Right-of-way acquisition costs	\$0.0	\$112 - 113	\$18 - 21	\$5 - 8
Wetlands mitigation costs	\$0.0	N/A	N/A	N/A
Roadway and Bridge construction costs	\$0.0	\$311 - 329	\$391 - 409	\$219 - 240
Engineering design costs (15% of construction)	\$0.0	\$46 - 49	\$58 - 61	\$33 - 36
Construction engineering & inspection costs (15% of construction)	\$0.0	\$46 - 49	\$58 - 61	\$33 - 36
<b>Preliminary Estimate of Total Costs**</b>	<b>\$0.0</b>	<b>\$515 - 540</b>	<b>\$525 - 552</b>	<b>\$290 - 320</b>

\*Threatened or Endangered Species

Mod= Moderate

Min= Minimal

\*\* Costs do not include Stormwater Management Facilities

June 2009

**Recommended Alternative**





Table 5-6. Interchange Alternatives Evaluation Matrix

EVALUATION CRITERIA	NO-BUILD ALTERNATIVE	ALTERNATIVE 2						
		State Road 674 Interchange			Big Bend Road Interchange			Gibsonton Drive Interchange
		Option A	Option B	Option C	Option A	Option B	Option C	
		Diverging Diamond	Single Point Urban	Partial Cloverleaf	Frontage Road Open	Frontage Road Closed	Flyover	Partial Cloverleaf
<b>Potential Business Impacts</b>								
Number of business relocations	0	0	0	0	0	0	0	0
<b>Potential Residential Impacts</b>								
Number of residential relocations	0	0	0	0	0	0	0	0
<b>Potential ROW Impacts (Acres) (ROW = Right of Way)</b>								
Area of ROW anticipated to be acquired	0	2.4	0.0	0.0	8.8	20.7	15.6	1.9
<b>Potential Environmental Effects</b>								
Archaeological/historical sites	None	None	None	None	None	None	None	None
Section 4(f) sites	0	0	0	0	1	1	1	0
Noise sensitive sites	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wetlands (acres)	0	25.2	24.1	24.2	22.6	24.6	24.0	14.1
Floodplains (acres)	0	46.7	46.1	46.1	112.2	123.5	122.8	28.6
Surface waters (acres)	0	0.0	0.0	0.0	0.1	0.2	0.1	6.8
Threatened and endangered species*	0	Min	Min	Min	Min	Min	Min	Mod
Petroleum or hazardous material sites	0	0	0	0	4	4	4	1
<b>Estimated Costs** (Present Day Costs)</b>								
Right-of-way acquisition costs	\$0.0	\$2.1	\$0.6	\$0.6	\$2.6	\$3.0	\$2.3	\$2.5
Wetlands mitigation costs	\$0.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roadway and Bridge construction costs	\$0.0	\$14.4	\$7.3	\$1.8	\$14.4	\$7.3	\$16.4	\$4.4
Engineering design costs (15% of construction)	\$0.0	\$2.2	\$1.1	\$0.3	\$1.0	\$1.3	\$2.5	\$0.5
Construction engineering & inspection costs (15% of construction)	\$0.0	\$2.2	\$1.1	\$0.3	\$1.0	\$1.3	\$2.5	\$0.5
<b>Preliminary Estimate of Total Costs**</b>	<b>\$0.0</b>	<b>\$18.8</b>	<b>\$9.5</b>	<b>\$2.4</b>	<b>\$16.4</b>	<b>\$9.9</b>	<b>\$21.4</b>	<b>\$5.4</b>

\*Threatened or Endangered Species

Mod= Moderate

Min= Minimal

\*\* Costs do not include Stormwater Management Facilities

**Recommended Alternatives**

June 2009

## **Section 6 – TECHNICAL REPORTS COMPLETED FOR THIS PROJECT**

### **Separate reports prepared or to be prepared include:**

Advance Notification Package

Public Involvement Plan

Draft Project Development Summary Report (PDSR)

Draft Location Hydraulic Report (LHR)

Draft Pond Sizing Technical Memorandum

Traffic Technical Memorandums and Reports (by PB Americas under WPI No. 419235-1)

Draft Wetland Evaluation and Biological Assessment Report (WEBAR)

Draft Water Quality Impact Evaluation Checklist (WQIE)

Draft Contamination Screening Evaluation Report (CSER)

Cultural Resource Assessment Survey (CRAS)

Draft Noise Study Report (NSR)

Draft Air Quality Technical Memorandum

Draft Comments and Coordination Report

USCG Questionnaire

Draft Design Exceptions and Variations Package

## Section 7 – APPENDICES

- A. Straight Line Diagram and 2000 Urban Area Boundaries & Federal Functional Classifications Map
- B. Preliminary Conceptual Design Plan & Interchange Options\*
- C. Existing Guide Sign Inventory
- D. Existing Bridge Plan & Elevation Drawings
- E. Soils Map
- F: Preliminary Alternatives Analysis Memorandum (PAAM)

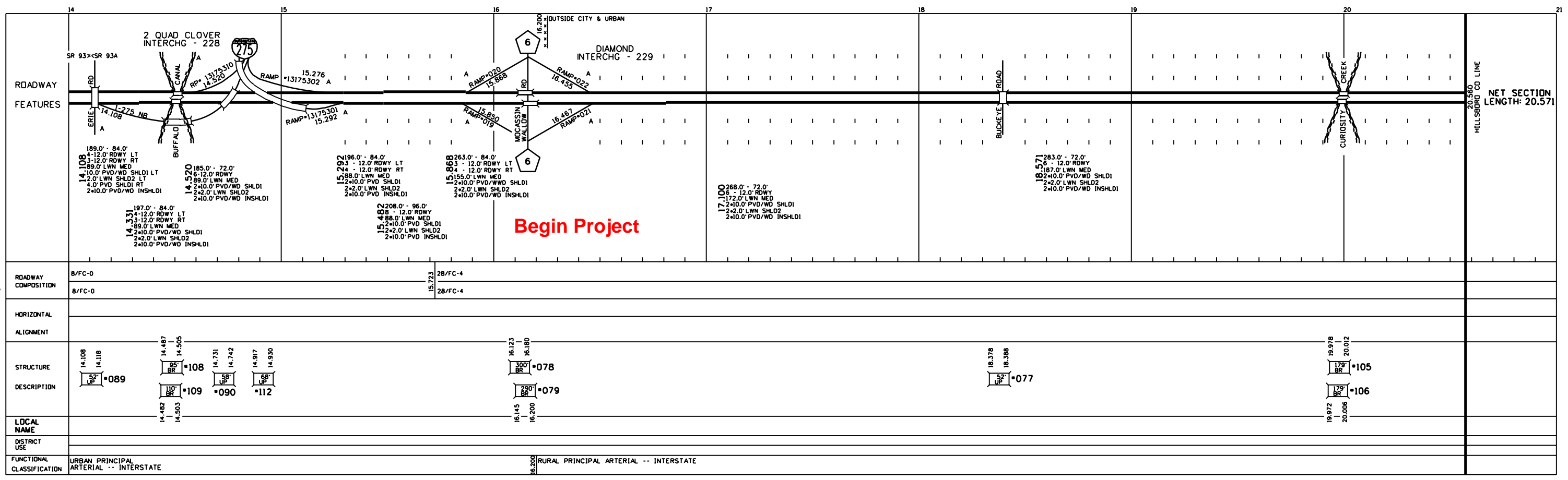
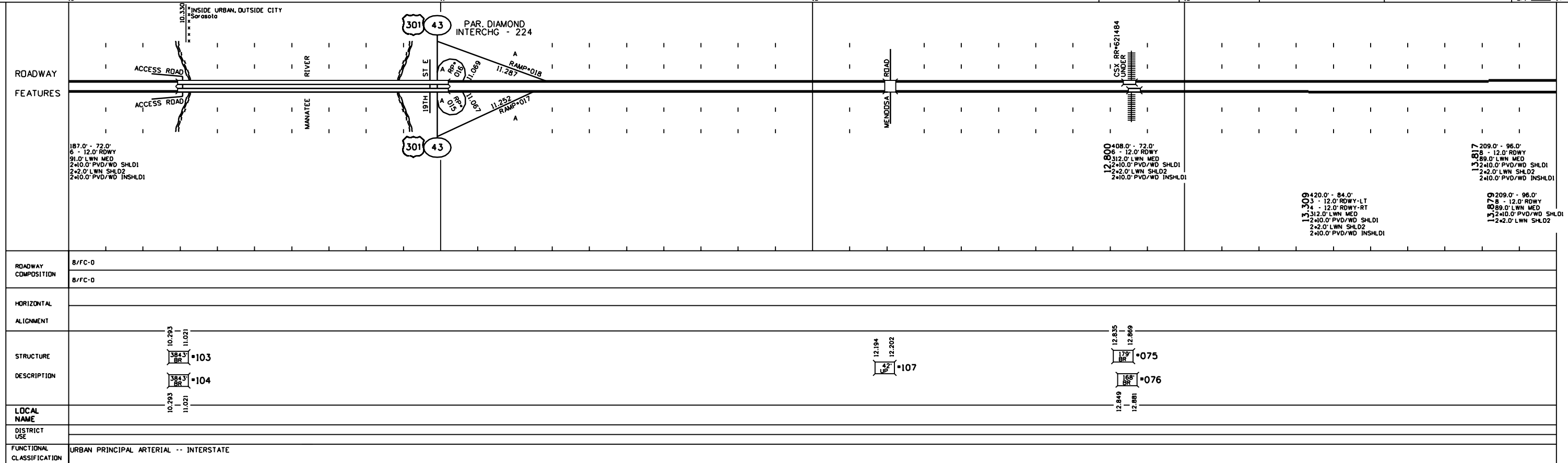
*\*separately bound volume*

***Appendix A***  
***Straight-Line Diagrams and 2000 Urban Area***  
***Boundaries & Federal Functional***  
***Classifications Map***

LEGEND A - ASPHALT B - BRICK C - CONCRETE D - OTHER	5 YR INV SLD REV	03/11/05	04/07/05	05/05/05
	DATE	BY	FTE/JA	
	APPROVED	04/11/05		

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY  
FLORIDA DEPARTMENT OF TRANSPORTATION DISTRICT ONE MAINTENANCE STATISTICS OFFICE

INT. or US ROUTE NO	STATE ROAD NO.	COUNTY	SECTION	SHEET NO.
175	SR 93/SR 93A	MANATEE	13075000	2

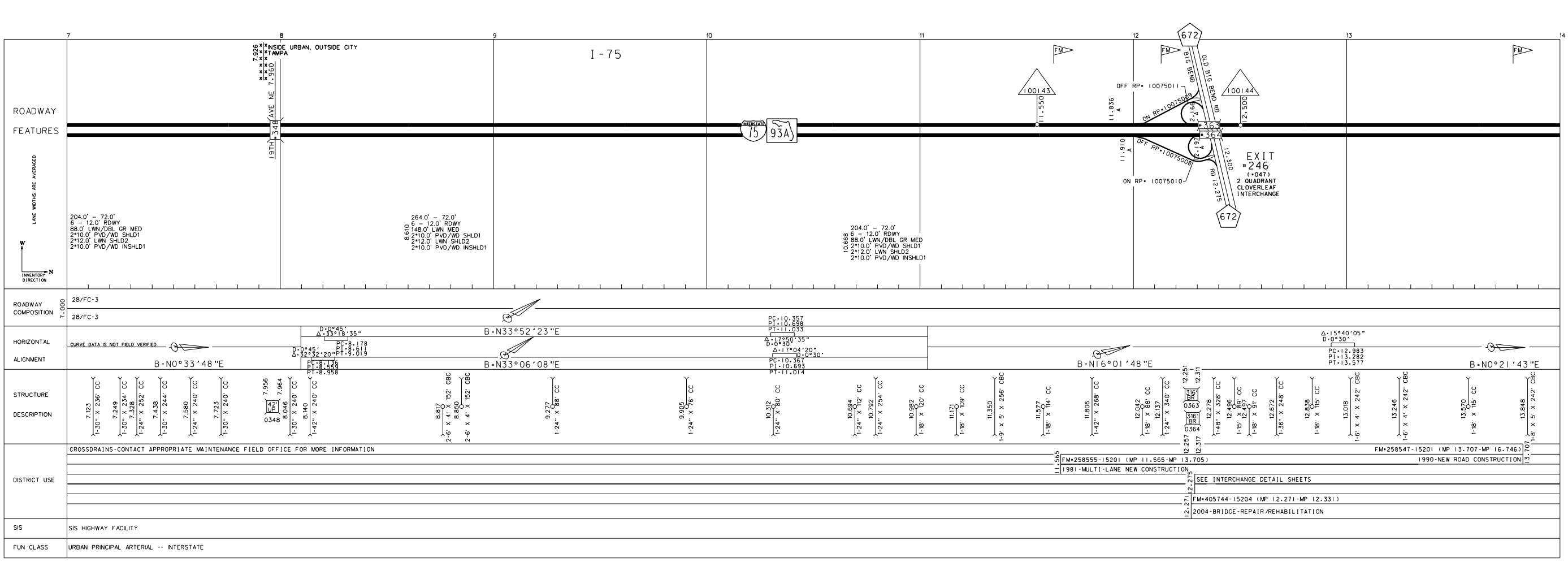
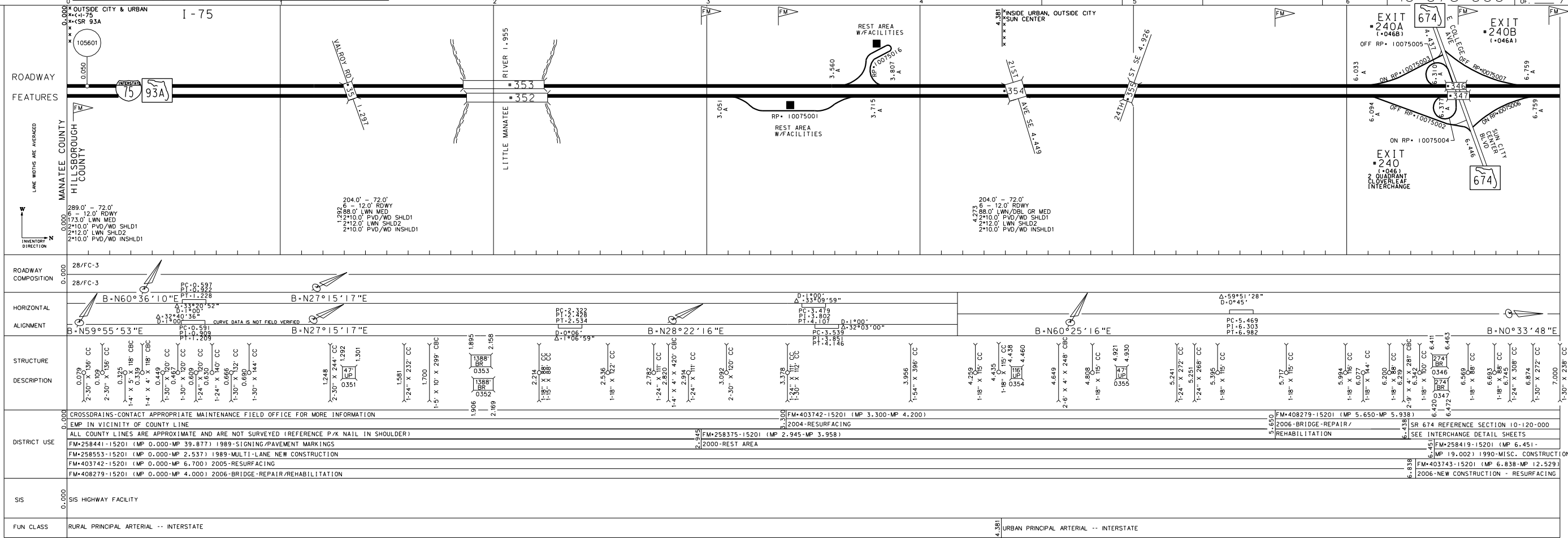


U:\File 03\Final SLD Manatee\MANATEE\13075000.dgn

NET SECTION LENGTH: 20.571

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

Table with columns: DATE, 5 YR INV, SLD REV, BMP, EMP, INTERIM REVISIONS, INV, SLD REV. Includes dates 06/25/2007 and 08/28/2007.



08/29/2007 09:52:25 EST

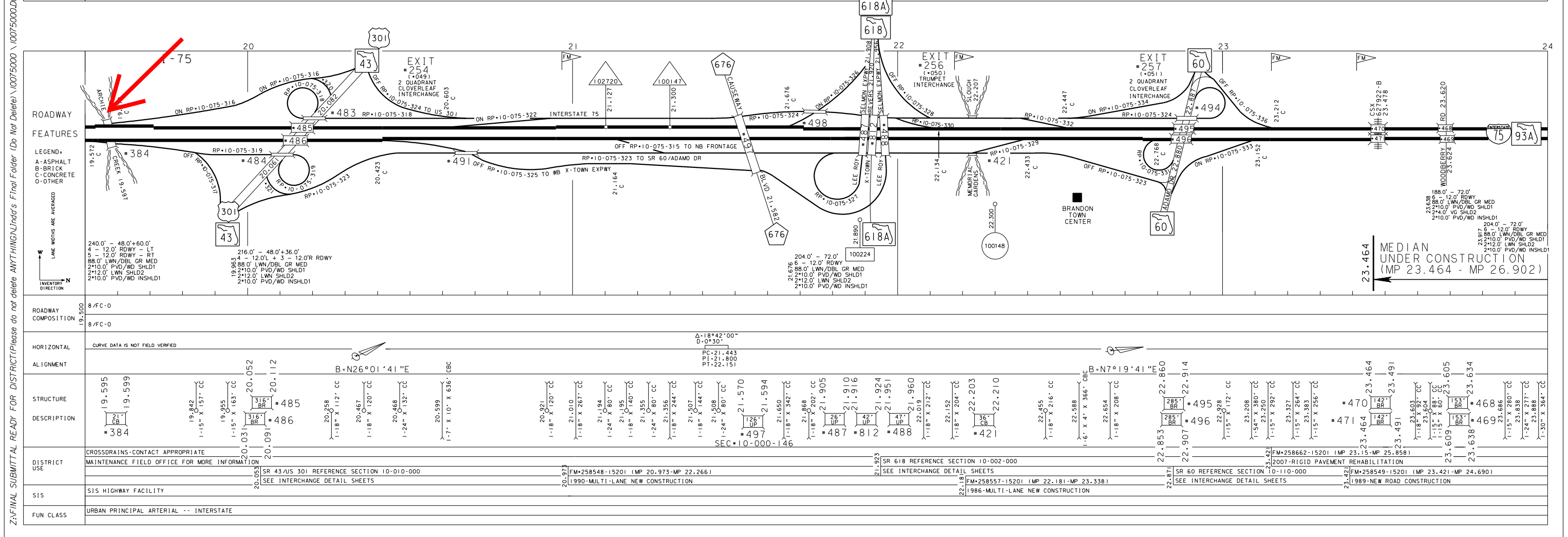
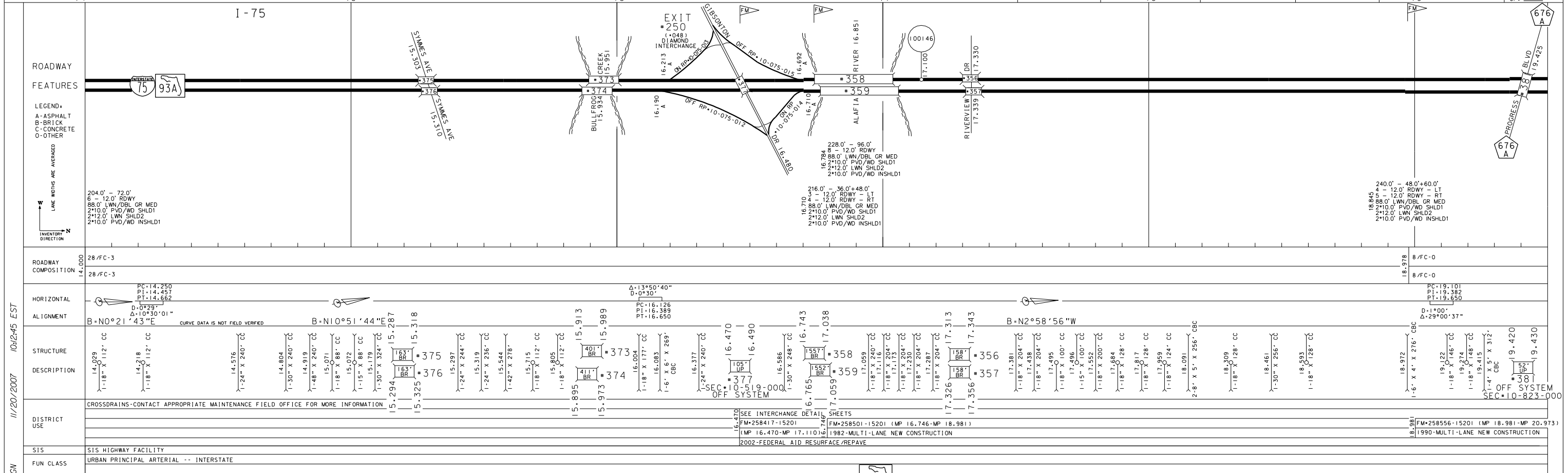
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# STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

