

Location Hydraulic Report

**118th Avenue (CR 296) Connector PD&E Study
From US 19 to East of the Roosevelt/CR 296 Connector
Pinellas County, Florida
WPI Segment No.: 413622-1
FAP No.: 9045-054C**

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.

Prepared for:

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

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Prepared by:

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SECTION 1 – EXECUTIVE SUMMARY

A Location Hydraulic Report was prepared for the proposed project. The FEMA Flood Insurance Rate Map (FIRM) for Pinellas County and Incorporated Areas, dated September 3, 2003, community panel numbers 0001, 0002, 0005, and 0006 for Pinellas Park, indicate that most 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. 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.

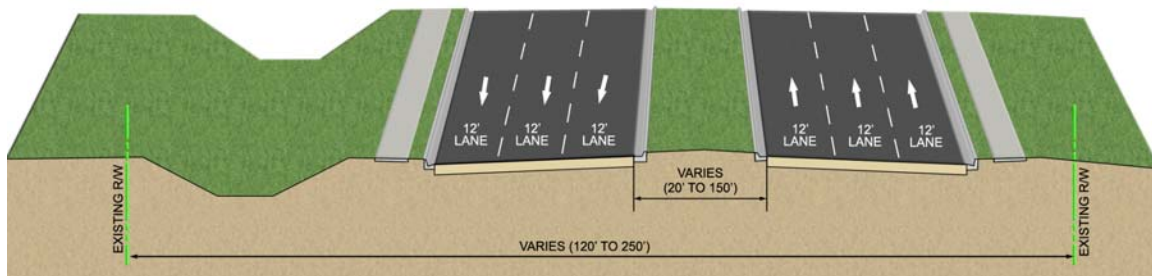
2.2 REPORT PURPOSE

Protection of floodplains and floodways is required by Executive Order 11988, "Floodplain Management", USDOT Order 5650.2, "Floodplain Management and Protection", Federal-Aid Policy Guide 23 CFR 650A, and 23 CFR 771. The intent of these regulations is to avoid or minimize highway encroachments within the 100-year (base) floodplains, where practicable, and to avoid supporting land use development which is incompatible with floodplain values. The purpose of this report is to assess potential impacts to floodplains and regulatory floodways in compliance with the above regulations.

2.3 EXISTING FACILITY AND PROPOSED IMPROVEMENTS

Existing 118th Avenue is a 6-lane divided urban county roadway that is classified as a minor arterial by the Pinellas County Metropolitan Planning Organization. It has 12-foot lanes and 5-foot sidewalks on both sides, with mostly storm sewer drainage (**Figure 2**). The storm sewer systems convey runoff to existing roadside ditches and stormwater management facilities. The curbed grassed 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. This creates separate intersections with 40th Street and 34th Street for westbound and eastbound 118th Avenue.

