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TECHNICAL REPORT COVERSHEET

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ENVIRONMENTAL
MANAGEMENT
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Environmental Support Document

Florida Department of Transportation

District One

SR 739 (Metro Parkway) PD&E Re-evaluation

Limits of Project: SR 739 (Metro Parkway) at Daniels Parkway Intersection

Lee, Florida

Financial Management Number: 431334-2

ETDM Number: N/A

Date: July 2023

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022 and executed by the Federal Highway Administration and FDOT.

Draft

SR 739 (METRO PARKWAY) FROM DANIELS PARKWAY
TO WINKLER AVENUE
LEE COUNTY, FLORIDA
FPID NO. 431334-1

Environmental Support Document

Prepared for
Florida Department of Transportation, D1
and
Comprehensive Engineering Services, Inc.

June 2023



TABLE OF CONTENTS

Environmental Support Document

	<u>Page</u>
Introduction and Background	1
Project Description	1
Project Purpose and Need	1
Alternatives	3
Avoidance and Minimization.....	3
Wetlands and Surface Waters within the Project Area	4
Permitting and Proposed Impacts	8
Wetland and Surface Water Impacts	8
Wetland and Surface Water Mitigation.....	8
Protected Species.....	10
Federally Listed or Federally Protected Faunal Species	10
State Listed Faunal Species.....	14
Federally Listed or State Listed Floral Species.....	15
Public Interest	16
References.....	17
List of Figures	
Figure 1 Project Location Map	2
Figure 2 Protected Species and Wildlife Observations Map.....	11
List of Tables	
Table 1 Wetland and Surface Water Impact Summary.....	6
Table 2 Wetland and Surface Water Functional Loss Summary	9
Table 3 Federally Listed or State Listed Floral Species	16
Appendices	
A. Preliminary Engineering Report	A-1
B. SFWMD Land Use/Land Cover Map.....	B-1
C. NWI Wetlands and Hydric Soils Map	C-1
D. FNAI Cooperative Land Cover Map.....	D-1
E. Wetland and Surface Water Map.....	E-1
F. USFWS Standard Protection Measures for the Eastern Indigo Snake	F-1
G. Florida Bonneted Bat (Eumops floridanus) Acoustic Survey Report (2023).....	G-1

SR 739 (METRO PARKWAY) FROM DANIELS PARKWAY TO WINKLER AVENUE

Environmental Support Document

Introduction and Background

Project Description

The Florida Department of Transportation (FDOT) District One is proposing to widen approximately 4.5 miles of State Road (SR) 739 (Metro Parkway). Currently, SR 739 is an urban arterial and consists of two lanes in each direction, separated by a grass median or bidirectional turn lane, and grass shoulders are located along the east and west sides of the roadway, adjacent to the edge of pavement.

The proposed project consists of reconstructing the existing SR 739, from a four-lane divided roadway to a six-lane divided urban roadway from Daniels Parkway to Winkler Avenue. The project includes six-foot wide sidewalks and seven-foot buffered bike lanes in each direction. Additionally, continuous flow intersections are proposed at the Daniels Parkway and Colonial Boulevard intersections. The project is located in Lee County, Florida, within Sections 6, 7, 18, and 19 of Township 45 South, Range 25 East, and Section 31 of Township 44 South, Range 25 East. The project location is depicted in **Figure 1**.

Construction will be broken into three segments:


- SR 739 from South of Daniels Parkway to North of Daniels Parkway (FPID 431334-2);
- SR 739 from North of Daniels Parkway to South of Colonial Boulevard (FPID 431334-3); and
- SR 739 from South of Colonial Boulevard to Winkler Avenue (FPID 431334-4).

Project Purpose and Need

The need to reconstruct SR 739 is based on several factors. The first of these factors is to provide for a major north-south arterial roadway that relieves US 41 and provides additional capacity to meet the projected increase in traffic volumes in the area. The second factor is the need to improve safety and reduce the accident rate on SR 739. With the anticipated traffic growth in the area, the number of accidents can be expected to increase if no improvements are made to the roadway system. The third factor is that the Lee County Financially Feasible Plan identifies a need for six lanes within the limits of the proposed SR 739 from US 41/Alico Road northward to

Date: 01/26/2023 Rev: Date: N/A Pk: TK GIS Analyst: CMS Map Document: SR739_Location_CMS_20230126.mxd Project Number: 2623 PDF Document: SR739_Location_CMS_20230126.pdf Pk Size: 8.5 x 11 Document Path: U:\GIS\TPA\USFP\Projects and Proposals\0223\30.P SR 739 from Daniels to Winkler\mxd\SR739_Location_CMS_20230126.mxd

Legend

 Project Limits

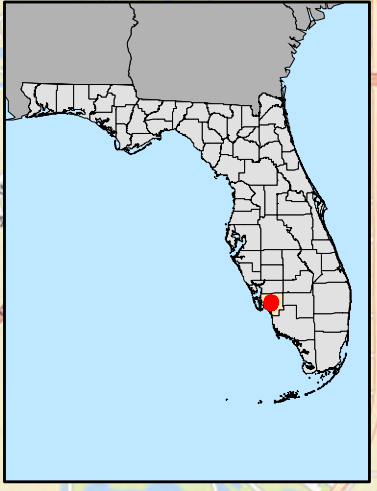
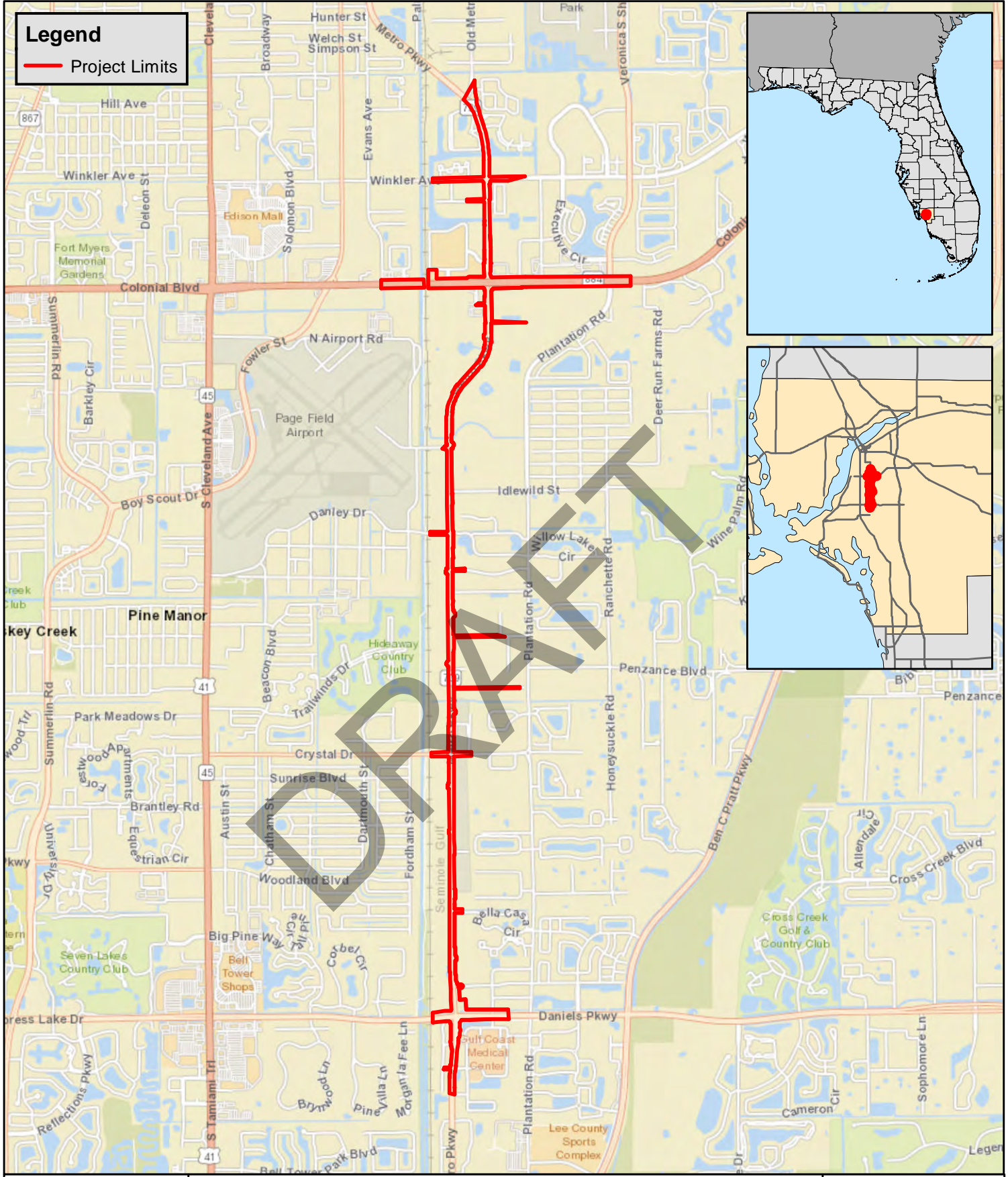


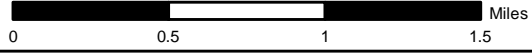
Figure 1 - Project Location Map

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida

Data Source:
 - CES
 - ESA
 Imagery Source:
 - ESRI



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SR 82. SR 739 is already six lanes south of Daniels Parkway and north Winkler Avenue. Fourth, improvements to SR 739 will help meet the social/economic demand of the area.

Alternatives

The Project Development and Environment (PD&E) study was completed in 1998 and evaluated engineering, environmental, social, historic and cultural effects for this project. Alternatives were evaluated through the PD&E Study; the Preliminary Engineering Report prepared by FDOT is attached (**Appendix A**) and includes detailed information on the alternatives analysis. The following alternatives were considered in the PD&E Study:

- **No-Build Alternative:** The No-Build Alternative would allow the existing facility to remain with only routine maintenance. Selection of this alternative would rely on other transportation improvements nearby or system-wide to handle traffic flow. The lack of any improvements would result in steadily increased traffic congestion and longer travel times for users of the US 41 corridor. Regional traffic projections show an increase in north-south traffic in the area, thus requiring the construction of SR 739 from US 41 in the vicinity of Alico Road to SR 82.
- **Build Alternatives:** Left, right, and center alignments along existing SR 739.

The “recommended alternative,” was presented at a public hearing and was selected to move forward into the design phase. It included a center alignment and the right-of-way (ROW) width was reduced to take advantage of the existing drainage and utility easements along both sides of the roadway.

Avoidance and Minimization

This project is in conformance with Executive Order 11990, Protection of Wetlands. Consideration was given to avoiding and/or minimizing wetland impacts. During field investigations for the SR 739 PD&E Study completed in 1998, project environmental data was used to develop the current alignment that provides the necessary roadway improvements, satisfies acceptable traffic engineering design standards, and avoids/minimizes impacts to significant environmental features to the greatest extent practicable.

Mitigation for unavoidable wetland impacts will be provided pursuant to Part IV, Chapter 373, Florida Statutes (F.S.); and 33 United States Code (U.S.C.) 1344. Based on the previously discussed considerations, there are no practicable alternatives to the proposed construction in wetlands and the proposed action includes all practicable measures to minimize harm to wetlands that may result from proposed construction. It was determined that the proposed design represents the minimum amount of fill required to achieve the project purpose and meet drainage requirements. The project will be constructed in accordance with the Clean Water Act Section 401; Water Quality Certification (WQC) and best management practices (BMPs) will be implemented during construction to avoid water quality degradation. The stormwater treatment facilities will fully treat and attenuate all anticipated stormwater. Offsite waters will be protected

by erosion control measures, including staked turbidity barriers, floating turbidity barriers, geotextile hay bales, or a combination thereof, as well as sediment monitoring.

Wetlands and Surface Waters within the Project Area

The project area consists of a mixture of commercial and residential properties interspersed with undeveloped areas. The undeveloped lands consist of upland forests, forested wetlands, non-forested wetlands, and pastures. The project area does not overlap with an Outstanding Florida Water or Aquatic Preserve. Readily available data sources were reviewed to determine if wetlands or surface waters occurred within or adjacent to the proposed project ROW. The primary information sources used to assess potential wetland involvement within the project area included:

- Natural Resources Conservation Service (NRCS) soils data;
- National Wetlands Inventory (NWI) mapping;
- 2017/2019 South Florida Water Management District (SFWMD) Florida Land Use, Cover and Forms Classification System (FLUCFCS) mapping; and
- ESRI and FDOT 2020 imagery.

Appendix B depicts FLUCFCS, **Appendix C** depicts NWI wetlands and hydric soils within the project area, and **Appendix D** depicts Florida Natural Areas Inventory (FNAI) communities within the project area.

Field surveys were performed August and September 2013, February 20, 2017, and October 17, 2019 to establish approximate wetland and surface water jurisdictional boundaries and evaluate wetland characteristics. Observations were recorded to characterize vegetative communities present and determine if areas directly adjacent to the ROW contained jurisdictional wetlands or surface waters. Approximate jurisdictional wetland and surface water boundaries within the project limits were established in accordance with Chapter 62-340, Florida Administrative Code (F.A.C.). Jurisdictional determinations were based on guidance documents on the definition of "Waters of the United States" under the Clean Water Act following the Navigable Waters Protection Rule. Jurisdictional boundaries were surveyed by Dewberry and are depicted in **Appendix E**.

ESA biologists delineated four (4) wetlands and 127 surface waters. The proposed project will impact four wetlands and 125 surface waters. All surface waters were previously permitted as part of SR 739 Environmental Resource Permit (ERP) No. 36-01148-S originally permitted in 1989. Land use/habitats were classified using FLUCFCS and also characterized according to the U.S. Fish and Wildlife Service (USFWS) Classification of Wetlands and Deepwater Habitats of the United States (Cowardin 1979).

Minimal secondary impacts are expected because the wetlands are located adjacent to existing SR 739. Existing adjacent wetlands have been minimally disturbed by edge effects associated with existing roadways or other development. Minor secondary impacts will result in decreased location/landscape and community structure values due to reduced wetland buffers along the

roadway, new light penetration, and increased sound effects. As such, a 25-foot buffer for the portion of each wetland located directly adjacent to the limit of construction/proposed ROW (project boundary) was assessed for secondary impacts.

The following paragraphs describe the vegetative composition and hydrological features of the wetlands and surface waters within and adjacent to the project boundary. Proposed impacts are summarized by wetland and surface water number in **Table 1** and assessed for impacts including: permanent fill and secondary impacts. No temporary impacts are anticipated.

Wetland 1

USFWS Classification: PFO1 (palustrine forested with persistent vegetation)
FLUCFCS Code: 6190 – Exotic Wetland Hardwoods
NRCS Soil Type: Boca fine sand, slough (hydric)

This system is located south of Colonial Boulevard, just east of the airport and south of Wetland 2, on the east side of SR 739. This system continues to the east and outside of the ROW, with upland forested habitat to the north and commercial development to the south. During field surveys standing water was observed. Wetland 1 is comprised of melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolia*), slash pine (*Pinus elliottii*), water oak (*Quercus nigra*), wax myrtle (*Morella cerifera*), and sawgrass (*Cladium jamaicense*). Nuisance/exotics species were greater than 90 percent coverage throughout the assessment area.

A total of 0.17 acres of direct impact will result from the proposed improvements to the roadway. A 25-foot buffer for the portion of this wetland located beyond the project ROW was assessed for secondary impacts and totals 0.14 acres.

Wetland 2

USFWS Classification: PFO1 (palustrine forested with persistent vegetation)
FLUCFCS Code: 6190 – Exotic Wetland Hardwoods
NRCS Soil Type: Isles fine sand, depressionnal (hydric)

Wetland 2 is located south of Colonial Boulevard, just east of the airport and north of Wetland 1, on the east side of SR 739. Wetland 2 and Wetland 3 are hydrologically connected via a ditch/Surface Water 45 along SR 739. This system continues east and outside of the ROW. During field surveys standing water was observed. This forested system is comprised of melaleuca, Brazilian pepper, wax myrtle, earleaf acacia (*Acacia auriculiformis*), Peruvian primrosewillow (*Ludwigia peruviana*), Mexican primrosewillow (*Ludwigia octovalvis*), maidencane (*Panicum hemitomon*), arrowhead (*Sagittaria lancifolia*), and spatterdock (*Nuphar advena*). Nuisance/exotic species were greater than 90 percent coverage throughout the assessment area.

A total of 0.06 acres of direct impact will result from the proposed improvements to the roadway. A 25-foot buffer for the portion of this wetland located beyond the project ROW was assessed for secondary impacts and totals 0.14 acres.

TABLE 1: WETLAND AND SURFACE WATER IMPACTS BY WETLAND AND SURFACE WATER NUMBER

WL & SW ID	WL & SW TYPE	UMAM AA Name	WL & SW SIZE W/IN LOC (acres)	WL & SW ACRES NOT IMPACTED	PERMANENT IMPACTS TO WL & SW		OTHER IMPACTS TO WL & SW		MITIGATION ID
					IMPACT SIZE (acres)	IMPACT TYPE	IMPACT SIZE (acres)	IMPACT TYPE	
WL 1	6190/PFO1	WL 1	0.17	0.00	0.17	Fill	0.14	Secondary	Wetland impacts will be mitigated through the purchase of mitigation bank credits
WL 2	6190/PFO1	WL 2	0.06	0.00	0.06	Fill	0.14	Secondary	
WL 3	6190/PFO1	WL 3	0.12	0.00	0.12	Fill	0.15	Secondary	
WL 4	6190/PFO1 6410/PEM1	WL 4	1.22	0.00	1.22	Fill	1.26	Secondary	
SWs 1, 1A, 1B, 2-52, 55-69, 71-74, 76-118, 120-124, 126, 127, 129-132	510/PEM1x	--	7.08	0.00	7.08	Fill	--	--	No mitigation required for surface water impacts since they were permitted as part of the original roadway.
Total for Wetlands			1.57	0.00	1.57		1.69	Secondary	
Total for Surface Waters			7.08	0.00	7.08		--	--	
Total Herbaceous SFWMD Wetlands Requiring Mitigation					1.10		0.51		
Total Forested SFWMD Wetlands Requiring Mitigation					0.47		1.18		
Waters Requiring SFWMD Mitigation					1.57		1.69		
Total Herbaceous FDEP Wetlands Requiring Mitigation					1.10		0.51		
Total Forested FDEP Wetlands Requiring Mitigation					0.47		1.18		
Waters Requiring FDEP Mitigation					1.57		1.69		

Wetland 3

USFWS Classification: PFO1 (palustrine forested with persistent vegetation)
FLUCFCS Code: 6190 – Exotic Wetland Hardwoods
NRCS Soil Type: Hallandale fine sand (hydric)

Wetland 3 is located south of Colonial Boulevard, just east of the airport and north of Wetland 1, on the east side of SR 739. Wetland 2 and Wetland 3 are hydrologically connected via a ditch/Surface Water 45 along SR 739. This system continues east and outside of the ROW. During field surveys standing water was observed. Vegetation includes melaleuca and Australian pine (*Casuarina equisetifolia*) with scattered Brazilian pepper on the edge. Other vegetation within the wetland included sawgrass, creeping ox-eye (*Wedelia trilobata*), maidencane, arrowhead, and broomsedge (*Andropogon glomeratus*). Nuisance/exotics species were greater than 90 percent coverage throughout the assessment area.

A total of 0.12 acres of direct impact will result from the proposed improvements to the roadway. A 25-foot buffer for the portion of this wetland located beyond the project ROW was assessed for secondary impacts and totals 0.15 acres.

Wetland 4

USFWS Classification: PFO1 (palustrine forested with persistent vegetation)
PEM1 (palustrine emergent marsh with persistent vegetation)
FLUCFCS Code: 6190 – Exotic Wetland Hardwoods
6410 – Freshwater Marsh
NRCS Soil Type: Isles fine sand, depressional (hydric)

Wetland 4 is located south of Colonial Boulevard, just east of the airport and north of Wetland 1, on the west side of SR 739. During field surveys standing water was observed. Wetland 4 has both a forested component near the northern end of the wetland and an herbaceous component. The forested portion of the wetland is dominated by melaleuca with scattered cabbage palm (*Sabal palmetto*). Other vegetation observed within the forested portion includes wax myrtle and sawgrass. Nuisance/exotic species were greater than 50 percent coverage within this portion of the system. The herbaceous component of the wetland is comprised of starrush (*Rhynchospora colorata*), maidencane, torpedograss (*Panicum repens*), spikerush (*Eleocharis baldwinii*), and Peruvian primrosewillow, with a small bald cypress (*Taxodium distichum*) dome in the middle of the system. Nuisance/exotics species were greater than 60 percent coverage within this portion of the system.

A total of 1.22 acres (0.12 acres forested and 1.10 acres herbaceous) of direct impact will result from the proposed improvements to the roadway. A 25-foot buffer for the portion of this wetland located beyond the project ROW was assessed for secondary impacts and totals 1.26 acres (0.75 acres forested and 0.51 acres herbaceous).

Surface Waters 1, 1A, 1B, 2-52, 55-69, 71-74, 76-118, 120-124, 126, 127, 129-132

USFWS Classification: PEM1x (excavated palustrine emergent marsh with persistent vegetation)
FLUCFCS Code: 5100 – Streams and waterways

NRCS Soil Type: Multiple – Surface waters contained either hydric or non-hydric soils.

The surface waters in the project area are linear excavated ditches of varying lengths and widths. Surface waters appear to undergo routine mowing and/or trimming of vegetation. These manmade and interconnected roadside ditches capture stormwater from SR 739 and some drain to offsite wetlands. Typical vegetation in these surface waters is broom sedge, creeping ox-eye, frogfruit (*Phyla nodiflora*), Peruvian primrosewillow, and bahiagrass (*Paspalum notatum*).

Proposed improvements to the roadway will impact 7.08 acres of surface waters. These surface waters are part of the stormwater management system associated with ERP No. 36-01148-S; therefore, do not require mitigation.

Permitting and Proposed Impacts

Wetland and Surface Water Impacts

Wetland and surface water impacts were reduced and eliminated wherever practicable. Based on the proposed ROW and limits of construction, unavoidable permanent impacts to wetlands and surface waters will result from dredging and placement of fill material for construction. Secondary impacts are expected to result in a decreased value of location/landscape and community structure because the areas will no longer have additional wetland area to buffer the roadways. As such, a 25-foot buffer for the portion of these wetlands located beyond the project ROW was assessed for secondary impacts. Proposed impacts to wetlands and surface waters are summarized in **Table 1**.

The proposed project will result in a total of 1.57 acres (1.10 acres herbaceous and 0.47 acres forested) of permanent impacts to SFWMD and Florida Department of Environmental Protection (FDEP) jurisdictional wetlands and 1.69 acres (0.51 acres herbaceous and 1.18 acres forested) of secondary impacts to SFWMD and FDEP jurisdictional wetlands.

Wetland and Surface Water Mitigation

The purpose of wetland mitigation is to comply with agency regulatory requirements to provide compensation for wetland impacts by restoring, creating, enhancing, and/or preserving wetlands. Mitigation for unavoidable wetland permanent and secondary impacts totaling 0.95 UMAM units (0.33 units of forested and 0.62 units of herbaceous) are estimated for SFWMD and FDEP jurisdictional wetlands associated with this project and will be provided via a private mitigation bank permitted by both the SFWMD and U.S. Army Corps of Engineers (USACE) to satisfy all mitigation requirements of Part IV, Chapter 373 F.S., and U.S.C. 1344. **Table 2** summarizes the calculated functional loss resulting from the proposed impacts to wetlands and surface waters.

Potential mitigation bank options include Corkscrew Regional Mitigation Bank and Panther Island Expansion Mitigation Bank. The specific mitigation bank will be selected following a competitive bid process. A letter of reservation from the selected bank will be provided when available.

TABLE 2. WETLAND IMPACT AND FUNCTIONAL LOSS SUMMARY TABLE

WL & SW ID	WL & SW Type (FLUCFCS/NWI)	WL & SW Total Project Acreage Within Project Limits	Impacts to WL & SW (acres)	Impact Type	UMAM Score	UMAM Functional Loss	Sum UMAM Functional Loss Per WL & SW
WL 1	6190/PFO1	0.17	0.17	Permanent	0.57	0.10	0.11
			0.14	Secondary	0.07	0.01	
WL 2	6190/PFO1	0.06	0.06	Permanent	0.57	0.03	0.04
			0.14	Secondary	0.07	0.01	
WL 3	6190/PFO1	0.12	0.12	Permanent	0.47	0.06	0.07
			0.15	Secondary	0.07	0.01	
WL 4 (forested)	6190/PFO1	0.12	0.12	Permanent	0.50	0.06	0.11
			0.75	Secondary	0.07	0.05	
WL 4 (herbaceous)	6410/PEM1	1.10	1.10	Permanent	0.53	0.58	0.62
			0.51	Secondary	0.07	0.04	
SWs 1, 1A, 1B, 2-52, 55-69, 71-74, 76-118, 120-124, 126, 127, 129-132	510/PEM1x	7.08	7.08	Permanent	--	--	--
TOTAL HERBACEOUS (SFWMD)		1.10	1.10	Permanent		0.58	0.62
			0.51	Secondary		0.04	
TOTAL FORESTED (SFWMD)		0.47	0.47	Permanent		0.25	0.33
			1.18	Secondary		0.08	
TOTAL FOR SFWMD:		1.57	3.26			0.95	0.95
TOTAL HERBACEOUS (FDEP)		1.10	1.10	Permanent		0.58	0.62
			0.51	Secondary		0.04	
TOTAL FORESTED (FDEP)		0.47	0.47	Permanent		0.25	0.33
			1.18	Secondary		0.08	
TOTAL FOR FDEP:		1.57	3.26			0.95	0.95

Note: Surface Waters permitted under ERP No. 36-01148-S; therefore, mitigation not required.

Protected Species

The potential for impacts to listed species associated with this project is summarized briefly in the following text, and a protected species map is provided in **Figure 2**. Readily available data sources were reviewed to determine if any protected species or their habitats occur within or adjacent to the project corridor. The primary information sources reviewed for protected species occurrences within the project areas included the project's Preliminary Engineering Report from the PD&E Study, and agency correspondence from the PD&E study data (**Appendix A**), the Audubon Society's EagleWatch bald eagle (*Haliaeetus leucocephalus*) nest locations; Florida Fish and Wildlife Conservation Commission (FWC) threatened and endangered species observation records; FNAI data records; Florida Atlas of Breeding Sites for Herons and Their Allies; and USFWS consultation areas (CAs) and observations of protected species by ESA biologists. Field surveys were performed in August and September 2013, February 20, 2017, and October 17, 2019.

Based on the literature/database review, PD&E study data, and field surveys, the following listed species were considered to potentially occur within the project area.

Federally Listed or Federally Protected Faunal Species

Bald eagle: The bald eagle is no longer listed by the USFWS or FWC but remains protected under the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d), as amended, and the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712). Bald eagle nests are afforded a primary protection buffer of 330 feet and a secondary protection buffer, which extends from 330 feet to 660 feet. No bald eagles were observed during the field reviews and the closest known bald eagle nest, LE029, is approximately 3,770 feet east of the project footprint which far exceeds the 660-foot-radius protection buffer of the nest. Therefore, no effect to the bald eagle is anticipated.

Florida scrub-jay (*Aphelocoma coerulescens*): The project falls within the USFWS CA for this federally listed threatened species. Florida scrub-jays inhabit sand pine and xeric oak scrub, and scrubby flatwoods, which occur in some of the highest and driest areas of Florida. No appropriate habitat for the species exists near the project area and none were observed during field reviews. Based on current distribution information for this species, the proposed project segment is greater than seven miles west of any documented scrub-jay observations. The nearest observations occurred prior to 1993. Therefore, it is anticipated the proposed project will have no effect on the Florida scrub-jay.

Everglade snail kite (*Rostrhamus sociabilis plumbeus*): This is a federally listed endangered species. Everglade snail kites have diets which are specialized on the Florida apple snail (*Pomacea paludosa*). This prey item inhabits surface waters of central and south Florida wetlands such as canals, littoral shelves of lakes, marshes, and stormwater ponds. The Everglade snail kite's ideal foraging and nesting habitat consists of large shallow marshes which support the apple snail. While the project is located within the USFWS Everglade snail kite CA, there is no available nesting habitat to support them; no individuals were observed during field surveys, no individuals have been historically sighted in the project limits, and no apple snails were observed.

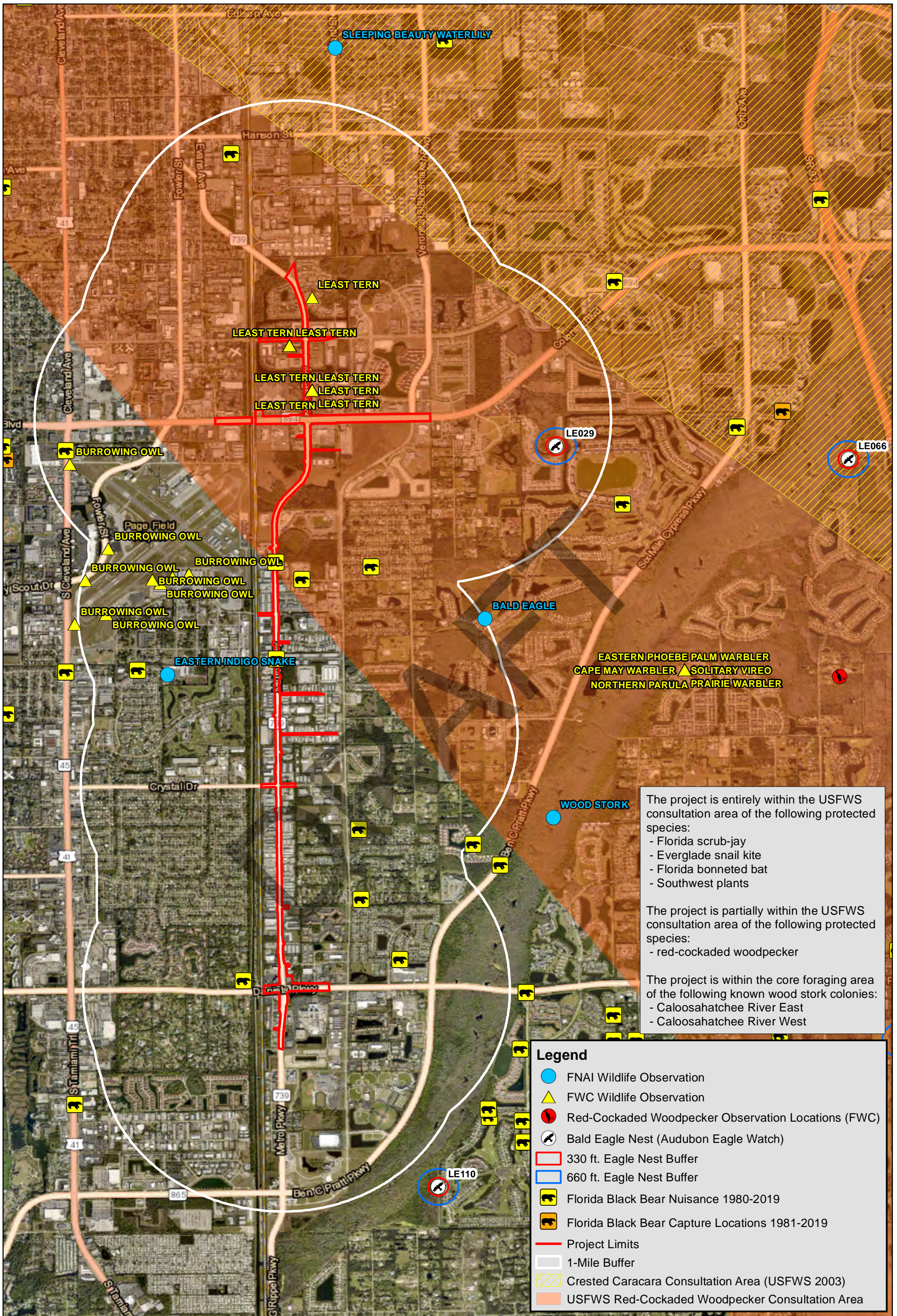


Figure 2 - Protected Species and Wildlife Observations Map

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida

0 0.5 1 1.5 Miles

Data Source:
 - CES - FWC
 - ESA - FNAI
 - USFWS
 - Audubon
 Imagery Source:
 - ESRI



All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the usability of the information.

The nearest documented nest was sighted approximately 10 miles east of the project area in 2010. No impacts to this species are anticipated due to lack of appropriate nesting habitat and minimal foraging habitat. Therefore, it is anticipated the proposed project will have no effect on the Everglade snail kite.

Red-cockaded woodpecker (RCW) (*Dryobates borealis*): This is a federally listed endangered species. While the project falls within the CA for the RCW, none of the proposed project falls within potential RCW habitat. The nearest RCW sighting is 3.2 miles east of the project area on the east side of Six Mile Cypress Slough and the date of the sighting was in September 2010. There are no documented RCW nest cavities in the vicinity of the project, and no RCW tree cavities were identified during design phase protected species surveys. Therefore, it is anticipated the proposed project will have no effect on the RCW.

Eastern black rail (*Laterallus jamaicensis* ssp. *jamaicensis*):

The eastern black rail is listed as threatened by the USFWS. It is a small, secretive marsh bird that occurs in salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps. Some appropriate habitat is located within the proposed project. The closest observation occurred 68 miles to the southeast in 2014. Given that none were observed during species surveys and mitigation will be provided for impacts to wetland habitats, the project may affect, not likely to adversely affect the eastern black rail.

Wood stork (*Mycteria americana*): This is a federally listed threatened species. This project is located within the core foraging area (CFA) of two wood stork colonies, Caloosahatchee River East and Caloosahatchee West, however, wood storks were not observed foraging in the project limits during the listed species surveys. The USFWS South Florida Ecological Services Office considers the action area for wood storks to be an 18.6-mile radius around all known wood stork colonies in south Florida which have been active in the last ten years. This is the colony CFA. Wood storks are likely to use the project area for foraging purposes given the overlapping CFA of these colonies and the foraging habitat that exists within wetlands and surface waters in and outside of the project area. According to the USFWS database, the nearest wood stork colony is located approximately 6.5 miles from the corridor (well beyond the 0.47-mile threshold for a “may affect” determination).

Typical foraging sites throughout the wood stork's range include freshwater marshes and stock ponds, shallow, seasonally flooded roadside or agricultural ditches, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs. Shallow wetland depressions that concentrate fish, either through local reproduction or through the consequences of drying, may be used as a feeding habitat. Specifically, wood storks prefer to forage where the water is between 2 and 15 inches deep. Surface Waters 1, 1A, 2-44, 46, 47, 49-52, 55-57, 61-69, 71-74, 76-118, 120-123, 126, 127, 129, 130, and 132 are shallow ditches that only hold water after heavy rain events and immediately drain offsite. Because these surface waters do not hold water that is at least 2 inches in depth they are not considered suitable foraging habitat (SFH).

Wetlands 1 through 4 and Surface Waters 1B, 45, 48, 58, 59, 60, 124, and 131 are considered wood stork SFH. The project will result in permanent impacts to 1.57 acres of wetlands and 3.06 acres of these surface water ditches considered SFH. The surface water ditches will be replaced onsite adjacent to the current location at a similar bottom elevation; therefore, are considered temporary impacts. Additionally, the littoral edges of the proposed surface water ponds will also provide wood stork SFH.

The project proposes to provide SFH compensation within the CFA that provides an amount of habitat and foraging function equivalent to that of impacted SFH. It is anticipated the project will more than compensate for the SFH loss through the purchase of 0.95 wetland mitigation bank credits to satisfy all mitigation requirements of Part IV, Chapter 373 F.S., and U.S.C. 1344. In addition, the designed stormwater management areas, including conveyance swales, treatment ponds, and floodplain compensation (FPC) areas, will provide foraging opportunities for wood storks in the post-construction condition.

Therefore, pursuant to the Wood Stork Effect Determination Key (A>B>C>D>E), it is anticipated that this project may affect, not likely to adversely affect the wood stork.

Eastern indigo snake (*Drymarchon corais couperi*): This is a federally listed threatened species. Eastern indigo snakes use a wide variety of habitats including pine flatwoods, hardwood forests, moist hammocks, and may be expected to occupy almost any tract that contains potentially suitable habitat. Per the Eastern Indigo Snake Programmatic Effect Determination Key, the proposed project is not located in open water or salt marsh (A), the *USFWS Standard Protection Measures for the Eastern Indigo Snake (Appendix F)* will be implemented during construction to minimize potential impacts to this species during site clearing and construction (B), there are gopher tortoise (*Gopherus polyphemus*) burrows, holes, cavities, or other refugia (C), the project will impact less than 25 acres of xeric habitat supporting less than 25 active and inactive gopher tortoise burrows (D), and all gopher tortoise burrows will be evacuated prior to site manipulation (E). Given the limited amount of suitable habitat to be impacted within the project ROW, a commitment to excavate any gopher tortoise burrows in the project footprint prior to construction, and the standard protection measure to be incorporated into the final project design and implemented during construction, it is anticipated that this project may affect, not likely to adversely affect the eastern indigo snake.

Florida bonneted bat (*Eumops floridanus*): The project falls within the CA of this federally listed endangered species. The Florida bonneted bat is an elusive bat which is known to roost in forested areas with tall mature trees or manmade structures such as roof tiles or bat houses. The species forages in relatively open natural areas near a water source. The nearest observation occurred in 2013 and was approximately 1.5 miles northeast of SR 739. Therefore, a survey for Florida bonneted bats was conducted by others in April and May 2023 and the detailed report is included as **Appendix G**. In summary, the full acoustic survey resulted in the identification of 16 Florida bonneted bat calls. These calls were collected at five survey sites on three survey nights. Twelve calls were collected on one survey night (April 4, 2023) at four survey sites. Based on the results of the full acoustic and roost surveys, a “May Affect, not Likely to Adversely Affect – C” effect determination was made utilizing the Florida Bonneted Bat Consultation Key (USFWS

2019). This effect determination was made using the following sequence from the key: 1a-2a-3b-6a-7b-10a-11b = MANLAA-C with required Best Management Practices (BMPs). Further consultation with the USFWS will be required. The BMPs required to reach a MANLAA determination are based on couplet 11b. The requirements for couplet 11b include BMPs number 1 and 4 and any 4 BMPs out of BMPs 5 through 13. As a result, the FDOT will implement the following BMPs for the proposed project:

- BMP 1: If potential roost trees or structures need to be removed, check cavities within 30 days prior to removal of trees, snags or structures. When possible, remove structure outside of breeding season (e.g., January 1 – April 15). If evidence of use by any bat species is observed, discontinue removal efforts in that area and coordinate with the Service on how to proceed.
- BMP 4: For every 5 acres of impact, retain a minimum of 0.25 acre of native vegetation. If upland habitat is impacted, then upland habitat with native vegetation should be retained.
- BMP 5: Conserve open freshwater and wetland habitats to promote foraging opportunities and avoid impacting water quality. Created/restored habitat should be designed to replace the function of native habitat.
- BMP 7: Avoid or limit widespread application of insecticides (e.g., mosquito control, agricultural pest control) in areas where Florida bonneted bats are known or expected to forage or roost.
- BMP 9: Retain mature trees and snags that could provide roosting habitat. These may include live trees of various sizes and dead or dying trees with cavities, hollows, crevices, and loose bark.
- BMP 11: Avoid and minimize the use of artificial lighting, retain natural light conditions, and install wildlife friendly lighting (e.g., downward facing and lowest lumens possible).

State Listed Faunal Species

Florida burrowing owl (*Athene cunicularia floridana*): This is a state threatened species. Burrowing owls use open areas with short groundcover for the excavation of nesting burrows and foraging habitat. Burrowing owls have been documented at Page Field airport approximately 0.4 miles west of SR 739. Open pasture habitat suitable for Florida burrowing owls is present but overgrown within the project area, no individuals or burrows were observed during multiple field surveys. Therefore, no adverse effects are anticipated to the Florida burrowing owl.

Florida sandhill crane (*Antigone canadensis pratensis*): This is a state listed threatened species that forages in open pastures and nests in freshwater marshes and open water areas. Nesting season for this species is December through August. Limited nesting and foraging habitat is present in the project area; however, individuals were not documented during field reviews. No nests were observed during multiple field surveys and compensation through wetland mitigation will be provided for any wetland impacts. Therefore, no adverse effects are anticipated to Florida sandhill cranes.

Southeastern American kestrel (*Falco sparverius paulus*): This is a state threatened species. Optimal habitat consists of open fields and pastures with snags for perching and nesting. The

project area contains limited appropriate habitat; however, no individuals or cavities were observed during field reviews. Therefore, no adverse effects are anticipated to the southeastern American kestrel.

Other protected wading birds that are state listed threatened species include the little blue heron (*Egretta caerulea*), reddish egret (*Egretta rufescens*), and tri-colored heron (*Egretta tricolor*). Wading birds inhabit fresh and saltwater marshes and forests. The project contains habitat for wading birds and several were observed during general wildlife field surveys. Because wetland loss will be mitigated pursuant to Part IV, Chapter 373, F.S. and 33 U.S.C. 1344, no adverse effects are anticipated to wading birds.

Gopher tortoise: This is a state listed threatened species and a federal candidate species. Suitable gopher tortoise habitat contains well-drained sandy soils for digging burrows and nesting, abundant herbaceous plants for forage, and open, sunny areas with sparse canopy for nesting and basking. No gopher tortoise burrows were identified during general species surveys but potentially suitable habitat exists within the limits and nearby, and the gopher tortoise is a mobile species. Therefore, a gopher tortoise survey should be conducted and, if tortoise burrows are located, an application to relocate the affected tortoise(s) in accordance with the latest FWC Gopher Tortoise Permitting Guidelines should be submitted. Therefore, no adverse effects are anticipated to gopher tortoises.

Florida pine snake (*Pituophis melanoleucus mugitus*): This is a state-designated threatened species that inhabits areas featuring well-drained sandy soils with a moderate to open canopy. They are also considered to be a commensal species to the gopher tortoise. The project area contains limited suboptimal habitat and no individuals were observed. High quality habitat, including sandhill, scrub, xeric hammock, scrubby flatwoods, mesic pine flatwoods and dry prairie with dry soils is not located in the project limits. Pursuant to the Imperiled Species Management Plan (ISMP), measures have been taken to minimize impacts to Florida pine snake habitat. Widening of SR 739 will not result in fragmenting large tracts of uplands considered suitable for pine snakes. Areas where offsite ponds are proposed have already been converted to development, and finally, pursuant to FWC's Gopher Tortoise Permitting Guidelines, if during tortoise relocation a pine snake is incidentally captured, it will be released onsite or allowed to escape unharmed if habitat will remain. Therefore, no adverse effect is anticipated to the Florida pine snake.

Federally Listed or State Listed Floral Species

Table 3 lists protected floral species that could occur in Lee County, along with their habitat requirements and probability of occurrence. Specifically, plant species designated federally threatened or endangered and plant species designated state threatened or endangered are included.

The majority of the species are listed as having no probability of occurrence in the project footprint given lack of appropriate habitat; for example protected plant species requiring scrubby habitats are listed as having no probability of presence given that scrub habitats are absent from the proposed project footprint. Those protected plant species which may occur in swamps,

Table 3. Federally Listed or State Listed Floral Species

Plant Species	Common Name	Federal Listing Status	State Listing Status	Habitat	Probability of Occurrence
<i>Acanthocereus pentagonus</i>	barbed-wire cactus	--	T	maritime hammocks, beaches	None
<i>Acrostichum aureum</i>	golden leather fern	--	T	coastal hammocks, tidal marshes	None
<i>Agave neglecta</i>	wild century plant	--	E	shell middens, coastal thickets	None
<i>Asplenium serratum</i>	bird's-nest spleenwort	--	E	fallen logs in swamps and hammocks	Low
<i>Bletia purpurea</i>	pine-pink orchid	--	T	pinewoods, cypress strands	None
<i>Burmannia flava</i>	Fakahatchee burmannia	--	E	wet flatwoods, cypress swamps	Low
<i>Celosia nitida</i>	West Indian cock's-comb	--	E	hardwood hammocks, coastal dunes	None
<i>Celtis iguanaea</i>	iguana hackberry	--	E	shell mounds, maritime hammocks	None
<i>Celtis pallida</i>	spiny hackberry	--	E	shell mounds, maritime hammocks	None
<i>Chamaesyce cumulicola</i>	sand dune spurge	--	E	coastal dunes, coastal scrub	None
<i>Cyrtopodium punctatum</i>	cowhorn orchid	--	E	rockland hammocks, marl prairies, strand swamps	None
<i>Deeringothamnus pulchellus</i>	beautiful pawpaw	--	E	grassy flatwoods	None
<i>Encyclia cochleata</i>	Florida clamshell orchid	--	E	on trees in rockland hammocks and strand swamps	None
<i>Epidendrum anceps</i>	dingy-flowered epidendrum	--	E	on trees in rockland hammocks, dune swamps	None
<i>Epidendrum difforme</i>	umbelled epidendrum	--	E	on trees in hammocks	None
<i>Epidendrum nocturnum</i>	night-scented epidendrum	--	E	on trees in rockland hammocks, strand swamps	None
<i>Epidendrum rigidum</i>	rigid epidendrum	--	E	on trees in rockland hammocks, strand swamps	None
<i>Epidendrum strobiliferum</i>	matted epidendrum	--	E	on trees in strand swamps	None
<i>Eragrostis tracyi</i>	Sanibel lovegrass	--	E	dunes, maritime hammocks, coastal grassland, old fields	None
<i>Eugenia confusa</i>	redberry Eugenia	--	E	rockland hammocks	None
<i>Gossypium hirsutum</i>	wild cotton	--	T	coastal hammocks, shell mounds, roadsides	Low
<i>Habenaria distans</i>	distans habenaria	--	E	hydric hammocks, strand swamps	None
<i>Harrisia gracilis</i>	aboriginal prickly-apple	E	FE	Shell middens, maritime hammocks	None
<i>Hexalectris spicata</i>	crested coral-root	--	E	pine-hickory woods, calcareous hammocks	None
<i>Jacquinia keyensis</i>	joewood	--	T	coastal strand, maritime hammocks, rocky pinelands	None
<i>Lantana depressa</i>	pineland lantana	--	E	pine rockland, coastal strand, marl prairies	None
<i>Lechea divaricata</i>	spreading pinweed	--	E	scrubby flatwoods	None
<i>Lythrum flagellare</i>	lowland loosestrife	--	E	swamps, thickets	Low
<i>Matelea gonocarpos</i>	angle pod	--	T	bluffs, floodplains	Low
<i>Maytenus phyllanthoides</i>	Florida mayten	--	T	hammocks, dunes	None
<i>Nephrolepis biserrata</i>	giant sword fern	--	T	mesic hammocks, swamps	Low
<i>Nolina atopocarpa</i>	Florida beargrass	--	T	flatwoods, savannas, shell middens	None
<i>Nymphaea jamesoniana</i>	Jameson's water-lily	--	E	ponds, canals, sloughs	Low
<i>Ophioglossum palmatum</i>	hand fern	--	E	on cabbage palms in hydric hammocks, strand swamps	Low
<i>Polypodium plumula</i>	plume polypody	--	E	hammocks	None
<i>Polyrrhiza lindenii</i>	ghost orchid	--	E	on trees in maritime hammocks, swamp forests	Low
<i>Polystachya concreta</i>	pale-flowered polystachya	--	E	on trees in strand swamps	None
<i>Prescottia oligantha</i>	small-flowered orchid	--	E	rockland hammocks	None
<i>Schizaea germanii</i>	ray fern	--	E	low hammocks	None
<i>Setaria chapmanii</i>	coral panic grass	--	E	cultivated fields, shell mounds, hammocks, prairies	None
<i>Spiranthes brevilabris</i>	small ladiestresses	--	E	pine flatwoods	None
<i>Stylisma abdita</i>	Austin's dawnflower	--	E	dry pinelands, scrub	None
<i>Tectaria heraclifolia</i>	broad halberd fern	--	T	rockland hammocks	None
<i>Thelypteris reticulata</i>	lattice-vein fern	--	E	hammocks in cypress swamps	Low
<i>Tillandsia flexuosa</i>	twisted air-plant	--	T	on trees in hammocks, cypress swamps, mangroves, scrub	Low
<i>Tillandsia pruinosa</i>	fuzzy-wuzzy wild-pine	--	E	on dead trees in strand swamps	None
<i>Verbena tampensis</i>	Tampa vervain	--	E	flatwoods, hammocks	None

cypress swamps, floodplains, ponds, canals, and roadsides may inhabit limited habitat within the project footprint. However, they have been designated a ‘low’ or ‘no’ probability of occurring given that these areas have been impacted by the highly developed nature of the area. No listed plants were observed during multiple field reviews which occurred during different seasons of the year

Public Interest

The project team finds that the proposed wetland and surface water impacts are “not contrary to the public interest.” In reference to Subsection 10.2.3 of the Statewide ERP Applicant’s Handbook, Volume 1:

- The project will not adversely affect the public health, safety, welfare, or the property of others, and should enhance public safety for drivers and pedestrians.
- The project will not adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats. The project area does provide some limited habitat for protected species. However, pursuant to FWC guidelines, the project will be surveyed prior to construction and all gopher tortoises will be relocated and wetland mitigation and stormwater infrastructure will compensate for impacts to wading bird foraging habitat.
- The project will not adversely affect navigation or the flow of water or cause harmful erosion or shoaling because all flow-ways will be maintained with improved cross-drains and culverts. The proposed project is providing a system of culverts and ditches to improve the flow through the project area which replace a system of ditches. The proposed project is also providing water quality treatment for the proposed impervious area.
- The project will not adversely affect the fishing or recreational values or marine productivity in the vicinity of the activity because there are no designated fishing sites, recreational sites, or marine habitats.
- The project will be of a permanent nature.
- The project is not expected to adversely affect significant historical or archaeological resources. As part of the PD&E Study a Cultural Resources Assessment Survey (CRAS) was performed. Based on the results of background research and field survey there are no prehistoric, historic archaeological sites, or historic resources that are listed, eligible for listing, or that appear potentially eligible for listing in the National Register of Historic Places.
- The current condition and relative value of functions being performed by areas affected by the proposed project will be replaced via purchase of mitigation bank credits to satisfy all mitigation requirements of Part IV, Chapter 373 F.S., and U.S.C. 1344.

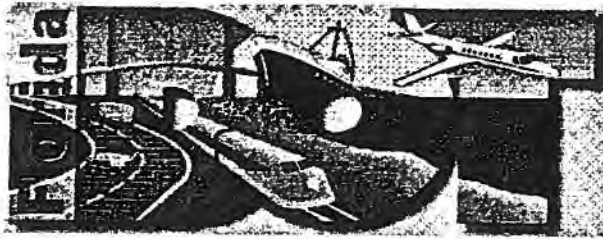
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Appendix A

Preliminary Engineering Report

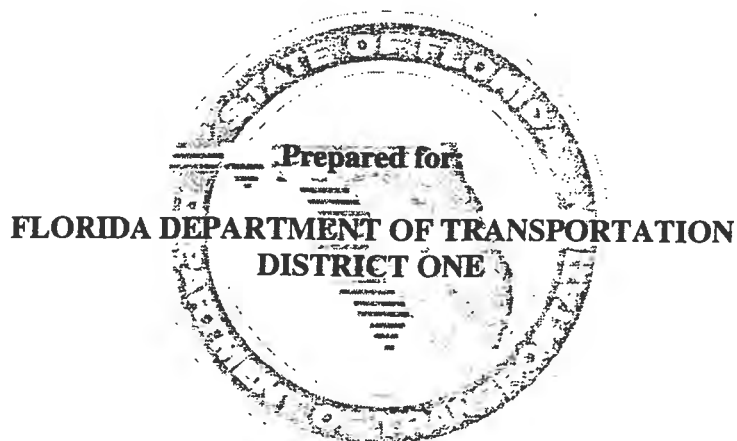
PRELIMINARY ENGINEERING REPORT



State Project Number : 12014-1502
Federal Project Number : 0671 009 U
Work Program Number : 1114619
FM Number : 195650 1 21 01

**Metro Parkway from the Vicinity of US 41 (SR 45) and Alico Road
to the Vicinity of SR 82
(Dr. Martin Luther King, Jr. Boulevard)
in Lee County, Florida**

December 17, 1998



PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with the Florida Department of Transportation, by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I have prepared or approved the evaluation, findings, opinions, conclusions, or technical advice hereby reported for:

Financial Management ID: 195650 1 21 01
Work Program Item Number: 1114619
State Project Number: 12014-1502
Federal Project ID: 0671 009 U
Project: Metro Parkway (S.R. 739) PD&E Study
County: Lee

I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

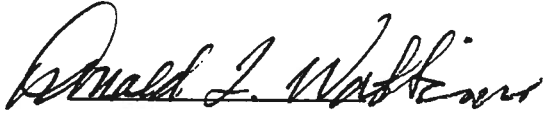
SIGNATURE: 
NAME: Donald L. Watkins, P.E.
P.E. No.: 0018572
DATE: December 17, 1998

Table of Contents

<u>Section</u>	<u>Page</u>
EXECUTIVE SUMMARY	i
1.0 SUMMARY	1-1
1.1 Commitments	1-1
1.2 Recommendations	1-6
1.2.1 Study Alternatives	1-6
1.2.2 Alternatives Evaluation and Public Hearing Alternatives	1-7
1.2.2.1 Segment 1	1-9
1.2.2.2 Segment 2	1-9
1.2.2.3 Segment 3	1-11
1.2.2.4 Segment 4	1-14
2.0 INTRODUCTION	2-1
2.1 Purpose	2-1
2.2 Project Description	2-1
3.0 NEED FOR IMPROVEMENT	3-1
3.1 Need for Improvement	3-1
3.2 Deficiencies	3-1
3.2.1 Capacity	3-1
3.2.2 Evacuation Route	3-2
3.3 Safety	3-2
3.4 Consistency with Transportation Plan	3-4
3.5 Social/Economic Demands	3-4
4.0 EXISTING CONDITIONS	4-1
4.1 Existing Roadway Characteristics	4-1
4.1.1 Functional Classification	4-1
4.1.2 Typical Sections	4-1
4.1.2.1 Railroad	4-4
4.1.3 Pedestrian and Bicycle Facilities	4-7
4.1.4 Right of way	4-7
4.1.5 Horizontal Alignment	4-8
4.1.6 Vertical Alignment	4-9
4.1.7 Drainage	4-9
4.1.7.1 Overview	4-9
4.1.7.2 Drainage Basins/Subdrainage Basins	4-10
4.1.7.3 Drainage Structures	4-10
4.1.7.4 Surface Water Management Considerations	4-12
4.1.8 Geotechnical Data	4-12
4.1.9 Crash Data	4-15
4.1.10 Intersections and Signalization	4-21

Table of Contents, continued

<u>Section</u>	<u>Page</u>
4.1.11 Lighting.....	4-26
4.1.12 Utilities.....	4-26
4.1.13 Pavement Conditions	4-29
4.2 Existing Bridges.....	4-30
4.3 Environmental Characteristics	4-30
4.3.1 Land Use Data.....	4-30
4.3.1.1 Existing Land Use.....	4-30
4.3.1.2 Future Land Use.....	4-32
4.3.2 Cultural Features and Community Services.....	4-37
4.3.2.1 Cultural Resource Assessment Survey.....	4-37
4.3.2.2 Cultural Features and Community Services.....	4-40
4.3.2.3 Section 4(f) Lands	4-43
4.3.3 Natural and Biological Features.....	4-44
4.3.3.1 Wetlands	4-44
4.3.3.2 Wildlife and Habitat.....	4-45
4.3.3.3 Outstanding Florida Waters and Aquatic Preserves.....	4-51
4.3.3.4 Floodplains.....	4-51
4.3.3.5 Farmlands.....	4-52
4.3.4 Contamination.....	4-52
5.0 DESIGN CRITERIA	5-1
6.0 TRAFFIC	6-1
6.1 Existing Roadway Network	6-1
6.2 Multimodal Transportation System Considerations	6-1
6.3 Existing Traffic Volumes.....	6-3
6.4 Existing Traffic Characteristics	6-4
6.5 Existing Intersection Levels of Service.....	6-5
6.6 Existing Roadway Segment Levels of Service	6-6
6.7 Future No Build Alternative Conditions.....	6-8
6.8 Future Build Alternative Conditions.....	6-11
6.8.1 Fowler Street/Evans Avenue One Way Pair Alternative	6-11
6.8.2 Six-Lane Fowler Street Alternative	6-26
7.0 CORRIDOR ANALYSIS	7-1
7.1 Overview.....	7-1
7.2 Major Corridor Selection	7-1
7.3 Evaluation of Metro Parkway Corridor.....	7-2
7.3.1 Segment 1.....	7-3
7.3.2 Segment 2.....	7-3
7.3.3 Segment 3.....	7-4
7.3.4 Segment 4.....	7-4

Table of Contents, continued

<u>Section</u>	<u>Page</u>
8.0 ALTERNATIVE ALIGNMENT ANALYSIS	8-1
8.1 No-Project Alternative	8-1
8.2 Transportation Systems Management	8-1
8.3 Screening of Build Alternatives	8-2
8.3.1 Overview	8-2
8.3.2 Identification of Initial Alternative Alignments.....	8-4
8.3.2.1 Segment 1 - US 41/Alico Rd to Six Mile Cypress Pkwy....	8-4
8.3.2.2 Segment 2 - Six Mile Cypress Pkwy to North of Winkler..	8-9
8.3.2.3 Segment 3 - North of Winkler Ave to Hanson Street	8-10
8.3.2.4 Segment 4 - Hanson Street of SR 82.....	8-10
8.3.3 Evaluation Matrix of Initial Alternatives	8-12
8.3.3.1 Segment 1.....	8-13
8.3.3.2 Segment 2.....	8-15
8.3.3.3 Segment 3.....	8-15
8.3.3.4 Segment 4.....	8-16
8.3.4 Identification of Additional Alternatives	8-17
8.3.4.1 Additional Segment 1 Alternatives	8-17
8.3.4.2 Additional Segment 4 Alternatives	8-17
8.3.5 Screening Evaluation of Additional Alternatives	8-19
8.3.5.1 Segment 1 Alternatives	8-19
8.3.5.2 Segment 4 Alternatives	8-19
8.3.6 Alico Road/US 41 Connection Alternatives	8-21
8.3.6.1 Identification of Connection Alternatives.....	8-21
8.3.6.2 Evaluation of US 41/Alico Rd Connection Alternatives	8-21
8.3.7 Selection of Viable Alternatives	8-22
8.4 Description and Evaluation of Viable Alternatives	8-26
8.4.1 Description of Alternatives	8-26
8.4.1.1 Segment 1 Alternatives	8-26
8.4.1.1.1 Alternative 1-3B.....	8-26
8.4.1.1.2 Alternative 1-3D	8-28
8.4.1.2 Segment 2 Alternatives	8-28
8.4.1.2.1 Segment 2A Alternatives	8-33
8.4.1.2.2 Segment 2B Alternatives	8-36
8.4.1.3 Segment 3 Alternatives	8-38
8.4.1.3.1 Alternative 3-5	8-38
8.4.1.3.2 Alternative 3-6	8-43
8.4.1.4 Segment 4 Alternatives	8-49
8.4.1.4.1 Alternative 4-5(LT).....	8-49
8.4.1.4.2 Alternative 4-2G	8-52
8.4.2 Evaluation Matrix of Viable Alternatives.....	8-55

Table of Contents, continued

<u>Section</u>	<u>Page</u>
8.4.2.1 Segment 1.....	8-55
8.4.2.2 Segment 2.....	8-59
8.4.2.3 Segment 3 and Segment 4.....	8-60
8.5 Public Hearing Alternatives.....	8-60
9.0 PRELIMINARY DESIGN ANALYSIS.....	9-1
9.1 Design Traffic Volumes.....	9-1
9.1.1 Overview/Methodology.....	9-1
9.1.2 Traffic Factors.....	9-2
9.1.3 Traffic Projections.....	9-2
9.2 Typical Sections.....	9-2
9.2.1 Segment 1 Typical Section.....	9-2
9.2.2 Segment 2 Typical Section.....	9-11
9.2.3 Segment 3 Typical Section.....	9-11
9.2.3.1 Alternative 3-5.....	9-11
9.2.3.2 Alternative 3-6.....	9-12
9.2.4 Segment 4 Typical Section.....	9-12
9.2.4.1 Alternative 4-5(LT).....	9-12
9.2.4.2 Alternative 4-2G.....	9-13
9.3 Intersection Concepts and Signal Analysis.....	9-13
9.3.1 Metro Parkway Connection to US 41 and Alico Road.....	9-13
9.3.2 Segment 1 - Lane Geometrics and Signalization.....	9-14
9.3.2.1 Alternative 1-3B.....	9-14
9.3.2.2 Alternative 1-3D.....	9-14
9.3.3 Segment 2 - Lane Geometrics and Signalization.....	9-14
9.3.4 Segment 3 - Lane Geometrics and Signalization.....	9-15
9.3.4.1 Alternative 3-5.....	9-15
9.3.4.2 Alternative 3-6.....	9-16
9.3.5 Segment 4 - Lane Geometrics and Signalization.....	9-16
9.3.5.1 Alternative 4-5(LT).....	9-16
9.3.5.2 Alternative 4-2G.....	9-16
9.4 Alignment and Right of Way Needs.....	9-17
9.4.1 US 41/Alico Road/Metro Parkway Connection.....	9-17
9.4.2 Segment 1 Alignment.....	9-17
9.4.3 Segment 2 Alignment.....	9-17
9.4.4 Segment 3 Alignment.....	9-17
9.4.5 Segment 4 Alignment.....	9-18
9.5 Relocation.....	9-18
9.6 Cost Estimates.....	9-20
9.7 Recycling of Salvageable Material.....	9-20
9.8 User Benefits.....	9-20
9.9 Pedestrian and Bicycle Facilities.....	9-22
9.10 Safety.....	9-22

Table of Contents, continued

<u>Section</u>		<u>Page</u>
9.11	Economic and Community Development	9-23
9.12	Environmental Impacts	9-24
	9.12.1 Section 4(f) Lands	9-24
	9.12.2 Cultural Resources	9-26
	9.12.2.1 Historic Sites/District	9-26
	9.12.2.2 Archaeological Sites	9-27
	9.12.3 Wetlands	9-27
	9.12.4 Aquatic Preserves	9-28
	9.12.5 Water Quality	9-28
	9.12.6 Outstanding Florida Waters	9-29
	9.12.7 Floodplains	9-29
	9.12.8 Wildlife and Habitat	9-30
	9.12.9 Farmlands	9-33
	9.12.10 Noise	9-33
	9.12.11 Air	9-34
	9.12.12 Contamination	9-35
9.13	Utility and Railroad Impacts	9-37
	9.13.1 Existing Utilities	9-37
	9.13.1.1 Seminole Gulf Railroad	9-38
	9.13.1.2 Ten Mile Canal	9-39
	9.13.1.3 FPL Transmission Line	9-39
	9.13.1.4 Other Public Utilities	9-40
	9.13.2 Relocation Costs	9-42
	9.13.3 Future Utility Improvements	9-42
9.14	Traffic Control Plan	9-42
	9.14.1 Traffic Control Plan in Segment 1	9-42
	9.14.2 Traffic Control Plan in Segment 2	9-43
	9.14.3 Traffic Control Plan in Segment 3	9-43
	9.14.4 Traffic Control Plan in Segment 4	9-43
9.15	Results of Public Involvement Plan	9-44
	9.15.1 Public Involvement Plan	9-44
	9.15.2 Advance Notification	9-44
	9.15.3 Newsletters	9-45
	9.15.4 Public Information Workshop	9-45
	9.15.5 Public Informational Meetings	9-47
	9.15.6 Public Informational Workshops	9-47
	9.15.7 Public Hearings	9-48
9.16	Value Engineering	9-49
	9.16.1 VE Recommendation 1	9-49
	9.16.2 Response to VE Recommendation 1	9-49
	9.16.3 VE Recommendation 2	9-49
	9.16.4 Response to VE Recommendation 2	9-50
	9.16.5 VE Design Observation	9-50

Table of Contents, continued

<u>Section</u>	<u>Page</u>
9.16.6 Response to VE Design Observation	9-50
9.17 Drainage	9-51
9.17.1 Segment 1 Drainage	9-51
9.17.2 Segment 2 Drainage	9-51
9.17.3 Segment 3 Drainage	9-51
9.17.4 Segment 4 Drainage	9-51
9.18 Structures	9-52
9.18.1 Structures in Segment 1	9-52
9.18.2 Structures in Segment 2	9-53
9.18.3 Structures in Segment 3	9-53
9.19 Access Management.....	9-54
9.20 Aesthetics and Landscaping.....	9-54
9.21 Recommended Alternative.....	9-55

List of Figures

<u>Figure No.</u>	<u>Title</u>	<u>Page</u>
1	Typical Section - Alternative 1-3B	xv
2	Typical Section - Alternative 2-3A	xvii
3	Typical Section - Alternative 2-2B	xviii
4	Typical Section - Alternative 3-6 (One Way Pair – Evans Ave.)	xx
5	Typical Section - Alternative 3-6 (One Way Pair – Evans Ave.)	xxi
6	Typical Section - Alternative 3-6 (One Way Pair – Fowler St.)	xxii
7	Typical Section - Alternative 4-2G (Fowler St.).....	xxiv
8	Typical Section - Alternative 4-2G (Evans Ave.).....	xxvi
9	Typical Section - Alternative 4-2G (Hanson St.).....	xxvii
1-1	Typical Section - Alternative 1-3B	1-10
1-2	Typical Section - Alternative 2-3A	1-12
1-3	Typical Section - Alternative 2-2B	1-13
1-4	Typical Section - Alternative 3-6 (One Way Pair).....	1-15
1-5	Typical Section - Alternative 3-6 (One Way Pair – Evans Ave.)	1-16
1-6	Typical Section - Alternative 3-6 (One Way Pair – Fowler St.)	1-17
1-7	Typical Section - Alternative 4-2G (Evans Ave.).....	1-19
1-8	Typical Section - Alternative 4-2G (Fowler St.).....	1-20
1-9	Typical Section - Alternative 4-2G (Hanson St.).....	1-21
2-1	Project Location Map.....	2-3
2-2	Corridor Segments	2-4
4-1	Functional Classification of Roadway System.....	4-2
4-2	Existing Typical Section - Segment 2	4-3
4-3	Existing Typical Section - Segment 4.....	4-5
4-4	Drainage Basin/Sub Drainage Map.....	4-11

List of Figures, continued

<u>Figure No.</u>	<u>Title</u>	<u>Page</u>
4-5	Area Soil Associations.....	4-13
4-6A	Intersection and Lane Configurations	4-23
4-6B	Intersection and Lane Configurations	4-24
4-7A	Existing Land Use Map.....	4-33
4-7B	Existing Land Use Map.....	4-34
4-7C	Existing Land Use Map.....	4-35
4-8	Future Land Use Map.....	4-38
4-9A	Wetlands/Floodplain Map.....	4-46
4-9B	Wetlands/Floodplain Map.....	4-47
4-9C	Wetlands/Floodplain Map.....	4-48
4-10A	Potential Contamination Sites.....	4-54
4-10B	Potential Contamination Sites.....	4-55
4-10C	Potential Contamination Sites.....	4-56
4-10D	Potential Contamination Sites.....	4-57
6-1A	Design Year AADT (One Way Pair)	6-12
6-1B	Design Year AADT (One Way Pair)	6-13
6-1C	Design Year AADT (One Way Pair)	6-14
6-1D	Design Year AADT (One Way Pair)	6-15
6-2A	Design Year Peak Hour Volumes (One Way Pair)	6-17
6-2B	Design Year Peak Hour Volumes (One Way Pair)	6-18
6-2C	Design Year Peak Hour Volumes (One Way Pair)	6-19
6-2D	Design Year Peak Hour Volumes (One Way Pair)	6-20
6-3A	Recommended Design Year Geometry (One Way Pair).....	6-21
6-3B	Recommended Design Year Geometry (One Way Pair).....	6-22
6-3C	Recommended Design Year Geometry (One Way Pair).....	6-23
6-3D	Recommended Design Year Geometry (One Way Pair).....	6-24
6-4A	Design Year AADT (Fowler Street Six-Lane).....	6-27
6-4B	Design Year AADT (Fowler Street Six-Lane).....	6-28
6-4C	Design Year AADT (Fowler Street Six-Lane).....	6-29
6-4D	Design Year AADT (Fowler Street Six-Lane).....	6-30
6-5A	Design Year Peak Hour Volumes (Fowler Street Six-Lane)	6-32
6-5B	Design Year Peak Hour Volumes (Fowler Street Six-Lane)	6-33
6-5C	Design Year Peak Hour Volumes (Fowler Street Six-Lane)	6-34
6-5D	Design Year Peak Hour Volumes (Fowler Street Six-Lane)	6-35
6-6A	Recommended Design Year Geometry (Fowler St. 6-Lane)	6-36
6-6B	Recommended Design Year Geometry (Fowler St. 6-Lane)	6-37
6-6C	Recommended Design Year Geometry (Fowler St. 6-Lane)	6-38
6-6D	Recommended Design Year Geometry (Fowler St. 6-Lane)	6-39
8-1	Alternative Corridor Alignments	8-5
8-2	Double Loop Interchange Geometry	8-23
8-3	Single Loop Interchange (Inside Merge with US 41)	8-24
8-4	Single Loop Interchange (At Grade Intersection at US 41)	8-25
8-5	Alternative 1-3B Alignment.....	8-27
8-6	Typical Section - Alternative 1-3B	8-29

List of Figures, continued

<u>Figure No.</u>	<u>Title</u>	<u>Page</u>
8-7	Alternative 1-3D Alignment	8-30
8-8	Typical Section - Alternative 1-3D	8-31
8-9	Segments 2A and 2B Alignments	8-32
8-10	Typical Section - Alternative 2-1A	8-34
8-11	Typical Section - Alternative 2-2A	8-35
8-12	Typical Section - Alternative 2-3A	8-37
8-13	Typical Section - Alternative 2-1B	8-39
8-14	Typical Section - Alternative 2-2B	8-40
8-15	Typical Section - Alternative 2-3B	8-41
8-16	Alternative 3-5 Alignment	8-42
8-17	Typical Section - Alternative 3-5	8-44
8-18	Alternative 3-6 Alignment	8-45
8-19	Typical Section - Alternative 3-6 (Fowler St. 6-Lane)	8-46
8-20	Typical Section - Alternative 3-6 (One Way Pair – Evans Ave.)	8-47
8-21	Typical Section - Alternative 3-6 (One Way Pair – Fowler St.)	8-48
8-22	Alternative 4-5(LT) Alignment.....	8-50
8-23	Typical Section - Alternative 4-5(LT)	8-51
8-24	Alternative 4-2G Alignments.....	8-53
8-25	Typical Section - Alternative 4-2G (Evans Ave.).....	8-54
8-26	Typical Section - Alternative 4-2G (Fowler St.).....	8-56
8-27	Typical Section - Alternative 4-2G (Hanson St.).....	8-57

List of Tables

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
1	Initial Alternative Corridor Evaluation Matrix	ix
2	Segments 3 and 4 Alternatives Evaluation Matrix.....	xi
3	Alternatives Evaluation Matrix.....	xii
1-1	Alternatives Evaluation Matrix	1-8
4-1	Existing Metro Parkway Highway Characteristics	4-6
4-2	Existing Crosswalk and Pedestrian Signal Locations	4-8
4-3	Crash Summary - Metro Parkway.....	4-16
4-4	Crash Summary - Hanson Street.....	4-17
4-5	Crash Summary - Evans Avenue	4-18
4-6	Crash Summary - Fowler Street.....	4-19
4-7	Characteristics of Wetland Sites	4-49
5-1	Design Criteria - Suburban Arterial	5-2
5-2	Design Criteria - Urban Arterial	5-3
6-1	Existing Traffic Characteristics	6-5

List of Tables, continued

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
6-2	Year 2020 No-Build Alternative LOS - Metro Parkway	6-9
6-3	Year 2020 No-Build Alternative LOS - Fowler/Evans.....	6-10
8-1	Initial Alternative Corridor Evaluation Matrix	8-6
8-2	Segments 3 and 4 Alternatives Evaluation Matrix.....	8-20
8-3	US 41 and Alico Road Connection to Metro Parkway Cost.....	8-22
8-4	Alternatives Evaluation Matrix	8-58
8-5	Public Hearing Alternatives	8-61
9-1	AM Peak Hour Volumes - Fowler/Evans One Way Pair	9-3
9-2	AM Peak Hour Volumes - Fowler St. Six-Lane	9-5
9-3	PM Peak Hour Volumes - Fowler/Evans One Way Pair	9-7
9-4	PM Peak Hour Volumes - Fowler St. Six-Lane	9-9
9-5	Cost Estimates - Metro Parkway	9-21
9-6	Wetlands Impacts	9-28
9-7	State and Federal Listed Species	9-31
9-8	Air Quality Impacts Summary	9-35
9-9	Utility Relocation Costs	9-40

CONCEPT PLANS

ADDENDUM A Interchange Alternatives

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) has conducted a Project Development and Environment (PD&E) Study which address the proposed roadway improvements that are required for the expansion and extension of the Metro Parkway (SR 739) corridor in Lee County, Florida. The project limits extend from the vicinity of US 41 (SR 45) and Alico Road to the vicinity of SR 82 (Dr. Martin Luther King, Jr. Boulevard), a distance of approximately 17.7 kilometers (11 miles).

The objective of the PD&E Study was to provide documented environmental and engineering analyses to assist the FDOT in reaching a decision on the type, location and conceptual design of the required improvements to the Metro Parkway (SR 739) corridor.

These improvements are to accommodate future traffic demand safely and efficiently. The Metro Parkway corridor is proposed to be improved from a two-lane and four-lane roadway to a six-lane divided roadway through the study limits described above. This involves a new alignment between Six Mile Cypress Parkway and US 41 in the vicinity of Alico Road; from north of the Winkler Avenue/Metro Parkway intersection to the vicinity of Hanson Street; and in the vicinity of Dr. Martin Luther King, Jr. Boulevard. The need for this improvement was established based on the following factors:

- There is a need for a major north-south arterial roadway to relieve US 41 and provide additional capacity to meet the projected increase in traffic volumes in the area,
- There is a need to improve safety and reduce the crash rate on Metro Parkway,
- The Lee County 2020 Financially Feasible Plan identifies a need for six-lanes within the limits of the proposed Metro Parkway from US 41 in the vicinity of Alico Road northward to SR 82, and
- Improvements to Metro Parkway will help meet the social/economic demand of the area.

The study corridor was divided into four segments based on similar engineering and environmental characteristics.

Segment 1 - New alignment from US 41 in the vicinity of Alico Road to Six-Mile Cypress Parkway/Metro Parkway intersection.

Segment 2 - Metro Parkway from Six-Mile Cypress Parkway to north of Winkler

Avenue.

Segment 3 - A new crossover alignment from north of Winkler Avenue to Fowler Street/Evans Avenue Corridor; or existing Metro Parkway to a Hanson Street Connector.

Segment 4 - Fowler Street/Evans Avenue corridor to the vicinity of SR 82.

EXISTING CONDITIONS

There are no existing north-south roadways within the Metro Parkway corridor north of Alico Road in Segment 1. In Segment 2, the existing Metro Parkway alignment is characterized by three typical sections. Specifically, from Six Mile Cypress Parkway to Daniels Parkway, Metro Parkway consists of two 3.6 meter (12 feet) lanes (one northbound and one southbound) with 3.4 meter (11 feet) grass shoulders within an existing 30.5 meter (100 feet) right-of-way. From Daniels Parkway northward to Winkler Avenue, Metro Parkway consists of two 3.6 meter (12 feet) lanes in each direction, separated by a 4.8 meter (16 feet) grass median or bi-directional turn lane. Grass shoulders, measuring 3.4 meters (11 feet), are located along the east and west sides adjacent to the edge of pavement. Drainage/utility easements 3.8 meters (12.5 feet) in width are located on each side of the road right-of-way and open drainage system is provided. The posted speed limit along Metro Parkway from Six Mile Cypress Parkway to Idlewild Street is 50 miles per hour. The posted speed limit from Idlewild Street to north of Winkler Avenue is 45 miles per hour.

Metro Parkway transitions to two 3.6 meter (12 feet) lanes, one northbound and one southbound, within a 20 meter (66 feet) right-of-way, as it proceeds north from Winkler Avenue to its terminus at Hanson Street. The posted speed limit along the two-lane section in this area is 40 miles per hour.

Segment 3 consists of a new crossover alignment between existing Metro Parkway and the Fowler Street/Evans Avenue corridor.

The major north-south roadway in Segment 4 is Fowler Street. Fowler Street is a five-lane section from Simpson Street to Hanson Street, with two lanes in each direction and a two-way left turn lane. North of Hanson Street, the typical section consists of four lanes undivided, with two lanes in each direction. The inside lanes are 3.1 meters (10 feet) and

the outside lanes are 3.2 meters (10.6 feet) with Type "F" curb and gutter (closed drainage) on both sides. The right-of-way width along Fowler Street varies from 15.2 meters (50 feet) to 30.5 meters (100 feet). The posted speed limit on Fowler Street is 35 miles per hour.

Evans Avenue parallels Fowler Avenue. It is a two-lane roadway, with one lane in each direction. Lane widths are 3.1 meters (10 feet) and the existing right-of-way varies from 9.1 meters (30 feet) to 30 meters (95 feet). Type "F" curb and gutter (closed drainage) has been provided at the Evans Avenue intersections with Kennesaw Street and Hanson Street. Grass shoulders and drainage swales are common north of Edison Avenue and north of Market Street. Evans Avenue has a posted speed limit of 30 miles per hour south of Hanson Street.

The existing section of Metro Parkway between Six Mile Cypress Parkway and Winkler Avenue is classified as a principal arterial. The existing land use through the corridor is predominantly commercial with some residential development in the northern and southern portions of the study area.

TRAFFIC

A detailed traffic study, *Alternate US 41 Traffic Technical Memorandum Project Traffic and Intersection Analysis Report (June 1993)*, was conducted for this project. Two addenda, *Alternate US 41 (Metro Parkway) Traffic Addendum (December 1995)* and *Alternate US 41 (Metro Parkway) Traffic Addendum (November 1997)*, updated the original study. These traffic studies included an evaluation of the existing traffic volumes and levels of service for both roadway segments and individual intersections throughout the study corridor to identify any existing level of service deficiencies, as well as evaluations of the future year 2020 traffic conditions for both Build and No-Build Alternatives.

The Average Annual Daily Traffic (AADT) volume on the existing Metro Parkway facility ranges from 13,600 vehicles per day (vpd) (between Six Mile Cypress Parkway and Daniels Parkway) to 30,200 vpd (between Crystal Drive and Danley Drive). The AADT volume on Fowler Street between Winkler Avenue and Hanson Street varies between 22,700 vpd and 24,400 vpd. Within these same limits, the AADT volume on Evans Avenue ranges from 6,000 vpd to 8,200 vpd. Lastly, the AADT volumes on Fowler Street and Evans Avenue between Hanson Street and SR 82 range from 21,000

vpd to 24,300 vpd and from 600 vpd to 5,900 vpd, respectively.

The projected design year (2020) AADT volumes along the study corridor are expected to range from 45,100 vpd north of Six Mile Cypress Parkway to between 67,600 and 74,400 vpd north of Winkler Avenue. The volumes vary from north of the vicinity of Hanson Street depending on whether the improvement is six-laning Fowler Street or improving Fowler Street and Evans Avenue as a one-way pair system.

Conceptual design encompassed access management standards for each segment of this project. Segment 2 of this project is in access class 5 and will require special attention to meet the needs of the existing businesses along this segment of roadway. Access management classes determined for this project as follows:

- Segment 1 - Access Class 3
- Segment 2 - Access Class 5
- Segment 3 - Access Class 5
- Segment 4 - Access Class 6

ALTERNATIVE ALIGNMENT ANALYSIS

The “No-Project” alternative would allow the existing facility to remain with only routine maintenance. Selection of this alternative would rely on other transportation improvements nearby or system-wide to handle traffic flow. Although there are some advantages to this alternative, several deficiencies would remain. The lack of any improvements would result in steadily increased traffic congestion and longer travel times for users of the US 41 corridor. Regional traffic projections show an increase in north-south traffic in the area, thus requiring the construction of Metro Parkway from US 41 in the vicinity of Alico Road to SR 82. Consequently, deficiencies associated with providing the No-Project alternative include low travel speeds, lengthy vehicle queues (especially at major intersections), impaired traffic flow and higher accident rates. These deficiencies are contrary to the long-range transportation plans of Lee County. In addition, the No-Project alternative will not fill the gap in the regional transportation system that is needed to effectively and efficiently move traffic in a north-south direction and provide a continuous parallel route from existing US 41 in the vicinity of Alico Road northward to the recently opened Edison Bridge. The No Project Alternative remained under consideration throughout the alternatives analysis and evaluation process of this study.

The Transportation Systems Management (TSM) alternative, which includes those types of activities designed to maximize the use of the existing transportation system, was also considered for this project. These strategies include intersection widening, improved signalization, increased mass transit usage, the possibility of reverse lane operation and/or lane use restrictions for high-occupancy vehicles, and provisions for bicycles and pedestrians. While some increased efficiency might be realized at the individual signalized intersections through minor improvements, the overall capacity restrictions of maintaining the existing roadway configuration would not allow improvements of the overall level of service to support existing and future traffic demands on the Metro Parkway. Therefore, Transportation Systems Management was dismissed as a viable alternative.

A screening of potential corridors/alternative alignments was conducted as part of a corridor analysis. Numerous alternatives were eliminated because of a "fatal flaw" which made it obvious that they were not acceptable alignments. In addition, a corridor study conducted prior to the Metro Parkway PD&E Study evaluated and eliminated an alignment at the north end of the project that extended along existing Palm Avenue. This corridor/alignment was eliminated because of impacts to a historic district and other historic structures and because of potential relocation impacts north of Edison Avenue.

Numerous viable alternatives for each of the four study segments were developed and analyzed based on business and economic impacts, cultural / historical resources, residential impacts, community facility impacts, natural and environmental impacts and costs.

In Segment 1, seven build alternatives were initially evaluated, all of which would be on new location. Each of the seven alternative alignments would begin at US 41 in the vicinity of Alico Road and extend in a generally northerly direction to the vicinity of Six Mile Cypress Parkway and Metro Parkway. Two of the seven alternatives (Alternatives 1-1 and 1-2) would cross the Ten Mile Canal and travel through the eastern end of the Jamaica Bay subdivision before crossing back over the Ten Mile Canal and eventually merging with Metro Parkway north of the Six Mile Cypress Parkway. Five alternative alignments (Alternatives 1-3, 1-3B, 1-3C, 1-4 and 1-5) would travel along the east side of the Ten Mile Canal and cross the Six Mile Cypress Slough Preserve at various locations before merging with Metro Parkway in the vicinity of Six Mile Cypress Parkway.

All alternatives developed in Segment 2 follow the route of the existing Metro Parkway and extend from Six Mile Cypress Parkway to north of Winkler Avenue. Therefore, the initial evaluation of alternative alignments in Segment 2 consisted of left, right and center alternatives. Since it was determined that the existing right-of-way varies, Segment 2 was further divided into two (2) segments; Segment 2A is from Six Mile Cypress Parkway to Daniels Parkway and Segment 2B is from Daniels Parkway to north of Winkler Avenue. Left, right and center alignments along existing Metro Parkway were then developed for each of these subsegments.

Four basic alternatives were initially considered in Segment 3. Two alignments were crossover alternatives (Alternatives 3-1 and 3-2) that are partially on new location and partially on existing alignment. These two alignments would connect to the Six-Lane Fowler Street Alternatives and to the One-Way Pair Alternatives in Segment 4, respectively. The third alternative (Alternative 3-3) would follow an existing alignment utilizing Metro Parkway and Hanson Street. A fourth alignment (Alternative 3-4) connected with the existing Evans Avenue corridor in the vicinity of Kennesaw Street. This crossover alignment is the same as for Alternatives 3-1 and 3-2 up to the vicinity of Kennesaw Street where it proceeded northward along existing Evans Avenue on left, right and centered alignments.

Three basic roadway improvements were developed for Segment 4. These consisted of a one-way pair concept involving Fowler Street and Evans Avenue, Six-Laning Fowler Street and Six-Laning Evans Avenue.

Alternative 4-1 is a six-lane alternative which would begin at the intersection of Fowler Street and Hanson Street and proceed in a northerly direction where it would follow the existing Fowler Street roadway along a west (left), center, or east (right) multilane alignment to the project terminus at SR 82. Alternative 4-2 is a one-way pair alternative that would proceed northward from the vicinity of Kennesaw Street along the existing Evans Avenue alignment. The first portion of this alignment would follow existing Evans Avenue and end in the vicinity of the intersection of existing Evans Avenue and Edison Avenue. The second portion of this alignment would follow a new alignment and terminate at SR 82. The first portion of this alternative would require minor acquisition of right-of-way. The second portion of this alternative would leave the existing Evans Avenue with a set of reverse curves that would move the alignment immediately adjacent to the west right-of-way line for the Seminole-Gulf Railway. This alignment would require acquisition of right-of-way for the entire 19.5 meter (64 feet) section, as well as

the removal/relocation of several industrial businesses located between the railroad right-of-way and Alicia Street. Property owned by the Railway and planned for future passenger facilities would be required for this alternative.

Alternative 4-2B is also a one-way pair alternative. This alternative would begin in the vicinity of Kennesaw Street and continue northbound to the intersection of Dora Street and Evans Avenue. Minor right-of-way acquisition from each side of the existing right-of-way would be required. The alignment would then begin to rise above the existing Evans Avenue at a 4 percent grade to achieve the proper required clearance at the intersection of the railroad, Evans Avenue, and Edison Avenue. This bridge would span an approximate distance of 170 meters (550 feet) and would have MSE walls on both north and south approaches. The required right-of-way in this portion would increase to 20.7 meters (68 feet) and would require the acquisition of approximately 1.7 meters (5.5 feet) from each side of the existing roadway. The roadway would be at-grade at the intersection of Evans Avenue and Market Street. From the bridge, it would be necessary to relocate the existing railroad tracks further west within the Seminole Gulf Railway right-of-way to accommodate the proposed alignment. This would include modifications to the railroad "Wye" just south of the intersection of SR 82. From Market Street to SR 82, the alignment would be west of and adjacent to the east right-of-way for existing Evans Avenue. Evans Avenue in this vicinity has a right-of-way width of 9.1 meters (30 feet) and would require acquisition of 10.3 meters (34 feet) of railroad property.

Alternative 4-2C is a one-way pair alternative which would follow the alignment of Alternative 4-2B until it reaches Dora Street. This alternative would then continue in a northerly direction. In the vicinity of Edison Avenue, the alignment moves approximately 9 meters (30 feet) to the west by using a reverse curve and would continue on this alignment until terminating at Dr. Martin Luther King, Jr. Boulevard.

From the Edison Avenue shift northward, Alternative 4-2C would occupy a portion of the Seminole Gulf Railway right-of-way. Realignment of the main railroad tracks to the east side of this alignment would place the new tracks within the existing Evans Avenue right-of-way. It would be necessary for a spur line to cross the alignment between Lafayette Street and Market Street to provide access to the News Press building. Alternative 4-2C would have the main railroad tracks to the east and the spur track to the west. Near the intersection of Dr. Martin Luther King, Jr. Boulevard the existing railroad "Wye" would be removed. This "Wye" is essential for the efficient operation of the railroad in this vicinity and would be relocated to a vacant parcel of land in Segment 3.

Six-Lane Evans Avenue Alternatives (Alternatives 4-4 Left, Right and Center) were also considered but were discarded as non-viable because of impacts to the Imaginarium (a 4(f) property), the Dunbar community (a minority neighborhood) and were unacceptable to the Seminole Gulf Railway.

The evaluation matrix of these initial alternatives was developed and is summarized in Table 1.

A public information workshop was held on August 17, 1995, at the Villas Elementary School in Fort Myers. The purpose of this workshop was to provide interested persons with information on the alternative corridor alignments developed to date and to allow the public the opportunity to comment. The workshop was attended by more than 300 people. Two additional Public Informational Meetings were held in mid May of 1996 to present the alternatives under consideration and gain additional input. As a result of these and other meetings, several additional alternatives were developed.

Alternative 1-3D follows essentially the same alignment as Alternative 1-3B except that the roadway is constructed within the railroad right-of-way and the railroad is relocated to the east of the roadway.

Since Alternative 4-2C was not acceptable to the Railroad, other alternatives were developed as described below. The following identifies the additional alternatives that were considered.

Alternative 4-2D is a one-way pair alternative. This alternative utilizes the existing railroad right-of-way and Evans Avenue right-of-way in a shared configuration to construct the roadway to the west of the railroad and to reconstruct the railroad to the east of the roadway. Fowler Street would be milled and resurfaced to provide three southbound lanes of traffic with a bike path.

Alternative 4-2E would construct the northbound three lanes of traffic utilizing all of Evans Avenue and take an additional 10.4 meters (34 feet) from the right (east) side of the roadway. This alternative would avoid impacting the railroad property but would impact the Dunbar community (a minority neighborhood). This alternative also requires

**TABLE 1
INITIAL ALTERNATIVE CORRIDOR EVALUATION MATRIX**

EVALUATION FACTORS / MEASURES	NO BUILD	SEGMENT 1							SEGMENT 2			SEGMENT 3					SEGMENT 4							
		Alico Road to Six-Mile Cypress Parkway							Metro Parkway from Six-Mile Cypress Parkway to North of Winkler Avenue			Metro Parkway to Fowler Street	Metro Parkway to Fowler/ Evans	Metro Parkway to Hanson Connection			Six-Lane Fowler Street			Fowler / Evans One-Way Pair				
		1-1	1-2	1-3	1-3B	1-3C	1-4	1-5	2-1	2-2	2-3 **	3-1	3-2	3-3(Lt)	3-3(Rt)	3-3(Ctr)	4-1(Lt)	4-1(Rt)	4-1(Ctr)	4-2(Lt)	4-2(Rt)	4-2(Ctr)	4-2B	4-2C
BUSINESS & ECONOMIC IMPACTS																								
Business Parcels Displaced (No.)	0	7	6	0	0	0	1	0	1	0	0	10	4	26	19	30	36	32	55	17	11	13	3	2
Partial Business Parcels Displaced (No.)	0	2	4	1	1	1	1	1	6	0	17	5	3	2	3	18	3	3	10	23	23	44	4	5
Approved projects Impacted (No.)	None	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Opportunities for Redevelopment	Negative	Neg.	Neutral	Neg.	Pos.	Pos.	Neutral	Neutral	Neutral	Pos.	Neutral	Pos.	Pos.	Neutral	Neutral	Neutral	Neutral	Neutral	Pos.	Neutral	Neutral	Neutral	Neutral	Neutral
CULTURAL / HISTORICAL RESOURCES AND PUBLIC PARKS																								
Section 4(f) Involvement - Six Mile Cypress Slough (Hectares/Acres)	None	0/0	0/0	5.7/14.2	5.7/14.2	2.2/5.5	3.4/8.7	3.1/7.6	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Historic Structures / Properties within ROW (No.)	None	None	None	None	None	None	None	None	None	None	None	0	None	0	0	0	0	0	0	0	0	0	0	0
Historic Properties within 2 blocks of ROW (No.)	None	None	None	None	None	None	None	None	None	None	None	0	None	0	0	0	1	1	1	1	1	1	1	1
Archaeological Site Potential	None	Mod.	Mod.	Mod.	Mod.	Mod.	Low	Low	Mod.	Mod.	Mod.	Mod.	Mod.	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
RESIDENTIAL IMPACTS																								
Single-Family Residences Displaced (No.)	0	2	4	13	13	5	13	8	0	0	0	1	1	0	3	0	0	0	0	3	5	2	1	2
Manufactured Homes Displaced (No.)	0	114	114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minority Neighborhoods with Displacements (No.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COMMUNITY FACILITIES																								
Community Facilities within ROW (No.)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Community Facilities within 300 feet of ROW (No.)	0	0	0	1	0	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
NATURAL ENVIRONMENT & PHYSICAL IMPACTS																								
Wetlands (Hectares/Acres)	0	2.76 / 6.82	2.17 / 5.35	7.8 / 19.3	7.6 / 18.8	4.0 / 9.9	4.86 / 12.0	4.86 / 12.0	0.4 / 1.0	0.37 / 0.91	0.36 / 0.89	0.2 / 0.51	0.20 / 0.49	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1
100-Year Flood Plain Impacts (Hectares / Acres)	0	27.5 / 68	27.5 / 68	13.2 / 32.7	13.2 / 32.7	13.2 / 32.7	17.9 / 44.2	17.2 / 42.5	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Potential Drainage / Water Quality	Poor	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv
Potential Protected Species Habitat	None	Fair	Fair	Good	Good	Good	Good	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Poor	Poor	Poor	Poor	Poor
Potential Hazardous Waste Sites (No.)	0	3	2	1	0	0	0	0	5	11	6	12	14	7	4	11	12	8	20	15	11	26	7	12
Potential Petroleum Contaminated Sites (No.)	0	2	1	0	0	0	1	0	6	11	5	2	3	9	6	15	11	15	26	12	13	25	1	4
MISCELLANEOUS																								
Consistent with Local Transportation Plans	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes
Pedestrian / Bicycle Facilities	Very Limited Ped. Facilities	Bicycle	Bicycle	Bicycle	Bicycle	Bicycle	Bicycle	Bicycle	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both
ROW (Hectares / Acres)	0	32.8 / 81	34.4 / 85	29.5 / 73	30.4 / 75	31.2 / 77	34.4 / 85	36 / 89	4.7 / 11.7	4.7 / 11.7	4.7 / 11.7	6.0 / 14.9	6.0 / 14.9	5.4 / 13.3	5.6 / 13.8	5.4 / 13.2	4.8 / 11.8	4.7 / 11.5	4.7 / 11.5	2.8 / 6.8	2.8 / 6.8	2.8 / 6.8	2.8 / 6.8	2.8 / 6.8
PROJECT COSTS (\$ Million)																								
Right of Way Cost *	0	\$19.8	17.3	18.3	18.8	14.8	22.6	20.2	6.5	6.6	5.7	9.4	4.2	10.8	8.2	12.9	13.3	16.9	23.9	9.1	8.8	13.0	4.7	3.2
Design / CEI Cost (30% of Construction)	0	\$7.2	7.2	6.0	6.4	7.9	11.3	9.8	9.0	9.0	9.0	4.7	2.2	4.1	4.1	4.1	0.9	0.9	0.9	1.6	1.6	1.6	2.2	2.3
Construction Cost	0	\$24.1	24.1	20.0	21.3	26.4	37.8	32.7	30.0	30.0	30.0	15.8	7.4	13.8	13.8	13.8	3.0	3.0	3.0	5.4	5.4	5.4	7.4	7.7
Wetland Mitigation Cost	0	\$0.7	0.5	2.0	1.9	0.9	1.1	1.1	0.2	0.1	0.1	0.5	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Contamination Cleanup Cost	0	\$0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.1	0.8	1.0	1.3	0.8	2.1	1.4	1.4	2.8	1.6	1.4	3.0	0.5	1.0
TOTAL PROJECT COST (\$ Million)	0	\$52.1	49.3	46.3	48.4	50.0	72.8	63.8	45.9	46.0	44.9	31.2	15.2	30.1	27.0	33.0	18.7	22.3	30.7	17.8	17.3	23.1	14.9	14.3

• Right of Way costs provided by FDOT

** After we found that easements do not exist south of Daniels Parkway, the segment between Six-Mile Cypress Parkway and Daniels Parkway was re-evaluated as segment 2-A, and the rest of the segment was evaluated as segment 2-B.

Note : Shaded columns identify the alternative corridors that were eliminated from the study.

excessive delay time to clear the Dr. Martin Luther King, Jr. intersection when the railroad signal is activated.

Alternative 4-2F would construct the northbound three lanes of traffic utilizing all of Evans Avenue and would take an additional 10.4 meters (34 feet) from the left (west) side of the roadway. This alternative would take railroad property but leave the railroad in place. This alternative also requires excessive delay time to clear the Dr. Martin Luther King, Jr. intersection when the railroad signal is activated.

Alternative 4-2G would construct the northbound three lanes of traffic utilizing all of the railroad property. The 30.5 meters (100 feet) of railroad property would be utilized for both the roadway and the railroad. The roadway would be constructed to the west of the railroad and the railroad would be relocated to the east of the roadway.

Alternative 4-2H is similar to 4-2C except that the intersection with Dr. Martin Luther King, Jr., Boulevard would be grade-separated to avoid conflicts with the railroad and with Dr. Martin Luther King, Jr., Boulevard. Edison Avenue would also be grade-separated.

Alternative 4-2I is a one-way pair alternative similar to the others except that the terminus at Dr. Martin Luther King Jr., Boulevard for northbound lanes would curve to the west and join with Fowler Avenue just south of Dr. Martin Luther King Jr., Boulevard. After crossing Dr. Martin Luther King Jr., Boulevard, the northbound lanes would curve back to the east and rejoin with Evans Avenue.

Alternative 4-2J is similar to 4-2C except that the northbound lanes would be located to the west of the railroad right-of-way to avoid impacting the railroad right-of-way.

Alternative 4-2K is similar to 4-2C except that the northbound lanes are located to the west of the railroad track and utilize a portion of the railroad right-of-way.

Table 2 summarizes the analysis of these new Segment 4 alternatives and Segment 3 alternatives which would be required to tie into the new Segment 4 alternatives.

Following the initial and additional alternatives analyses, several alternatives were retained for further evaluation. Table 3 summarizes the analysis of these viable alternatives.

**TABLE 2
SEGMENTS 3 and 4
ALTERNATIVES EVALUATION MATRIX
METRO PARKWAY
FROM US 41 AND ALICO ROAD
TO DR. MARTIN LUTHER KING, JR., BOULEVARD**

SEGMENT 4 NORTH OF WINKLER AVENUE TO Dr. MARTIN LUTHER KING, Jr., BOULEVARD																
	Metro Parkway to Six Lane Evans	Metro Parkway to Six Lane Evans	Metro Parkway to Six Lane Evans	Six-Lane Fowler Street	Six-Lane Fowler Street	Road/Rail Share All R/W Fowler/ Evans	Railroad Avoidance Fowler/ Evans	Purchase Railroad Fowler/ Evans	Road/Rail Share RR Fowler/ Evans	Grade Separation Fowler/ Evans	Evans Via Fowler/ Evans	Rail Track Avoidance Fowler/ Evans	Purchase Railroad R/W Fowler/ Evans	Six-Lane Evans		
	3-4(LT)	3-5	3-6	4-1(LT)	4-5	4-2D	4-2E	4-2F	4-2G	4-2H	4-2I	4-2J	4-2K	4-4(LT)	4-4(RT)	4-4(CT)
RELOCATIONS																
RESIDENCES	0	1	14	0	5	0	3	0	0	8	8	0	8	10	19	13
BUSINESSES	2	5	17	39	51	2	2	2	1	14	21	8	14	19	3	13
COMMUNITY FACILITIES	0	2	0	0	0	0	0	0	0	1	1	0	1	0	1	1
EST. COSTS (IN MILLIONS)																
DESIGN / CEI	\$2.8	\$4.4	\$4.7	\$0.8	\$0.9	\$1.9	\$1.3	\$1.3	\$2.6	\$2.9	\$1.2	\$2.0	\$1.8	\$1.4	\$1.4	\$1.4
ROAD RIGHT-OF-WAY	\$4.3	\$7.8	\$10.7	\$13.3	\$21.2	\$2.8	\$3.8	\$1.3	\$2.6	\$9.9	\$15.2	\$4.7	\$6.9	\$8.6	\$5.8	\$10.0
DRAINAGE R/W	\$0.9	\$0.9	\$0.9	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7
RAILROAD R/W	\$0.1	\$0.0	\$0.1	\$0.0	\$0.0	\$1.2	\$0.1	\$0.8	\$1.1	\$0.4	\$0.0	\$0.6	\$0.9	\$0.1	\$0.1	\$0.1
RAILROAD R/W DAMAGE COST	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.5	\$0.0	\$0.0	\$1.5	\$0.0	\$0.0	\$3.0	\$5.0	\$0.0	\$0.0	\$0.0
ROADWAY CONST.	\$8.8	\$14.7	\$15.1	\$2.7	\$3.1	\$2.8	\$2.6	\$2.6	\$5.1	\$9.6	\$3.9	\$4.9	\$4.5	\$2.9	\$2.9	\$2.9
RAILROAD CONST.	\$0.6	\$0.0	\$0.6	\$0.0	\$0.0	\$3.6	\$1.6	\$1.6	\$3.4	\$0.0	\$0.0	\$1.6	\$1.6	\$1.6	\$1.6	\$1.6
WETLAND MITIGA.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CONTAM. CLEANUP	\$1.0	\$0.7	\$0.7	\$1.4	\$1.4	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0	\$1.4	\$1.4	\$1.4
TOTAL	\$18.5	\$28.5	\$32.8	\$18.9	\$27.3	\$15.5	\$11.1	\$9.3	\$18.0	\$24.5	\$22.0	\$18.5	\$22.4	\$16.7	\$13.9	\$18.1
NATURAL ENV & PHYSICAL IMPACTS																
SPECIES	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts
CONTAMINATION SITES	0	14	17	22	26	16	16	16	14	16	16	16	16	27	27	27
WETLAND (HA/AC)	0.20/0.61	0.18/0.45	0.14/0.36	0.04/0.1	0.02/0.04	0.03/0.07	0.03/0.07	0.03/0.07	0.0/0.0	0.03/0.07	0.03/0.07	0.03/0.07	0.03/0.07	0.06/0.14	0.06/0.14	0.06/0.14
SECT 4(f) (HA/AC)	0/0						0.44/0.18									
DRAINAGE & WATER QUALITY	STORM DRAINAGE PROVIDE. CLOSED DRAINAGE SYSTEM WITH RETENTION/DETENTION POND TREATMENT. WATER QUALITY IMPROVED.															
NON-MOTORIZED	PROVIDES FOR A 1.5m (5 feet) SIDEWALK and 1.2 m (4 feet) BIKE LANE															
SOCIAL/NEIGHBORHOOD IMPACTS	MINIMAL	MINIMAL	MINIMAL	MINIMAL	MINIMAL	MINIMAL	Title 6	MINIMAL	MINIMAL	MINIMAL	MINIMAL	MINIMAL	MINIMAL	MINIMAL	Title 6	Title 6

* Mitigation costs < \$0.05 million.

**TABLE 3
ALTERNATIVES EVALUATION MATRIX
METRO PARKWAY
FROM US 41 AND ALICO ROAD
TO DR. MARTIN LUTHER KING, JR., BOULEVARD**

	NO-PROJECT	SEGMENT 1 ALICO ROAD TO SIX-MILE CYPRESS PARKWAY		SEGMENT 2A SIX-MILE CYPRESS PARKWAY TO DANIELS AVENUE			SEGMENT 2B DANIELS AVENUE TO NORTH OF WINKLER AVENUE			SEGMENT 3&4 NORTH OF WINKLER AVENUE TO Dr. MARTIN LUTHER KING, Jr., BOULEVARD	
		ALIGNMENT		ALIGNMENT			ALIGNMENT			ALIGNMENT	
		1-3B	1-3D	2-1A	2-2A	2-3A	2-1B	2-2B	2-3B	3-5 & 4-5(LT)	3-6 & 4-2G
RELOCATIONS											
RESIDENCES	NO IMPACTS	14	12	0	0	0	0	0	0	6	12
BUSINESSES	NO IMPACTS	1	1	0	0	0	0	0	0	62	15
COMMUNITY FACILITIES	NO IMPACTS	1	1	0	0	0	0	0	0	2	0
EST. COSTS (IN MILLIONS)											
DESIGN / CEI	NO CAPITAL COSTS	\$5.5	\$6.6	\$1.1	\$1.1	\$1.1	\$6.2	\$6.2	\$6.2	\$5.3	\$7.5
ROADWAY RIGHT-OF-WAY	NO CAPITAL COSTS	\$22.3	\$21.2	\$2.4	\$2.2	\$1.3	\$11.8	\$9.6	\$10.4	\$29.0	\$14.3
ROADWAY R/W (DRAINAGE COST)	NO CAPITAL COSTS	\$1.2	\$1.2	\$0.7	\$0.7	\$0.7	\$2.3	\$2.3	\$2.3	\$1.6	\$1.6
RAILROAD RIGHT-OF-WAY	NO CAPITAL COSTS	\$0.0	\$3.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.0
RAILROAD R/W DAMAGE COST	NO CAPITAL COSTS	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.5
ROADWAY CONSTRUCTION	NO CAPITAL COSTS	\$18.4	\$17.4	\$3.6	\$3.6	\$3.6	\$20.5	\$20.5	\$20.5	\$17.8	\$21.0
RAILROAD CONSTRUCTION	NO CAPITAL COSTS	\$0.0	\$4.7	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$3.9
WETLAND MITIGATION	NO CAPITAL COSTS	\$1.8	\$1.8	*	*	*	*	*	*	*	*
CONTAMINATION CLEANUP	NO CAPITAL COSTS	*	*	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$2.1	\$1.1
TOTAL	NO CAPITAL COSTS	\$49.2	\$56.2	\$8.1	\$7.9	\$7.0	\$41.1	\$38.9	\$39.7	\$58.8	\$51.9
NATURAL ENVIRONMENTAL & PHYSICAL IMPACTS											
SPECIES	NO IMPACTS	Minimal	Minimal	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts
CONTAMINATION SITES	NO IMPACTS	2	5	0	0	1	12	20	12	40	31
WETLAND (HECTARES/ACRES)	NO IMPACTS	9.0/22.1	5.9/14.5	0.01/0.05	0.01/0.05	0.01/0.05	0.01/0.04	0.01/0.04	0.01/0.04	0.20/0.50	0.14/0.36
SECTION 4(f) INVOLVEMENT (HECTARES/ACRES)	NO IMPACTS	6.6/16.3	4.3/10.5	0/0							
DRAINAGE & WATER QUALITY	NO IMPACTS	SWALE DRAINAGE TO PONDS. WATER QUALITY IMPROVED.		STORM DRAINAGE PROVIDE. CLOSED DRAINAGE SYSTEM WITH RETENTION/DETENTION POND TREATMENT. WATER QUALITY IMPROVED.							
NON-MOTORIZED	Minimal Pedestrian & Bicycle Facilities	PROVIDES FOR A 2.4m (8 feet) PATHWAY FOR BICYCLES and PEDESTRIANS		PROVIDES FOR A 1.5m (5 feet) SIDEWALK and 1.2 m (4 feet) BIKE LANE			PROVIDES FOR A 1.8m (6 feet) SIDEWALK next to curb and 1.2 m (4 feet) BIKE LANE			PROVIDES FOR A 1.5m (5 feet) SIDEWALK and 1.2 m (4 feet) BIKE LANE	
SOCIAL & NEIGHBORHOOD IMPACTS	NO IMPACTS	MINIMAL	MINIMAL	MINIMAL IMPACT						MINIMAL	MINIMAL

* Mitigation costs < \$0.05 million.

PUBLIC HEARING ALTERNATIVES

As a result of the analysis performed prior to the Public Hearings, the following alternatives were presented at the Public Hearings held on September 28, 29 and November 9, 1998.

US 41/Alico Road Connection:	Single Loop Interchange, with an At-Grade Intersection to Southbound US 41
Segment 1:	Alternative 1-3B and Alternative 1-3D
Segment 2:	Alternative 2-3A and Alternative 2-2B
Segment 3 & 4:	One-way Pair Alternative (Alternative 3-6 and 4-2G) and Six-Lane Fowler Alternative (Alternatives 3-5 and 4-5(LT))

All three Public Hearings had an open house format beginning at 6:00 PM followed by a formal presentation made by the FDOT hearing moderator, Bryan Williams, at 7:00 PM. A video presentation of the study was given and was followed with an opportunity for the public to offer comments. Written comments were received at the Hearing and for a ten day period following the November Hearing. Overall, the public supported the need to improve Metro Parkway, however, there was no definitive preference for the One-Way Pair or Six-Lane Fowler Street alternatives.

PREFERRED ALTERNATIVE

After a thorough technical analysis and a comprehensive public involvement process, the study has concluded that, without capacity improvements to the existing facility, the projected increase in traffic will result in an unacceptable level of service (LOS) for Metro Parkway and other north-south roadways in the area by the design year (2020). Based on the analysis conducted, the public input and consistency with the local government long range transportation plans for Metro Parkway, the FDOT has selected the Preferred Build Alternative. This alternative consists of a six-lane arterial roadway on new and existing alignment from U.S. 41 in the vicinity of Alico Road to the vicinity of

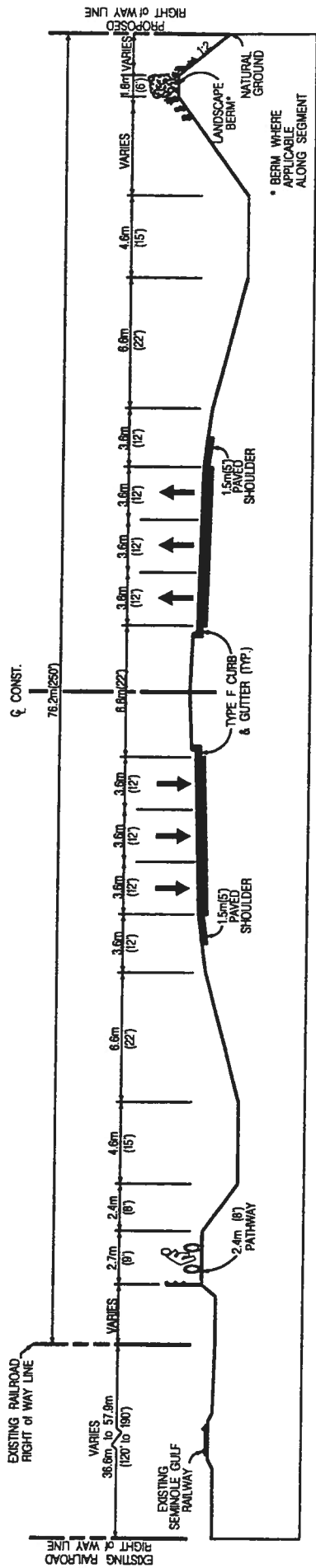
SR 82 (Dr. Martin Luther King, Jr. Boulevard). Specifically, it will consist of a new alignment from US 41 in the vicinity of Alico Road to Six Mile Cypress Parkway (Alternative 1-3B). From Six Mile Cypress Parkway to Daniels Parkway, existing Metro Parkway will be widened from two to six lanes (Alternative 2-3A), and from Daniels Parkway to Winkler Avenue it will be widened from four to six lanes (Alternative 2-2B). From this point, a new alignment will connect the six-lane roadway with Fowler Street and Evans Avenue (Alternative 3-6). Both Fowler Street and Evans Avenue will be modified and operate as a one-way pair system with Fowler Street providing for the southbound movement and Evans Avenue providing for the northbound movement (Alternative 4-2G). The preferred typical sections for the project are described as follows:

SEGMENT 1

- **Existing Railroad West of Roadway (Alternative 1-3B)**

This alternative begins at the proposed connection to US 41 in the vicinity of Alico Road and follows a general northerly alignment as it crosses the Seminole Gulf Railroad. After crossing the Seminole Gulf Railroad, this alternative turns to the northwest and runs adjacent to the east side of the railroad right-of-way. The alignment continues in this northwesterly direction to the vicinity of Anderson Lane. At this point, Alternative 1-3B crosses just south of Anderson Lane and, continuing adjacent to the railroad, turns to the north between the Seminole Gulf Railroad and Anderson Lane. It then crosses the extreme western end of the Six Mile Cypress Slough Preserve. It then veers slightly to the northeast and proceeds to the north where it eventually merges with Segment 2 of the existing Metro Parkway alignment just south of the Six Mile Cypress Parkway.

The proposed typical section for Alternative 1-3B is characterized by a 76.2 meter (250 feet) right-of-way. This suburban typical section contains three 3.6 meter (12 feet) travel lanes in each direction, a 6.6 meter (22 feet) median with Type F curb and gutter, a 3.6 meter (12 feet) shoulder of which 1.5 meters (5 feet) is paved, a 2.4 meter (8 feet) multi-use pathway on the west side of the roadway, and 13.6 meter (45 feet) grass swales. Through the Briarcliff Subdivision area, a landscape berm will be constructed on the east side of the roadway to provide a visual buffer between the roadway and the Briarcliff Subdivision. The design speed is 80 kilometers per hour (50 miles per hour). Drainage will be accommodated within the proposed grass swales and water quality and water quantity requirements will be met within the proposed right-of-way and within off-site retention/detention ponds. This typical section is shown in Figure 1.



EXISTING RAILROAD WEST OF ROADWAY (Alternative 1-3B)
 FROM NORTH OF ALICO ROAD TO SIX MILE CYPRESS PARKWAY

DESIGN SPEED: 80 KPH (50 MPH)
 APPROVED BY:

CONCURRENCE:
Marlon J. Bixette
 DISTRICT PROJECT DEVELOPMENT ENGINEER
 DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 1
 TYPICAL SECTION
 METRO PARKWAY

SEGMENT 2

- **Segment 2A (Six-Mile Cypress Parkway to Daniels Parkway) Six Lane Urban 39.6 meter (130 feet) (Alternative 2-3A Right Alignment)**

The typical section developed for the build alternatives in Segment 2A proposes to widen existing Metro Parkway to a six-lane urban section with a raised median within a 39.6 meter (130 feet) right-of-way. The proposed section would provide three 3.6 meter (12 feet) lanes in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 6.6 meter (22 feet) median with Type F curb and gutter on each side. A 4.5 meter (14 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The design speed is 70 kilometers (45 miles) per hour. Drainage consists of piping stormwater to off-site retention/detention ponds. The typical section proposed for the Alternative 2-3A is shown in Figure 2.

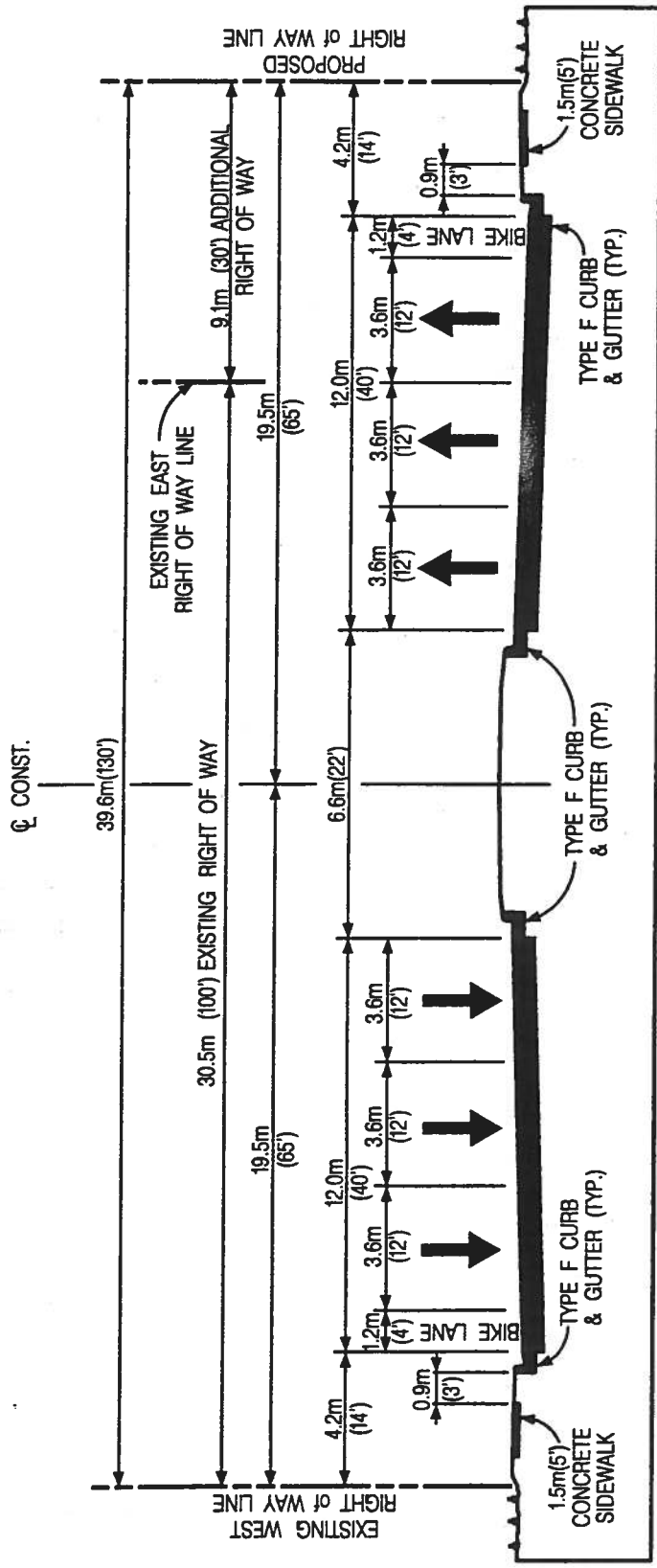
- **Segment 2B (Daniels Parkway to North of Winkler Avenue) Six Lane Urban 38.1 Meter (125 feet) (2-2B Center Alignment)**

The typical section for Segment 2B alignments is identical to that for Segment 2A except that the right-of-way width is 38.1 meters (125 feet), the border strip is 3.6 meters and the concrete sidewalk is 1.8 meters (6 feet) wide and is adjacent to the back of curb. The reduced right-of-way width takes advantage of the existing drainage/utility easements along both sides of the roadway in this area. The typical section proposed for Segment 2B is Alternative 2-2B Center Alignment shown in Figure 3.

SEGMENT 3

- **Connection to One-Way Pair (Alternative 3-6)**

Alternative 3-6 begins at a point approximately 230 meters (750 feet) north of Winkler Avenue on existing Metro Parkway and turns to the northwest on a new alignment. It proceeds in a northwesterly direction as it crosses over the Seminole Gulf Railroad and the Ten Mile Canal. The alignment continues on this northwesterly alignment until it reaches the vicinity of Kennesaw Street. At this point, the alignment splits to form a one-way pair which connects to Alternative 4-2G (one-way pair alternative) in Segment 4. At the split near the intersection of Kennesaw Street and Evans Avenue, three lanes of



SIX LANE URBAN 39.6m (130 feet) (Alternative 2-3A Right Alignment)
 FROM SIX MILE CYPRESS PARKWAY TO DANIELS PARKWAY

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

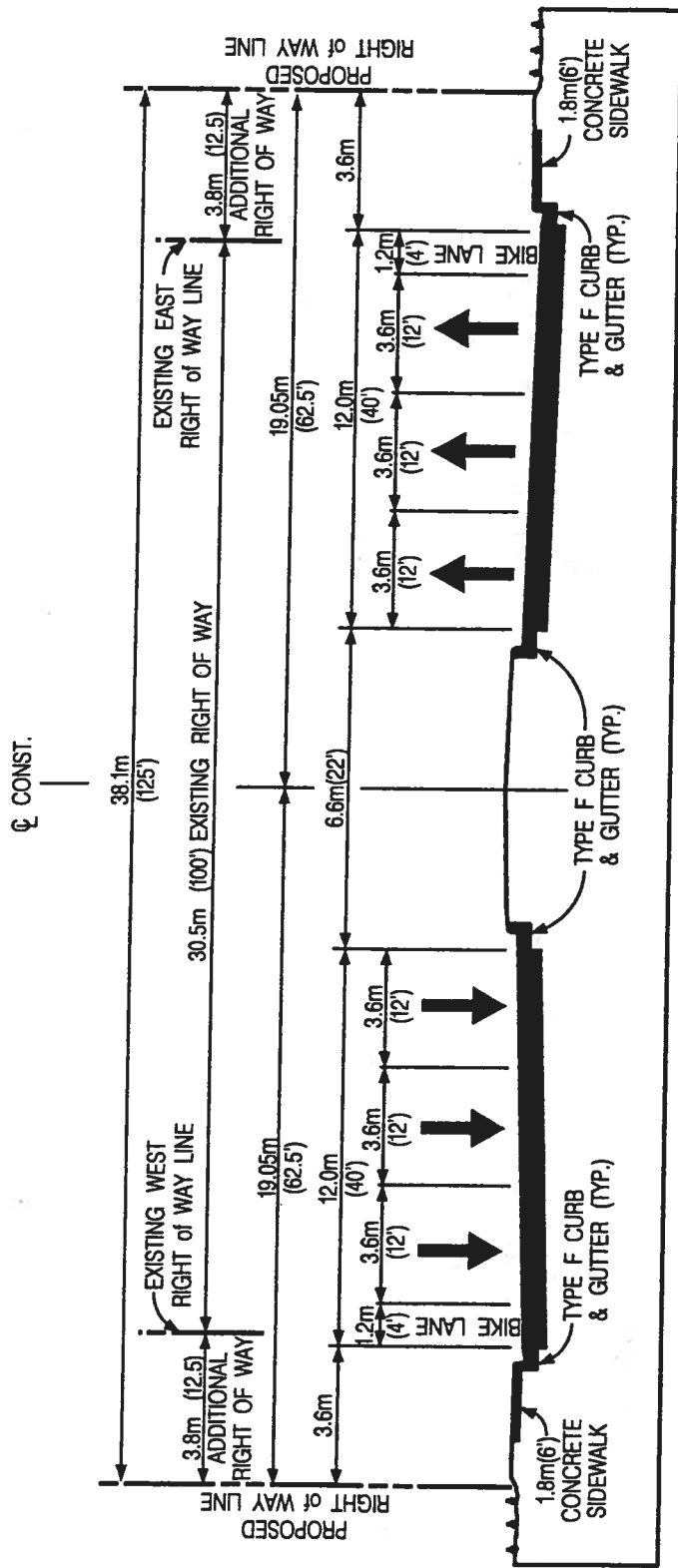
Marlon J. Diggs
 DISTRICT PROJECT DEVELOPMENT ENGINEER
 DATE: 12-15-98

CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER
 DATE: 12-15-98

SEGMENT 2A
 TYPICAL SECTION
 METRO PARKWAY

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U



SIX LANE URBAN 38.1m (125 feet) (Alternative 2-2B Center Alignment)
 FROM DANIELS PARKWAY TO NORTH OF WINKLER AVENUE

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Marlon J. Bigote
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 2B
 TYPICAL SECTION
 METRO PARKWAY

one-way northbound traffic will continue along the Evans Avenue right-of-way and three lanes of one-way southbound traffic from Fowler Street will join the alignment via a new crossover configuration. At this intersection (in the vicinity of Hunter Terrace) a new connection between Fowler Street and Evans Avenue is proposed to promote circulation between the one-way pairs.

The typical section developed for the six-lane portion of Alternative 3-6 is an urban section 39.6 meters (130 feet) in width. The proposed section will provide three 3.6 meter (12 feet) lanes in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 6.6 meter (22 feet) median with Type F curb and gutter on each side. A 4.5 meter (14 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The design speed is 70 kilometers (45 miles) per hour. Drainage consists of piping stormwater to off-site retention/detention ponds. The typical section is shown in Figure 4.

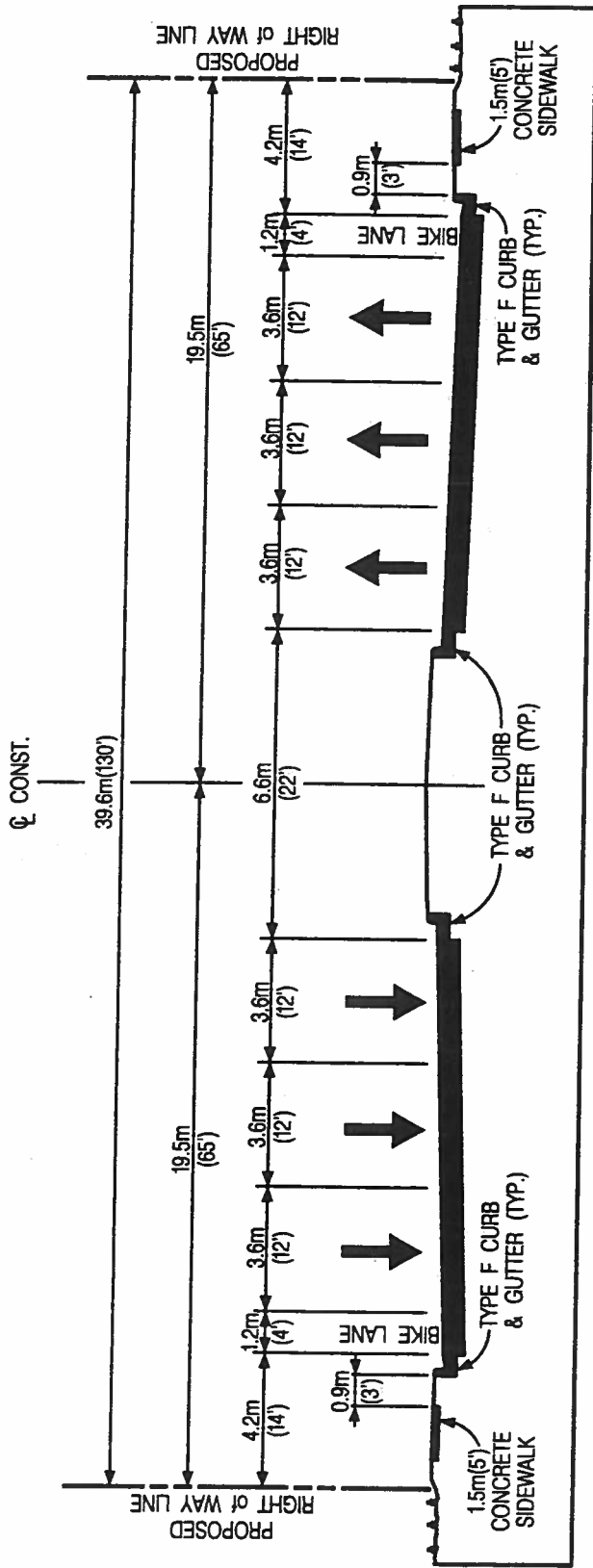
The six-lane typical section will split to tie into the one-way pair system. The existing right-of-way width for Evans Avenue from Moreno Avenue to Hanson Street is 24.4 meters (80 feet). The typical section for the northbound Evans Avenue one-way pair proposes three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 6.2 meter (20 feet) inside border, a 6.2 meter (20 feet) outside border (both with Type F curb and gutter), and 1.5 meter (5 feet) concrete sidewalks on both sides. Drainage in this segment consists of piping stormwater to off-site retention/detention ponds. The typical section for the northbound one-way pair alternative between Moreno Avenue and Hanson Street is shown in Figure 5.

The southbound one-way pair Fowler Street, south of Hanson Street, will consist of three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 3.6 meter (12 feet) inside border and a 4.2 meter (14 feet) outside border area. 1.5 meter (5 feet) sidewalks will be provided on both sides of the road. This typical cross section will stay within the existing 19.6 meter (66 feet) right-of-way as shown in Figure 6.

SEGMENT 4

- **Fowler Street/Evans Avenue One-Way Pair (Alternative 4-2G)**

This alternative utilizes a one-way pair concept with Fowler Street being three (3) lanes southbound and Evans Avenue being three (3) lanes north bound. Based on comments



SIX LANE CONNECTION TO ONE WAY PAIR (Alternative 3-6)
 FROM NORTH OF WINKLER AVENUE TO KENNESAW STREET

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Marlon J. Dize
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

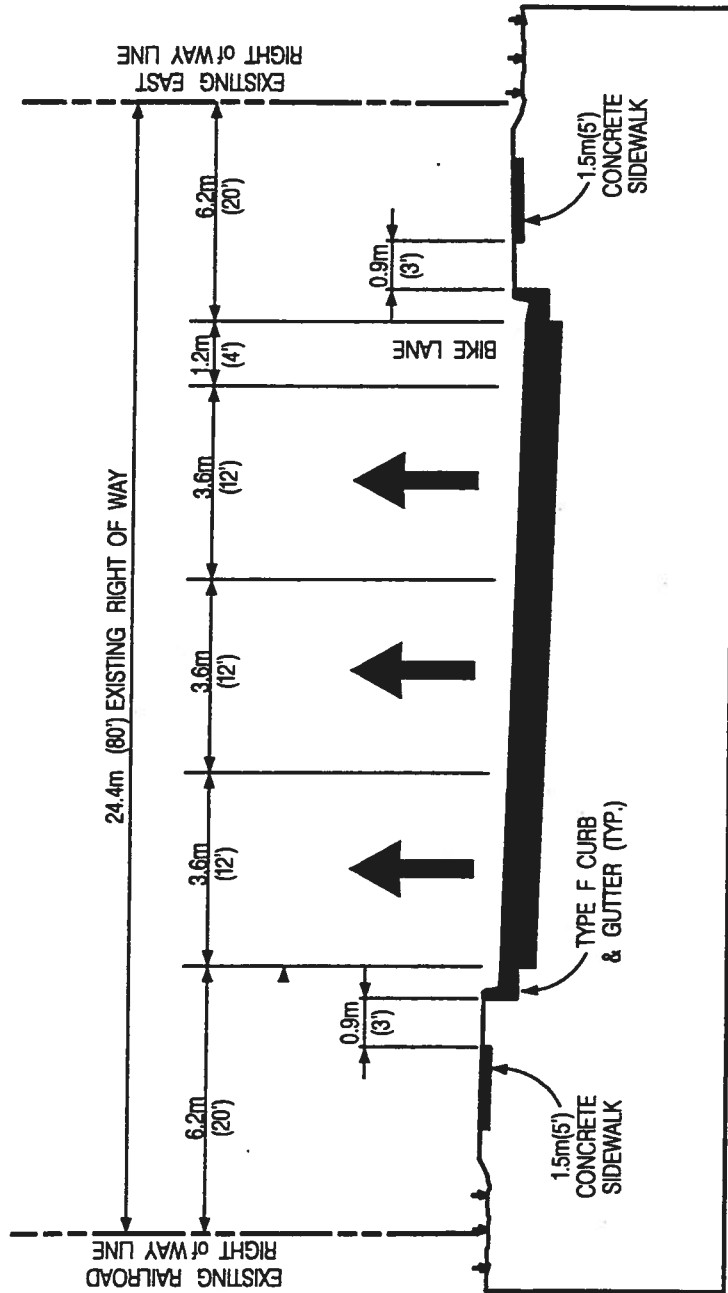
CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 3
 TYPICAL SECTION
 METRO PARKWAY



ONE WAY PAIR CONNECTION (Alternative 3-6)
 EVANS AVENUE FROM MORENO AVENUE TO HANSON STREET

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Marlon J. Bigorre
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

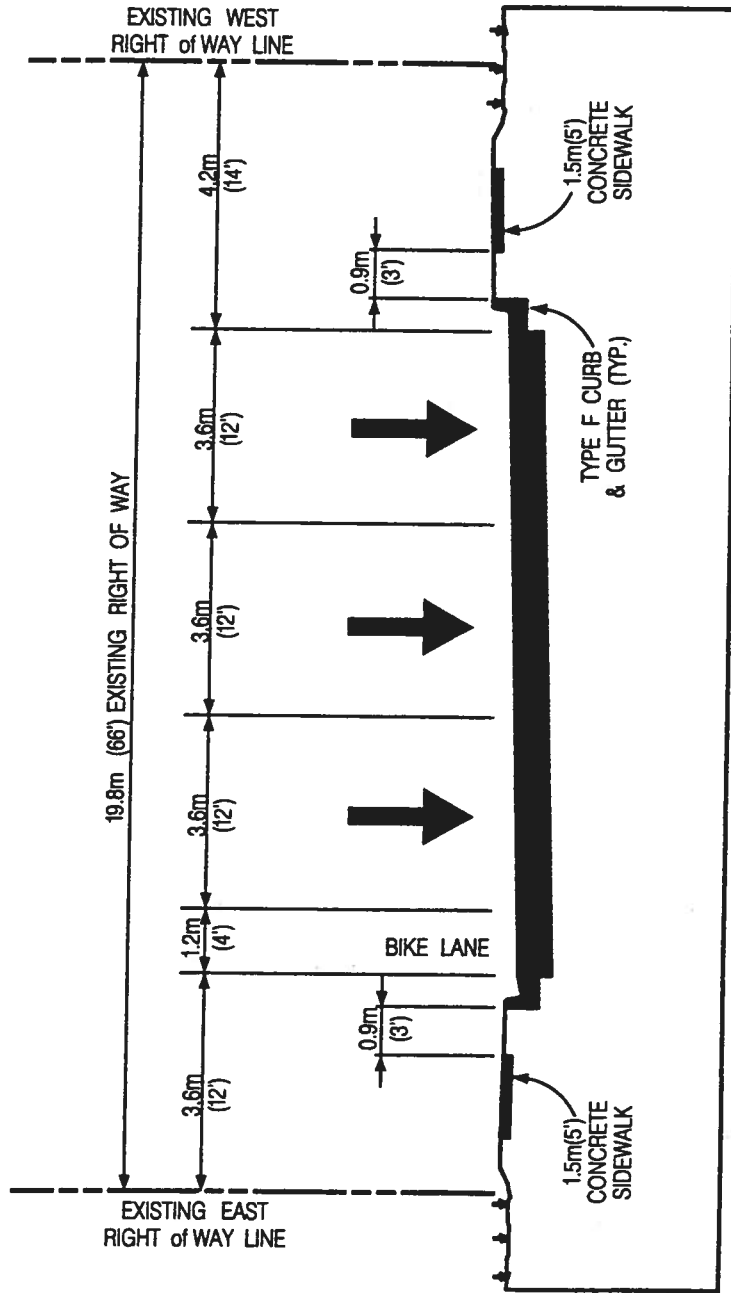
CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 3
 TYPICAL SECTION
 METRO PARKWAY



ONE WAY PAIR CONNECTION (Alternative 3-6)
 FOWLER STREET FROM KENNESAW STREET TO HANSON STREET

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY: *Marlon J. Biggs*
 DISTRICT PROJECT DEVELOPMENT ENGINEER
 DATE: 12-15-98

CONCURRENCE: *[Signature]*
 DISTRICT DESIGN ENGINEER
 DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

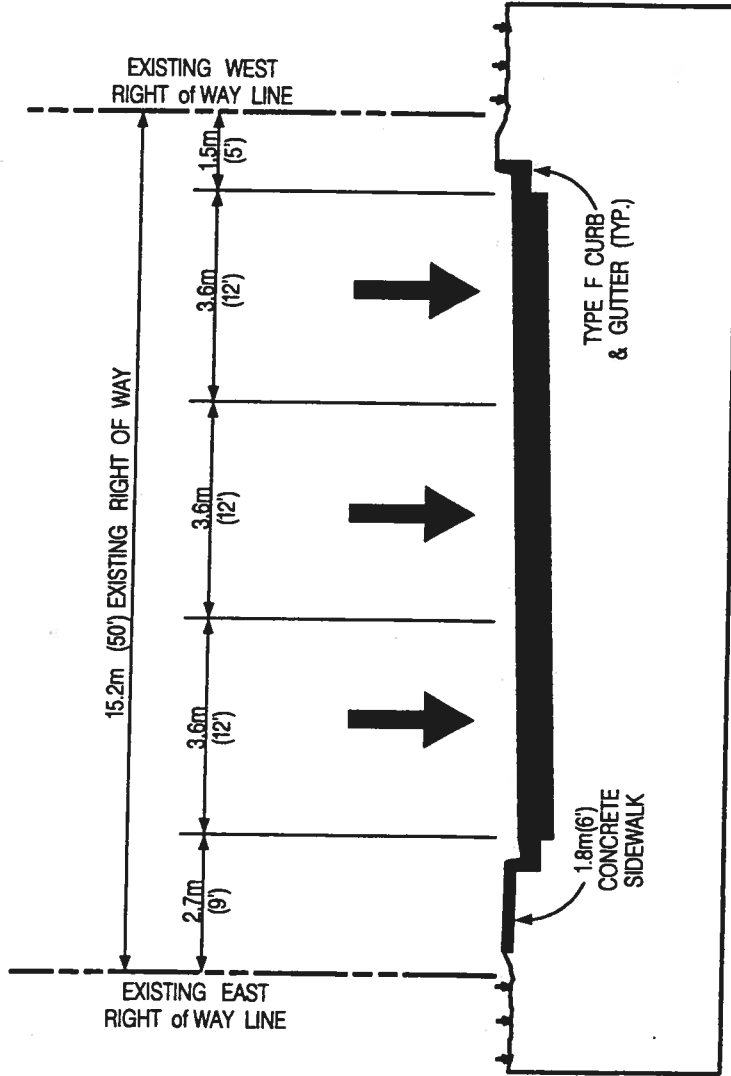
SEGMENT 3
 TYPICAL SECTION
 METRO PARKWAY

FIGURE 6

received at the public hearing and subsequent to the Public Hearing, a sidewalk was added on the west side of Fowler Street and the bicycle lane was eliminated. Therefore, southbound Fowler Street will be reconfigured to provide three 3.6 meter (12 feet) lanes and a 1.8 meter (6 feet) sidewalk adjacent to the back of curb on the west side of the roadway within the existing 15.2 meter (50 feet) right-of-way.

The improvements proposed for constructing the sidewalk in lieu of the on-facility bike lane on southbound Fowler Street would be relatively minor. They will primarily involve the construction of a two-foot wide curb and gutter with the 1.8 meter (6 feet) sidewalk adjacent to the back of the curb, corner rounding at intersecting streets, rebuilding or adjusting inlets and cross connections as required, milling and resurfacing existing pavement, pavement markings, signs, and adjusting signal heads at intersecting streets. Construction also includes extension of the Branch Canal box culvert to improve the horizontal geometry at Fowler and Branch Canal Streets. The typical section for southbound Fowler Street is shown in Figure 7. The cost for the Fowler Street improvement was also increased from \$1.7 millions to \$3.6 millions. This cost increase includes \$0.2 millions for engineering, \$0.7 millions for new construction and \$1.0 millions for right of way, for a total increase of \$1.9 millions. Most of the improvements will be accommodated within the existing right of way. However, minimal right of way will be required for corner clips to construct curbs with an 11 meter (35 feet) radius on the corners of intersecting streets on the west side of southbound Fowler Street. There will be no additional business, or residential relocations. A newsletter will be circulated to update owners and residents of these changes.

Evans Avenue would be reconstructed from the point where the crossover alignment in Segment 3 joins Evans Avenue to Edison Avenue. From Edison Avenue, both the northbound lanes of Metro Parkway and the Seminole Gulf Railroad would be constructed within the existing 30.5 meters (100 feet) of existing railroad right-of-way. The roadway would be constructed in the western 19.8 meters (65 feet) of the Seminole Gulf Railroad right-of-way and the railroad line reconstructed in the remaining eastern 10.7 meters (35 feet) of the railroad right-of-way. The existing Evans Avenue in this portion of Segment 4 would remain open to provide access to the adjacent residential neighborhood up to the Imaginarium. Evans Avenue would be closed between Larmie Street and Evans Avenue in front of the Imaginarium, and from Edison Avenue to approximately 36.6 meters (120 feet) north of Edison Avenue.



FOWLER STREET /EVANS AVENUE ONE WAY PAIR (Alternative 4-2G)
 FOWLER STREET FROM HANSON STREET TO DR. MARTIN LUTHER KING, JR. BLVD.

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

CONCURRENCE:

Marlon J. Binyene
 DISTRICT PROJECT DEVELOPMENT ENGINEER

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 4
 TYPICAL SECTION
 METRO PARKWAY

The northbound Evans Avenue one-way pair proposes three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 4.2 meter (14 feet) inside border, a 3.6 meter (12 feet) outside border (both with Type F curb and gutter), and 1.5 meter (5 feet) concrete sidewalks on both sides. The proposed typical section will be accommodated within a 19.8 meter (65 feet) right-of-way. Drainage in this segment consists of piping stormwater to off site retention/detention ponds. The typical section for northbound Evans Avenue north of Edison Avenue is shown in Figure 8.

