Final
Preliminary Engineering Report

WPI Segment No.: 413622-1
FAP No.: 9045-054C

118th Avenue (CR 296) Connector PD&E Study
From US 19 to East of the Roosevelt/CR 296 Connector
Pinellas County, Florida

This Study evaluated improvement alternatives for 118th Avenue (CR 296) from US 19 to east of the Roosevelt/CR 296 Connector in Pinellas County, Florida.

December 2005

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SECTION 1 – SUMMARY

1.1 Commitments

There are no project-specific commitments applicable for this proposed project.

1.2 Recommendations

Based on the results of the Public Hearing and agency comments received to date, it is recommended that the Preferred Alternative (Build Alternative DmodG) be carried forward to the design phase for further project development. Plan and profile views of the Preferred Alternative are included in the Appendix.

The Preferred Alternative includes constructing a controlled-access facility with frontage roads along 118th Avenue which would provide traffic relief for the Ulmerton Road corridor and provide a controlled-access facility from US 19 to I-275. This alternative provides a one-lane flyover ramp for the southbound-to-eastbound movement from US 19 to 118th Avenue that would join a one-lane ramp from eastbound 118th Avenue east of US 19 and the two lanes would span 49th Street and continue east to connect to the eastbound Roosevelt Connector near 40th Street. Two-lane, one-way frontage lanes would be constructed eastbound and westbound along 118th Avenue from US 19 to east of the Roosevelt Connector that join the existing 118th Avenue at US 19 and east of 40th Street. One-lane eastbound and westbound ramp connections are shown between the frontage lanes and the elevated lanes. The intersection of 49th Street/118th Avenue would be grade separated with 49th Street and the 118th Avenue frontage lanes remaining at-grade. The Roosevelt Connector southbound-to-eastbound lanes would be elevated over 118th Avenue to a third level allowing for the introduction of a second level of the 118th Avenue (westbound and eastbound express lanes) to connect with the Roosevelt Connector and also pass over 43rd Street. The westbound 118th Avenue express lanes (two-lanes) would continue grade separated over 49th Street and join the westbound 118th Avenue frontage lanes east of US 19. This alternative would allow the intersection at 43rd Street to remain connected to the 118th Avenue frontage roads. This alternative would not disrupt the current design project at the US 19/118th Avenue interchange.

Construction of stormwater ponds would also be included for the attenuation and treatment of stormwater runoff. The Preferred Alternative would cost approximately $189 million, and it would require the potential relocation of approximately 24 businesses and governmental facilities due to the need for acquisition of additional right-of-way.

If budgetary constraints do not allow the project to be constructed as a single project, it could be separated into as many as 3 phases. The overall project should be designed at one time, however. Detailed construction plans could be prepared in sequences as construction funding allows. The first phase should be the 49th Street interchange. The second phase could either be the US 19 phase or the Roosevelt Connector phase. The determination of the second phase could depend on either funding availability or the timing of the proposed Roosevelt Connector.

SECTION 2 – INTRODUCTION

The Florida Department of Transportation (FDOT) conducted this Project Development and Environment (PD&E) Study to evaluate improvements along 118th Avenue (CR 296), from US 19 to east of the Roosevelt/CR 296 Connector in Pinellas County. The limits of this Study are within the City of Pinellas Park, and unincorporated areas of Pinellas County, Florida. The location map, **Figure 2-1**, illustrates the study area.

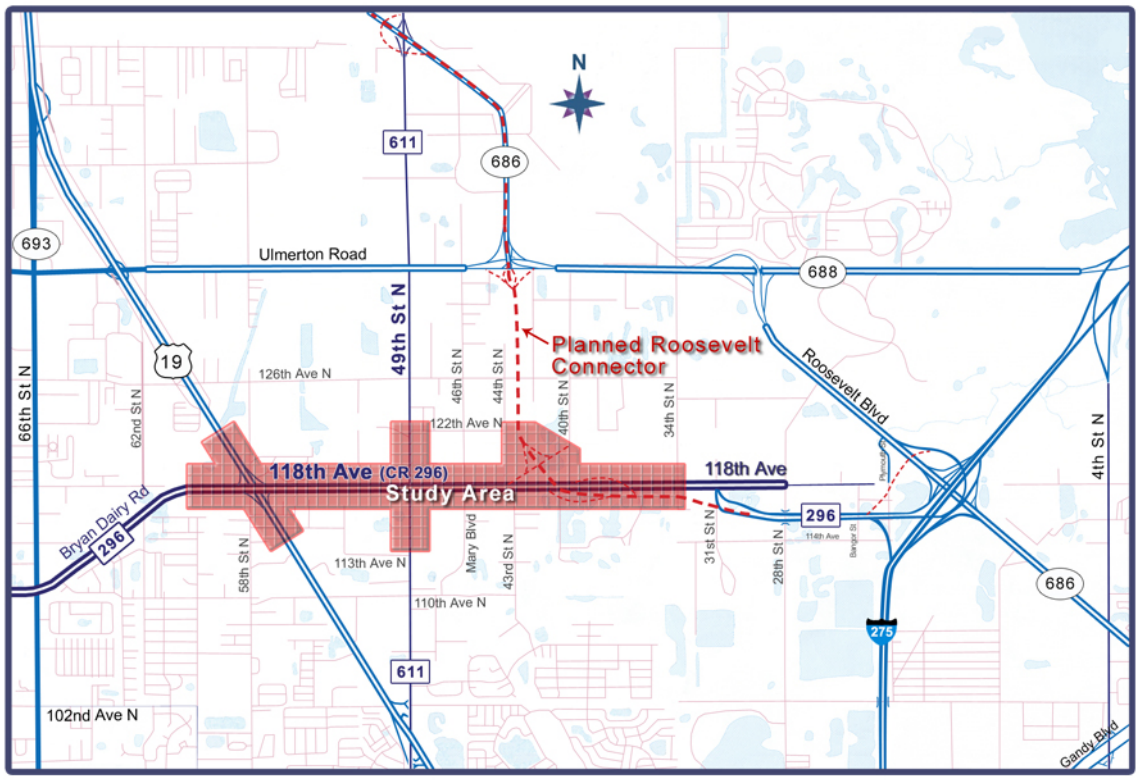

Figure 2-1 Project Location Map

2.1 PURPOSE

The purpose of the PD&E Study is to provide documented environmental and engineering analyses that assist the FDOT and the Federal Highway Administration (FHWA) to reach a decision on the type, conceptual design, and location of the proposed improvements along the 118th Avenue (CR 296) corridor to accommodate future transportation needs in a safe and efficient manner.

This report documents the need for the project and presents the procedures used to develop and evaluate various improvement alternatives as they relate to the transportation facility. Engineering data and information about the environmental characteristics of the area, which are essential to the alignment and analytical decision-making process, were initially collected as part of the *Identification of Alternatives and Preliminary Feasibility Analysis 118th Avenue (CR 296) Connector Study*, March 2004 (Feasibility Study) and have been updated as necessary. The comparison of alternatives was based on a variety of parameters using a matrix format. This PD&E Study refined the alternatives from the Feasibility Study and identified a recommended Preferred Alternative.

2.2 PROJECT DESCRIPTION

The existing 118th Avenue roadway is a six-lane divided urban roadway and is not on the Florida Intrastate Highway System (FIHS). This project's Build Alternatives include constructing a controlled access facility with frontage roads for local access along 118th Avenue from US 19 to east of the Roosevelt/CR 296 Connector in Pinellas County. The length of the study area along 118th Avenue is approximately 2 miles. Alternatives evaluated include various ramp connection configurations with US 19 and with the Roosevelt Connector as well as a grade separation of 49th Street (CR 611). The PD&E Study also included the consideration of a No-Build Alternative.

The proposed project is one of a series of interrelated projects in various stages of completion in the Gateway area of Pinellas County (Figure 2-2) Table 2-1 includes a

description of each project including timelines for construction and other phases as shown in the FDOT's current Five-year Adopted Work Program (Years 2005/06 through 2009/10).

Table 2-1: Status of Roadway Projects in Pinellas County's Gateway Area

Work Program Item: Project Name and Limits	Type of Work	Work Ongoing	Work Program Year				
			2006	2007	2008	2009	2010
257070-1: US 19 from 49th Street to 126th Avenue	Add lanes & Reconstruction	Design & Right/Way	Construction				
256994-1: SR 686 from E of 40th Street to W of 28th Street	New Road Construction	Design & Right/Way	Construction (Limited amount)	Construction			
256995-1: SR 686 (Roosevelt) from N of Ulmerton Rd to E of 40th Street	New Road Construction	Design	Right/Way (limited amount)				Right/Way
256997-1: SR 686 (Roosevelt) from 49th St. Bridge to N of Ulmerton Rd	New Road Construction	Design					
256994-2: SR 686 from NB I-275 (Ramp P) to WB SR 692 (CR 296)	New Road Construction	Design			Construction		
257139-1: SR 688 (Ulmerton Road) from E of US 19 to W of 49th Street	Add lanes & Reconstruction	Design & Right/Way	Right/Way & Construction				
403721-1: SR 688 (Ulmerton Road) from 49th Street (CR 611) to SR 686 (Roosevelt Blvd)	Resurfacing	Design	Construction				
257147-1: SR 688 (Ulmerton Road) from W of 38th Street to W of I-275	Add lanes & Reconstruction					Design	
256931-2: SR 694 (Gandy Blvd) from W of 9th Street to E of 4th Street	Add lanes & Reconstruction	Design					Design
256996-1: SR 686 (Roosevelt) at 49th Street (Southbound to Eastbound Flyover)	New Road Construction					Design	
258870-1: I-275 from N of Roosevelt Blvd. to Big Island Gap	Add lanes & Reconstruction	Construction	Construction				
256998-1: SR 686 from W of I-275 Interchange to W of 9th Street	Add lanes & Reconstruction	Design & Right/Way	Design	Design			
415190-1: SR 686 (Roosevelt) from E of CR 611 to Ulmerton Road	Resurfacing	Design		Construction			
413622-1: 118th Avenue (CR 296) from US 19 to Roosevelt/CR 296 Connector**	PD&E/EMO Study	PD&E	PD&E Study				

** Future funding depending on approval of PD&E Study

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FIGURE 2-2 PINELLAS COUNTY - GATEWAY AREA PROJECTS

DISTRICT 7

256994	CR 296 STAGE 2	256995-1	CR 296 STAGE 4	256996-1	CR 296 STAGE 6	257139-1	ULMERTON RD. STAGE 2
256998-1	CR 296 STAGE 3	256997-1	CR 296 STAGE 5	413622-1	118th AVE. PD&E STUDY	257147-1	ULMERTON RD. STAGE 6
						258870-1	CONSTRUCTION FALL 2001

257070-1	US-19 AT 118th AVE.
413622-1 (118TH) 256931-1 (GANDY)	CURRENT STUDY
	PREVIOUS CONSTRUCTION

01/27/05 PRELIMINARY-SUBJECT TO CHANGE

0 500 N

ROOSEVELT BOULEVARD (SR 686)

ST PETERSBURG - CLEARWATER INTERNATIONAL AIRPORT

FEATHER SOUND

CARILLON

CITY OF ST. PETERSBURG IMPROVEMENT

CROSS BAYOU CANAL

49TH STREET NORTH

ROOSEVELT BOULEVARD (SR 686)

38TH STREET NORTH

ULMERTON ROAD (SR 688)

ULMERTON ROAD (SR 688)

SPEEDWAY PARCEL

CR 296 CONNECTOR

40TH STREET NORTH

PRELIMINARY-SUBJECT TO CHANGE

MULTI-MODAL HUB

SPEEDWAY PARCEL

US-19 NORTH (SR 55)

CROSS BAYOU CANAL

126TH AVENUE

49TH STREET NORTH

46TH STREET NORTH

44TH STREET NORTH

34TH STREET NORTH

4TH STREET NORTH

9TH STREET NORTH

118TH AVENUE

EXPRESSWAY STUDY

BRYAN DAIRY RD.

CR 296

PINELLAS COUNTY LAND FILL

43RD STREET NORTH

28TH STREET NORTH

16TH STREET NORTH

ROOSEVELT BOULEVARD (SR 686)

GANDY BLVD.

275

January 27, 2005

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SECTION 3 – NEED FOR IMPROVEMENT

The need for improvement along the 118th Avenue (CR 296) corridor considered the following factors:

- Area Needs
  - Regional Connectivity
  - Emergency Evacuation
  - Future Population and Employment Growth in County
- Project Corridor Needs
  - Future Traffic
  - Safety
  - Transit
  - Access to Intermodal Facilities and Freight Activity Centers
  - Bikeways and Sidewalks.
- Consistency with Transportation Plan

3.1 AREA NEEDS

3.1.1 Regional Connectivity

Regional connectivity would be enhanced with improvements to 118th Avenue in two ways. The first is to provide a regional connection to provide parallel relief to adjacent facilities, and the second is to provide a controlled-access connection between two facilities on the Florida's Strategic Intermodal System (SIS), US 19 and I-275.

The *Pinellas County Metropolitan Planning Organization (MPO) 2025 Long Range Transportation Plan* (*2025 LRTP*) states that improvements to "the 118th Avenue Expressway connecting CR 296 from US Highway 19 to the planned Roosevelt/County Road 296 Connector…furthers the MPO's effort to provide a parallel reliever to Ulmerton Road."

The 2003 Florida Legislature enacted Sections 339.61 through 339.64 of the Florida Statutes that created the SIS. The SIS is comprised of a system of facilities including highways, rail, and waterways that transport residents, tourists and goods within Florida and to and from the United States to international markets. The SIS includes US Highway 19 and Interstate 275. In 2003, Stage I of the Roosevelt Connector was constructed as a controlled access facility west from Interstate 275 to the vicinity of 28th Street. Stage II is planned to extend this facility from 28th Street to 40th Street. Near 40th Street, the Build Alternatives of the 118th Avenue PD&E Study would provide connection to the Roosevelt Connector to the west along 118th Avenue to US 19, providing a controlled-access connection of US 19 to Interstate 275. In a letter dated March 23, 2004, the City of Saint Petersburg requested the FDOT to consider adding CR 296/118th Avenue to the SIS as an "emerging facility." 118th Avenue from US 19 to East of 40th Street was identified as a regional roadway by the West Central Florida MPO's Chairs' Coordinating Committee (CCC) and included in the Regional Roadway Network and the Regional Long Range Cost Affordable Plan.

3.1.2 Future Population and Employment Growth in County

Per the socio-economic data used in the development of the *2025 LRTP*, the population growth for Pinellas County from 1999 to 2025 is expected to grow from 893,415 to 962,095 (an increase of 7.7 percent). Employment is also expected to increase from 497,887 to 584,900 (an increase of 17.5 percent). With less than seven percent of the land area in the county consisting of vacant property suitable for development, future growth in the county is expected to revolve around redevelopment and infill development activity.

3.2 PROJECT CORRIDOR NEEDS

3.2.1 Future Traffic

Traffic projections indicate the volume of traffic on CR 296 just east of US 19 will approach 65,000 AADT for the year 2025. Based on the FDOT's Level of Service tables for a non-state roadway, the level of service on CR 296 in the project study area is expected to be operating at Level of Service F by the year 2016 without any

improvements. Within the Study area, CR 296 is designated for implementation of Intelligent Transportation System (ITS) implementation in the *2025 LRTP*.

3.2.2 Safety

Crash data collected from the 6-year period of 1999-2004 indicate 330 crashes were reported to have occurred within the Study limits (between US 19 and 40th Street). There is no indication that the crash rate is unusually high for this type of facility.

3.2.3 Transit

The Pinellas Suncoast Transit Authority currently operates fixed route service (bus routes 52, 58 & 98) on 118th Avenue within the Study limits. There are no new transit improvements proposed, as a part of this project.

3.2.4 Access to Intermodal Facilities and Freight Activity Centers

Within the Study area, CR 296 has been designated as a truck route in the *2025 LRTP*. St. Petersburg-Clearwater International Airport is located approximately 2 miles north of the Study area.

3.2.5 Bikeways and Sidewalks

CR 296 currently has sidewalks, but no provisions for bicyclists. The *2025 LRTP* indicates the need for provisions for future on-road bicycle lanes within the Study area.

3.3 CONSISTENCY WITH TRANSPORTATION PLAN

Improvements are identified as "East-West 118th Avenue Expressway from US Highway 19 to East of 40th Street/CR 296", in the *2025 LRTP* completed in December 2001 and the *Pinellas County Comprehensive Plan* which was adopted February 17, 1998 and last amended on April 27, 2004.

SECTION 4 – EXISTING CONDITIONS

4.1 EXISTING ROADWAY CHARACTERISTICS

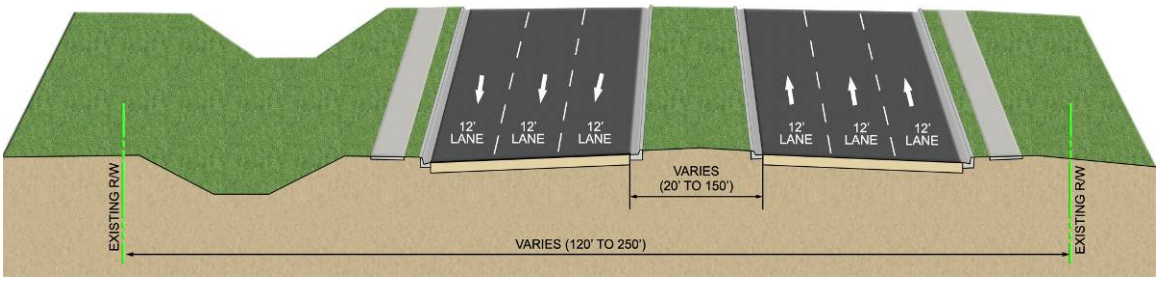
4.1.1 Functional Classification

118th Avenue (CR 296) is an east-west facility that is owned by Pinellas County, Florida. The section of CR 296 to the west of US 19, locally named Bryan Dairy Road, is a controlled access facility. The section of CR 296 from US 19 eastwardly, locally named 118th Avenue, toward the vicinity of 40th Street, is a six-lane divided urban roadway. The roadway is functionally classified as a minor arterial by the Pinellas County MPO.

4.1.2 Typical Section(s)

Within the project limits, 118th Avenue is a six-lane divided urban highway section with 12-foot lanes. The grass and concrete raised median is generally 20 feet wide. The typical section changes between 40th Street and 34th Street where the median widens to over 150 feet, which creates separate intersections with 40th Street and 34th Street on westbound and eastbound 118th Avenue. A five-foot sidewalk is provided on both sides of 118th Avenue for most of the project limits. The present posted speed limit is 45 mph. See **Figure 4-1** for the existing typical section of 118th Avenue.

Figure 4-1: Existing Typical Section on 118th Avenue from US 19 to East of the Roosevelt/CR 296 Connector



4.1.3 Pedestrian and Bicycle Facilities

The study area lies within the confines of the Pinellas County MPO 2025 Long Range Transportation Plan – Bicycle Plan (9/11/02) and is shown on the 2002 Pinellas Trail Network map, as shown in **Figure 4-2**.

The Pinellas Trail Network Plan identifies one proposed trail within the project corridor: the Progress Energy Extension of the Pinellas Trail. There are no other known existing or future bicycle facilities within the project limits. A sidewalk exists on both sides of 118th Avenue for most of the project limits. The Pinellas Suncoast Transit Authority (PSTA) maintains bus stops (bus routes 52, 58 and 98) within the study area.

4.1.4 Right-of-way

The existing right-of-way width varies from approximately 120 feet to 175 feet between US 19 and 43rd Street. East of 43rd Street, the right-of-way width varies from approximately 120 feet to 250 feet in the vicinity of the proposed Roosevelt Connector.

4.1.5 Horizontal Alignment

The existing horizontal alignment along 118th Avenue is mostly along an east-west tangent throughout the study corridor. There is a slight alignment shift just east of US 19 and west of 49th Street.

4.1.6 Vertical Alignment

The existing vertical alignment was determined through the use of contour maps from the Southwest Florida Water Management District (SWFWMD) supplemented with as-built plans and limited ground survey.

Throughout the majority of the study corridor, the existing vertical alignment is relatively flat with all grades no less than 0.3 percent. The vertical grade varies at the east end of the study area where connection is made to the recent construction of 118th Avenue east of 28th Street to I-275.

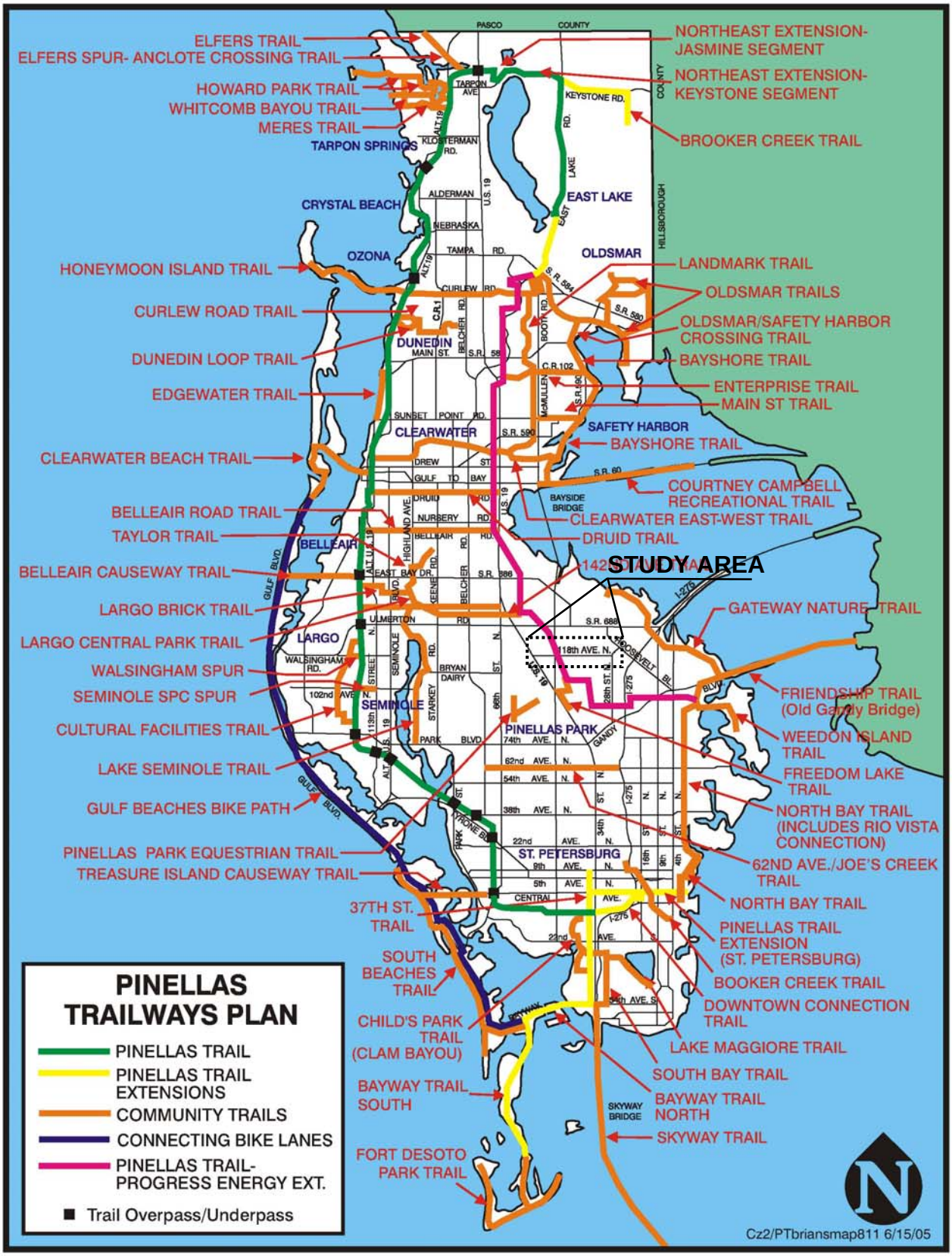


Figure 4-2 Pinellas Trail Network Map

4.1.7 Drainage

The project area is included within two drainage basins: the Cross Bayou Canal ("Basin 1") and the Roosevelt Basin ("Basin 2"; **Figure 4-3**). Information contained in this section was obtained from drainage maps prepared by a design consultant in 1990 and 1991 in addition to field visits.

The roadway stormwater runoff is collected in a stormwater conveyance system that includes ditches and a storm sewer system. The portion of the system that is within the Cross-Bayou Basin (Basin 1) is divided into two subbasins: subbasin #1 drains to a detention pond located at the southeast corner or US 19 and 118th Avenue, which connects to a ditch on the north side of Bryan Dairy Road, which eventually outfalls to the Cross Bayou Canal. Subbasin #2 drains to a detention pond located on the west side of wetland W7. This pond is designed to overflow to a mitigation area on the west side of the wetland.

According to the 1990-1991 drainage maps, the divide between Basins 1 and 2 is located approximately 700 ft to the east of 49th street. The portion of the project which drains to the Roosevelt basin is also divided into two subbasins and detained in two ponds on the north side of 118th Avenue to the west of 40th Street North. The flow is the conveyed from south to north along Tributary No. 5 adjacent to the Pinellas County solid waste facility and on the west side of 40th Street North.