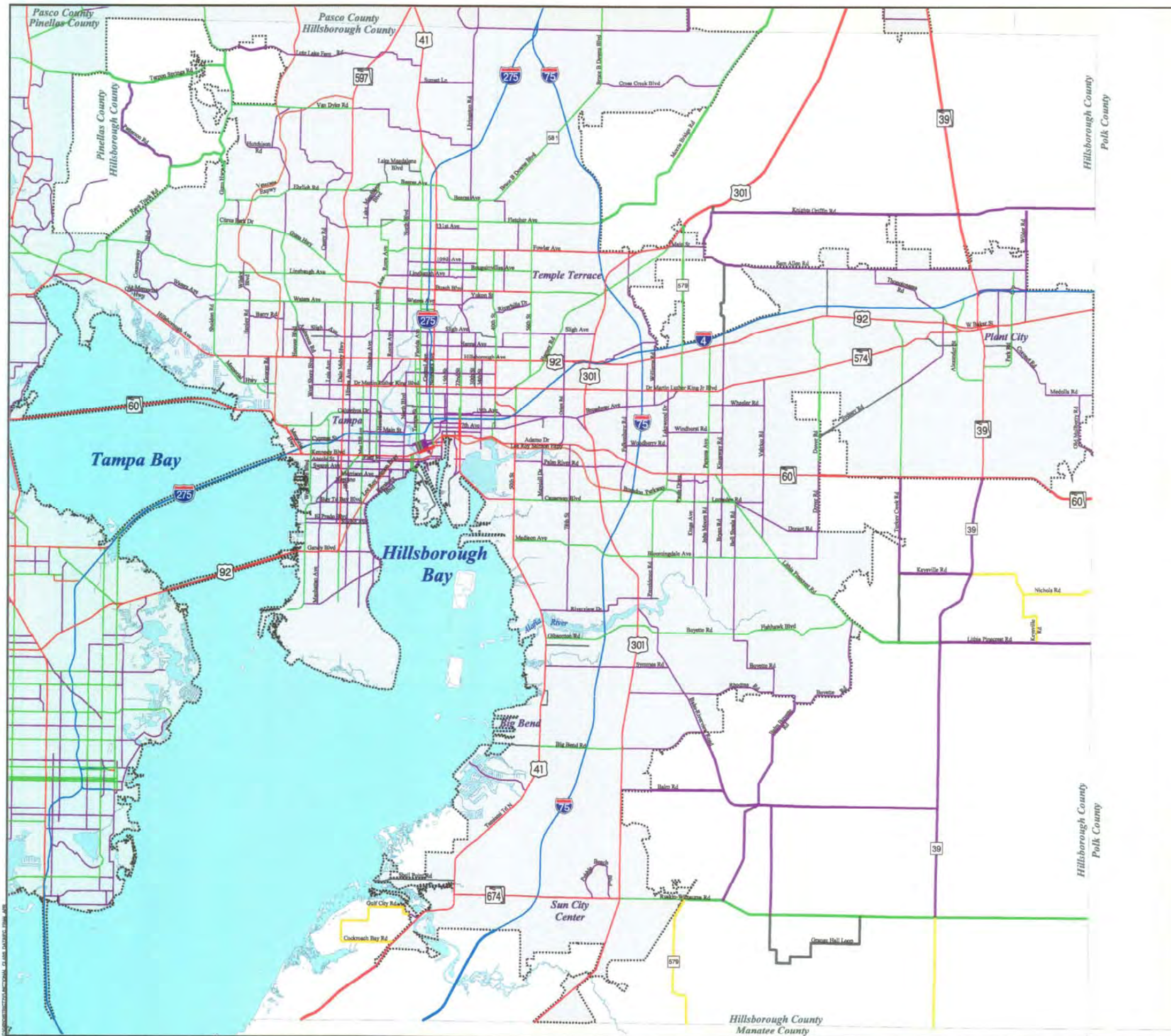
FLORIDA DEPARTMENT OF TRANSPORTATION

INT. OR US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	SECTION	SHEET NO.
1-75	SR 93A	HILLSBOROUGH	7	10 075 000	2 OF 4

DATE	BY	5 YR INV	SLD REV	INTERIM REVISIONS	SLD REV
06/25/2007	MEI/CS/AR-LR	08/28/2007	MEI/CLB	23.15 25.858 10/25/2007 11/20/2007	11/20/2007
		CONSTRUCTION COMPLETE			



Z:\FINAL SUBMITTAL READY FOR DISTRICT\Please do not delete ANYTHING\Roads Final Folder (Do Not Delete)\10075000.DGN 11/20/2007 10:42:45 EST



## 2000 URBAN AREA BOUNDARIES AND FEDERAL FUNCTIONAL CLASSIFICATION HILLSBOROUGH COUNTY



Recommended By:

*Shawn Hamm* 11/10/04  
 Chair, Hillsborough Metropolitan Planning Organization Date

*Samuel A. Hart* 12/8/04  
 FDOT District Secretary Date

Approved By:

*St. H. Wame* 1/12/05  
 Federal Highway Administration Date

**LEGEND**

- ..... 2000 FHWA Adjusted Urban Boundary
- ..... Hydrology

**Functional Class**

- 01 - Principal Arterial-Interstate RURAL
- 02 - Principal Arterial-Other RURAL
- 06 - Minor Arterial RURAL
- 07 - Major Collector RURAL
- 08 - Minor Collector RURAL
- 09 - Local RURAL
- 11 - Principal Arterial-Interstate URBAN
- 12 - Principal Arterial-Freeways and Expressways URBAN
- 14 - Other Principal Arterial URBAN
- 16 - Minor Arterial URBAN
- 17 - Collector URBAN
- 19 - Local URBAN

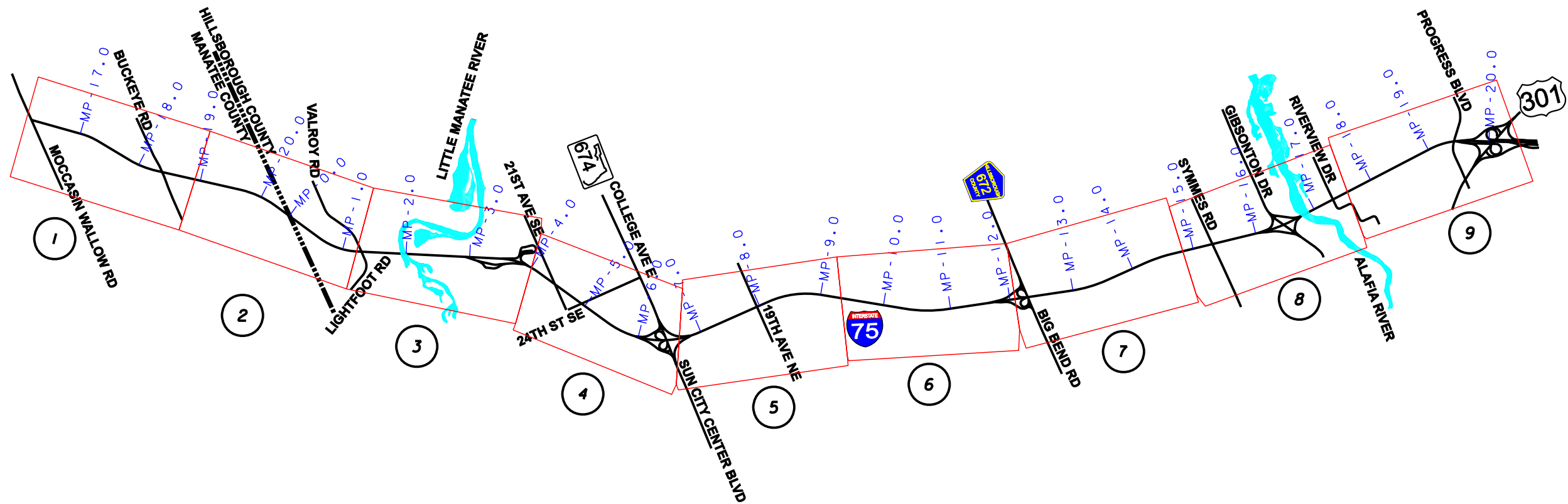
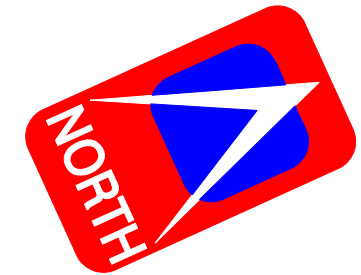
0 1 2 3 Miles  
**Scale = 1 : 140,000**



***Appendix B***  
***Preliminary Concept Design***  
***Plans & Interchange Options\****

***(Published as a Separately Bound  
Technical Appendix)***

***Appendix C***  
***Existing Guide***  
***Sign Inventory***



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**American**  
 Consulting Engineers of Florida, LLC  
 18250 North US Highway 41  
 Lutz, Florida 33549  
 Phone: (813) 498-7400 Fax: (813) 498-7401  
 Certificate of Authorization No. 9302  
 Jeffrey S. Novotny, P.E. No. 51083

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
1-75	MANATEE/ HILLSBOROUGH	419235-2-22-01

I-75 PD & E STUDY  
**EXISTING GUIDE SIGN**  
**SHEET LAYOUT**  
 FROM MOCCASIN WALLOW RD TO SOUTH OF US 301

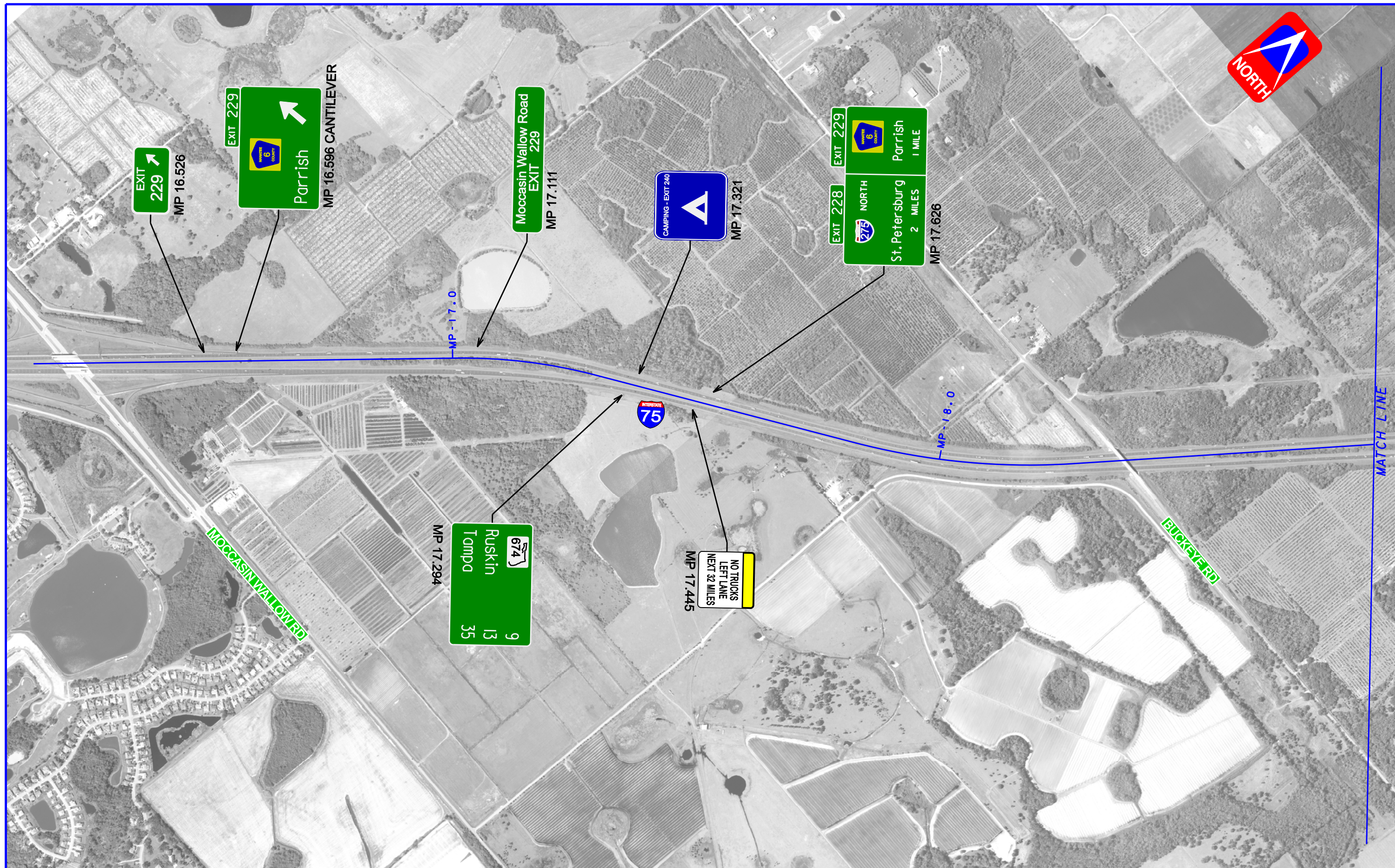
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4/4/2008

11:29:00 AM

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NOTE: SIGNS ARE NOT TO SCALE  
MILE POST ARE APPROXIMATE

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Certificate of Authorization No. 9302  
Jeffrey S. Novotny, P.E. No. 51083

I-75 PD & E STUDY - FPID 419235-2-22-01  
**EXISTING GUIDE SIGN INVENTORY**  
FROM MOCCASIN WALLOW RD TO SOUTH OF US 301

SHEET NO.  
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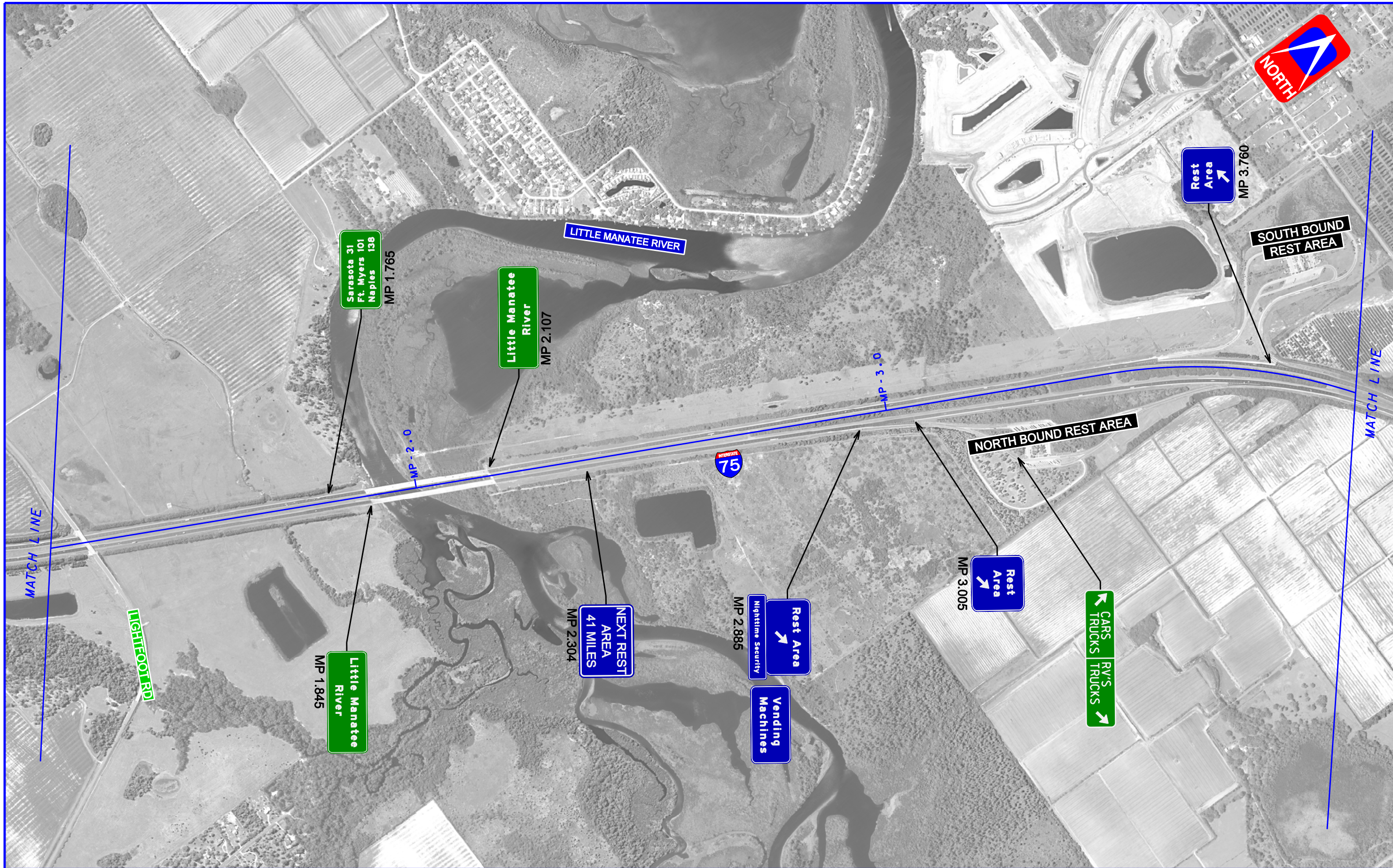


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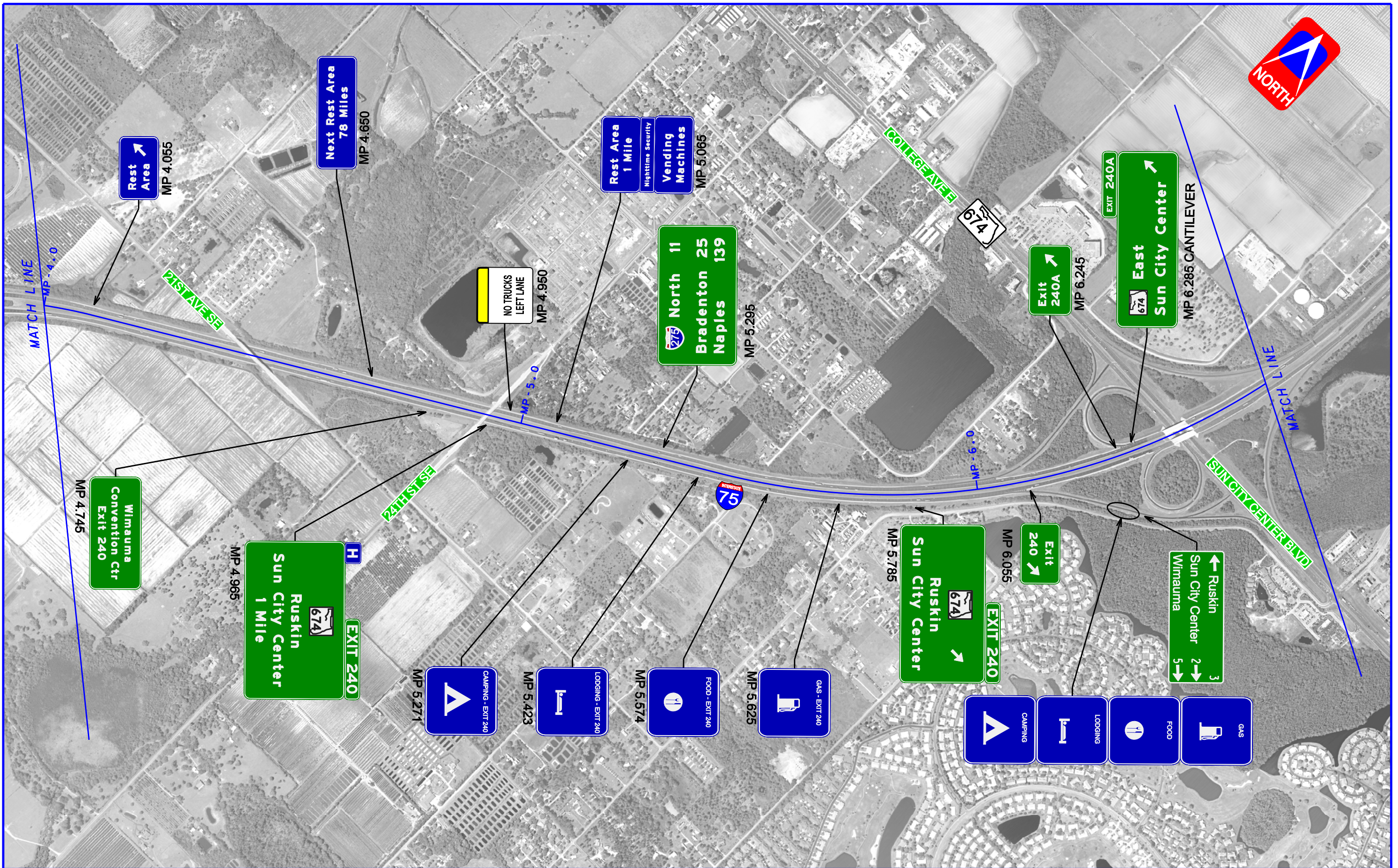