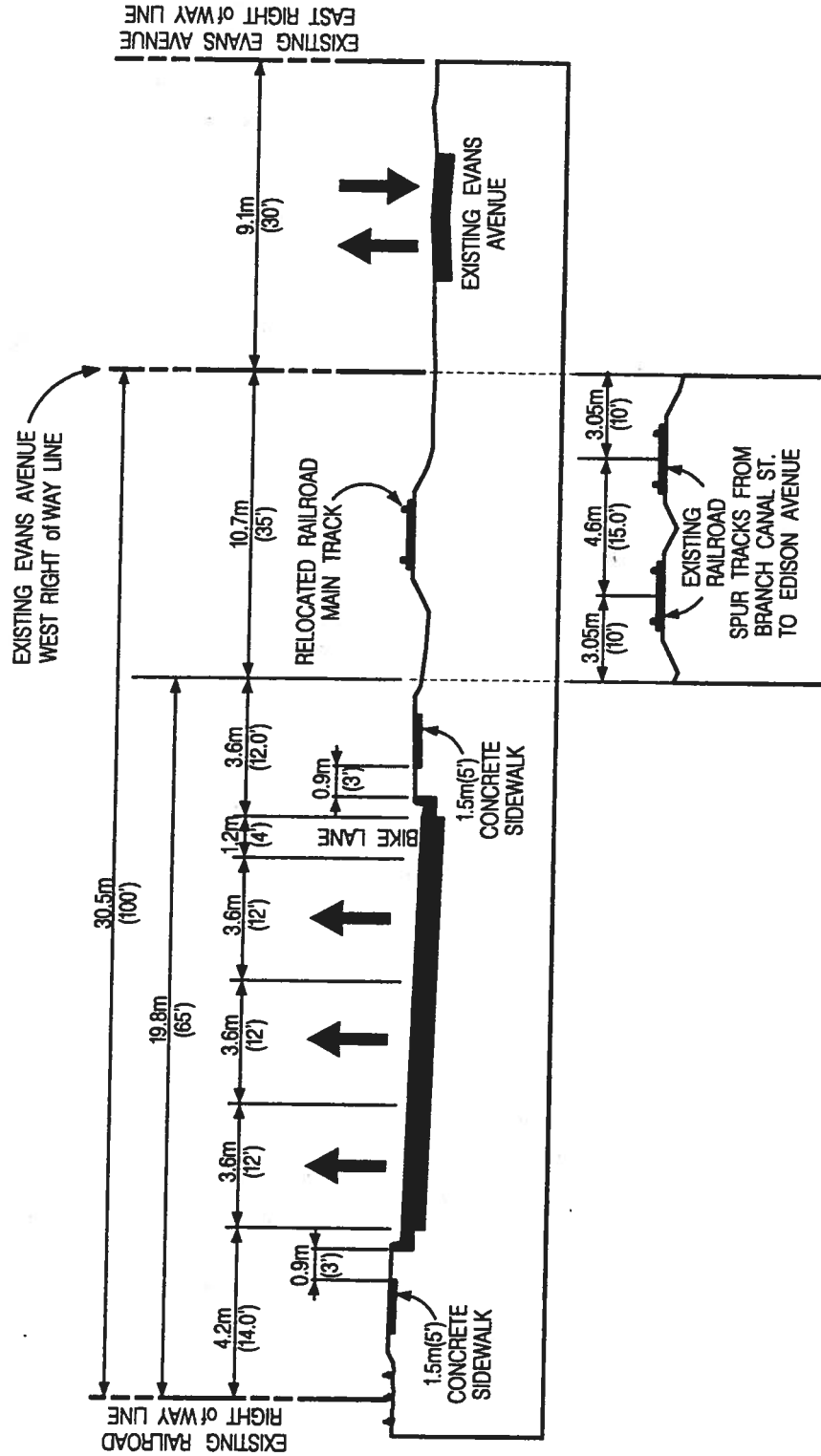
Hanson Street will also be improved to provide one 3.6 meter (12 feet) lane and one 3.3 meter (11 feet) lane in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 5.0 meter (15.5 feet) median with Type F curb and gutter on each side. A 3.6 meter (12 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The typical section for Hanson Street is shown in Figure 9.

The construction of the preferred alternative is estimated to cause the relocation of twenty-six (26) residences, sixteen (16) businesses and one (1) community facility.

The estimated cost for the roadway construction is \$70.9 million. These costs were calculated using the Department's Long Range Estimates (LRE) method. Right-of-way acquisition costs for the Preferred Build Alternative is estimated to be \$55.8 million. The cost of engineering (final design) and construction inspection (CEI) are estimated to be \$20.3 million. The total project cost is estimated to be \$147.0 million and include some additional costs such as wetland mitigation, railroad right-of-way damages and contamination cleanup.

Segment 1 Drainage

The south end of the project runs from Six Mile Cypress Parkway to Alico Road and crosses environmentally sensitive lands within the Six Mile Cypress Slough. The section from Alico Road to 1000 feet south of Briarcliff Road encroaches the tidal base flood plain. Flooding has been known to occur at the intersection of Old US 41 and Alico Road with overtopping of Old US 41 occurring in less than 5-year storm events. The stormwater management for this section would incorporate detention ponds built on additional right-of-way or use available storage within the proposed right-of-way.



FOWLER STREET/EDWARDS AVENUE ONE WAY PAIR (Alternative 4-2G)
 FROM EDISON AVENUE TO DR. MARTIN LUTHER KING, JR., BLVD.

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Marlon J. Dixon
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

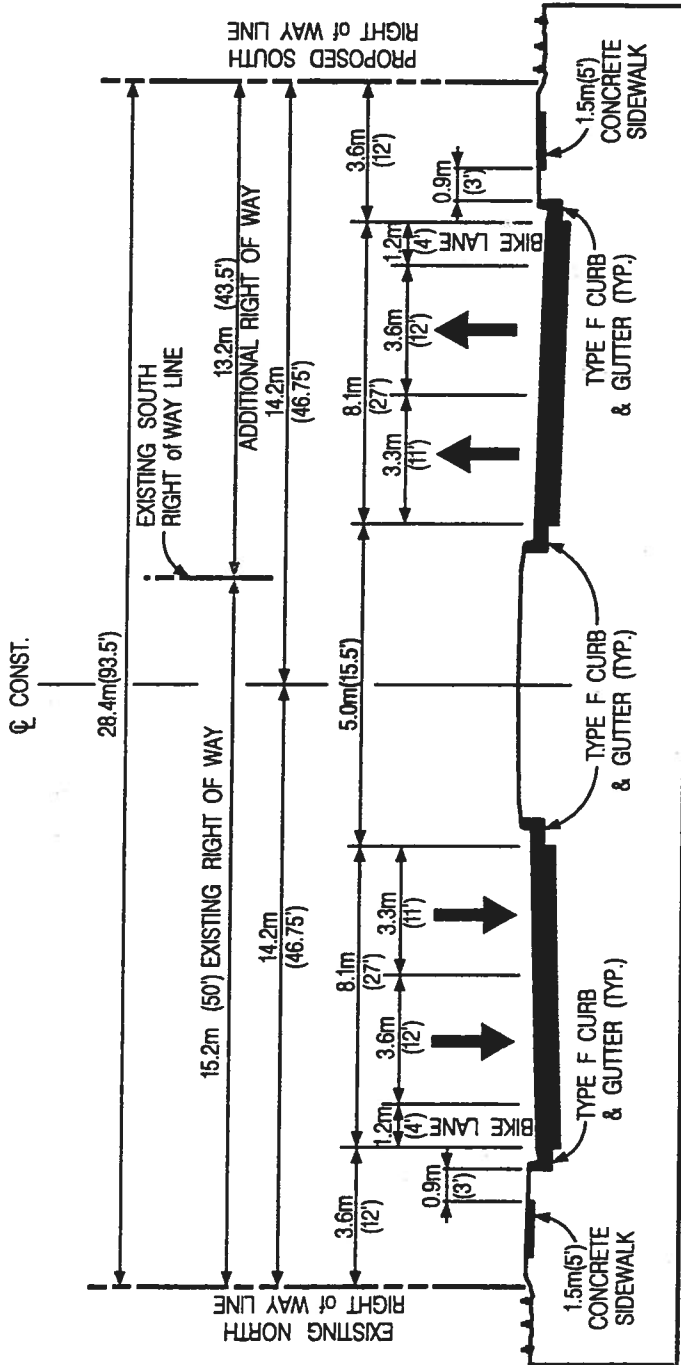
CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 4
 TYPICAL SECTION
 METRO PARKWAY



HANSON STREET (Alternative 3-6 and 4-2G)
FROM FOWLER STREET TO EVANS AVENUE

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Waylon J. Biggs
DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

CONCURRENCE:

[Signature]
DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
S.P. NO. 12014-1502
W.P.I. NO. 1114619
F.A.P. NO. 0671 009 U

SEGMENT 4
TYPICAL SECTION
METRO PARKWAY

Segment 2 Drainage

The section of Metro Parkway between Six Mile Cypress Parkway and Colonial Boulevard has no known flooding problems. Results of the hydraulic analysis for this area on the existing cross drains showed the potential for adverse conditions between Idlewild Road and Arc Way. Construction of detention ponds on additional right-of-way is anticipated to manage stormwater in this section of roadway.

Metro Parkway between Colonial Boulevard to north of Winkler Avenue also has no known flooding problems. Construction of detention ponds on additional right-of-way would also be necessary in this section. Stormwater management in this section could be served by the Metro Park water management system, which has additional detention storage available.

Segment 3 Drainage

No known drainage problems exist in this segment of roadway. Stormwater management for this section would take place in the right-of-way acquired for this project. Construction of retention/detention ponds on additional right-of-way is anticipated to manage stormwater in this area.

Segment 4 Drainage

The north end of the project includes Fowler Street and Evans Avenue from Dr. Martin Luther King, Jr. Boulevard to the vicinity of the Kennesaw Street crossover. Fowler Street is known to have flooding problems between Canal Street and Market Street during 3-year to 5-year storm events. Evans Avenue is not known to have flooding problems; however, the 1987 City of Fort Myers Surface Water Management Report HEC-2 backwater profiles of Carrell Canal show overtopping of the road during a 25-year storm event. Construction of retention/detention ponds on additional right-of-way is anticipated to manage stormwater in this section of roadway.

SUPPORTING DOCUMENTS

Several environmental documents were prepared in support of this PD&E Study to evaluate the potential of adverse environmental and cultural impacts associated with the proposed roadway improvements. These documents include the Contamination

Screening Evaluation Report (CSER), the Cultural Resource Assessment Survey (CRAS) Report, Noise Study Report, Air Quality Report, Endangered Species Biological Assessment Report, Wetland Evaluation Report (WER) and an Individual Section 4(f) Statement. The following is a summary of the findings of these reports.

Section 4(f) Lands

Section 4(f) lands in the project corridor include the Six Mile Cypress Slough Preserve in Segment 1. The portion of the Six Mile Cypress Slough Preserve that is located in the project corridor comprises the southwestern terminus of an 890-hectare (2,200-acre) cypress/wetland drainageway surrounded by saw palmetto uplands. Water in the slough flows to the southwest and eventually drains into the Estero Bay Aquatic Preserve via Ten Mile Canal and Mullock Creek. The Six Mile Cypress Slough Preserve is characterized by a variety of distinct communities, including the pine flatwoods community, hardwood transition community, flag pond (central wet area) community, hammock community, and the cypress slough community. The area serves as a feeding/breeding ground for many wading birds such as wood ducks and herons and is currently under restoration to remove exotic vegetation. The area is environmentally significant because of its long, linear, contiguous nature and because it serves as a wildlife corridor for the Six Mile Cypress Watershed.

Various Lee County ordinances and resolutions recognize the unique value of the Six Mile Cypress Slough Preserve and indicate that it is to be managed for the conservation of wildlife and water and for recreation facilities. Lee County Resolution Number 89-12-39 further indicates a desire on the part of the Lee County Board of County Commissioners to limit impacts to the preserve and improve wildlife and public recreation usage. Additionally, the Lee County Comprehensive Plan designates the preserve area as a local and regional recreation area.

An Individual Section 4(f) Statement has been prepared for this project, pursuant to Section 4(f) of the U.S. Department of Transportation Act, as amended (49 U.S.C., Section 303) because Alternative 1-3B would require the taking of approximately 6.6 hectares (16.3 acres) of land from the Slough. This impact represents 0.74 percent of the total 890 hectare/(2,200 acre) preserve area. The impacted area consists primarily of a mix of palustrine emergent and palustrine forested wetlands interspersed with exotic species and a small transitional upland habitat. As a result of this involvement, a plan for compensatory mitigation has been developed to offset the unavoidable wetland and

Section 4(f) impacts associated with the proposed improvements along the Metro Parkway corridor.

A variety of options to satisfy the mitigation requirements for the taking of land from the Six Mile Cypress Slough Preserve have been identified through discussions with Lee County. The two most feasible mitigation options for consideration include Option #1 - providing one or more restoration activities; and/or Option #2 - purchasing mitigation credits in the Six Mile Cypress Slough mitigation bank.

Option # 1 is described in more detail as follows: Large areas of the Slough, including the project corridor, have been heavily invaded by exotic and nuisance species. Melaleuca, in particular, poses the greatest threat to the ecological integrity of the preserve. This is due to its ability to completely replace a diverse native plant community with a monospecific melaleuca stand. Restoration activities include the eradication of exotic and nuisance species such as melaleuca, Brazilian pepper, cattail and the tropical soda apple, as well as hydroperiod improvements. Specifically, the hydroperiod improvements that are already in place have not been entirely successful in providing a more natural hydroperiod. Representative hydroperiod improvements offered for consideration include restoring the hydrology of the Slough by either increasing the elevation of the existing weirs at Ten Mile Canal, or by constructing new weirs at the Florida Power & Light easement area, extension of the berm adjacent to the Briarcliff subdivision, and/or provisions for pumping alternative sources of water supply into the Slough.

Option # 2 is described in more detail as follows: An alternative to performing restoration and enhancement activities, would be the purchase of credits in the Six Mile Slough Preserve Mitigation Bank, once it is established. Lee County has selected Lee County Mitigation Bank, Inc. to provide this bank. The plan would be to provide mitigation funds through the purchase of credits in the Slough Mitigation Bank. The mitigation bank would then use these funds for the required land acquisition and restoration activities.

Coordination with all appropriate regulatory agencies would be maintained throughout the subsequent phases of the project.

A mitigation plan for implementing either Option #1 or Option #2 will be developed by the Department in coordination with appropriate Federal, State, and local regulatory agencies during the final design phase of this project. These options have been presented

to the Lee County Board of County Commissioners, and they have given the department approval of the options by letter, dated November 4, 1996.

Historic Sites/District

A Cultural Resource Assessment Survey was conducted for this project to determine if historic sites were located within the project area and if any sites were eligible for listing on the *National Register of Historic Places (NRHP)*. The background research and survey revealed no historic structures eligible for listing on the *NRHP* within Segments 1, 2, and 3. In Segment 4, one *NRHP* eligible structure was identified within the project study area. This site is the City of Fort Myers Water Treatment Plant (FSF #8LL1774) located at 2600 Martin Luther King, Jr. Boulevard, just east of Evans Avenue. No direct impact to this structure would occur with project implementation and no right-of-way would be required. In addition, eight other historic structures were identified within Segment 4. These eight sites are not considered eligible for listing in the *NRHP*. A copy of the Cultural Resources Assessment Survey Report was forwarded to the State Historic Preservation Office (SHPO) for their review and concurrence. The SHPO coordination letter dated October 2, 1996 and the Advisory Council letter dated February 14, 1997, both giving a finding of "no adverse effect" have been received. Section 4.2.1 of the Environmental Assessment (EA) document contains additional information on impacts to cultural resources.

Archaeological Sites

A Cultural Resources Assessment Survey was conducted for this project and included background research and subsurface archaeological testing. The archaeological survey did not discover any prehistoric or historic period sites. Therefore, there are no archaeological sites within the project corridor that are anticipated to be eligible for listing in the *NRHP*. A copy of the Cultural Resources Assessment Survey Report was forwarded to the State Historic Preservation Office for their review and concurrence. The SHPO coordination letter dated October 2, 1996 and the Advisory Council letter dated February 14, 1997, both giving a finding of "no adverse effect" have been received.

Wetlands

Thirty-four wetland sites within and adjacent to the proposed right-of-way were identified, classified, and documented for this project. The wetlands consist of small

isolated palustrine forested and palustrine emergent wetlands, man-made canals, and the Six Mile Cypress Slough Preserve.

The total impact on wetlands by the preferred alternatives is 9.16 Hectares (22.55 Acres). The primary wetland impact would occur in the Six Mile Cypress Slough.

Wetland impacts will be re-evaluated during the final design stage of the project. In accordance with Federal Highway Administration policy as contained in 23 CFR 777.11, the full range of mitigation options were considered in developing the project, including avoidance, minimization, restoration, enhancement, and creation.

As a result of the wetland involvement, a plan for compensatory mitigation would be developed to offset the unavoidable wetland impacts associated with the proposed improvements along the Metro Parkway corridor. Mitigation for these impacts is expected to fall into two categories: 1) impacts within the slough, which have been coordinated with the Lee County Parks and Recreation Department and the Lee County Board of County Commissioners, and 2) impacts to other wetlands within the project limits, which will be handled with the use of S 373.4137 F.S.

Coordination with all appropriate agencies will be maintained throughout the subsequent phases of the project.

Aquatic Preserves

There are no listed Aquatic Preserves in the project corridor. However, in Segment 1, the project runs adjacent to the Ten Mile Canal, which eventually drains into the Estero Bay Aquatic Preserve. The southernmost terminus of the project corridor is located approximately 2 miles northeast of the Preserve's northern limits. Indirect impacts associated with water quality have been addressed as part of the required water quality evaluation, and the stormwater management system has been developed to provide the required water quality treatment. Based on these management strategies and the distance to the preserve, it has been determined that there will be no impact to the Estero Bay Aquatic Preserve. Coordination was initiated with the Preserve Management and will be continued during final design.

Water Quality

A Water Quality Impact Evaluation was completed for this project. The proposed stormwater facility design will include, at a minimum, the water quality requirements for water quality impacts as required by the South Florida Water Management District, in Rule 40E-4. Therefore, no further water quality mitigation measures will be needed.

Outstanding Florida Waters

There are no listed Outstanding Florida Waters (OFW) in the project corridor. However, in Segment 1, the project runs adjacent to the Ten Mile Canal, which eventually drains into the Estero Bay Aquatic Preserve, which is also designated an OFW. Indirect impacts associated with water quality have been addressed as part of the water quality evaluation, and the stormwater management systems have been developed to provide the required water quality treatment. Based on these management strategies and the distance to the preserve, it has been determined that there will be no impact to the Estero Bay Aquatic Preserve. Coordination was initiated with the Preserve Management and will be continued during final design.

Floodplains

The protection of floodplains and floodways is governed by Executive Order 11988, Floodplain Management and Federal-Aid Policy Guide 23CFR650A.

The majority of the Metro Parkway project corridor is located outside the 100-year floodplain and is in Zone B (FEMA FIRM Community Panels 125106 0010B and 125106 0020B). Zone B is defined by FEMA as the area between the limits of the 100-year and 500-year flood. A portion of Segment 1, from south of Briarcliff Road to Alico Road is located in the 100-year floodplain. This area is designated Zone A14 and has a base flood elevation of 3.3 meters (11 feet) (FEMA FIRM Community Panels 125124 0350B, 125124 0455B). The floodplain area was determined by tidal analysis not riverine. There are no regulatory floodways designated by FEMA located within the project limits for Metro Parkway. Therefore, there are no encroachments of regulatory floodways by this project, as designated by FEMA.

Wildlife and Habitat

Pursuant to Section 7c of the Endangered Species Act of 1973, the project corridor was evaluated for the potential occurrence of threatened and endangered species. Literature reviews were conducted and data was collected from the U.S. Fish and Wildlife Service (USFWS), the Florida Game and Freshwater Fish Commission (FGFWFC) and the Florida Natural Areas Inventory (FNAI). No USFWS critical habitat exists within the project area.

No adverse impacts to any protected plant or wildlife species, or their designated critical habitat, would result from construction of the proposed roadway improvements. In addition, the proposed improvements would not substantially impact other wildlife species or their habitat. Because the impact would be minimal, specific mitigation measures are not proposed. Several mitigation options, however, would be considered to compensate for the unavoidable impact to wetlands, particularly in the Six Mile Cypress Slough Preserve. These mitigation options include either the implementation of restoration activities (exotic vegetation removal, hydroperiod enhancement) and/or the purchasing of mitigation credits in the Six Mile Cypress Slough mitigation bank once it is established.

The survey methodology and the results of the endangered species biological assessment were transmitted to the USFWS for concurrence. In a letter dated July 2, 1996, the USFWS concurred with the study findings. A copy of this letter is in the project file.

The eastern indigo snake (*Drymarchon corias couperi*) could be present in the project area. In order to minimize harm to this species, the Florida Department of Transportation has committed to implement the following protection measures:

1. The FDOT shall provide eastern indigo snake educational information as contained in the approved District One educational plan to construction employees prior to the initiation of any land clearing, construction or gopher tortoise relocation activities. The FDOT District One educational exhibit shall be posted at sites immediately accessible to all employees.
2. All construction activities shall cease in the immediate vicinity of any live eastern indigo snake found within the project area. Work may resume after the snake or snakes are allowed to leave the area on their own.

3. Locations of live sightings shall be reported to the USFWS Vero Beach Office at (561) 562-3909.
4. If a dead eastern indigo snake is found on the project site, the snake shall be frozen as soon as possible and FDOT shall notify the South Florida Ecosystem Office immediately for further instructions.

Farmlands

It has been determined by the United States Department of Agriculture, Natural Resources Conservation Services (formerly the Soil Conservation Service) that there are no impacts to any prime or unique farmlands. The letter, dated February 9, 1998 and the form are in the project file.

Noise

Noise impacts were assessed for the proposed expansion and extension of the existing transportation corridor that serves as Metro Parkway in Lee County. Results of the analysis for the design year (2020) Build Alternative indicate that 83 residences may experience outdoor traffic noise levels that approach or exceed the FHWA Noise Abatement Criteria for Activity Category B. Predicted noise levels at the impacted residences range from 65 dBA(L_{eq}) to 71 dBA(L_{eq}). This represents an increase ranging from 4 to 20 dBA(L_{eq}) above the existing noise levels at these 83 residences. No noise sensitive sites are predicted to experience a substantial noise increase or experience interior noise levels which approach or exceed the FHWA Noise Abatement Criteria for Activity Criteria E (residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums).

Noise abatement measures were evaluated for impacted noise sensitive sites. A noise wall, 436 meters (1430 feet) long and an average of 6 meters (19.7 feet) high would provide a 5 to 10 dBA insertion loss to 9 of the 11 impacted residences. This wall would be located east of Evans Avenue and adjacent to the proposed roadway between Hunter Street and Kennesaw Street (see Sheet 21 in the Concept Plans). The other two impacted residences could not be abated because a barrier could not be extended without eliminating the only access to these residences. An additional 10 residences that did not approach the FHWA NAC will receive at least a 5 dBA reduction, bringing the total

number of benefited residences for this barrier to 21. The average insertion loss to the 21 benefited residences is 5.9 dBA. The total cost and cost-per-benefited residence for this barrier is \$495,400 and \$23,600 respectively. This barrier was found to be feasible and economically reasonable and will be advanced to design for further evaluation.

Air

A desktop air quality (carbon monoxide) screening test was performed for both the Build and No-Build alternatives using the FDOT COSCREEN software for the PC. When the data was input into the COSCREEN model, the results indicated that the critical receptor distance for the Build and No-Build alternatives was less than the minimum allowable critical distance of 3.1 m (10 ft.). With this critical receptor distance, both the Build and No-Build alternatives automatically pass the air screening test and further assessments are not expected to be required. Therefore, the results of the air screening test indicate that the proposed Metro Parkway project would not have a substantial impact on air quality.

Contamination

Seventy-six (76) known and potential contamination sites were identified within and/or adjacent to the proposed right-of-way of the preferred alternatives. Thirty-two (32) of the seventy-six (76) sites were subjected to subsurface investigations via OVA testing and/or chemical analysis. The results of the testing revealed that none of the thirty-two (32) sites had readings above regulatory limits. Additional subsurface testing was also performed in the right-of-way of the Seminole Gulf Railroad in Segment 4 because of concerns associated with herbicides and preservatives used on the tracks and railroad ties. Chemical analysis revealed that all constituents sampled were well below regulatory limits. Consequently, the portion of Alternative 4-2G that would be located within the Seminole Gulf Railroad right-of-way would not be impacted by contaminants associated with railyard operations.

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. The results of this evaluation revealed that there were two (2) potential contamination sites in Segment 1 impacted by Alternative 1-3B. In Segment 2, Alternative 2-2 may be impacted by twenty-one (21) potential contamination sites. In Segment 3 and 4, thirty-one (31) low-risk sites may be impacted the One-Way Pair Alternative (3-6 and 4-2G).

Eleven (11) sites rated as High or Moderate risk for potential contamination will be investigated further prior to construction. Investigative work may include visual inspections, monitoring of ongoing cleanups and possibly 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.

The potential contamination concerns are not expected to affect or delay the project implementation significantly. No significant contamination is anticipated in Segments 1 through 3. Due to its location in an older, industrialized area, Segment 4 may have unknown contamination sites.

Based on available data, no significant contamination involvement is anticipated to affect right-of-way acquisition or construction activities within the project corridor. Therefore, it is concluded that contamination would have a minimal impact on the proposed improvements.

1.0 — Summary

1.1 Commitments

This Project Development and Environment (PD&E) Study addresses the proposed roadway improvements that are required for the expansion and extension of the Metro Parkway (SR 739) corridor in Lee County, Florida. The project begins in the vicinity of US 41 (SR 45) and Alico Road and extends northward to the vicinity of SR 82 (Dr. Martin Luther King, Jr. Boulevard), a distance of approximately 17.7 kilometers (11 miles).

The efficient movement of vehicles in a north-south direction is an existing transportation need in Lee County. US 41 and I-75 are the only north-south transportation facilities that traverse the county. US 41, historically known as Tamiami Trail, is a four- and six-lane divided principal arterial. This road is an important urban and suburban transportation link that serves the numerous commercial and residential developments on or very close to the facility. US 41 is currently over capacity and is designated a "constrained facility." I-75 is a limited access facility that serves through trips, intrastate trips with a destination or service stop in Lee County, or longer intracounty trips. Direct access from I-75 to the Metro Parkway (SR 739) project corridor is provided by major east-west roadways, including Alico Road, Daniels Parkway, Colonial Boulevard, and SR 82.

The Metro Parkway corridor is an existing state route consisting of several different arterial and collector roadways in Lee County and Fort Myers. The fact that it is comprised of a several different named streets (Metro Parkway, Hanson Street, Fowler Street) characterized by undesirable right-angle turns at key intersections detracts from its viability as a continuous and effective component of the regional transportation system. This deficiency can be remedied by providing a transportation facility that will effectively and efficiently move traffic in a north-south direction through central Lee County and serve as a reliever to US 41. This transportation system will provide direct access and a continuous parallel route to existing US 41 from south of Alico Road to north of the Coloosahatchee River via the Edison Bridge. Without the expansion and extension of Metro Parkway, there will be significant additional traffic demand placed on US 41 and a major gap in the regional north-south transportation system will not be remedied.

The Florida Department of Transportation will adhere to the following commitments with regard to the proposed improvements to Metro Parkway:

✓ (1) ■ The FDOT is committed to continuing coordination with Lee County and the City of Fort Myers throughout the final design and construction phases of the project.

✓ ■ The proposed stormwater treatment design will include, at a minimum, the water quality requirements for water quality impacts as required by the South Florida Water Management District (SFWMD) in Rule 40E-4. The stormwater treatment system for the project will be developed in accordance with Chapter 25 F.A.C. The FDOT will continue to coordinate with the permitting agencies on the design of the drainage system.

✓ ■ All utility relocations will be in conformance with the FDOT Utility Accommodation Guide. Relocation of local utilities will be coordinated with the appropriate utilities and the local municipalities. As outlined in Section 9.13.3 of this report, FDOT will coordinate with Lee County during final design to discuss the possible inclusion of a 300 mm (12 inches) water main into the FDOT design plans.

✓ ■ The FDOT will continue to coordinate with the City of Fort Myers with regard to considering the proposed extension of the North Colonial Linear Park bicycle path in future roadway plans.

✓ ■ Prior to construction, another survey for the gopher tortoise and the beautiful pawpaw will be conducted by the FDOT within the proposed limits of construction. Appropriate mitigate action will be taken at that time, if required.

✓ ■ Best Management Practices will be used to minimize construction impacts on air, noise, and water quality. The contractor shall dispose of all oil, chemical, fuel, etc., in an acceptable manner according to local, State, and Federal regulations and shall not dump these contaminants on the ground or in sinkholes, canals, ponds, or lakes. To minimize short term impacts, the contractor will adhere to provisions outlined in the FDOT's Standard Specifications for Road and Bridge Construction.

✓ (2) ■ Through the Briarcliff Subdivision area, a landscaped berm will be constructed on the east side of the roadway to provide a visual buffer between the roadway and the

Briarcliff Subdivision.

- ✓ ■ During the design phase, a neighborhood meeting will be held to review the design of the landscaped berm with the residents adjacent to the berm.
- ✓ ■ A 2.4 meter (8 feet) multi-use path will be constructed in Segment 1 (i.e., From the vicinity of Alico Road to Six Mile Cypress Parkway).

✓ *found* Mitigation for impacts within the Six Mile Cypress Slough Preserve has been coordinated with the Lee County Parks and Recreation Department, the managers of the slough. Concurrence with the plan was granted by the Lee County Board of County Commissioners by letter dated November 4, 1996. A variety of options to satisfy the mitigation requirements for the taking of land from the Six Mile Cypress Slough Preserve have been identified through discussions with Lee County. The two most feasible mitigation options for consideration include Option #1 - providing one or more restoration activities; and/or Option #2 - purchasing mitigation credits in the Six Mile Cypress Slough mitigation bank. Details of the mitigation coordination for impacts within the Six Mile Cypress Slough are discussed in detail in the 4(f) Section, Section 5.0 of the Environmental Assessment, and in the Wetland Evaluation Report.

Option # 1 is described in more detail as follows: Large areas of the Slough, including the project corridor, have been heavily invaded by exotic and nuisance species. Melaleuca, in particular, poses the greatest threat to the ecological integrity of the preserve. This is due to its ability to completely replace a diverse native plant community with a monospecific melaleuca stand. Restoration activities include the eradication of exotic and nuisance species such as melaleuca, Brazilian pepper, cattail and the tropical soda apple, as well as hydroperiod improvements. Specifically, the hydroperiod improvements that are already in place have not been entirely successful in providing a more natural hydroperiod. Representative hydroperiod improvements offered for consideration include restoring the hydrology of the Slough by either increasing the elevation of the existing weirs at Ten Mile Canal, or by constructing new weirs at the Florida Power & Light easement area, extension of the berm adjacent to the Briarcliff subdivision, and/or provisions for pumping alternative sources of water supply into the Slough.

Option # 2 is described in more detail as follows: An alternative to performing

restoration and enhancement activities, would be the purchase of credits in the Six Mile Slough Preserve Mitigation Bank, once it is established. Lee County has selected Lee County Mitigation Bank, Inc. to provide this bank. The plan would be to provide mitigation funds through the purchase of credits in the Slough Mitigation Bank. The mitigation bank would then use these funds for the required land acquisition and restoration activities.

Coordination with all appropriate regulatory agencies would be maintained throughout the subsequent phases of the project.

- Wetland impacts which will result from the construction of this project will be mitigated pursuant to S. 373.4137 F.S. to satisfy all mitigation requirements of Part IV, Chapter 373 F.S. and 33 U.S.C. s. 1344. Under S. 373.4137 F.S., mitigation of FDOT wetland impacts will be implemented by the appropriate Water Management District where the impacts occur. Each Water Management District will develop a regional mitigation plan on an annual basis to be approved by the Florida State Legislature which addresses the estimated mitigation needs of FDOT. The Water Management District will then provide wetland mitigation for specific FDOT project impacts through a corresponding mitigation project within the overall approved regional mitigation plan. FDOT will provide funding to the Water Management District for implementation of such mitigation projects.
- To satisfy Florida Game and Fresh Water Fish Commission (FGFWFC) concerns about the Eastern Indigo Snake, the US Fish and Wildlife Service (USFWS) approved Standard Protection Measures will be implemented. This plan will be developed during final design and coordinated with the appropriate agencies.
- The eleven (11) sites rated as High or Moderate risk for potential contamination will be investigated further prior to construction. Investigative work may include visual inspections, monitoring of ongoing cleanups and possibly 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.

✓ ■ Prior to initiation of permitting activities during the design phase of this project, the Department will reinitiate coordination with the management of the Estero Bay Aquatic and State Buffer Preserves with regards to Aquatic Preserves and Outstanding Florida Waters issues. A contact person is Heather Stafford at 941-463-3240.

NA
An
2/29/11
■ An analysis will be conducted during the design phase to investigate inlets size, spacing, gutter gradients and the existing storm sewer system capacity on Fowler Street, between Market Street and Canal Street.

NA
An
2/29/11
■ The culvert on both sides of Fowler Street at the canal will be extended to fix the alignment jog south of Canal Street.

○ ■ The FDOT is committed to the construction of the feasible noise abatement measures at the noise impacted locations identified contingent on the following:

- a. Detailed noise analysis during the final design process supports the need for abatement;
- b. Reasonable cost analysis indicates that the economic cost of the barrier(s) will not exceed the guidelines;
- c. Community input regarding desires, types, heights, and locations of barriers has been solicited by the District Office;
- d. Preferences regarding compatibility with adjacent land uses, particularly as addressed by officials having jurisdiction over such land uses have been noted;
- e. Safety and engineering aspects as related to the roadway user and the adjacent property owner have been reviewed.

1.2 Recommendations

This section summarizes the design recommendations for the preferred construction alternative. A more detailed analysis of the engineering and environmental issues associated with the preferred alternative is presented in Section 9.0 of this Preliminary Engineering Report.

The Metro Parkway corridor was divided into four segments for purposes of study and evaluation, with each segment characterized by a variety of similar engineering and environmental characteristics. The four segments are as follows:

Segment	Location
1	New alignment in the vicinity of Alico Road to Six-Mile Cypress Parkway/Metro Parkway intersection.
2	Metro Parkway from Six-Mile Cypress Parkway to north of Winkler Avenue.
3	A new crossover alignment from north of Winkler Avenue to Fowler Street/Evans Avenue Corridor; or existing Metro Parkway to a Hanson Street Connector.
4	Fowler Street/Evans Avenue corridor to the vicinity of SR 82

Segment 1 will be on new location. Segment 2 will follow the route of the existing Metro Parkway alignment whereas Segment 3 will be a crossover alignment on new location. Segment 4 will follow the route of Fowler Street and Evans Avenue in a one-way pair configuration or six-lane Fowler Street configuration.

1.2.1 Study Alternatives

Several alternatives were developed and evaluated for this project, including the no-build and transportation system management (TSM) alternatives (see Section 8.0 of the PER).

1.2.2 Alternatives Evaluation and Identification of Public Hearing Alternatives

Many environmental and engineering issues were thoroughly evaluated in this PD&E study prior to identifying the Public Hearing alternatives in each of the four segments. These issues include business relocations and economic impacts; cultural/historic resources and park impacts; residential impacts and relocation; community facility impacts; natural environmental and physical impacts; and estimated project cost, including right-of-way acquisition, design and construction costs, and wetland mitigation costs. A comprehensive alternative evaluation matrix that provided a comparative evaluation of the representative strengths and weaknesses of each study alternative, including the no-build was then prepared. Table 1-1 presents the alternative evaluation matrix and highlights the alternatives in each of the four corridor segments which were presented at the Public Hearing. These alternatives are the "No-Project" Alternative and Alternatives 1-3B and 1-3D (Segment 1), Alternatives 2-3A and 2-2B (Segment 2), Alternatives 3-5 and 3-6 (Segment 3), and Alternative 4-5(LT) and 4-2G (Segment 4). Alternatives 3-5 and 4-5(LT) are complementary alternatives for the Six-Lane Fowler Street configuration and Alternatives 3-6 and 4-2G are complementary alternatives for the Fowler/Evans One-Way Pair configuration.

Based on input received at the Public Hearing and on consideration of estimated costs and impacts of the alternatives, the following alternatives are recommended to be implemented for the Metro Parkway improvement:

Segment 1 - Existing Railroad West of Roadway (Alternative 1-3B)

Segment 2A - (Six-Mile Cypress Parkway to Daniels Parkway) Six Lane Urban 39.6 meter (130 feet) (Alternative 2-3A Right Alignment)

Segment 2B - (Daniels Parkway to North of Winkler Avenue) Six Lane Urban 38.1 Meter (125 feet) (2-2B Center Alignment)

Segment 3 - Connection to One-Way Pair (Alternative 3-6)

Segment 4 - Fowler Street/Evans Avenue One-Way Pair (Alternative 4-2G)

**TABLE 1-1
ALTERNATIVES EVALUATION MATRIX
METRO PARKWAY
FROM US 41 AND ALICO ROAD
TO DR. MARTIN LUTHER KING, JR., BOULEVARD**

	NO-PROJECT	SEGMENT 1 ALICO ROAD TO SIX-MILE CYPRESS PARKWAY		SEGMENT 2A SIX-MILE CYPRESS PARKWAY TO DANIELS AVENUE			SEGMENT 2B DANIELS AVENUE TO NORTH OF WINKLER AVENUE			SEGMENT 3&4 NORTH OF WINKLER AVENUE TO Dr. MARTIN LUTHER KING, Jr., BOULEVARD	
		ALIGNMENT		ALIGNMENT			ALIGNMENT			ALIGNMENT	
		1-3B	1-3D	2-1A	2-2A	2-3A	2-1B	2-2B	2-3B	3-5 & 4-5(LT)	3-6 & 4-2G
RELOCATIONS											
RESIDENCES	NO IMPACTS	14	12	0	0	0	0	0	0	6	12
BUSINESSES	NO IMPACTS	1	1	0	0	0	0	0	0	62	15
COMMUNITY FACILITIES	NO IMPACTS	1	1	0	0	0	0	0	0	2	0
EST. COSTS (IN MILLIONS)											
DESIGN / CEI	NO CAPITAL COSTS	\$5.5	\$6.6	\$1.1	\$1.1	\$1.1	\$6.2	\$6.2	\$6.2	\$5.3	\$7.5
ROADWAY RIGHT-OF-WAY	NO CAPITAL COSTS	\$22.3	\$21.2	\$2.4	\$2.2	\$1.3	\$11.8	\$9.6	\$10.4	\$29.0	\$14.3
ROADWAY R/W (DRAINAGE COST)	NO CAPITAL COSTS	\$1.2	\$1.2	\$0.7	\$0.7	\$0.7	\$2.3	\$2.3	\$2.3	\$1.6	\$1.6
RAILROAD RIGHT-OF-WAY	NO CAPITAL COSTS	\$0.0	\$3.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.0
RAILROAD R/W DAMAGE COST	NO CAPITAL COSTS	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.5
ROADWAY CONSTRUCTION	NO CAPITAL COSTS	\$18.4	\$17.4	\$3.6	\$3.6	\$3.6	\$20.5	\$20.5	\$20.5	\$17.8	\$21.0
RAILROAD CONSTRUCTION	NO CAPITAL COSTS	\$0.0	\$4.7	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$3.9
WETLAND MITIGATION	NO CAPITAL COSTS	\$1.8	\$1.8	*	*	*	*	*	*	*	*
CONTAMINATION CLEANUP	NO CAPITAL COSTS	*	*	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$2.1	\$1.1
TOTAL	NO CAPITAL COSTS	\$49.2	\$56.2	\$8.1	\$7.9	\$7.0	\$41.1	\$38.9	\$39.7	\$58.8	\$51.9
NATURAL ENVIRONMENTAL & PHYSICAL IMPACTS											
SPECIES	NO IMPACTS	Minimal	Minimal	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts
CONTAMINATION SITES	NO IMPACTS	2	5	0	0	1	12	20	12	40	31
WETLAND (HECTARES/ACRES)	NO IMPACTS	9.0/22.1	5.9/14.5	0.01/0.05	0.01/0.05	0.01/0.05	0.01/0.04	0.01/0.04	0.01/0.04	0.20/0.50	0.14/0.36
SECTION 4(f) INVOLVEMENT (HECTARES/ACRES)	NO IMPACTS	6.6/16.3	4.3/10.5	0/0							
DRAINAGE & WATER QUALITY	NO IMPACTS	SWALE DRAINAGE TO PONDS. WATER QUALITY IMPROVED.		STORM DRAINAGE PROVIDE. CLOSED DRAINAGE SYSTEM WITH RETENTION/DETENTION POND TREATMENT. WATER QUALITY IMPROVED.							
NON-MOTORIZED	Minimal Pedestrian & Bicycle Facilities	PROVIDES FOR A 2.4m (8 feet) PATHWAY FOR BICYCLES and PEDESTRIANS		PROVIDES FOR A 1.5m (5 feet) SIDEWALK and 1.2 m (4 feet) BIKE LANE			PROVIDES FOR A 1.8m (6 feet) SIDEWALK next to curb and 1.2 m (4 feet) BIKE LANE			PROVIDES FOR A 1.5m (5 feet) SIDEWALK and 1.2 m (4 feet) BIKE LANE	
SOCIAL & NEIGHBORHOOD IMPACTS	NO IMPACTS	MINIMAL	MINIMAL	MINIMAL IMPACT						MINIMAL	MINIMAL

* Mitigation costs < \$0.05 million. Alternatives to be presented at the Public Hearing are shown as shaded.

The following sections present a summary of the recommended alternatives by segment, including recommended typical sections and alignment considerations.

1.2.2.1 Segment 1

- **Existing Railroad West of Roadway (Alternative 1-3B)**

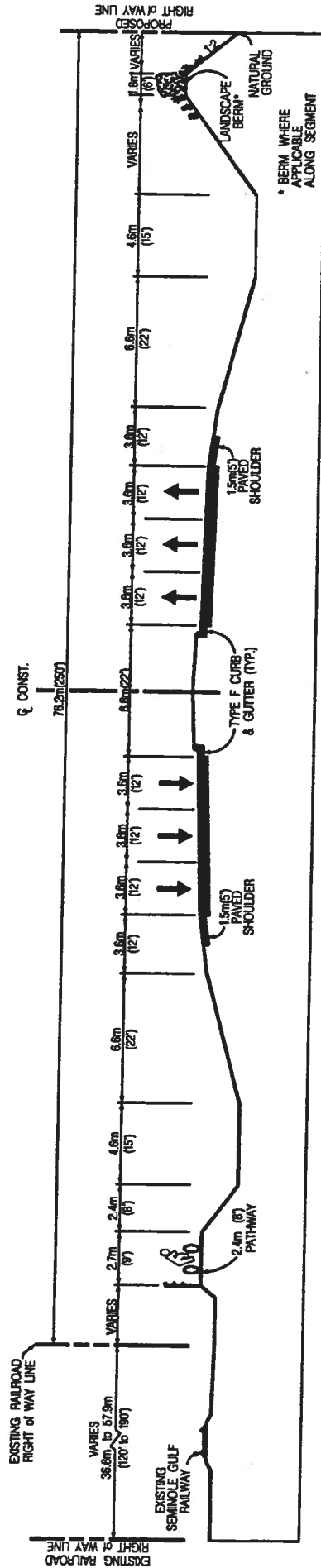
This alternative begins at the proposed connection to US 41 in the vicinity of Alico Road and follows a general northerly alignment as it crosses the Seminole Gulf Railroad. After crossing the Seminole Gulf Railroad, this alternative turns to the northwest and runs adjacent to the east side of the railroad right-of-way. The alignment continues in this northwesterly direction to the vicinity of Anderson Lane. At this point, Alternative 1-3B crosses just south of Anderson Lane and, continuing adjacent to the railroad, turns to the north between the Seminole Gulf Railroad and Anderson Lane. It then crosses the extreme western end of the Six Mile Cypress Slough Preserve. It then veers slightly to the northeast and proceeds to the north where it eventually merges with Segment 2 of the existing Metro Parkway alignment just south of the Six Mile Cypress Parkway.

The proposed typical section for Alternative 1-3B is characterized by a 76.2 meter (250 feet) right-of-way. This suburban typical section contains three 3.6 meter (12 feet) travel lanes in each direction, a 6.6 meter (22 feet) median with Type F curb and gutter, a 3.6 meter (12 feet) shoulder of which 1.5 meters (5 feet) is paved, a 2.4 meter (8 feet) multi-use pathway on the west side of the roadway, and 13.6 meter (45 feet) grass swales. Through the Briarcliff Subdivision area, a landscaped berm will be constructed on the east side of the roadway to provide a visual buffer between the roadway and the Briarcliff Subdivision. The design speed is 80 kilometers per hour (50 miles per hour). Drainage will be accommodated within the proposed grass swales and water quality and water quantity requirements will be met within the proposed right-of-way and within off-site retention/detention ponds. This typical section is shown in Figure 1-1.

1.2.2.2 Segment 2

- **Segment 2A (Six-Mile Cypress Parkway to Daniels Parkway) Six Lane Urban 39.6 meter (130 feet) (Alternative 2-3A East Alignment)**

The typical section developed for the build alternatives in Segment 2A proposes to widen



EXISTING RAILROAD WEST OF ROADWAY (Alternative 1-3B)
 FROM NORTH OF ALICO ROAD TO SIX MILE CYPRESS PARKWAY

DESIGN SPEED: 80 KPH (50 MPH)

APPROVED BY:

Waylon J. Dyer
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 1
 TYPICAL SECTION
 METRO PARKWAY

existing Metro Parkway to a six-lane urban section with a raised median within a 39.6 meter (130 feet) right-of-way. The proposed section would provide three 3.6 meter (12 feet) lanes in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 6.6 meter (22 feet) median with Type F curb and gutter on each side. A 4.5 meter (14 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The design speed is 70 kilometers (45 miles) per hour. Drainage consists of piping stormwater to off-site retention/detention ponds. The typical section proposed for the Alternative 2-3A is shown in Figure 1-2.

Segment 2B (Daniels Parkway to North of Winkler Avenue) Six Lane Urban 38.1 Meter (125 feet) (2-2B Center Alignment)

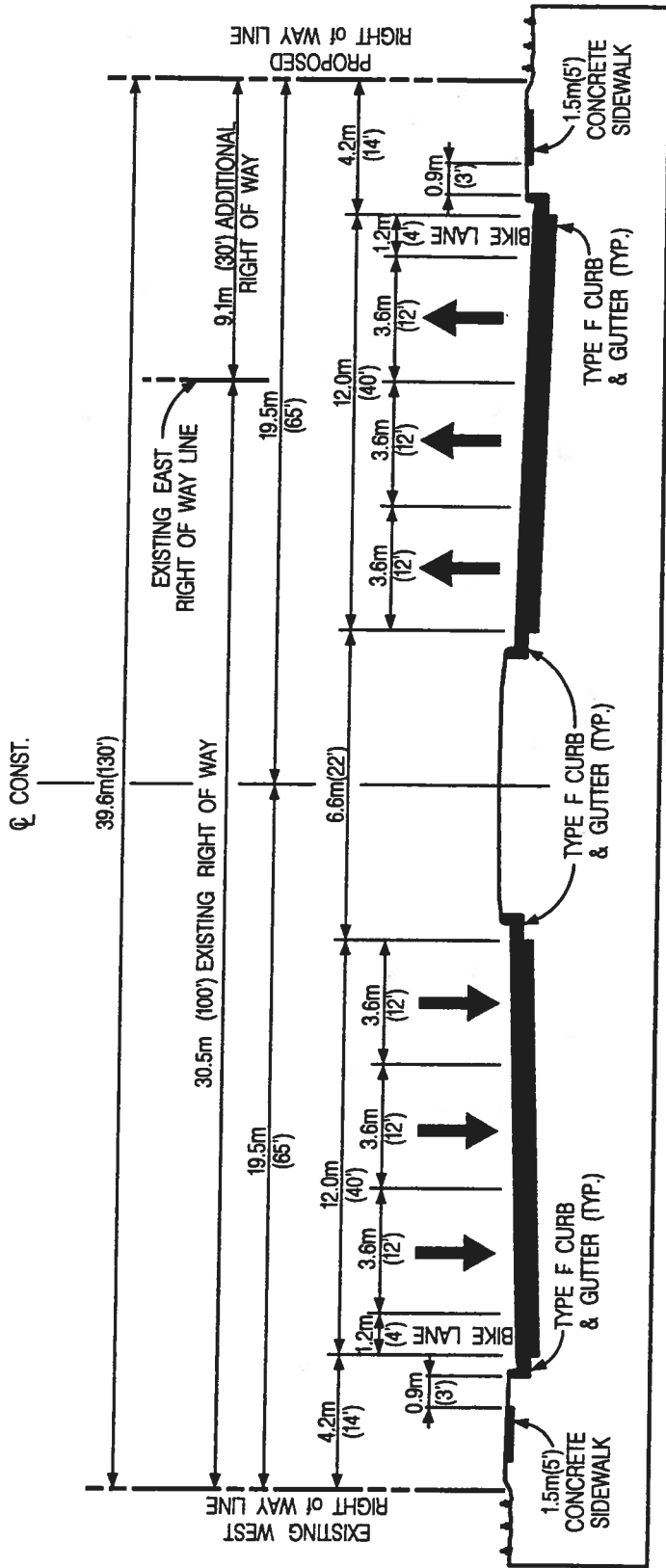
The typical section for Segment 2B alignment is identical to that for Segment 2A except that the right-of-way width is 38.1 meters (125 feet), the border strip is 3.6 meters and the concrete sidewalk is 1.8 meters (6 feet) wide and is flush with the back of curb. The reduced right-of-way width takes advantage of the existing drainage/utility easements along both sides of the roadway in this area. The typical section proposed for Segment 2B is Alternative 2-2B (Center Alignment) shown in Figure 1-3.

1.2.2.3 Segment 3

• **Connection to One-Way Pair (Alternative 3-6)**

Alternative 3-6 begins at a point approximately 550 meters (1800 feet) north of Winkler Avenue on Metro Parkway and turns to the northwest on a new alignment. It proceeds in a northwesterly direction as it crosses over the Seminole Gulf Railroad and the Ten Mile Canal. The alignment continues on this northwesterly alignment and connects with the one-way pair alternative (4-2G) in Segment 4.

The typical section developed for this portion of Alternative 3-6 is a six lane urban section 39.6 meters (130 feet) in width. The proposed section will provide three 3.6 meter (12 feet) lanes in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 6.6 meter (22 feet) median with Type F curb and gutter on each side. A 4.5 meter (14 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The design speed is 70 kilometers (45 miles) per hour. Drainage consists of piping stormwater to off-site retention/detention ponds. The typical section is



SIX LANE URBAN 39.6m (130 feet) (Alternative 2-3A Right Alignment)
 FROM SIX MILE CYPRESS PARKWAY TO DANIELS PARKWAY

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Waylon J. Dyer
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

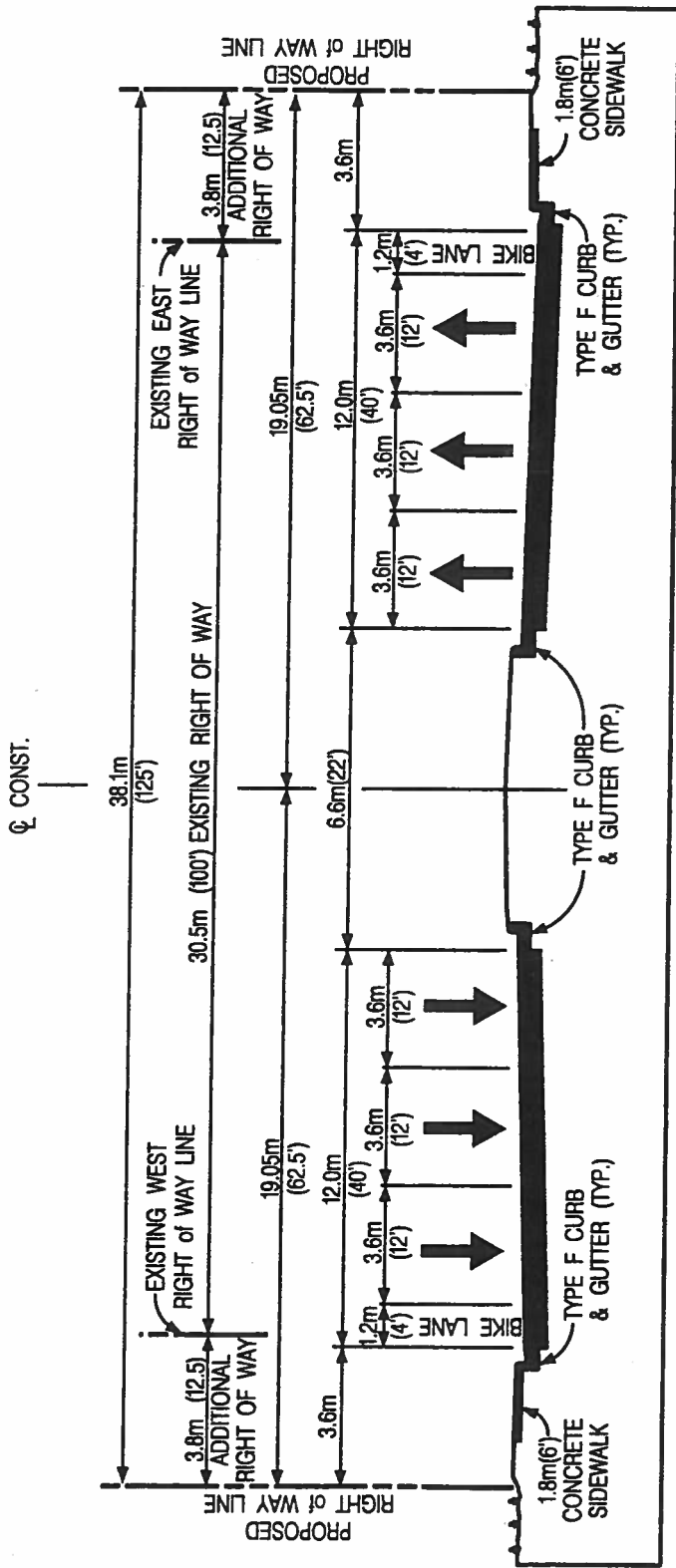
CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 2A
 TYPICAL SECTION
 METRO PARKWAY



SIX LANE URBAN 38.1m (125 feet) (Alternative 2-2B Center Alignment)
 FROM DANIELS PARKWAY TO NORTH OF WINKLER AVENUE

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Maxwell J. Biggins
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 2B
 TYPICAL SECTION
 METRO PARKWAY

shown in Figure 1-4.

From the vicinity of Kennesaw Street, the alignment splits to form a one-way pair which connects to Alternative 4-2G (one-way pair alternative) in Segment 4. At the split near the intersection of Kennesaw Street and Evans Avenue, three lanes of one-way northbound traffic will continue along the Evans Avenue right-of-way and three lanes of one-way southbound traffic from Fowler Street will join the alignment via a new crossover configuration. At this intersection (in the vicinity of Hunter Terrace) a new connection between Fowler Street and Evans Avenue is proposed to promote circulation between the one-way pairs.

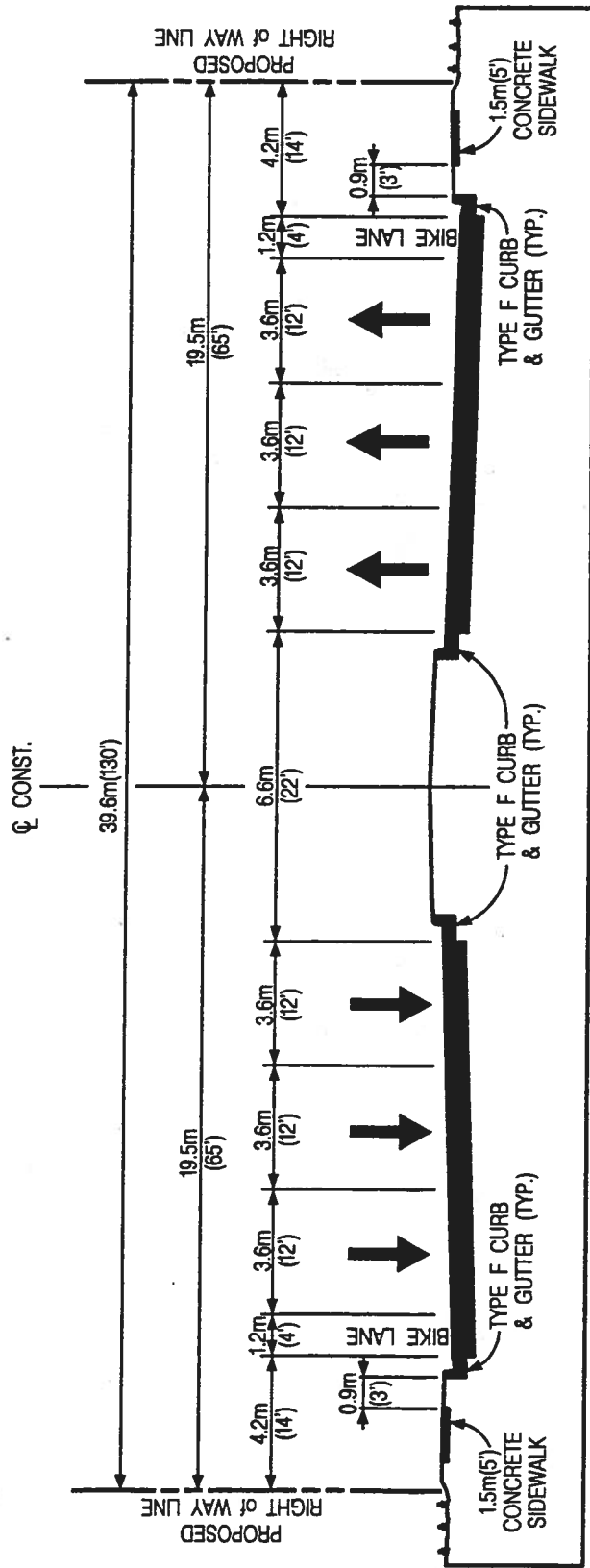
The existing right-of-way width for Evans Avenue from Moreno Avenue to Hanson Street is 24.4 meters (80 feet). The typical section for the northbound Evans Avenue one-way pair proposes three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 6.2 meter (20 feet) inside border, a 6.2 meter (20 feet) outside border (both with Type F curb and gutter), and 1.5 meter (5 feet) concrete sidewalks on both sides. Drainage in this segment consists of piping stormwater to off-site retention/detention ponds. The typical section for the northbound one-way pair alternative between Moreno Avenue and Hanson Street is shown in Figure 1-5.

The existing right-of-way width for Fowler Street, from the vicinity of Kennesaw Street to Hanson Street is 19.6 meters (66 feet). The typical section developed for this segment consists of three 3.6 meter (12 feet) lanes (southbound), one 1.2 meter (4 feet) bike lane, a 3.6 meter (12 feet) inside border, a 4.2 meter (14 feet) outside border (both with curb and gutter) and 1.5 meter (5 foot) concrete sidewalks on both sides. The typical section for the southbound one-way pair alternative is shown in Figure 1-6.

1.2.2.4 Segment 4

- **Fowler Street/Evans Avenue One-Way Pair (Alternative 4-2G)**

This alternative utilizes a one-way pair concept with Fowler Street being three (3) lanes southbound and Evans Avenue being three (3) lanes northbound. Based on comments received at the Public Hearing and subsequent to the Public Hearing, Fowler Street will be reconfigured within the existing right-of-way to provide three 3.6 meter (12 feet) lanes and a 1.8 meter (6 feet) sidewalk adjacent to the curb on the west side of the road. The



SIX LANE CONNECTION TO ONE WAY PAIR (Alternative 3-6)
 FROM NORTH OF WINKLER AVENUE TO KENNESAW STREET

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Marlon J. Bizym
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

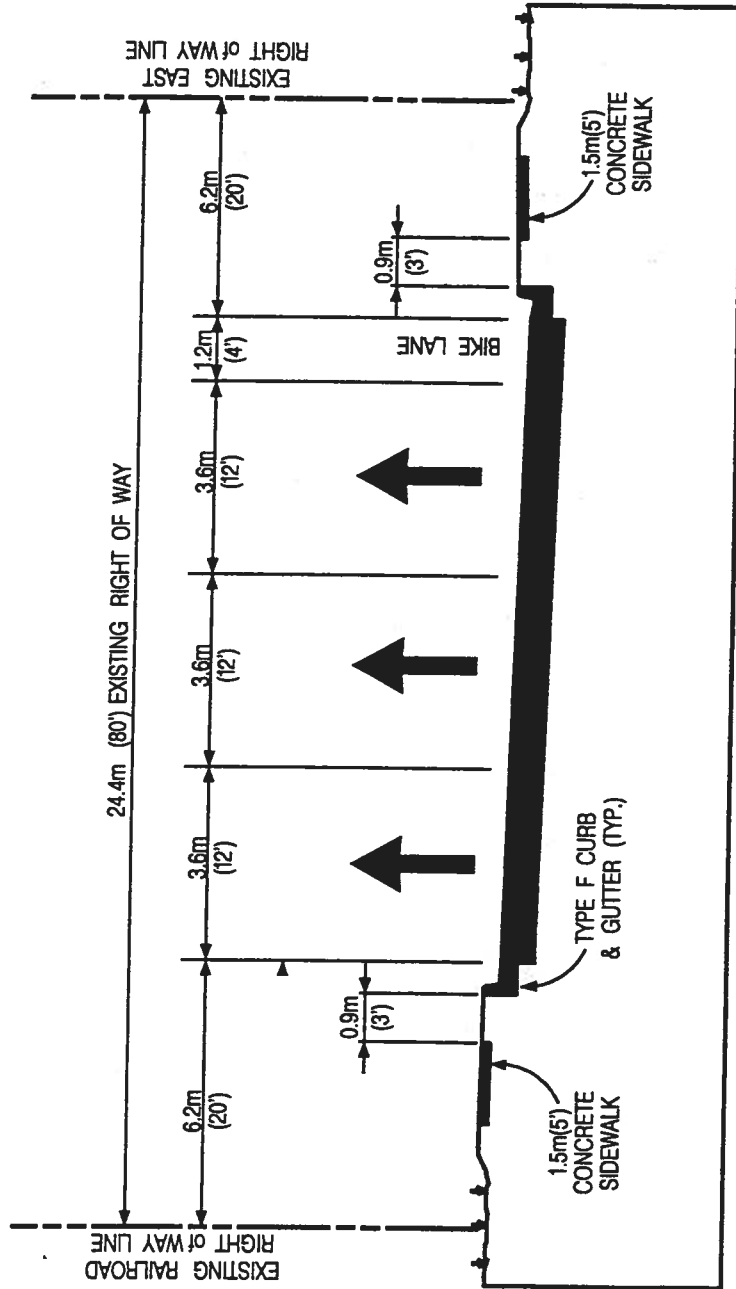
CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 3
 TYPICAL SECTION
 METRO PARKWAY



ONE WAY PAIR CONNECTION (Alternative 3-6)
 EVANS AVENUE FROM MORENO AVENUE TO HANSON STREET

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Marlon J. Bizette
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

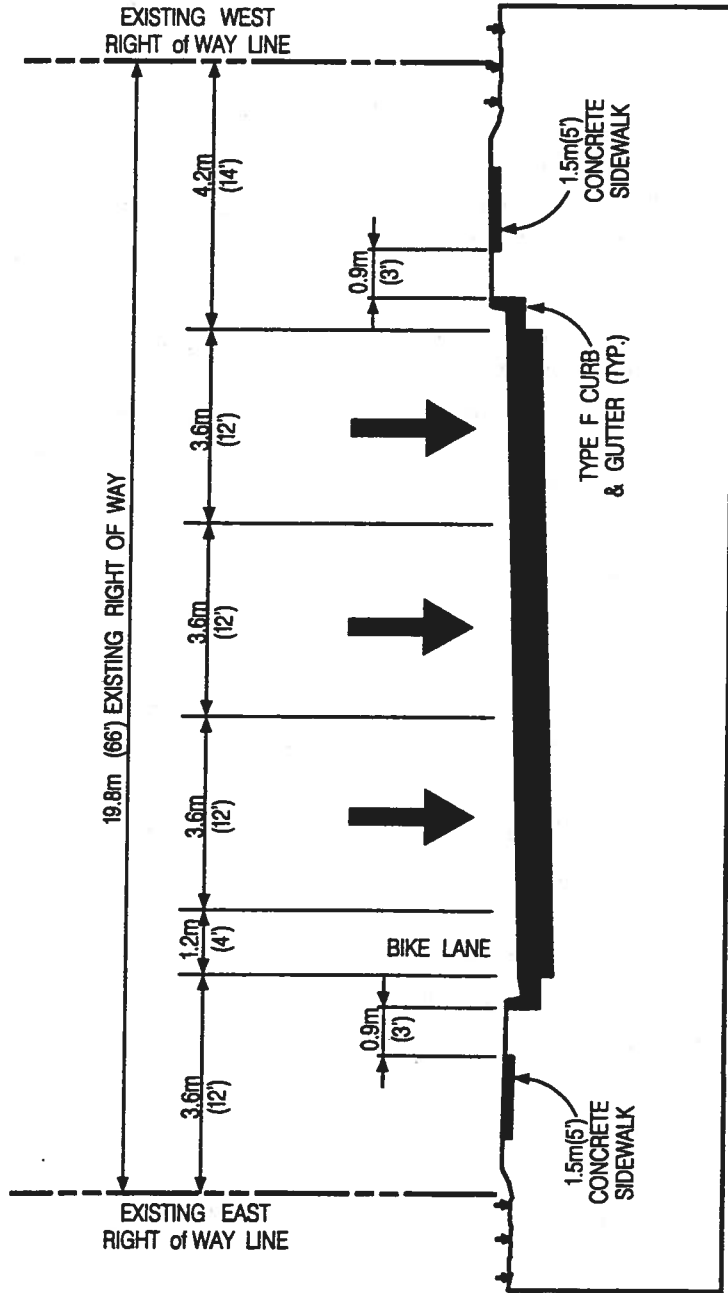
CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 3
 TYPICAL SECTION
 METRO PARKWAY



**ONE WAY PAIR CONNECTION (Alternative 3-6)
 FOWLER STREET FROM KENNESAW STREET TO HANSON STREET**

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Marlon J. Dixon
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

SEGMENT 3
 TYPICAL SECTION
 METRO PARKWAY

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

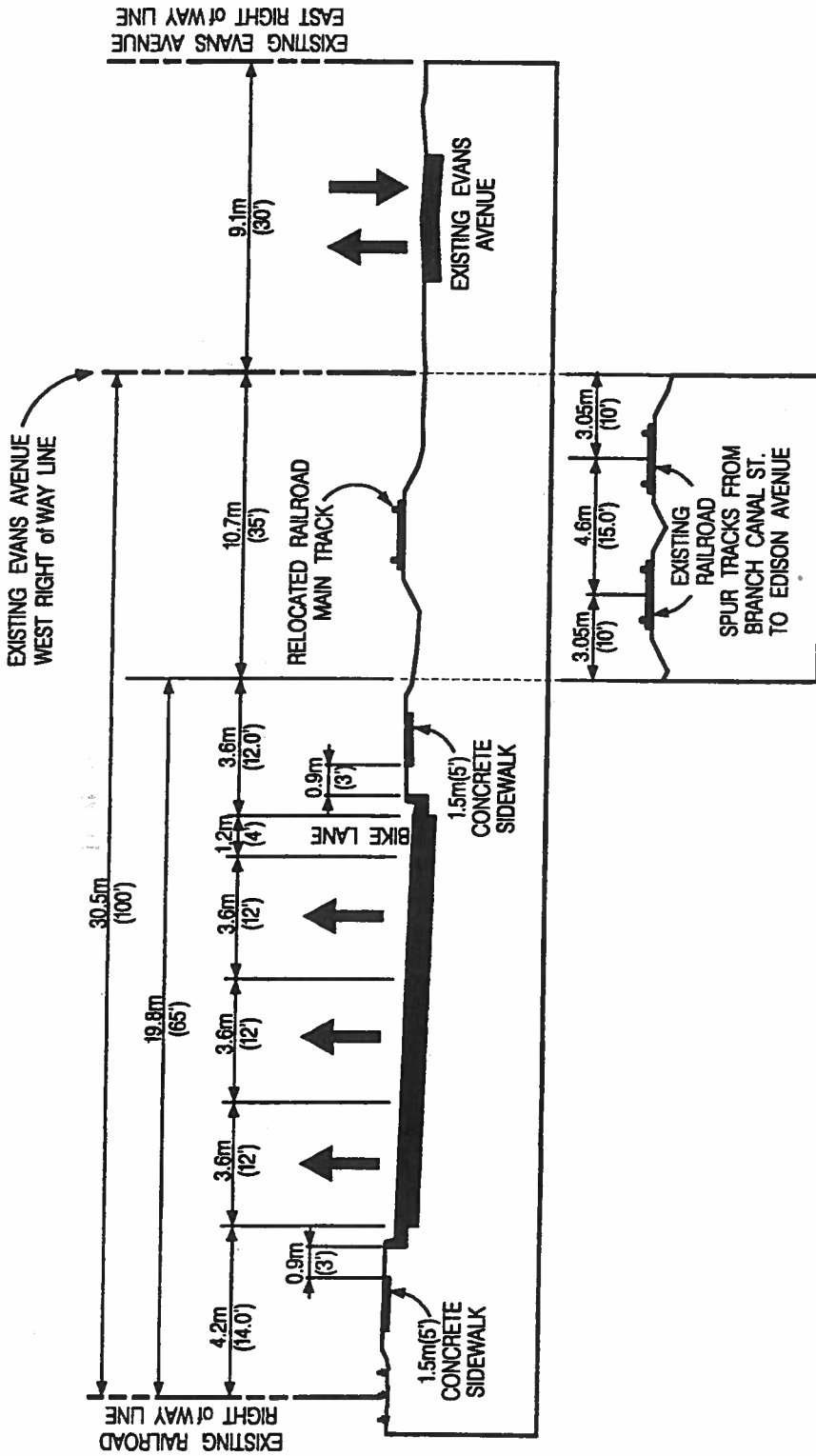
improvements proposed for southbound Fowler Street will be minor and will primarily involve the milling and resurfacing of existing pavement, adjusting inlets and cross connections, pavement marking, signage, and adjusting signal heads at signalized intersections.

Evans Avenue would be reconstructed from the point where the crossover alignment in Segment 3 joins Evans Avenue to Edison Avenue. From Edison Avenue, both the northbound lanes of Metro Parkway and the Seminole Gulf Railroad would be constructed within the existing 30.5 meters (100 feet) of existing railroad right-of-way. The roadway would be constructed in the western 19.8 meters (65 feet) of the Seminole Gulf Railroad right-of-way and the railroad line reconstructed in the remaining eastern 10.7 meters (35 feet) of the railroad right-of-way. The existing Evans Avenue in this portion of Segment 4 would remain open to provide access to the adjacent residential neighborhood up to the Imaginarium. Evans Avenue would be closed between Larmie Street and Evans Avenue in front of the Imaginarium, and from Edison Avenue to approximately 36.6 meters (120 feet) north of Edison Avenue.

The northbound Evans Avenue one-way pair proposes three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 4.2 meter (14 feet) inside border, a 3.6 meter (12 feet) outside border (both with Type F curb and gutter), and 1.5 meter (5 feet) concrete sidewalks on both sides. The proposed typical section will be accommodated within a 19.8 meter (65 feet) right-of-way. Drainage in this segment consists of piping stormwater to off site retention/detention ponds. The typical section for northbound Evans Avenue north of Edison Avenue is shown in Figure 1-7.

The southbound Fowler Street typical section from Hanson Street to Dr. Martin Luther King, Jr. Boulevard consists of three 3.6 meter (12 feet) travel lanes, Type F curb and gutter and a 1.8 meter (6 feet) sidewalk at the back of curb on the west side. A 0.3 meter (1 foot) area will be provided to tie-down the back of sidewalk to the existing ground. This typical section is shown in Figure 1-8.

Hanson Street will also be improved to provide one 3.6 meter (12 feet) lane and one 3.3 meter (11 feet) lane in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 5.0 meter (15.5 feet) median with Type F curb and gutter on each side. A 3.6 meter (12 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The typical section for Hanson Street is shown in Figure 1-9.



FOWLER STREET/EVANS AVENUE ONE WAY PAIR (Alternative 4-2G)
 FROM EDISON AVENUE TO DR. MARTIN LUTHER KING, JR., BLVD.

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Marlon J. Bizyn
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

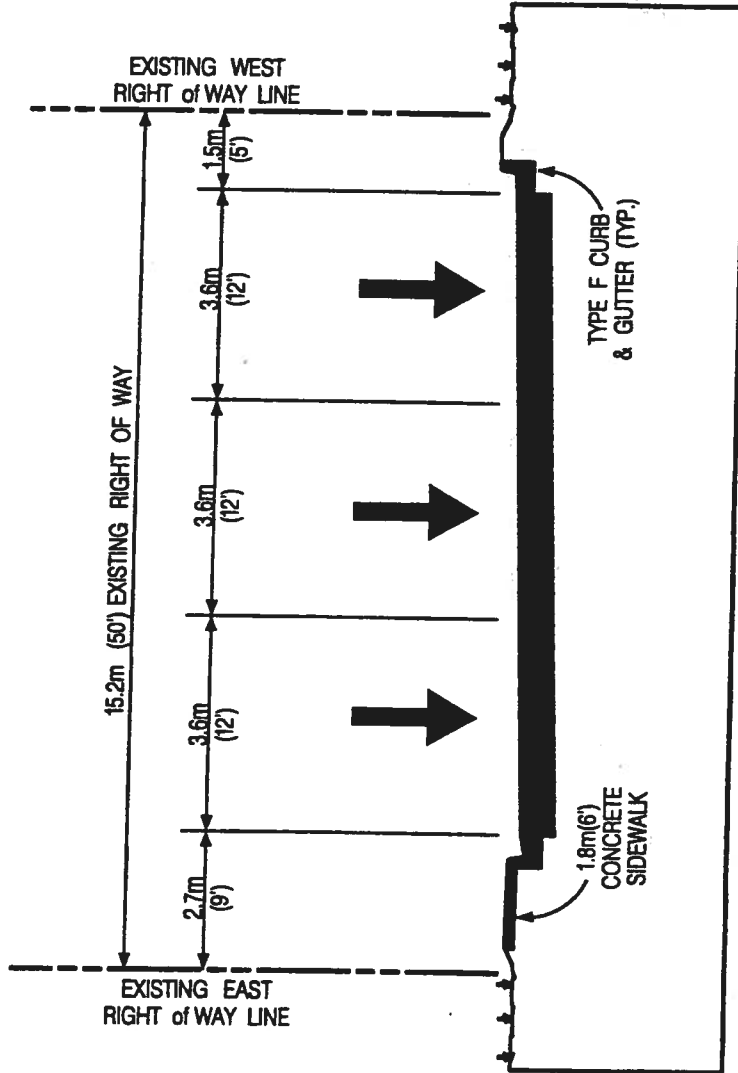
CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 4
 TYPICAL SECTION
 METRO PARKWAY



FOWLER STREET /EVANS AVENUE ONE WAY PAIR (Alternative 4-2G)
 FOWLER STREET FROM HANSON STREET TO DR. MARTIN LUTHER KING, JR. BLVD.

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Marlon J. Dizon
 DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

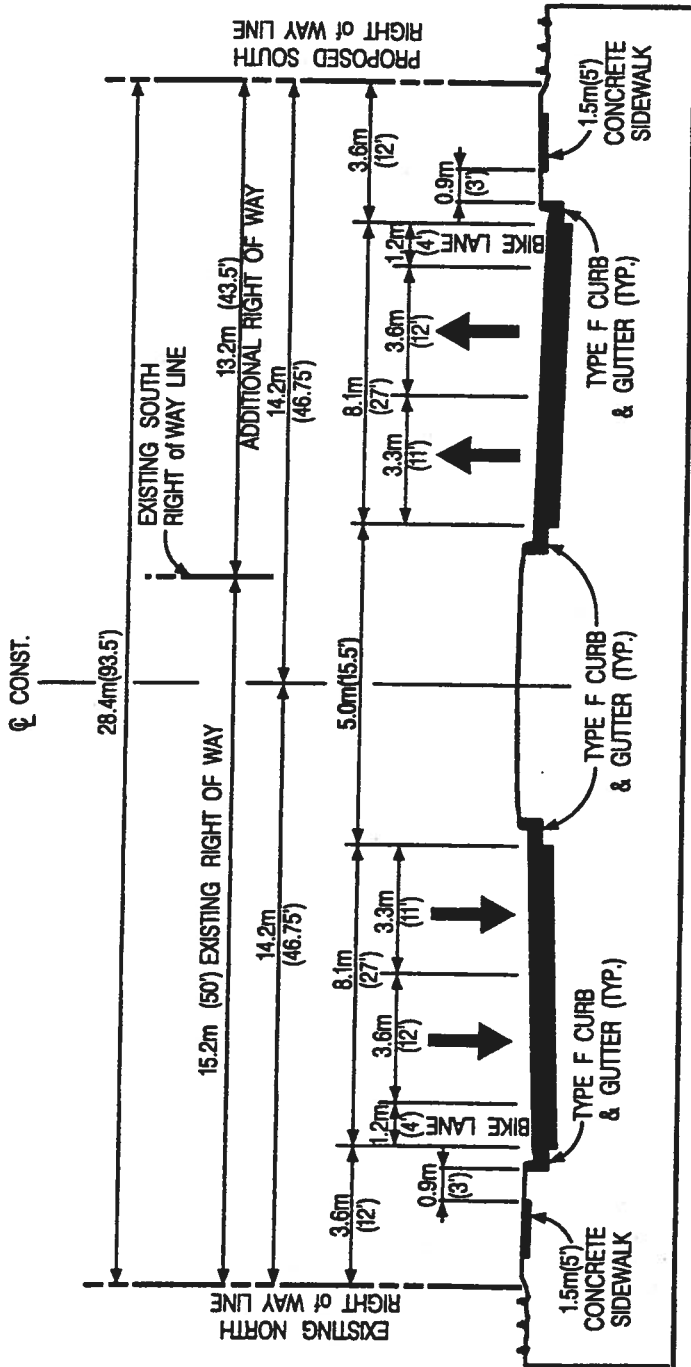
CONCURRENCE:

[Signature]
 DISTRICT DESIGN ENGINEER

DATE: 12/15/98

METRO PARKWAY PD&E STUDY
 S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

SEGMENT 4
 TYPICAL SECTION
 METRO PARKWAY



HANSON STREET (Alternative 3-6 and 4-2G)
FROM FOWLER STREET TO EVANS AVENUE

DESIGN SPEED: 70 KPH (45 MPH)

APPROVED BY:

Waylon J. Biggs
DISTRICT PROJECT DEVELOPMENT ENGINEER

DATE: 12-15-98

CONCURRENCE:

[Signature]
DISTRICT DESIGN ENGINEER

DATE: 12-15-98

METRO PARKWAY PD&E STUDY
S.P. NO. 12014-1502
W.P.I. NO. 1114619
F.A.P. NO. 0671 009 U

SEGMENT 4
TYPICAL SECTION
METRO PARKWAY

2.0 — Introduction

2.1 Purpose

The purpose of this Preliminary Engineering Report is to document the findings of the engineering evaluation for the proposed improvements to the Metro Parkway transportation corridor in Lee County, Florida. This report presents the engineering data and analysis needed to define the proposed project improvements. It documents the existing physical features of the roadway and the existing environmental characteristics of the project corridor. This report also defines the need for improvement, including the analysis of existing and projected traffic conditions that establish the requirements for the proposed project improvements. The results of the corridor analysis process are summarized and the analysis of viable alternatives is documented, including the presentation of an alternative evaluation matrix that provides the framework for comparing the relative strengths and weaknesses of the individual alignment alternatives developed for this study. From this evaluation matrix, alternatives were then identified for which a preliminary design analysis and conceptual plans were prepared, and the social, economic, and environmental impacts were evaluated.

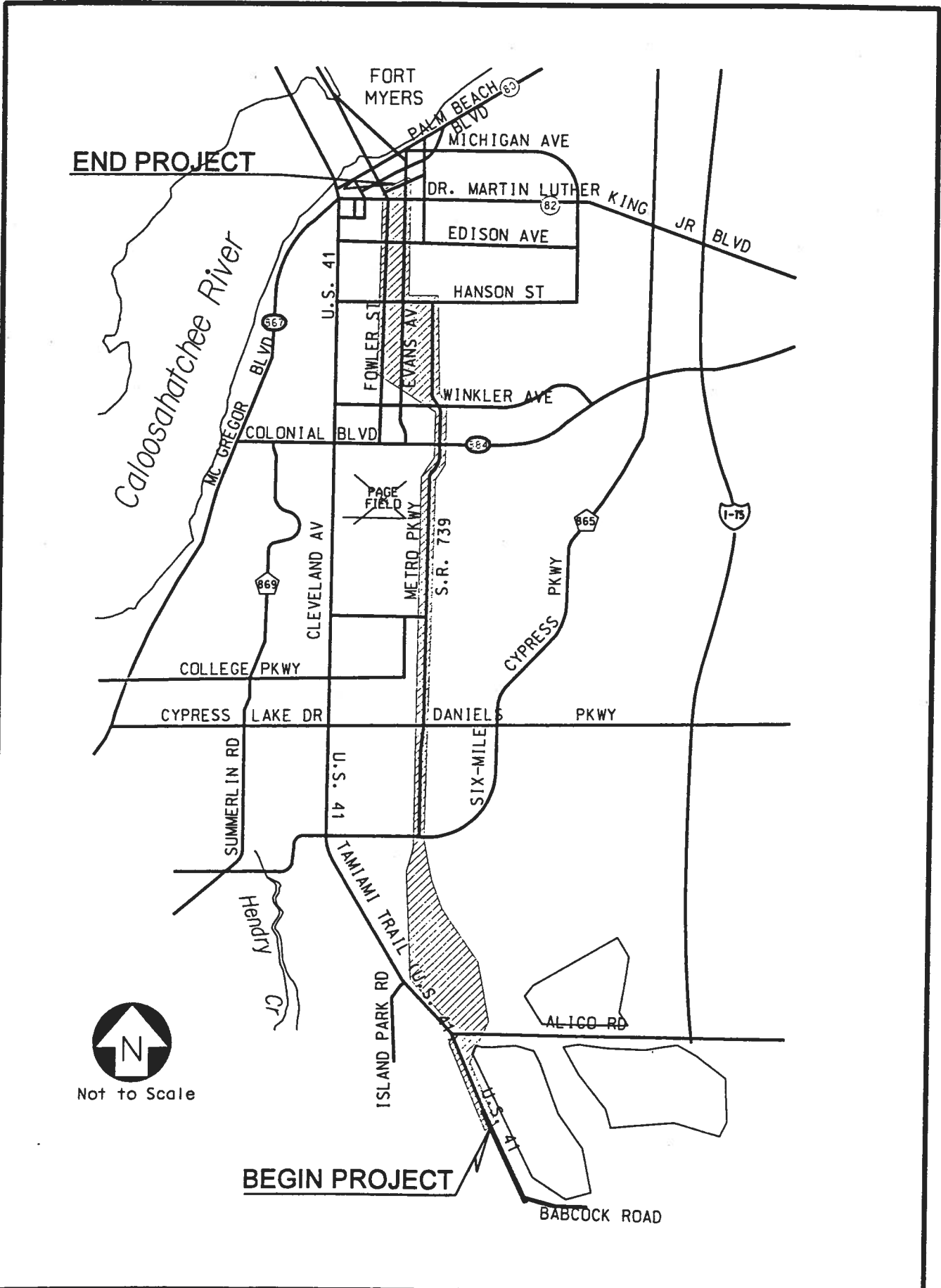
This report will serve as the document of record to move this project forward and to support the subsequent engineering decisions as the project advances through design and construction phases. This PD&E study was conducted in accordance with Florida Department of Transportation and Federal Highway Administration requirements.

2.2 Project Description

The proposed action involves the expansion and extension of the existing Metro Parkway transportation corridor in Lee County, Florida. The project area begins in the vicinity of US 41 (SR 45) and Alico Road and extends northward to the vicinity of SR 82 (Dr. Martin Luther King, Jr. Boulevard), a length of approximately 17.7 kilometers (11 miles). The project corridor passes through, or runs adjacent to, unincorporated areas of Lee County and the City of Fort Myers. The project location map is shown in Figure 2-1.

For purposes of this PD&E study, the Metro Parkway project corridor was subdivided into four segments based on similar engineering and environmental characteristics. This project is particularly well suited to corridor segmentation because two of the segments are associated with new location alignments whereas the other two segments involve improvements to existing alignments. Consequently, all project-related location data will be described and referenced to these four corridor segments. Figure 2-2 shows the four segment boundaries associated with the Metro Parkway corridor.

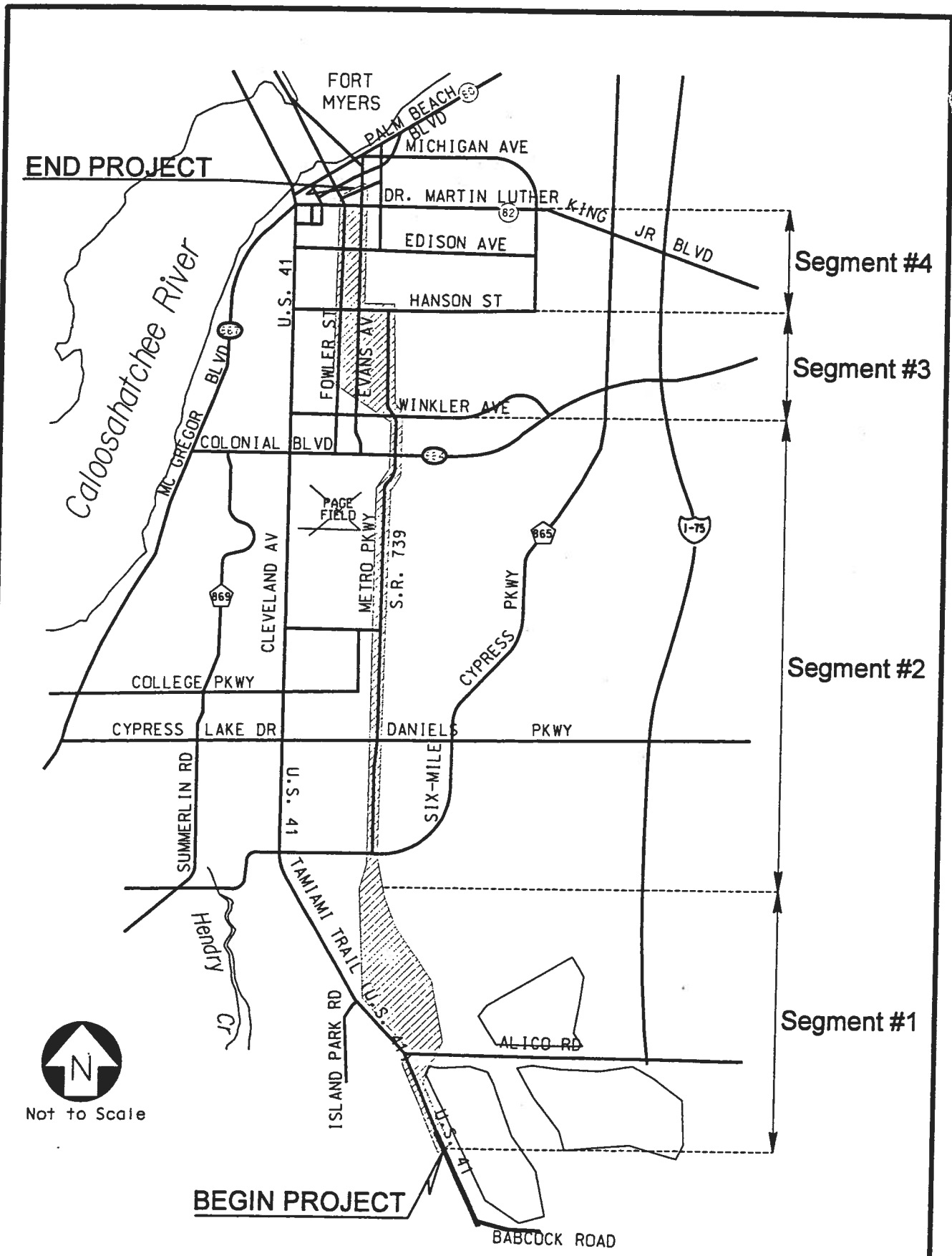
Segment 1 consists of a new alignment that will connect US 41 (SR 45) and Alico Road with the southern terminus of existing Metro Parkway near Six Mile Cypress Parkway (SR 865). Segment 2 consists of the existing Metro Parkway alignment extending from Six Mile Cypress Parkway northward to the vicinity of Winkler Avenue. Segment 3 provides a connection between Metro Parkway and the Fowler/Evans corridor. Segment 4 is the existing Fowler/Evans corridor between the connection with Segment 3 and the project terminus in the vicinity of SR 82.



METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO
 S.R. 82 (DR. MARTIN LUTHER KING, JR. BOULEVARD)
 LEE COUNTY, FLORIDA

SPN: 12014-1502
 WPIN: 1114619
 FAPN: 0671 009 U

FIGURE 2-1
PROJECT LOCATION MAP



METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO
 S.R. 82 (DR. MARTIN LUTHER KING, JR. BOULEVARD)
 LEE COUNTY, FLORIDA

SPN: 12014-1502
 WPIN: 1114619
 FAPN: 0671 009 U

FIGURE 2-2
CORRIDOR SEGMENTS

3.0 — Need for Improvement

3.1 Need for Improvement

The need for improvement to this facility is based on several factors. The first of these factors is to provide for a major north-south arterial roadway that relieves US 41 and provides additional capacity to meet the projected increase in traffic volumes in the area. The second factor is the need to improve safety and reduce the accident rate on Metro Parkway. With the anticipated traffic growth in the area, the number of accidents can be expected to increase if no improvements are made to the roadway system. The third factor is that the Lee County 2020 Financially Feasible Plan identifies a need for six lanes within the limits of proposed Metro Parkway from US 41/Alico Road northward to SR 82. Fourthly, improvements to Metro Parkway will help meet the social/economic demand of the area. This section of the report presents the findings relative to each of these areas and a review of the recommendations presented by the local comprehensive planning efforts.

3.2 Deficiencies

3.2.1 Capacity

A No-Project Alternative analysis was conducted for the Metro Parkway corridor to document the need for additional capacity/geometric improvements. For the purposes of this study, the No-Build Alternative is defined to be the existing Metro Parkway, Fowler Street and Evans Avenue facilities. The only exception to this is the portion of Metro Parkway between Winkler Avenue and Hanson Street. Since the Lee County MPO's 2020 Financially Feasible Long Range Transportation Plan calls for this portion of Metro Parkway to be improved to four lanes, it was assumed that this improvement would be in place even with the No-Build Alternative.

No-Project projected year 2020 daily traffic volumes on Metro Parkway from Six Mile Cypress Parkway to Winkler Avenue range from 44,900 to 51,400 vehicles per day (vpd).

From Winkler Avenue to Hanson Street the No-Project projected year 2020 daily traffic volume is 35,500 vehicles per day (vpd). No-Project projected year 2020 daily traffic volumes on Fowler Street from Winkler Avenue to Dr. Martin Luther King, Jr., Boulevard range from 43,900 to 56,000 vehicles per day (vpd).

The existing Metro Parkway between Six Mile Cypress Parkway and Winkler Avenue is projected to operate at Level of Service F with v/c ratios ranging from 1.06 to 1.21. Only the portion between Winkler Avenue and Hanson Street is projected to operate at an acceptable level of service. As stated earlier, this portion of Metro Parkway was assumed to be widened from two lanes to four lanes in the No-Build Alternative. It should be noted that if the existing two-lane section was allowed to remain in the year 2020, an unacceptable level of service would also be expected to occur on this roadway segment.

3.2.2 Evacuation Route

Within the project corridor, US 41, Metro Parkway, and Fowler Street are designated north-south hurricane evacuation routes. An improved Metro Parkway will provide key access links to the major east-bound evacuation routes which are Alico Road, Six Mile Cypress Parkway, Daniels Parkway, Colonial Boulevard, Winkler Avenue, and SR 82. By implementing the proposed improvements to Metro Parkway, a key gap in the regional transportation system will be filled. This will upgrade the hurricane evacuation capabilities in the project corridor and will in turn, reduce the time required to evacuate nearby coastal areas.

3.3 Safety

Crash data was available for Metro Parkway for the years 1993, 1995 and 1996, and reviewed for Hanson Street, Fowler Street and Evans Avenue for the years 1994, 1995 and 1996. During the three year period in which crash data was available and reviewed, 673 crashes were recorded along the four existing roadway segments of the project corridor. An analysis of the crash data reveals that the majority of the crashes occurred on segments of Metro Parkway and Fowler Street, the most heavily traveled roads in the corridor. On Metro Parkway, a total of 352 crashes were recorded in the segment between Six Mile Cypress Parkway and Hanson Street. These crashes resulted in three

fatalities and 229 injuries. 96 crashes caused property damage only. During the three year period between 1994 and 1996, 234 crashes were recorded on Fowler Street between Hunter Terrace and Dr. Martin Luther King, Jr. Boulevard. These crashes resulted in three fatalities and 119 injuries. 117 crashes caused property damage only. The crashes that occurred in the project corridor resulted in an approximate economic loss of \$16.71 million.

On the basis of the crash data collected statewide, the FDOT has calculated average crash rates for various roadway facilities displaying similar geometric and traffic characteristics. The segment-by-segment average crash rates computed for facilities similar to Metro Parkway for the respective years represent the number of crashes per million vehicle miles that could be expected along the roadways in the project corridor and range from 1.539 to 1.812.

According to the crash records, during each of the three years analyzed, the actual and critical crash rates ranged from 1.052 to 7.411 and from 2.161 to 11.526, respectively. The actual crash rate (A) is a function of the total number of crashes in a year, traffic volume, and the length of segment under study. The critical crash rate (C) is a function of segment length, traffic volume, and the average rate for the category of highway being tested. The actual crash rates for all the segments of Metro Parkway were lower than the statewide average crash rates.

A good measure of identifying high crash locations is the safety ratio (also called A/C ratio), which is a comparison of the actual and critical crash rates. Only those segments with a safety ratio equal to or greater than 1.0 are considered high crash locations. Based on Tables 4-3 through 4-6 in Chapter 4, Hanson Street from Metro Parkway to Fowler Street and Fowler Street from Hunter Terrace to SR 82 are high crash locations (Safety Ratio is consistently greater than 1.0 for recent consecutive years) during the 1993-96 time period. Metro Parkway from Six Mile Cypress Parkway to Hanson Street had a Safety Ratio of over one in 1993 and just under one for the years 1995 and 1996. The Safety Ratio is less than one on Evans Avenue. With the anticipated traffic growth in the area, the number of accidents can be expected to increase if no improvements are made to the roadway system.

A review of Tables 4-3 through 4-6 shows that a majority of the accidents are rear-end

type which are typically results of traffic congestion. In general, all sections of the study corridor are experiencing high crash rates. Crash rates are higher than state averages for similar types of facilities. Potential causes for the high crash rates include substandard cross sections in several areas of the study corridor and a high number of access points in several areas of the corridor. The proposed expansion and extension of the Metro Parkway facility will accommodate the projected number of trips and would likely have a positive impact on reducing the number of crashes in the corridor. As significant changes in the roadway and roadway cross sections are likely, it is difficult to draw a direct comparison between existing conditions and those that will occur if the corridor is improved.

3.4 Consistency with Transportation Plan

The Lee County 2020 Financially Feasible Plan identifies a need for six lanes within the limits of proposed Metro Parkway from US 41/Alico Road northward to SR 82. The Southwest Florida Regional Planning Council (SWFRPC) has found this project to be “regionally significant and consistent” with adopted goals, objectives, and policies of the Regional Comprehensive Policy Plan.

The Lee County Metropolitan Planning Organization (MPO) approved the alternatives proposed in the project traffic study for the Metro-Fowler-Evans corridor as consistent with the MPO's long-range plans by a motion approved December 4, 1998 at the regularly scheduled monthly meeting. A letter from the MPO Staff Director confirming this action is on file.

3.5 Social/Economic Demands

The Lee County Comprehensive Plan identifies the need for industrial development in the area extending from Alico Road near US 41 to the area south of Anderson Lane in Segment 1. Metro Parkway (Segment 2) is scheduled to undergo extensive commercial and industrial development over the next ten years, with planned future development expected to fill in many of the vacant lands that currently surround Metro Parkway

between Six Mile Cypress Parkway and Winkler Avenue. In addition, the City of Fort Myers Comprehensive Plan land use element notes the need for a “corridor conscious” development strategy to be applied along Metro Parkway in Segments 2 and 3. This strategy would encourage increased site landscaping and improved signage. The Fowler Street and Evans Avenue corridors in Segments 3 and 4 are designated as “corridor improvement strategy” areas to encourage rehabilitation and redevelopment of adjacent properties. The improvement to Metro Parkway will be consistent with these goals.

4.0 — Existing Conditions

4.1 Existing Roadway Characteristics

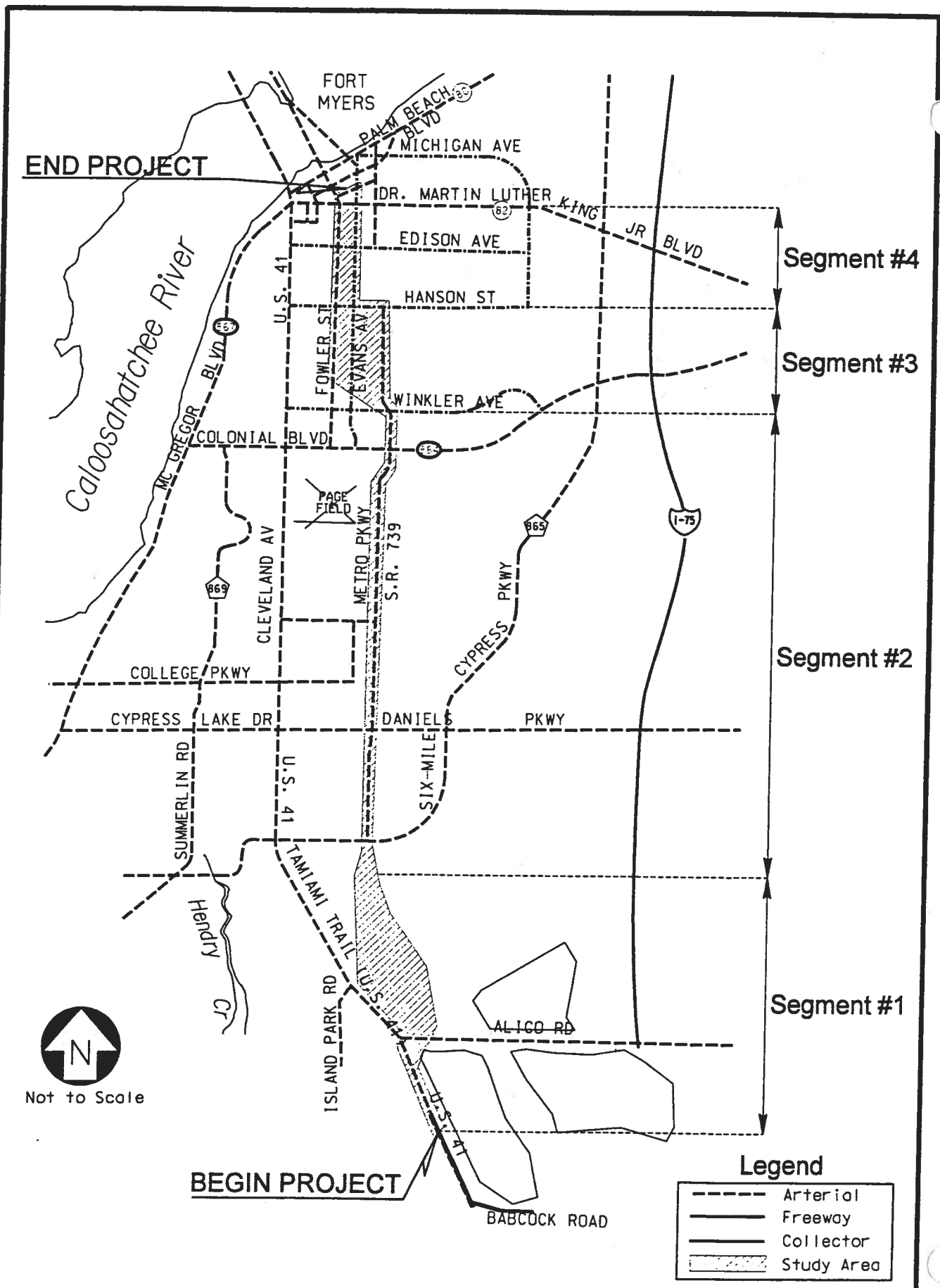
4.1.1 Functional Classification

The functional classification of the roadway system surrounding the Metro Parkway project corridor is shown in Figure 4-1.

US 41 is the only current roadway system that is functionally classified in Segment 1. This roadway is classified as a principal arterial. In Segment 2, Metro Parkway is classified as an arterial from Six Mile Cypress Parkway to Winkler Avenue. The major intersecting east-west roads (i.e., Six Mile Cypress Parkway, Daniels Parkway, and Colonial Boulevard) are all classified as arterials. The Metro Parkway portion in Segment 3 is also classified as an arterial whereas Hanson Street is designated a collector roadway. In Segments 3 and 4, Evans Avenue is designated as a collector and Fowler Street is classified as an arterial roadway.

4.1.2 Typical Sections

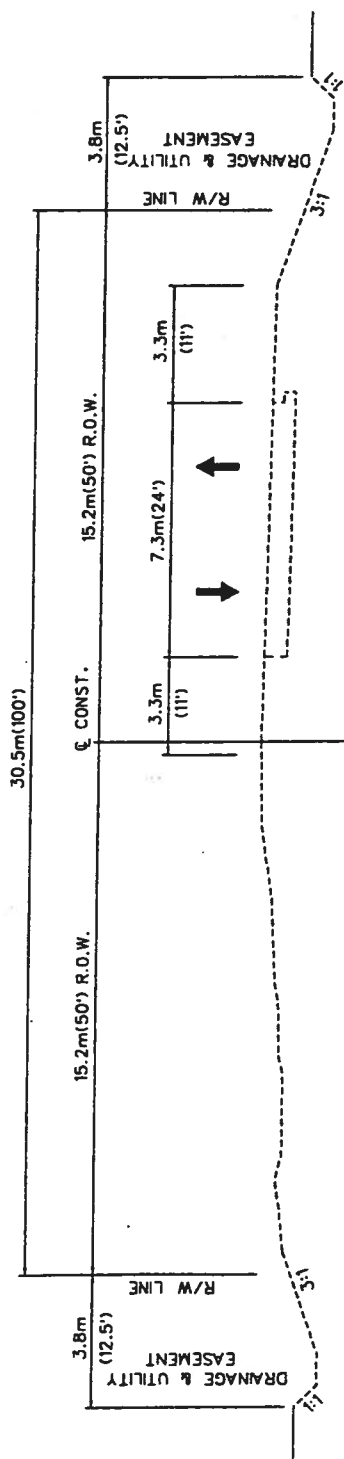
There are no existing north-south roadways within the Metro Parkway corridor north of Alico Road in Segment 1. In Segment 2, the existing Metro Parkway alignment is characterized by three typical sections. Specifically, from Six Mile Cypress Parkway to Daniels Parkway, Metro Parkway consists of two 3.6 meter (12 feet) lanes (one northbound and one southbound) with 3.4 meter (11 feet) grass shoulders within an existing 30.5 meter (100 feet) right-of-way. At several locations, left-turn and right-turn lanes have been added. From Daniels Parkway northward to Winkler Avenue, Metro Parkway consists of two 3.6 meter (12 feet) lanes in each direction, separated by a 4.8 meter (16 feet) grass median or bi-directional turn lane. Grass shoulders, measuring 3.4 meters (11 feet), are located along the east and west sides adjacent to the edge of pavement. Drainage/utility easements 3.8 meters (12.5 feet) in width are located on each side of the road right-of-way (Figure 4-2). The posted speed limit along Metro Parkway from Six Mile Cypress Parkway to Idlewild Street is 50 miles per hour. The posted speed limit from Idlewild Street to north of Winkler Avenue is 45 miles per hour.



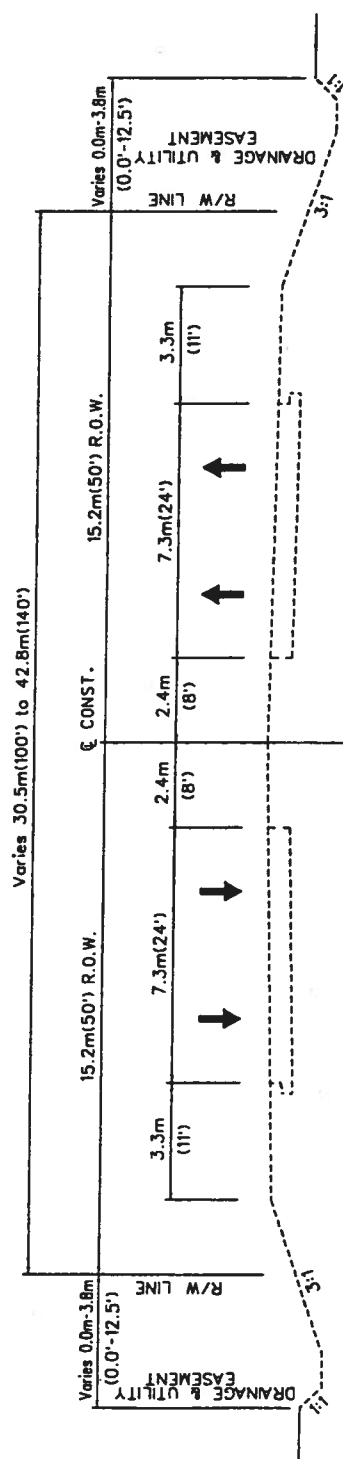
METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO
 S.R. 82 (DR. MARTIN LUTHER KING, JR. BOULEVARD)
 LEE COUNTY, FLORIDA

SPN: 12014-1502
 WPIN: 1114619
 FAPN: 0671 009 U

FIGURE 4-1
FUNCTIONAL CLASSIFICATION
OF ROADWAY SYSTEM



EXISTING TYPICAL SECTION - SIX-MILE CYPRESS PKWY TO DANIELS PKWY
N.T.S.



EXISTING TYPICAL SECTION - DANIELS PKWY TO NORTH OF WINKLER AVENUE
N.T.S.

<p>METRO PARKWAY FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. MARTIN LUTHER KING, JR. BOULEVARD) LEE COUNTY, FLORIDA</p>	<p>SPN:12014-1502 WPIN:1114619 FAP: M-067119</p>	<p>FIGURE 4-2 EXISTING TYPICAL SECTION - SEGMENT 2 METRO PARKWAY FROM SIX-MILE CYPRESS PKWY TO NORTH OF WINKLER AVE</p>
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Metro Parkway transitions to two 3.6 meter (12 feet) lanes, one northbound and one southbound, within a 20 meter (66 feet) right-of-way, as it proceeds north from Winkler Avenue to its terminus at Hanson Street. The posted speed limit along the two-lane section in this area is 40 miles per hour.

Segment 3 consists of a new crossover alignment between existing Metro Parkway and the Fowler Street/Evans Avenue corridor.

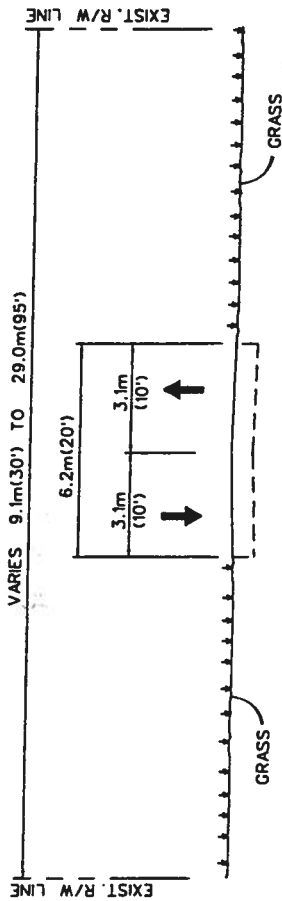
The major north-south roadway in Segment 4 is Fowler Street. Fowler Street is a five-lane section from Simpson Street to Hanson Street, with two lanes in each direction and a bi-directional turn lane. North of Hanson Street, the typical section consists of four lanes undivided, with two lanes in each direction. As shown in Figure 4-3, the inside lanes are 3.1 meters (10 feet) and the outside lanes are 3.2 meters (10.6 feet) with Type "F" curb and gutter on both sides. The right-of-way width along Fowler Street varies from 15.2 meters (50 feet) to 30.5 meters (100 feet). The posted speed limit on Fowler Street is 35 miles per hour.

Evans Avenue parallels Fowler Avenue. It is a two-lane roadway, with one lane in each direction. As shown in Figure 4-3, lane widths are 3.1 meters (10 feet) and the existing right-of-way varies from 9.1 meters (30 feet) to 30 meters (95 feet). Type "F" curb and gutter has been provided at the Evans Avenue intersections with Kennesaw Street and Hanson Street. Grass shoulders and drainage swales are common north of Edison Avenue and north of Market Street. Evans Avenue has a posted speed limit of 30 miles per hour south of Hanson Street.

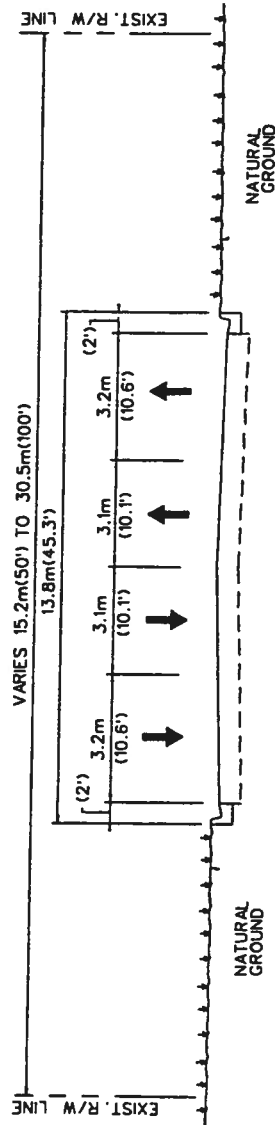
The existing highway characteristics associated with the various sections Metro Parkway are summarized in Table 4-1.

4.1.2.1 Railroad

Two significant components of the study area are the Ten Mile Canal and Seminole Gulf Railroad. Near the beginning of the study corridor, the railroad runs from southeast to northwest in a 45.7 meter (150 feet) right-of-way that is roughly parallel to US 41. As the railroad approaches the Ten Mile Canal (which is aligned north to south), it curves to the north and runs parallel to the canal. This alignment continues northward to Hanson Street.



EVANS AVENUE - KENNESAW STREET TO DR. MARTIN LUTHER KING, JR. BOULEVARD



FOWLER STREET - JUST NORTH OF HANSON STREET

METRO PARKWAY

FROM U.S. 41 (S.R. 45) TO
S.R. 82 (DR. MARTIN LUTHER KING, JR. BOULEVARD)
LEE COUNTY, FLORIDA

SPN: 12014-1502

WPIN: 1114619

FAP: SA-M-067(19)

FIGURE 4-3

EXISTING TYPICAL SECTION - SEGMENT 4
EVANS AVENUE and FOWLER STREET

TABLE 4-1

Summary of the Existing Metro Parkway Corridor Highway Characteristics

Element	Metro Parkway from Six-Mile Cypress Parkway to Daniels Parkway	Metro Parkway from Daniels Parkway to Winkler Avenue	Fowler Street from Simpson to Hanson Street	Fowler Street north of Hanson Street	Evans Avenue south of Canal Street	Evans Avenue north of Canal Street	Hanson Street from Metro Parkway to Fowler Street
No. of Lanes	2	4	5	4	2	2	2
Lane Width	3.6 m (12 ft)	3.6 m (12 ft)	3.6 m (12 ft)	3.0 m (10 ft)	3.0 m (10 ft)	3.0 m (10 ft)	3.4 m (11 ft)
Shldr. Width	3.4 m (11 ft)	3.4 m (11 ft)	None	None	None	None	None
Curb Type	Unpaved	Unpaved	Type F	Type F	Unpaved	Unpaved	Unpaved
Sidewalks	No	No	Yes	Intermittent	No	No	No
Handicap Provisions	No	No	No	No	No	No	No
Bicycle Facilities	No	No	No	No	No	No	No
ROW: Roadway	30.5 m (100 ft)	30.5 m (100 ft)	30.5 m (100 ft)	Varies from 15.2 m (50 ft) to 30.5 m (100 ft)	15.2 m (50 ft)	Varies from 9.1 m (30 ft) to 29.0 m (95 ft)	15.2 m (50 ft)
Lighting	Yes	Yes	Yes	Yes	Yes	Yes	Yes

At Hanson Street, the railroad alignment turns in a northwesterly direction until it approaches Evans Avenue at which point the alignment turns north and runs parallel with Evans Avenue to Dr. Martin Luther King, Jr. Boulevard. The railroad then turns northeasterly as it traverses out of the study area.

4.1.3 Pedestrian and Bicycle Facilities

There are currently no pedestrian or bicycle facilities along Metro Parkway, Evans Avenue, or Hanson Street. Sidewalks line Fowler Street in the section between Simpson Street and Hanson Street and are intermittent north of Hanson Street. There are no provisions for bicycles along Fowler Street.

This project is identified in the Lee County Comprehensive Bicycle Facilities Plan. The recreational use of the Metro Parkway corridor is described in Section 4.3.2.2.

The crosswalk and pedestrian signal locations in the project corridor are summarized in Table 4-2.

4.1.4 Right-of-way

The existing right-of-way on Metro Parkway between Six Mile Cypress Parkway and Daniels Avenue is 30.5 meters (100 feet). From Daniels Avenue to 1114 meters (3654 feet) north of Daniels Avenue, the existing right-of-way is 38.1 meters (125 feet). From this point to Colonial Boulevard, the existing right-of-way is 30.5 meters (100 feet) with 3.8 meters (12.5 feet) drainage/utility easements on both sides of the roadway. From Colonial Boulevard to the North Colonial Waterway, the existing right-of-way is 42.8 meters (140 feet). From the North Colonial Waterway to Hanson Street, the existing right-of-way transitions to 20.1 meter (66 feet).

Fowler Street, between Simpson Street and Hanson Street, has a right-of-way width that is typically 30.5 meters (100 feet). North of Hanson Street, the right-of-way width along Fowler Street is primarily 15.2 meters (50 feet).

TABLE 4-2

Location of Crosswalks and Pedestrian Signals		
Intersection	Crosswalk	Pedestrian Signal
Metro Parkway/Six Mile Cypress Parkway	No	No
Metro Parkway/Daniels Parkway	Yes	Yes
Metro Parkway/Crystal Drive	No	No
Metro Parkway/Idlewild Street	No	No
Metro Parkway/Colonial Boulevard	Yes	Yes
Metro Parkway/Winkler Avenue	No	No
Metro Parkway/Hanson Street	No	No
Hanson Street/Evans Avenue	No	No
Fowler Avenue/Hanson Street	Yes	No
Fowler Avenue/Canal Street	No	No
Fowler Avenue/South Street	No	No
Fowler Avenue/Edison Avenue	Yes	Yes
Fowler Avenue/Market Street	No	No
Fowler Avenue/SR 82	Yes	No

The existing right-of-way on Evans Avenue varies. From Kennesaw Street to Moreno Avenue, the existing right-of-way is 30 meters (95 feet). From Moreno Avenue to Hanson Street, the existing right-of-way is 24.4 meters (80 feet). From Hanson Street to Canal Street, the existing right-of-way is 15.2 meters (50 feet). From Canal Street to Willard Street, the existing right-of-way is 18.3 meters (60 feet). From Willard Street to Dr. Martin Luther King Jr., Boulevard, the existing right-of-way is 9.1 meters (30 feet).

4.1.5 Horizontal Alignment

The existing alignment of Metro Parkway from Six Mile Cypress Parkway to Idlewild Street is essentially straight with slight curves at Daniels Parkway. Metro Parkway between Idlewild and Colonial Boulevard, is characterized by reverse curves to the east and then to the west with 3° and 2° curves, respectively. Between Colonial Boulevard and Winkler Avenue, there are no horizontal curves on the existing alignment of Metro Parkway. North of the Winkler Avenue intersection, Metro Parkway undergoes a gentle

reverse curve to the west and then to the east. The curves are 2°45" and 2°00," respectively. Survey information is not available to allow review of the transition characteristics.

The Lee County Department of Transportation and Engineering and the City of Fort Myers were contacted to provide information regarding the horizontal alignment data on Fowler Avenue, Evans Avenue, and Hanson Street. No alignment information is available for any of these roadway sections. However, all three roadway sections appear to be basically straight.

4.1.6 Vertical Alignment

The terrain is flat and there are no significant vertical curves in the project limits.

4.1.7 Drainage

4.1.7.1 Overview

The project area is characterized by a flat, low relief plain with topographic elevations ranging from 2.7 meters (9 feet) in Corridor Segment 1 near Alico Road to 5.8 meters (19 feet) in Segment 3 in the vicinity of Hanson Street. Drainage in the major portion of the project corridor extending from Alico Road to Hanson Street flows to the south via Ten Mile Canal, which is the major drainage system in the area. A series of lateral canals flow in a westerly direction into Ten Mile Canal. The Six Mile Cypress Slough, an elongated, north-northeast to south-southwest alluvial valley, drains into Ten Mile Canal at a point approximately 670 meters (2,200 feet) south of the Six Mile Cypress Parkway. Ten Mile Canal drains into Mullock Creek and eventually into Estero Bay. The southern terminus of the project corridor is located approximately 3.2 kilometers (2 miles) northeast of Estero Bay. Drainage in the northern portion of the project corridor (Segment 4), from the vicinity of Hanson Street northward, flows to the west and north via canals and storm systems, with multiple outfalls, into the Caloosahatchee River.

The project area is underlain by the surficial aquifer system, an unconfined aquifer recharged by rain and leakage from surface water bodies with water table elevations higher than the local water table. The surface of the aquifer is the water table, which is

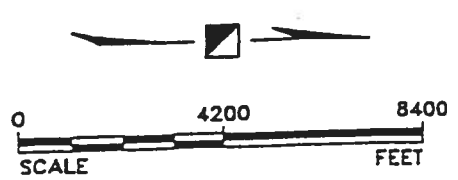
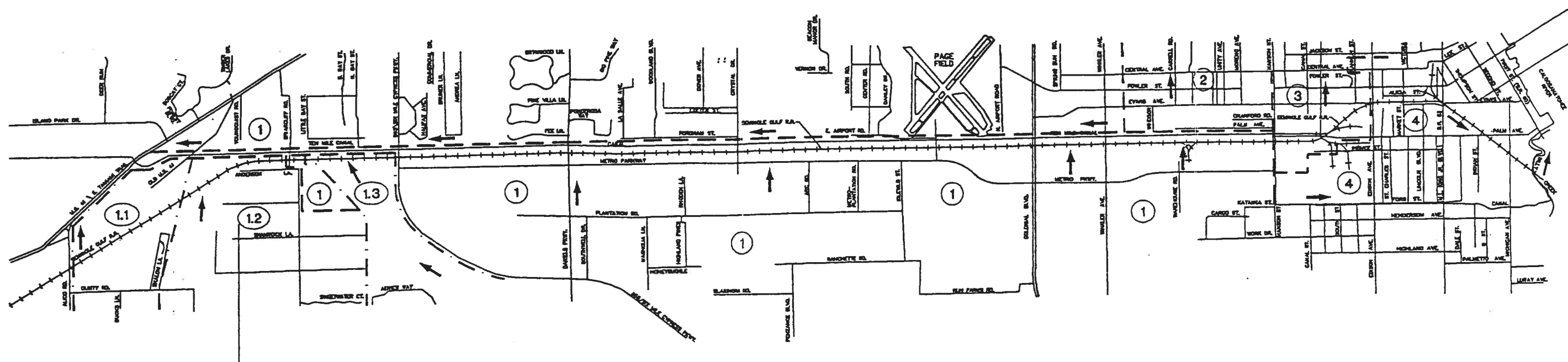
varies through the corridor. Section 4.1.8 describes the water table depths associated with the soil types within the study area. In general, water level gradients within Lee County are low and the regional flow direction is to the west-southwest.

4.1.7.2 Drainage Basins/Subdrainage Basins

The Metro Parkway corridor is located within four drainage basins, the largest of which is the Ten Mile Canal Basin. As shown in Figure 4-4, the Ten Mile Canal Basin extends from the beginning of the project at Alico Road northward to Hanson Street. Segments 1, 2, and a major portion of Segment 3 lie within the Ten Mile Canal Basin. The Alico, Briarcliff, and Six Mile Cypress Slough Sub-Drainage Basins in Segment 1 are tributaries to the Ten Mile Canal. The west side of the Ten Mile Canal, extending from just north of Winkler Avenue to Hanson Street, is located within the Carrell Canal Basin. The Metro Parkway-Fowler/Evans crossover section is located in this basin. The northern portion of the project corridor extending north from Hanson Street (Segment 4) lies within parts of Manuel's Branch Basin and Billy Creek Basin.

4.1.7.3 Drainage Structures

There are over 70 sets of pipes/culverts that cross the Metro Parkway project corridor. Eight drainage structures are located in Segment 1; three are concrete box culverts, three are constructed of concrete pipe, and two are comprised of corrugated metal pipe. All structures in Segment 1 were observed to be in good condition. Segment 2 is crossed by a series of 50 drainage structures, all of which are constructed of reinforced concrete pipe. Field observations indicate that these structures are in good condition. Segment 3 contains 18 drainage structures. Two of these structures cross Metro Parkway and are composed of reinforced concrete pipe and are in good condition. The Evans Avenue corridor in Segment 3 is crossed by 15 drainage structures. All are made of reinforced concrete pipe and all were observed to be in fair condition. One drainage structure, consisting of reinforced concrete pipe, crosses Fowler Avenue in Segment 3, and is in good condition. Segment 4 contains three drainage structures. One of these structures (concrete box culvert) crosses Evans Avenue and is in fair condition. Two structures cross Fowler Street; one is a concrete box culvert and the other is composed of reinforced concrete pipe. Both structures are in generally good condition.



- DRAINAGE BASIN BOUNDARY
- SUB-DRAINAGE BASIN BOUNDARY
- FLOW DIRECTION

DRAINAGE BASINS

- ① TEN MILE CANAL
- ② CARRELL CANAL
- ③ MANUEL'S BRANCH
- ④ BILLY CREEK

SUB-DRAINAGE BASINS

- ①.1 ALICO
- ①.2 BRIARCLIFF
- ①.3 SIX MILE CYPRESS SLOUGH

FIGURE 4-4
 DRAINAGE BASIN / SUB DRAINAGE MAP
 METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. Jr. BLVD.)
 LEE COUNTY, FLORIDA
 SPN: 12014-1502 WPIN: 1114619
 FAP : SA-M-0671(9)

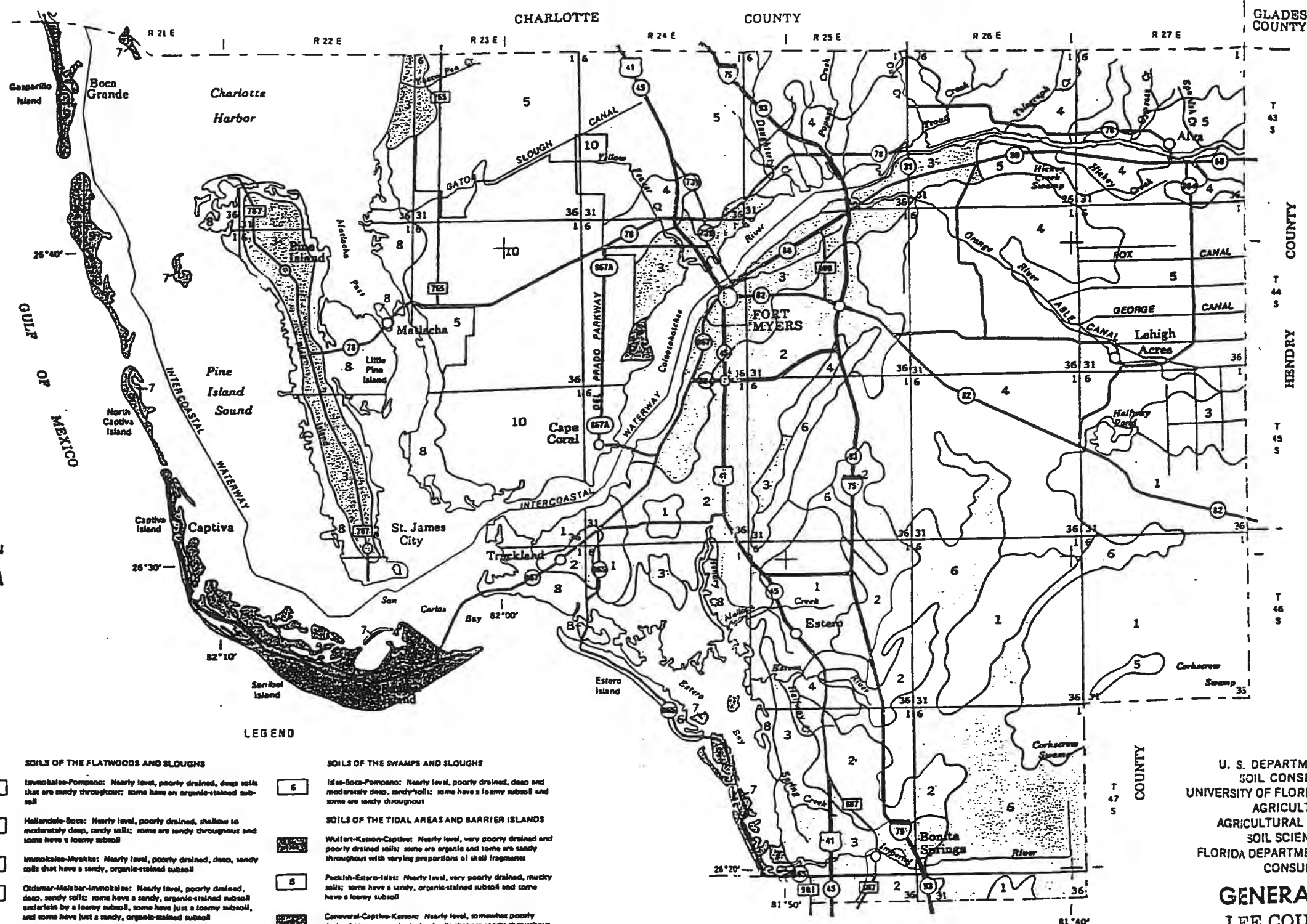
4.1.7.4 Surface Water Management Considerations

Any activities involving the proposed improvements to the Metro Parkway corridor will require a Surface Water Management Permit from the SFWMD prior to initiating construction, pursuant to Rule 40E-4, F.A.C. The proposed roadway widening/reconstruction must meet the District's water quality and water quantity criteria, and at a minimum, water quality treatment must be provided for the new portion of the roadway. The criteria require that water quantity, rate, and quality be maintained at, or be better than, the preconstruction condition. If necessary for this project, the required water quality treatment will be provided by offsite detention ponds designed to meet local water quantity discharge requirements and will therefore exceed minimum water quality requirements.

4.1.8 Geotechnical Data

Four general soil associations occur in the Metro Parkway project corridor. Figure 4-5 shows the location of the area soil associations based on the U.S. Department of Agriculture, *Soil Survey of Lee County, Florida*, 1984. The soils are associated with two major terrain units: the poorly drained soils of the flatwoods and sloughs, which comprise the major portion of the soils in the Metro Parkway corridor; and the poorly drained soils of the swamps and slough, which occur primarily in the Six Mile Cypress Slough alluvial valley.

The Immokalee-Pompano soils association and the Isles-Boca-Pompano soils association occur in Segment 1 of the project corridor. The Immokalee-Pompano soils association is found in the extreme southern portion of the corridor in the vicinity of the US 41/Alico Road intersection. This association consists of nearly level, poorly drained, deep soils that are sandy throughout; some have an organic-stained subsoil. In most years, under natural conditions, the water table is at a depth of less than 0.254 meters (10 inches) for 2 to 4 weeks and at a depth of 0.254 to 1.016 meters (10 to 40 inches) for about 6 months. It recedes to a depth of more than 1.016 meters (40 inches) for about 3 months. During periods of high rainfall, the soils are covered by slowly moving water for periods of 7 to 30 days or more. Soil permeability is rapid.



SECTIONALIZED TOWNSHIP

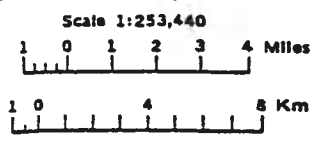
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

- LEGEND**
- | | |
|--|--|
| SOILS OF THE FLATWOODS AND SLOUGHS | SOILS OF THE SWAMPS AND SLOUGHS |
| 1 Immokalee-Pompano: Nearly level, poorly drained, deep soils that are sandy throughout; some have an organic-stained subsoil | 6 Isles-Boca-Pompano: Nearly level, poorly drained, deep and moderately deep, sandy soils; some have a loamy subsoil and some are sandy throughout |
| 2 Hollandale-Boca: Nearly level, poorly drained, shallow to moderately deep, sandy soils; some are sandy throughout and some have a loamy subsoil | SOILS OF THE TIDAL AREAS AND BARRIER ISLANDS |
| 3 Immokalee-Miyakta: Nearly level, poorly drained, deep, sandy soils that have a sandy, organic-stained subsoil | 7 Waller-Kazon-Captiva: Nearly level, very poorly drained and poorly drained soils; some are organic and some are sandy throughout with varying proportions of shell fragments |
| 4 Oldman-Melber-Immokalee: Nearly level, poorly drained, deep, sandy soils; some have a sandy, organic-stained subsoil underlain by a loamy subsoil, some have just a loamy subsoil, and some have just a sandy, organic-stained subsoil | 8 Peckish-Estero-Isles: Nearly level, very poorly drained, muddy soils; some have a sandy, organic-stained subsoil and some have a loamy subsoil |
| 5 Pineda-Boca-Whitson: Nearly level, poorly drained, deep and moderately deep, sandy soils; some have a sandy subsoil, some have a loamy subsoil, and some have a sandy, organic-stained subsoil underlain by a loamy subsoil | 9 Caneval-Captive-Kazon: Nearly level, somewhat poorly drained to very poorly drained soils that are sandy throughout with a varying mixture of shell fragments |
| | SOILS OF THE MANMADE AREAS |
| | 10 Matlacha: Nearly level, somewhat poorly drained soils that are mostly mixed sands, shell fragments, and limestone fragments throughout |

Compiled 1983

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF FLORIDA INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
AGRICULTURAL EXPERIMENT STATIONS
SOIL SCIENCE DEPARTMENT
FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

GENERAL SOIL MAP
LEE COUNTY, FLORIDA



Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

FIGURE 4-5
AREA SOIL ASSOCIATIONS
METRO PARKWAY
FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. Jr. BLVD.)
LEE COUNTY, FLORIDA
SPN: 12014-1502 WPIN: 1114619
FAP : SA-M-0671(9)

The Isles-Boca-Pompano soils association occurs in the Six Mile Cypress Slough alluvial valley. This association consists of nearly level, poorly to very poorly drained, deep and moderately deep, fine sandy soils. The subsoil is a loamy sand with limestone bedrock generally found at a depth of 1.016 meters (40 inches) to 1.27 meters (50 inches). Typically, under natural conditions, the water table is above the surface for 3 to 6 months. It is within a depth of 0.254 to 1.016 meters (10 to 40 inches) for 2 to 4 weeks. The water table recedes to a depth of more than 1.016 meters (40 inches) during extended dry periods. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The Hallandale-Boca soils association occurs in the major portion of the Metro Parkway corridor extending from the Six Mile Cypress Parkway northward to the vicinity of Hanson Street (Segments 2 and 3). This soils association also occupies a narrow fringe area in the extreme southern portion of the project corridor between Briarcliff Road and the Six Mile Cypress Slough. The Hallandale-Boca soils association consists of nearly level, poorly drained, shallow to moderately deep, sandy soils. Hard, fractured limestone is at a depth of 0.305 meters (12 inches) to 0.762 meters (30 inches). Typically, under natural conditions, the water table is less than 0.254 meters (10 inches) below the surface for 1 to 4 months. It recedes below the limestone for about 6 months. Soil permeability is moderate to moderately rapid.

The Immokalee-Myakka soils association is found primarily in Segment 4 of Metro Parkway, extending from the vicinity of Hanson Street northward to the Caloosahatchee River. This association consists of nearly level, poorly drained, deep, sandy soils that have a sandy, organic-stained subsoil. Typically, under natural conditions the water table is within 0.254 meters (10 inches) of the surface for 1 to 3 months and 0.254 to 1.016 meters (10 to 40 inches) below the surface for 2 to 6 months. It recedes to a depth of more than 1.016 meters (40 inches) during extensive dry periods. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil.

The Hallandale-Boca and Immokalee-Myakka soils associations are used extensively for urban development and should generally be suitable (from a geotechnical standpoint) for roadway improvements. The Immokalee-Pompano soils association could present some constraints to roadway improvements because of local flooding. The Isles-Boca-Pompano soils association presents severe constraints to development because of ponding and high water table conditions.

4.1.9 Crash Data

To evaluate the safety of the current traffic operations in the project corridor, records were obtained for Metro Parkway from the Florida Department of Transportation (FDOT) and the Lee County Department of Transportation and Engineering (Lee DOT&E) for three years, 1993, 1995 and 1996. No data was available for the year 1994. Records were also obtained for Fowler Street, Hanson Street and Evans Avenue from Lee DOT&E. The crash data is summarized in Tables 4-3 through 4-6 by crash types and crash rates. These tables also provide a comparison with the average statewide rates.

During the three year period, 673 crashes were recorded along the four existing roadway segments of the project corridor. An analysis of the crash data reveals that the majority of the crashes occurred on segments of Metro Parkway and Fowler Street, the most heavily traveled roads in the corridor. On Metro Parkway, a total of 352 crashes were recorded in the segment between Six Mile Cypress Parkway and Hanson Street. These crashes resulted in three fatalities and 229 injuries. 96 crashes caused property damage only. During the three year period between 1994 and 1996, 234 crashes were recorded on Fowler Street between Hunter Terrace and Dr. Martin Luther King, Jr. Boulevard. These crashes resulted in three fatalities and 119 injuries. 117 crashes caused property damage only. The crashes that occurred in the project corridor resulted in an approximate economic loss of \$16.71 million.

On the basis of the crash data collected statewide, the FDOT has calculated average crash rates for various roadway facilities displaying similar geometric and traffic characteristics. The segment-by-segment average crash rates computed for facilities similar to Metro Parkway for the respective years are also shown in a row labeled "State Wide Average Crash Rate" in Tables 4-3 through 4-6. These rates, which represent the number of crashes per million vehicle miles that could be expected along the roadways in the project corridor, are based on the statewide crash experience for similar types of roadways and range from 1.539 to 1.812.

According to the crash records, during each of the three years analyzed, the actual and critical crash rates ranged from 1.052 to 7.411 and from 2.161 to 11.526, respectively. The actual crash rate (A) is a function of the total number of crashes in a year, traffic

TABLE 4-3

<p align="center">Crash Summary Metro Parkway from Six Mile Cypress Parkway to Hanson Street</p>					
Description	1993	1995	1996	3 Year Total	Yearly Avg.
Fatalities	1	1	1	3	1.00
Injuries	79	76	74	229	76.33
PDO's	4	44	48	96	32
Crashes By Type					
Rear End	72	34	37	143	47.67
Angle	15	37	26	78	26.00
Left Turn	14	6	19	39	13.00
Parked Car	1	1	1	3	1.00
Sideswipe	7	7	7	21	7.00
Backed Into	2	0	0	2	0.67
Right Turn	4	1	0	5	1.67
Other Fixed Object	2	1	0	3	1.00
Hit Utility Pole	3	1	3	7	2.33
Head On	4	0	3	7	2.33
Pedestrian	0	1	1	2	0.67
Hit Tree/Shrub	1	0	0	1	0.33
Bicycle	1	1	1	3	1.00
Ran Into Ditch	5	0	1	6	2.00
Overtuned	8	0	0	8	2.67
Hit Fence	1	0	0	1	0.33
MV Other Roadway	0	0	0	0	0.00
Hit Sign	0	1	0	1	0.33
Guardrail	0	0	0	0	0.00
Bridge/Barrier Wall	0	1	2	3	1.00
Other	4	12	3	19	6.33
Total Crashes	144	104	104	352	100
Total of All Run Off Road Types	10	6	8	24	8.00
Night	12	23	9	44	14.67
A/C Ratio	1.572	0.978	0.978		
ADT	19211	17652	17652		
Critical Crash Rate	1.970	3.281	3.281		
Actual Crash Rate	3.097	3.209	3.209		
State Wide Average Crash Rate	1.568	1.678	1.539	4 Lane Urban Undivided	

TABLE 4-4

Crash Summary					
Hanson Street from Metro Parkway to Fowler Street					
Description	1994	1995	1996	3 Year Total	Yearly Avg.
Fatalities	0	0	0	0	0.00
Injuries	7	15	9	31	10.33
PDO's	6	12	10	28	9.33
Crashes By Type					
Rear End	4	6	8	18	6.00
Angle	6	4	4	14	4.67
Left Turn	0	5	1	6	2.00
Parked Car	0	0	1	1	0.33
Sideswipe	0	1	1	2	0.67
Backed Into	0	0	0	0	0.00
Right Turn	0	0	0	0	0.00
Other Fixed Object	0	0	0	0	0.00
Hit Utility Pole	0	1	1	2	0.67
Head On	0	0	0	0	0.00
Pedestrian	0	0	0	0	0.00
Hit Tree/Shrub	0	0	0	0	0.00
Bicycle	0	0	0	0	0.00
Ran Into Ditch	0	0	0	0	0.00
Overtuned	0	0	0	0	0.00
Hit Fence	0	0	0	0	0.00
MV Other Roadway	0	0	0	0	0.00
Hit Sign	0	0	0	0	0.00
Guardrail	0	1	0	1	0.33
Bridge/Barrier Wall	0	0	0	0	0.00
Other	2	2	1	5	1.67
Total Crashes	12	20	17	49	100.00
Total of All Run Off Road Types	0	3	1	4	1.33
Night	0	3	2	5	1.67
A/C Ratio	1.202	1.931	1.642	2 Lane Urban Undivided	
ADT	12700	12000	12000		
Critical Crash Rate	3.473	3.814	3.812		
Actual Crash Rate	4.175	7.365	6.260		
State Wide Average Crash Rate	1.629	1.812	1.810		

TABLE 4-5

Crash Summary					
Evans Avenue from Hunter Terrace to Dr. Martin Luther King, Jr., Boulevard					
Description	1994	1995	1996	3 Year Total	Yearly Avg.
Fatalities	0	0	0	0	0.00
Injuries	11	2	4	17	5.67
PDO's	13	6	8	27	9.00
Crashes By Type					
Rear End	4	1	3	8	2.67
Angle	8	3	5	16	5.33
Left Turn	2	1	0	3	1.00
Parked Car	0	0	0	0	0.00
Sideswipe	0	1	1	2	0.67
Backed Into	0	0	0	0	0.00
Right Turn	1	0	1	2	0.67
Other Fixed Object	0	1	0	1	0.33
Hit Utility Pole	0	0	0	0	0.00
Head On	0	0	0	0	0.00
Pedestrian	0	0	0	0	0.00
Hit Tree/Shrub	0	0	0	0	0.00
Bicycle	0	0	0	0	0.00
Ran Into Ditch	3	0	0	3	1.00
Overtuned	0	0	0	0	0.00
Hit Fence	0	0	0	0	0.00
MV Other Roadway	0	0	0	0	0.00
Hit Sign	0	0	0	0	0.00
Guardrail	0	0	0	0	0.00
Bridge/Barrier Wall	0	0	0	0	0.00
Other	0	1	2	3	1.00
Total Crashes	18	8	12	38	100.00
Total of All Run Off Road Types	3	0	0	3	1.00
Night	4	1	1	6	2.00
A/C Ratio	0.690	0.274	0.406	2 Lane Urban Undivided	
ADT	11200	11700	11900		
Critical Crash Rate	3.584	3.839	3.823		
Actual Crash Rate	2.473	1.052	1.552		
State Wide Average Crash Rate	1.629	1.812	1.810		

TABLE 4-6

Crash Summary					
Fowler Street from Hunter Terrace to Dr. Martin Luther King, Jr., Boulevard					
Description	1994	1995	1996	3 Year Total	Yearly Avg.
Fatalities	1	1	1	3	1.00
Injuries	39	36	44	119	39.67
PDO's	35	67	69	171	57.00
Crashes By Type					
Rear End	20	28	35	83	27.67
Angle	12	16	22	50	16.67
Left Turn	18	10	10	39	13.00
Parked Car	0	0	0	0	0.00
Sideswipe	3	7	17	27	9.00
Backed Into	0	0	0	0	0.00
Right Turn	0	2	0	2	0.67
Other Fixed Object	1	0	0	1	0.33
Hit Utility Pole	1	0	0	1	0.33
Head On	3	0	2	5	1.67
Pedestrian	1	1	1	3	1.00
Hit Tree/Shrub	0	0	0	0	0.00
Bicycle	1	0	1	2	0.67
Ran Into Ditch	0	0	0	0	0.00
Overturned	0	0	0	0	0.00
Hit Fence	0	0	0	0	0.00
MV Other Roadway	0	0	0	0	0.00
Hit Sign	0	0	0	0	0.00
Guardrail	0	0	0	0	0.00
Bridge/Barrier Wall	0	0	2	2	0.67
Other	2	4	13	19	6.33
Total Crashes	62	68	104	234	100
Total of All Run Off Road Types	2	0	0	2	0.67
Night	9	11	9	29	9.67
A/C Ratio	2.111	1.681	2.530	4 Lane Urban Undivided	
ADT	16100	19400	21600		
Critical Crash Rate	2.808	3.209	2.929		
Actual Crash Rate	5.927	5.395	7.411		
State Wide Average Crash Rate	1.328	1.678	1.539		

volume, and the length of segment under study. The expression for actual crash rate is as follows:

$$\text{Actual Crash Rate} = (\text{No. of crashes per year} \times 1,000,000) / (\text{ADT} \times 365 \times \text{segment length})$$

The critical crash rate (C) is a function of segment length, traffic volume, and the average rate for the category of highway being tested. For high crash segments, the expression for the critical crash rate is as follows:

$$\text{Critical Crash Rate} = R + K(\text{square root } (R / M)) - (1 / 2M)$$

Where:

- C = Critical Crash Rate for the segment
- R = Average crash rate for the category of highway being tested (crashes per million vehicle miles)
- K = Constant (1.645 for rural, 3.291 for urban)
- M = Average vehicle exposure for one year at the location (million vehicle miles)

The constant K determines the level of statistical significance of the hazardous location list. For rural locations, a K factor of 1.645 indicates that there is a 95 percent probability that crash rates above the critical rate are abnormal and are therefore, designated as high crash locations. For urban locations, a K factor of 3.291 indicates a 99.95 percent probability that the crash rates are abnormally high.