There is an existing storm sewer system in place along the entire length of the project. To the east of 49th street, there is a 8'x 6' box culvert that connects Tributary No. 5 to the Roosevelt Basin under 118th Ave. The location of the box culvert is to the west of the solid waste facility. To the west of 49th street are 4 cross drains that convey the flow from the south side of 118th Avenue to the north. The first connects the pond on the west side of wetland W7 to the conveyance ditch on the north side of 118th Avenue via 3-36" reinforced concrete pipes (RCP). The second is 1-48" RCP that connects to the conveyance system east of the Breyer's Ice Cream facility. There are two 24" RCP that convey stormwater from the south to the north, one located approximately 1125 feet to

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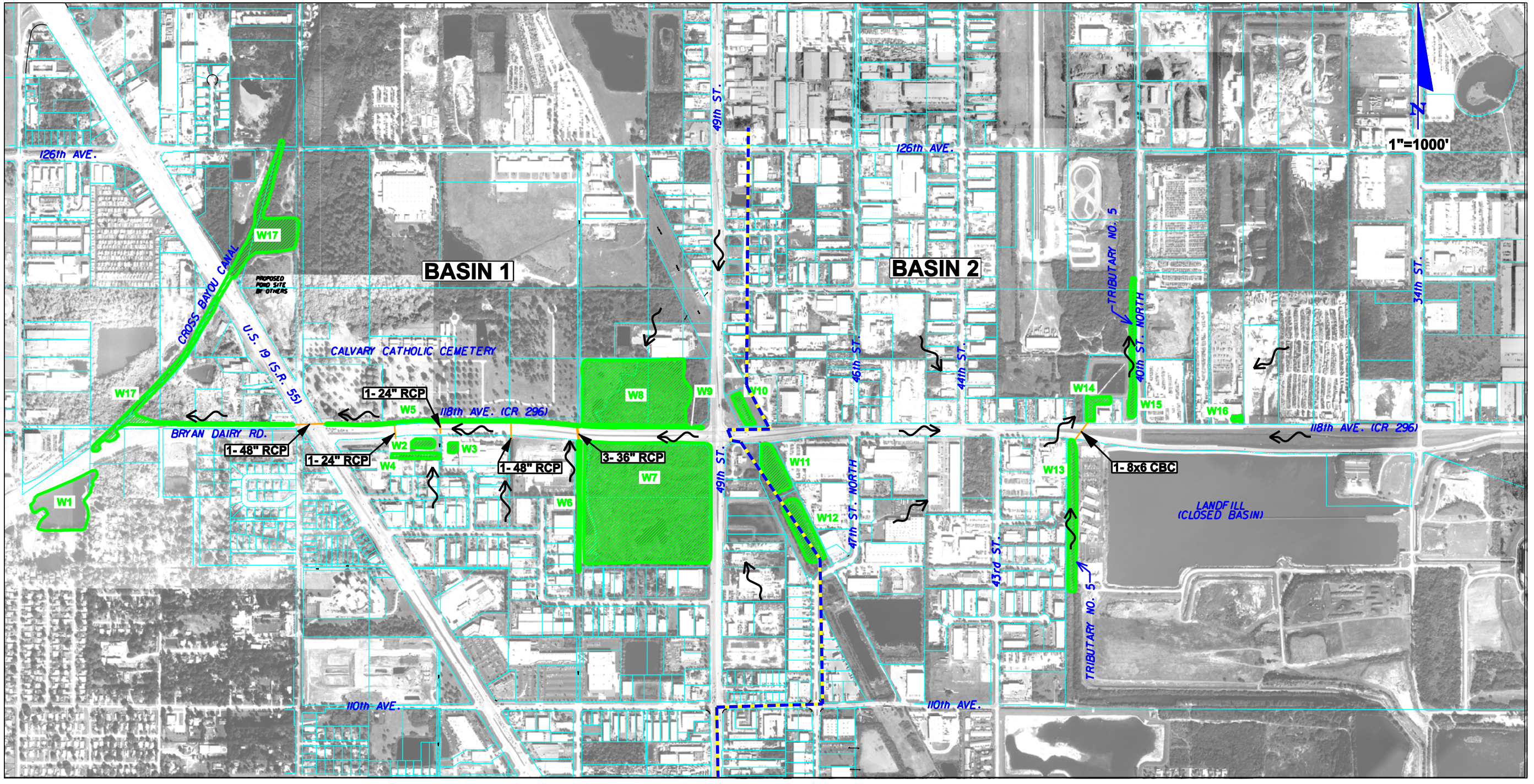

LEGEND

- BASIN DIVIDE
- EXISTING DRAINAGE STRUCTURE
- EXISTING ROW AND PROPERTY LINES
- WETLAND AND OTHER SURFACE WATERS BOUNDRY

CBC = CONCRETE BOX CULVERT

RCP = REINFORCED CONCRETE PIPE

DATE OF AERIAL: October 4, 2004
SOURCE: Field Reviews and drainage maps prepared by URS/Greiner in 1990 & 1991.

DRAINAGE BASINS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

American
Consulting Engineers of Florida, LLC
4111 Land O' Lakes Blvd. Suite 210
Land O' Lakes, Florida 34639
Phone: (813) 996-2800 Fax: (813) 996-1908
Certificate of Authorization No. 7110
Jeffrey S. Novotny, P.E. No. 51083

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 296	PINELLAS	413622-1-22-01

Generalized Drainage Map

FIGURE NO. C1

09/02/2005 02:28:09 PM F:\Project\503118\environmental\LHR_Source_Files\DrainageMap.dgn

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the east of US 19 and one located approximately 700 feet east of US 19. **Table 4-1** summarizes these facilities, which are also shown in the drainage map figure.

Table 4-1
Existing Drainage Structures

Structure Number	Type of Drainage Structure	Approximate Distance from US 19	Flow Direction
1	1 - 48" RCP	Crosses US 19, North of 118th Ave Intersection	East to West
2	1 - 24" RCP	700' east	South to North
3	1 - 24" RCP	1125' east	South to North
4	1 - 48" RCP	1790' east	South to North
5	3 – 36" RCP	2420' east	South to North
6	1 - 8x6 CBC	7200' east	North to South

4.1.8 Geotechnical Data

The Natural Resources Conservation Services (NRCS) Soil Survey for Pinellas County was reviewed with respect to geology and near-surface soil conditions in the project area and surrounding areas. The survey showed that multiple soil types exist within the corridor. The primary soils in the area are Myakka, Wabassa, and Elred soil types. Myakka and Elred soils are level, poorly drained sandy soils. The estimated seasonal high water table is at a depth of 0-1 feet or greater, based on the soils present. A soils map figure in included in **Figure 4-4**.

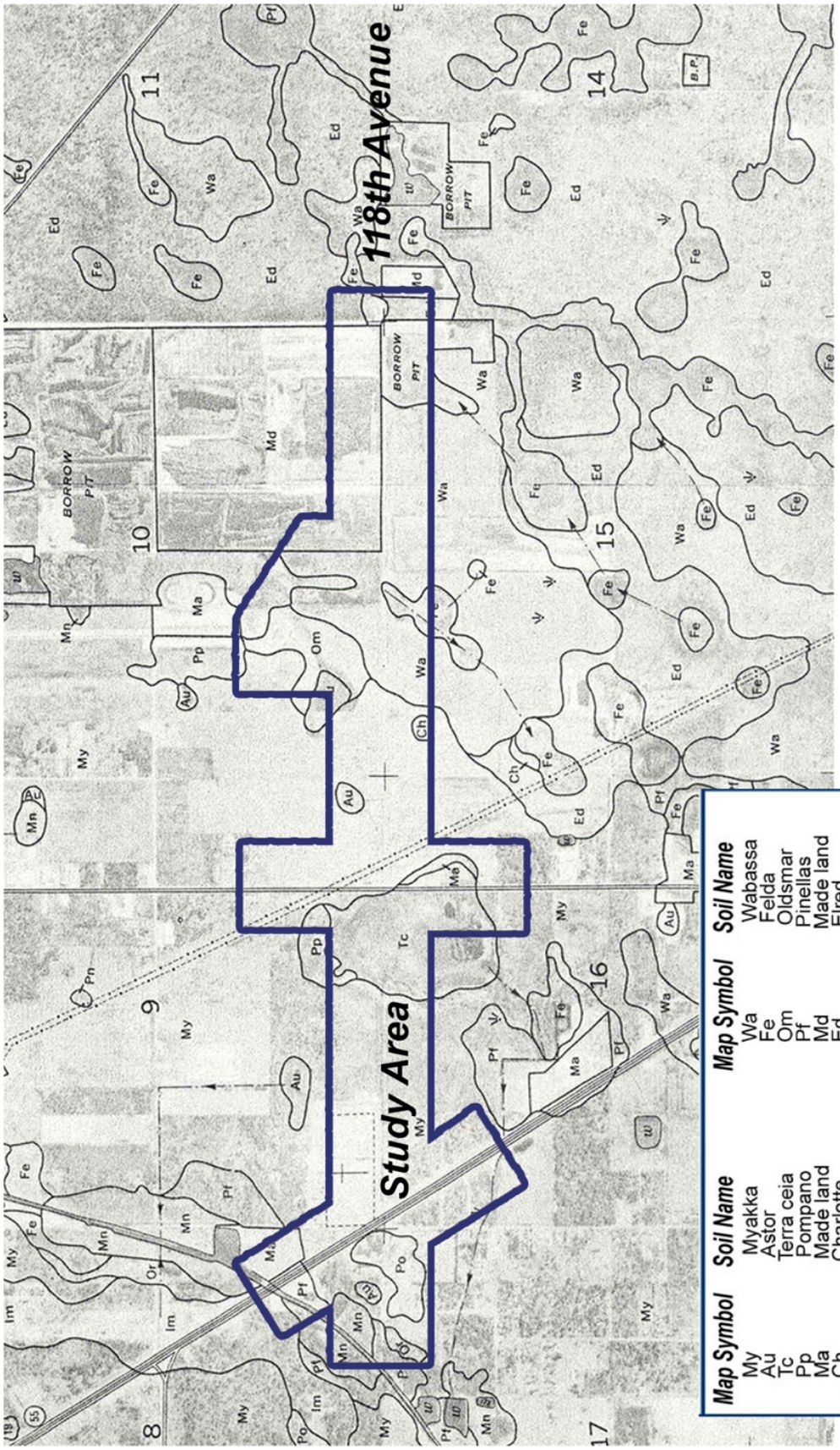


Figure 4-4 USDA Soils Map

4.1.9 Crash Data

To evaluate traffic safety within the study area, crash records for the 6-year period between 1999 and 2004 (inclusive) were obtained within the project corridor from the Pinellas County MPO. **Table 4-2** summarizes the types of crashes reported in addition to the total number of crashes reported at or near each intersection, by year.

Over 50 percent of the reported crashes were rear-end collisions, which may be related to the high speeds during off-peak periods and the heavy traffic congestion during peak periods. For the 330 reported crashes during this 6-year period, there were a total of 131 injuries and 3 fatalities. The highest number of crashes occurred at the intersection of 118th Avenue/US 19, as expected, due to the high intersecting traffic volumes.

Table 4-2
Summary of Reported Traffic Crashes Within the Corridor
(For 118th Avenue (CR 296) Between US 19 and East of 40th Street North)

	Crashes By Type								Severity	
Yr.	Rear End	Head On	Angle	Left Turn	Side swipe	Coll. w Bike/ Ped.	Single-Veh/ Other	Tot.	# of Injur-ies	No. of Fatal-ities
99	20	0	6	5	4	0	3	38	36	0
00	18	0	5	8	2	1	3	37	19	1
01	30	0	2	9	6	0	6	53	15	0
02	32	1	8	6	5	2	7	61	28	0
03	46	1	7	13	6	0	11	84	31	2
04	43	0	4	18	19	1	10	95	38	0
Tot.	169	2	26	54	38	4	37	330	131	3
% of Tot.	51.2	0.6	7.9	16.4	11.5	1.2	11.2	100	26.2	0.6

	Crashes by Location											
	Nearest Intersection "At or Influenced By"											
Yr.	US 19	"mid-block"	49th St.	"mid-block"	47th St.	"mid-block"	44th St.	"mid-block"	43rd St.	"mid-block"	40th St.	40th St. to 1000' East of 40th
99	18	2	6	1	4	1	0	0	2	1	2	1
00	12	0	10	0	3	1	2	0	4	0	3	2
01	20	2	16	1	2	0	5	0	6	0	1	0
02	29	3	14	4	6	0	2	1	0	2	0	0
03	42	11	14	0	2	0	4	1	5	0	4	1
04	33	11	16	7	8	2	4	0	8	3	3	0
Tot.	154	29	76	13	25	4	17	2	25	6	13	4

Data source: Pinellas County Metropolitan Planning Organization Countywide Crash Data Center, 5/10/2005

4.1.10 Intersections and Signalization

Within the corridor, existing traffic signals are located along 118th Avenue at two locations, US 19 and 49th Street. Both locations utilize span wire signals. The intersection of 118th Avenue and US 19 consists of dual left turn lanes and single right turn lanes in all four directions. The intersection of 118th Avenue and 49th Street consists of dual left turn lanes in all four directions and single right turn lanes in all directions, except for the eastbound 118th Avenue to southbound 49th Street movement.

4.1.11 Lighting

Throughout the 118th Avenue corridor, conventional lighting exists and is owned and maintained by Pinellas County. The poles are of concrete construction located on both sides of the roadway within the existing right-of-way at approximately 200-foot intervals.

4.1.12 Utilities

Local and public utility companies were contacted and requested to give approximate location of utility service lines and structures within the project limits. Listed below are all contacted providers and information received to date.

- **Bright House Networks**

  The Bright House Network aerial facilities are located on Progress Energy Poles. Bright House Network facilities are located in the following areas: west side of US 19 north and south of 118th Avenue; east side of 49th Street north and south of 118th Avenue; north side 118th Avenue from 49th Street to east of 40th Street; south side of 118th from 43rd Street to west of 40th Street.

- **City of Pinellas Park**

  The City of Pinellas Park has a 16-inch water pipe along 118th Avenue between 60th Street and 58th Street and a 12-inch water pipe along 118th Avenue between US 19 and 46th Street and from 44th Street to 28th Street. A storm sewer system is located along 118th Avenue between 59th Street and 58th

Street, and also between 49th Street and 34th Street. The city also has a 36-inch hot oil pipeline located in the existing right-of-way.

- **Progress Energy Florida**

  There is a major overhead transmission line that diagonally crosses 118th Avenue approximately 350-feet east of 49th Street, and continues across 49th Street approximately 700-feet north of 118th Avenue. This line appears to be owned by Progress Energy Corporation. The transmission lines would require adjustment with any substantial vertical adjustment of the roadways.

- **KMC Telecom –** No response to date.
- **Pinellas County Utilities –** No response to date.
- **Progress Energy - Distribution**

  Progress Energy has distribution facilities within the limits of the study area. These utilities are located within the existing northern and southern right-of-way limits parallel to Bryan Dairy Road and 118th Avenue. Distribution maps are available in the project file for reference.

- **TECO/Peoples Gas**

  TECO/Peoples Gas has facilities on 49th Street north and south of 118th Avenue; 47th Street north and south of 118th Avenue; and on the south side of 118th Avenue from 47th Street to 43rd Street.

- **Time Warner Communications –** No response to date.
- **Verizon Communications**

  Verizon Communications has a four-way conduit system with manholes from west of US 19 on Bryan Dairy Road to 49th Street and 118th Avenue located on the northern right-of-way limits parallel to Bryan Dairy Road and 118th Avenue. The system continues but changes to a six-way conduit from 49th Street to 34th Street on both the northern and southern right-of-way limits parallel to 118th Avenue. Distribution maps are available in the project file for reference and include data such as cable size and type, general location of manholes and aerial and underground connections are crossings.

4.1.13 Pavement Conditions

The existing roadway surface is in good condition in most areas, with the eastern segment of the study corridor having recently been constructed under the project connecting to I-275.

4.1.14 Posted Speed Limits

The existing highway is posted at 45 miles per hour (mph).

4.1.15 Access Management Classification

Pinellas County has an access management classification system very similar to that of FDOT's. Article IV, Sec. 170-198 of the county code contains tables showing standards for driveway and median opening spacing for county roads. The standards are intended to provide for the efficient and safe operation of the collector and arterial roadway system, to protect the public investment in the roadway facilities, to enhance the operating conditions and assist in achieving and maintaining adopted level of service standards.

For driveway connection spacing, 118th Avenue is Class 2 with a minimum spacing of 680 feet. For median opening spacing, 118th Avenue is Class 3 with a minimum spacing of 660 feet required between openings. According to the code, these criteria are to be used by Pinellas County as a guideline only, and other engineering and safety factors must be considered as well.

4.2 EXISTING BRIDGES

There are no existing bridges or bridge culverts in the 118th Avenue corridor. There are several existing box culverts within the corridor. One crosses US 19 just north of 118th Avenue and several cross 118th Avenue east of US 19.

4.3 ENVIRONMENTAL CHARACTERISTICS

4.3.1 Land Use Data

The predominant land uses along the 118th Avenue corridor are commercial, institutional (cemetery), and industrial **(Figure 4-5)**. There is no residential land use immediately adjacent to the right-of-way on 118th Avenue. However, a small residential neighborhood exists south of Bryan Dairy Road, west of the intersection with US 19. A county land fill and large stormwater management pond is located on the south side of 118th Avenue near the east end of the study area, along with a county mosquito control facility. The pond has an underground barrier (slurry wall) which runs down the median of 118th Avenue adjacent to the pond to contain groundwater contamination from the landfill site. The eastbound roadway in this area is constructed on top of a previous landfill area, and there are known areas of landfill debris buried beneath this roadway.

The future land use map **(Figure 4-6)** for Pinellas County shows that development will continue towards more industrial and residential land uses.

4.3.2 Cultural Features and Community Services

The Calvary Catholic Cemetery is located in the northeast quadrant of the 118th Avenue intersection with US 19. The cemetery maintains access points along US 19 just north of 118th Avenue, and along 118th Avenue east of US 19. A coordination meeting was held on November 24, 2003 with representatives of the Cemetery to discuss right of way issues. See the *Comments and Coordination Report* for details. There are no religious institutions present within the proposed project limits. Based on a general screening and field review, no known non-profit organizations are located in the study limits corridor. A Pinellas County police substation is located inside of the Knights Shooting Range located on US 19, north of 118th Avenue/Bryan Dairy Road. There are no Pinellas County schools adjacent to the Study corridor. No churches or medical facilities exist along the corridor. Several PSTA bus stops occur along or near the Study limits.

Figure 4-5 Existing Land Use Map

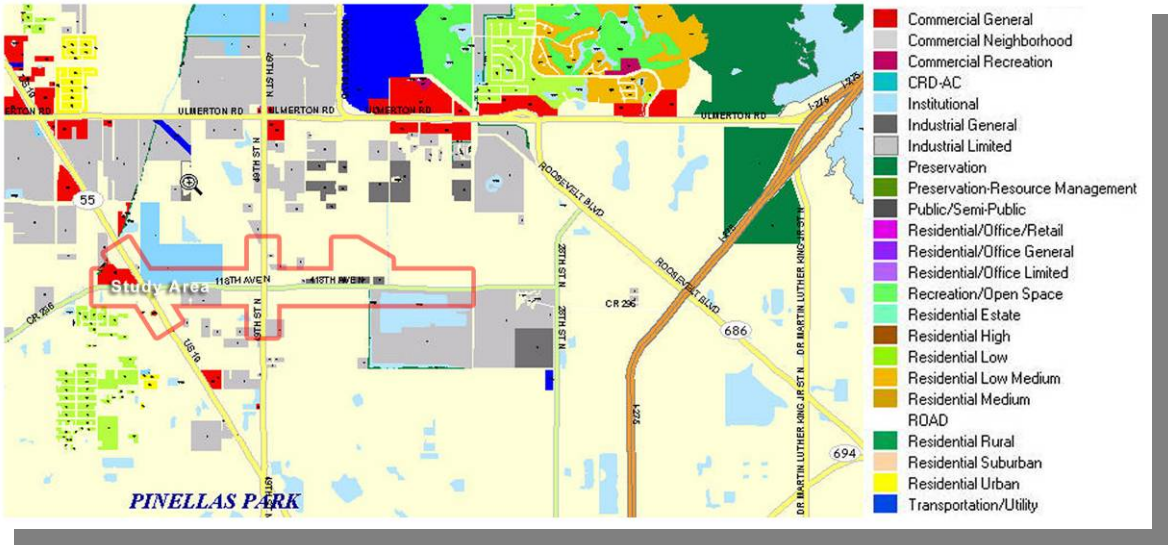
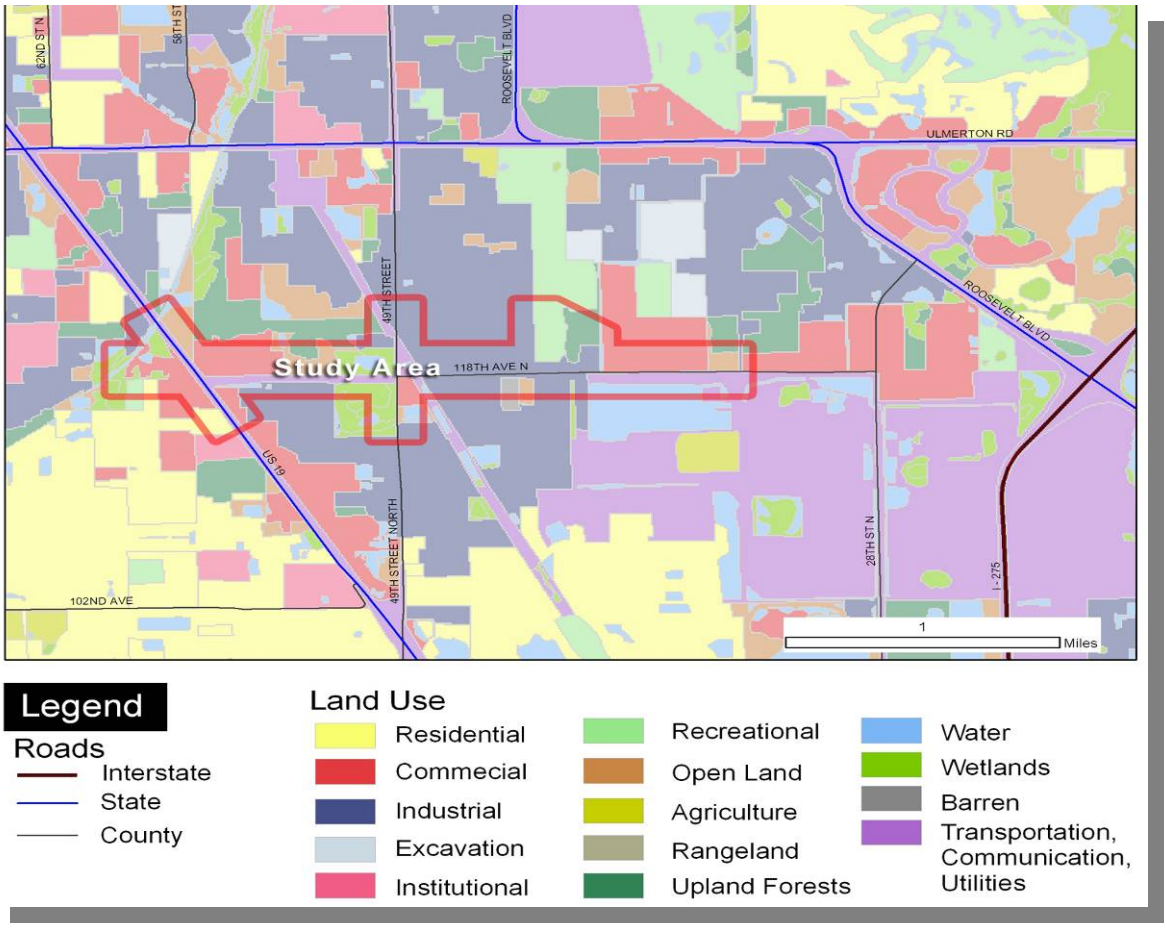


Figure 4-6 Future Land Use Map



Sources: Pinellas County GIS data

4.3.2.1 Evacuation Routes and Emergency Services

The project corridor lies within the Pinellas County hurricane evacuation zones B, C, and D, although the Tampa Bay Regional Planning Council has not designated 118th Avenue as a hurricane evacuation route. Pinellas Park High School, located west of the project corridor, is a designated hurricane evacuation shelter. No police, fire, or emergency medical service (EMS) facilities exist along the corridor. However, there is a fire station located approximately four blocks south of 118th Avenue on 43rd Street.

4.3.2.2 Section 4 (f) Properties & Recreational Facilities

Information supplied by the Tampa Bay Regional Planning Council, Department of Natural Resources, Florida Geographic Data Library, census data, other related agencies and field investigation show no properties which could be classified as Section 4(f) protected lands within the project corridor. In addition, according to FDOT's Environmental Screening Tool (EST) GIS database and field review, no recreational areas or park lands are found within one mile of the project area. Therefore, Section 4(f) does not apply to this project.

4.3.3 Natural and Biological Features

The proposed project is located in Pinellas County within the Gulf Coastal Lowlands physiographic region. Prominent topographic features of the Old Tampa Bay region are the broad marine terraces formed during interglacial periods. As a result of weathering processes, the terrain of the 118th Avenue corridor is flat to gently sloped with a present natural land elevations ranging from 0 to 15 feet above mean sea level. The surface lithology of eastern Pinellas County is primarily composed of undifferentiated deposits of sand and clay. Limestone is present at or near the ground surface around the shore of Old Tampa Bay.