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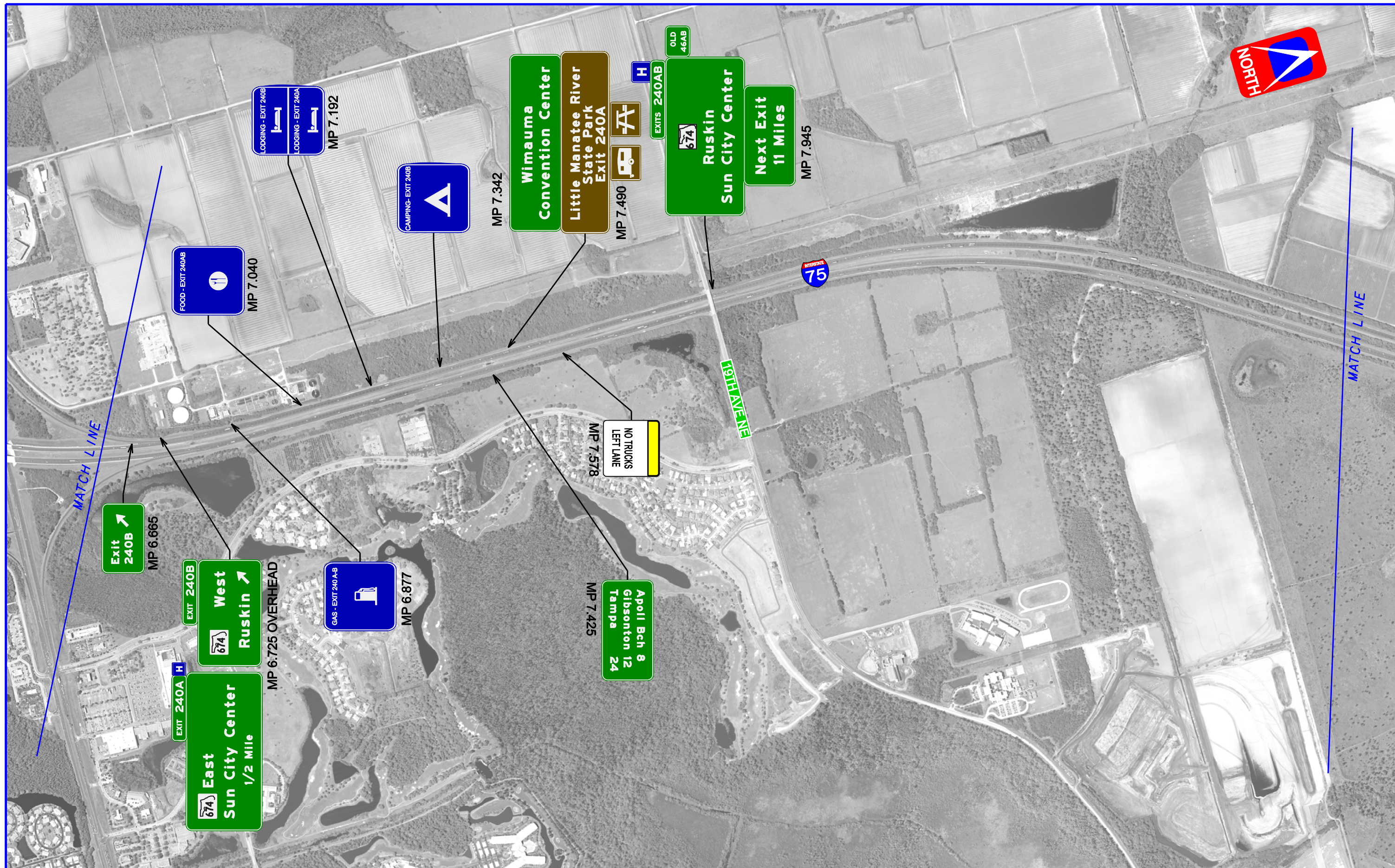
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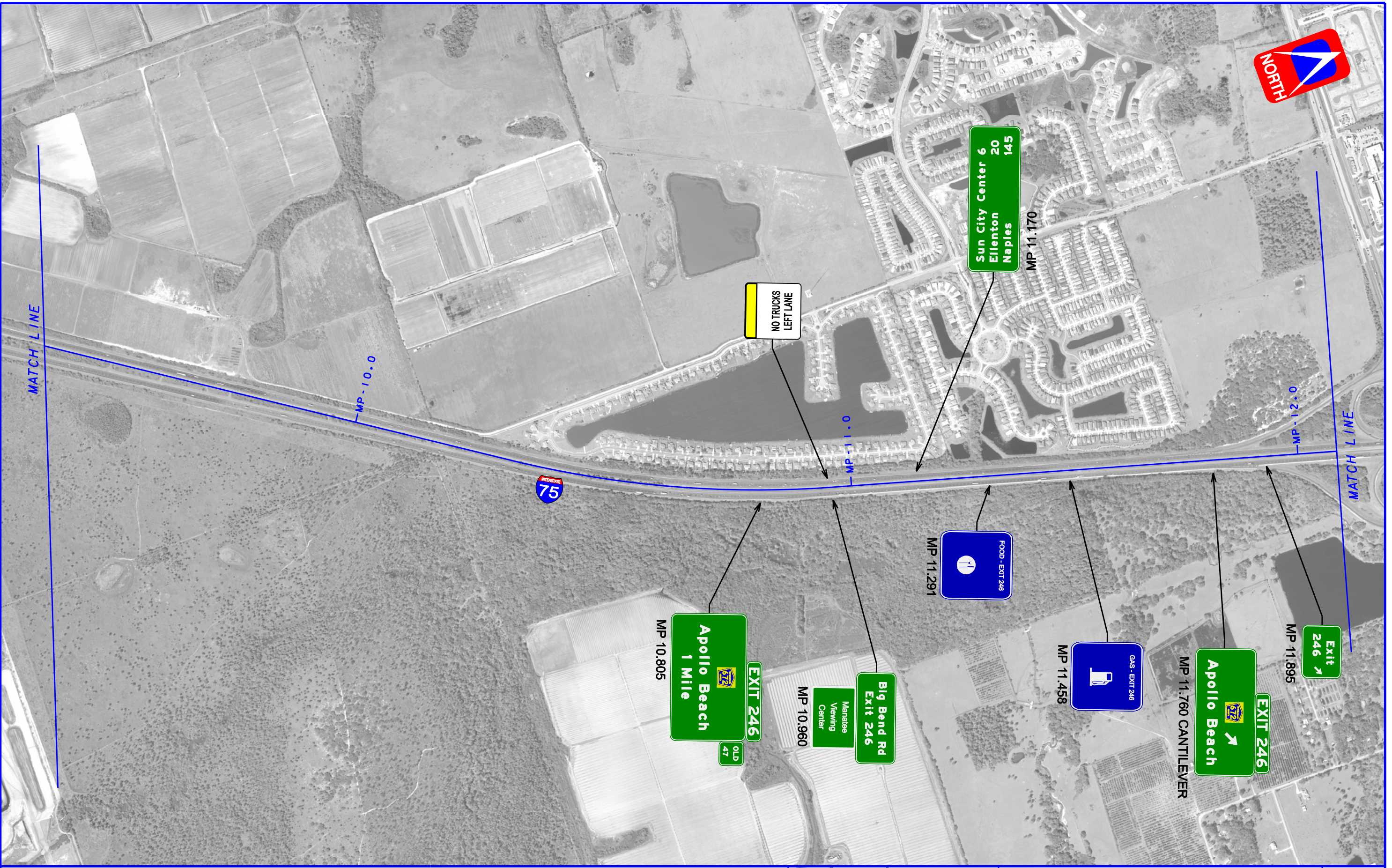
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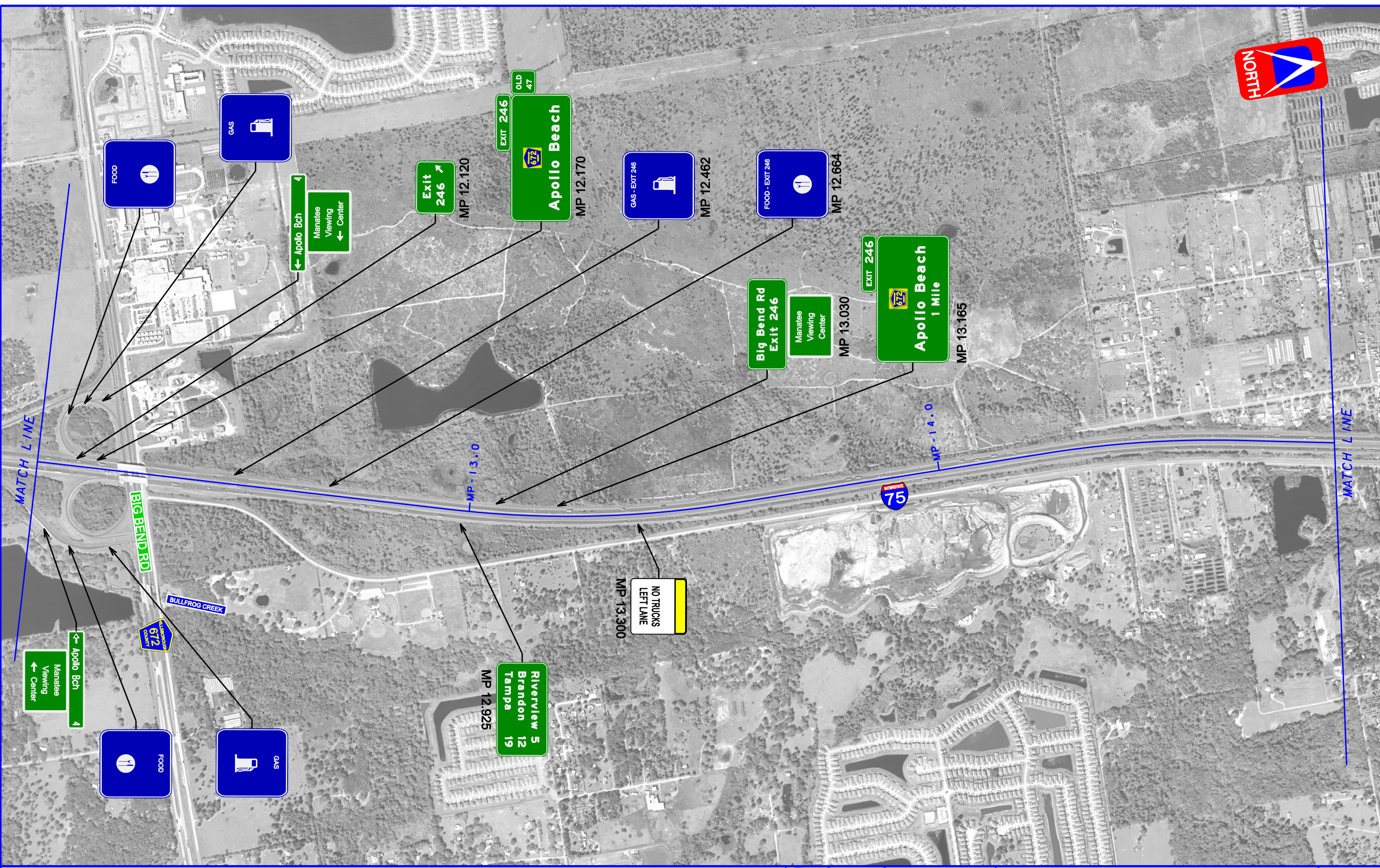


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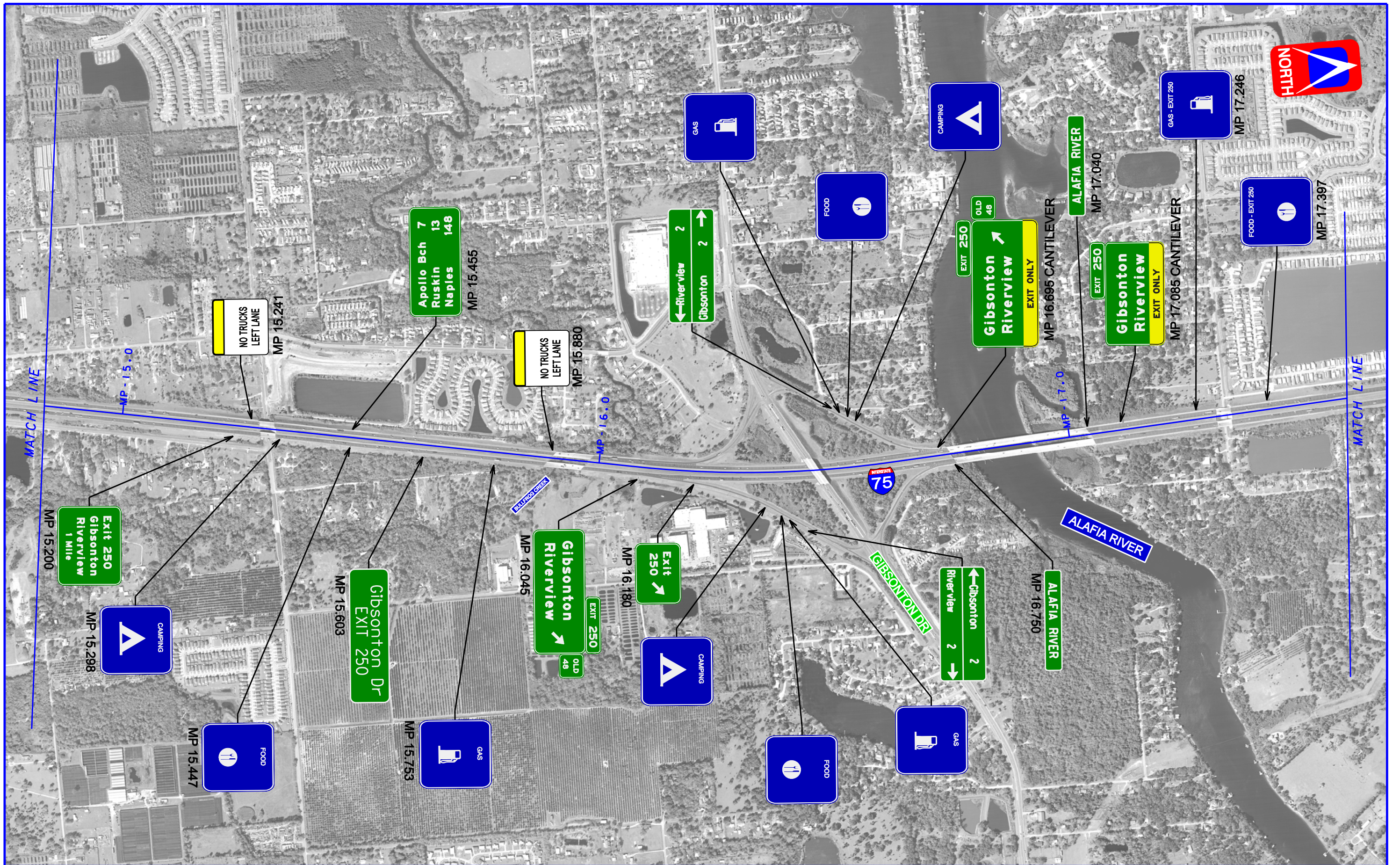


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I-75 PD & E STUDY - FPID 419235-2-22-01  
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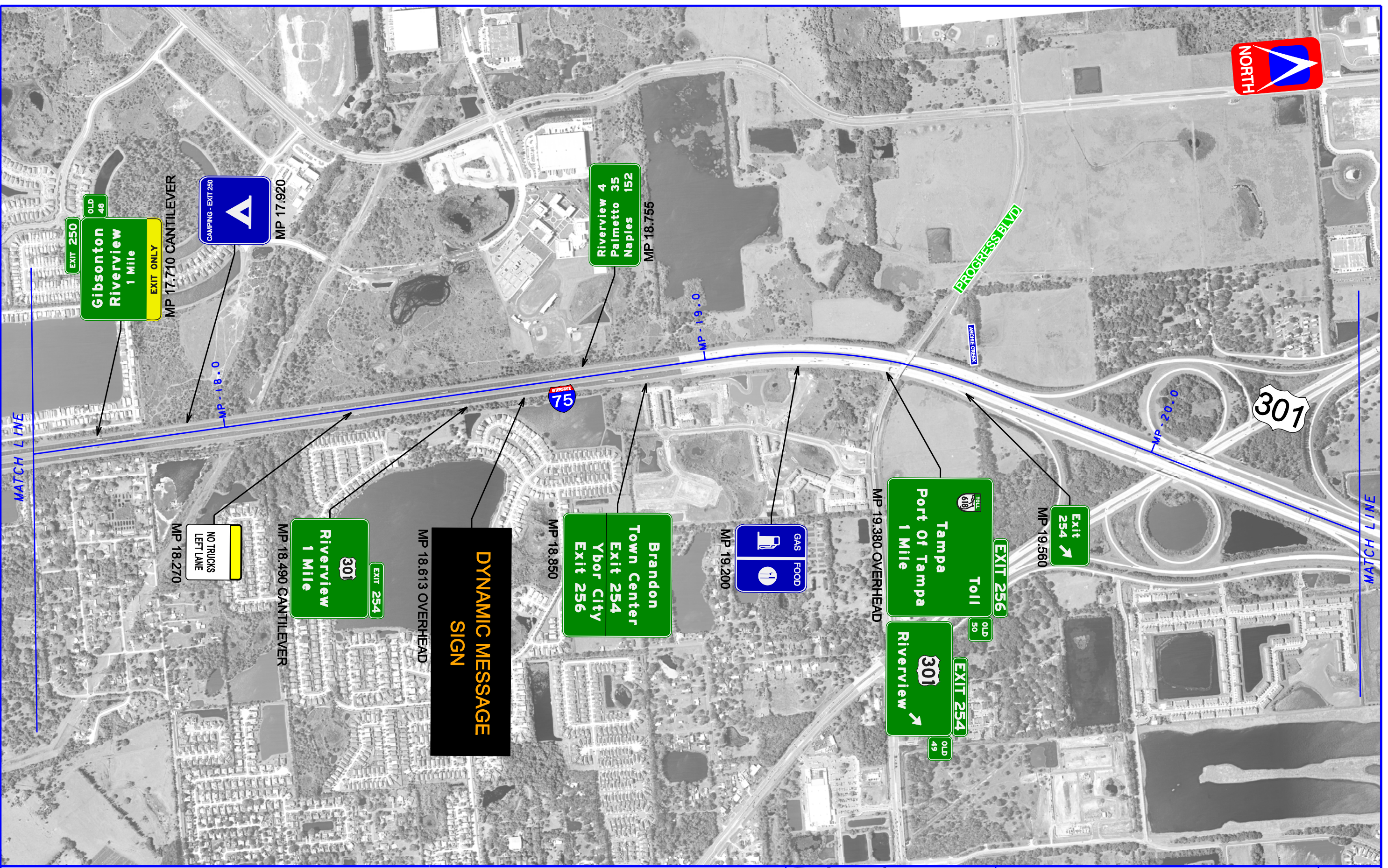


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I-75 PD & E STUDY - FPID 419235-2-22-01  
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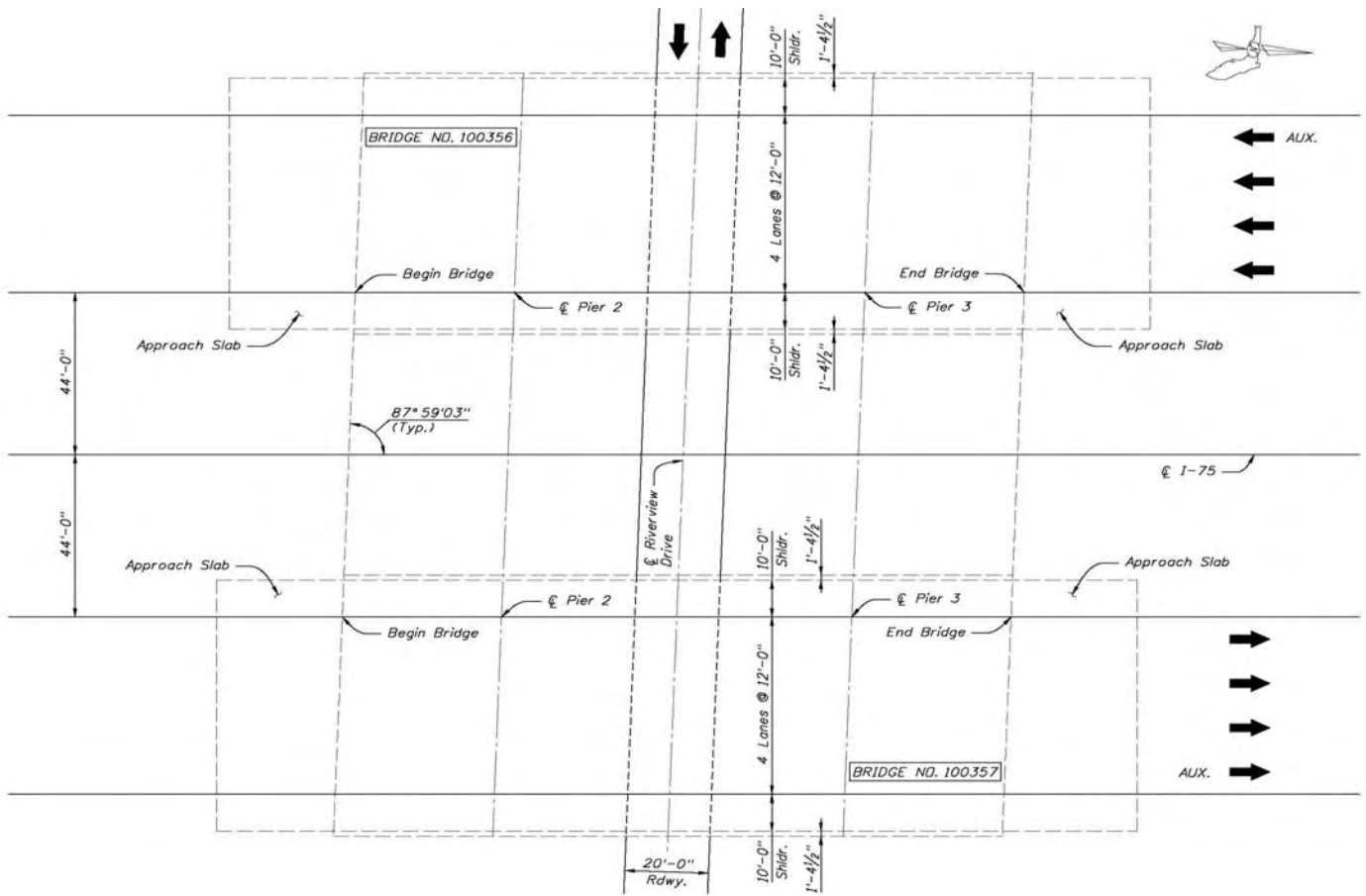
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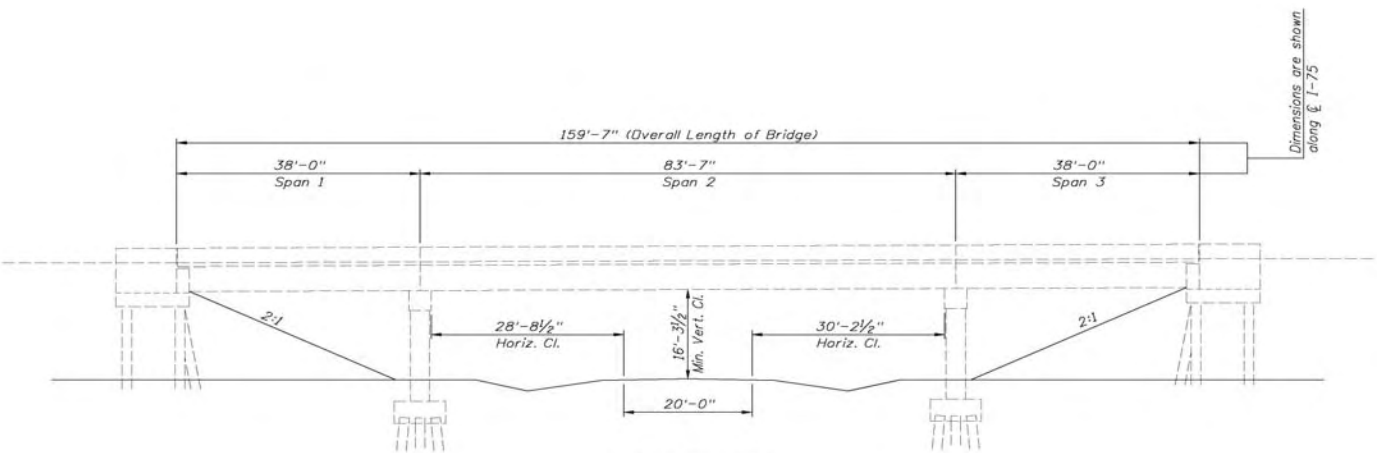
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***Appendix D***  
***Existing Bridge Plan &***  
***Elevation Drawings***