Except for Evans Avenue in 1995 and 1996, the actual crash rates for all the segments of Metro Parkway were higher than the statewide average crash rates. A good measure of identifying high crash locations is the safety ratio (also called A/C ratio), which is a comparison of the actual and critical crash rates. A higher crash rate segment is determined using the following formula:

$$\text{Safety Ratio (A/C)} = \text{Actual Crash Rate} / \text{Critical Crash Rate}$$

Only those segments with a safety ratio equal to or greater than 1.0 are considered high crash locations. Based on Tables 4-3 through 4-6, Hanson Street from Metro Parkway to Fowler Street and Fowler Street from Hunter Terrace to SR 82 are high crash locations (Safety Ratio is consistently greater than 1.0 for recent consecutive years) during the

1993-96 time period. Metro Parkway from Six Mile Cypress Parkway to Hanson Street had a Safety Ratio of over one in 1993 and just under one for the years 1995 and 1996. The Safety Ratio is less than one on Evans Avenue. With the anticipated traffic growth in the area, the number of accidents can be expected to increase if no improvements are made to the roadway system.

A review of Tables 4-3 through 4-6 shows that a majority of the accidents are rear-end type which are typically results of traffic congestion.

4.1.10 Intersections and Signalization

There are currently 15 signalized intersections in the Metro Parkway project corridor. These occur at the following locations:

- Metro Parkway/Six Mile Cypress Parkway
- Metro Parkway/Daniels Parkway
- Metro Parkway/Crystal Drive
- Metro Parkway/ Danley Drive
- Metro Parkway/Idlewild Street
- Metro Parkway/Colonial Boulevard
- Metro Parkway/Winkler Avenue
- Metro Parkway/Hanson Street
- Evans Avenue/Hanson Street
- Fowler Street/Hanson Street
- Fowler Street/Canal Street
- Fowler Street/South Street
- Fowler Street/Edison Avenue
- Fowler Street/Market Street
- Fowler Street/Dr. Martin Luther King, Jr. Boulevard

Many of these signals are part of the Lee County Urban Area Traffic Signal System. In fact, these signals are contained in six existing Signal System Control Sections and are coordinated with other signals to provide progressive traffic flow on the major street.

Most of the time, the major street is not along the Metro Parkway-Fowler Street corridor. Two of the signals in the corridor, Metro Parkway/Hanson Street and Metro Parkway/Six Mile Cypress Parkway are not currently under System control but are expected to be incorporated into their corresponding Control Sections in the near future. The signal at Metro Parkway / Daniels Parkway will require additional System Detectors to provide data for the Traffic Responsive parameters for Control Section 38 (Daniels Parkway).

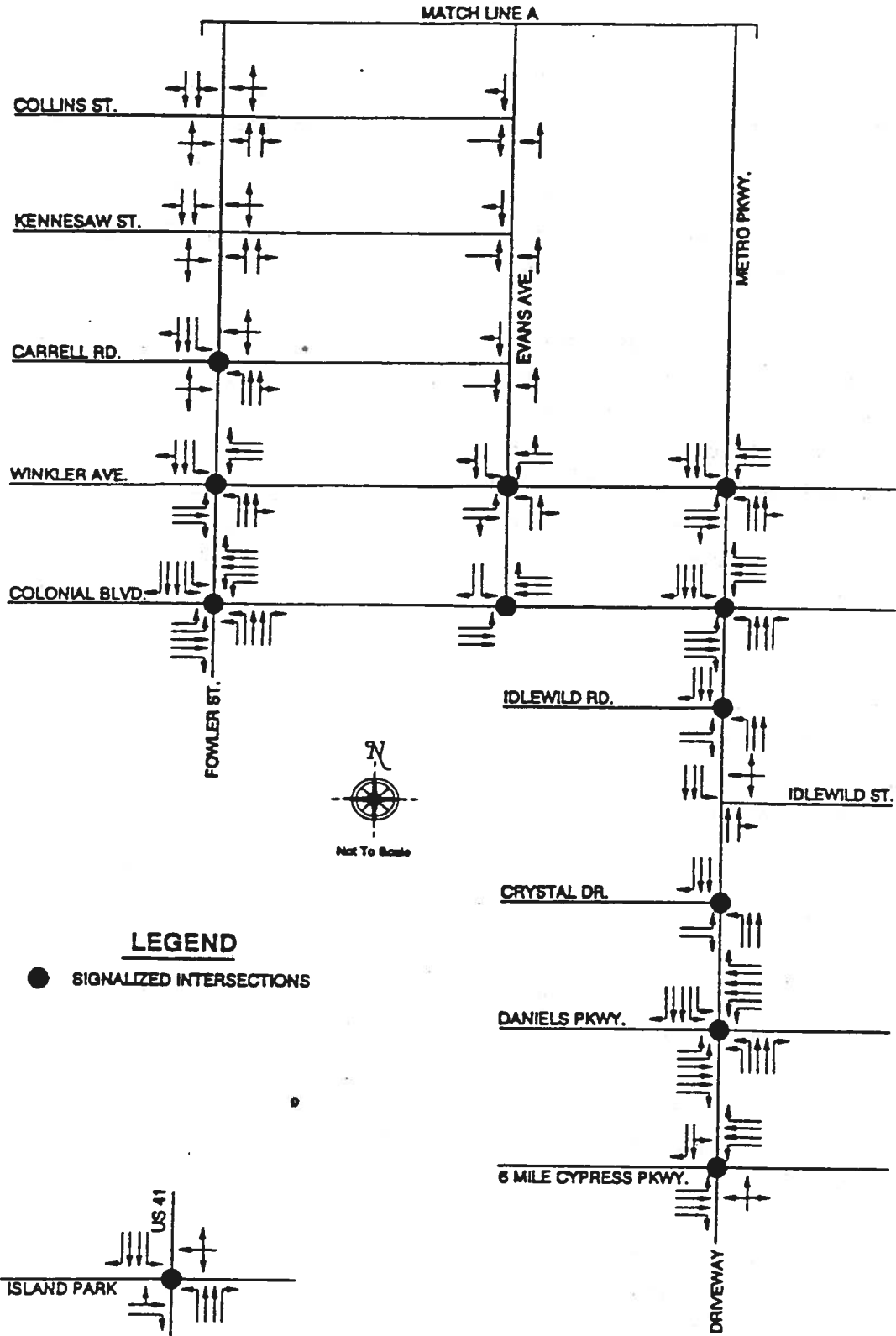
The Fowler Street signals (Control Sections 13 and 17) do provide for coordinated operation along Fowler Street (north of Martin Luther King, Jr. Boulevard) in a Traffic Responsive Mode. The distance between the signals at Market Street and Martin Luther King, Jr. Boulevard with Fowler Street and the differing traffic patterns on Fowler and Dr. Martin Luther King, Jr. Boulevard are not appropriate for multiple Control Section coordination. These two Control Sections should be modified to ensure their configurations are appropriate for the corridor and the expected traffic patterns associated with the corridor.

Side street and mainline turning movements also are controlled by vehicle detector loops at the intersections. The intersections within the study area and their lane configurations are shown in Figures 4-6A and 4-6B.

The intersection signals predominantly operate on standard operating plans (SOPs), as per *FDOT Roadway and Traffic Design Standards, January 1996*, and function on cycle lengths between 59 seconds and 150 seconds. The *Traffic Technical Memorandum, Project Traffic and Intersection Analysis Report for Business US 41* (June 1993) and its Addendum (September 1997) prepared by URS Greiner, Inc., states that three of the 18 signalized intersections analyzed are currently operating at Level of Service F during the a.m. peak hour, p.m. peak hour or both peak hours. These intersections are as follows:

- Fowler Street/Hanson Street (a.m. and p.m. peak hours)
- Evans Avenue/Hanson Street (a.m. and p.m. peak hours)
- Metro Parkway/Hanson Street (a.m. peak hour)

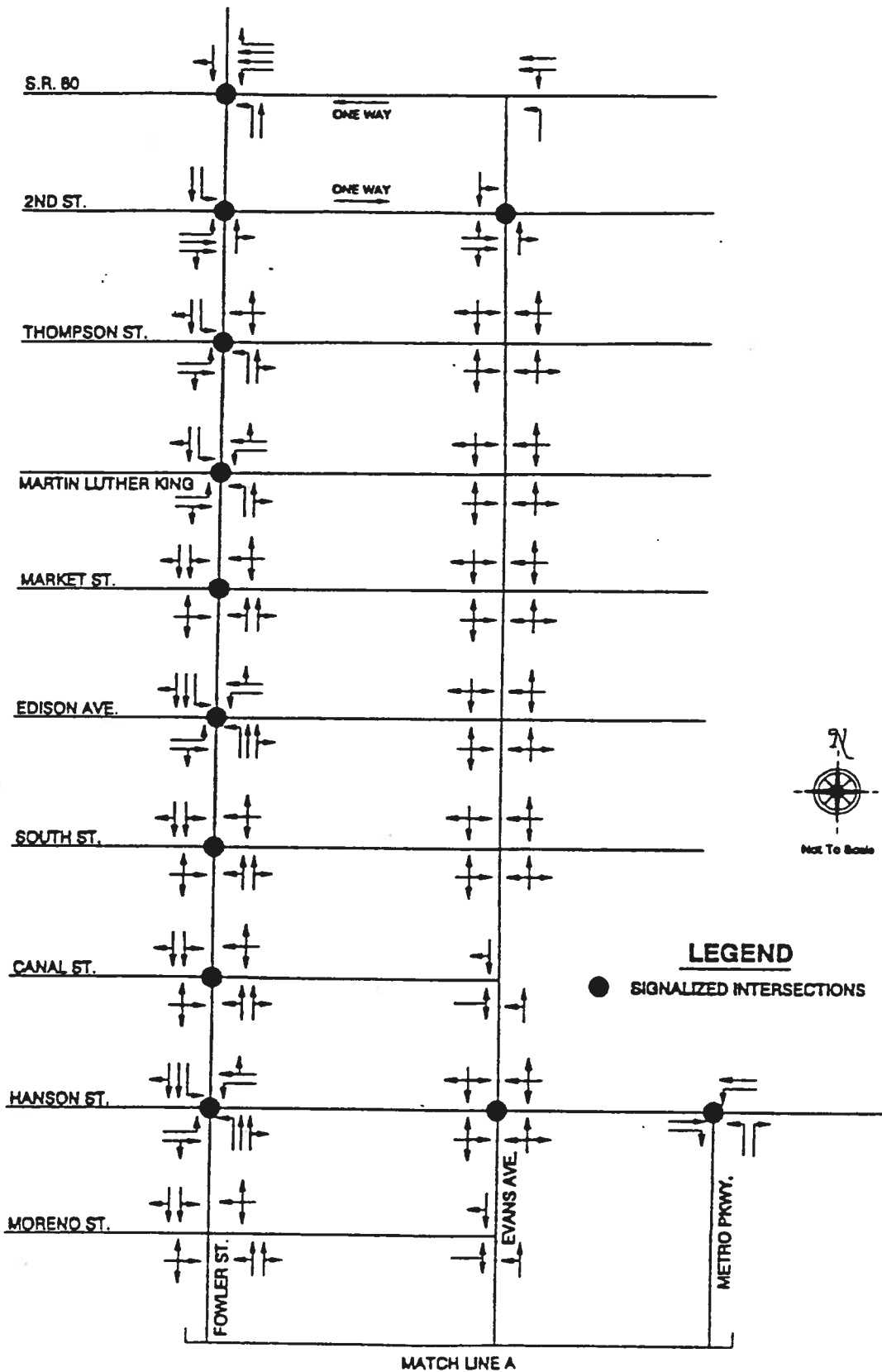
Two other intersections are currently operating at Level of Service E during one of the two peak hours. The Metro Parkway/Winkler Avenue intersection is operating at Level of Service E during the a.m. peak hour while the Fowler Street/SR 82 intersection is



METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO
 S.R. 82 (DR. MARTIN LUTHER KING, JR. BOULEVARD)
 LEE COUNTY, FLORIDA

SPN: 12014-1502
 WPIN: 1114619
 FAPN: SA-M-0671(9)

FIGURE 4-6A
INTERSECTION and LANE
CONFIGURATIONS



METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO
 S.R. 82 (DR. MARTIN LUTHER KING, JR. BOULEVARD)
 LEE COUNTY, FLORIDA

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 FAPN: SA-M-067119

FIGURE 4-6B
 INTERSECTION and LANE
 CONFIGURATIONS

operating at Level of Service E during the p.m. peak hour. Both of these intersections are operating over capacity with v/c ratios of approximately 1.1. At the Metro Parkway/Winkler Avenue intersection, the following three movements are all operating over capacity:

- Westbound Winkler Avenue through movement
- Northbound Metro Parkway left-turn movement
- Northbound Metro Parkway through movement

At the Fowler Street/SR 82 intersection, the eastbound SR 82 through movement and the northbound Fowler Street right-turn movement are both operating above capacity.

It should also be noted that two of the signalized intersections that are operating at Level of Service D overall, are operating close to capacity. The Metro Parkway/Six Mile Cypress Parkway intersection is operating with an overall v/c ratio of 0.96 in the a.m. peak hour and the southbound right-turn movement is operating at Level of Service F with a v/c ratio of 1.10. The Metro Parkway/Colonial Boulevard intersection is operating with an overall v/c ratio of 0.98 in the p.m. peak hour and three of the four critical movements are experiencing v/c ratios between 0.97 and 0.98. These results indicate that these two intersections will likely experience Level of Service E or F conditions in the near future if traffic volumes continue to increase and no intersection improvements are implemented at these locations.

Levels of service were also estimated for twelve (12) unsignalized intersections within the study corridor using Release 2.1d of the unsignalized intersection module of the HCS. Two of the 12 unsignalized intersections analyzed are projected to operate at Level of Service F during one of the two peak hours. The Fowler Street/Moreno Street intersection is projected to operate at Level of Service F during the a.m. peak hour because the eastbound and westbound volumes on Moreno Street exceed the capacity that is available for these cross street movements due to the high through volume on Fowler Street. The Evans Avenue/Market Street intersection is projected to operate at Level of Service F during the p.m. peak hour because the westbound Market Street approach volume exceeds the capacity that is available for these movements.

4.1.11 Lighting

Data on roadway lighting in the project corridor was obtained from Florida Power & Light (FPL) and field observations. Along the existing section of Metro Parkway from Six Mile Cypress Parkway to Daniels Parkway, street lighting is provided by 200-400 watt high pressure sodium vapor lamps mounted on concrete poles using 1.8-2.4 meter (6-8 feet) brackets. These poles are located in a staggered configuration at a spacing of 61 meters (200 feet) along both sides of the roadway. From Daniels Parkway to Colonial Boulevard, lighting occurs only at the signalized intersections. From Colonial Boulevard to north of Winkler Avenue, lighting is provided by dual fixtures mounted on single concrete poles.

On Hanson Street, Fowler Street, and Evans Avenue, the lighting fixtures are mounted on wooden poles. These poles, spaced at 76 meters (250 feet), were originally used as line poles and were later fitted with light fixtures. Along Fowler Street, the light poles are located on the west side of the street and are within 1 meter (3 feet) of the pavement edge.

4.1.12 Utilities

In addition to serving vehicular traffic, most road rights-of-way also accommodate various underground and/or overhead utilities. Since the horizontal and vertical location of these utilities must be coordinated with the road construction, it is important to take utilities into consideration in the early stages of project development. This section describes the existing utilities in the areas being considered for the Metro Parkway alignment.

The FDOT District Utility Engineer has contacted the following utility companies:

William Stanton
Jones Intercable
Post Office Box 1360
Fort Myers, FL 33902
(941) 334-8055

Clara Crowl
Cablevision Industries
1418 SE 10th Street
Cape Coral, FL 33990

(941) 574-2020 (No involvement reported)

Michael A. Marquis
Lee County Utilities (Water and Wastewater)
Post Office Box 398
Fort Myers, FL 33902-0398
(941) 338-3572

Roger P. Robinson
City of Fort Myers
Post Office Drawer 2217
Fort Myers, FL 33902-2217
(941) 332-6820

Gary King
Florida Cities Water Company
Post Office Box 6459, MM
Fort Myers, FL 33911-6459
(941) 936-0247

Terry Vogel
Florida Power & Light
Post Office Box 1119
Sarasota, FL 34230-1119

Willie Jackson
United Telephone of Florida
Post Office Box 370
Fort Myers, FL 33902-0370
(941) 336-2034

All utilities were provided with sets of 1' = 400" scale aerials of the project corridor for use in indicating the location of their respective utility systems. These aerial sets, with the utility locations marked on them by each of the individual utility companies, are in the project file.

Segment 1 of Metro Parkway, from existing US 41 to Six Mile Cypress Parkway, is primarily a new alignment facility. Existing street utilities are a consideration only on Old US 41 from Alico Road to Ten Mile Canal.

The area at the beginning of the project bounded by Alico Road/US 41, the Seminole Gulf Railroad, Ten Mile Canal, and Old US 41 is served by Florida Cities Water

Company, Florida Power & Light, and United Telephone System. Utilities that provide service to businesses along this corridor exist within the rights of way of US 41 and Old US 41.

An AT&T underground fiber optic cable runs within the Seminole Gulf Railroad right-of-way from the beginning of the project in the vicinity of Alico Road northward to Colonial Boulevard. This underground cable system then continues in an easterly direction along Colonial Boulevard.

The Jamaica Bay Mobile Home Park is served by a private utility system, which includes a package sewer treatment plant. The right-of-way on Metro Parkway from Six Mile Cypress Parkway to Colonial Boulevard contains both water and wastewater mains and service lines provided by Lee County Utilities. Also located in this corridor are power lines owned by FPL, as well as underground and overhead services provided by United Telephone System. Most of these utilities are located in 3.8 meter (12.5 feet) public service utility easements, which are located adjacent to, and on either side of, the 30.5 meter (100 feet) right-of-way along Metro Parkway. There are utilities outside of the existing right-of-way and utility easements through this section of Metro Parkway. During the reconstruction of Segment 2, several existing cross drains were cut and plugged. These abandoned cross drains should be removed during future reconstruction.

The City of Fort Myers has stormwater drainage systems, wastewater systems, and watermains within the right-of-way on Fowler Street, Evans Avenue and Metro Parkway. Specifically, the City's systems are located along Fowler Street north of Hanson Street, along the entire length of Evans Avenue and along the west side of Metro Parkway between Colonial Boulevard and Warehouse Road. The watermains are of different sizes and range between 600 and 1500 mm (24 and 60 inches). Wastewater and stormwater drainage pipes are also located along Fowler Street.

No involvement was reported by Cablevision Industries.

Florida Cities Water Company has a 400 mm (16 inch) watermain running along the south side of Alico Road in the right-of-way. A 600 mm (24 inch) watermain also runs along the north edge of Alico Road and then continues along both sides of US 41. A 400 mm (16 inch) watermain is also located along the west edge of Old US 41 within the

existing right-of-way. Florida Cities Water Company does not report any other utilities in the project corridor.

Lee County has its utilities spread over the entire project corridor. These utilities are primarily water lines and sewer force mains. In the southern segment of the study corridor, Lee County has a 200 mm (8 inch) watermain within the existing right-of-way of Briarcliff Road. Lee County plans a series of utility improvements within the next five years in the project corridor. These improvements include extensions of the existing waterlines on Metro Parkway, between Colonial Boulevard and Daniels Parkway, to create continuous parallel lines. A proposal is also in process to extend a single 300 mm (12 inch) waterline within the new Metro Parkway right-of-way from Briarcliff Road to the existing Metro Parkway waterlines. Lee County Utilities has water and sewer lines on both sides of Metro Parkway from Six Mile Cypress Parkway to Colonial Boulevard. These utilities are within the existing 3.8 meter (12.5 feet) drainage and utility easements.

4.1.13 Pavement Conditions

The Lee DOT&E and the City of Fort Myers were asked to provide information regarding the pavement condition of existing roadway segments in the project corridor. These agencies did not have any records of Pavement Condition Summaries for the roadway sections. Therefore, a visual survey of the roadway segments was conducted. The survey revealed that the pavement in the segment of Metro Parkway from north of Six Mile Cypress Parkway to Colonial Boulevard is in excellent condition. There are no ruts or patches and the pavement has only minor hairline cracks.

From north of Colonial Boulevard to Warehouse Road, the pavement has Class I cracks and minor ruts. The overall condition of the pavement is good. From north of Warehouse Road to Hanson Street, the pavement condition is bad. In particular, the ride on this section of roadway is uncomfortable because of the heavy pavement patching and the numerous Class II cracks. On Hanson Street, the pavement has minor cracks and a few patches; however, the overall ride quality is good.

South of Hanson Street, Fowler Street is observed to have medium high ruts, few patches, and minor Class I cracks. From north of Hanson Street to Market Street, the pavement is in good condition with minor cracks and few patches. At the intersection of Fowler

Street and Edison Avenue, the pavement condition has deteriorated because of the thermoplastic build up on the stop bars. Even with these somewhat deteriorated conditions, the overall pavement is in generally good condition. Near Dr. Martin Luther King, Jr. Boulevard, new pavement has been laid down as part of the widening operations along this portion of roadway.

4.2 Existing Bridges

There are no bridges in the Metro Parkway project corridor.

4.3 Environmental Characteristics

4.3.1 Land Use Data

4.3.1.1 Existing Land Use

Existing land use within the Metro Parkway corridor was reviewed to determine the potential impacts of the project. The existing land use was determined from the interpretation of 1"=400' scale aerial photography and supplemented by field reconnaissance of the project corridor. A variety of existing land uses can be found within the project corridor, including residential, commercial, office, industrial, agriculture, public, and vacant. The southern two-thirds of the project corridor is in unincorporated Lee County; the northern third is in the City of Fort Myers. With the exception of a small area in the extreme southeastern portion of Segment 1, the entire Metro Parkway project corridor is within the Fort Myers Urban Area.

Commercial and light industrial land uses interspersed with vacant land characterize the southernmost portion of the project corridor where a connection to Alico Road in the vicinity of US 41 is planned (Segment 1). The Fiddlesticks Canal, a large east-west drainageway, serves as the division between the primarily industrial land uses on the south and the residential land uses on the north. In this area, single family residences on large lots (< 2 dwelling units per acre) occur from south of Briarcliff Road northward to the Six Mile Cypress Slough (Briarcliff Subdivision). Between US 41 and the southern

terminus of the existing Metro Parkway, near the Six Mile Cypress Parkway, the project corridor parallels the Ten Mile Canal and the Seminole Gulf Railroad. An FPL transmission line runs north and south along the eastern boundary of the project corridor between Alico Road and the Six Mile Cypress Parkway. The Six Mile Cypress Slough, a linear northeast to southwest alluvial lowland consisting primarily of forested wetlands, crosses the project corridor just south of the Six Mile Cypress Parkway. A high density mobile home development, Jamaica Bay, (comprising up to 12 dwelling units per acre) is located west of the Ten Mile Canal directly opposite to the western terminus of the Six Mile Cypress Slough.

Extending northward from the Six Mile Cypress Parkway to Daniels Parkway (southern portion of Segment 2), land use along Metro Parkway is primarily vacant with increasing commercial/industrial development. Gulf Coast Hospital is on the east side of Metro Parkway south of Daniels Parkway. Between Daniels Parkway and Colonial Boulevard, the land use pattern continues to be dominated by vacant land interspersed with industrial and commercial development along the Metro Parkway frontage. Most of the industrial uses in this area are oriented to the distribution of goods rather than manufacturing. From Colonial Boulevard northward to Warehouse Road, the land use along Metro Parkway is characterized by large-scale commercial, office, and residential developments interspersed with tracts of vacant land. Amtel Mall, a large regional shopping center is located in the northwest quadrant of the Metro Parkway/Colonial Boulevard intersection.

Extending northward from Warehouse Road to the end of Metro Parkway at Hanson Street (Segment 3), most of the land along Metro Parkway is developed with older industrial uses interspersed with small, scattered parcels of vacant land. Hanson Street is characterized primarily by commercial and industrial land uses.

The Fowler Street and Evans Avenue corridors comprise the northernmost segment of the Metro Parkway project area (Segment 4). These corridors are dominated by intensive commercial and light industrial development. Fowler Street, in particular, has a large number of automobile-oriented uses; no predominant type of commercial development exists along Evans Avenue. There are, however, a large number of vacant commercial buildings on both Fowler Street and Evans Avenue. Residences are located on the west side of Evans Avenue between Carrell Road and Moreno Avenue and on the east side of Evans Avenue between Hanson Street and Canal Street and between Edison Avenue and

Lincoln Boulevard. Industrial uses are located on the east side of Evans Avenue between Canal Street and Edison Avenue. The City owned Imaginarium is located in the southeast quadrant of Evans Avenue and Dr. Martin Luther King, Jr. Boulevard. The Imaginarium is a hands on museum and aquarium located on the site of the historic City of Fort Myers Water Treatment Plant.

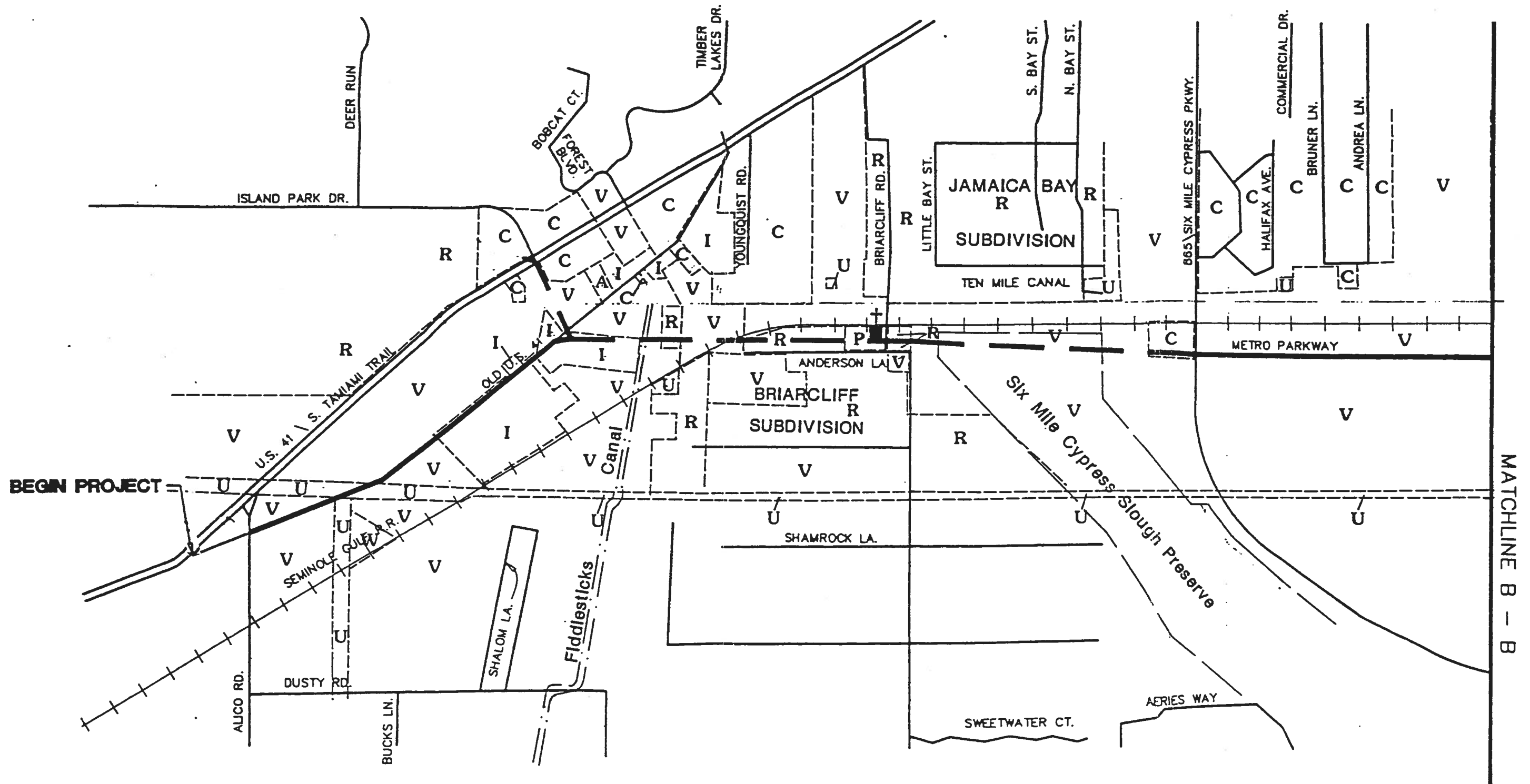
The existing land use maps for the Metro Parkway project corridor are shown in Figures 4-7A through 4-7C.

4.3.1.2 Future Land Use

Future land use plans have been adopted for Lee County and the City of Fort Myers. The Lee County Future Land Use Plan governs the unincorporated areas, which are generally south of Colonial Boulevard.

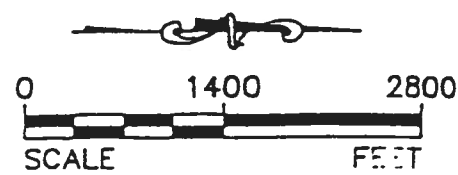
In Segment 1 of the project corridor, industrial, commercial and office development is designated for the area between Alico Road and the Fiddlesticks Canal (refer to Figure 4-7A for location of Fiddlesticks Canal). The Tamalico Center DRI site, which has been conditionally approved by SWFRPC staff and by Lee County, is located on a 37.4 hectare (92.5 acre) site at the northwest corner of US 41 and Alico Road. The project buildout for Tamalico Center calls for the construction of 31,772 square meters (342,000 square feet) of commercial, 8,361 square meters (90,000 square feet) of office, and 13,935 square meters (150,000 square feet) of industrial use for a total of 54,068 square meters (582,000 square feet). At buildout, the site will have 5.3 hectares (13.2 acres) of roadways that include 1.9 hectares (4.6 acres) of relocated county roadway (Old US 41) and 9.3 hectares (23 acres) of open space, of which 4.5 hectares (11.2 acres) will be wetlands, mitigation areas, and native buffers. Water will be supplied by Florida Cities Water Company and wastewater services will be provided by Gulf Utilities. The project is planned in two phases, with buildout in the year 2000.

The Gulf Coast University, a new State University, is located off Alico Road, east of I-75. The campus is outside the project limits, but the University is expected to be a major factor in the developing south end of the project.



MATCHLINE B - B

SOUTH SHEET



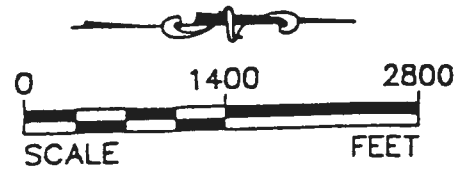
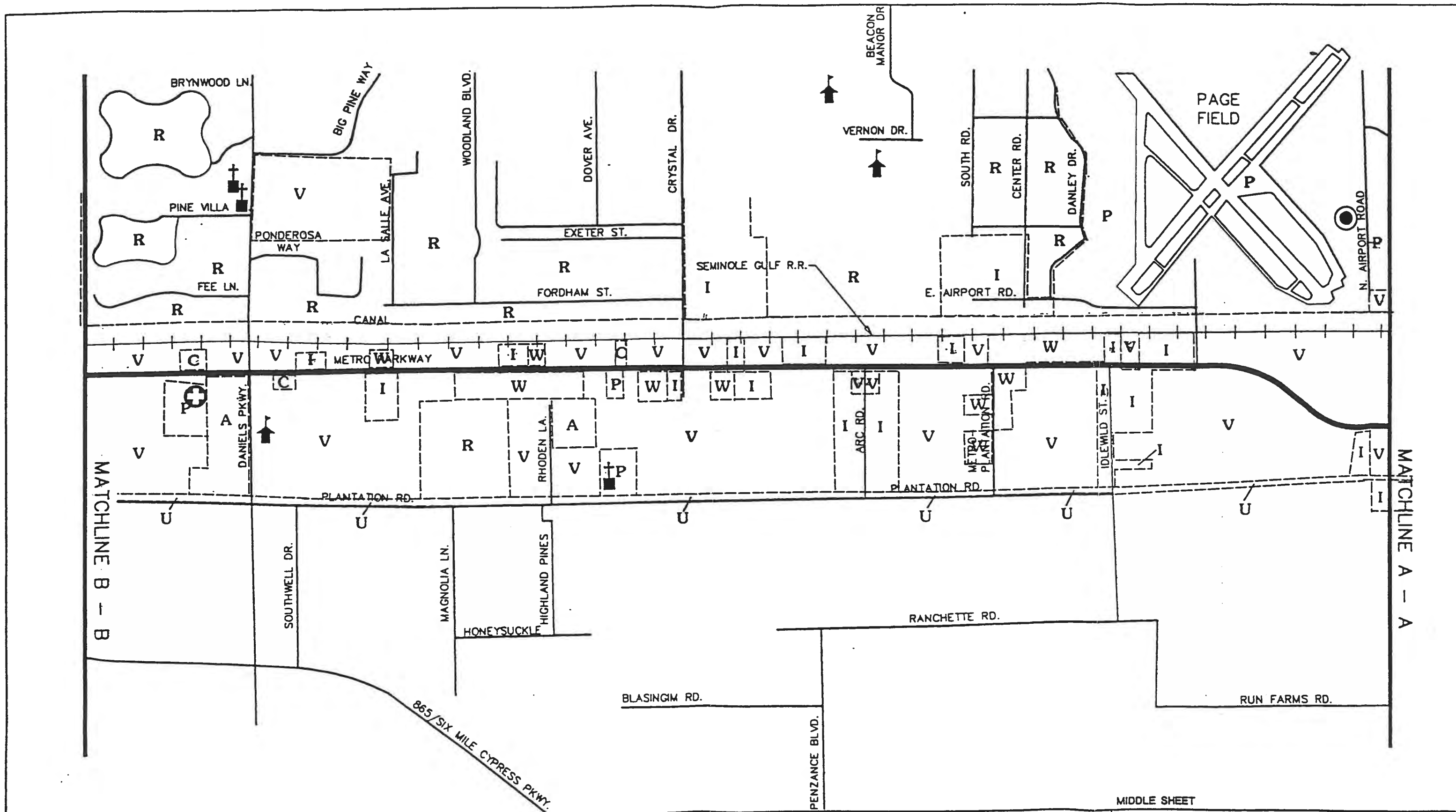
EXISTING LAND USE DESIGNATIONS

A AGRICULTURE
C COMMERCIAL
I INDUSTRIAL
P PUBLIC/SEMI-PUBLIC

R RESIDENTIAL
U UTILITY
V VACANT
W WAREHOUSE/SHOWROOM

⊕ EDUCATIONAL FACILITIES
⊙ FIRE STATIONS
⊙ MEDICAL FACILITIES
⊕ RELIGIOUS INSTITUTIONS
⊕ RECREATION/CULTURAL FACILITIES

FIGURE 4-7A
EXISTING LAND USE MAP
METRO PARKWAY
FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. Jr. BLVD.)
LEE COUNTY, FLORIDA
SPN: 12014-1502 WPIN: 1114619
FAP : SA-M-0671(9)

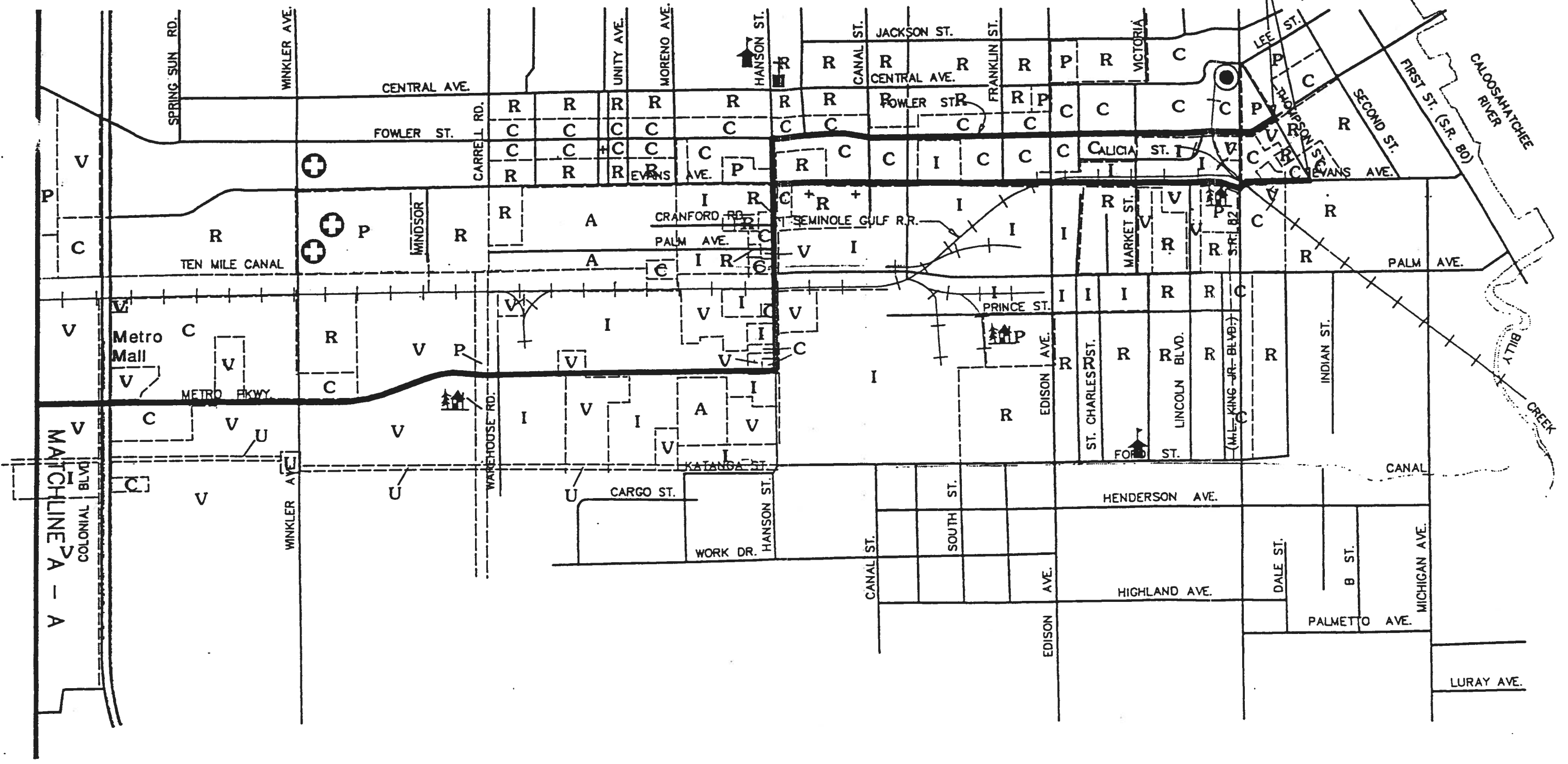


EXISTING LAND USE DESIGNATIONS						
A	AGRICULTURE	R	RESIDENTIAL	⚪	EDUCATIONAL FACILITIES	
C	COMMERCIAL	U	UTILITY	⦿	FIRE STATIONS	
I	INDUSTRIAL	V	VACANT	⊕	MEDICAL FACILITIES	
P	PUBLIC/SEMI-PUBLIC	W	WAREHOUSE/SHOWROOM	⛪	RELIGIOUS INSTITUTIONS	
					⚓	RECREATION/CULTURAL FACILITIES

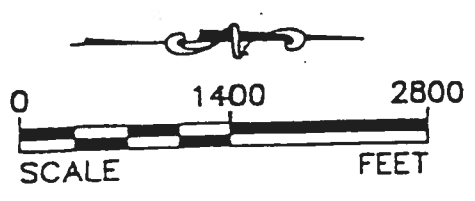
MIDDLE SHEET

FIGURE 4-7B
EXISTING LAND USE MAP
METRO PARKWAY
FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. Jr. BLVD.)
LEE COUNTY, FLORIDA
SPN: 12014-1502 WPIN: 1114619
FAP : SA-M-0671(9)

END PROJECT



NORTH SHEET



EXISTING LAND USE DESIGNATIONS			
A	AGRICULTURE	R	RESIDENTIAL
C	COMMERCIAL	U	UTILITY
I	INDUSTRIAL	V	VACANT
P	PUBLIC/SEMI-PUBLIC	W	WAREHOUSE/SHOWROOM
		+	TITLE VI RESIDENCES
		⬆	EDUCATIONAL FACILITIES
		⊙	FIRE STATIONS
		⊕	MEDICAL FACILITIES
		⬆	RELIGIOUS INSTITUTIONS
		⬆	RECREATION/CULTURAL FACILITIES

FIGURE 4-7C
 EXISTING LAND USE MAP
 METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. Jr. BLVD.)
 LEE COUNTY, FLORIDA
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Rural land use is designated for the area between the Fiddlesticks Canal and the southern limits of the Six Mile Cypress Slough and includes the general Briarcliff area. Rural development is limited to one dwelling unit per acre. The Six Mile Cypress Slough is designated a Resource Protection Area and Transition Zone and requires the maintenance of water quality, water flows, and water levels. In addition, the Six Mile Cypress Slough development standards designate road construction as development that requires a special permit after a scheduled public hearing by the Board of County Commissioners.

Planned future land development may be expected to “fill in” many of the vacant lands that currently border Metro Parkway between Six Mile Cypress Parkway and Winkler Avenue (Segment 2). Most of the proposed development is concentrated in the designated Central Urban land use category between Six Mile Cypress Parkway and Crystal Drive.

Future land use designations in the Lee County Land Use Plan call for industrial development in the Metro Parkway area extending from Warehouse Road to north of Hanson Street (Segment 3). Industrial development areas are categorized in the Comprehensive Plan as having special locational requirements, including transportation, water service, sewer, fire protection, and other public services. The plan further states an intent to protect designated industrial areas from encroachment by other uses in order to provide for future employment and tax base.

Lee County also has designated a Community Redevelopment Area (CRA) covering the older portions of the study area east of Evans Avenue. The Lee County Dunbar CRA plan was adopted in 1991 to encompass an existing, older residential area that is primarily located east of the project corridor. At its southwestern extent, the Dunbar CRA extends into a portion of Segment 3 of the project corridor. The CRA is located in the unincorporated areas on both sides of Metro Parkway, beginning at Warehouse Road and extending northward to south of Hanson Street. Land use in this portion of the Dunbar CRA that overlaps the project corridor is industrial and commercial. The Dunbar CRA plan proposes to continue industrial as the principal land use, with improvements in site maintenance, design standards, and buffering from residential areas. Between Edison Avenue and SR 82 (Segment 4), the eastern right-of-way line of Evans Avenue is the western boundary of the Dunbar CRA. This portion of the Dunbar CRA is primarily residential in character.

In Segment 4 of the project corridor, the future land use plan for the area extending north of Hanson Street and east of Fowler Avenue calls for residential use east of Evans Avenue and north of Edison Avenue, and commercial and industrial use in the remainder of the study area. This area includes the major portion of the Fowler/Evans corridor northward to Dr. Martin Luther King, Jr. Boulevard. Figure 4-8 shows the Future Land Use Map of the project corridor.

4.3.2 Cultural Features and Community Services

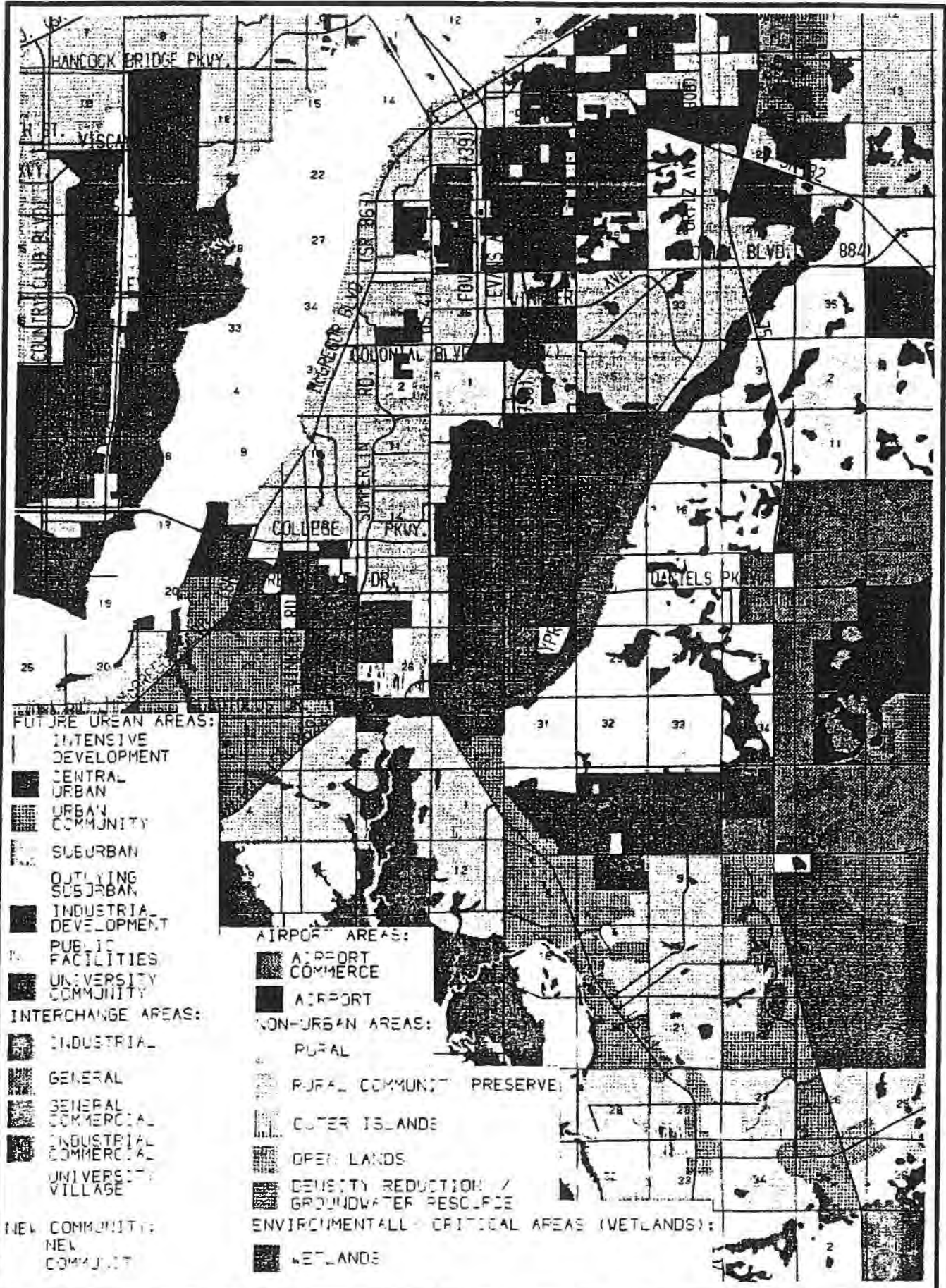
4.3.2.1 Cultural Resource Assessment Survey

A Cultural Resource Assessment Survey of the Metro Parkway project corridor was performed to locate and identify any historic sites/districts and archaeological sites within the study area and to assess their significance in terms of eligibility for listing on the *National Register of Historic Places (NRHP)*. The Cultural Resource Assessment Survey Report is in the project file.

A comprehensive review of archaeological and historical literature, records and other documents, and data pertaining to the project area was conducted. The focus of this research was to ascertain the types of cultural resources known in the project area and vicinity, their temporal/cultural affiliations, site location information, and other relevant data. This included a review of sites listed in the *NRHP*, the Florida Site Files (FSF), cultural resource survey reports, published books and articles, unpublished manuscripts, maps, and interviews. In addition to the *NRHP* and FSF, other information relevant to the historical research was obtained from the Fort Myers Historical Museum, City of Fort Myers Planning Department, Lee County Department of Community Development, Lee County Circuit Court, Lee County Property Appraiser, and from the files of Archaeological Consultants, Inc.

Archaeological Sites - A review of the FSF indicated that no archaeological sites are currently recorded within, or in the immediate vicinity of, the project corridor. Of the few sites recorded in the general vicinity, most are located on or near the banks of the Caloosahatchee River. These sites consist primarily of sand mounds and a shell midden. Away from the river, two burial mounds have been recorded. Both of these, the Corbett

color



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FIGURE 4-8
FUTURE LANE USE MAP

Mound and Daughtry Mound, are situated near tributary creeks which drain into the Caloosahatchee River.

Archaeological field survey included both ground surface reconnaissance and the excavation of a total of 130 shovel test pits. Of these, 17 were excavated at 25 meter (82 feet) intervals in the high probability zone, 102 were excavated at 50 meter (164 feet) intervals in zones of moderate probability, and 11 were placed in zones of low probability. Subsurface testing, as well as ground surface reconnaissance, did not result in the discovery of any archaeological sites in the proposed project impact zone. These results were not surprising given the initial low expectations for prehistoric and historic archaeological sites for the majority of the project corridor. Also, the extensive alterations in those localities deemed to have a moderate or high archaeological potential probably reduced the potential of the corridor for cultural resources. Such alterations included drainage ditches, underground utilities, and pavement. Also, with few exceptions, subsurface testing in these areas was largely obviated by the extent of commercial development.

Historic Sites - A total of nine properties in the Metro Parkway project corridor were found to pre-date 1947; only one of these, the City of Fort Myers Water Treatment Plant (8LL1774), had been previously recorded in the FSF. All the historic properties are located within Segment 4. The nine structures include three commercial properties, five residences, and one municipal complex all built between 1910 and 1946. With one exception, these structures, located within the City of Fort Myers, represent commonly occurring types of architecture, and available data indicates they are not historically significant. In addition, alterations to these historic structures and/or a lack of concentrated density preclude their nomination to the *NRHP* either independently or as a district. However, the former City of Fort Myers Water Treatment Plant, located at 2600 Dr. Martin Luther King, Jr. Boulevard, is considered *NRHP* eligible on the basis of its historical association with the development of municipal services and Depression Era public works programs (Criterion A), as well as the integrity of its rather respectable architecture (Criterion C). Also note that the Imaginarium Hands On Museum and Aquarium was recently constructed on the 4.45 hectare (11 acre) campus of the City of Fort Myers Water Treatment Plant (refer to Section 4.3.2.2).

Completed FSF forms are contained in the Cultural Resource Assessment Survey

(CRAS) Report. A previously recorded Request for Determination of Eligibility (DOE) and FSF form for the Water Treatment Plant is also included in the CRAS.

4.3.2.2 Cultural Features and Community Services

Cultural features preserve and enhance the cultural nature of a community and include parks and other recreation areas, schools, churches and other religious institutions, historic sites, archaeologically significant sites, and other neighborhood gathering places. Community services include facilities that provide necessary services such as fire stations, police stations, public and private schools, hospitals, cemeteries, public buildings, and civic facilities.

Within the project study area, there are several existing and proposed bicycle facilities/paths. A pedestrian/bicycle path extends along Colonial Boulevard from MacGregor Boulevard east of the Seminole Gulf Railroad to Six Mile Cypress Parkway. In 1994, a new section running from Colonial Boulevard along Six Mile Cypress Parkway southward to Daniels Parkway was constructed. Lee County, in conjunction with FDOT, has constructed a 2.4 meter (8 feet) wide bike path along Six Mile Cypress Parkway between US 41 and Daniels Parkway. This project was funded by FDOT (ISTEA) for transportation use. A path also was put in on the north side of Daniels Parkway from US 41 to Chamberlin Parkway in 1989 as part of the six laning of that roadway. The County has also identified the Metro Alternate bicycle path from Six Mile Cypress to south of Alico Road on its bikeway/sidewalks facility plan. No funds have been approved for this section.

The North Colonial Linear Park bikeway, which is administered by the City of Fort Myers, is a 13.6 hectare (33 acre) site that runs along the south side of the North Colonial Waterway from Metro Parkway to Oritz Avenue. Construction of the 2.4 meter (8 feet) wide bikeway project was completed in May 1994 and was constructed with land and water conservation funds. This facility currently provides bicycle and pedestrian activities. In addition, recent improvements include picnicking areas, interpretive trails, and fishing. The proposed project will not directly impact this linear park, as the alignment veers northwest just south of the western terminus of this park. The City has also identified a proposed bicycle path connecting to the western terminus of the North Colonial Linear Park and extending south along Metro Parkway to Colonial Boulevard.

The proposed roadway improvements have been discussed with the City and they have requested that the proposed extension of the North Colonial Linear Park be considered in future roadway plans. Coordination with the City will continue on this issue.

Metro Parkway will cross two existing bicycle paths: Six Mile Cypress Parkway and Daniels Parkway. The proposed improvements will not affect the use of these bicycle paths, so the anticipated impacts to these facilities is expected to be minimal. The only change will involve widening the roadway at the existing intersections. In addition, the County's bikeways are not included in their required recreational use acreage.

Other recreational facilities in the project area, but not located near any of the proposed improvements, include the Lee County Sports Complex (which serves as the Minnesota Twins Spring Training facility) at the southern end of Six Mile Cypress Parkway and east of the study area; the Stars Complex (which consists of four baseball diamonds, a swimming pool, and related recreational facilities) on Edison Avenue and Prince Street east of the project area; and the Boston Red Sox spring training facility (City of Palms Park) on Edison Avenue and Broadway west of the project area.

Churches — Seven religious institutions are located in the project area, including:

- | | |
|---|-----------------------|
| • Briarcliff Baptist Church | 6082 Briarcliff Road |
| • Crown of Life Lutheran Church | 5820 Daniels Parkway |
| • Daniels Road Baptist Church | 5878 Daniels Parkway |
| • Love and Grace Fellowship Church | 12400 Plantation Road |
| • Independent Haitian Assembly | 3082 Fowler Street |
| • Jesus Christ is Lord Restoration Center LTR | 3070 Fowler Street |
| • Central Baptist Church | 3208 Central Avenue |

Of the seven churches listed, only the Briarcliff Baptist Church in Segment 1 will require relocation.

Schools — There are six schools within the vicinity of the project; four are public and two are private. The addresses and service areas of the public schools, as reported by the Lee County School District, are as follows:

- Colonial Elementary 3800 Schoolhouse Road East
- Villas Elementary 8595 Beacon Boulevard
- Fort Myers Middle 3050 Central Avenue
- Franklin Park Elementary 2323 Ford Street

The two private schools in the study area are Evangelical Christian School at 8239 Beacon Boulevard, S.E. and St. Michaels Lutheran School at 3595 Broadway.

None of the schools abut the proposed Metro Parkway improvements. However, all of these schools are within a two mile radius of the project corridor.

Medical Facilities — Gulf Coast Hospital is located in Segment 2 on Metro Parkway, approximately 260 meters (850 feet) south of the Daniels Parkway intersection. The Southwest Florida Regional Medical Center is located just west of the study area at the corner of Evans Avenue and Winkler Road. Two smaller medical/surgical centers are located on Evans Avenue near the Regional Medical Center.

Fire Stations — The main City of Fort Myers fire station is located on Dr. Martin Luther King, Jr. Boulevard in the northern portion of the study area. There is also a fire station located just west of the study area at Page Field.

Public Buildings and Civic Facilities — The only public building/civic facility that is located adjacent to the project corridor is the Imaginarium Hands On Museum and Aquarium. This facility is being constructed on a five hectare (11 acre) campus that also houses the old City of Fort Myers Water Treatment Plant. It is located in the extreme northern end of Segment 4 on Dr. Martin Luther King, Jr. Boulevard between Evans Avenue and Cranford Avenue. As was discussed in Section 4.3.2.1, the former City of Fort Myers Water Treatment Plant, on which the Imaginarium site is located, has been determined to be eligible for listing on the *NRHP*.

Other public buildings and civic facilities that are in the project area, but will not be impacted by the proposed improvements, include the main office of the Lee Association for Retarded Citizens at the corner of Hanson Street and Evans Avenue; the Lee County

School Board offices on Central Avenue near downtown Fort Myers; and the City of Fort Myers and Lee County central administrative offices on and near Dr. Martin Luther King, Jr. Boulevard at the northern terminus of the study area.

4.3.2.3 Section 4(f) Lands

Section 4(f) Lands in the project corridor include the Six Mile Cypress Slough Preserve in Segment 1 and the Old City of Fort Myers Treatment Plant in Segment 4. The portion of the Six Mile Cypress Slough Preserve that is located in the project corridor comprises the western terminus of an 820 hectare (2,025 acre) cypress/wetland drainageway surrounded by saw palmetto uplands. Water in the slough flows to the southwest and eventually drains into the Estero Bay Aquatic Preserve via Ten Mile Canal and Mullock Creek. The Six Mile Cypress Slough Preserve is characterized by a variety of distinct communities, including the pine flatwoods community, hardwood transition community, flag pond (central wet area) community, hammock community, and the cypress slough community. The area serves as a feeding/breeding ground for many wading birds such as wood ducks and herons. The area is environmentally significant because of its long, linear contiguous nature; it serves as a wildlife corridor for the Six Mile Cypress Watershed.

Various Lee County ordinances and resolutions recognize the unique value of the Six Mile Cypress Slough Preserve and indicate that it is to be managed for the conservation of wildlife and water and for recreation facilities. Lee County Resolution Number 89-12-39 further indicates a desire on the part of the Lee County Board of County Commissioners to limit impacts to the preserve and improve wildlife and public recreation usage. Additionally, the Lee County Comprehensive Plan designates the preserve area as a local and regional recreation area. Consequently, the proposed crossing of the Six Mile Cypress Slough Preserve by any of the proposed project alternatives will require a Section 4(f) Evaluation, pursuant to Section 4(f) of the U.S. Department of Transportation Act, as amended (49 U.S.C., Section 303). The Federal Highway Administration letter, dated September 10, 1993, regarding the Section 4(f) applicability of the Six Mile Cypress Slough Preserve is contained in the project file.

The Old City of Fort Myers Water Treatment Plant, on whose property the Imaginarium Hands On Museum and Aquarium is located, is eligible for listing on the *NRHP*. The

building represents historical associations because of the development of municipal services and depression era public works programs as well as architectural integrity.

The Fort Myers Residential Historic District is located to the north of, and outside the study area, and will not be impacted by any of the proposed project improvements.

4.3.3 Natural and Biological Features

4.3.3.1 Wetlands

In accordance with Executive Order 11990, *Protection of Wetlands*, the extent and types of wetlands in the study area were documented through the review of U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Maps and the Soil Survey of Lee County to identify potential wetland sites and areas of hydric soils in the project corridor. This information was supplemented by the stereoscopic interpretation of 1" = 1000' scale aerial photographs to identify other potential wetland resources within or adjacent to the Metro Parkway right-of-way. Using the information obtained from the previously mentioned data sources, reconnaissance surveys were conducted in June and September of 1993 and in January 1995 to field verify and confirm the presence of wetlands in the project corridor. Each wetland site was identified in accordance with the U.S. Army Corps of Engineers (USACOE) "Federal Manual for Identification and Delineation of Jurisdictional Wetlands," dated 1987.

The wetlands in the Metro Parkway corridor consist primarily of three types: palustrine emergent (PEM), palustrine forested (PF), and Riverine (R20) wetlands, which are associated with canals and channelized drainageways. The PEM wetlands occur along the edges of ponds and canals and adjacent to forested wetlands in the project corridor. All wetlands that were observed have some degree of invasion by exotics, including cattails (*Typha spp.*), melaleuca (*Melaleuca quinquenervia*), and Brazilian pepper (*Schinus terebinthifolius*). In many areas, the exotic vegetation forms almost a monotypic stand, reducing the species diversity within a given area.

There are 34 wetland sites in the Metro Parkway project corridor. The principal wetland area in the corridor is the Six Mile Cypress Slough in Segment 1. The slough is a long, linear alluvial valley characterized by palustrine emergent and palustrine forested wetland

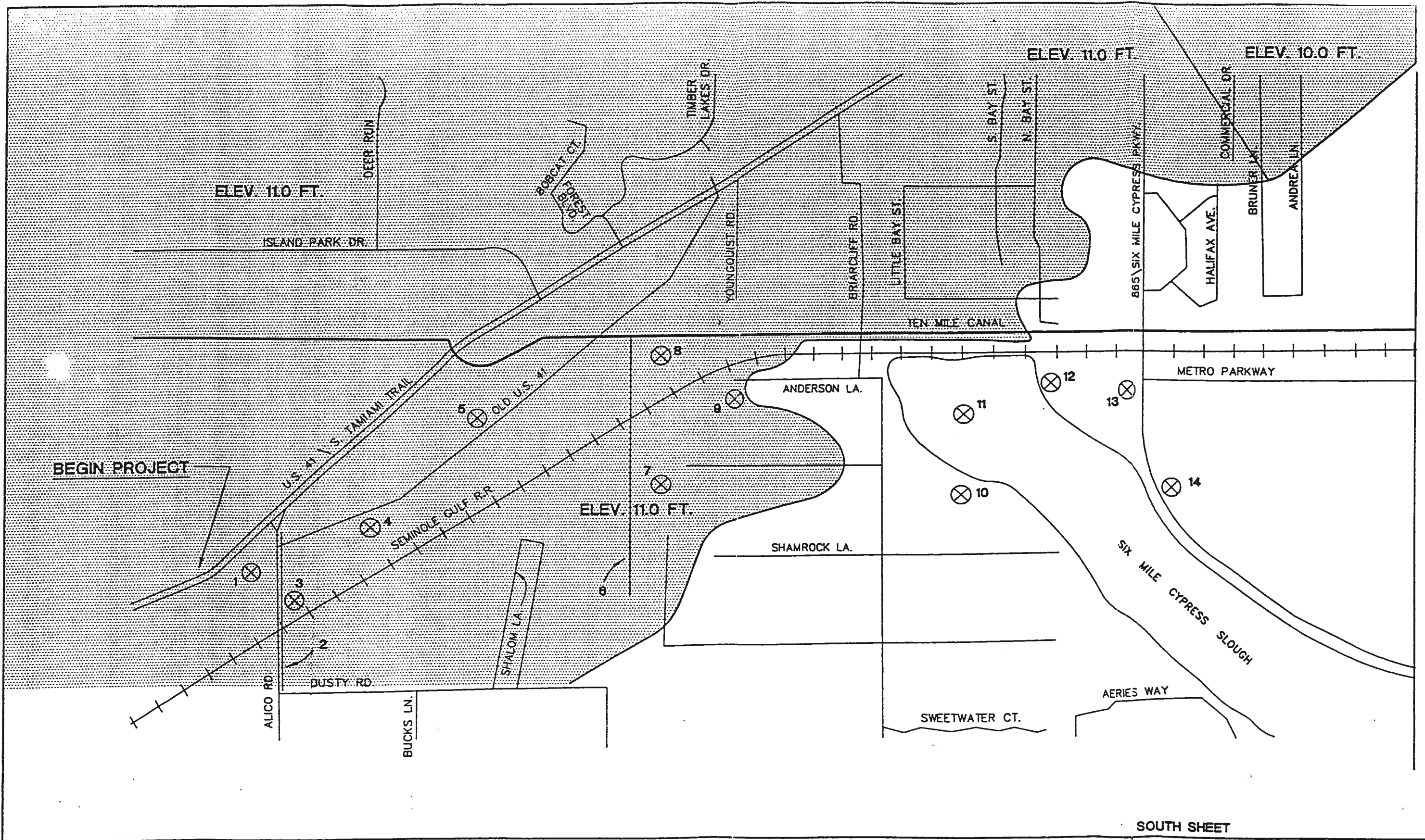
species. Scattered occurrences of palustrine forested and palustrine emergent wetlands are also found along both sides of Metro Parkway from the vicinity of Plantation Road to the vicinity of Winkler Avenue in Segment 2. Wetlands also occur along the banks and within the Ten Mile Canal and in the various tributary canals and minor channelized drainageways that cross Metro Parkway and the Fowler/Evans corridor. These wetlands consist mainly of palustrine emergent and aquatic bed species. They are channelized and generally lack the species diversity usually found in the other wetland systems in the Metro Parkway corridor.

The wetland sites in the Metro Parkway project corridor are shown on Figures 4-9A through 4-9C. The characteristics of the wetland sites are summarized in Table 4-7.

4.3.3.2 Wildlife and Habitat

Wildlife and habitat studies conducted in the Metro Parkway corridor entailed coordination and consultation with the U.S. Fish and Wildlife Service (USFWS), the Florida Game and Freshwater Fish Commission (FGFWFC), the Florida Natural Areas Inventory (FNAI), Lee County, and the FDOT. The information from these sources was supplemented by visual field surveys of the project corridor by biologists and environmental scientists. USFWS and FGFWFC coordination letters are contained in the project file.

The project area has been documented for the following species: red cockaded woodpecker (threatened-T), wood stork (endangered-E), gopher tortoise (state species of special concern (SSC)), burrowing owl (SSC), American alligator (SSC), little blue heron (SSC), tricolored heron (SSC), snowy egret (SSC), Big Cypress fox squirrel (T), bald eagle (T), Audubon's caracara (T), Eastern Indigo snake (T) and limpkin (SSC). Some of these species were observed during a series of field surveys of the project corridor. Specifically, two wood storks and various little blue herons and tricolored herons were observed in the Fiddlesticks Canal (Wetland Site 2) in the southern portion of Segment 1. Little blue herons and a tricolored heron were also observed in the Six Mile Cypress Slough and the Ten Mile Canal. A snowy egret (SSC) was seen in a roadside swale adjacent to Old Dixie Highway. Other species of wading birds observed in the Fiddlesticks Canal include great blue herons, green herons, cormorants and American egrets.



SOUTH SHEET

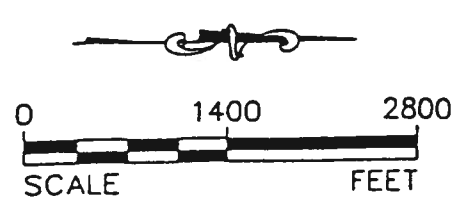


FIGURE 4-9A
 WETLANDS / FLOODPLAIN MAP
 METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. Jr. BLVD.)
 LEE COUNTY, FLORIDA
 SPN: 12014-1502 WPIN: 1114619
 FAP : SA-M-0671(9)

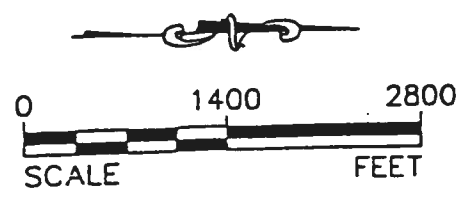
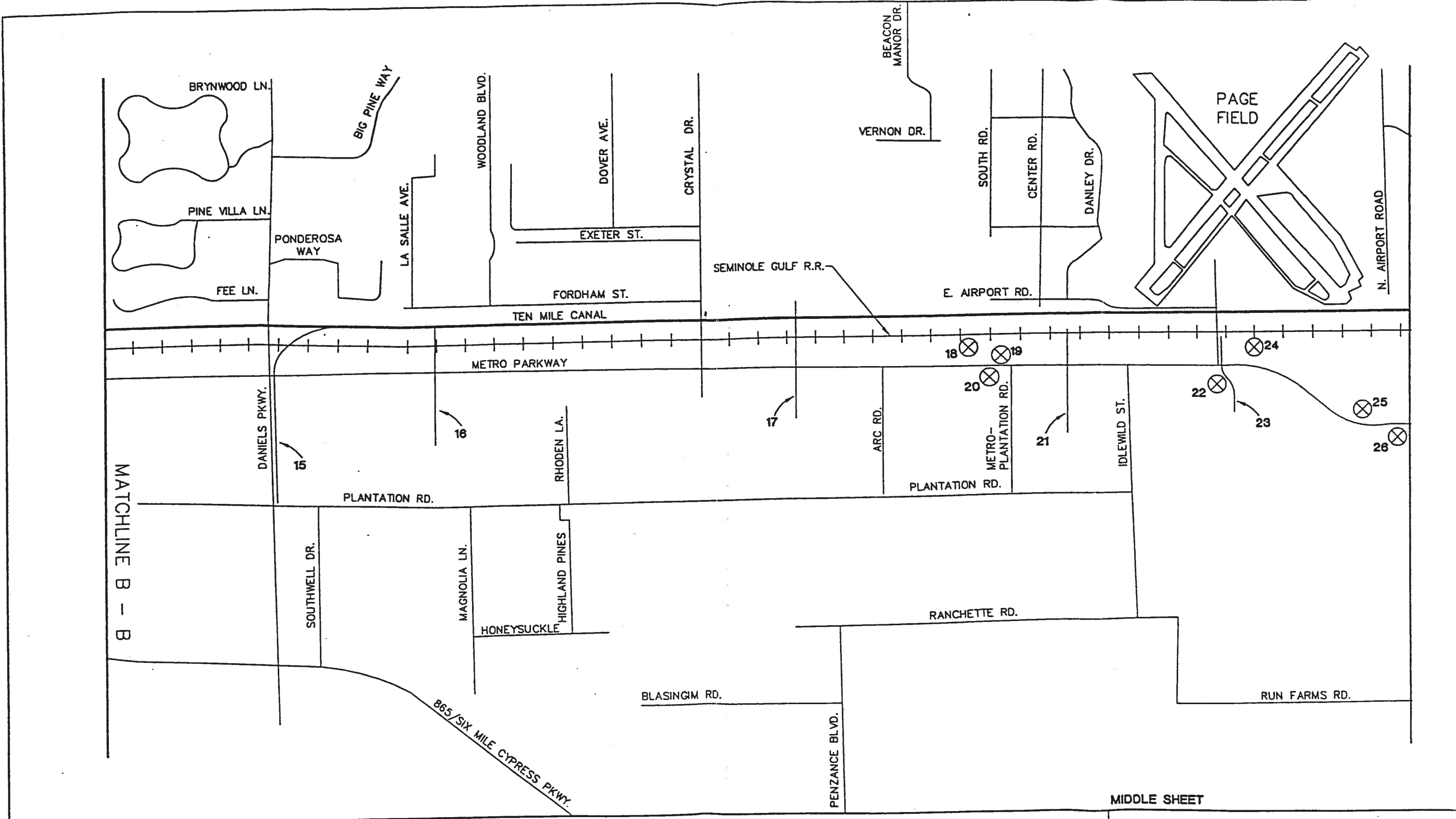
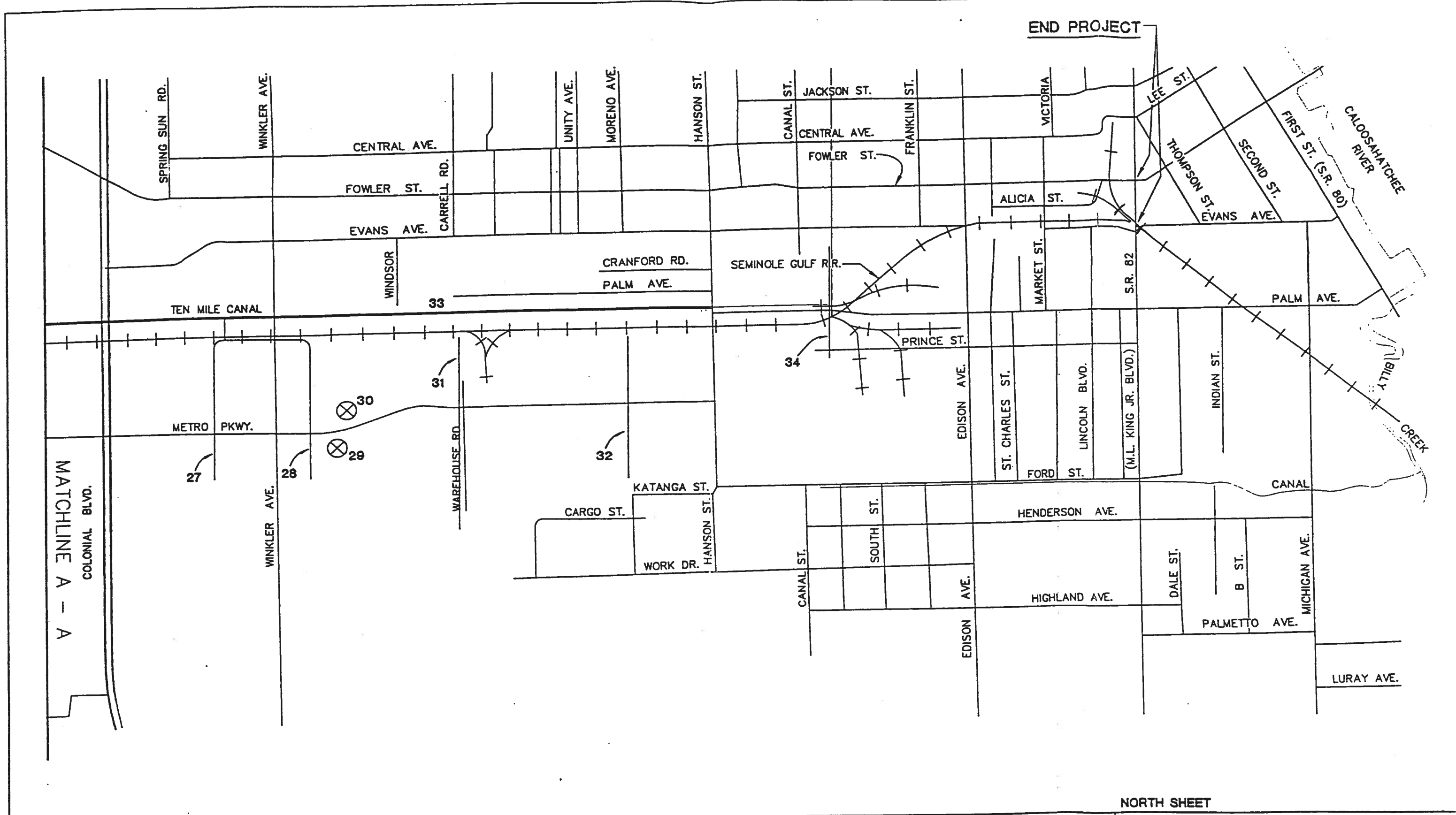
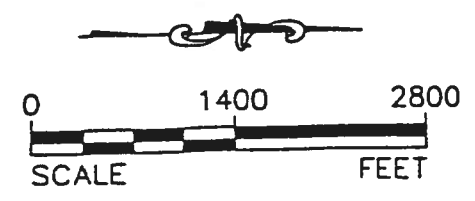


FIGURE 4-9B
WETLANDS / FLOODPLAIN MAP
METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. Jr. BLVD.)
LEE COUNTY, FLORIDA
 SPN: 12014-1502 WPIN: 1114619
 FAP : SA-M-0671(9)



NORTH SHEET





LEGEND
 WETLAND SITE
 100 YEAR FLOOD PLAIN

FIGURE 4-9C
 WETLANDS / FLOODPLAIN MAP
 METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. Jr. BLVD.)
 LEE COUNTY, FLORIDA
 SPN: 12014-1502 WPIN: 1114619
 FAP : SA-M-0671(9)

TABLE 4-7

Characteristics of Wetland Sites for Metro Parkway Project Corridor						
Wetland Site #	Wetland Classification ¹	Wetland Impact ²	Hydric Continuity ³	Hydric Soil ⁴	Vegetation Type	
1	L10WHx/L2EMHx	0.08 (0.28)	1	No	Fringe wetland along open water pond (herbaceous vegetation)	
2	R20WHx	0.11 (0.36)	3	Yes	Willows/Water Primrose (Emergent vegetation)/open water.	
3	PF03C/PEMIC	0.30 (1.00)	3	Yes	Melaleuca dominated with herbaceous wetland fringe..	
4	PEMIU	0.00 (0.00)	1	Yes	Herbaceous/scrub shrub wetland; disturbed.	
5	PF02C	0.00 (0.00)	1	Yes	Forested; dominated by Cypress, Brazilian Pepper, Melaleuca.	
6	R2EM/0WHx	0.20 (0.65)	3	Yes	Cattails, Torpedo Grass, Spikerush (emergent); Elodia (submergent).	
7	PF02/4C	0.00 (0.00)	1	Yes	Forested; dominated by Cypress, Slash Pine and fern.	
8	PF02/3U	0.00 (0.00)	1	No	Forested; dominated by Melaleuca and scattered Cypress.	
9	PF02/3U	0.00 (0.00)	1	Yes	Forested; dominated by Cypress, Laurel Oak, Melaleuca.	
10	PEMHx	0.00 (0.00)	1	No	Detention pond; dominated by Typha sp.	
11	PF02/3F PEMIF	5.70 (14.2)	4	Yes	Six Mile Cypress Slough - Forested wetland; dominated by Cypress, Melaleuca and Oak. Emergent, dominated by Typha sp., Maidencane, Pickerelweed.	
12	PEMIH	0.58 (1.90)	4	Yes	Adjacent to Slough; possible mitigation area; dominated by Pickerelweed and Maidencane.	
13	PEMIC	0.12 (0.40)	1	No	Herbaceous disturbed; dominated by Typha sp., Water Primrose, Melaleuca saplings.	
14	PF03C	0.00 (0.00)	1	No	Forested; dominated by Melaleuca.	
15	R20WHx	0.00 (0.00)	3	No	Cattails, Torpedo Grass (emergent). Submerged aquatics.	
16	R2EMHx	0.00 (0.00)	3	No	Water Primrose, Cattails, Climbing Hempvine (emergent).	
17	R2EM/0WHx	<0.1 (<0.1)	3	Yes	Cattails, Water Primrose, Torpedo Grass, Pickerelweed (emergent).	
18	PF02/4C	0.00 (0.00)	1	Yes	Forested; dominated by Slash Pine and Cypress overstory.	
19	PF02/4C	0.00 (0.00)	1	Yes	Forested; dominated by Slash Pine and Cypress overstory.	
20	PF02/4C	0.00 (0.00)	1	Yes	Forested; dominated by Cypress, Melaleuca, and Slash Pine.	
21	R20WHx	<0.1 (<0.1)	3	No	Cattail, Torpedo Grass, Melaleuca (emergent).	
22	PF02C	0.00 (0.00)	1	Yes	Cypress dome; dominated by Cypress, Melaleuca, Brazilian Pepper and Laurel Oak.	

Wetland Site #	Wetland Classification ¹	Wetland Impact ²	Hydric Continuity ³	Hydric Soil ⁴	Vegetation Type
23	R2EM/0WHx	< 0.1 (<0.1)	3	Yes	Melaleuca, Cattails, Brazilian Pepper (emergent); Elydia sp. and Bacopa sp. (submergent).
24	PF02/3C	< 0.1 (0.4)	1	Yes	Forested; dominated by Cypress, Melaleuca, Brazilian Pepper, Slash Pine and Laurel Oak.
25	PF02/3 PEM1H	0.07 (0.22)	3	Yes	Ditch wetland opening into herbaceous wetland; dominated by Typha sp. Forested wetlands adjacent; dominated by Cypress, Melaleuca and sawgrass.
26	PF03C	0.00 (0.00)	1	No	Disturbed forested; dominated by Melaleuca with paichy understory.
27	L10WHx	0.00 (0.00)	3	No	Linear detention pond with Cattails and Torpedo Grass (emergent).
28	L10WHx	0.00 (0.00)	3	No	Linear detention pond with Cattails, Torpedo Grass and Spikerush (emergent).
29	PF02/3C	0.00 (0.00)	1	No	Forested; dominated by Cypress, Laurel Oak and Brazilian Pepper.
30	PF02/3C	0.00 (0.00)	1	No	Forested; dominated by Cypress, Laurel Oak and Brazilian Pepper.
31	R20WHx	0.07 (0.23)	3	No	Torpedo grass, Cattail, Spikerush (emergent).
32	R20WHx	0.00 (0.00)	3	No	Algae (floating), Brazilian Pepper (scrub/shrub).
33	R20WH/Ax	0.10(0.26)	3	No	Algae and water hyacinth (floating).
34	R20W/EMHx	< 0.1 (<0.1)	3	No	Water primrose (emergent).

Numerous bird species were also identified in the Six Mile Cypress Slough. Twenty-five to 30 white ibis (SSC) were observed nesting in the trees. Two American kestrels (USFWS-candidate species and FGFWFC-threatened species) were also observed. Other species observed in the slough included hawks, grackles, anhinga, belted kingfishers, and cattle egrets. The Six Mile Cypress Slough also serves as a potential travel corridor for other species. Specifically, there have been reported sightings of the black bear and the Florida panther in this area.

In summary, Segment 1 of the project corridor, because it is the least developed portion of the study area, provides the most suitable habitat for wildlife and potential protected species occurrences. Urbanization and commercial development have significantly altered and degraded the wildlife habitat in Segments 2, 3, and 4 of the Metro Parkway project corridor. Most of the common wildlife in these segments consists of species that have adapted to man-altered environments.

4.3.3.3 Outstanding Florida Waters and Aquatic Preserves

There are no listed Outstanding Florida Waters (OFW) in the project corridor. However, in Segment 1, the project runs adjacent to the Ten Mile Canal, which eventually drains into the Estero Bay Aquatic Preserve, which is designated an OFW. Indirect impacts associated with water quality have been addressed as part of the required water quality evaluation. The stormwater management systems have been developed to provide the required water quality treatment.

4.3.3.4 Floodplains

The majority of the Metro Parkway project corridor is located outside the 100-year floodplain and is in Zone B (FEMA FIRM Community Panels 125106 0010B, 125106 0020B). Zone B is defined by FEMA as the area between the limits of the 100-year and 500-year flood. The extreme southern portion of Segment 1, however, between Alico Road and the vicinity of Briarcliff Road, including a large part of the Jamaica Bay Subdivision on the west side of the Ten Mile Canal, is located in the 100-year floodplain (refer to Figure 4-9A). This area is designated Zone A14 and has a base flood elevation of 3.3 meters (11 feet) (FEMA FIRM Community Panels 125124 0350B, 125124 0455B). For purposes of analysis, the existing roadway elevation of Alico Road in the vicinity of

Old US 41 and US 41 is ± 3 meters (9.8 feet); the Old US 41 roadway is ± 2.3 meters (7.5 feet); and the elevation of Briarcliff Road is about 3.9 to 4.4 meters (13 to 16 feet). According to the SFWMD, this area of Segment 1 is low lying and subject to periodic flooding and localized drainage problems during the summer months. Hence, proposed drainage improvements associated with any new alignment in this segment must demonstrate that historic flowways and drainage paths will be maintained.

The Lee DOT&E relates that Metro Parkway extending from Warehouse Road to Hanson Street (Segment 3) drains very slowly and experiences some minor flooding. In Segment 4, the Lee DOT&E indicated that the portion of Fowler Street from the approximate vicinity of Canal Street north to Dr. Martin Luther King, Jr. Boulevard floods four or five times a year after extra heavy rainstorms, perhaps because of an underdesigned stormwater system.

There are no regulatory floodways in the project corridor.

4.3.3.5 Farmlands

Through coordination with the Natural Resource Conservation Service (formerly the Soil Conservation Service), it has been determined that no farmlands are located in the project corridor. A copy of the Farmland Conversion Impact Rating (Form AD-1006) is in the project file.

4.3.4 Contamination

In accordance with the FHWA technical advisory T 6640.8A dated October 30, 1987, a contamination screening evaluation was conducted and a Contamination Screening Evaluation Report was prepared. Based upon the findings of the study, two hundred and twenty-two (222) sites have been identified as having the potential for contamination within the project vicinity. These sites, located along the project corridor have the potential to involve petroleum contamination or hazardous materials as defined by the Florida Department of Environmental Protection (FDEP).

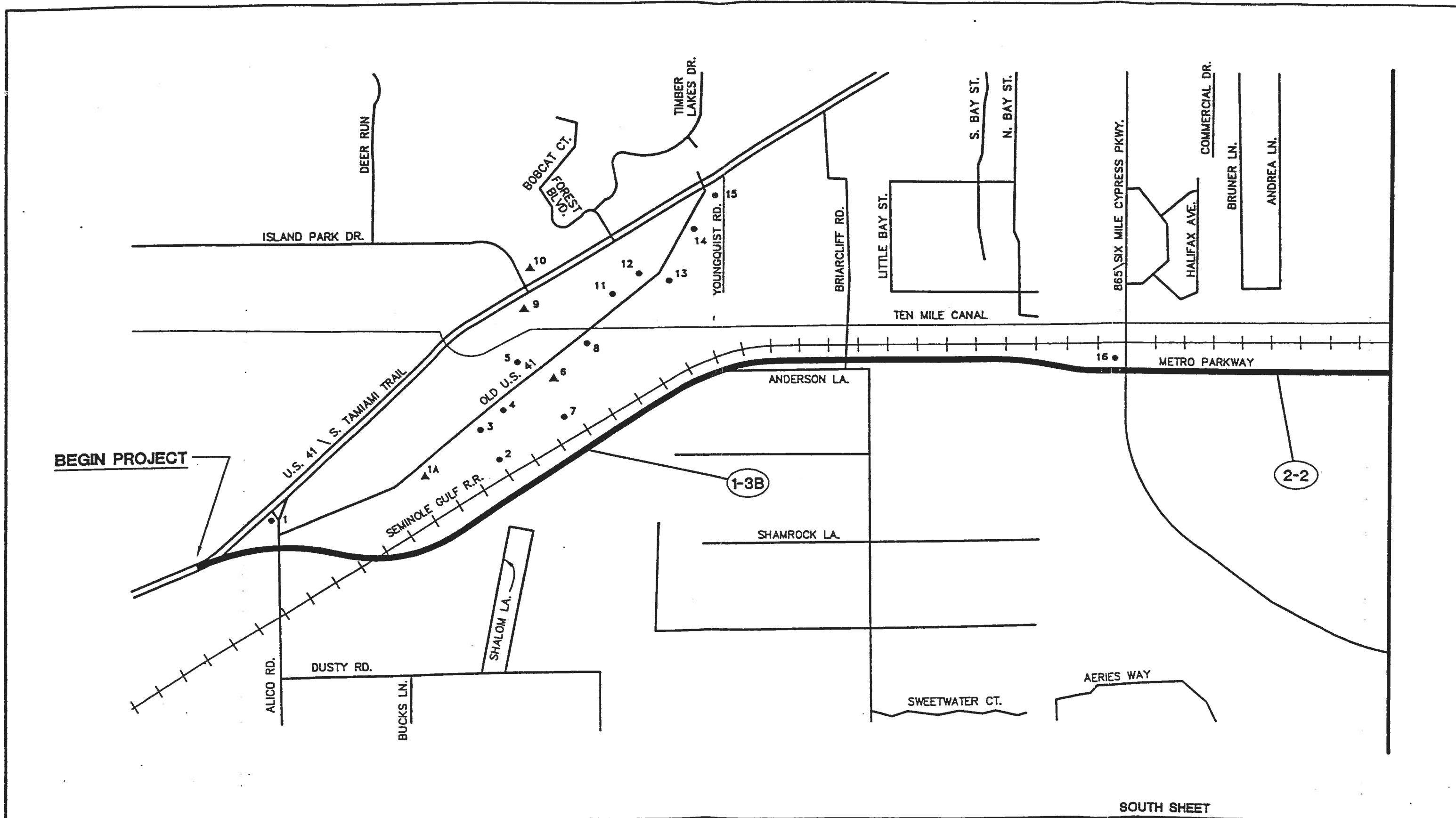
All sites in the project corridor were evaluated to determine risk potential. Risk ratings were assigned to each site based on field reviews, land use, historical tenancy evaluations,

and regulatory agency research. The results of this evaluation were that there were 2 potential contamination sites impacted by Alternative 1-3B and 5 potential contamination sites impacted by Alternative 1-3D. In Segment 2, Alternative 2-2 may impact 21 potential contamination sites. In Segments 3 & 4, for Alternatives 3-6 and 4-5 (LT), 40 potential contamination sites may be impacted. For Alternatives 3-6 and 4-2G, 31 potential contamination sites may be impacted.

Thirty-two (32) sites were subjected to subsurface investigations via OVA testing and /or chemical analysis. The results of the testing revealed that no contaminants at concentrations above regulatory limits were identified at any of the 32 sites. Figures 4-10A through 4-10D show the potential contamination sites for the project corridor. Additional subsurface testing was also performed in the right of way of the Seminole Gulf Railroad in Segment 4 because of concerns associated with herbicides and preservatives used on the tracks and railroad ties. Chemical analysis revealed that all constituents sampled were well below regulatory limits. Consequently, the portion of Alternative 4-2C that will be located within the Seminole Gulf Railroad right of way should not be impacted by contaminants associated with railyard operations.

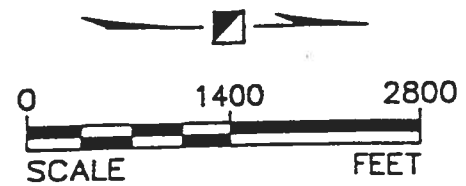
The State of Florida has evaluated the proposed right of way and has identified potentially contaminated sites for the various proposed alternatives. Results of this evaluation will be utilized in the selection of a recommended alternative. When a specific alternative is selected for implementation, a site assessment will be performed to the degree necessary to determine levels of contamination and, if necessary, evaluate the options to remediate along with the associated costs. Resolution of problems associated with contamination will be coordinated with the appropriate regulatory agencies and prior to right of way acquisition, appropriate action will be taken, where applicable.

The eleven (11) sites rated as High or Moderate risk for potential contamination will be investigated further prior to construction. Investigative work may include visual inspections, monitoring of ongoing cleanups and possibly 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 is feasible. Special provisions for handling unexpected contamination discovered during construction will be included in the construction plans package.



BEGIN PROJECT

SOUTH SHEET



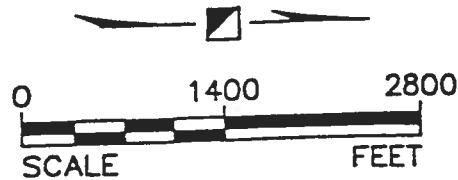
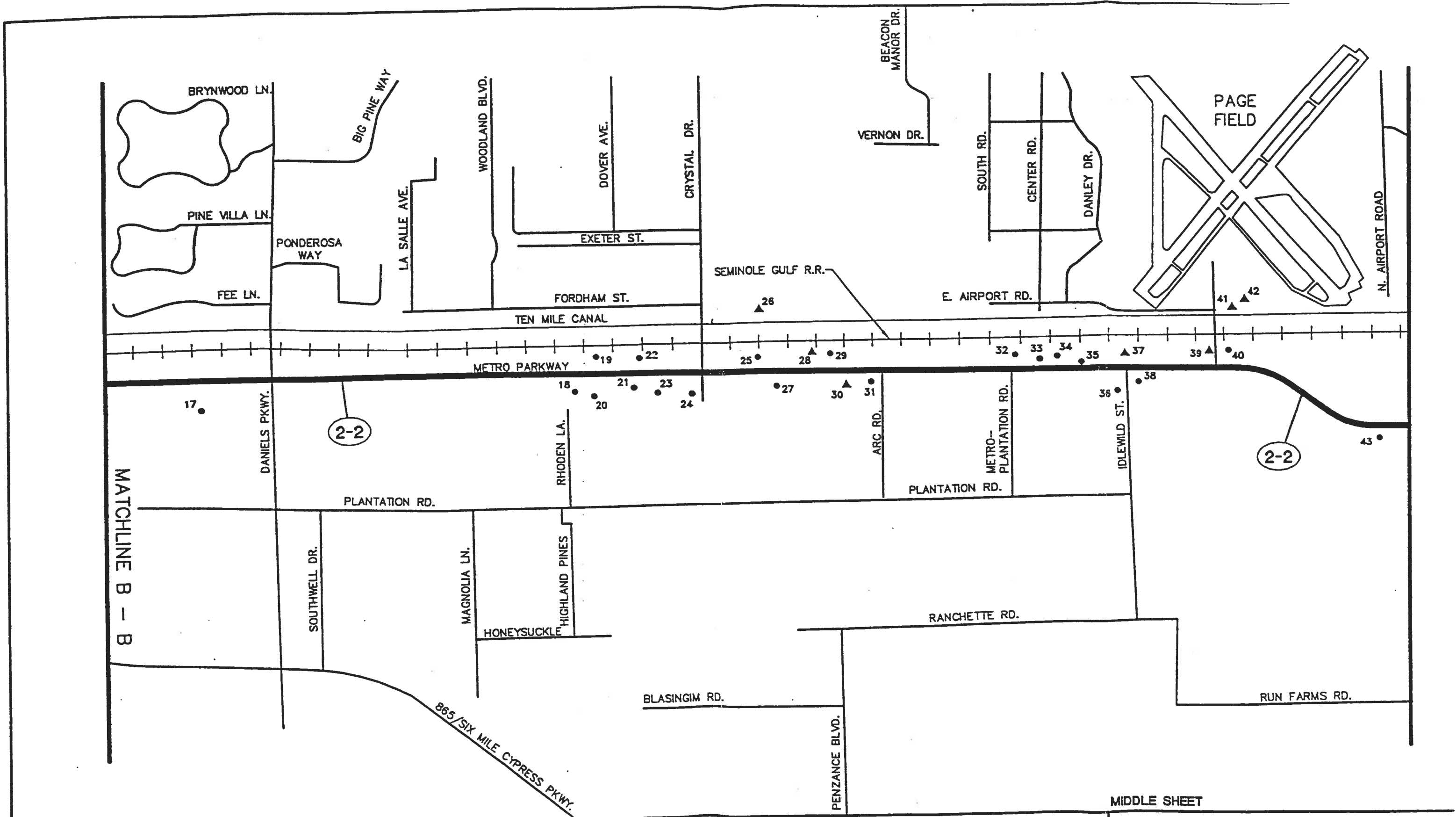
LEGEND

- 1 POTENTIAL CONTAMINATION SITES
- ▲ 6 KNOWN CONTAMINATION SITES



- PREFERRED ALIGNMENT (BUILD ALTERNATIVE)
- 1-3B ALIGNMENT DESIGNATION

FIGURE 4-10A
 POTENTIAL CONTAMINATION SITES
 METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. Jr. BLVD.)
 LEE COUNTY, FLORIDA
 SPN: 12014-1502 WPIN: 1114619
 FAP : SA-M-0671(9)



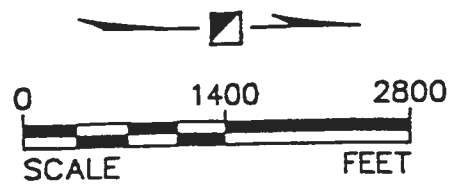
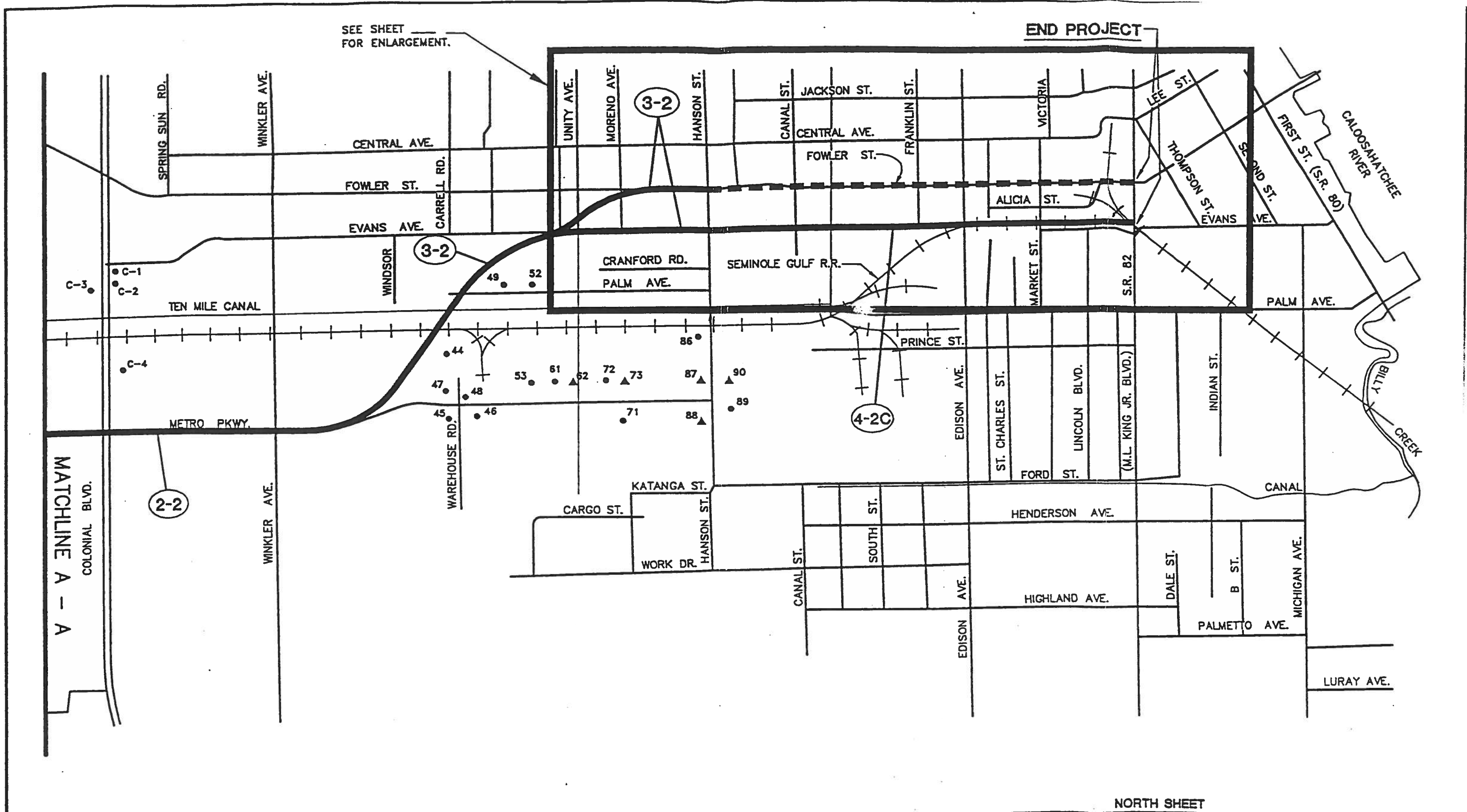
- 31 POTENTIAL CONTAMINATION SITES
- ▲ 30 KNOWN CONTAMINATION SITES

LEGEND

- PREFERRED ALIGNMENT (BUILD ALTERNATIVE)
- ALIGNMENT DESIGNATION

MIDDLE SHEET

FIGURE 4-10B
 POTENTIAL CONTAMINATION SITES
 METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. JR. BLVD.)
 LEE COUNTY, FLORIDA
 SPN: 12014-1502 WPIN: 1114619
 FAP : SA-M-0671(9)

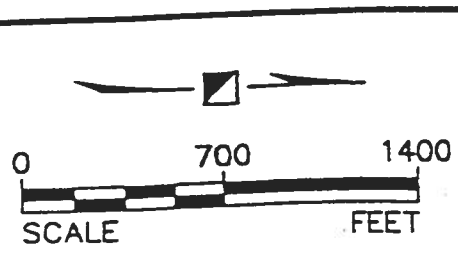
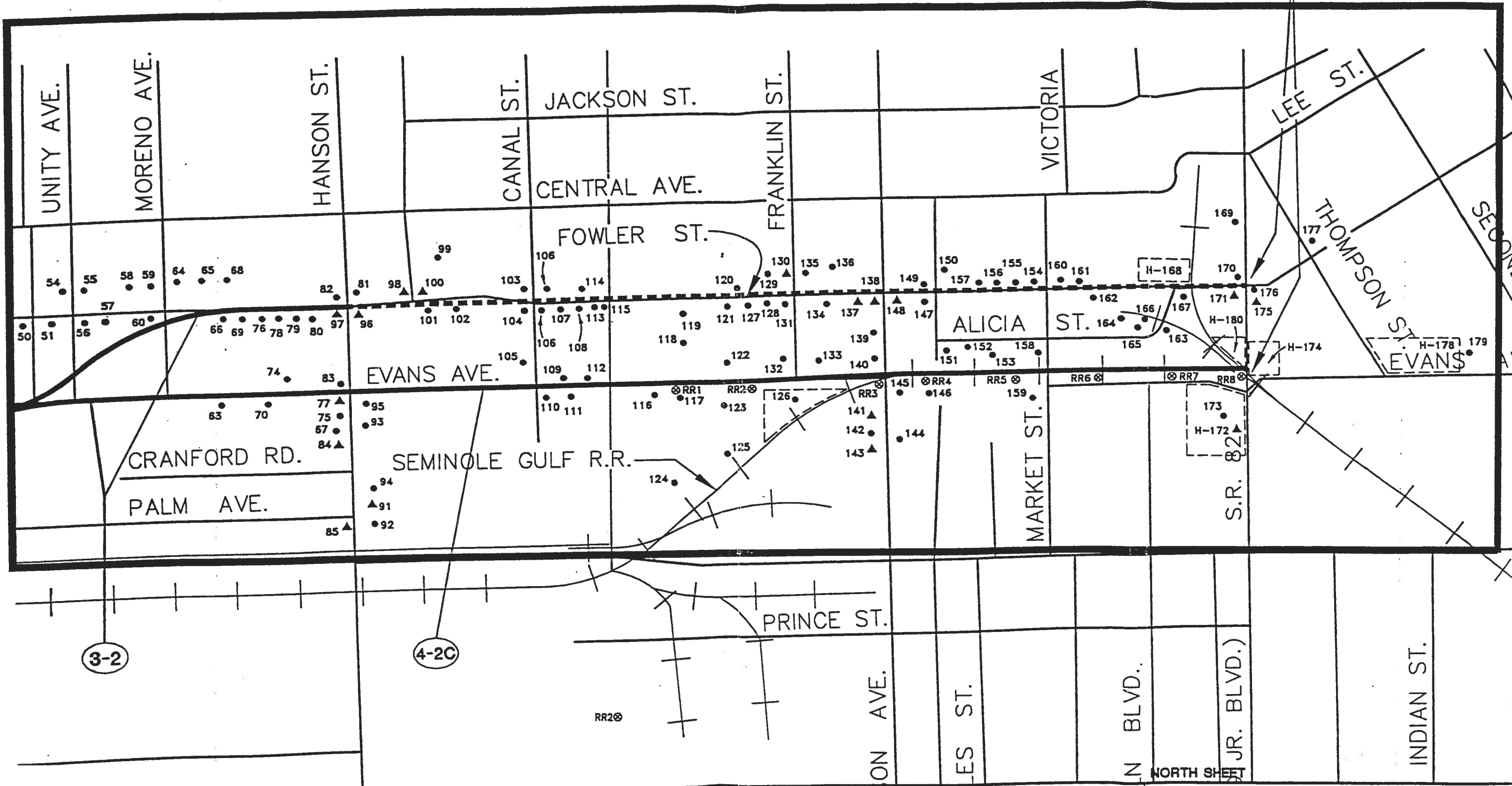


- 66 WETLAND SITE
- ▲ 87 CANAL WETLAND SITE

LEGEND

- PREFERRED ALIGNMENT (BUILD ALTERNATIVE)
- NO-BUILD ALTERNATIVE (FOWLER STREET SOUTHBOUND)
- ALIGNMENT DESIGNATION

FIGURE 4-10C
 POTENTIAL CONTAMINATION SITES
 METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. JR. BLVD.)
 LEE COUNTY, FLORIDA
 SPN: 12014-1502 WPIN: 1114619
 FAP : SA-M-0671(9)



LEGEND	
● 106	POTENTIAL CONTAMINATION SITES
▲ 100	KNOWN CONTAMINATION SITES
[]	APPROXIMATE LOCATION OF HISTORICAL POTENTIAL CONTAMINATION SITES
⊗ RR1	BORING LOCATION WITHIN SEMINOLE GULF RR ROW
—	PREFERRED ALIGNMENT (BUILD ALTERNATIVE)
- - -	NO-BUILD ALTERNATIVE (FOWLER STREET SOUTHBOUND)
(3-2)	ALIGNMENT DESIGNATION

FIGURE 4-10D
 POTENTIAL CONTAMINATION SITES
 METRO PARKWAY
 FROM U.S. 41 (S.R. 45) TO S.R. 82 (DR. M.L.K. Jr. BLVD.)
 LEE COUNTY, FLORIDA
 SPN: 12014-1502 WPIN: 1114619
 FAP : SA-M-0671(9)

The potential contamination concerns are not expected to affect or delay the project implementation significantly. No significant contamination is anticipated in Segments 1 through 3. Due to its location in an older, industrialized area, Segment 4 may have unknown contamination sites.

5.0 — Design Criteria

Design and construction criteria for the proposed improvements to Metro Parkway must adhere to FDOT standards for the design of such roadways and also must comply with recommended standard practices as set forth in the following documents:

- Manual on Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways, State of Florida (FDOT, 1986).
- A Policy on Geometric Design of Highways and Streets, AASHTO
- A Policy on the Design of Urban Highways and Arterial Streets, AASHTO
- Drainage Manual, Florida Department of Transportation
- Manual on Uniform Traffic Control Devices, Federal Highway Administration
- Roadway and Traffic Design Standards, Florida Department of Transportation
- Highway Capacity Manual, Transportation Research Board
- Structures Design Manual, Florida Department of Transportation

The design criteria listed in Tables 5-1 and 5-2 are current. Table 5-1 shows the design criteria for the rural arterial section; Table 5-2 shows the design criteria for the urban section. All criteria are subject to change and only current criteria will be used during the final design phase.

**TABLE 5-1
Design Criteria Matrix
Suburban Arterial**

Design Element	Mainline	Source
Design Speed	80 kph (50 mph)	
Posted Speed	70 kph (45 mph)	
Horizontal Alignment		
Maximum Curve	267.9 m (878 ft.)	(1) Table 2.9.2
Maximum Deflection (no curve)	0 \surd 0' 45"	(1) Table 2.8.1
Maximum Superelevation	0.05	(1) Table 2.9.2
Vertical Alignment		
Maximum Grade	6%	(1) Table 2.6.1
Minimum Grade	0.3%	(1) Clause 2.6.3
Decision Sight Distance	120 m (393 ft.)	(1) Table 2.7.1
Vertical Curve Length (ft.)	K = 36 Crest K = 25 Sag	(1) Table 2.8.5 (1) Table 2.8.6
Cross Section		
Lane Widths	3.6 m (12 ft.)	(1) Table 2.1.1
Bicycle Accommodation	On shoulder	(1) Table 2.1.2
Clear Zone	7.3 m (24 ft.)	(1) Table 2.12.1
Median Width	6.6 m (22 ft.)	(1) Table 2.2.1
Cross Slope Inside Lanes Outside Lanes (3 or more lanes)	0.02 0.03	(1) Figure 2.1.1
Shoulder Width	3.0 m (10 ft.)	(1) Table 2.3.2
Border Width	10 m (33 ft.)	(1) Table 2.5.1
Interchange		
Vertical Clearance	4.9 m (16 ft.) Road 7.0 m (23 ft.) Railroad	(1) Table 2.10.1

NOTE:(1) Plan Preparation Manual, 1995, FDOT

**TABLE 5-2
Design Criteria Matrix
Urban Arterial**

Design Element	Mainline	Source
Design Speed	70 kph (45 mph)	
Posted Speed	60 kph (40 mph)	
Horizontal Alignment		
Maximum Curve	213.4m (700 ft.)	(1) Table 2.9.2
Maximum Deflection (no curve)	1 ≈ 0' 00"	(1) Table 2.8.1
Maximum Superelevation	0.05	(1) Table 2.9.2
Vertical Alignment		
Maximum Grade	6% @ 80 kph (50 mph)	(1) Table 2.6.1
Minimum Grade	0.3%	(1) Clause 2.6.3
Decision Sight Distance	120 m (393 ft.)	(1) Table 2.7.1
Vertical Curve Length (ft.)	K = 36 Crest K = 24 Sag	(1) Table 2.8.5 (1) Table 2.8.6
Cross Section		
Lane Widths	3.6 m (12 ft.)	(1) Table 2.1.1
Bike Lanes	1.2 m (4 ft.)	(1) Table 2.1.2
Clear Zone (with curb and gutter)	1.2 m (4 ft.)	(1) Table 2.12.1
Median Width	6.6 m (22 ft.)	(1) Table 2.2.1
Cross Slope Inside Lanes Outside Lanes	0.02 0.03	(1) Figure 2.1.1
Curb and Gutter	Type F	(2) Chapter 7
Sidewalk *When adjacent to curb and gutter	1.8 m (6 ft.)* 1.5 m (5 ft.)	(1) Clause 2.3.4, (4)
Border	3.6 m (11.8 ft.)	(1) Table 2.5.2
Interchange		
Vertical Clearance	4.9 m (16 ft.) Road 7.0 m (23 ft.) Railroad	(1) Table 2.10.1

NOTE: (1) Plan Preparation Manual, 1995, FDOT

(2) A Policy on Geometric Design of Highways and Streets, 1994, AASHTO

6.0 — Traffic

This chapter presents a summary of the detailed traffic study that was conducted for this project. This traffic study included an evaluation of the existing traffic volumes and levels of service for both roadway segments and individual intersections throughout the study corridor to identify any existing level of service deficiencies, as well as evaluations of the future year 2020 traffic conditions for both Build and No-Build Alternatives.

6.1 Existing Roadway Network

The Metro Parkway corridor is currently an urban arterial serving central Lee County in the areas between I-75 and US 41. Within the project corridor, no facility currently exists from US 41 near Alico Road to Six Mile Cypress Parkway (Segment 1). The facility exists along Metro Parkway (Segment 2) as a two-lane section from Six Mile Cypress Parkway to Daniels Parkway; a four-lane divided roadway with intermittent continuous left-turn lane and raised median from Daniels Parkway to Colonial Boulevard; a four-lane divided facility from Colonial Boulevard to Winkler Avenue; a two-lane facility along Metro Parkway north of Winkler Avenue in Segment 3; a two-lane section along Evans Avenue in Segments 3 and 4; a four-lane facility with a continuous left-turn lane on Fowler Street south of Hanson Street (Segment 3); and an individual four-lane section in the Fowler Street portion north of Hanson Street (Segment 4).

The Metro Parkway corridor attempts to function as a through facility and an alternative to US 41. However, the corridor is hampered in this effort by substandard conditions in some locations and a generally circuitous route not well suited for serving through movements. The roadways within the corridor also serve an important function in providing access to residences along the corridor (primarily along Evans Avenue) and to multiple businesses on Metro Parkway, Fowler Street, and Evans Avenue.

6.2 Multimodal Transportation System Considerations

The Metro Parkway corridor is impacted by three other modes of transportation, namely aviation, railroads and mass transit. These include two major airports, Southwest Florida

International Airport and Page Field. Southwest Florida International Airport is located approximately eight kilometers (five miles) east of the Metro Parkway corridor. As an important arterial within Lee County, US 41 serves a significant role in providing access to the airport. Metro Parkway via Daniels Parkway provides an excellent link between Southwest Florida International Airport and Page Field. Metro Parkway also provides an excellent route to important industrial areas within the County.

Page Field is a major general aviation airport west of the Metro Parkway corridor. In addition to its general aviation activities, some minor freight and charter activity are based at Page Field. It is likely that significant redevelopment will occur at Page Field because of the Page Field Connector Roadway that will connect Fowler Street and Boy Scout Drive. Redevelopment of the old passenger terminal at Page Field is also planned.

The Seminole Gulf Railroad runs the entire length of the project corridor. The railroad crosses Alico Road in the vicinity of US 41 (Segment 1) and extends in a northwesterly direction for a distance of 2.4 kilometers (1.5 miles), at which point it turns to the north and runs adjacent to the east side of the Ten Mile Canal to the vicinity of South Street (Segment 4). At this point, the railroad turns to the northeast and crosses Edison Avenue near the intersection with Evans Avenue. The railroad then turns north again and runs adjacent to the west side of Evans Avenue to SR 82 (Martin Luther King, Jr. Boulevard). Just south of Martin Luther King, Jr. Boulevard, there is a spur track (Wye configuration) off the mainline which extends in a westerly direction across Fowler Street and this track terminates at the News Press Building. All existing railroad crossings in the project corridor are at grade.

The Seminole Gulf Railroad runs dinner excursion trains primarily on weekends with limited passenger loading facilities at the Sun Harvest Citrus Company just south of Six Mile Cypress Parkway and at Amtel Mall. The train runs are generally short and travel from Bonita Springs to the Charlotte County line. There are no current plans for expansion of railroad operations within the limits of the Metro Parkway corridor.

Transit service is provided along US 41 from two LeeTran bus routes that serve part of the Metro Parkway study corridor. The Green and Brown lines operate from 6:00 a.m. to 7:00 p.m. with headways ranging from 30 to 60 minutes. Service is provided Monday through Saturday. The Brown Route services the portion of Metro Parkway from Daniels Parkway to Winkler Avenue. The Green Route operates in the corridor from Colonial

Boulevard to Edison Avenue.

There are no current plans for expansion of transit operations along Metro Parkway over the next several years.

6.3 Existing Traffic Volumes

Traffic counts were conducted throughout the entire study corridor during the period from March 28, 1997 to April 11, 1997 to evaluate the existing traffic conditions. These traffic counts included 24-hour machine counts at 31 locations on Metro Parkway, Evans Avenue and Fowler Street as well as at 40 cross street locations. The count data was adjusted by using a seasonal adjustment factor and an axle adjustment factor to obtain the Average Annual Daily Traffic (AADT) volumes for the study corridor.

The AADT volume on the existing Metro Parkway facility ranges from 13,600 vehicles per day (vpd) (between Six Mile Cypress Parkway and Daniels Parkway) to 30,200 vpd (between Crystal Drive and Danley Drive). The AADT volume on Fowler Street between Winkler Avenue and Hanson Street varies between 22,700 vpd and 24,400 vpd. Within these same limits, the AADT volume on Evans Avenue ranges from 6,000 vpd to 8,200 vpd. Lastly, the AADT volumes on Fowler Street and Evans Avenue between Hanson Street and SR 82 range from 21,000 vpd to 24,300 vpd and from 600 vpd to 5,900 vpd, respectively.

Peak hour turning movement counts were also conducted from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m. at 22 intersections along Metro Parkway, Fowler Street and Evans Avenue. These volumes were used to conduct the existing conditions level of service analyses.

In addition to the 24-hour approach counts and peak hour turning movement counts, six 48-hour vehicle classification counts were also conducted at two different locations on Metro Parkway, Fowler Street and Evans Avenue.

6.4 Existing Traffic Characteristics

The traffic count data was used to determine the peak hour-to-daily volume ratios, the directional distribution factors and the truck percentages on Metro Parkway, Fowler Street and Evans Avenue.

On the portion of Metro Parkway from Six Mile Cypress Parkway to Hanson Street, the peak hour-to-daily volume ratio ranges from 6.47% to 9.98% in the a.m. peak hour and from 7.33% to 10.01% in the p.m. peak hour. The directional distribution factor (D-factor) ranges from 51% to 62% in the a.m. peak hour and from 50% to 64% in the p.m. peak hour. The percentage of trucks (T-factor) averaged 7.07% in the a.m. peak hour, 5.33% in the p.m. peak hour and 7.67% for 24 hours.

The peak hour-to-daily volume ratio for Fowler Street from south of Carrell Road to SR 82 ranges from 7.73% to 8.60% in the a.m. peak hour and from 7.44% to 8.44% in the p.m. peak hour. The D-factor ranges from 61% to 70% in the a.m. peak hour and from 61% to 64% in the p.m. peak hour. The average T-factor is 3.10% in the a.m. peak hour, 1.88% in the p.m. peak hour and 4.03% for 24 hours.

On Evans Avenue from south of Carrell Road to SR 82, the existing peak hour-to-daily volume ratio ranges from 6.03% to 9.53% in the a.m. peak hour and from 8.07% to 30.53% in the p.m. peak hour. Over this same portion of Evans Avenue, the D-factor varies between 57% and 80% in the a.m. peak hour and between 62% and 96% in the p.m. peak hour. The average T-factor is 6.51% in the a.m. peak hour, 2.94% in the p.m. peak hour and 8.89% for the 24-hour period.

Table 6-1 summarizes the existing traffic characteristics for Metro Parkway, Fowler Street and Evans Avenue. The values contained in Table 6-1 represent the average values.

**Table 6-1
Existing Traffic Characteristics**

Roadway	AM Peak Hour			PM Peak Hour		
	Peak-to-Daily Volume Ratio	D-Factor	T-Factor	Peak-to-Daily Volume Ratio	D-Factor	T-Factor
Metro Parkway						
From Six Mile Cypress Parkway to Hanson Street	8.11%	55%	7.07%	8.77%	55%	5.33%
Fowler Street						
From South of Carrell Road to SR 82	8.19%	63%	3.10%	7.90%	63%	1.88%
Evans Avenue						
From South of Carrell Road to SR 82	7.01%	65%	6.51%	12.16%	71%	2.94%

6.5 Existing Intersection Levels of Service

The existing intersection levels of service within the Metro Parkway corridor were evaluated by using the 1994 Highway Capacity Manual Software (HCS). Three of the 18 signalized intersections analyzed are currently operating at Level of Service F during the a.m. peak hour, p.m. peak hour or both peak hours. These intersections are as follows:

- Fowler Street/Hanson Street (a.m. and p.m. peak hours)
- Evans Avenue/Hanson Street (a.m. and p.m. peak hours)
- Metro Parkway/Hanson Street (a.m. peak hour)

Two other intersections are currently operating at Level of Service E during one of the two peak hours. The Metro Parkway/Winkler Avenue intersection is operating at Level of Service E during the a.m. peak hour while the Fowler Street/SR 82 intersection is

operating at Level of Service E during the p.m. peak hour. Both of these intersections are operating over capacity with v/c ratios of approximately 1.1. At the Metro Parkway/Winkler Avenue intersection, the following three movements are all operating over capacity:

- Westbound Winkler Avenue through movement
- Northbound Metro Parkway left-turn movement
- Northbound Metro Parkway through movement

At the Fowler Street/SR 82 intersection, the eastbound SR 82 through movement and the northbound Fowler Street right-turn movement are both operating above capacity.

It should also be noted that two of the signalized intersections that are operating at Level of Service D overall, are operating close to capacity. The Metro Parkway/Six Mile Cypress Parkway intersection is operating with an overall v/c ratio of 0.96 in the a.m. peak hour and the southbound right-turn movement is operating at Level of Service F with a v/c ratio of 1.10. The Metro Parkway/Colonial Boulevard intersection is operating with an overall v/c ratio of 0.98 in the p.m. peak hour and three of the four critical movements are experiencing v/c ratios between 0.97 and 0.98. These results indicate that these two intersections will likely experience Level of Service E or F conditions in the near future if traffic volumes continue to increase and no intersection improvements are implemented at these locations.

Levels of service were also estimated for twelve (12) unsignalized intersections within the study corridor using the unsignalized intersection module of the HCS. The Evans Avenue/Edison Avenue intersection is projected to operate at Level of Service F during the p.m. peak hour because the westbound Edison Street approach volume exceeds the capacity that is available for these movements.

6.6 Existing Roadway Segment Levels of Service

Existing roadway segment level of service evaluations were also conducted for the roadway segments located between the signalized and unsignalized intersections. Signalized arterial level of service analyses were conducted for the portion of Metro Parkway between Daniels Parkway and Winkler Avenue and for the portion of Fowler

Street from Carrell Road to SR 82 using Version 2.0 of the FDOT's ART_PLAN software. The input parameters required for the arterial analyses (i.e., G/C ratios and cycle lengths) were obtained from the signalized intersection analysis outputs. The analysis results indicate that the portion of Metro Parkway between Daniels Parkway and Winkler Avenue is operating at Level of Service B overall in both the peak and off-peak directions during both the a.m. and p.m. peak hours. In addition, with the exception of the segment between Colonial Boulevard and Winkler Avenue (which is operating at Level of Service D in the peak direction during the peak hours); all of the other Metro Parkway roadway segments analyzed using ART_PLAN were operating at Level of Service C or better.

The ART_PLAN analysis also indicates that the portion of Fowler Street between Carrell Road and SR 82 is operating at Level of Service D overall in the peak direction (southbound) and Level of Service B overall in the off-peak direction (northbound) during the a.m. peak hour. The segments between Canal Street and Hanson Street and between Thompson Street and SR 82 were identified as operating at Level of Service F in the southbound direction during the a.m. peak hour. The p.m. peak hour ART_PLAN analysis results indicate that Fowler Street is operating at Level of Service F overall in the peak direction (northbound) and Level of Service C overall in the off-peak direction (southbound). A closer examination of the analysis results reveals, however, that the Level of Service F occurs because the northbound Fowler Street through volume exceeds the available capacity at the Fowler Street/Hanson Street intersection.

Due to the low frequency of signalized intersections on Evans Avenue between Carrell Road and SR 82, a signalized arterial analysis was not conducted. The Evans Avenue roadway segments were, however, analyzed as two-lane undivided roadway segments using the methodology contained in Chapter 8 of the 1994 Highway Capacity Manual. The results of the two-lane highway segment analysis indicates that Evans Avenue is currently operating at Level of Service C or better during both the a.m. and p.m. peak hours.

In addition, two-lane highway analyses were also conducted for the portions of Metro Parkway between Winkler Avenue and Hanson Street and between Six Mile Cypress Parkway and Daniels Parkway. Although both of these roadway segments are operating at Level of Service E during the a.m. and p.m. peak hours, the existing peak hour volumes on these segments represent only 62 percent to 85 percent of the total roadway capacity.

In addition, actual field observations conducted during the traffic count program indicated that no significant operational problems were occurring on either of these roadway segments.

6.7 Future No Build Alternative Conditions

Future year traffic projections were developed for the design year 2020 using the Lee County MPO's 2020 Financially Feasible travel demand model. The Peak Season Weekday Traffic (PSWT) volumes generated by the model were converted to AADT volumes prior to conducting the level of service analyses. The conversion was accomplished by dividing the PSWT volumes by a seasonal adjustment factor of 1.08. This factor was based on the permanent count station data contained in the Lee County 1996 Traffic Count Report.

A No-Build Alternative analysis was conducted for the Metro Parkway corridor to document the need for additional capacity/geometric improvements. For the purposes of this study, the No-Build Alternative is defined to be the existing Metro Parkway, Fowler Street and Evans Avenue facilities. The only exception to this is the portion of Metro Parkway between Winkler Avenue and Hanson Street. Since the Lee County MPO's 2020 Financially Feasible Long Range Transportation Plan calls for this portion of Metro Parkway to be improved to four lanes, it was assumed that this improvement would be in place even with the No-Build Alternative.

Table 6-2 summarizes the volume-to-capacity (v/c) ratios and levels of service expected for Metro Parkway with the No-Build Alternative in the year 2020. As indicated in Table 6-2, the existing four-lane portion of Metro Parkway between Six Mile Cypress Parkway and Winkler Avenue is projected to operate at Level of Service F with v/c ratios ranging from 1.06 to 1.21. Only the portion between Winkler Avenue and Hanson Street is projected to operate at an acceptable level of service. As stated earlier, this portion of Metro Parkway was assumed to be widened from two lanes to four lanes in the No-Build Alternative. It should be noted that if the existing two-lane section was allowed to remain in the year 2020, an unacceptable level of service would also be expected to occur on this roadway segment.

Table 6-2
Year 2020 No-Build Alternative Level of Service
Summary for Metro Parkway

Roadway Segment	2020 AADT	V/C Ratio	Level of Service
Six Mile Cypress Parkway to Daniels Parkway	45,100	1.06 ⁽¹⁾	F ⁽¹⁾
Daniels Parkway to Crystal Drive	44,900	1.06 ⁽¹⁾	F ⁽¹⁾
Crystal Drive to Danley Drive	45,400	1.07 ⁽¹⁾	F ⁽¹⁾
Danley Drive to Idlewild Street	49,800	1.17 ⁽¹⁾	F ⁽¹⁾
Idlewild Street to Colonial Boulevard	51,400	1.21 ⁽¹⁾	F ⁽¹⁾
Colonial Boulevard to Winkler Avenue	47,100	1.11 ⁽¹⁾	F ⁽¹⁾
Winkler Avenue to Hanson Street	35,500	0.84 ⁽¹⁾	C ⁽¹⁾

(1) V/C ratio and Level of Service based on a maximum Level of Service E volume of 42,500 vehicles/day.

Table 6-3 summarizes the year 2020 v/c ratios and levels of service projected to occur on the Fowler Street and Evans Avenue roadway segments with the No-Build Alternative. As indicated in Table 6-3, all of the segments on Fowler Street are projected to operate at Level of Service F with v/c ratios ranging between 1.03 and 1.68. In addition, four of the seven segments on Evans Avenue are projected to operate at Level of Service E in the year 2020 with the No-Build Alternative.

**Table 6-3
Year 2020 No-Build Alternative Level of Service
Summary for Fowler Street and Evans Avenue**

Roadway Segment	Fowler Street			Evans Avenue		
	2020 AADT	V/C Ratio	Level of Service	2020 AADT	V/C Ratio	Level of Service
Winkler Avenue to Carrell Road	47,100	1.11 ⁽¹⁾	F ⁽¹⁾	14,400	0.57 ⁽³⁾	E ⁽³⁾
Carrell Road to Hanson Street	43,900	1.03 ⁽¹⁾	F ⁽¹⁾	13,700	0.54 ⁽³⁾	D ⁽³⁾
Hanson Street to Canal Street	56,000	1.68 ⁽²⁾	F ⁽²⁾	18,400	0.73 ⁽³⁾	E ⁽³⁾
Canal Street to South Street	51,100	1.53 ⁽²⁾	F ⁽²⁾	18,500	0.73 ⁽³⁾	E ⁽³⁾
South Street to Edison Avenue	49,500	1.48 ⁽²⁾	F ⁽²⁾	17,900	0.71 ⁽³⁾	E ⁽³⁾
Edison Avenue to Market Street	54,000	1.62 ⁽²⁾	F ⁽²⁾	11,200	0.44 ⁽³⁾	D ⁽³⁾
Market Street to SR 82	49,500	1.48 ⁽²⁾	F ⁽²⁾	13,500	0.53 ⁽³⁾	D ⁽³⁾

- (1) V/C ratio and Level of Service based on a maximum Level of Service E volume of 42,500 vehicles/day.
- (2) V/C ratio and Level of Service based on a maximum Level of Service E volume of 33,400 vehicles/day.
- (3) V/C ratio and Level of Service based on a maximum Level of Service E volume of 25,300 vehicles/day.

The level of service analysis results summarized in Tables 6-2 and 6-3 clearly indicate the need to provide additional capacity in the Metro Parkway corridor. The capacity associated with the existing Metro Parkway, Fowler Street and Evans Avenue roadways will not be sufficient to accommodate the traffic volumes projected to occur by the year 2020 at acceptable levels of service.

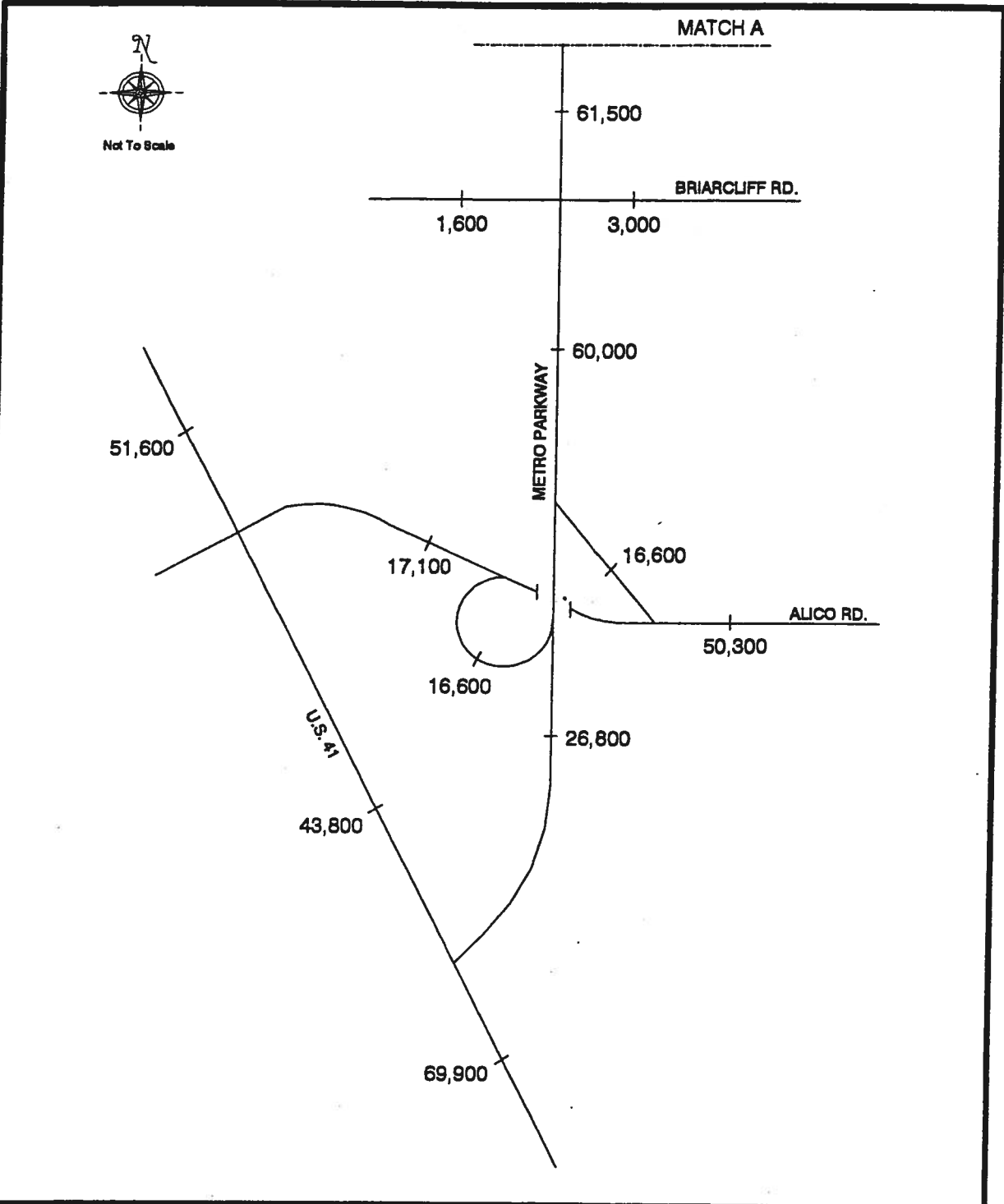
6.8 Future Build Alternative Conditions

Future year traffic projections were developed for two Build Alternatives using the Lee County MPO's 2020 Financially Feasible travel demand model. Design year 2020 AADT volumes were developed for both a six-lane Fowler Street alternative as well as a Fowler Street/Evans Avenue one-way pair alternative. To determine the design year geometric requirements within the study corridor, a.m. and p.m. design hour volumes were initially derived from the AADT forecasts using a K-factor of nine percent and a D-factor of 55 percent. The design hour levels of service within the Metro Parkway corridor were estimated by using Release 2.1d of the 1994 Highway Capacity Manual software (HCS) and the FDOT's Lotus-based ART_PLAN software (Version 2.0). Both the six-lane divided Fowler Street alternative and the Fowler Street/Evans Avenue one-way pair alternative were analyzed. The results of these analyses are discussed below.