The nature of the sediments and the relative elevation of these terraces affect the occurrence and movement of groundwater that may be the only source of freshwater in some coastal areas. None of the shallow aquifers in this area are classified as Sole

Source Aquifers. Nearly all of the potable water demands in the area are met by Pinellas County Water Systems.

4.3.3.1 Wetlands

In accordance with Executive Order 11990, "Protection of Wetlands" (May 1977), the proposed project has been evaluated for potential impacts to wetlands. Preliminary wetland determinations were based on information from the US Geological Survey 7.5 minute series Safety Harbor Topographic Maps, Soil Conservation Service's *Soil Survey of Pinellas County*, U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory Maps, and aerial photography. During initial field inspections between April and June 2003, and later in February 2005, wetlands and surface waters were identified and assessed that may be affected by the Build Alternatives. Methodology included ground truthing and review of aerial photographs (1"=100'). Determination of wetlands was based upon the presence of accepted wetland indicator floral species (Chapter 17-301, Florida Administrative Code (FAC) and U.S. Army Corps of Engineers, Manual for Identifying and Delineating Jurisdictional Wetlands, 1987), hydric soils, fauna present, and evidence of inundation and/or saturation.

All wetland sites were reviewed, classified and documented. A description of the dominant floral species, acreages, hydraulic connection and impacted acreages is included below.

There are 17 wetlands or other surface waters along or adjacent to the proposed project area including two willow wetlands, one pond, on canal, and several stormwater facilities and ditches. Initial field reconnaissance revealed areas that have been previously altered due to current land uses and/or ditching and channelizing for water conveyance purposes. The locations of these wetlands and other surface waters are shown in **Figure 4-7** and are discussed below. For simplicity, the naming convention used classified all wetlands and other surface waters as "wetlands".

- Wetland 1 is a pond site located directly off of Bryan Dairy Road. This wetland is in good condition and will not be impacted by the project.
- Wetlands 2 is storm water drainage pond on Pinellas County property and is predominantly free of vegetation with some cattails.
- Wetland 3, found within the limits of the Breyer's Ice Cream plant, northeast of the building, is storm water drainage pond and is predominantly free of vegetation with some cattails.
- Wetland 4 is a stormwater drainage pond dominated by Brazilian Pepper, an exotic, and is therefore considered to be of low quality.
- Wetlands 5, 6, 9, 13, and 14 are all manmade drainage ditches following the roadway. These ditches are vegetated with a variety of wetland grasses, cattails, and various other aquatic vegetation.
- Wetlands 7 and 8 are dominated by willow trees with ferns in the understory. These wetlands are connected by a culvert passing under 118th Avenue and are found on both the north and south sides of the road. Breeding common carp (Cyprinus carpio) were seen on the northern portion of this wetland continuing into the ditch along the northside of 118th Avenue (Wetland 5). Both wetlands appeared to be high quality wetlands with some water pollution possibly due to their close proximity to 118th Avenue. However, wetland 8 was considered in poorer condition than wetland 7 as much of this wetland has recently been filled due to commercial development. These wetlands were not identified on either the current land use map or the future land use map provided by the Pinellas County Planning Department.

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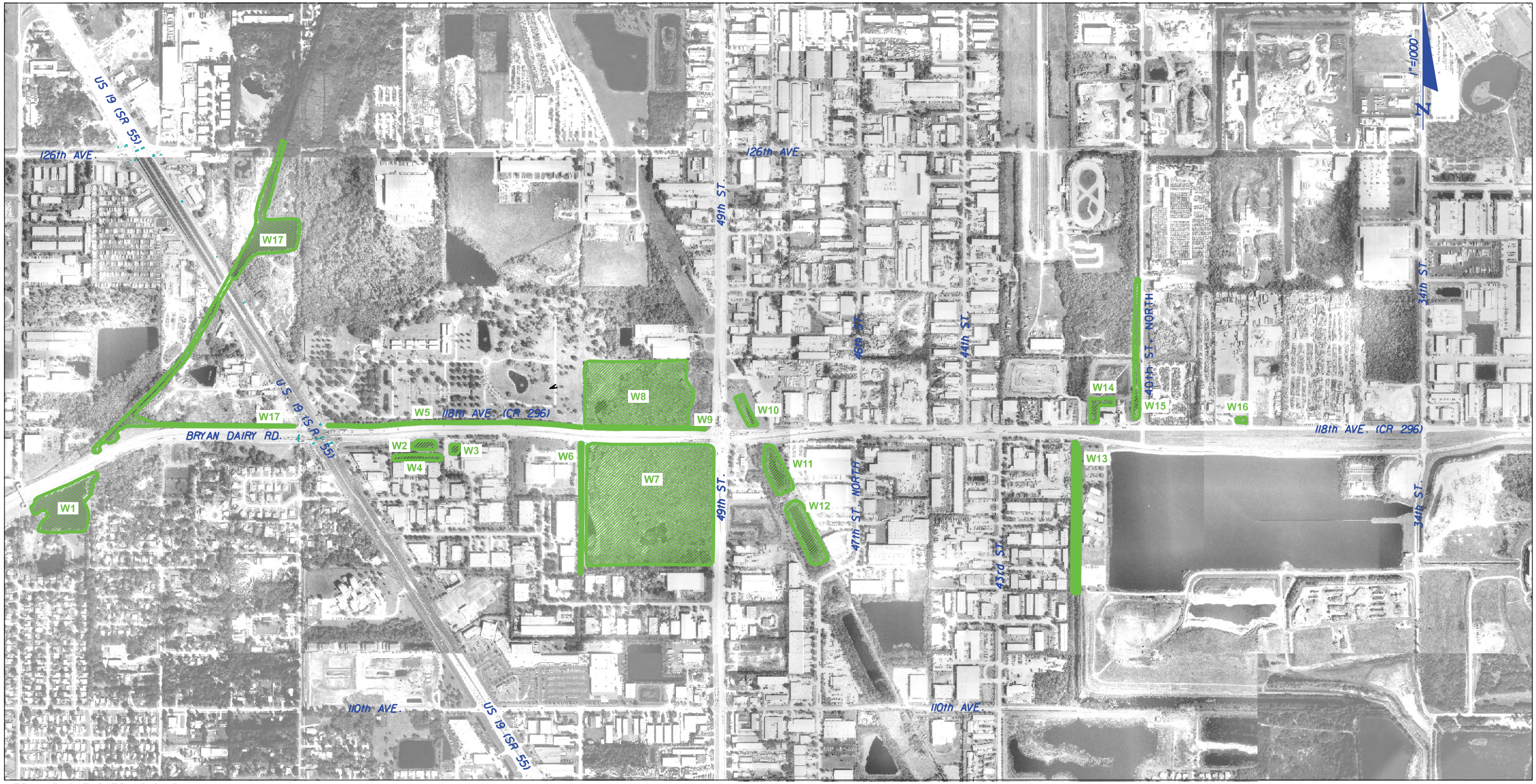

AERIAL FLIGHT DATE: 10/04/04

WETLAND AND OTHER SURFACE WATERS BOUNDRY

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

American
Consulting Engineers of Florida, LLC
4111 Land O' Lakes Blvd. Suite 210
Land O' Lakes, Florida 34639
Phone: (813) 996-2800 Fax: (813) 996-1908
Certificate of Authorization No. 7110
Jeffrey S. Novotny, P.E. No. 51083

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 296	PINELLAS	413622-1-22-01

118TH AVENUE (CR 296) CONNECTOR FROM US 19 TO EAST OF ROOSEVELT
EXISTING WETLAND AREAS

05/16/2005 11:08:17 AM F:\Project\50371.8\environmental\Wetland\WetlandExhibit.dgn

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- Wetlands 10, 11, and 12 are manmade stormwater facilities located within the confines of Progress Energy's transmission power lines easement. These other surface waters are vegetated with a variety of wetland grasses, cattails, and other aquatic vegetation.
- Wetland 15 is also known as Mitigation Area #2 and is a mitigation site created by the County. This mitigation site is relatively high quality. An American Alligator and several wading birds were seen within this mitigation site. Vegetation ranges from cordgrass to rushes.
- Wetland 16 is a stormwater drainage facility located near several possible contamination sites and is considered in poor condition.
- Wetland 17 is the Cross Bayou Canal which is a 10.5 mile long canal that connects to both Old Tampa Bay and Boca Ciega Bay.

Table 4-3 lists the sizes and type of each wetland or other surface waters listed above. According to the FDOT's Environmental Screening Tool (EST) GIS database, approximately 4.2 acres of wetland area listed on the National Wetlands Inventory is within 100 feet of the study limits. The habitat types comprising these wetlands are emergent aquatic vegetation, freshwater marshes, wetland coniferous forests, and wetland forested mixed. These wetlands are also considered Florida Fish and Wildlife Conservation Commission (FFWCC) Priority Wetland Habitat.

4.3.3.2 Surface Waters

The study area limits are drained by a series of creeks and ditches. Water from these water bodies drains into Tampa Bay. Water quality is regulated by Chapters 17-3 (Water Quality), 17-302 (Surface Water Quality Standards), 17-4 (Permits), 17-25 (Stormwater Permits), 17-43 (Surface Water Management Improvement Act), Federal Water Pollution Control Act, Safe Drinking Water Act, National Pollution Discharge Elimination System and others. Existing drainage along the project area is by direct overland flow and urban drainage systems consisting of ditches and culverts discharging to Old Tampa Bay. Seventeen natural wetlands or stormwater management facilities are located within or adjacent to the project area.

Table 4-3: Wetlands and Other Surface Waters Bordering the Project

Wetland Number	Type of Wetland/OSW	Square Feet	Acres
W1	Pond	211,000	4.84
W2	Stormwater facility	18,000	0.42
W3	Stormwater facility	9,000	0.18
W4	Stormwater facility	34,000	0.56
W5	Ditch	80,000	1.16
W6	Ditch	39,000	0.81
W7	Willow wetland	1,364,000	31.32
W8	Willow wetland	698,000	13.90
W9	Ditch	12,000	0.55
W10	Stormwater facility	28,000	0.64
W11	Stormwater facility	123,000	1.75
W12	Stormwater facility	134,000	2.47
W13	Ditch	93,000	2.50
W14	Ditch	4,000	0.65
W15	Mitigation Area #2	72,000	> 1.45 (Connects to other stormwater areas)
W16	Stormwater facility	4,500	0.10
W17	Cross Bayou Canal	367,000	8.40
Total		**3,290,500**	**71.70**

4.3.3.3 Floodplains

United States Geological Survey (USGS) 7½ minute Quadrangle maps of Safety Harbor, Florida, and St. Petersburg, Florida, were reviewed, as well as Flood Insurance Rate Maps (FIRM) for unincorporated Pinellas County, Florida, September 3, 2003; see **Figure 4-8** for existing floodplain mapping. Existing 118th Avenue elevations average approximately 5 to 15 feet above National Geodetic Vertical Datum (NGVD).

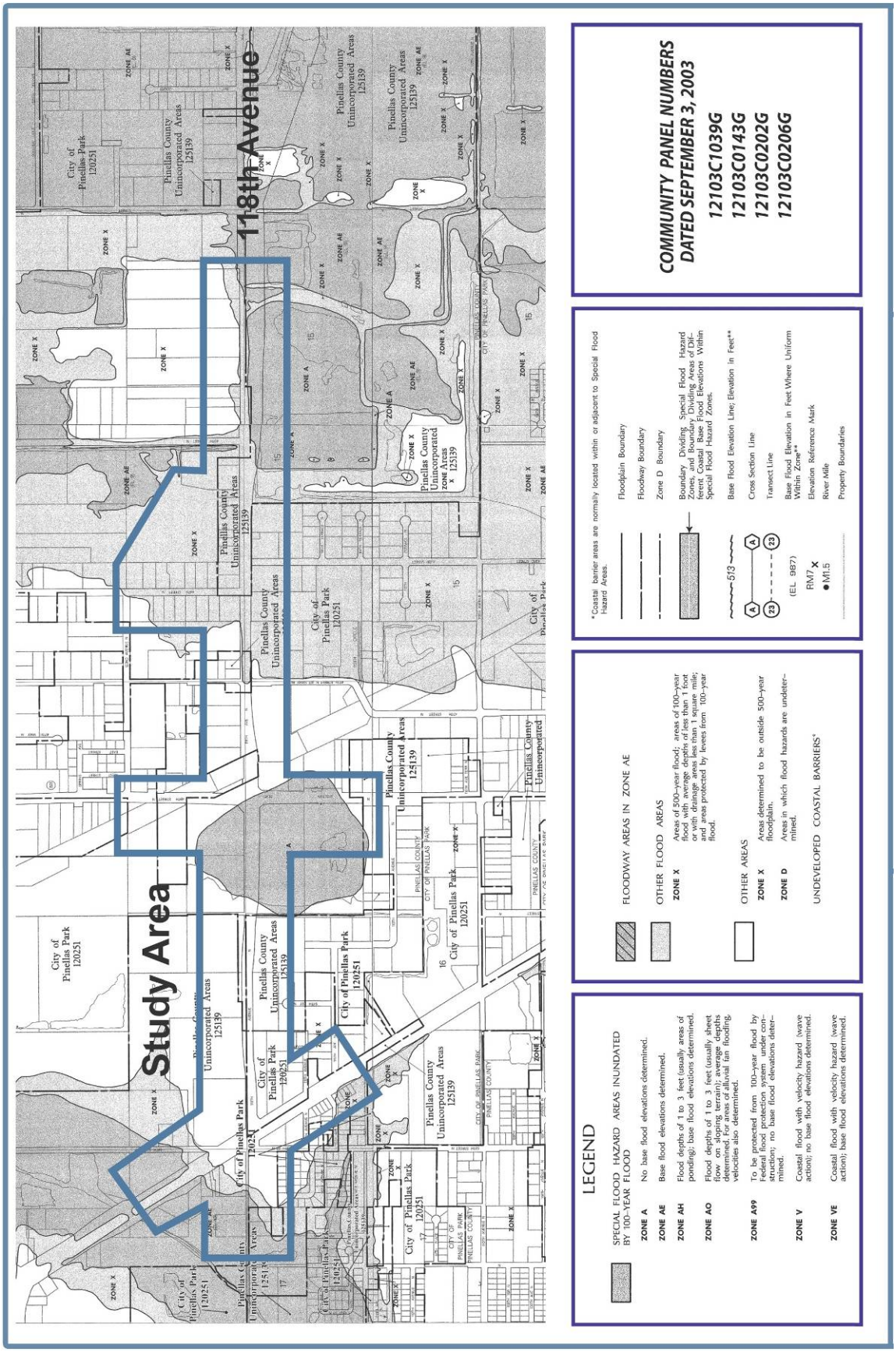

Figure 4-8 FEMA Flood Insurance Rate Map

The FEMA, Flood Insurance Rate Map (FIRM) for the study area indicates that most of the study limits are within Zone X (areas of or outside the 500 year floodplain). The remainder of the study limits are within Zones AE and A which are special flood hazard areas inundated by a 100-year flood. The higher elevation should help to reduce evacuation times during hurricane evacuations and other emergency situations. There are no regulatory floodways within the study limits. A Location Hydraulic Report has been prepared and is located in the project files.

4.3.3.4 Water Quality

A literature search in the FDOT's EST GIS database produced the following data. The project area is within 2 drainage basins, the Cross Bayou Canal (North) and direct runoff to Old Tampa Bay. Both of these are considered impaired waters. There are no Aquatic Preserves, Outstanding Florida Waters or National Estuarine Research Reserves located within one mile of the study limits. Approximately 4.2 acres of wetland area listed on the National Wetlands Inventory is within 100 feet of the study limits. One private drinking well exists within one mile of the project. There is one recharge and one discharge area of the Floridian Aquifer within 100 feet of the Study limits. Additionally, karst limestone areas near the surface and coastal deposits have been found within 100 feet of the study limits. Additionally, karst limestone areas near the surface and coastal deposits have been found within 100-feet of the study limits. U.S. Environmental Protection Agency (EPA) water quality data sampling station number 24-03+21FLPDEM is within 100-feet of the study limits. However, within one mile, 36 EPA water quality data sampling stations exist.

4.3.3.5 Outstanding Florida Waters and Aquatic Preserves

Upon initial screening, the proposed project corridor is not associated with any Outstanding Florida Waters; Wild and Scenic Rivers; or Aquatic Preserves.

4.3.3.6 Wildlife and Habitat

This project study area has been evaluated for potential involvement with threatened and endangered species and their habitat. A literature review was conducted to determine

those possible threatened or endangered species that may inhabit the project area. Furthermore, the potential for involvement with critical habitat was assessed as to the relationship of the project to the Florida Fish and Wildlife Conservation Commission's designated "Critical Habitat." Suitable habitat for federally listed species was investigated for presence or absence by FDOT staff. Surveys were then conducted in each habitat type for species known to occur or utilize the classified habitats. These surveys were performed in the fall of 2004 and winter/spring of 2005. In addition, random surveys were performed along the corridor throughout the duration of the study to obtain data on resident and transient species. Because of the location of the proposed project is in a highly urbanized area, potential involvement with any listed species is expected to be minimal.

The project corridor contains several areas that may provide suitable foraging habitat for listed wading birds. Protected wading bird species such as the snowy egret (*Egretta thula*), white ibis (*Eudocimus albus*), and little blue heron (*E. Caerulea*) are dependent on water bodies such as shallow wetlands, flooded ditches, and shorelines for feeding. These birds are not federally listed by the United States Fish and Wildlife Service (USFWS) but are considered species of special concern. However, information provided by the FFWCC and as reported in the Florida Atlas of Breeding Sites for Herons and their Allies (published 1991) does not indicate any breeding colonies for wading birds or wood storks or other significant habitats in the immediate project area. Due to their high mobility and limited extent of anticipated effects to habitat used by these species, no long-term adverse affects are expected.

According to the FDOT's EST GIS, a FFWCC Biodiversity Hot Spot containing 7 or more focal species exists within 100 feet of the study limits. This hot spot is most likely found within the bordering wetland areas, of which 4.2 acres are classified as FFWCC Priority Wetlands Habitat.

4.3.4 Physical Features

4.3.4.1 Hazardous Waste Site Data

A preliminary review of potential hazardous waste and petroleum contamination sites was completed in the Feasibility Study to locate and define areas along the study limits where contamination of soil and/or groundwater by petroleum or hazardous materials may have occurred in the past; where contamination or deleterious conditions presently exist; or where the potential for contamination exists due to present land use. This assessment was based on detailed site investigations and review of records maintained by the State of Florida Department of Environmental Protection (FDEP), the Pinellas County Department of Environmental Management, and other regulatory agencies.

A number of possible hazardous material generators are located within the vicinity of the proposed project. A total of 51 sites were identified as having potential for petroleum and/or chemical contamination of soil or groundwater. Most of the sites were businesses selling used automobiles and/or auto parts. In addition, there were printing shops, machinery businesses, metal and welding businesses, a gas station, a petroleum business and a chemical company. Several of the sites were currently vacant but had evidence of possible contamination due to the nature of the business.

According to the Florida Department of Environmental Protection (FDEP) Division of Waste Management, three contaminated facilities exist adjacent to the study limits. Of those, Duraseal Inc. and Gorby Property, are currently closed. Both were classified as non-retail fuel users. Only Kelly Equipment Company of Florida, Inc. is still open and is also classified as a non-retail fuel user. Previously, three other sites were known contamination sites and have since been cleaned up. These sites are the Pinellas County Sewer System McKay Water Treatment Plant, the Pinellas County Fleet Management, and a 4.7-acre parcel site at the 6200 block of 118th Avenue North.

The FDOT's EST GIS database identified 15 hazardous waste sites within one mile of the Study limits. Good Humor – Breyers Ice Cream was the only hazardous waste site found

within 100 feet of the study limits. Additionally, no solid waste facilities were found within 500 feet of the study limits. Fifteen toxic release inventory sites border the study limits within one mile. Of those, National Equipment MFG. Corp. and Klondike Ice Cream Inc. are within 100 feet of the study limits. Four geocoded petroleum tanks are within 100 feet of the Study limits including McMullen Properties, Sunoco #0611-7022, Merita Bakeries Depot, and Clearwater Roofing and Sheet Metal Co. However, 127 geocoded petroleum tank sites were found within one mile of the study limits.

4.3.4.2 Noise and Air Quality

A noise impact assessment was conducted to determine expected impacts due to the proposed project. Noise is defined as unwanted sound. The EPA found that ambient noise levels of 55dBA $L_{(dn)}$ or less protected human health and were not considered an annoyance (EPA 550/9-79-100 November 1978).

There is no residential land use immediately adjacent to the study limits. However, a small residential neighborhood exists south of Bryan Dairy Road west of the intersection with US 19, which is the location of the only noise and air receptors. The remainder of land adjacent to 118th Avenue consists of commercial and industrial use that does not require consideration for noise mitigation. In addition, no churches, schools, parks, hospitals, or other noise-sensitive sites exist along the corridor.

Pinellas County was determined to be a non-attainment area for ozone in 1991 due to high quantities of Volatile Organic Compounds (VOCs) and Oxides of Nitrogen (NOX). By 1996, the County was determined to be in attainment for ozone and the status was changed to a maintenance area by the EPA. Maintenance means that the area now has a maintenance plan to stay within the air quality standards approved by the EPA pursuant to 40 CFR 93. In June 2005, Pinellas County will be reclassified as an attainment area, along with the rest of Florida.

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SECTION 5 – DESIGN CONTROLS AND STANDARDS

The proposed roadway improvements must adhere to specific design standards. The FDOT's Plans Preparation Manual (PPM) was consulted in the developing design criteria for this project. **Tables 5-1** presents the design criteria applicable to this project.

Table 5-1: Proposed Design Criteria

Design Element				Proposed Design Criteria	FDOT PPM Reference
General	Functional Classification			Urban Arterial	
	Access Classification			2	Pinellas County Local Classification
	Design Speed		Mainline	55 mph	Table 1.9.1
			Ramps	45 mph	
			Frontage Roads	40 mph	
Typical Section	Lane Widths		Mainline	12’	Table 2.1.1
			Ramps	15’ 1-lane, 24’ 2-lanes	Table 2.1.3
			Frontage Roads	12’ + 4’ bike lanes	Table 2.1.1
	Median Width			18’ (with median barrier wall throughout)	Table 2.2.1[3]
	Shoulder Widths	Roadway Mainline (without Shoulder Gutter)	Outside	12’ full, 10’ paved	Table 2.3.1
			Median	8’ full, 4’ paved	
		Roadway Mainline (with Shoulder Gutter)	Outside	15.5’ full, 8’ paved	
			Median	13.5’ full, 6’ paved	
		Roadway Ramp (without Shoulder Gutter)	Outside	6’ full, 4’ paved	
		Roadway Ramp (with Shoulder Gutter)	Outside	11.5’ full, 4’ paved	
		Bridge Mainline	Outside	10’	Figure 2.0.1
			Median	8’ (match roadway)	
		Bridge Ramp	Outside	6’ (1-lane); 10’ (2-lane)	
			Inside	6’	
	Horizontal Clearances	Mainline & Frontage Roads		4’ from face of curb	Tables 2.11.1 thru 2.11.5 Table 2.11.6
				16’ to bridge piers & abutments	
	Border Width	Mainline		Not Applicable	Table 2.5.2
		Frontage Roads		min. 10’	

Notes:

1. Florida Green Book criteria is not applicable due to the functional classification required.
2. Design Criteria is based on the 2005 Plans Preparation Manual, Volume I.
3. Table 2.2.1 requires a 40’ median width for 55 mph; however, with barrier wall in the median throughout, the median width is based on a 2’ barrier wall and two 8’ shoulders (Table 2.3.1).

Table 5-1 Continued

Proposed Design Criteria

Design Element			Proposed Design Criteria	FDOT PPM Reference
Horizontal	Length of Horizontal Curve	Mainline	825’	Table 2.8.2a
		Ramps	675’	
		Frontage Roads	600’	
	Minimum Length of Horizontal Curve	Mainline	400’	Table 2.8.2a
		Ramps	400’	
		Frontage Roads	400’	
	Maximum Deflection without Curve	Mainline	0° 45’ 00”	Table 2.8.1a
		Ramps	0° 45’ 00”	
		Frontage Roads	2° 00’ 00”	
	Maximum Curvature	Mainline	5° 00’00”	Table 2.8.3
		Ramps	8° 15’00”	
		Frontage Roads	10° 45’00”	
	Max Rate of Superelevation (All)		0.05 ft/ft	
	Min Stopping Sight Distance for Grades Less than 2%	Mainline	495’	Table 2.7.1
		Ramps	360’	
		Frontage Roads	305’	
	Minimum Stopping Sight Distance for Grades Greater than 2%; See Table 2.7.1			
Vertical	Maximum Grades	Mainline	4.0%	Table 2.6.1
		Ramps	4.0%	
		Frontage Roads	9.0%	
	Minimum Grades	Mainline	0.3%	Table 2.6.4
	Maximum Change in Grade without a Vertical Curve	Mainline	0.40%	Table 2.6.2
		Ramps	0.70%	
		Frontage Roads	0.80%	
	Minimum K Values for Crest Curves	Mainline	185	Table 2.8.5
		Ramps	98	
		Frontage Roads	70	
	Minimum K Values for Sag Curves	Mainline	115	Table 2.8.6
		Ramps	79	
		Frontage Roads	64	

Table updated 5/2/05

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SECTION 6 – TRAFFIC

The following section presents a summary of the existing traffic conditions as well as the projected future traffic conditions within the 118th Avenue study limits.