PLAN VIEW

BRIDGE NOS. 100356 & 100357



ELEVATION VIEW

BRIDGE NOS. 100356 & 100357

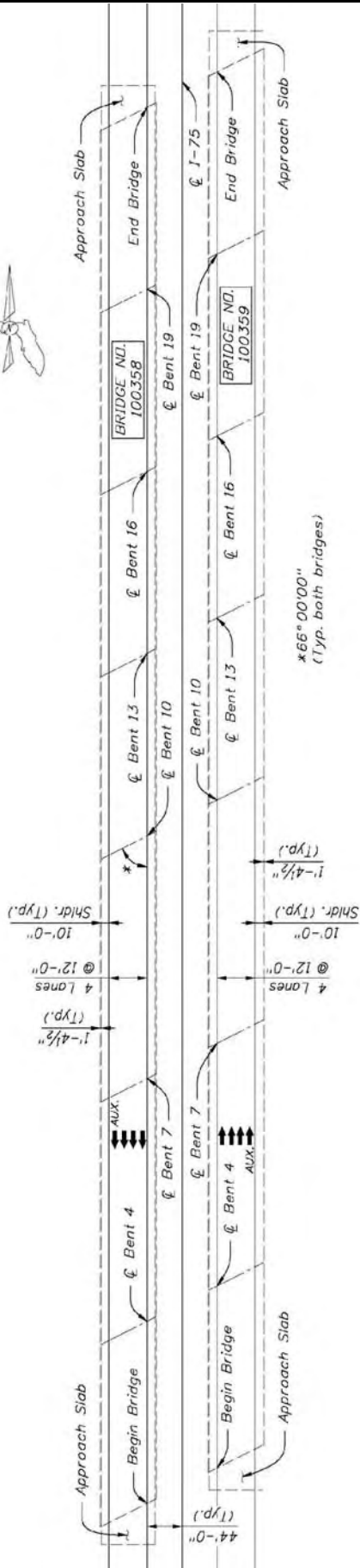
Note: Horizontal clearances based on field measurement taken in March 2010



**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

**I-75 over Riverview Drive**

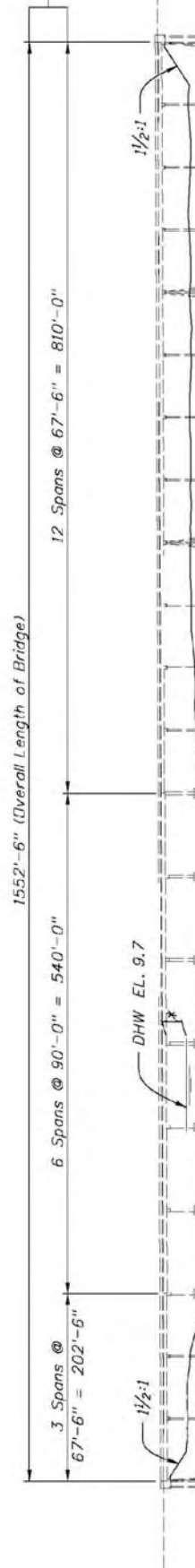
**Appendix D**



PLAN VIEW

BRIDGE NOS. 100358 & 100359

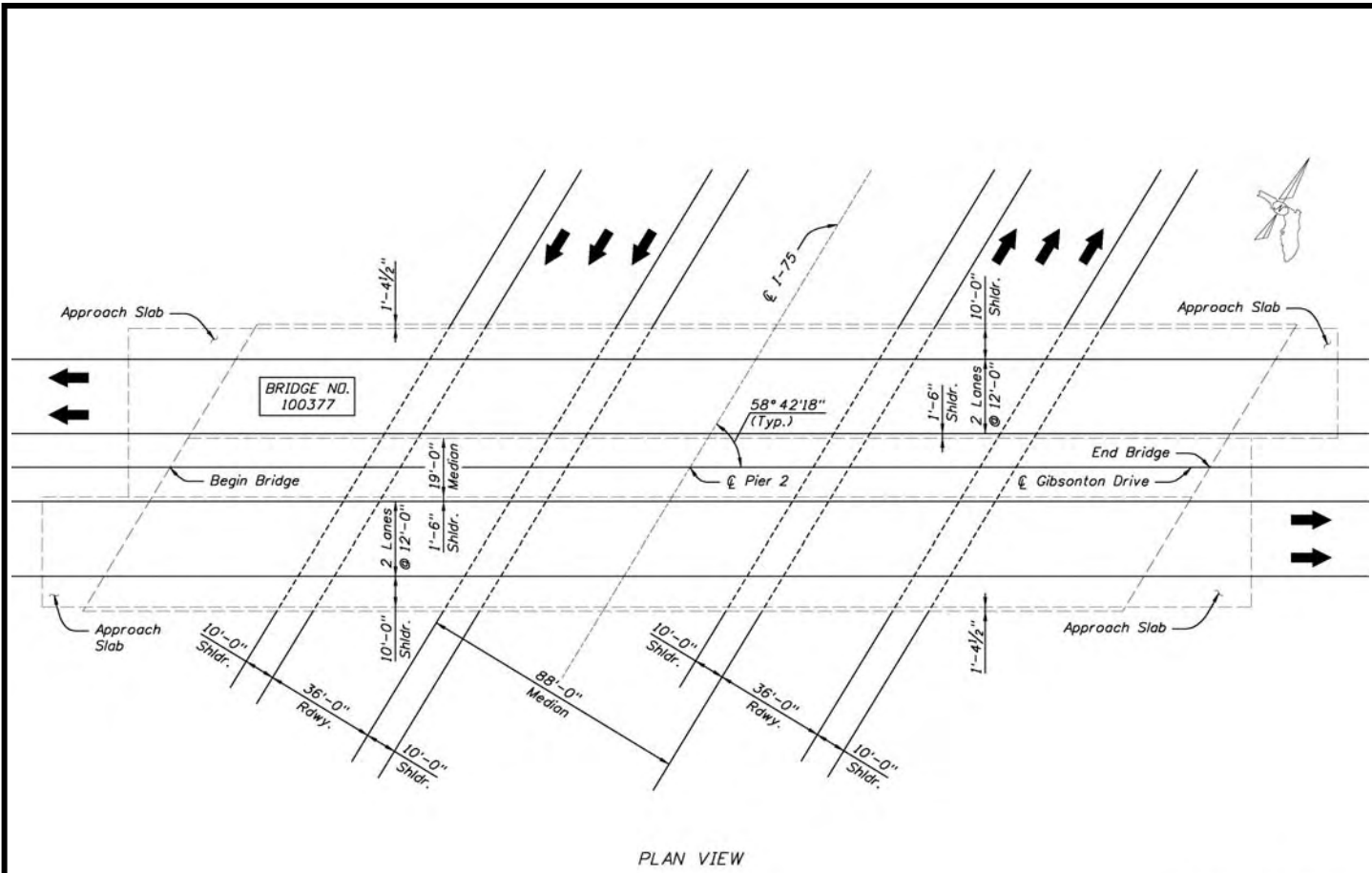
Dimensions are shown along Ⓡ I-75



ELEVATION VIEW

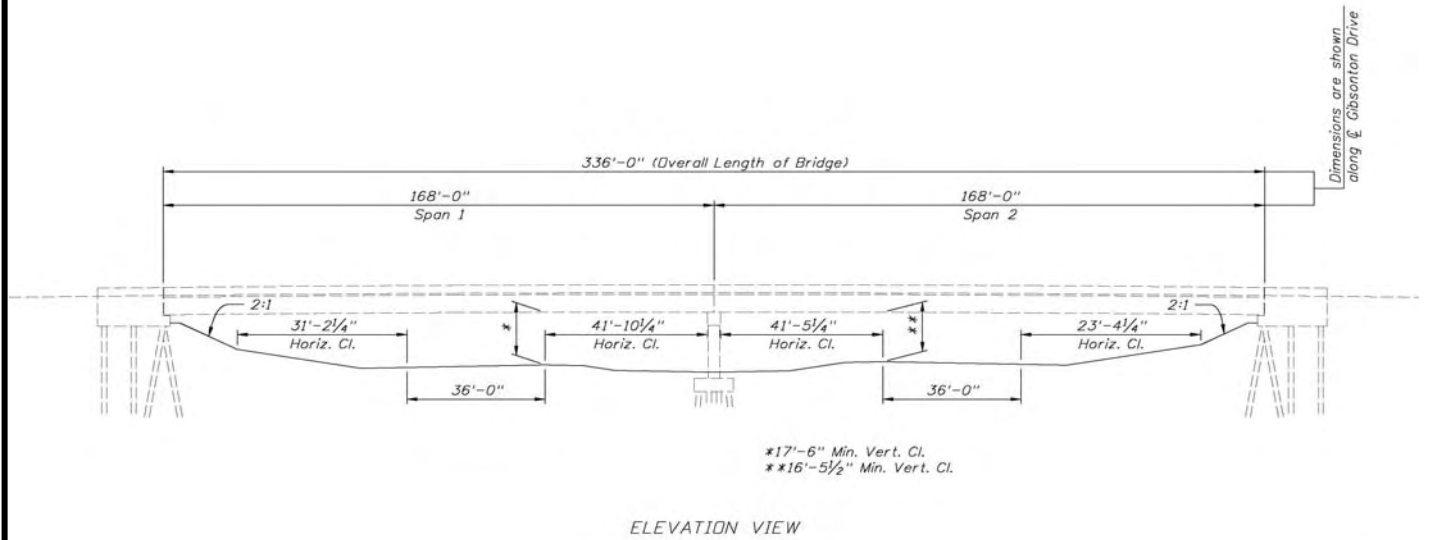
BRIDGE NOS. 100358 & 100359





PLAN VIEW

BRIDGE NO. 100377

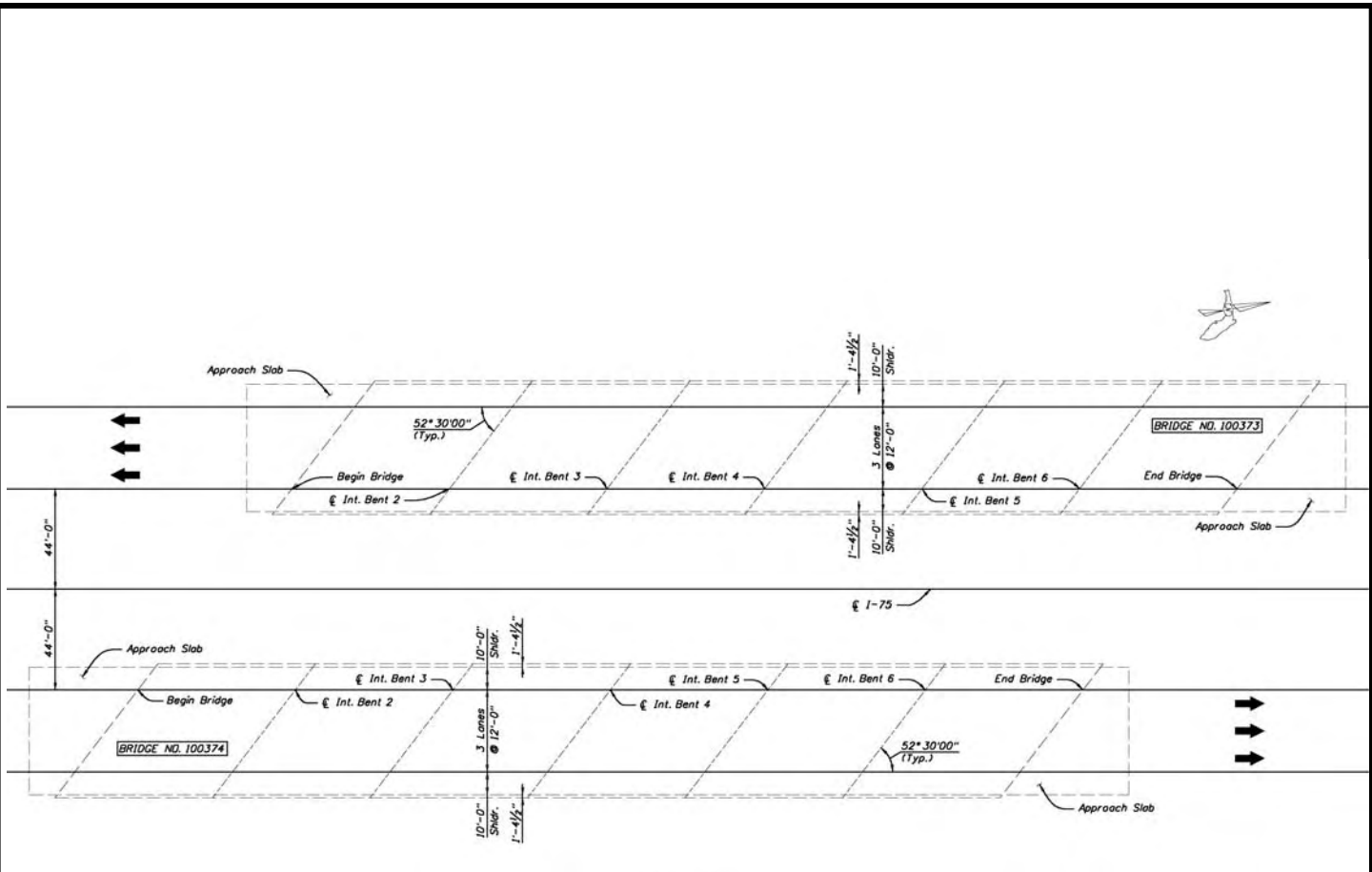


ELEVATION VIEW

BRIDGE NO. 100377

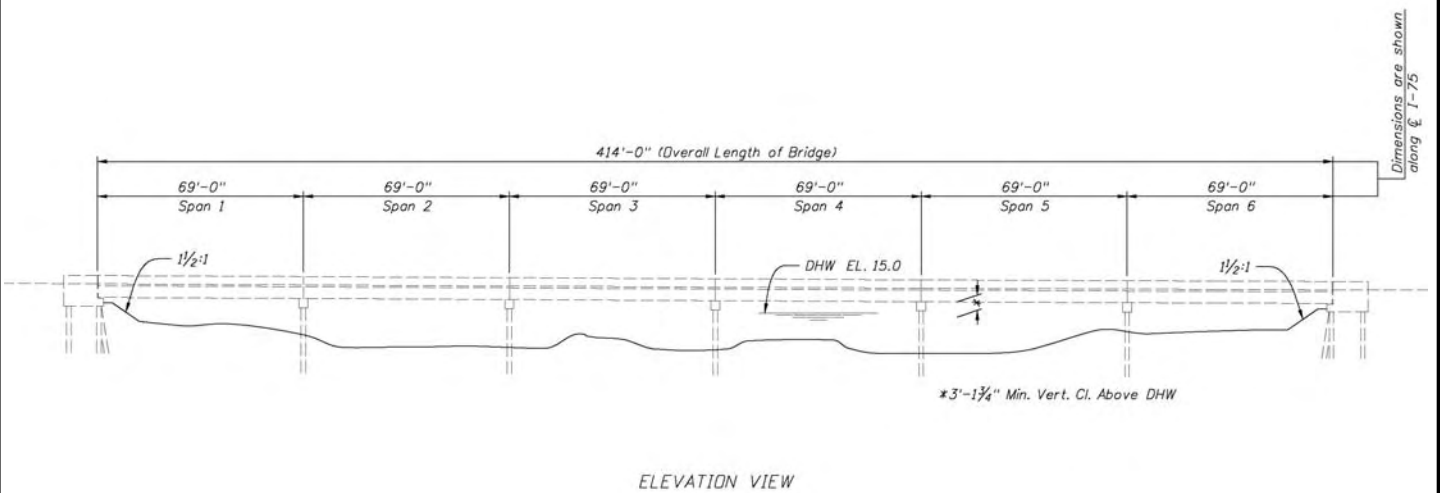
Note: Horizontal clearances based on field measurement taken in March 2010