FIGURE 2 - EXISTING TYPICAL SECTION

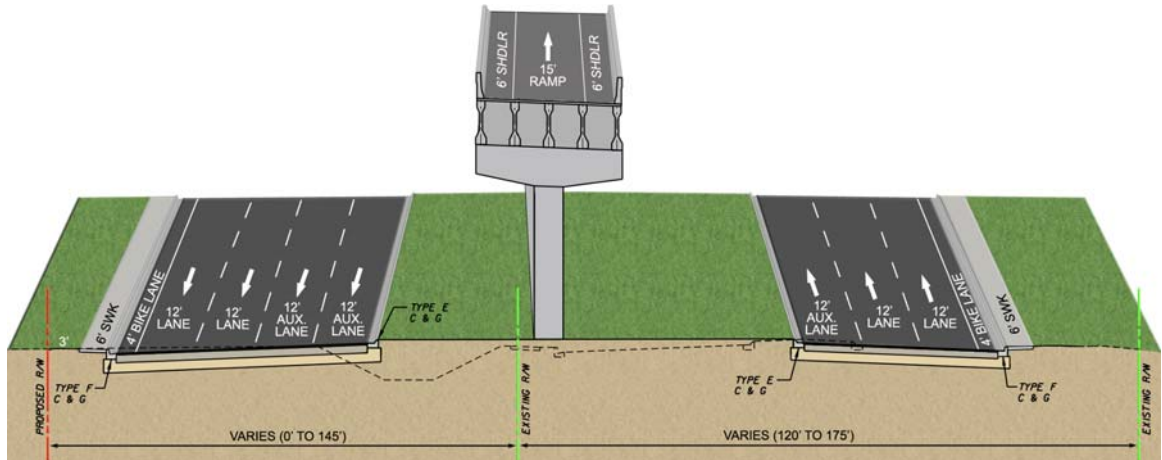


Two alternatives were considered for this project: the No-Build and a Recommended Build Alternative. The Recommended Build Alternative (Alternative “Dmod-G”) includes constructing a 4-lane controlled-access facility with 2-lane frontage roads for local access along 118th Avenue from US 19 to east of the Roosevelt/CR 296 Connector. This alternative includes a flyover ramp from southbound US 19 to eastbound 118th Avenue and ramp connections with the Roosevelt/CR 296 Connector as well as an urban interchange at 49th Street (CR 611). This alternative would allow the intersection at 43rd Street to remain connected to the 118th Avenue frontage roads. Additional right-of-way would be required for the proposed improvements, mostly along the north side of 118th Avenue. As a result of input received during the Public Hearing phase, the Recommended Build Alternative (described above) has been selected as the Preferred Alternative for future project production phases.

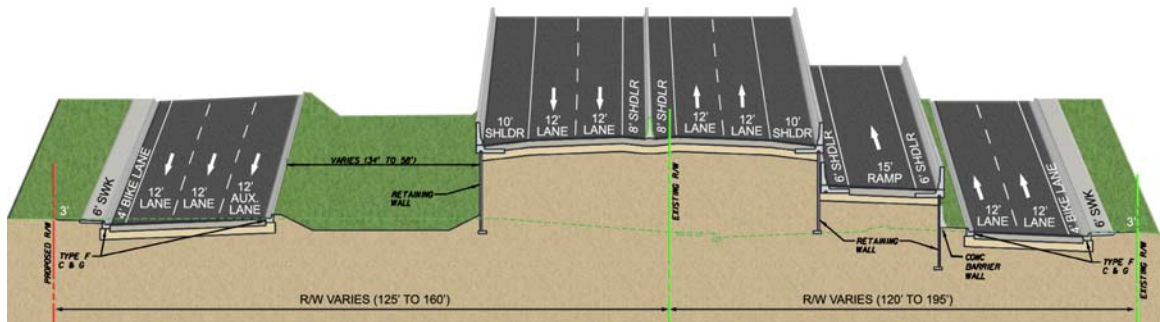
The proposed typical sections for 118th Avenue are shown in Figure 3. The typical section west of 49th Street includes four 12-foot lanes (two in each direction) with auxiliary lanes for the ramp connections to the elevated express lanes and a 4-foot bicycle lane and 6-foot sidewalk on each side.

The proposed typical section east of 49th street includes frontage roads with 12-foot lanes, including auxiliary lanes for the ramp connections to the elevated express lanes, and 4-foot bike lanes and 6-foot sidewalks. The elevated express lane portion includes 10-foot outside shoulders and two 12-foot lanes in each direction separated by an 18-foot median. A slip ramp from the frontage road system to the mainline is shown in this typical section.

**FIGURE 3
PROPOSED TYPICAL SECTIONS**



West of 49th Street



East of 49th Street

SECTION 3 - EXISTING DRAINAGE PATTERNS AND STRUCTURES

The project area is included within two drainage basins: the Cross Bayou Canal (“Basin 1”) and the Roosevelt Basin (“Basin 2”; **Figure 4**). 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 of 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.