6.1 EXISTING TRAFFIC VOLUMES

The existing traffic conditions, as well as the projected future (design year 2025) conditions area are addressed in the *Final Design Traffic Technical Memorandum, 118th Avenue (CR 296) Connector from US 19 to East of 49th Street* (*Final Traffic Technical Memorandum*), March 2005, prepared for this PD&E Study.

Within the study area the major roadway facilities intersecting 118th Avenue are:

- US 19;
- 49th Street;
- Proposed Roosevelt Connector, south of Ulmerton Road;

A data collection effort was conducted by the FDOT within the study limits to determine the existing operating conditions. The data was analyzed using *2002 Florida Traffic Information* and the Highway Capacity Software 2000 (HCS). The reports used from the *2002 Florida Traffic Information* can be found in the Appendix of the *Final Traffic Technical Memorandum*. The FDOT collected 48-hour approach counts within the study area as well as Turning Movement Counts (TMC) for the AM, midday and PM peak periods.

6.1.1 Traffic Count Data

The FDOT provided the approach and turning movement traffic counts.

6.1.1.1 Approach Counts

Continuous 48-hour intersection approach counts at 15-minute intervals were collected on Monday, March 31, and Tuesday, April 1, 2003 for all approach directions at the following intersections:

- 118th Avenue/Bryan Dairy Road at US 19
- 118th Avenue at 49th Street North
- 118th Avenue at 40th Street North
- 118th Avenue at 34th Street North
- 118th Avenue at 28th Street North

The approach counts are summarized in **Table 6-1.** **Figure 6-1A** shows the "existing" (2003) Annual Average Daily Traffic (AADT), **Figure 6-1B** shows the existing Design Hour Volumes, and **Figure 6-1C** shows the existing Directional Design Hour Volumes, while **Figure 6-2** displays the existing intersection geometries. A recount for the southbound approach for 118th Avenue and 34th Street was conducted on Monday, May 5 and Tuesday, May 6, 2003. The new connection to I-275 at the 31st Court and 118th Avenue intersection opened after these counts were taken. As a result, no traffic counts were initially conducted at this intersection. After the intersection opened, the FDOT conducted turning movement counts for the AM, midday and PM peak periods.

Table 6-1
24-Hour Approach Count Summaries

Location	Date of Count	Daily Approach Volumes				AM Peak Hour Approach Volumes				PM Peak Hour Approach Volumes			
		NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB
118th Avenue/US 19	3/31/03	29,371	34,116	17,256	13,261	2,160	3,200	1,734	1,135	2,262	2,921	1,527	1,657
	4/1/03	29,513	34,574	17,628	13,002	2,215	3,144	1,763	999	2,354	2,817	1,568	1,602
average		29,442	34,345	17,442	13,132	2,188	3,172	1,749	1,067	2,308	2,869	1,548	1,630
118th Avenue @ 49th Street	3/31/03	16,700	19,869	14,907	14,615	1,889	1,881	1,717	1,079	1,215	1,972	1,291	1,912
	4/1/03	16,709	19,196	15,618	14,659	1,872	1,680	2,016	1,000	1,260	1,735	1,270	2,001
average		16,705	19,533	15,263	14,637	1,881	1,781	1,867	1,040	1,238	1,854	1,281	1,957
118th Avenue @ 40th Street	3/31/03	--	1,345	17,844	14,337	--	123	2,330	1,034	--	142	1,493	1,835
	4/1/03	--	1,483	18,958	14,571	--	134	2,482	981	--	200	1,564	1,930
average		--	1,414	18,401	14,454	--	129	2,406	1,008	--	171	1,529	1,883
118th Avenue @ 34th Street	3/31/03*	--	3,298	17,849	11,684	--	274	2,330	803	--	428	1,493	1,512
	4/1/03*	--	3,607	**18,292**	11,666	--	306	2,429	854	--	432	1,512	1,555
average		--	3,453	**18,071**	11,675	--	290	2,380	829	--	430	1,503	1,534
118th Avenue @ 28th Street	3/31/03	3,882	8,725	7,675	3,524	580	717	1,208	364	324	1,171	534	637
	4/1/03	3,904	8,832	7,726	3,626	622	734	1,230	392	319	1,183	527	674
average		3,893	8,779	7,701	3,575	601	726	1,219	378	322	1,177	531	656

* = SB approach recounted on 5/6/03 and 5/7/03

Figure 6-1A – Existing (2003) Annual Average Daily Traffic

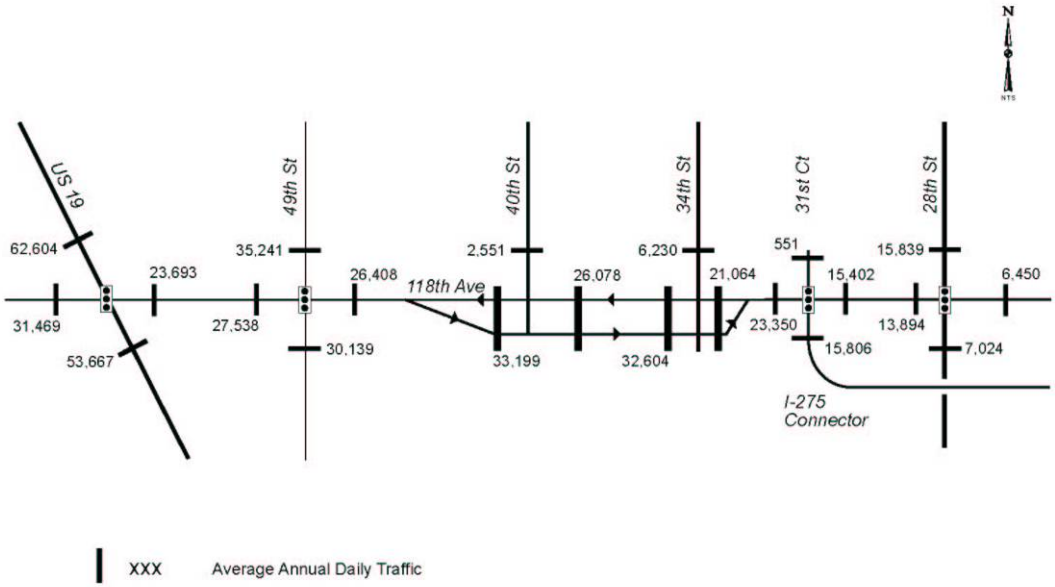


Figure 6-1B – Existing (2003) Design Hour Volumes

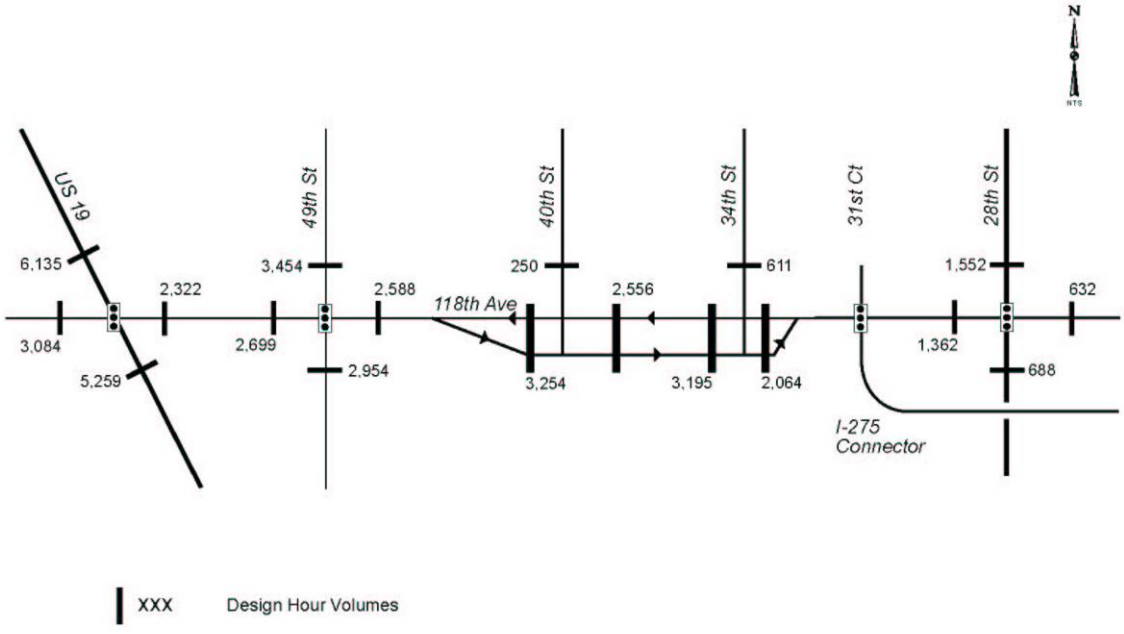


Figure 6-1C – Existing (2003) Directional Design Hour Volumes

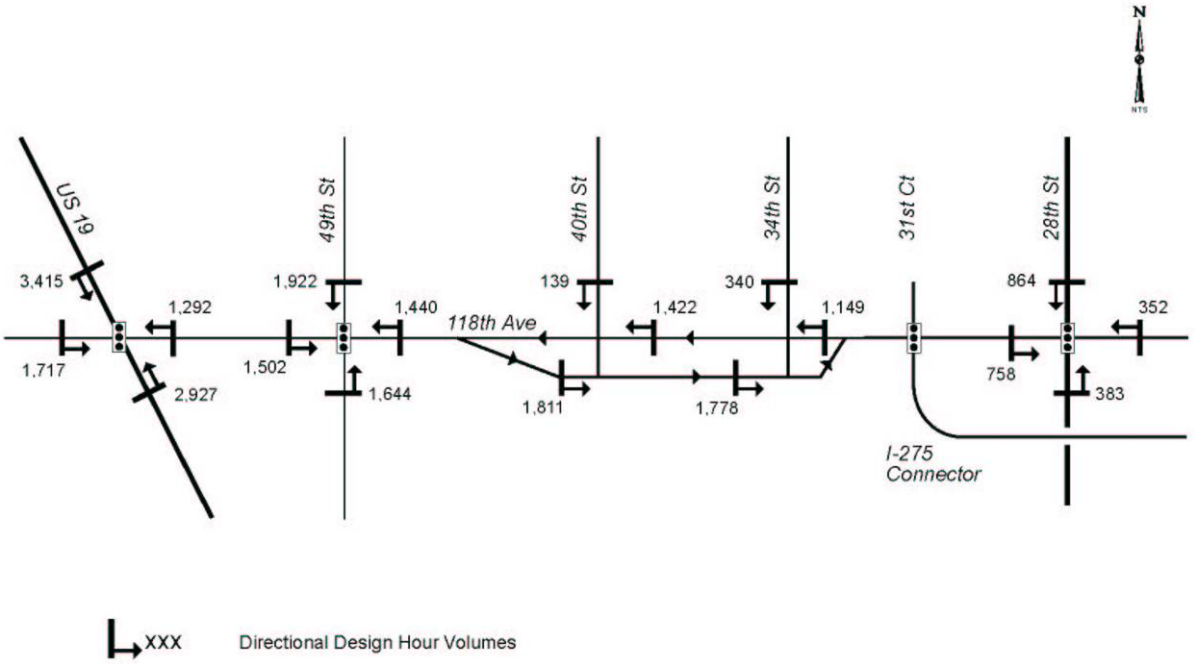
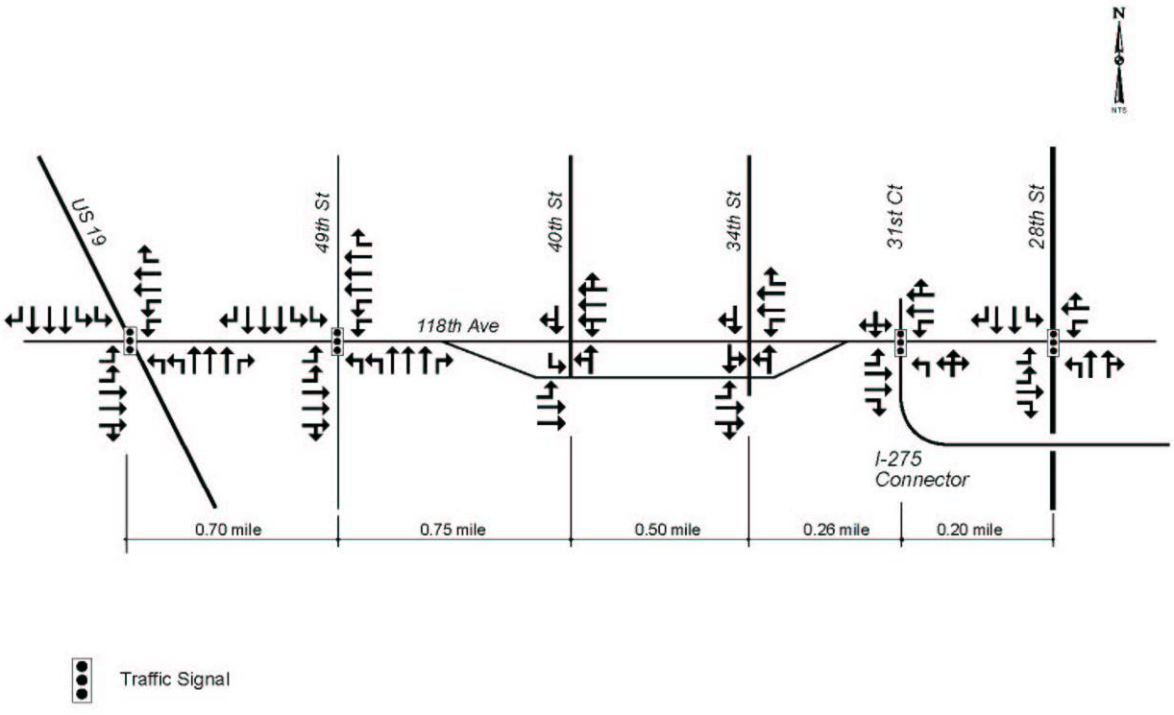


Figure 6-2 – Existing (2003) Intersection Geometry



Traffic counts were preformed only in the approach direction; as a result of this data collection method, the approach volumes were doubled for existing link analysis to determine Average Daily Traffic (ADT) when compared to 2005 and 2025 link analyses.

Table 6-2 is a summary of the Average Daily Traffic (ADT) volumes and the process of conversion to AADT's, Design Hour Volumes (DHV), Directional Design Hour Volumes (DDHV) and Daily Truck Volumes (DTV). **Table 6-3** is a summary of Peak Hour Turning Movement Counts. Volumes were calculated for each link and balanced for the entire 118th Avenue study limits. Because of the abrupt change in traffic volumes between the approaches to 34th Street and 28th Street, the average corridor traffic volume was calculated with and without the link between the 31st Court/I-275 connection and 28th Street.

The *Final Traffic Technical Memorandum* details information related to K, D (Directional), T (Truck) and PHF (Peak Hour Factor) traffic factors.

Table 6-2
Summary of Estimated Traffic Volumes
(AADT, DHV, DTV, and DHT)

	East Bound												West Bound											
Intersection	Approach Count	ADT	SF*	Axle Factor	AADT	K30*	DHV	D30*	DDHV	T-Factor	DTV	DHT	Approach Count	ADT	SF*	Axle Factor	AADT	K30*	DHV	D30*	DDHV	T-Factor	DTV	DHT
US 19	17,442	34,884	0.93	0.97	31,469	9.80%	3,084	55.66%	1,717	7.07%	2,225	109	13,132	26,264	0.93	0.97	23,693	9.80%	2,322	55.66%	1,292	7.07%	1,675	82
49th St	15,263	30,526	0.93	0.97	27,538	9.80%	2,699	55.66%	1,502	7.07%	1,947	95	14,637	29,274	0.93	0.97	26,408	9.80%	2,588	55.66%	1,440	7.07%	1,867	91
40th St	18,401	36,802	0.93	0.97	33,199	9.80%	3,254	55.66%	1,811	7.07%	2,347	115	14,454	28,908	0.93	0.97	26,078	9.80%	2,556	55.66%	1,422	7.07%	1,844	90
34th St	18,071	36,142	0.93	0.97	32,604	9.80%	3,195	55.66%	1,778	7.07%	2,305	113	11,675	23,350	0.93	0.97	21,064	9.80%	2,064	55.66%	1,149	7.07%	1,489	73
28th St	7,701	15,402	0.93	0.97	13,894	9.80%	1,362	55.66%	758	7.07%	982	48	3,575	7,150	0.93	0.97	6,450	9.80%	632	55.66%	352	7.07%	456	22
ADT	15,376	30,751	0.93	0.97	27,741	9.80%	2,719	55.66%	1,513	7.07%	1,961	96	11,495	22,989	0.93	0.97	20,739	9.80%	2,032	55.66%	1,131	7.07%	1,466	72
MPO					24,930	9.80%	2,443	55.66%	1,360	7.07%	1,763	86					24,930	9.80%	2,443	55.66%	1,360	7.07%	1,763	86
ADT minus 28th St Count	17,294	34,589	0.93	0.97	31,202	9.80%	3,058	55.66%	1,702	7.07%	2,206	108	13,475	26,949	0.93	0.97	24,311	9.80%	2,382	55.66%	1,326	7.07%	1,719	84

	North Bound												South Bound											
Intersection	Approach Count	ADT	SF*	Axle Factor	AADT	K30*	DHV	D30*	DDHV	T-Factor	DTV	DHT	Approach Count	ADT	SF*	Axle Factor	AADT	K30*	DHV	D30*	DDHV	T-Factor	DTV	DHT
US 19	29,442	58,884	0.93	0.98	53,667	9.80%	5,259	55.66%	2,927	5.15%	2,764	135	34,345	68,690	0.93	0.98	62,604	9.80%	6,135	55.66%	3,415	5.15%	3,224	158
MPO					53,652	9.80%	5,258	55.66%	2,927	3.93%	2,109	103					58,354	9.80%	5,719	55.66%	3,183	5.15%	3,005	147
49th St	16,705	33,410	0.93	0.97	30,139	9.80%	2,954	55.66%	1,644	7.07%	2,131	104	19,533	39,066	0.93	0.97	35,241	9.80%	3,454	55.66%	1,922	7.07%	2,492	122
MPO					34,682	9.80%	3,399	55.66%	1,892	7.07%	2,452	120					35,360	9.80%	3,465	55.66%	1,929	7.07%	2,500	122
40th St**	--	--											1,414	2,828	0.93	0.97	2,551	9.80%	250	55.66%	139	7.07%	180	9
34th St**	--	--											3,453	6,906	0.93	0.97	6,230	9.80%	611	55.66%	340	7.07%	440	22
28th St	3,893	7,786	0.93	0.97	7,024	9.80%	688	55.66%	383	7.07%	497	24	8,779	17,558	0.93	0.97	15,839	9.80%	1,552	55.66%	864	7.07%	1,120	55
MPO					6,416	9.80%	629	55.66%	350	7.07%	454	22					21,771	9.80%	2,134	55.66%	1,188	7.07%	1,539	75

MPO - Pinellas County MPO, 2002 Traffic Count
SF (Seasonal Factor)
ADT (Average Daily Traffic) = Approach Count Traffic X 2 [Only Approach Counts collected by the Department]
AADT(Average Annual Daily Traffic) = ADT x SF x Axle Factor

DHV (Design Hour Volume) = AADT x K30
DDHV (Directional Design Hourly Volumes) = DHV x D30
DTV (Design Truck Volume) = AADT x T-factor
DHT (Design Hour Truck) = DHV x (T/2)
T-Factor is the average of the adjacent roadways with classification counts
*FDOT Pinellas Countywide value

**The estimated opposing traffic volume was calculated from 1 minus D30 to get an approximation for the northbound traffic, for which there was no approach traffic measured, since this is not a one-way facility.

Table 6-3
Existing (2003) Peak Hour Summary of Turning Movement Counts

Location	Date of Count	Eastbound			Westbound			Southbound			Northbound			Peak Hour	PHF
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
118th Avenue/US 19	6/24/03	711	1,884	388	70	932	160	1,121	3,610	582	478	2,458	75	7:30-8:30am	0.909
		425	994	306	97	783	256	372	2,742	154	441	2,201	85	12:00pm-1:00pm	0.944
		627	1,463	441	252	1,420	339	536	3,310	279	510	2,939	55	5:45-6:45pm	0.893
118th Avenue/49th Street	6/25/03	476	2,836	38	271	979	154	936	1,129	342	155	2,267	970	7:45am-8:45am	0.959
		262	937	40	557	1,178	555	279	909	166	133	1,219	307	11:45-12:45pm	0.903
		312	1,274	52	557	1,479	551	274	1,453	341	125	1,445	269	5:00-6:00pm	0.909
118th Avenue/40th Street	7/01/03	80	2,970	--	0	951	21	20	--	36	--	--	--	7:45am-8:45am	0.939
		74	1,059	--	0	845	33	21	--	84	--	--	--	12:00pm-1:00pm	0.942
		53	1,532	--	0	1,479	26	29	--	83	--	--	--	4:45pm-5:45pm	0.800
118th Avenue/34th Street	7/20/03	486	2,614	19	0	846	87	29	0	128	--	--	--	7:45am-8:45am	0.909
		138	957	1	0	623	4	61	2	198	--	--	--	12:00pm-1:00pm	0.970
		118	1,166	0	1	1,479	37	86	2	271	--	--	--	4:45pm-5:45pm	0.907
118th Avenue/31st Court	9/17/03	65	1,230	1,121	20	785	43	8	7	12	271	4	109	7:45am-8:45am	0.948
		50	441	587	62	585	16	10	4	37	162	5	14	12:00pm-1:00pm	0.968
		21	569	1,087	119	944	5	8	14	32	303	11	15	5:00-6:00pm	0.813
118th Avenue/28th Street	6/30/03	803	333	82	11	29	22	201	63	537	207	259	122	7:45am-8:45am	0.890
		276	72	151	37	117	131	74	125	355	130	107	26	12:00pm-1:00pm	0.940
		280	74	127	54	292	97	45	205	667	244	109	34	5:00-6:00pm	0.767

In general, the 118th Avenue AADT volume pattern between eastbound and westbound is similar throughout the Study limits. For the 118th Avenue corridor, between US 19 and 28th Street, the AADT eastbound (27,741) traffic is greater than the westbound (20,739) traffic. The eastbound AADT for the 118th Avenue corridor is 31,202 from US 19 to 34th Street as compared to 27,741 from US 19 to 28th Street; and 24,311 versus 20,739 for the westbound, respectively.

Crossing AADT volume is greatest at the US 19 intersection (53,667). The crossing traffic volume of 49th Street (30,139) is about 44 percent lower than that of US 19 and, 28th Street (7,786) is about 23 percent of the traffic of 49th Street.

6.1.1.2 Turning Movement Counts

The FDOT conducted Turning Movement Counts (TMCs) at six intersections on 118th Avenue. The intersections were:

- 118th Avenue/US 19,
- 118th Avenue/49th Street,
- 118th Avenue/40th Street,
- 118th Avenue/34th Street,
- 118th Avenue/31st Court, and
- 118th Avenue/28th Street

The counts were taken on Tuesday and Wednesday June 24 and 25, Monday, June 30 and Tuesday and Wednesday, July 1 and 2, 2003. An additional count at 118th Avenue/31st Court was conducted on Wednesday and Thursday September 17 and 18, 2003. The counts were conducted for a total of 8-hours at each location. After the TMCs were collected, the raw data was adjusted for AADT using a Seasonal Factor (SF) from the Departments *2002 Peak Season Factor Category Report*.

Figure 6-3A shows the AM turning volumes, **Figure 6-3B** shows the midday turning volumes, and **Figure 6-3C** shows the PM turning volumes for the intersections along 118th Avenue.