PLAN VIEW

BRIDGE NOS. 100373 & 100374



ELEVATION VIEW

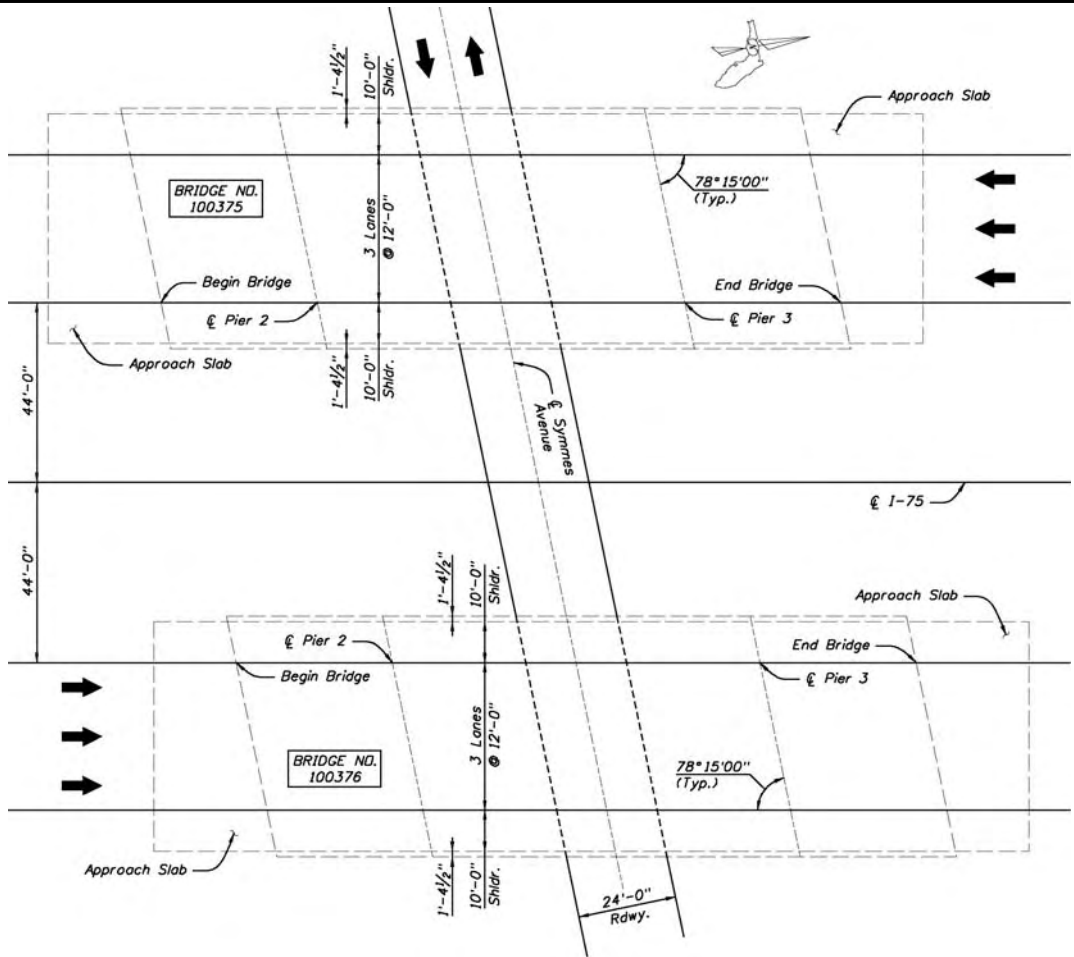
BRIDGE NOS. 100373 & 100374



**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

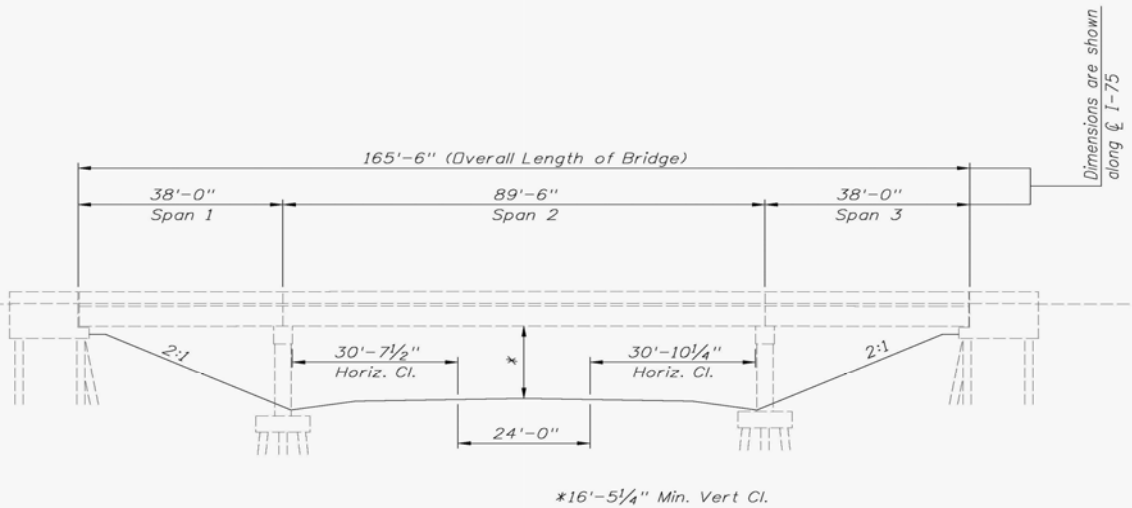
**I-75 over Bullfrog Creek**

**Appendix D**



PLAN VIEW

BRIDGE NOS. 100375 & 100376



ELEVATION VIEW

BRIDGE NOS. 100375 & 100376

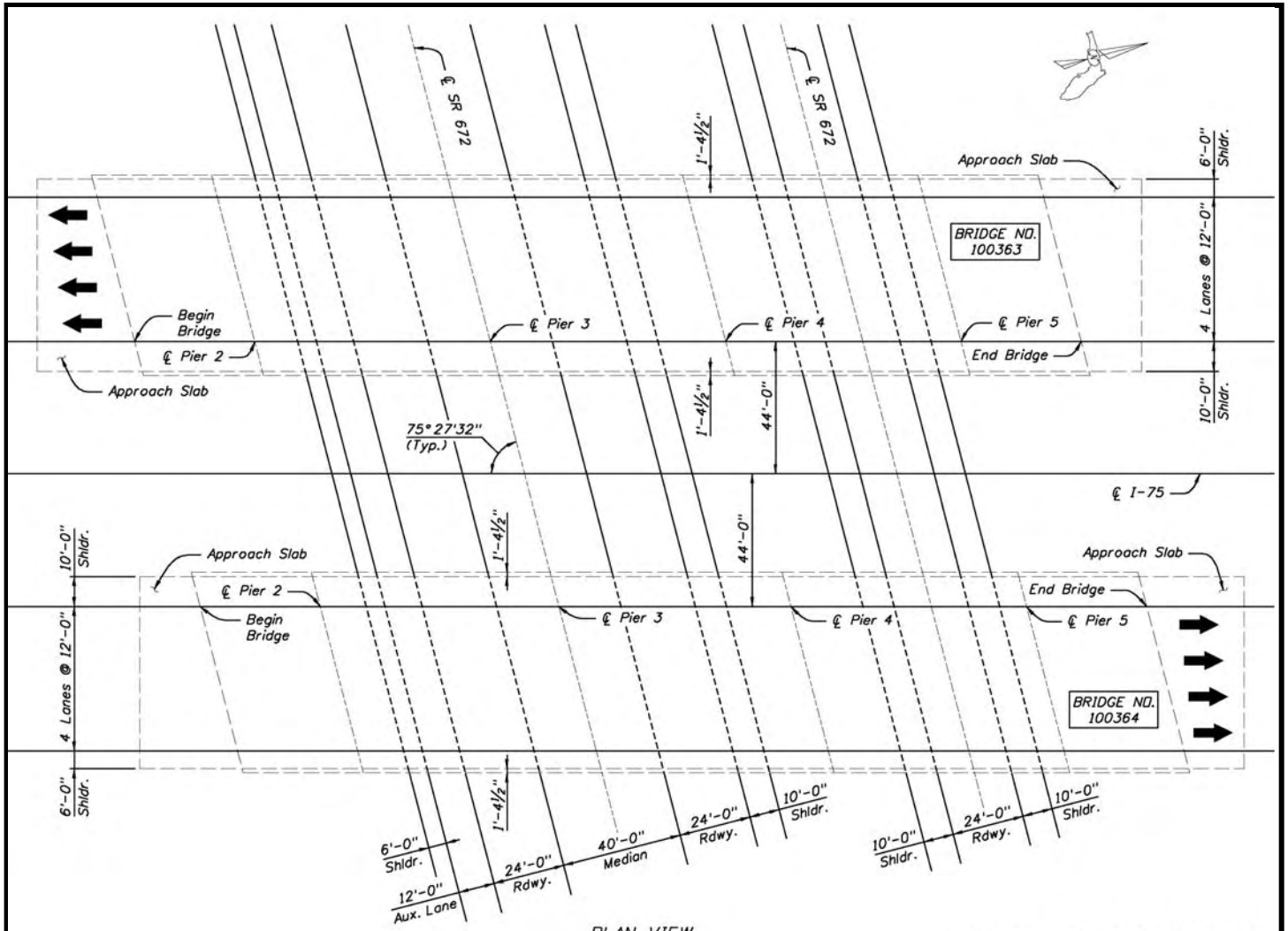
Note: Horizontal clearances based on field measurement taken in March 2010



**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

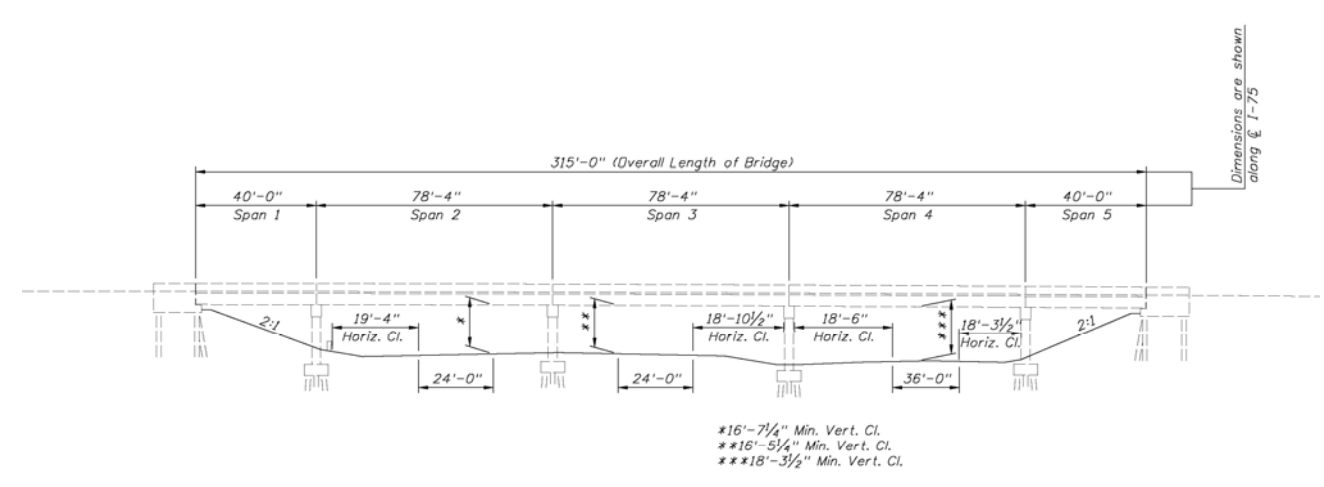
**I-75 over Symmes Road**

**Appendix D**



PLAN VIEW

BRIDGE NOS. 100363 & 100364



ELEVATION VIEW

BRIDGE NOS. 100363 & 100364

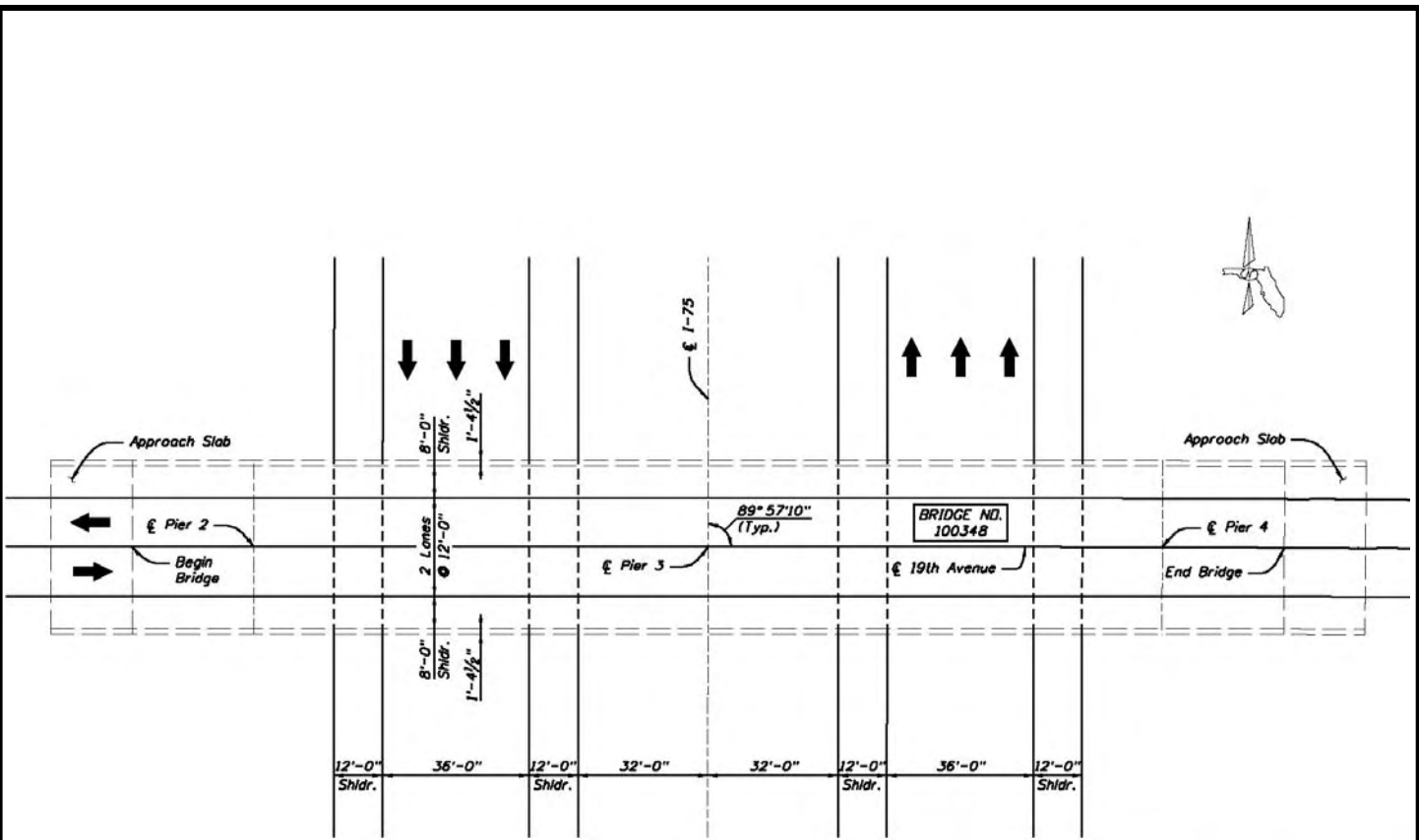
Note: Horizontal clearances based on field measurement taken in March 2010



I-75 (SR 93A) PD&E Study  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

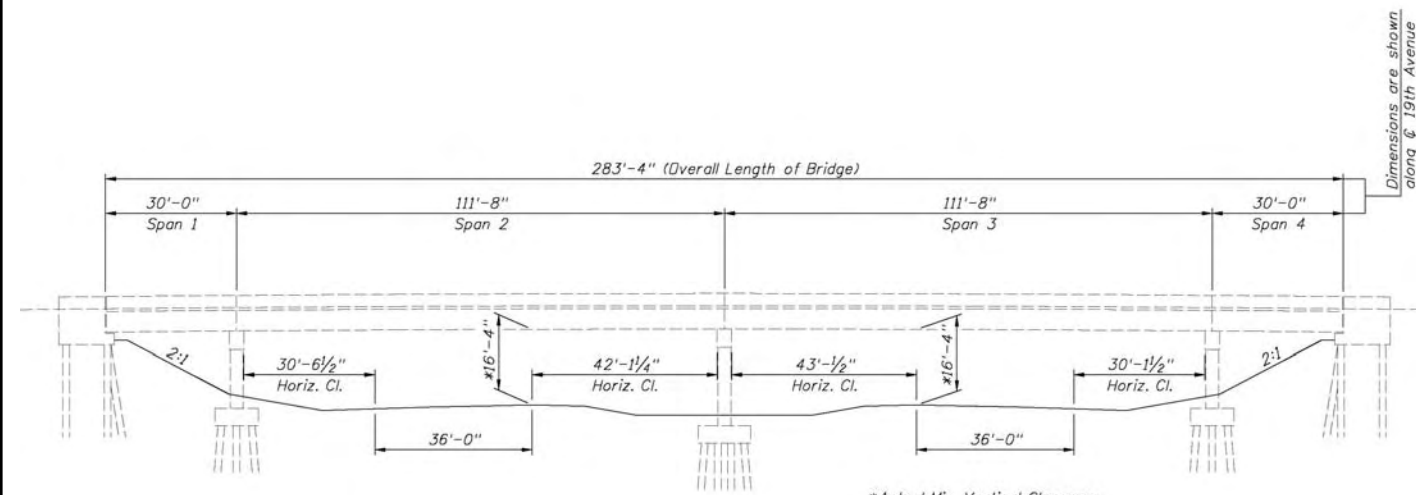
I-75 over Big Bend Road

Appendix D



PLAN VIEW

BRIDGE NO. 100348

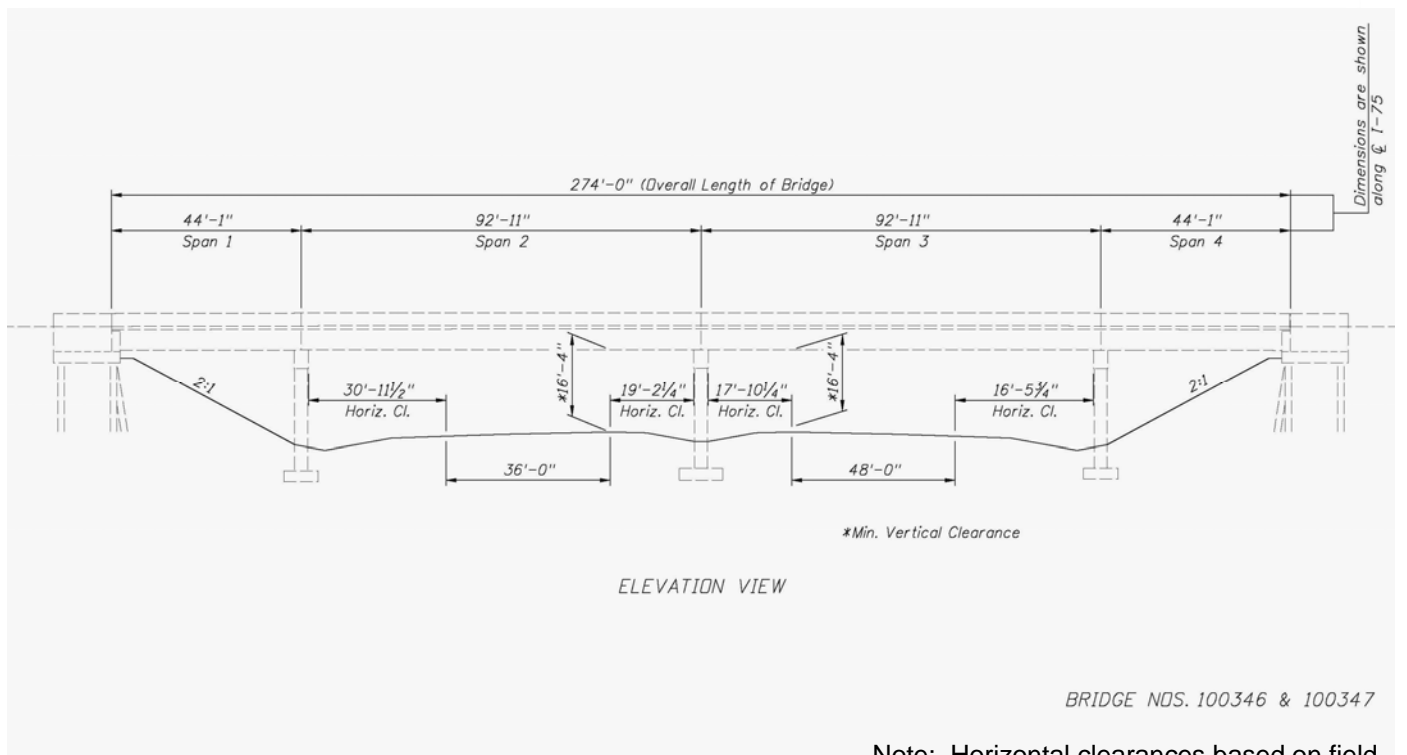
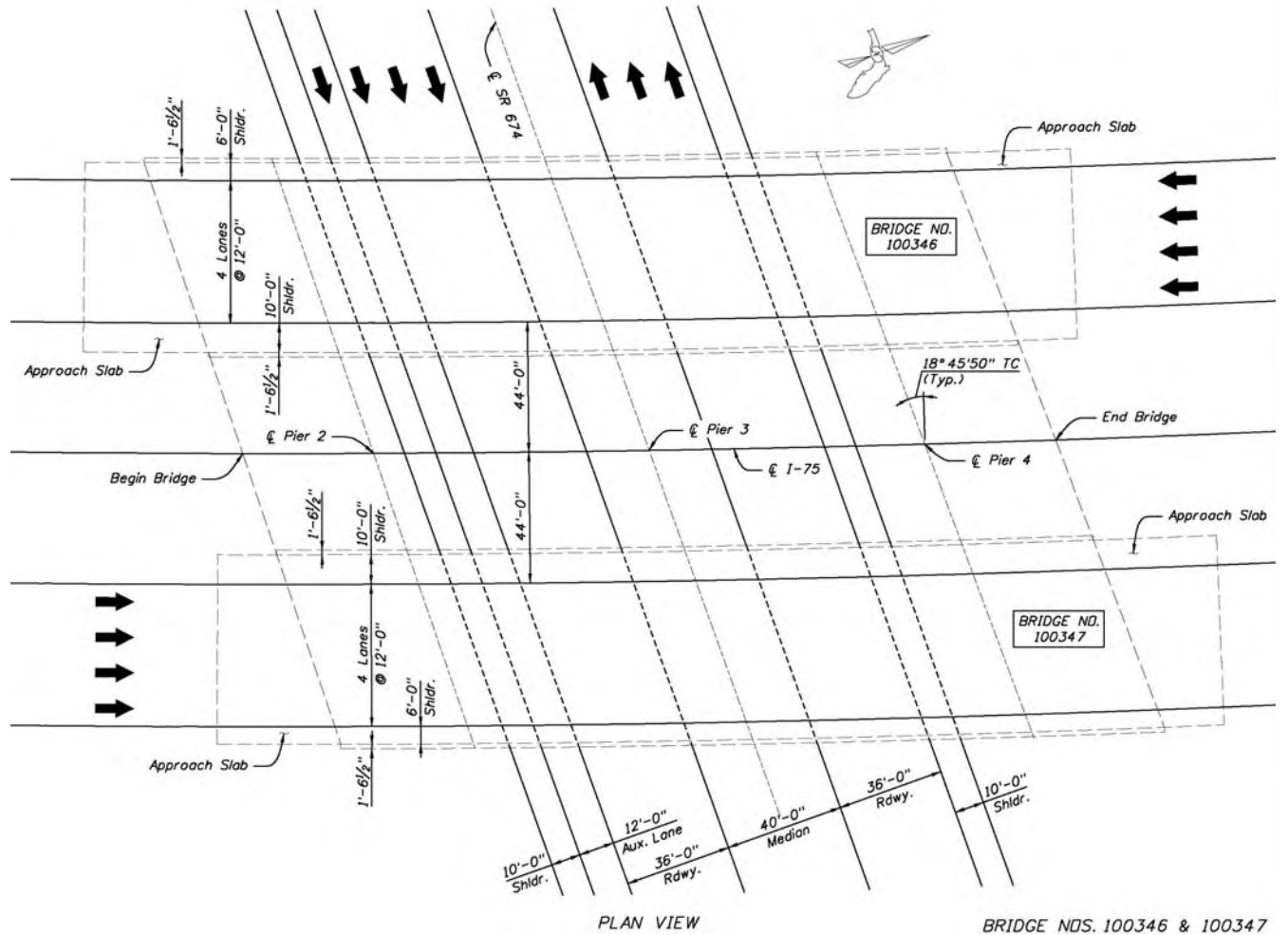