6.8.1 Fowler Street/Evans Avenue One-Way Pair Alternative

The 2020 AADT volumes for the Fowler Street/Evans Avenue one-way pair alternative are illustrated on Figures 6-1A through 6-1D. Signalized intersection analyses were conducted for the following 25 locations:

- Metro Parkway/US 41
- Metro Parkway/Alico Road
- Metro Parkway/Six Mile Cypress Parkway
- Metro Parkway/Daniels Parkway
- Metro Parkway/Crystal Drive
- Metro Parkway/Danley Drive
- Metro Parkway/Idlewild Street
- Metro Parkway/Colonial Boulevard
- Metro Parkway/Winkler Avenue
- Metro Parkway/Metro Crossover
- Metro Parkway/Hanson Street
- Fowler Street/Carrell Road
- Fowler Street/Hanson Street
- Fowler Street/Canal Street



LEGEND

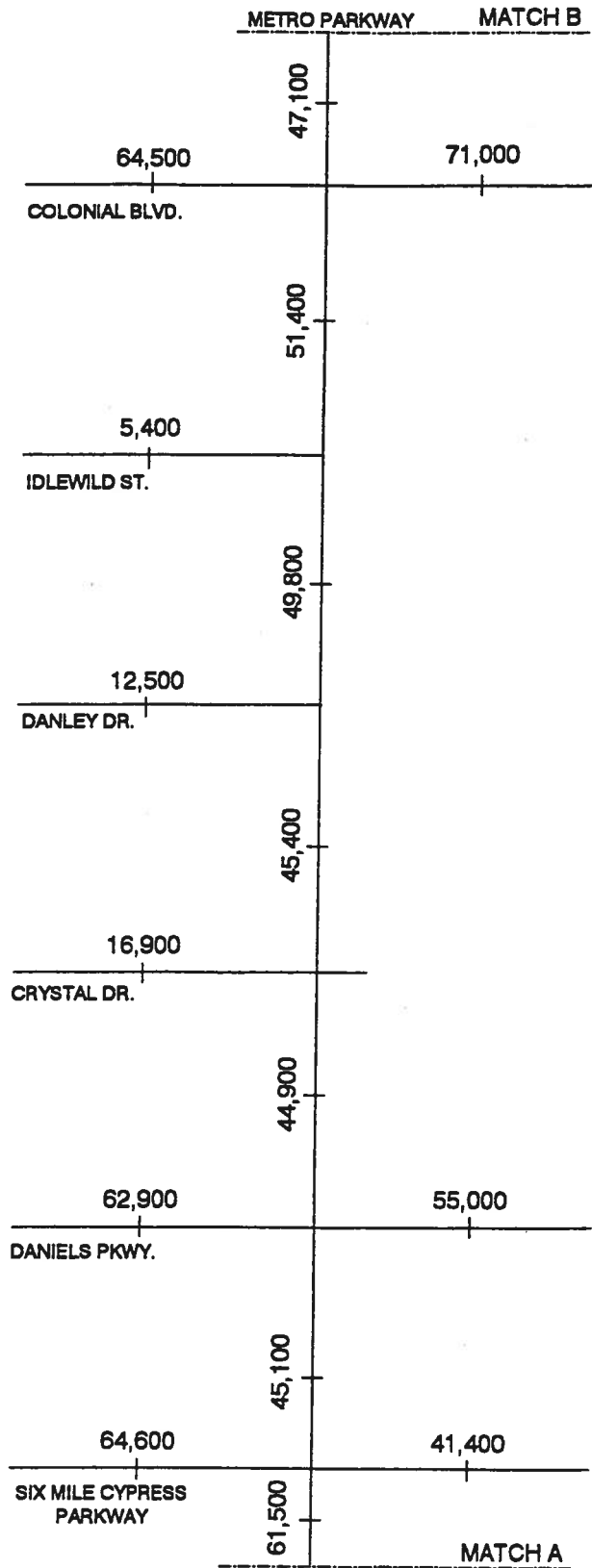
69,900 - Two-Way 2020 AADT

METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida
**DESIGN YEAR (2020) AVERAGE
 ANNUAL DAILY TRAFFIC VOLUMES
 (ONE-WAY PAIR)**

FLORIDA DEPARTMENT OF TRANSPORTATION

FIGURE 6-1A

20AADTB1.DRW

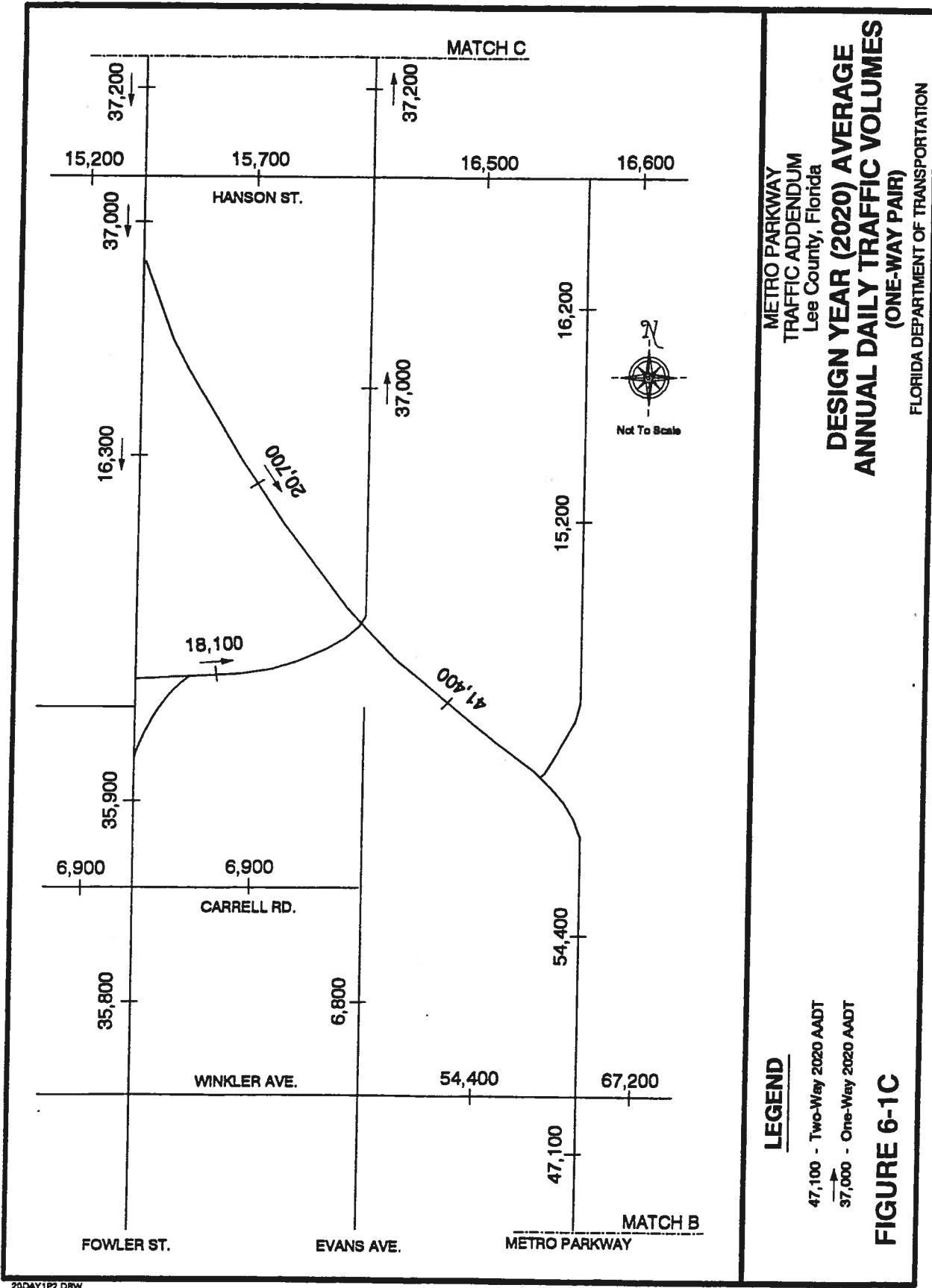


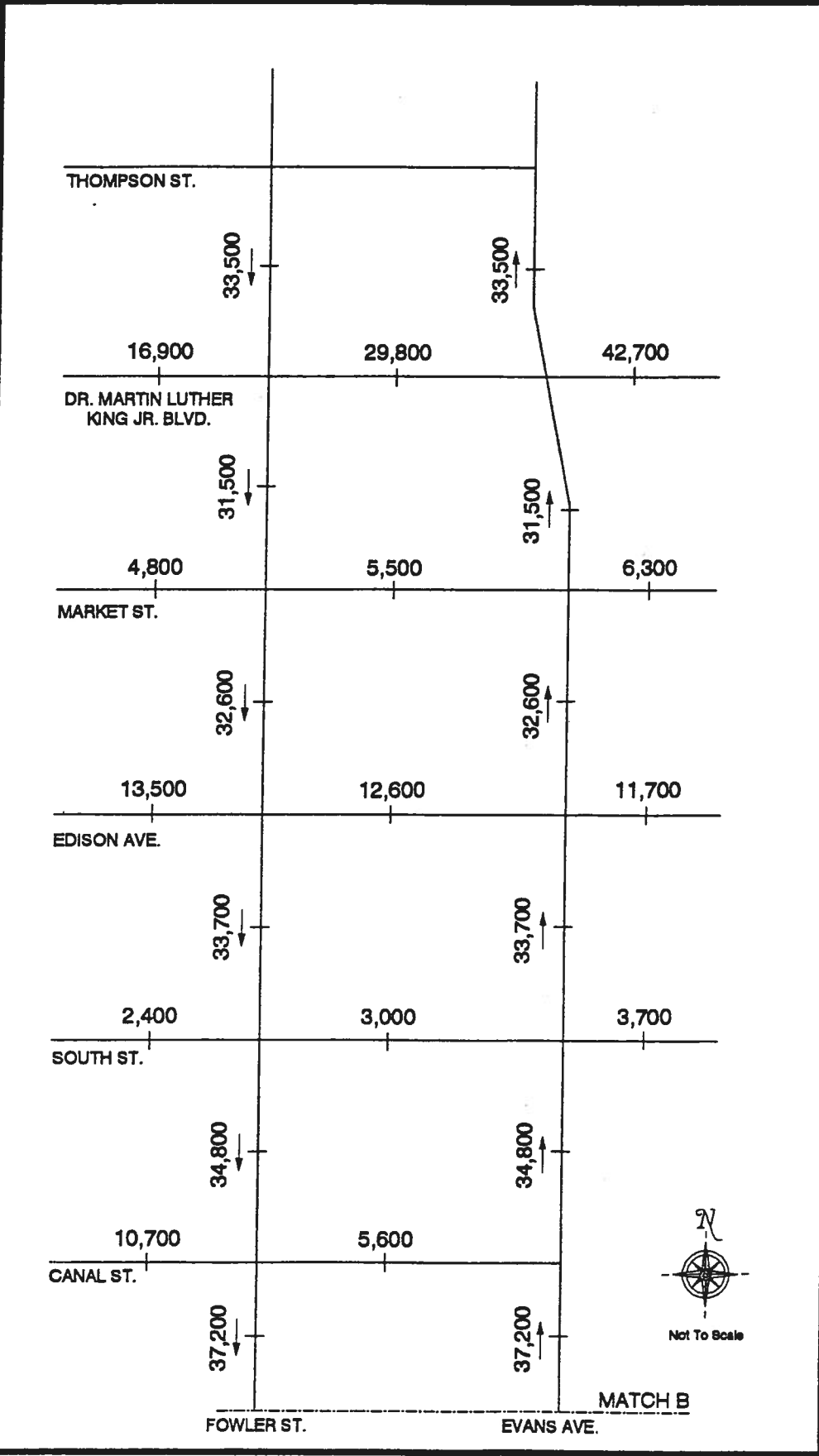
METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida
**DESIGN YEAR (2020) AVERAGE
 ANNUAL DAILY TRAFFIC VOLUMES**
 (ONE-WAY PAIR)
 FLORIDA DEPARTMENT OF TRANSPORTATION

LEGEND

45,100 - Two-Way 2020 AADT

FIGURE 6-1B





METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida

DESIGN YEAR (2020) AVERAGE ANNUAL DAILY TRAFFIC VOLUMES (ONE-WAY PAIR)

FLORIDA DEPARTMENT OF TRANSPORTATION

LEGEND

- 2,400 - Two-Way 2020 AADT
- 28,100 - One-Way 2020 AADT

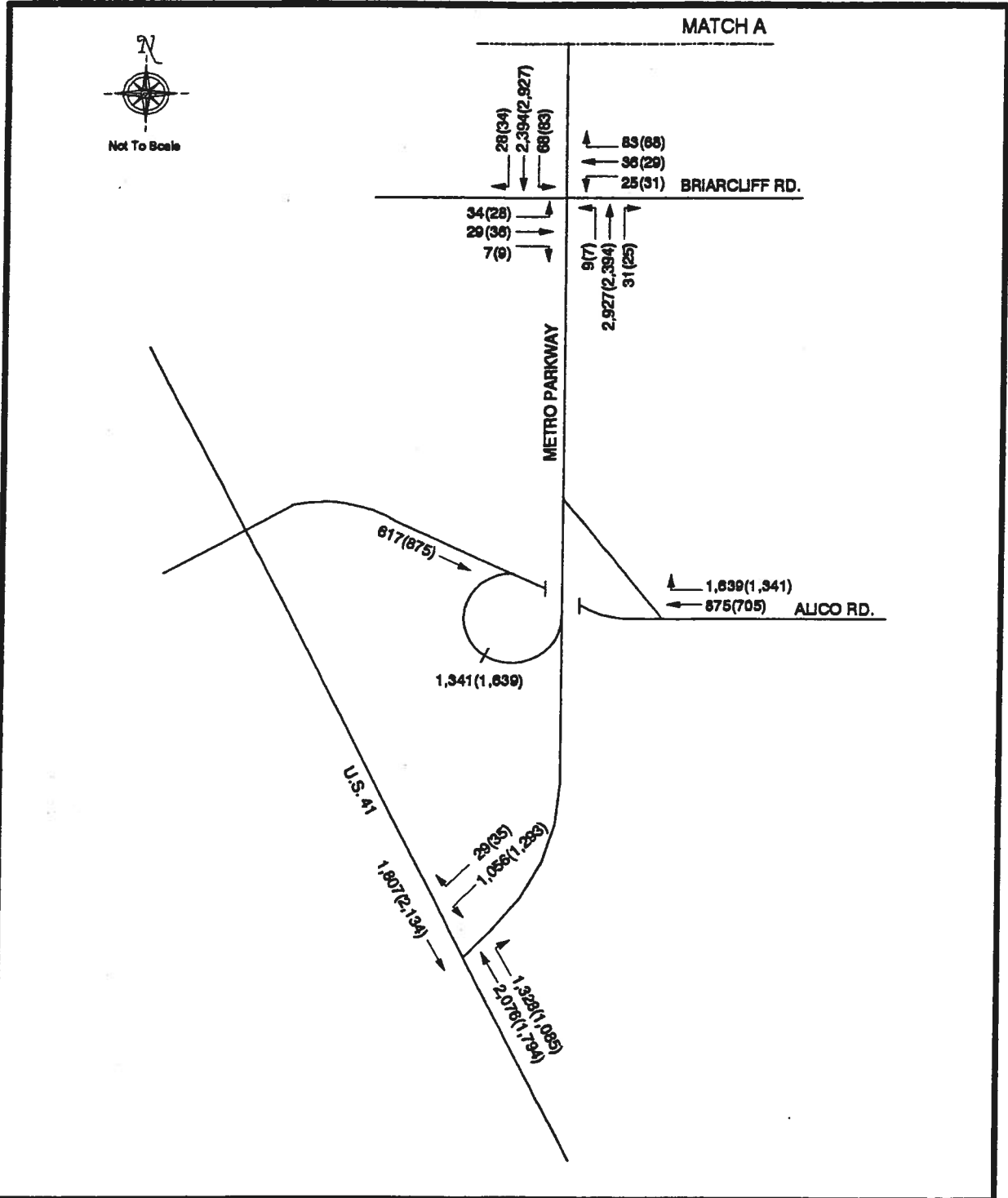
FIGURE 6-1D

- Fowler Street/South Street
- Fowler Street/Edison Avenue
- Fowler Street/Market Street
- Fowler Street/SR 82
- Fowler Street/Evans Avenue/Metro Crossover
- Evans Avenue/Hanson Street
- Evans Avenue/Canal Street
- Evans Avenue/South Street
- Evans Avenue/Edison Avenue
- Evans Avenue/Market Street
- Evans Avenue/SR 82

The results of the initial HCS analyses indicated that some of the signalized intersections would not be able to provide adequate capacity to accommodate nine percent of the projected 2020 AADT volume, even with maximum practical at-grade geometric improvements. Although the implementation of grade separation (i.e., interchanges) would allow these locations to accommodate nine percent of the 2020 AADT volume at acceptable levels of service, only two interchanges are currently included in the Lee County MPO's Financially Feasible Long Range Transportation Plan for the Metro Parkway corridor. The two locations where interchanges have been determined by the Lee County MPO to be cost feasible are:

- the Metro Parkway/Colonial Boulevard intersection, and
- the Metro Parkway/Alico Road/US 41 apex area (at the southern terminus of the project)

To maintain consistency with the Lee County MPO's Year 2020 Financially Feasible Long Range Transportation Plan, interchanges were only analyzed for these two locations. Incremental analyses were conducted for the other intersections that were not projected to provide acceptable levels of service at the nine percent design hour level, to determine the magnitude of the design hour volumes that could be accommodated with maximum practical at-grade geometry. Figures 6-2A through 6-2D illustrate the a.m. and p.m. design hour volumes that can be accommodated with the one-way pair alternative. The recommended through lane and intersection geometry for the Metro Parkway corridor is illustrated schematically on Figures 6-3A through 6-3D. All of the signalized



LEGEND

875 - 2020 AM PEAK HOUR VOLUME
 (705) - 2020 PM PEAK HOUR VOLUME

FIGURE 6-2A

METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida

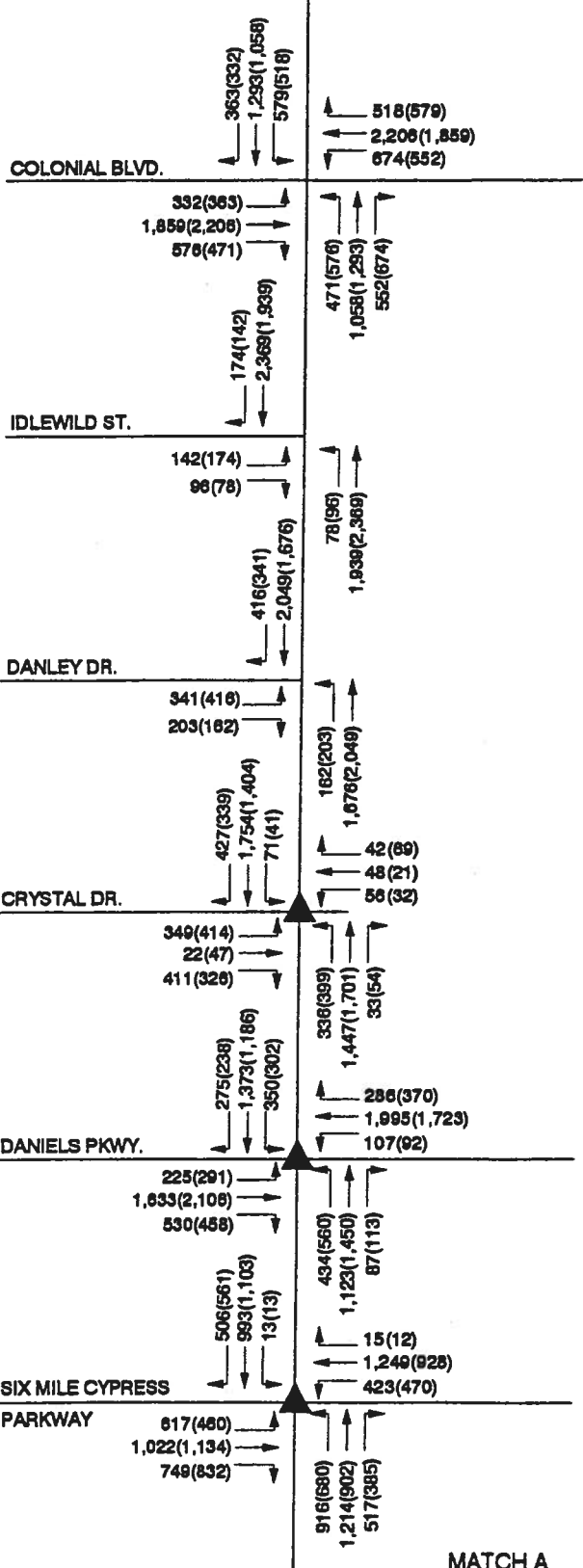
**DESIGN YEAR (2020)
 PEAK HOUR VOLUMES
 (ONE-WAY PAIR)**

FLORIDA DEPARTMENT OF TRANSPORTATION

20PKB1.DRW



METRO PARKWAY MATCH B

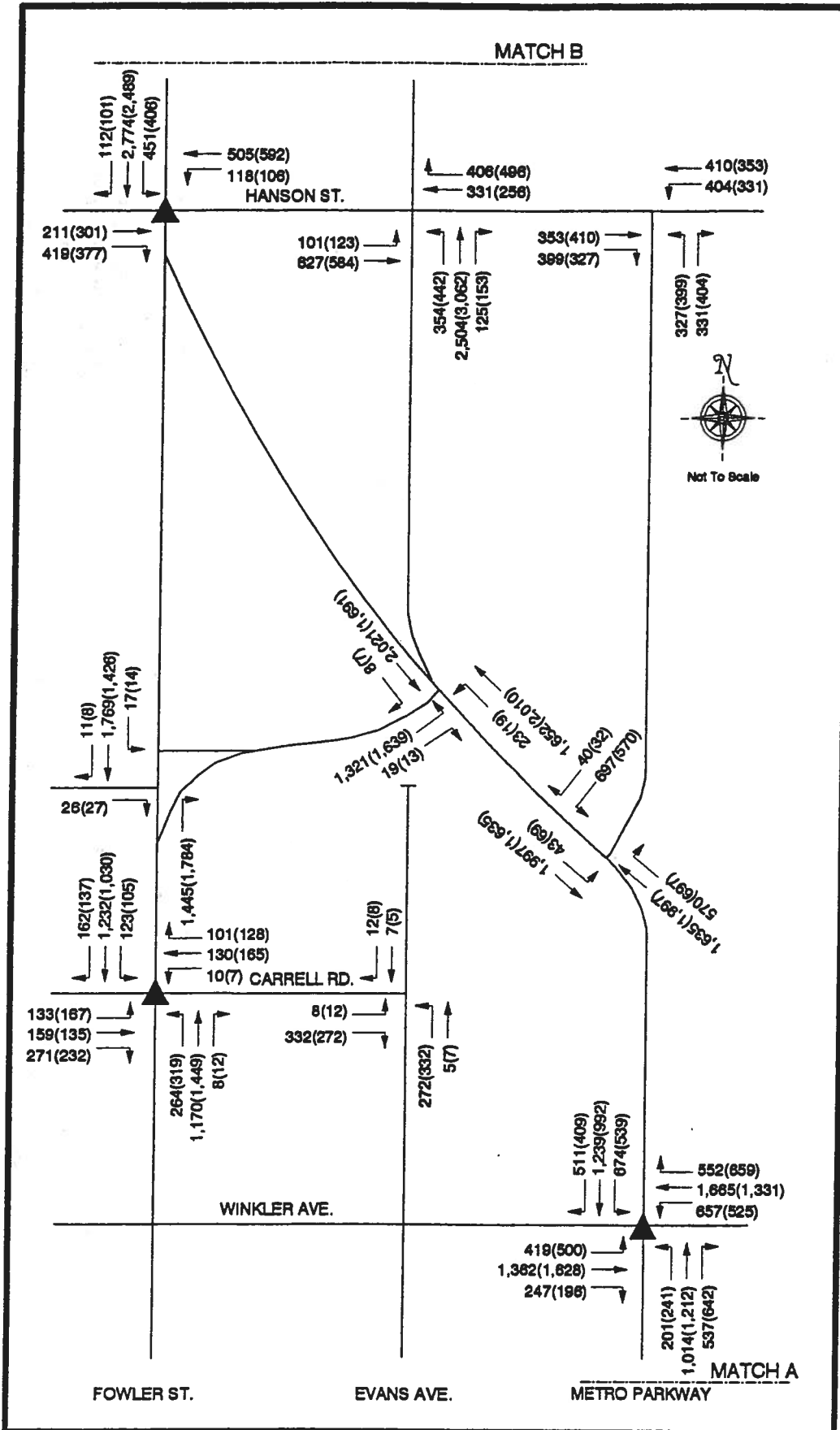


METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida
DESIGN YEAR (2020)
PEAK HOUR VOLUMES
(ONE-WAY PAIR)
 FLORIDA DEPARTMENT OF TRANSPORTATION

FIGURE 6-2B

LEGEND

- 517 - 2020 AM PEAK HOUR VOLUME
- (385) - 2020 PM PEAK HOUR VOLUME
- ▲ Denotes that these volumes are the maximum volumes that can be accommodated during the peak hour with maximum at-grade geometry



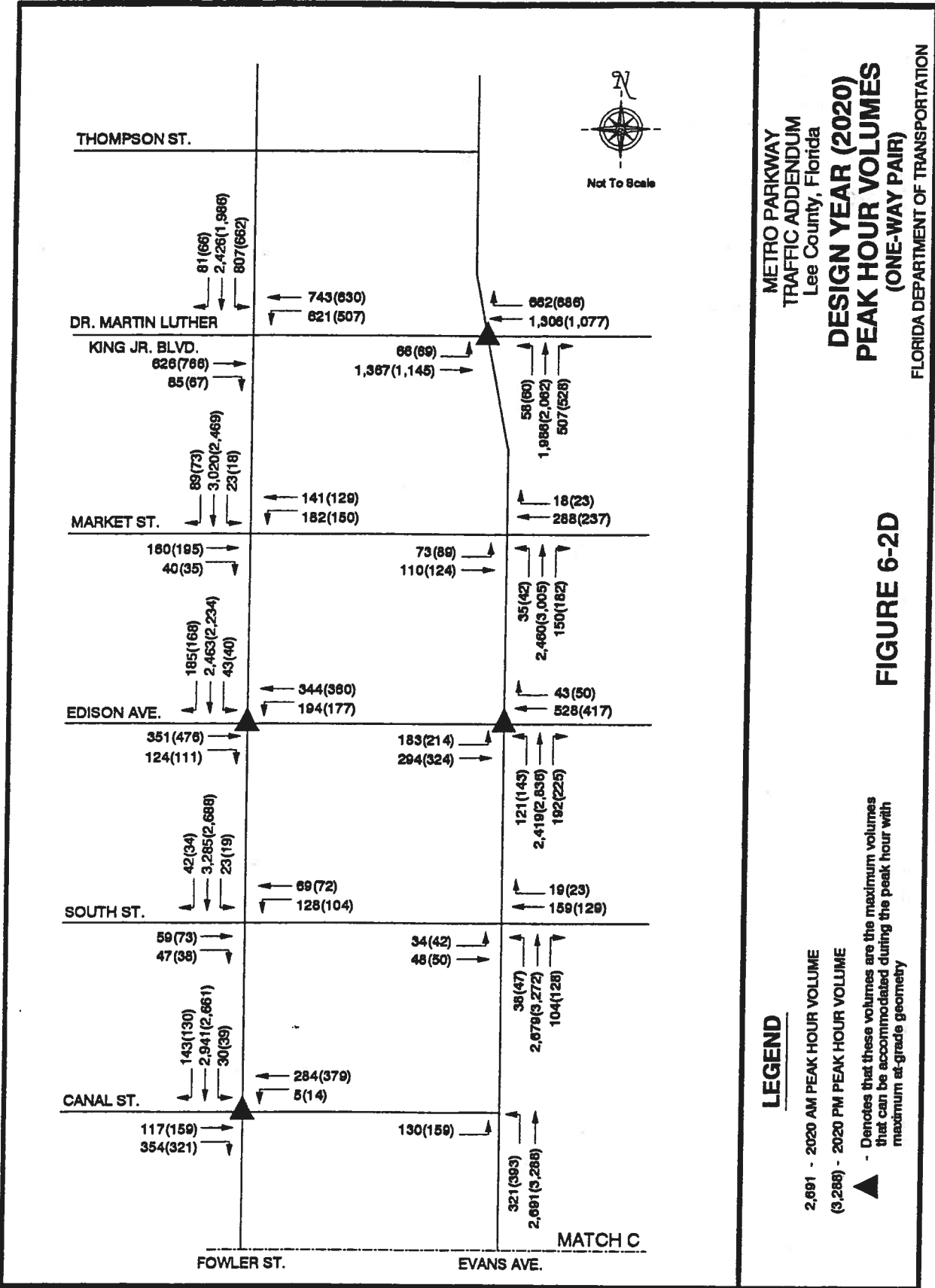
METRO PARKWAY
TRAFFIC ADDENDUM
Lee County, Florida
**DESIGN YEAR (2020)
PEAK HOUR VOLUMES
(ONE-WAY PAIR)**
FLORIDA DEPARTMENT OF TRANSPORTATION

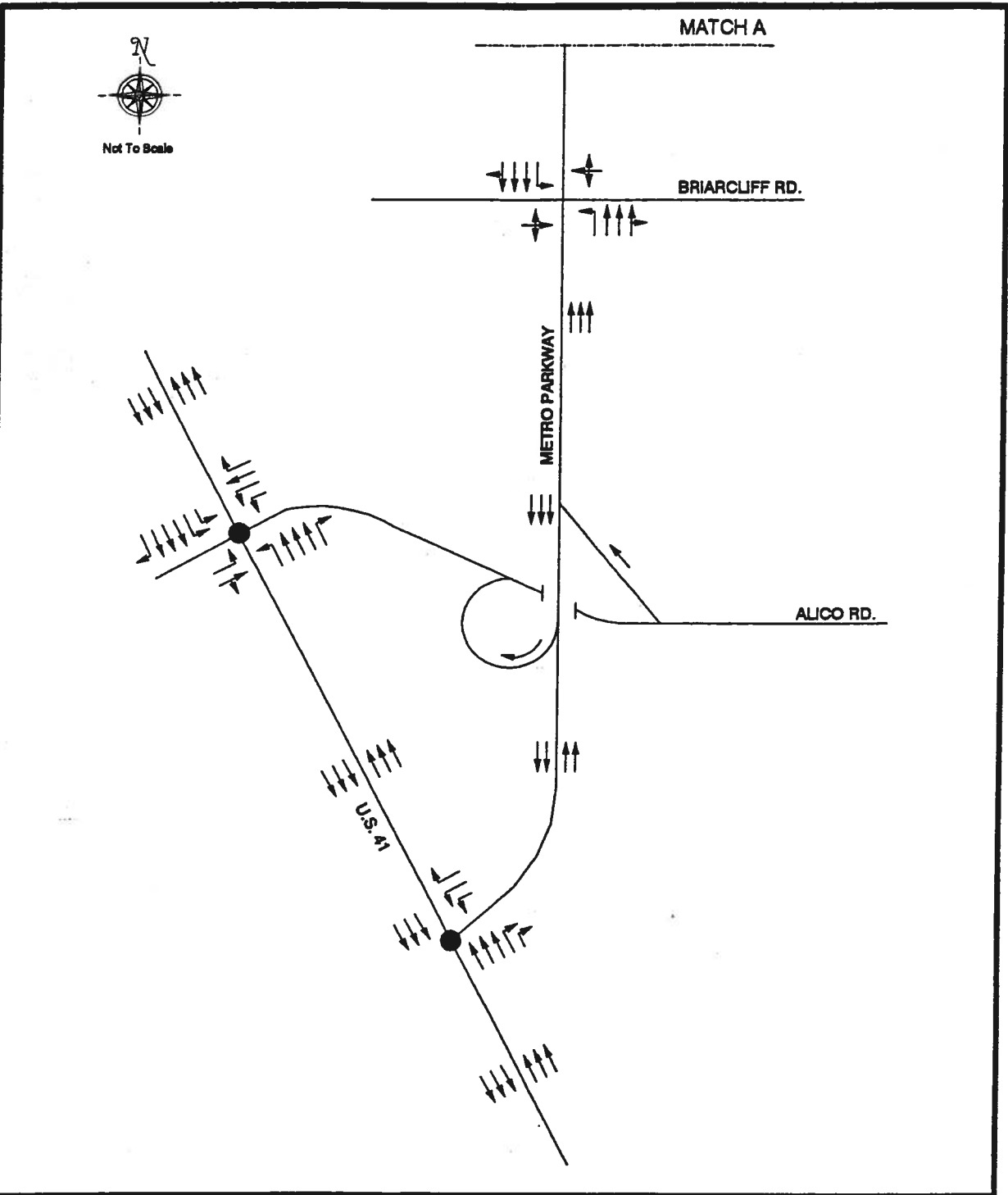
FIGURE 6-2C

LEGEND

537 - 2020 AM PEAK HOUR VOLUME
(642) - 2020 PM PEAK HOUR VOLUME

▲ Denotes that these volumes are the maximum volumes that can be accommodated during the peak hour with maximum at-grade geometry





LEGEND

● - SIGNALIZED INTERSECTION

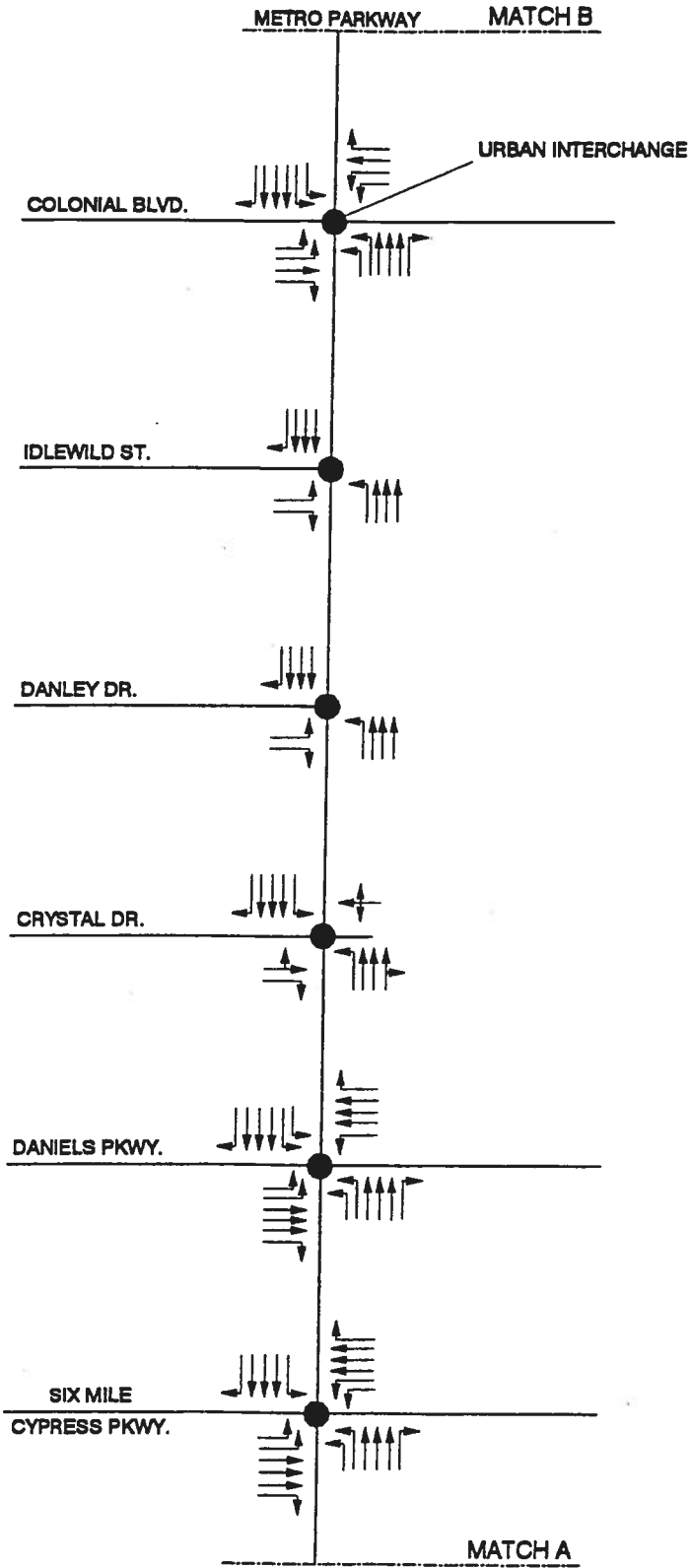
FIGURE 6-3A

METRO PARKWAY
TRAFFIC ADDENDUM
Lee County, Florida

**DESIGN YEAR (2020)
RECOMMENDED GEOMETRY
(ONE-WAY PAIR)**

FLORIDA DEPARTMENT OF TRANSPORTATION

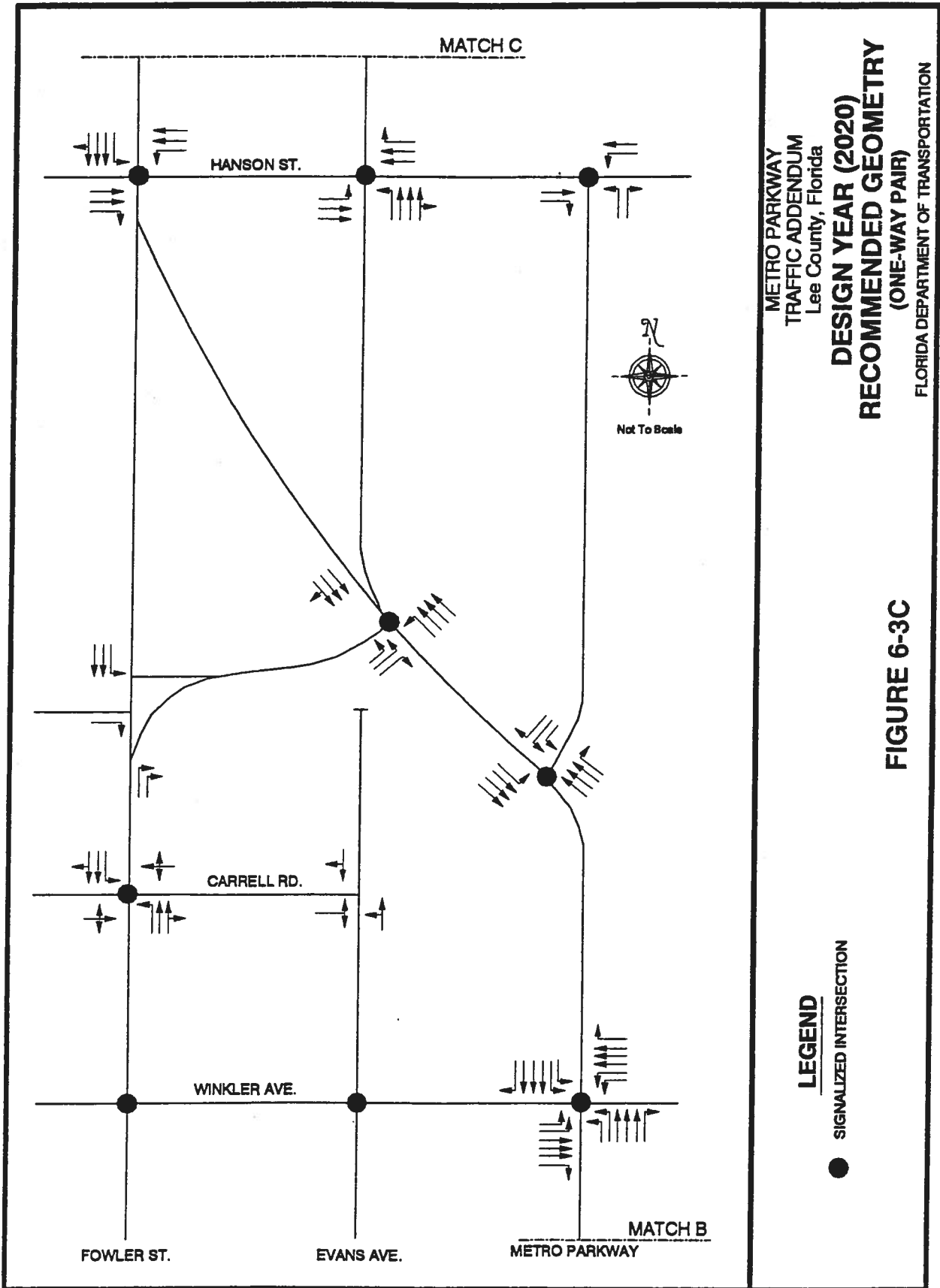
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METRO PARKWAY
TRAFFIC ADDENDUM
Lee County, Florida
DESIGN YEAR (2020)
RECOMMENDED GEOMETRY
(ONE-WAY PAIR)
FLORIDA DEPARTMENT OF TRANSPORTATION

LEGEND
● SIGNALIZED INTERSECTION

FIGURE 6-3B



METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida

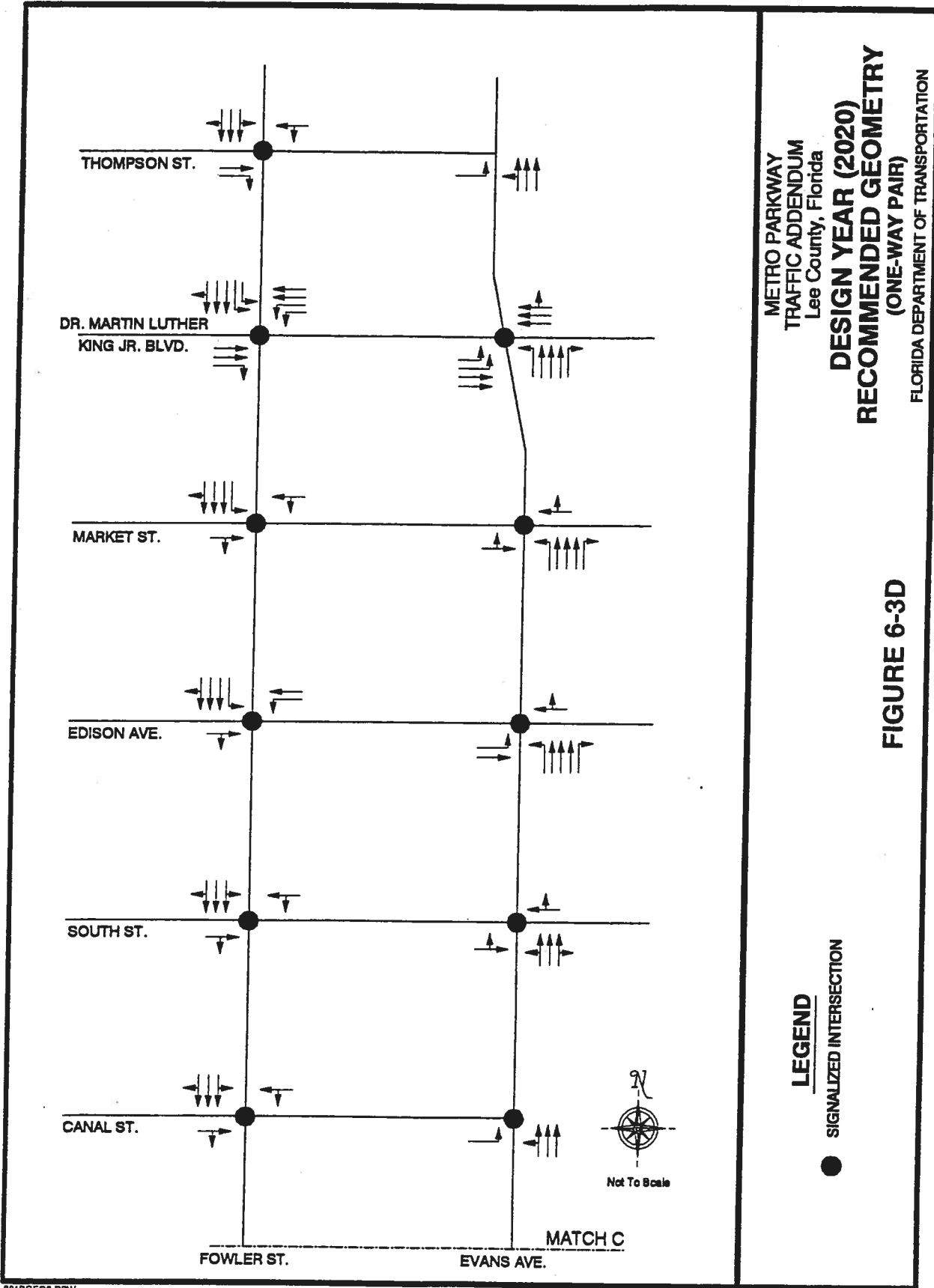
DESIGN YEAR (2020)
RECOMMENDED GEOMETRY
(ONE-WAY PAIR)

FLORIDA DEPARTMENT OF TRANSPORTATION

FIGURE 6-3C

LEGEND

● SIGNALIZED INTERSECTION



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intersections are projected to operate at Level of Service D or better overall in the year 2020 with the intersection geometry depicted on Figures 6-3A through 6-3D. It should be noted that although there are several intersections that are expected to operate as constrained locations, the proposed geometric improvements are projected to be able to accommodate significant increases in peak hour volumes (as compared to existing peak hour volumes). The magnitude of the 2020 design hour volumes that can be accommodated at these constrained locations are between 39 percent and 270 percent higher than the existing peak hour volumes, with a majority of the locations being able to accommodate future peak hour volume increases of 50 percent to 100 percent of existing volumes. These latter percentage increases in peak hour volumes (over a 23-year time period) represent average yearly traffic growth rates of between 2.2 percent/year and 4.3 percent/year.

Level of service evaluations were also conducted for the roadway segments between signalized intersections. Signalized arterial level of service analyses were conducted for the portion of Metro Parkway from Daniels Parkway to the Metro Parkway Crossover, the Metro Crossover between the Fowler Street/Evans Avenue one-way pair and Metro Parkway, and the Fowler Street/Evans Avenue one-way pair from Carrell Road to SR 82 using Version 2.0 of the FDOT's ART_PLAN software. The analysis results indicate that the portion of Metro Parkway between Six Mile Cypress Parkway and the Metro Parkway Crossover is projected to operate at Level of Service C overall in the peak direction and Level of Service B overall in the off-peak direction during both the a.m. and p.m. peak hours.

The ART_PLAN analysis also indicates that during the a.m. peak hour the Fowler Street/Evans Avenue one-way pair is expected to operate at Level of Service B overall in both the peak (southbound) and off-peak (northbound) directions. During the p.m. peak hour, the Fowler Street/Evans Avenue one-way pair is projected to operate at Level of Service C overall in the peak (northbound) direction and Level of Service B overall in the off-peak (southbound) direction. The segments associated with the Metro Parkway Crossover are projected to operate at Level of Service C or better in the peak and off-peak directions in the a.m. and p.m. peak hours.

Due to the signal spacing on the portion of Metro Parkway between US 41 and Daniels Parkway and between the Metro Parkway Crossover and Hanson Street, these segments were analyzed as multi-lane highway segments using the methodologies described in

Chapter 7 of the 1994 Highway Capacity Manual. These segments are expected to operate at Level of Service C or better in both directions during both peak periods in 2020.

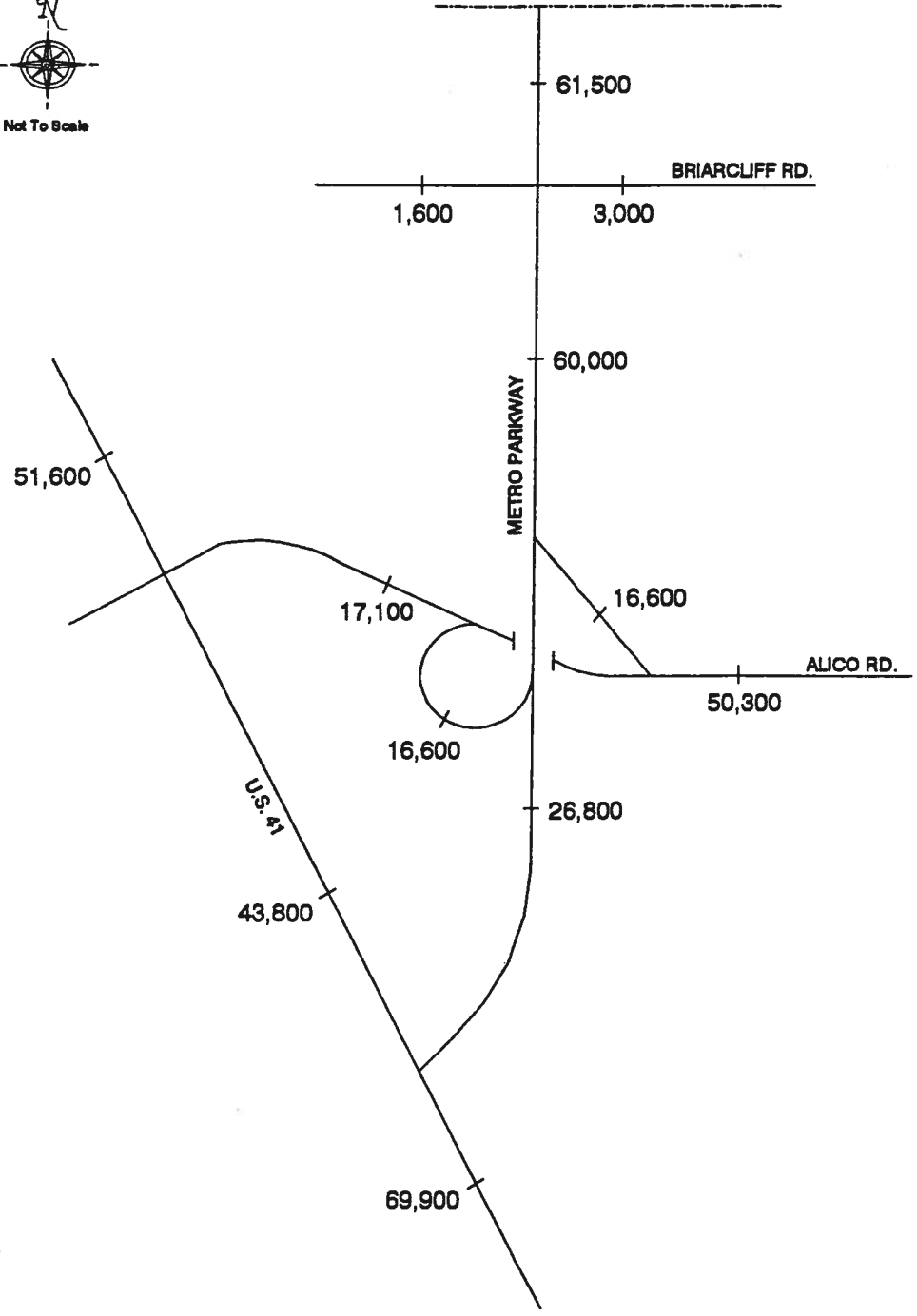
6.8.2 Six-Lane Fowler Street Alternative

The 2020 AADT volumes for the six-lane Fowler Street alternative are illustrated on Figures 6-4A through 6-4D. Signalized intersection analyses were conducted for the following 19 locations:

- Metro Parkway/US 41
- Metro Parkway/Six Mile Cypress Parkway
- Metro Parkway/Daniels Parkway
- Metro Parkway/Crystal Drive
- Metro Parkway/Danley Drive
- Metro Parkway/Idlewild Street
- Metro Parkway/Colonial Boulevard (at-grade portion of interchange)
- Metro Parkway/Winkler Avenue
- Metro Parkway/Metro Crossover
- Metro Parkway/Hanson Street
- Fowler Street/Evans Avenue/Metro Crossover
- Fowler Street/Carrell Road
- Fowler Street/Hanson Street
- Fowler Street/Canal Street
- Fowler Street/South Street
- Fowler Street/Edison Avenue
- Fowler Street/Market Street
- Fowler Street/SR 82
- Evans Avenue/Hanson Street



MATCH A



LEGEND

69,900 - Two-Way 2020 AADT

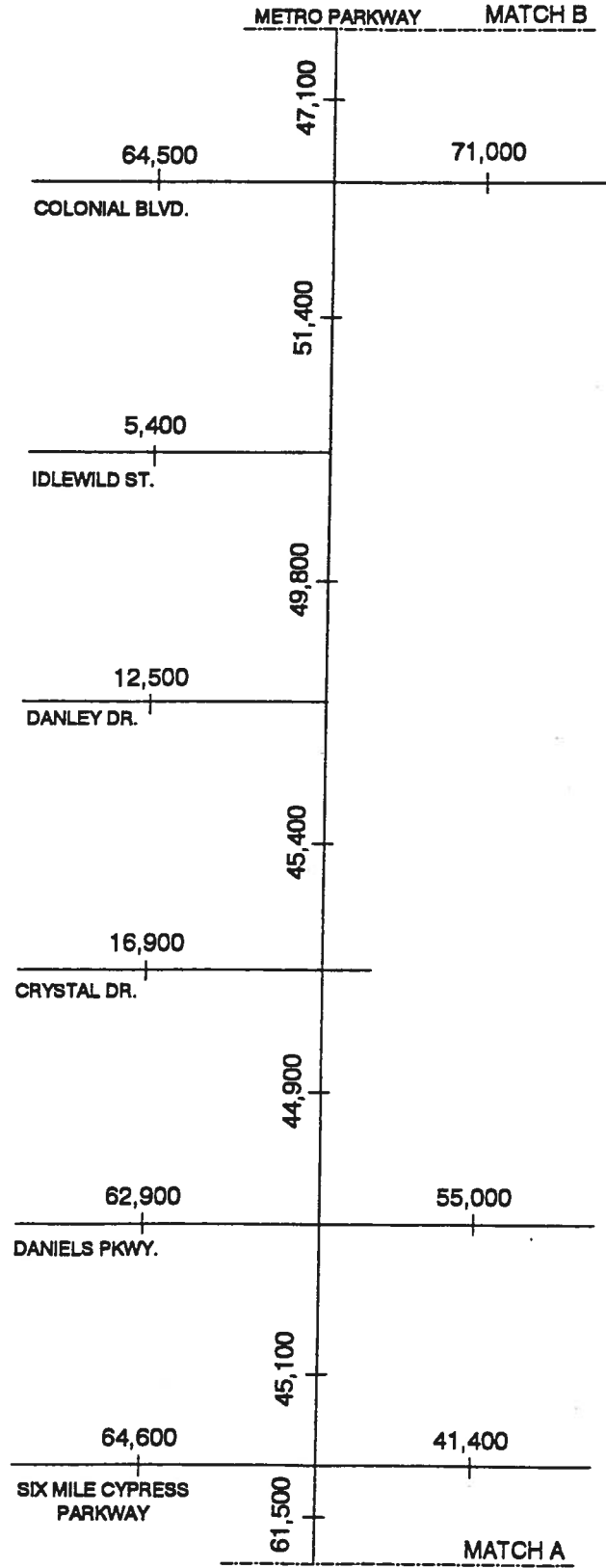
FIGURE 6-4A

METRO PARKWAY
TRAFFIC ADDENDUM
Lee County, Florida

**DESIGN YEAR (2020) AVERAGE
ANNUAL DAILY TRAFFIC VOLUMES
(SIX-LANE FOWLER STREET)**

FLORIDA DEPARTMENT OF TRANSPORTATION

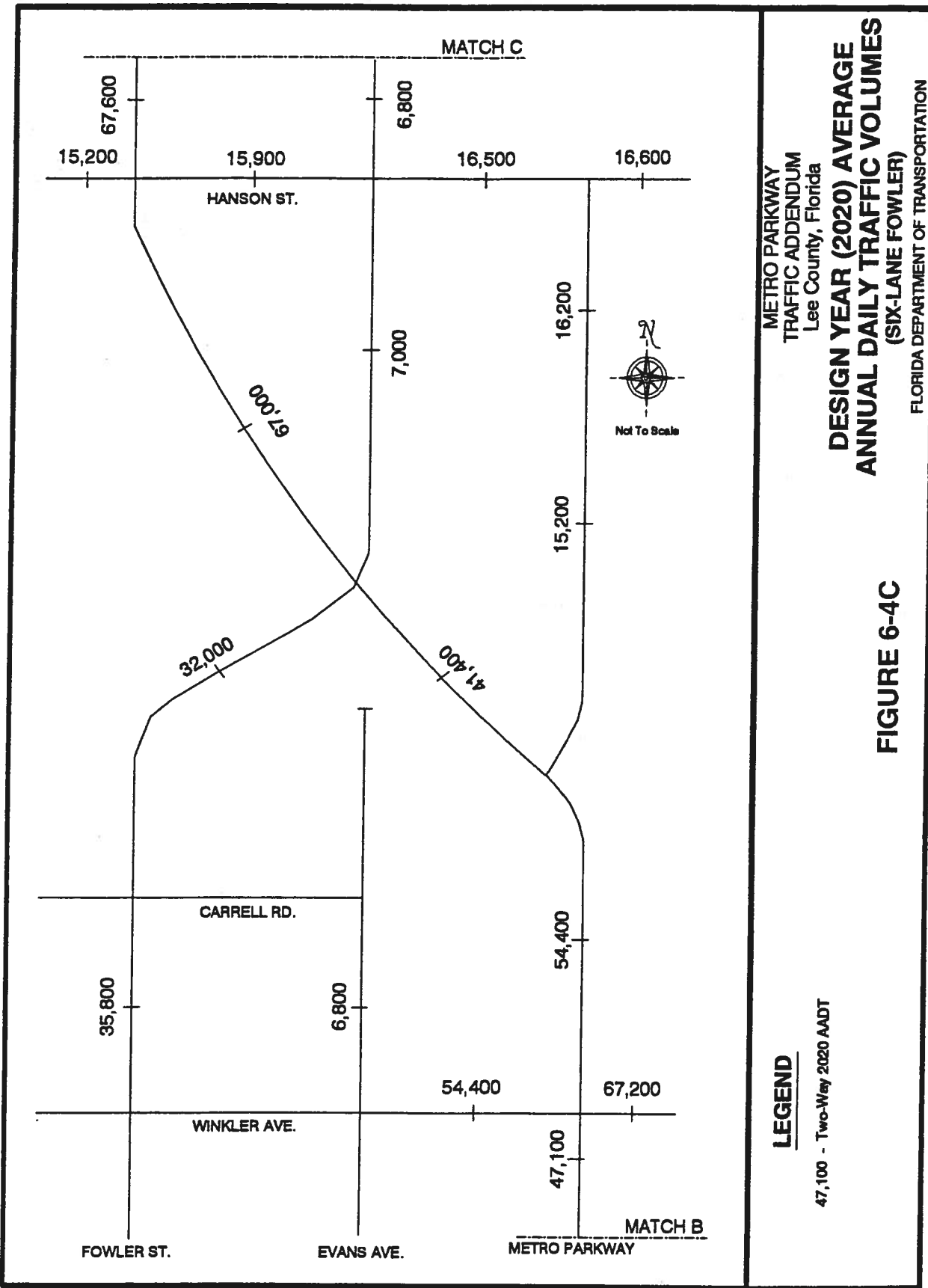
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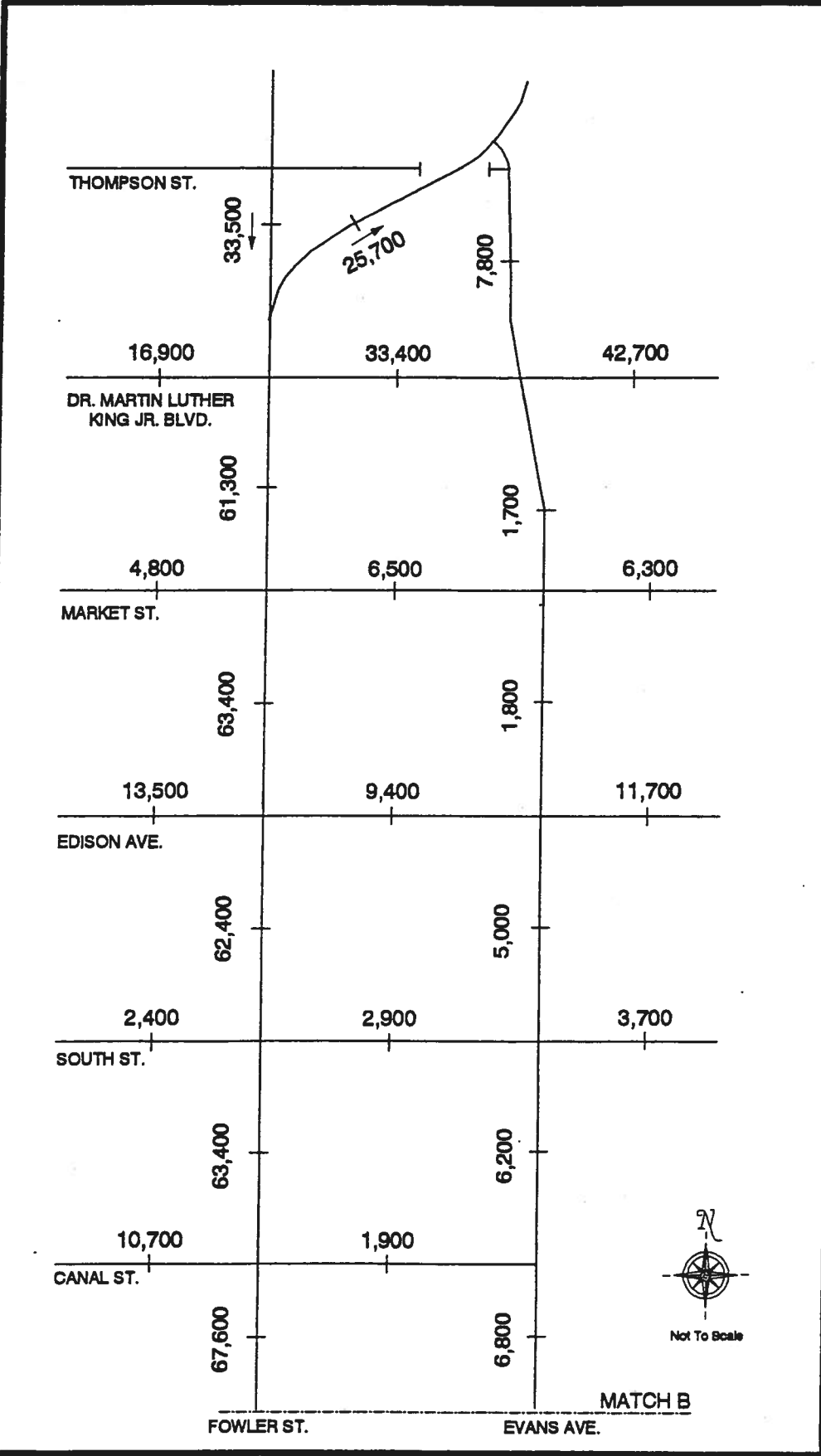
METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida
**DESIGN YEAR (2020) AVERAGE
 ANNUAL DAILY TRAFFIC VOLUMES**
 (SIX-LANE FOWLER)
 FLORIDA DEPARTMENT OF TRANSPORTATION

FIGURE 6-4B

LEGEND
 45,100 - Two-Way 2020 AADT



20DAY6F2.DRW



METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida
**DESIGN YEAR (2020) AVERAGE
 ANNUAL DAILY TRAFFIC VOLUMES**
 (SIX-LANE FOWLER STREET)
 FLORIDA DEPARTMENT OF TRANSPORTATION

FIGURE 6-4D

LEGEND

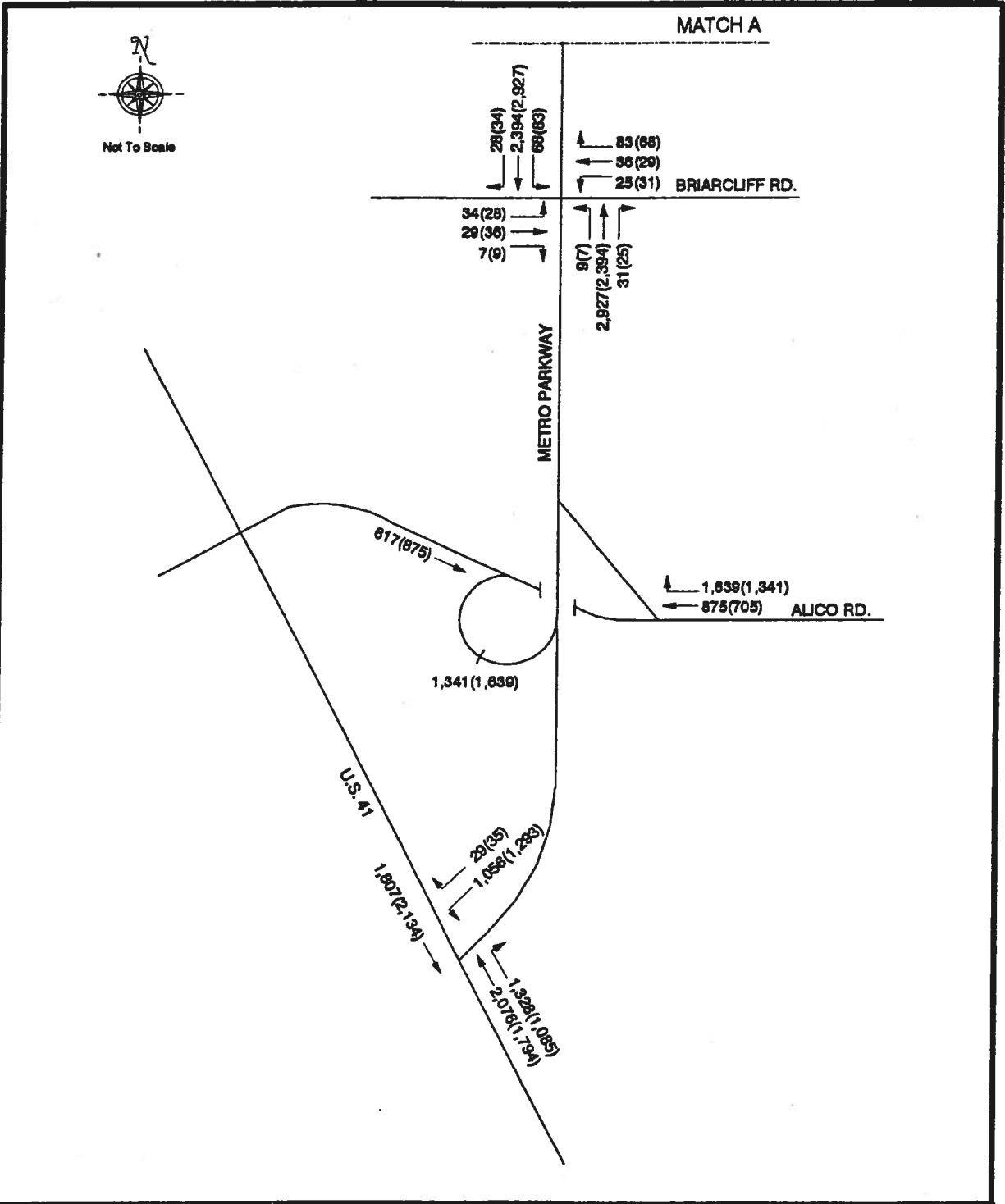
6,800 - Two-Way 2020 AADT
 25,700 - One-Way 2020 AADT



As is the case with the one-way pair, some of the signalized intersections are not projected to be able to provide adequate capacity to accommodate nine percent of the projected 2020 AADT volume. Therefore, incremental analyses were conducted for these locations to determine the magnitude of the design hour volumes that could be accommodated with maximum practical at-grade geometry. Figures 6-5A through 6-5D illustrate the a.m. and p.m. design hour volumes that can be accommodated with the six-lane Fowler Street alternative. The recommended through lane and intersection geometry for the Metro Parkway corridor is illustrated schematically on Figures 6-6A through 6-6D. All of the signalized intersections are projected to operate at Level of Service D or better overall in the year 2020 with the intersection geometry depicted on Figures 6-6A through 6-6D.

Level of service evaluations were also conducted for the roadway segments between signalized intersections. Signalized arterial level of service analyses were conducted for the portion of Metro Parkway from Daniels Parkway to the Metro Parkway Crossover, the extension of the Metro Parkway over to Evans Avenue, and for the six-lane Fowler Street from the Metro Parkway Crossover to SR 82 using Version 2.0 of the FDOT's ART_PLAN software. The analysis results indicate that the portion of Metro Parkway between Six Mile Cypress Parkway and the Metro Parkway Crossover is projected to operate at Level of Service C overall in the peak direction and Level of Service B overall in the off-peak direction during both the a.m. and p.m. peak hours.

The ART_PLAN analysis also indicates that during the a.m. peak hour Fowler Street is projected to operate at Level of Service D overall in the peak (southbound) direction and Level of Service C overall in the off-peak (northbound) direction. During the p.m. peak hour, Fowler Street is projected to operate at Level of Service D overall in the peak (northbound) direction and Level of Service C overall in the off-peak (southbound) direction. In the a.m. peak hour, the four-lane segment of Fowler Street from the Carrell Road intersection to the Metro Parkway Crossover/Evans Avenue intersection is also projected to operate at Level of Service D in the peak (southbound) direction and Level of Service C in the off-peak (northbound) direction. In the p.m. peak hour, this same roadway segment is projected to operate at Level of Service C in both the peak and off-peak directions.



LEGEND

875 - 2020 AM PEAK HOUR VOLUME
 (705) - 2020 PM PEAK HOUR VOLUME

FIGURE 6-5A

METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida

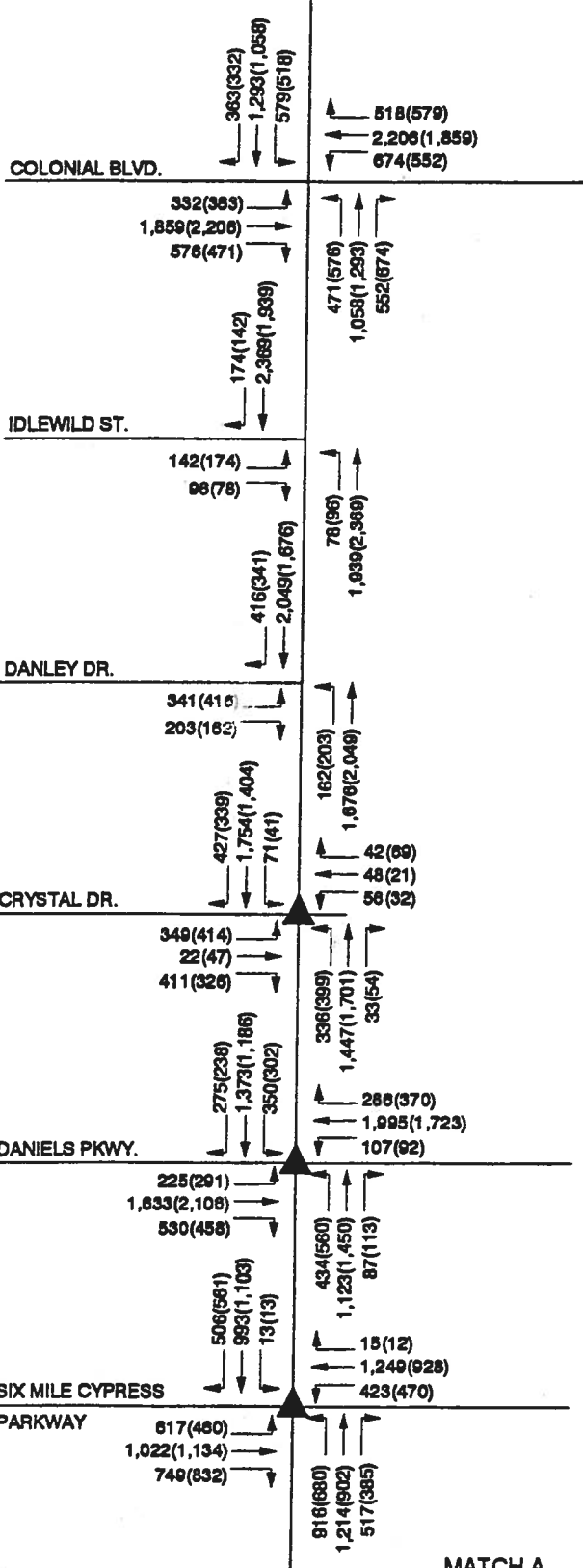
**DESIGN YEAR (2020)
 PEAK HOUR VOLUMES
 (SIX-LANE FOWLER STREET)**

FLORIDA DEPARTMENT OF TRANSPORTATION

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METRO PARKWAY MATCH B

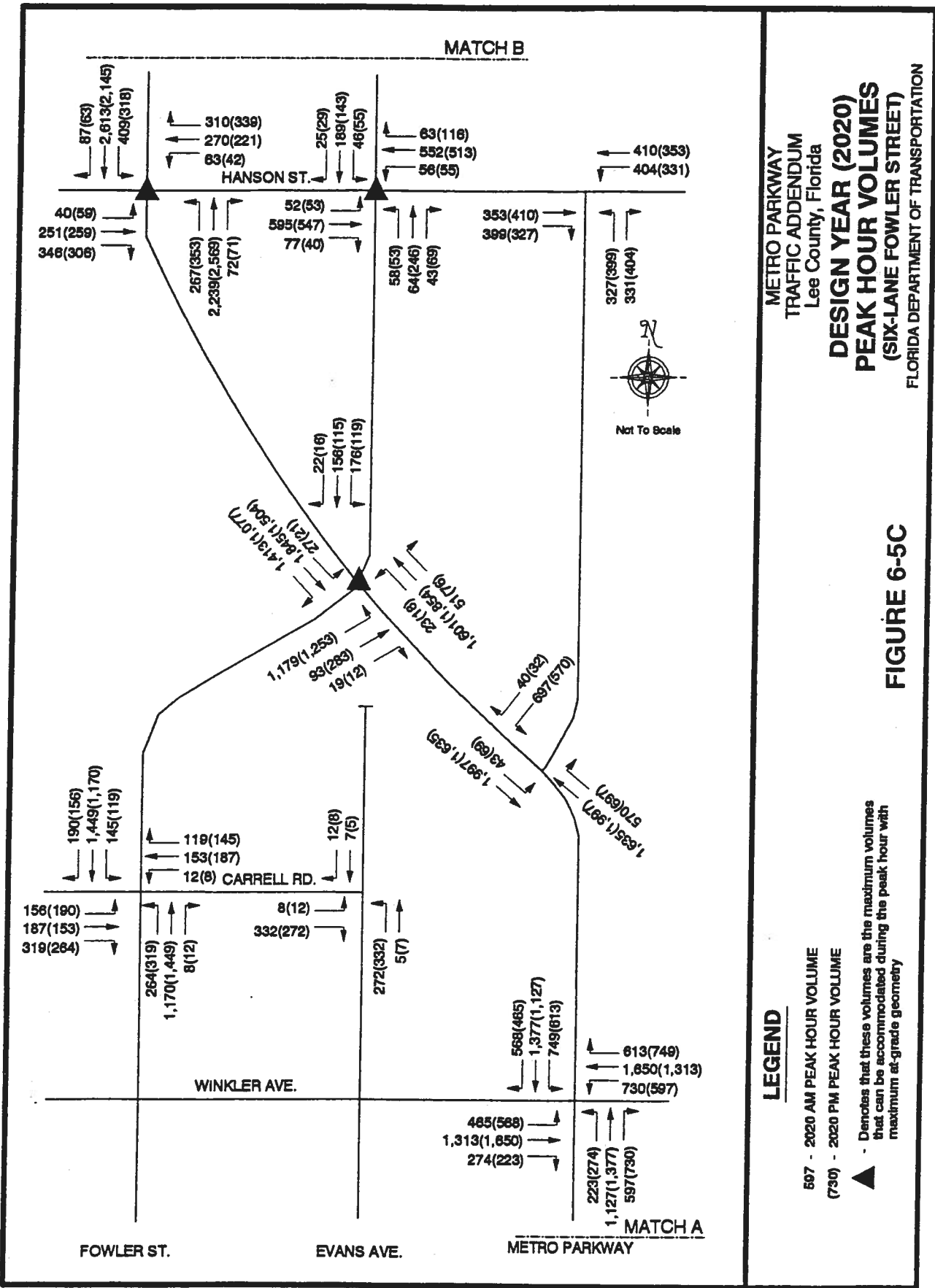


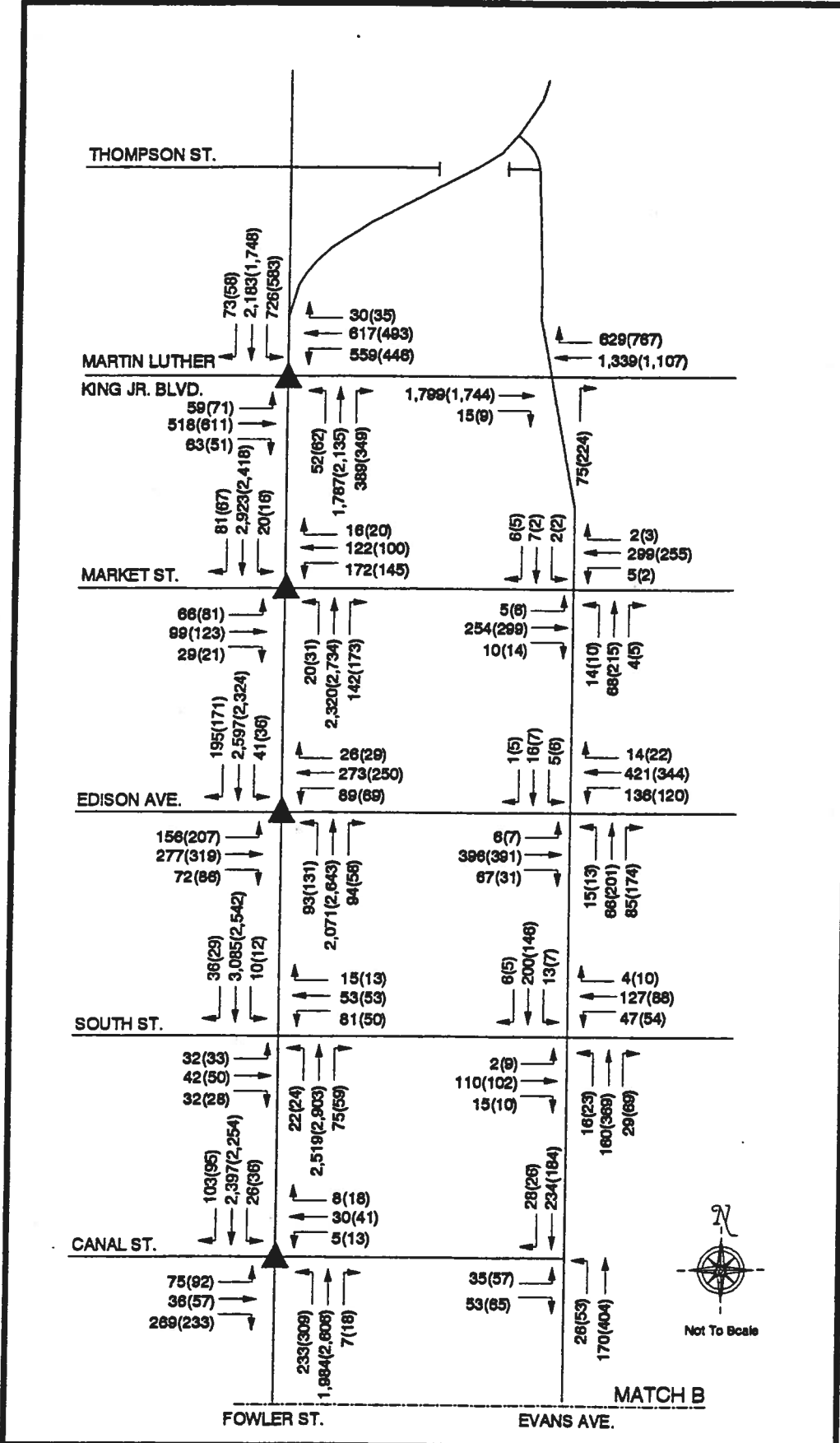
METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida
DESIGN YEAR (2020)
PEAK HOUR VOLUMES
(SIX-LANE FOWLER STREET)
 FLORIDA DEPARTMENT OF TRANSPORTATION

FIGURE 6-5B

LEGEND

- 517 - 2020 AM PEAK HOUR VOLUME (385)
- (385) - 2020 PM PEAK HOUR VOLUME
- ▲ Denotes that these volumes are the maximum volumes that can be accommodated during the peak hour with maximum at-grade geometry





METRO PARKWAY
TRAFFIC ADDENDUM
Lee County, Florida

DESIGN YEAR (2020)
PEAK HOUR VOLUMES
(SIX-LANE FOWLER STREET)

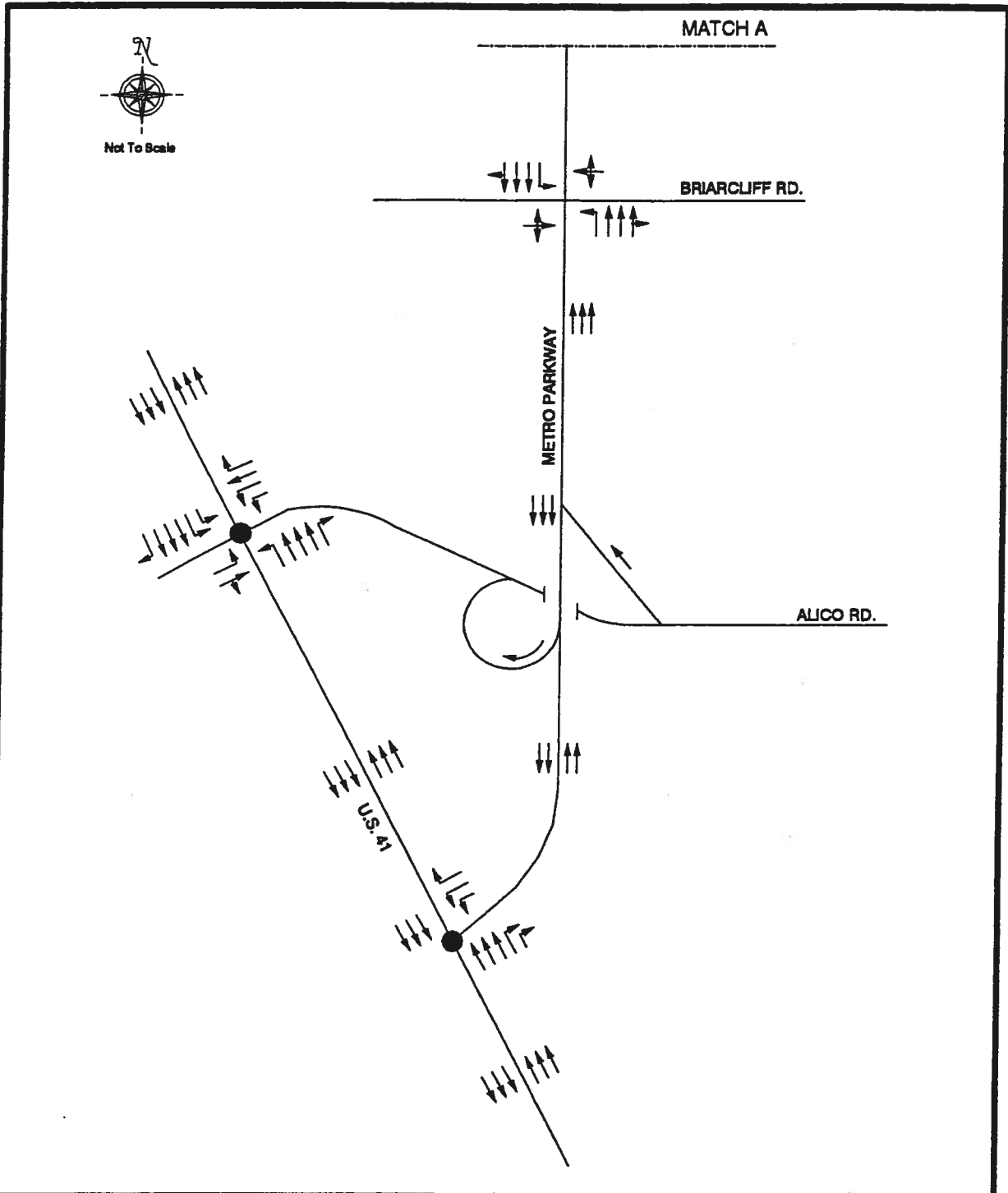
FLORIDA DEPARTMENT OF TRANSPORTATION

FIGURE 6-5D

LEGEND

170 - 2020 AM PEAK HOUR VOLUME
(40-4) - 2020 PM PEAK HOUR VOLUME

▲ Denotes that these volumes are the maximum volumes that can be accommodated during the peak hour with maximum at-grade geometry



LEGEND

● - SIGNALIZED INTERSECTION

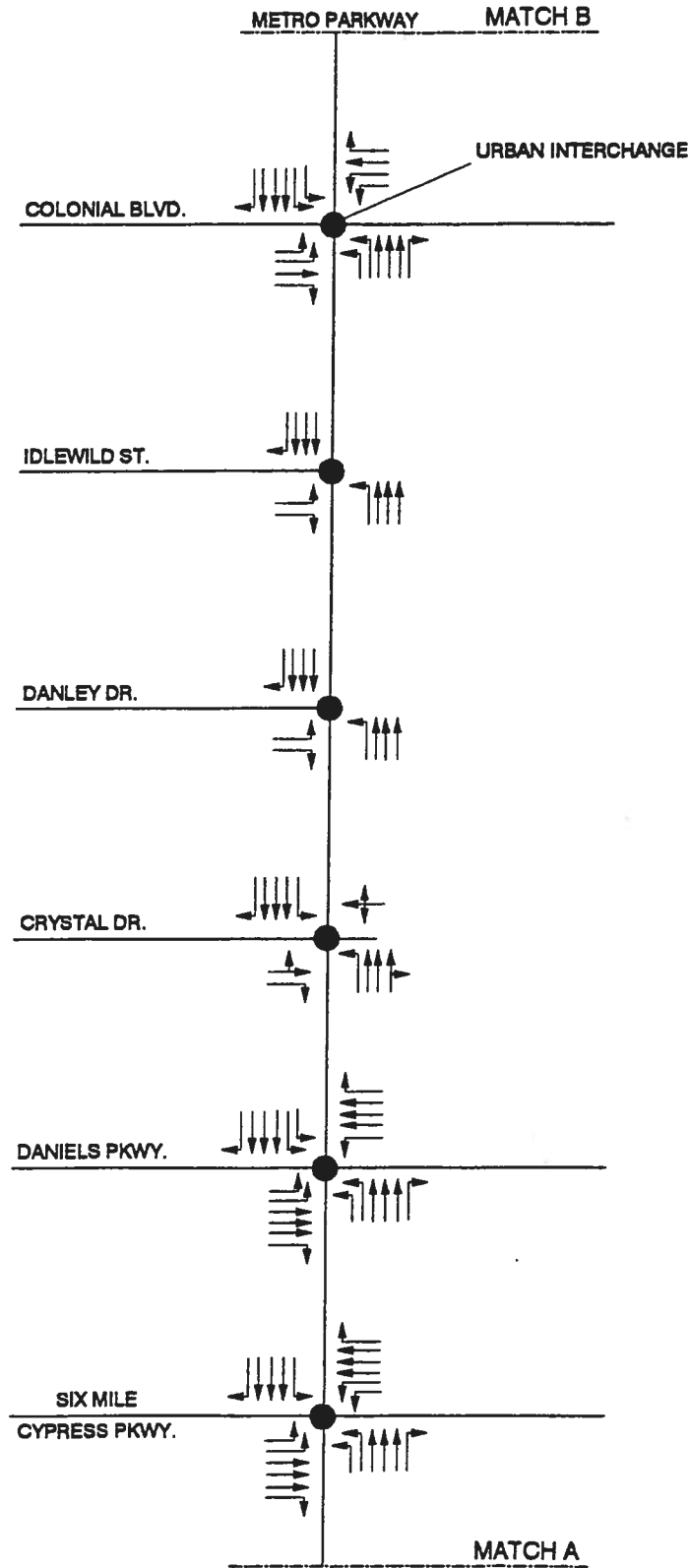
FIGURE 6-6A

METRO PARKWAY
TRAFFIC ADDENDUM
Lee County, Florida

**DESIGN YEAR (2020)
RECOMMENDED GEOMETRY
(SIX-LANE FOWLER STREET)**

FLORIDA DEPARTMENT OF TRANSPORTATION

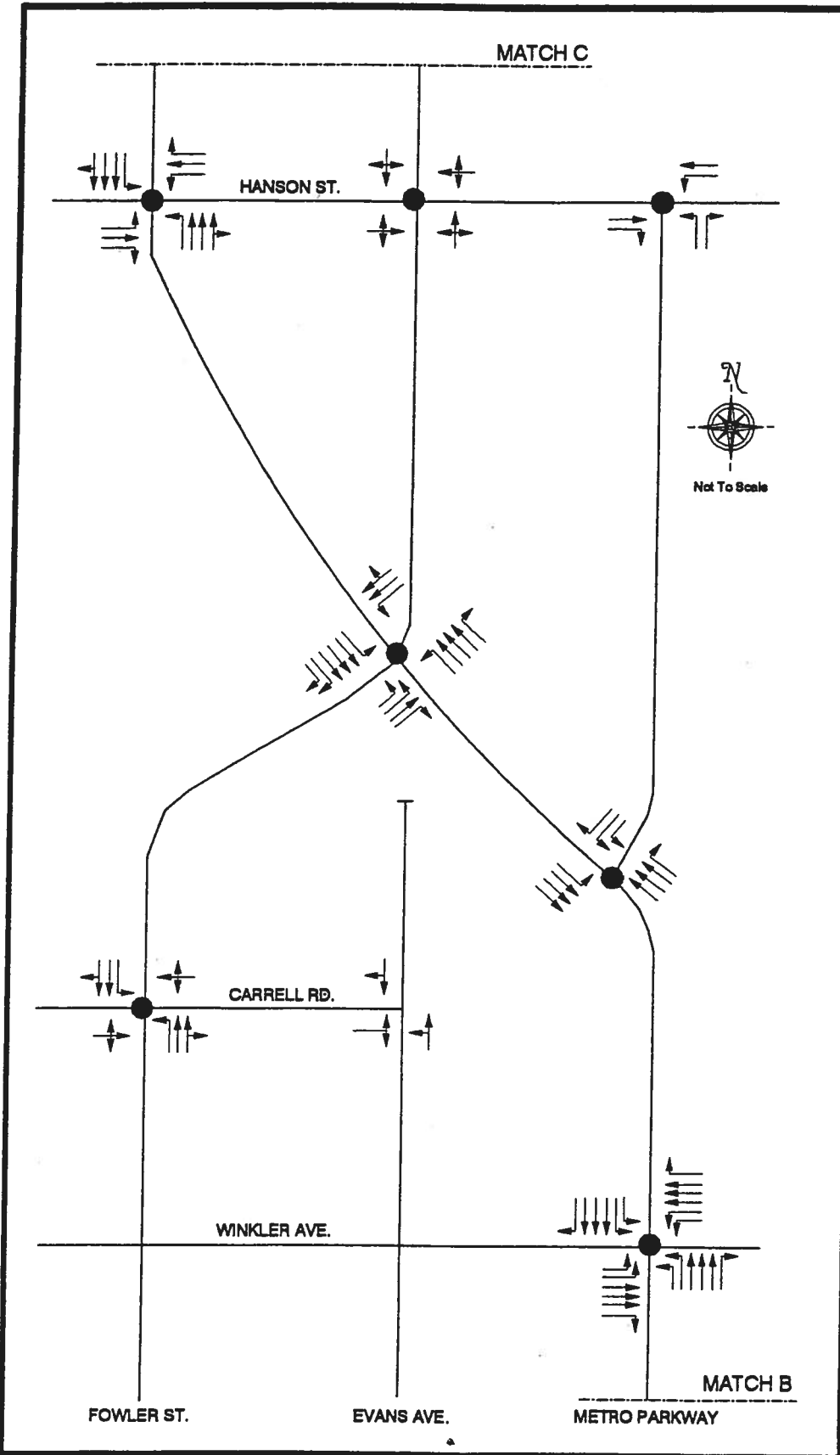
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METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida
DESIGN YEAR (2020)
RECOMMENDED GEOMETRY
 (SIX-LANE FOWLER STREET)
 FLORIDA DEPARTMENT OF TRANSPORTATION

LEGEND
 ● SIGNALIZED INTERSECTION

FIGURE 6-6B

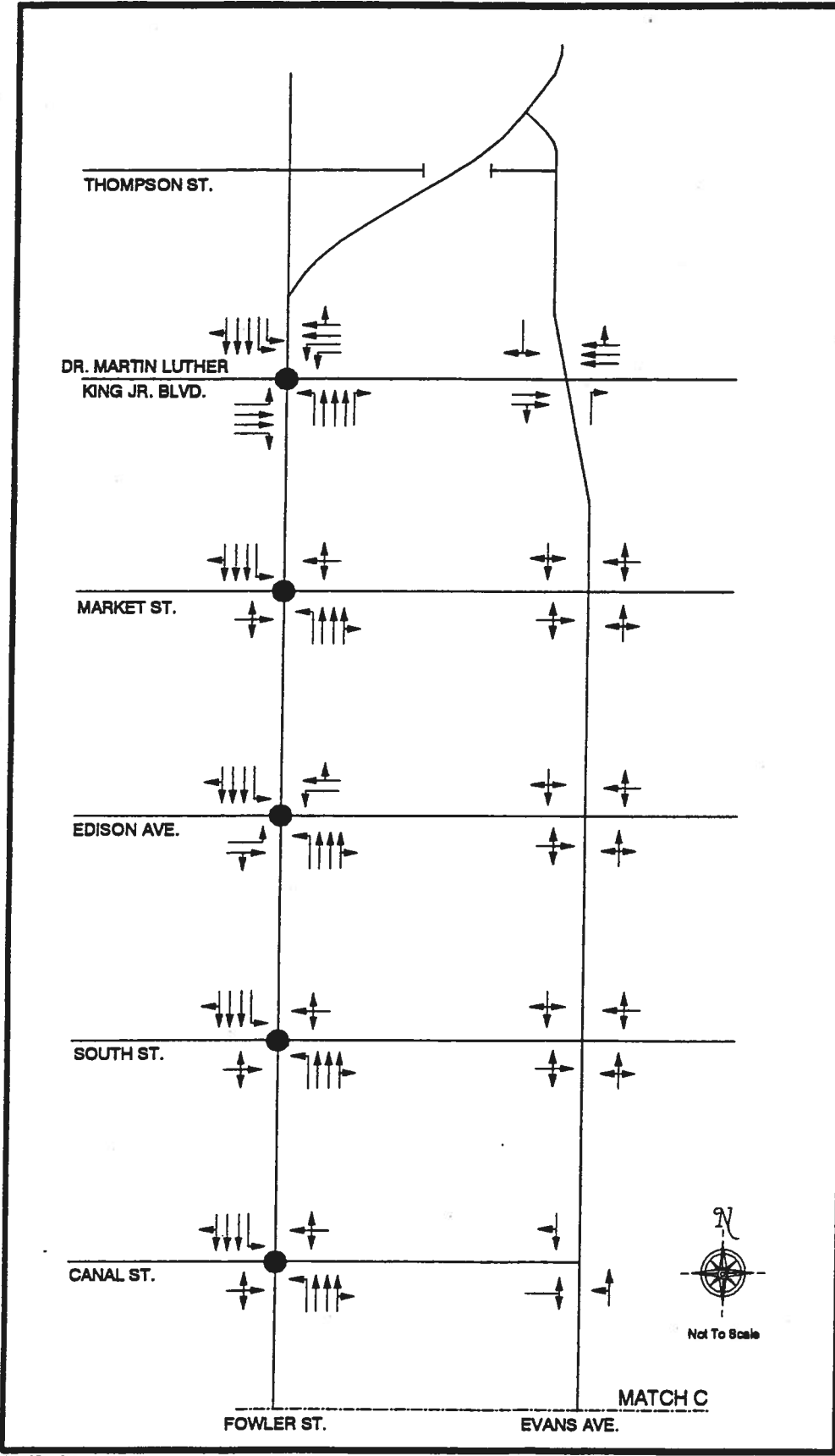


METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida
DESIGN YEAR (2020)
RECOMMENDED GEOMETRY
 (SIX-LANE FOWLER STREET)
 FLORIDA DEPARTMENT OF TRANSPORTATION

FIGURE 6-6C

LEGEND
 ● SIGNALIZED INTERSECTION

209FGEO2.DRW



METRO PARKWAY
 TRAFFIC ADDENDUM
 Lee County, Florida

DESIGN YEAR (2020)
RECOMMENDED GEOMETRY
 (SIX-LANE FOWLER STREET)

FLORIDA DEPARTMENT OF TRANSPORTATION

FIGURE 6-6D

As is the case with the Fowler Street/Evans Avenue one-way pair alternative, the portion of Metro Parkway between US 41 and Daniels Parkway is projected to operate at Level of Service C or better in both directions during both peak periods with the six-lane Fowler Street alternative.

Lastly, the existing two-lane undivided section of Evans Avenue from the Metro Parkway Crossover to SR 82 was analyzed using the methodology contained in Chapter 8 of the 1994 Highway Capacity Manual. This portion of Evans Avenue is projected to operate at Level of Service C or better during both the a.m. and p.m. peak hours in the year 2020.

7.0 — Corridor Analysis

7.1 Overview

The objective of the corridor analysis process is to select a viable corridor in which to provide technically and environmentally sound alignment alternatives that are cost effective and acceptable to the community. The process involves the use of 1"=400' and 1"=100' scale aerial photography in conjunction with the composite review of a series of environmental resource overlays to develop preliminary alternative alignments that avoid significant environmental impact. Consideration is also given to the identification of available right of way through which an improved facility that would provide acceptable service consistent with transportation planning requirements could be developed.

7.2 Major Corridor Selection

As identified in Section 3, there is a need for a major north-south transportation improvement from the vicinity of SR 41 and Alico Road to Martin Luther King, Jr. Boulevard. The three major corridor alternatives that can possibly meet this objective are US 41, the Metro Parkway corridor and I-75. However, both US 41 and I-75 are considered nonviable alternatives because of projected traffic demand for these facilities (particularly US 41) and the distance separating the major north-south corridors (corridor spacing). In addition, the Lee County 2020 Financially Feasible Plan identifies a need for six lanes within the limits of proposed Metro Parkway from US 41/Alico Road northward to SR 82. The Southwest Florida Regional Planning Council (SWFRPC) has found this project to be "regionally significant and consistent" with adopted goals, objectives, and policies of the Regional Comprehensive Policy Plan. Therefore, the Metro Parkway corridor was selected as the major north-south corridor for transportation improvements.

7.3 Evaluation of Metro Parkway Corridor

For purposes of presentation and documentation, the Metro Parkway corridor was subdivided into four segments based on a variety of key engineering and environmental characteristics common to each segment (see Figure 2-2). These segments are as follows:

Segment	Location
1	New alignment in the vicinity of Alico Road to Six Mile Cypress Parkway/Metro Parkway intersection.
2	Metro Parkway from Six Mile Cypress Parkway to north of Winkler Avenue.
3	A new crossover alignment from north of Winkler Avenue to Fowler Street/Evans Avenue Corridor; or existing Metro Parkway to a Hanson Street Connector.
4	Fowler Street/Evans Avenue corridor to the vicinity of SR 82

A number of alternative alignments were developed and analyzed within each Segment to eliminate geographical areas within the corridor which were not feasible for further alternatives development. Based on this evaluation, subcorridor areas were identified in which viable alternative alignments could be further identified and developed

A screening of potential corridors/alternative alignments was conducted as part of a corridor analysis. Numerous alternatives were eliminated because of a “fatal flaw” which made it obvious that they were not acceptable alignments. In addition, a corridor study conducted prior to the Metro Parkway PD&E Study evaluated and eliminated an alignment at the north end of the project that extended along existing Palm Avenue. This corridor/alignment was eliminated because of impacts to a historic district and other historic structures and because of potential relocation impacts north of Edison Avenue.

7.3.1 Segment 1

Since there is not an existing roadway within the Metro Parkway Corridor suitable for improvement in Segment 1, this portion of the roadway will be on new alignment. The Seminole Gulf Railroad is located in the middle area of this segment, Six Mile Cypress Slough Preserve is located to the east and commercial and residential development exists in the western portion of the segment.

Seven alternative corridor alignments were evaluated in Segment 1. Each of the seven alternatives would begin at US 41 in the vicinity of Alico Road and extend in a general northerly direction to the vicinity of Six Mile Cypress Parkway and Metro Parkway. Two of the seven alternative corridors (Alternatives 1-1 and 1-2) would cross the Ten Mile Canal and travel through the eastern end of the Jamaica Bay subdivision before crossing back over the Ten Mile Canal and eventually merging with Metro Parkway north of the Six Mile Cypress Parkway. These two alternatives, and thus the area west of the railroad, were eliminated from further consideration because of the impacts to the Jamaica Bay Subdivision. The two alternatives to the east of the Seminole Gulf Railroad and the Briarcliff Subdivision (Alternatives 1-4 and 1-5) would have major indirect impact on the Six Mile Cypress Slough Preserve because they would fragment the ecology of the slough system. The fragmentation of the slough would make it more difficult to obtain acceptance from the regulatory agencies. These two alternatives, and thus the area east of the Briarcliff Subdivision, were also eliminated from further consideration because of this impact. An alternative was also considered (Alternative 1-3) which essentially traverses the area between the Seminole Gulf Railroad and the eastern alternatives. This alternative would bisect the Briarcliff Subdivision and be very disruptive to the subdivision. This alternative, and thus this area of the corridor was also eliminated from further consideration. Therefore, in Segment 1 only alternative alignments which would travel along the east side of the Ten Mile Canal and adjacent to the Seminole Gulf Railroad will be developed further. The alternatives identified for further evaluation are presented in Chapter 8.

7.3.2 Segment 2

In Segment 2, Metro Parkway consists of a two lane roadway from Six Mile Cypress Parkway to Daniels Parkway. From Daniels Parkway to Winkler Avenue, Metro Parkway

is a four-lane roadway. Land use and existing development along the corridor are consistent with widening Metro Parkway. Therefore, all alternatives developed in this segment will follow the route of the existing Metro Parkway and extend from Six Mile Cypress Parkway to north of Winkler Avenue.

7.3.3 Segment 3

Two basic alternative corridor alignments were considered in Segment 3. The first alternative is a crossover alternative that is partially on new location and partially on existing alignment. This alternative connects Segment 2 with Segment 4 with a crossover that begins at a point north of Winkler Avenue on existing Metro Parkway and proceeds in a northwesterly direction on new location to the existing Fowler Street/Evans Avenue area and then connects with alternatives in Segment 4.

The second alternative corridor follows an existing alignment and begins at a point north of Winkler Avenue on existing Metro Parkway. This alternative continues to follow existing Metro Parkway to its intersection with Hanson Street. At this intersection, the alternative turns west along existing Hanson street and proceeds to the intersection with Evans Avenue and Fowler Street. At the Evans Avenue/Fowler Street intersection, this alternative proceeds to meet with alternatives in Segment 4. This alternative corridor alignment was eliminated from further consideration because of the relative impact on businesses, potential contamination involvement, right of way costs and traffic operations inefficiencies. Therefore only the crossover alternative alignments will be developed further.

7.3.4 Segment 4

Several alternative alignment corridors were initially considered for Segment 4. These consist of alignments that utilize Fowler Street, Evans Avenue or one-way pair alternatives on both Fowler Street (south-bound) and Evans Avenue (north-bound). All of these alternative corridor alignments were considered viable and therefore the corridor in Segment 4 was identified as the area between Fowler Street and Evans Avenue.

8.0 — Alternative Alignment Analysis

8.1 No-Project Alternative

The “No-Project” alternative would allow the existing facility to remain with only routine maintenance. Selection of this alternative would rely on other transportation improvements nearby or system-wide to handle traffic flow. The advantages of this alternative include:

- No right-of-way acquisition,
- No relocations,
- No inconvenience to the traveling public and property owners during construction, and
- No design, right-of-way and construction costs.

The lack of any improvements would result in steadily increased traffic congestion and longer travel times for users of the US 41 corridor. Regional traffic projections show an increase in north-south traffic in the area, thus requiring the construction of Metro Parkway from US 41 in the vicinity of Alico Road to SR 82. Consequently, deficiencies associated with providing the No-Project alternative include low travel speeds, lengthy vehicle queues (especially at major intersections), impaired traffic flow and higher accident rates. These deficiencies are contrary to the long-range transportation plans of Lee County. In addition, the No-Project alternative will not fill the gap in the regional transportation system that is needed to effectively and efficiently move traffic in a north-south direction and provide a continuous parallel route from existing US 41 in the vicinity of Alico Road northward to the recently opened Edison Bridge. Nonetheless, the No-Project alternative will remain a viable alternative through the Public Hearing phase.

8.2 Transportation Systems Management

The Transportation Systems Management (TSM) alternative includes those types of activities designed to maximize the use of the existing transportation system. A TSM project is a limited construction alternate that would use minor improvements to enhance capacity to the Metro Parkway corridor. These strategies include intersection widening,

improved signalization, increased mass transit usage, the possibility of reverse lane operation and/or lane use restrictions for high-occupancy vehicles, and provisions for bicycles and pedestrians. The advantage of this alternative would be the limited expenditure of funds to relieve existing congestion problems. While some increased efficiency might be realized at individual signalized intersections through minor improvements, the overall capacity restrictions of maintaining the existing roadway configuration would not allow improvement of the overall level of service to support existing and future traffic demands on Metro Parkway.

The incorporation of bus service, as well as pedestrian or bicycle provisions, would have limited impact on the existing traffic due to the type of vehicle trips on the roadway during peak travel conditions. The introduction of lane use restrictions for high-occupancy vehicles would be extremely difficult on the present roadway. Likewise, the possibility of providing one-way operation in opposing directions during the morning and evening peak hours cannot be warranted under present traffic patterns. Anything less than the extension and expansion of Metro Parkway is not considered a viable solution to the existing capacity problems. Therefore, Transportation Systems Management was dismissed as a viable alternative.

8.3 Screening of Build Alternatives

8.3.1 Overview

The objective of the alternatives analysis process is to identify technically and environmentally sound alignment alternatives that are cost effective and acceptable to the community. This section documents the results of the identification and evaluation of the alternatives that were considered in the Metro Parkway PD&E Study. All alternatives which were considered in the study are presented herein.

The process involved the use of 1"=400' and 1"=100' scale aerial photography in conjunction with the composite review of a series of environmental resource overlays to develop preliminary alternative alignments that avoid significant environmental impacts, including natural, social and physical impacts. Consideration was also given to the identification of available right-of-way through which an improved facility that would provide acceptable service consistent with transportation planning requirements could be

developed.

For purposes of presentation and documentation, the Metro Parkway corridor was subdivided into four segments based on a variety of key engineering and environmental characteristics common to each segment (see Figure 2-2). These segments are as follows:

Segment	Location
1	New alignment in the vicinity of Alico Road to Six Mile Cypress Parkway/Metro Parkway intersection.
2	Metro Parkway from Six Mile Cypress Parkway to north of Winkler Avenue.
3	New Alignment for Metro Parkway from north of Winkler Avenue to Fowler Street/Evans Avenue Corridor via new Crossover; or Hanson Street Connector.
4	Fowler Street/Evans Avenue corridor to SR 82

Segment 1 is a new alignment on new location. Segment 2 follows the route of the existing Metro Parkway alignment. Segment 3 would be on either new location via a new crossover alignment or along existing roadways (Metro Parkway to Hanson Street to Fowler Street/Evans Avenue), depending on the specific roadway alignment selected. Segment 4 is the existing Fowler Street/Evans Avenue corridor in a multilane configuration or a one-way pair arrangement along the Fowler Street and/or Evans Avenue roadways.

The development of the alternatives was an evolutionary process. An initial alternatives screening evaluation was conducted that identified various alternative alignments. These alternatives are described in Section 8.3.2 Identification of Initial Alternative Alignments. Section 8.3.3 Initial Evaluation Matrix then evaluates these initial alternatives and provides the basis for eliminating non-viable alternatives from further consideration. From this initial screening evaluation, and as additional constraints were identified and public involvement issues evolved, additional alternatives were identified and developed. These are described in Section 8.3.4 Identification of Additional Alternatives. Section

8.3.5 Screening Evaluation of Additional Alternatives gives the evaluation matrix for of each of these additional alternatives. Section 8.3.6 Alico Road/US 41 Connection Alternatives identifies and evaluates the interchange alternatives for the Alico Road/US 41 connection. Section 8.3.7 then identifies the alternatives that were carried to the final evaluation step. Section 8.4 Description and Evaluation of Viable Alternatives first describes in detail the viable alternatives (Section 8.4.1 Description of Viable Alternatives) and then evaluates these alternatives (Section 8.4.2 Evaluation Matrix of Viable Alternatives). Finally, Section 8.5 Public Hearing Alternatives identifies those alternatives which have been selected to be presented at the Public Hearing. The following describes this alternatives development process and provides the basis for eliminating alternatives from further consideration.

8.3.2 Identification of Initial Alternative Alignments

A corridor analysis report was performed which identified several alignment alternatives. A screening of these alternatives was conducted to eliminate any non-viable alternatives. Among these alternatives eliminated was the Palm Avenue alignment for the area south of Dr. Martin Luther King, Jr. Boulevard which was eliminated because of potential impacts to historic properties and to the Dunbar community.

The alternatives that were initially identified for consideration and development are described in Section 8.3.2 below by Segment. Figure 8-1 shows the alternatives that were initially considered for the proposed expansion and extension of Metro Parkway in each of the four segments, beginning at US 41 in the vicinity of Alico Road and ending at SR 82. These alternatives are then evaluated in Section 8.3.3 using a matrix evaluation as shown Table 8-1.

8.3.2.1 Segment 1 - US 41 and Alico Road to Six Mile Cypress Parkway

In Segment 1, seven build alternatives were initially evaluated, all of which would be on new location. Each of the seven alternative alignments would begin at US 41 in the vicinity of Alico Road and extend in a generally northerly direction to the vicinity of Six Mile Cypress Parkway and Metro Parkway. Two of the seven alternatives (Alternatives 1-1 and 1-2) would cross the Ten Mile Canal and travel through the eastern end of the Jamaica Bay subdivision before crossing back over the Ten Mile Canal and eventually

**TABLE 8-1
INITIAL ALTERNATIVE CORRIDOR EVALUATION MATRIX**

EVALUATION FACTORS / MEASURES	NO BUILD	SEGMENT 1							SEGMENT 2			SEGMENT 3					SEGMENT 4							
		Alico Road to Six-Mile Cypress Parkway							Metro Parkway from Six-Mile Cypress Parkway to North of Winkler Avenue			Metro Parkway to Fowler Street	Metro Parkway to Fowler/ Evans	Metro Parkway to Hanson Connection			Six-Lane Fowler Street			Fowler / Evans One-Way Pair				
		1-1	1-2	1-3	1-3B	1-3C	1-4	1-5	2-1	2-2	2-3 **	3-1	3-2	3-3(Lt)	3-3(Rt)	3-3(Ctr)	4-1(Lt)	4-1(Rt)	4-1(Ctr)	4-2(Lt)	4-2(Rt)	4-2(Ctr)	4-2B	4-2C
BUSINESS & ECONOMIC IMPACTS																								
Business Parcels Displaced (No.)	0	7	6	0	0	1	0	1	0	0	10	4	26	19	30	36	32	55	17	11	13	3	2	
Partial Business Parcels Displaced (No.)	0	2	4	1	1	1	1	6	0	17	5	3	2	3	18	3	3	10	23	23	44	4	5	
Approved projects Impacted (No.)	None	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
Opportunities for Redevelopment	Negative	Neg.	Neutral	Neg.	Pos.	Pos.	Neutral	Neutral	Neutral	Pos.	Neutral	Pos.	Pos.	Neutral	Neutral	Neutral	Neutral	Neutral	Pos.	Neutral	Neutral	Neutral	Neutral	
CULTURAL / HISTORICAL RESOURCES AND PUBLIC PARKS																								
Section 4(f) Involvement – Six Mile Cypress Slough (Hectares/Acres)	None	0/0	0/0	5.7/14.2	5.7/14.2	2.2/5.5	3.4/8.7	3.1/7.6	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	
Historic Structures / Properties within ROW (No.)	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	
Historic Properties within 2 blocks of ROW (No.)	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	
Archaeological Site Potential	None	Mod.	Mod.	Mod.	Mod.	Mod.	Low	Low	Mod.	Mod.	Mod.	Mod.	Mod.	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
RESIDENTIAL IMPACTS																								
Single-Family Residences Displaced (No.)	0	2	4	13	13	5	13	8	0	0	0	1	1	0	3	0	0	0	3	5	2	1	2	
Manufactured Homes Displaced (No.)	0	114	114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minority Neighborhoods with Displacements (No.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
COMMUNITY FACILITIES																								
Community Facilities within ROW (No.)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Community Facilities within 300 feet of ROW (No.)	0	0	0	1	0	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	
NATURAL ENVIRONMENT & PHYSICAL IMPACTS																								
Wetlands (Hectares/Acres)	0	2.76 / 6.82	2.17 / 5.35	7.8 / 19.3	7.6 / 18.8	4.0 / 9.9	4.86 / 12.0	4.86 / 12.0	0.4 / 1.0	0.37 / 0.91	0.36 / 0.89	0.2 / 0.51	0.20 / 0.49	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	0.04 / 0.1	
100-Year Flood Plain Impacts (Hectares / Acres)	0	27.5 / 68	27.5 / 68	13.2 / 32.7	13.2 / 32.7	13.2 / 32.7	17.9 / 44.2	17.2 / 42.5	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	
Potential Drainage / Water Quality	Poor	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	Improv	
Potential Protected Species Habitat	None	Fair	Fair	Good	Good	Good	Good	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Poor	Poor	Poor	Poor	Poor	
Potential Hazardous Waste Sites (No.)	0	3	2	1	0	0	0	0	5	11	6	12	14	7	4	11	12	8	20	15	11	26	7	
Potential Petroleum Contaminated Sites (No.)	0	2	1	0	0	0	1	0	6	11	5	2	3	9	6	15	11	15	26	12	13	25	1	
MISCELLANEOUS																								
Consistent with Local Transportation Plans	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	
Pedestrian / Bicycle Facilities	Very Limited Ped. Facilities	Bicycle	Bicycle	Bicycle	Bicycle	Bicycle	Bicycle	Bicycle	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	Both	
ROW (Hectares / Acres)	0	32.8 / 81	34.4 / 85	29.5 / 73	30.4 / 75	31.2 / 77	34.4 / 85	36 / 89	4.7 / 11.7	4.7 / 11.7	4.7 / 11.7	6.0 / 14.9	6.0 / 14.9	5.4 / 13.3	5.6 / 13.8	5.4 / 13.2	4.8 / 11.8	4.7 / 11.5	4.7 / 11.5	2.8 / 6.8	2.8 / 6.8	2.8 / 6.8	2.8 / 6.8	
PROJECT COSTS (\$ Million)																								
Right of Way Cost *	0	\$19.8	17.3	18.3	18.8	14.8	22.6	20.2	6.5	6.6	5.7	9.4	4.2	10.8	8.2	12.9	13.3	16.9	23.9	9.1	8.8	13.0	4.7	
Design / CEI Cost (30% of Construction)	0	\$7.2	7.2	6.0	6.4	7.9	11.3	9.8	9.0	9.0	9.0	4.7	2.2	4.1	4.1	4.1	0.9	0.9	0.9	1.6	1.6	1.6	2.2	
Construction Cost	0	\$24.1	24.1	20.0	21.3	26.4	37.8	32.7	30.0	30.0	30.0	15.8	7.4	13.8	13.8	13.8	3.0	3.0	3.0	5.4	5.4	5.4	7.4	
Wetland Mitigation Cost	0	\$0.7	0.5	2.0	1.9	0.9	1.1	1.1	0.2	0.1	0.1	0.5	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Contamination Cleanup Cost	0	\$0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.1	0.8	1.0	1.3	0.8	2.1	1.4	1.4	2.8	1.6	1.4	3.0	0.5	
TOTAL PROJECT COST (\$ Million)	0	\$52.1	49.3	46.3	48.4	50.0	72.8	63.8	45.9	46.0	44.9	31.2	15.2	30.1	27.0	33.0	18.7	22.3	30.7	17.8	17.3	23.1	14.9	

• Right of Way costs provided by FDOT

** After we found that easements do not exist south of Daniels Parkway, the segment between Six-Mile Cypress Parkway and Daniels Parkway was re-evaluated as segment 2-A, and the rest of the segment was evaluated as segment 2-B.

Note : Shaded columns identify the alternative corridors that were eliminated from the study.

merging with Metro Parkway north of the Six Mile Cypress Parkway. Five alternative alignments (Alternatives 1-3, 1-3B, 1-3C, 1-4 and 1-5) would travel along the east side of the Ten Mile Canal and cross the Six Mile Cypress Slough Preserve at various locations before merging with Metro Parkway in the vicinity of Six Mile Cypress Parkway. These alternatives are described below. (See Section 8.3.3.1 for the evaluation of the initial Segment 1 alternatives.)

- **Alternative 1-1**

This alternative begins at the proposed connection to US 41 in the vicinity of Alico Road and US 41 and proceeds in a northwesterly direction, following the alignment of existing Old US 41 for a distance of approximately 1,372 meters (4,500 feet). At this point, the alternative leaves the Old US 41 alignment and turns to the north-northwest on new location as it crosses Ten Mile Canal. After crossing Ten Mile Canal, Alternative 1-1 turns to the north and runs parallel to the west side of Ten Mile Canal. It follows this northerly alignment through the eastern part of the Jamaica Bay subdivision. This alternative then turns to the northeast and again crosses the Ten Mile Canal and the Seminole Gulf Railway tracks before turning north again where it eventually merges with the alternatives in Segment 2.

- **Alternative 1-2**

This alternative begins at the proposed connection to US 41 in the vicinity of Alico Road and US 41 and follows a northerly direction on a new location alignment that generally parallels the east side of the Florida Power and Light (FPL) transmission easement for a distance of approximately 853 meters (2,800 feet). At this point, this alternative turns to the northwest and crosses the FPL transmission easement. It then follows the west side of the Seminole Gulf Railway right-of-way and eventually crosses Ten Mile Canal. After crossing Ten Mile Canal, this alternative turns to the north where it merges with Alternative 1-1 and proceeds through the eastern part of the Jamaica Bay subdivision. This alternative then continues along the route of the Alternative 1-1 alignment to its merge point with the alternatives in Segment 2.

- **Alternative 1-3**

This alternative begins at the proposed connection to US 41 in the vicinity of Alico Road and US 41 and follows a general northerly alignment on new location. It continues in a northerly direction as it crosses the Seminole Gulf Railway. At a point approximately 384 meters (1,260 feet) north of the Seminole Gulf Railway, Alternative 1-3 turns to the northwest and crosses the Florida Power and Light (FPL) transmission easement. This alternative continues to follow a northwesterly alignment for a distance of approximately 1,830 meters (6,000 feet). It then turns to the north in the vicinity of the Briarcliff Road/Anderson Road intersection and crosses the extreme western end of the Six Mile Cypress Slough Preserve adjacent to the east side of the Seminole Gulf Railway right-of-way. After crossing the Six Mile Cypress Slough Preserve, Alternative 1-3 veers slightly to the northeast and proceeds to the north where it eventually merges with the alternatives in Segment 2.

- **Alternative 1-3B**

This alternative follows the same general northerly alignment as Alternative 1-3. After crossing the Seminole Gulf Railway, this alternative turns to the northwest and runs adjacent to the east side of the railroad right-of-way. The alignment continues in this northwesterly direction to the vicinity of Anderson Lane. At this point, Alternative 1-3B crosses just south of Anderson Lane and turns to the north where it follows a new location alignment between the Seminole Gulf Railway and Anderson Lane. This alternative eventually merges with Alternative 1-3 as it crosses the extreme western end of the Six Mile Cypress Slough Preserve. Alternative 1-3B follows the same northerly alignment as Alternative 1-3 to its merge point with the alternatives in Segment 2.

- **Alternative 1-3C**

Alternative 1-3C begins at the proposed connection to US 41 in the vicinity of Alico Road and US 41 and follows a general northerly alignment on new location. It continues in a northerly direction as it crosses the Seminole Gulf Railway. This alternative then turns to the northwest and runs adjacent to the east side of the railroad right-of-way. The alignment proceeds in this northwesterly direction to the vicinity of Anderson Lane. At this point, Alternative 1-3C turns to the north and follows the main line of the Seminole

Gulf Railway. This alignment continues within the railroad right-of-way and passes adjacent to the Six Mile Cypress Slough Preserve. This alternative would require the relocation of the Seminole Gulf Railway tracks to the west along the Ten Mile Canal with the roadway being built to the east of the railroad tracks. Alternative 1-3C eventually leaves the railroad right-of-way and turns slightly to the northeast, crossing the extreme northwestern portion of the slough property. It follows this northeasterly alignment for a short distance before turning again to the north and eventually merges with the alternatives in Segment 2.

- **Alternative 1-4**

This alternative begins at the proposed connection to US 41 in the vicinity of Alico Road and US 41 and follows a northerly direction on a new location alignment parallel to the west side of the Florida Power and Light (FPL) transmission easement. This alternative continues in a northerly direction and passes through the east end of the Briarcliff subdivision. It then crosses the Six Mile Cypress Slough Preserve where it maintains its alignment parallel with the west side of the FPL transmission easement. Alternative 1-4 then turns to the northwest where it eventually merges with the alternatives in Segment 2, approximately 716 meters (2,350 feet) north of its intersection with the Six Mile Cypress Parkway in Segment 2.

- **Alternative 1-5**

This alternative begins at the proposed connection to US 41 in the vicinity of Alico Road and US 41 and follows a northerly route on a new location alignment parallel to the east side of the Florida Power and Light (FPL) transmission easement. This alternative continues in a northerly direction and eventually crosses the Six Mile Cypress Slough Preserve, maintaining its alignment parallel with the east side of the FPL transmission easement. Alternative 1-5 then turns to the northwest where it eventually merges with the alternatives in Segment 2, approximately 800 meters (2,625 feet) north of the Six Mile Cypress Parkway/Metro Parkway intersection in Segment 2.

8.3.2.2 Segment 2 - Six Mile Cypress Parkway to North of Winkler Avenue

As determined in Chapter 7 - Corridor Analysis, all alternatives developed in Segment 2

will follow the route of the existing Metro Parkway and extend from Six Mile Cypress Parkway to north of Winkler Avenue. Therefore, the initial evaluation of alternative alignments in Segment 2 consisted of left, right and center alternatives. Since it was determined that the existing right-of-way varies, Segment 2 was further divided into two (2) segments; Segment 2A is from Six Mile Cypress Parkway to Daniels Parkway and Segment 2B is from Daniels Parkway to north of Winkler Avenue. Left, right and center alignments along existing Metro Parkway were then developed for each of these subsegments. (See Section 8.3.3.2 for the evaluation of the initial Segment 2 alternatives.)

8.3.2.3 Segment 3 - North of Winkler Avenue to Hanson Street

This section identifies the alternative alignments considered in Segment 3. (See Section 8.3.3.3 for the evaluation of the initial Segment 3 alternatives.)

Four basic alternatives were initially considered in Segment 3. Two alignments were crossover alternatives (Alternatives 3-1 and 3-2) that are partially on new location and partially on existing alignment. These two alignments would connect to the Six-Lane Fowler Street Alternatives and to the One-Way Pair Alternatives, respectively. The third alternative (Alternative 3-3) would follow an existing alignment utilizing Metro Parkway and Hanson Street. A fourth alignment, identified as Alternative 3-4, connected with the existing Evans Avenue corridor in the vicinity of Kennesaw Street. This crossover alignment is the same as for Alternatives 3-1 and 3-2 up to the vicinity of Kennesaw Street where it proceeded northward along existing Evans Avenue on Left, Right and Centered alignments.

8.3.2.4 Segment 4 - Hanson Street to the Vicinity of SR 82

This section identifies and describes the alternative alignments considered in Segment 4. (See Section 8.3.3.4 for the evaluation of the initial Segment 4 alternatives.)

- **Alternatives 4-1(LT), 4-1(CT) and 4-1(RT)**

Alternative 4-1 is a six-lane alternative which would begin at the intersection of Fowler Street and Hanson Street and proceed in a northerly direction where it would follow the existing Fowler Street roadway along a west (left), center, or east (right) multilane

alignment to the project terminus at SR 82.

- **Alternative 4-2**

This alternative is a one-way pair alternative which would proceed northward from the vicinity of Kennesaw Street along the existing Evans Avenue alignment. The first portion of this alignment would follow existing Evans Avenue and end in the vicinity of the intersection of existing Evans Avenue and Edison Avenue. The second portion of this alignment would follow a new alignment and terminate at SR 82. The first portion of this alternative would require minor acquisition of right-of-way. The second portion of this alternative would leave the existing Evans Avenue with a set of reverse curves that would move the alignment immediately adjacent to the west right-of-way line for the Seminole-Gulf Railway. This alignment would require acquisition of right-of-way for the entire 19.5 meter (64 foot) section, as well as the removal/relocation of several industrial businesses located between the railroad right-of-way and Alicia Street. Property owned by the Railway and planned for future passenger facilities would be required for this alternative.

- **Alternative 4-2B**

This alternative is also a one-way pair alternative. This alternative would begin in the vicinity of Kennesaw Street and continue northbound to the intersection of Dora Street and Evans Avenue. Minor right-of-way acquisition from each side of the existing right-of-way would be required. The alignment would then begin to rise above the existing Evans Avenue at a 4 percent grade to achieve the proper required clearance at the intersection of the railroad, Evans Avenue, and Edison Avenue. This bridge would span an approximate distance of 170 meters (550 feet) and would have MSE walls on both north and south approaches. The required right-of-way in this portion would increase to 20.7 meters (68 feet) and would require the acquisition of approximately 1.7 meters (5.5 feet) from each side of the existing roadway. The roadway would be at-grade at the intersection of Evans Avenue and Market Street. From the bridge, it would be necessary to relocate the existing railroad tracks further west within the Seminole Gulf Railway right-of-way to accommodate the proposed alignment. This would include modifications to the railroad "Wye" just south of the intersection of SR 82. From Market Street to SR 82, the alignment would be west of and adjacent to the east right-of-way for existing

Evans Avenue. Evans Avenue in this vicinity has a right-of-way width of 9.1 meters (30 feet) and would require acquisition of 10.3 meters (34 feet) of railroad property.

- **Alternative 4-2C**

Alternative 4-2C is a one-way pair alternative which would follow the alignment of Alternative 4-2B until it reaches Dora Street. This alternative would then continue in a northerly direction. In the vicinity of Edison Avenue, the alignment moves approximately 9 meters (30 feet) to the west by using a reverse curve and would continue on this alignment until terminating at Dr. Martin Luther King, Jr. Boulevard.

From the Edison Avenue shift northward, Alternative 4-2C would occupy a portion of the Seminole Gulf Railway right-of-way. Realignment of the main railroad tracks to the east side of this alignment would place the new tracks within the existing Evans Avenue right-of-way. It would be necessary for a spur line to cross the alignment between Lafayette Street and Market Street to provide access to the News Press building. Alternative 4-2C would have the main railroad tracks to the east and the spur track to the west. Near the intersection of Dr. Martin Luther King, Jr. Boulevard the existing railroad “Wye” would be removed. This “Wye” is essential for the efficient operation of the railroad in this vicinity and would be relocated to a vacant parcel of land in Segment 3.

- **Six-Lane Evans Avenue Alternatives (Alternatives 4-4 Left, Right and Center)**

Six-Lane Evans Avenue Alternatives (Alternatives 4-4 Left, Right and Center) were also considered but were discarded as non-viable because of impacts to the Imaginarium (a 4(f) property), the Dunbar community (a minority neighborhood) and were unacceptable to the Seminole Gulf Railway.

8.3.3 Evaluation Matrix of Initial Alternatives

The evaluation process for the initial alternatives considered involved the analysis of a variety of factors associated with the alternative corridors considered for the proposed Metro Parkway improvements. Each alignment alternative was analyzed and evaluated to a point of rejection or selection as a viable alternative. Some of the representative

evaluation factors that were considered include: socioeconomic and community impacts, natural environmental impacts, Section 4(f) involvement, contamination, traffic operations, and project costs.

A comparative evaluation of the alternatives was performed to assist in identifying the most viable alternatives that would be carried through for further study. Each of the alternatives in the four corridor segments were evaluated by using a matrix that:

- (1) provides the framework for measuring the relative strengths and weaknesses of the individual corridor alternatives, and
- (2) provides the means whereby the various corridor alternatives can be compared with one another to assess their development potential and to determine those alternatives with the most desirable characteristics.

The Initial Evaluation Matrix presented in Table 8-1 provides a comparative summary of the initial alternatives considered by segment.

8.3.3.1 Segment 1 - US 41 and Alico Road to Six Mile Cypress Parkway

As previously discussed, seven alternatives were initially identified in Segment 1. This section evaluates these alternatives. The specific factors that were considered in assessing the relative advantages and disadvantages of these alternatives covered a variety of quantifiable and non-quantifiable measures, including residential relocations, community cohesion/disruption, wetland impacts, involvement with the Six Mile Cypress Slough Preserve (a Section 4(f) resource) contamination involvement, and project cost.

Alternatives 1-1 and 1-2 would have significant impacts on the social environment. Specifically, these alternatives would require the relocation of 114 mobile homes in the Jamaica Bay Subdivision, a community of mostly retired senior citizens. The public information workshop held on August 17, 1995, was well attended by the residents of Jamaica Bay. These residents were quite vocal and unified in their opinion that the proposed Business US 41 roadway should not go through their community. Some of the specific concerns raised by the Jamaica Bay residents were that the proposed new roadway would: (1) cause significant hardship to the relocatees and those living adjacent to the proposed right-of-way; (2) introduce significant noise and visual impacts to an

otherwise tranquil community setting; and (3) negatively impact community cohesion and quality of life. Because of the high social-economic impacts associated with the high number of potential relocations, Alternatives 1-1 and 1-2 are not considered as viable alternatives despite the fact they would not encroach upon the Six Mile Cypress Slough Preserve and would have less wetland impacts than the other alternatives in Segment 1.

Alternatives 1-4 and 1-5 would have a smaller area of wetland impacts and thus a less direct involvement with the Six Mile Cypress Slough Preserve than Alternatives 1-3 and 1-3B. However, Alternatives 1-4 and 1-5 would have major indirect impacts on the Six Mile Cypress Slough Preserve because they would fragment the ecology of the slough system. The fragmentation of the slough would make it more difficult to obtain acceptance from the regulatory agencies. Consequently, Alternatives 1-4 and 1-5 were no longer considered viable alternatives.

Alternative 1-3 would require the taking of approximately 7.8 hectares (19.3 acres) of wetlands; Alternative 1-3B would impact 7.6 hectares (18.8 acres) of wetlands. Alternative 1-3C, the proposed minimization alternative, would require approximately 2.2 hectares (5.5 acres) of land from the Six Mile Cypress Slough Preserve and would impact approximately 4.0 hectares (9.9 acres) of wetlands. Alternatives 1-3 and 1-3B would require 13 residential relocations whereas Alternative 1-3C would displace five residences. Alternative 1-3, however, would be the most disruptive to community development patterns because this alignment would bisect the Briarcliff Subdivision. In comparison, the Alternative 1-3B alignment would parallel the east side of the Seminole Gulf Railway tracks and would be least disruptive to the community. This alternative, however, would require the relocation of the Briarcliff Baptist Church.

A portion of Alternative 1-3C would run along the Seminole Gulf Railway tracks immediately adjacent to the east side of the Ten Mile Canal. A major disadvantage associated with this alternative is the fact that the section of the Ten Mile Canal between US 41 and the Six Mile Cypress Parkway has never been excavated to the permitted design width for conveyance of surface water. The Lee County Surface Water Management Master Plan recommends the excavation of the channel to the design cross section in this reach as the number one priority, including provisions for no encroachments or relinquishing of right-of-way reservations along the existing right-of-way. Encroachment into the future canal widening area would be required with

Alternative 1-3C. Therefore, Alternative 1-3C is not considered a viable alternative.

From the standpoint of project cost, Alternative 1-3C would be the most costly to develop, followed in decreasing order by Alternative 1-3B and Alternative 1-3. In summary, although Alternatives 1-3 and 1-3B are fairly similar in cost, it is anticipated that Alternative 1-3 would cause more disruption to the community because it would bisect the Briarcliff subdivision. Consequently, of the alternatives initially evaluated in Segment 1, Alternative 1-3B appears to be the best alternative for implementing the proposed improvements to Metro Parkway in Segment 1 and is therefore carried to the next level of evaluation.

Alternative 1-3D was subsequently added to the evaluation because of public input as stated in Section 8.3.4.1 Additional Segment 1 Alternatives.

8.3.3.2 Segment 2 - Six Mile Cypress Parkway to North of Winkler Avenue

As stated in Chapter 7 - Corridor Analysis, alignments along the existing Metro Parkway roadway are viable alternatives for consideration. Therefore, Segment 2A (from Six Mile Cypress Parkway to Daniels Parkway) and Segment 2B (from Daniels Parkway to north of Winkler Avenue) left, right and center alternatives were carried to the next level of evaluation.

8.3.3.3 Segment 3 - North of Winkler Avenue to Hanson Street

The review of the evaluation matrix data indicates that Alternative 3-3, which follows the existing alignment of Metro Parkway and Hanson Street, should be eliminated from further consideration in this study for several reasons. Specifically, this alternative would displace anywhere from 15 to 26 more businesses than Alternative 3-1, depending on the specific alignment selected (left, center, or right). Alternative 3-3 would also have more potential contamination involvement. The right-of-way costs for this alternative would be approximately \$4.0 million to \$8.7 million more than Alternative 3-2. Finally, this alternative was rated poor from a traffic operations standpoint because of the inefficient right-angle turn configurations associated with the Metro Parkway/Hanson Street, Hanson Street/Evans Avenue, and Hanson Street/Fowler Street intersections. Therefore, Alternative 3-3 was eliminated from further consideration and Alternatives 3-1 and 3-2

were considered viable and were therefore carried to the next level of evaluation.

Subsequent traffic operations evaluations of the remaining alternatives (Alternatives 3-1 and 3-2) indicated that the intersection configurations in the vicinity of Kennesaw Street did not function properly. This resulted in new intersection configurations and new alternative designations for these alternatives. These new alternative designations are: Alternative 3-5 - Six-Lane Fowler Street Alternative; and Alternative 3-6 - One-Way Pair Alternative. These alternatives are described and evaluated in Section 8.4.1.3 and Section 8.4.2.3, respectively.

8.3.3.4 Segment 4 - Hanson Street to the Vicinity of SR 82

Eight alternatives were initially evaluated in Segment 4, including the Six-Lane Fowler Street Alternative - Alternative 4-1 (left, right, center); and the One-Way Pair Alternatives - Alternative 4-2 (left, right, center), Alternative 4-2B, and Alternative 4-2C. These alternatives involve the widening of Fowler Street and the northbound leg of the Fowler Street/Evans Avenue one-way pair configuration.

As shown in the matrix (Table 8-1), Alternative 4-1(LT), the left alignment for Six-Lane Fowler Street, is the least costly and has the least impacts of the Fowler Alternatives. A review of the evaluation matrix indicates that Alternatives 4-2 (left), 4-2 (right), and 4-2 (center) should be dropped from further consideration because they would each require more business and residential displacements than Alternatives 4-2B and 4-2C combined. In addition, the total project cost would be approximately \$2.4 million to \$8.3 million higher than Alternatives 4-2B or 4-2C.

Alternative 4-2C would cost approximately \$0.7 million less than Alternative 4-2B. Also, the visual impact of the grade separation structure in Alternative 4-2B was determined to be unacceptable. Because of these reasons, it was recommended that Alternative 4-2B be eliminated from further consideration. However, during discussions with the Seminole Gulf Railway, it was subsequently determined that Alternative 4-2C was also not acceptable to the railroad and was therefore not a viable alternative.

The terminus of Alternative 4-1(LT) transitions to Evans Avenue south of Dr. Martin Luther King, Jr. Boulevard. Discussions with the Seminole Gulf Railway and further

evaluations indicated that the impacts on the railroad operations would be unacceptable with this termination concept. Therefore, the terminus was modified and the alternative designation changed to reflect this new alternative. The new corresponding alternative designation for the Six-Lane Fowler Alternative is Alternative 4-5(LT).

8.3.4 Identification of Additional Alternatives

The preceding sections describe the development of the alternatives analysis during the initial phases of this study. However, as the study process progressed, additional alternatives were developed to incorporate engineering and public involvement issues identified during the forgoing alternatives screening that the original alternatives identified and developed did not address. These additional alternatives are identified below in Section 8.3.4.1, Additional Segment 1 Alternatives and Section 8.3.4.2, Additional Segment 4 Alternatives. These alternatives are then evaluated in Section 8.3.5 Screening Evaluation of Additional Alternatives.

8.3.4.1 Additional Segment 1 Alternatives

- **Alternative 1-3D**

Based on input received during the public involvement process, an additional alternative was identified. This alternative, Alternative 1-3D, follows essentially the same alignment as Alternative 1-3B except that the roadway is constructed within the railroad right-of-way and the railroad is relocated to the east of the roadway. This alternative and Alternative 1-3B are further evaluated and described in Section 8.4.1.1.

8.3.4.2 Additional Segment 4 Alternatives

Since Alternative 4-2C was not acceptable to the Railroad, other alternatives were developed as described below. This section identifies the additional alternatives that were considered. Section 8.3.5 provides a preliminary evaluation of these alternatives.

- **Alternative 4-2D**

Alternative 4-2D is a one-way pair alternative. This alternative utilizes the existing

railroad right-of-way and Evans Avenue right-of-way in a shared configuration to construct the roadway to the west of the railroad and to reconstruct the railroad to the east of the roadway. Fowler Street would be milled and resurfaced to provide three southbound lanes of traffic with a bike path.

- **Alternative 4-2E**

Alternative 4-2E would construct the northbound three lanes of traffic utilizing all of Evans Avenue and take an additional 10.4 meters (34 feet) from the right (east) side of the roadway. This alternative would avoid impacting the railroad property but would impact the Dunbar community (a minority neighborhood). This alternative also requires excessive delay time to clear the Dr. Martin Luther King, Jr. intersection when the railroad signal is activated.

- **Alternative 4-2F**

Alternative 4-2F would construct the northbound three lanes of traffic utilizing all of Evans Avenue and would take an additional 10.4 meters (34 feet) from the left (west) side of the roadway. This alternative would take railroad property but leave the railroad in place. This alternative also requires excessive delay time to clear the Dr. Martin Luther King, Jr. intersection when the railroad signal is activated.

- **Alternative 4-2G**

Alternative 4-2G would construct the northbound three lanes of traffic utilizing all of the railroad property. The 30.5 meters (100 feet) of railroad property would be utilized for both the roadway and the railroad. The roadway would be constructed to the west of the railroad and the railroad would be relocated to the east of the roadway.

- **Alternative 4-2H**

This alternative is similar to 4-2C except that the intersection with Dr. Martin Luther King, Jr., Boulevard would be grade-separated to avoid conflicts with the railroad and with Dr. Martin Luther King, Jr., Boulevard. Edison Avenue would also be grade-separated.

- **Alternative 4-2I**

This is a one-way pair alternative similar to the others except that the terminus at Dr. Martin Luther King Jr., Boulevard for northbound lanes would curve to the west and join with Fowler Avenue just south of Dr. Martin Luther King Jr., Boulevard. After crossing Dr. Martin Luther King Jr., Boulevard, the northbound lanes would curve back to the east and rejoin with Evans Avenue.

- **Alternative 4-2J**

This alternative is similar to 4-2C except that the northbound lanes would be located to the west of the railroad right-of-way to avoid impacting the right-of-way.

- **Alternative 4-2K**

This alternative is similar to 4-2C except that the northbound lanes are located to the west of the railroad track and utilize a portion of the railroad right-of-way.

8.3.5 Screening Evaluation of Additional Alternatives

8.3.5.1 Segment 1 Additional Alternatives

The Lee County/Fort Myers Metropolitan Planning Organization (MPO) requested that Alternative 1-3D be included in the Public Hearing. Therefore, Alternative 1-3D is considered a viable alternative

8.3.5.2 Segment 4 Alternatives

A Matrix Evaluation for the additional Segment 4 alternatives was prepared as shown in Table 8-2. Alternatives 4-2E and 4-2F were determined non-viable because the main railway line would cross the roadway on a severe skew in two places (Edison Street and Martin Luther King (MLK), Jr., Boulevard). The railroad would cross both the south and east approaches at the intersection of MLK and Evans. The stop bars on the approaches would have been to the east and south of the railroad track, respectively. The approaches must be cleared within 20 seconds, the amount of advance time the railroad would have

**TABLE 8-2
SEGMENTS 3 and 4
ALTERNATIVES EVALUATION MATRIX
METRO PARKWAY
FROM US 41 AND ALICO ROAD
TO DR. MARTIN LUTHER KING, JR., BOULEVARD**

SEGMENT 4 NORTH OF WINKLER AVENUE TO Dr. MARTIN LUTHER KING, Jr., BOULEVARD																
	Metro Parkway to Six Lane Evans	Metro Parkway to Six Lane Evans	Metro Parkway to Six Lane Evans	Six-Lane Fowler Street	Six-Lane Fowler Street	Road/Rail Share All R/W Fowler/ Evans	Railroad Avoidance Fowler/ Evans	Purchase Railroad Fowler/ Evans	Road/Rail Share RR Fowler/ Evans	Grade Separation Fowler/ Evans	Evans Via Fowler/ Evans	Rail Track Avoidance Fowler/ Evans	Purchase Railroad R/W Fowler/ Evans	Six-Lane Evans		
	3-4(LT)	3-5	3-6	4-1(LT)	4-5	4-2D	4-2E	4-2F	4-2G	4-2H	4-2I	4-2J	4-2K	4-4(LT)	4-4(RT)	4-4(CT)
RELOCATIONS																
RESIDENCES	0	1	12	0	5	0	3	0	0	8	8	0	3	10	19	13
BUSINESSES	2	11	11	39	51	2	2	2	4	14	21	8	14	19	3	13
COMMUNITY FACILITIES	0	2	0	0	0	0	0	0	0	1	1	0	1	0	1	1
EST. COSTS (IN MILLIONS)																
DESIGN / CEI	\$2.8	\$4.4	\$4.7	\$0.8	\$0.9	\$1.9	\$1.3	\$1.3	\$2.8	\$2.9	\$1.2	\$2.0	\$1.8	\$1.4	\$1.4	\$1.4
ROAD RIGHT-OF-WAY	\$4.3	\$10.4	\$10.7	\$13.3	\$21.6	\$2.8	\$3.8	\$1.3	\$3.6	\$9.9	\$15.2	\$4.7	\$6.9	\$8.6	\$5.8	\$10.0
DRAINAGE R/W	\$0.9	\$0.9	\$0.9	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7	\$0.7
RAILROAD R/W	\$0.1	\$0.0	\$0.1	\$0.0	\$0.0	\$1.2	\$0.1	\$0.8	\$0.9	\$0.4	\$0.0	\$0.6	\$0.9	\$0.1	\$0.1	\$0.1
RAILROAD R/W DAMAGE COST	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.5	\$0.0	\$0.0	\$1.5	\$0.0	\$0.0	\$3.0	\$5.0	\$0.0	\$0.0	\$0.0
ROADWAY CONST.	\$8.8	\$14.7	\$15.1	\$2.7	\$3.1	\$2.8	\$2.6	\$2.6	\$5.8	\$9.6	\$3.9	\$4.9	\$4.5	\$2.9	\$2.9	\$2.9
RAILROAD CONST.	\$0.6	\$0.0	\$0.5	\$0.0	\$0.0	\$3.6	\$1.6	\$1.6	\$3.4	\$0.0	\$0.0	\$1.6	\$1.6	\$1.6	\$1.6	\$1.6
WETLAND MITIGA.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CONTAM. CLEANUP	\$1.0	\$0.7	\$0.7	\$1.4	\$1.4	\$1.0	\$1.0	\$1.0	\$0.4	\$1.0	\$1.0	\$1.0	\$1.0	\$1.4	\$1.4	\$1.4
TOTAL	\$18.5	\$31.1	\$32.8	\$18.9	\$27.7	\$15.5	\$11.1	\$9.3	\$19.1	\$24.5	\$22.0	\$18.5	\$22.4	\$16.7	\$13.9	\$18.1
NATURAL ENV & PHYSICAL IMPACTS																
SPECIES	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts
CONTAMINATION SITES	0	14	17	22	26	16	16	16	14	16	16	16	16	27	27	27
WETLAND (HA/AC)	0.20/0.61	0.18/0.45	0.14/0.36	0.04/0.1	0.02/0.04	0.03/0.07	0.03/0.07	0.03/0.07	0.0/0.0	0.03/0.07	0.03/0.07	0.03/0.07	0.03/0.07	0.06/0.14	0.06/0.14	0.06/0.14
SECT 4(f) (HA/AC)	0/0													0.44/0.18		
DRAINAGE & WATER QUALITY	STORM DRAINAGE PROVIDE. CLOSED DRAINAGE SYSTEM WITH RETENTION/DETENTION POND TREATMENT. WATER QUALITY IMPROVED.															
NON-MOTORIZED	PROVIDES FOR A 1.5m (5 feet) SIDEWALK and 1.2 m (4 feet) BIKE LANE															
SOCIAL/NEIGHBORHOOD IMPACTS	MINIMAL	MINIMAL	MINIMAL	MINIMAL	MINIMAL	MINIMAL	Title 6	MINIMAL	MINIMAL	MINIMAL	MINIMAL	MINIMAL	MINIMAL	MINIMAL	Title 6	Title 6

* Mitigation costs < \$0.05 million.

to reach the crossing after the gates are down. In this case, both approaches could not be cleared within the 20 seconds time frame. The railroad would have to provide enough advance time, in the vicinity of 40 to 60 seconds, to clear both approaches. This intersection would require a double preemptive plan for the traffic signal with a delay, in excess of twenty (20) seconds, which is unacceptable for safe and efficient traffic operations. Alternative 4-2G is the least costly of the one-way pair alternatives impacting the railroad. Other alternatives that avoided, or minimized impacting the railroad property, although more costly, are considered viable. Therefore, since Alternative 4-2G is the least costly of the additional Segment 4 one-way pair alternatives, only 4-2G, the one-way pairing of Fowler Street and Evans Avenue, and 4-5(LT), six-laning of Fowler Street were carried further into the evaluation process.

8.3.6 Alico Road/US 41 Connection Alternatives

8.3.6.1 Identification of Connection Alternatives

An improved and direct connection is proposed at the southern terminus of the project, providing access to and from US 41 and Metro Parkway as well as to Alico Road. There are a number of physical, socio-economic and traffic operations constraints which must be considered in the development of a connection in this area. After consideration of these constraints, three (3) interchange alternatives were developed which meet traffic operations criteria⁽¹⁾. These alternatives are listed below and are shown in the corresponding figures:

- Double Loop Interchange (Figure 8-2)
- Single Loop Interchange, with an Inside Merge with Southbound US 41 and US 41 elevated over the merge (Figure 8-3)
- Single Loop Interchange, with an At-Grade Intersection to Southbound US 41 (Figure 8-4)

8.3.6.2 Evaluation of US 41/Alico Road Connection Alternatives

A matrix evaluation of the three alternative connections to US 41 and Alico Road was performed. This matrix evaluation is presented in Table 8-3 below.

(1) Please refer to Addendum A for additional background information and also for two additional interchange alternatives eliminated from further consideration.

Table 8-3

Alternative	Costs (Millions)		
	Right-of-Way	Construction	Total
Double Loop Interchange	\$21.5	\$11.7	\$33.2
Single Loop Interchange, with an inside merge with southbound US 41 & US 41 elevated over the merge	\$16.3	\$11.0	\$27.3
Single Loop Interchange, with an at-grade intersection to US 41	\$8.8	\$9.2	\$18.0

All of the connections will meet operational requirements. However, the at-grade intersection is \$9.3 million less expensive than the least costly interchange alternative. Therefore, the Single Loop Interchange, with an At-Grade Intersection to Southbound US 41, is the proposed Alternative for the connection to US 41 and Alico Road from Metro Parkway.