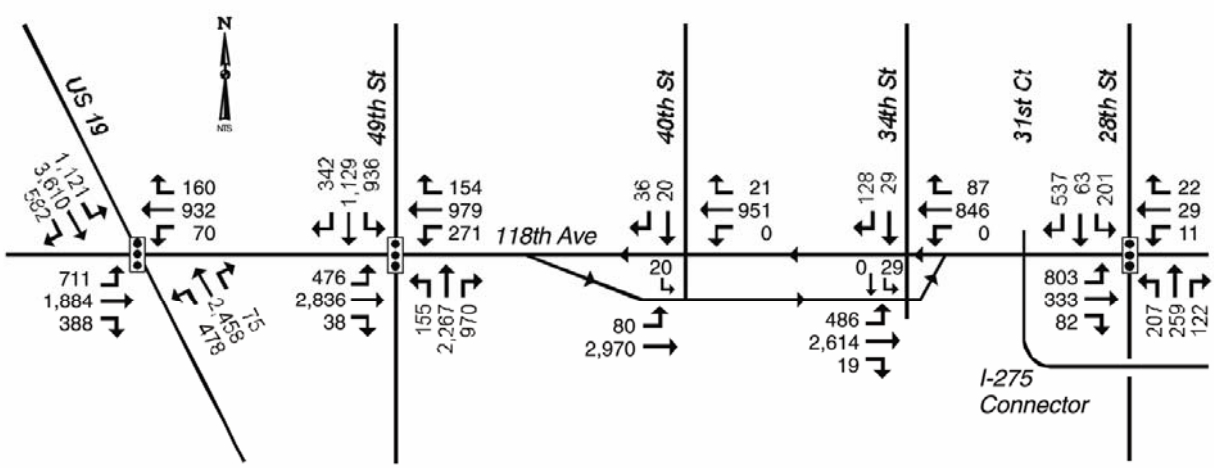


FIGURE 6-3A
Existing (2003) AM Peak
Hour Turning Movement Volumes

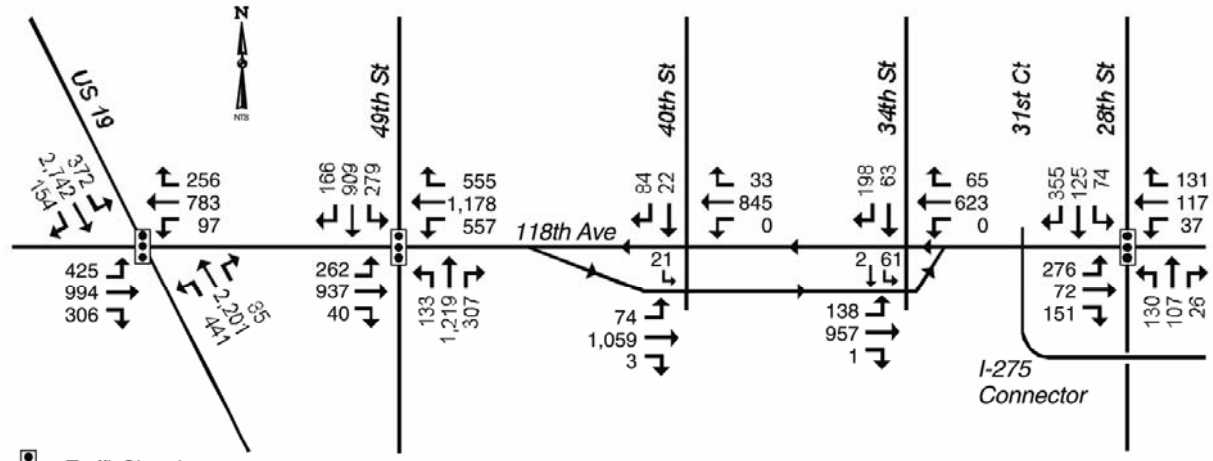


FIGURE 6-3B
Existing (2003) Midday Peak
Hour Turning Movement Volumes

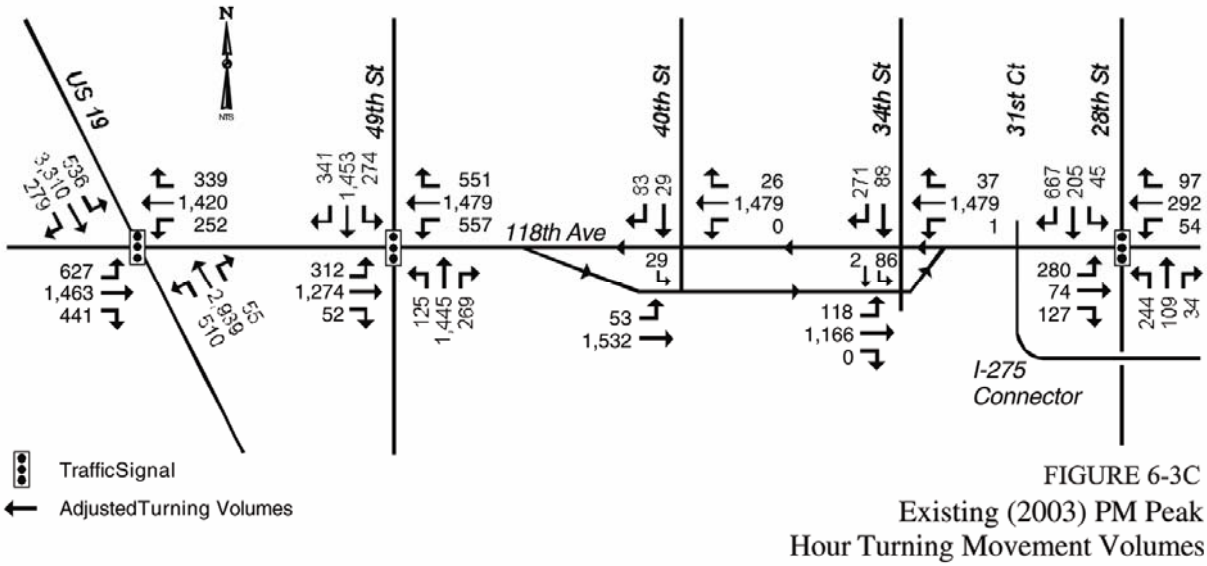


FIGURE 6-3C
Existing (2003) PM Peak
Hour Turning Movement Volumes

Tables that summarizes the location, count dates, seasonally adjusted peak hour volumes, the peak hour and the peak hour factor for each count are included in Appendix C of the *Final Traffic Technical Memorandum.*

6.1.1.3 Adjacent Roadways – Traffic Characteristics

Traffic characteristic data was compiled from the 2002 Florida Traffic Information CD and the Pinellas County MPO, 2002 Traffic Count Map. The FDOT's Pinellas County countywide K Factor and D Factor were applied to most of the stations. Classification counts were conducted for all but I-275 and the telemetry stations.

6.1.1.4 Traffic Signals, Locations, and Intersection Design

Within the study limits, traffic signals are currently located along 118th Avenue at:

- US 19
- 49th Street
- 43rd Street (Emergency Traffic Signal only)

6.2 MULTIMODAL TRANSPORTATION SYSTEM CONSIDERATIONS

6.2.1 Transit

Bus service is provided by PSTA within the 118th Avenue study area, with both AM and PM service provided on several different routes. Route 58 traverses both directions on 118th Avenue from east of US 19 to 28th Street. Routes 52 and 98 use 49th Street and turn eastward at 118th Avenue and proceed to 28th Street. Routes 11, 59 and 96 use 118th Avenue between 34th Street and 28th Street. Route 59 specifically links to the Home Shopping Network facility east of 28th Street.

6.2.2 Pedestrian and Non-Motorized Modes

Within Pinellas County, there has been a concerted effort to address pedestrian and non-motorized modes of transportation by building trails and including sidewalks and bike lanes in new or roadway improvement projects where feasible. Within the study area, a proposed trail utilizing the Progress Energy right-of-way will cross 118th Avenue at the 49th Street intersection. The Progress Energy Trail will eventually be linked to the Fred Marquis Pinellas Trail by way of several proposed east-west "community trails."

6.2.3 Aviation and Railroads

Within the "extended" study area is the St. Petersburg/Clearwater International Airport. The airport's main entrance is on Roosevelt Boulevard between Ulmerton Road and the Roosevelt Boulevard/49th Street/Bayside Bridge interchange. The airport master plan includes improvements to Roosevelt Boulevard and a planned connection to 49th Street near 142nd Avenue. Additionally, a proposed change in land use of airport property east of the airport, from a golf course to commercial use, is currently under investigation. This change in land use may create a future change in traffic generation, but was not considered at this time. There are no railroad facilities within the study area.

6.3 EXISTING TRAFFIC CONDITIONS

Intersection and arterial capacity analyses was completed for the 118th Avenue corridor using the Highway Capacity Software (HCS) 2000 for the existing year conditions. These analyses were based on the adjusted AM and PM peak hour turning movements counts and arterial volumes discussed above.

6.3.1 Intersection Level of Service

Intersection operating conditions were analyzed with HCS 2000, which replicates the procedures in the Transportation Research Board's *Highway Capacity Manual, 2000*. Existing traffic volumes, signal phasing and estimated timings were input to the HCS program. Level of Service (LOS) determination using HCS 2000 was performed on the following intersections for AM and PM peak periods:

- 118th Avenue/Bryan Dairy at US 19
- 118th Avenue at 49th Street
- 118th Avenue at 40th Street
- 118th Avenue at 34th Street
- 118th Avenue at 31st Court
- 118th Avenue at 28th Street

Table 6-4 summarizes the existing LOS for each intersection in the AM and PM peak hours. Copies of the HCS summary sheets are included in the Appendix of the *Final Traffic Technical Memorandum.*

Table 6-4 Existing Intersection Levels of Service

Location	AM Peak Hour LOS	PM Peak Hour LOS
Signalized Intersections		
118th Avenue/US 19	F	F
118th Avenue/49th Street	F	F
118th Avenue/31st Court	C	C
118th Avenue/28th Street	D	D
Unsignalized Intersections	SB-Thru	SB-Thru
118th Avenue/40th Street	B	C
118th Avenue/34th Street	B	F

6.4 TRAFFIC PROJECTIONS METHODOLOGY

The Tampa Bay Regional Planning Model Version 4.0 (TBRPM) as adopted by the Pinellas County MPO was used to project year 2025 traffic volumes. The base for the travel demand modeling of this 118th Avenue study was the US 19 roadway design (FPN 256994-1) 2025 version of the TBRPM. Adjustments were made to conform to the roadway design on the Roosevelt Connector from Ulmerton Road to 40th Street (FPN 256995-1). The US 19 design model was chosen because this model included the most current proposed roadway improvement designs and was a validated model. The US 19 model provided the best base condition with the least number of necessary network changes for the proposed alternatives in the 118th Avenue area.

6.5 TRAFFIC VOLUME PROJECTIONS

Year 2025 Traffic Volumes and Volume/Capacity Ratios

The year 2025 daily travel projections and capacity analysis are selected outputs from the TBRPM model. The traffic is represented as Peak Season Weekday Average Daily Traffic (PSWADT) volumes. Peak season is regarded as occurring between January and March. PSWADT's are converted to AADT's by the use of a Model Output Conversion Factor (MOCF). This factor is 0.94 for Pinellas County. The AADT is the average

traffic on a facility over a year, which covers both weekdays as well as weekends. Volume over Capacity (V/C) ratios are represented as the PSWADT volumes divided by roadway capacity. A V/C ratio over 0.90 is considered "congested" and approaching a LOS of "E." Below is a brief description for the No-Build and Recommended Build alternatives describing the projected year 2025 PSWADT volumes, regional travel patterns, and the associated roadway V/C ratios. The *Final Traffic Technical Memorandum* summarizes projected daily and hourly design traffic for all alternatives by link, for the design year 2025. It also displays changes that would occur for each alternative, as compared to the No-Build or base alternative (designated as Alternative A-E in the previous Feasibility Study), on a V/C basis of greater than 0.95. The *Final Traffic Technical Memorandum* also shows the percentage change in traffic for each alternative, as compared to the base alternative. A brief description of model volumes for the No-Build and Recommended Build alternatives only is included below.

No-Build (Alternative A-E)

The projected traffic volumes on US 19 between Ulmerton Road and 118th Avenue are 104,000 vehicles per day (VPD) on the mainline and 16,500 VPD on the frontage roads while 49th Street is carrying 31,000 VPD and the Roosevelt Connector as an expressway-type facility is carrying 72,000 VPD between Ulmerton Road and 118th Avenue. Ulmerton Road traffic ranges from 59,600 VPD east of US 19 to over 66,500 VPD east of the Roosevelt Connector. Bryan Dairy Road west of US 19 has approximately 53,000 VPD while 118th Avenue fluctuates between 62,000 and 60,000 VPD from US 19 to 43rd Street. The east/west mainline traffic after 118th Avenue merges with the Roosevelt Connector is approximately 97,600 VPD traveling to/from I-275 and the traffic on the local roads is 13,700 VPD. Links on the following roadways have a V/C ratio greater than 0.95, which represents congested roadways: US 19, Ulmerton Road, Roosevelt Boulevard, CR 296, and 118th Avenue.

Recommended Build Alternative (Dmod-G)

The projected traffic volumes on US 19 between Ulmerton Road and 118th Avenue are 105,100 VPD on the mainline and 26,800 VPD on the frontage road system. The Roosevelt Connector traffic is 57,600 VPD in this alternative. The traffic on 118th Avenue is 80,400 VPD east of 49th Street comprised of 49,700 VPD on the mainline and 30,700 VPD on the local roads. Ulmerton Road traffic ranges from over 54,300 VPD east of US 19 to 63,600 VPD east of Roosevelt Connector. Bryan Dairy Road traffic has 48,900 VPD west of US 19. Links on the following roadways have a V/C ratio greater than 0.95, which represents congested roadways: US 19, Ulmerton Road, Roosevelt Boulevard CR 296, and 118th Avenue.

Design Year Roadway Segment Levels of Service

Roadway segment LOS was conducted on 118th Avenue from west of US 19 to 31st Court. **Table 6-5** shows the roadway segment LOS for the No-Build and Recommended Build alternatives.

Design Year Peak Hour Intersection LOS

The TURNS5 computer program was used to develop the Design Year 2025 intersection turning movements. The program is recommended in the FDOT "Project Traffic Forecasting Handbook" as the preferred methodology for developing "balanced' TMCs for existing and proposed intersections. The TURNS5 program allows the user to input an existing year AADT and model forecast year AADT for each intersection leg. See Appendix D of the *Final Traffic Technical Memorandum* for the TURNS5 printouts. The K30 and D30 factors were used by the program to calculate the DHVs for the AM and PM peak hours. The TURNS5 program provides output of AADT and DHVs and allows for comparison and smoothing ensuring that the method is producing reasonable results. Results of the HCS analysis for design year volumes are presented in **Table 6-6**. Summary pages for the HCS analysis are also presented in Appendix D of the *Final Traffic Technical Memorandum*.

Design Year Merge and Diverge Analysis

Alternatives development resulted in several new ramp junctions for each alternative. Ramp junctions were analyzed using HCS to determine the merge and diverge LOS for each new ramp. As can be seen in **Table 6-7**, all the new ramp junctions display an acceptable LOS of "D", or better. Printouts of the results of the HCS ramp analysis are provided in Appendix D of the *Final Traffic Technical Memorandum.*

TABLE 6-5
Year 2025 AADT LOS

Alternative	Road	From	To	Facility Type	AADT NB/EB	AADT SB/WB	LOS NB/EB*	LOS SB/WB*
A-E	118th Ave N Local	66th St N	US 19	6LD	***25,050***	***24,725***	D	F
A-E	118th Ave N Local	US 19	49th St / CR 296	6LD	***28,903***	***29,443***	F	F
A-E	118th Ave N Local	49th St N	40th St N	6LD	***28,639***	***27,837***	F	F
A-E	118th Ave N Local	40th St N	Ramp to CR 296	4LD	***20,090***	***20,847***	F	F
A-E	118th Ave N Local	Ramp to CR 296	34th St N	4LD	***5,742***	***7,146***	C	C
A-E	118th Ave N Local	34th St N	Ramp to CR 296	4LD	***8,499***	***9,424***	C	C
A-E	118th Ave N Local	Ramp to CR 296 (31st Ct)	28th St N	4LD	***8,388***	***6,759***	C	C
Dmod-G	118th Ave N Local	66th St N	US 19	6LD	24,339	24,549	F	D
Dmod-G	118th Ave N Local	US 19	49th St N	6LD	25,259	30,077	F	F
Dmod-G	118th Ave N Local	49th St N	40th St N	4LD	14,794	14,101	D	E
Dmod-G	118th Ave N Local	40th St N	Ramp to CR 296	4LD	9,861	7,519	C	C
Dmod-G	118th Ave N Local	Ramp to CR 296	34th St N	4LD	9,861	7,519	C	C
Dmod-G	118th Ave N Local	34th St N	Ramp to CR 296	4LD	11,240	8,922	C	C
Dmod-G	118th Ave N Local	Ramp to CR 296 (31st Ct)	28th St N	4LD	8,891	7,127	C	C

* : LOS determined by use of FDOT *2002 Quaulity/Level of Service Handbook* Service Volumes from Generalized Tables.

TABLE 6-6
Year 2025 HCS Intersection Analysis Results

	AM Peak Hour										PM Peak Hour									
	NB		SB		EB		WB		Overall		NB		SB		EB		WB		Overall	
Intersection/Alternative	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
US 19/118th Avenue																				
Existing 2003	292.0	F	291.7	F	353.3	F	261.6	F	303.7	F	321.7	F	388.5	F	298.7	F	373.7	F	348.1	F
A-E 2025	85.3	F	192.0	F	79.4	E	76.9	E	103.6	F	147.2	F	447.1	F	89.2	F	117.8	F	183.5	F
Dmod-G 2025	217.4	F	211.6	F	46.5	D	40.1	D	103.7	F	514.4	F	45.9	D	63.3	E	63.4	E	120.1	F
49th Street/118th Avenue																				
Existing 2003	254.3	F	216.5	F	427.9	F	95.6	F	280.4	F	49.4	D	43.3	D	105.2	F	141.0	F	88.5	F
A-E 2025	44.7	D	38.2	D	554.8	F	663.2	F	426.8	F	41.2	D	36.4	D	537.8	F	773.8	F	467.3	F
Dmod-G 2025	46.2	D	34.8	C	61.4	E	42.5	D	46.6	D	89.4	F	37.4	D	47.7	D	55.2	E	54.9	D
43rd Street/118th Avenue																				
Existing 2003	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
A-E 2025	--	--	92.3	F	34.7	C	25.1	C	39.9	D	--	--	207.0	F	38.3	D	15.5	B	53.8	D
Dmod-G 2025	--	--	44.0	D	31.6	C	33.7	C	34.8	C	--	--	44.0	D	31.6	C	33.7	C	34.8	C
40th Street/118th Avenue																				
Existing 2003	--	--	12.3	B	--	--	7.2	A	--	--	--	--	16.2	C	--	--	7.2	A	--	--
A-E 2025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dmod-G 2025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
										--	--									--
34th Street/118th Avenue																				
Existing 2003	--	--	14.8	B	--	--	7.2	A	--	--	--	--	193.6	F	--	--	7.2	A	--	--
A-E 2025 (north)	--	--	26.9	D	--	--	7.3	A	--	--	--	--	39.3	E	--	--	7.3	A	--	--
A-E 2025 (south)	--	--	15.4	C	7.3	A	--	--	--	--	--	--	14.1	B	7.3	A	--	--	--	--
Dmod-G 2025 (north)	--	--	14.1	B	--	--	7.3	A	--	--	--	--	11.0	B	--	--	7.3	A	--	--
Dmod-G 2025 (south)	--	--	15.2	C	7.5	A	--	--	--	--	--	--	13.8	B	7.4	A	--	--	--	--
31st Court/118th Avenue																				
Existing 2003	50.2	D	41.9	D	24.2	C	37.5	D	30.0	C	65.4	E	43.0	D	20.4	C	44.3	D	33.7	C
A-E 2025	57.2	E	51.8	D	19.8	B	22.0	C	29.3	C	58.9	E	51.9	D	18.8	B	33.5	C	34.7	C
Dmod-G 2025	53.3	D	51.7	D	22.0	C	30.0	C	31.5	C	55.2	E	51.8	D	22.0	C	31.4	C	32.5	C
28th Street/118th Avenue																				
Existing 2002	56.0	E	42.1	D	49.1	D	36.7	D	48.4	D	37.7	D	53.3	D	58.9	E	59.4	E	53.0	D
A-E 2025	38.8	D	42.1	D	30.7	C	39.5	D	36.4	D	38.8	D	42.6	D	30.1	C	32.1	C	35.5	D
Dmod-G 2025	17.9	B	27.9	C	24.8	C	19.9	C	23.9	C	17.5	B	26.7	C	25.4	C	20.7	C	23.8	C

TABLE 6-7
HCS Ramp Analysis Results

Alternative	Ramp Description	Ramp Length (ft)	No Lanes Freeway	Freeway Vol (Daily)	Freeway Vol (DHV)	Ramp Vol (Daily)	Ramp Vol (DHV)	LOS
A-E	WB 40th St on ramp (merge) to NB CR 296	605	3	35,368	3,466	5,157	505	C
A-E	SB CR 296 off ramp (diverge) to WB 40th St	500 *	3	39,528	3,874	4,310	422	C
A-E	WB 118th St off ramp (diverge) to WB frontage west of 34th	500 *	3	50,556	4,954	15,188	1,488	D
A-E	EB frontage on ramp (merge) to EB 118th St west of 34th	500 *	3	35,216	3,451	15,905	1,559	D
Dmod-G	SB US 19 off ramp (diverge) to EB 118th Ave	230	3	50,210	4,921	9,040	886	D
Dmod-G	WB 118th Ave off ramp (merge) to WB frontage east of US 19	622	2	17,962	1,760	11,855	1,162	C
Dmod-G	EB frontage on ramp (merge) to EB 118th Ave east of US 19	543	2	9,040	886	8,900	872	B
Dmod-G	WB 118th Ave off ramp (diverge) to WB frontage east of 49th St north	717	2	22,712	2,226	4,750	466	B
Dmod-G	EB 118th Ave on ramp (merge) to EB frontage east of 49th St north	1652	2	17,940	1,758	6,089	597	B
Dmod-G	WB 40th St on ramp (merge) to NB CR 296	605	3	26,404	2,588	4,470	438	B
Dmod-G	SB CR 296 off ramp (diverge) to WB 40th St	500 *	3	26,726	2,619	3,204	314	B

* Ramp length data not available: conservative value of 500 feet assumed

SECTION 7 – CORRIDOR ANALYSIS

Alternative corridors were investigated and found to be neither reasonable nor feasible for the proposed project. This part of Pinellas County is heavily urbanized with mostly residential, commercial and industrial land uses. Developing a new transportation corridor would require both an extensive number of relocations (both residences and businesses) and very expensive right-of-way. It is not considered prudent to consider a new facility on new alignment unless improvements to the existing roadway are not reasonable or feasible. In this case, improvements to 118th Avenue are both reasonable and feasible, so alternative corridors were not considered.

Parallel roadway corridors are already being improved as part of separate projects, e.g. Ulmerton Road and Park Boulevard.

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SECTION 8 – ALTERNATIVE ALIGNMENT ANALYSIS

The objective of this project is to improve capacity to safely and efficiently accommodate the projected design traffic within the corridor. To provide a facility that is in the best overall public interest, the design must take into account engineering, environmental, and economic factors along with the constructability of the facility. Each must be considered in the selection of the preferred alternative.

The following sections summarize the alternatives considered for this project and the evaluation methods used to compare the alternatives.

8.1 NO-BUILD ALTERNATIVE

The No-Build Alternative maintains the current roadway configuration on 118th Avenue as a six-lane divided urban arterial and US 19 as planned with an overpass and a tight urban diamond interchange. The Roosevelt Connector would be constructed as a limited access facility with on and off ramps to 118th Avenue. Alternative A-E is considered the base condition because the transportation improvements at US 19 and the Roosevelt Connector are currently in the design stage. 118th Avenue would have at-grade signalized intersections at US 19, 49th Street and 43rd Street. The base condition will be analyzed and compared to the various Build Alternatives developed.

The No-Build Alternative consists of canceling or delaying the proposed improvements to 118th Avenue beyond the design year of 2025. Specific advantages would be realized with the implementation of the No-Build Alternative, including:

- No new expenditures for construction or right-of-way
- No disruption to existing land uses due to construction activities
- No right-of-way acquisitions or relocations
- No disruption to traffic during construction
- No environmental degradation or disruption of natural resources

The disadvantages of the No-Build Alternative include:

- Unacceptable LOS on the existing facility
- Increased traffic congestion causing increased road-user cost due to travel delay
- Deterioration of air quality caused by traffic congestion and delays
- Further deterioration of the existing safety deficiencies due to increases in traffic
- Increased road maintenance costs
- Higher right-of-way and construction costs at later dates of proposed construction implementation

8.2 TRANSPORTATION SYSTEM MANAGEMENT

The Transportation System Management (TSM) alternative was also considered for this project. TSM consists of low-cost capital improvements that maximize the efficiency of the present system through the reduction of single occupancy vehicular trips and improvements to operational efficiency. TSM activities currently in place within the Greater Tampa Bay area include the following:

- Active "Transportation Management Organizations" within Pinellas County, which provide car-pooling, van sharing, mass transit incentives and flextime support services to businesses and the general public
- Frequent bus service within the corridor operated by the Pinellas Suncoast Transit Authority (PSTA) that is in compliance with the Americans with Disabilities Act. Additionally, the transit system has implemented various improvements and/or incentives to increase ridership. Such measures include Demand Response Transportation, bicycle racks for buses, a bus shelter program and reduced fares for the disabled and the elderly

Other TSM activities could include operational improvements within the corridor. These improvements could include adding additional turn lanes at the major intersections, as well as retiming the signals and putting them on an interconnected system.

While all of these improvements would certainly alleviate some of the current deficiencies, they would do little towards providing a minimum desirable LOS for the increasing future traffic volumes.

8.3 ALIGNMENTS CONSIDERED IN FEASIBILITY STUDY

As stated previously in Section 2, the FDOT completed a Feasibility Study in 2004 to evaluate alternative improvements along 118th Avenue (CR 296). Alternatives developed in that study addressed improvements only to the existing 118th Avenue corridor.