ELEVATION VIEW

BRIDGE NO. 100348

Note: Horizontal clearances based on field measurement taken in March 2010





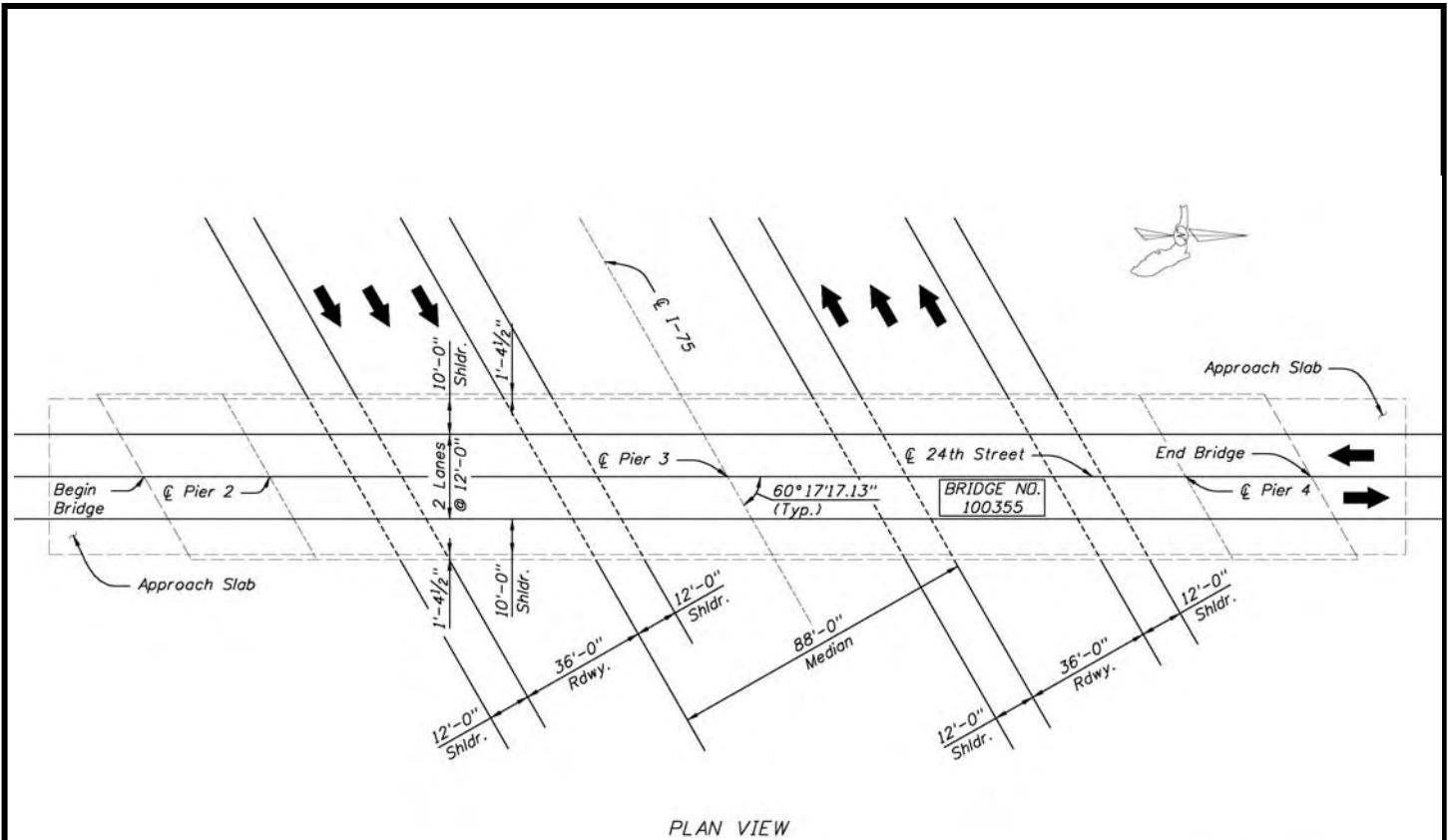
Note: Horizontal clearances based on field measurement taken in March 2010



**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

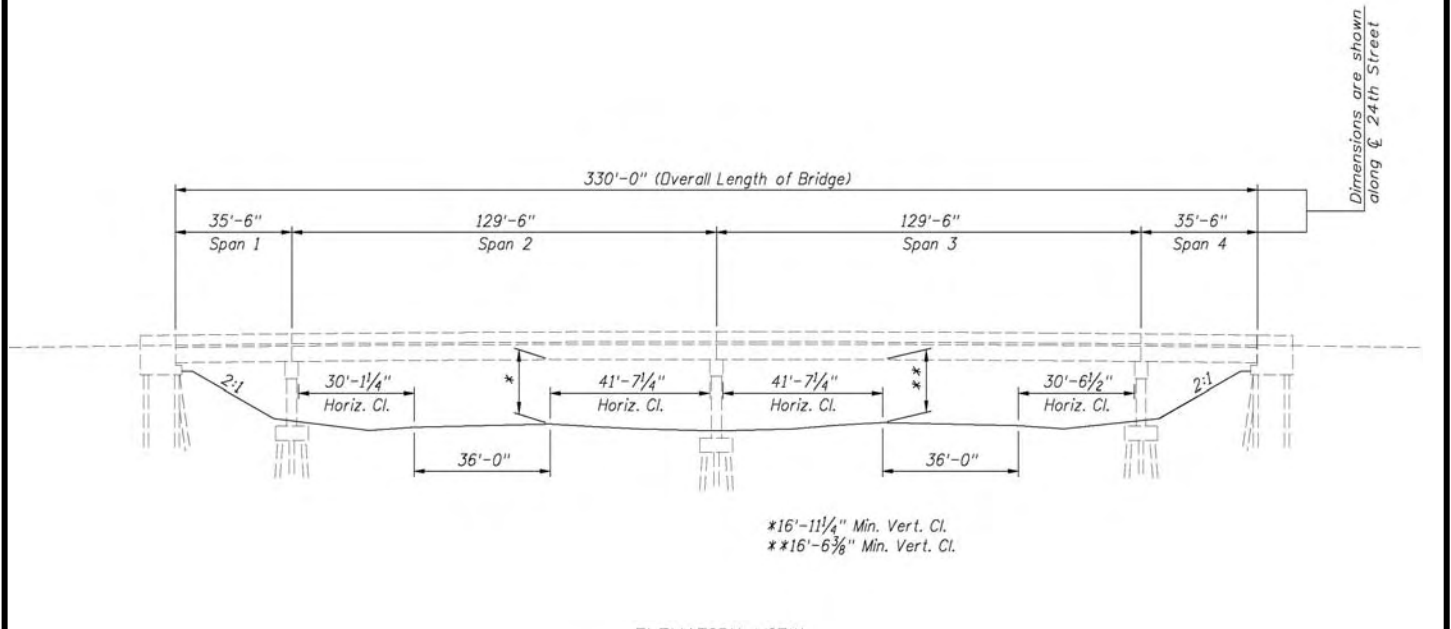
**I-75 Bridges over East College Avenue/Sun City Center Blvd (SR 674)**

**Appendix D**



PLAN VIEW

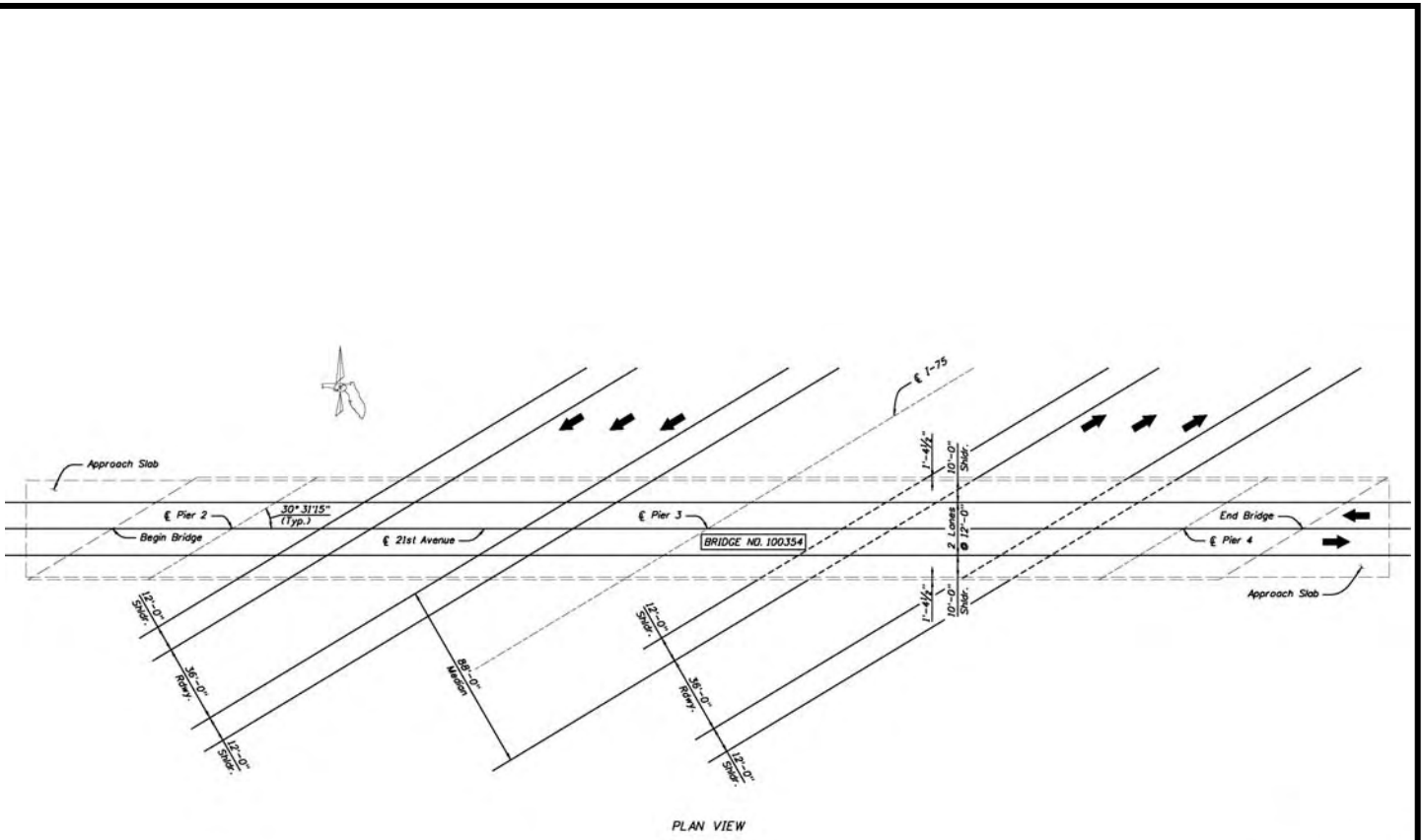
BRIDGE NO. 100355



ELEVATION VIEW

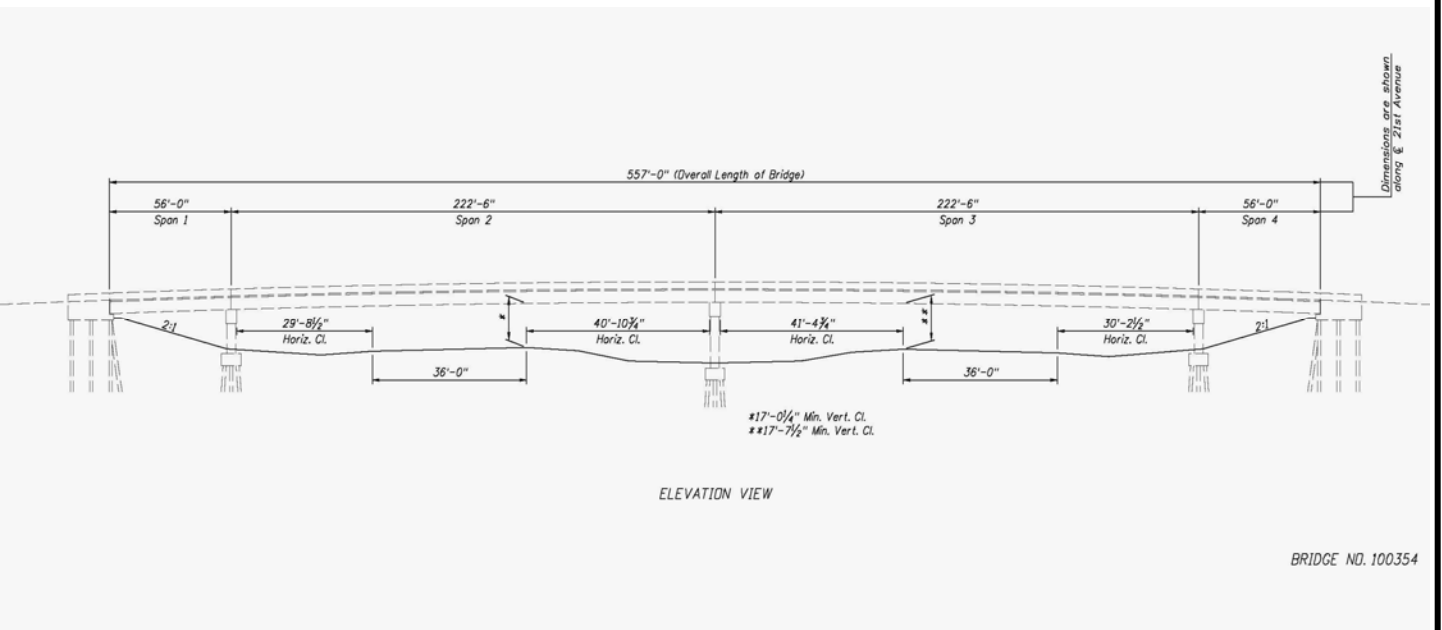
BRIDGE NO. 100355

Note: Horizontal clearances based on field measurement taken in March 2010



PLAN VIEW

BRIDGE NO. 100354



ELEVATION VIEW

BRIDGE NO. 100354

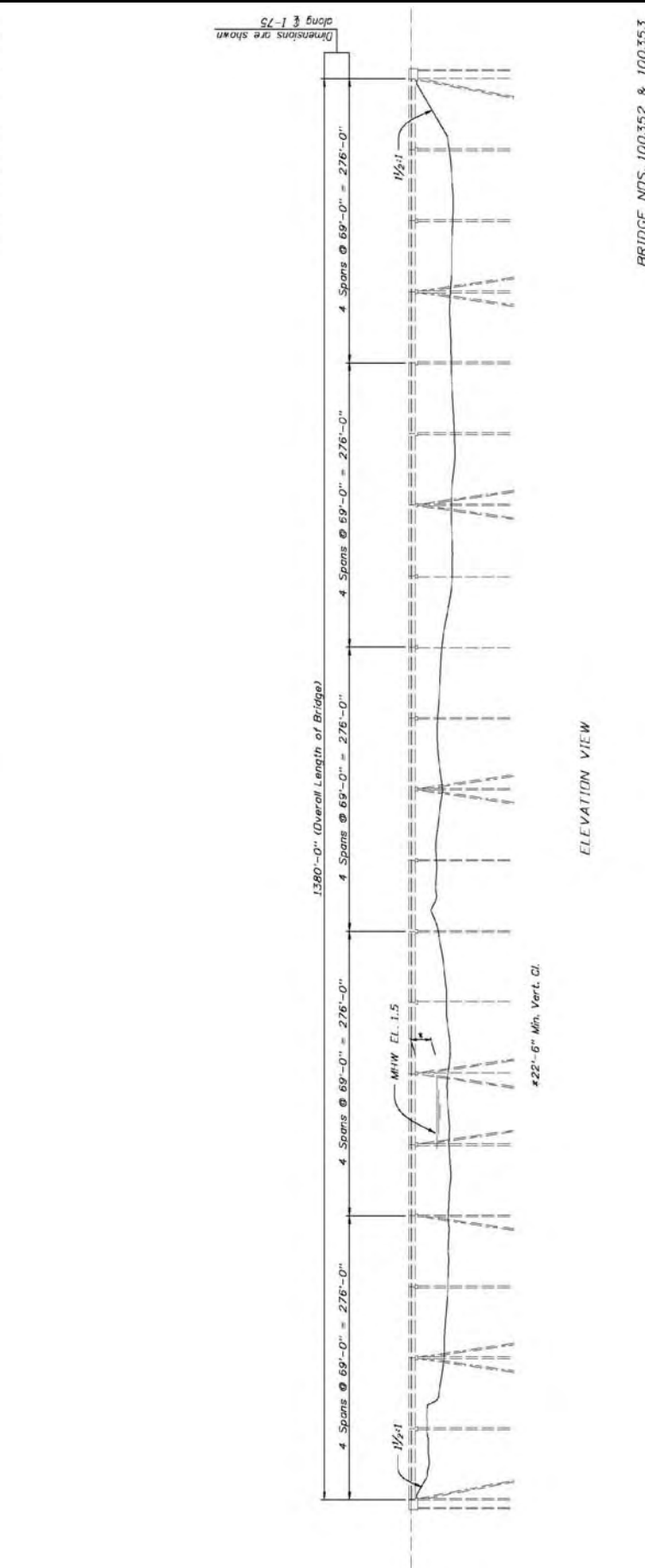
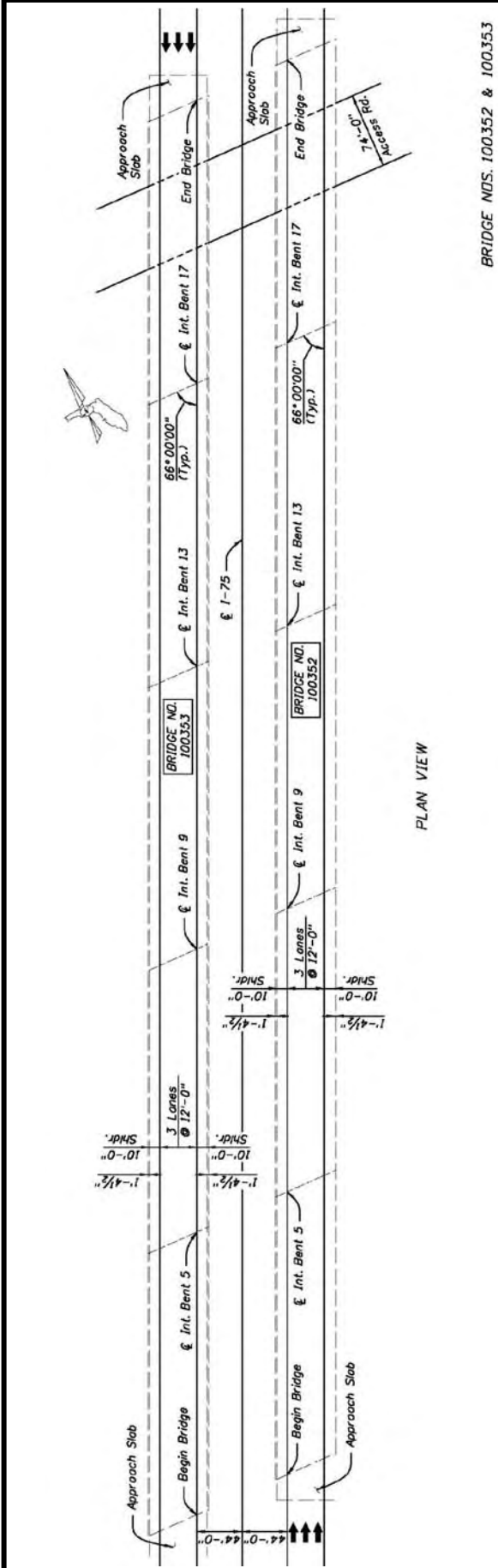
Note: Horizontal clearances based on field measurement taken in March 2010