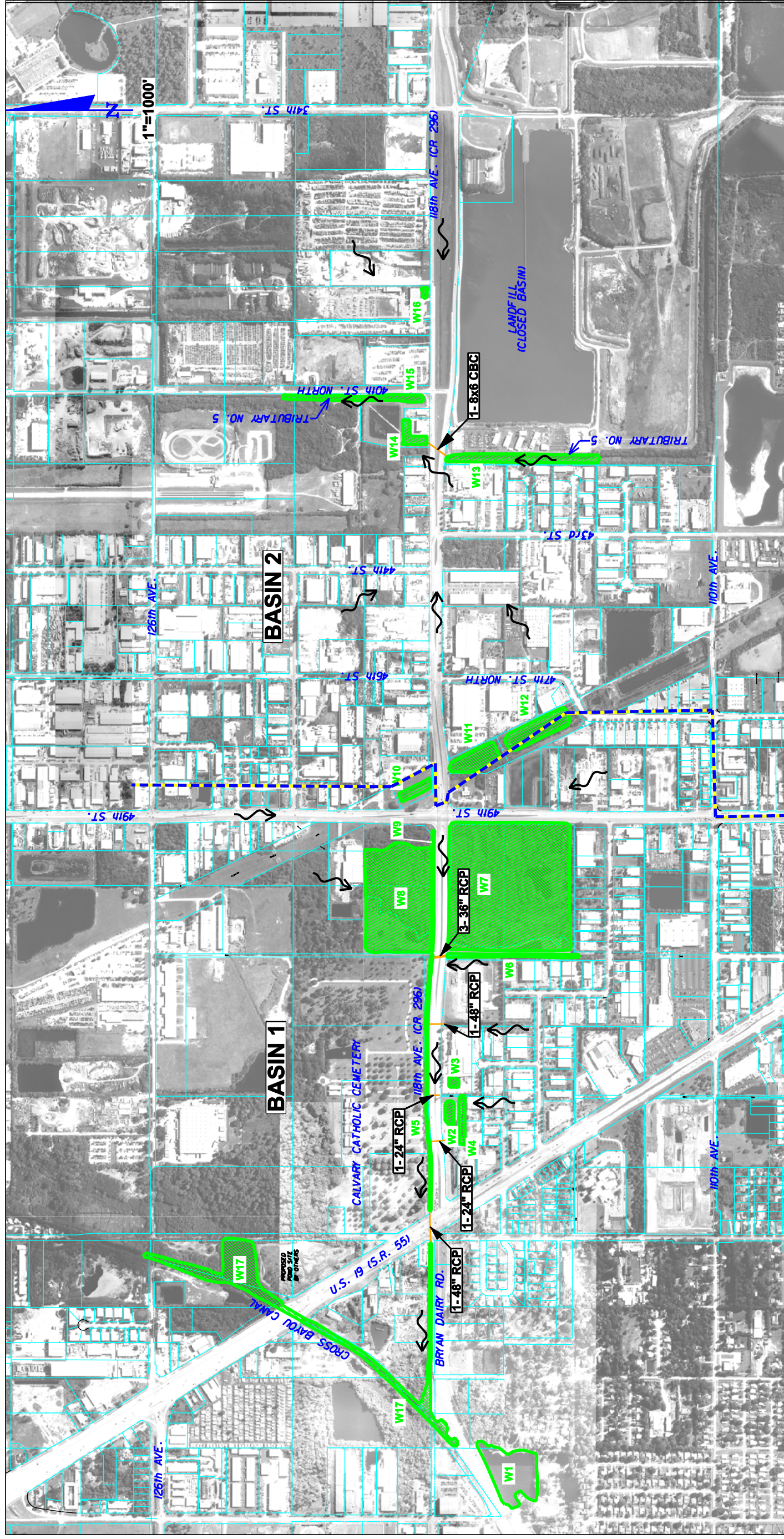
According to the 1990-1991 drainage maps, the divide between Basins 1 and 2 is located approximately 700 ft to the east of 49th street. The portion of the project which drains to the Roosevelt basin is also divided into two subbasins and detained in two ponds on the north side of 118th Avenue to the west of 40th Street North. The flow is 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 the east of US 19 and one located

approximately 700 feet east of US 19. **Table 1** summarizes these facilities, which are also shown in **Figure 4**.