8.3.1 Initial Concepts Developed

US 19 and Bryan Dairy Road/118th Avenue Interface Concepts

Five concepts (A, B, C, D, and F; E applied to a Roosevelt connection concept) were initially identified for the 118th Avenue interface with US 19 as follows:

- *Concept A* currently under design, provides a controlled access connection along US 19. Through traffic movements and turning movements along Bryan Dairy Road/118th Avenue are at grade.
- *Concept B* provides a controlled access connection between US 19 (north of 118th Avenue) and 118th Avenue (east of US 19). All other movements including through movements and remaining turning movements along Bryan Dairy Road and US 19 are at-grade.
- *Concept C* provides controlled access through movements for both US 19 and Bryan Dairy Road/118th Avenue. All turning movements are at grade.
- *Concept D* provides a controlled access through movement along US 19 and a controlled access connection between US 19 (north of 118th Avenue) and 118th Avenue (east of US 19). Bryan Dairy Road/118th Avenue through movements, along with all other turning movements, are at-grade.
- *Concept F* maintains the US 19 at-grade intersection with Bryan Dairy Road/118th Avenue and provides flyovers for 118th Avenue and US 19. Uninterrupted movements are westbound 118th Avenue to northbound US 19,

southbound US 19 to eastbound 118th Avenue, and east-west traffic on 118th Avenue/Bryan Dairy Road. North-south motorists on US 19 would encounter an at-grade intersection at 118th Avenue.

Following coordination with the Pinellas MPO and the FDOT, three additional concepts were developed:

- *Concept DC4* provides a 4-level semi-directional interchange at US 19 and 118th Avenue. The mainline of US 19 is elevated to a second level and 118th Avenue is elevated to a third level, while the US 19 southbound to 118th Avenue eastbound movement would be handled by a fourth level flyover.
- *Concept DC3* provides a 3-level semi-directional interchange at US 19 and 118th Avenue. This concept is similar to DC4 but with an alteration at US 19. Only two movements could not be made at US 19 and 118th Avenue: westbound-to-southbound and eastbound-to-northbound.
- *Concept Dmod* provides a controlled access through movement from southbound US 19 to eastbound 118th Avenue. The difference between Concept D and Concept Dmod is that the flyover from westbound 118th Avenue to northbound US 19 is removed and the turning movement is provided at-grade. Bryan Dairy Road/118th Avenue through movements, along with all other turning movements, are at-grade.

Roosevelt Connector / 118th Avenue Interface

There are two main traffic movements that would be involved with signalized intersections on or between the Roosevelt Connector and 118th Avenue. These major traffic movements are:

- Southbound-to-eastbound and westbound-to-northbound movements to or from the Roosevelt Connector and 118th Avenue
- East-to-west movements on 118th Avenue at the Roosevelt Connector

Three concepts (E, G, and H) were identified for the 118th Avenue interface at the Roosevelt Connector as follows:

- *Concept E* currently under design, provides a controlled access connection along Roosevelt Connector. Connections to 118th Avenue are at-grade.
- *Concept G* provides a controlled access connection along the Roosevelt Connector along with a controlled access connection to 118th Avenue.
- *Concept H* provides a controlled access connection between the Roosevelt Connector east of 40th Street (the east-west segment) to 118th Avenue westward. The movements between the east-west segment and the north-south segment of the Roosevelt Connector are at-grade. Roosevelt Connector Phase 5 & 6 (north of Ulmerton Road) would remain unchanged.

8.3.2 Alternatives Considered

By combining the six alternative concepts for US 19 at Bryan Dairy Road/118th Avenue with the two configurations for Roosevelt Connector at 118th Avenue, twelve alternatives were developed. (B-G, C-G, D-G, F-G, DC4-G, DC3-G and B-H, C-H, D-H, F-H, DC4-H, DC3-H). A modification to the D (Dmod) was combined with the G option for the thirteenth alternative labeled Dmod-G. Alternative A-E represents the proposed condition after the projects currently under design are completed (the No-Build condition).

Alternative A-E1 introduces an overpass on 118th Avenue at 49th Street to the No-Build condition.

Alternative A-G adds an additional elevated segment of 118th Avenue between 49th Street and the Roosevelt Connector thereby providing a controlled access connection to the Roosevelt Connector from 118th Avenue west of 49th Street.

Refer to the *Identification of Alternatives and Preliminary Feasibility Analysis*, (Feasibility Study) March 2004 Section 6.4, for further details of the original alternatives.

8.3.3 Evaluation of Alternatives

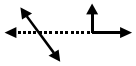
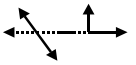
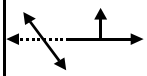
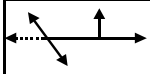
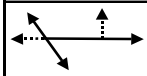
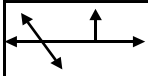
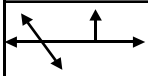
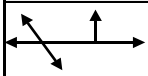
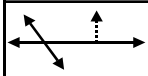
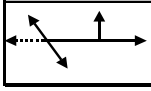
Alternative concepts as described in Section 8.3.1 were described in greater detail in the *Identification of Alternatives and Preliminary Feasibility Analysis*, March 2004.

Alternatives were established based on a combination of conceptual intersection/ interchange configurations for both the US 19/118th Avenue area (Concepts A, B, C, D, F, DC4, DC3 and Dmod) and the 118th Avenue/Roosevelt Connector area (Concepts E, G, and H). Fifteen alternatives were originally identified in the Feasibility Study (A-E, A-E1, A-G, B-G, B-H, C-G, C-H, D-G, D-H, F-G, F-H, DC4-G DC4-H DC3-G, and DC3-H).

As documented in the Feasibility Study upon conferral with the FDOT, Alternatives B-G, B-H, C-G, C-H, F-G, and F-H were dropped from further consideration. Ten (10) alternatives remained (A-E, A-E1, A-G, D-G, D-H, DC4-G DC4-H DC3-G, DC3-H, Dmod-G) for further evaluation and public input.

An evaluation matrix (**Table 8-1**) was generated as a tool for qualitative comparison of alternatives by assigning a good, average, or poor rating to each alternative for each of the evaluation criteria.

Table 8-1
Alternatives and Preliminary Feasibility Analysis
Evaluation Matrix

Through Movements	Alterna-tive	Mobility				Social/ Environmental		Economic		
		Links w/ V/C ratio < 0.45	Links w/ V/C ratio > 0.90	Regional Mobility	Regional Connectivity w/ US 19 and Bryan Dairy	Wetlands	Relocations	Total Net Const/ ROW Costs	Right of Way	Redevel-opment
	A-E	Poor	Poor	Poor	Poor	Good	Good	Good	Good	Average
	A-E1	Average	Average	Poor	Poor	Average	Average	Good	Good	Average
	A-G	Average	Average	Poor	Poor	Average	Average	Good	Good	Poor
	D-G	Poor	Poor	Good	Good	Poor	Poor	Poor	Poor	Poor
	D-H	Average	Poor	Average	Good	Poor	Average	Average	Poor	Good
	DC4-G	Poor	Poor	Good	Good	Poor	Poor	Poor	Poor	Poor
	DC4-H	Average	Poor	Good	Good	Poor	Poor	Poor	Poor	Good
	DC3-G	Poor	Poor	Good	Good	Poor	Average	Poor	Poor	Poor
	DC3-H	Average	Poor	Good	Good	Poor	Average	Average	Average	Good
	Dmod-G	Poor	Poor	Good	Average	Poor	Poor	Poor	Poor	Poor

KEY:

Good

Average

Poor

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8.4 REFINED STUDY ALTERNATIVES

8.4.1 Concept Development

Impacts to the proposed interchange (currently under design) at the US 19 and Bryan Dairy Road/118th Avenue (Concept A) were examined. Alternative concepts from the previously mentioned Feasibility Study (Concepts D, DC3, DC4, and modified D or Dmod) were examined at US 19 and Bryan Dairy Road/118th Avenue to assess the impacts these options would have on the future regional circulation patterns along with the ability for the adjacent links to handle the anticipated increased traffic.

Alternatives for the interchange of US 19 at Bryan Dairy Road/118th Avenue were developed with the goal of no disruption to the proposed current design (Concept E) at 118th Avenue/Roosevelt Connector. An alternative concept (Concept G) was developed that allowed controlled access to be maintained along both the Roosevelt Connector and 118th Avenue to the west. After reviewing the traffic projections (see Section 6), it appeared that the extension of controlled access along 118th Avenue towards Bryan Dairy Road redirects a significant amount of traffic from the Roosevelt Connector. In response to this observation, an alternative concept at 118th Avenue/Roosevelt Connector (Concept H) was developed. This concept would allow the north-south segment of the Roosevelt Connector to act more as an entryway to the St. Petersburg Airport with connections at 49th Street to the north and 118th Avenue to the south, rather than a regional controlled access connector.

8.4.2 Combination of Concepts – Building the Alternatives

By combining the five alternative concepts for US 19 at Bryan Dairy Road/118th Avenue with the two configurations for Roosevelt Connector at 118th Avenue, nine alternatives were developed: (A-E1, A-G, D-G, D-H, DC3-G, DC3-H, DC4-G, DC4-H, and Dmod-G). Alternative A-E represents the proposed condition after the projects currently under design are completed (No-Build or base condition). Alternative A-E1 adds an overpass on 118th Avenue at 49th Street to the base condition. Alternative A-G adds an additional elevated segment of 118th Avenue between 49th Street and the Roosevelt Connector

thereby providing a controlled access connection to the Roosevelt Connector from 118th Avenue.

8.4.3 Description of Alternatives

Alternative A-E1 -The only difference between this alternative and the No Build Alternative (A-E) is that the intersection of 49th Street and 118th Avenue would be grade-separated. 118th Avenue would remain a six-lane divided urban arterial. The US 19/118th Avenue intersection would be a tight urban diamond interchange with US 19 elevated over 118th Avenue. This alternative also uses the current planned initiatives on the Roosevelt Connector corridor. The 43rd Street intersection at 118th Avenue would remain at-grade.

Alternative A-G - Includes a full diamond interchange at US 19/118th Avenue with US 19 elevated over 118th Avenue. This interchange is a tight urban diamond configuration as recommended in the US 19 Corridor Study. The Roosevelt Connector southbound-to-eastbound over 118th Avenue is a third level ramp allowing for the introduction of a second level of the 118th Avenue connector with the Roosevelt Connector to also pass over 49th Street. 43rd Street remains connected to the 118th Avenue frontage roads. The movements between the Roosevelt Connector and the 118th Avenue corridor would be uninterrupted.

Alternative D-G - This alternative provides a second-level flyover for westbound-to-northbound movements and a third-level flyover for the southbound-to-eastbound movements between US 19 and 118th Avenue. The intersection of 49th Street/118th Avenue would be grade separated. The Roosevelt Connector southbound-to-eastbound would be elevated over 118th Avenue to a third level allowing for the introduction of a second level of the 118th Avenue connector with the Roosevelt Connector to also pass over 49th Street. This alternative allows the intersection at 43rd Street to remain connected to the 118th Avenue frontage roads.

Alternative D-H - This alternative provides a second-level flyover for westbound-to-northbound movements and a third-level flyover for the southbound-to-eastbound movements between US 19 and 118th Avenue. This alternative proposes grade-separated intersections at 49th Street/118th Avenue and the Roosevelt Connector/118th Avenue by developing a split diamond interchange on 118th Avenue between 49th Street and the Roosevelt Connector.

Alternative DC3-G – Includes a three-level interchange at the intersection of US 19 and 118th Avenue. US 19 mainline is at-grade with frontage roads and slip ramps between Ulmerton Road and 118th Avenue. Westbound 118th Avenue is at a second level while eastbound 118th Avenue is at the third level. Two movements cannot be made at the US 19 and 118th Avenue intersection: westbound to southbound and eastbound to northbound. The Roosevelt Connector is elevated over 118th Avenue on a third level and westbound 118th Avenue to northbound Roosevelt Connector is on the second level. This alternative allows the intersection at 43rd Street to remain connected to the 118th Avenue frontage roads.

Alternative DC3-H – Is nearly identical to Alternative DC3-G with the exception that Concept H is utilized at the intersection of 118th Avenue and the Roosevelt Connector. Although the connection to the north on the Roosevelt Connector would no longer be uninterrupted, a split diamond would allow access from Ulmerton Road to 118th Avenue.

Alternative DC4-G – Includes a four-level interchange at US 19 and 118th Avenue. There are at-grade signalized intersections for the frontage roads along both US 19 and 118th Avenue. US 19 mainline is elevated over the intersection as a second-level. 118th Avenue mainline is elevated to a third level. The ramp from southbound US 19 to eastbound 118th Avenue would be a fourth-level flyover while the westbound 118th Avenue to northbound US 19 ramp would be a second-level flyover. The intersection at 118th Avenue and 49th Street is a split diamond interchange with slip ramps to 118th Avenue. The Roosevelt Connector southbound-to-eastbound ramp would be elevated over 118th Avenue to a third level and the westbound 118th Avenue to the northbound

Roosevelt Connector is a second-level flyover. The intersection at 43rd Street remains connected to the 118th Avenue frontage roads and ultimately the Roosevelt Connector.

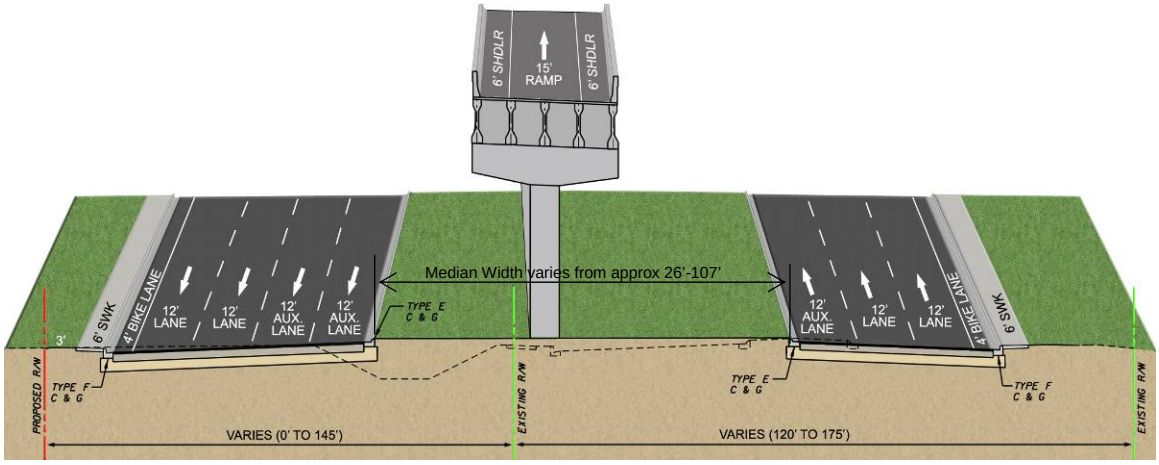
Alternative DC4-H – The only difference between this alternative and DC4-G is this Alternative utilizes Concept H at 118th Avenue and the Roosevelt Connector. This alternative provides grade-separated intersections at 49th Street/118th Avenue and the Roosevelt Connector/118th Avenue by developing a split diamond interchange on 118th Avenue between 49th Street and the Roosevelt Connector. Although the connection to the north on the Roosevelt Connector would no longer be uninterrupted, a split diamond interchange allows access from Ulmerton Road to 118th Avenue.

Alternative Dmod-G – Following the Alternatives Public Workshop, Alternative Dmod-G was developed. This alternative is a variation of D-G with the removal of the second-level flyover for westbound 118th Avenue to northbound US 19 movements. With this change the alterations to FPID 257070-1 (US 19) are minimized and limited to the southbound frontage road/ramp modifications north of 118th Avenue. This alternative maintains a third-level flyover for the southbound-to-eastbound movements between US 19 and 118th Avenue. The intersection of 49th Street/118th Avenue would be grade separated. The Roosevelt Connector southbound-to-eastbound would be elevated over 118th Avenue to a third level allowing for the introduction of a second level of the 118th Avenue connector with the Roosevelt Connector to also pass over 49th Street. This alternative allows the intersection at 43rd Street to remain connected to the 118th Avenue frontage roads **(See Appendix)**.

8.4.4 Typical Sections

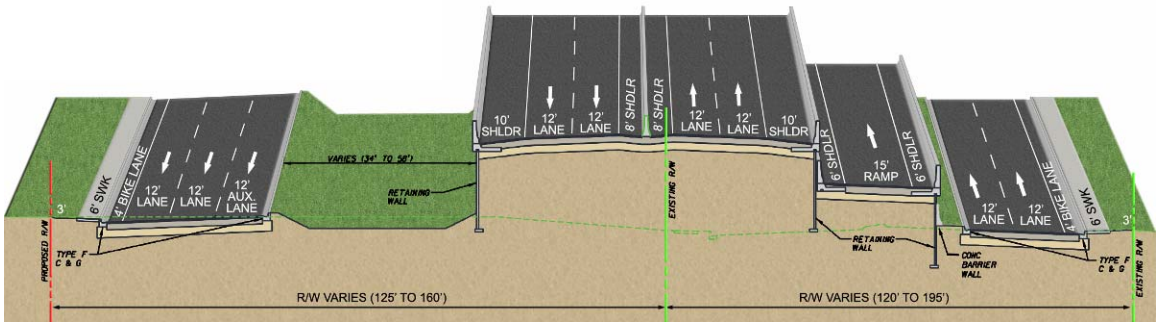
The proposed 118th Avenue roadway typical section west of 49th Street is shown in Figure 8-1. The improvement proposed for the 118th Avenue at-grade roadway is a multilane divided controlled-access urban typical section facility. West of 49th Street this typical section contains four 12-foot lanes (two in each direction) with auxiliary lanes for the ramp connections to the elevated express lanes with a 4-foot bicycle lane and 6-foot sidewalk on each side. A single-lane flyover ramp from southbound US 19 to eastbound 118th Avenue is proposed, based on the capacity/level of service analysis.

Figure 8-1
Proposed Typical Section West of 49th Street



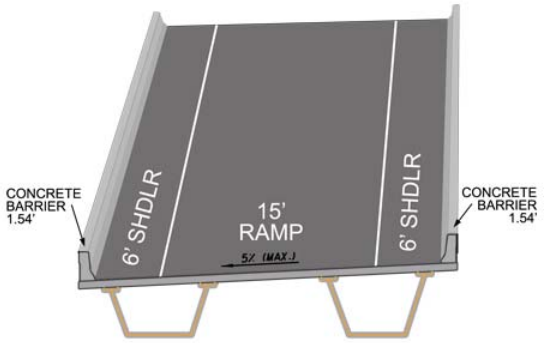
The 118th Avenue roadway typical section east of 49th Street is shown in Figure 8-2. East of 49th Street, the eastbound roadway system (frontage road) 118th Avenue typical section would include two 12-foot lanes with auxiliary lanes for the ramp connections to the elevated express lanes and a 4-foot bike lane and 6-foot sidewalk. The westbound local roadway system (frontage road) 118th Avenue typical section would contain two 12-foot lanes with a 4-foot bike lane and 6-foot sidewalk. The elevated express lanes contain two 12-foot lanes in each direction with a 10-foot outside shoulder separated by a 2-foot median barrier with 8-foot inside shoulders. A slip ramp from the frontage road system to the mainline is shown in this typical section.

Figure 8-2 – Proposed Typical Section East of 49th Street



The flyover ramp from southbound US 19 to eastbound 118th Avenue is a single 15-foot wide ramp with 6-foot shoulders on both sides. The typical section is shown in **Figure 8-3**.

Figure 8-3 - Typical Section For the Flyover Ramp



TYPICAL SECTION
118th AVENUE CONNECTOR
FLY-OVER RAMP
(SB US 19 TO EB 118th)

8.5 EVALUATION MATRIX

Once the alternatives were selected, an evaluation matrix was prepared for this project. The matrix quantified effects to the human and natural environment and provides a comparison of impacts and costs for the proposed improvements. The matrix includes costs for design, construction, construction engineering and inspection (CEI), and right-of-way. The evaluation matrix (**Table 8-2**) shows initial results of the evaluation of the alternatives discussed above.

Table 8-2 Evaluation Matrix

EVALUATION FACTORS	ALTERNATIVES									
	NO-BUILD	A-E1	A-G	D-G	D-H	DC3-G	DC3-H	DC4-G	DC4-H	Dmod-G
Business Relocations (No Residential Relocations Involved)										
Number of estimated business relocations	0	10	21	29	45	32	34	32	36	29
Right-Of-Way Involvement										
Number of parcels	0	29	21	56	72	63	75	58	75	46
Area of ROW to be acquired in acres for roadway	0	4.96	8.41	24.83	51.09	32.16	55.88	36.32	61.07	23.97
Community Facility Effects [1]										
Number of cemeteries affected	0	1	1	1	1	1	1	1	1	1
Cultural/Historical Resources And Public Parks Involvement										
Number of historic sites/structures within or adjacent to ROW	0	0	0	0	0	0	0	0	0	0
Number of public parks within or adjacent to ROW	0	0	0	0	0	0	0	0	0	0
Natural Environment Involvement										
Estimated No. of impacted wetlands or OSW	0	5	5	6	6	6	6	6	6	5

Table 8-2 Evaluation Matrix (Continued)

EVALUATION FACTORS	ALTERNATIVES									
	NO-BUILD	A-E1	A-G	D-G	D-H	DC3-G	DC3-H	DC4-G	DC4-H	Dmod-G
Estimated Project Costs (Present Value in million $)										
Design costs	**$0**	**$3**	**$6**	**$13**	**$15**	**$18**	**$19**	**$24**	**$24**	**$10.9**
Right-of-Way acquisition costs	**$0**	**$25**	**$41**	**$84**	**$101**	**$89**	**$86**	**$103**	**$97**	**$77.5**
Construction costs	**$0**	**$28**	**$49**	**$108**	**$124**	**$152**	**$157**	**$200**	**$200**	**$90.9**
Construction engineering and inspection costs	**$0**	**$3**	**$6**	**$13**	**$15**	**$18**	**$19**	**$24**	**$24**	**$10.9**
Total Costs	$0	$59	$102	$218	$255	$277	$281	$351	$345	$190.2
Adjacent Projects* Construction & R/W Costs (without project)	**$236**	**$236**	**$236**	**$236**	**$236**	**$236**	**$236**	**$236**	**$236**	**$236**
Adjacent Projects* Cost Reductions (with project)	**$0**	**$0**	**($6)**	**($21)**	**($74)**	**($59)**	**($101)**	**($55)**	**($96)**	**$0**
Total Costs (Net Affect to Work Program with Project) – All Four Projects**	$236	$295	$332	$433	$417	$454	$416	$532	$485	$426

N/A=Not Available

* Adjacent Projects =
Financial Project No. 257070-1-52-01 – US 19 from 49th Street to 126th Avenue
Financial Project No. 256994-1-52-01 – Roosevelt Connector Stage II – 28th Street to 40th Street
Financial Project No. 256995-1-52-01 – Roosevelt Connector Stage IV – 40th Street to north of Ulmerton Road

** All Four Projects =
Adjacent projects in addition to 118th Avenue (CR 296) Alternative Shown

[1]No impacts expected to any churches, schools, child care facilities, nursing homes, hospitals, or public services such as fire/police/EMS facilities.

8.6 RECOMMENDED BUILD ALTERNATIVE

The selection of a recommended Build Alternative focused on providing area needs such as regional connectivity, emergency evacuation choices, and meeting the future population and employment growth within the corridor.

The recommended Build Alternative, Dmod-G, would cost approximately $190 million (as of May 2005) In addition, the Dmod-G alternative would impact a total of 46 parcels. Alternative Dmod-G was selected because it provides regional travel movements from southbound US 19 to eastbound 118th Avenue while the westbound 118th Avenue to US 19 northbound is provided by an exclusive right turn lane. With the grade-separated interchange at 49th Street, the 118th Avenue corridor would be a controlled access facility which would provide some traffic relief for the Ulmerton Road corridor. The total project costs and right-of-way requirements are reduced because of the tighter roadway configuration and the removal of the flyover from westbound 118th Avenue to northbound US 19. This alternative would not disrupt the current design project at the US 19/118th Avenue interchange and it would provide a controlled-access facility between US 19 and I-275. Therefore, the recommended Build Alternative for the 118th Avenue corridor is the Dmod-G Alternative.

SECTION 9 – PRELIMINARY DESIGN ANALYSIS

The recommended Build Alternative presented at the Public Hearing (the "Preferred Alternative") was Alternative Dmod-G. This alternative includes constructing a controlled-access facility with frontage roads along 118th Avenue. This alternative provides a flyover ramp for the southbound-to-eastbound movement between US 19 and 118th Avenue and eastbound and westbound ramp connections with the Roosevelt Connector. The intersection of 49th Street/118th Avenue would be grade separated. The Roosevelt Connector southbound-to-eastbound would be elevated over 118th Avenue to a third level allowing for the introduction of a second level of the 118th Avenue connector with the Roosevelt Connector to also pass over 49th Street. This alternative would allow the intersection at 43rd Street to remain connected to the 118th Avenue frontage roads. Plan and profile views of the Preferred Alternative are included in the Appendix.

9.1 DESIGN TRAFFIC VOLUMES

The future traffic characteristics and traffic volumes obtained for the 118th Avenue study corridor are summarized in **Tables 9-1 and 9-2** and **Figures 9-1** and **9-2**.