**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

**21st Avenue SE over I-75**

**Appendix D**

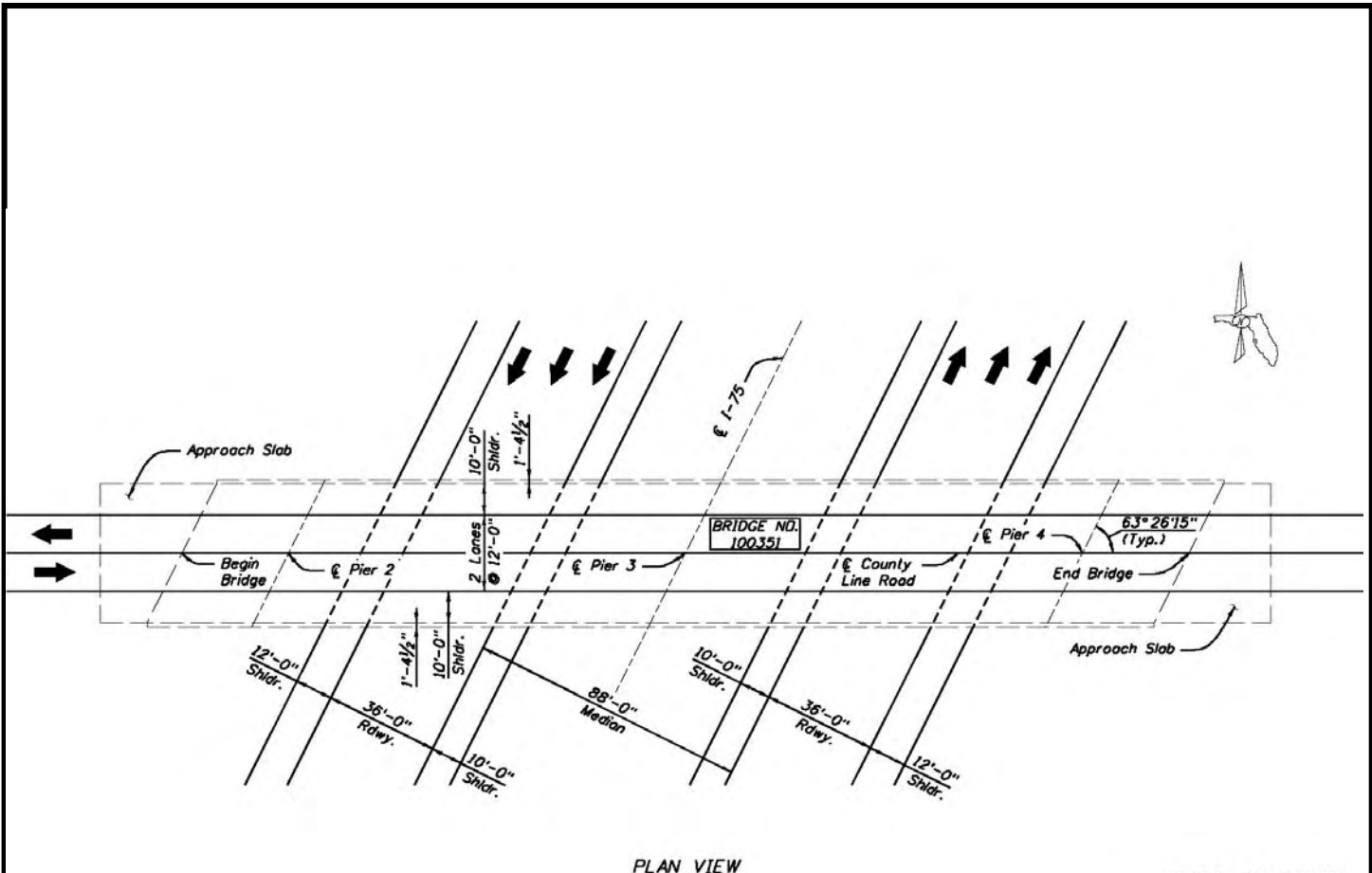


I-75 (SR 93A) PD&E Study  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

I-75 over Little Manatee River

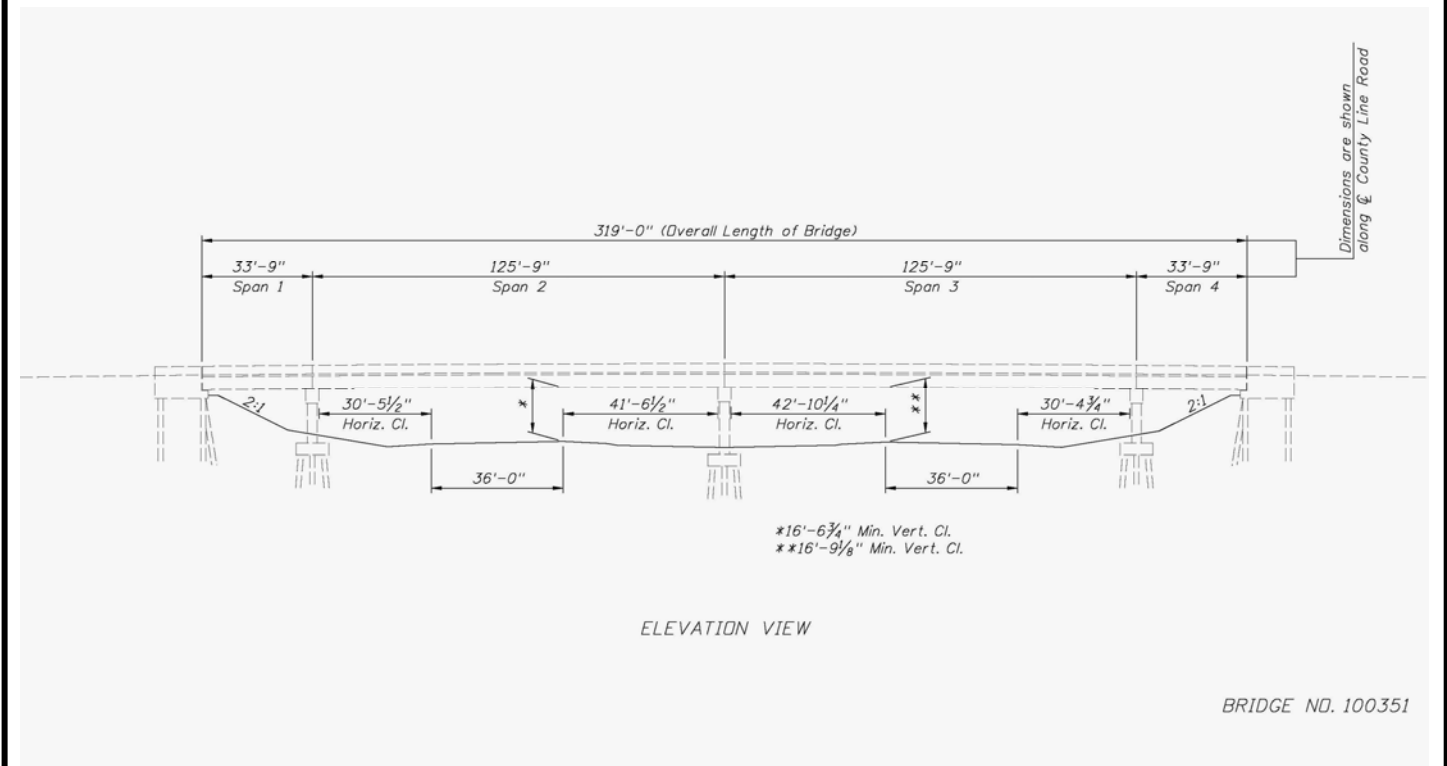
Appendix D





PLAN VIEW

BRIDGE NO. 100351



ELEVATION VIEW

BRIDGE NO. 100351

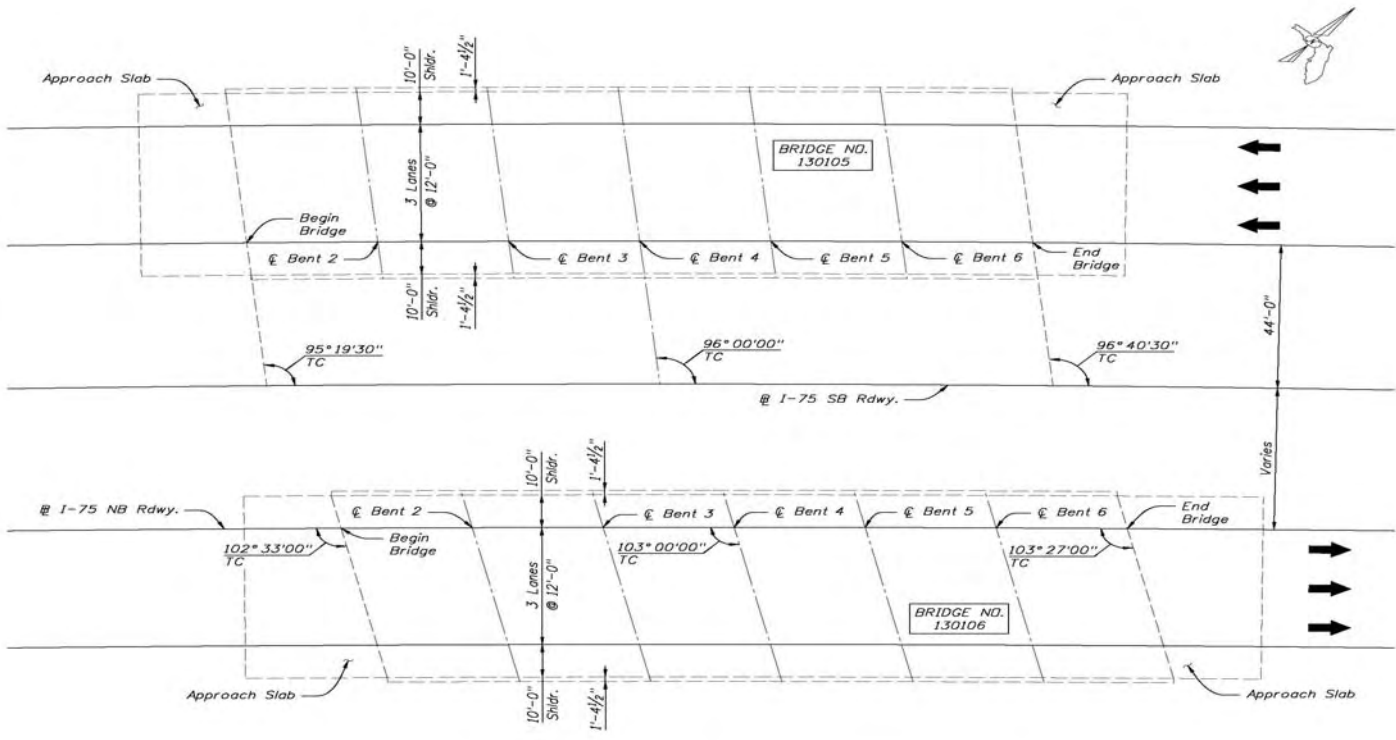
Note: Horizontal clearances based on field measurement taken in March 2010



I-75 (SR 93A) PD&E Study  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

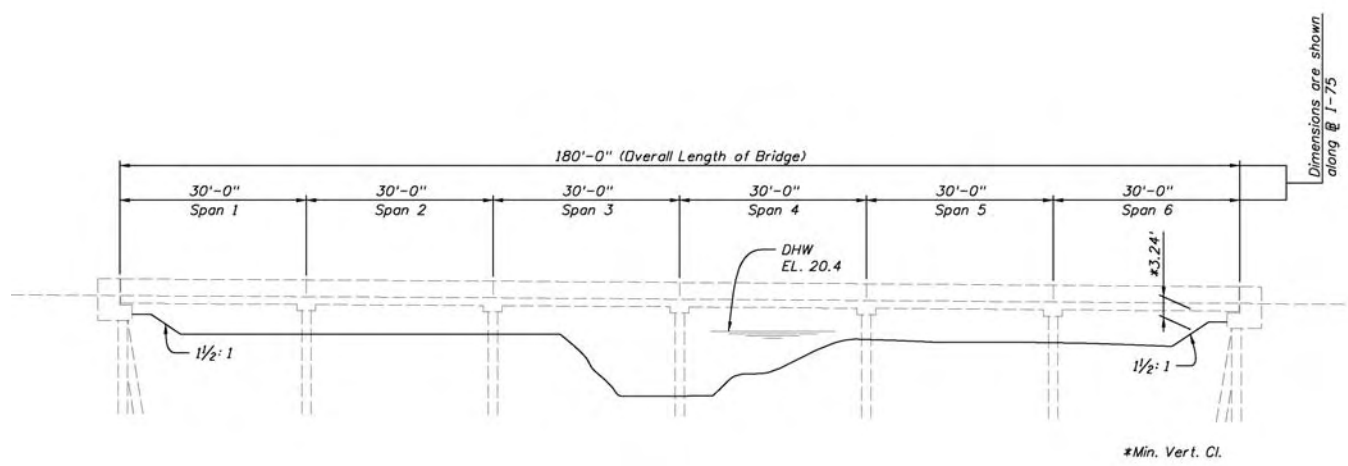
Valroy Road over I-75

Appendix D



PLAN VIEW

BRIDGE NOS. 130105 & 130106



ELEVATION VIEW

BRIDGE NOS. 130105 & 130106

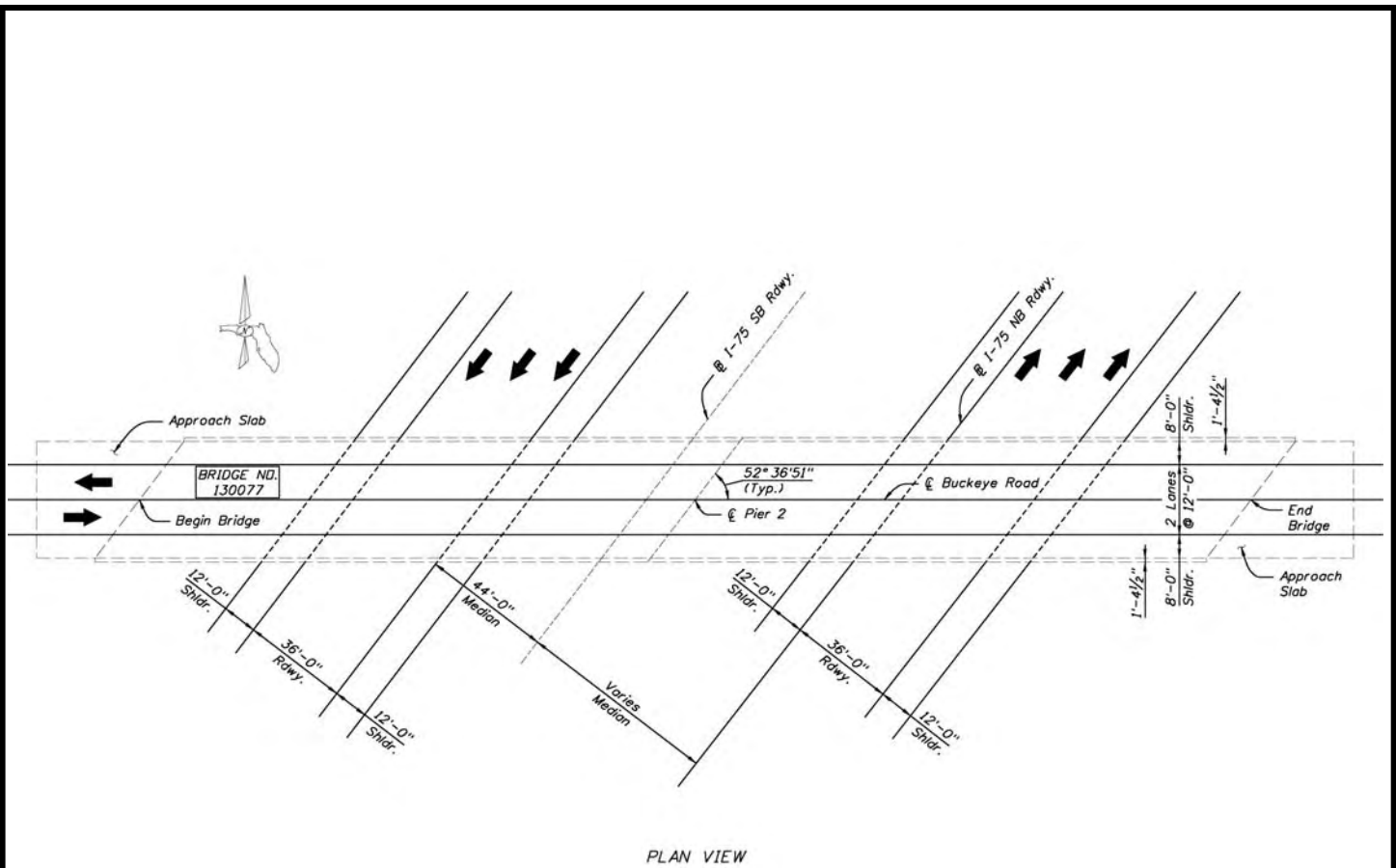
Note: Horizontal clearances based on field measurement taken in March 2010



**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

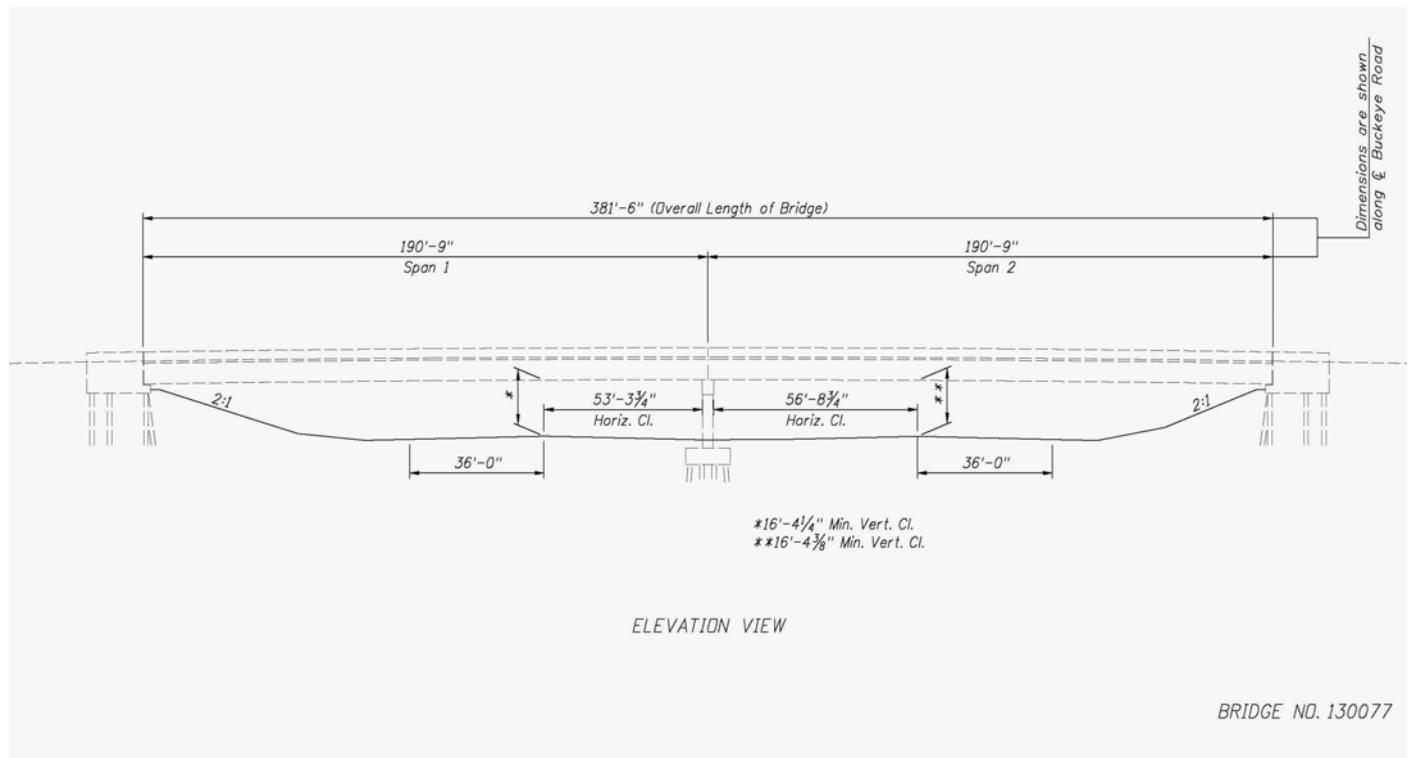
**I-75 over Curiosity Creek**

**Appendix D**



PLAN VIEW

BRIDGE NO. 130077



ELEVATION VIEW

BRIDGE NO. 130077

Note: Horizontal clearances based on field measurement taken in March 2010

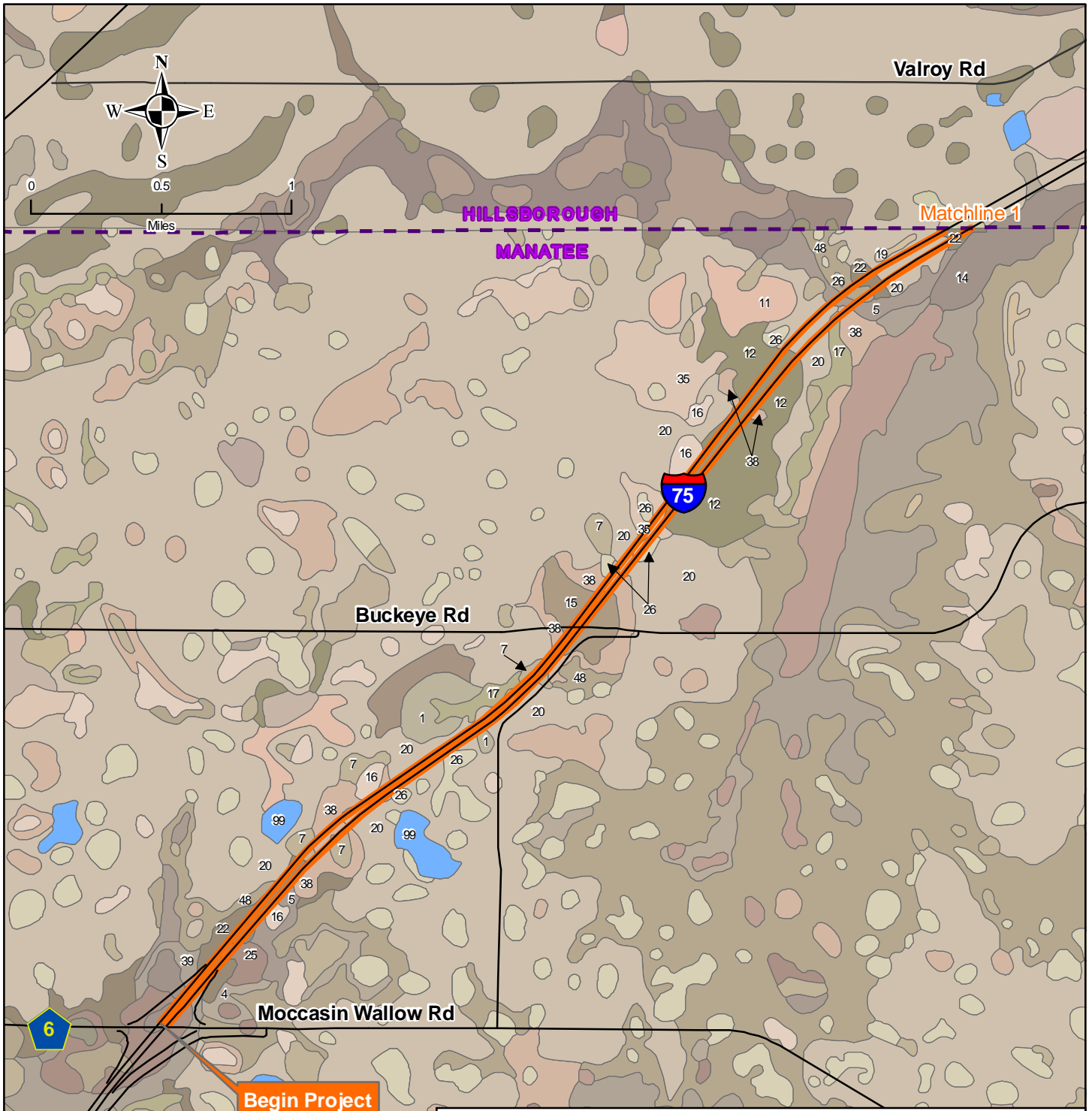


**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Rd to US 301**  
 WPI Segment No. 419235-2  
 Hillsborough and Manatee Counties