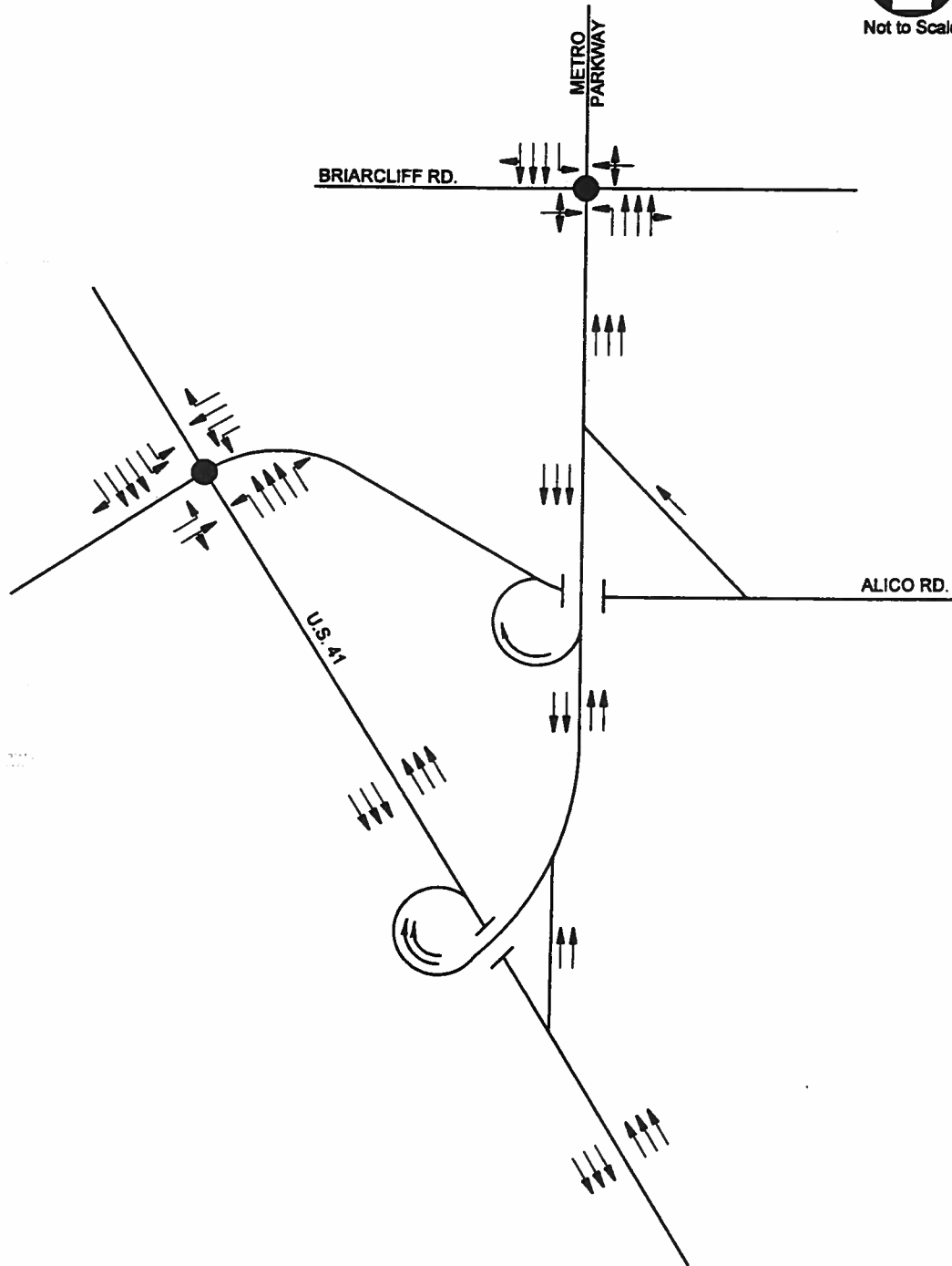
8.3.7 Selection of Viable Alternatives

As a result of the foregoing evaluation, the following alternative alignments were retained for further evaluation. These alternatives include the following:

- Single Loop Interchange, with an At-Grade Intersection to Southbound US 41
- Segment 1 — Alternatives 1-3B and 1-3D
- Segment 2 — Alternatives 2-1A, 2-2A, 2-3A and 2-1B, 2-2B, 2-3B
- Segment 3 — Alternative 3-5 and 3-6
- Segment 4 — Alternative 4-5(LT) and 4-2G



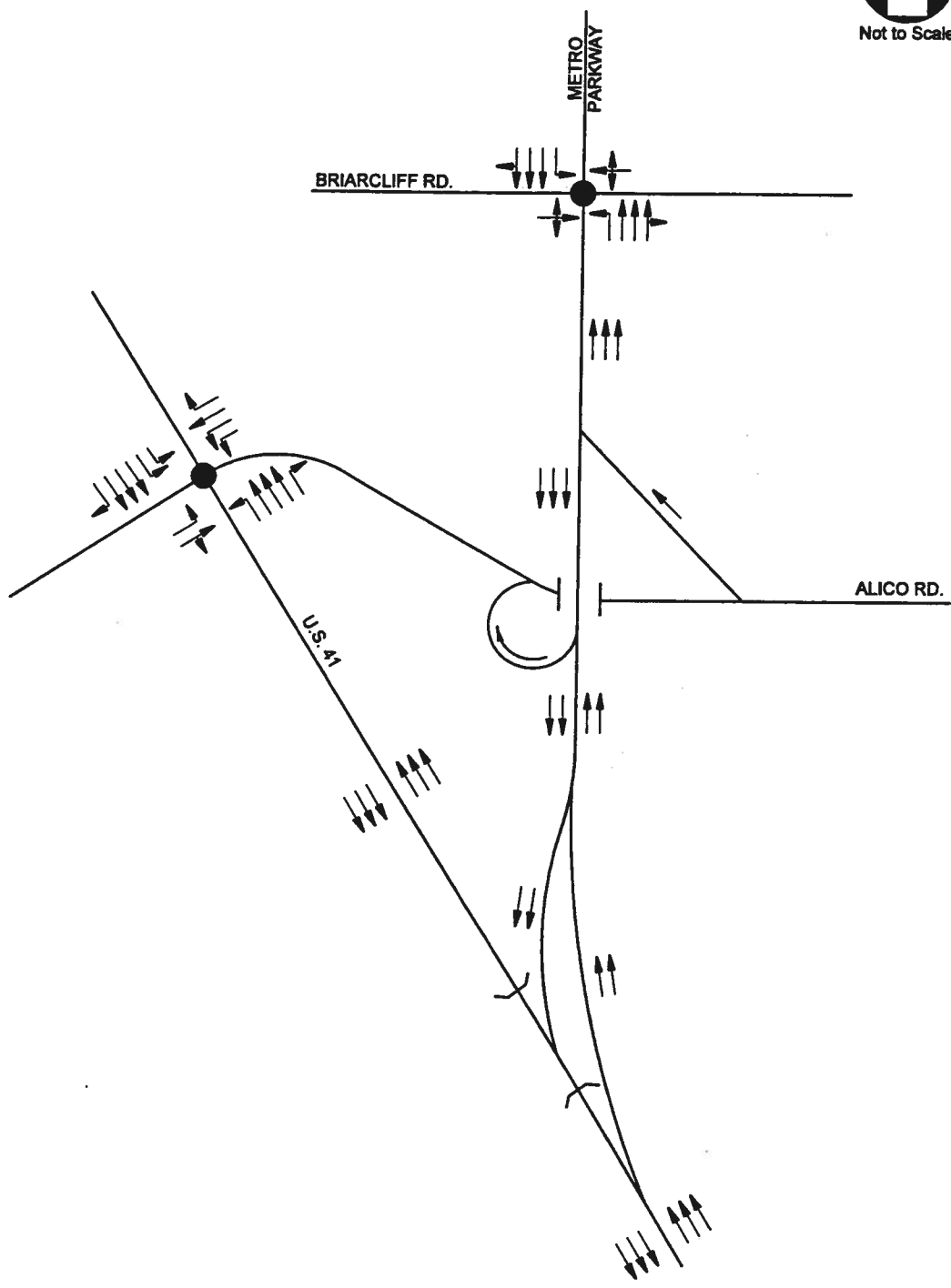
Not to Scale



LEGEND

● SIGNALIZED INTERSECTION

**DOUBLE LOOP INTERCHANGE
ALTERNATIVE
DESIGN YEAR (2020)
RECOMMENDED GEOMETRY**



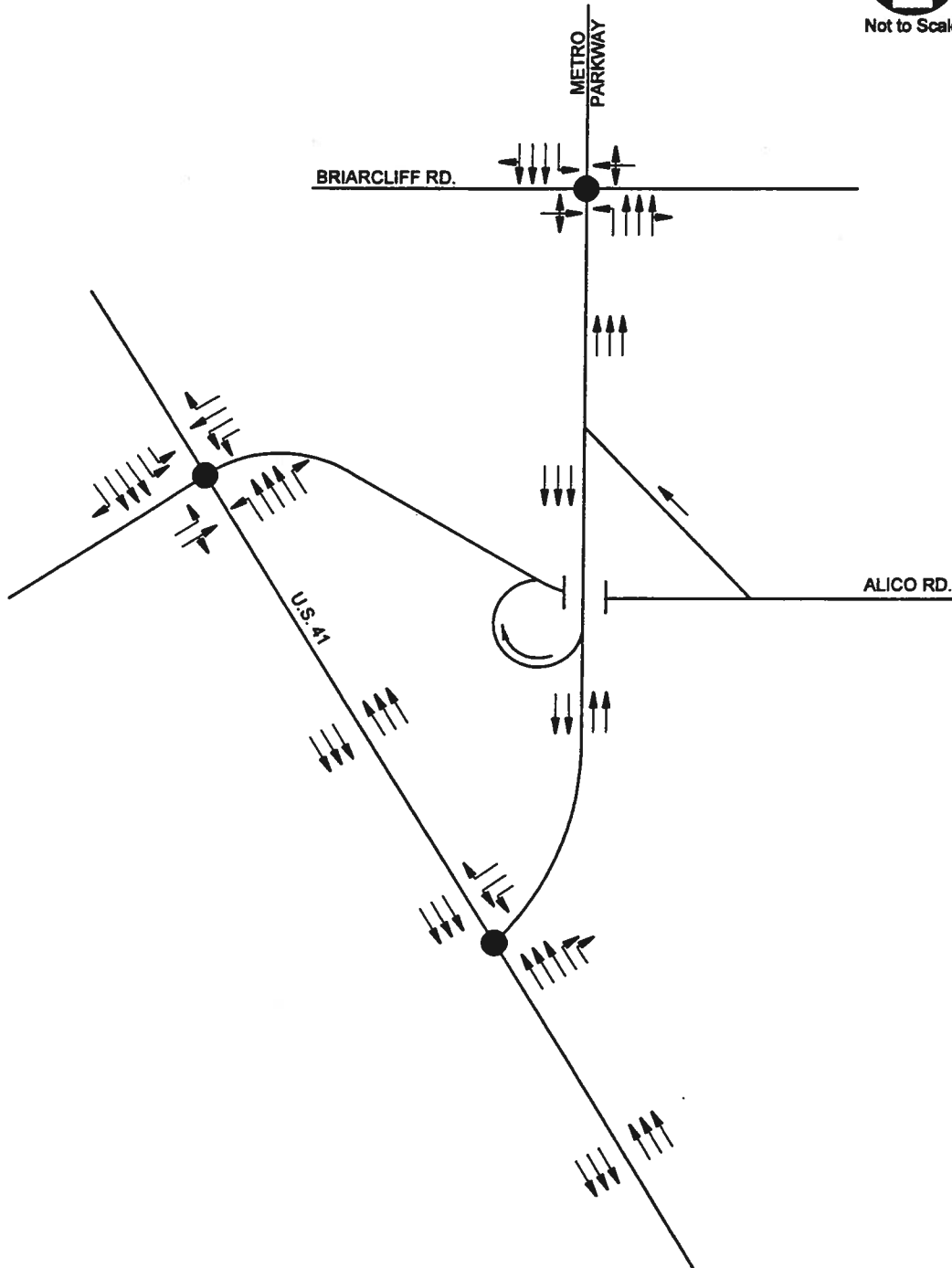
LEGEND

● SIGNALIZED INTERSECTION

**SINGLE LOOP INTERCHANGE
INSIDE MERGE WITH SOUTHBOUND US 41
ALTERNATIVE
DESIGN YEAR (2020)
RECOMMENDED GEOMETRY**



Not to Scale



LEGEND

● SIGNALIZED INTERSECTION

**SINGLE LOOP INTERCHANGE
AT GRADE INTERSECTION TO
SOUTHBOUND US 41 ALTERNATIVE
DESIGN YEAR (2020)
RECOMMENDED GEOMETRY**

8.4 Description and Evaluation of Viable Alternatives

8.4.1 Description of Viable Alternatives

The description of the viable alignment alternatives is provided below. The description of the viable connection alternative has been previously provided in Section 8.3.6.1.

8.4.1.1 Segment 1 Alternatives - Alico Road to Six Mile Cypress Parkway

In this segment, two alternative alignments were considered to be viable. These are described below.

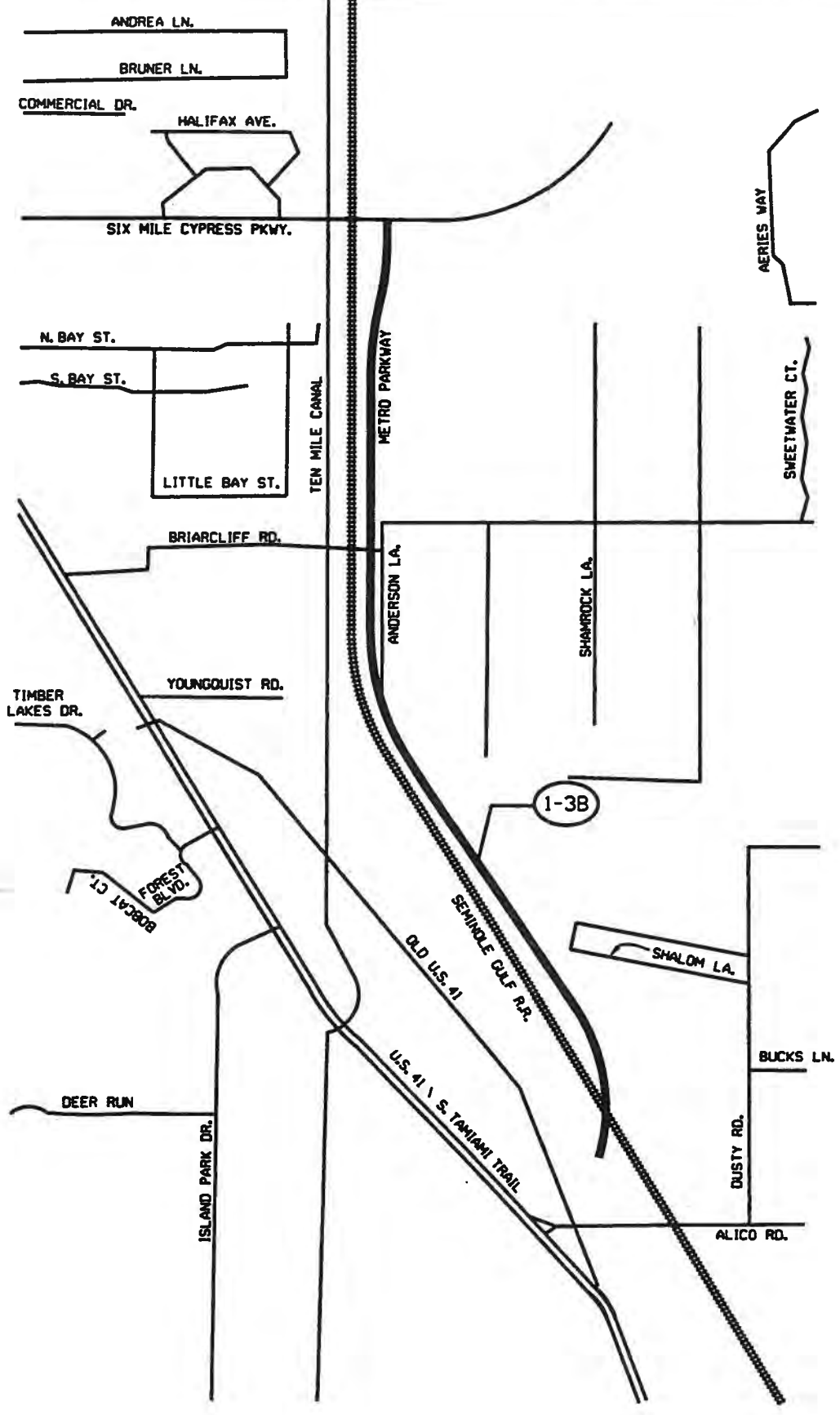
8.4.1.1.1 Existing Railroad West of Roadway (Alternative 1-3B)

- **Alignment**

This alternative begins at the proposed connection to US 41 in the vicinity of Alico Road and follows a general northerly alignment as it crosses the Seminole Gulf Railway. After crossing the Seminole Gulf Railway, this alternative turns to the northwest and runs adjacent to the east side of the railroad right-of-way. The alignment continues in this northwesterly direction to the vicinity of Anderson Lane. At this point, Alternative 1-3B crosses just south of Anderson Lane and continues adjacent to the railroad, then turns to the north between the Seminole Gulf Railway and Anderson Lane. It then crosses the extreme western end of the Six Mile Cypress Slough Preserve and veers slightly to the northeast and then proceeds to the north where it eventually merges with Segment 2 of the existing Metro Parkway alignment just south of the Six Mile Cypress Parkway. This alignment is shown in Figure 8-5.

- **Typical Section**

The proposed typical section for Alternative 1-3B is characterized by a 76.2 meter (250 feet) right-of-way. This suburban typical section contains three 3.6 meter (12 feet) travel lanes in each direction, a 6.6 meter (22 feet) raised median with Type F curb and gutter, a 3.6 meter (12 feet) shoulder of which 1.5 meters (5 feet) is paved, a 2.4 meter (8 feet) multi-use pathway on the west side of the roadway, and 13.6 meter (45 feet) grass swales.



**SEGMENT 1
ALTERNATIVE 1-3B ALIGNMENT**

Through the Briarcliff Subdivision area, a landscape berm will be constructed on the east side of the roadway to provide a visual buffer between the roadway and the Briarcliff Subdivision. The design speed is 80 kilometers per hour (50 miles per hour). Drainage will be accommodated within the proposed grass swales and water quality and water quantity requirements will be met within the proposed right-of-way and within off-site retention/detention ponds. This typical section is shown in Figure 8-6.

8.4.1.1.2 Relocate Railroad East of Roadway (Alternative 1-3D)

- **Alignment**

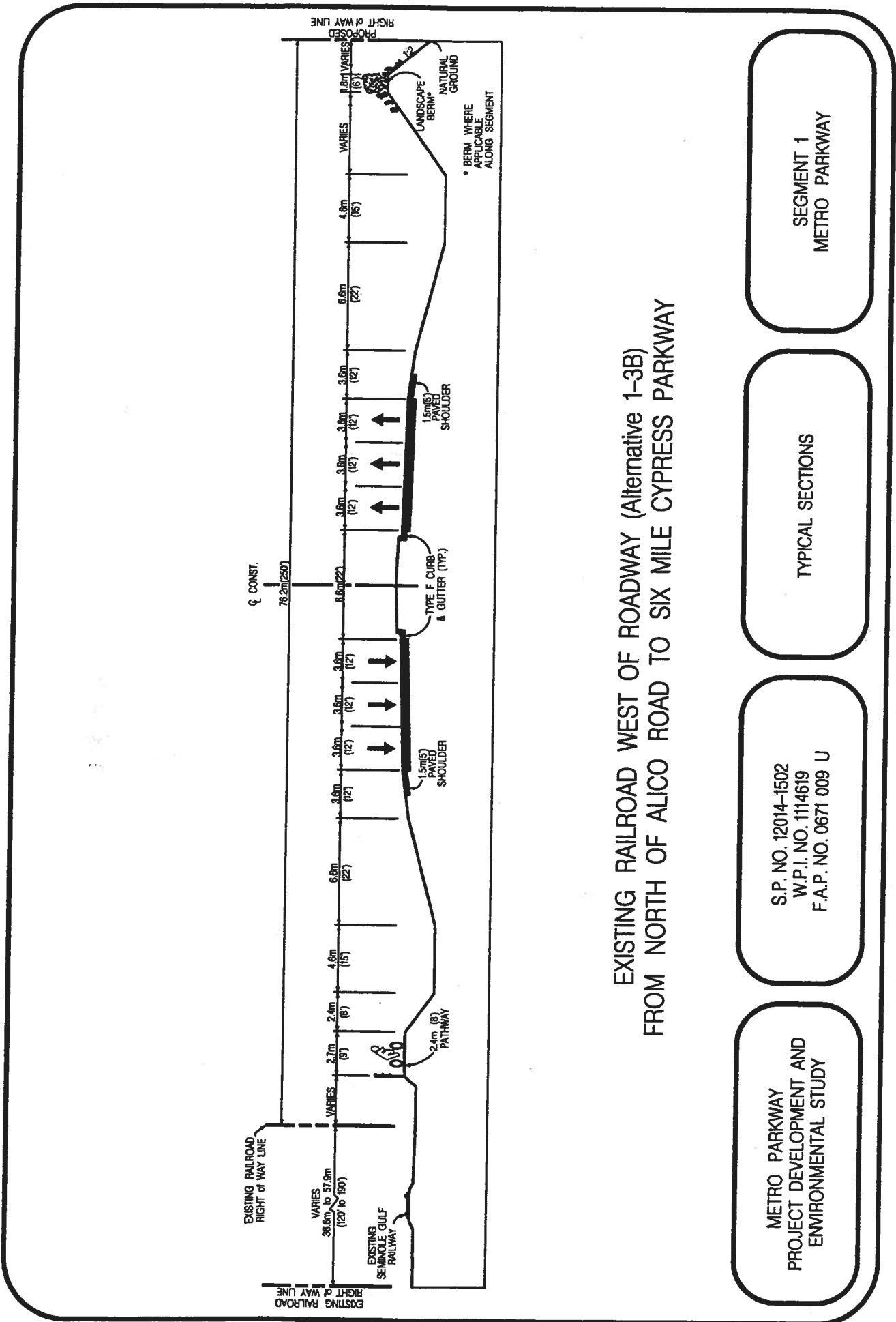
Alternative 1-3D is similar to Alternative 1-3B, except that the existing railroad track is relocated to the east side of the proposed roadway and the west right-of-way line of the railroad becomes the west right-of-way line of Metro Parkway. This alignment is shown in Figure 8-7.

- **Typical Section**

The typical section for Alternative 1-3D is identical to Alternative 1-3B except that the railroad has been relocated to the east of the roadway and a portion of the roadway is constructed within the railroad right-of-way. The new railroad right-of-way has been reduced in comparison with the original width of the railroad right-of-way. This typical section is shown in Figure 8-8.

8.4.1.2 Segment 2 Alternatives - Six Mile Cypress Parkway to Winkler Avenue Six Lane Urban 39.6 meter (130 feet)

As described in Chapter 4, the existing right-of-way varies in Segment 2. Therefore, Segment 2 has been further divided into two (2) segments; Segment 2A is from Six Mile Cypress Parkway to Daniels Parkway and Segment 2B is from Daniels Parkway to north of Winkler Avenue. Alignment and typical section alternatives for Segment 2A are presented below. Alignment and typical section alternatives for Segment 2B are presented Section 8.4.1.2.2. Alignments for Segments 2A and 2B are shown in Figure 8-9.



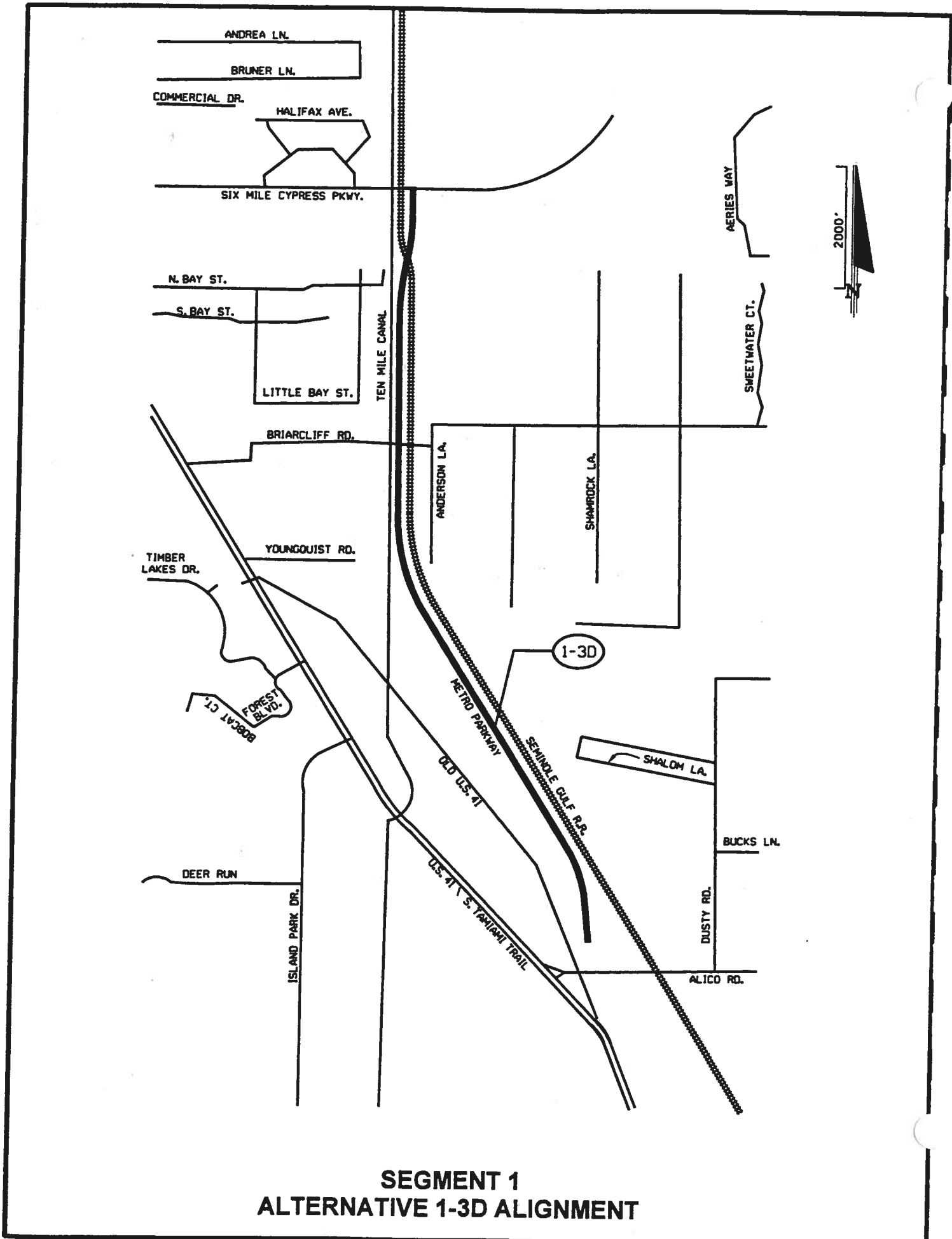
EXISTING RAILROAD WEST OF ROADWAY (Alternative 1-3B)
 FROM NORTH OF ALICO ROAD TO SIX MILE CYPRESS PARKWAY

METRO PARKWAY
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL STUDY

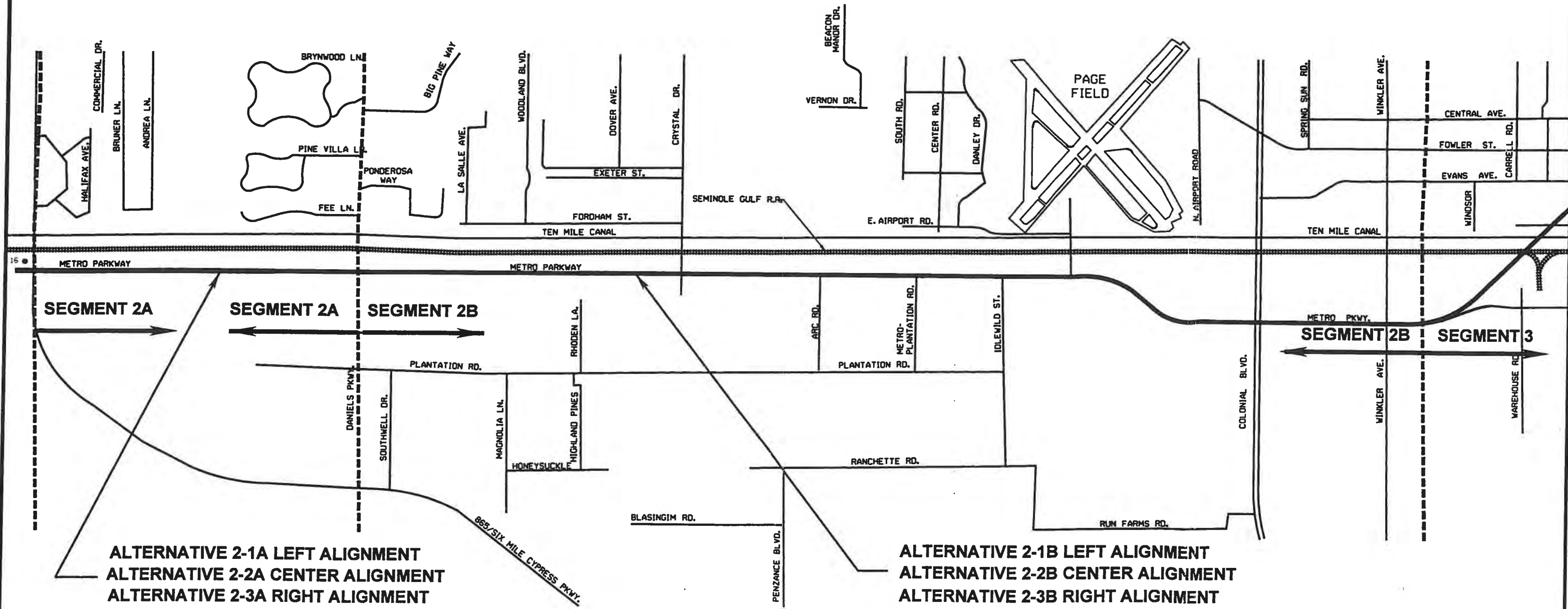
S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

TYPICAL SECTIONS

SEGMENT 1
 METRO PARKWAY



**SEGMENT 1
ALTERNATIVE 1-3D ALIGNMENT**



**SEGMENTS 2A AND 2B
ALTERNATIVE ALIGNMENTS**

8.4.1.2.1 Segment 2A Alternatives - Six Mile Cypress Parkway to Daniels Parkway

- ◆ **Segment 2A - Alternative 2-1A (Left Alignment)**

- **Alignment**

This alternative begins at Six Mile Cypress Parkway and follows the existing Metro Parkway alignment to Daniels Parkway. The additional 9.1 meters (30 feet) of right-of-way required for Alternative 2-1A will be taken from the left (west) side of existing Metro Parkway.

- **Typical Section**

The typical section developed for the build alternatives in Segment 2A proposes to widen existing Metro Parkway to a six-lane urban section with a raised median within a 39.6 meter (130 feet) right-of-way. The proposed typical section will provide three 3.6 meter (12 feet) lanes in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 6.6 meter (22 feet) raised median with Type F curb and gutter on each side. A 4.5 meter (14 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The design speed is 70 kilometers (45 miles) per hour. Drainage consists of piping stormwater to off-site detention ponds. The typical section proposed for the Alternative 2-1A is shown in Figure 8-10.

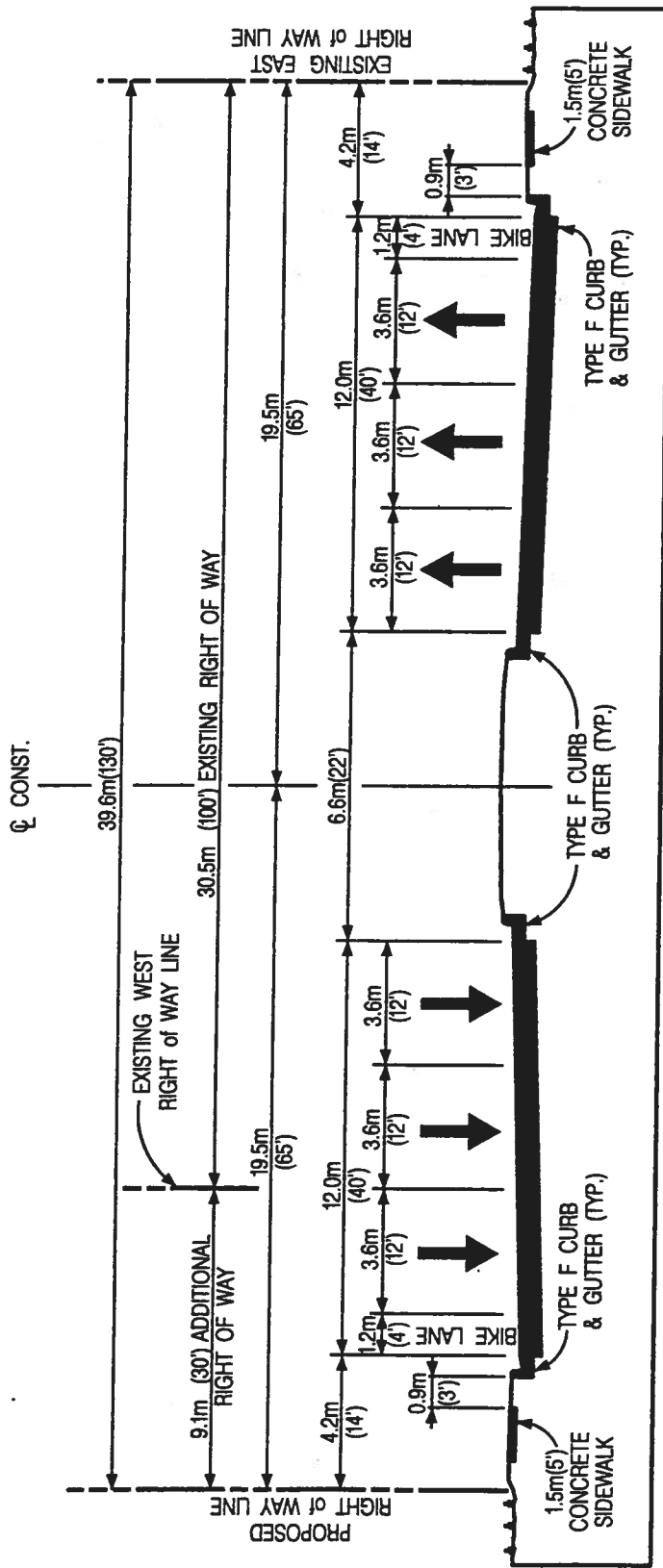
- ◆ **Segment 2A - Alternative 2-2A (Center Alignment)**

- **Alignment**

This alternative is similar to Alternative 2-1A with the exception that existing Metro Parkway will be widened equally along both the east and west sides of the existing roadway to accommodate the proposed improvements. Therefore, 4.55 meters (15 feet) of right-of-way would be acquired from both sides of the roadway.

- **Typical Section**

The typical section for Alternative 2-2A, shown in Figure 8-11, is the same as Alternative



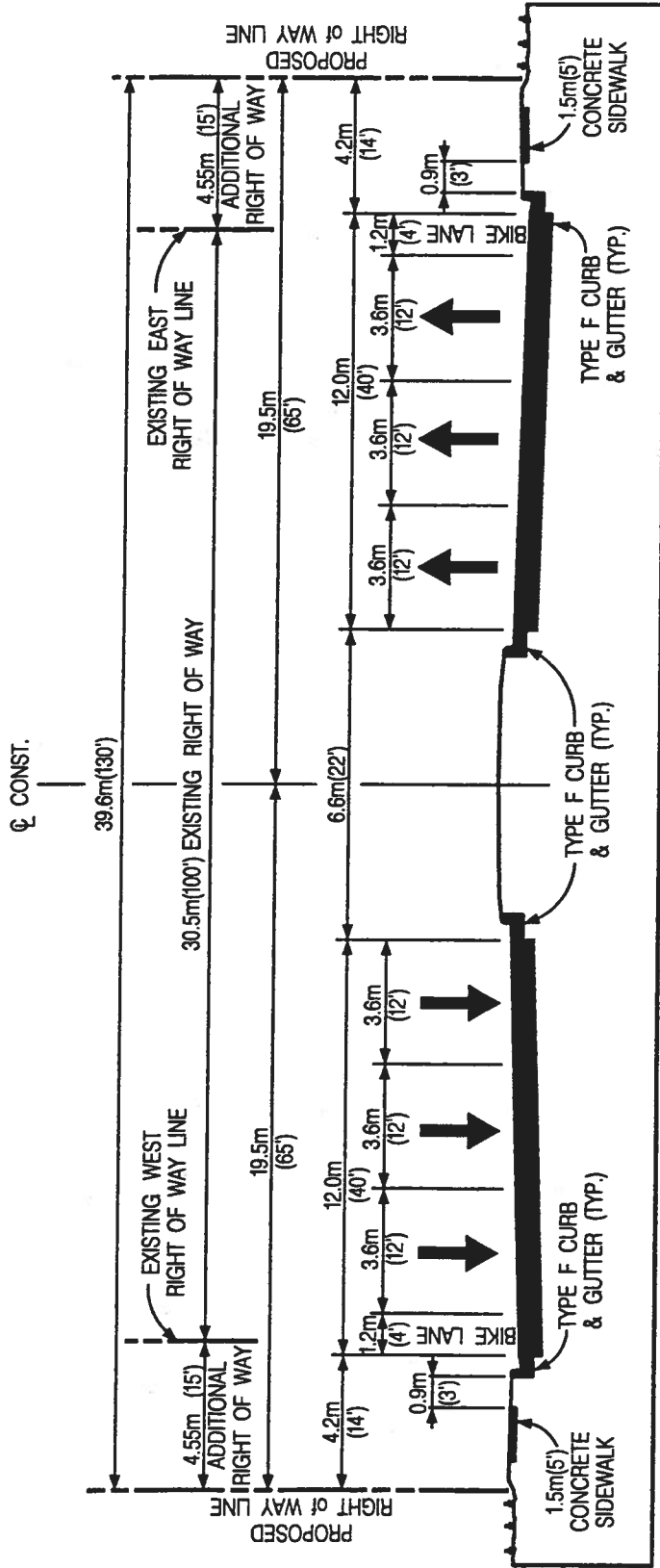
SIX LANE URBAN 39.6m (130 feet) (Alternative 2-1A Left Alignment)
 FROM SIX MILE CYPRESS PARKWAY TO DANIELS PARKWAY

METRO PARKWAY
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL STUDY

S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

TYPICAL SECTIONS

SEGMENT 2A
 METRO PARKWAY



SIX LANE URBAN 39.6m (130 feet) (Alternative 2-2A Center Alignment)
 FROM SIX MILE CYPRESS PARKWAY TO DANIELS PARKWAY

METRO PARKWAY
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL STUDY

S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

TYPICAL SECTIONS

SEGMENT 2A
 METRO PARKWAY

2-1A, except that the additional right-of-way is taken from both the east and west sides of existing Metro Parkway.

- ◆ **Segment 2A - Alternative 2-3A (Right Alignment)**

- **Alignment**

This alternative is similar to the previous alternatives with the exception that the additional 9.1 meters (30 feet) of right-of-way to accommodate the proposed improvements will be taken from the right (east) side of existing Metro Parkway.

- **Typical Section**

The typical section for Alternative 2-3A, shown in Figure 8-12, is the same as for Alternative 2-1A, except that the additional right-of-way is taken from the right (east) side existing Metro Parkway.

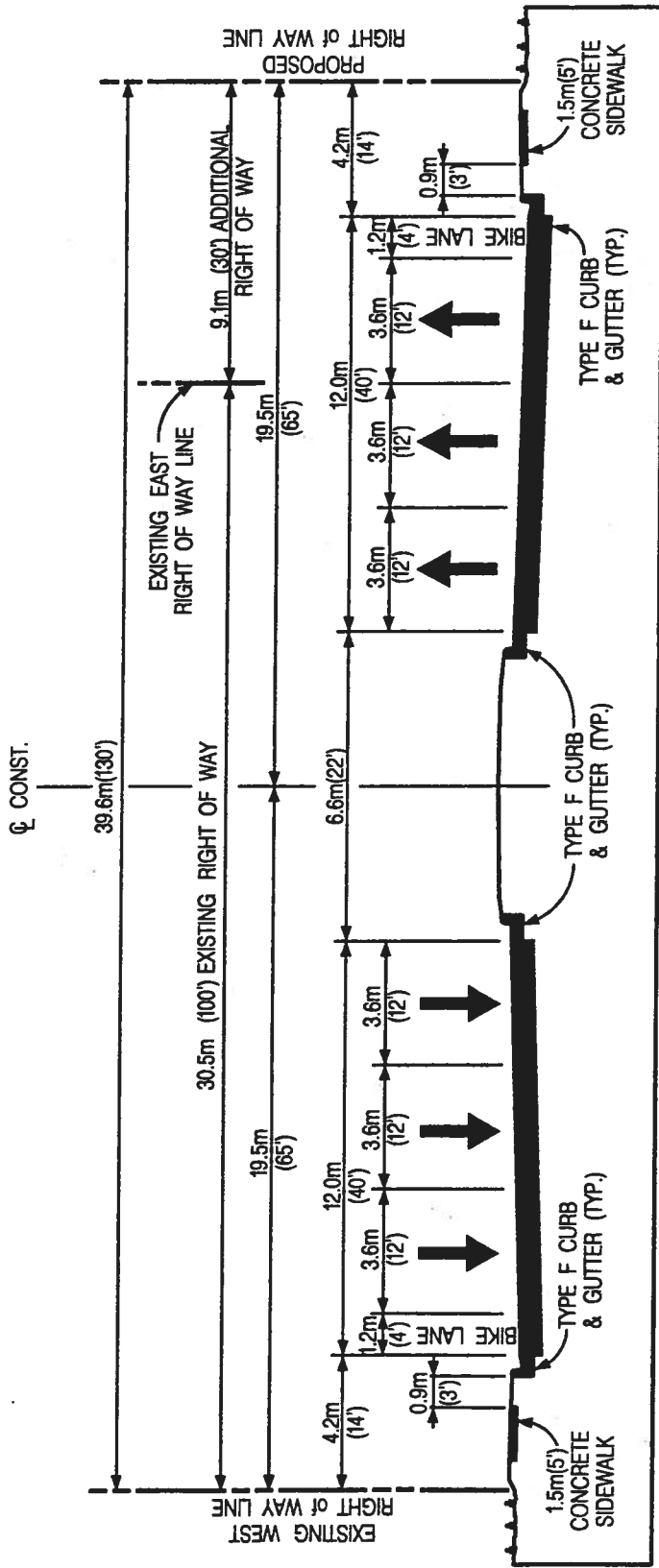
8.4.1.2.2 Segment 2B (Daniels Parkway to North of Winkler Avenue) Six Lane Urban 38.1 Meter (125 feet) - Alternatives 2-1B (Left Alignment), 2-2B (Center Alignment) and 2-3B (Right Alignment)

- **Alignment**

The alignment for these alternatives begins at Daniels Parkway and goes to a point approximately 550 meters (1800 feet) north of Winkler Avenue. The existing right-of-way in this segment is also 30.5 meters (100 feet) wide as in Segment 2A, but a 3.8 meter (12.5 feet) drainage/utility easement also exists on both sides of the roadway. A grade-separated interchange is proposed at SR 884 (Colonial Boulevard), with Colonial Boulevard crossing over Metro Parkway. The alignments for Alternatives 2-1B, 2-2B and 2-3B correspond to left, center and right alignments respectively, and are also shown in Figure 8-9.

- **Typical Section**

The typical section developed for Segment 2B alignments is identical to those developed



SIX LANE URBAN 39.6m (130 feet) (Alternative 2-3A Right Alignment)
FROM SIX MILE CYPRESS PARKWAY TO DANIELS PARKWAY

METRO PARKWAY
PROJECT DEVELOPMENT AND
ENVIRONMENTAL STUDY

S.P. NO. 12014-1502
W.P.I. NO. 1114619
F.A.P. NO. 0671 009 U

TYPICAL SECTIONS

SEGMENT 2A
METRO PARKWAY

for Segment 2A except that the right-of-way width is 38.1 meters (125 feet), the border strip is 3.6 meters and the concrete sidewalk is 1.8 meters (6 feet) wide and is flush with the back of curb. The reduced right-of-way width takes advantage of the existing drainage/utility easements along both sides of the roadway in this area. The typical sections proposed for the build alternatives in Segment 2B are shown as Figure 8-13 for Alternative 2-1B Left Alignment, Figure 8-14 for Alternative 2-2B Center Alignment and Figure 8-15 for Alternative 2-3B Right Alignment.

8.4.1.3 Segment 3 Alternatives - North of Winkler Avenue to Hanson Street

Segment 3 serves as a transition between Segment 2 and Segment 4 and is on new alignment. Segment 4 alignment alternatives consist of six-laning Fowler Street and a one-way pair alternative utilizing both Fowler Street and Evans Avenue. Several alternative alignments were developed to provide this transition. The viable alternatives are described below.

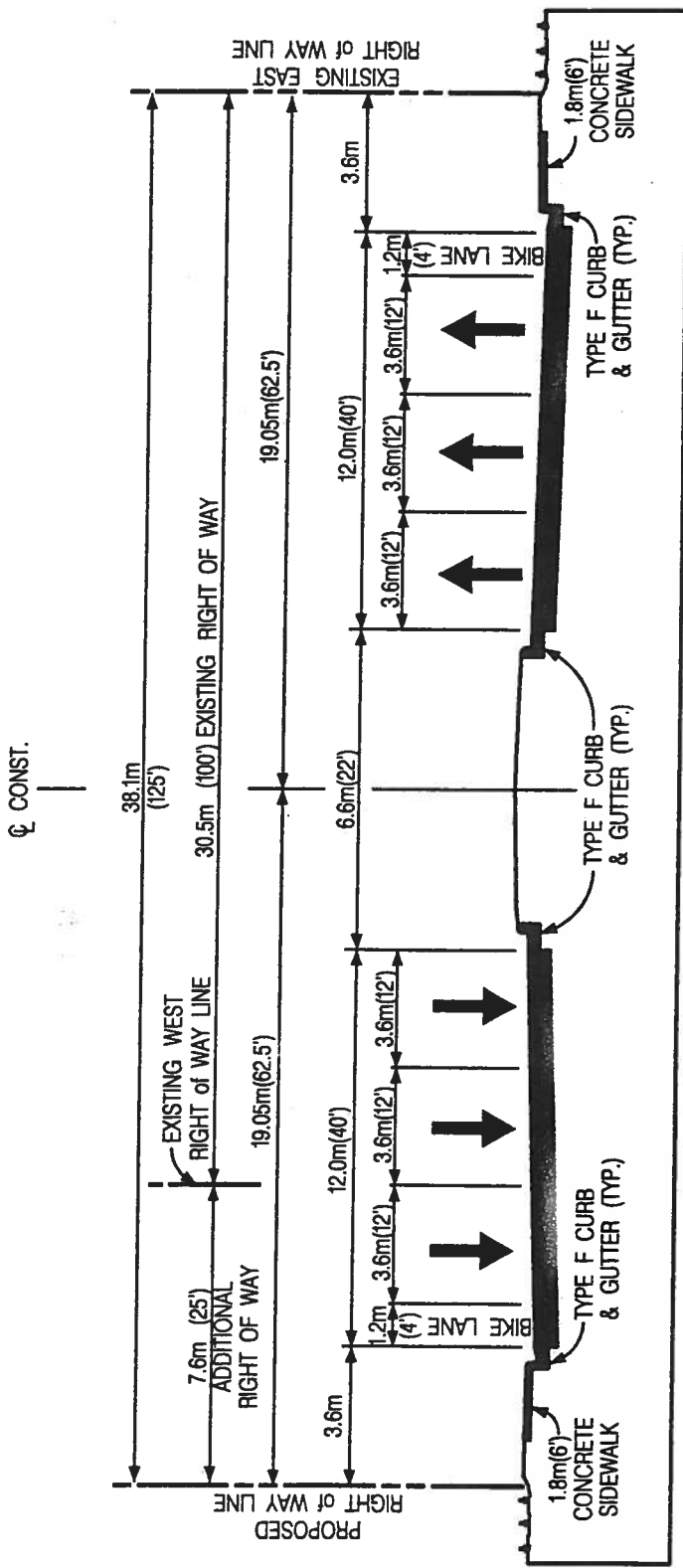
8.4.1.3.1 Connection to Six-Lane Fowler Street (Alternative 3-5)

- **Alignment**

Alternative 3-5 begins at a point approximately 550 meters (1800 feet) north of Winkler Avenue on existing Metro Parkway and turns to the northwest on a new alignment. It proceeds in a northwesterly direction as it crosses over the Seminole Gulf Railway and the Ten Mile Canal. The alignment continues on this northwesterly alignment and connects with the Six-Lane Fowler Street Alternative (4-5(LT)) in Segment 4. This alignment is shown in Figure 8-16.

- **Typical Section**

The typical section developed for Alternative 3-5 is the same as Segment 2A and is a six lane urban section 39.6 meter (130 feet) in width. The proposed section will provide three 3.6 meter (12 feet) lanes in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 6.6 meter (22 feet) raised median with Type F curb and gutter on each side. A 4.5 meter (14 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The design speed is 70 kilometers (45 miles)



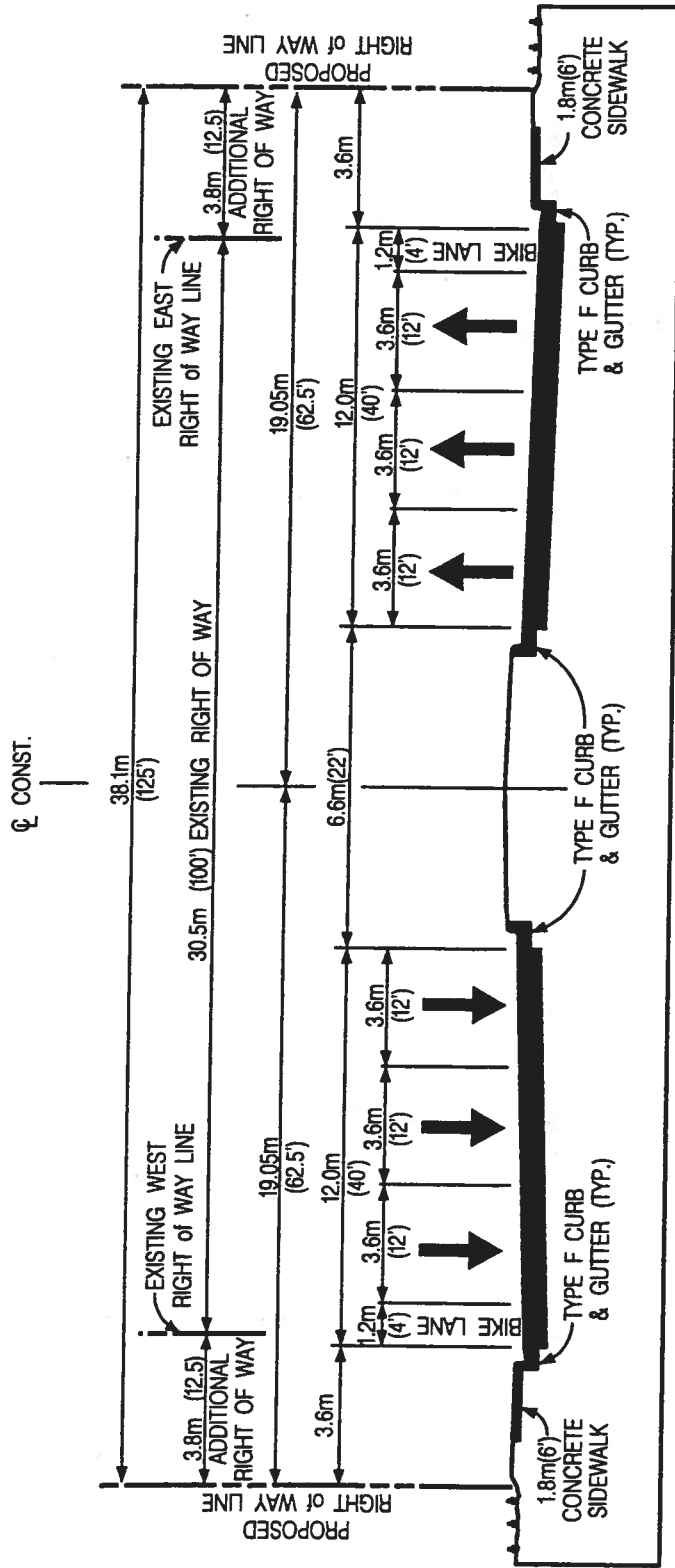
SIX LANE URBAN 38.1m (125 feet) (Alternative 2-1B Left Alignment)
 FROM DANIELS PARKWAY TO NORTH OF WINKLER AVENUE

METRO PARKWAY
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL STUDY

S.P. NO. 12014-1502
 W.P.I. NO. 1114619
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TYPICAL SECTIONS

SEGMENT 2B
 METRO PARKWAY



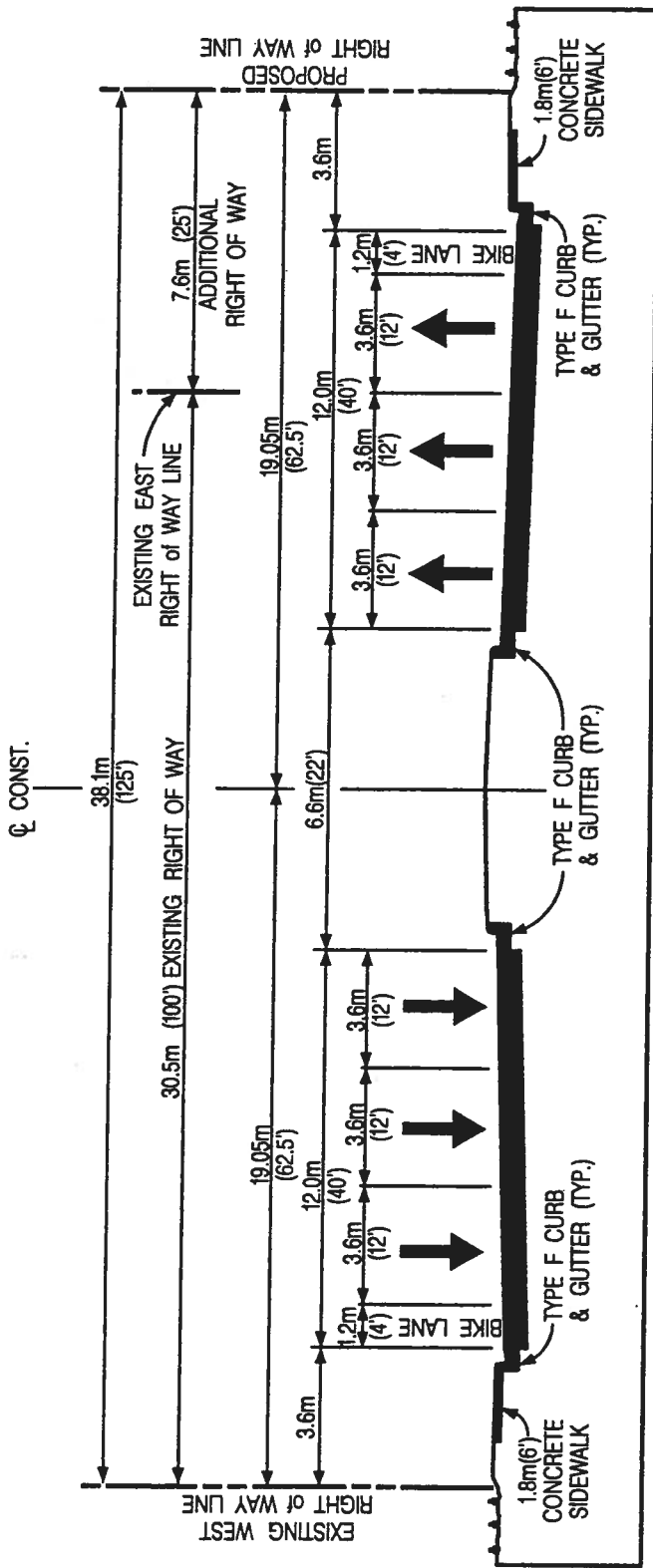
SIX LANE URBAN 38.1m (125 feet) (Alternative 2-2B Center Alignment)
FROM DANIELS PARKWAY TO NORTH OF WINKLER AVENUE

METRO PARKWAY
PROJECT DEVELOPMENT AND
ENVIRONMENTAL STUDY

S.P. NO. 12014-1502
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TYPICAL SECTIONS

SEGMENT 2B
METRO PARKWAY



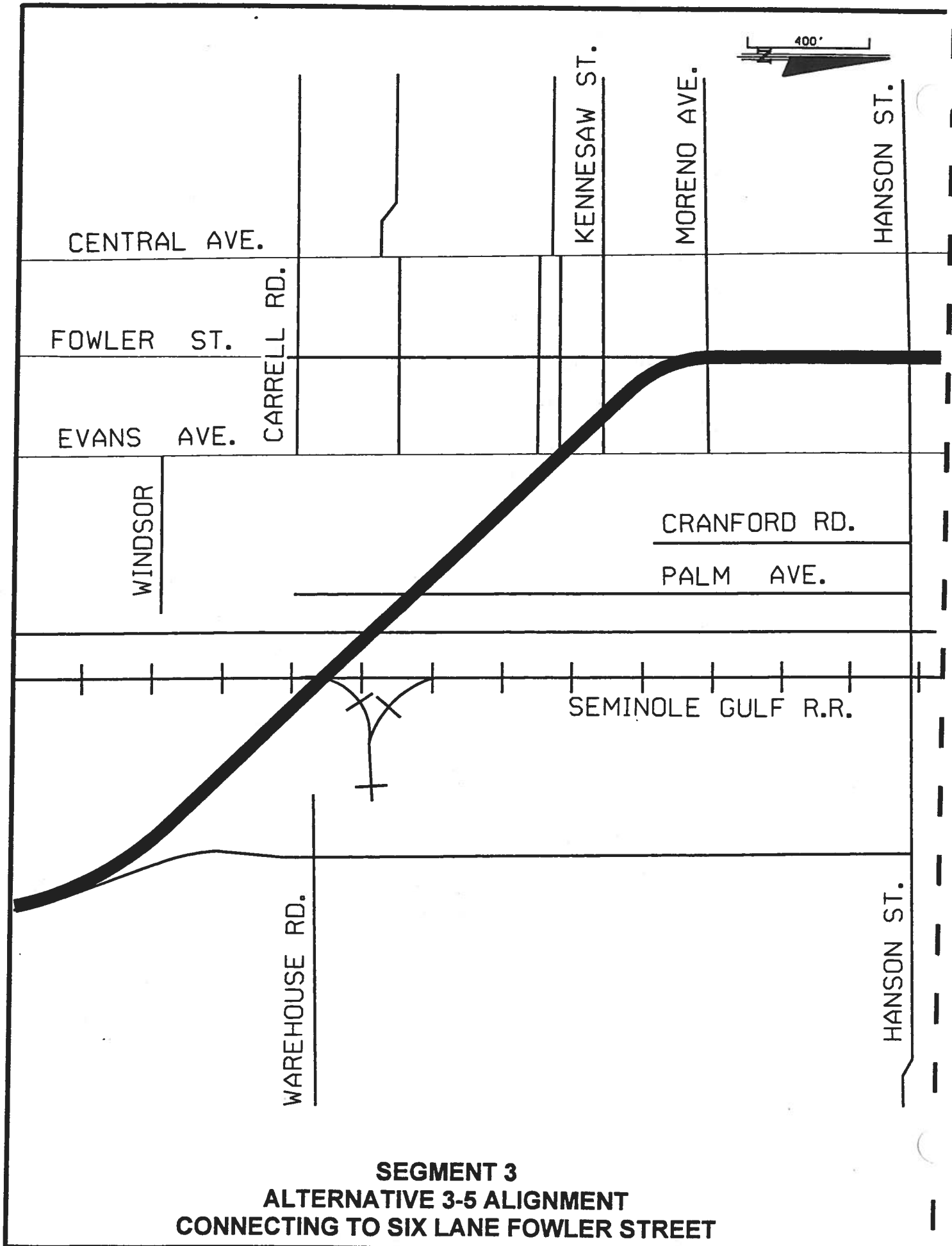
SIX LANE URBAN 38.1m (125 feet) (Alternative 2-3B Right Alignment)
 FROM DANIELS PARKWAY TO NORTH OF WINKLER AVENUE

METRO PARKWAY
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL STUDY

S.P. NO 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

TYPICAL SECTIONS

SEGMENT 2B
 METRO PARKWAY



per hour. Drainage consists of piping stormwater runoff to off-site detention ponds. The typical section is shown in Figure 8-17.

8.4.1.3.2 Connection to One-Way Pair (Alternative 3-6)

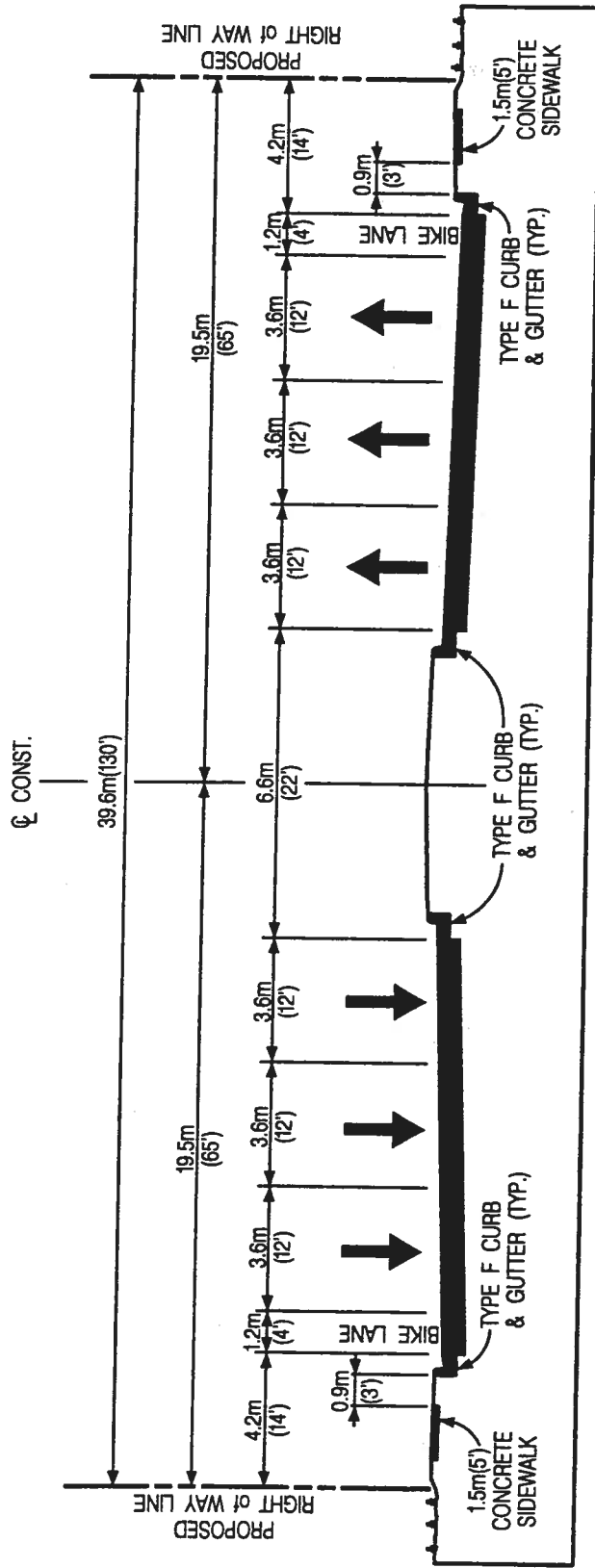
- **Alignment**

Alternative 3-6 is shown in Figure 8-18 and is identical to Alternative 3-5 until it reaches the vicinity of Kennesaw Street. At this point, the alignment splits to form a one-way pair which connects to Alternative 4-2G (one-way pair alternative) in Segment 4. At the split near the intersection of Kennesaw Street and Evans Avenue, three lanes of one-way northbound traffic will continue along the Evans Avenue right-of-way and three lanes of one-way southbound traffic from Fowler Street will join the alignment via a new crossover configuration. At this intersection (in the vicinity of Hunter Terrace) a new connection between Fowler Street and Evans Avenue is proposed to promote circulation between the one-way pairs.

- **Typical Section**

The typical section developed for the six-lane portion of Alternative 3-6 is identical to Alternative 3-5 and is shown in Figure 8-19. The existing right-of-way width for Evans Avenue from Moreno Avenue to Hanson Street is 24.4 meters (80 feet). The typical section for the northbound Evans Avenue one-way pair proposes three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 6.2 meter (20 feet) inside border, a 6.2 meter (20 feet) outside border (both with Type F curb and gutter), and 1.5 meter (5 feet) concrete sidewalks on both sides. Drainage in this segment consists of piping stormwater runoff to off-site detention ponds. The typical section for the northbound one-way pair alternative between Moreno Avenue and Hanson Street is shown in Figure 8-20.

The typical section for the southbound Fowler Street one-way pair proposes three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 4.2 meter (14 feet) inside border, a 3.6 meter (12 feet) outside border (both with Type F curb and gutter), and 1.5 meter (5 feet) concrete sidewalks on both sides. The typical section for the southbound one-way pair alternative between Kennesaw Street and Hanson Street is shown in Figure 8-21.



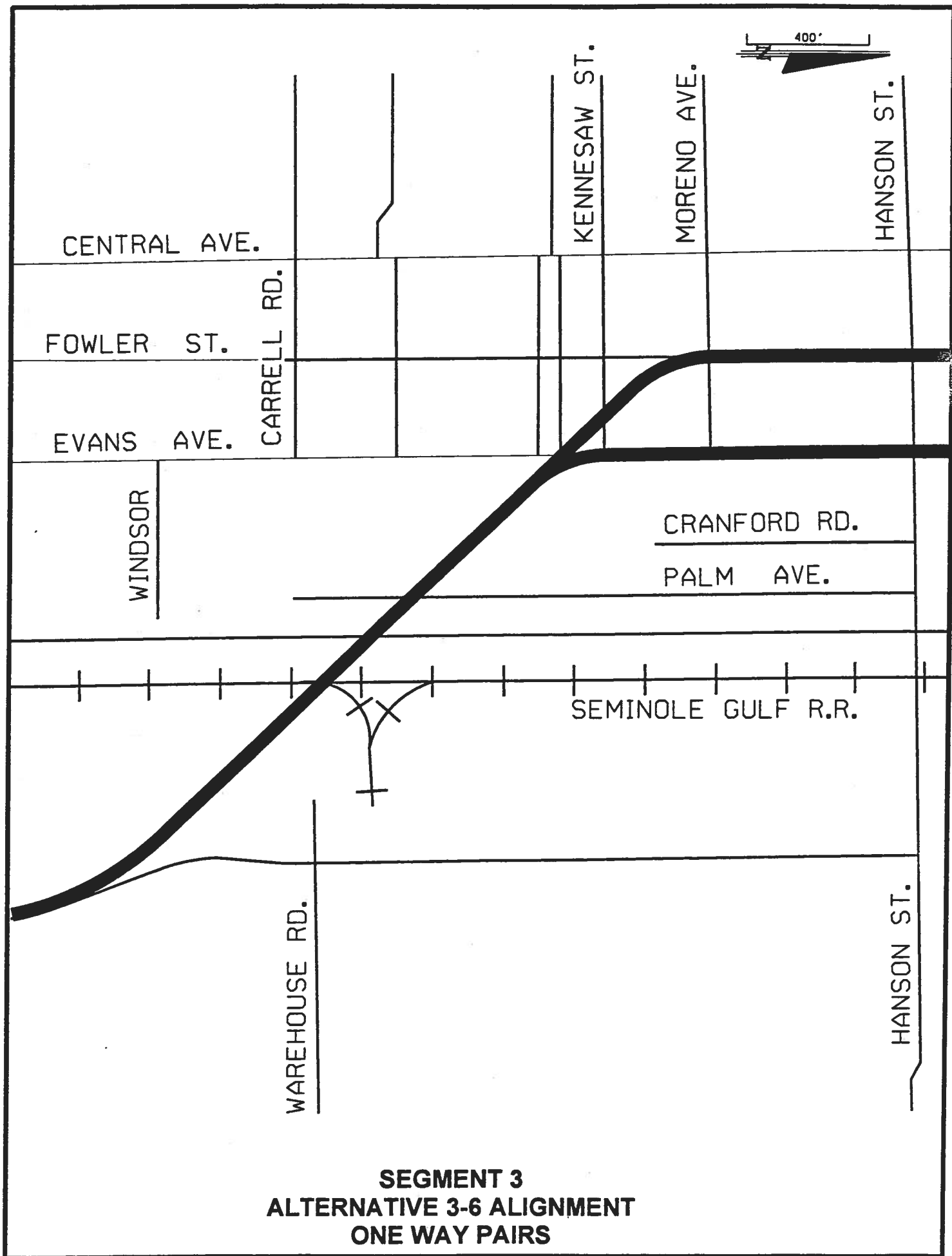
SIX LANE CONNECTION TO SIX-LANE FOWLER STREET (Alternative 3-5)
FROM NORTH OF WINKLER AVENUE TO HANSON STREET

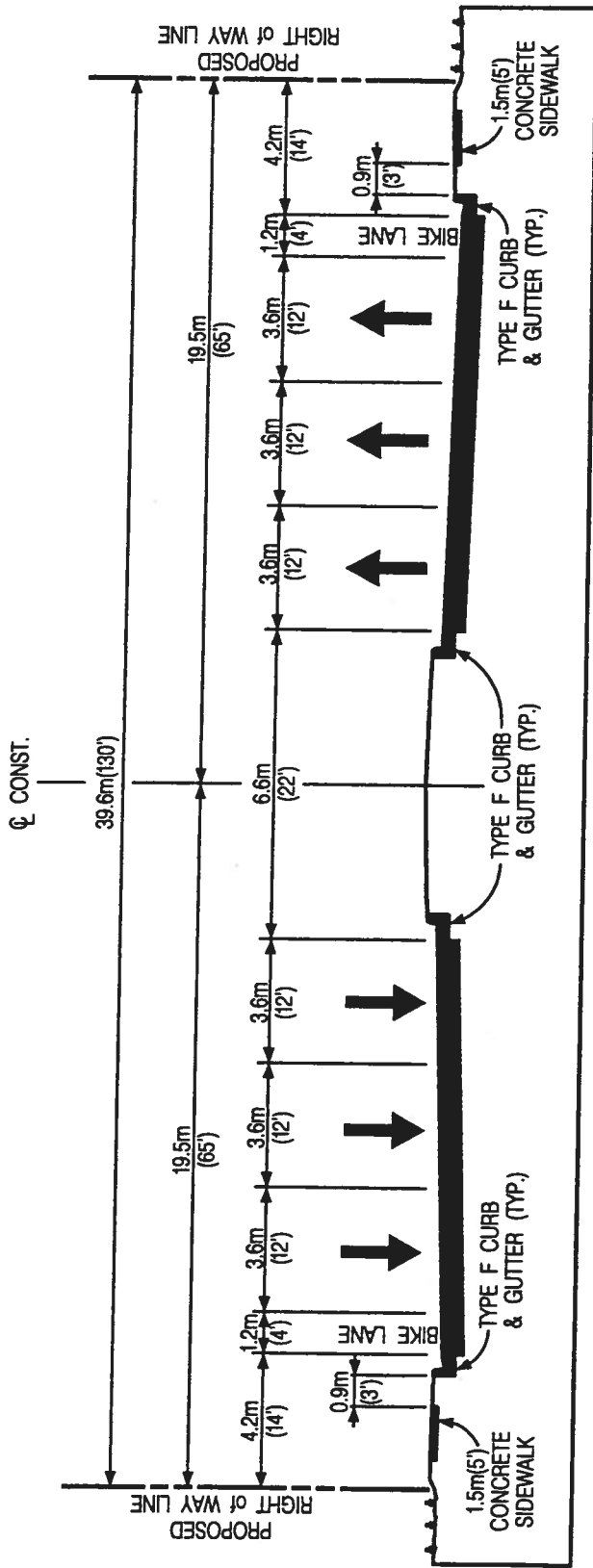
METRO PARKWAY
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TYPICAL SECTIONS

SEGMENT 3
METRO PARKWAY





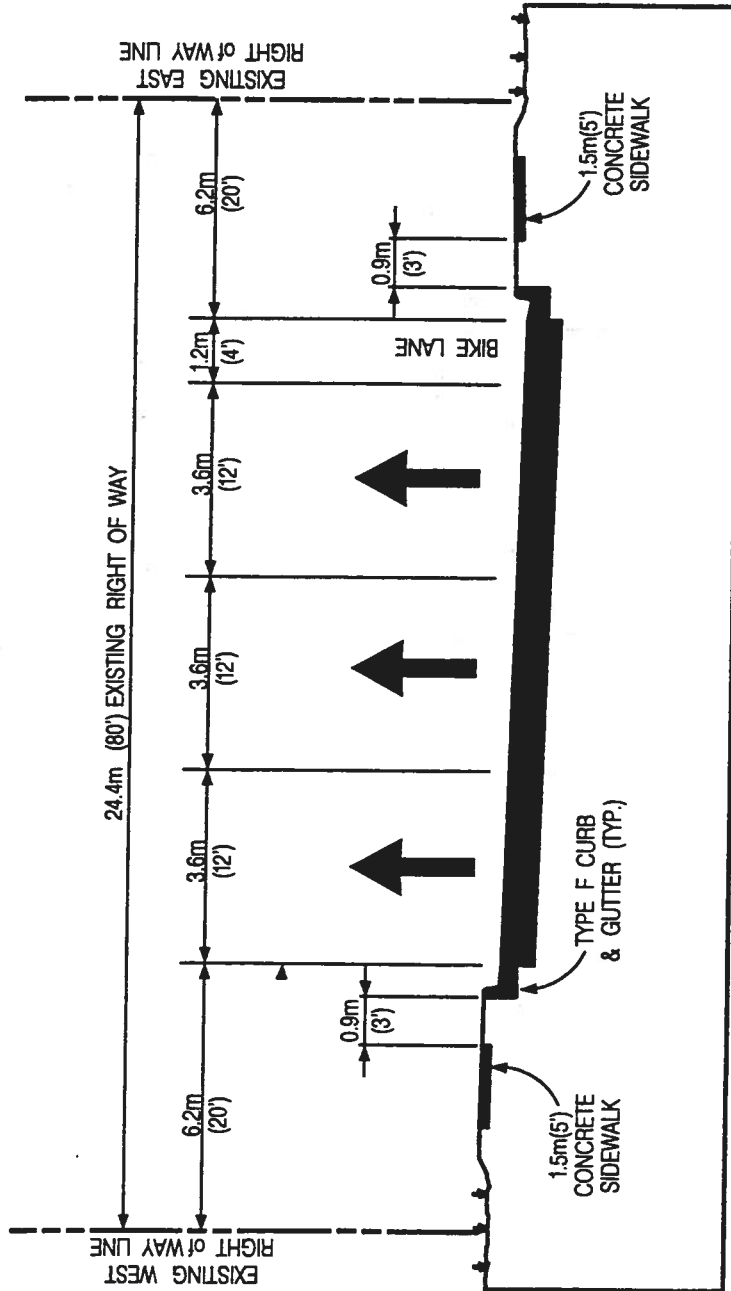
SIX LANE CONNECTION TO ONE WAY PAIR (Alternative 3-6)
 FROM NORTH OF WINKLER AVENUE TO KENNESAW STREET

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S.P. NO. 12014-1502
 W.P.I. NO. 1114619
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TYPICAL SECTIONS

SEGMENT 3
 METRO PARKWAY



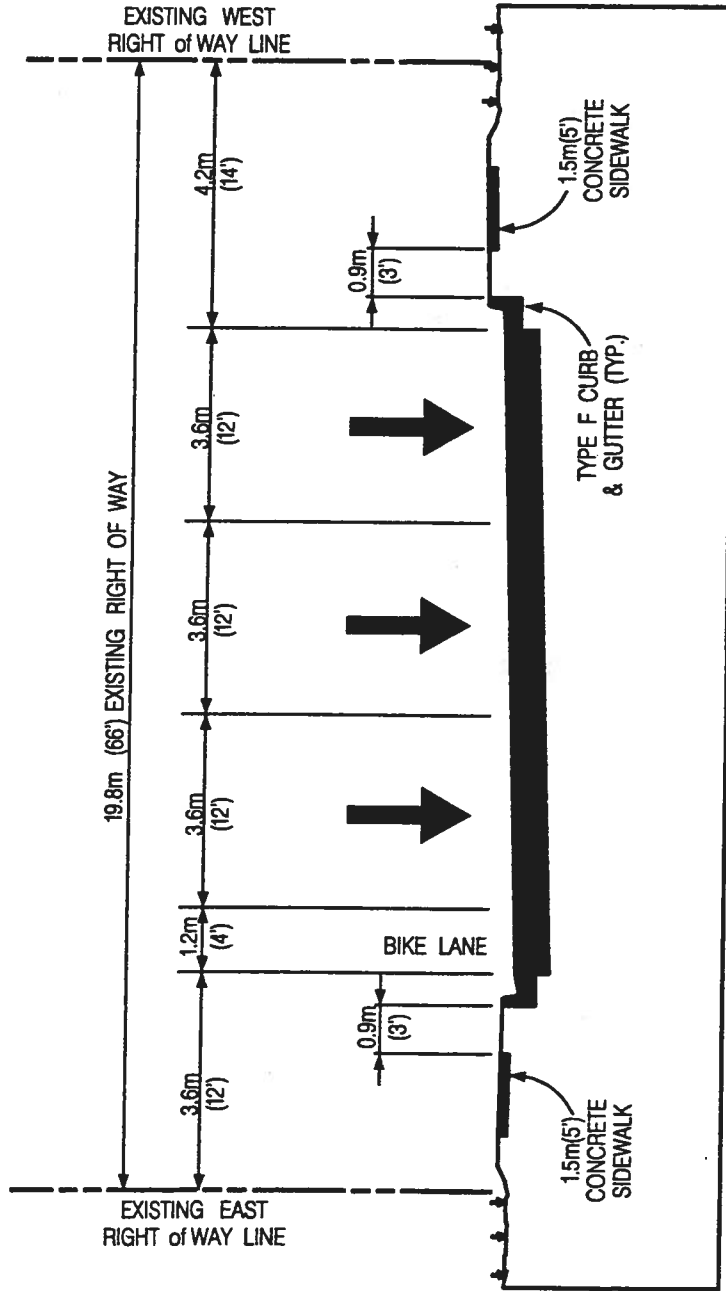
ONE WAY PAIR CONNECTION (Alternative 3-6)
 EVANS AVENUE FROM MORENO AVENUE TO HANSON STREET

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S.P. NO. 12014-1502
 W.P.I. NO. 1114619
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TYPICAL SECTIONS

SEGMENT 3
 METRO PARKWAY



ONE WAY PAIR CONNECTION (Alternative 3-6)
 FOWLER STREET FROM KENNESAW STREET TO HANSON STREET

METRO PARKWAY
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL STUDY

S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

TYPICAL SECTIONS

SEGMENT 3
 METRO PARKWAY

8.4.1.4 Description of Segment 4 Alternatives

As indicated in the discussion on Segment 3 alternatives, two Segment 4 alternatives were determined to be viable for further consideration. These are six-laning Fowler Street (Alternative 4-5(LT)) and a one-way pair using Fowler Street and Evans Avenue (Alternative 4-2G).

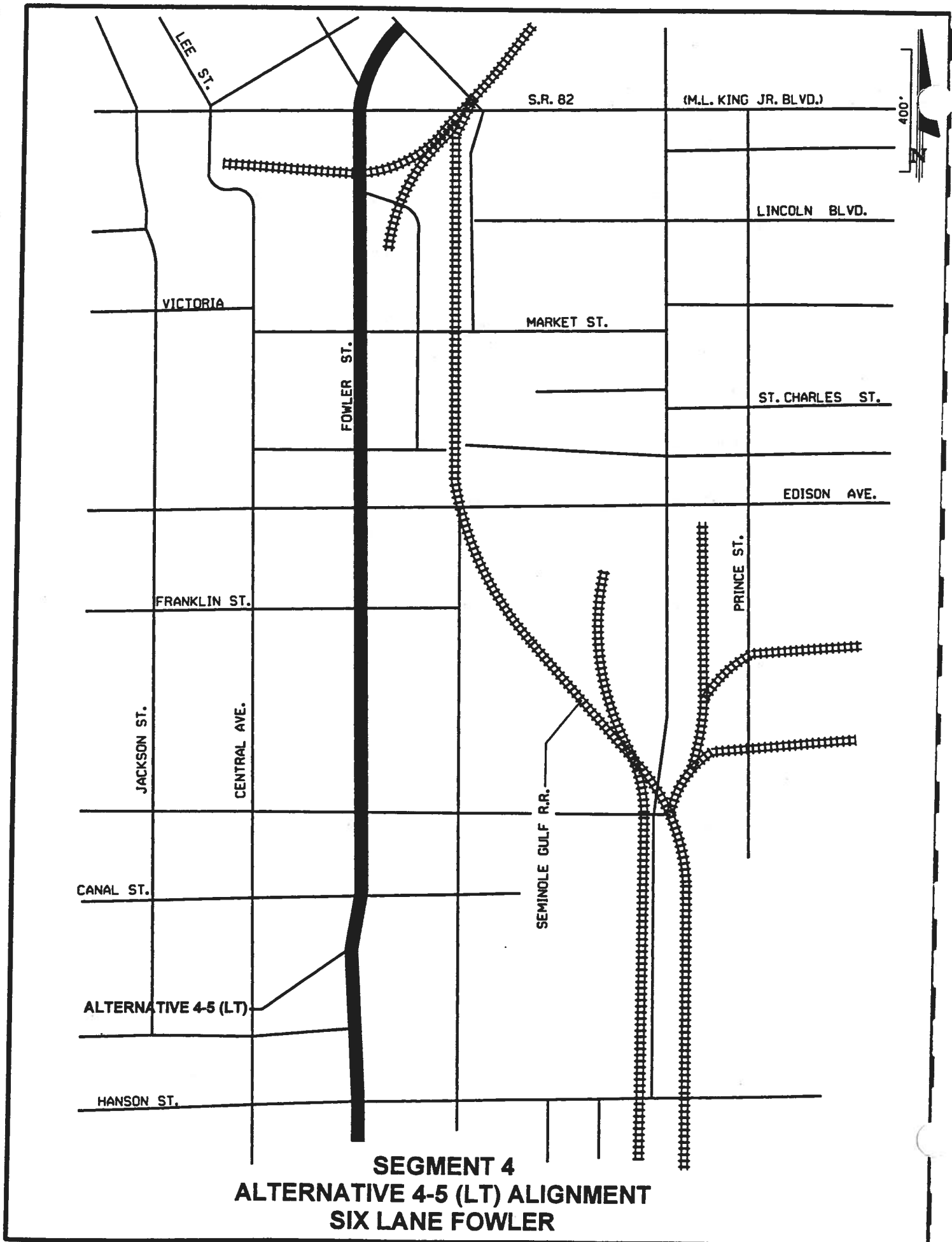
8.4.1.4.1 Six-Lane Fowler Street (Alternative 4-5(LT))

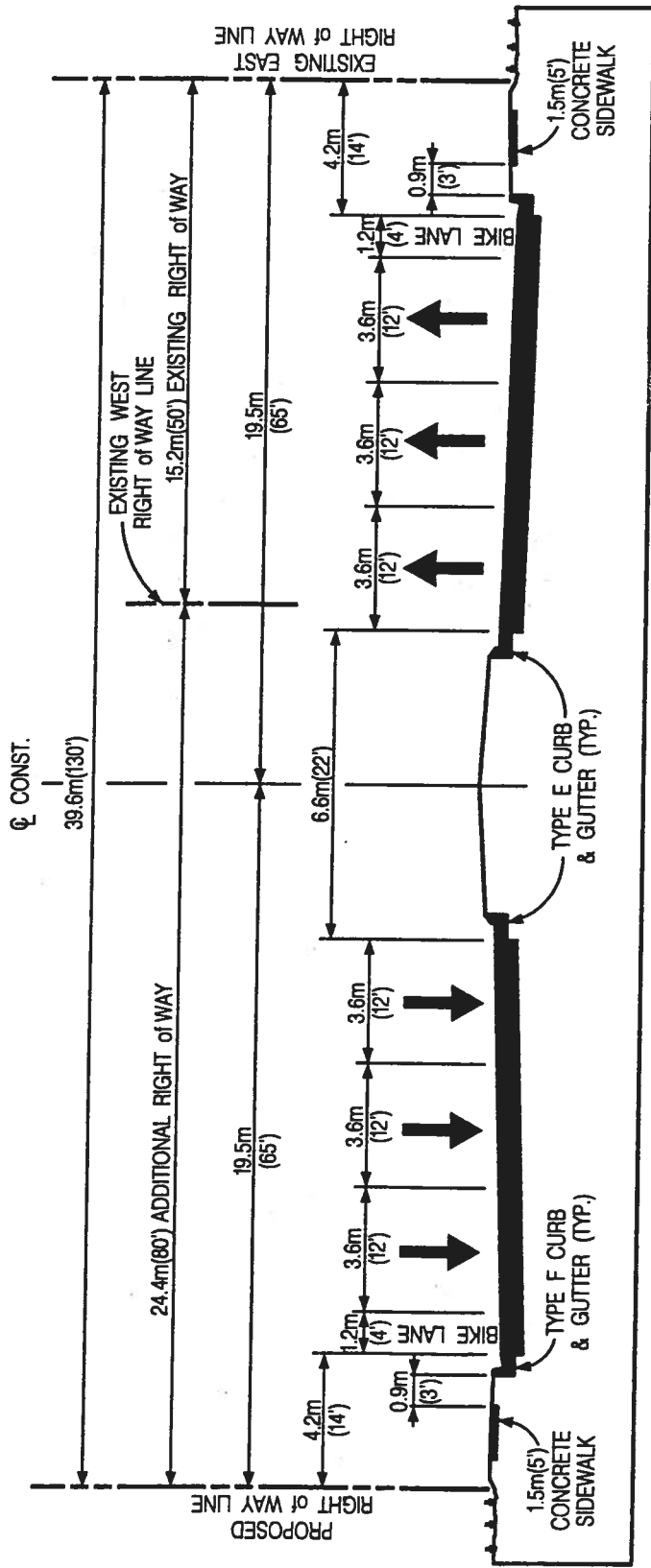
- **Alignment**

This alternative widens Fowler Street to six lanes taking additional right-of-way from the left (west) side of the road. The alignment stays on Fowler Street until it crosses Dr. Martin Luther King, Jr., Boulevard; at this point, it transitions to Evans Avenue north of Dr. Martin Luther King, Jr., Boulevard. The alignment for this alternative is shown in Figure 8-22.

- **Typical Section**

The typical section developed for Alternative 4-5(LT) proposes a six-lane urban section with a raised median within a 39.6 meter (130 feet) right-of-way. The existing Fowler Street right-of-way between Hanson Street and Dr. Martin Luther King, Jr., Boulevard is primarily 15.2 meters (50 feet). The proposed typical section will provide three 3.6 meter (12 feet) lanes in each direction, a 1.2 meter (4 feet) bicycle lane in each direction, and a 6.6 meter (22 feet) raised median with Type F curb and gutter on each side. A 4.5 meter (14 feet) border strip on each side (with Type F curb and gutter) and a 1.5 meter (5 feet) concrete sidewalk are also proposed. The design speed is 70 kilometers (45 miles) per hour. Drainage consists of piping stormwater runoff to off-site detention ponds. The typical section for Alternative 4-5(LT) is shown in Figure 8-23 and is the same as the six-lane typical sections in Segment 2A and Segment 3.





FOWLER SIX LANE (Alternative 4-5(LT))
 FROM HANSON STREET TO DR. MARTIN LUTHER KING, JR., BLVD.

METRO PARKWAY
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL STUDY

S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

TYPICAL SECTIONS

SEGMENT 4
 METRO PARKWAY

8.4.1.4.2 Fowler Street/Evans Avenue One-Way Pair (Alternative 4-2G)

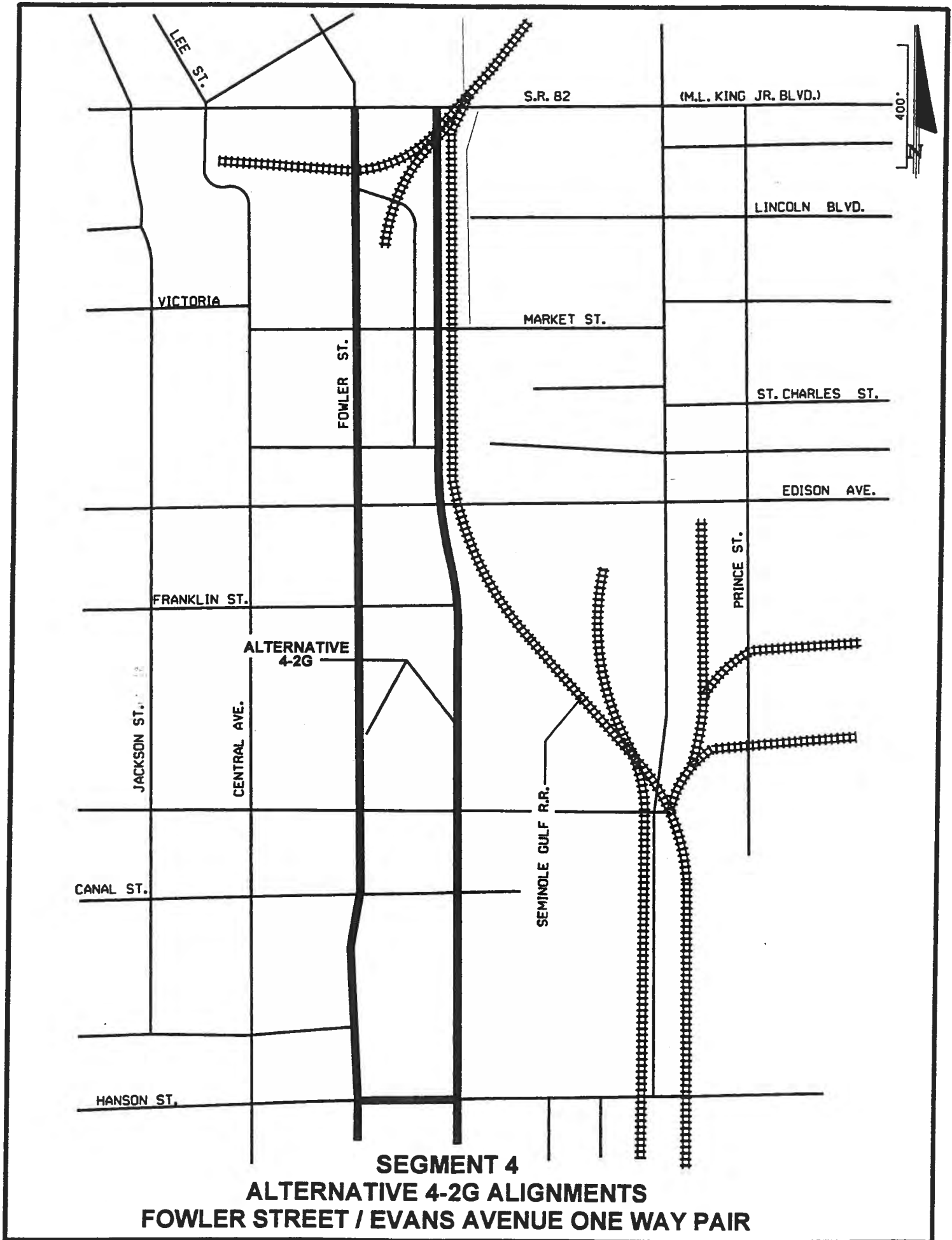
- **Alignment**

This alternative utilizes a one-way pair concept with Fowler Street being three (3) lanes southbound and Evans Avenue being three (3) lanes northbound, as shown in Figure 8-24. Fowler Street will be reconfigured within the existing right-of-way to provide three 3.6 meter (12 feet) lanes and one 1.2 meter (4 feet) bike lane. The improvements proposed for southbound Fowler Street will be minor and will primarily involve the milling and resurfacing of existing pavement, adding or lengthening turn lanes, pavement marking, signage, and adjusting signal heads at signalized intersections. Evans Avenue would be reconstructed from the point where the crossover alignment in Segment 3 joins Evans Avenue to Edison Avenue. From Edison Avenue, both the northbound lanes of Metro Parkway and the Seminole Gulf Railway would be constructed within the existing 30.5 meters (100 feet) of existing railroad right-of-way. The roadway would be constructed in the western 19.8 meters (65 feet) of the Seminole Gulf Railway right-of-way and the railroad line reconstructed in the remaining eastern 10.7 meters (35 feet) of the railroad right-of-way. The existing Evans Avenue in this portion of Segment 4 would remain open to provide access to the adjacent residential neighborhood up to the Imaginarium. Evans Avenue would be closed between Larmie Street and Evans Avenue in front of the Imaginarium and from the north right of way line of Edison Avenue northward for a distance of 36.6 meters (120 feet).

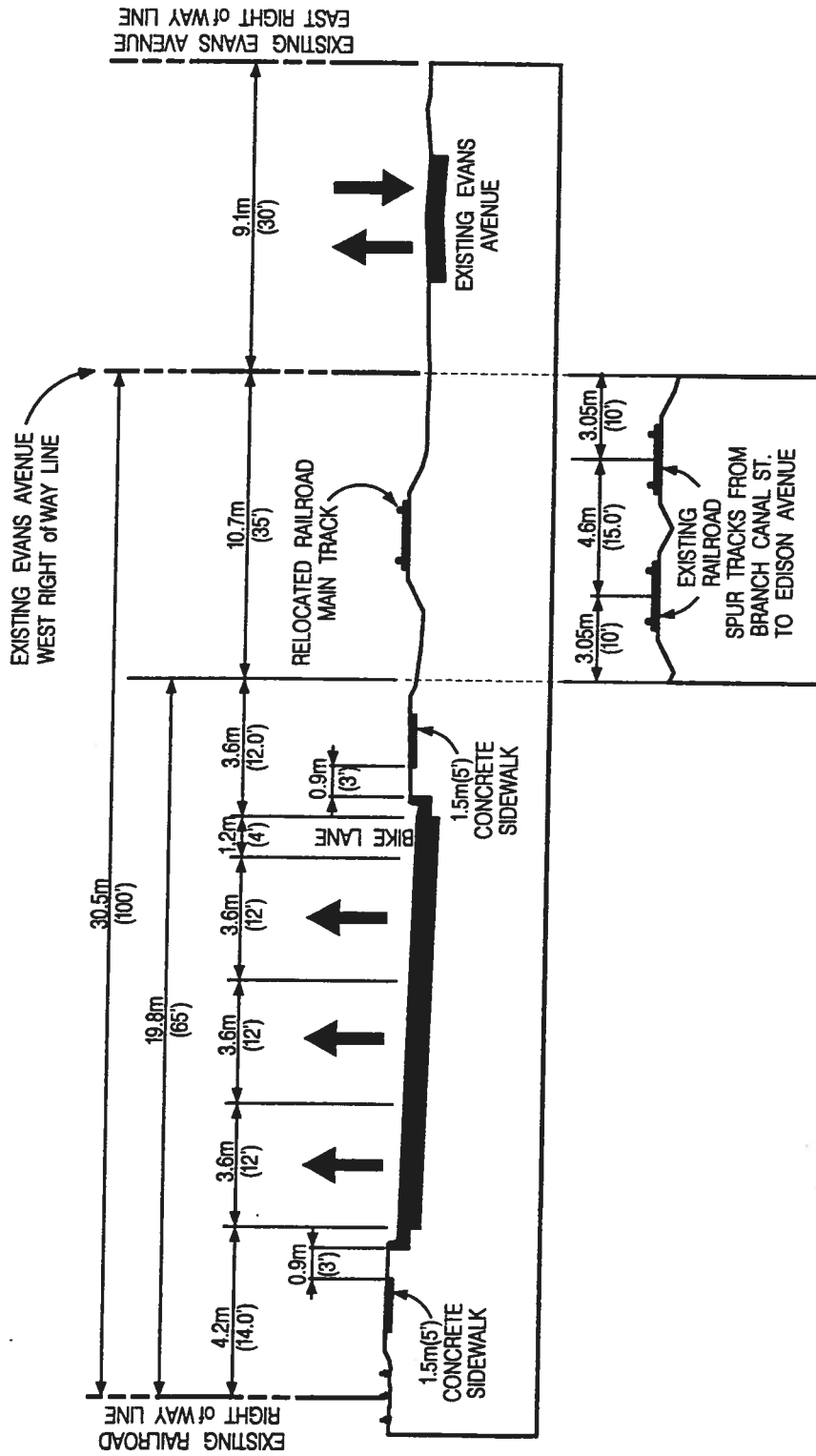
- **Typical Sections**

The northbound Evans Avenue one-way pair proposes three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 4.2 meter (14 feet) inside border, a 3.6 meter (12 feet) outside border (both with Type F curb and gutter), and 1.5 meter (5 feet) concrete sidewalks on both sides. The proposed typical section will be accommodated within a 19.8 meter (65 feet) right-of-way. Drainage in this segment consists of piping stormwater runoff to off-site detention ponds. The typical section for northbound Evans Avenue north of Edison Avenue is shown in Figure 8-25.

The southbound Fowler Street typical section from Hanson Street to Dr. Martin Luther King, Jr. Boulevard consists of three 3.6 meter (12 feet) travel lanes, Type F curb and



**SEGMENT 4
ALTERNATIVE 4-2G ALIGNMENTS
FOWLER STREET / EVANS AVENUE ONE WAY PAIR**



FOWLER STREET /EVANS AVENUE ONE WAY PAIR (Alternative 4-2G)
 FROM EDISON AVENUE TO DR. MARTIN LUTHER KING, JR., BLVD.

METRO PARKWAY
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL STUDY

S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

TYPICAL SECTIONS

SEGMENT 4
 METRO PARKWAY

gutter and a 1.8 meter (6 feet) sidewalk at the back of curb on the west side. A 0.3 meter (1 foot) area will be provided to tie-down the back of sidewalk to the existing ground. This typical section is shown in Figure 8-26.

Hanson Street will also be improved to provide one 3.6 meter (12 feet) lane and one 3.3 meter (11 feet) lane in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 5.0 meter (15.5 feet) median with Type F curb and gutter on each side. A 3.6 meter (12 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The typical section for Hanson Street is shown in Figure 8-27.

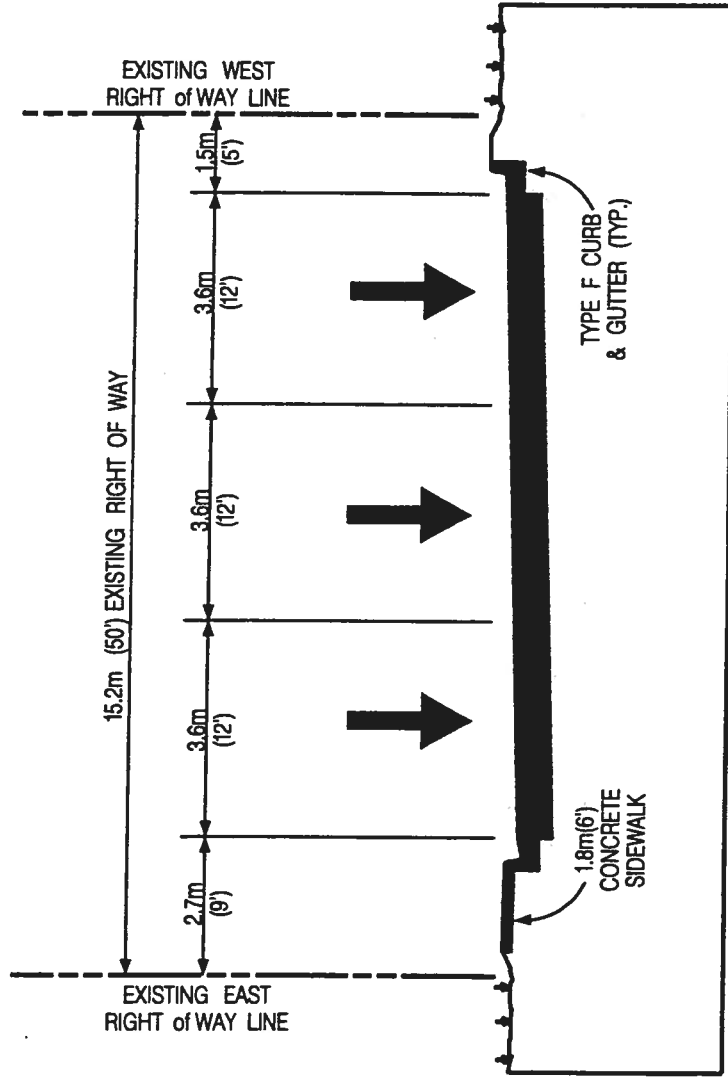
8.4.2 Evaluation Matrix of Viable Alternatives

A comparative evaluation of the alternatives considered for additional study was performed to assist in identifying the proposed alternatives for the expansion and extension of Metro Parkway. The evaluation process involved the analysis of a number of factors, including business and economic impacts, residential impacts, community facilities, cultural/historical resources and public parks, natural environment, physical impacts, and project cost.

The evaluation matrix for the connection to US 41 and Alico Road from Metro Parkway is presented in Table 8-3 and compares the relative impacts of the interchange alternatives under study. Table 8-4 presents the evaluation matrix for the viable alignment and typical section alternatives that were considered. Because Segments 3 and 4 are interdependent and the alternatives are directly related, the evaluation factors for Segments 3 and 4 Six-Lane Fowler Alternatives (Alternatives 3-5 and 4-5(LT)) and Segments 3 and 4 One-way Pair Alternatives (Alternatives 3-6 and 4-2G) have been combined. The following sections present a comparative summary of the proposed build alternatives for the connection and by corridor segment.

8.4.2.1 Segment 1

Alternatives 1-3B would require 14 residential relocations, 1 business impact and 1 community facility impact (Briarcliff Baptist Church). This alternative would impact 9.0 hectares (22.1 acres) of wetlands, of which 6.6 hectares (16.3 acres) is within the Six Mile Cypress Slough Preserve. Alternative 1-3B alignment would parallel the east side



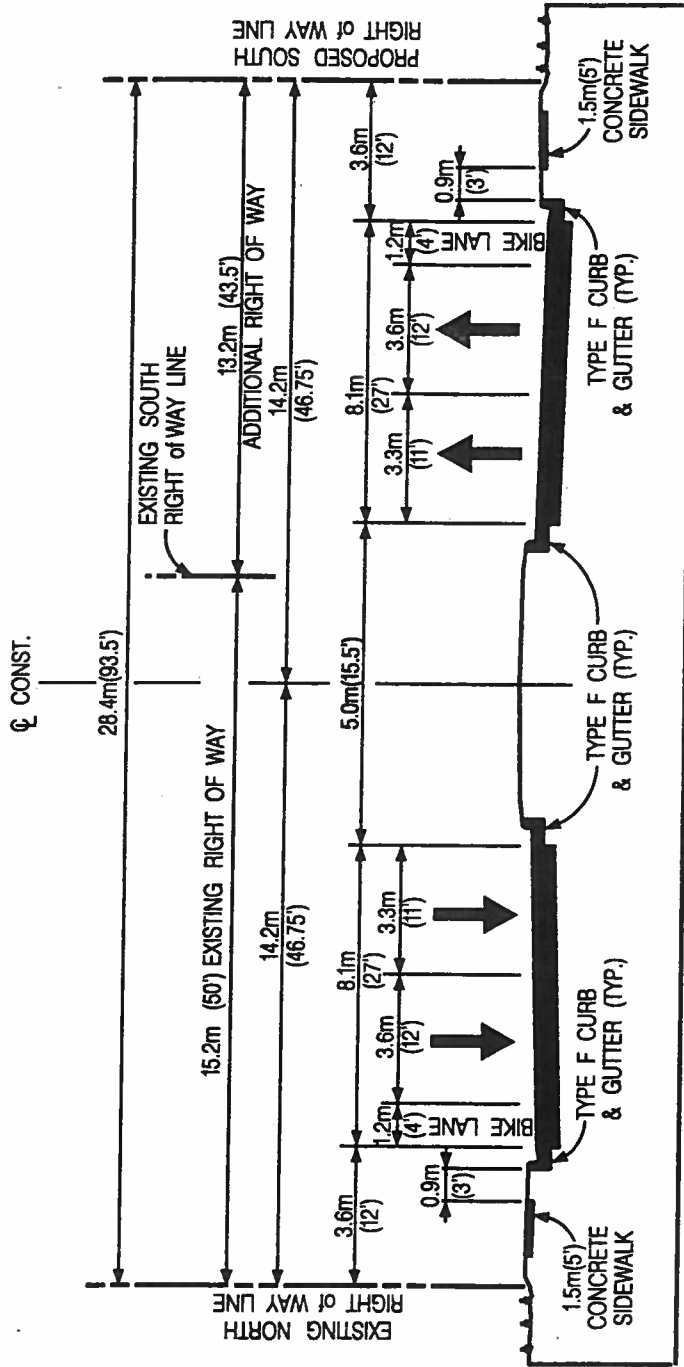
FOWLER STREET /EVANS AVENUE ONE WAY PAIR (Alternative 4-2G)
 FOWLER STREET FROM HANSON STREET TO DR. MARTIN LUTHER KING, JR. BLVD.

METRO PARKWAY
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL STUDY

S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

TYPICAL SECTIONS

SEGMENT 4
 METRO PARKWAY



HANSON STREET (Alternative 3-6 and 4-2G)
 FROM FOWLER STREET TO EVANS AVENUE

METRO PARKWAY
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL STUDY

S.P. NO. 12014-1502
 W.P.I. NO. 1114619
 F.A.P. NO. 0671 009 U

TYPICAL SECTIONS

SEGMENT 4
 METRO PARKWAY

**TABLE 8-4
ALTERNATIVES EVALUATION MATRIX
METRO PARKWAY
FROM US 41 AND ALICO ROAD
TO DR. MARTIN LUTHER KING, JR., BOULEVARD**

	NO-PROJECT	SEGMENT 1 ALICO ROAD TO SIX-MILE CYPRESS PARKWAY		SEGMENT 2A SIX-MILE CYPRESS PARKWAY TO DANIELS AVENUE			SEGMENT 2B DANIELS AVENUE TO NORTH OF WINKLER AVENUE			SEGMENT 3&4 NORTH OF WINKLER AVENUE TO Dr. MARTIN LUTHER KING, Jr., BOULEVARD	
		ALIGNMENT		ALIGNMENT			ALIGNMENT			ALIGNMENT	
		1-3B	1-3D	2-1A	2-2A	2-3A	2-1B	2-2B	2-3B	3-5 & 4-5(LT)	3-6 & 4-2G
RELOCATIONS											
RESIDENCES	NO IMPACTS	14	12	0	0	0	0	0	0	6	12
BUSINESSES	NO IMPACTS	1	1	0	0	0	0	0	0	62	15
COMMUNITY FACILITIES	NO IMPACTS	1	1	0	0	0	0	0	0	2	0
EST. COSTS (IN MILLIONS)											
DESIGN / CEI	NO CAPITAL COSTS	\$5.5	\$6.6	\$1.1	\$1.1	\$1.1	\$6.2	\$6.2	\$6.2	\$5.3	\$7.5
ROADWAY RIGHT-OF-WAY	NO CAPITAL COSTS	\$22.3	\$21.2	\$2.4	\$2.2	\$1.3	\$11.8	\$9.6	\$10.4	\$29.0	\$14.3
ROADWAY R/W (DRAINAGE COST)	NO CAPITAL COSTS	\$1.2	\$1.2	\$0.7	\$0.7	\$0.7	\$2.3	\$2.3	\$2.3	\$1.6	\$1.6
RAILROAD RIGHT-OF-WAY	NO CAPITAL COSTS	\$0.0	\$3.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.0
RAILROAD R/W DAMAGE COST	NO CAPITAL COSTS	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.5
ROADWAY CONSTRUCTION	NO CAPITAL COSTS	\$18.4	\$17.4	\$3.6	\$3.6	\$3.6	\$20.5	\$20.5	\$20.5	\$17.8	\$21.0
RAILROAD CONSTRUCTION	NO CAPITAL COSTS	\$0.0	\$4.7	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$3.9
WETLAND MITIGATION	NO CAPITAL COSTS	\$1.8	\$1.8	*	*	*	*	*	*	*	*
CONTAMINATION CLEANUP	NO CAPITAL COSTS	*	*	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$2.1	\$1.1
TOTAL	NO CAPITAL COSTS	\$49.2	\$56.2	\$8.1	\$7.9	\$7.0	\$41.1	\$38.9	\$39.7	\$58.8	\$51.9
NATURAL ENVIRONMENTAL & PHYSICAL IMPACTS											
SPECIES	NO IMPACTS	Minimal	Minimal	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts
CONTAMINATION SITES	NO IMPACTS	2	5	0	0	1	12	20	12	40	31
WETLAND (HECTARES/ACRES)	NO IMPACTS	9.0/22.1	5.9/14.5	0.01/0.05	0.01/0.05	0.01/0.05	0.01/0.04	0.01/0.04	0.01/0.04	0.20/0.50	0.14/0.36
SECTION 4(f) INVOLVEMENT (HECTARES/ACRES)	NO IMPACTS	6.6/16.3	4.3/10.5	0/0							
DRAINAGE & WATER QUALITY	NO IMPACTS	SWALE DRAINAGE TO PONDS. WATER QUALITY IMPROVED.		STORM DRAINAGE PROVIDE. CLOSED DRAINAGE SYSTEM WITH RETENTION/DETENTION POND TREATMENT. WATER QUALITY IMPROVED.							
NON-MOTORIZED	Minimal Pedestrian & Bicycle Facilities	PROVIDES FOR A 2.4m (8 feet) PATHWAY FOR BICYCLES and PEDESTRIANS		PROVIDES FOR A 1.5m (5 feet) SIDEWALK and 1.2 m (4 feet) BIKE LANE			PROVIDES FOR A 1.8m (6 feet) SIDEWALK next to curb and 1.2 m (4 feet) BIKE LANE			PROVIDES FOR A 1.5m (5 feet) SIDEWALK and 1.2 m (4 feet) BIKE LANE	
SOCIAL & NEIGHBORHOOD IMPACTS	NO IMPACTS	MINIMAL	MINIMAL	MINIMAL IMPACT						MINIMAL	MINIMAL

* Mitigation costs < \$0.05 million.

of the Seminole Gulf Railway tracks and would be minimally disruptive to the community. This alternative, however, would require the relocation of the Briarcliff Baptist Church. This alternative is projected to cost \$49.2 million.

Alternative 1-3D is similar to Alternative 1-3B, except that the existing railroad track would be relocated to the east side of the proposed roadway and the west right-of-way line of the railroad would become the west right-of-way line of Metro Parkway. This alternative would require 13 residential relocations, 1 business relocation and 1 community facility relocation (Briarcliff Baptist Church). Alternative 1-3D would impact 5.9 hectares (14.5 acres) of wetlands, 4.3 hectares (10.5 acres) of which would be within the Six Mile Cypress Preserve. However, Alternative 1-3D is projected to cost \$56.2 million as compared to \$49.2 million for Alternative 1-3B. This is due to increased costs associated with relocating the railroad.

Because of public interest, both Alternatives 1-3B and 1-3D will be presented at the Public Hearing.

8.4.2.2 Segment 2

Alternatives 2-1, 2-2, and 2-3, for Segments 2A and 2B, are fairly similar with regard to potential impacts on the social, natural, and physical environment. In Segment 2A, Alternative 2-3A (right alignment) is less expensive since fewer parcels of property are impacted. (No utility easements exist in Segment 2A). In Segment 2B, Alternative 2-2B (center alignment) calls for Metro Parkway to be widened equally along both sides of the existing roadway to accommodate the proposed improvements and preclude the need for major utility relocation impacts. The existing 3.8 meter (12.5 feet) drainage and utility easements along both sides of the roadway in Segment 2B would be acquired to provide adequate right-of-way width, thus reducing the cost of this alternative. Alternative 2-2B is less expensive.

Alternatives 2-3A and 2-2B are the alternatives in Segment 2 that will be presented at the Public Hearing.

8.4.2.3 Segment 3 and Segment 4

As stated previously, Segment 3 alternatives provide a connection between Segment 2 and Segment 4. Because Segments 3 and 4 are interdependent and the alternatives are directly related, the evaluation factors for Segments 3 and 4 Six-Lane Fowler Alternatives (Alternatives 3-5 and 4-5(LT)) and Segments 3 and 4 One-way Pair Alternatives (Alternatives 3-6 and 4-2G) have been combined.

The review of the evaluation matrix indicates that the Six-Lane Fowler Alternative (Alternatives 3-5 and 4-5(LT)) will require 6 residential displacements, 62 business displacements and 2 community facility relocations. It will cost approximately \$58.8 million. Initially, a cul-de-sac was being provided on Fowler Street between Kennesaw Street and Marino Avenue to provide access to 6 businesses. However, this would have forced commercial traffic to use a residential street running parallel to Fowler Street which is not acceptable. Therefore, the cul-de-sac was removed and these additional businesses were added to the matrix as being impacted. The evaluation matrix reflects this change to the number of business impacts and the associated cost of these impacts. The One-way Pair Alternative (Alternatives 3-6 and 4-2G) will require 12 residential displacements and 15 business displacements and will cost approximately \$51.9 million. It should be noted that the typical roadway cross section for Hanson Street was minimized to reduce the number of residential and business impacts caused by this improvement and this reduction is reflected in the evaluation matrix. Although the Six-Lane Fowler Alternative has higher costs and more business displacements than the One-Way Pair Alternative, some business owners along Fowler Street have concerns that it will reduce traffic along Fowler Street and negatively impact business. Therefore, the Six-Lane Fowler Street Alternative will also be presented at the Public Hearing along with the One-Way Pair Alternative.

8.5 Public Hearing Alternatives

On the basis of the foregoing evaluation, the following set of alternatives are recommended to be presented at the Public Hearing for the Metro Parkway project corridor. Those Alternatives are presented in Table 8-5 as follows:

**Table 8-5
Public Hearing Alternatives**

US 41/Alico Road Connection:	Single Loop Interchange, with an At-Grade Intersection to Southbound US 41
Segment 1:	Alternative 1-3B and Alternative 1-3D
Segment 2:	Alternative 2-3A and Alternative 2-2B
Segment 3 & 4:	One-way Pair Alternative (Alternative 3-6 and 4-2G) and Six-Lane Fowler Alternative (Alternatives 3-5 and 4-5(LT))

9.0 — Preliminary Design Analysis

9.1 Design Traffic Volumes

9.1.1 Overview / Methodology

Traffic information for this report was assembled from the *Alternate US 41 Traffic Technical Memorandum Project Traffic and Intersection Analysis Report* (June 1993), the *Alternate US 41 (Metro Parkway) Traffic Addendum* (December 1995) and *Alternate US 41 (Metro Parkway) Traffic Addendum* (November 1997); all three prepared by Greiner, Inc., and approved by the Department. Please refer to these documents for a more detailed description of the traffic analysis for this project. The following are highlights from these reports.

The design year established for this project is year 2020. The evaluation of future conditions included the development of design year daily and peak hour traffic volumes as well as an evaluation of peak hour traffic operations.

Future design hour volumes were derived from the annual average daily traffic (AADT) forecast using existing turning movement patterns and the TURNS spreadsheet analysis procedure provided by the FDOT. Using the traffic characteristics information (K, D, and T), the intersection turning movements were balanced with full recognition of the obvious redistribution of urban area travel within the adopted Plan network.

Level of service (LOS) analyses were performed for the 2020 design hour volumes. Intersection level of service calculations were derived using Version 2.1 of the Highway Capacity Software (HCS) in accordance with the 1994 Highway Capacity Manual, Chapters 9 and 11. Roadway segment levels of service were determined using version 2.0 of FDOT's ART_PLAN software.

LOS analyses were performed within this corridor using particular lane configurations and signalization at various intersections. Detailed information regarding these parameters can be found in the previously mentioned Traffic Technical Memorandum and Traffic Addenda. For a brief description of the recommended lane geometries, refer

to section 9.3.

9.1.2 Traffic Factors

Year 2020 peak hour traffic volumes in all segments of the project were derived from the average daily traffic volumes using a K-factor of 9.0 percent, a directional distribution factor (D) of 55.0 percent, an average truck percentage (T) of 4.0 percent, and a peak hour factor (PHF) of 0.95.

9.1.3 Traffic Projections

Tables 9-1 through 9-4 summarize the projected AADTs, arterial segment levels of service, and intersections levels of service for the AM and PM Peak Hours in the design year 2020 for both the Six-Lane Fowler Street and Fowler Street/Evans Avenue One-Way Pair alternatives.

9.2 Typical Sections

9.2.1 Segment 1 Typical Section

Two typical sections were selected for presentation at the Public Hearing. The proposed typical section for Alternative 1-3B is characterized by a 76.2 meter (250 feet) right-of-way. This suburban typical section contains three 3.6 meter (12 feet) travel lanes in each direction, a 6.6 meter (22 feet) median with Type F curb and gutter, a 3.6 meter (12 feet) shoulder of which 1.5 meters (5 feet) is paved, a 2.4 meter (8 feet) multi-use pathway on the west side of the roadway, and 13.6 meter (45 feet) grass swales. Through the Briarcliff Subdivision area, a landscape berm would be constructed on the east side of the roadway to provide a visual buffer between the roadway and the Briarcliff Subdivision. The design speed is 80 kilometers per hour (50 miles per hour). Drainage would be accommodated within the proposed grass swales and water quality and water quantity requirements would be met within the proposed right-of-way. This typical section is shown in Figure 8-6.

The typical section for Alternative 1-3D is identical to Alternative 1-3B except that the

Fowler Street / Evans Avenue One-Way Pair Alternative

AM Peak Hour

INTERSECTING ROADWAY		2020 DESIGN HOUR VOLUMES			ARTERIAL SEGMENT LOS		INTERSECTION LOS
INTERSECTING ROADWAY	Evans Avenue	Northbound	Southbound	Northbound	Southbound		
Metro Parkway	Fowler Street						
US 41							
Alico Road		1,328	1,085	B	A		B
Six Mile Cypress Pkwy.		2,647*	2,426	C	B		N/A
Daniels Parkway		1,644*	1,512*	B	B		D
Crystal Drive		1,816	1,998*	A	B		D
Danley Drive		1,838	2,252	A	C		D
Idlewild Street		2,017	2,465	B	C		B
Colonial Boulevard		2,081	2,543	C	B		B
Winkler Avenue		1,752*	2,235	D	D		D
Metro Crossover		2,205	2,424*	C	D		D
Hanson Street		658	737	A	B		B
	Carrell Road						B
	Hanson Street		1,517*		A		D
	Canal Street		3,337*		C		D
	South Street		3,114*		C		D
	Edison Avenue		3,350		B		B
	Market Street		2,691*		B		D
							C

TABLE 9-1, Continued
 Fowler Street / Evans Avenue One-Way Pair Alternative
 AM Peak Hour

INTERSECTING ROADWAY		2020 DESIGN HOUR VOLUMES		ARTERIAL SEGMENT LOS		INTERSECTION LOS
		Northbound	Southbound	Northbound	Southbound	
Metro Parkway	Fowler Street					
	S.R. 82		3,132			
	Metro Crossover		3,314			C
	Hanson Street	2,983		A		C
	Canal Street	3,012		A		
	South Street	2,821		A		B
	Edison Avenue	2,732		D		D
	Market Street	2,645		B		C
	S.R. 82	2,551		D		D

* - Volumes denoted with an asterisk represent constrained volumes.

TABLE 9-2
Six-Lane Fowler Street Alternative
AM Peak Hour

INTERSECTING ROADWAY		2020 DESIGN HOUR VOLUMES		ARTERIAL SEGMENT LOS		INTERSECTION LOS
		Northbound	Southbound	Northbound	Southbound	
Metro Parkway	Fowler Street					
US 41	Evans Avenue					
Alico Road		1,328	1,085	B	A	B
Six Mile Cypress Pkwy.		2,647*	2,426	C	B	N/A
Daniels Parkway		1,644*	1,512*	B	B	D
Crystal Drive		1,816	1,998*	A	B	D
Danley Drive		1,838	2,252	A	C	D
Idlewild Street		2,017	2,465	B	C	B
Colonial Boulevard		2,081	2,543	C	B	B
Winkler Avenue		1,752*	2,235	D	D	D
Metro Crossover		2,205	2,424*	C	D	D
Hanson Street		658	737	A	B	B
	Crossover					
	Fowler/Evans	1,675	2,040	B	A	B
	Hanson Street	2,578*	3,285	D	D	D
	Canal Street	2,224*	3,109*	D	D	D
	South Street	2,616	2,526*	C	E	D
	Edison Avenue	2,258*	3,131	C	C	B
						D

TABLE 9-2, Continued
Six-Lane Fowler Street Alternative
AM Peak Hour

INTERSECTING ROADWAY		2020 DESIGN HOUR VOLUMES		ARTERIAL SEGMENT LOS		INTERSECTION LOS
		Northbound	Southbound	Northbound	Southbound	
Metro Parkway	Fowler Street					
		2,482	2,833*	D	E	
	Market Street					C
	S.R. 82	2,228*	3,024*	E	D	
						D
	Fowler/Carrell					
		1,291	1,784	C	D	D
	Fowler/Evans					
		165*	354	C	C	D
	Hanson Street					D

* - Volumes denoted with an asterisk represent constrained volumes.

INTERSECTING ROADWAY		2020 DESIGN HOUR VOLUMES				ARTERIAL SEGMENT LOS		INTERSECTION LOS
		Northbound	Southbound	Northbound	Southbound			
Metro Parkway	Fowler Street							
	Evans Avenue							
US 41								
Alico Road		1,085	1,328	A	B		B	
Six Mile Cypress Pkwy.		1,967*	2,967	B	C		N/A	
Daniels Parkway		2,123*	1,677*	B	B		D	
Crystal Drive		2,154	1,726*	B	C		D	
Danley Drive		2,252	1,784	A	C		D	
Idlewild Street		2,465	2,017	B	D		B	
Colonial Boulevard		2,543	2,081	C	A		B	
Winkler Avenue		2,095*	1,908	D	D		D	
Metro Crossover		2,694	1,940*	C	D		D	
Hanson Street		803	602	A	A		B	
							C	
Carrell Road							D	
Hanson Street			1,272*		B		C	
Canal Street			2,996		B		C	
South Street			2,830		C		C	
Edison Avenue			2,741		A		B	
Market Street			2,442*		D		D	
							C	

TABLE 9-3, Continued
Fowler Street / Evans Avenue One-Way Pair Alternative
PM Peak Hour

INTERSECTING ROADWAY		2020 DESIGN HOUR VOLUMES		ARTERIAL SEGMENT LOS		INTERSECTION LOS
		Northbound	Southbound	Northbound	Southbound	
Metro Parkway	Fowler Street					
	S.R. 82		2,560			C
	Evans Ave./ Metro Crossover		2,714			
		3,657		A		
	Hanson Street	3,681		C		C
	Canal Street	3,447		B		B
	South Street	3,204*		C		B
	Edison Avenue	3,229		B		D
	Market Street	2,650*		C		C
	S.R. 82					D

* - Volumes denoted with an asterisk represent constrained volumes.

**TABLE 9-4
Six-Lane Fowler Street Alternative
PM Peak Hour**

INTERSECTING ROADWAY		2020 DESIGN HOUR VOLUMES		ARTERIAL SEGMENT LOS		INTERSECTION LOS
		Northbound	Southbound	Northbound	Southbound	
Metro Parkway	Fowler Street					
US 41						
Alico Road		1,085	1,328	A	B	B
Six Mile Cypress Pkwy.		1,967*	2,967	B	C	N/A
Daniels Parkway		2,123*	1,677*	B	B	D
Crystal Drive		2,154	1,726*	B	C	D
Danley Drive		2,252	1,784	A	C	D
Idlewild Street		2,465	2,017	B	D	B
Colonial Boulevard		2,543	2,081	C	A	B
Winkler Avenue		2,095*	1,908	D	D	D
Metro Crossover		2,694	1,940*	C	D	D
Hanson Street		803	602	A	A	B
	Crossover					
	Fowler/Evans	1,948*	1,704	C	A	B
	Hanson Street	2,993*	2,602*	D	D	D
	Canal Street	2,933*	2,526*	D	D	D
	South Street	2,986	2,385*	C	E	D
	Edison Avenue	2,832*	2,583	D	C	B
						D

TABLE 9-4, Continued
Six-Lane Fowler Street Alternative
PM Peak Hour

INTERSECTING ROADWAY		2020 DESIGN HOUR VOLUMES		ARTERIAL SEGMENT LOS		INTERSECTION LOS
		Northbound	Southbound	Northbound	Southbound	
Metro Parkway	Fowler Street					
	Market Street	2,938*	2,531*	E	E	
	S.R. 82	2,546*	2,501*	E	C	D
						D
	Fowler/Carrell					
		1,548*	1,445	C	C	D
	Fowler/Evans					
	Hanson Street	368*	250*	C	C	D
						D

* - Volumes denoted with an asterisk represent constrained volumes.

railroad has been relocated to the east of the roadway and a portion of the roadway constructed on the railroad right-of-way. The new railroad right-of-way has been reduced in comparison with the original width of railroad right-of-way. This typical section is shown in Figure 8-8.

9.2.2 Segment 2 Typical Section

The typical section developed for the build alternatives in Segment 2A proposes to widen existing Metro Parkway to a six-lane urban section with a raised median within a 39.6 meter (130 feet) right-of-way. The proposed section would provide three 3.6 meter (12 feet) lanes in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 6.6 meter (22 feet) median with Type F curb and gutter on each side. A 4.5 meter (14 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The design speed is 70 kilometers (45 miles) per hour. Drainage consists of piping stormwater to off-site detention ponds. The typical section proposed for the Alternative 2-3A is shown in Figure 8-12.

The typical section for Segment 2B alignments is identical to that for Segment 2A except that the right-of-way width is 38.1 meters (125 feet), the border strip is 3.6 meters and the concrete sidewalk is 1.8 meters (6 feet) wide and is flush with the back of curb. The reduced right-of-way width takes advantage of the existing drainage/utility easements along both sides of the roadway in this area. The typical section proposed for Segment 2B is Alternative 2-2B Center Alignment shown in Figure 8-14.

9.2.3 Segment 3 Typical Section

The typical section alternatives presented at the Public Hearing are described below.

9.2.3.1 Connection to Six-Lane Fowler Street (Alternative 3-5)

The typical section developed for the Alternative 3-5 proposes to widen existing Metro Parkway to a six-lane urban section with a raised median within a 39.6 meter (130 feet) right-of-way. The proposed section would provide three 3.6 meter (12 feet) lanes in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 6.6 meter (22 feet) median with Type F curb and gutter on each side. A 4.5 meter (14 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The

design speed is 70 kilometers (45 miles) per hour. Drainage consists of piping stormwater to off-site detention ponds. The typical section is shown in Figure 8-17.

9.2.3.2 Connection to One-Way Pair (Alternative 3-6)

The typical section developed for the six-lane portion of Alternative 3-6 is identical to Alternative 3-5 and is shown in Figure 8-19. The existing right-of-way width for Evans Avenue from Moreno Avenue to Hanson Street is 24.4 meters (80 feet). The typical section for the northbound Evans Avenue one-way pair proposes three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 6.2 meter (20 feet) inside border, a 6.2 meter (20 feet) outside border (both with Type F curb and gutter), and 1.5 meter (5 feet) concrete sidewalks on both sides. Drainage in this segment consists of piping stormwater to off-site detention ponds. The typical section for the northbound one-way pair alternative between Moreno Avenue and Hanson Street is shown in Figure 8-20.

The typical section for the southbound Fowler Street one-way pair proposes three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 4.2 meter (14 feet) inside border, a 3.6 meter (12 feet) outside border (both with Type F curb and gutter), and 1.5 meter (5 feet) concrete sidewalks on both sides. The typical section for the southbound one-way pair alternative between Kennesaw Street and Hanson Street is shown in Figure 8-21.

9.2.4 Segment 4 Typical Section

The typical sections for Segment 4 presented at the Public Hearing are described below.

9.2.4.1 Six-Laning Fowler Avenue (Alternative 4-5(LT))

The typical section developed for Alternative 4-5(LT) proposes a six-lane urban section with a raised median within a 39.6 meter (130 feet) right-of-way. The existing Fowler Street right-of-way between Hanson Street and Dr. Martin Luther King, Jr., Boulevard is primarily 15.2 meters (50 feet). The proposed section would provide three 3.6 meter (12 feet) lanes in each direction, a 1.2 meter (4 feet) bicycle lane in each direction, and a 6.6 meter (22 feet) median with Type F curb and gutter on each side. A 4.5 meter (14 feet) border strip on each side (with Type F curb and gutter) and a 1.5 meter (5 feet) concrete sidewalk are also proposed. The design speed is 70 kilometers (45 miles) per hour. Drainage consists of piping stormwater to off-site detention ponds. The typical section

for Alternative 4-5(LT) is shown in Figure 8-23 and is the same as the six-lane typical sections in Segment 2A and Segment 3.

9.2.4.2 Fowler Street/Evans Avenue One-Way Pair (Alternative 4-2G)

The northbound Evans Avenue one-way pair proposes three 3.6 meter (12 feet) lanes, one 1.2 meter (4 feet) bike lane, a 4.2 meter (14 feet) inside border, a 3.6 meter (12 feet) outside border (both with Type F curb and gutter), and 1.5 meter (5 feet) concrete sidewalks on both sides. The proposed typical section would be accommodated within a 19.8 meter (65 feet) right-of-way. Drainage in this segment consists of piping stormwater to off site detention ponds. The typical section for northbound Evans Avenue north of Edison Avenue is shown in Figure 8-25.

The southbound Fowler Street typical section from Hanson Street to Dr. Martin Luther King, Jr. Boulevard consists of three 3.6 meter (12 feet) travel lanes, Type F curb and gutter and a 1.8 meter (6 feet) sidewalk at the back of curb on the west side. A 0.3 meter (1 foot) area will be provided to tie-down the back of sidewalk to the existing ground. This typical section is shown in Figure 8-26.

Hanson Street will also be improved to provide one 3.6 meter (12 feet) lane and one 3.3 meter (11 feet) lane in each direction, a 1.2 meter (4 feet) bicycle lane in each direction and a 5.0 meter (15.5 feet) median with Type F curb and gutter on each side. A 3.6 meter (12 feet) border strip with Type F curb and gutter and a 1.5 meter (5 feet) concrete sidewalk is also proposed. The typical section for Hanson Street is shown in Figure 8-27.

9.3 Intersection Concepts and Signal Analysis

9.3.1 Metro Parkway Connection to US 41 and Alico Road

Metro Parkway would be grade separated by an overpass over Alico Road with a loop exit to eastbound Alico Road. The connection to US 41 would be with an at-grade intersection. The intersection configuration is shown in Figure 8-4.

9.3.2 Segment 1 - Lane Geometrics and Signalization

9.3.2.1 Existing Railroad West of Roadway (Alternative 1-3B)

Within Segment 1 there would be a railroad overpass constructed over the Seminole-Gulf Railroad line just north of the Alico Road interchange.

The intersection of Briarcliff Road with Metro Parkway alignment would be at-grade. Left-turn lanes would be provided on Metro Parkway to access Briarcliff Road. A signal is not warranted at this time.

The intersection of Metro Parkway with Six Mile Cypress Parkway would be an at-grade signalized intersection. The existing intersection of Metro Parkway and Six Mile Cypress Parkway is signalized. Dual left-turn lanes would be required for both northbound and southbound Metro Parkway as well as single right-turn lanes. Six Mile Cypress Parkway would require dual lefts and dual right lanes eastbound and double lefts and a single right westbound. Through lanes for Metro Parkway would be three lanes in each direction north of Six Mile Cypress Parkway.

9.3.2.2 Railroad East of Roadway (Alternative 1-3D)

Alternative 1-3D is very similar to Alternative 1-3B except that the roadway is constructed within the existing railroad right-of-way, holding the west right-of-way line, and the railroad is reconstructed to the east of the roadway. An overpass of the railroad over the roadway would be constructed north of the Six Mile Cypress Slough. This alternative shifts the Seminole Gulf Railway's railroad track to east of the proposed roadway, thereby eliminating the roadway bridge overpassing the railroad north of Alico Road. All other conditions are the same as for Alternative 1-3B.

9.3.3 Segment 2 - Lane Geometrics and Signalization

All intersections within this segment would be at-grade with the exception of the intersection with Colonial Boulevard (SR 884). Colonial Boulevard would be constructed as a single point urban interchange (SPUI) with through lanes passing over Metro Parkway (existing Metro Parkway).

All existing signalized intersections from Six Mile Cypress Parkway to Winkler Avenue would remain signalized including the intersections of Metro Parkway with Daniels Parkway, Crystal Drive, Danley Drive, Idlewild Drive, Colonial Boulevard, and Winkler Avenue. No additional signalized intersections are warranted.

Lane geometries between Six Mile Cypress Parkway and Winkler Avenue would be three lanes in each direction. Double left turns are recommended at every intersection in each direction, with the exception of the intersections of Crystal Drive and Idlewild Drive (3-legged intersection).

9.3.4 Segment 3 - Lane Geometrics and Signalization

Segment 3 is on new alignment and splits off of the Metro Parkway alignment about 550 meters (1800 feet) north of the intersection of Winkler Avenue. Access to businesses along the existing Metro Parkway north of this split is provided with a new access road connecting to Metro Parkway. This intersection would be signalized. Segment 3 contains a grade-separated structure that crosses over the Colonial Waterway, the Seminole Gulf Railyard, the Ten Mile Canal (including the maintenance roads) and Palm Avenue.

The lane geometrics and signalization for both Segment 3 Alternatives is the same until the alignment approaches Evans Avenue. The two alternatives selected to be presented at the Public Hearing in this segment are described below from the point just south of Evans Avenue.

9.3.4.1 Connection to Six-Lane Fowler Street (Alternative 3-5)

This alternative continues on the northwesterly alignment and a new four-way intersection is created connecting Fowler Street to the south of Kennesaw Street and Evans Avenue to the north of Moreno Avenue. This intersection is located east of Fowler Street, west of Evans Avenue, south of Moreno Avenue and north Kennesaw Street. Single left turns are provided from northbound Metro Parkway to southbound Fowler Street and from southbound Metro Parkway to northbound Evans Avenue. This intersection would be signalized.

9.3.4.2 Connection to One-Way Pair (Alternative 3-6)

Just east of the intersection of Evans Avenue and Hunter Street, a connection is made with an access road to Fowler Street, creating a three-way intersection. This intersection would be signalized. North of this new intersection, Metro Parkway southbound lanes and northbound lanes separate to form the one-way pair alternative.

9.3.5 Segment 4 - Lane Geometrics and Signalization

9.3.5.1 Six-Laning Fowler Avenue (Alternative 4-5(LT))

In this segment, signalized intersections occur at Hanson Street, Canal Street, South Street, Edison Avenue, Market Street, and Dr. Martin Luther King, Jr., Boulevard. Single left hand turns are provided for northbound and southbound Metro Parkway at these intersections except for at Dr. Martin Luther King, Jr. Boulevard. At the intersection with Dr. Martin Luther King, Jr. Boulevard, dual left turns are provided in all quadrants. Single right turns are provided for all quadrants except for westbound Dr. Martin Luther King, Jr. Boulevard to northbound Metro Parkway (Fowler Street) where no right turn lane is provided.

9.3.5.2 Fowler Street/Evans Avenue One-Way Pair (Alternative 4-2G)

Alternative 4-2G is a one-way pair configuration. This segment is in an urban environment with many cross streets which would help traffic circulation and make businesses in this segment accessible. Signals are needed at many of the intersections within this corridor to promote safety. Proper timing of the signals would aid in effectively moving vehicles through this area. Signalized intersections occur at northbound Evans Avenue and southbound Fowler Street with Hanson Street, Canal Street, South Street, Edison Avenue, Market Street, and Dr. Martin Luther King, Jr., Boulevard. Left turn lanes are provided at the Seminole Gulf Railway proposed passenger loading area and at Dr. Martin Luther King, Jr., Boulevard. A right turn lane is also provided at Dr. Martin Luther King, Jr., Boulevard.

All intersections are at grade in this segment. The main railroad track has been realigned to the east of Metro Parkway (Evans Avenue). The south spur track of this "Wye" crosses Evans Avenue south of Dr. Martin Luther King, Jr., Boulevard. The north spur

track of the Wye is relocated to Segment 3 at a location acceptable to the railroad.

9.4 Alignment and Right-of-Way Needs

The existing right-of way widths are described in Section 4.1.4. The proposed roadway alignments by Segment are described below.

9.4.1 US 41/Alico Road/Metro Parkway Connection

9.4.2 Segment 1 Alignment

Alternative 1-3B would be located adjacent to and east of the Seminole Gulf Railroad. Right-of-way would be acquired to the east of the railroad and is 76.2 meters wide (250 feet). Alternative 1-3D would be located adjacent to and west of the Seminole Gulf Railroad and the railroad would be relocated to the east of the roadway. The roadway right-of-way would be 76.2 meters wide (250 feet) but would be constructed partially on right-of-way acquired from the railroad. Alternative 1-3D would acquire less “new” land not already used for transportation purposes (railroad land).

9.4.3 Segment 2 Alignment

The proposed alignment for Segment 2A is Alternative 2-3A. This alternative follows the existing Metro Parkway alignment and acquires 9.1 meters (30 feet) from the right (east) side of the roadway.

The proposed alignment for Segment 2B is Alternative 2-2B. This alternative follows the existing Metro Parkway alignment and acquires 3.8 meters (12.5 feet) drainage/utility easements from both the left (west) side and the right (east) side of the roadway.

9.4.4 Segment 3 Alignment

The connection to Six-Lane Fowler Street (Alternative 3-5) requires 39.6 meters (130 feet) of right-of-way. Since the existing right-of-way on Fowler Street south of Hanson Street is 30.5 meters (100 feet), an additional 9.1 meters (30 feet) would be acquired from the left (west) side of the roadway.

The connection to the One-Way Pair (Alternative 3-6) south of the split is the same as for the Connection to Six-Lane Fowler Street (Alternative 3-5) and requires 39.6 meters (130 feet) of right-of-way. North of the split, the existing right-of-way width for Evans Avenue between Moreno Avenue and Hanson Street is 24.4 meters (80 feet) and the northbound lanes would be constructed in the existing right-of-way. The southbound lanes would be constructed within the existing right-of-way for Fowler Street and would consist of milling and resurfacing to provide for three (3) southbound lanes.

9.4.5 Segment 4 Alignment

The Six-Lane Fowler Street (Alternative 4-5(LT)) requires 39.6 meters (130 feet) of right-of-way. Since the existing right-of-way on Fowler Street north of Hanson Street is primarily 15.2 meters (50 feet), an additional 19.8 meters (65 feet) would be acquired from the left (west) side of the roadway.

The existing right-of-way width for the One-Way Pair (Alternative 4-2G) north of Hanson Street to Canal Street is 15.2 meters (50 feet). From Canal Street to Willard Street, the existing right-of-way width is 18.3 meters (60 feet). The northbound lanes from north of Hanson Street to Willard Street would be constructed within the Evans Avenue right-of-way and additional right-of-way acquired from the right (west) side of the roadway. From Willard Street to Dr. Martin Luther King Jr., Boulevard, the alignment transitions to within the west portion of the existing Seminole Gulf Railway and shares the existing 30.5 meters (100 feet) of railroad right-of-way with the railroad. The roadway would occupy the western 19.8 meters (65 feet) and the Seminole Gulf Railway would occupy the remaining 10.7 meters (35 feet) of the existing railroad right-of-way. The southbound lanes would be constructed within the existing right-of-way for Fowler Street and would consist of milling and resurfacing to provide for three (3) southbound lanes.

9.5 Relocation

The proposed project would require the displacement of a number of business and residential properties. In Segment 1, Alternative 1-3B would require the relocation of 14 single-family residences and one (1) business. In addition, relocation of the Briarcliff Baptist Church would be necessary. Alternative 1-3D would require the relocation of 12

single-family residences and one (1) business. Relocation of the Briarcliff Baptist Church would also be necessary. No business and residential relocations would be required in Segment 2A (Alternative 2-3A) or Segment 2B (Alternative 2-2B). In Segment 3 and 4 for the Six-Lane Fowler Street Alternative (Alternatives 3-5 and 4-5(LT)), the relocation of 6 residences and 62 businesses would be required. The combined One-Way Pair Alternative in Segments 3 and 4 (Alternatives 3-6 and 4-2G) would require the relocation of 12 residences and 15 businesses.

There are no public facilities, major shopping centers, hospitals, schools, or other related establishments that would be displaced by the proposed improvements. One church, Briarcliff Baptist Church is scheduled for relocation. The project is not anticipated to involve relocating any handicapped or disabled persons. There are no public housing developments operated by the Lee County Housing Authority or the City of Fort Myers Housing Authority located in the Metro Parkway project corridor. The Community Redevelopment Agency (CRA), however, administers Section 8 certificates which are provided with Federal subsidies and are issued to eligible low income households that qualify according to income guidelines, which are adjusted for family size and revised annually. The certificates provide a rental subsidy for units outside public housing complexes. Within the project corridor, there are two residences on the east side of Evans Avenue (Segment 4) that qualify for Section 8 assistance. However, these residences would not be directly impacted (i.e., relocated).

Between Edison Avenue and SR 82, the Evans Avenue eastern right-of-way line is the western boundary of the Dunbar CRA. The Dunbar CRA contains the vast majority of the minority population of Lee County. For the One-Way Pair Alternative (Alternative 4-2G), access to existing Evans Avenue would be maintained at all current locations with the exceptions that Evans Avenue would be closed at Edison Avenue and north of Larmie Street. Evans Avenue would be closed north of Larmie Street because of the relocation of the railroad tracks to the east side of Evans Avenue and to provide pedestrian access to the railroad from the Imaginarium. The Six-Lane Alternative (Alternative 4-5(LT)) would not impact the Dunbar CRA.

Over the long term, the project is expected to have a positive influence on the regional economic climate. Therefore, the relocation impacts to the community are considered minimal.

A Conceptual Stage Relocation Plan (CSRP) has been developed by FDOT in accordance with Florida Statutes, Chapter 339.09, the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (Public Law 91-646, as amended by Public Law 100-17) and FHWA Technical Advisory T6640.8A.

9.6 Cost Estimates

Estimated Project Cost Estimates are summarized in Table 9-5.

9.7 Recycling of Salvageable Material

The opportunity to recycle any salvageable materials by the contractor is encouraged by the FDOT. Such materials may include old asphaltic concrete pavement, base material, drainage structures, curb and gutter and sidewalks. The existing pavement may be milled for recycling during the construction of the project. Any other salvageable materials would be identified during the design of the project. If these materials should be removed from the construction site, it is to be done as specified in the current *FDOT Standard Specifications for Road and Bridge Construction*. The opportunity to utilize existing pavement would also be identified during the design of the project.