Table 9-1: 2025 Design Hour Analysis Volume Summary

For the Recommended Build Alternative - Dmod-G
US 19 w/SB Ramp Flyover, Roosevelt Blvd Flyover

Road	From	To	Facility Type	PSWADT		AADT		K-Factor	DHV	D-Factor	DDHV	T-Factor	DTV	DHT
				NB/EB	SB/WB	NB/EB	SB/WB							
118th Ave N Local	34th St N	Ramp to CR 296	4LD	11,957	9,566	11,240	8,992	9.80%	1,983	55.66%	1,104	7.07%	1,430	70
118th Ave N Local	40th St N	Ramp to CR 296	4LD	10,490	7,999	9,861	7,519	9.80%	1,703	55.66%	948	7.07%	1,229	60
118th Ave N Local	49th St N	40th St N	4LD	15,738	15,001	14,794	14,101	9.80%	2,832	55.66%	1,576	7.07%	2,043	100
118th Ave N Local	66th St N	US 19	6LD	25,893	26,116	24,339	24,549	9.80%	4,791	55.66%	2,667	7.07%	3,456	169
118th Ave N Local	Ramp to CR 296	34th St N	4LD	10,490	7,999	9,861	7,519	9.80%	1,703	55.66%	948	7.07%	1,229	60
118th Ave N Local	Ramp to CR 296 (31st Ct)	28th St N	4LD	9,459	7,582	8,891	7,127	9.80%	1,570	55.66%	874	7.07%	1,132	55
118th Ave N Local	US 19	49th St N	4LD	26,871	31,997	25,259	30,077	9.80%	5,423	55.66%	3,018	7.07%	3,912	192
28th St	Roosevelt Blvd	118th Ave N Local	4LD	9,984	4,254	9,385	3,999	9.80%	1,312	55.66%	730	7.07%	946	46
34th St N	Ulmerton Rd	118th Ave N Local	4LD	2,952	2,817	2,775	2,648	9.80%	531	55.66%	296	7.07%	383	19
40th St	118th Local WB	Roosevelt SB Off	4LD	6,407	4,738	6,023	4,454	9.80%	1,027	55.66%	571	7.07%	741	36
40th St	Roosevelt SB Off	Roosevelt NB On	4LD	6,787	4,902	6,380	4,608	9.80%	1,077	55.66%	599	7.07%	777	38
49th St N	118th Ave N Local	US 19	6LD	17,809	16,027	16,740	15,065	9.80%	3,117	55.66%	1,735	7.07%	2,249	110
49th St N	Gulf to Bay Blvd	Roosevelt Blvd	6LD	29,232	30,059	27,478	28,255	9.80%	5,462	55.66%	3,040	7.07%	3,940	193
49th St N	Roosevelt Blvd	Ulmerton Rd	6LD	14,531	14,973	13,659	14,075	9.80%	2,718	55.66%	1,513	7.07%	1,961	96
49th St N	Ulmerton Rd	118th Ave N Local	6LD	17,184	17,101	16,153	16,075	9.80%	3,158	55.66%	1,758	7.07%	2,279	112
CR 296	40th St N	Roosevelt Connector	6LD	25,563	24,162	24,029	22,712	9.80%	4,581	55.66%	2,550	7.07%	3,305	162
CR 296	49th St N	40th St N	6LD	19,085	19,109	17,940	17,962	9.80%	3,518	55.66%	1,958	7.07%	2,538	124
CR 296	66th St N	US 19	4LD	25,893	26,116									
CR 296	US 19	49th St N	4LD	19,085	19,109	17,940	17,962	9.80%	3,518	55.66%	1,958	7.07%	2,538	124
Interstate 275	Gandy Blvd	Roosevelt Blvd	8LD	70,451	70,771	66,224	66,525	9.57%	12,704	52.30%	6,644	7.16%	9,505	455
Interstate 275	Roosevelt Blvd	MLK St Exit	8LD	52,171	53,049	49,041	49,866	9.57%	9,465	52.30%	4,950	7.16%	7,082	339
Roosevelt Blvd (CR 296)	126th Ave N	40th St N Ramps	6LD	32,844	28,432	30,873	26,726	9.80%	5,645	55.66%	3,142	5.98%	3,444	169
Roosevelt Blvd	Ulmerton Rd	28th St N	6LD	8,416	8,165	7,911	7,675	9.80%	1,527	55.66%	850	5.98%	932	46
Roosevelt Blvd	28th St N	Interstate 275	6LD	16,789	18,797	15,782	17,669	9.80%	3,278	55.66%	1,825	8.41%	2,813	138
Roosevelt Blvd	49th St N	140nd Ave N	6LD	41,482	36,172	38,993	34,002	9.80%	7,154	55.66%	3,982	5.98%	4,365	214
Roosevelt Blvd	Interstate 275	MLK St	6LD	32,806	31,106	30,838	29,240	9.80%	5,888	55.66%	3,277	4.70%	2,824	138
Roosevelt Blvd	MLK St	4th St N	6LD	21,945	21,359	20,628	20,077	9.80%	3,989	55.66%	2,220	7.11%	2,894	142
Roosevelt Blvd (CR 296)	Ulmerton Rd	126th Ave N	6LD	26,909	24,226	25,294	22,772	9.80%	4,710	55.66%	2,622	5.98%	2,874	141
Roosevelt Blvd	140nd Ave N	Ulmerton Rd	6LD	26,317	22,398	24,738	21,054	9.80%	4,488	55.66%	2,498	8.41%	3,851	189
Ulmerton Rd	34th St N	Roosevelt Blvd	6LD	32,144	31,748	30,215	29,843	9.80%	5,886	55.66%	3,276	6.89%	4,138	203
Ulmerton Rd	49th St N	Roosevelt Blvd	6LD	25,990	25,609	24,431	24,072	9.80%	4,753	55.66%	2,646	10.15%	4,923	241
Ulmerton Rd	Roosevelt Blvd	34th St N	6LD	33,980	33,670	31,941	31,650	9.80%	6,232	55.66%	3,469	6.89%	4,381	215
Ulmerton Rd	Roosevelt Blvd	Interstate 275	6LD	33,800	33,155	31,772	31,166	9.80%	6,168	55.66%	3,433	8.93%	5,620	275
Ulmerton Rd	US 19	49th St N	6LD	28,800	28,314	27,072	26,615	9.80%	5,261	55.66%	2,928	8.34%	4,477	219
US 19	110th Ave N	49th St N	6LD	34,959	38,276	32,861	35,979	9.80%	6,746	55.66%	3,755	3.93%	2,705	133
US 19	118th Ave N Local	110th Ave N	6LD	34,959	38,276	32,861	35,979	9.80%	6,746	55.66%	3,755	5.15%	3,545	174
US 19	126th Ave N	118th Ave N Local	6LD	51,726	53,415	48,622	50,210	9.80%	9,686	55.66%	5,391	5.15%	5,090	249
US 19	66th St N	Ulmerton Rd	6LD	42,966	46,176	40,388	43,405	9.80%	8,212	55.66%	4,571	4.59%	3,846	188
US 19	Ulmerton Rd	126th Ave N	6LD	51,726	53,415	48,622	50,210	9.80%	9,686	55.66%	5,391	5.15%	5,090	249

Table 9-2
2025 Alternatives Analysis Volume to Capacity (V/C) Ratios
For the Recommended Build Alternative - Dmod-G
US 19 w/SB Ramp Flyover, Roosevelt Blvd Flyover

Road	From	To	Facility Type	PSWADT		V/C Ratio (>0.95)	
				NB/EB	SB/WB	NB/EB	SB/WB
118th Ave N Local	34th St N	Ramp to CR 296	4LD	11,957	9,566		
118th Ave N Local	40th St N	Ramp to CR 296	4LD	10,490	7,999		
118th Ave N Local	49th St N	40th St N	4LD	15,738	15,001		
118th Ave N Local	66th St N	US 19	6LD	25,893	26,116	0.97	0.98
118th Ave N Local	Ramp to CR 296	34th St N	4LD	10,490	7,999		
118th Ave N Local	Ramp to CR 296 (31st Ct)	28th St N	4LD	9,459	7,582		
118th Ave N Local	US 19	49th St N	4LD	26,871	31,997	1.33	1.28
28th St	Roosevelt Blvd	118th Ave N Local	4LD	9,984	4,254		
34th St N	Ulmerton Rd	118th Ave N Local	4LD	2,952	2,817		
40th St	118th Local WB	Roosevelt SB Off	4LD	6,407	4,738		
40th St	Roosevelt SB Off	Roosevelt NB On	4LD	6,787	4,902		
49th St N	118th Ave N Local	US 19	6LD	17,809	16,027		
49th St N	Gulf to Bay Blvd	Roosevelt Blvd	6LD	29,232	30,059		
49th St N	Roosevelt Blvd	Ulmerton Rd	6LD	14,531	14,973		
49th St N	Ulmerton Rd	118th Ave N Local	6LD	17,184	17,101		
CR 296	40th St N	Roosevelt Connector	6LD	25,563	24,162		
CR 296	49th St N	40th St N	6LD	19,085	19,109		
CR 296	66th St N	US 19	4LD	--	--	--	--
CR 296	US 19	49th St N	4LD	19,085	19,109		
Interstate 275	Gandy Blvd	Roosevelt Blvd	8LD	70,451	70,771		
Interstate 275	Roosevelt Blvd	MLK St Exit	8LD	52,171	53,049		
Roosevelt Blvd (CR 296)	126th Ave N	40th St N Ramps	6LD	32,844	28,432		
Roosevelt Blvd	Ulmerton Rd	28th St N	6LD	8,416	8,165		
Roosevelt Blvd	28th St N	Interstate 275	6LD	16,789	18,797		
Roosevelt Blvd	49th St N	140nd Ave N	6LD	41,482	36,172		
Roosevelt Blvd	Interstate 275	MLK St	6LD	32,806	31,106	1.18	1.12
Roosevelt Blvd	MLK St	4th St N	6LD	21,945	21,359		
Roosevelt Blvd (CR 296)	Ulmerton Rd	126th Ave N	6LD	26,909	24,226		
Roosevelt Blvd	140nd Ave N	Ulmerton Rd	6LD	26,317	22,398		
Ulmerton Rd	34th St N	Roosevelt Blvd	6LD	32,144	31,748	1.16	1.14
Ulmerton Rd	49th St N	Roosevelt Blvd	6LD	25,990	25,609	0.98	0.96
Ulmerton Rd	Roosevelt Blvd	34th St N	6LD	33,980	33,670	1.28	1.27
Ulmerton Rd	Roosevelt Blvd	Interstate 275	6LD	33,800	33,155		
Ulmerton Rd	US 19	49th St N	6LD	28,800	28,314		
US 19	110th Ave N	49th St N	6LD	34,959	38,276		
US 19	118th Ave N Local	110th Ave N	6LD	34,959	38,276		
US 19	126th Ave N	118th Ave N Local	6LD	51,726	53,415		
US 19	66th St N	Ulmerton Rd	6LD	42,966	46,176		
US 19	Ulmerton Rd	126th Ave N	6LD	51,726	53,415		
					Total links:	9	9

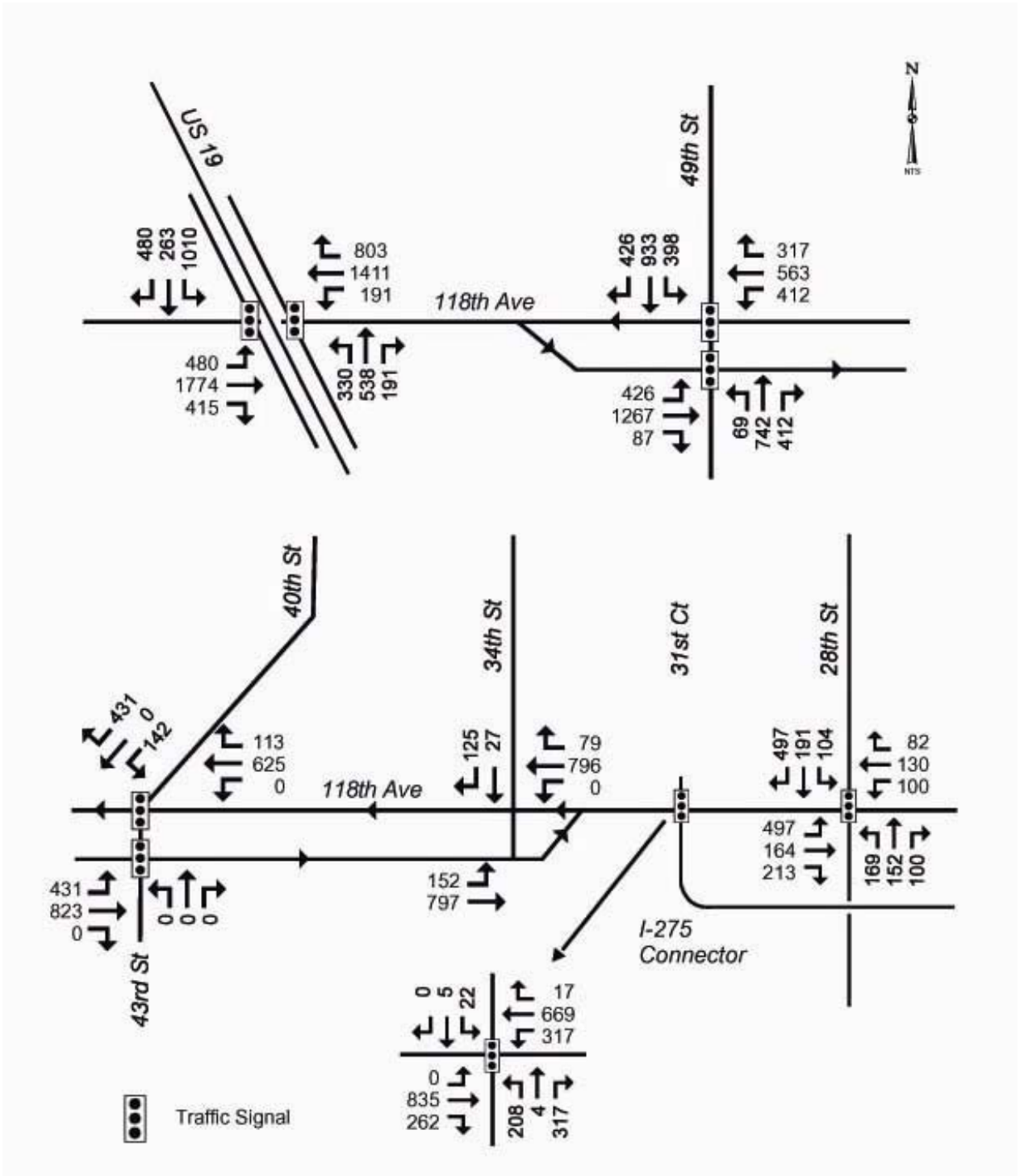


FIGURE 9-1
Preferred Alternative
118th Avenue 2025 AM Volumes

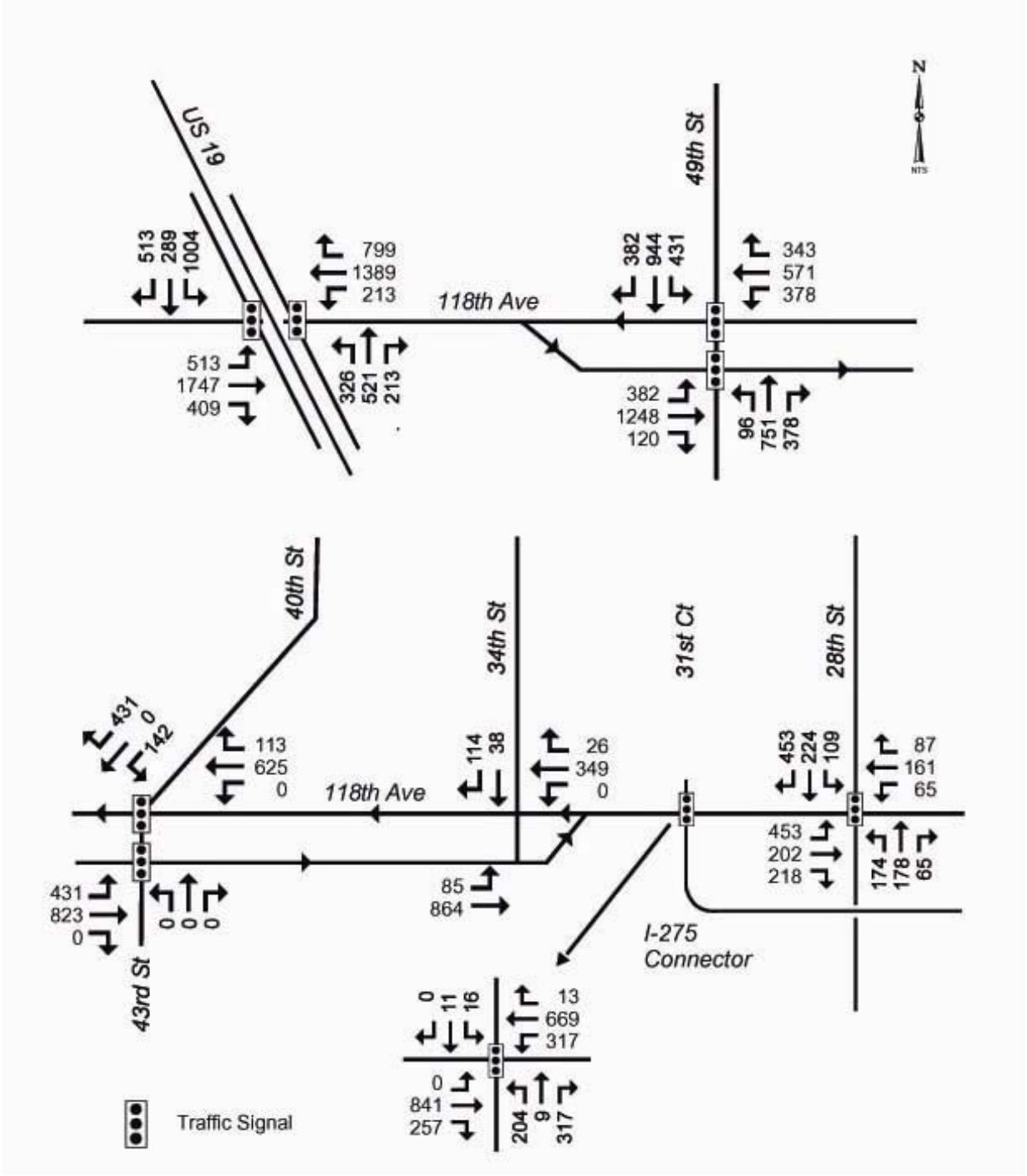


FIGURE 9-2
Preferred Alternative
118th Avenue 2025 PM Volumes

9.2 TYPICAL SECTIONS

The proposed roadway typical sections are shown in **Figure 8-1** and **Figure 8-2**. The flyover ramp typical section is provided in **Figure 8-3**.

9.3 INTERSECTION CONCEPTS AND SIGNAL ANALYSIS

Intersection improvements would be made to local 118th Avenue (frontage road system) at the cross street configurations of US 19, 49th Street, and 43rd Street. Existing driveways would be modified to operate with the local 118th Avenue frontage road system. The proposed roadway laneage and intersection geometry are shown in **Figure 9-3**.

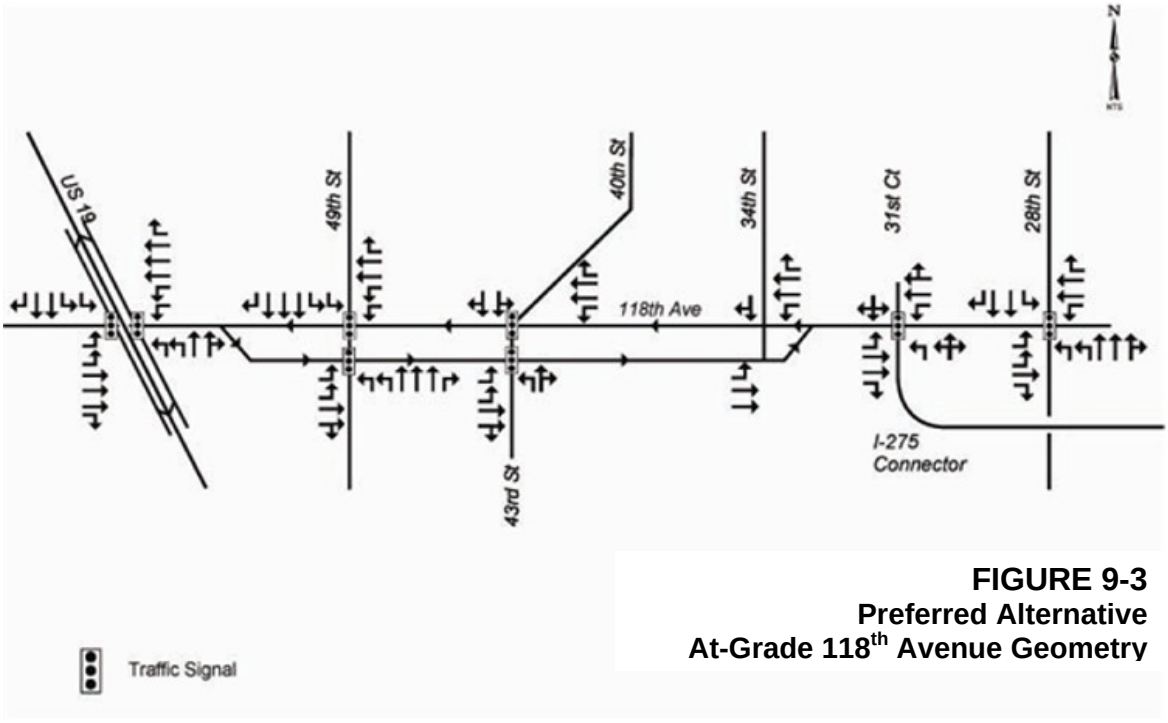


FIGURE 9-3
Preferred Alternative
At-Grade 118th Avenue Geometry

9.4 ALIGNMENT AND RIGHT-OF-WAY NEEDS

The Preferred Alternative will require right-of-way acquisition. Most of the controlled access 118th Avenue roadway will be at-grade with grade separated intersections at US 19, 49th Street, and 43rd Street. The Concept Plans for the Preferred Alternative are provided in the **Appendix** which show existing and proposed right-of-way lines in addition to the proposed alignment.

9.5 RELOCATION

There are expected to be approximately 23 businesses that will potentially require relocation, based on the *Final Conceptual Stage Relocation Plan* (CSRP), December 2005, prepared for the proposed project. These include a police substation and a (currently vacant) county highway department facility.

9.6 RIGHT-OF-WAY COSTS

The approximate right-of-way acquisition cost is estimated to be approximately $76.1 million for the entire project, including recommended sites for stormwater management facilities (ponds). Most of this cost is for the business properties on the north side of the 118th Avenue corridor.

9.7 CONSTRUCTION AND TOTAL PROJECT COSTS

The preliminary construction cost estimates were developed by use of FDOT's Long Range Estimates Program. All costs are presented in present value dollars. The estimated construction cost of the Preferred Alternative is approximately $91 million. Total project costs are shown below in **Table 9-3**.

Table 9-3

Total Costs of the Preferred Alternative (in $millions)

Construction Costs*	$91.0
Right of Way Costs	$76.1
Preliminary Engineering Costs	$11.0
Construction Engineering & Inspection Costs*	$11.0
Wetland Mitigation Costs	$0.5
Total Costs*	$189.6

* in present day costs that could be slightly higher should the project be divided into construction segments based on funding availability

9.8 PRELIMINARY ENGINEERING COSTS

The total estimated preliminary engineering cost of approximately $11 million (in present value dollars) is based on 12 percent of the estimated construction cost.

9.9 RECYCLING OF SALVAGEABLE MATERIAL

Removal of the existing roadway and any structures will be in accordance with all permitting requirements and specifications. Disposal of the existing roadway components and/or any other unsuitable materials shall be the responsibility of the contractor. The existing concrete from 118th Avenue could be recycled into the proposed roadway construction as:

- Base course (after crushing to specified gradation),
- Channel linings, or
- Fill materials (after partial crushing).

The type of reuse would require the removal of the structural steel embedded in the concrete and could make this type of reuse cost prohibitive.

9.10 USER BENEFITS

The proposed improvements would help fulfill the anticipated social and economic demands by enhancing travel mobility, improving accessibility to the area, and providing for the continuous movement of people and goods between US 19 and I-275 with increased safety and efficiency.

9.11 PEDESTRIAN AND BICYCLE FACILITIES

118th Avenue (CR 296) currently has sidewalks, but no provisions for bicyclists. The proposed roadway typical section includes both sidewalks and 4-foot bicycle lanes on both sides of 118th Avenue on the at-grade frontage roads.

9.12 SAFETY

The Preferred Alternative is expected to improve the safety of the 118th Avenue corridor. By constructing the Preferred Alternative which includes improving overall traffic operations and grade separating the cross streets, motorist safety is expected to be enhanced. Safety of bicyclists and pedestrians should also be enhanced by grade separating the heavier through traffic volumes.

9.13 ECONOMIC AND COMMUNITY DEVELOPMENT

The proposed project would provide the improvements necessary to support the future land uses projected for Pinellas County. An improved link between US 19 and I-275 would enhance regional mobility and help to sustain economic development via more efficient movement of people and goods in this area of the county.

9.14 ENVIRONMENTAL IMPACTS

9.14.1 Wetlands

A Wetland Evaluation Report has been prepared for the proposed project. There are 17 wetland areas and "other surface waters" along the 118th Avenue corridor, including two willow wetlands, one pond, a canal, and several stormwater facilities and ditches. The locations of these wetlands are shown in **Figure 4-4** and discussed in Section 4.3. For simplicity, the naming convention used classified all wetlands and other surface waters as wetlands.