Table 1
Drainage Structures

Structure Number	Type of Drainage Structure	Approximate Distance from US 19	Flow Direction
1	1 - 48" RCP	Cross US 19, North of 118 th 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



LEGEND

- BASIN DIVIDE
- WETLAND AND OTHER SURFACE WATERS BOUNDARY
- EXISTING DRAINAGE STRUCTURE
- CBC = CONCRETE BOX CULVERT
- RCP = REINFORCED CONCRETE PIPE
- EXISTING ROW AND PROPERTY LINES

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

REVISIONS		DESCRIPTION	DATE	BY

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

Generalized Drainage Map

FIGURE NO. 4

SECTION 4 - BASE FLOODPLAIN

Large areas of the 100-year floodplain in Pinellas County are directly connected to Old Tampa Bay. As shown on the FEMA panel, the 100-year floodplain just east of 49th Street is an isolated system separated from the other floodplains in this area. The topography surrounding Old Tampa Bay is a low-lying urban coastal zone and has elevations ranging from sea level to approximately 15 feet NGVD. The FEMA Flood Insurance Rate Map (FIRM) for Pinellas County, Florida and Incorporated Areas, dated September 3, 2003, community panel numbers 0001, 0002, 0005, and 0006 for Pinellas Park, indicate that most 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 (**Figures 5 and 6**).

Local maintenance offices having jurisdiction in the project area were contacted to determine the history of flooding problems in the project area. A representative with the FDOT Pinellas County Maintenance Office (727-570-5101) said that they had no record of flooding in that area. A representative with Pinellas County (727-464-4323) stated that when the project was originally done, there were some issues between 49th and 40th Streets, but these have since have been corrected. In addition, a senior drainage engineer said that there were no issues in that area. A representative with the City of Pinellas Park (727-541-0772) stated that the city has nothing on record regarding flooding problems in this area.