9.8 User Benefits

Highway user costs are defined by AASHTO's *A Manual on User Benefit Analysis of Highway and Bus-Transit Improvements*, 1977, as the sum of (1) motor vehicle running cost, (2) the value of the vehicle user travel time and (3) traffic accident cost. User benefits are the cost reductions and other advantages that occur to highway motor vehicle users through the use of a particular transportation facility as compared with the use of another. Benefits are generally measured in terms of a decrease in user costs. Since the "No Project" concept will operate at an unacceptable Level of Service and delays in travel time and higher accident rates can be expected in comparison with the build alternatives, it is anticipated that the build alternatives would provide user benefits in comparison with the "No-Project" Alternative.

**TABLE 9-5
COST ESTIMATES
METRO PARKWAY
FROM US 41 AND ALICO ROAD
TO DR. MARTIN LUTHER KING, JR. BOULEVARD**

EST. COSTS (IN MILLIONS)	SEGMENT 1 ALICO ROAD TO SIX-MILE CYPRESS PARKWAY		SEGMENT 2A SIX-MILE CYPRESS PARKWAY TO DANIELS AVENUE		SEGMENT 2B DANIELS AVENUE TO NORTH OF WINKLER AVENUE		SEGMENT 3&4 NORTH OF WINKLER AVENUE TO Dr. MARTIN LUTHER KING, Jr., BOULEVARD	
	ALIGNMENT 1-3B	ALIGNMENT 1-3D	ALIGNMENT 2-3A	ALIGNMENT 2-2B	ALIGNMENT 3-5 & 4-5(LT)	ALIGNMENT 3-6 & 4-2G		
DESIGN / CEI	\$5.5	\$6.6	\$1.1	\$6.2	\$5.3	\$7.5		
ROADWAY RIGHT-OF-WAY	\$22.3	\$21.2	\$1.3	\$9.6	\$32.0	\$14.3		
ROADWAY R/W (DRAINAGE COST)	\$1.2	\$1.2	\$0.7	\$2.3	\$1.6	\$1.6		
RAILROAD RIGHT-OF-WAY	\$0.0	\$3.3	\$0.0	\$0.0	\$0.0	\$1.2		
RAILROAD R/W DAMAGE COST	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.5		
ROADWAY CONSTRUCTION	\$18.4	\$17.4	\$3.6	\$20.5	\$17.8	\$21.0		
RAILROAD CONSTRUCTION	\$0.0	\$4.7	\$0.0	\$0.0	\$0.0	\$3.9		
WETLAND MITIGATION	\$1.8	\$1.8	*	*	*	*		
CONTAMINATION CLEANUP	*	*	\$0.3	\$0.3	\$2.1	\$1.1		
TOTAL	\$49.2	\$56.2	\$7.0	\$38.9	\$58.8	\$51.9		

* Mitigation costs < \$0.05 million.

9.9 Pedestrian and Bicycle Facilities

There are no bicycle facilities along the Metro Parkway corridor and bicyclists currently share the roadway with vehicles.

All alternatives to be presented at the Public Hearing would provide continuous bicycle facilities for the entire length of the project. In Segment 1, a 2.4 meter (8 feet) multi-use pathway would be provided to accommodate bicycle traffic. In Segments 2 and 3, 1.2 meter (4 feet) bike lanes would be provided in each direction adjacent to the outside travel lanes. In Segment 4, the Six-Lane Fowler Street Alternative (Alternative 4-5(LT)), 1.2 meter (4 feet) bike lanes would be provided. For the One-way Pair Alternative (Alternative 4-2G), the northbound leg (Evans Avenue) of the one-way pair configuration would provide one 1.2 meter (4 foot) bike lane; the southbound leg (Fowler Street) will not provide a bike lane. In a letter dated October 21, 1998, Mayor Bruce T. Grady requested that a sidewalk be provided on Fowler Street, from Hanson Street to Dr. Martin Luther King, Jr. Boulevard in lieu of an on street bike lane. A copy of this letter is in the project file. The City is investigating alternate routes to the Fowler Street corridor and will subsequently amend their Bicycle Plan. The bicycle lanes and paved shoulders would be designed in accordance with Florida "Bicycle Facilities Planning and Design Guidelines" and AASHTO Standards.

Metro Parkway currently has limited facilities for pedestrians. Fowler Street, between Simpson Street and Hanson Street (Segment 3), is the only section that has sidewalks; sidewalks are intermittent north of Hanson Street (Segment 4). The proposed project would provide sidewalks for pedestrian traffic along both sides of the roadway in Segments 2, 3, and 4 for all six-lane typical sections. For southbound Fowler Street for the One-Way Pair Alternative (Alternative 4-2G), only milling and resurfacing would be done and a sidewalk would be provided on the west side in lieu of the on street bike lane. Sidewalks would not be provided in Segment 1 because of its rural nature and the fact that a separate pathway would be constructed that could be shared with pedestrian and bicycle users.

9.10 Safety

The purpose of this project is to reduce congestion in the transportation corridor.

Without improvements to the current transportation facilities in the region, additional traffic would create greater congestion which would lead to increased accidents.

Safety related features have been incorporated into every aspect of design in this project. Some of the design aspects that have been considered are listed:

- Effective clear zone widths have been factored into the typical sections.
- Adequate provisions for pedestrian walkways and bicycle facilities exist throughout the project.
- The use of appropriate taper, deceleration, and storage lengths have been designed for turn lanes throughout the project.
- Adequate provisions for vertical and horizontal sight distances have been incorporated into the design of this project.
- Appropriate designs that meet driver expectancy have been incorporated into the conceptual plans.
- For Alternative 4-2G, the new alignment for the railroad tracks in Segment 4 in the vicinity of Dr. Martin Luther King, Jr. Boulevard would improve the intersection operation and should therefore lead to increased safety.
- The conceptual design in this project addresses access management standards that would increase the operational efficiency and safety throughout the corridor.

Final design of this project would be in accordance with all FDOT criteria.

9.11 Economic and Community Development

The Lee County Comprehensive Plan identifies the need for industrial development in the area extending from Alico Road near US 41 to the Fiddlesticks Canal in Segment 1. Metro Parkway (Segment 2) is scheduled to undergo extensive commercial and industrial development over the next ten years, with planned future development expected to fill in many of the vacant lands that currently surround Metro Parkway between Six Mile Cypress Parkway and Winkler Avenue. In addition, the City of Fort Myers Comprehensive Plan Land Use Element for the City of Fort Myers notes the need for a "corridor conscious" development strategy to be applied along Metro Parkway in Segments 2 and 3. This strategy would encourage increased site landscaping and improved signage. The Fowler Street and Evans Avenue corridors in Segments 3 and 4

are designated in the Fort Myers plan as “corridor improvement strategy” areas to encourage rehabilitation and redevelopment of adjacent properties.

It is apparent, therefore, that current and future development would place additional demands on the existing transportation corridor that serves as Metro Parkway. A major impetus for the proposed action comes from economic development and the need to sustain area growth trends, including provisions for future employment and tax base. Improvements to expand and extend the existing Metro Parkway transportation facility are expected to enhance the realization of approved land use plans within the project corridor and to improve access to adjoining properties as well as to regional centers. Therefore, the proposed roadway improvements would increase economic and community development potential in the Metro Parkway corridor.

9.12 Environmental Impacts

9.12.1 Section 4(f) Lands

Section 4(f) lands in the project corridor include the Six Mile Cypress Slough Preserve in Segment 1. The portion of the Six Mile Cypress Slough Preserve that is located in the project corridor comprises the southwestern terminus of an 890-hectare (2,200-acre) cypress/wetland drainageway surrounded by saw palmetto uplands. Water in the slough flows to the southwest and eventually drains into the Estero Bay Aquatic Preserve via Ten Mile Canal and Mullock Creek. The Six Mile Cypress Slough Preserve is characterized by a variety of distinct communities, including the pine flatwoods community, hardwood transition community, flag pond (central wet area) community, hammock community, and the cypress slough community. The area serves as a feeding/breeding ground for many wading birds such as wood ducks and herons and is currently under restoration to remove exotic vegetation. The area is environmentally significant because of its long, linear, contiguous nature and because it serves as a wildlife corridor for the Six Mile Cypress Watershed.

Various Lee County ordinances and resolutions recognize the unique value of the Six Mile Cypress Slough Preserve and indicate that it is to be managed for the conservation of wildlife and water and for recreation facilities. Lee County Resolution Number 89-12-39 further indicates a desire on the part of the Lee County Board of County

Commissioners to limit impacts to the preserve and improve wildlife and public recreation usage. Additionally, the Lee County Comprehensive Plan designates the preserve area as a local and regional recreation area.

A draft Section 4(f) Statement has been prepared for this project, pursuant to Section 4(f) of the U.S. Department of Transportation Act, as amended (49 U.S.C., Section 303) because Alternative 1-3B would require the taking of approximately 6.6 hectares (16.3 acres) of land from the Slough and Alternative 1-3D would require the taking of approximately 4.3 hectares (10.5 acres) of land from the Slough. This impact represents between 0.48 and 0.74 percent of the total 890 hectare/(2,200 acre) preserve area. The impacted area consists primarily of a mix of palustrine emergent and palustrine forested wetlands interspersed with exotic species and a small transitional upland habitat. As a result of this involvement, a plan for compensatory mitigation has been developed to offset the unavoidable wetland and Section 4(f) impacts associated with the proposed improvements along the Metro Parkway corridor.

A variety of options to satisfy the mitigation requirements for the taking of land from the Six Mile Cypress Slough Preserve have been identified through discussions with Lee County. The two most feasible mitigation options for consideration include Option #1 - providing one or more restoration activities; and/or Option #2 - purchasing mitigation credits in the Six Mile Cypress Slough mitigation bank.

Option #1 consists of restoration activities such as eradication of exotic and nuisance species such as Melaleuca, Brazilian pepper, cattail and the tropical soda apple. Representative hydroperiod improvements offered for consideration include restoring the hydrology of the Slough by:

1. Increasing the elevation of the existing weirs at the Ten Mile Canal;
2. Constructing new weirs at the FPL easement area;
3. Extension of the berm adjacent to the Briarcliff subdivision; and/or
4. Provisions for pumping alternate sources of water supply into the Slough.

Option #2 involves purchasing mitigation credits in the Slough Mitigation Bank. Lee County is presently in the process of soliciting bids for the creation of a mitigation bank within the Six Mile Cypress Slough. The plan will be to provide mitigation funds through the purchase of credits in the Slough Mitigation Bank. The County would then

use these funds for the required land acquisition and restoration activities, including the potential compensation for Section 4(f) impacts resulting from the proposed improvements to the Metro Parkway corridor.

Coordination with all appropriate regulatory agencies would be maintained throughout the subsequent phases of the project.

A mitigation plan for implementing either Option #1 or Option #2 will be developed by the Department in coordination with appropriate Federal, State, and local regulatory agencies during the final design phase of this project. These options have been presented to the Lee County Board of County Commissioners, and they have given the department approval of the options by letter, dated November 4, 1996.

9.12.2 Cultural Resources

9.12.2.1 Historic Sites/District

A Cultural Resource Assessment Survey was conducted for this project to determine if historic sites were located within the project area and if any sites were eligible for listing on the *National Register of Historic Places (NRHP)*. The background research and survey revealed no historic structures eligible for listing on the *NRHP* within Segments 1, 2, and 3. In Segment 4, one *NRHP* eligible structure was identified within the project study area. This site is the City of Fort Myers Water Treatment Plant (FSF #8LL1774) located at 2600 Martin Luther King, Jr. Boulevard, just east of Evans Avenue. No direct impact to this structure would occur with project implementation and no right-of-way would be required. In addition, eight other historic structures were identified within Segment 4. These eight sites are not considered eligible for listing in the *NRHP*. A copy of the Cultural Resources Assessment Survey Report was forwarded to the State Historic Preservation Office (SHPO) for their review and concurrence. The SHPO coordination letter dated October 2, 1996 and the Advisory Council letter dated February 14, 1997, both giving a finding of "no adverse effect" have been received. Section 4.2.1 of the Environmental Assessment (EA) document contains additional information on impacts to cultural resources.

9.12.2.2 Archaeological Sites

A Cultural Resources Assessment Survey was conducted for this project and included background research and subsurface archaeological testing. The archaeological survey did not discover any prehistoric or historic period sites. Therefore, there are no archaeological sites within the project corridor that are anticipated to be eligible for listing in the *NRHP*. A copy of the Cultural Resources Assessment Survey Report was forwarded to the State Historic Preservation Office for their review and concurrence. The SHPO coordination letter dated October 2, 1996 and the Advisory Council letter dated February 14, 1997, both giving a finding of "no adverse effect" have been received.

9.12.3 Wetlands

Thirty-four wetland sites within and adjacent to the proposed right-of-way were identified, classified, and documented for this project. The wetlands consist of small isolated palustrine forested and palustrine emergent wetlands, man-made canals, and the Six Mile Cypress Slough Preserve.

The impact on wetlands are summarized in Table 9-6 for each alternative to be presented at the Public Hearing which has a wetland impact. The primary wetland impact would occur in the Six Mile Cypress Slough.

Wetland impacts will be re-evaluated during the final design stage of the project. In accordance with Federal Highway Administration policy as contained in 23 CFR 777.11, the full range of mitigation options were considered in developing the project, including avoidance, minimization, restoration, enhancement, and creation.

As a result of the wetland involvement, a plan for compensatory mitigation would be developed to offset the unavoidable wetland impacts associated with the proposed improvements along the Metro Parkway corridor. Mitigation for these impacts is expected to fall into two categories: 1) impacts within the slough, which have been coordinated with the Lee County Parks and Recreation Department and the Lee County Board of County Commissioners, and 2) impacts to other wetlands within the project limits, which will be handled with the use of S 373.4137 F.S.

**TABLE 9-6
WETLAND IMPACTS**

	SEGMENT 1 ALICO ROAD TO SIX MILE CYPRESS PARKWAY		SEGMENT 3&4 NORTH OF WINKLER AVENUE TO Dr. MARTIN LUTHER KING, Jr. BOULEVARD	
	ALIGNMENT		ALIGNMENT	
WETLAND IMPACTS	1-3B	1-3D	3-5 & 4-5(LT)	3-6 & 4-2G
WETLAND (HECTARES/ACRES)	9.0/22.1	5.9/14.5	0.20/0.50	0.14/0.36
SECTION 4(f) INVOLVEMENT (HECTARES/ACRES)	6.6/16.3	4.3/10.5	0/0	0/0

Coordination with all appropriate agencies will be maintained throughout the subsequent phases of the project.

9.12.4 Aquatic Preserves

There are no listed Aquatic Preserves in the project corridor. However, in Segment 1, the project runs adjacent to the Ten Mile Canal, which eventually drains into the Estero Bay Aquatic Preserve. The southernmost terminus of the project corridor is located approximately 2 miles northeast of the Preserve's northern limits. Indirect impacts associated with water quality have been addressed as part of the required water quality evaluation, and the stormwater management system has been developed to provide the required water quality treatment. Based on these management strategies and the distance to the preserve, it has been determined that there will be no impact to the Estero Bay Aquatic Preserve. Coordination was initiated with the Preserve Management and will be continued during final design.

9.12.5 Water Quality

A Water Quality Impact Evaluation was completed for this project. The proposed stormwater facility design will include, at a minimum, the water quality requirements for water quality impacts as required by the South Florida Water Management District, in Rule 40E-4. Therefore, no further water quality mitigation measures will be needed.

9.12.6 Outstanding Florida Waters

There are no listed Outstanding Florida Waters (OFW) in the project corridor. However, in Segment 1, the project runs adjacent to the Ten Mile Canal, which eventually drains into the Estero Bay Aquatic Preserve, which is also designated an OFW. Indirect impacts associated with water quality have been addressed as part of the water quality evaluation, and the stormwater management systems have been developed to provide the required water quality treatment. Based on these management strategies and the distance to the preserve, it has been determined that there will be no impact to the Estero Bay Aquatic Preserve. Coordination was initiated with the Preserve Management and will be continued during final design.

9.12.7 Floodplains

The protection of floodplains and floodways is governed by Executive Order 11988, Floodplain Management and Federal-Aid Policy Guide 23CFR650A.

The majority of the Metro Parkway project corridor is located outside the 100-year floodplain and is in Zone B (FEMA FIRM Community Panels 125106 0010B and 125106 0020B). Zone B is defined by FEMA as the area between the limits of the 100-year and 500-year flood. A portion of Segment 1, from south of Briarcliff Road to Alico Road is located in the 100-year floodplain. This area is designated Zone A14 and has a base flood elevation of 3.3 meters (11 feet) (FEMA FIRM Community Panels 125124 0350B, 125124 0455B). The floodplain area was determined by tidal analysis not riverine. There are no regulatory floodways designated by FEMA located within the project limits for Metro Parkway. Therefore, there are no encroachments of regulatory floodways by this project, as designated by FEMA.

The proposed project was evaluated to determine the floodplain involvement associated with each segment.

Segment 1 - US 41 to Six Mile Cypress Parkway

The construction of drainage structures proposed for this project will cause changes in flood stage and flood limits. These changes will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant changes in

flood risk or damage. There will not be 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.

Segment 2 - Six Mile Cypress Parkway to Winkler Avenue

All encroachments of the roadway take place outside of the base floodplain. As a result, there will be no impacts from the project on the base floodplain (100-year) or regulatory floodways along this section of the project.

Segment 3 - Winkler Avenue to Fowler Street / Evans Avenue Corridor

All encroachments of the roadway take place outside of the base floodplain. As a result, there will be no impacts from the project on the base floodplain (100-year) or regulatory floodways along this section of the project.

Segment 4 - Fowler Street / Evans Avenue Corridor

All encroachments of the roadway take place outside of the base floodplain. As a result, there will be no impacts from the project on the base floodplain (100-year) or regulatory floodways along this section of the project.

In accordance with the FDOT PD&E Manual, the proposed project will have minimal impact (i.e., encroachment) on floodways.

9.12.8 Wildlife and Habitat

Pursuant to Section 7c of the Endangered Species Act of 1973, the project corridor was evaluated for the potential occurrence of threatened and endangered species. Literature reviews were conducted and data was collected from the U.S. Fish and Wildlife Service (USFWS), the Florida Game and Freshwater Fish Commission (FGFWFC) and the Florida Natural Areas Inventory (FNAI). No USFWS critical habitat exists within the project area. Based on the literature and on-site field meetings, a list of potential species was developed. Table 9-7 shows the state and federal protected species developed for this project. Subsequent field surveys were conducted for this project in 1993, 1995, and 1996 to determine the presence of listed species, including: red cockaded woodpecker,

TABLE 9-7

STATE AND FEDERAL LISTED SPECIES

<u>Common Name</u>	<u>Scientific Name</u>	<u>(Federal/State)</u>	<u>Observed¹</u>	<u>Location</u>
Southeastern American Kestrel	<u>Falco sparverius paulus</u>	C2/T	YES	A
Bald Eagle	<u>Haliaeetus leucocephalus</u>	T/T	NO	
Wood Stork	<u>Mycteria americana</u>	E/E	YES	A, B
Red Cockaded Woodpecker	<u>Picoides borealis</u>	E/T	NO	
Audubon's Crested Caracara	<u>Polyborus plancus audubonii</u>	T/T	NO	
Big Cypress Fox Squirrel	<u>Sciurus niger avicennis</u>	C2/S	NO	
Eastern Indigo Snake	<u>Drymarchon corais couperi</u>	T/T	NO	
Gopher Tortoise	<u>Gopherus polyphemus</u>	C2/S	NO ²	
American Alligator	<u>Alligator mississippiensis</u>	T/(S/A)/S	YES	A

ADDITIONAL STATE LISTED SPECIES

Roseate Spoonbill	<u>Ajaia ajaja</u>	-/S	NO	
Limpkin	<u>Aramus guarauna</u>	-/S	NO	
Florida Burrowing Owl	<u>Athene cunicularia floridans</u>	-/S	NO	
Little Blue Heron	<u>Egretta caerulea</u>	-/S	YES	A, B
Snowy Egret	<u>Egretta thula</u>	-/S	YES	A, B
Tricolored Heron	<u>Egretta tricolor</u>	-/S	YES	A, B
Least Tern	<u>Sterna antillarum</u>	-/T	YES	C
White Ibis	<u>Eudocimus albus</u>	-/S	YES	A, B

NOTES:

1-Based on field reviews conducted on April 19-20 and 28-29, 1993, June 2, 1993, September 3, 1993, January 17-19, 1995, November 1, 1995, January 9-10, 1996, and March 21, 1996.

2-Active burrows have been observed in Segment 1 pine flatwood areas east of the Seminole Gulf Railroad.

A-Six Mile Cypress Slough

B-Canals and roadway swale areas

C-Former construction site east of proposed roadway. Site construction has since been completed.

Florida burrowing owl, Big Cypress fox squirrel, gopher tortoise, eastern indigo snake and the beautiful pawpaw. Survey methodology employed was consistent with methods established and approved by the USFWS and FGFWFC. The survey revealed the presence of one active and four inactive gopher tortoise burrows in Segment 1. The habitat is not suitable for red cockaded woodpeckers or burrowing owls and no signs of the Big Cypress fox squirrel were noted. Prior to construction, another survey for the gopher tortoise and the beautiful pawpaw would be conducted by the FDOT within the proposed limits of construction. Appropriate mitigative action would be taken at that time, if required.

No adverse impacts to any protected plant or wildlife species, or their designated critical habitat, would result from construction of the proposed roadway improvements. In addition, the proposed improvements would not substantially impact other wildlife species or their habitat. Because the impact would be minimal, specific mitigation measures are not proposed. Several mitigation options, however, would be considered to compensate for the unavoidable impact to wetlands, particularly in the Six Mile Cypress Slough Preserve. These mitigation options include either the implementation of restoration activities (exotic vegetation removal, hydroperiod enhancement) and/or the purchasing of mitigation credits in the Six Mile Cypress Slough mitigation bank once it is established.

The survey methodology and the results of the endangered species biological assessment were transmitted to the USFWS for concurrence. In a letter dated July 2, 1996, the USFWS concurred with the study findings. A copy of this letter is in the project file.

The USFWS requested that Standard Protection Measures for the eastern indigo snake be implemented prior to and during construction. Standard Protection measures are as follows:

1. The FDOT will provide eastern indigo snake educational information to employees prior to initiation of any clearing or construction. An educational exhibit, approved by the USFWS, shall be posted at a site accessible to all employees and a handout will be distributed to all employees.
2. The FDOT will submit to the USFWS an educational plan which addresses how potential impacts will be minimized through employee education no later than 90

days prior to any land clearing or construction activities. FDOT shall post and distribute educational information to all its workers. The exhibit and brochure should include photographs of the eastern indigo snake, information on life history and legal protection of this species in Florida, how to avoid impact to the species, and agency telephone numbers.

3. All construction activities shall cease if live eastern indigo snakes are found within the project area. Work may resume after the snake or snakes are allowed to leave the area on their own.
4. Locations of live sightings shall be reported to the USFWS South Florida Ecosystem Office at (407) 562-3909.
5. If a dead eastern indigo snake is found on the project site, the snake shall be frozen as soon as possible and FDOT shall notify the South Florida Ecosystem Office immediately for further instructions.

9.12.9 Farmlands

It has been determined by the United States Department of Agriculture, Natural Resources Conservation Services (formerly the Soil Conservation Service) that there are no impacts to any prime or unique farmlands. The letter, dated February 9, 1998 and the form are in the project file.

9.12.10 Noise

Noise impacts were assessed for the proposed expansion and extension of the existing transportation corridor that serves as Metro Parkway in Lee County. Results of the analysis for the design year (2020) Build Alternative indicate that 83 residences may experience outdoor traffic noise levels that approach or exceed the FHWA Noise Abatement Criteria for Activity Category B. Predicted noise levels at the impacted residences range from 65 dBA(L_{eq}) to 71 dBA(L_{eq}). This represents an increase ranging from 4 to 20 dBA(L_{eq}) above the existing noise levels at these 83 residences. No noise sensitive sites are predicted to experience a substantial noise increase or experience interior noise levels which approach or exceed the FHWA Noise Abatement Criteria for Activity Criteria E.

Noise abatement measures were evaluated for impacted noise sensitive sites. Abatement measures considered include traffic management, modifications to the alignment, land use controls and physical noise barriers. The abatement measures were determined to be infeasible or unreasonable for reducing or eliminating noise impacts at existing noise sensitive sites in Segments 1 and 2. Land use controls were identified as an effective measure to reduce or avoid noise impacts in areas of future development through these segments.

Noise barriers were also evaluated for this project. A noise wall, 436 meters (1430 feet) long and an average of 6 meters (19.7 feet) high would provide a 5 to 10 dBA insertion loss to 9 of the 11 impacted residences. The other two impacted residences could not be abated because a barrier could not be extended without eliminating the only access to these residences. An additional 10 residences that did not approach the FHWA NAC will receive at least a 5 dBA reduction, bringing the total number of benefited residences for this barrier to 21. The average insertion loss to the 21 benefited residences is 5.9 dBA. The total cost and cost-per-benefited residence for this barrier is \$495,400 and \$23,600 respectively. This barrier was found to be feasible and economically reasonable and will be advanced to design for further evaluation.

Although land use controls would not reduce noise levels at existing noise-sensitive areas, they are one of the most effective noise abatement measures to reduce future noise impacts. The noise study report will be furnished to Lee County and the City of Fort Myers officials to provide an understanding of traffic noise in the project corridor. Through zoning and building codes, County and City officials can use the 65 dBA noise contour information provided in the noise study report to develop setback requirements for noise-sensitive land uses adjacent to the roadway.

9.12.11 Air

A desktop air quality (carbon monoxide) screening test was performed for both the Build and No-Build alternatives using the FDOT COSCREEN software for the PC. The COSCREEN model allows a maximum speed of 70 km/h (45 mph), which was the value for the approach speed entered into the model for both the No-Build and Build alternatives for the opening and design years. The model automatically reduces the input speed by 60 percent for slowdown as vehicles approach the intersection. The urban

scenario was used for the analysis. The year 2000 maximum one-way peak hour approach traffic volume (demand) is projected to be 1,351 vehicles per hour (vph) for both the Build and No-Build alternatives. The year 2020 maximum one-way peak hour approach traffic volume is 2,306 vph for the Build alternative and 1,782 vph for the No-Build alternative.

When the data was input into the COSCREEN model, the results indicated that the critical receptor distance for the Build and No-Build alternatives was less than the minimum allowable critical distance of 3.1 meters (10 feet). With this critical receptor distance, both the Build and No-Build alternatives automatically pass the air screening test and further assessments are not expected to be required. Therefore, the results of the air screening test indicate that the proposed Metro Parkway project would not have a substantial impact on air quality. Table 9-8 summarizes the input data and results for this worst case intersection.

**Table 9-8
Air Quality Impacts Summary**

Year	Alternative	Avg. Speed kph (mph)	Peak Hour Traffic Volume (Per Hour)	Critical Distance meters (feet)	Closest Receptor meters (feet)
2000	No Build	70 (45)	1,351	<3.0 m (10 ft)	32.3 m (106 ft)
2000	Build	70 (45)	1,351	< 3.0 m (10 ft)	25.3 m (83 ft)
2020	No Build	70 (45)	1,782	< 3.0 m (10 ft)	32.3 m (106 ft)
2020	Build	70 (45)	2,306	< 3.0 m (10 ft)	25.3 m (83 ft)

Construction of the Build alternative would cause short-term air quality impacts in the form of dust from earthwork. These impacts can be minimized by adherence to all State and local regulations and to the Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction.

9.12.12 Contamination

Seventy-six (76) known and potential contamination sites were identified within and/or adjacent to the proposed right-of-way of the preferred alternatives. Thirty-two (32) of the seventy-six (76) sites were subjected to subsurface investigations via OVA testing and/or

chemical analysis. The results of the testing revealed that none of the thirty-two (32) sites had readings above regulatory limits. Additional subsurface testing was also performed in the right-of-way of the Seminole Gulf Railroad in Segment 4 because of concerns associated with herbicides and preservatives used on the tracks and railroad ties. Chemical analysis revealed that all constituents sampled were well below regulatory limits. Consequently, the portion of Alternative 4-2G that would be located within the Seminole Gulf Railroad right-of-way would not be impacted by contaminants associated with railyard operations.

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. The results of this evaluation revealed that there were two (2) potential contamination sites in Segment 1 impacted by Alternative 1-3B and five (5) potential contamination sites impacted by Alternative 1-3D. In Segment 2, Alternative 2-2 may be impacted by twenty-one (21) potential contamination sites. In Segment 3 and 4 for the Six-Lane Alternative (Alternative 3-5 and 4-5(LT)), forty (40) potential contamination sites were identified. In Segment 4, thirty-one (31) low-risk sites may be impacted the One-Way Pair Alternative (3-6 and 4-2G).

Eleven (11) sites rated as High or Moderate risk for potential contamination will be investigated further prior to construction. Investigative work may include visual inspections, monitoring of ongoing cleanups and possibly 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.

The potential contamination concerns are not expected to affect or delay the project implementation significantly. No significant contamination is anticipated in Segments 1 through 3. Due to its location in an older, industrialized area, Segment 4 may have unknown contamination sites.

Based on available data, no significant contamination involvement is anticipated to affect right-of-way acquisition or construction activities within the project corridor. Therefore, it is concluded that contamination would have a minimal impact on the proposed

improvements.

9.13 Utility and Railroad Impacts

9.13.1 Existing Utilities

A variety of utilities are located within the limits of the proposed improvement of Metro Parkway. Existing water, sewer, power poles and telephone lines are located within road right-of-way or within utility easements. Railroad, transmission power lines, and the Ten Mile Canal are located within their own right-of-way easements. Listed are the known public utilities that exist within the project limits:

Jones Intercable
Attn: William Stanton
Post Office Box 1360
Fort Myers, Florida 33902
(941) 334-8055

United Telephone of Florida
Attn: Willie Jackson
Post Office Box 370
Fort Myers, Florida 33902-0370
(941) 336-2034

Cablevision Industries
Attn: Clara Crowl
1418 SE 10th Street
Cape Coral, Florida 33990
(941) 574-2020

City of Fort Myers
Attn: Roger P. Robinson
Post Office Drawer 2217
Fort Myers, Florida 33902-2217
(941) 332-6820

Lee County Utilities
Attn: Michael A. Marquis
Post Office Box 398
Fort Myers, Florida 33902-0398
(941) 338-3572

Cities Water Company
Attn: Gary King
Post Office Box 6459, MM
Fort Myers, Florida 33911-6459
(941) 936-0247

Seminole Gulf Railroad
Attn: Reid Potter
4110 Centerpoint Drive, Suite 207
Fort Myers, Florida 33916

Florida Power and Light
Attn: Terry Vogel
Post Office Box 1119
Sarasota, Florida 34230-1119

To determine what facilities exist within the project limit, all utilities were provided with sets of aerial maps for use in indicating the location of their respective utility systems.

All information received from the various utility companies is in the project file.

Three major utilities: (1) Seminole Gulf Railway, (2) Ten Mile Canal and (3) and an FPL transmission line are located on their own right-of-way easements. The following is a brief discussion of these three major utilities.

9.13.1.1 Seminole Gulf Railroad

Near the beginning of the study corridor, the railroad crosses Alico Road about one-quarter mile east of US 41. It proceeds northward. About 1.5 miles north of Alico Road the railroad meets the Ten Mile Canal (which is aligned north to south) and continues northward adjacent to the canal.

Alternative 1-3B crosses west to east over the railroad about 0.5 miles north of Alico Road. Metro Parkway then proceeds northward adjacent to and east of the railroad. The only impact to the railroad would be the placement of bridge piers within the right-of-way for the grade separation of Metro Parkway over the railroad. South of Six Mile Cypress Parkway, the railroad continues northward and proposed Metro Parkway turns westward to connect to Metro Parkway.

Alternative 1-3D would result in the relocation of the railroad from north of Alico Road to just north of Six Mile Cypress Parkway. The roadway would be constructed in the railroad right-of-way (holding the west right-of-way line) and the railroad would be constructed to the east of the roadway. The railroad would then cross over the roadway just south of Six Mile Cypress Parkway and connect to the existing railroad alignment. A second grade separation of the railroad is proposed at the crossover areas between Metro Parkway and Evans Avenue (in Segment 3). At this location, the railroad consists of one main track and three additional siding tracks. The entire railroad right-of-way is spanned by the grade separation structure.

Alternative 4-2G also impacts the railroad. From Edison Avenue to SR 82, Metro Parkway would be located within the existing railroad right-of-way. The railroad would also be located within the right-of-way be would be reconstructed to the east of the roadway within the railroad right-of-way. An additional impact to the railroad is the relocation of the existing railroad "Y" track near SR 82 to a location near the crossover of Metro Parkway between Metro Parkway and Evans Avenue (Segment 3). The relocation

of the "Y" track greatly improves the operation and safety of the intersection of Metro Parkway and SR 82. The cost associated with the relocation of the railroad is included in Table 9-9.

All land occupied by the Seminole Gulf Railroad is owned by the CSX Railroad. All railroad operating rights belong to Seminole Gulf Railroad.

9.13.1.2 Ten Mile Canal

The Ten Mile Canal is an important part of the drainage system of the area. It flows north to south and is located to the west of the proposed alignment of Metro Parkway in project Segments 1 and 2. Metro Parkway crosses over the Ten Mile Canal at the crossover between Metro Parkway and Evans Avenue (Segment 3). At this location the Seminole Gulf Railroad is immediately adjacent to the Ten Mile Canal. A bridge would be used to cross the Ten Mile Canal. This bridge is a continuation of the grade separation bridge used to cross the railroad. The Ten Mile Canal would not be negatively impacted as a result of the new bridge crossing.

9.13.1.3 Florida Power and Light Transmission Line

The Florida Power and Light (FPL) Transmission Line is located just west of the existing Alico Road/US 41 intersection. It crosses over US 41 just north of this intersection. The proposed relocation of Alico Road crosses beneath the line and meanders north connecting across from the American Outdoors driveway. The transmission line proceeds northward crossing Old County Road US 41 and then the Seminole Gulf Railway.

Proposed Metro Parkway crosses beneath the line near the crossing of the railroad. Six of the FPL supports would need to be relocated and raised to allow sufficient clearance above the proposed railroad overpass over the Seminole Gulf Railway. Up to six FPL supports would have to be raised to adjust the slope of the power lines between the supports. No additional right-of-way would be required. The relocations and adjustments would occur within the existing FPL easement. Relocating or rebuilding the supports are estimated to cost \$40,000 per support, and adjusting (i.e. raising) the supports is estimated at \$25,000 per support. The cost to relocate these supports and adjust the FPL line is included in Table 9-9.

TABLE 9-9
UTILITY RELOCATION COSTS
(In \$1000)

UTILITY	Segment 1	Segment 2	Segments 3 & 4	TOTAL
Florida Power and Light Co.	\$390	\$25	\$35	\$450
Lee County Utilities	\$50	\$280	\$0	\$330
United Telephone Co. of Florida	\$25	\$35	\$30	\$90
City of Fort Myers Utilities ⁽¹⁾	\$0	\$0	\$215	\$215
Florida City Water Company	\$20	\$0	\$0	\$20
Fiber Optic Cable ⁽²⁾	\$336	\$0	\$0	\$336
Miscellaneous Private Utilities	\$20	\$10	\$10	\$40
Subtotal	\$841	\$350	\$290	\$1,481
Seminole Gulf Railway Segment 1 ^{(2), (4)}	\$4,700	\$0	\$0	\$4,700
Seminole Gulf Railway Segments 3 & 4 ^{(3), (4)}	\$0	\$0	\$4,000	\$4,000
Subtotal	\$5,541	\$350	\$4,290	\$10,181
10% Contingency	\$554	\$35	\$429	\$1,018
TOTAL	\$6,095	\$385	\$4,719	\$11,199

(1) This estimated cost provides for relocation of an existing 16" cast iron water main, and 24" sanitary sewer in Segments 3 & 4 for the City of Fort Myers.

(2) Alternate 1-3D only.

(3) Alternates 3-6 & 4-2G only.

(4) Railroad costs are based on a cost estimate provided by Seminole Gulf Railway.

9.13.1.4 Other Public Utilities

Segment 1 — Alico Road/US 41 to Six Mile Cypress Parkway

At the beginning of the project, near Alico Road/US 41, and Old US 41, the area is served by Florida Cities Water Company, FPL - Distribution, United Telephone System, and Lee County Utilities. Utilities are located in existing rights-of-way and provide service to businesses and residences within the project area. Underground water lines, buried telephone lines, and aerial electric lines would need to be relocated between Alico Road and Six Mile Cypress Parkway (Segment 1) due to the improvements to Metro Parkway. Cost for these relocations are in Table 9-9.

An AT&T underground fiber optic cable exists within the Seminole Gulf Railroad right-of-way from the beginning of the project in the vicinity of Alico Road northward to

Colonial Boulevard. This underground cable system then continues in an easterly direction along Colonial Boulevard. This cable would not be impacted by the proposed improvements to Metro Parkway.

Florida Cities Water Company has a 0.41-meter (16-inch) watermain running along the south side of Alico Road within the right-of-way. A 0.61 meter (24 inch) watermain also runs along the north edge of Alico Road and then continues along both sides of US 41. A 0.41 meter (16 inch) watermain is also located along the west edge of Old US 41 within the existing right-of-way. Florida Cities Water Company has a 0.25 meter (10 inch) water line along Alico Road. Costs to relocate these facilities are included in Table 9-9.

Segment 2 — Six Mile Cypress Parkway to North of Winkler Avenue

The existing right-of-way width for Metro Parkway from Six Mile Cypress Parkway to Colonial Boulevard is 30.5 meters (100 feet). North of Daniel's Parkway there are also 3.8 meter (12.5 foot) drainage/utility easements located on each side of existing Metro Parkway. Both water and wastewater mains and service lines provided by Lee County Utilities are located within these utility easements. Also located in this corridor are power lines owned by FPL, as well as underground and overhead service provided by United Telephone System.

Existing Lee County Utility facilities (water and wastewater) would remain at the current location, which places them within the proposed new border area for Metro Parkway. Truss blocks would provide added stability to these existing lines and manholes and/or valve boxes would be added as required to permit future servicing of the utilities. This concept has been discussed with Lee County Utilities and they are in agreement with this proposal. Costs for upgrading the existing utilities in Segment 2 are included in Table 9-9.

Segments 3 and 4 — From North of Winkler Avenue to SR 82 (Dr. Martin Luther King, Jr. Boulevard)

Segments 3 and 4 of the project are located within the City of Fort Myers. The City of

Fort Myers has stormwater drainage systems, wastewater systems, and watermains within the right-of-way on Fowler Street, Evans Avenue, and Metro Parkway. The watermains range in size from 0.61 to 1.52 meters (24 to 60 inches). These systems are located along Fowler Street north of Hanson Street and along the entire length of Evans Avenue. The facilities within the Evans Avenue right-of-way would not be impacted by the proposed alignment of northbound Metro Parkway. The City of Fort Myers also has existing storm sewers within this area. The cost for providing adequate drainage has been included in the project cost for Metro Parkway and is not included in Table 9-9.

9.13.2 Relocation Costs

All utility companies that have utilities in the project corridor were contacted to establish a relocation cost estimate. A summary of the relocation cost estimates is presented in Table 9-9.

9.13.3 Future Utility Improvements

Lee County has an extensive expansion program planned for the southern portion (Segment 1) of the project. They are very interested in coordinating with the FDOT during final design to discuss the possible inclusion of a 0.305 meter (12 inch) watermain into the FDOT design plans.

9.14 Traffic Control Plan

9.14.1 Traffic Control Plan in Segment 1

Segment 1 is on new alignment. Construction activities would have to be coordinated to minimize the impacts on existing facilities. Most of the difficulties in traffic control in this segment would relate to the construction of structures over the Seminole Gulf Railroad and Alico Road. Locations that would require special attention during the development of the traffic control plans in this segment would be:

- Structure (Metro Parkway alignment) over existing Alico Road. The number of existing lanes on Alico Road would be maintained at all times.
- Realigning Alico Road.

- Structure over existing Seminole-Gulf Railroad.
- At-grade intersection with Briarcliff Road. East/west movement on Briarcliff Road would be provided at all times.
- At-grade intersection with Six Mile Cypress Parkway. The number of existing lanes would be maintained at all times.

9.14.2 Traffic Control Plan in Segment 2

Segment 2 is built on existing alignment and consists of widening an existing two- or four-lane facility to six lanes. The traffic control plan can be developed to maintain the existing number of lanes throughout the construction period. Special attention should be paid to sequencing construction at intersections and maintaining access to businesses throughout this corridor.

9.14.3 Traffic Control Plan in Segment 3

Segment 3 is primarily built on new alignment. Locations that would require special attention for traffic control in this segment are as follows:

- The connection to existing Metro Parkway needs to be closely coordinated to ensure that businesses north of this connection maintain access throughout construction
- Bridge construction over the North Colonial Waterway, Ten Mile Canal, canal maintenance roads, Seminole Gulf Railyard, and Palm Avenue
- The connection of Segment 3 with Evans Avenue in the vicinity of Kennesaw Street

9.14.4 Traffic Control Plan in Segment 4

Segment 4 of this project would be the most difficult area in which to maintain traffic control. All of the following points define the particular concerns of traffic control in this segment.

- Maintenance of vehicular and pedestrian access to businesses along Evans Avenue, Fowler Street, and adjoining cross streets.
- Maintenance of uninterrupted rail traffic throughout construction (with proper

coordination with the railroad); particularly during the railroad realignment phase of construction.

- Coordination with the railroad would be required for relocating the "Wye" in this segment to ensure that rail traffic is not impacted.
- Coordination to transition Fowler Street and Evans Avenue to one-way streets (Alternative 4-2G)
- Coordination to construct a six-lane alternative for Six-Lane Fowler Street Alternative (Alternative 4-5(LT)).
- Coordination to eliminate through traffic on Evans Avenue in the vicinity of Kennesaw Street.
- Coordination of construction activities (both roadway and railroad) in the vicinity of the intersection of Evans Avenue and Dr. Martin Luther King, Jr. Boulevard.

9.15 Results of Public Involvement Program

9.15.1 Public Involvement Plan

A Public Involvement Plan was prepared for the project and approved in April 1993. This plan is in compliance with the Project Development and Environmental Guidelines; Florida Statute 339.155; Executive Orders 11990 and 11988; CEQ Regulations for Implementing the Procedural provisions of the Natural Environmental Policy Act; and FHWA Order 5610.1C.

9.15.2 Advance Notification

The Advance Notification (AN) Package was mailed to the Florida State Clearinghouse and local and federal agencies on September 8, 1992. Because of changes and length of time, it was resubmitted in December 4, 1997. Responses to the December 4, 1997 submittal were received from the following agencies:

- Environmental Protection Agency
- Federal Aviation Administration
- National Oceanic and Atmospheric Administration - Ecology and Conservation Office
- Florida Department of State - Division of Historical Resources

- South Florida Water Management District - Executive Director
- Southwest Florida Regional Planning Council

The AN responses are included in Appendix A of the Environmental Assessment document. The majority of the comments were related to respective agency permitting requirements and stressed avoidance and minimization of wetland impacts and impacts to fish and wildlife resources. There were no adverse comments regarding the proposed roadway improvements and all comments have been addressed in the appropriate sections of this report.

9.15.3 Newsletters

Three newsletters were prepared for this project and mailed to the public. The first issue was published in Summer 1993 and informed the public of the start of the project, including a discussion of the study process and schedule. This issue also stressed the need for public input and provided information on points of contact within the Department regarding citizen comments and concerns. The second issue, published in the fall of 1993, presented an overview of the study progress to date. It discussed the need for the project as well as its benefits, including improved access, safety enhancements, and the incorporation of bicycle and pedestrian facilities. The third issue, published in August 1997 informed the public of the workshops held in August 1997. A fourth newsletter was mailed out before the public hearings held in September of 1998.

9.15.4 Public Information Workshop

A public information workshop was held on August 17, 1995, at the Villas Elementary School in Fort Myers. The purpose of this workshop was to provide interested persons with information on the alternative corridor alignments developed to date and to allow the public the opportunity to comment. The workshop was attended by more than 300 people. The following is a summary of the comments and concerns raised by the public:

Segment 1 Comments:

- The Jamaica Bay residents were unified in their opinion that Metro Parkway should not go through Jamaica Bay. These comments included:

- Alternatives 1-1 and 1-2 (which go through Jamaica Bay) take Metro Parkway over Ten Mile Canal twice and this does not seem to make much sense.
 - Alternative 1-5 looks like a good alignment compromise because it minimizes impact to Cypress Slough and has the least impact on the residential areas.
-
- Several residents whose property would not be acquired by any of the alternatives considered were very upset because they would be living next to a major expressway.
 - Several Briarcliff residents favor an alignment that would follow the east side of the Seminole Gulf Railroad tracks and eventually tie into existing Anderson Lane before crossing the Six Mile Cypress Slough at its westernmost terminus. This alignment was developed and was subsequently selected as the preferred alternative (Alternative 1-3B).

Segment 2 Comments:

- Access management seems to be a major concern in this area. There are several businesses that require frequent semi-trailer traffic in this portion of the project. Several business owners wanted additional median openings.
- Alternative 2-2 (center), which takes right-of-way equally from both sides, seemed to be the favorite alternative to several individuals because everyone along the corridor would be impacted uniformly.

Segments 3 and 4 Comments:

- Business owners on Evans Avenue raised concerns that if the six-lane Fowler Street alternative was selected a significant reduction in traffic flow on Evans Avenue would result.
- Some of the business owners located east of the railroad tracks on Evans Avenue were concerned that all of the considered alternatives rerouted traffic so that the main arterial flows would no longer be on this portion of Evans Avenue.

- Concerns were raised about the effects to businesses as a result of reduced access for both the one-way pair alternatives and the median used for the six-lane Fowler Street alternatives.
- Some business owners located on Fowler Street south of the proposed realignment to the southeast were concerned that this new alignment would significantly reduce the amount of traffic flow in front of their businesses.

9.15.5 Public Informational Meetings

Two public information meetings were held in mid-May 1996 to provide interested persons with information on the alternative alignments developed to date and to allow the opportunity to comment on the proposed improvements. The first meeting was held on May 14, 1996, at the Imaginarium in Fort Myers. This meeting concentrated primarily on the alternatives developed in Segments 2, 3, and 4 of the Metro Parkway project corridor. The second meeting was held on May 16, 1996, at the Briarcliff Baptist Church in Fort Myers. This meeting was primarily concerned with the presentation of the various alternative alignments developed in Segment 1 of the project corridor.

Both of these meetings were well attended and a variety of issues and concerns were presented to the Department with regard to the one-way pair concept in Segment 4 and the routing of the various alignments through the Briarcliff subdivision in Segment 1. All comments were subsequently reviewed by the Department for potential input into the study process.

9.15.6 Public Informational Workshops

The first public information workshop was held on August 17, 1995, at the Villas Elementary School in Fort Myers. The purpose of this workshop was to provide interested persons with information on the alternative corridor alignments developed to date and to allow the public the opportunity to comment. The workshop was attended by more than 300 people.

A second set of public information workshops were held on August 18 and 19, 1997, at the Villas Elementary School in Fort Myers and at the Fort Myers City Hall, respectively. The first meeting was attended by over 90 people while the second meeting was attended by 35 people. The purpose of these workshops was to present the

alternative corridor improvements being considered and to allow the public the opportunity to comment. All comments were subsequently reviewed by the Department for potential input into the study process.

9.15.7 Public Hearings

Three formal Public Hearings were held on this project. Because of the length and magnitude of this project, two Public Hearings were held on September 28 and 29, 1998. Some residents who would be impacted by the proposed improvements did not receive proper notification of the Public Hearings. The mailing list was updated to include these residents and owners and a third Public Hearing was held on November 9, 1998.

The first Public Hearing was held at the Fort Myers Exhibition Hall, 1320 Hendry Street in Fort Myers. This hearing was attended by 61 people who were generally in favor of the proposed improvements.

The second Public Hearing was held at the San Carlos Park Elementary School, 17282 Lee Road in Fort Myers. This hearing was attended by 59 people. A majority of the comments received were in favor of the Build alternatives.

The third Public Hearing was held at the Fort Myers Middle Academy, 3050 Central Avenue in Fort Myers. 107 people attended this hearing and no comments opposed to the project were received. Two comments were made regarding whether an alternative alignment had been considered using Palm Avenue in Segment 4. This alternative alignment was considered and eliminated early in the study due to impacts to neighborhoods and the Imaginarium.

Overall, out of the approximately 230 people attending the Public Hearings, only one comment was received opposing the project. Ten (10) comments were made regarding the Segment 1 alternatives with seven (7) preferring Alternative 1-3B and three (3) preferring Alternative 1-3D. Thirteen (13) comments were received regarding the Segment 3 / Segment 4 alternatives with seven (7) preferring the One-Way Pair alternative and six (6) preferring the six-laning of Fowler Street.

9.16 Value Engineering

The value engineering team offered recommendations in the Executive Summary Report submitted by the District Value Engineer on August 28, 1995. The Value Engineering Team's recommendations and the Department's staff responses are summarized on the following pages.

9.16.1 VE Recommendation 1

Reduce the typical section using a 9.1 meter (30 foot) median, 3.3 meter (11 foot) travel lanes, 1.2 meter (4 foot) bicycle lanes, and 3.0 meter (10 foot) borders with 1.5 meter (5 foot) sidewalks in 37.8 meters (124 feet) of right-of-way. This has a potential savings of approximately \$799,700 over the 41.6 meter (134 foot) proposed typical section or \$204,000 over the 38.4 meter (125 foot) proposed typical section.

9.16.2 Response to VE Recommendation 1

The 38.4 meter (126 foot) typical section width has been selected as the proposed section. The VE team recommended a 37.8 meter (124 foot) width be used by reducing the border width to 3.0 meters (10 feet).

After careful evaluation, the 38.4 meter (126 foot) typical section was selected rather than the VE recommendation⁽¹⁾. This slightly wider typical section provides additional area to make adjustments between proposed and existing grade without the need for a

⁽¹⁾ After further review, the 38.4 meter (126') typical section was set aside. The typical section was widened to 39.6 meters (130') to accommodate the stormwater sewage requirements.

temporary construction easement. The VE team's noted potential savings of \$204,000 would have been offset by an equal or greater cost to obtain the temporary construction easements.

9.16.3 VE Recommendation 2

Cross the Ten Mile Canal with a box culvert and provide an at-grade railroad crossing. In the new alignment area, limited access right-of-way should be considered. This recommendation has the potential of saving approximately \$243,400 over the low bridge

structure or approximately \$3,636,000 over the high bridge structure.

9.16.4 Response to VE Recommendation 2

To ensure that the new crossing of Ten Mile Canal does not impact the flood plain, a bridge should be used in lieu of a box culvert. The decision to use a grade separation over the Seminole Gulf Railroad was made because of the increased railroad use at this location.

The railroad facility in this area consists of a main track and three additional siding tracks. Furthermore, the switching "Y" track currently located near SR 82 (Martin Luther King, Jr. Boulevard) is proposed to be located just south of the Metro Parkway crossing of the railroad and Ten Mile Canal. These expanded rail facilities and the need to cross the Ten Mile Canal with a bridge influenced the decision to select a grade separation at this location.

9.16.5 VE Design Observation

It is suggested that the crossover occur approximately 183 meters (600 feet) farther south in the Evans Avenue area. This should eliminate the impacts to two different warehouse complexes and the associated businesses. There would be impacts to six to eight residents. Two alignment concepts have been proposed for presentation at the Public Hearing. Alternative 3-5 is the connector for Six-Lane Fowler Alternative 4-5 and the other, Alternative 3-6 is the connector for the One-Way Pair Alternative 4-2G. All of these alternative proposals are shown in Chapter 8, and shown on the concept plans.

9.16.6 Response to VE Design Observation

Since the review by the value engineering team, this area has been redesigned to provide a smooth connection between relocated Metro Parkway and the connections to Evans Avenue and Fowler Avenue, while minimizing right-of-way impacts. The current design includes relocation of Kennesaw Street to provide a connection between northbound Fowler Avenue traffic and northbound Evans Avenue/Metro Parkway in a way that right-of-way impacts are kept to a minimum.

9.17 Drainage

9.17.1 Segment 1 Drainage

The south end of the project runs from Six Mile Cypress Parkway to Alico Road and crosses environmentally sensitive lands within the Six Mile Cypress Slough. The section from Alico Road to 1000 feet south of Briarcliff Road encroaches the tidal base flood plain. Flooding has been known to occur at the intersection of Old US 41 and Alico Road with overtopping of Old US 41 occurring in less than 5-year storm events. The stormwater management for this section would incorporate detention ponds built on additional right-of-way or use available storage within the proposed right-of-way.

9.17.2 Segment 2 Drainage

The section of Metro Parkway between Six Mile Cypress Parkway and Colonial Boulevard has no known flooding problems. Results of the hydraulic analysis for this area on the existing cross drains showed the potential for adverse conditions between Idlewild Road and Arc Way. Construction of detention ponds on additional right-of-way is anticipated to manage stormwater in this section of roadway.

Metro Parkway between Colonial Boulevard to north of Winkler Avenue also has no known flooding problems. Construction of detention ponds on additional right-of-way would also be necessary in this section. Stormwater management in this section could be served by the Metro Park water management system, which has additional detention storage available.

9.17.3 Segment 3 Drainage

No known drainage problems exist in this segment of roadway. Stormwater management for this section would take place in the right-of-way acquired for this project. Construction of retention/detention ponds on additional right-of-way is anticipated to manage stormwater in this area.

9.17.4 Segment 4 Drainage

The north end of the project includes Fowler Street and Evans Avenue from Dr. Martin

Luther King, Jr. Boulevard to the vicinity of the Kennesaw Street crossover. Fowler Street is known to have flooding problems between Canal Street and Market Street during 3-year to 5-year storm events. Evans Avenue is not known to have flooding problems; however, the 1987 City of Fort Myers Surface Water Management Report HEC-2 backwater profiles of Carrell Canal show overtopping of the road during a 25-year storm event. Construction of retention/detention ponds on additional right-of-way is anticipated to manage stormwater in this section of roadway.

9.18 Structures

9.18.1 Structures in Segment 1

Structure 1-1

Structure 1-1 would allow Metro Parkway to span Alico Road. This would be designed to accommodate an ultimate buildout of six lanes for Alico Road. This structure would be a split structure and each bridge section is proposed to be a three-span AASHTO I-girder supported on reinforced concrete substructure with pre-cast, pre-stressed, concrete driven piles.

Structure 1-2

This bridge over the Seminole Gulf Railroad for Alternative 1-3B crosses the railroad right-of-way at a 45 degree skew angle. It is desirable to place bridge piers within the right-of-way which, after preliminary discussions with the railroad, does not appear to be a problem. The proposed bridge in this location would be a 3-span AASHTO I-girder supported on reinforced concrete substructure with pre-cast, pre-stressed, concrete driven piles. If vertical clearance is an issue at this location, continuous welded steel plate girders would be used to reduce the structure depth.

Structure 1-4

This structure crosses a canal at an approximate 45-degree skew angle. The structure at this location is proposed to be a multicell reinforced concrete box culvert. Another option possible if the box culvert construction is not desirable is to use a multispan pre-

cast, pre-stressed, concrete bridge supported on reinforced concrete substructure with pre-cast, pre-stressed, concrete driven piles.

Structures 1-5 and 1-6

These structures would be built over the two equalizers for the Six Mile Cypress Slough. These structures would be multispan, pre-cast, pre-stressed slab using reinforced concrete substructure with pre-cast, pre-stressed, concrete driven piles.

Structure 1-7

This structure provides for the railroad for Alternative 1-3D to fly over MetroParkway just south of Six Mile Cypress Parkway.

9.18.2 Structures in Segment 2

There are numerous locations in this segment where culvert widenings would be required to accommodate the new roadway typical section.

Structure 2-1

This structure would span the single point urban interchange that would take Colonial Boulevard (SR 884) over the proposed Metro Parkway roadway. The proposed bridge here is a simple-span Florida bulb-T or welded steel plate girders supported on reinforced concrete substructure with pre-cast, pre-stressed concrete driven piles.

9.18.3 Structures in Segment 3

Structure 3-1

This is a bridge over the North Colonial Waterway. This is proposed to be a 2-span AASHTO I-girder or continuous welded steel plate girder supported on reinforced concrete substructure with pre-cast, pre-stressed, concrete driven piles.

Structure 3-2

This is a bridge over the Seminole-Gulf Railyard, the Ten Mile Canal, the canal maintenance roads, and Palm Avenue. This is proposed to be a 3-span AASHTO I-girder or continuous welded steel plate girder supported on reinforced concrete substructure with pre-cast, pre-stressed, concrete driven piles.

9.19 Access Management

Conceptual design encompassed access management standards for each segment of this project. Segment 2 of this project is in access class 5 and will require special attention to meet the needs of the existing businesses along this segment of roadway. Access management classes determined for this project are the following:

- Segment 1 - Access Class 3
- Segment 2 - Access Class 5
- Segment 3 - Access Class 5
- Segment 4 - Access Class 6

9.20 Aesthetics and Landscaping

Landscaping is not being proposed at this time. However, the typical sections for the improvements to Metro Parkway consist of six lanes with a median for most of its length. The median is typically 6.6 meters (22 feet) in width with curb and gutter. The median can be landscaped in the future provided that safety criteria are met.

For Segment 1 (US 41 to Six Mile Cypress Parkway) paved shoulders and swales are used along the outside. Landscaping can be provided outside the clear zone. A landscaped berm would be provided through the Briarcliff subdivision. For the remaining segments 2, 3, and 4 (Six Mile Cypress Parkway to the end of the project) a curb and gutter section is proposed on the outside. Landscaping can be placed within the border area provided that it meets the 1.2 meter (4 foot) clear zone requirement from the face of curb and is in accordance with FDOT index 546 for landscaping at intersections.

As part of the Bridge Development Report during the final design of bridges, aesthetics would be evaluated for all new structures. Slope treatment and wall types would also be analyzed for enhanced aesthetic treatment.

9.21 Recommended Alternatives

Based on input received at the Public Hearing and on consideration of estimated costs and impacts of the alternatives, the following alternatives are recommended to be implemented for the Metro Parkway improvement:

Segment 1 - Existing Railroad West of Roadway (Alternative 1-3B)

Segment 2A - (Six-Mile Cypress Parkway to Daniels Parkway) Six Lane Urban 39.6 meter (130 feet) (Alternative 2-3A Right Alignment)

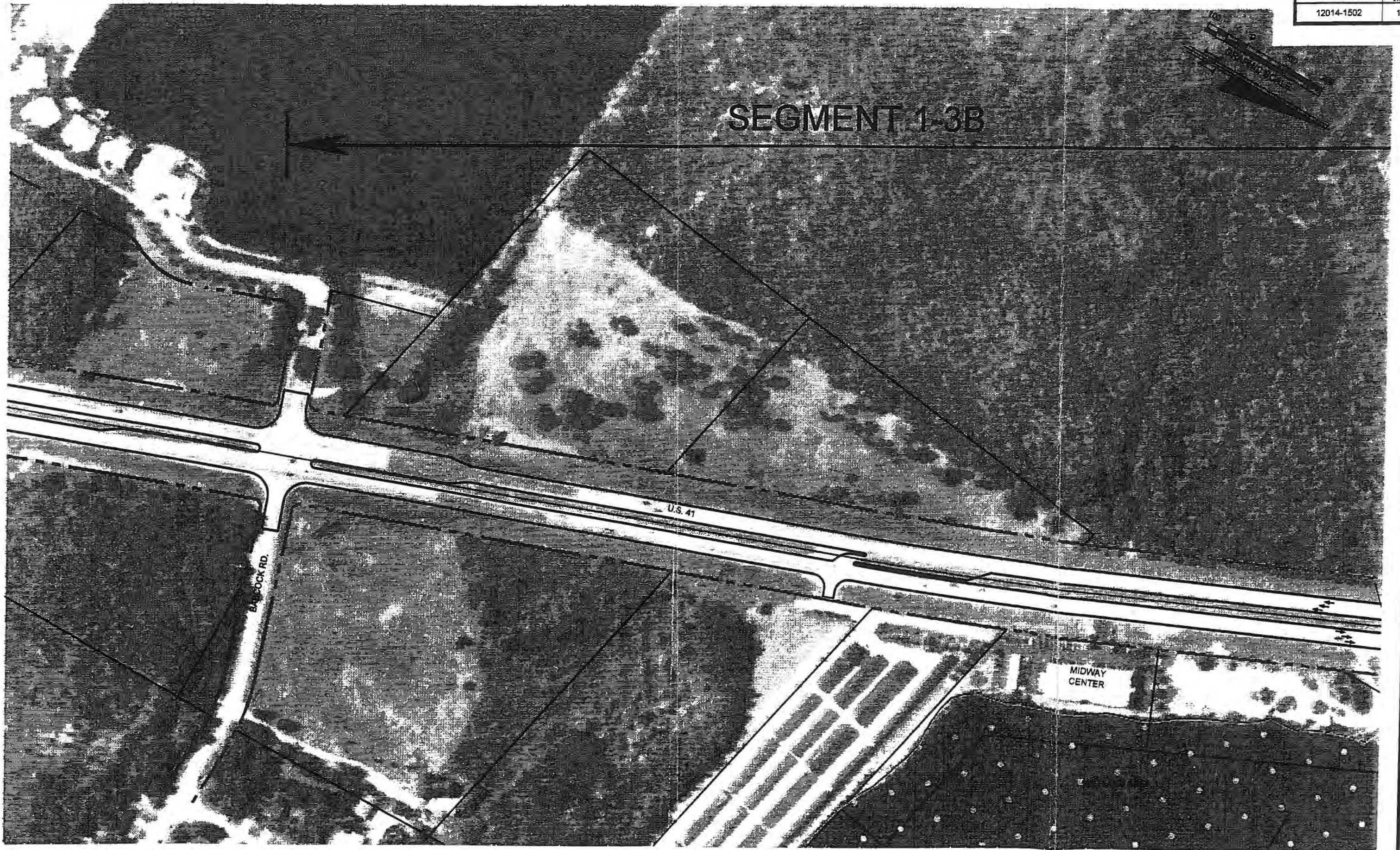
Segment 2B - (Daniels Parkway to North of Winkler Avenue) Six Lane Urban 38.1 Meter (125 feet) (2-2B Center Alignment)

Segment 3 - Connection to One-Way Pair (Alternative 3-6)

Segment 4 - Fowler Street/Evans Avenue One-Way Pair (Alternative 4-2G)

CONCEPT PLANS

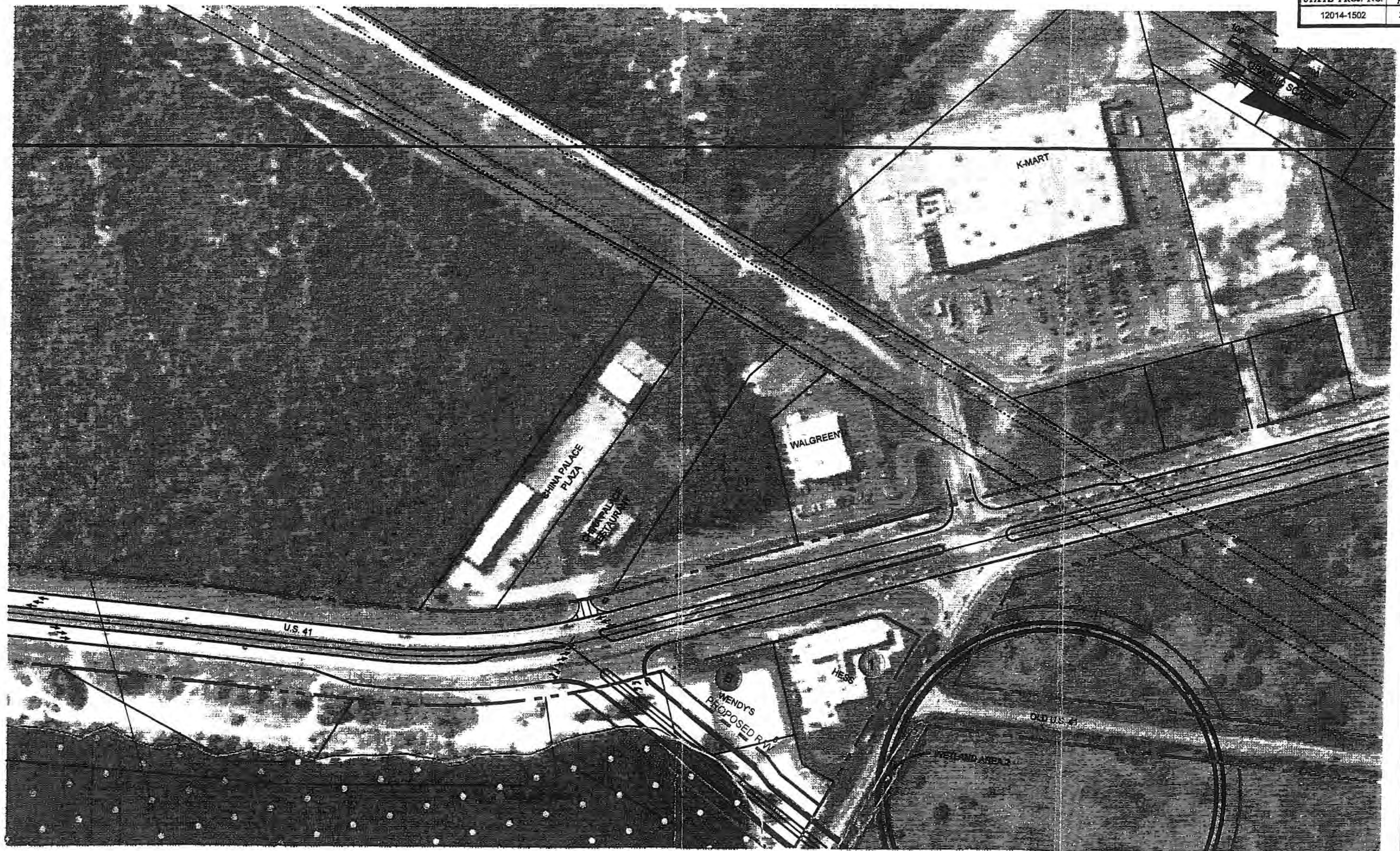
SEGMENT 1-3B



EDGE OF PAVEMENT	PROPERTY LINES	RELOCATED RAILROAD	WETLAND BOUNDARY	NON-PROFIT RELOCATION
EXISTING RIGHT OF WAY	RETAINING WALL	EXISTING RAILROAD	BUSINESS RELOCATION	POTENTIAL CONTAMINATION SITE
PROPOSED RIGHT OF WAY	PROPOSED L/A RIGHT OF WAY	MILL AND RESURFACE	RESIDENTIAL RELOCATION	

FLORIDA DEPARTMENT OF
TRANSPORTATION

METRO PARKWAY
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
LEE COUNTY, FLORIDA



EDGE OF PAVEMENT	PROPERTY LINES	RELOCATED RAILROAD	WETLAND BOUNDARY	NON-PROFIT RELOCATION
EXISTING RIGHT OF WAY	RETAINING WALL	EXISTING RAILROAD	BUSINESS RELOCATION	POTENTIAL CONTAMINATION SITE
PROPOSED RIGHT OF WAY	PROPOSED L/A RIGHT OF WAY	MILL AND RESURFACE	RESIDENTIAL RELOCATION	

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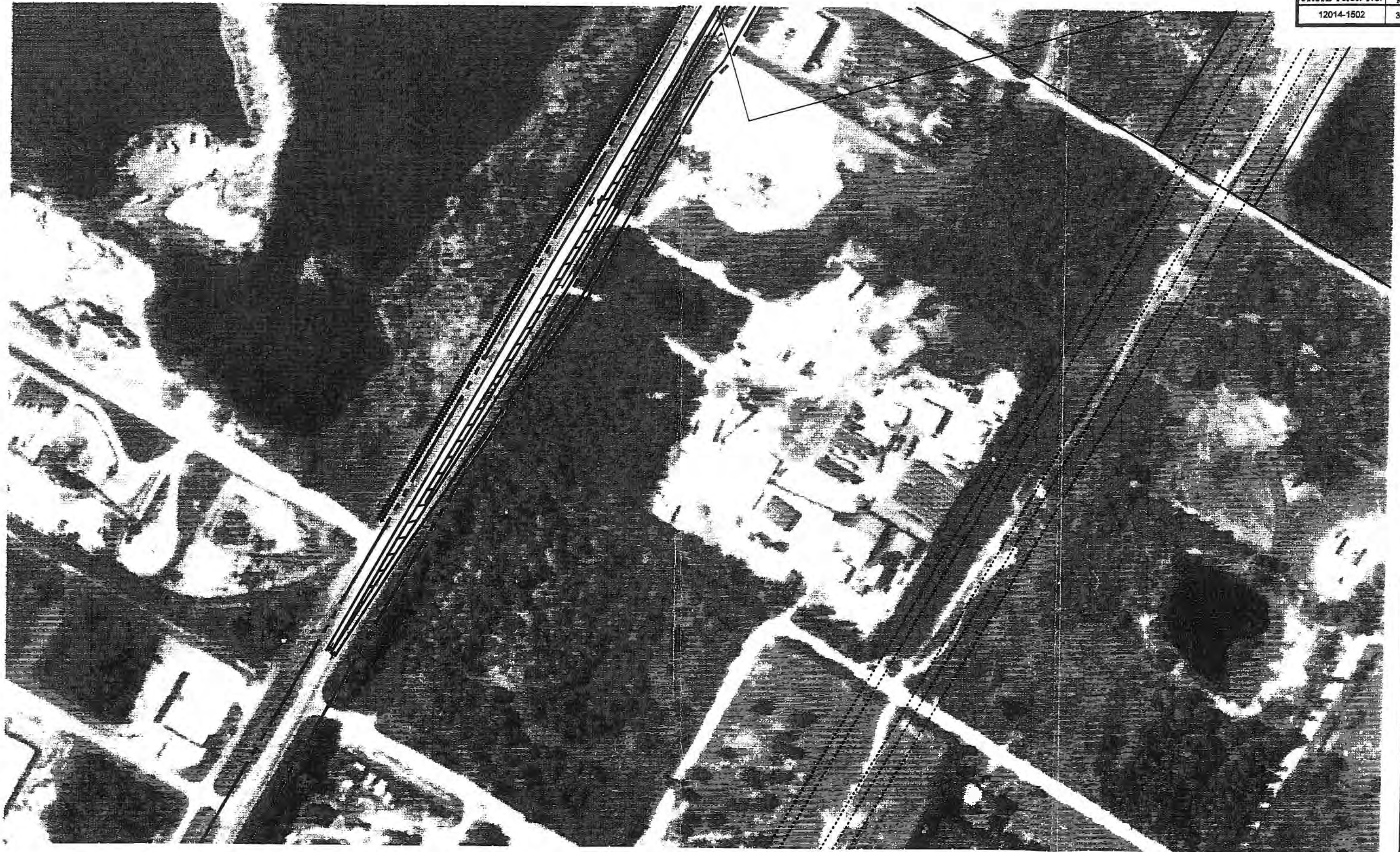
METRO PARKWAY
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY



	EDGE OF PAVEMENT		PROPERTY LINES		RELOCATED RAILROAD		WETLAND BOUNDARY		NON-PROFIT RELOCATION
	EXISTING RIGHT OF WAY		RETAINING WALL		EXISTING RAILROAD		BUSINESS RELOCATION		POTENTIAL CONTAMINATION SITE
	PROPOSED RIGHT OF WAY		PROPOSED L/A RIGHT OF WAY		MILL AND RESURFACE		RESIDENTIAL RELOCATION		

FLORIDA DEPARTMENT OF
TRANSPORTATION

METRO PARKWAY
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY



——— EDGE OF PAVEMENT
 - - - - - EXISTING RIGHT OF WAY
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——— PROPERTY LINES
 ——— RETAINING WALL
 ——— PROPOSED L/A RIGHT OF WAY

[Hatched] RELOCATED RAILROAD
 [Hatched] EXISTING RAILROAD
 [Hatched] MILL AND RESURFACE

[Dashed with circles] WETLAND BOUNDARY
 [Circle with cross] BUSINESS RELOCATION
 [Circle with square] RESIDENTIAL RELOCATION

[Circle with cross] NON-PROFIT RELOCATION
 [Circle with square] POTENTIAL CONTAMINATION SITE

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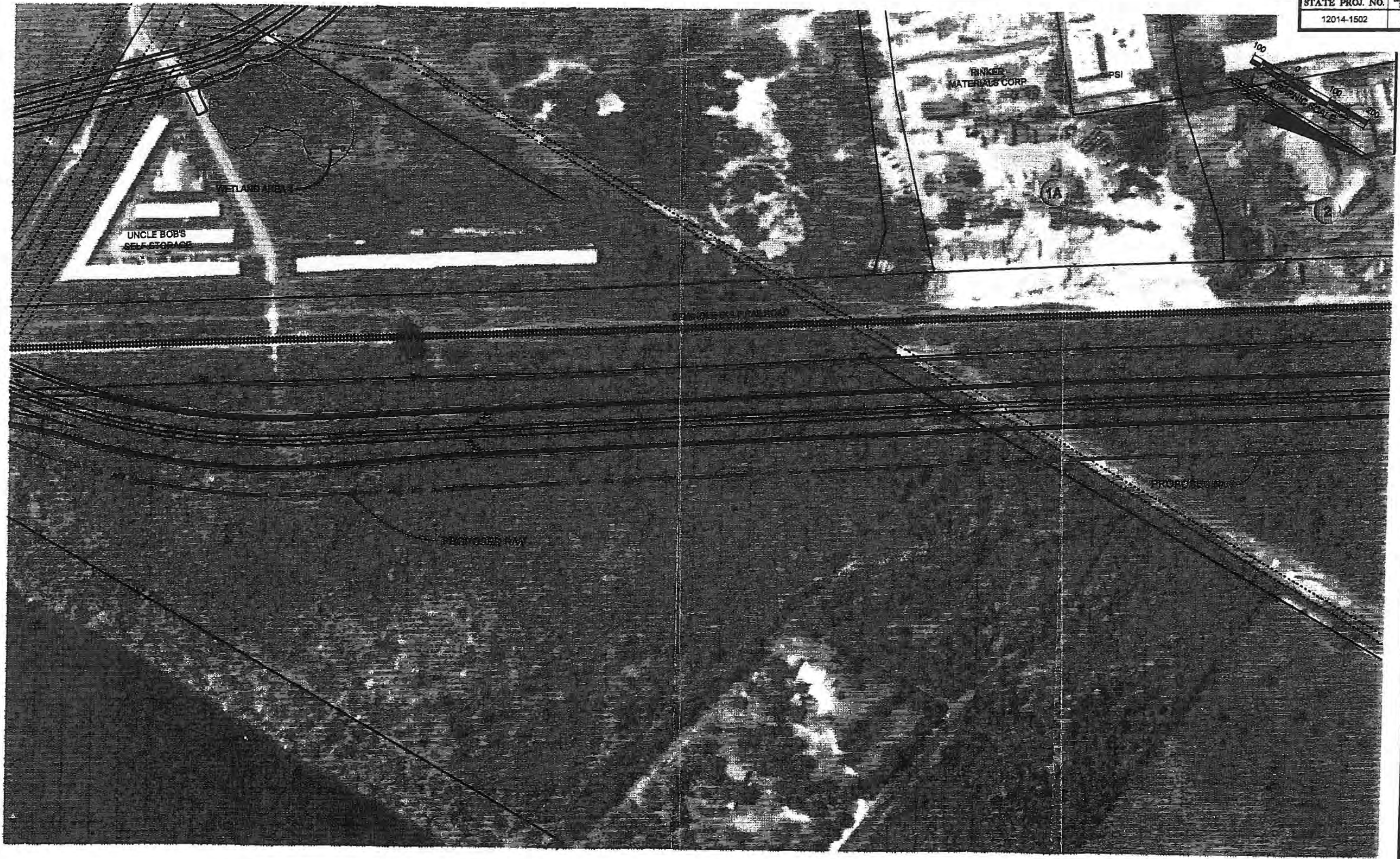
METRO PARKWAY
 PROJECT DEVELOPMENT AND ENVIRONMENT STUDY



	EDGE OF PAVEMENT		PROPERTY LINES		RELOCATED RAILROAD		WETLAND BOUNDARY		NON-PROFIT RELOCATION
	EXISTING RIGHT OF WAY		RETAINING WALL		EXISTING RAILROAD		BUSINESS RELOCATION		POTENTIAL CONTAMINATION SITE
	PROPOSED RIGHT OF WAY		PROPOSED L/A RIGHT OF WAY		MILL AND RESURFACE		RESIDENTIAL RELOCATION		

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TRANSPORTATION

METRO PARKWAY
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY



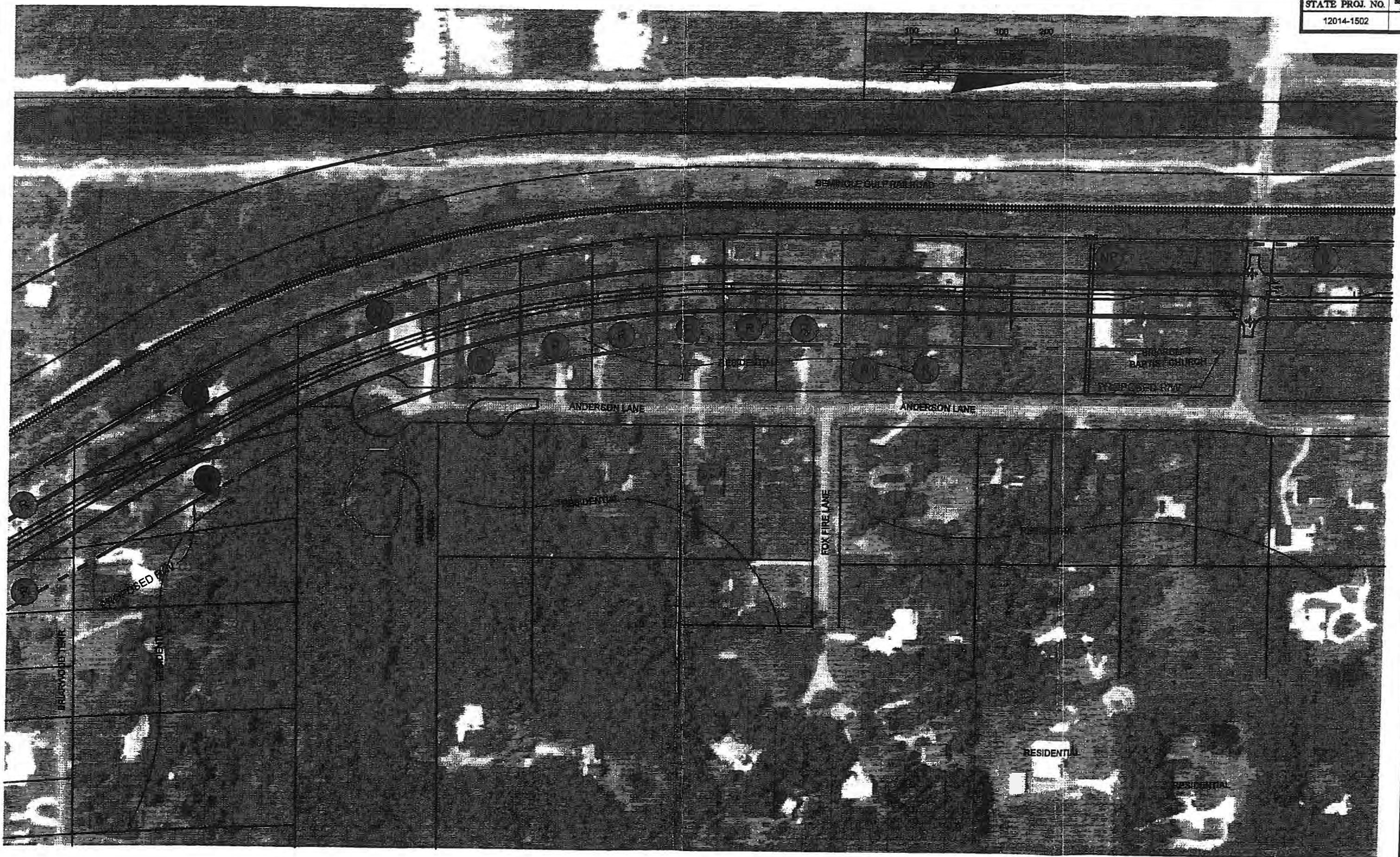
EDGE OF PAVEMENT	PROPERTY LINES	RELOCATED RAILROAD	WETLAND BOUNDARY	NON-PROFIT RELOCATION
EXISTING RIGHT OF WAY	RETAINING WALL	EXISTING RAILROAD	BUSINESS RELOCATION	POTENTIAL CONTAMINATION SITE
PROPOSED RIGHT OF WAY	PROPOSED L/A RIGHT OF WAY	M/I AND RESURFACE		

FLORIDA DEPARTMENT OF

METRO PARKWAY
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY



<ul style="list-style-type: none"> — EDGE OF PAVEMENT - - - EXISTING RIGHT OF WAY - - - PROPOSED RIGHT OF WAY 	<ul style="list-style-type: none"> — PROPERTY LINES — RETAINING WALL — PROPOSED L/A RIGHT OF WAY 	<ul style="list-style-type: none"> ▬ RELOCATED RAILROAD ▬ EXISTING RAILROAD ▬ MILL AND RESURFACE 	<ul style="list-style-type: none"> ••••• WETLAND BOUNDARY ● BUSINESS RELOCATION ● RESIDENTIAL RELOCATION 	<ul style="list-style-type: none"> ● NON-PROFIT RELOCATION ■ POTENTIAL CONTAMINATION SITE 	<p align="center">FLORIDA DEPARTMENT OF TRANSPORTATION</p>	<p align="center">METRO PARKWAY PROJECT DEVELOPMENT AND ENVIRONMENT STUDY</p>
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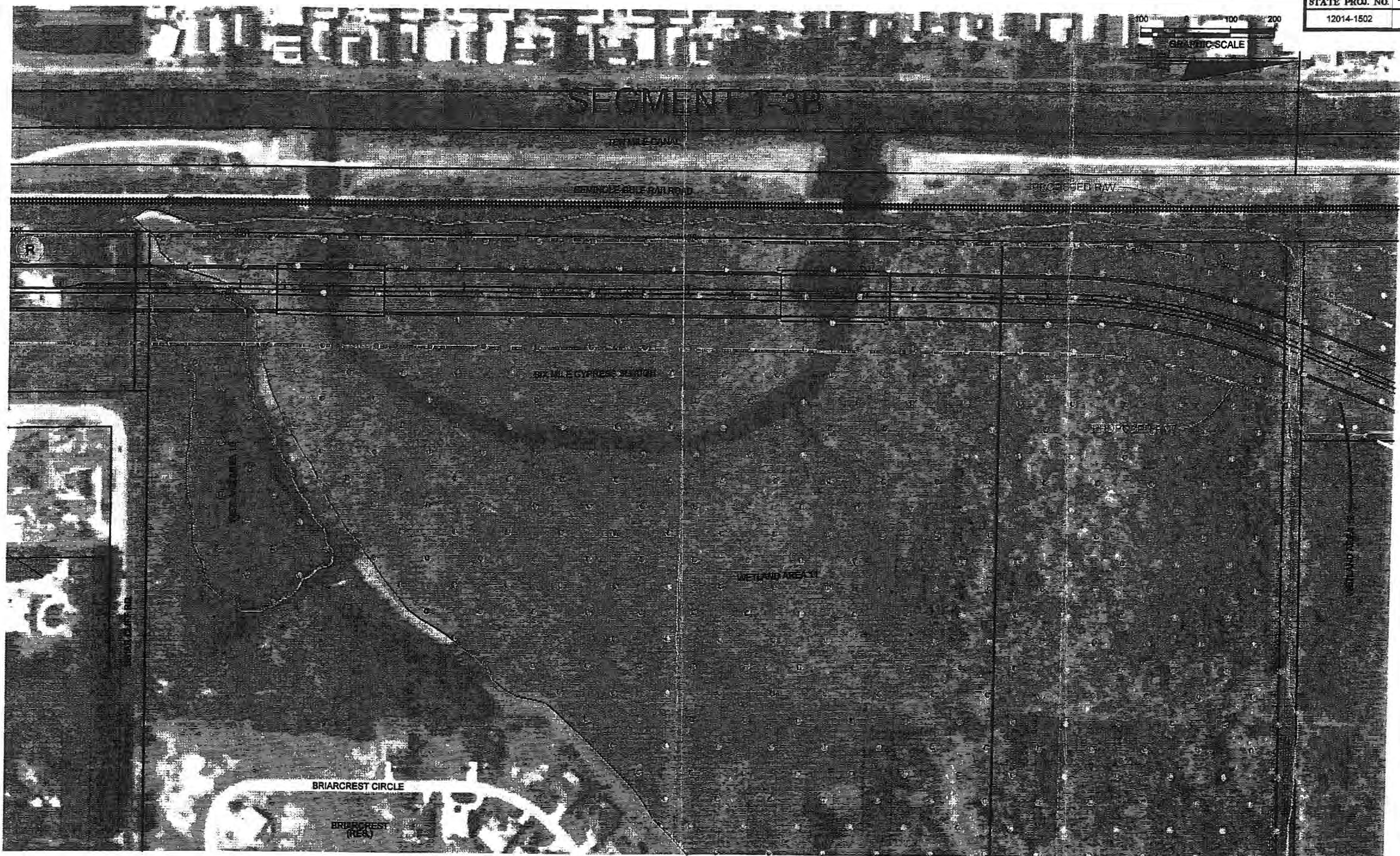
	EDGE OF PAVEMENT		PROPERTY LINES		RELOCATED RAILROAD		WETLAND BOUNDARY		NON-PROFIT RELOCATION
	EXISTING RIGHT OF WAY		RETAINING WALL		EXISTING RAILROAD		BUSINESS RELOCATION		POTENTIAL CONTAMINATION SITE
	PROPOSED RIGHT OF WAY		PROPOSED L/A RIGHT OF WAY		MILL AND RESURFACE		RESIDENTIAL RELOCATION		

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METRO PARKWAY
 PROJECT DEVELOPMENT AND ENVIRONMENT STUDY



SEGMENT 1-3



	EDGE OF PAVEMENT		PROPERTY LINES		RELOCATED RAILROAD		WETLAND BOUNDARY		NON-PROFIT RELOCATION
	EXISTING RIGHT OF WAY		RETAINING WALL		EXISTING RAILROAD		BUSINESS RELOCATION		POTENTIAL CONTAMINATION SITE
	PROPOSED RIGHT OF WAY		PROPOSED L/A RIGHT OF WAY		MILL AND RESURFACE		RESIDENTIAL RELOCATION		

SEGMENT 13B

SEGMENT 23A

TEN MILE CANAL

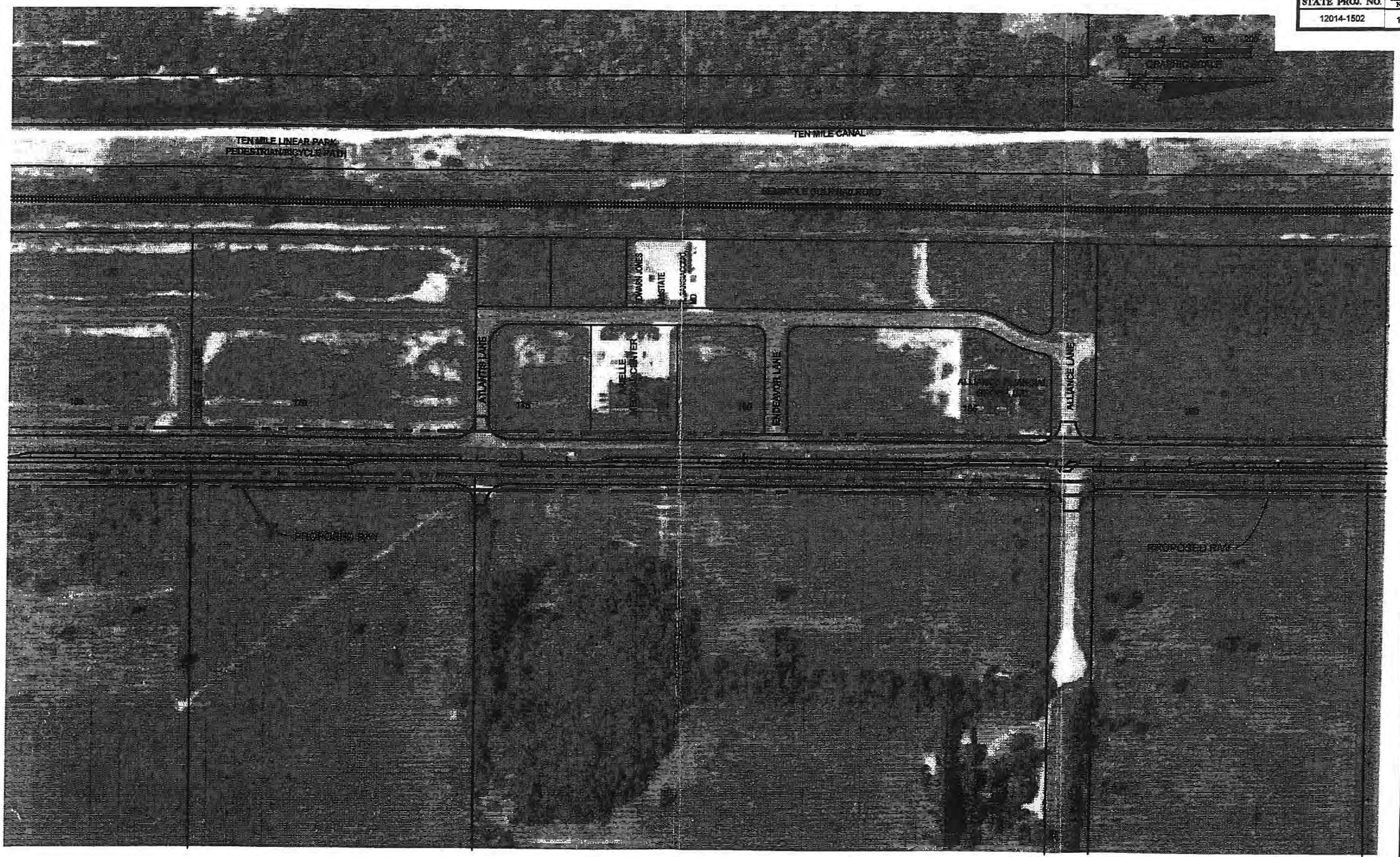
SEATTLE GREAT RAILROAD

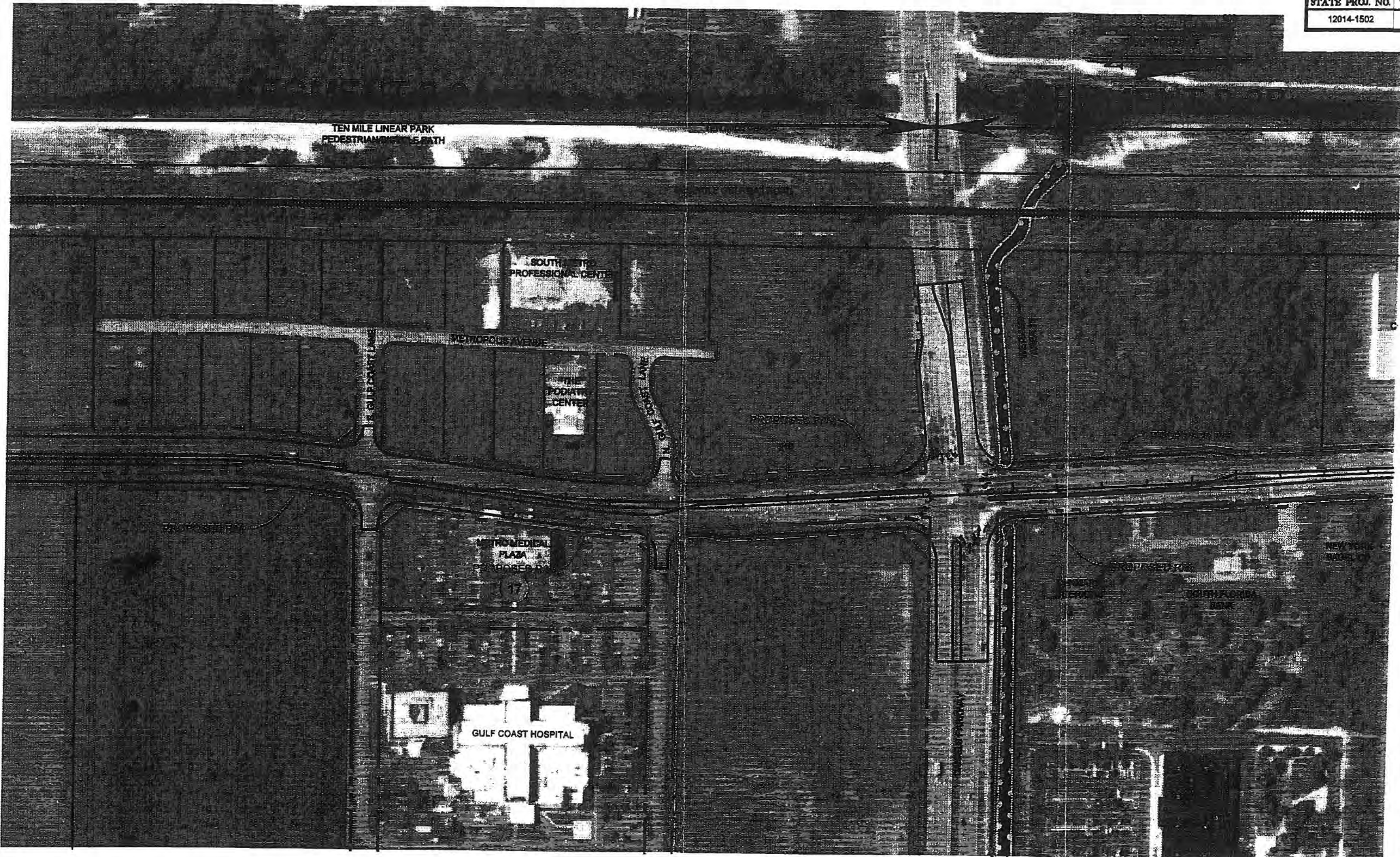
SUN HARVEST MARKET

145

PROPOSED R/W

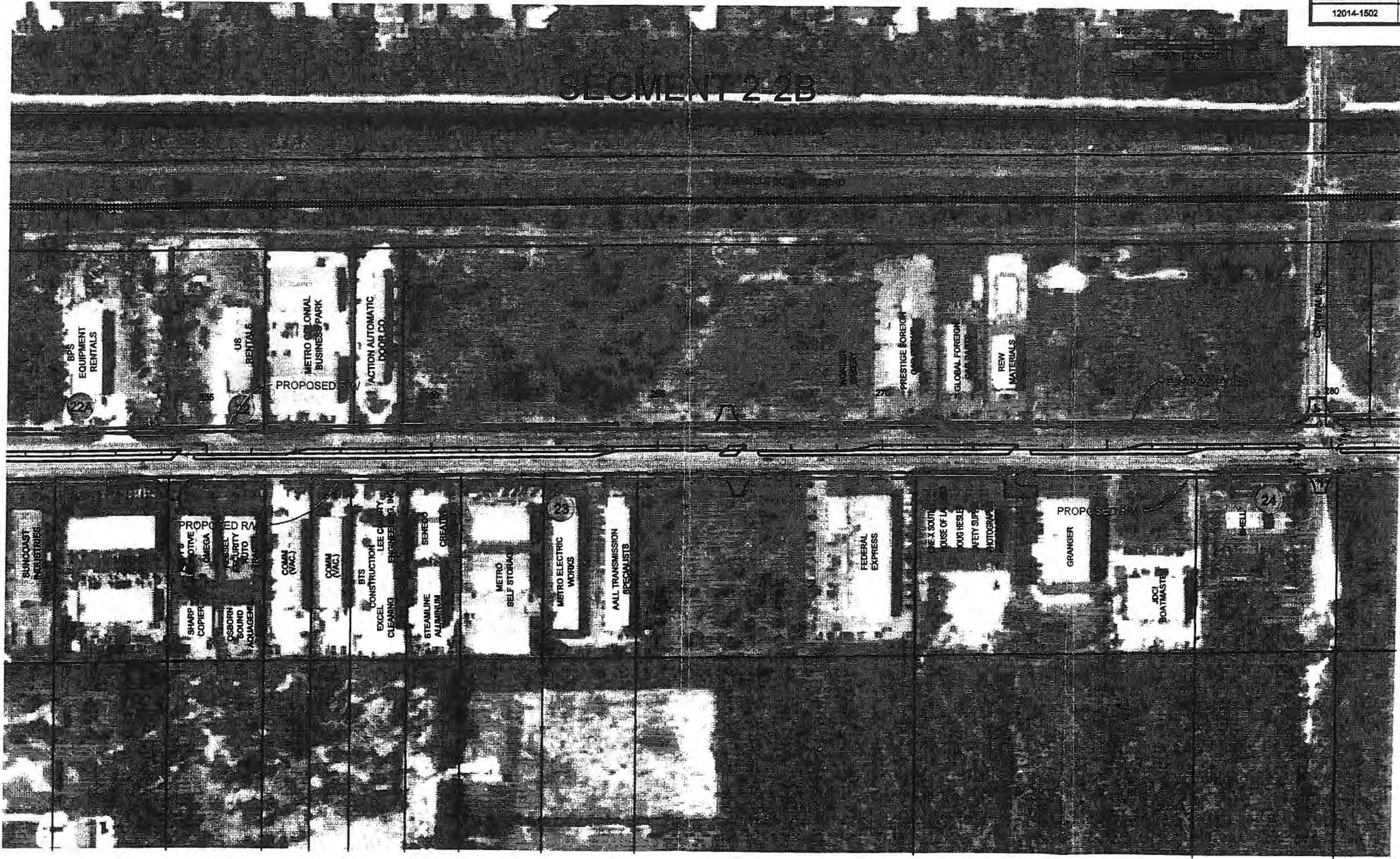
SIX MILE EXPRESS PARKWAY

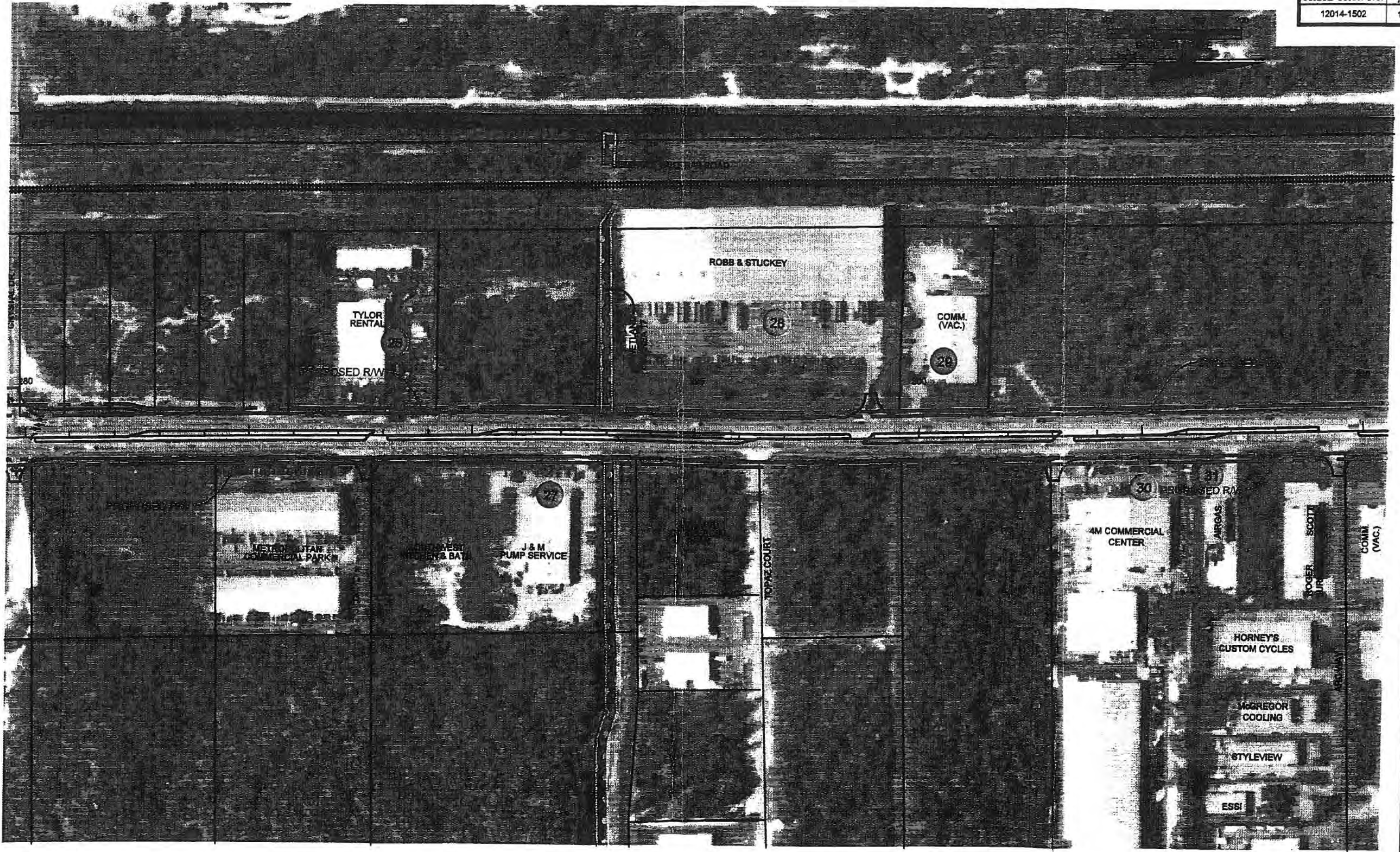






SEGMENT 2-2B





SEGMENT 2-2B

TEN MILE LINEAR PARK

TEN MILE CANAL



SEMIWOLF GULF PARK ROAD

PELICAN SUPPLY

METRO EXPO & DISTRIBUTION CENTER

WETLAND AREA 21

ROGER SCOTT
 COMM. (VAC)
 AMERICAN TILE
 NORANDEX
 ACCENT BUSINESS PRODUCTS
 CENTURY RAIN AID



SEARS
 GULF COAST PRINTING
 CHEMLAWN
 CHEMLAWN
 PROSOURC
 DINKER BROWN
 COASTAL CARPET
 FRAMING WHOLESALERS
 JACQUELIN BRIDAL TIFFANY DESIGNS
 J & M AC
 UNITED HEALTH CARE
 BROOKS, INC.

DARBY'S LIGHTING & DESIGN
 CHICO'S



——— EDGE OF PAVEMENT
 - - - - - EXISTING RIGHT OF WAY
 ——— PROPOSED RIGHT OF WAY
 ——— PROPERTY LINES
 ——— RETAINING WALL
 ——— PROPOSED L/A RIGHT OF WAY

[RELOCATED RAILROAD] RELOCATED RAILROAD
 [EXISTING RAILROAD] EXISTING RAILROAD
 [MILL AND RESURFACE] MILL AND RESURFACE

[WETLAND BOUNDARY] WETLAND BOUNDARY
 [BUSINESS RELOCATION] BUSINESS RELOCATION
 [RESIDENTIAL RELOCATION] RESIDENTIAL RELOCATION

[NON-PROFIT RELOCATION] NON-PROFIT RELOCATION
 [POTENTIAL CONTAMINATION SITE] POTENTIAL CONTAMINATION SITE

FLORIDA DEPARTMENT OF
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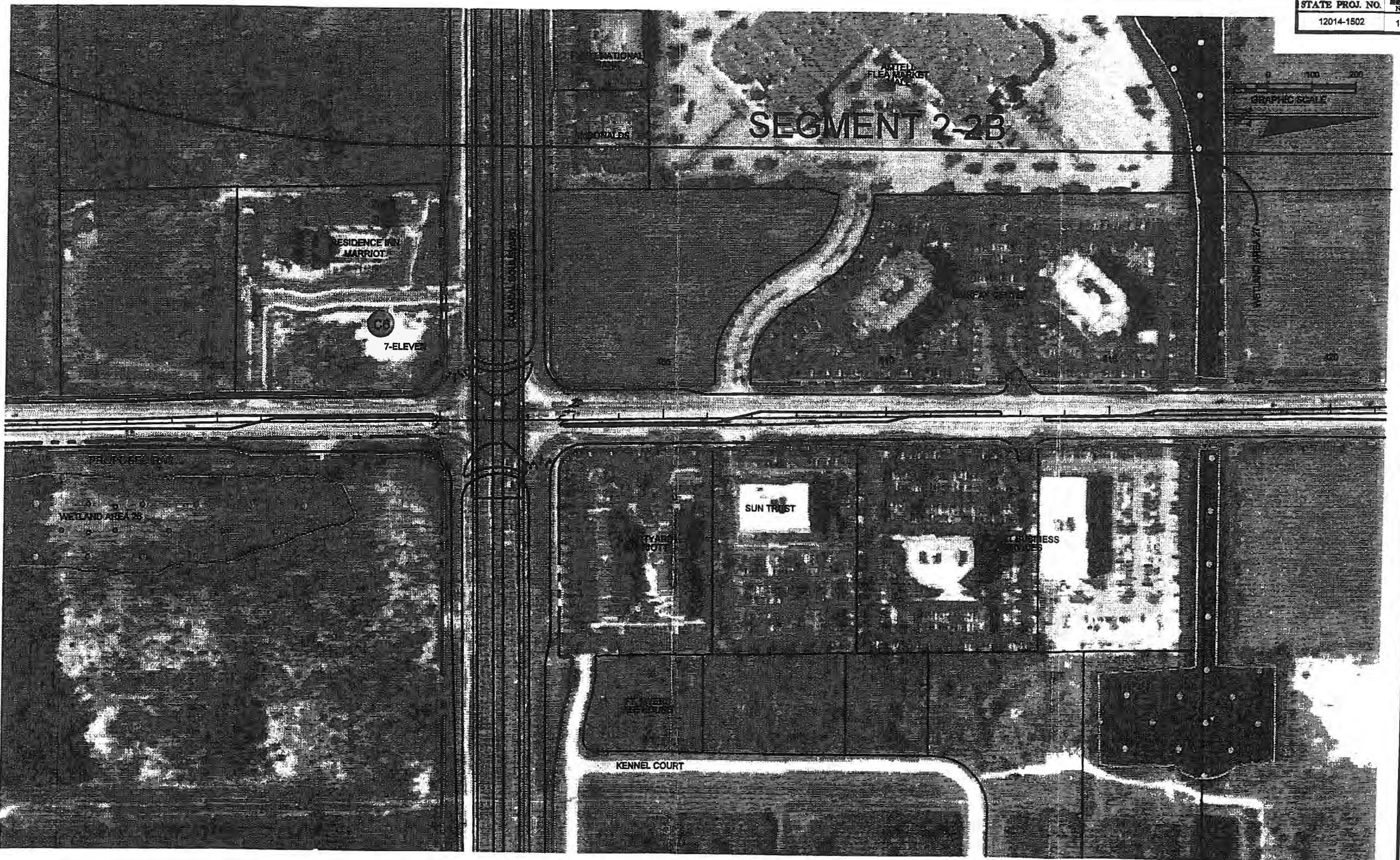
METRO PARKWAY
 PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
 LEE COUNTY, FLORIDA

SEGMENT 2-2B

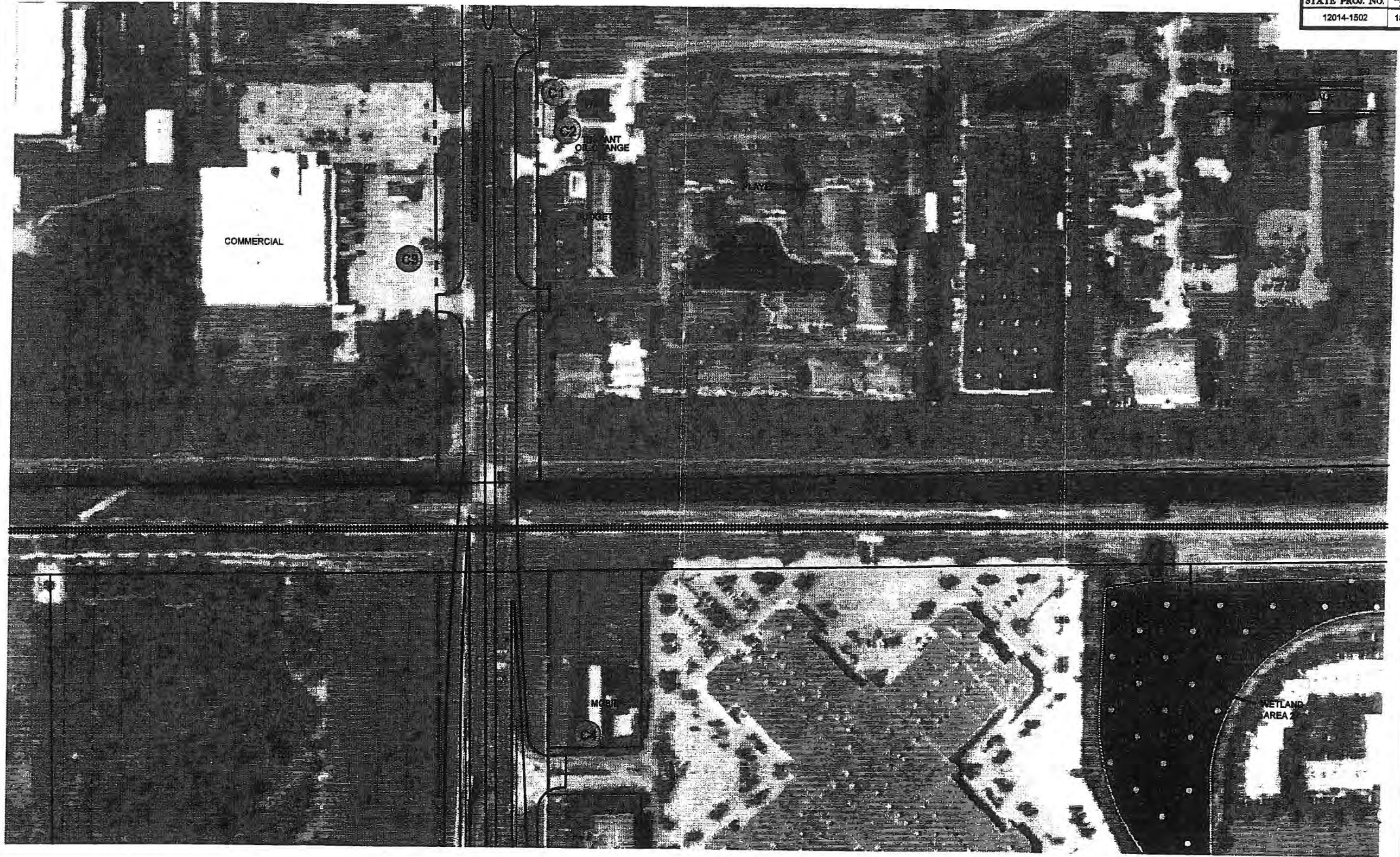
WETLAND AREA

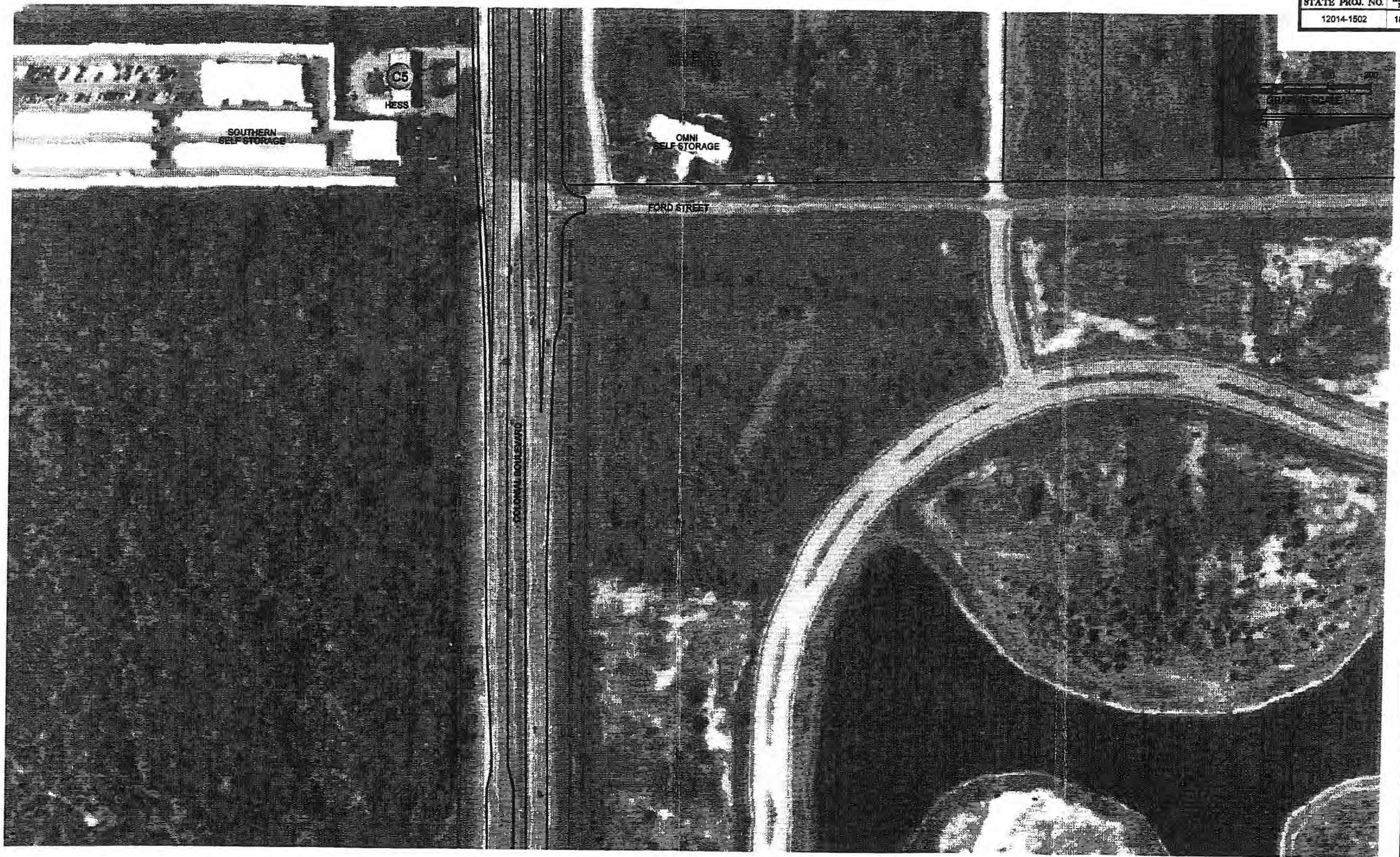
43
PARKWAY
PLAZA

<p>— EDGE OF PAVEMENT</p> <p>- - - EXISTING RIGHT OF WAY</p> <p>- - - PROPOSED RIGHT OF WAY</p>	<p>— PROPERTY LINES</p> <p>— RETAINING WALL</p> <p>— PROPOSED L/A RIGHT OF WAY</p>	<p>▣ RELOCATED RAILROAD</p> <p>▣ EXISTING RAILROAD</p> <p>▣ MILL AND RESURFACE</p>	<p>••••• WETLAND BOUNDARY</p> <p>● BUSINESS RELOCATION</p> <p>● RESIDENTIAL RELOCATION</p>	<p>● NON-PROFIT RELOCATION</p> <p>● POTENTIAL CONTAMINATION SITE</p>	<p>FLORIDA DEPARTMENT OF</p> <p>TRANSPORTATION</p>	<p>METRO PARKWAY</p> <p>PROJECT DEVELOPMENT AND ENVIRONMENT STUDY</p>
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<p>— EDGE OF PAVEMENT</p> <p>- - - EXISTING RIGHT OF WAY</p> <p>- - - PROPOSED RIGHT OF WAY</p>	<p>— PROPERTY LINES</p> <p>— RETAINING WALL</p> <p>— PROPOSED L/A RIGHT OF WAY</p>	<p>RELOCATED RAILROAD</p> <p>EXISTING RAILROAD</p> <p>MILL AND RESURFACE</p>	<p>WETLAND BOUNDARY</p> <p>BUSINESS RELOCATION</p> <p>RESIDENTIAL RELOCATION</p>	<p>NON-PROFIT RELOCATION</p> <p>POTENTIAL CONTAMINATION SITE</p>	<p>FLORIDA DEPARTMENT OF</p> <p>TRANSPORTATION</p>	<p>METRO PARKWAY</p> <p>PROJECT DEVELOPMENT AND ENVIRONMENT STUDY</p>
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C5

HESS

SOUTHERN
SELF STORAGE

OMNI
SELF STORAGE

FORD STREET

DIXIE BOULEVARD

- | | | | | | | | | | |
|-------|-----------------------|---|---------------------------|-----|--------------------|-------|------------------------|---|------------------------------|
| — | EDGE OF PAVEMENT | — | PROPERTY LINES | ▬▬▬ | RELOCATED RAILROAD | ••••• | WETLAND BOUNDARY | ⊙ | NON-PROFIT RELOCATION |
| - - - | EXISTING RIGHT OF WAY | — | RETAINING WALL | ▬▬▬ | EXISTING RAILROAD | • | BUSINESS RELOCATION | ⊙ | POTENTIAL CONTAMINATION SITE |
| - - - | PROPOSED RIGHT OF WAY | — | PROPOSED L/A RIGHT OF WAY | ▬▬▬ | M/L AND RESURFACE | • | RESIDENTIAL RELOCATION | | |

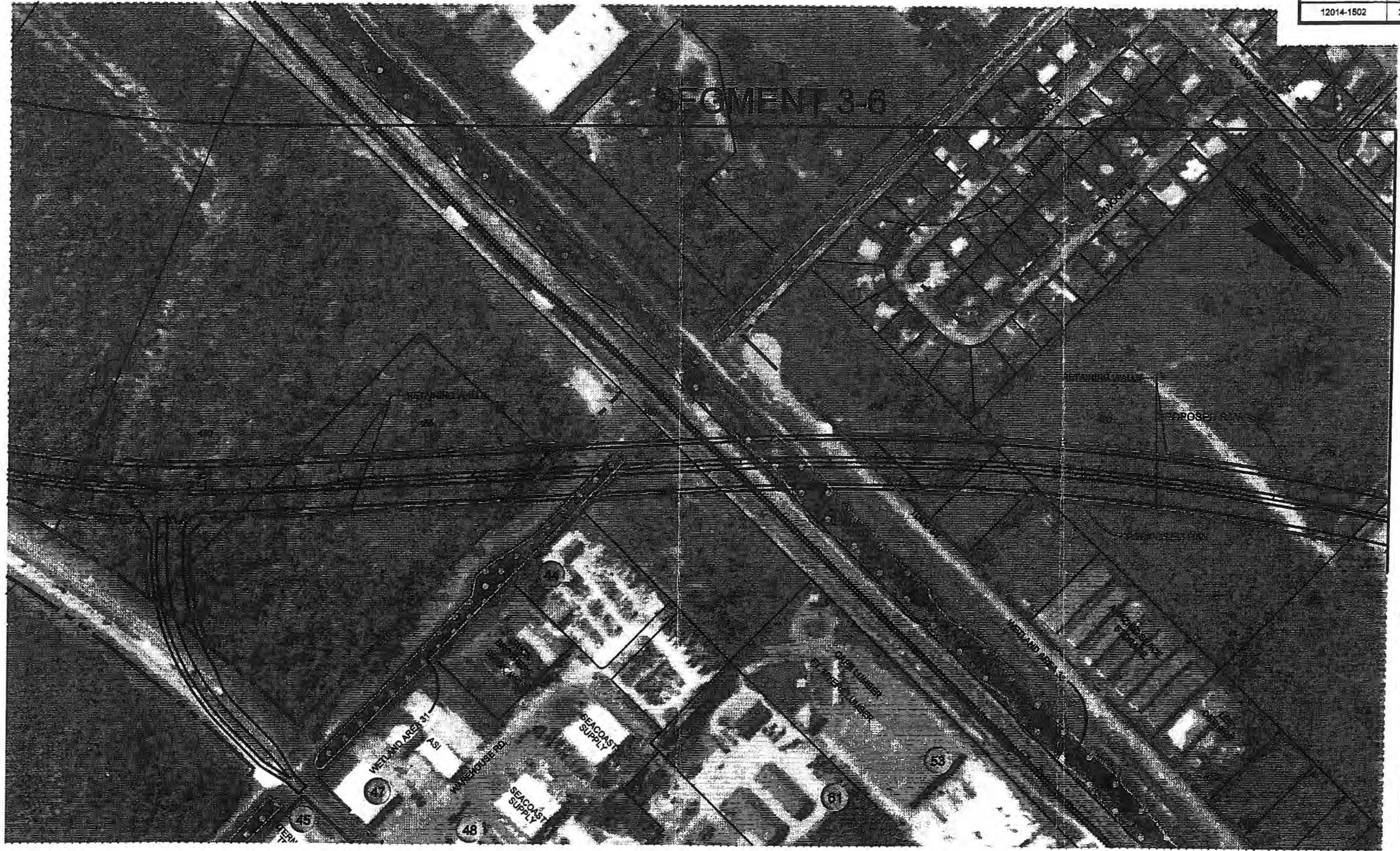
FLORIDA DEPARTMENT OF
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METRO PARKWAY
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
LEE COUNTY, FLORIDA



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SEGMENT 3-B



EDGE OF PAVEMENT	PROPERTY LINES	RELOCATED RAILROAD	WETLAND BOUNDARY	NON-PROFIT RELOCATION
EXISTING RIGHT OF WAY	RETAINING WALL	EXISTING RAILROAD	BUSINESS RELOCATION	POTENTIAL CONTAMINATION SITE
PROPOSED RIGHT OF WAY	PROPOSED L/A RIGHT OF WAY	MILL AND RESURFACE	RESIDENTIAL RELOCATION	

**FLORIDA DEPARTMENT OF
TRANSPORTATION**

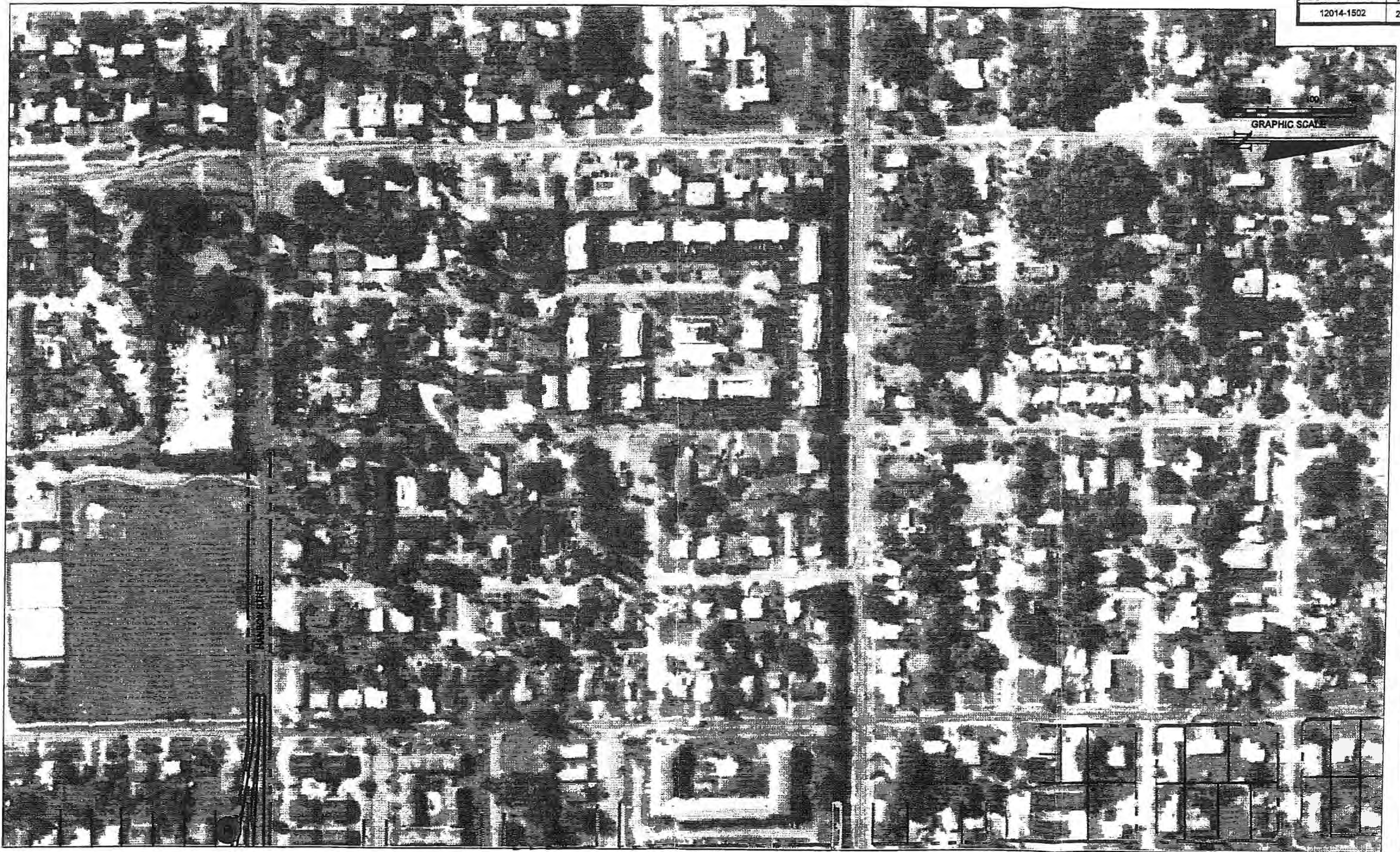
METRO PARKWAY
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
LEE COUNTY, FLORIDA



—	EDGE OF PAVEMENT	—	PROPERTY LINES	▨	RELOCATED RAILROAD	●	WETLAND BOUNDARY	⊕	NON-PROFIT RELOCATION
---	EXISTING RIGHT OF WAY	—	RETAINING WALL	▨	EXISTING RAILROAD	⊙	BUSINESS RELOCATION	⊕	POTENTIAL CONTAMINATION SITE
---	PROPOSED RIGHT OF WAY	---	PROPOSED L/A RIGHT OF WAY	▨	MILL AND RESURFACE	⊙	RESIDENTIAL RELOCATION		

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METRO PARKWAY
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
LEE COUNTY, FLORIDA



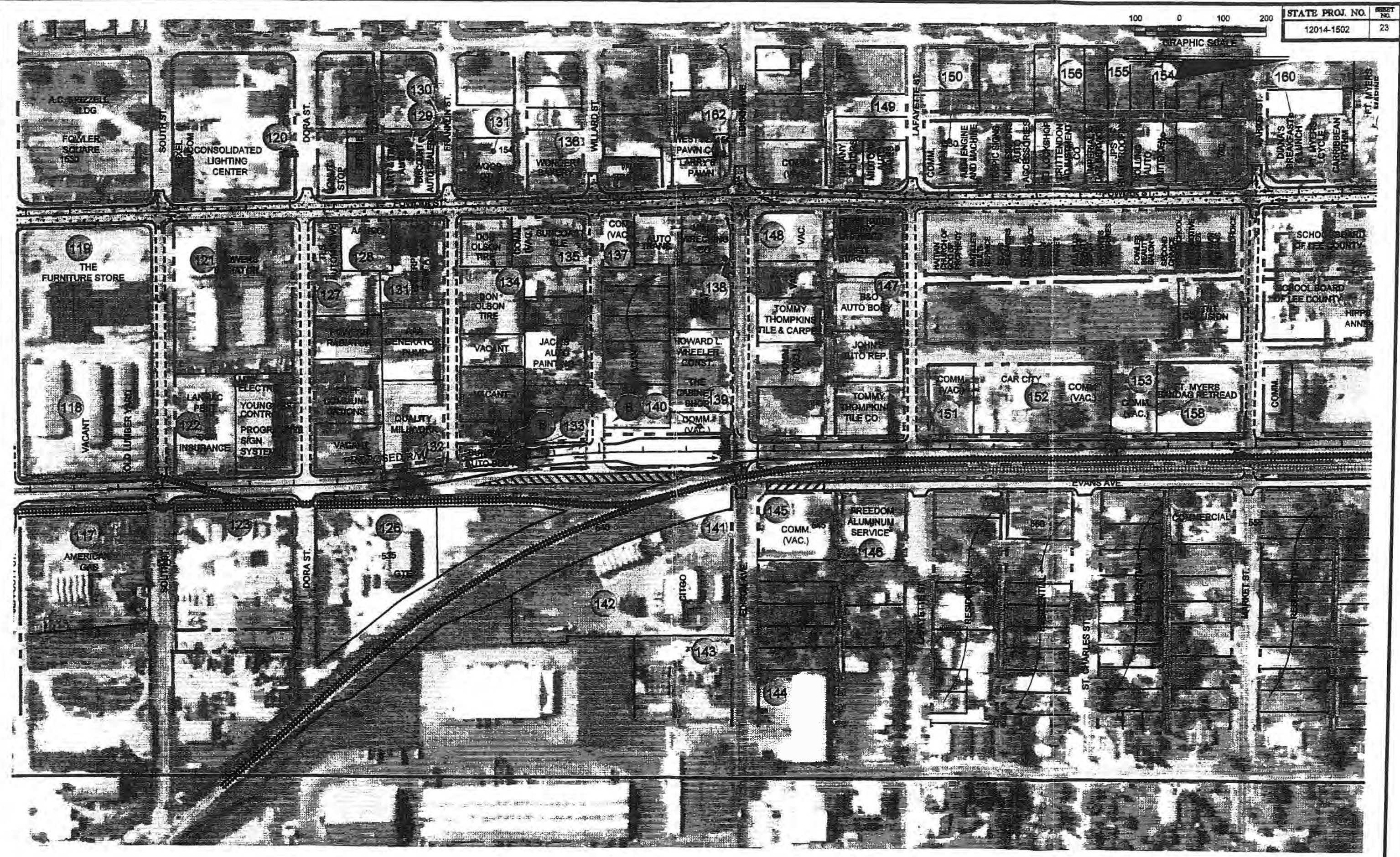
100
GRAPHIC SCALE

- | | | | | | | | | | |
|-------|-----------------------|---|---------------------------|-----|--------------------|---|------------------------|---|------------------------------|
| — | EDGE OF PAVEMENT | — | PROPERTY LINES | ▬▬▬ | RELOCATED RAILROAD | ⊙ | WETLAND BOUNDARY | ⊙ | NON-BROWNSFIELD OR |
| - - - | EXISTING RIGHT OF WAY | — | RETAINING WALL | ▬▬▬ | EXISTING RAILROAD | ⊙ | BUSINESS RELOCATION | ⊙ | POTENTIAL CONTAMINATION SITE |
| - - - | PROPOSED RIGHT OF WAY | — | PROPOSED L/A RIGHT OF WAY | ▬▬▬ | MILL AND RESURFACE | ⊙ | RESIDENTIAL RELOCATION | ⊙ | NOISE BARRIER |

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PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
LEE COUNTY, FLORIDA

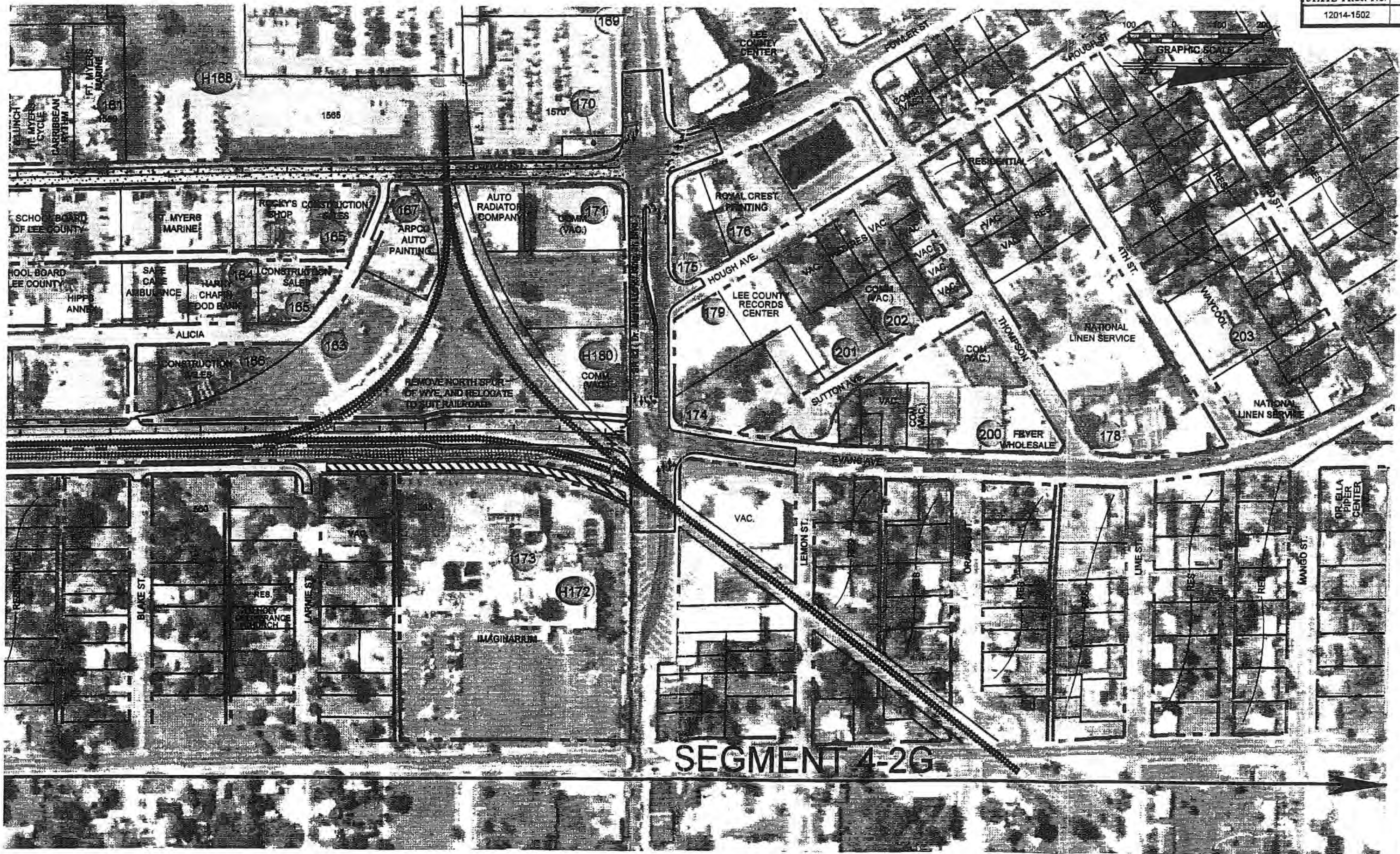
GRAPHIC SCALE



- EDGE OF PAVEMENT
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPERTY LINES
- RETAINING WALL
- PROPOSED L/A RIGHT OF WAY
- RELOCATED RAILROAD
- EXISTING RAILROAD
- MILL AND RESURFACE
- WETLAND BOUNDARY
- BUSINESS RELOCATION
- RESIDENTIAL RELOCATION
- NON-PROFIT RELOCATION
- POTENTIAL CONTAMINATION SITE

FLORIDA DEPARTMENT OF
TRANSPORTATION

METRO PARKWAY
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
LEE COUNTY, FLORIDA



SEGMENT 4-2G

—	EDGE OF PAVEMENT	—	PROPERTY LINES	—	RELOCATED RAILROAD	—	WETLAND BOUNDARY	⊙	NON-PROFIT RELOCATION
—	EXISTING RIGHT OF WAY	—	RETAINING WALL	—	EXISTING RAILROAD	—	WETLAND BOUNDARY	⊙	POTENTIAL CONTAMINATION SITE
—	PROPOSED RIGHT OF WAY	—	PROPOSED L/A RIGHT OF WAY	—	MILL AND RESURFACE	—	WETLAND BOUNDARY	⊙	RESIDENTIAL RELOCATION

FLORIDA DEPARTMENT OF TRANSPORTATION

METRO PARKWAY PROJECT DEVELOPMENT AND ENVIRONMENT STUDY LEE COUNTY, FLORIDA

ADDENDUM A

TABLE OF CONTENTS

	<u>PAGE</u>
<u>Alternatives evaluated for Metro Parkway/US 41/Alico Road Apex</u>	A-1
Alternative 1 <i>(not shown in Chapter 8)</i>	A-1
Alternative 2 <i>(not shown in Chapter 8)</i>	A-1
Alternative 3 <i>(Figure 8-2)</i>	A-1
Alternative 4 <i>(Figure 8-4)</i>	A-2
Alternative 5 <i>(Figure 8-3)</i>	A-2
<u>Evaluation of Metro Parkway/US 41/Alico Road Apex</u>	A-3
Alternative 1 Concerns	A-3
Alternative 2 Concerns	A-3
Alternative 3 Concerns	A-4
Alternative 4 Concerns	A-4
Alternative 5 Concerns	A-5
<u>Evaluation of Viable Alternatives</u>	A-5
Table 1	A-6
Summary	A-7
<u>PROLOGUE</u>	A-8
<u>DECISION MAKING LOGIC</u>	A-9
<u>INTERCHANGE CONNECTION CONCEPTS</u>	A-10
ALTERNATIVE ONE <i>(Not in Chapter 8)</i>	
ALTERNATIVE TWO <i>(Not in Chapter 8)</i>	
ALTERNATIVE THREE <i>(Figure 8-2)</i>	
ALTERNATIVE FOUR <i>(Figure 8-4)</i>	
ALTERNATIVE FIVE <i>(Figure 8-3)</i>	

ADDENDUM A

Interchange Connection Concepts

The objective of Addendum A is to document engineering analyses to show how the Department reached a decision on the type, location and design of the recommended interchange connection concept in the vicinity of the Metro Parkway / US 41 / Alico Road Apex.

Alternatives Evaluated for Metro Parkway/US 41/Alico Road Apex

Five alternatives were developed and evaluated at the southern terminus of the project, providing access to/from Metro Parkway, US 41, and Alico Road. These alternatives are described as follows:

Alternative 1 *(not shown in Chapter 8)*

This concept included a half-diamond signalized interchange at Metro Parkway and Alico Road, with ramps to/from the north, and a two-lane flyover for the south bound Metro Parkway to south bound US 41 movement. The existing Alico Road alignment was maintained along with the existing Old US 41 alignment.

Alternative 2 *(not shown in Chapter 8)*

This concept included a half-diamond signalized interchange at Metro Parkway and Alico Road, with ramps to/from the north, and a two-lane loop for the south bound Metro Parkway to south bound US 41 movement. The existing Alico Road alignment was maintained along with the existing Old US 41 alignment.

Alternative 3 *(Figure 8-2)*

This concept includes the realignment of Alico Road to connect with US 41 at Lake Front Drive. The proposed improvements for Metro Parkway include a single lane loop for the south bound Metro Parkway to east bound Alico Road, a single lane ramp from west bound Alico Road to north bound Metro Parkway, and a two-lane loop for the south bound Metro Parkway to south bound US 41 movement. This alternative also includes connecting Old US 41 at the realignment of Alico Road.

Alternative 4 *(Figure 8-4)*

This concept includes the realignment of Alico Road to connect with US 41 at Lake Front Drive. The proposed improvements for Metro Parkway include a single lane loop for the south bound Metro Parkway to east bound Alico Road, a single lane ramp from west bound Alico Road to north bound Metro Parkway, and an at-grade intersection with US 41. This alternative also includes connecting Old US 41 at the realignment of Alico Road.

Alternative 5 *(Figure 8-3)*

This concept includes the realignment of Alico Road to connect with US 41 at Lake Front Drive. The proposed improvements for Metro Parkway include a single lane loop for the south bound Metro Parkway to east bound Alico Road, a single lane ramp from west bound Alico Road to north bound Metro Parkway, and an inside merge for south bound Metro Parkway to south bound US 41 movement. This alternative would require the north bound US 41 movement be reconstructed to provide an overpass over Metro Parkway. This alternative also includes connecting Old US 41 at the realignment of Alico Road.

Evaluation of Metro Parkway/US 41/Alico Road Apex

The first step in the evaluation process was a coordination meeting with District Traffic Operations to discuss the five alternative geometric concepts developed at the Metro Parkway/US 41/Alico Road apex. The purpose of this meeting was to identify and discuss any operational concerns associated with each alternative and reach a consensus as to which alternatives would be carried forward for a construction and right-of-way cost evaluation. These concerns are as follows:

Alternative 1 Concerns: *(half-diamond signalized at Alico Road with a two-lane free flow flyover ramp from south bound Metro parkway to south bound US 41; not shown in Chapter 8)*

- Short distance between south bound Metro Parkway off-ramp/Alico Road intersection and existing US 41/Alico Road intersection.
- District Traffic Operations felt that the south bound Metro Parkway to east bound Alico Road movement could not be accommodated as a signalized left turn even with dual left turn lanes.
- With the half-diamond configuration, the concept has three closely spaced signals.
- The provision of a two-lane flyover for south bound Metro Parkway to south bound US 41 would require the purchase of limited access (L/A) right-of-way from the flyover south to Harborage Road. In addition, this alternative included a frontage road on the west side of US 41 that connected to Harborage Road, a private facility.
- Due to the location of the gore at the flyover entrance to US 41, the second lane would not be tapered out prior to Harborage Road/Babcock Road. This configuration would require that the existing un-signalized full median opening be modified to a directional median opening.
- This concept also requires the purchase of L/A right-of-way on the east side of US 41 as well as the provision of a frontage road from Babcock Road to existing commercial land uses.