**Buckeye Road over I-75**

**Appendix D**

***Appendix E***  
***Soils Maps***



1, Adamsville variant fine sand	25, Floridana fine sand
11, Cassia fine sand	26, Floridana-Immokalee-Okeelanta association
12, Cassia fine sand, moderately well drained	35, Ona fine sand, orstein substratum
14, Chobee variant sandy clay loam	38, Palmetto sand
15, Delray mucky loamy fine sand	39, Parkwood variant-Chobee, limestone substratum
16, Delray complex	4, Bradenton fine sand
17, Delray-EauGallie complex	48, Wabasso fine sand
19, Duette fine sand, 0 to 5 percent slopes	5, Bradenton fine sand, limestone substratum
20, EauGallie fine sand	7, Canova, Anclote, and Okeelanta soils
22, Felda fine sand	99, Water

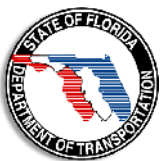
Source: U.S. Department of Agriculture, NRCS



**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Road to US 301**  
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**NRCS Soils Map**

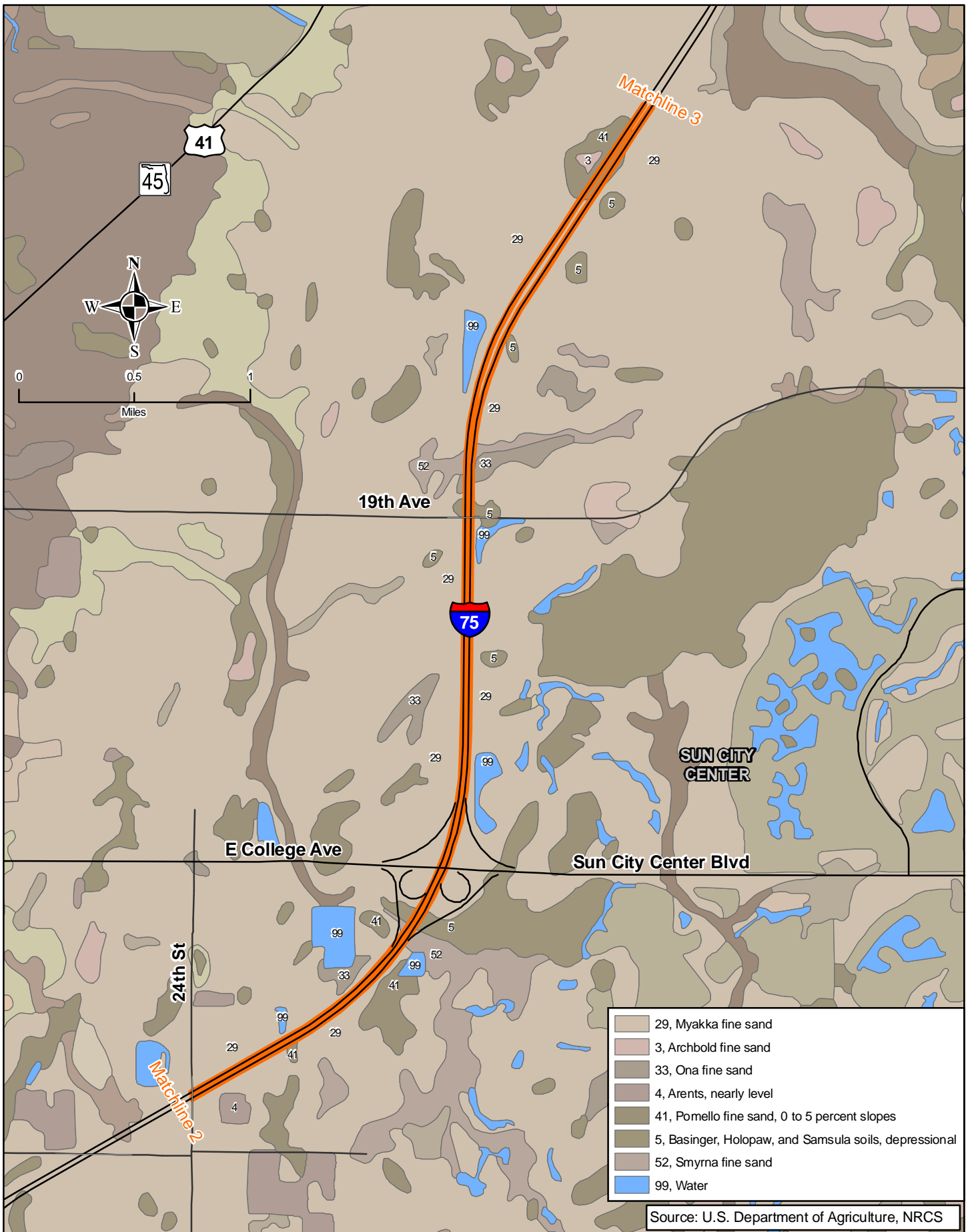
**Figure X-X**  
 Sheet 1 of 5



**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Road to US 301**  
 WPI Segment No.: 419235-2  
 Hillsborough and Manatee Counties

**NRCS Soils Map**

**Figure X-X**  
 Sheet 2 of 5



Source: U.S. Department of Agriculture, NRCS

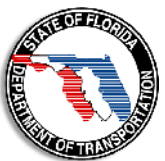
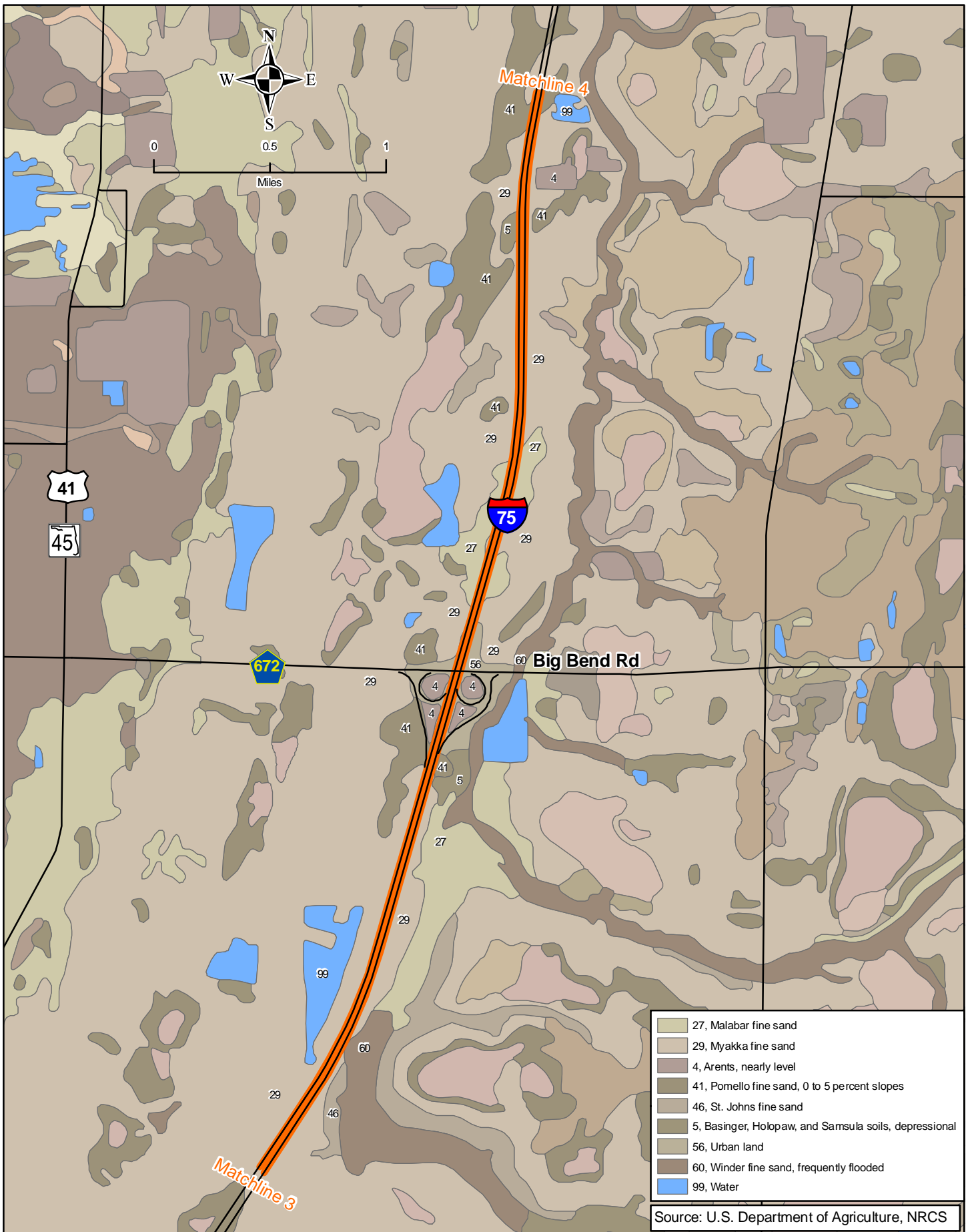


**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Road to US 301**

WPI Segment No.: 419235-2  
 Hillsborough and Manatee Counties

**NRCS Soils Map**

**Figure X-X**  
 Sheet 3 of 5

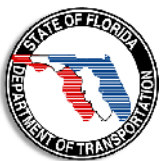


**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Road to US 301**  
 WPI Segment No.: 419235-2  
 Hillsborough and Manatee Counties

**NRCS Soils Map**

**Figure X-X**  
 Sheet 4 of 5





**I-75 (SR 93A) PD&E Study**  
**Moccasin Wallow Road to US 301**  
 WPI Segment No.: 419235-2  
 Hillsborough and Manatee Counties

**NRCS Soils Map**

**Figure X-X**  
 Sheet 5 of 5

***Appendix F***  
***Preliminary Alternatives***  
***Analysis Memorandum***  
***(PAAM)***

## **DRAFT PRELIMINARY ALTERNATIVES ANALYSIS MEMORANDUM (PAAM)**

**Date:** November 3, 2009

**Project:** I-75 (SR 93) PD&E Study from Moccasin Wallow to South of US 301

**WPI Seg. No. / County:** 419235-2 / Hillsborough

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to evaluate alternate improvements for I-75 (SR 93A) from Moccasin Wallow Road in Manatee County to south of US 301 (SR 43) in Hillsborough County. The total project length is approximately 25 miles. This study will help the FDOT and the Federal Highway Administration (FHWA) reach a decision on the conceptual design for the project corridor. Study objectives include the following: determine proposed typical sections, and develop preliminary horizontal and vertical geometry for the bridges and roadway approaches, while minimizing impacts to the environment and ensuring project compliance with all applicable federal and state laws. Improvement alternatives will be identified which will improve safety and meet future transportation demand.

A Project Development Engineering Report (PDER) has been prepared to document existing conditions and the alternatives analysis process. A Project Development Summary Report (PDSR) has also been prepared that documents the selection of the preferred alternative, and the impacts associated with the preferred build alternative. The purpose of these two reports is to document the project development decision-making process and make future roadway designers aware of the project history as well as pertinent design issues. This Preliminary Alternatives Analysis Memorandum (PAAM), however, documents alternatives that were evaluated during the early phase of the PD& E process but were discarded and not taken to the Public Workshop. The following is a summary of the alternatives evaluated and discarded:

## **1. Typical Sections**

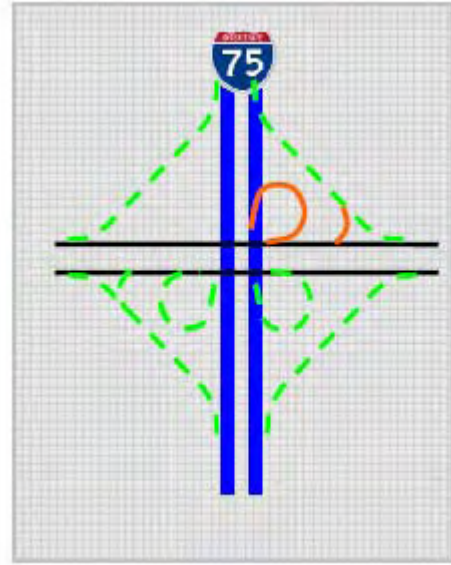
Originally, ultimate and interim typical sections (designated as Alternatives A, B, C & D) were developed (these were referenced **Figures 5-1** thru **5-4** in the First Draft PDER and is attached). After many internal brainstorming sessions and team meetings, these alternatives were dropped since they were not feasible or did not meet the objectives of the study. Typical Section A, which consisted of 3 GULs & 2 SULs in each direction with a 70-foot border width and a 56-foot median, was eliminated in order to provide a 64-foot multimodal envelope in the median. Alternative D, a variation of Alternative C, was also eliminated.

## **2. Interchange Options**

A preliminary interchange reconfigured evaluation was conducted for the three interchanges along I-75 at SR 674, Big Bend Road and Gibsonton Drive in Hillsborough County. A preliminary CORSIM analysis was conducted to help the study team visualize the design year scenario traffic conditions using year 2035 projected traffic (“Build Alternative 3”) from the *Draft Design Traffic Technical Memorandum* prepared under WPI Seg. No. 419235-1. Various interchange configurations including existing configuration, Diverging Diamond Interchange (DDI), Partial Cloverleaf, Single-Point Urban Interchange (SPUI), Partial Cloverleaf (PARCLO) with Loops, Grade-separated Overpass, flyovers etc. were analyzed at each location to visualize future traffic conditions. The evaluation was based solely on visual analysis of a preliminary CORSIM simulation of both AM and PM peak hours, as calibration/validation was not conducted for this preliminary analysis. The following interchange options were evaluated and dropped before the Public Workshop.

**Interchange Option Considered at SR 674:**

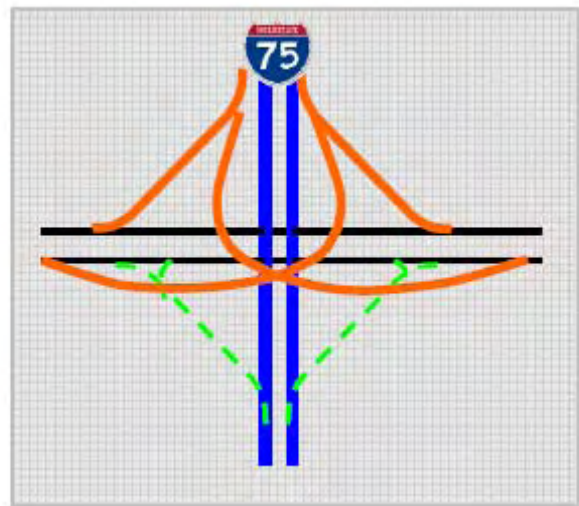
**Partial Cloverleaf (PARCLO):** The Partial Cloverleaf with two exit ramps (with one loop ramp) and one entrance ramp as shown in **Figure 1** as referenced in the PDER was analyzed for both AM and PM peak hour. The southbound off ramp traffic queues back to I-75 during the PM peak hour.



**Figure 1: SR 674 – PARCLO**

**Interchange Options Considered at Big Bend Road:**

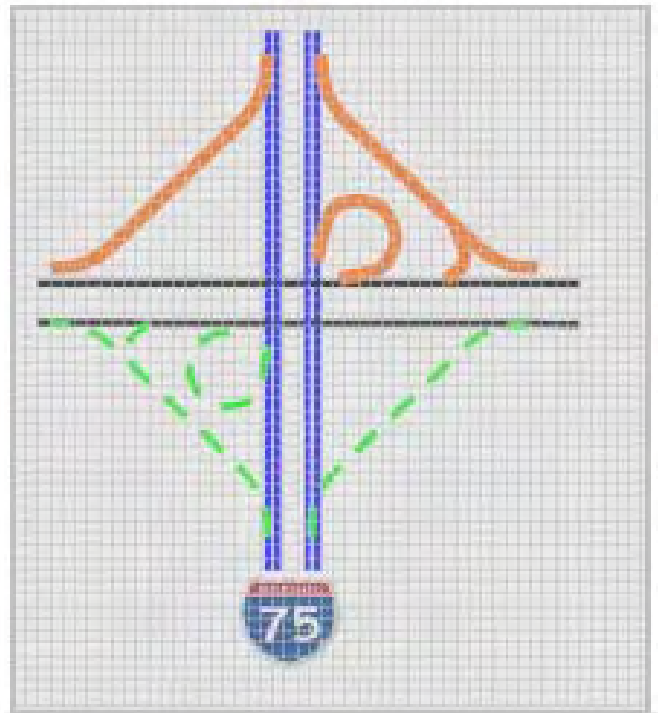
**Double Flyover:** The grade separated flyover for both southbound off ramp and northbound on ramp as shown in **Figure 2** was analyzed with both AM and PM peak hour traffic volume. The northbound on-ramp traffic was saturated along the ramps. This alternative is probably the second best alternatives based on all the other alternatives analyzed for this interchange.



**Figure 2: Big Bend – Double Flyover**

***Partial Cloverleaf (PARCLO):***

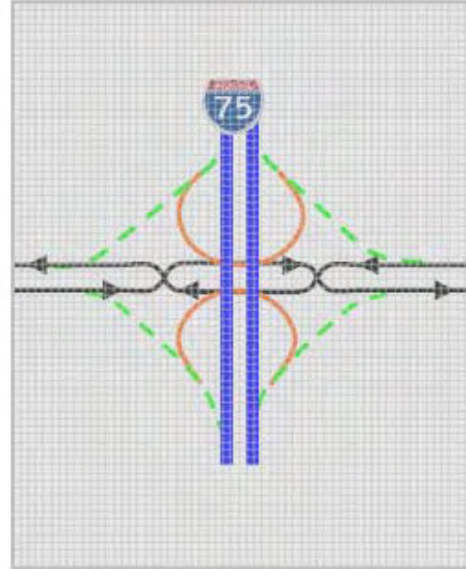
Initially the preferred option (**Figure 3**) consisted of the *partial cloverleaf (PARCLO)* developed through reconfiguring the existing interchange by deleting the WB-NB and NB-WB at-grade intersection & deleting the EB-NB entrance loop at the southeast quadrant; deleting the SB-WB intersection (may be needed for a future Mall) at the southwest quadrant; adding a SB-WB exit ramp at the northwest quadrant; and adding a NB-WB exit loop and EB – NB entrance ramp & intersection at the northeast quadrant. After presenting this option to the study team, it was suggested that the NB-EB exit loop and the WB-NB intersection at the northeast quadrant be removed and replaced with SB-EB exit loop only at the southwest quadrant.



**Figure 3: Big Bend – PARCLO**

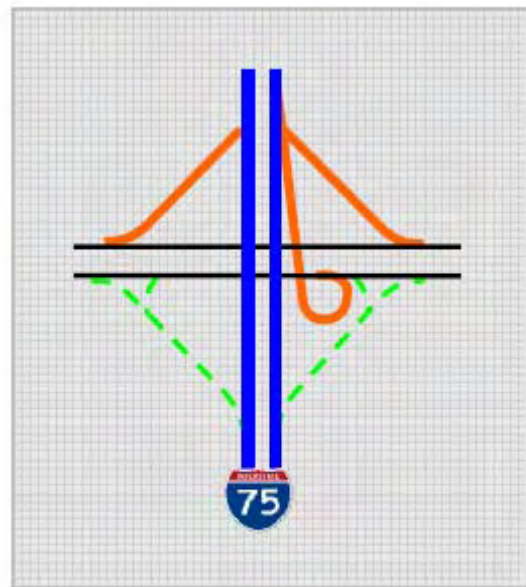
### Interchange Options Considered at Gibsonton Drive

**Diverging Diamond Interchange (DDI):** The Diverging Diamond Interchange configuration (**Figure 4**) was analyzed for the Gibsonton Drive interchange with both AM and PM peak hour traffic. The southbound off ramp and northbound on ramp traffic queues back to I-75 in the AM peak hour. The southbound off ramp traffic queues back to I-75 in the PM peak hour. Also the northbound on ramp and off ramp traffic is highly saturated during the PM peak hour.



**Figure 4: Gibsonton – DDI**

**Partial Cloverleaf with Loops:** The Partial Cloverleaf with loops on the south side as shown in **Figure 5** was analyzed with both AM and PM peak hour traffic. The southbound off ramp traffic queues back to I-75 with both AM and PM peak hour traffic. Also the northbound on ramp traffic is saturated along the ramps.



**Figure 5: Gibsonton – PARCLO with Loops**