Each wetland site was assessed for a variety of wetland functions and values to determine the severity of potential impacts from the proposed project by use of the Wetland Rapid Assessment Procedure (WRAP). The final WRAP score is expressed numerically with a number between 0 and 1, with 1 representing the highest quality wetland; 0 reflecting low quality. A WRAP was performed on 5 wetlands and other surface waters (OSW) that border the project: W7, W8 (mitigation site), W8 (remainder), W9, and W17. The scores ranged from 0.36 to 0.66. The highest score was achieved by a Pinellas County Mitigation area (W8), which the WRAP analysis was intended to evaluate. The lowest score was received by an area created for water conveyance (W14). The wetlands were classified using the United States Fish and Wildlife Service *Classification of Wetlands and Deepwater Habitats in the United States* and the Florida Land Cover Classification System (FLUCCS):

W7: PSS1C = Palustrine, scrub-shrub, broadleaved deciduous, seasonally flooded.
618 = Willow and elderberry. Score: 0.54

W8 (mitigation site): PFO2F = Palustrine, forested, needle-leaved deciduous, semi-permanently flooded. 621 = Cypress. Score: 0.66

W8: PFO1C = Palustrine, forested, broadleaved deciduous, seasonally flooded. 617 = Mixed wetland hardwood. Score: 0.58

W9: R2UBHx = Riverine, lower perennial, unconsolidated bottom, permanently flooded, excavated. 510 = Streams and waterways. Score: 0.36

W17: E2SS3P = Estuarine, intertidal, scrub shrub, broad-leaved evergreen, irregularly flooded . 612 = Mangrove swamps . Score: 0.53.

The Preferred Alternative would likely result in unavoidable minor involvement with up to five (5) wetland and other surface waters, totaling 4.37 acres. The proposed project's impact on wetlands and other surface waters is considered minor since the wetland encroachments will occur in areas that were impacted previously as a result of the original road construction and the small acreages impacted. Potential wetland impacts were evaluated in accordance with the requirements of Executive Order 11990. **Table 9-4** lists the estimated acres of wetland and other surface water size and effects of this proposed project.

Table 9-4

Estimated Wetland Impacts for the Preferred Alternative

Estimated Wetland/OSW Impacts			
Wetland Number	**Type of Wetland/OSW**	**Size (Acres)**	**Est. Effects (Acres)**
W1	Pond	4.84	0
W2	Stormwater facility	0.42	0
W3	Stormwater facility	0.18	0
W4	Stormwater facility	0.56	0
W5	Ditch	1.16	0.77
W6	Ditch	0.81	Secondary
W7	Willow wetland	31.32	Secondary
W8	Willow wetland	13.90	2.75
W9	Ditch	0.55	0.55
W10	Stormwater facility	0.64	0.28
W11	Stormwater facility	1.75	Secondary
W12	Stormwater facility	2.47	0
W13	Ditch	2.50	Secondary
W14	Ditch	0.65	0.02
W15	Mitigation Area #2	> 1.45 (Connects to other stormwater areas)	0
W16	Stormwater facility	0.10	0
W17	Cross Bayou Canal	> 8.4	Secondary
Total Acreage		**71.7**	**4.37**

OSW= “other surface waters”

Secondary impacts to five wetlands and OSW may occur during construction. Potential impacts from construction within wetland sites include sedimentation, erosion, leaching and increased turbidity. Short-term construction related impacts will be minimized by the adherence to FDOT's "Standard Specifications for Road and Bridge Construction". Long term impacts to wetlands are the result of the direct impacts of fill and include the potential loss of some functions and values associated with these wetlands, such as nutrient removal/transformation, sediment stabilization, wildlife and aquatic species habitat, and ground water recharge.

There are several options available for FDOT to compensate for the anticipated wetland impacts. One option would be to create, restore, enhance, or preserve wetlands in the project's watershed. Depending on the type or combination of types employed, the offsetting ratios will vary considerably. Adhering to SWFWMD's Environmental Resource Permitting Information Manual, mitigation ratio guidelines will be 2:1 to 5:1 (created/restored) for forested impacts and 1.5:1 to 4:1 for non-forested impacts. The estimated ratio for enhancement will range from 4:1 to 20:1. Where practicable, these mitigation areas will be associated with the design and construction of stormwater management facilities or environmental enhancement and restoration activities in the vicinity of the proposed project.

Another option available to the FDOT would be to utilize Chapter 373.4137 of the Florida Statutes. This legislation allows the FDOT to offset wetland impacts with a monetary payment through the Department of Environmental Protection to SWFWMD. The Water Management District would then provide a regional wetland mitigation plan on an annual basis to be approved by the Florida State Legislature, which would include mitigation for specific FDOT project impacts.

9.14.2 Water Quality

It is expected that the project will require modifications to the existing storm sewer system, due to the widened typical section. The storm sewer system will discharge to the

same existing outfalls. The proposed project is not expected to have an adverse impact on water quality. Because the project will alter the drainage system, and increase impermeable surface area, water quality issues will be mitigated through compliance with the quantity design requirements placed by the Southwest Florida Water Management District and the Pinellas County Environmental Management Department.

9.14.3 Floodplains

The FEMA Flood Insurance Rate Map (FIRM) for Pinellas County and Incorporated Areas, dated September 3, 2003 (community panel numbers 12103C1039G, 12103C0143G, 12103C0202G, and 12103C0206G for Pinellas Park) indicate that a large portion of the project area is within Zone X (areas of or outside the 500 year floodplain). The remainder of the project area is within Zones AE and A which are special flood hazard areas inundated by a 100-year flood (see **Figure 4-5**). The proposed project will not create substantial differences in flood elevations nor cause adverse impacts to the floodplain, as required by the SWFWMD permitting process. Impacts to the floodplain have been minimized to the extent practicable by limiting the encroachment on the 100-year floodplain. The SWFWMD requires replacement of floodplain storage lost as a result of any encroachments. In addition, the SWFWMD and FDOT design criteria for conveyance systems (e.g. culverts) allows no significant increase in flood stages. The expected floodplain encroachment is transverse. The expected impact on the floodplain is estimated to be approximately 3.4 acre-feet of lost storage volume. Several opportunities for floodplain encroachment compensation exist, including modifications to roadside ditches or other stormwater facilities along 118th Avenue.

The proposed structures will perform hydraulically in a manner equal to or greater than existing structures and backwater surface elevations are not expected to increase. There will be no significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There will be no significant change in the potential for interruption or termination of emergency service evacuation routes. Therefore, it has been determined that this encroachment is not significant.

There is no change in flood "Risk" of floodplain impacts associated with this project. Replacement drainage structures for this project are limited to hydraulically equivalent structures. The limitations to the hydraulic equivalency being proposed are basically due to restrictions imposed by the geometrics of design, existing development, cost feasibility, or practicability. An alternative encroachment location is not considered in this category since it defeats the project purpose or is economically unfeasible. Since flooding conditions in the project area are inherent in the topography or are a result of other outside contributing sources, and there is no practical alternative to totally eliminate floodplain impacts or even reduce them in any significant amount, existing flood conditions will continue, but not be increased. The proposed structures will be hydraulically equivalent to or greater than existing structures, and backwater surface elevations are not expected to increase. As a result, the project will not affect existing flood heights or floodplain limits. This project will not result in any new or increased adverse environmental impacts. There will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.

9.14.4 Wildlife and Habitat

A detailed threatened and endangered species evaluation was conducted for the project. This project has been evaluated for potential impacts to wildlife and habitat resources, including protected species, in accordance with 50 CFR, Part 402 and the Endangered Species Act of 1973, as amended. The study corridor is located in an urban area comprised mainly of commercial and light industrial services with a general lack of native habitat. Although there are undeveloped areas, they are very small in size and not connected to any corridors or natural linkages.

No federally threatened or endangered floral species were observed or are known to occur within the project corridor. The entire corridor was surveyed on numerous occasions, strongly indicating the absence of these species. Faunal species federally classified as threatened or endangered that are present or have the potential to be present include the bald eagle and wood stork. The project is not expected to impact any existing

foraging areas or any potential nesting trees for the bald eagle in or adjacent to the corridor. Therefore, the proposed improvements are not anticipated to impact any foraging or nesting habitats of the bald eagle. Presently, no wood stork rookeries are known to occur in Pinellas County. However, all impacts to non-forested wetlands will be mitigated within the Core Foraging Area (CFA) if a rookery is reported in Pinellas, Hillsborough or Pasco Counties within 18.6 miles. Therefore, this project is not expected to impact the wood stork, reduce the wood stork population level in the region, or reduce their foraging or nesting habitats.

The gopher tortoise (*Gopherus polyphemus*), which is listed as a species of special concern by FFWCC, occur in well-drained to excessively drained sandy soils with an open canopy that provides ample herbaceous vegetation for foraging. The project corridor contains suitable conditions for this species to thrive. However, due to the highly developed nature of the study corridor, gopher tortoises or their burrows were not observed.

Other species that are typically associated with gopher tortoises such as the state and federally threatened indigo snake (*Drymarchon corais cooperi*) are also not likely to be found on or around the proposed corridor.

No areas of critical habitat for any federally protected species were identified, nor are they known to exist in the project corridor. No protected plant species were noted during the field investigation within areas that may be affected by the project. In addition, the USFWSwas contacted for a list of species and they concurred that no listed species are in the area.

Based on the above results of the literature review and the field surveys conducted for the proposed roadway improvements, the Department has determined that no federally listed threatened or endangered species will be affected by the project. Furthermore, the proposed project is not located in an area designated as critical habitat by the U.S. Department of the Interior. Therefore, the FDOT on behalf of the Federal Highway

Administration has determined that the proposed project will have "No Effect" on any federally protected threatened or endangered species.

9.14.5 Cultural Features and Community Services

The purpose of the Cultural Resource Assessment Survey (CRAS) was to locate, identify, and bound any cultural resources within the project area and to assess their significance in terms of eligibility for listing in the *National Register of Historic Places* (NRHP). All 14 stormwater retention/detention areas are existing wetlands, and thus, were not archaeologically surveyed. The archaeological and historical/architectural field surveys were conducted in August 2004.

Background research, including a review of the Florida Master Site File (FMSF) and the NRHP, revealed one previously recorded archaeological site (8PI3365) and no previously recorded historic buildings within the project Area of Potential Effect (APE). The previously recorded 8PI3365 is not considered eligible for listing in the NRHP, and no evidence of the site was found. No other archaeological resources or historic buildings were discovered during survey.

The 118th Avenue (CR 296) Connector improvement project is expected to have no involvement with any cultural resources, including archaeological sites and historic structures, which are listed, determined eligible or considered potentially eligible for listing in the NRHP. The FHWA has determined that the proposed project will have no effect on any resource listed, or considered eligible for listing, in the *National Register of Historic Places.* The SHPO has concurred with this opinion (letters dated 1/28/05 and 11/18/05).

9.14.6 Contamination

A total of 51 sites were identified as having the potential for contamination to impact the project, involving either petroleum or hazardous materials contamination as defined by the FDEP. All sites in the project corridor were evaluated to determine risk potential. Risk ratings were assigned to each site based on field reviews, land use, historical tenancy evaluations, and regulatory agency research. Of the 51 sites, 5 were identified as having a "High" risk probability, 19 were identified as having a "Medium" probability, 23 were identified as having a "Low" probability, and 4 were identified as having a "No" probability. The sites with HIGH risk rankings have present chemical or petroleum contamination documented in the immediate vicinity of the project area. The 24 sites identified as "High" or "Medium" risk warrant further environmental assessments including soil and groundwater testing prior to construction.

Investigative work may include visual inspection, monitoring of ongoing cleanups, and possible subsurface investigations. At known contamination sites, estimated areas of contamination will be marked on design drawings. Prior to construction, any necessary cleanup plans will be developed. Actual cleanup will take place during construction, if feasible. Special provisions for handling unexpected contamination discovered during construction will be included in the construction plans package.

9.14.7 Noise

A *Noise Study Report* was prepared for the proposed project. Potential impacts were examined for the residential area located south of CR 296 and west of US 19. The results of the analysis indicate that existing (year 2003) exterior traffic noise levels are predicted to range from 57.1 to 63.9 dBA at the 17 residential noise-sensitive sites evaluated, with traffic noise levels predicted to be below the FHWA's Noise Abatement Criteria (NAC) at all of the sites. For the No-Build Alternative, with the future improvements to US 19 included, exterior traffic noise levels are predicted to range from 60.0 to 67.1 dBA, with levels predicted to approach, meet, or exceed the NAC at 2 of the sites. In the future (year 2025), with the proposed improvements to 118th Avenue (and US 19 as part of another

project noted above), exterior traffic noise levels are predicted to range from 60.0 to 67.2 dBA, with levels predicted to approach, meet, or exceed the NAC at 2 of the sites. The 2 noise-sensitive sites are all single-family residences. The average difference in noise levels at the 17 noise-sensitive sites between the No-Build and Build Alternative is less than 0.1 dBA (0.053 dBA).

Based on the results of the analysis, predicted traffic noise levels are almost identical between the No-Build and Build Alternatives. The 2 noise-sensitive sites that are predicted to experience noise levels that are above 66 dBA are not a result of the proposed project. Rather, the noise levels impacts are a result of traffic noise due to the future Build conditions on US 19 as part of another project. Therefore, noise abatement is not required.

9.14.8 Air Quality

The initial Air Quality analysis was performed following FDOT procedures (PD&E Manual: Part 2, Chapter 16). An Air Quality Technical Memorandum was prepared as part of the this study to evaluate potential air quality impacts resulting from the widening and intersection improvements of 118th Avenue. The purpose of this technical memoramdum was to analyze any potential air quality impacts based on current field conditions and future design year traffic data for the study corridor.

The proposed project was subjected to a Screening Test using the computer program CO Florida 2004. This program makes various conservative worst-case assumptions about the meteorology, traffic, and site conditions. The computer model used for this Screening Test projects an estimate of the Carbon Monoxide (CO) level at each chosen receptor under various project conditions. The computer modeled CO levels are then compared with the National Ambient Air Quality Standard (NAAQS) to determine whether or not the project passes or fails the Screening Test. If the computer generated CO concentrations exceed 35 parts per million (ppm) for a one-hour period or 9 ppm for an eight-hour period, the project alternative exceeds the NAAQS levels for CO and must undergo a more thorough air quality analysis.

Results from the Screening Test show that the one-hour and eight-hour CO levels for the proposed Build Alternative are projected to be well below the NAAQS levels. Further, it should be noted that there are no substantial differences between the results of the Screening Test for the "no-build" and "build" alternatives. Therefore, no impacts to air quality are expected as a result of the proposed project.

9.14.9 Construction

To facilitate funding, the proposed construction phasing of the Preferred Alternative could be spilt into three separate construction phases (Phase 1 - 49th Street Overpass, Phase 2 – US 19 Flyover, and Phase 3 – Roosevelt Connector) and shown in the **Appendix**. Construction activities for the 118th Avenue corridor will have temporary air, noise, water, wetlands, traffic flow, and visual impacts for those residents, businesses, and travelers within the immediate vicinity of the project. The temporary construction related affects will be effectively controlled in accordance with FDOT's *Standard Specifications for Road and Bridge Construction* as directed by the FDOT.

9.15 UTILITY IMPACTS

Existing utilities within the study area that have the potential to be affected by the proposed improvements are listed in Section 4.1.12. The exact locations of conflicts with these utilities will be determined during the design phases of this project.

It is anticipated that impacts may be associated with the Progress Energy facilities. No impacts are anticipated to the high-voltage transmission line towers; however, the overhead power lines that diagonally cross 118th Avenue east of 49th Street may require height adjustment due to the higher roadway elevation associated with the proposed overpass at 49th Street.

9.16 TRAFFIC CONTROL PLAN

Maintenance of traffic and sequence of construction will be planned and scheduled so as to minimize traffic delays throughout the project. Access to all businesses and residences will be maintained to the maximum extent practical through controlled construction scheduling. Signage will be used, as appropriate, to provide pertinent information to the traveling public. The local news media will be notified in advanced of road closings and other construction related activities which could excessively inconvenience the community, so that motorists, residents and business persons can plan travel routes accordingly. During final design, a Traffic Control Plan will be developed in accordance with the current edition of the FDOT *Roadway and Traffic Standards*.

118th Avenue provides access to numerous residences and businesses along this corridor. Due to it's importance, 118th Avenue should remain functional throughout the duration of the construction phase. The existing number of travel lanes should be maintained to the maximum extent possible. Lane closures, if any, should occur during off-peak hours.

Construction Sequencing

If this project is constructed in phases due to budgetary constraints, the following conceptual construction sequence would help maintain traffic operations along the 118th Avenue corridor throughout construction. The overall project should be designed at one

time, however detailed construction plans could be prepared in sequences as construction funding allows.

49th Street Overpass Phase

The first construction activities will most likely occur within the central part of the project's corridor to provide for the construction of the overpass of 49th Street. Traffic will be maintained along the existing 118th Avenue corridor while the proposed frontage roads are built to the north and south of the existing alignment. Subsequently, the traffic will be shifted to the frontage roads and construction of the overpass over 49th Street and associated walls, roadway approaches and mainline will be constructed.

An interim connection will be made to tie the 49th Street overpass phase into the existing roadway section immediately to the west of 43rd Street. The interim connection will be designed to provide a functional access and a maintained level of service.

US 19 Flyover Phase

This phase of construction will provide for the construction of the flyover ramp from southbound US 19 to eastbound 118th Avenue. Traffic will be maintained on US 19 and 118th Avenue, with occasional roadway diversions to accommodate the overhead flyover bridge construction over US 19 and 118th Avenue. This phase of construction will also provide for construction along the west side of US 19 of the frontage road connecting southbound frontage road traffic to Bryan Dairy Road (CR 296) at 58th Street.

Roosevelt Connector Phase

This final phase of construction can be constructed concurrently with the US 19 Flyover phase due to the distance between the two construction areas. Similar to the 49th Street overpass phase, traffic will be maintained along 118th Avenue while frontage roads are constructed to the north and south of the current alignment. Subsequently, traffic will be shifted to the frontage roads and construction of the bridge over 43rd Street will commence, along with the associated walls, roadway approaches and mainline. It is practical to consider that this Phase could be constructed with Stage IV of the adjacent

Roosevelt Connector project to minimize any disruptions or duplicative expenditures during construction. As such, it is possible that this Phase could be constructed before the US 19 Flyover Phase.

9.17 RESULTS OF PUBLIC INVOLVEMENT PROGRAM

A public involvement program was developed for this project in accordance with the FDOT PD&E Manual, to fully inform and involve all interested public officials, citizens and special interest groups in the development of this project. An Alternatives Public Workshop was held at Fitzgerald Middle School on October 7, 2004. A Public Hearing was held on August 18, 2005. The *Comments and Coordination Report* documents the results of the entire Public Involvement Program, including the Workshop and Public Hearing. In addition, scrapbooks were prepared for both the Public Workshop and Hearing, which document the exhibits and other meeting/hearing materials.

9.18 VALUE ENGINEERING

A Value Engineering (VE) Review was initiated in the Summer of 2005 and is ongoing. Once the VE Team's comments are received, responses will be prepared and included in the project file.

9.19 DRAINAGE

It is expected that the project will require modifications to the existing storm sewer system, due to the raised profile grade of portions of the roadway and the widened typical section. The proposed drainage improvements associated with the project will include retention/detention ponds. The ponds will be located and designed to use larger contiguous ponds and swales instead of smaller isolated ponds. Treatment will be in the form of swales and ponds adjacent to the roadway. Alternative pond sites are identified on the plans included in the Appendix. The *Final Pond Siting Report* documents the details of the two preferred pond sites (one located in the northwest quadrant of US 19/118th Avenue intersection, and one located along the north side of 118th Avenue east of 49th Street) that provide stormwater treatment and volume attenuation as well as any potential floodplain compensation for the Preferred Alternative.

9.20 BRIDGE ANALYSIS

The proposed project would require four bridges:

- Southbound US 19 to Eastbound 118th Avenue flyover
- Elevated 118th Avenue over 49th Street
- Elevated 118th Avenue over 43rd Street
- Southbound US 19 Frontage Road over Cross Bayou

A project overview is shown in the **Appendix** with the structural drawings. In order to minimize the amount of right of way required in the corridor as well as the embankment fill necessary, retaining walls are proposed for much of the project to the east of 49th Street. These walls would allow the proposed on and off ramps to be constructed.

Southbound US 19 to eastbound 118th Avenue flyover

This structure is a third-level bridge (ramp flyover) crossing both US 19 and 118th Avenue with a single 15-foot travel lane and two 6-foot shoulders. The geometric constraints require a horizontally curved structure having a radius of approximately 650 feet. With this radius, the lane width needs to be increased to 20 feet in the center of the curve to provide the required sight distance. Due to potential wetland impacts on the west side of US 19 between 118th Avenue and the Cross Bayou Canal as well as the profile required for this third-level structure, the bridge is proposed to begin on the north side of the Cross Bayou Canal. The bridge would end on 118th Avenue at the east side of the left turn lane near station 340+00 (1,981 feet west of 49th Street) resulting in a bridge length of approximately 3,740 feet.

Span lengths for the bridge are flexible on both the north and east ends of the bridge. The crossing of 118th Avenue would require a span length of approximately 242 feet with a hammerhead pier located immediately behind the sidewalk adjacent to 118th Avenue. Given the elevation of the bridge at this location, the hammerhead cap can extend over the travel lane on 118th Avenue to provide the minimum span length and continue to provide the required vertical clearance. The span length for the crossing of US 19 is required to be approximately 245 feet with the piers located directly behind the sidewalk

adjacent to the US 19 frontage ramps. A straddle bent would be required at the eastern crossing of 118th Avenue where the ramp proceeds into the median since the directional change in the two alignments are slight. Construction of a single straddle bent would allow the span lengths to be reduced to approximately 270 feet on each side of the bent.

Superstructure alternatives include steel plate girder, steel box girder, or concrete segmental box girder. Any of these options are capable of spanning the required distances and can be built along the horizontally curved alignment. Given the relatively narrow width of the superstructure and the height above ground at the roadway crossings, the most feasible substructure alternative is a cast-in-place concrete hammerhead pier. The pier would be constructed on a pile supported footing or drilled shafts.

Southbound US 19 frontage road over Cross Bayou Canal

This structure is a low-level bridge over a minor waterway with two 12-foot travel lanes and two 2-foot shoulders. The bridge would be built in a slightly curved horizontal alignment. The bridge will have an overall length of approximately 78 feet. The bridge could be a single-span structure with a span length of nearly 78 feet or could be broken into three spans of approximately 27 feet each. For the 78 foot single span, precast, prestressed concrete I beams would be the best choice. For the three-span option, other choices could include a cast-in-place concrete flat slab bridge. Regardless of the superstructure type chosen, the substructure supports would be pile bent type structures.

118th Avenue over 49th Street

This structure is a first-level grade separation structure carrying one eastbound thru lane and one merging lane from the local on ramp as well as two westbound thru lanes. The eastbound lanes are 15 feet wide and begin to merge down to 12 feet just east of the bridge. Outside shoulders are 10 feet wide and inside shoulders are 8 feet wide. With the merging local on ramp, the bridge width varies from about 96 feet to 108 feet and has an overall length of about 580 feet. Due to the configuration of the interchange, the center span length is required to be approximately 243 feet to provide the necessary turning movements on 49th Street and the local 118th Avenue frontage roads. The end spans are

approximately 157 feet and 180 feet, respectively, to meet horizontal clearance requirements. The overall length of the bridge is minimized by using retaining walls wrapped around the end bents.

The most feasible superstructure alternatives include steel plate girder and steel box girder. Drop in precast, prestressed concrete beams may also be a possibility. The most feasible substructure alternatives are a concrete cap supported by multi columns on piles or drilled shaft supported footings or a modified multi column hammerhead constructed on pile-supported footings or drilled shafts.

118th Avenue over 43rd Street

This structure is a grade separation structure carrying two thru lanes in each direction as well as a merging lane from the local on-ramp and a local off-ramp lane. The thru lanes are 12 feet wide with the local on and off ramp lanes 15 feet wide. With the merging local on and off ramps, the bridge width varies from about 135 feet to 141 feet and has an overall length of about 193 feet. Due to the configuration of the interchange, the span length is required to be approximately 190 feet to provide the necessary turning movements on 43rd Street and the local 118th Avenue frontage roads. The overall length of the bridge would be minimized by using retaining walls wrapped around the end bents.

The most feasible superstructure alternatives include steel plate girder and steel box girder. The end bents would be pile bents wrapped in mechanically stabilized earth walls.

9.21 SPECIAL FEATURES

There is a total estimated 13,000 linear feet or approximately 270,000 square feet of retaining wall required to support the proposed alignment and minimize the required right-of-way acquisition. Five walls are suggested with a geometric alignment shown on the structural figures in the **Appendix**. The location of these walls was selected to accommodate the local on and off ramps, support the proposed 118th Avenue thru lanes and minimize the amount of fill required since embankment costs are anticipated to be a

premium in this area. MSE walls are likely the most feasible option given the large quantity required.

9.22 ACCESS MANAGEMENT

The proposed project includes the construction of "controlled access" express lanes with interchanges or grade separations which will have a higher degree of access control than that of the existing facility. The proposed service roads are expected to maintain the same frequency of driveway spacing as presently exists on 118th Avenue.

9.23 AESTHETICS AND LANDSCAPING

Architectural treatments such as tiles, colors, textures, etc. may be considered as aesthetic treatments. Special architectural treatment will be considered for the light poles and retaining walls, etc. Landscape opportunities will be evaluated for the bridges on either side of the roadway adjacent to the retaining walls. Preserving access to conduct maintenance to the retaining walls is a key issue in developing any landscape plans.

SECTION 10 - APPENDIX

Conceptual Design Plans for the Preferred Alternative

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