Alternative 2 Concerns: *(half-diamond signalized at Alico Road with a two-lane free flow loop ramp from south bound Metro parkway to south bound US 41; not shown in Chapter 8)*

- Short distance between south bound Metro Parkway off-ramp/Alico Road intersection and existing US 41/Alico Road intersection.

- District Traffic Operations felt that the south bound Metro Parkway to east bound Alico Road movement could not be accommodated as a signalized left turn even with dual left turn lanes.
- With the half-diamond configuration, the concept has three closely spaced signals.
- The provision of a two-lane loop for south bound Metro Parkway to south bound US 41 would require the purchase of L/A right-of-way from the loop south to Harborage Road. In addition, this alternative included a frontage road on the west side of US 41 that connected to Harborage Road, a private facility.
- This concept also requires the purchase of L/A right-of-way on the east side of US 41 as well as the provision of a frontage road from Babcock Road to existing commercial land uses.

Alternative 3 Concerns: *(one-lane free flow loop ramp from south bound Metro Parkway to east bound Alico Road with a two-lane free flow loop ramp from south bound Metro parkway to south bound US 41; Figure 8-2)*

- The provision of a two-lane loop for south bound Metro Parkway to south bound US 41 would require the purchase of L/A right-of-way from the loop south to Harborage Road. In addition, this alternative included a frontage road on the west side of US 41 that connected to Harborage Road, a private facility.
- This concept also requires the purchase of L/A right-of-way on the east side of US 41 as well as the provision of a frontage road from Babcock Road to existing commercial land uses.
- The existing commercial land uses on the west side of US 41 in the vicinity of Alico Road would not have direct access to north bound Metro Parkway via Alico Road. This movement would require traveling north bound on US 41 and east bound on Six-Mile Cypress Parkway to access Metro Parkway.

Alternative 4 Concerns: *(one-lane free flow loop ramp from south bound Metro Parkway to east bound Alico Road with an at-grade intersection of Metro parkway, and US 41; Figure 8-4)*

- This concept would require the provision of retaining walls from Metro Parkway/Alico Road interchange to US 41/ Metro Parkway intersection.
- The existing commercial land uses on the west side of US 41 in the vicinity of Alico Road would not have direct access to north bound Metro Parkway via Alico Road. This movement would require traveling north bound on US 41 and east bound on Six-Mile Cypress Parkway to access Metro Parkway.

Alternative 5 Concerns: *(one-lane free flow loop ramp from south bound Metro Parkway to east bound Alico Road with a two-lane inside merge from south bound Metro parkway to south bound US 41; Figure 8-3)*

- The existing commercial land uses on the west side of US 41 in the vicinity of Alico Road would not have direct access to north bound Metro Parkway via Alico Road. This movement would require traveling north bound on US 41 and east bound on Six-Mile Cypress Parkway to access Metro Parkway.
- The provision of a two-lane left side (inside) ramp for south bound Metro Parkway to south bound US 41 would require the purchase of L/A right-of-way from the ramp gore south to Harborage Road. In addition, this alternative included a frontage road on the west side of US 41 that connected to Harborage Road, a private facility.
- This concept also requires the purchase of L/A right-of-way on the east side of US 41 as well as the provision of a frontage road from Babcock Road to existing commercial land uses.
- The left side ramp configuration requires drivers to merge into the inside lane of US 41. The inside lane merge is an unconventional maneuver. The inside lane maneuver merges from left to right to the inside lane which is the higher speed lane, and a passing lane on multilane facilities. The conventional maneuver merges from right to left to the outside lane which is a non-passing, lower speed lane on multilane facilities. Some drivers may feel uncomfortable making the inside lane merge maneuver.
- This alternative would require a temporary realignment of the north bound lanes on US 41 during construction in order to build the grade separation on north bound US 41.

This initial evaluation of the five alternatives eliminated Alternatives 1 and 2 from further consideration due to District Traffic Operations concerns with respect to the provision of the Metro Parkway half diamond interchange with Alico Road and its location relative to the US 41/Alico Road intersection.

Evaluation of Viable Alternatives

Alternatives 3 (*Figure 8-2*), 4 (*Figure 8-4*), and 5 (*Figure 8-3*) were further evaluated for construction and right-of-way costs. As shown in Table 1, Alternative 4 (*Figure 8-4*) cost \$9.3 million less than Alternative 5 (*Figure 8-3*), and \$15.2 million less than Alternative 3 (*Figure 8-2*). This disparity in cost is primarily due to the additional right-of-way required on both sides of US 41 for limited access and the construction of frontage roads.

Table 1

Alternative	Cost (Millions)		
	Right-of-Way	Construction	Total
Alternative 3 (<i>Figure 8-2</i>) Double Loop	\$21.5	\$11.7	\$33.2
Alternative 4 (<i>Figure 8-4</i>) At-Grade	\$8.8	\$9.2	\$18.0
Alternative 5 (<i>Figure 8-3</i>) Inside Merge	\$16.3	\$11.0	\$27.3

In addition to cost, the operations of these alternatives were also evaluated prior to the selection of the preferred geometric configuration. The primary operational issues are summarized below:

- Alternative 3 (*Figure 8-2*) was viewed by traffic operations as providing the highest level of operations due to the free flow movement from Metro Parkway to US 41 and a conventional right side merge.
- Although the Metro Parkway/US 41 at-grade intersection with Alternative 4 (*Figure 8-4*) does not provide a free flow movement, the traffic analysis indicated that the signalized intersection would provide an acceptable level of service for the design year (2020) volumes. An additional analysis was conducted to determine the amount of additional peak hour traffic that could be accommodated at this intersection. This analysis indicated that an additional 15 to 17 percent increase in design hour volume could be accommodated before the capacity of the at-grade intersection was exceeded.
- Alternative 4 (*Figure 8-4*) does not preclude the construction of a two-lane loop ramp connection to US 41 (shown in Alternative 3 (*Figure 8-2*)) in the future when the capacity of the at-grade intersection is exceeded.
- With respect to Alternative 5 (*Figure 8-3*), the inside merge configuration could increase the potential for accidents to occur since some drivers may be uncomfortable with, or unaccustomed to merging into the inside travel lane. The merge could also disrupt the flow of traffic on mainline US 41 as vehicles weave across the travel lanes to access the outside lane.
- A “temporary” decrease in operations will occur during construction with Alternative 5 (*Figure 8-3*) due to possible lane closures both north bound and south bound on US 41, a reduction in travel speed through the construction zone, and a reduction in lateral clearance due to the provision of temporary barriers.

Summary

In summary, even though Alternative 3 (*Figure 8-2*) offers the highest level of traffic operations, Alternative 4 (*Figure 8-4*) was selected as the preferred geometric configuration due to its minimization of right-of-way and construction costs. In addition, the construction of an at-grade intersection at Metro Parkway and US 41 is consistent with the other at-grade intersections proposed along Metro Parkway from Six-Mile Cypress Parkway to Idlewild Street and along US 41 south of Alico Road. As noted above, the at-grade intersection could be modified to provide a grade separated connection in the future when necessary.

PROLOGUE

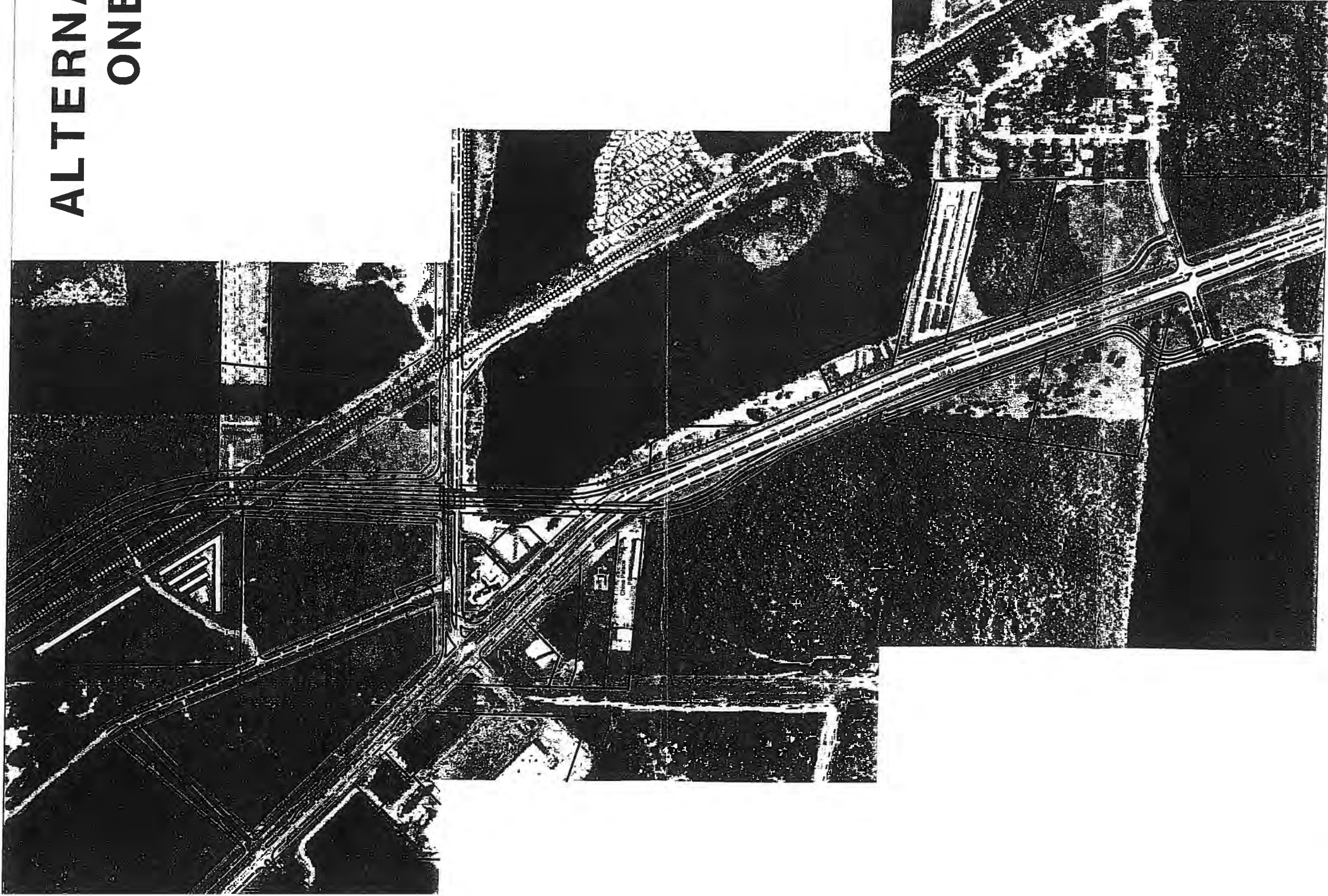
The Department looked at several alternative concepts to connect Metro Parkway at the Metro Parkway / US 41 / Alico Road Apex. The five best candidates are analyzed and evaluated above.

THIS MATRIX ORGANIZES THE DECISION MAKING LOGIC.

ALTERNATIVES		1	2	3	4	5
CONCERNS						
1	The short distance between south bound Metro Pkwy off-ramp/Alico Road intersection and existing Us 41/Alico Road intersection.	x	x			
2	District One Traffic Operations felt that the south bound Metro Parkway to east bound Alico Road movement could not be accommodated as a left turn even with dual left turns.	x	x			
3	With the half-diamond interchange, the concept has three closely spaced signals.	x	x			
4	The provision of a two-lane flyover/(or loop) for south bound Metro Parkway to south bound US 41 would require the purchase of L/A right-of-way from the flyover south to Harborage Road. In addition, this alternative included a frontage road on the west side of US 41 that connected to Harborage Road, a private facility.	x	x	x		
5	Due to the location of the gore at the flyover entrance to US 41, the second lane would not be tapered out prior to Harborage Road/Babcock Road. This configuration would require that the existing unsignalized full median opening be modified to a directional median opening.	x				
6	This concept also requires the purchase of L/A right-of-way on the east side of US 41 as well as the provision of a frontage road from Babcock Road to existing commercial land uses.	x	x	x		x
7	The existing commercial land uses on the west side of US 41 in the vicinity of Alico Road would not have direct access to north bound Metro parkway via Alico Road. This movement would require traveling north bound on US 41 and east bound on Six Mile Cypress Parkway to access Metro Parkway.			x	x	x
8	This concept would require the provision of retaining walls from Metro Parkway/Alico Road interchange to the US 41/Metro Parkway intersection.				x	x
9	The left side ramp configuration requires drivers to merge into the inside lane of US 41. This movement is unconventional to the average driver, and a significant number of drivers are seasonal residents and/or elderly. This movement also requires vehicles to merge with the US 41 high speed lane.					x
10	This alternative would require a temporary realignment of the north bound lanes on US 41 during construction in order to build the grade separation on US 41 north bound.					x

INTERCHANGE CONNECTION CONCEPTS

ALTERNATIVE ONE



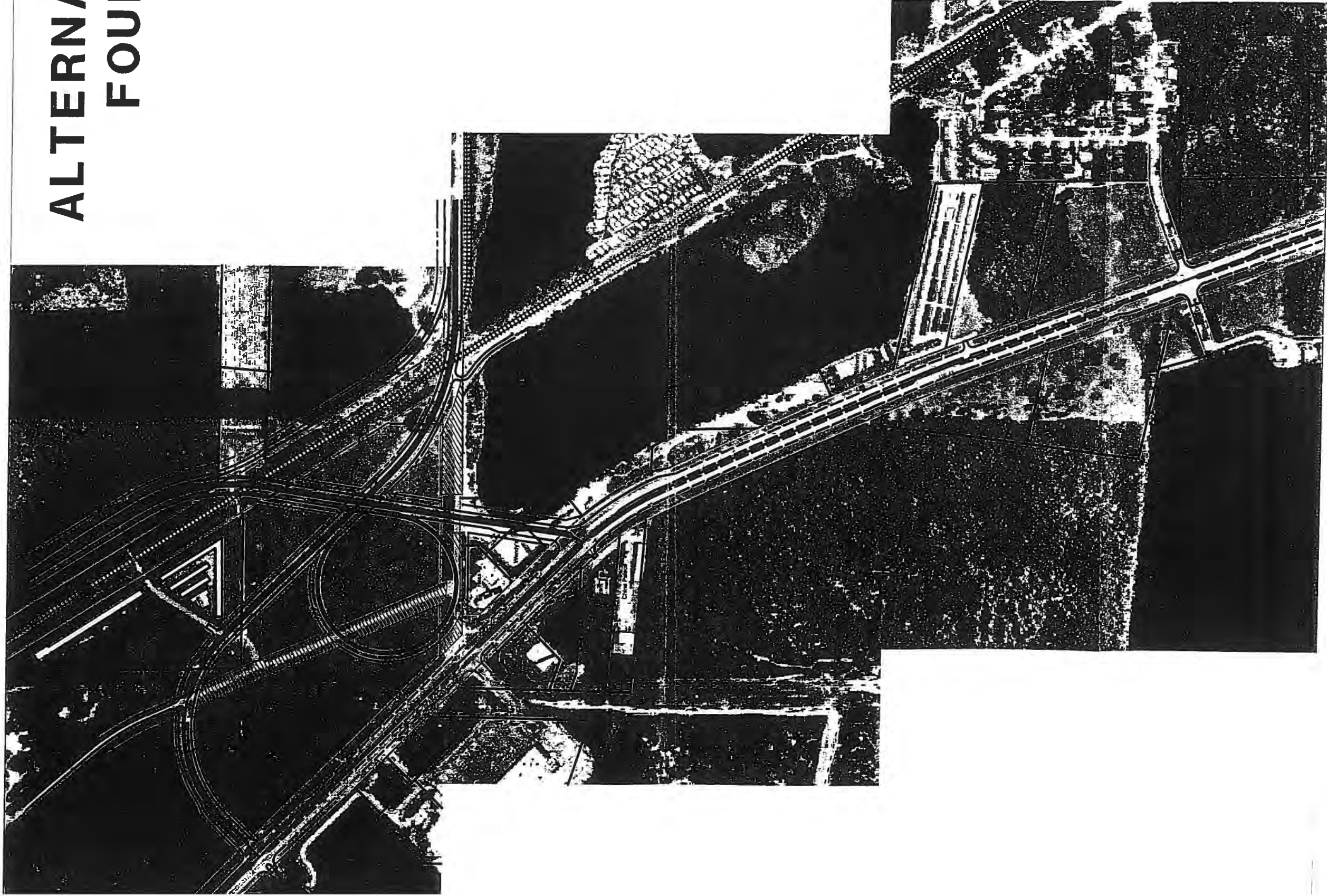
ALTERNATIVE TWO



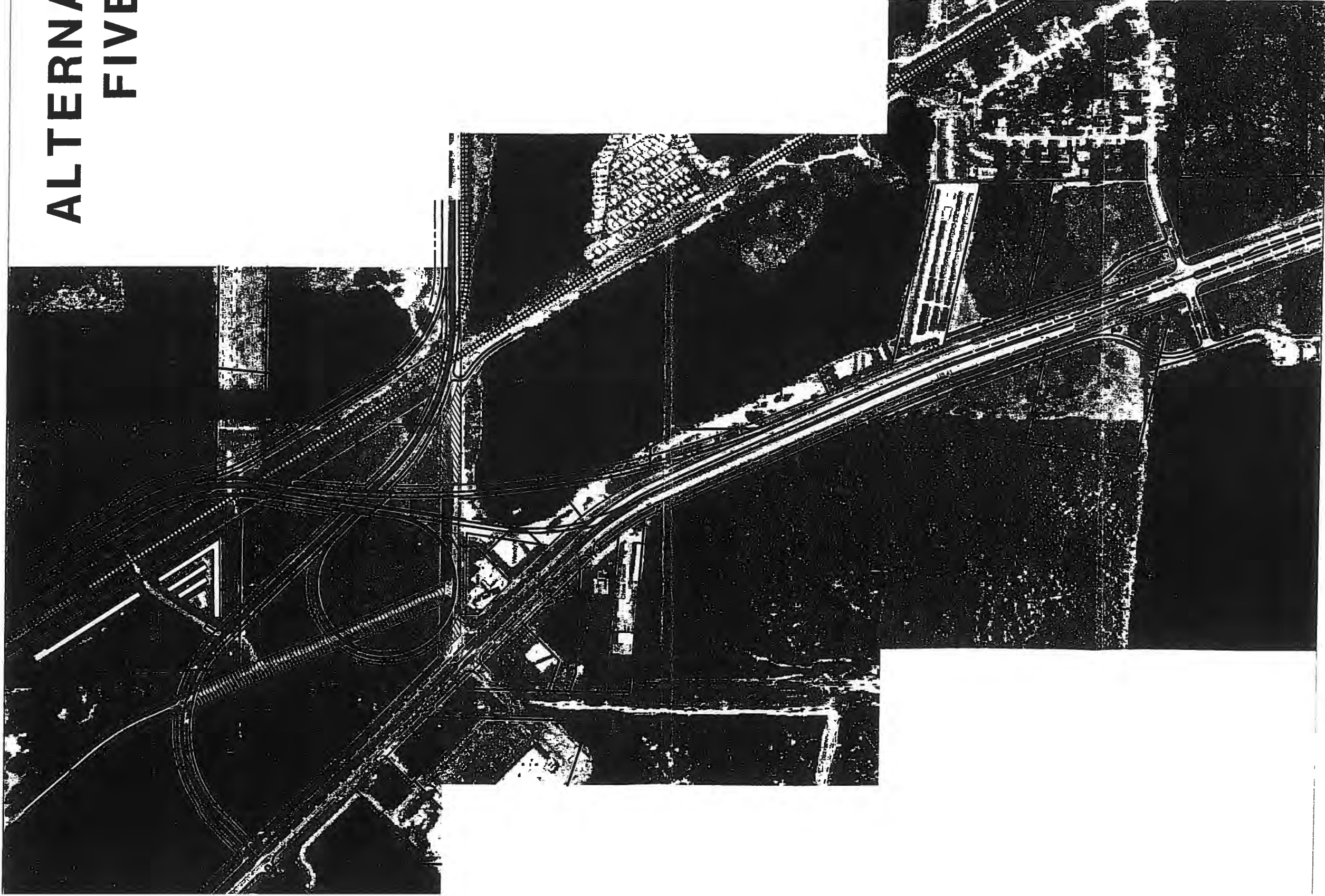
ALTERNATIVE THREE



ALTERNATIVE FOUR



ALTERNATIVE FIVE

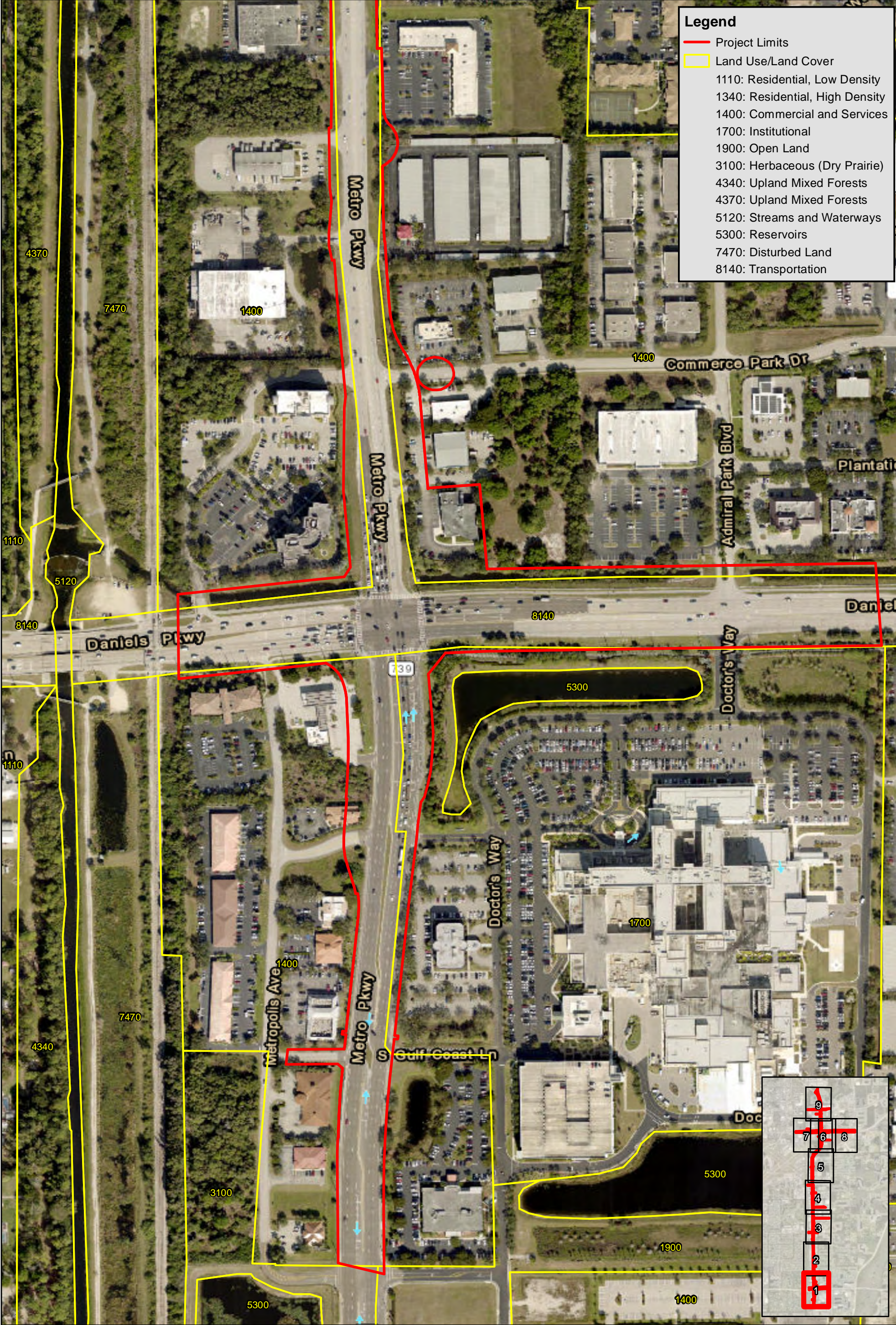


Appendix B

SFWMD Land Use/Land Cover Map

Legend

- Project Limits
- Land Use/Land Cover
- 1110: Residential, Low Density
- 1340: Residential, High Density
- 1400: Commercial and Services
- 1700: Institutional
- 1900: Open Land
- 3100: Herbaceous (Dry Prairie)
- 4340: Upland Mixed Forests
- 4370: Upland Mixed Forests
- 5120: Streams and Waterways
- 5300: Reservoirs
- 7470: Disturbed Land
- 8140: Transportation



Date: 01/26/2023 Rev: Date: N/A File: TK GIS Analyst: CMS Map Document: SR739_FLUCFS_CMS_20230126.mxd Document Path: U:\GIS\TPA\USF\Projects and Proposals\01025333_30_P SR 739 from Daniels to Winkler\mxd\SR739_FLUCFS_CMS_20230126.mxd

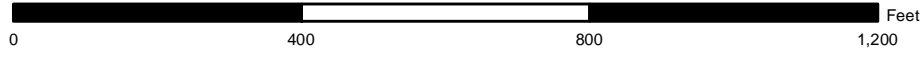
Appendix B - SFWMD Land Use/Land Cover Map

Page 1 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



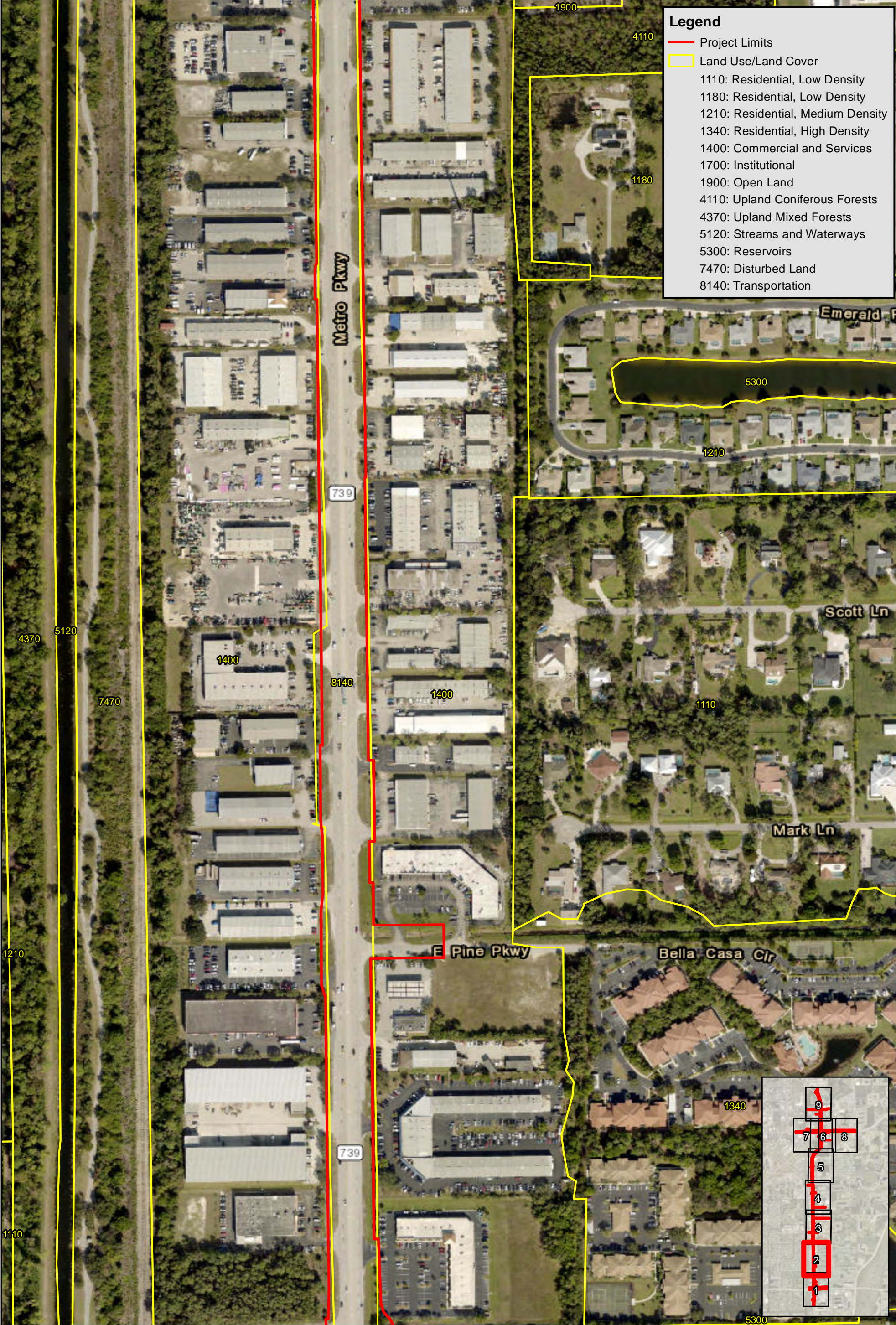
All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the stability of the information.



Data Source:
 - CES
 - ESA
 - SFWMD (2017-2019)
 Imagery Source:
 - ESRI

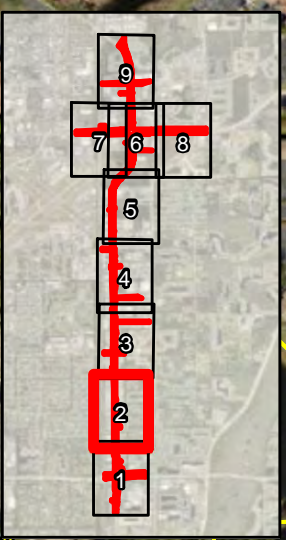


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Legend

- Project Limits
- Land Use/Land Cover
- 1110: Residential, Low Density
- 1180: Residential, Low Density
- 1210: Residential, Medium Density
- 1340: Residential, High Density
- 1400: Commercial and Services
- 1700: Institutional
- 1900: Open Land
- 4110: Upland Coniferous Forests
- 4370: Upland Mixed Forests
- 5120: Streams and Waterways
- 5300: Reservoirs
- 7470: Disturbed Land
- 8140: Transportation



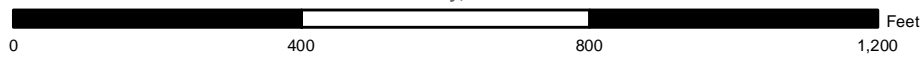
Appendix B - SFWMD Land Use/Land Cover Map

Page 2 of 9

FPID #: 431334-1
SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
Lee County, Florida



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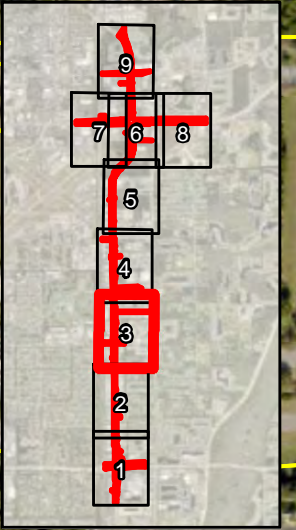
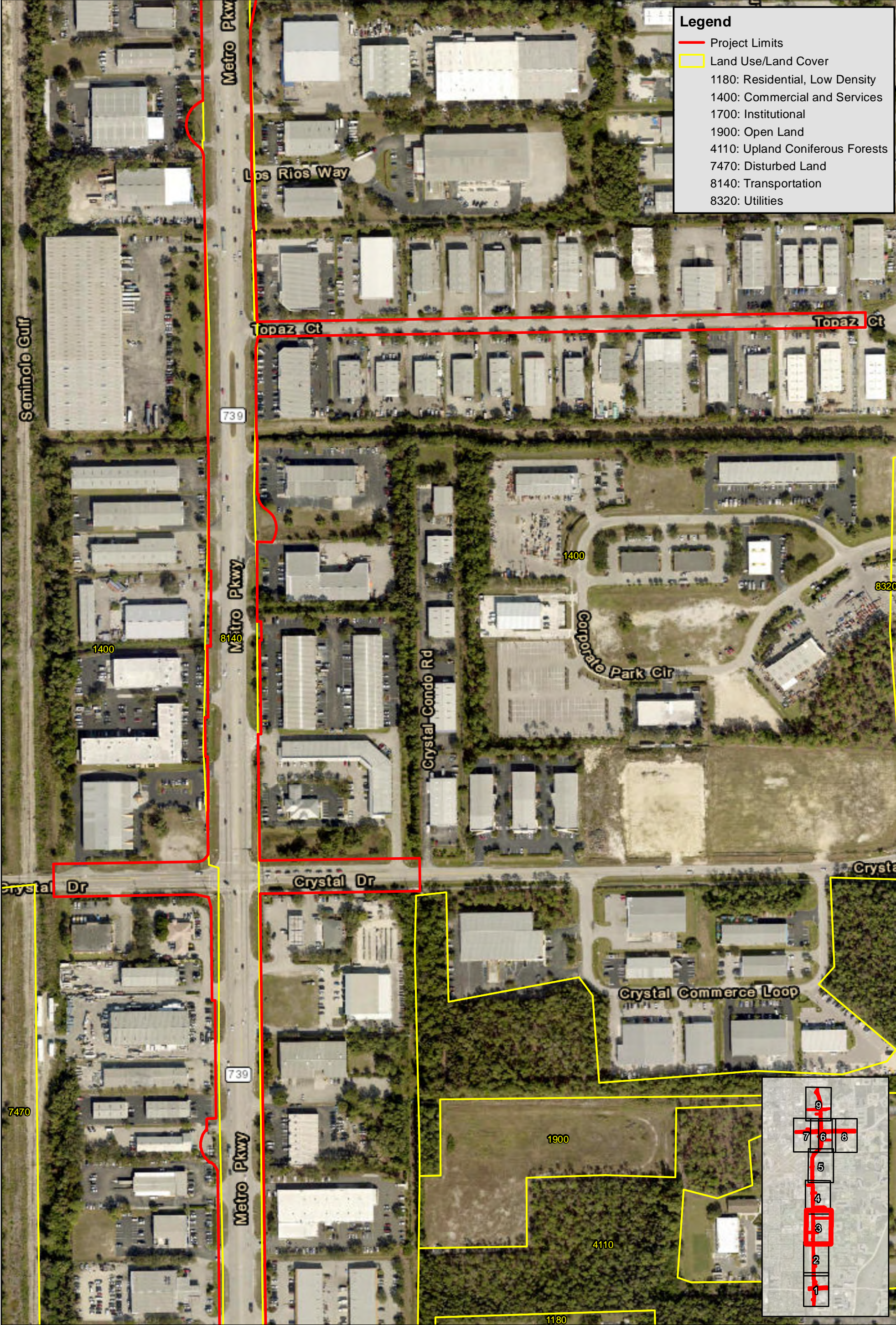


Data Source:
- CES
- ESA
- SFWMD (2017-2019)
Imagery Source:
- ESRI



Legend

- Project Limits
- Land Use/Land Cover
 - 1180: Residential, Low Density
 - 1400: Commercial and Services
 - 1700: Institutional
 - 1900: Open Land
 - 4110: Upland Coniferous Forests
 - 7470: Disturbed Land
 - 8140: Transportation
 - 8320: Utilities

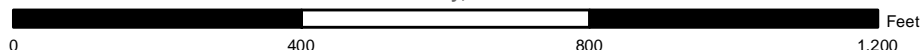


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Appendix B - SFWMD Land Use/Land Cover Map

Page 3 of 9
 FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



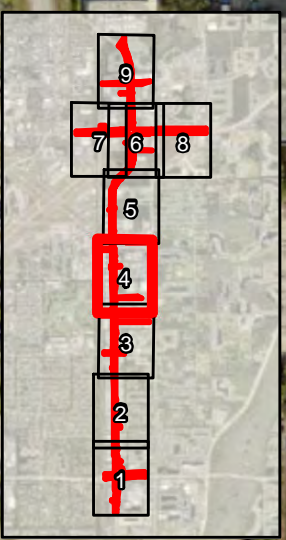
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 - ESA
 - SFWMD (2017-2019)
 Imagery Source:
 - ESRI



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Legend

- Project Limits
- Land Use/Land Cover
 - 1400: Commercial and Services
 - 1550: Industrial
 - 4110: Upland Coniferous Forests
 - 5120: Streams and Waterways
 - 5300: Reservoirs
 - 8140: Transportation



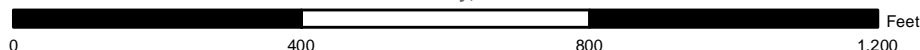
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Appendix B - SFWMD Land Use/Land Cover Map

Page 4 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



Data Source:
 - CES
 - ESA
 - SFWMD (2017-2019)
 Imagery Source:
 - ESRI



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- Legend**
- Project Limits
 - Land Use/Land Cover
 - 1110: Residential, Low Density
 - 1210: Residential, Medium Density
 - 1390: Residential, High Density
 - 1400: Commercial and Services
 - 1550: Industrial
 - 1900: Open Land
 - 2110: Cropland and Pastureland
 - 4110: Upland Coniferous Forests
 - 4240: Upland Hardwood Forests
 - 5300: Reservoirs
 - 6172: Wetland Hardwood Forests
 - 6191: Wetland Hardwood Forests
 - 6216: Wetland Coniferous Forests
 - 6250: Wetland Coniferous Forests
 - 6410: Vegetated Non-Forested Wetlands
 - 7400: Disturbed Land
 - 8140: Transportation

Date: 01/26/2023 Rev: Date: N/A File: TK GIS Analyst: CANS Map Document: SR739_FLUOFCFS_CMS_20230126.mxd Project Number: 25333 PDF Document: SR739_FLUOFCFS_CMS_20230126.pdf Plot Size: 8.5 x 11 Document Path: U:\GIS\TPA\USF\Projects and Proposals\012533_30_P_SRP_739 from Daniels to Winkler\mxd\SR739_FLUOFCFS_CMS_20230126.mxd

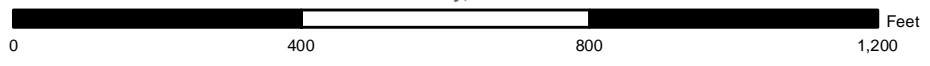
Appendix B - SFWMD Land Use/Land Cover Map

Page 5 of 9

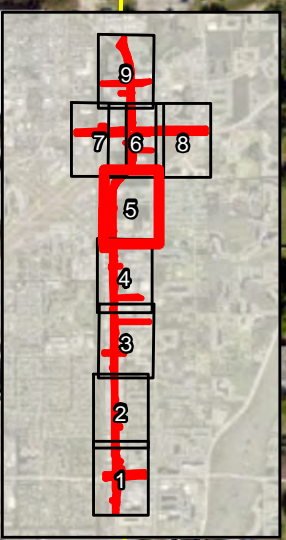
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 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



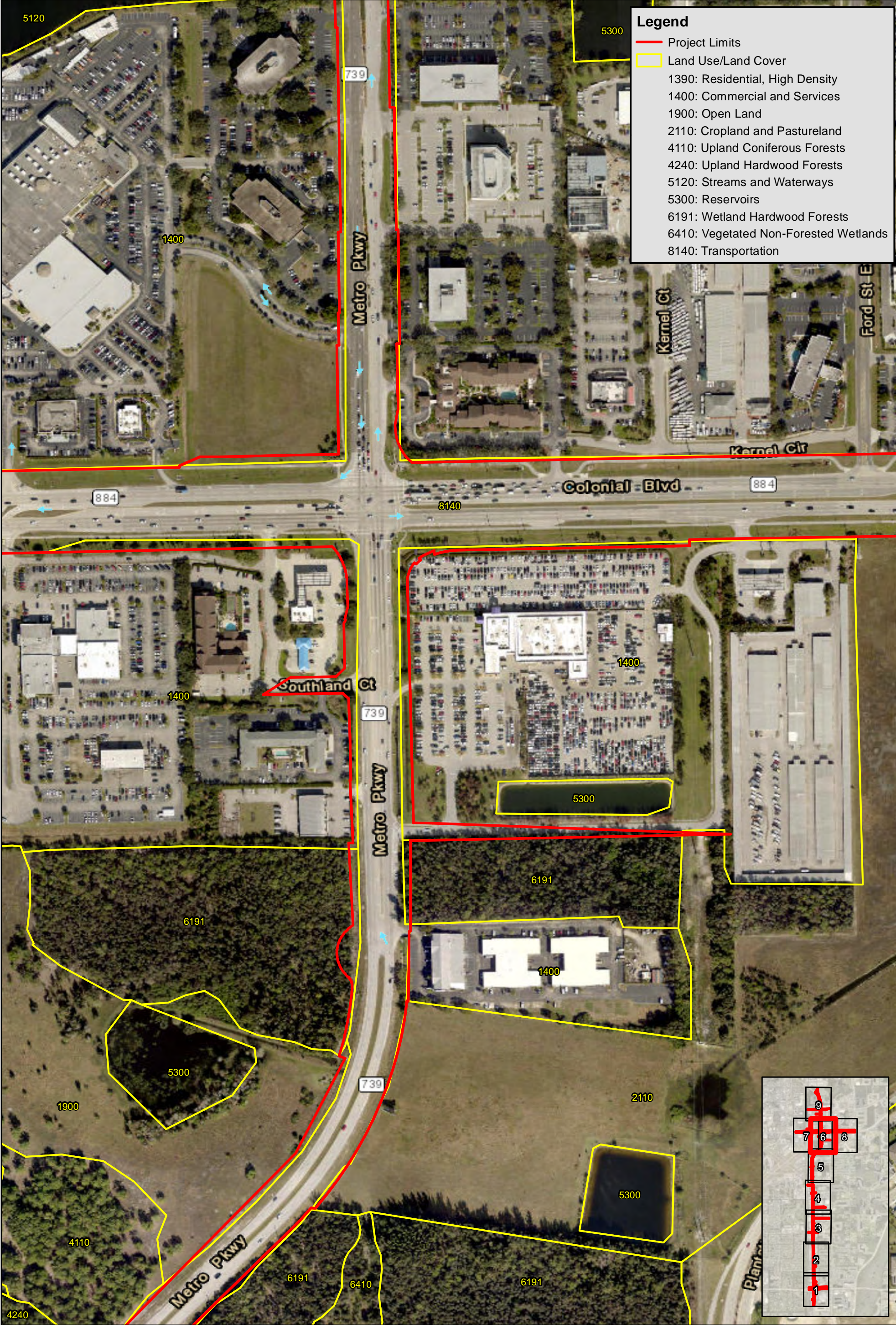
All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the stability of the information.



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 Imagery Source:
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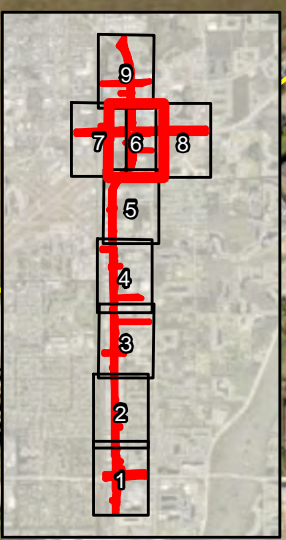


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Legend

- Project Limits
- Land Use/Land Cover
- 1390: Residential, High Density
- 1400: Commercial and Services
- 1900: Open Land
- 2110: Cropland and Pastureland
- 4110: Upland Coniferous Forests
- 4240: Upland Hardwood Forests
- 5120: Streams and Waterways
- 5300: Reservoirs
- 6191: Wetland Hardwood Forests
- 6410: Vegetated Non-Forested Wetlands
- 8140: Transportation



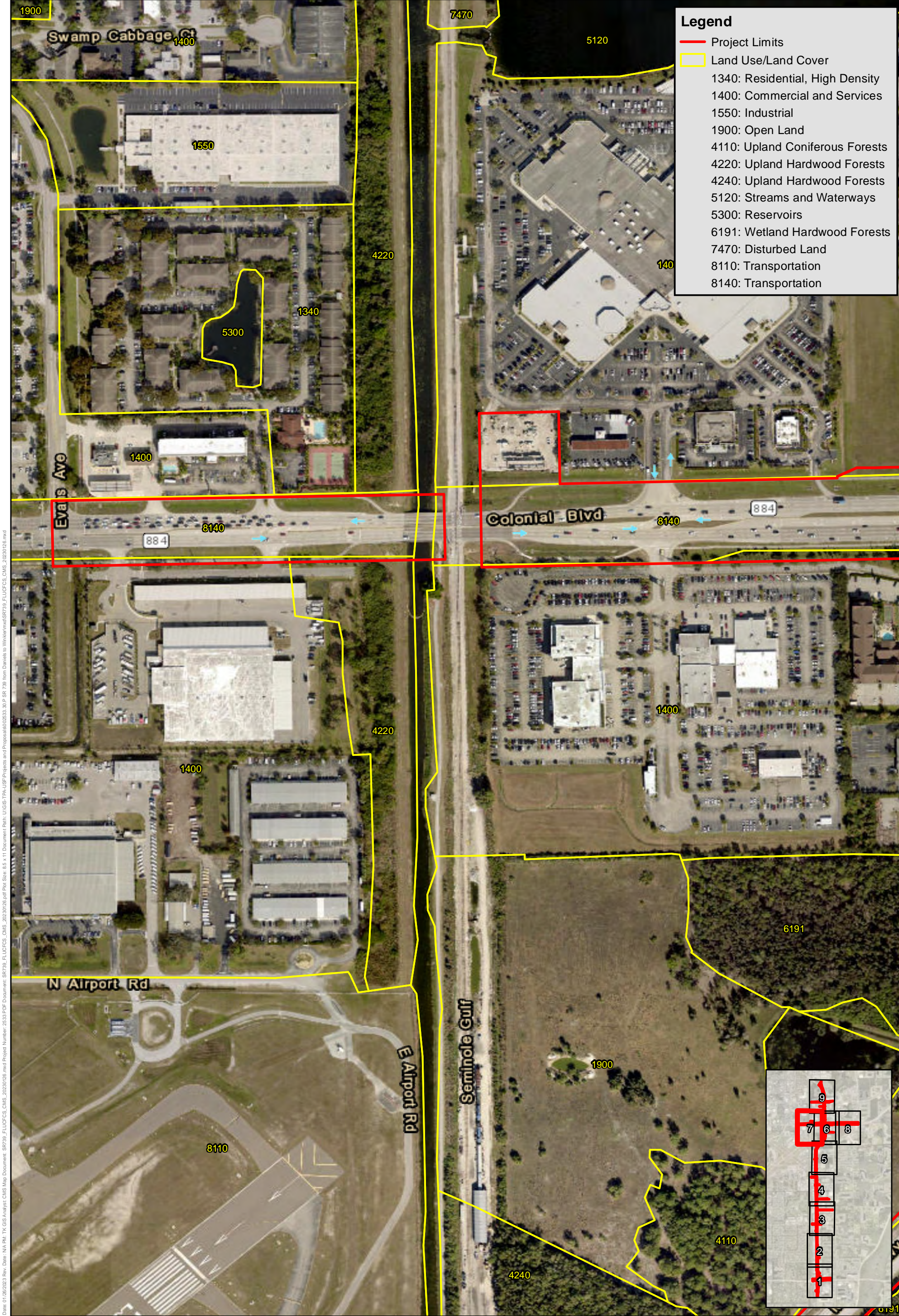
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Appendix B - SFWMD Land Use/Land Cover Map

Page 6 of 9
 FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida

Feet
 0 400 800 1,200

Data Source:
 - CES
 - ESA
 - SFWMD (2017-2019)
 Imagery Source:
 - ESRI



Legend

- Project Limits
- Land Use/Land Cover
- 1340: Residential, High Density
- 1400: Commercial and Services
- 1550: Industrial
- 1900: Open Land
- 4110: Upland Coniferous Forests
- 4220: Upland Hardwood Forests
- 4240: Upland Hardwood Forests
- 5120: Streams and Waterways
- 5300: Reservoirs
- 6191: Wetland Hardwood Forests
- 7470: Disturbed Land
- 8110: Transportation
- 8140: Transportation

Date: 01/26/2023 Rev: Date: N/A Path: TK GIS Analyst: CMS Map Document: SR739_FLUCFCS_CMS_20230126.mxd Project Number: 25337 PDF Document: SR739_FLUCFCS_CMS_20230126.pdf Plot Size: 8.5 x 11 Document Path: U:\GIS\TP4-USF\Projects and Proposals\01025333_30_P_SRP_739 from Daniels to Winkler\mxd\SR739_FLUCFCS_CMS_20230126.mxd

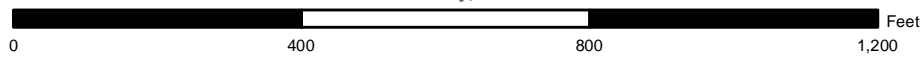
Appendix B - SFWMD Land Use/Land Cover Map

Page 7 of 9

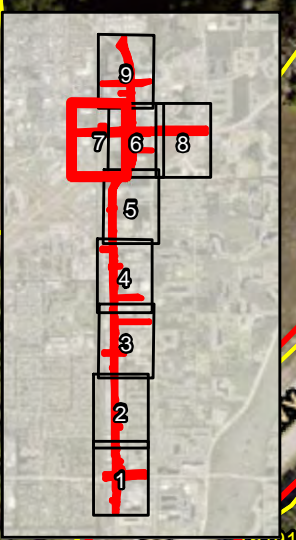
FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



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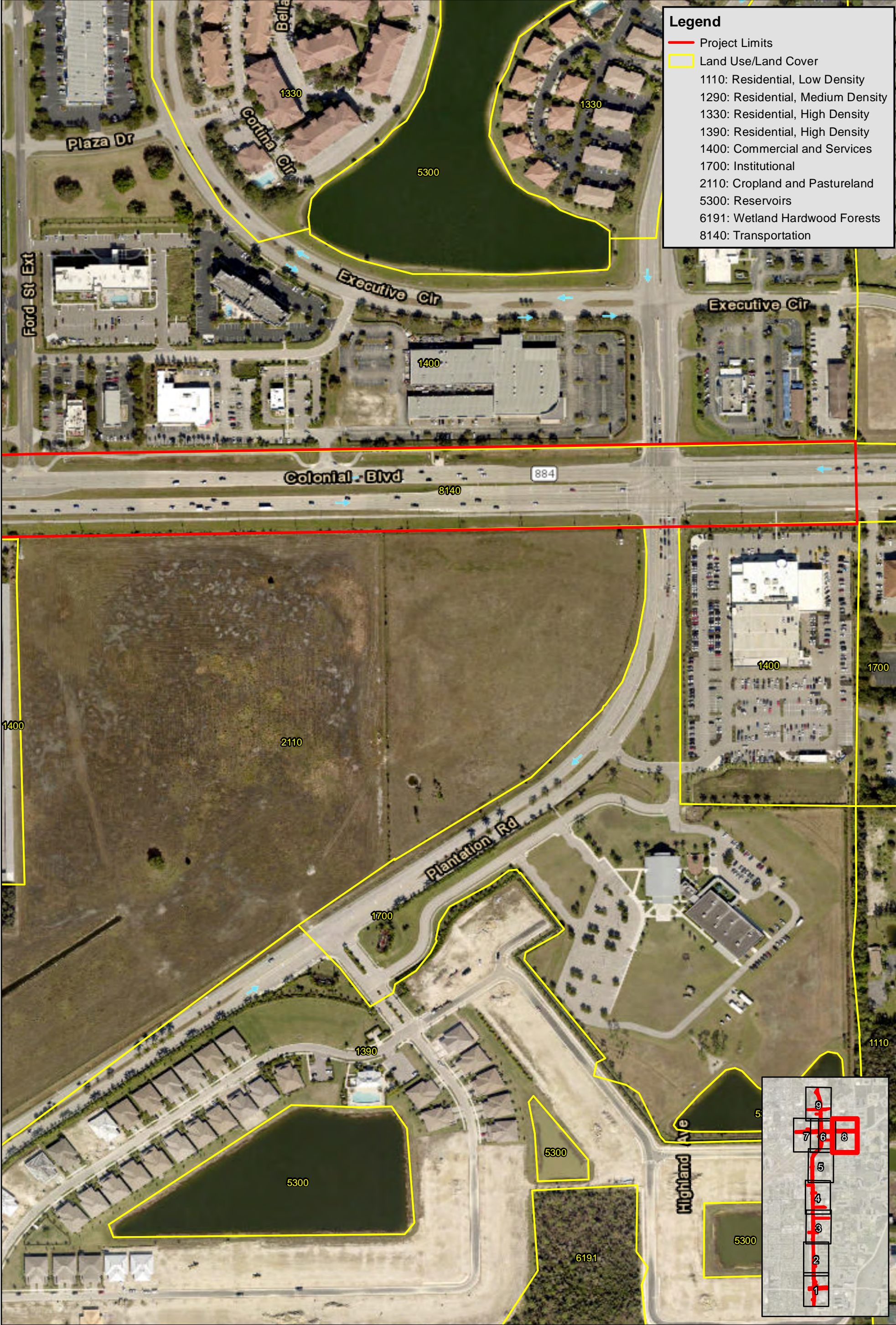


Data Source:
 - CES
 - ESA
 - SFWMD (2017-2019)
 Imagery Source:
 - ESRI



Legend

- Project Limits
- Land Use/Land Cover
- 1110: Residential, Low Density
- 1290: Residential, Medium Density
- 1330: Residential, High Density
- 1390: Residential, High Density
- 1400: Commercial and Services
- 1700: Institutional
- 2110: Cropland and Pastureland
- 5300: Reservoirs
- 6191: Wetland Hardwood Forests
- 8140: Transportation



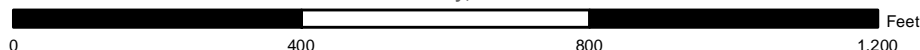
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Appendix B - SFWMD Land Use/Land Cover Map

Page 8 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



Data Source:
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 - ESA
 - SFWMD (2017-2019)
 Imagery Source:
 - ESRI



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- Legend**
- Project Limits
 - Land Use/Land Cover
 - 1330: Residential, High Density
 - 1340: Residential, High Density
 - 1400: Commercial and Services
 - 1411: Commercial and Services
 - 1900: Open Land
 - 4340: Upland Mixed Forests
 - 5120: Streams and Waterways
 - 5300: Reservoirs
 - 6172: Wetland Hardwood Forests
 - 6191: Wetland Hardwood Forests
 - 6215: Wetland Coniferous Forests
 - 6216: Wetland Coniferous Forests
 - 6410: Vegetated Non-Forested Wetlands
 - 7470: Disturbed Land
 - 8140: Transportation
 - 8310: Utilities

Date: 01/26/2023 Rev: Date: N/A RM: TK GIS Analyst: CMS Map Document: SR739_FUUCFS_CMS_20230126.mxd Document Path: L:\GIS\TMA\SR739\Projects and Proposals\012623_30_P_SRP_739 from Daniels to Winkler\mxd\SR739_FUUCFS_CMS_20230126.mxd

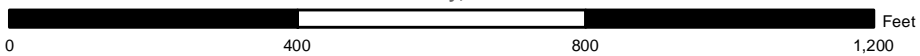
Appendix B - SFWMD Land Use/Land Cover Map

Page 9 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



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Data Source:
 - CES
 - ESA
 - SFWMD (2017-2019)
 Imagery Source:
 - ESRI



Appendix C

NWI Wetlands and Hydric Soils Map

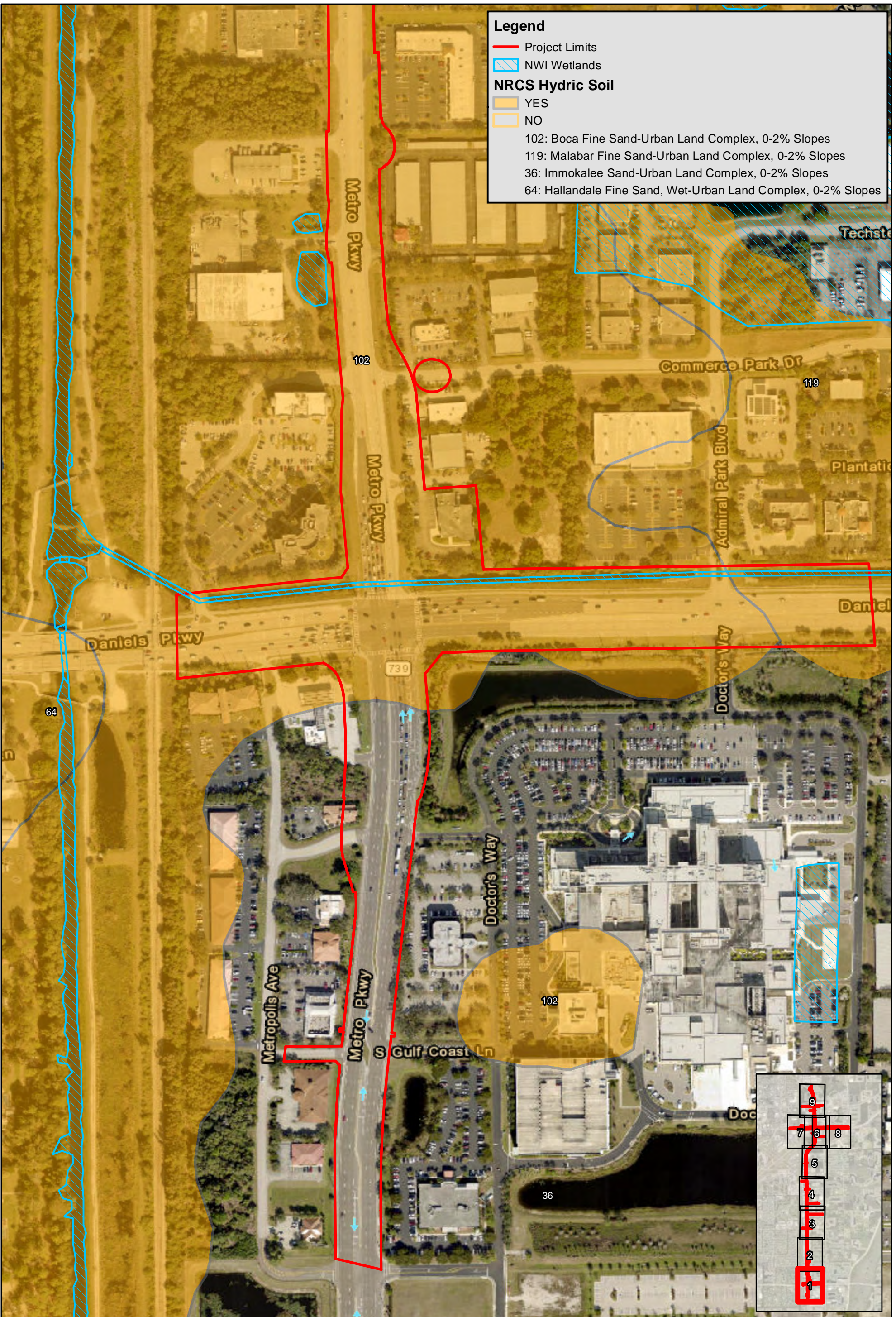
Legend

- Project Limits
- NWI Wetlands

NRCS Hydric Soil

- YES
- NO

102: Boca Fine Sand-Urban Land Complex, 0-2% Slopes
 119: Malabar Fine Sand-Urban Land Complex, 0-2% Slopes
 36: Immokalee Sand-Urban Land Complex, 0-2% Slopes
 64: Hallandale Fine Sand, Wet-Urban Land Complex, 0-2% Slopes



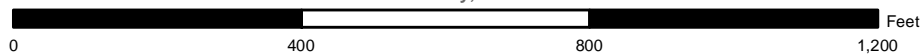
Appendix C - NWI Wetlands and NRCS Hydric Soils Map

Page 1 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida





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Data Source:
 - CES
 - ESA
 - NRCS (2018)
 - NWI (2019)
 Imagery Source:
 - ESRI



Legend

-  Project Limits
-  NWI Wetlands

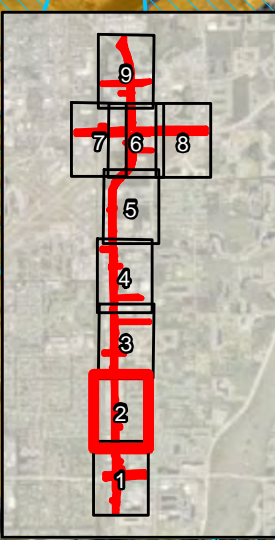
NRCS Hydric Soil

-  YES
-  NO

- 102: Boca Fine Sand-Urban Land Complex, 0-2% Slopes
- 119: Malabar Fine Sand-Urban Land Complex, 0-2% Slopes
- 147: Pineda Fine Sand, Limestone Substratum-Urban Land Complex, 0-2% Slopes
- 36: Immokalee Sand-Urban Land Complex, 0-2% Slopes
- 64: Hallandale Fine Sand, Wet-Urban Land Complex, 0-2% Slopes



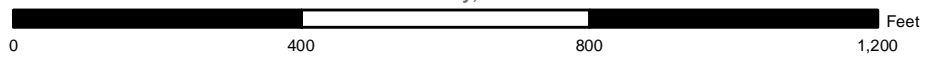
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Appendix C - NWI Wetlands and NRCS Hydric Soils Map

Page 2 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



Data Source:
 - CES
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 - NRCS (2018)
 - NWI (2019)
 Imagery Source:
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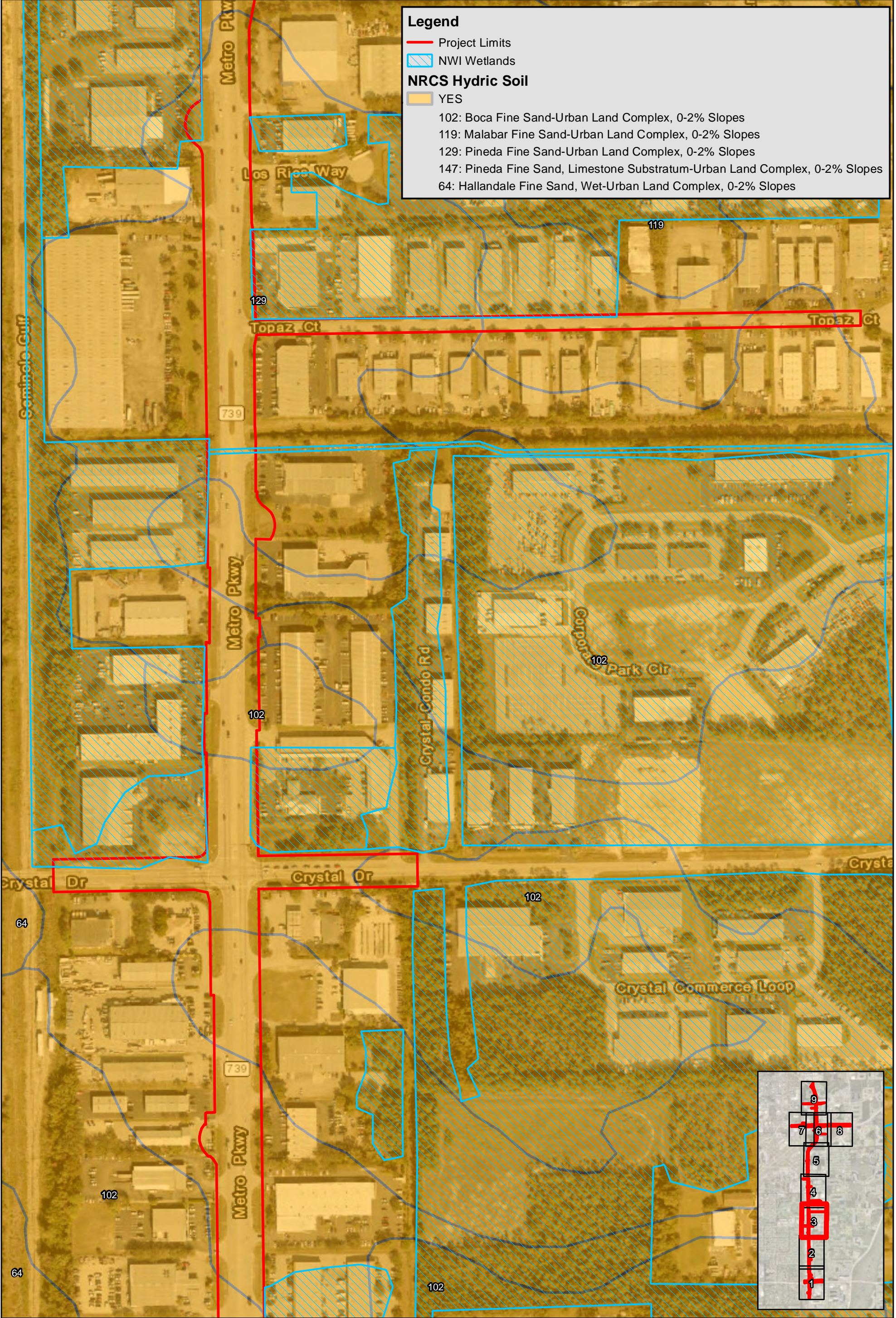
Legend

- Project Limits
- NWI Wetlands

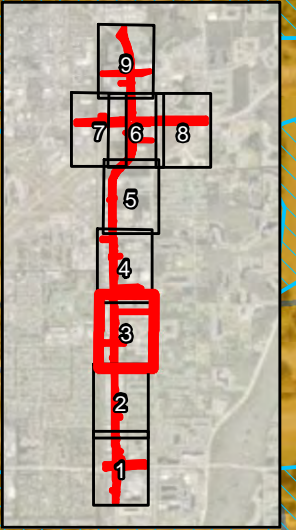
NRCS Hydric Soil

YES

- 102: Boca Fine Sand-Urban Land Complex, 0-2% Slopes
- 119: Malabar Fine Sand-Urban Land Complex, 0-2% Slopes
- 129: Pineda Fine Sand-Urban Land Complex, 0-2% Slopes
- 147: Pineda Fine Sand, Limestone Substratum-Urban Land Complex, 0-2% Slopes
- 64: Hallandale Fine Sand, Wet-Urban Land Complex, 0-2% Slopes



Date: 01/26/2023 Rev: Date: 02/01/2023 PM: TK: GIS Analyst: CMS Map Document: SR739_NRCS_NWI_CMS_20230126.mxd Project Number: 2533 PDF Document: SR739_NRCS_NWI_CMS_20230126.pdf Plot Size: 8.5 x 11 Document Path: U:\GIS\TRA\USP\Projects and Proposals\025333_30.P SR 739 from Daniels to Winkler\mxd\SR739_NRCS_CMS_20230126.mxd

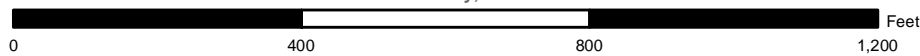


Appendix C - NWI Wetlands and NRCS Hydric Soils Map

Page 3 of 9

FPID #: 431334-1

SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
Lee County, Florida



Data Source:
 - CES
 - ESA
 - NRCS (2018)
 - NWI (2019)
 Imagery Source:
 - ESRI



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Legend

Project Limits

NWI Wetlands

NRCS Hydric Soil

YES

102: Boca Fine Sand-Urban Land Complex, 0-2% Slopes

116: Isles Fine Sand, Poned-Urban Land Complex, 0-1% Slopes

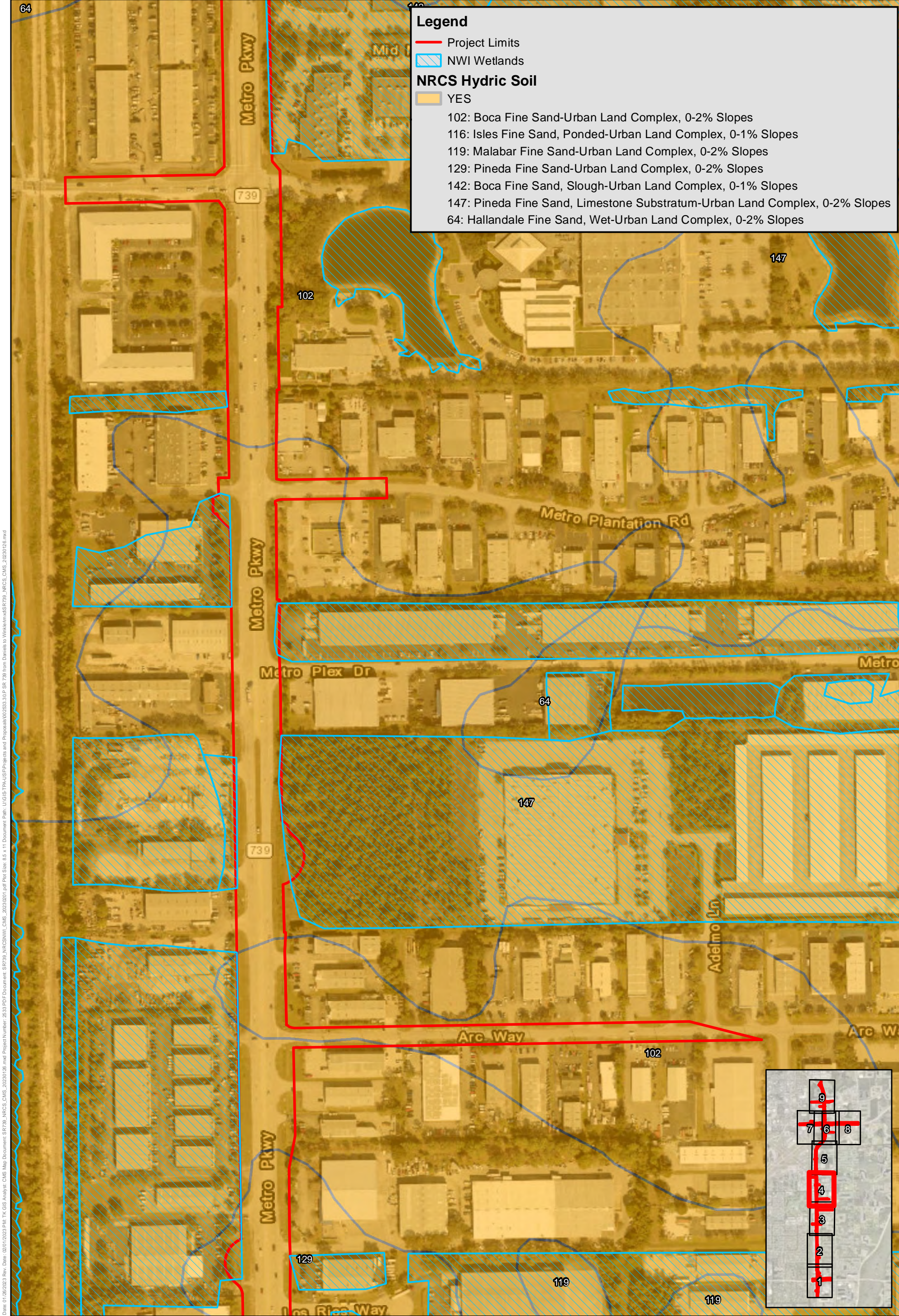
119: Malabar Fine Sand-Urban Land Complex, 0-2% Slopes

129: Pineda Fine Sand-Urban Land Complex, 0-2% Slopes

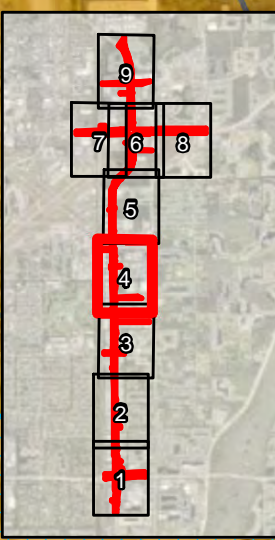
142: Boca Fine Sand, Slough-Urban Land Complex, 0-1% Slopes

147: Pineda Fine Sand, Limestone Substratum-Urban Land Complex, 0-2% Slopes

64: Hallandale Fine Sand, Wet-Urban Land Complex, 0-2% Slopes



Date: 01/26/2023 Rev. Date: 02/01/2023 PM: 11:45 AM Analyst: CMS Map Document: SR739_NRCSSWI_CMS_20230126.mxd Project Number: 25337 Document Path: U:\GIS\TRA\USP\Projects and Proposals\022533_30.P SR 739 from Daniels to Winkler\mxd\SR739_NRCSSWI_CMS_20230126.mxd



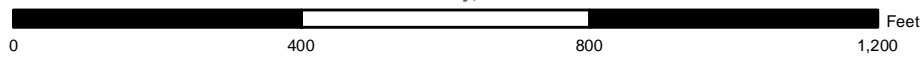
Appendix C - NWI Wetlands and NRCS Hydric Soils Map

Page 4 of 9

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

SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
Lee County, Florida

Data Source:
- CES
- ESA
- NRCS (2018)
- NWI (2019)
Imagery Source:
- ESRI




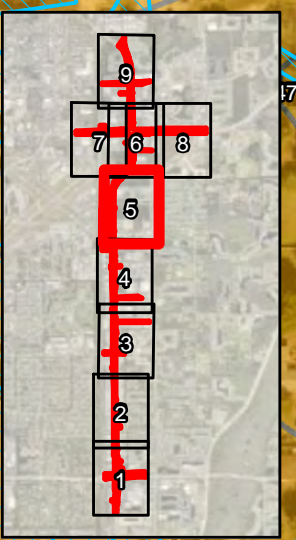
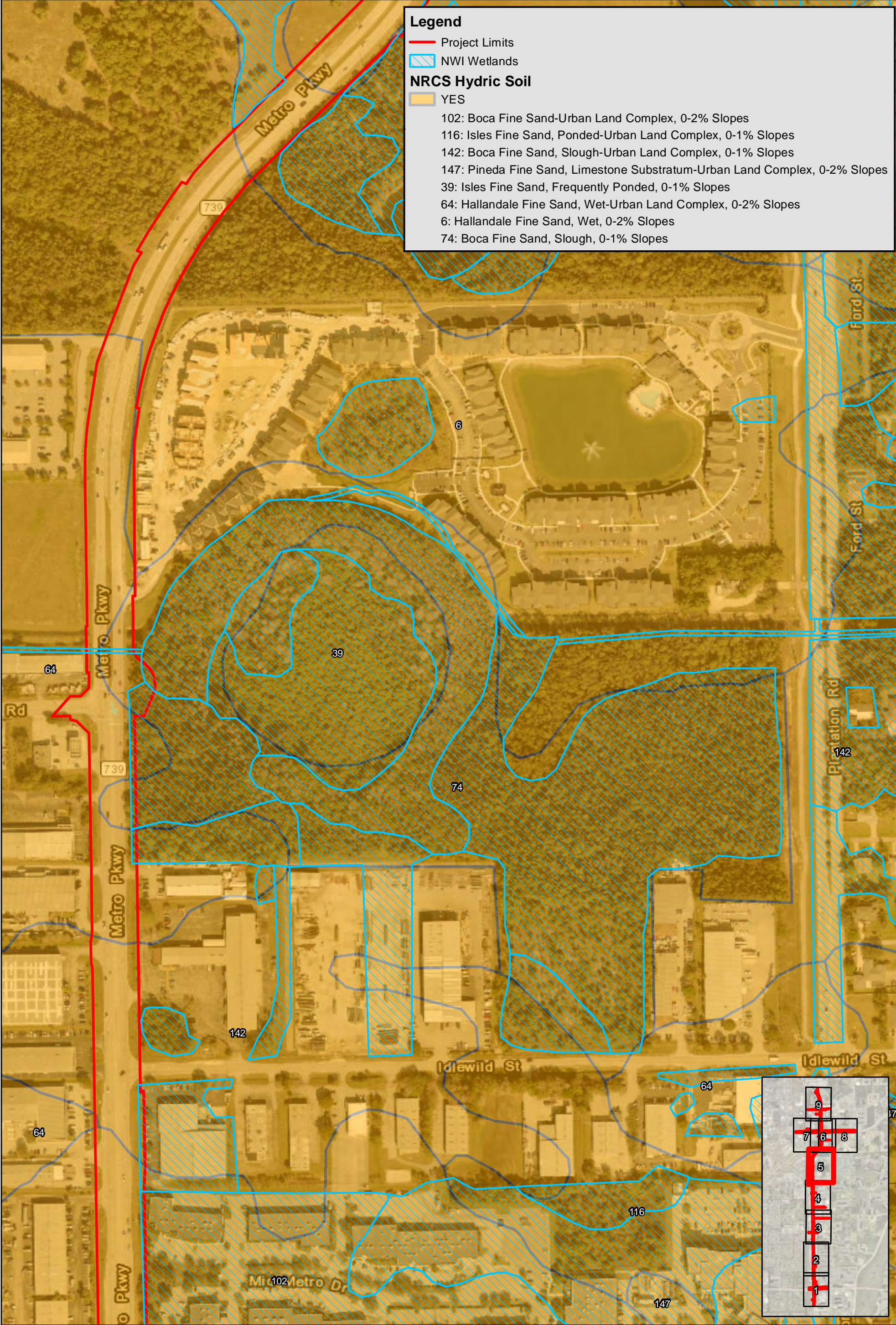
All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the stability of the information.

Legend

-  Project Limits
-  NWI Wetlands

NRCS Hydric Soil

-  YES
- 102: Boca Fine Sand-Urban Land Complex, 0-2% Slopes
- 116: Isles Fine Sand, Pondered-Urban Land Complex, 0-1% Slopes
- 142: Boca Fine Sand, Slough-Urban Land Complex, 0-1% Slopes
- 147: Pineda Fine Sand, Limestone Substratum-Urban Land Complex, 0-2% Slopes
- 39: Isles Fine Sand, Frequently Pondered, 0-1% Slopes
- 64: Hallandale Fine Sand, Wet-Urban Land Complex, 0-2% Slopes
- 6: Hallandale Fine Sand, Wet, 0-2% Slopes
- 74: Boca Fine Sand, Slough, 0-1% Slopes



Date: 01/26/2023 Rev: Date: 02/01/2023 P.M. T.K. GIS Analyst: CMS Map Document: SR739_NRCS_CMS_20230126.mxd Project Number: 2533 PDF Document: SR739_NRCS_NWI_CMS_20230201.pdf Plot Size: 8.5 x 11 Document Path: U:\GIS\T94\US\Projects and Proposals\02533_30 P SR 739 from Daniels to Winkler\mxd\SR739_NRCS_CMS_20230126.mxd



Appendix C - NWI Wetlands and NRCS Hydric Soils Map

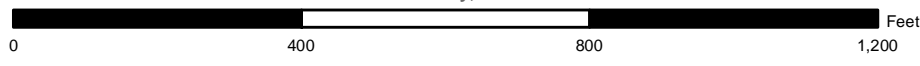
Page 5 of 9

FPID #: 431334-1
SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
Lee County, Florida

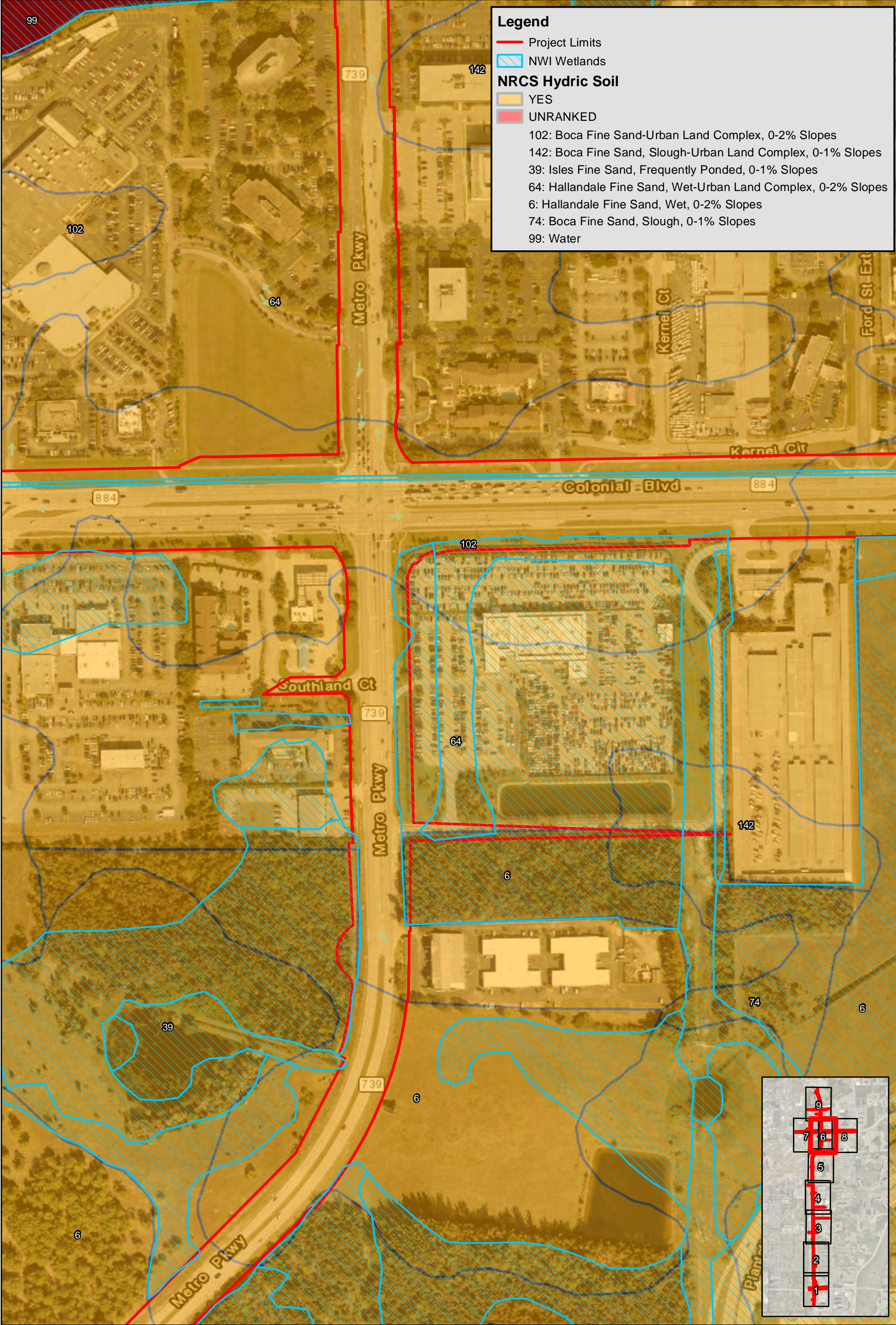
Data Source:
- CES
- ESA
- NRCS (2018)
- NWI (2019)
Imagery Source:
- ESRI



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Date: 01/26/2023 Rev: Date: 02/01/2023 PM: TK: GIS Analyst: CMS Map Document: SR739_NRCS_CMS_20230126.mxd Project Number: 2533 PDF Document: SR739_NRCSNW1_CMS_20230126.pdf File Size: 8.5 x 11 Document Path: U:\GIS\TRA\USP\Projects and Proposals\022533_30.P SR 739 from Daniels to Winkler\mxd\SR739_NRCS_CMS_20230126.mxd



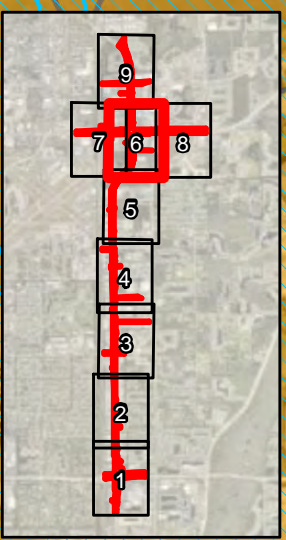
Legend

- Project Limits
- NWI Wetlands

NRCS Hydric Soil

- YES
- UNRANKED

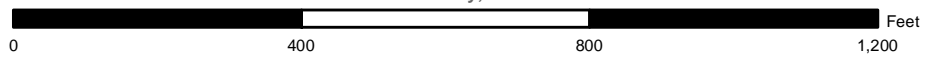
102: Boca Fine Sand-Urban Land Complex, 0-2% Slopes
 142: Boca Fine Sand, Slough-Urban Land Complex, 0-1% Slopes
 39: Isles Fine Sand, Frequently Ponded, 0-1% Slopes
 64: Hallandale Fine Sand, Wet-Urban Land Complex, 0-2% Slopes
 6: Hallandale Fine Sand, Wet, 0-2% Slopes
 74: Boca Fine Sand, Slough, 0-1% Slopes
 99: Water



Appendix C - NWI Wetlands and NRCS Hydric Soils Map

Page 6 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida

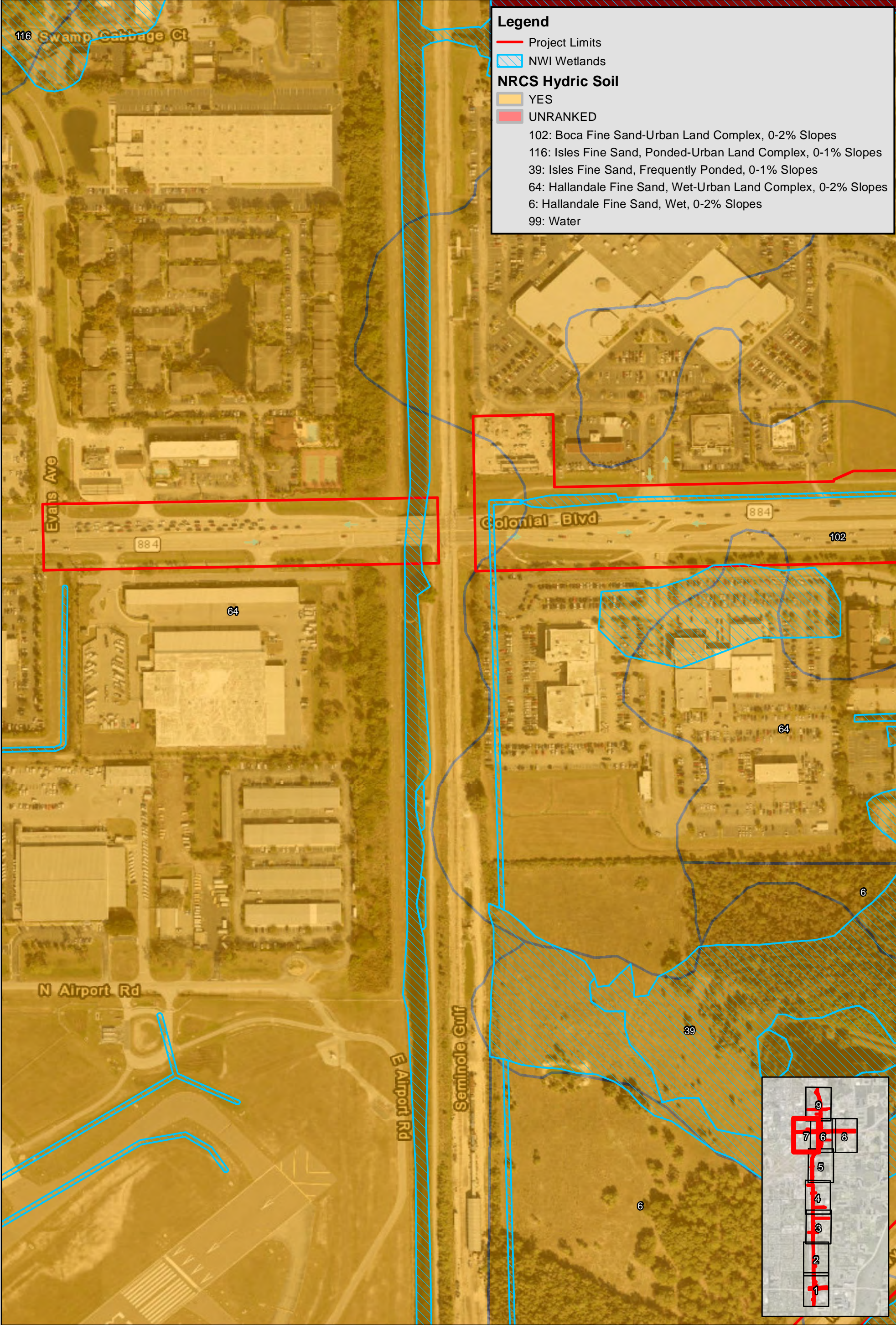


Data Source:
 - CES
 - ESA
 - NRCS (2018)
 - NWI (2019)
 Imagery Source:
 - ESRI



All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the stability of the information.

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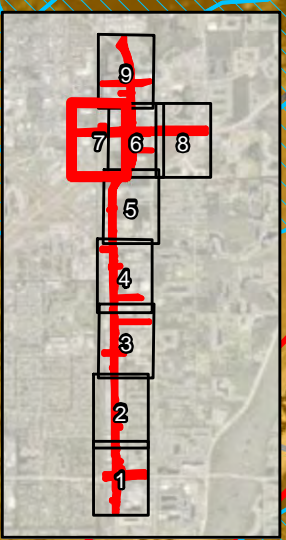
Legend

- Project Limits
- NWI Wetlands

NRCS Hydric Soil

- YES
- UNRANKED

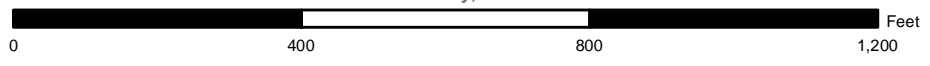
102: Boca Fine Sand-Urban Land Complex, 0-2% Slopes
 116: Isles Fine Sand, Poned-Urban Land Complex, 0-1% Slopes
 39: Isles Fine Sand, Frequently Poned, 0-1% Slopes
 64: Hallandale Fine Sand, Wet-Urban Land Complex, 0-2% Slopes
 6: Hallandale Fine Sand, Wet, 0-2% Slopes
 99: Water



Appendix C - NWI Wetlands and NRCS Hydric Soils Map

Page 7 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



Data Source:
 - CES
 - ESA
 - NRCS (2018)
 - NWI (2019)
 Imagery Source:
 - ESRI



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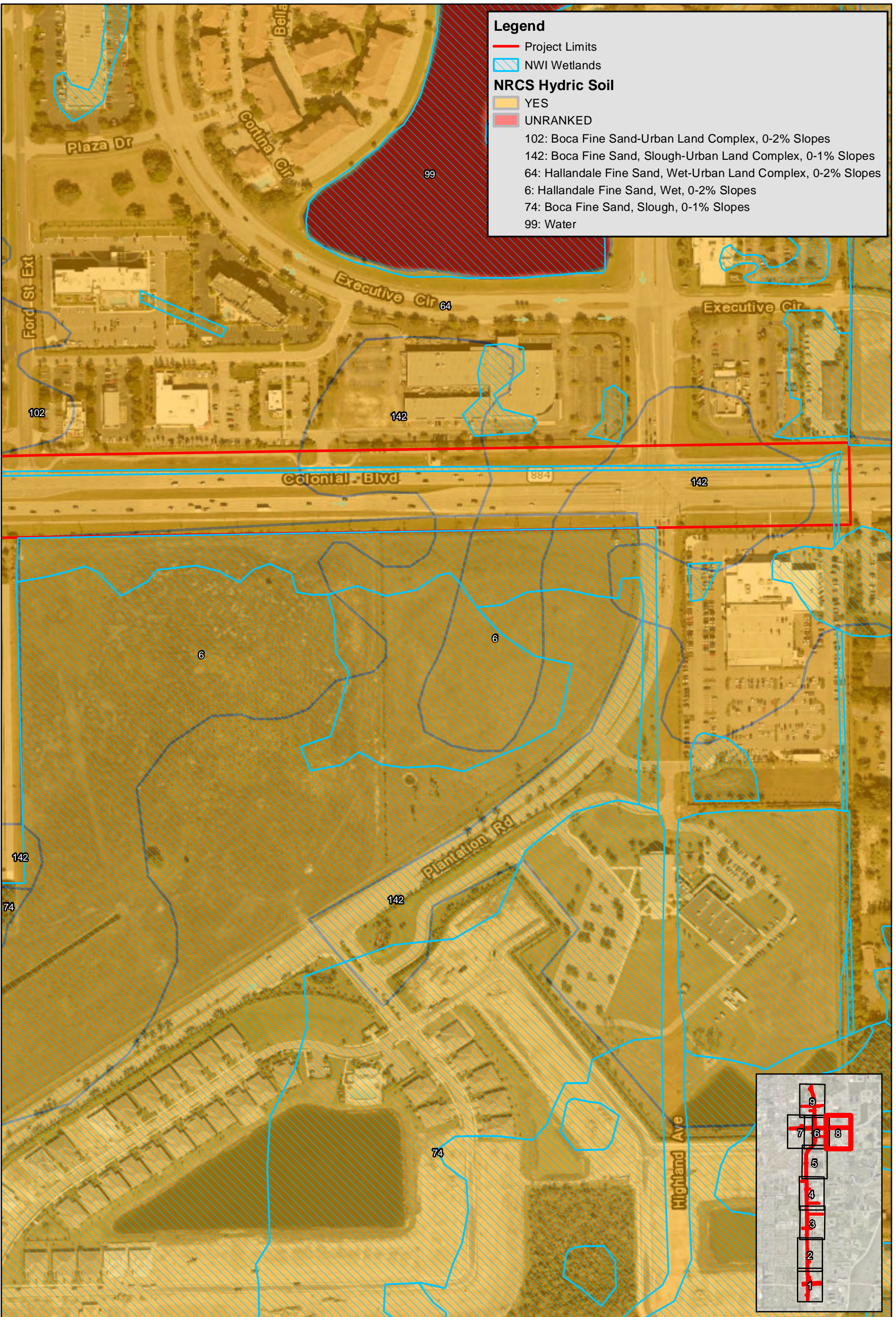
Legend

- Project Limits
- NWI Wetlands

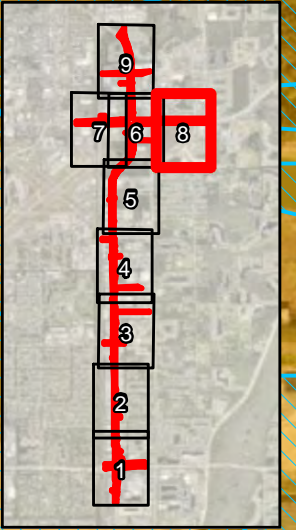
NRCS Hydric Soil

- YES
- UNRANKED

- 102: Boca Fine Sand-Urban Land Complex, 0-2% Slopes
- 142: Boca Fine Sand, Slough-Urban Land Complex, 0-1% Slopes
- 64: Hallandale Fine Sand, Wet-Urban Land Complex, 0-2% Slopes
- 6: Hallandale Fine Sand, Wet, 0-2% Slopes
- 74: Boca Fine Sand, Slough, 0-1% Slopes
- 99: Water



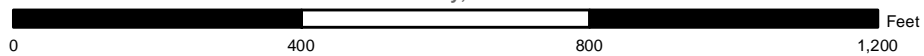
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Appendix C - NWI Wetlands and NRCS Hydric Soils Map

Page 8 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



Data Source:
 - CES
 - ESA
 - NRCS (2018)
 - NWI (2019)
 Imagery Source:
 - ESRI



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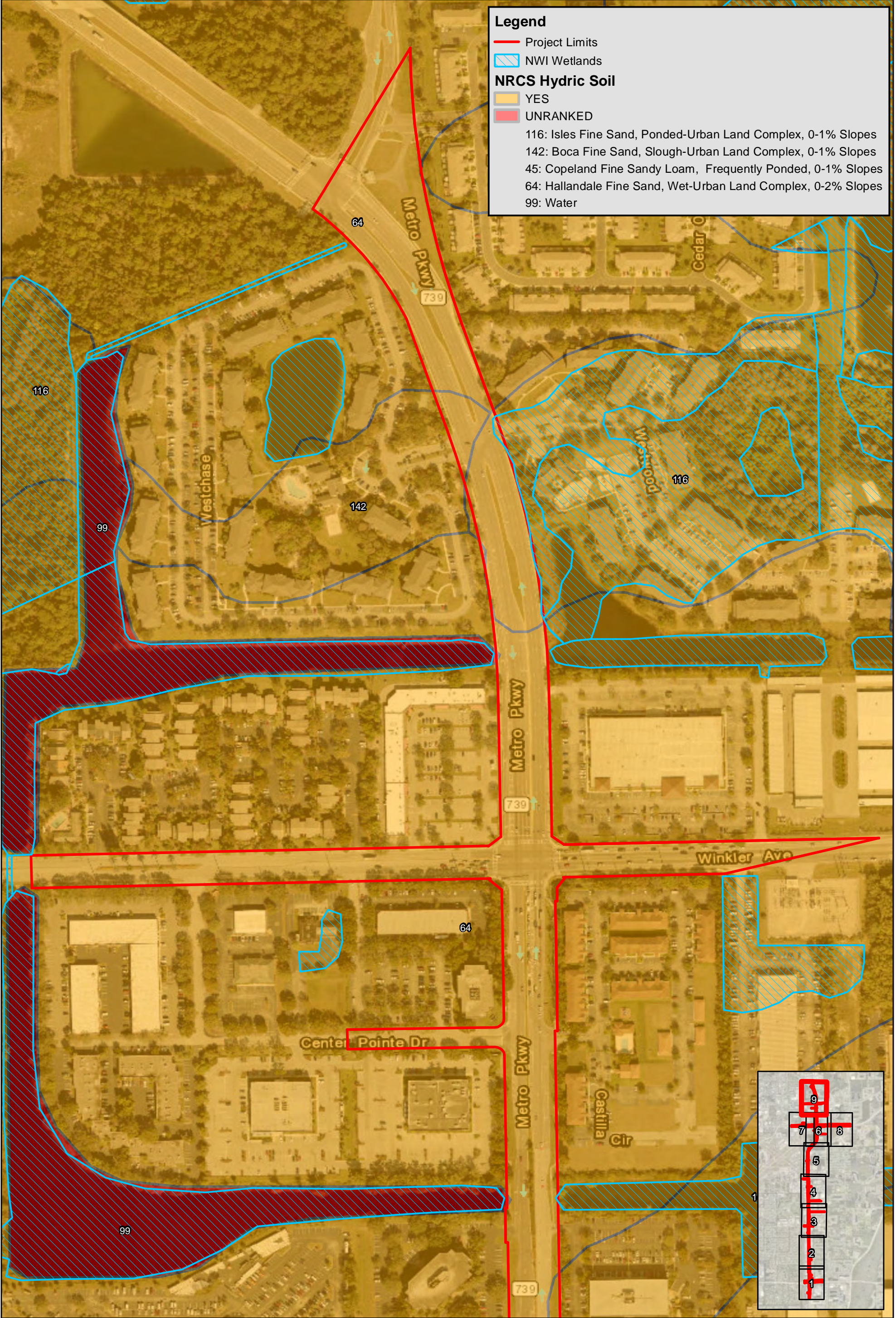
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- Project Limits
- NWI Wetlands

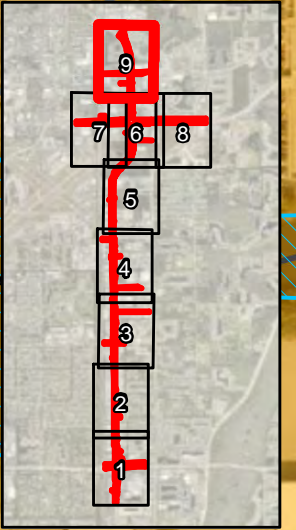
NRCS Hydric Soil

- YES
- UNRANKED

- 116: Isles Fine Sand, Poned-Urban Land Complex, 0-1% Slopes
- 142: Boca Fine Sand, Slough-Urban Land Complex, 0-1% Slopes
- 45: Copeland Fine Sandy Loam, Frequently Poned, 0-1% Slopes
- 64: Hallandale Fine Sand, Wet-Urban Land Complex, 0-2% Slopes
- 99: Water



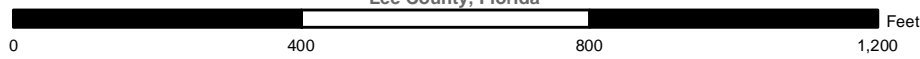
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Appendix C - NWI Wetlands and NRCS Hydric Soils Map

Page 9 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



Data Source:
 - CES
 - ESA
 - NRCS (2018)
 - NWI (2019)
 Imagery Source:
 - ESRI



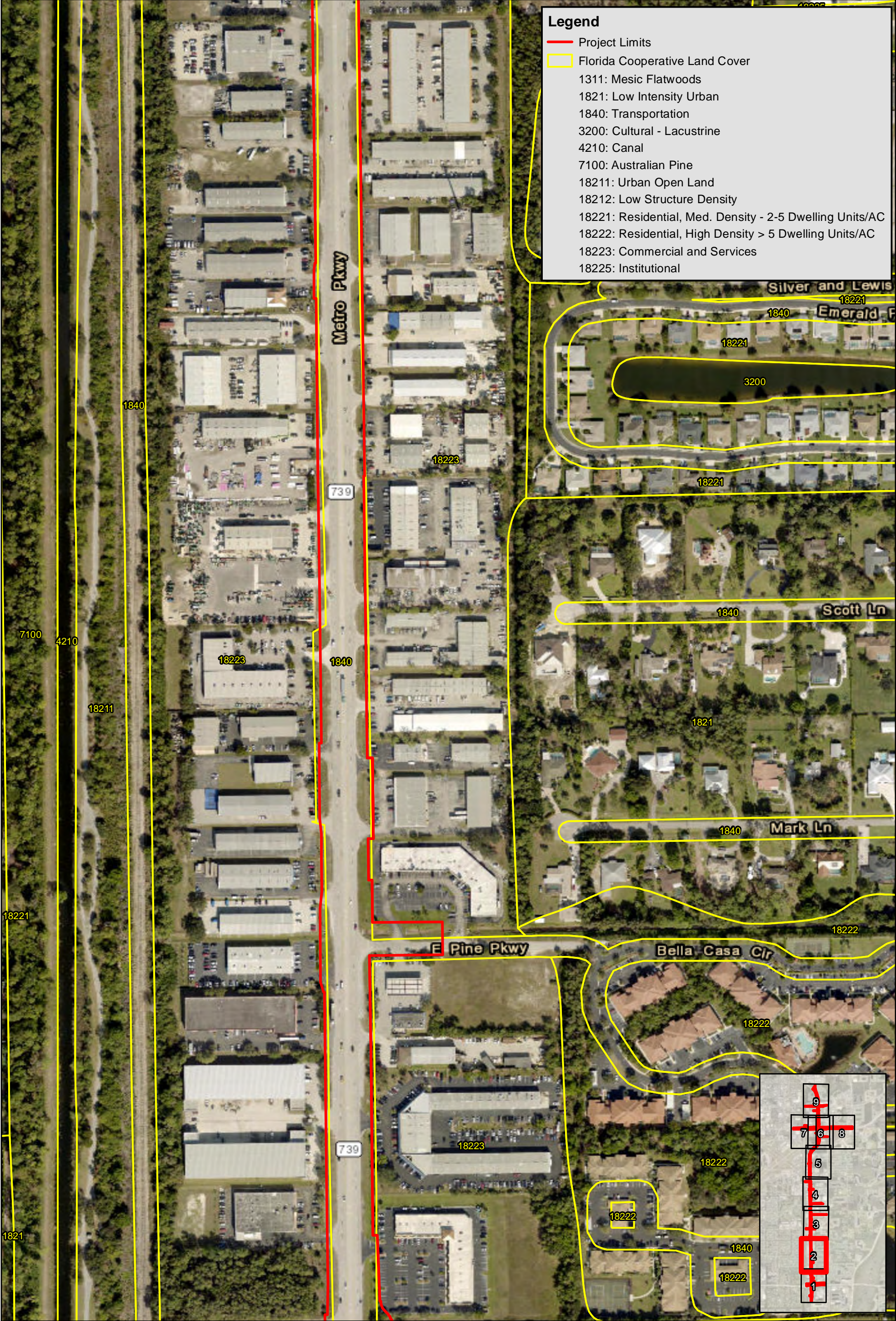
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Appendix D

FNAI Cooperative Land Cover Map

Legend

- Project Limits
- Florida Cooperative Land Cover
 - 1311: Mesic Flatwoods
 - 1821: Low Intensity Urban
 - 1840: Transportation
 - 3200: Cultural - Lacustrine
 - 4210: Canal
 - 7100: Australian Pine
 - 18211: Urban Open Land
 - 18212: Low Structure Density
 - 18221: Residential, Med. Density - 2-5 Dwelling Units/AC
 - 18222: Residential, High Density > 5 Dwelling Units/AC
 - 18223: Commercial and Services
 - 18225: Institutional



Date: 01/26/2023 Rev. Date: N/A File: TK GIS Analyst: CMS Map Document: SR739_FINAL_CMS_20230126.mxd Project Number: 2533.PDF Document: SR739_FINAL_CMS_20230126.pdf Plot Size: 8.5 x 11 Document Path: U:\GIS\TK-LISP\Projects\SR739_FINAL_CMS_20230126.mxd

Appendix D - FNAI Cooperative Land Cover Map

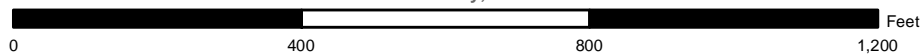
Page 2 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida

Data Source:
 - CES
 - ESA
 - FNAI (v 3.5)
 Imagery Source:
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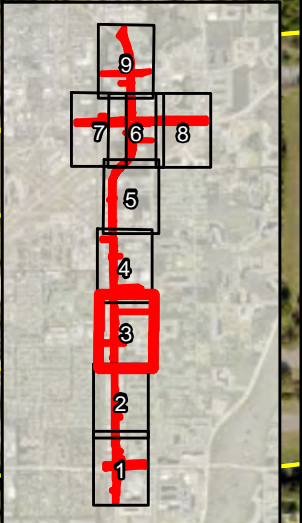
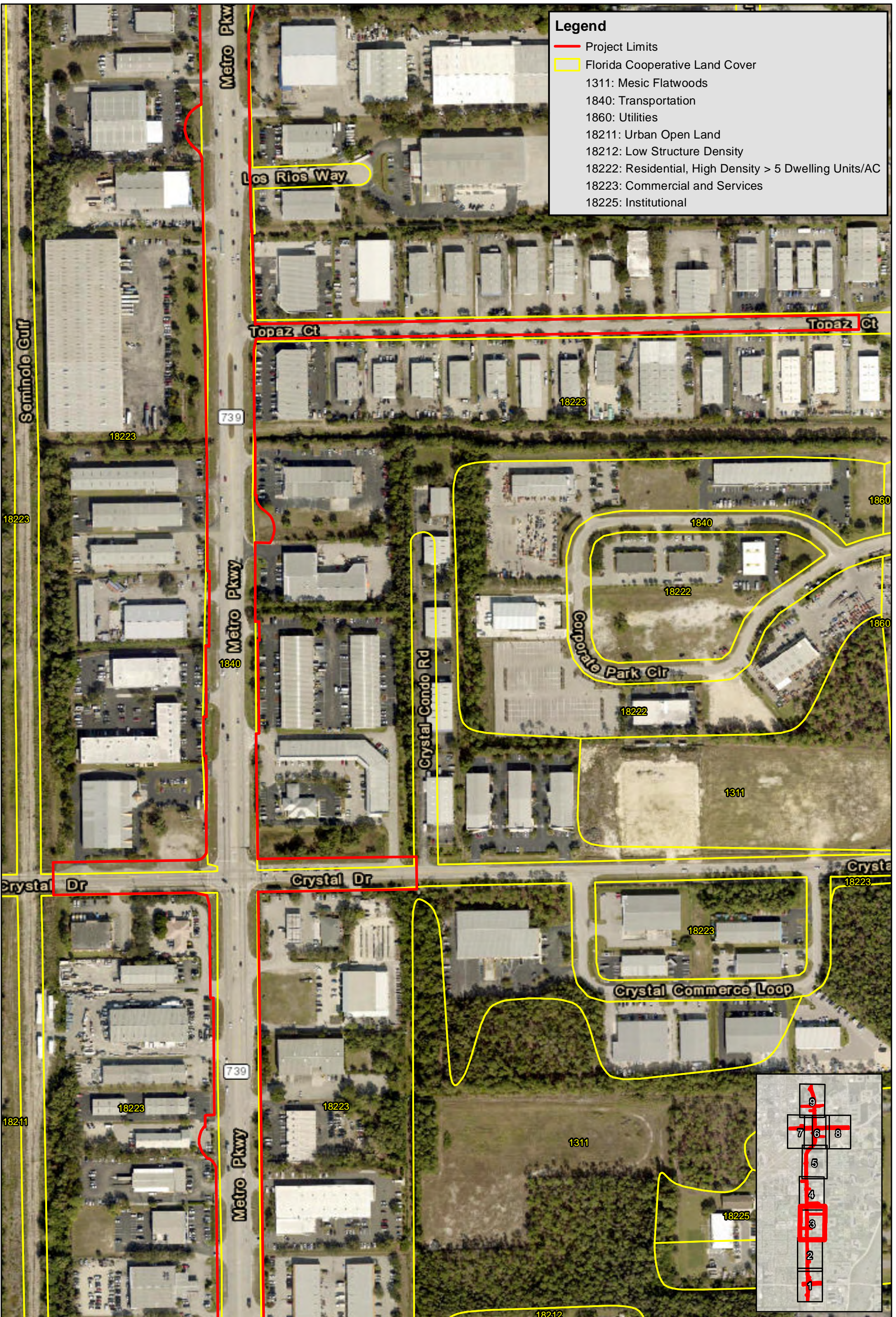


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Legend

- Project Limits
- Florida Cooperative Land Cover
 - 1311: Mesic Flatwoods
 - 1840: Transportation
 - 1860: Utilities
 - 18211: Urban Open Land
 - 18212: Low Structure Density
 - 18222: Residential, High Density > 5 Dwelling Units/AC
 - 18223: Commercial and Services
 - 18225: Institutional



Date: 01/26/2023 Rev: Date: N/A File: TK GIS Analyst: CMS Map Document: SR739_FINAL_CMS_20230126.mxd Project Number: 2533 PDF Document: SR739_FINAL_CMS_20230126.pdf Plot Size: 8.5 x 11 Document Path: U:\GIS\TKA\USP\Projects and Proposals\020233_30_P_SRP_739 from Daniels to Winkler\mxd\SR739_FINAL_CMS_20230126.mxd



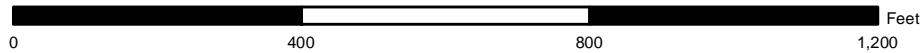
Appendix D - FNAI Cooperative Land Cover Map

Page 3 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida

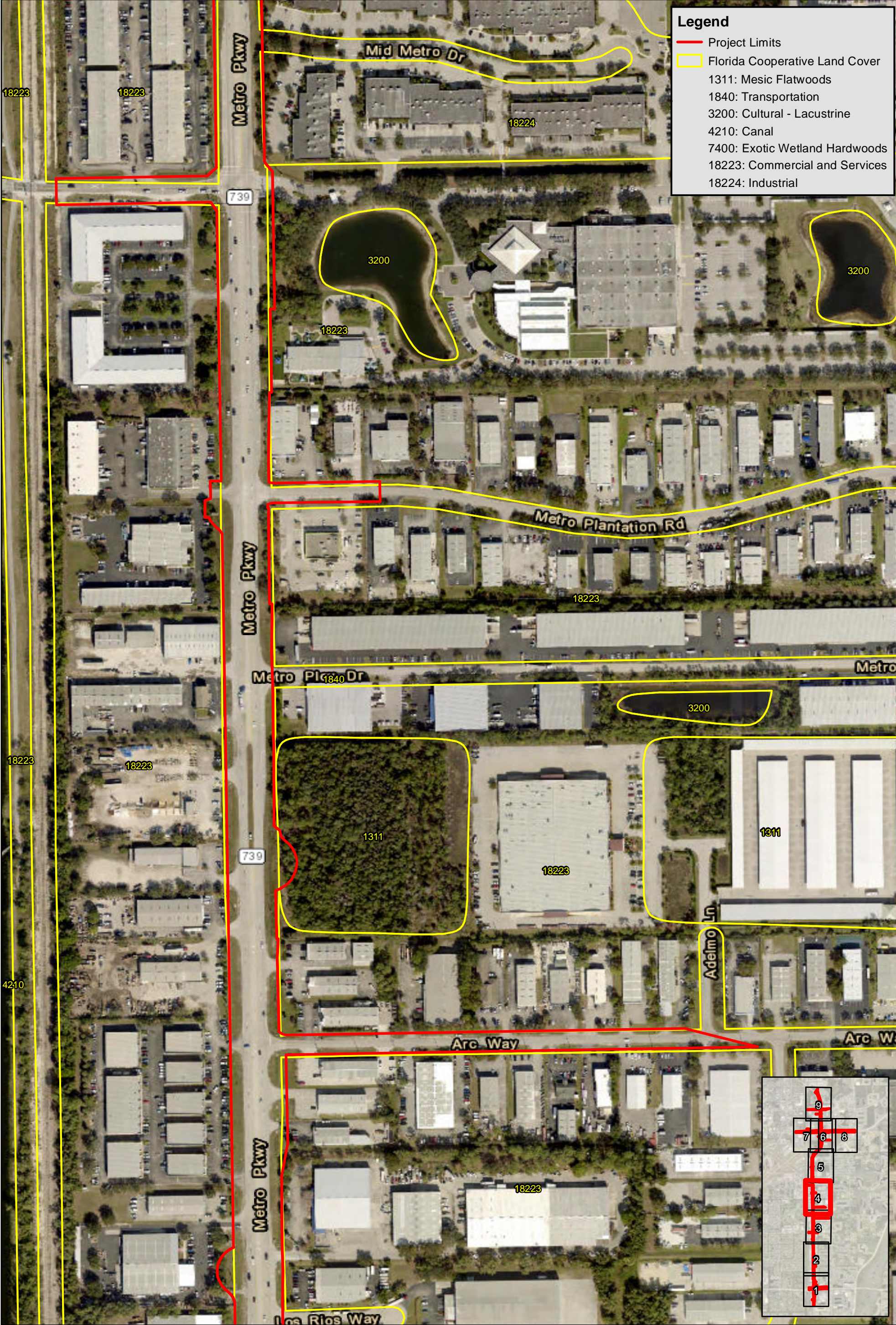
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 - FNAI (v 3.5)
 Imagery Source:
 - ESRI

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Legend

- Project Limits
- Florida Cooperative Land Cover
 - 1311: Mesic Flatwoods
 - 1840: Transportation
 - 3200: Cultural - Lacustrine
 - 4210: Canal
 - 7400: Exotic Wetland Hardwoods
 - 18223: Commercial and Services
 - 18224: Industrial

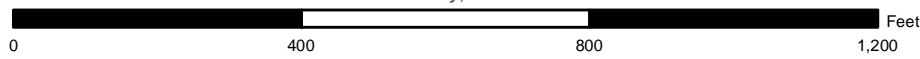


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Appendix D - FNAI Cooperative Land Cover Map

Page 4 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



Data Source:
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 - FNAI (v 3.5)
 Imagery Source:
 - ESRI



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Legend

- Project Limits
- Florida Cooperative Land Cover
 - 1311: Mesic Flatwoods
 - 1821: Low Intensity Urban
 - 1840: Transportation
 - 2112: Mixed Scrub-Shrub Wetland
 - 2120: Marshes
 - 2210: Cypress/Tupelo (Cypress/Tupelo mixed)
 - 7200: Melaleuca
 - 7400: Exotic Wetland Hardwoods
 - 18211: Urban Open Land
 - 18221: Residential, Med. Density - 2-5 Dwelling Units/AC
 - 18223: Commercial and Services
 - 18224: Industrial
 - 22211: Hydric Pine Flatwoods
 - 182111: Urban Open Forested
 - 183313: Improved Pasture

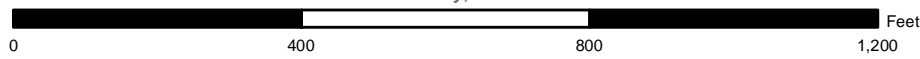
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Appendix D - FNAI Cooperative Land Cover Map

Page 5 of 9

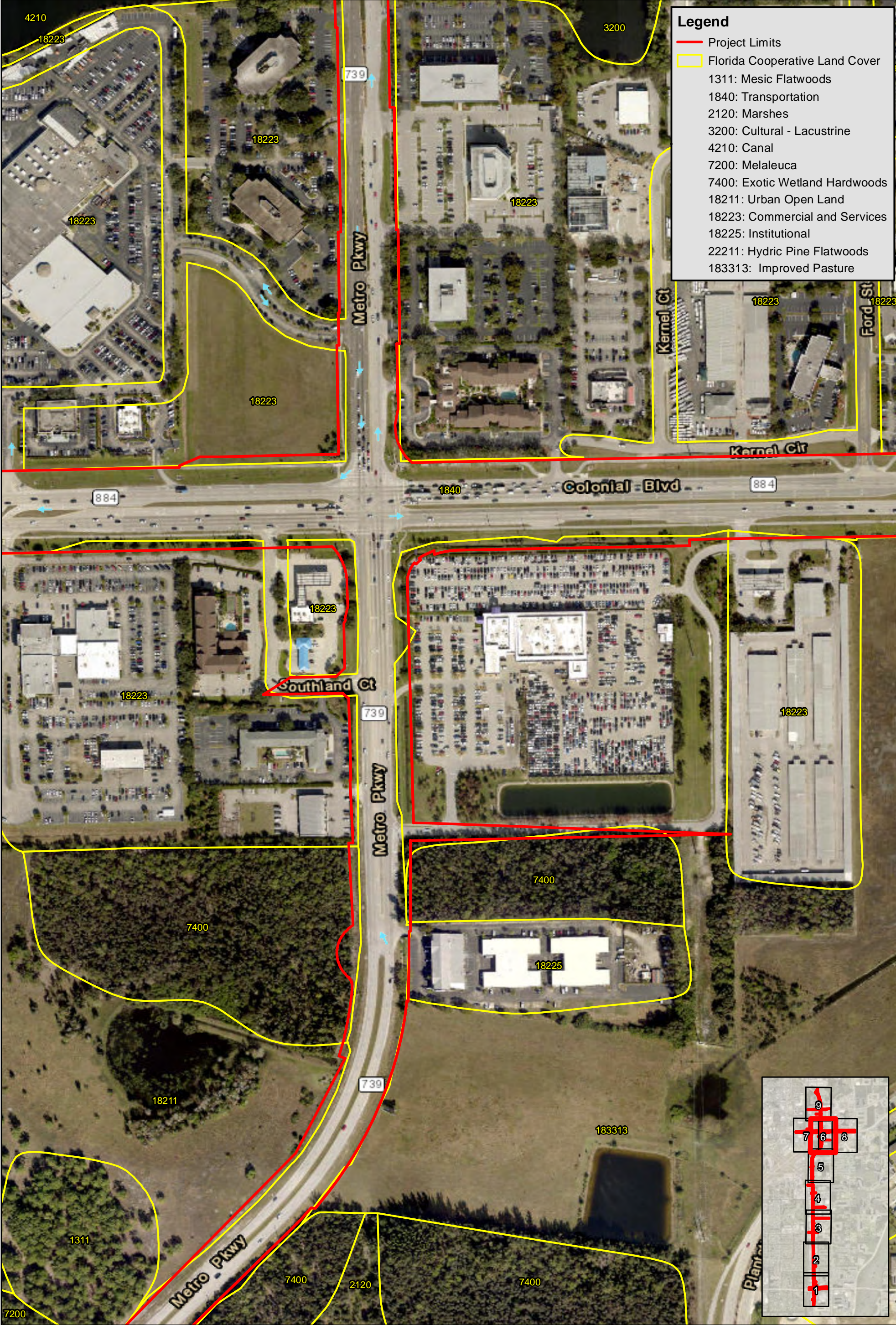
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 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



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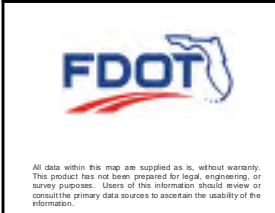
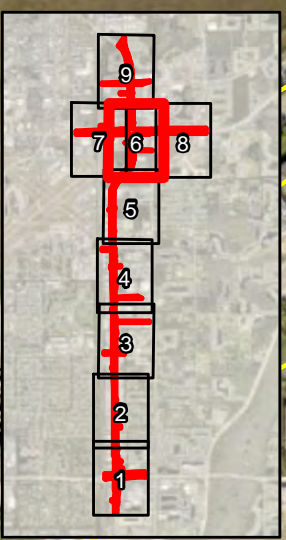
All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the stability of the information.



Legend

- Project Limits
- Florida Cooperative Land Cover
 - 1311: Mesic Flatwoods
 - 1840: Transportation
 - 2120: Marshes
 - 3200: Cultural - Lacustrine
 - 4210: Canal
 - 7200: Melaleuca
 - 7400: Exotic Wetland Hardwoods
 - 18211: Urban Open Land
 - 18223: Commercial and Services
 - 18225: Institutional
 - 22211: Hydric Pine Flatwoods
 - 183313: Improved Pasture

Date: 01/26/2023 Rev: Date: N/A File: TK GIS Analyst: CMS Map Document: SR739_FINAL_CMS_20230126.mxd Project Number: 2533 PDF Document: SR739_FINAL_CMS_20230126.pdf Plot Size: 8.5 x 11 Document Path: U:\GIS\TK\USFP\Projects and Proposals\020233_30_P_Sr_739 from Daniels to Winkler\mxd\SR739_FINAL_CMS_20230126.mxd

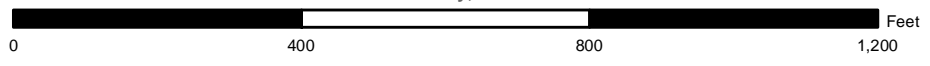


Appendix D - FNAI Cooperative Land Cover Map

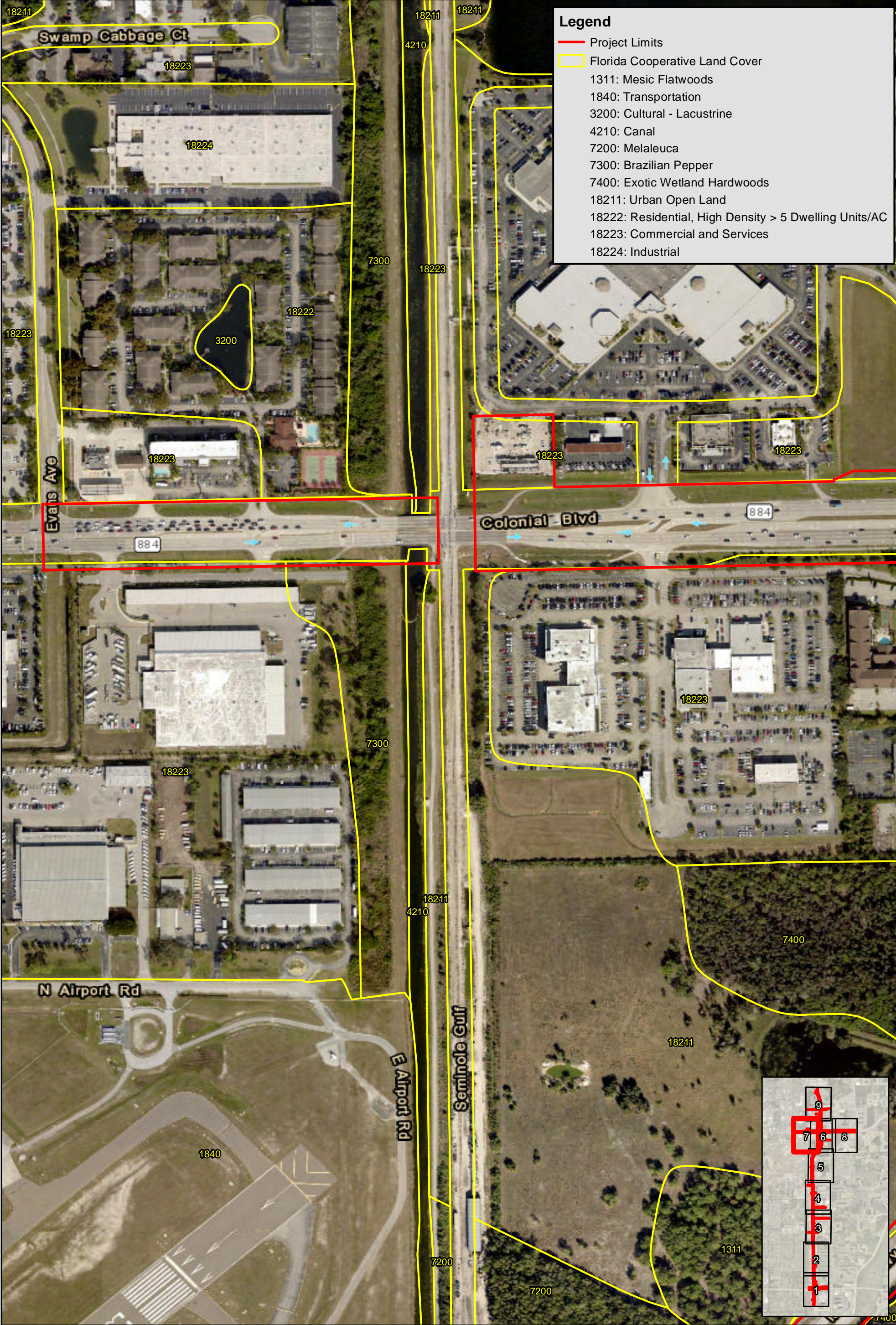
Page 6 of 9

FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida

Data Source:
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 - FNAI (v 3.5)
 Imagery Source:
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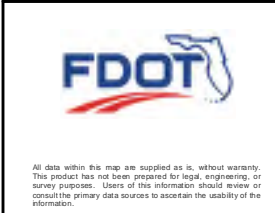
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Legend

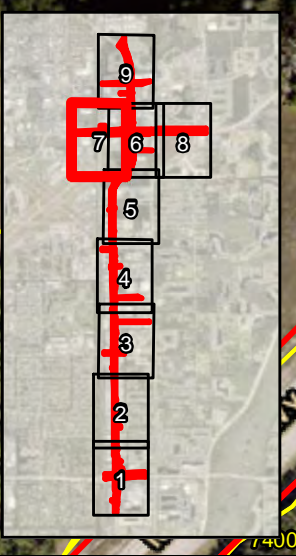
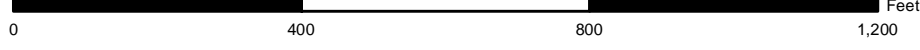
- Project Limits
- Florida Cooperative Land Cover
 - 1311: Mesic Flatwoods
 - 1840: Transportation
 - 3200: Cultural - Lacustrine
 - 4210: Canal
 - 7200: Melaleuca
 - 7300: Brazilian Pepper
 - 7400: Exotic Wetland Hardwoods
 - 18211: Urban Open Land
 - 18222: Residential, High Density > 5 Dwelling Units/AC
 - 18223: Commercial and Services
 - 18224: Industrial

Date: 01/26/2023 Rev: Date: N/A File: TK GIS Analyst: CMS Map Document: SR739_FINAL_CMS_20230126.mxd Project Number: 2533 PDF Document: SR739_FINAL_CMS_20230126.pdf Plot Size: 8.5 x 11 Document Path: U:\GIS\TKA-USP\Projects\SR739_FINAL_CMS_20230126.mxd



Appendix D - FNAI Cooperative Land Cover Map

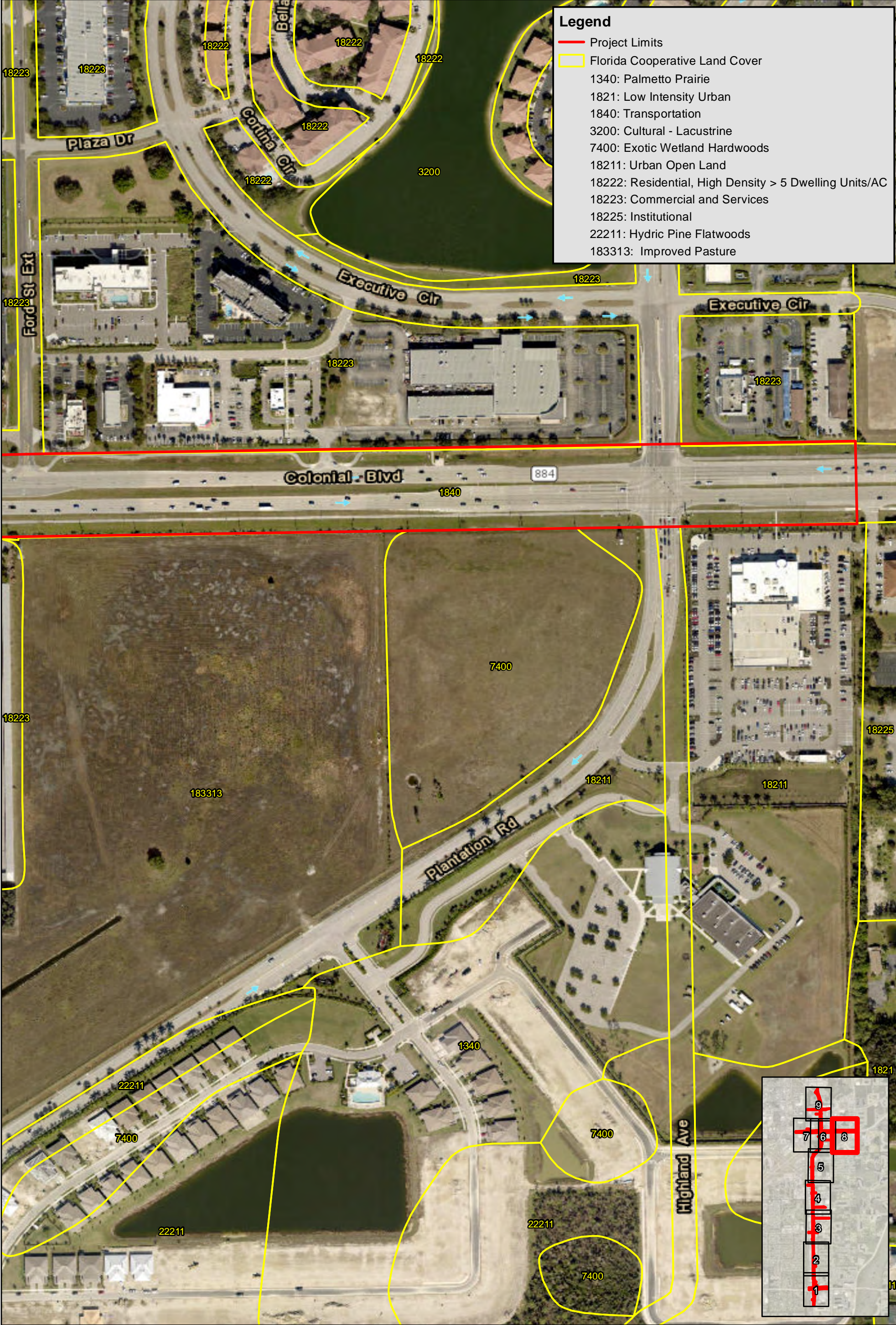
Page 7 of 9
 FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



Data Source:
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 - FNAI (v 3.5)
 Imagery Source:
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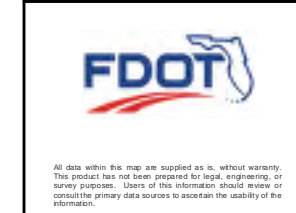
All data within this map are supplied as is, without warranty. This product has not been prepared for legal, engineering, or survey purposes. Users of this information should review or consult the primary data sources to ascertain the stability of the information.