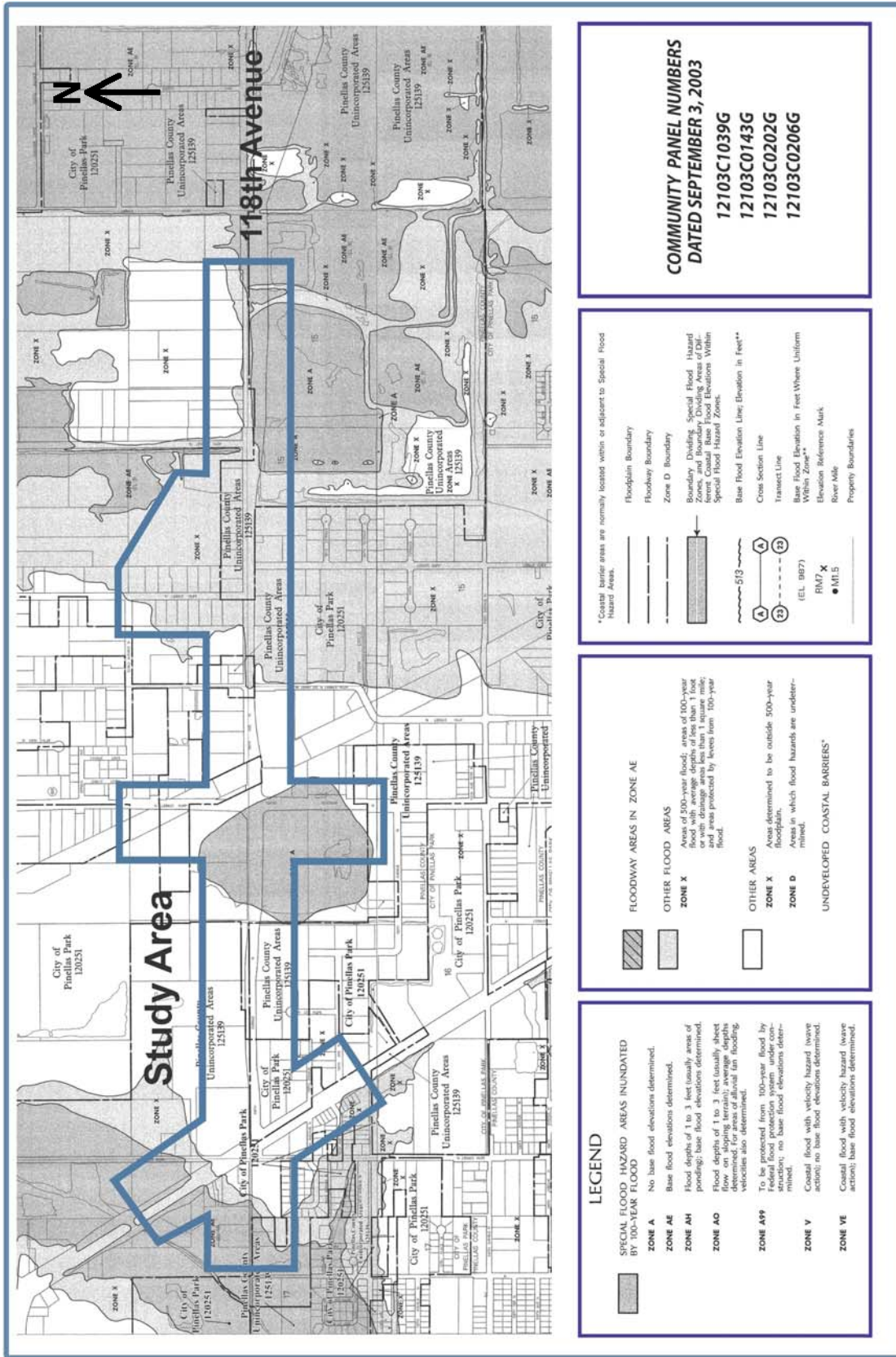


Figure 5: FEMA Flood Insurance Rate Map

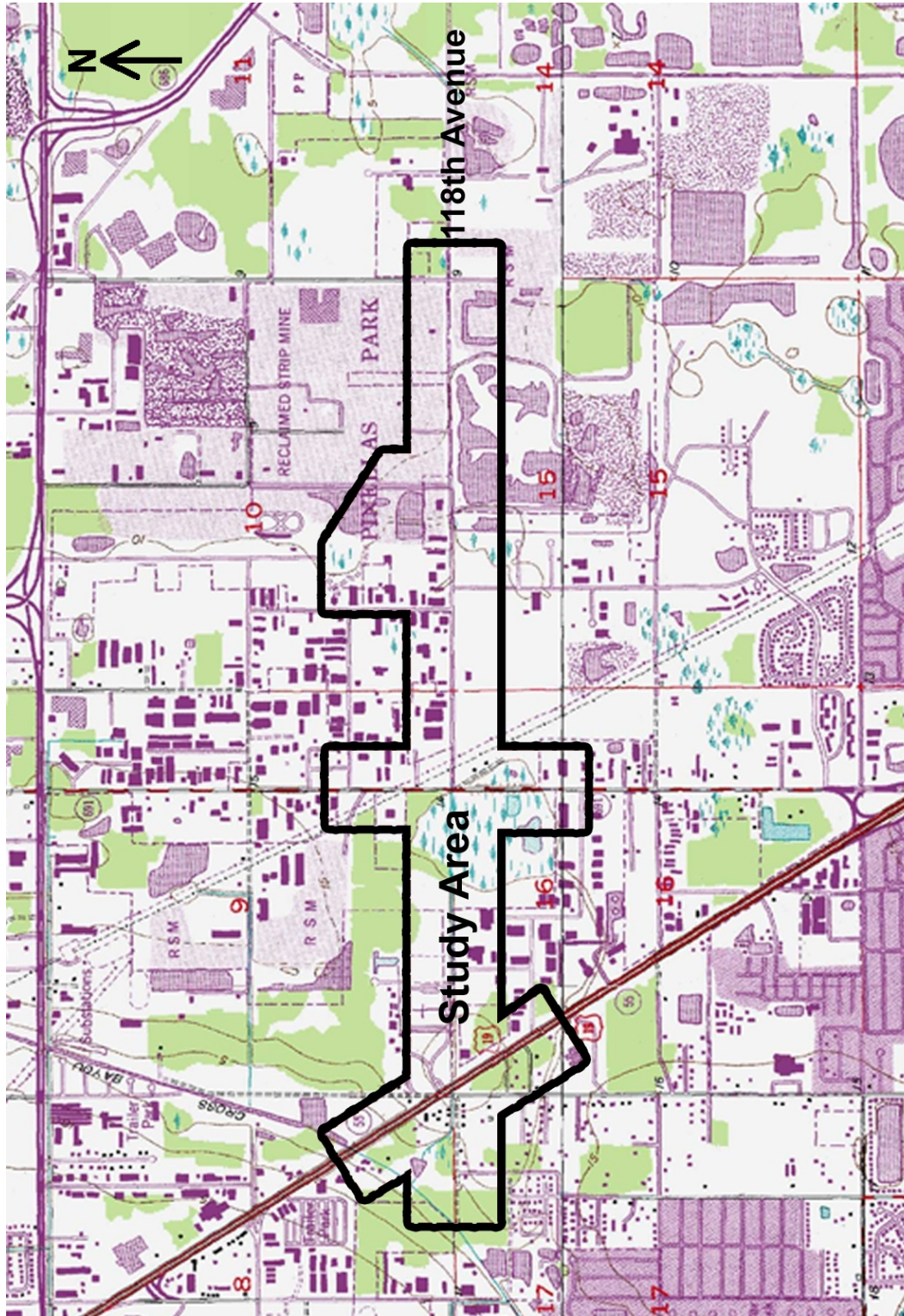


Figure 6: USGS Map

SECTION 5 - PROBABLE FLOODPLAIN IMPACTS AND RISK ASSESSMENT

The proposed project will not create substantial differences in flood elevations nor cause adverse impacts to the floodplain, as required by the Southwest Florida Water Management District (SWFWMD) permitting process. Impacts to the floodplain have been minimized to the extent practicable by limiting the total distance and area of the project within the 100-year floodplain. The SWFWMD requires replacement of floodplain storage lost as a result of encroachments. In addition, the SWFWMD and FDOT design criteria for conveyance systems (e.g. culverts) allows no significant increase in flood stages. The hydraulic design will follow FDOT, Water Management District, and local Federal Emergency Management Agency (FEMA) design standards. The floodplain encroachment is transverse. The impact of the flood plain encroachments is estimated to be approximately 3.4 ac-ft as shown in **Table 2**. Several opportunities for floodplain encroachment compensation exist, including modifications to roadside ditches or other stormwater facilities along 118th Avenue.

Approximately 4.2 acres of wetlands and other surface waters, predominately on the north side of 118th Avenue, will likely be impacted by the proposed project. Most impacts occur on the north side of 118th Avenue. These impacts are discussed further in the *Wetland Evaluation Report*, under separate cover.

Based on the FDOT PD&E Manual's floodplain categories, this project would fall under Category 5: "projects on existing alignment involving replacement of drainage structures in heavily urbanized floodplains." The following statement would apply:

Replacement drainage structures for this proposed project are limited to hydraulically equivalent structures. The limitations to the hydraulic equivalency being proposed are basically due to restrictions imposed by the geometrics of design, existing development, cost feasibility, or practicability. An alternative encroachment location is not considered in this category since it defeats the project purpose or is economically unfeasible. Since flooding conditions in the project area are inherent in the topography or are a result of other outside contributing sources, and there is no practical alternative to totally eradicate flood impacts or even reduce them in any significant amount, existing flood conditions will continue, but not