Legend

- Project Limits
- Florida Cooperative Land Cover
- 1340: Palmetto Prairie
- 1821: Low Intensity Urban
- 1840: Transportation
- 3200: Cultural - Lacustrine
- 7400: Exotic Wetland Hardwoods
- 18211: Urban Open Land
- 18222: Residential, High Density > 5 Dwelling Units/AC
- 18223: Commercial and Services
- 18225: Institutional
- 22211: Hydric Pine Flatwoods
- 183313: Improved Pasture

Date: 01/26/2023 Rev: Date: N/A File: TK GIS Analyst: CMS Map Document: SR739_FINAL_CMS_20230126.mxd Project Number: 2533 PDF Document: SR739_FINAL_CMS_20230126.pdf Plot Size: 8.5 x 11 Document Path: U:\GIS\TP4-USF\Projects and Proposals\012623\30_P_S8_739 from Daniels to Winkler\mxd\SR739_FINAL_CMS_20230126.mxd



Appendix D - FNAI Cooperative Land Cover Map

Page 8 of 9
 FPID #: 431334-1
 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida

Feet
 0 400 800 1,200

Data Source:
 - CES
 - ESA
 - FNAI (v.3.5)
 Imagery Source:
 - ESRI

Legend

- Project Limits
- Florida Cooperative Land Cover
 - 1400: Mixed Hardwood-Coniferous
 - 1840: Transportation
 - 1860: Utilities
 - 2112: Mixed Scrub-Shrub Wetland
 - 2120: Marshes
 - 2210: Cypress/Tupelo (Cypress/Tupelo mixed)
 - 2213: Isolated Freshwater Swamp
 - 3200: Cultural - Lacustrine
 - 4210: Canal
 - 7300: Brazilian Pepper
 - 7400: Exotic Wetland Hardwoods
 - 18211: Urban Open Land
 - 18222: Residential, High Density > 5 Dwelling Units/AC
 - 18223: Commercial and Services
 - 182111: Urban Open Forested



Date: 01/26/2023 Rev: Date: N/A File: TK GIS Analyst: CMS Map Document: SR739_FINAL_CMS_20230126.mxd Project Number: 2533 PDF Document: SR739_FINAL_CMS_20230126.pdf Plot Size: 8.5 x 11 Document Path: \\GIS\TK\GIS\Projects\SR739_FINAL_CMS_20230126.mxd

Appendix D - FNAI Cooperative Land Cover Map

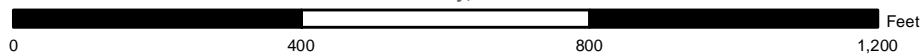
Page 9 of 9

FPID #: 431334-1

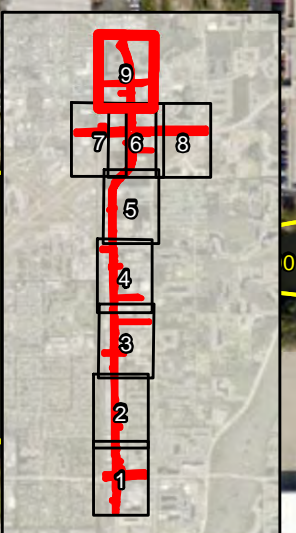
SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
Lee County, Florida



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Data Source:
- CES
- ESA
- FNAI (v 3.5)
Imagery Source:
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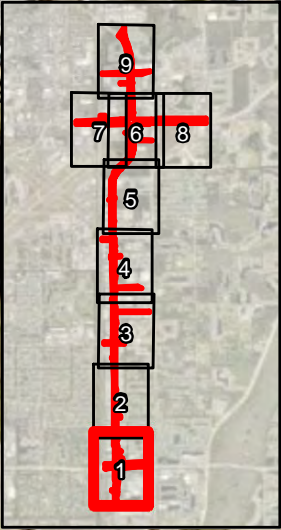
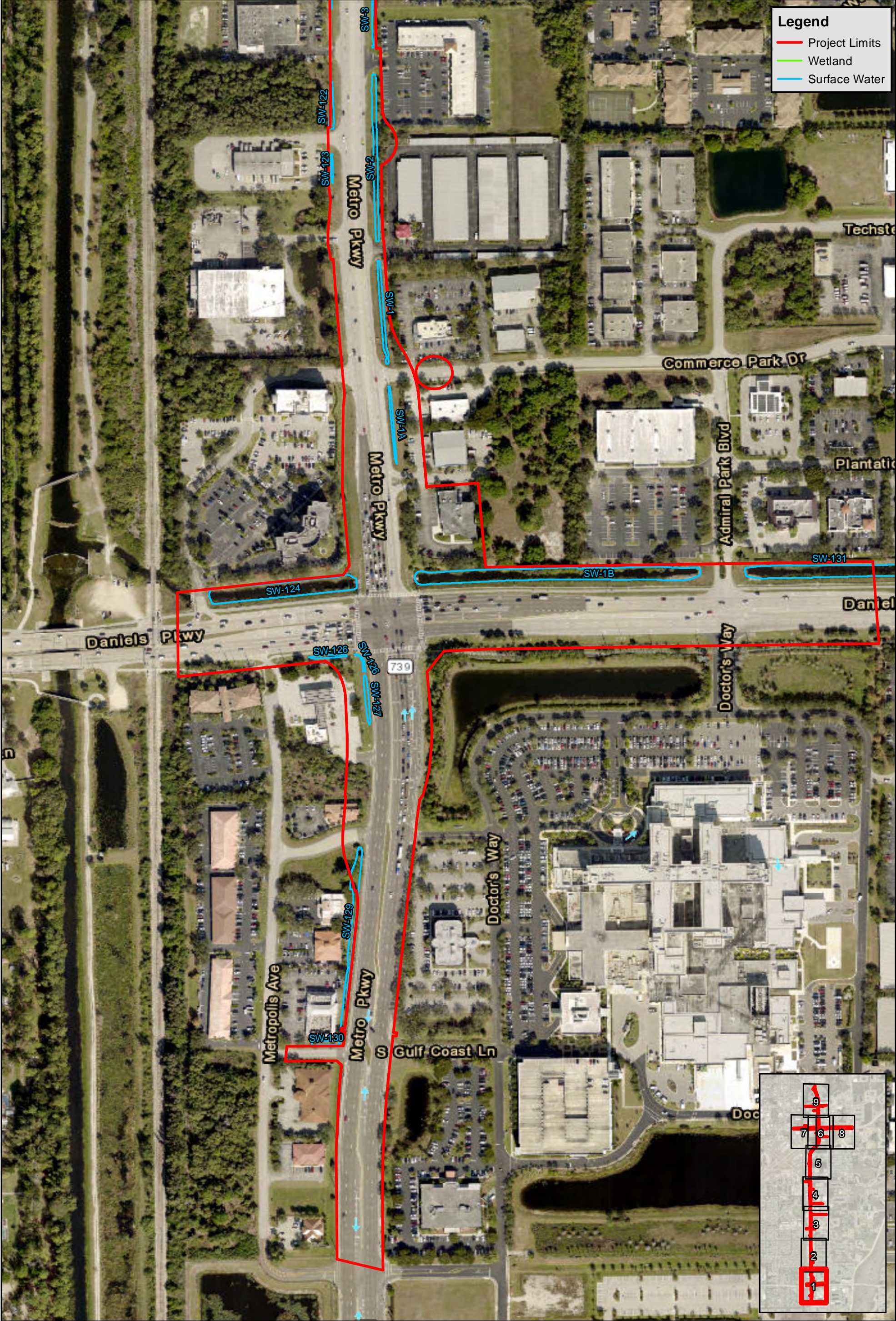


Appendix E

Wetland and Surface Water Map

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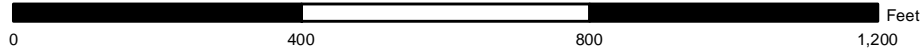
Appendix E- Wetland and Surface Water Map

Page 1 of 9

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 SR 739 (Metro Parkway) from Daniels Parkway to Winkler Avenue
 Lee County, Florida



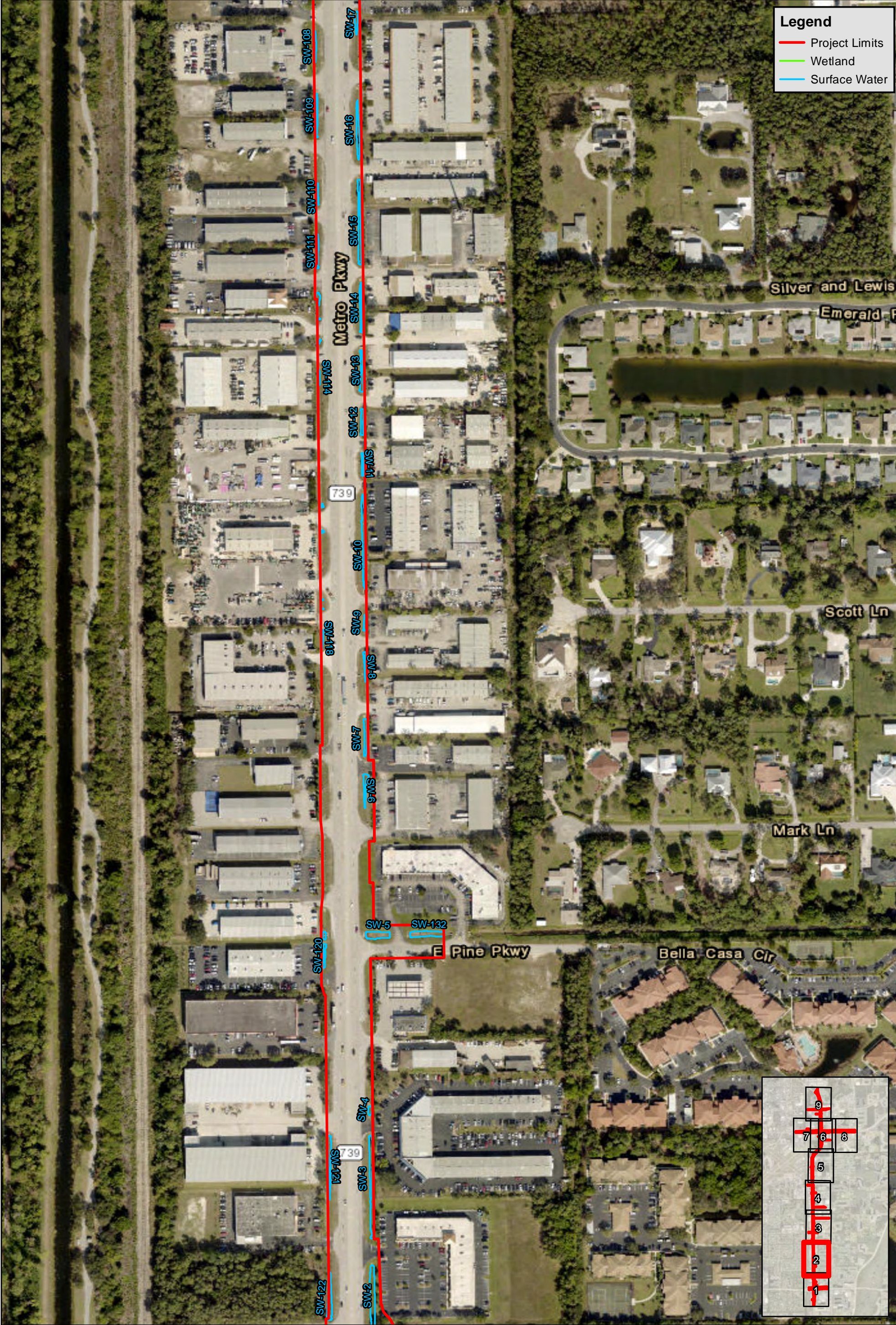
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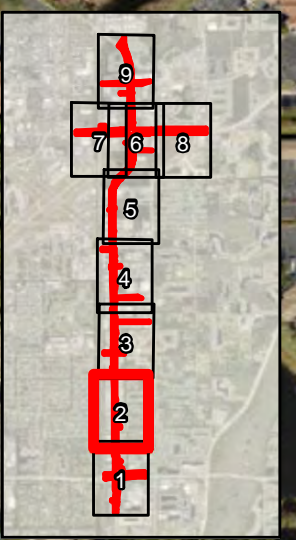


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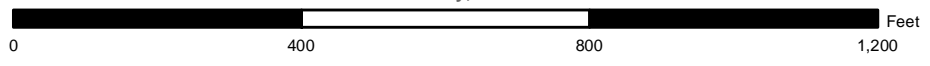
Appendix E - Wetland and Surface Water Map

Page 2 of 9

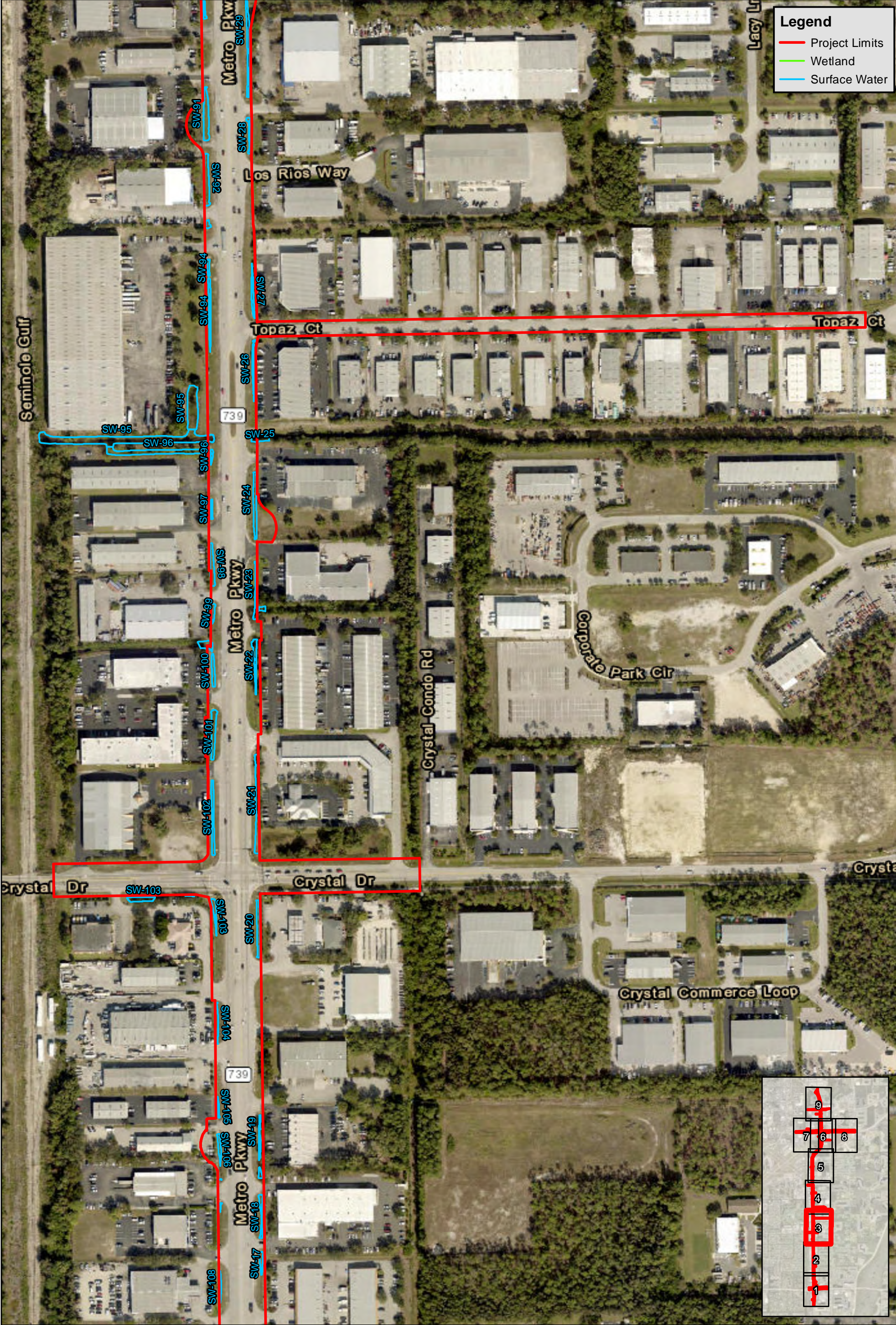
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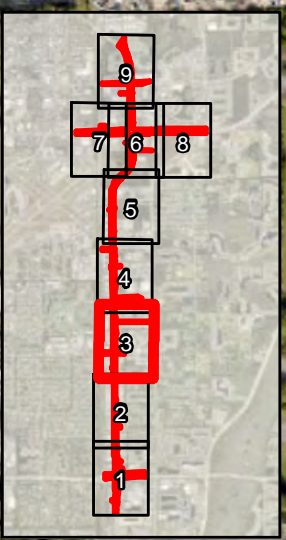


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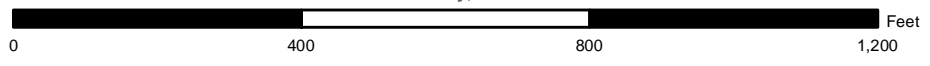
Appendix E - Wetland and Surface Water Map

Page 3 of 9

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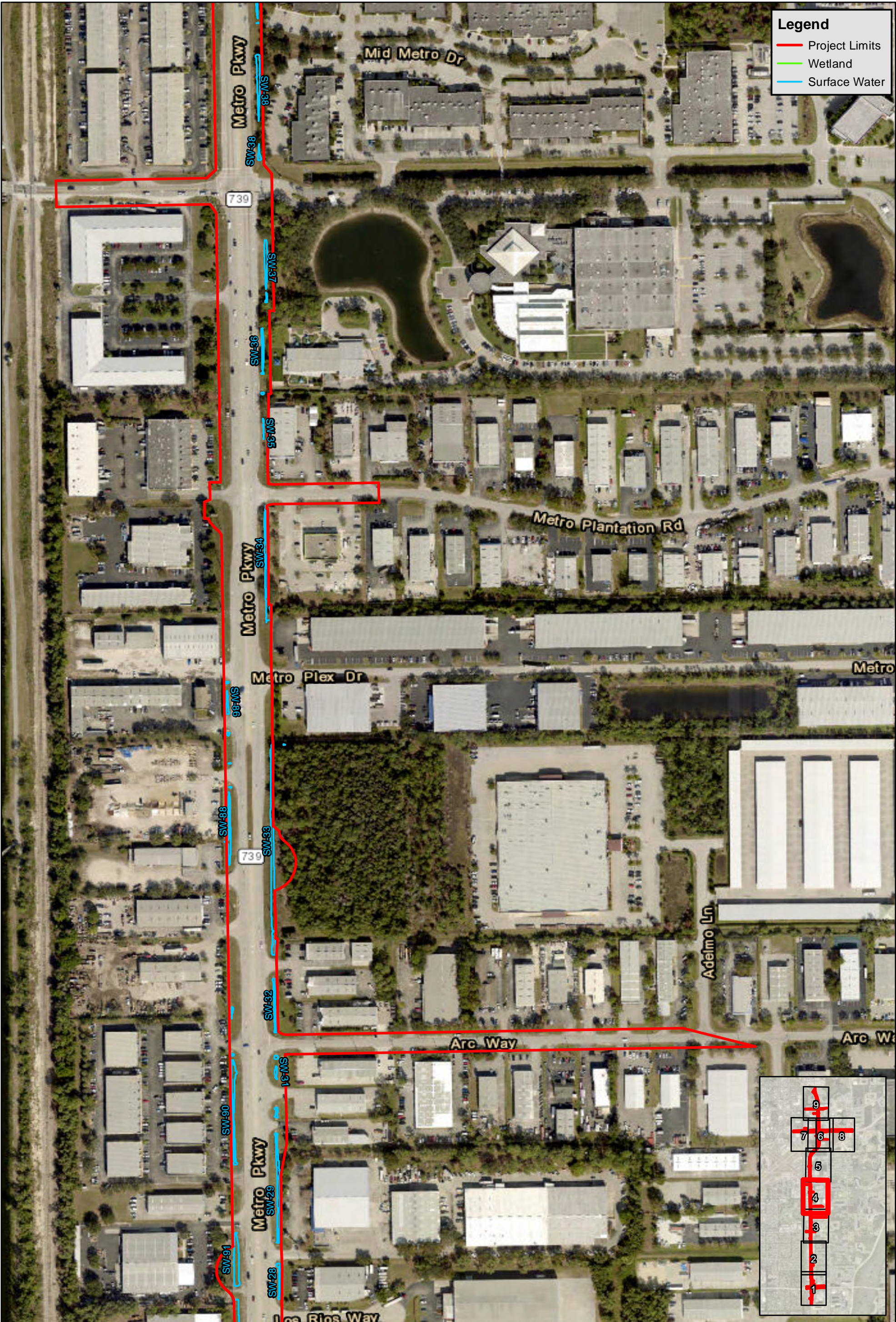
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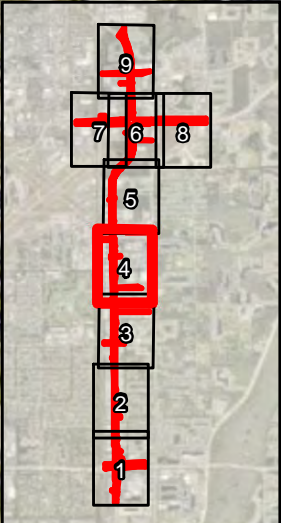


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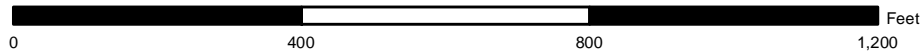
Appendix E - Wetland and Surface Water Map

Page 4 of 9

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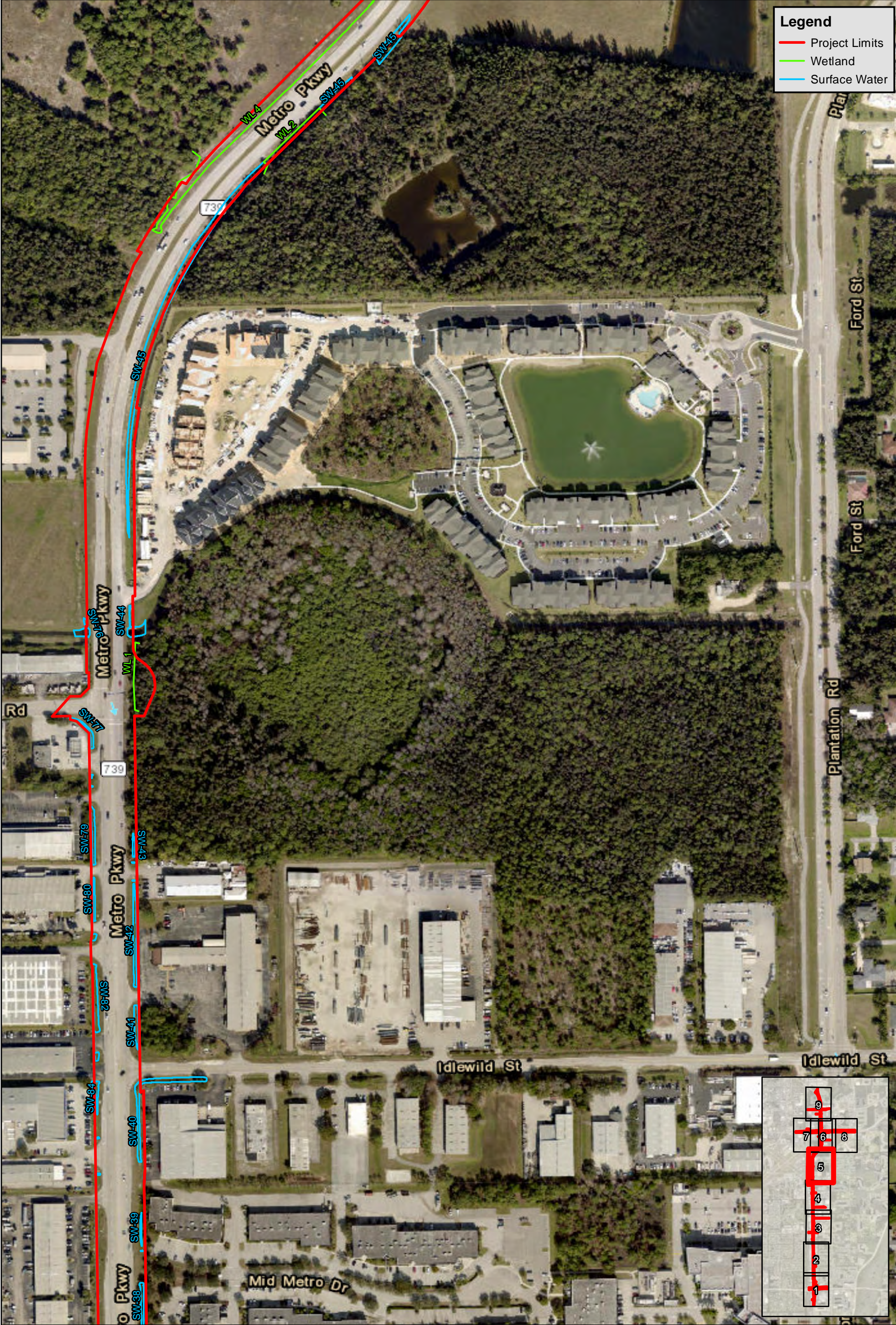
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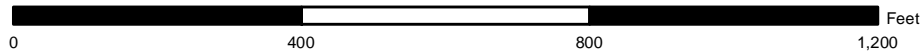
Appendix E- Wetland and Surface Water Map

Page 5 of 9

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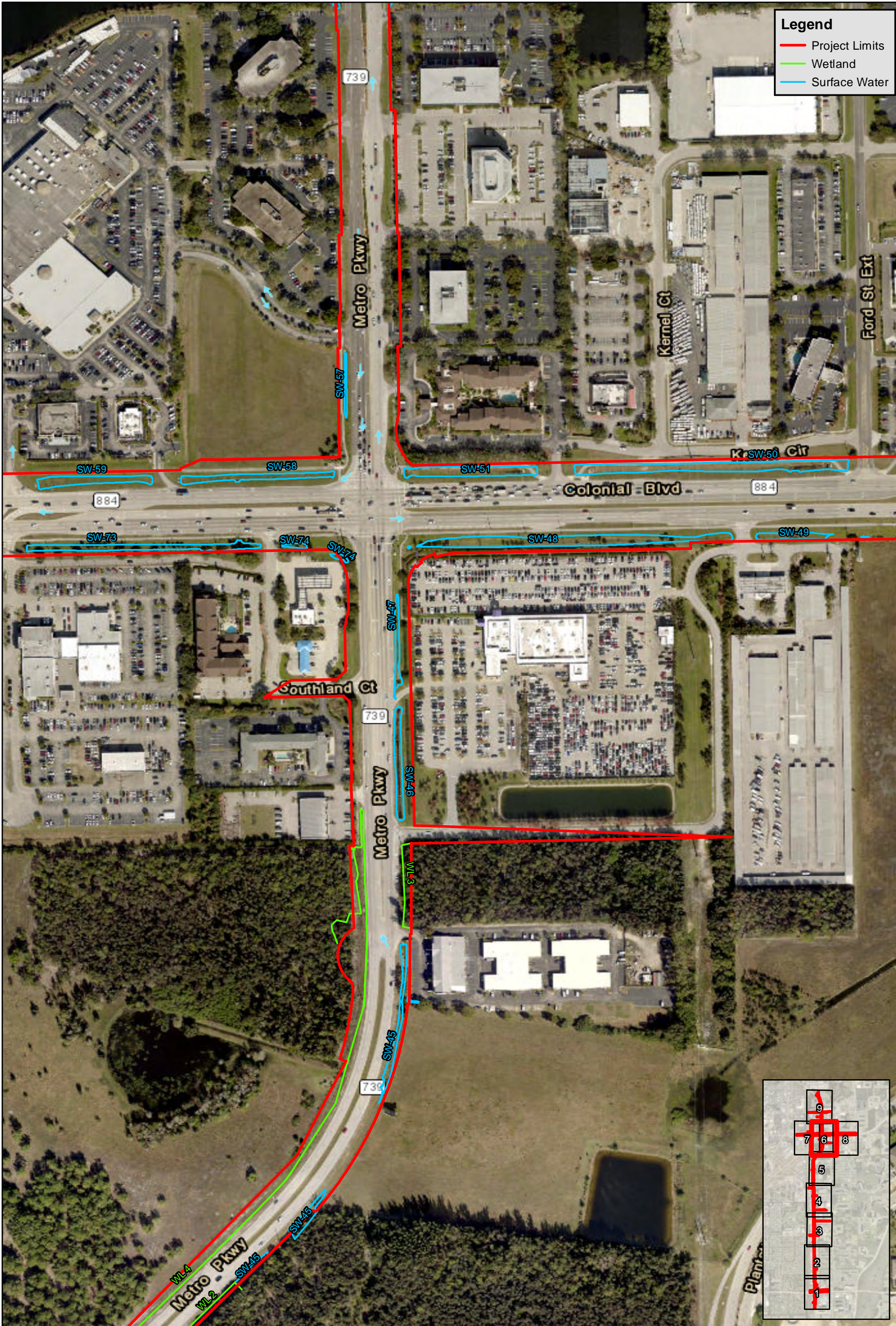


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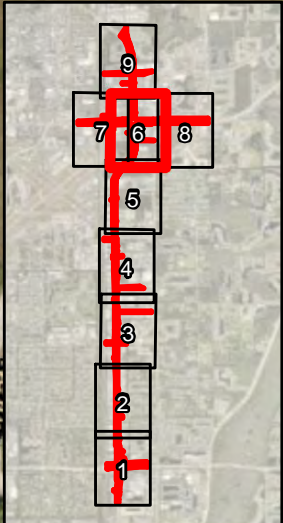


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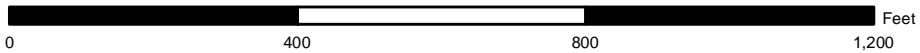


Appendix E - Wetland and Surface Water Map

Page 6 of 9

FPID #: 431334-1
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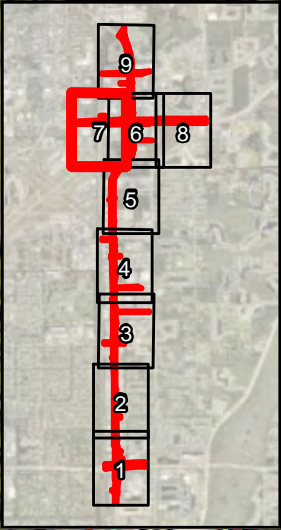
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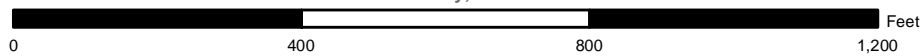
Appendix E - Wetland and Surface Water Map

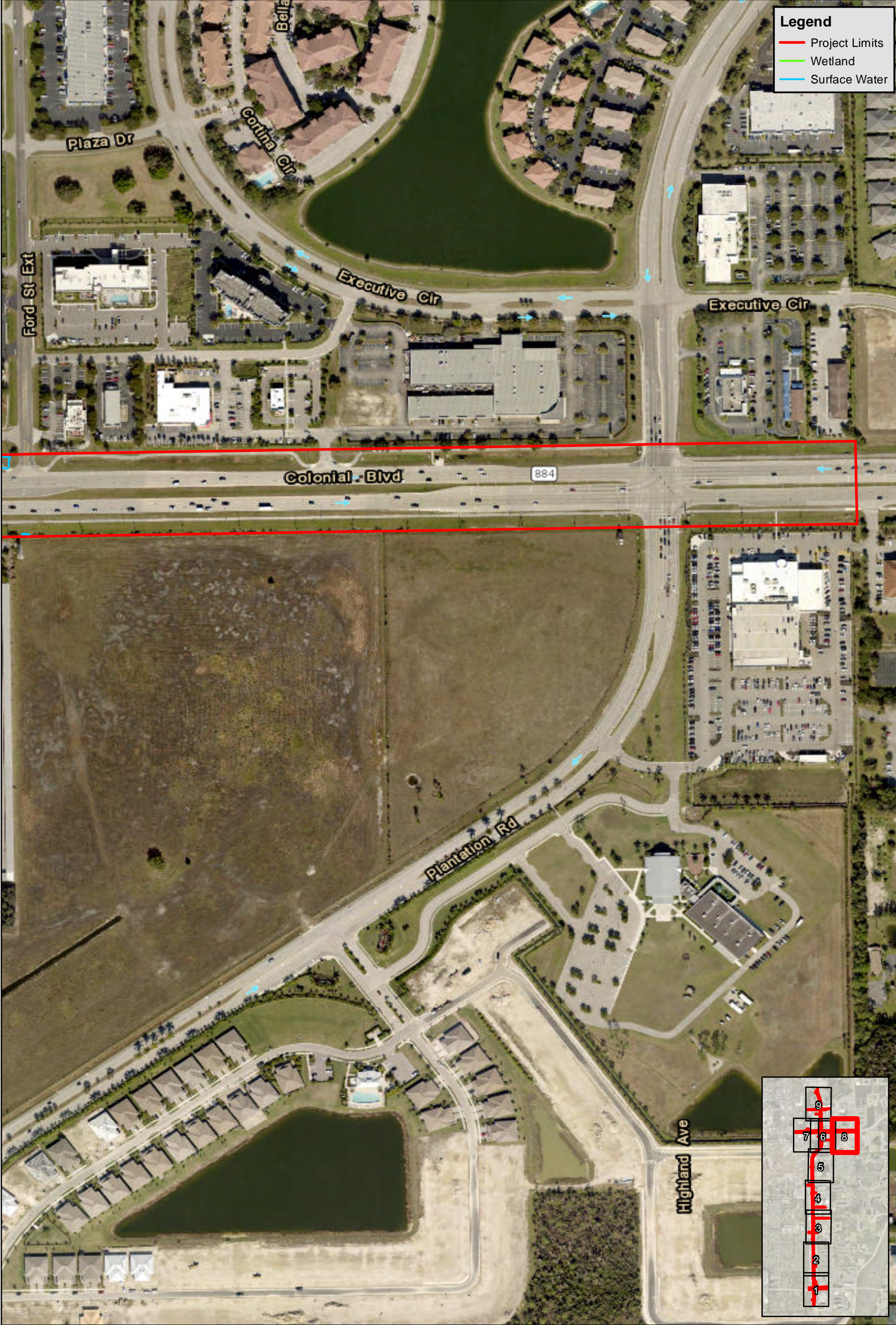
Page 7 of 9

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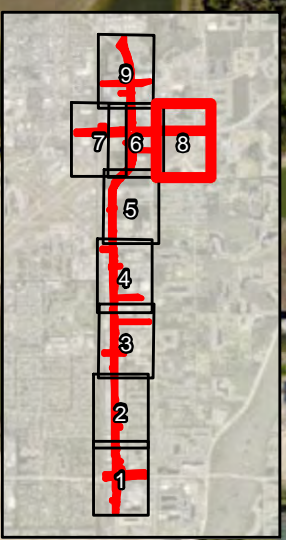




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Appendix E - Wetland and Surface Water Map

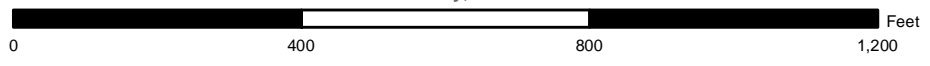
Page 8 of 9

FPID #: 431334-1
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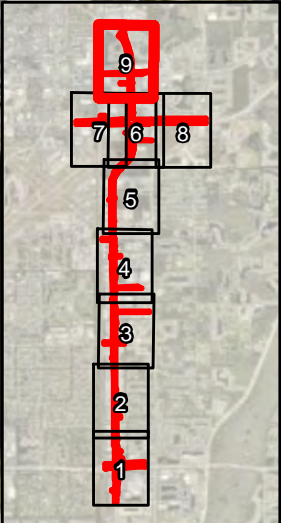
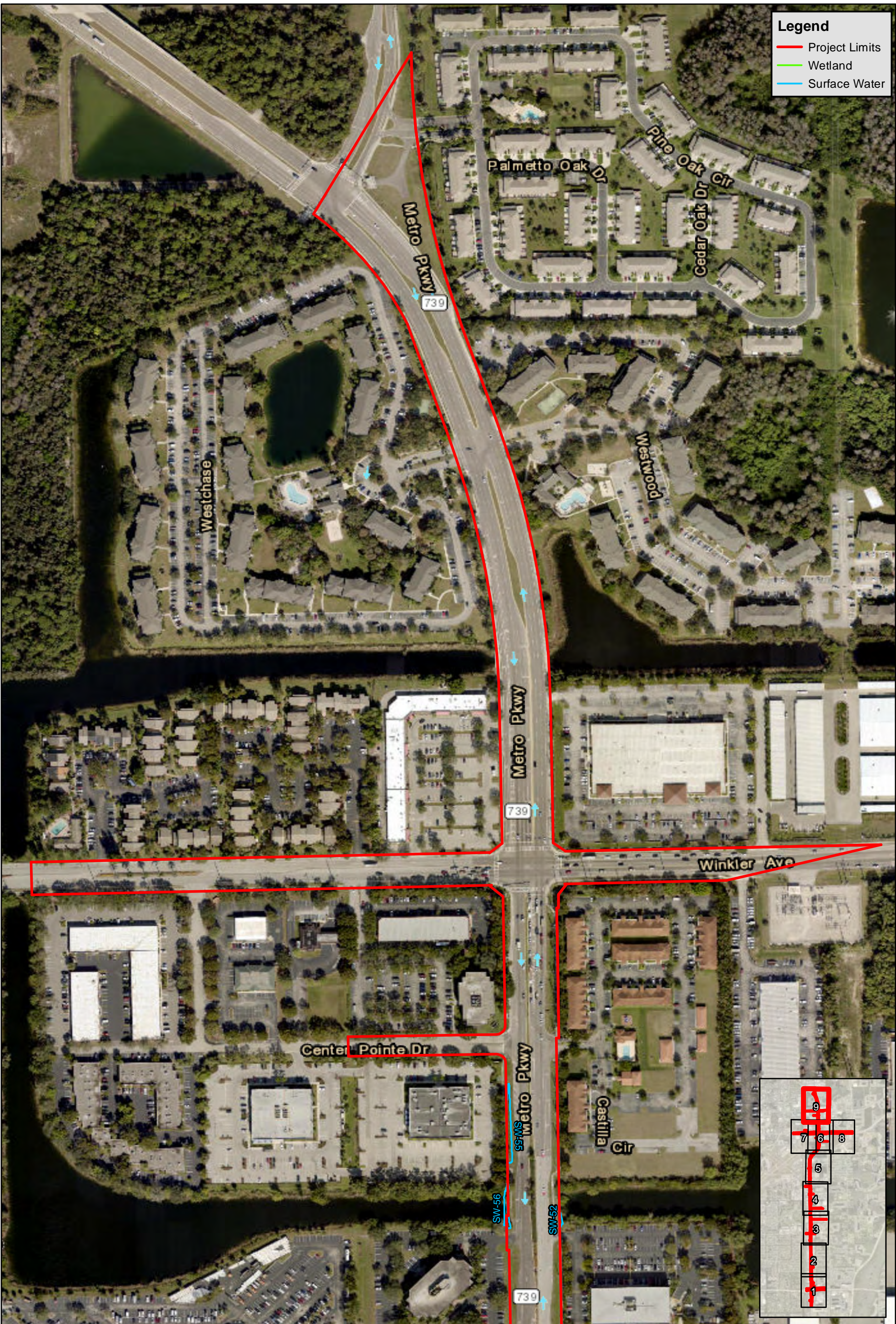
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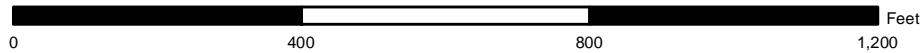
Page 9 of 9

FPID #: 431334-1

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Appendix F

USFWS Standard Protection Measures for the Eastern Indigo Snake

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE
U.S. Fish and Wildlife Service
August 12, 2013

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: jaxregs@fws.gov; South Florida Field Office: verobeach@fws.gov; Panama City Field Office: panamacity@fws.gov). As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the attached poster and brochure), no further written confirmation or “approval” from the USFWS is needed and the applicant may move forward with the project.

If the applicant decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or “approval” from the USFWS that the plan is adequate must be obtained. At least 30 days prior to any clearing/land alteration activities, the applicant shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

The Plan materials should consist of: 1) a combination of posters and pamphlets (see **Poster Information** section below); and 2) verbal educational instructions to construction personnel by supervisory or management personnel before any clearing/land alteration activities are initiated (see **Pre-Construction Activities** and **During Construction Activities** sections below).

POSTER INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (a final poster for Plan compliance, to be printed on 11” x 17” or larger paper and laminated, is attached):

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands

and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTION UNDER FEDERAL AND STATE LAW: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. “Taking” of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. “Take” is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of \$25,000 for civil violations and up to \$50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant’s designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A DEAD EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant’s designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

Telephone numbers of USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:

North Florida Field Office – (904) 731-3336
Panama City Field Office – (850) 769-0552
South Florida Field Office – (772) 562-3909

PRE-CONSTRUCTION ACTIVITIES

1. The applicant or designated agent will post educational posters in the construction office and throughout the construction site, including any access roads. The posters must be clearly visible to all construction staff. A sample poster is attached.
2. Prior to the onset of construction activities, the applicant/designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational brochure including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office (a final brochure for Plan compliance, to be printed double-sided on 8.5" x 11" paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC websites.
3. Construction staff will be informed that in the event that an eastern indigo snake (live or dead) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Field Office. The contact information for the USFWS is provided on the referenced posters and brochures.

DURING CONSTRUCTION ACTIVITIES

1. During initial site clearing activities, an onsite observer may be utilized to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).
2. If an eastern indigo snake is discovered during gopher tortoise relocation activities (i.e. burrow excavation), the USFWS shall be contacted within one business day to obtain further guidance which may result in further project consultation.
3. Periodically during construction activities, the applicant's designated agent should visit the project area to observe the condition of the posters and Plan materials, and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.

POST CONSTRUCTION ACTIVITIES

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion. The report can be sent electronically to the appropriate USFWS e-mail address listed on page one of this Plan.

Appendix G

Florida Bonneted Bat (*Eumops floridanus*) Acoustic Survey Report (2023)

**FLORIDA BONNETED BAT (EUMOPS FLORIDANUS)
ACOUSTIC SURVEY REPORT**

Florida Department of Transportation
District One

SR 739 (Metro Parkway) Widening
from Daniels Parkway to Winkler Avenue

Lee County, Florida

Financial Management Number: 431334-1-32-01

June 2023

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration (FHWA) and FDOT.

Table of Contents

1.0	INTRODUCTION	1
2.0	PROJECT DESCRIPTION	1
3.0	STATUS, LIFE HISTORY, AND HABITAT	3
3.1	Federal Status	3
3.2	Life History	3
3.3	Habitat	3
4.0	METHODOLOGY	4
4.1	Preliminary Analysis	4
4.2	Acoustic Survey	4
4.3	Acoustic Data Analysis	7
4.4	Roost Survey	7
5.0	RESULTS	7
5.1	Acoustic Survey	7
5.2	Roost Survey	12
6.0	CONCLUSION	14
7.0	REFERENCES	17

List of Figures

Figure 1: Project Location Map	2
Figure 2: Florida Bonneted Bat Acoustic Survey Station Location Map.....	5
Figure 3: Florida Bonneted Bat Acoustic Survey Confirmed Activity Map	11
Figure 4: Potential Roost Cavity Location Map.....	13

List of Tables

Table 1: Detector Deployment Summary	6
Table 2: SonoBat Call Data Summary of Potential Florida Bonneted Bat Calls.....	8
Table 3: Roost Survey Data	14
Table 4: Florida Bonneted Bat Call Data Summary.....	15

Appendices

Appendix A: Agency Coordination – Approved Florida Bonneted Bat Survey Methodology	
Appendix B: Photographs	
Appendix C: Detector Deployment Data Forms	
Appendix D: Survey Data Forms	
Appendix E: Weather Documentation	
Appendix F: Sonograms of Confirmed Bonneted Bat Calls	
Appendix G: Florida Bonneted Bat Consultation Key	
Appendix H: Best Management Practices for Development Projects	

1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), District 1, is proposing to widen approximately 4.5 miles of State Road (SR) 739 (Metro Parkway). The proposed project is located in Lee County, Florida, within Sections 6, 7, 18, and 19 of Township 45 South, Range 25 East, and Section 31 of Township 44 South, Range 25 East. The project location is depicted in **Figure 1**.

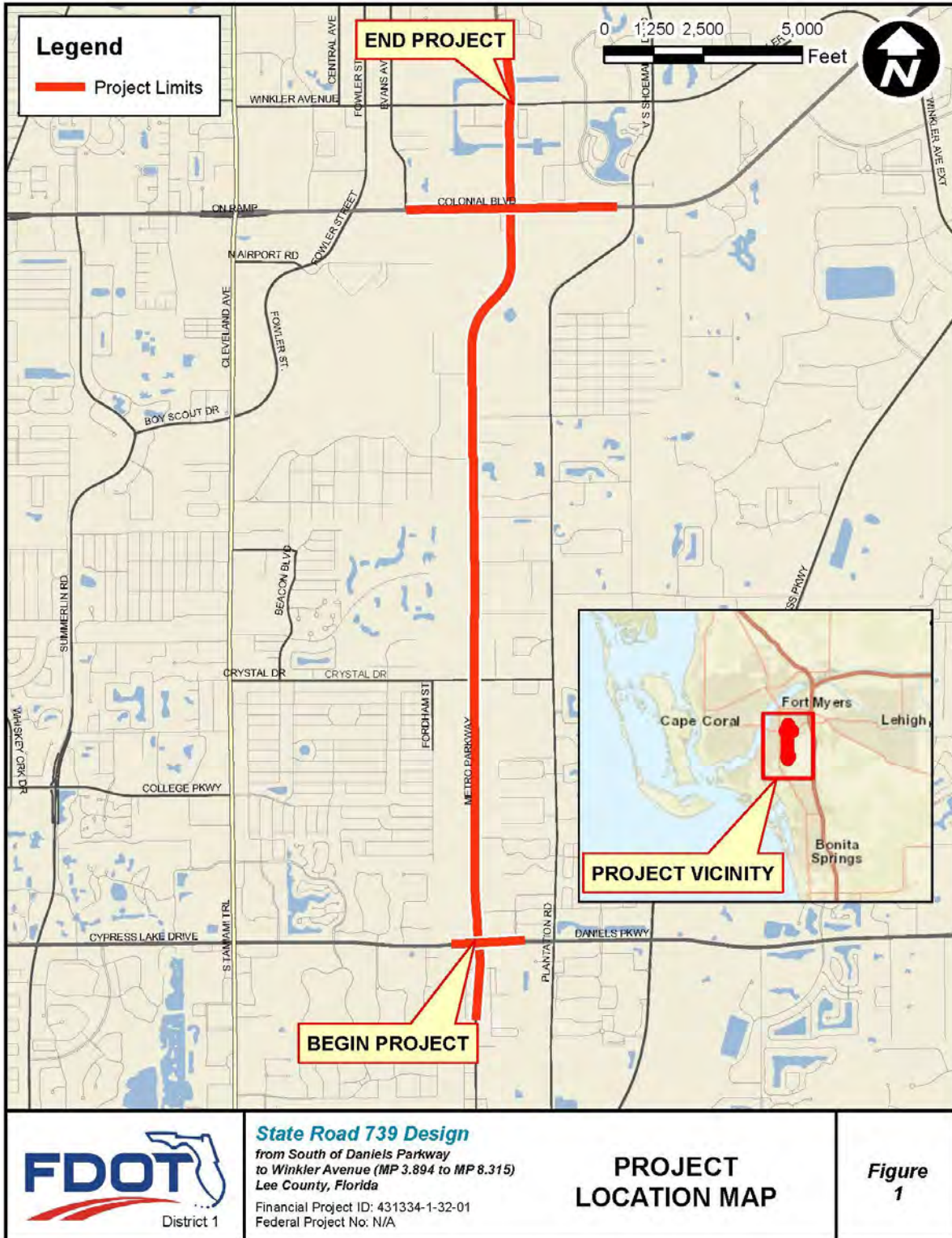
The project is located within the United States Fish and Wildlife Service's (USFWS) Consultation Area (CA) for the Florida bonneted bat (*Eumops floridanus*), and potential roosting and foraging habitat was observed within the project corridor. As a result, Inwood Consulting Engineers, Inc. (Inwood) conducted an assessment to determine the potential effects of the proposed project on the Florida bonneted bat. The assessment included a full acoustic survey and roost survey of the project corridor in April and May 2023. The acoustic survey consisted of 12 survey sites for a total of 51 survey nights and was conducted in accordance with the current USFWS Florida Bonneted Bat Consultation Guidelines (October 2019) (Guidelines).

This report provides the methodology, results, and conclusions of the 2023 Florida bonneted bat survey and the anticipated effect determination.

2.0 PROJECT DESCRIPTION

The proposed project involves widening the existing SR 739 from a four-lane divided roadway to a six-lane divided urban roadway from Daniels Parkway to Winkler Avenue. The project includes six-foot wide sidewalks and seven-foot buffered bike lanes in each direction, and two stormwater management facilities (ponds). Both the roadway widening and preferred pond sites were included in the survey efforts.

Figure 1: Project Location Map



3.0 STATUS, LIFE HISTORY, AND HABITAT

3.1 Federal Status

The Florida bonneted bat is a member of the Molossidae family and is the largest bat found in Florida. Previously known as the Florida mastiff bat, Wagner's mastiff bat, and mastiff bat (*Eumops glaucinus floridanus*), the Florida bonneted bat was found to be a separate species in 2004 (Timm and Genoways 2004). The USFWS listed the Florida bonneted bat as endangered in October 2013 (USFWS 2013). The basis for this listing is due to habitat loss, degradation, and modification, as well as other manmade and natural factors, including a small population size with few colonies, restricted range, slow reproductivity, and low fecundity (USFWS 2013).

3.2 Life History

The Florida bonneted bat has short glossy fur consisting of bicolored hairs with a white base. The color is highly variable and ranges from black to brown, to brownish gray or cinnamon brown, with the ventral fur paler than the dorsal fur (Belwood 1992, Timm and Genoways 2004). It has large, broad ears that project over the eyes and are joined at the midline of the head. This identifying characteristic, along with its larger size, distinguishes it from the Brazilian free-tailed bat (*Tadarida brasiliensis*).

The Florida bonneted bat is a subtropical species that does not hibernate and is active year-round. It is thought to have a fairly extensive breeding season during summer months, with data suggesting the species might be polyestrous, with a second birthing season in January and February (Timm and Genoways 2004). Females give birth to one offspring per maternity season (USFWS 2013).

This species relies on speed and agility while foraging in open spaces to detect prey roughly 3 to 5 meters (10 to 16 ft) away (Belwood 1992). Bonneted bats are high-flyers, rarely flying below 10 meters (33 ft) (Belwood 1992), and feed on flying insects, including beetles (Coleoptera), flies (Diptera), true bugs (Hemiptera), and moths (Lepidoptera) (Belwood 1981).

3.3 Habitat

Habitat for the Florida bonneted bat consists of foraging areas and roosting sites, including artificial structures. Roosting and foraging vary with species occurring in forested, suburban, and urban areas (Timm and Arroyo-Cabrales 2008).

The Guidelines define foraging habitat as relatively open areas that provide sources of prey and drinking water, including open fresh water, permanent or seasonal freshwater wetlands, wetland and upland forests, wetland and upland shrub, and agricultural areas. In urban areas, suitable foraging can be found at golf courses, parking lots, and parks.

Potential roosting habitats defined by the Guidelines include forests or other areas with tall or mature trees or other areas with potential roost structures, including utility poles and artificial roosts. This includes habitat in which suitable structural features for breeding and sheltering are

present. Roosting habitat contains one or more of the following structures: tree snags and trees with cavities, hollows, deformities, decay, crevices, or loose bark.

4.0 METHODOLOGY

4.1 Preliminary Analysis

Prior to conducting the acoustic and roosting surveys, a preliminary analysis of publicly available documentation and geographic information systems (GIS) data were reviewed to determine the potential occurrence of the Florida bonneted bat within the project corridor. Following the completion of the GIS analysis, Inwood biologists conducted a field survey on March 24, 2023, to identify habitats within the corridor that provide suitable roosting and/or foraging habitat for the Florida bonneted bat and identify optimal acoustic sites.

The Guidelines currently require a minimum of five detector nights per 0.6 miles (.97 km) for linear projects. Based on the approximate 4.5-mile proposed project length, a minimum of 40 detector nights were required. Twelve acoustic monitoring sites were selected, providing 51 detector nights to accommodate the survey requirements sufficiently. The survey sites were chosen based on project length, proposed pond site locations, and existing habitats along the project corridor. These sites were selected to survey habitats most suitable for foraging and roosting while being placed in areas limited in clutter to maximize the effectiveness of the equipment. Based on the preliminary analysis, Inwood developed a Florida Bonneted Bat Survey Methodology for the SR 739 Desing Project that was submitted to the USFWS on March 30, 2023 (**Appendix A**) and subsequently approved on March 31, 2023.

The acoustic survey, roost survey, and call data analysis were conducted by a qualified biologist with the required acoustic survey course training and experience.

4.2 Acoustic Survey

The acoustic survey was conducted from April 3 through May 7, 2023. It was conducted in multiple deployments to accommodate weather conditions and equipment utilization, including six detectors. Photographs of detector deployment and representative habitat are included in **Appendix B**. Detector Deployment Data Forms are provided in **Appendix C**. **Figure 2** provides the location for each acoustic site. **Table 1** provides the details of the detector deployment.

Figure 2: Florida Bonneted Bat Acoustic Survey Station Location Map

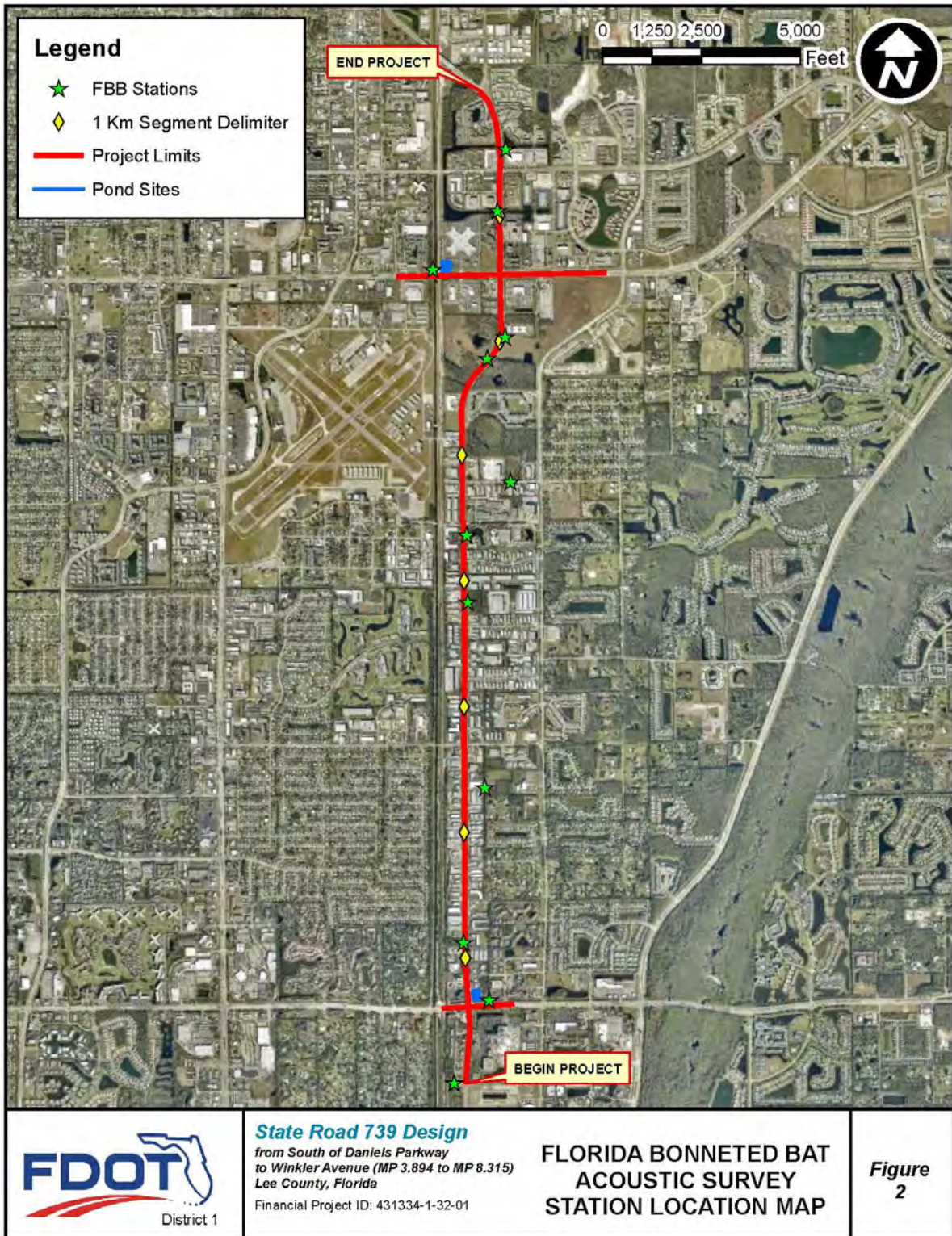


Table 1: Detector Deployment Summary

Site	Detector Number	Latitude	Longitude
FBB1	11535	26°32'28"N	81°51'14"W
FBB2	11622	26°32'50"N	81°51'05"W
FBB3	11537	26°33'03"N	81°51'11"W
FBB4	11622	26°33'44"N	81°51'05"W
FBB5	11535	26°34'29"N	81°51'10"W
FBB6	11534	26°34'46"N	81°51'11"W
FBB7	11537	26°34'59"N	81°50'57"W
FBB8	11621	26°35'29"N	81°51'06"W
FBB9	11534	26°35'35"N	81°51'01"W
FBB10	11536	26°35'53"N	81°51'21"W
FBB11	11621	26°36'06"N	81°51'06"W
FBB12	11536	26°36'22"N	81°50'59"W

Each site consisted of one full spectrum detector (Pettersson DX500) with an omnidirectional microphone and directional cone. The microphones were mounted approximately 20 feet above the ground on metal poles to elevate the microphone above the shrub level. The poles were placed in a four-foot tall PVC pipe holder that was hammered into the ground to provide stability. The detectors were preset to automatically record at least ½ hour before sunset and ½ hour after sunrise. Each detector and microphone were calibrated in accordance with the manufacturer and USFWS guidelines. The equipment was checked daily to ensure proper functioning of the detector and microphone. Survey Data forms are included in **Appendix D**. The detectors were deployed to record five survey nights per 0.6 mile. When multiple detectors were deployed within one section, they were placed over 200 m apart and deployed at a minimum of 2 nights at each location.

Inwood monitored the weather utilizing the nearest National Oceanic Atmospheric Administration (NOAA) National Weather Service Station to ensure the weather conditions complied with the USFWS criteria. The nearest NOAA weather station for the project is located at Page Field Airport (Station KFMY) and is less than 900ft from SR 739. Additionally, biologists documented weather conditions during daily equipment checks. Supporting weather documentation is included in **Appendix E**.

Acoustic sampling efforts were repeated for nights when the weather conditions did not meet USFWS survey criteria and included any of the following conditions within the first five hours of the survey:

- Temperatures fall below 65°F;
- Precipitation (rain and/or fog) exceeding 30 minutes or continues intermittently; and

- Sustained winds greater than 9 mph for 30 minutes or more.

4.3 Acoustic Data Analysis

Full spectrum data were recorded on 32 gigabyte (GB) SanDisk memory cards. The data were downloaded and analyzed utilizing SonoBat software, version 4.4.5. All calls were analyzed to determine species' presence and subsequent identification, including the Florida bonneted bat. The results were reviewed, and all bat calls were vetted to determine the potential of being a Florida bonneted bat.

4.4 Roost Survey

During the initial field analysis, detector deployments, and daily equipment checks, biologists surveyed the area for potential roosts. A 100% pedestrian roost survey was conducted on May 3, 2023, by two Inwood biologists in accordance with the roost survey protocol outlined in the Guidelines. Pedestrian transects were spaced in order to view potential roost structures from multiple angles. All trees/structures with cavities and/or crevices were documented via GPS location. Areas around each cavity were inspected for evidence of bat activity, including guano, staining, and chirping. All observed cavities and crevices were inspected with a wireless camera.

5.0 RESULTS

5.1 Acoustic Survey

Twelve acoustic monitoring sites collected data for a total of 51 detector nights between April 3 and May 7, 2023. A total of 55,823 files were collected. SonoBat analysis resulted in a total of 30,854 potential bat call sequences. Manual vetting of the potential bat call sequences identified a total of 3,685 bat call sequences. Bat species identified during the data analysis include:

- Florida bonneted bat (*Eumops floridanus*)
- Big brown bat (*Eptesicus fuscus*)
- Brazilian free-tailed bat (*Tadarida brasiliensis*)
- Eastern red bat (*Lasiurus borealis*)/Seminole bat (*Lasiurus seminolus*)
- Evening bat (*Nycticeius humeralis*)
- Northern yellow bat (*Lasiurus intermedius*)
- Tri-colored bat (*Perimyotis subflavus*)

SonoBat analysis identified 28 calls as Florida bonneted bat calls. SonoBat identified 52 additional calls as having the potential to be Florida bonneted bats. Manual vetting resulted in 14 of these calls being confirmed Florida bonneted bat calls, with two additional calls not previously identified by SonoBat for 16 confirmed Florida bonneted bat calls. The remaining calls were identified as noise, other bat species, or not bat (other taxa). The data corresponding to these calls are provided below in **Table 2**. Sonograms of confirmed calls are included in **Appendix E**. The location of confirmed Florida bonneted bat activity is provided in **Figure 3**. Nightly weather conditions were recorded for each deployment. The survey efforts were repeated for nights when the weather criteria were not met. Weather data is included in **Appendix F**.

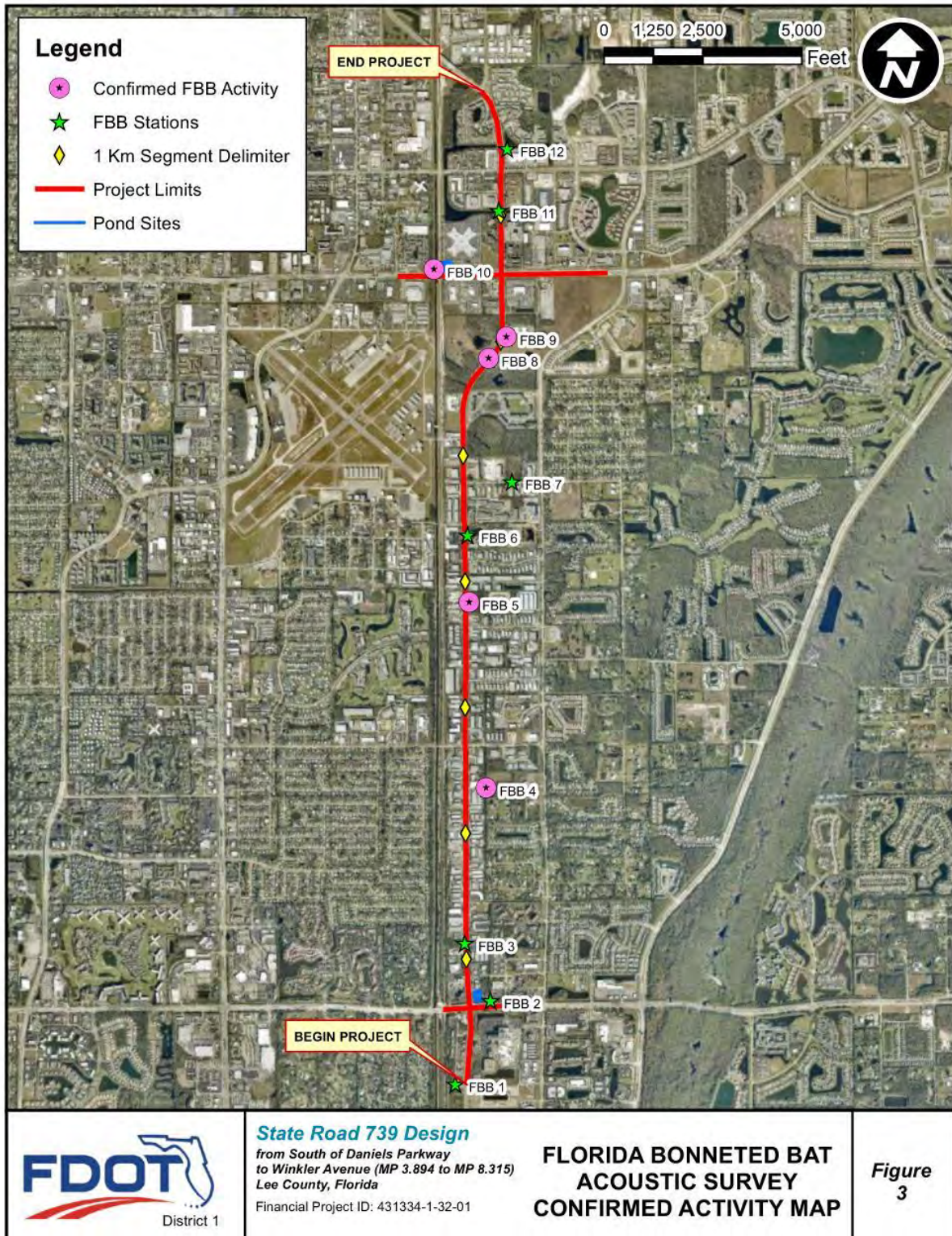
Table 2: SonoBat Call Data Summary of Potential Florida Bonneted Bat Calls

STATION	DATE	EUFL SB ID	TIMESTAMP	RESULT	EUFL SB POSSIBLE	TIMESTAMP	RESULT
FBB1	5/5/2023	N/A	N/A	N/A	M000433.wav	2023-05-06T06:45:24	NOTBAT
					M000351.wav	2023-05-06T06:14:40	TABR
					M000513.wav	2023-05-06T07:14:19	NOISE
FBB2	5/2/2023	N/A	N/A	N/A	M000062.wav	2023-05-02T23:00:58	NOISE
FBB2	5/3/2023	M001172.wav	2023-05-04T05:30:28	NOISE	M001282.wav	2023-05-04T06:09:55	NOISE
FBB2	5/4/2023	N/A	N/A	N/A	M000789.wav	2023-05-05T06:14:12	NOISE
FBB2	5/5/2023	N/A	N/A	N/A	M000740.wav	2023-05-05T23:15:45	NOISE
FBB3	4/3/2023	M002042.wav	2023-04-04T02:57:14	NOISE	N/A	N/A	N/A
FBB3	4/4/2023	M002046.wav	2023-04-05T07:23:23	NOISE	M001310.wav	2023-04-05T01:36:24	TABR with noise
		M002056.wav	2023-04-05T07:39:54	NOISE	N/A	N/A	N/A
FBB3	4/5/2023	N/A	N/A	N/A	M001445.wav	2023-04-06T0:27:28	NOISE
FBB3	4/7/2023	M001073.wav	2023-04-08T03:17:15	NOISE	M000587.wav	2023-04-08T00:56:51	TABR
					M000485.wav	2023-04-08T00:26:15	LOFU_NOISE
FBB3	5/3/2023	N/A	N/A	N/A	M000053.wav	2023-05-04T03:31:52	NOISE
FBB4	4/3/2023	N/A	N/A	N/A	M001301.wav	2023-04-04T00:16:10	TABR_NOISE
FBB4	4/4/2023	M001292.wav	2023-04-05T03:23:20	EUFL Confirmed	M001293.wav	2023-04-05T03:23:28	EUFL Confirmed - low quality
					M001291.wav	2023-04-05T03:23:12	EUFL Confirmed - low quality
FBB4	4/5/2023	N/A	N/A	N/A	M000548.wav	2023-04-08T04:04:58	2 BATS - TABR
					M000549.wav	2023-04-06T01:00:21	2 BATS - TABR
FBB4	4/8/2023	N/A	N/A	N/A	M001322.wav	2023-04-09T04:22:22	LOFU Unconfirmed low quality
					M001242.wav	2023-04-09T03:20:46	TBR
FBB5	4/4/2023	N/A	N/A	N/A	M001179.wav	2023-04-05T05:58:16	2BATS - HILO-TABR Social
FBB5	4/5/2023	M000700.wav	2023-04-06T01:41:48	EUFL Confirmed	N/A	N/A	N/A
FBB6	5/2/2023	M000839.wav	*2022-05-03T02:46:10	NOISE	M000373.wav	*2022-05-02T22:23:49	NOISE
					M001002.wav	*2022-05-03T04:42:47	NOISE
FBB6	5/3/2023	M001154.wav	*2022-05-04T04:14:05	NOISE	M000037.wav	*2022-05-03T19:52:07	NOISE
		M000401.wav	*2022-05-03T22:0:37	NOISE	M000360.wav	*2022-05-03T21:45:01	NOISE
		M001187.wav	*2022-05-04T05:27:03	NOISE			
		M001199.wav	*2022-05-04T05:31:52	NOTBAT/NOISE			
FBB6	5/4/2023	M000732.wav	*2022-05-05T00:33:39	NOISE	M000599.wav	*2022-05-04T23:30:14	NOISE
		M000099.wav	*2022-05-04T20:20:13	NOISE	M001263.wav	*2022-05-05T06:06:22	NOISE
		M001104.wav	*2022-05-05T04:44:02	NOISE	M000662.wav	*2022-05-04T23:55:41	NOISE
		M000263.wav	*2022-05-04T21:21:34	NOISE			
FBB7	5/4/2023	N/A	N/A	N/A	M000057	2023-05-04T21:55:42	NOISE

STATION	DATE	EUFL SB ID	TIMESTAMP	RESULT	EUFL SB POSSIBLE	TIMESTAMP	RESULT
FBB8	4/3/2023	N/A	N/A	N/A	M000780.wav	2023-04-04T02:31:16	TABR
					M000135.wav	2023-04-03T19:59:25	NOISE/NOTBAT
FBB8	4/4/2023	M000671.wav	2023-04-05T03:01:15	EUFL Confirmed			
		M000670.wav	2023-04-05T03:01:04	EUFL Confirmed			
		M000665.wav	2023-04-05T02:53:41	EUFL Confirmed			
		M000697.wav	2023-04-05T03:30:47	EUFL Confirmed			
FBB8	4/5/2023	M000101.wav	2023-04-05T20:02:36	NOISE	M000704.wav	2023-04-06T01:26:30	TABR
					M000826.wav	2023-04-06T04:01:57	NOISE
FBB8	4/7/2023	M002245.wav	2023-04-07T23:23:14	EUFL Confirmed			
		M002244.wav	2023-04-07T23:23:04	EUFL Confirmed			
		M002246.wav	2023-04-07T23:23:22	EUFL Confirmed			
FBB9	4/4/2023	M000460.wav	2023-04-04T22:52:31	EUFL Confirmed			
		M000876.wav	2023-04-05T03:52:03	EUFL Confirmed			
		M000877.wav	2023-04-05T03:52:12	EUFL Confirmed			
FBB9	4/8/2023	N/A	N/A	N/A	M001507.wav	2023-04-08T20:06:45	NOTBAT
FBB10	4/4/2023	**M001546.wav	2023-04-04T02:39:02	EUFL Confirmed			
		**M001545.wav	2023-04-04T02:38:53	EUFL Confirmed			
FBB11	5/4/2023	M000026.wav	2023-05-04T20:55:10	NOISE	N/A	N/A	N/A
FBB12	5/3/2023	N/A	N/A	N/A	M000159.wav	2023-5-04T00:22:45	TABR Social calls
					M000265.wav	2023-05-04T02:24:49	TABR Social calls/ more than 1 bat
FBB12	5/4/2023	N/A	N/A	N/A	M000383.wav	2023-05-05T03:45:54	2 Bats - TABR Social probably
					M000329.wav	2023-05-05T01:50:41	TABR
					M000479.wav	2023-05-05T04:48:36	TABR
					M000491.wav	2023-05-05T05:20:16	2 Bats TABR Social
					M000490.wav	2023-05-05T50:20:08	2 Bats
FBB12	5/5/2023	N/A	N/A	N/A	M000639.wav	2023-05-06T05:17:38	2 Bats
					M000553.wav	2023-05-06T40:09:31	2 Bats
					M000546.wav	2023-05-06T04:08:22	2 Bats
FBB12	5/5/2023	N/A	N/A	N/A	M000060.wav	2023-05-05T21:16:09	TABR
					M000062.wav	2023-05-05T21:16:25	TABR
					M000641.wav	2023-05-06T05:17:54	LOFU (above 20KH not EUFL)
					M000069.wav	2023-05-05T21:30:23	LOFU (Poor quality not EUFL)

STATION	DATE	EUFL SB ID	TIMESTAMP	RESULT	EUFL SB POSSIBLE	TIMESTAMP	RESULT
FBB12	5/5/2023	N/A	N/A	N/A	M000547.wav	2023-05-06T04:08:30	2 Bats
					M000545.wav	2023-05-06T04:08:15	2 Bats
					M000561.wav	2023-05-06T04:11:26	2 Bats (Possible EUFL cannot confirm)
					M000589.wav	2023-05-06T04:22:24	2 Bats (Possible EUFL cannot confirm)
EUFL = Florida Bonneted Bat TABR = Brazilian Free-tailed Bat SB = SonoBat *Detector set-up error - should be 2023 ** Not Identified by SonoBat							

Figure 3: Florida Bonneted Bat Acoustic Survey Confirmed Activity Map



5.2 Roost Survey

The 100% roost survey conducted on May 3, 2022, identified three potential roosts consisting of natural structures. Potential Roost Tree (PRT) 1 and PRT 3 each had one cavity. PRT 2 had two cavities. The location of each structure is provided in **Figure 4**. Most trees within the project footprint are part of landscape features and are regularly maintained, thus eliminating snags, or dead and dying trees with unsightly deformities including crevices or cavities that could be used for roosting.

Each structure was inspected for evidence of roosting, such as staining, guano, and chirping. All cavities were visually inspected, and binoculars and a wireless camera were utilized to scope the cavities to access the cavity contents. No evidence of roosting was identified. **Table 3** provides a summary of the observed structures. Photo documentation of the potential roost trees and cavities is provided in **Appendix B**. Based on the roost survey and assessment, no evidence of roosting by Florida bonneted bats or other bats was observed.

Figure 4: Potential Roost Cavity Location Map

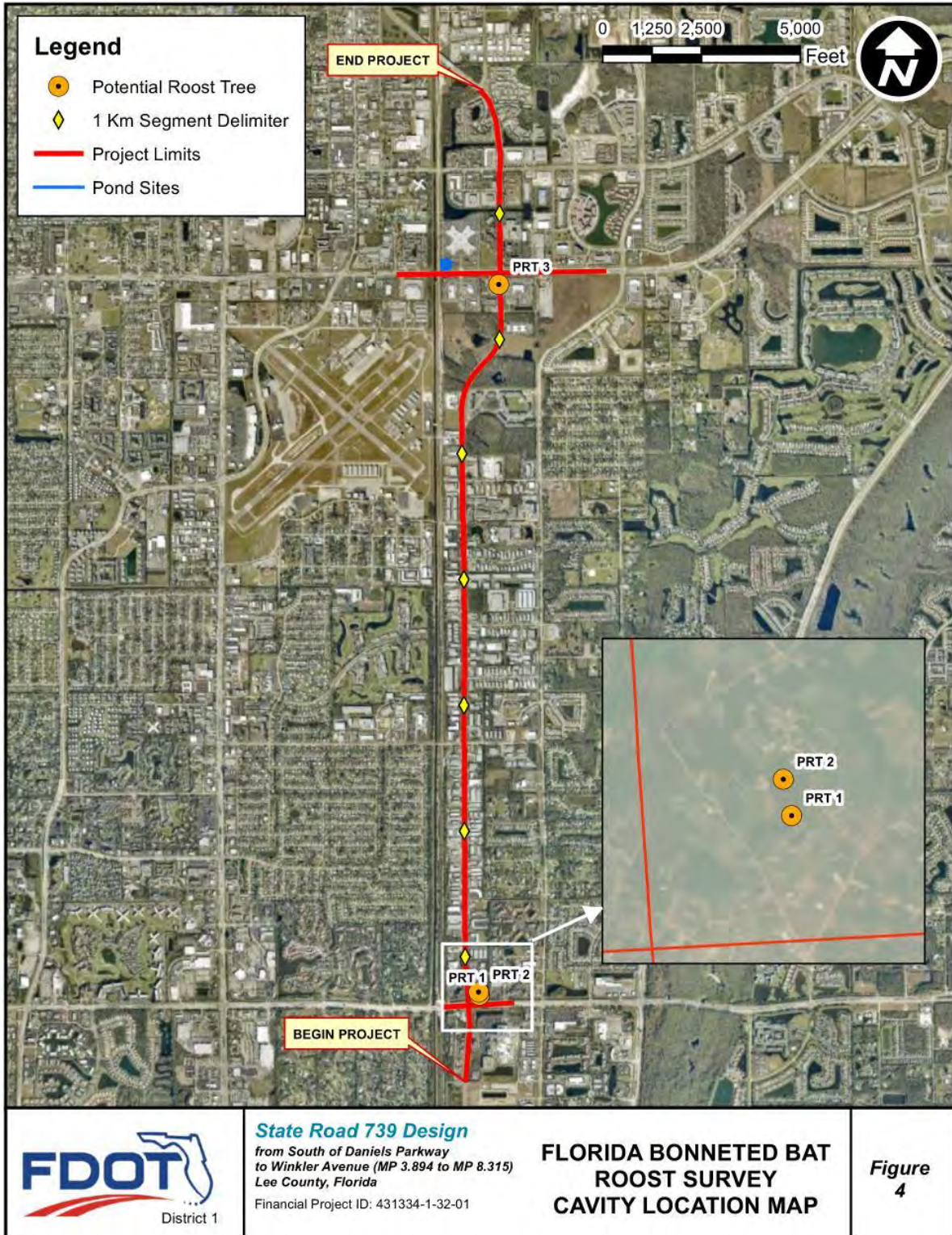


Table 3: Roost Survey Data

Potential Roost Location	Structure Type	Health	Approximate DBH (inches)	Approximate Height of Cavity	Latitude	Longitude	Staining Observed	Guano Observed	Auditory Chirping
PRT 1	Laurel oak	Good	29.6	8 ft	26° 32' 49.6" N	81° 32' 6.3" W	No	No	No
PRT 2A	Live oak	Good	46.4	6 ft	26° 32' 50.4" N	81° 51' 6.5" W	No	No	No
PRT 2B	Live oak	Good	46.4	6 ft	26° 32' 50.4" N	81° 51' 6.5" W	No	No	No
PRT3	Laurel oak	Good	22.9	7.5 ft	26° 35' 47.6" N	81° 51' 2.2" W	No	No	No

DBH = Diameter at Breast Height

6.0 CONCLUSION

Based on the Guidelines, it was determined that suitable Florida bonneted bat roosting and foraging habitat occurs within the proposed project area. The corridor is highly developed, and most of this habitat, particularly roosting habitat, is outside the project footprint of the roadway widening and pond site locations. As a result of the full acoustic and roost surveys, no evidence of roosting was found.

The full acoustic survey resulted in the identification of 16 Florida bonneted bat calls. These calls were collected at five survey sites on three survey nights. A summary of the call data for the confirmed Florida bonneted bat calls is detailed in **Table 4**.

Table 4: Florida Bonneted Bat Call Data Summary

STATION	DATE	FILE ID	TIMESTAMP	RESULT	TOTAL CALLS
FBB4	4/4/2023	M001292.wav	2023-04-05T03:23:20	EUFL Confirmed	3
		M001293.wav	2023-04-05T03:23:28	EUFL Confirmed - low quality	
		M001291.wav	2023-04-05T03:23:12	EUFL Confirmed - low quality	
FBB5	4/5/2023	M000700.wav	2023-04-06T01:41:48	EUFL Confirmed	1
FBB8	4/4/2023	M000671.wav	2023-04-05T03:01:15	EUFL Confirmed	4
		M000670.wav	2023-04-05T03:01:04	EUFL Confirmed	
		M000665.wav	2023-04-05T02:53:41	EUFL Confirmed	
		M000697.wav	2023-04-05T03:30:47	EUFL Confirmed	
	4/7/2023	M002245.wav	2023-04-07T23:23:14	EUFL Confirmed	3
		M002244.wav	2023-04-07T23:23:04	EUFL Confirmed	
M002246.wav		2023-04-07T23:23:22	EUFL Confirmed		
FBB9	4/4/2023	M000460.wav	2023-04-04T22:52:31	EUFL Confirmed	3
		M000876.wav	2023-04-05T03:52:03	EUFL Confirmed	
		M000877.wav	2023-04-05T03:52:12	EUFL Confirmed	
FBB10	4/4/2023	M001546.wav	2023-04-04T02:39:02	EUFL Confirmed	2
		M001545.wav	2023-04-04T02:38:53	EUFL Confirmed	
Total Florida Bonneted Bat Calls					16

Twelve calls were collected on one survey night (April 4, 2023) at four survey sites. Based on the results of the full acoustic and roost surveys, a **“May Affect, Not Likely to Adversely Affect – C”** effect determination was made utilizing the Florida Bonneted Bat Consultation Key (USFWS 2019) (**Appendix G**). This effect determination was made using the following sequence from the key: **1a-2a-3b-6a-7b-10a-11b = MANLAA-C with required Best Management Practices (BMPs)**. Further consultation with the USFWS will be required.

The BMPs required to reach a MANLAA determination are based on couplet 11b. The requirements for couplet 11b include BMPs number 1 and 4 and any 4 BMPs out of BMPs 5 through 13. As a result, the FDOT will implement the following BMPs (**Appendix H**) for the proposed project:

BMP 1

If potential roost trees or structures need to be removed, check cavities within 30 days prior to removal of trees, snags or structures. When possible, remove structure outside of breeding season (*e.g.*, January 1 – April 15). If evidence of use by any bat species is observed, discontinue removal efforts in that area and coordinate with the Service on how to proceed.

BMP 4

For every 5 acres of impact, retain a minimum of 0.25 acre of native vegetation. If upland habitat is impacted, then upland habitat with native vegetation should be retained.

BMP5

Conserve open freshwater and wetland habitats to promote foraging opportunities and avoid impacting water quality. Created/restored habitat should be designed to replace the function of native habitat.

BMP 7

Avoid or limit widespread application of insecticides (*e.g.*, mosquito control, agricultural pest control) in areas where Florida bonneted bats are known or expected to forage or roost.

BMP 9

Retain mature trees and snags that could provide roosting habitat. These may include live trees of various sizes and dead or dying trees with cavities, hollows, crevices, and loose bark.

BMP 11

Avoid and minimize the use of artificial lighting, retain natural light conditions, and install wildlife friendly lighting (*e.g.*, downward facing and lowest lumens possible).

7.0 REFERENCES

- Belwood, J.J. 1981. Wagner's mastiff bat, *Eumops glaucinus floridanus* (Molossidae) in southwestern Florida. *Journal of Mammalogy* 62:411-413.
- Belwood, J.J. 1992. Florida mastiff bat *Eumops glaucinus floridanus*. Pages 216-233 in S.R. Humphrey (ed), *Rare and endangered biota of Florida*. Vol. I. Mammals. University Press of Florida. Gainesville, Florida.
- Timm, R. and J.Arroyo-Cabrales. 2008. *Eumops floridanus*. In:IUCN 2011, IUCN Red List of Threatened Species. Version 2011.2 <http://iucnredlist.org/>.
- Timm, R. M. and H. H. Genoways. 2004. The Florida bonnet bat, *Eumops floridanus* (Chiroptera: Molossidae): distribution, morphometrics, systematics, and ecology. *Journal of Mammalogy* 85:852-865.
- USFWS. 2013. Endangered and threatened wildlife and plants; endangered species status for the Florida bonneted bat; Final Rule. *Federal Register* 78:61004.
- USFWS, South Florida Ecological Services Office. 2019. Florida Bonneted Bat Consultation Guidelines.

**AGENCY COORDINATION: APPROVED FLORIDA BONNETED BAT SURVEY
METHODOLOGY**

Jada Barhorst

From: Wrublik, John <john_wrublik@fws.gov>
Sent: Friday, March 31, 2023 6:27 AM
To: Bennett, Jonathon
Cc: Barnett, Emily; Michelle Rutishauser; James, Jeffrey W; Jason Houck; Jada Barhorst; Peters, Lauren
Subject: Re: [EXTERNAL] 431334-1 Metro Parkway FBB Survey Methodology Memorandum

Jonathan,

The survey methodology for the Florida bonneted bat that you provided for the referenced project is acceptable to the Service,

Sincerely,

John M. Wrublik
U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960
Office: (772) 469-4282
Fax: (772) 562-4288
email: John_Wrublik@fws.gov

NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

From: Bennett, Jonathon <Jonathon.Bennett@dot.state.fl.us>
Sent: Thursday, March 30, 2023 3:45 PM
To: Wrublik, John <john_wrublik@fws.gov>
Cc: Barnett, Emily <Emily.Barnett@dot.state.fl.us>; Michelle Rutishauser <mrutishauser@earthresources.us>; James, Jeffrey W <Jeffrey.James@dot.state.fl.us>; Jason Houck <jhouck@inwoodinc.com>; Jada Barhorst <jbarhorst@inwoodinc.com>; Peters, Lauren <Lauren.Peters@dot.state.fl.us>
Subject: [EXTERNAL] 431334-1 Metro Parkway FBB Survey Methodology Memorandum

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

John,

Good afternoon, please find the Florida Bonneted Bat Methodology attached for the above-mentioned project. Your review with acceptance/comment would be appreciated.

Thank you,

Jonathon A. Bennett
Environmental Project Manager

ETDM Coordinator

Florida Department of Transportation | District One
801 North Broadway Avenue | Bartow, Florida 33830

PH: (863) 519-2495 EMAIL: Jonathon.Bennett@dot.state.fl.us





Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

March 30, 2023

Mr. John Wrublik
Planning and Resource Conservation
U.S. Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960
john_wrublik@fws.gov

Subject: SR 739 (Metro Parkway) Design Project

from Daniels Parkway to Winkler Avenue

Florida Bonneted Bat Acoustic/Roost Survey Methodology Memorandum

Financial Project Number: 431334-1-32-01

Lee County, Florida

Dear Mr. Wrublik,

The Florida Department of Transportation (FDOT), District 1, is proposing to widen approximately 4.5 miles of State Road (SR) 739 (Metro Parkway). The proposed project is located in Lee County, Florida within Sections 6, 7, 18, and 19 of Township 45 South, Range 25 East, and Section 31 of Township 44 South, Range 25 East. A project location map (**Figure 1**) is included as part of this correspondence.

The project area is located within the U.S. Fish and Wildlife Service's (USFWS) Consultation Area (CA) for the Florida bonneted bat (FBB) (*Eumops floridanus*). Inwood Consulting Engineers, Inc. (Inwood) is preparing to conduct a full acoustic and roost survey to determine the presence/absence of the FBB in the project area. The current survey protocol for linear projects requires 5 detector nights per 0.6 mile (.97 Km). Based on the project length, a minimum of 40 detector nights will be required. Inwood is proposing 12 survey sites to accommodate the linear survey requirement, including pond sites, for a total of 48 survey nights. A preliminary field review was conducted on March 24, 2023, to determine potential survey sites. The survey sites are shown on **Figure 2**. These sites have been selected and ground-truthed based on existing habitats within the project area that provide suitable roosting and/or foraging habitat for the FBB, with the primary focus given to roosting habitat that may be lost or modified as a result of

the proposed project. Potential roosting habitat for the FBB includes forests or other areas with tall or mature trees or other areas with potential roost structures including utility poles and artificial roosts. Potential foraging habitat consists of relatively open areas that provide sources of prey and drinking water including open fresh water, permanent or seasonal freshwater wetlands, wetland and upland forests, wetland and upland shrub, and agricultural areas. Photographs of survey site locations are provided with this correspondence.

Inwood will conduct the full acoustic/roost survey in accordance with current USFWS Florida Bonneted Bat Consultation Guidelines (October 2019) during April 2023. A pedestrian roost survey will be conducted to identify and inspect potential roosts for evidence of bats, including natural and artificial structures, within the project footprint. The acoustic survey will be conducted by a qualified biologist who has acoustic survey experience and has taken the required acoustic survey course. A full spectrum detector (Pettersson DX500) with an omnidirectional microphone mounted a minimum of 15 feet above the ground will be deployed at each survey site. The detectors will be preset to automatically record at least ½ hour before sunset and ½ hour after sunrise. The detectors will be deployed to record five survey nights per .6 mile. Inwood will monitor the weather utilizing the nearest NOAA National Weather Service Station to ensure the weather conditions meet the USFWS criteria. Additional survey nights may be necessary if any of the following weather conditions occur within the first five hours of the survey:

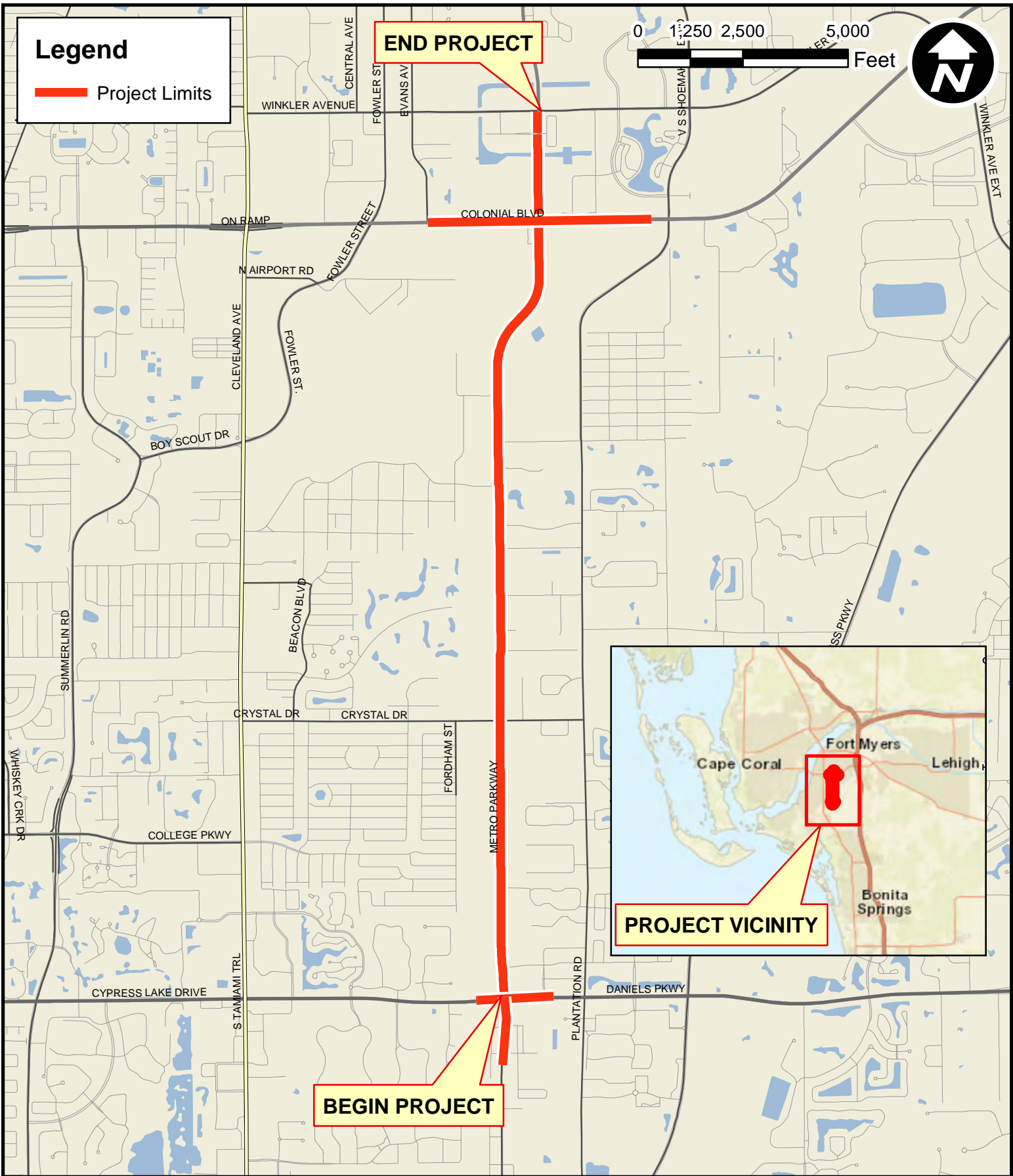
- Temperatures fall below 65°F;
- Precipitation (rain and/or fog) exceeding 30 minutes or continues intermittently; and
- Sustained winds greater than 9 mph for 30 minutes or more.

SonoBat software will be utilized to analyze the recordings. Additionally, the results will be reviewed and all calls at and below 20kHz will be manually vetted by experienced personnel. All data will be submitted to USFWS utilizing NABat upon completion of the study .

We are requesting that you please review the proposed FBB acoustic survey methodology, above, and the attached figures, and provide concurrence that these are acceptable to USFWS. We appreciate your cooperation and look forward to working with you on this project. If you have any questions, concerns, or need additional information, please contact me at 863-519-2495 or Jonathon.Bennett@dot.state.fl.us.

Sincerely,

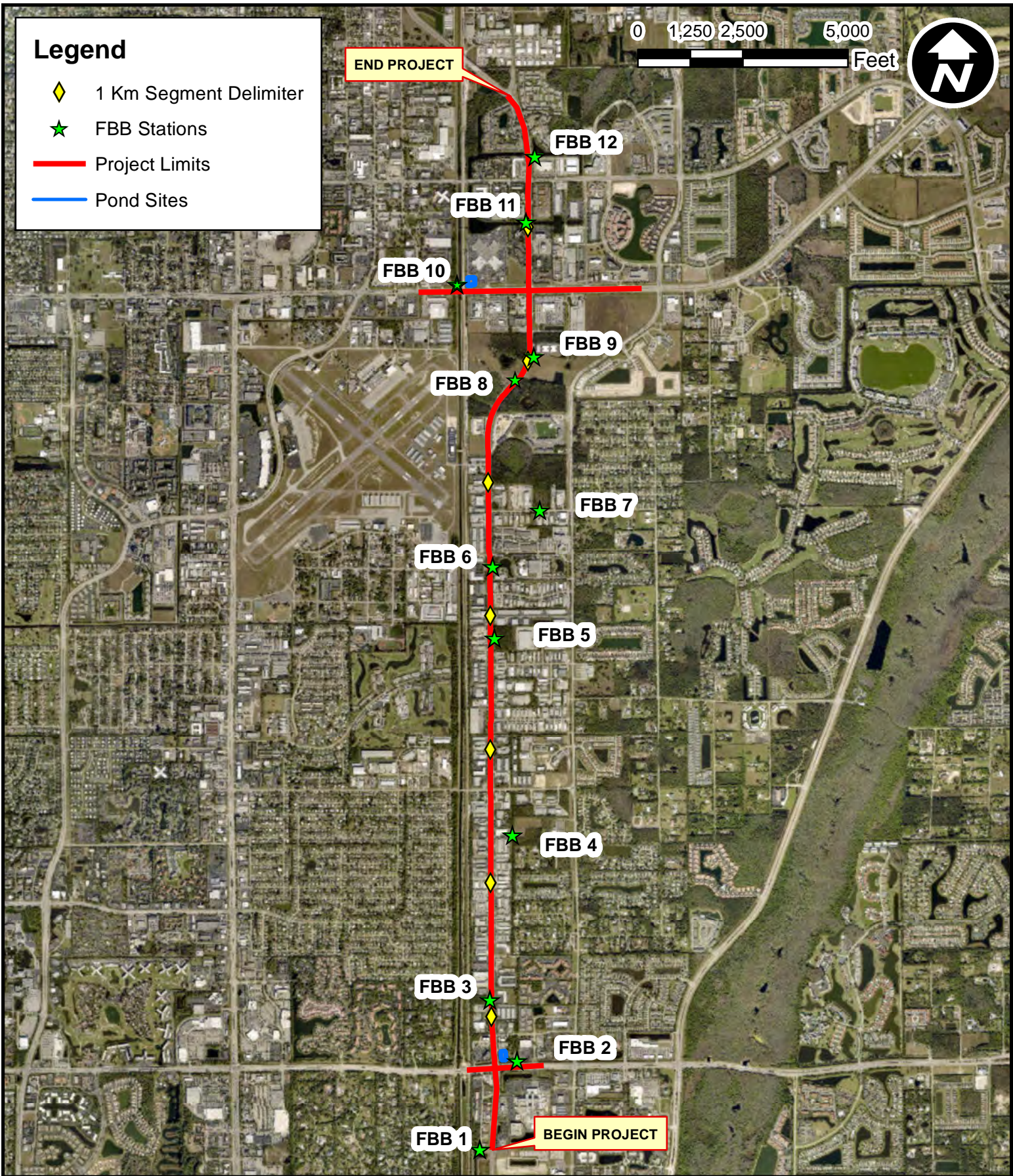
Jonathon Bennett
Environmental Project Manager
ETDM Coordinator



State Road 739 Design
 from South of Daniels Parkway
 to Winkler Avenue (MP 3.894 to MP 8.315)
 Lee County, Florida
 Financial Project ID: 431334-1-32-01
 Federal Project No: N/A

PROJECT LOCATION MAP

Figure 1



State Road 739 Design
 from South of Daniels Parkway
 to Winkler Avenue (MP 3.894 to MP 8.315)
 Lee County, Florida
 Financial Project ID: 431334-1-32-01

**FLORIDA BONNETED BAT
 ACOUSTIC SURVEY
 STATION LOCATION MAP**

*Figure
 2*

Photo 1: FBB 1 representative habitat



Photo 2: FBB 3 representative habitat



Photo 3: FBB 4 representative habitat



Photo 4: FBB 5 representative habitat



Photo 5: FBB 8 representative habitat



Photo 6: FBB 12 representative habitat



PHOTOGRAPHS

Photo 1: Station FBB 1



Photo 2: FBB 1 survey site habitat



Photo 3: Station FBB 2



Photo 4: FBB 2 survey site habitat



Photo 5: Station FBB 3



Photo 6: FBB 3 survey site habitat



Photo 7: Station FBB4



Photo 8: FBB 4 survey site habitat



Photo 9: Station FBB 5



Photo 10: FBB 5 survey site habitat



Photo 11: Station FBB 6 and survey site habitat



Photo 12: Station FBB 7 and survey site habitat



Photo 13: Station FBB 8



Photo 14: FBB 8 survey site habitat



Photo 15: Station FBB 9



Photo 16: FBB 9 survey site habitat



Photo 17: Station FBB 10 and survey site habitat



Photo 18: FBB 11 and survey site habitat



Photo 19: Station FBB 12



Photo 20: FBB 12 survey site habitat



Photo 21: PRT 1



Photo 22: PRT 1 Cavity



Photo 23: PRT 2



Photo 24: PRT 2 Cavity A



Photo 25: PRT Cavity B



Photo 26: PRT 3



Photo 27: PRT 3 Cavity



DEPLOYMENT DATA FORMS

Detector Deployment Data Form

Project: Metro Parkway	State: FL	County: Lee	Site: FBB 1	Date: 05.05.23
Biologist: J. Barkorst	GPS ID: Eplure App	Camera ID: Jale's Phone		

DETECTOR DATA

Detector ID	Detector Make	Detector Model	Microphone Make	Microphone Type	Microphone Height	Microphone Orientation
11535	Pettersson	DS00K	Pettersson	Omnidirectional	15 ft	Horizontal

Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 32' 28" N	81° 51' 14" W	Yes	low edge	45	low	NO	1932	0717

DETECTOR CHECKLIST: Time 12:55pm Mic Test Mic Placement Battery Check CF Card Weatherproof

Detector/Gear Working and Armed

Photo #/ID: M PFB 1

Waypoint #/ID: M PFB 1


Detector Placement/Site Description:

Mic located at Metropolis Ave, east of Metro Pkwy at northern edge of fence line surrounding the retention pond. Mic placed fairly south toward pond @ fence line w/ low clutter behind mic. Pole just N of fence in


Remarks:



Detector Deployment Data Form

Project: Metro Parkway		State: FL	County: Lee		Site: FBB 2	Date: 05.02.23			
Biologist: J. Barlorst / R. Scherer				GPS ID: iPhone App		Camera ID: Felain T. P. H.			
DETECTOR DATA									
Detector ID	Detector Make	Detector Model	Microphone Make		Microphone Type	Microphone Height	Microphone Orientation		
11622	Pettersson	DS00X	Pettersson		Omnidirectional	20 ft	horizontal		
Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time	
26° 32' 58" N	-81° 51' 05" W	Yes	else	45	low	NO	1930	0719	
DETECTOR CHECKLIST: Time 7:20pm Mic Test <input checked="" type="checkbox"/> Mic Placement <input checked="" type="checkbox"/> Battery Check <input checked="" type="checkbox"/> CF Card <input checked="" type="checkbox"/> Weatherproof <input checked="" type="checkbox"/>									
Detector/Gear Working and Armed <input checked="" type="checkbox"/>				Photo #/ID: MP FBB 2			Waypoint #/ID: MP FBB 2		
<p>Detector Placement/Site Description:</p> <p>mic located east of Metro Parkway immediately N of Daniel Pkwy at the open parcel east of Scan Design's parking lot. Mic placed facing N toward clearing, w/ else clutter behind mic</p> <p>Remarks:</p>									
									

Detector Deployment Data Form

Project: Metro Parkway	State: FL	County: Lee	Site: F653	Date: 4-3-2023				
Biologist: J. Balworst	GPS ID:	Camera ID: J. Balworst iPhone 11						
DETECTOR DATA								
Detector ID	Detector Make	Detector Model	Microphone Make	Microphone Type	Microphone Height	Microphone Orientation		
11537	Peterson	0500x	Peterson	Omnidirectional	15 ft.	horizontal		
Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 33' 03" N	81° 51' 11" W	Yes	Edge	YS	Low	No	19:15	07:46
DETECTOR CHECKLIST: Time 6:02pm Mic Test <input checked="" type="checkbox"/> Mic Placement <input checked="" type="checkbox"/> Battery Check <input checked="" type="checkbox"/> CF Card <input checked="" type="checkbox"/> Weatherproof <input checked="" type="checkbox"/>								
Detector/Gear Working and Armed <input checked="" type="checkbox"/>			Photo #/ID:		Waypoint #/ID: MP F653			
Detector Placement/Site Description: Mic Placed west of Metro Parkway, in wooded parcel just north of Nature's Own Bakery. Placed facing SSE toward clearing.								
Remarks: Distance to water ~ 200 meters								

Detector Deployment Data Form

Project: Metro Parkway	State: FL	County: Lee	Site: FBB4	Date: 4.3.2023
Biologist: Sibarhorst		GPS ID: Subs iPhone 11		Camera ID: Subs iPhone 11

DETECTOR DATA

Detector ID	Detector Make	Detector Model	Microphone Make	Microphone Type	Microphone Height	Microphone Orientation		
11622	Pettersen	D500x	Pettersen	omnidirectional	20 ft	Horizontal		
Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 33' 44" N	81° 51' 05" W	✓	edge	45	Low	NO	19:15	07:46
DETECTOR CHECKLIST: Time <u>2:00pm</u> Mic Test <u>✓</u> Mic Placement <u>✓</u> Battery Check <u>✓</u> CF Card <u>✓</u> Weatherproof <u>✓</u>								
Detector/Gear Working and Armed <u>✓</u>			Photo #/ID: MP FBB4			Waypoint #/ID: MP FBB4		

Detector Placement/Site Description:

Mic placed at open area near the bank parking lot of the FedEx just south of Crystal Pt. Mic was placed at ~~the~~ tree row corner fairly east over open field, facing East

Remarks:



Detector Deployment Data Form

Project: Metro Parkway	State: FL	County: Lee	Site: FBB5	Date: 4-3-2023
Biologist: J. Balorst	GPS ID: J. Balorst iPhone 11		Camera ID: J. Balorst iPhone 11	

DETECTOR DATA

Detector ID	Detector Make	Detector Model	Microphone Make	Microphone Type	Microphone Height	Microphone Orientation		
11535	Peterson	0500X	Peterson	omnidirectional	20 ft	Horizontal		
Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 34' 29" N	81° 51' 10" W	✓	Edge	45	Low	NO	1915	0746
DETECTOR CHECKLIST: Time <u>2:50pm</u> Mic Test <u>✓</u> Mic Placement <u>✓</u> Battery Check <u>✓</u> CF Card <u>✓</u> Weatherproof <u>✓</u>								
Detector/Gear Working and Armed <u>2:50pm</u>			Photo #/ID: <u>MP FBB5</u>			Waypoint #/ID: <u>MP FBB5</u>		

Detector Placement/Site Description:

Forested Parcel on east side of Metro Pkwy between Alc way and Metro Plex Drive. Placed in opening along access rd in parcel facing NW toward opening & Metro Parkway.

Remarks:



Detector Deployment Data Form

Project: Metro Parkway	State: FL	County: Lee	Site: FBB6	Date: 5.2.23
Biologist: S. Barhorst R. Campana		GPS ID: MP FBB6		Camera ID:

DETECTOR DATA

Detector ID	Detector Make	Detector Model	Microphone Make	Microphone Type	Microphone Height	Microphone Orientation		
11534	Peterson	D500	Peterson	Omnidirectional	20ft	Horizontal		
Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 34' 46" N	81° 51' 11" W	Y	Edge	45	LOW	NO	19:30	0719
DETECTOR CHECKLIST: Time <u>5:50</u> Mic Test <input checked="" type="checkbox"/> Mic Placement <input checked="" type="checkbox"/> Battery Check <input checked="" type="checkbox"/> CF Card <input checked="" type="checkbox"/> Weatherproof <input checked="" type="checkbox"/>								
Detector/Gear Working and Armed <input checked="" type="checkbox"/>			Photo #/ID: M1 FBB6			Waypoint #/ID: MP FBB6		

Detector Placement/Site Description:


located in Row in front of Chico's Headquarters, just south of Danley Dr on East side of Metro Parkway. Mic facing west toward Metro Parkway

Remarks:

Edge Clutter is low saw palmetto w/ scattered pine canopy located behind mic ~ 5 meters



Detector Deployment Data Form

Project: Metro Parkway	State: FL	County: Lee	Site: FBB7	Date: 5.4.23				
Biologist: J. Barhorst		GPS ID: Julia's iPhone 6S App		Camera ID: Julia's iPhone				
DETECTOR DATA								
Detector ID	Detector Make	Detector Model	Microphone Make	Microphone Type	Microphone Height	Microphone Orientation		
11537	Pettersson	D500X	Pettersson	omnidirectional	15 ft	horizontal		
Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 34' 59" N	-81° 50' 57" W	✓		45	Low	NO	1934	0720
DETECTOR CHECKLIST: Time 4:10pm Mic Test ✓ Mic Placement _____ Battery Check E ✓ CF Card ✓ Weatherproof _____								
Detector/Gear Working and Armed ✓			Photo #/ID: MP FBB7			Waypoint #/ID: MP FBB7		
Detector Placement/Site Description: M-2 Detector located east of Metro Parkway and immediately N of Yellowild St. Southern boundary of parcel w/ planted pine. M-2 placed in clearing facing N.								
Remarks:								

Detector Deployment Data Form

Project: Metro Parkway	State: FL	County: Lee	Site: FBB8	Date: 4.3.2023
Biologist: J. Ballois		GPS ID: J. Ballois + other 11 ^{GPS} Apps		Camera ID: J. Ballois + J. Phelan

DETECTOR DATA

Detector ID	Detector Make	Detector Model	Microphone Make	Microphone Type	Microphone Height	Microphone Orientation		
11621	Peterson	DS08X	Peterson	Omnidirectional	20 ft	horiz. 20m fd		
Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 35' 29" N	81° 51' 06" W	✓	NO	45	LOW	NO	1915hr	0746
DETECTOR CHECKLIST: Time 5:17pm		Mic Test ✓	Mic Placement ✓	Battery Check ✓	CF Card ✓	Weatherproof ✓		
Detector/Gear Working and Armed ✓			Photo #/ID: MP FBB 81			Waypoint #/ID: MP FBB 8		

Detector Placement/Site Description:

West side of Metro Park over open field w/ adjacent forested wetlands. Mic deployed near willow & fence line facing west over open pasture

Remarks:



Detector Deployment Data Form

Project: Metro Parkway	State: FL	County: Lee	Site: FBB 9	Date: 4.3.2023
Biologist: S. Barhoist	GPS ID: I-phone 11		Camera ID: S. Barhoist I-phone 11	

DETECTOR DATA

Detector ID	Detector Make	Detector Model	Microphone Make	Microphone Type	Microphone Height	Microphone Orientation		
11534	Peterson D500x	D500x	Peterson	omnidirectional	20 ft	Horizontal		
Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 35' 35" N	81° 51' 01" W	✓	NO	45	Low	NO	1915	0746
DETECTOR CHECKLIST: Time 3:30pm		Mic Test ✓	Mic Placement ✓	Battery Check ✓	CF Card ✓	Weatherproof ✓		
Detector/Gear Working and Armed ✓			Photo #/ID:	Waypoint #/ID: MP FBB 9				

Detector Placement/Site Description:

Mic placed @ fence line east of Metro Parkway near NW corner just south of parking lot. Placed facing RSW over open pasture.

Remarks:



Detector Deployment Data Form

Project: Metro Parkway	State: FL	County: Lee	Site: FBB10	Date: 4-3-2023
Biologist: J. Balwist	GPS ID: iPhone App		Camera ID: J. Balwist iPhone 11	

DETECTOR DATA


Detector ID	Detector Make	Detector Model	Microphone Make	Microphone Type	Microphone Height	Microphone Orientation		
11536	Peterson	D500X	Peterson	omnidirectional	20 ft.	Horizontal		
Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 35' 53" N	81° 51' 21" W	✓	Edge	45	low	NO	1916	0747
DETECTOR CHECKLIST: Time <u>4:25pm</u> Mic Test <u>✓</u> Mic Placement <u>✓</u> Battery Check <u>✓</u> CF Card <u>✓</u> Weatherproof <u>✓</u>								
Detector/Gear Working and Armed <u>✓</u>			Photo #/ID: MP FBB10			Waypoint #/ID: MP FBB10		

Detector Placement/Site Description:
 Mic placed on western side of canal, north of Colonial BUA, just west of Metro Parkway, and east of Park Positano Apartments. Facing East toward Canal

Remarks:



Detector Deployment Data Form

Project: Metro Parkway		State: FL	County: Lee		Site: F6B11		Date: 5.4.23			
Biologist: J. Barhoist			GPS ID: iPhone App			Camera ID:				
DETECTOR DATA										
Detector ID	Detector Make	Detector Model	Microphone Make		Microphone Type	Microphone Height	Microphone Orientation			
11621	Pettersson	DS00X	Pettersson		omnidirectional	20 ft.	horizontal			
Latitude		Longitude		Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 36' 06" N		81° 51' 06" W		Y		45	Low	NO	1931	0717
DETECTOR CHECKLIST: Time <u>5:43pm</u> Mic Test <input checked="" type="checkbox"/> Mic Placement <input checked="" type="checkbox"/> Battery Check <input checked="" type="checkbox"/> CF Card <input checked="" type="checkbox"/> Weatherproof <input checked="" type="checkbox"/>										
Detector/Gear Working and Armed <input checked="" type="checkbox"/>				Photo #/ID: MP F6B11			Waypoint #/ID: MP F6B11			
Detector Placement/Site Description:										
Detector/mic placed west of Metro Parkway. Northern side of IAS parking lot along southern bank of the canal. Place in a clearing along the canal facing NNEW										
Remarks:										
										

Detector Deployment Data Form

Project: Metro Parkway	State: FL	County: Lee	Site: FRSB12	Date: 5.2.2017
Biologist: S. Burhoast, R. Campana		GPS ID: MP FRSB12	Camera ID: S. Burhoast Phone	

DETECTOR DATA

Detector ID	Detector Make	Detector Model	Microphone Make	Microphone Type	Microphone Height	Microphone Orientation		
11536	Pettersson	DS001	Pettersson	omnidirectional	20ft	horizontal		
Latitude	Longitude	Horn	Clutter	Gain	Trigger Sensitivity	HP filter	Start Time	Stop Time
26° 36' 22" N	-81° 50' 55" W	Y	low edge	45	low	NO	1934	0722
DETECTOR CHECKLIST: Time 6:21		Mic Test <input checked="" type="checkbox"/>	Mic Placement <input checked="" type="checkbox"/>	Battery Check <input type="checkbox"/>	CF Card <input type="checkbox"/>	Weatherproof <input checked="" type="checkbox"/>		
Detector/Gear Working and Armed <input checked="" type="checkbox"/>			Photo #/ID: MP FRSB12	Waypoint #/ID: MP FRSB12				

Detector Placement/Site Description:

W of Metro Parkway, just N of Winkler Ave at north parking lot on canal bank. Facing W toward canal

Water is 3-5 meters

Remarks:



SURVEY DATA FORMS

Bat Survey Data

Project: Metro Parkway						State: FL			County: Lee			
Date	Time	Site #	Detector #	Start Time	End Time	Mic Test	Mic Placement	CF Card	Battery	Detector/Gear working/armed	Weather	Biologist
4.3.23	2:00 pm	FBB4	11622	1915	0746	✓	✓	✓	Dxchle ✓12	✓	✓	J. Barkorst
4.3.23	2:50 pm	FBB5	11535	1915	0746	✓	✓	✓	CV	✓	✓	J. Barkorst
4.3.23	3:30 pm	FBB9	11534	1915	0746	✓	✓	✓	M✓	✓	✓	J. Barkorst
4.3.23	4:25 pm	FBB10	11536	1916	0747	✓	✓	✓	D34	✓	✓	J. Barkorst
4.3.23	5:17 pm	FBB8	11621	1915	0746	✓	✓	✓	L✓	✓	✓	J. Barkorst
4.3.23	6:02 pm	FBB3	11537	1915	0746	✓	✓	✓	B✓	✓	✓	J. Barkorst
4.4.23	9:05 AM	FBB4	11622	1916	0745	✓	✓	✓	D142	✓	✓	J. Barkorst
4.4.23	9:33 AM	FBB5	11535	1916	0745	✓	✓	✓	D✓	✓	✓	J. Barkorst
4.4.23	9:54 AM	FBB9	11534	1915	0745	✓	✓	✓	M✓	✓	✓	J. Barkorst
4.4.23	10:05 AM	FBB10	11536	1917	0746	✓	✓	✓	D34✓	✓	✓	J. Barkorst
4.4.23	10:35 AM	FBB9	11621	1916	0745	✓	✓	✓	L✓	✓	✓	J. Barkorst
4.4.23	10:57 AM	FBB3	11537	1916	0745	✓	✓	✓	A✓	✓	✓	J. Barkorst
4.5.23	9:27 AM	FBB5	11535	1916	0744	✓	✓	✓	CV	✓	✓	J. Barkorst
4.5.23	11:21 AM	FBB3	11537	1916	0744	✓	✓	✓	B✓	✓	✓	J. Barkorst
4.5.23	4:20 PM	FBB4	11622	1916	0744	✓	✓	✓	A	✓	✓	J. Barkorst
4.5.23	4:49 PM	FBB9	11534	1916	0743	✓	✓	✓	D1-2	✓	✓	J. Barkorst
4.5.23	5:06 PM	FBB10	11536	1917	0745	✓	✓	✓	D✓	✓	✓	J. Barkorst
4.5.23	5:21 PM	FBB8	11621	1916	0744	✓	✓	✓	D34	✓	✓	J. Barkorst
4.6.23	8:20 AM	FBB4	11622	1917	0743	✓	✓	2✓	M✓	✓	✓	J. Barkorst

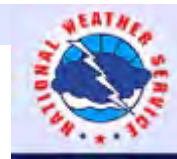
Bat Survey Data

Project: Metro Parkway						State: FL			County: Lee			
Date	Time	Site #	Detector #	Start Time	End Time	Mic Test	Mic Placement	CF Card	Battery	Detector/Gear working/armed	Weather	Biologist
4.6.23	9:30am	FBB8	11621	1917	0743	✓	✓	✓2	L✓	✓	✓	J. Barhorst
4.6.23	1130pm	FBB5	11535	1917	0743	✓	✓	2✓	C✓	✓	✓	J. Barhorst
4.6.23	1:47pm	FBB9	11534	1916	0742	✓	✓	2✓	D3,4✓	✓	✓	J. Barhorst
4.6.23	2:19pm	FBB10	11536	1918	0744	✓	✓	2✓	D✓	✓	✓	J. Barhorst
4.6.23	2:32pm	FBB3	11537	1917	0743	✓	✓	2✓	S✓	✓	✓	J. Barhorst
5/2/23	5:20pm	FBB5	11535	1930	0719	✓	✓	1✓	large A✓	✓	✓	J. Barhorst R. Scherer
5.2.23	5:50pm	FBB6	11534	1930	0719	✓	✓	1	B	✓	✓	J. Barhorst R. Scherer
5.2.23	6:21pm	FBB12	11536	1934	0722	✓	✓	1	C	✓	✓	J. Barhorst R. Scherer
5.2.23	6:51	FBB8	11621	1930	0719	✓	✓	1	D	✓	✓	J. Barhorst R. Scherer
5.2.23	7:02	FBB3	11537	1930	0717	✓	✓	1	E	✓	✓	J. Barhorst R. Campana
5.2.23	7:20	FBB2	11622	1930	0719	✓	✓	1	F	✓	✓	J. Barhorst R. Campana
5.3.23	8:36	FBB2	11622	1930	0718	✓	✓	1✓	F✓	✓	✓	J. Barhorst R. Campana
5.3.23	10:51	FBB5	11535	1931	0718	✓	✓	1✓	A✓	✓	✓	J. Barhorst R. Campana
5.3.23	11:30	FBB6	11534	1931	0718	✓	✓	1✓	B✓	✓	✓	J. Barhorst R. Campana
5.3.23	2:04pm	FBB12	11536	1934	0721	✓	✓	1✓	C✓	✓	✓	J. Barhorst R. Campana
5.3.23	2:00pm	FBB8	11621	1931	0718	✓	✓	✓	D✓	✓	✓	J. Barhorst R. Campana
5.3.23	3:20pm	FBB3	11537	1931	0718	✓	✓	✓	E✓	✓	✓	J. Barhorst R. Campana
5.4.23	2:45pm	FBB2	11622	1931	0717	✓	✓	✓	F✓	✓	✓	J. Barhorst
5.4.23	3:15pm	FBB5	11535	1931	0717	✓	✓	✓	A✓	✓	✓	J. Barhorst

WEATHER DOCUMENTATION



Weather observations for the past three days



Fort Myers, Page Field

Enter Your "City, ST" or zip code

metric

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Temperature (°F)				Relative Humidity	Wind Chill (°F)	Heat Index (°F)	Pressure		Precipitation (in.)		
						Air	Dwpt	6 hour					altimeter (in)	sea level (mb)	1 hr	3 hr	6 hr
						Max.	Min.										
06	06:53	E 7	10.00	Fair	CLR	72	67			84%	NA	NA	30.12	1020.2			
06	05:53	E 6	10.00	Fair	CLR	73	67			81%	NA	NA	30.11	1019.6			
06	04:53	E 7	10.00	Fair	CLR	73	67			81%	NA	NA	30.09	1019.2			
06	03:53	E 7	10.00	Fair	CLR	74	67			79%	NA	NA	30.09	1019.2			
06	02:53	E 9	10.00	Fair	CLR	74	67			79%	NA	NA	30.10	1019.6			
06	01:53	E 9	10.00	Fair	CLR	75	68	83	74	79%	NA	NA	30.12	1020.1			
06	00:53	E 8	10.00	Fair	CLR	75	68			79%	NA	NA	30.13	1020.4			
05	23:53	E 7	10.00	Fair	CLR	77	67			71%	NA	79	30.12	1020.3			
05	22:53	E 9	10.00	Fair	CLR	78	67			69%	NA	80	30.12	1020.3			
05	21:53	SE 10	10.00	Fair	CLR	80	66			62%	NA	82	30.12	1020.0			
05	20:53	SE 8	10.00	A Few Clouds	FEW060	83	65			55%	NA	85	30.10	1019.4			
05	19:53	SW 5	10.00	Overcast	OVC065	83	67	94	83	59%	NA	86	30.07	1018.4			
05	18:53	SE 8	10.00	Partly Cloudy	SCT080	88	56			34%	NA	86	30.05	1017.8			
05	17:53	SE 9	10.00	Fair	CLR	90	57			33%	NA	89	30.03	1017.2			
05	16:53	SE 15 G 24	10.00	Fair	CLR	92	58			32%	NA	91	30.03	1016.9			
05	15:53	E 14 G 24	10.00	Partly Cloudy	SCT060	92	60			34%	NA	92	30.04	1017.3			
05	14:53	S 9	10.00	Mostly Cloudy	BKN060	91	62			38%	NA	91	30.06	1018.1			
05	13:53	E 15 G 26	10.00	Partly Cloudy	SCT060	91	62	92	72	38%	NA	91	30.08	1018.8			
05	12:53	SE 10 G 22	10.00	Fair	CLR	89	62			41%	NA	90	30.10	1019.5			
05	11:53	E 14 G 20	10.00	A Few Clouds	FEW042	87	66			50%	NA	89	30.11	1019.9			
05	10:53	SE 14 G 26	10.00	Fair	CLR	84	67			57%	NA	87	30.10	1019.6			
05	09:53	SE 14	10.00	Fair	CLR	81	68			65%	NA	84	30.11	1019.9			
05	08:53	E 10	10.00	Fair	CLR	76	69			79%	NA	77	30.10	1019.6			
05	07:53	E 7	10.00	Fair	CLR	72	69	75	71	91%	NA	NA	30.09	1019.0			
05	06:53	E 5	10.00	Fair	CLR	71	68			90%	NA	NA	30.07	1018.4			
05	05:53	E 6	10.00	Fair	CLR	71	68			90%	NA	NA	30.05	1017.6			
05	04:53	E 7	10.00	Fair	CLR	71	68			90%	NA	NA	30.04	1017.6			
05	03:53	E 5	10.00	Fair	CLR	72	68			87%	NA	NA	30.05	1017.7			
05	02:53	E 5	10.00	Fair	CLR	73	69			87%	NA	NA	30.06	1018.0			
05	01:53	E 6	10.00	Fair	CLR	75	70	80	75	84%	NA	NA	30.07	1018.5			

05	00:53	E 3	10.00	Mostly Cloudy	BKN031	77	72		85%	NA	78	30.08	1018.7		
04	23:53	E 3	10.00	Mostly Cloudy	BKN033	78	72		82%	NA	80	30.08	1018.6		
04	22:53	E 5	10.00	Overcast	FEW030 BKN038 OVC055	78	73		85%	NA	80	30.08	1018.6		
04	21:53	Calm	10.00	Mostly Cloudy	BKN046	80	71		74%	NA	83	30.06	1017.9		
04	20:53	S 5	10.00	A Few Clouds	FEW065 FEW095	79	70		74%	NA	82	30.03	1017.1		
04	19:53	Calm	6.00	Light Rain	SCT041 BKN049 OVC080	79	71	93	79	77%	NA	82	30.02	1016.7	0.01
04	18:53	SW 9	10.00	Fair	CLR	85	68		57%	NA	88	30.00	1016.0		
04	17:53	W 13	10.00	Partly Cloudy	SCT065	87	70		57%	NA	92	29.99	1015.6		
04	16:53	W 12	10.00	A Few Clouds	FEW065	89	70		53%	NA	94	29.99	1015.6		
04	15:53	NW 8	10.00	Overcast	BKN060 BKN075 OVC095	89	66		47%	NA	92	29.99	1015.7		
04	14:53	W 10	10.00	Partly Cloudy	SCT060	92	66		43%	NA	95	30.01	1016.3		
04	13:53	SE 8	10.00	Mostly Cloudy	BKN055	91	64	92	72	41%	NA	93	30.02	1016.9	
04	12:53	S 3	10.00	A Few Clouds	FEW049 FEW065	86	65		49%	NA	88	30.04	1017.5		
04	11:53	Vrbl 5	10.00	Partly Cloudy	SCT039	85	66		53%	NA	87	30.06	1018.2		
04	09:53	SE 7	10.00	Fair	CLR	81	70		69%	NA	84	30.04	1017.5		
04	06:53	Calm	10.00	Fair	CLR	71	69		94%	NA	NA	30.01	1016.2		
04	05:53	E 3	9.00	Fair	CLR	70	68		93%	NA	NA	29.98	1015.4		
04	04:53	E 3	10.00	A Few Clouds	FEW022	71	69		94%	NA	NA	29.98	1015.3		
04	03:53	E 3	10.00	Mostly Cloudy	BKN021	72	70		94%	NA	NA	29.99	1015.7		
04	02:53	E 3	10.00	Fair	CLR	73	70		90%	NA	NA	30.00	1016.0		
04	01:53	Calm	10.00	Fair	CLR	74	71	80	74	91%	NA	NA	30.01	1016.4	
04	00:53	SE 3	10.00	Fair	CLR	75	70		84%	NA	NA	30.03	1017.0		
03	22:53	S 3	10.00	Fair	CLR	78	70		76%	NA	80	30.03	1017.2		
03	21:53	Calm	10.00	Fair	CLR	78	70		76%	NA	80	30.02	1016.9		
03	20:53	SW 6	10.00	Fair	CLR	79	70		74%	NA	82	30.01	1016.3		
03	19:53	SW 7	10.00	Fair	CLR	80	67	90	80	64%	NA	82	30.00	1016.1	
03	18:53	SW 8	10.00	Fair	CLR	83	67		59%	NA	86	29.99	1015.9		
03	17:53	W 14	10.00	Fair	CLR	85	66		53%	NA	87	29.99	1015.6		
03	16:53	SW 15 G 21	10.00	Fair	CLR	87	65		48%	NA	89	29.99	1015.7		
03	15:53	SW 14 G 21	10.00	Fair	CLR	88	65		46%	NA	90	30.00	1016.0		
03	14:53	SW 8 G 21	10.00	Fair	CLR	88	66		48%	NA	90	30.01	1016.3		

4/6/23, 7:29 AM

National Weather Service : Observed Weather for past 3 Days : Fort Myers, Page Field

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Air Temperature (°F)		Dwpt	Relative Humidity		Wind Chill (°F)	Heat Index (°F)	altimeter (in.) Pressure	sea level (mb)	Precipitation (in.)		
						Max. 6 hour	Min.		1 hr	3 hr					6 hr		
03	13:53	SW 12 G 16	10.00	Fair	CLR	88	65	89	72	46%	NA	90	30.02	1016.8			
03	12:53	NA	10.00	Fair	CLR	87	63			45%	NA	88	30.04	1017.5			
03	11:53	SW 8	10.00	Fair	CLR	86	65			49%	NA	88	30.05	1017.7			
03	10:53	S 9	10.00	Fair	CLR	83	67			59%	NA	86	30.05	1017.8			
03	09:53	SE 3	10.00	Fair	CLR	79	68			69%	NA	81	30.05	1017.8			
03	08:53	E 3	9.00	Fair	CLR	75	69			82%	NA	NA	30.04	1017.4			
03	07:53	Calm	8.00	Fair	CLR	72	69	74	70	91%	NA	NA	30.03	1017.0			

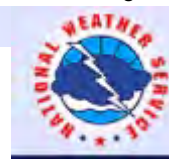
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Weather observations for the past three days



Fort Myers, Page Field

Enter Your "City, ST" or zip code

metric

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Temperature (°F)				Relative Humidity	Wind Chill (°F)	Heat Index (°F)	Pressure		Precipitation (in.)		
						Air	Dwpt	6 hour Max. Min.					altimeter (in)	sea level (mb)	1 hr	3 hr	6 hr
09	08:53	NA	10.00	Partly Cloudy	SCT060	78	71			79%	NA	80	30.01	1016.4			
09	07:53	Calm	10.00	A Few Clouds	FEW017	76	70	76	75	82%	NA	77	29.99	1015.7			
09	06:53	NW 5	10.00	Fair	CLR	75	70			84%	NA	NA	29.97	1014.9			
09	05:53	N 6	10.00	Fair	CLR	75	70			84%	NA	NA	29.95	1014.5			
09	04:53	NW 3	10.00	Fair	CLR	76	70			82%	NA	77	29.95	1014.2			
09	03:53	NW 5	10.00	A Few Clouds	FEW023	76	70			82%	NA	77	29.96	1014.8			
09	02:53	Calm	10.00	Fair	CLR	76	70			82%	NA	77	29.98	1015.3			
09	01:53	NW 6	10.00	Fair	CLR	76	69	81	76	79%	NA	77	29.99	1015.8			
09	00:53	NW 8	10.00	Partly Cloudy	SCT080	77	69			77%	NA	79	30.01	1016.3			
08	23:53	NW 6	10.00	Mostly Cloudy	BKN060	78	68			71%	NA	80	30.01	1016.5			
08	22:53	NW 6	10.00	Partly Cloudy	FEW060 SCT085	78	66			67%	NA	80	30.02	1016.6			
08	21:53	W 10	10.00	Mostly Cloudy	BKN060 BKN075	79	66			65%	NA	81	30.00	1016.0			
08	20:53	W 9	10.00	Mostly Cloudy	SCT060 BKN070	80	66			62%	NA	82	29.98	1015.5			
08	19:53	W 9	10.00	Fair	CLR	81	63	88	81	54%	NA	82	29.97	1015.0			
08	18:53	SW 9	10.00	Fair	CLR	84	62			48%	NA	85	29.96	1014.7			
08	17:53	W 8	10.00	Fair	CLR	86	63			46%	NA	87	29.95	1014.5			
08	16:53	SW 13 G 20	10.00	Fair	CLR	87	62			43%	NA	87	29.97	1015.0			
08	15:53	W 15	10.00	Fair	CLR	87	64			46%	NA	88	30.00	1015.9			
08	14:53	W 14 G 21	10.00	Fair	CLR	87	65			48%	NA	89	30.02	1016.8			
08	13:53	W 12	10.00	Mostly Cloudy	FEW043 BKN050 BKN075	86	66	88	70	51%	NA	88	30.04	1017.5			
08	12:53	NA	10.00	Mostly Cloudy	FEW039 SCT050 BKN075	86	66			51%	NA	88	30.06	1018.1			
08	11:53	Vrbl 6	10.00	A Few Clouds	FEW037	85	65			51%	NA	87	30.08	1018.8			
08	10:53	E 6	10.00	Mostly Cloudy	BKN027 BKN034	82	68			63%	NA	85	30.08	1018.9			
08	09:53	SE 5	10.00	Fair	CLR	78	67			69%	NA	80	30.09	1018.9			
08	08:53	E 3	10.00	Fair	CLR	75	66			74%	NA	NA	30.09	1019.0			
08	07:53	Calm	10.00	Fair	CLR	70	65	72	68	84%	NA	NA	30.07	1018.5			

08	06:53	Calm	10.00	Fair	CLR	68	63			84%	NA	NA	30.06	1018.0	
08	05:53	Calm	10.00	Fair	CLR	69	63			81%	NA	NA	30.04	1017.4	
08	04:53	SE 3	10.00	Fair	CLR	69	63			81%	NA	NA	30.04	1017.5	
08	03:53	E 3	10.00	Overcast	OVC120	71	64			79%	NA	NA	30.04	1017.6	
08	02:53	E 5	10.00	A Few Clouds	FEW120	71	63			76%	NA	NA	30.05	1017.8	
08	01:53	SE 5	10.00	Fair	CLR	72	63	80	72	73%	NA	NA	30.06	1018.0	
08	00:53	SE 6	10.00	Mostly Cloudy	FEW039 BKN110	74	63			69%	NA	NA	30.07	1018.5	
07	23:53	SE 6	10.00	Overcast	OVC039	76	64			67%	NA	78	30.08	1018.6	
07	22:53	E 3	10.00	Mostly Cloudy	BKN041	78	69			74%	NA	80	30.08	1018.7	
07	21:53	NE 5	10.00	A Few Clouds	FEW100	79	67			67%	NA	81	30.08	1018.6	
07	20:53	W 6	10.00	Partly Cloudy	SCT050 SCT060	80	66			62%	NA	82	30.06	1017.9	
07	19:53	W 3	10.00	Overcast	FEW060 OVC100	80	68	89	79	67%	NA	83	30.04	1017.2	
07	18:53	Calm	10.00	Light Rain	OVC070	82	66			58%	NA	84	30.03	1017.0	
07	17:53	W 13	10.00	A Few Clouds	FEW060	87	66			50%	NA	89	30.02	1016.6	
07	16:53	W 13	10.00	Fair	CLR	89	67			48%	NA	92	30.02	1016.7	
07	15:53	W 12	10.00	Partly Cloudy	SCT048	88	68			52%	NA	92	30.04	1017.6	
07	14:53	W 10	10.00	Mostly Cloudy	BKN055	87	67			51%	NA	90	30.07	1018.5	
07	13:53	Vrbl	7	10.00	Partly Cloudy	SCT050	89	65	90	70	45%	NA	91	30.10	1019.4
07	12:53	E 9	10.00	Partly Cloudy	SCT040 SCT050 SCT060	85	66			53%	NA	87	30.12	1020.3	
07	11:53	S 7	10.00	Mostly Cloudy	BKN038	83	67			59%	NA	86	30.15	1021.1	
07	10:53	SE 7	10.00	Fair	CLR	82	68			63%	NA	85	30.15	1021.0	
07	09:53	SE 7	10.00	Fair	CLR	78	70			76%	NA	80	30.15	1021.1	
07	08:53	E 6	10.00	Fair	CLR	73	69			87%	NA	NA	30.13	1020.6	
07	07:53	E 5	10.00	A Few Clouds	FEW023	70	68	73	69	93%	NA	NA	30.12	1020.1	
07	06:53	E 3	10.00	Fair	CLR	70	67			90%	NA	NA	30.11	1019.7	
07	05:53	E 3	10.00	Fair	CLR	70	67			90%	NA	NA	30.09	1019.0	
07	04:53	E 5	10.00	Fair	CLR	70	67			90%	NA	NA	30.09	1019.0	
07	03:53	E 3	10.00	Fair	CLR	71	68			90%	NA	NA	30.09	1019.3	
07	02:53	E 5	10.00	Fair	CLR	72	69			91%	NA	NA	30.11	1019.9	
07	01:53	SE 3	10.00	Fair	CLR	73	70	81	73	90%	NA	NA	30.14	1020.7	
07	00:53	SE 3	10.00	A Few Clouds	FEW060	75	71			88%	NA	NA	30.15	1021.2	
06	23:53	Calm	10.00	Overcast	FEW043 SCT060 OVC100	75	72			90%	NA	NA	30.16	1021.6	
06	22:53	Calm	10.00	Overcast	OVC040	76	72			88%	NA	76	30.17	1021.7	
06	21:53	NW 7	7.00	Light Rain	FEW036 BKN050	74	72			94%	NA	NA	30.15	1021.2	

0.69

OVC070

06	20:53	SE	1.00	Heavy Rain Fog/Mist	BKN021 BKN037 OVC050	73	71			94%	NA	NA	30.14	1020.7	0.45
06	19:53	W 6	10.00	Mostly Cloudy	SCT055 SCT070 BKN110	80	72	93	80	76%	NA	84	30.10	1019.6	0.02
06	18:53	W 9	10.00	Overcast	SCT065 OVC110	85	68			57%	NA	88	30.09	1019.2	
06	17:53	SW 13	10.00	Overcast	OVC100	86	67			53%	NA	89	30.08	1018.9	
06	16:53	W 10	10.00	Mostly Cloudy	BKN070	88	68			52%	NA	92	30.08	1018.9	
06	15:53	SW 7	10.00	Partly Cloudy	SCT070	88	64			45%	NA	89	30.09	1019.2	
06	14:53	SE 10 G 20	10.00	Partly Cloudy	FEW065 SCT080	91	61			37%	NA	91	30.11	1019.9	
06	13:53	E 10	10.00	Mostly Cloudy	BKN060	91	62	92	72	38%	NA	91	30.14	1020.7	
06	12:53	SE 8 G 17	10.00	A Few Clouds	FEW050	89	63			42%	NA	90	30.15	1021.3	
06	11:53	SE 8 G 22	10.00	A Few Clouds	FEW041 FEW049	88	64			45%	NA	89	30.16	1021.6	
06	10:53	E 15 G 25	10.00	A Few Clouds	FEW036	85	66			53%	NA	87	30.16	1021.4	
06	09:53	SE 13 G 23	10.00	Fair	CLR	82	67			60%	NA	84	30.14	1020.9	

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Air	Dwpt	Max.	Min.	Relative Humidity	Wind Chill (°F)	Heat Index (°F)	altimeter (in.)	sea level (mb)	1 hr	3 hr	6 hr
								6 hour							Temperature (°F)		



Weather observations for the past three days



Fort Myers, Page Field

Enter Your "City, ST" or zip code

metric

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Temperature (°F)		6 hour Max. Min.	Relative Humidity	Wind Chill (°F)	Heat Index (°F)	Pressure		Precipitation (in.)		
						Air	Dwpt					altimeter (in)	sea level (mb)	1 hr	3 hr	6 hr
12	08:53	NE 12	10.00	Light Rain	FEW009 BKN075 OVC095	69	66		90%	NA	NA	29.98	1015.3			
12	07:53	E 12	10.00	Overcast	SCT011 BKN050 OVC060	69	65	72 69	87%	NA	NA	29.98	1015.3	0.01		0.01
12	06:53	NE 13	9.00	Light Rain	BKN018 OVC065	70	65		84%	NA	NA	29.98	1015.4			
12	05:53	E 12 G 20	10.00	Mostly Cloudy	BKN022 BKN042 BKN055	72	63		73%	NA	NA	29.95	1014.3			
12	04:53	NE 13 G 21	10.00	Mostly Cloudy	BKN025 BKN120	72	63		73%	NA	NA	29.95	1014.5			
12	03:53	E 15 G 23	10.00	Mostly Cloudy	FEW035 BKN110	71	63		76%	NA	NA	29.97	1015.0			
12	02:53	E 13 G 23	10.00	Mostly Cloudy	SCT036 BKN110	72	63		73%	NA	NA	29.98	1015.5			
12	01:53	NE 9	10.00	Overcast	FEW026 OVC110	72	61	75 72	68%	NA	NA	30.02	1016.7			
12	00:53	NE 8	10.00	Overcast	FEW046 OVC110	72	61		68%	NA	NA	30.03	1017.2			
11	23:53	E 10	10.00	Mostly Cloudy	SCT035 BKN046	72	61		68%	NA	NA	30.04	1017.3			
11	22:53	NE 13 G 23	10.00	Overcast	FEW037 BKN047 OVC110	72	61		68%	NA	NA	30.05	1017.6			
11	21:53	E 13 G 24	10.00	Overcast	BKN035 BKN045 OVC060	73	61		66%	NA	NA	30.05	1017.6			
11	20:53	E 15 G 28	10.00	Overcast	BKN037 BKN046 OVC055	74	60		62%	NA	NA	30.02	1016.9			
11	19:53	E 21 G 28	10.00	Overcast and Breezy	BKN038 BKN047 OVC060	75	60	83 75	60%	NA	NA	30.01	1016.3			
11	18:53	E 18 G 33	10.00	A Few Clouds	FEW037	76	60		58%	NA	78	30.00	1015.9			
11	17:53	E 16 G 29	10.00	A Few Clouds	FEW050	79	61		54%	NA	80	30.00	1016.2			
11	16:53	E 23 G 35	10.00	Partly Cloudy and Breezy	FEW038 SCT049	80	60		51%	NA	81	30.00	1016.0			
11	15:53	E 24 G 36	10.00	Mostly Cloudy	BKN044	80	60		51%	NA	81	30.01	1016.4			

				and Breezy									
11	14:53	E 24 G 37	10.00	Mostly Cloudy and Breezy	SCT041 BKN050 BKN060	81	61		51%	NA	82	30.02	1016.7
11	13:53	NE 20 G 35	10.00	Mostly Cloudy	BKN040	83	61	83 69	48%	NA	84	30.04	1017.3
11	12:53	E 22 G 36	10.00	Partly Cloudy and Breezy	FEW034 SCT044 SCT110	81	62		53%	NA	82	30.06	1018.1
11	11:53	NE 22 G 35	10.00	Overcast and Breezy	SCT035 BKN044 OVC110	80	63		56%	NA	81	30.07	1018.5
11	10:53	E 15 G 29	10.00	Overcast	BKN028 OVC039	77	63		62%	NA	79	30.07	1018.4
11	09:53	E 15	10.00	Overcast	FEW026 BKN035 OVC110	76	63		64%	NA	78	30.06	1018.1
11	08:53	NE 16 G 24	10.00	Mostly Cloudy	BKN110	73	61		66%	NA	NA	30.05	1017.8
11	07:53	NA	10.00	A Few Clouds	FEW110	69	60	70 67	73%	NA	NA	30.04	1017.5
11	06:53	NE 12	10.00	Overcast	OVC110	68	59		73%	NA	NA	30.03	1017.0
11	05:53	NE 8	10.00	Overcast	OVC110	68	59		73%	NA	NA	30.02	1016.9
11	04:53	NE 10	10.00	Mostly Cloudy	BKN110	68	60		76%	NA	NA	30.02	1016.8
11	03:53	NE 10	10.00	A Few Clouds	FEW120	68	59		73%	NA	NA	30.03	1017.0
11	02:53	NE 8	10.00	Mostly Cloudy	BKN034	69	60		73%	NA	NA	30.04	1017.4
11	01:53	NE 10	10.00	Fair	CLR	70	60	73 70	71%	NA	NA	30.05	1017.8
11	00:53	NE 9	10.00	A Few Clouds	FEW085	71	60		68%	NA	NA	30.07	1018.3
10	23:53	NE 10	10.00	Fair	CLR	71	60		68%	NA	NA	30.07	1018.5
10	22:53	NE 13	10.00	Mostly Cloudy	BKN090	72	61		68%	NA	NA	30.08	1018.6
10	21:53	E 13 G 22	10.00	Overcast	OVC065	71	61		71%	NA	NA	30.08	1018.8
10	20:53	E 20 G 29	10.00	Overcast	FEW021 SCT030 OVC060	71	63		76%	NA	NA	30.06	1018.0
10	19:53	E 16 G 30	10.00	Mostly Cloudy	FEW030 BKN036	73	62	87 73	69%	NA	NA	30.04	1017.3
10	18:53	E 18 G 36	10.00	Overcast	BKN027 OVC039	75	62		64%	NA	NA	30.02	1016.8
10	17:53	E 18 G 32	10.00	Mostly Cloudy	FEW029 BKN037	77	65		66%	NA	79	30.01	1016.4
10	16:53	NE 18 G 29	10.00	Mostly Cloudy	FEW031 BKN055 BKN075	80	65		60%	NA	82	29.99	1015.5
10	15:53	NE 16 G 25	10.00	Mostly Cloudy	BKN044 BKN050	85	64		50%	NA	86	29.99	1015.7
10	14:53	E 17 G 28	10.00	Mostly Cloudy	SCT041 BKN055 BKN095	83	64		53%	NA	84	30.00	1016.0

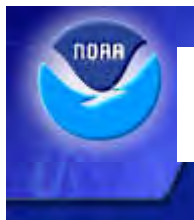
10	13:53	E 17 G 25	10.00	Partly Cloudy	SCT043 SCT055	84	63	86	70	49%	NA	85	30.02	1016.8	
10	12:53	E 16	10.00	Mostly Cloudy	SCT042 BKN070	84	63			49%	NA	85	30.04	1017.5	
10	11:53	E 13 G 26	10.00	Mostly Cloudy	SCT029 BKN037 BKN055	80	64			58%	NA	82	30.06	1018.1	
10	10:53	NE 17 G 26	10.00	Overcast	FEW021 BKN028 OVC055	76	65			69%	NA	78	30.06	1018.2	
10	09:53	NE 16 G 23	10.00	Overcast	OVC018	75	66			74%	NA	NA	30.06	1018.0	
10	08:53	NE 13	10.00	A Few Clouds	FEW012	73	65			76%	NA	NA	30.05	1017.7	
10	07:53	NE 10	10.00	Mostly Cloudy	BKN008 BKN033	70	66	70	68	87%	NA	NA	30.03	1017.1	
10	06:53	NE 10	10.00	Overcast	BKN009 OVC017	69	65			87%	NA	NA	30.01	1016.5	
10	05:53	NE 10	10.00	Mostly Cloudy	BKN010	69	65			87%	NA	NA	30.01	1016.3	
10	04:53	NE 15 G 23	10.00	Overcast	OVC009	69	65			87%	NA	NA	30.00	1016.0	
10	03:53	NE 13	10.00	Overcast	OVC010	69	64			84%	NA	NA	30.00	1016.0	
10	02:53	NE 13 G 23	10.00	Overcast	OVC009	69	64			84%	NA	NA	30.02	1016.7	
10	01:53	N 14	10.00	Partly Cloudy	SCT011	68	63	75	68	84%	NA	NA	30.02	1016.7	
10	00:53	N 12	10.00	Fair	CLR	69	63			81%	NA	NA	30.04	1017.2	
09	23:53	NE 12	10.00	A Few Clouds	FEW120	71	63			76%	NA	NA	30.05	1017.8	
09	22:53	NE 13	10.00	Partly Cloudy	SCT027	73	64			74%	NA	NA	30.03	1017.2	
09	21:53	NE 10	10.00	Fair	CLR	74	66			76%	NA	NA	30.02	1016.7	
09	20:53	NE 8	10.00	Partly Cloudy	FEW037 SCT090	75	66			74%	NA	NA	30.00	1015.9	
09	19:53	E 7	10.00	Overcast	SCT060 OVC085	75	67	88	75	76%	NA	NA	29.99	1015.7	
09	18:53	NE 9	10.00	Overcast	SCT046 BKN060 OVC095	76	67			74%	NA	77	29.98	1015.3	
09	17:53	NE 12	10.00	Overcast	FEW060 BKN095 OVC110	77	66			69%	NA	79	29.98	1015.3	
09	16:53	N 18	10.00	Partly Cloudy	FEW055 FEW075 SCT100	77	67			71%	NA	79	29.97	1015.0	
09	15:53	W 8	10.00	Partly Cloudy	SCT042	85	64			50%	NA	86	29.95	1014.3	
09	14:53	W 7	10.00	Mostly Cloudy	FEW041 SCT075 BKN090	85	67			55%	NA	88	29.97	1015.0	
09	13:53	NW 9	10.00	A Few Clouds	FEW036	85	66	85	75	53%	NA	87	29.99	1015.7	0.03
09	12:53	N 3	10.00	Overcast	FEW050 BKN065 OVC110	80	67			64%	NA	82	30.02	1016.6	

09	11:53	W 3	10.00	Overcast	FEW041 BKN065 OVC090	80	68		67%	NA	83	30.02	1016.9	0.03		
09	10:53	N 8	10.00	A Few Clouds	FEW025	84	65		53%	NA	86	30.02	1016.9			
09	09:53	NW 8	10.00	A Few Clouds	FEW065	81	70		69%	NA	84	30.02	1016.8			
Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Air	Dwpt	Max. Min.	Relative Humidity	Wind Chill (°F)	Heat Index (°F)	altimeter (in.)	sea level (mb)	1 hr	3 hr	6 hr
						Temperature (°F)						Pressure	Precipitation (in.)			

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Weather observations for the past three days



Fort Myers, Page Field

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metric

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Temperature (°F)				Relative Humidity	Wind Chill (°F)	Heat Index (°F)	Pressure		Precipitation (in.)		
						Air	Dwpt	6 hour					altimeter (in)	sea level (mb)	1 hr	3 hr	6 hr
								Max.	Min.								
05	09:53	E 5	10.00	Fair	CLR	77	61			58%	NA	79	30.05	1017.7			
05	08:53	NE 5	10.00	Fair	CLR	74	60			62%	NA	NA	30.05	1017.8			
05	07:53	N 5	10.00	Fair	CLR	72	61	73	66	68%	NA	NA	30.03	1017.2			
05	06:53	Calm	10.00	Fair	CLR	67	61			81%	NA	NA	29.99	1015.9			
05	05:53	NE 3	10.00	Fair	CLR	68	60			76%	NA	NA	29.98	1015.4			
05	04:53	NE 3	10.00	Fair	CLR	69	61			76%	NA	NA	29.97	1015.0			
05	03:53	N 7	10.00	Fair	CLR	71	61			71%	NA	NA	29.98	1015.5			
05	02:53	N 6	10.00	Fair	CLR	72	61			68%	NA	NA	29.99	1015.6			
05	01:53	N 7	10.00	Fair	CLR	73	62	79	73	69%	NA	NA	30.00	1016.0			
05	00:53	N 5	10.00	Fair	CLR	73	62			69%	NA	NA	30.00	1016.1			
04	23:53	N 3	10.00	Fair	CLR	74	63			69%	NA	NA	30.01	1016.5			
04	22:53	N 3	10.00	Fair	CLR	75	63			66%	NA	NA	30.01	1016.4			
04	21:53	NW 9	10.00	Fair	CLR	76	62			62%	NA	78	29.98	1015.5			
04	20:53	W 10	10.00	Fair	CLR	77	61			58%	NA	79	29.97	1014.9			
04	19:53	NW 9	10.00	Fair	CLR	79	59	88	79	50%	NA	80	29.95	1014.5			
04	18:53	W 12	10.00	Fair	CLR	81	60			49%	NA	82	29.95	1014.3			
04	17:53	W 12	10.00	Fair	CLR	83	60			46%	NA	83	29.95	1014.4			
04	16:53	W 9 G 21	10.00	Fair	CLR	85	61			45%	NA	85	29.94	1014.2			
04	15:53	SW 13 G 20	10.00	Fair	CLR	85	61			45%	NA	85	29.95	1014.5			
04	14:53	W 7	10.00	Fair	CLR	86	56			36%	NA	85	29.97	1015.0			
04	13:53	W 10	10.00	Fair	CLR	85	57	87	70	39%	NA	84	29.98	1015.4			
04	12:53	NW 7	10.00	Fair	CLR	84	56			38%	NA	83	29.99	1015.7			
04	11:53	NE 8	10.00	Fair	CLR	83	55			38%	NA	82	30.00	1016.1			
04	10:53	NE 7	10.00	Fair	CLR	82	57			43%	NA	82	29.99	1015.8			
04	09:53	NE 7	10.00	Fair	CLR	79	57			47%	NA	80	30.00	1015.9			
04	08:53	NE 6	10.00	Fair	CLR	76	57			52%	NA	78	29.98	1015.5			
04	07:53	NE 5	10.00	Fair	CLR	70	58	72	65	66%	NA	NA	29.97	1015.1			
04	06:53	Calm	10.00	Fair	CLR	64	59			83%	NA	NA	29.94	NA			
04	05:53	Calm	10.00	Fair	CLR	66	57			73%	NA	NA	29.93	1013.6			
04	04:53	Calm	10.00	Fair	CLR	67	56			68%	NA	NA	29.92	1013.4			
04	03:53	Calm	10.00	Fair	CLR	69	54			59%	NA	NA	29.90	1012.8			
04	02:53	Calm	10.00	Fair	CLR	71	54			55%	NA	NA	29.91	1013.0			
04	01:53	N 3	10.00	Fair	CLR	72	54	79	71	53%	NA	NA	29.92	1013.3			
04	00:53	NW 5	10.00	Fair	CLR	72	53			52%	NA	NA	29.92	1013.4			
03	23:53	NW 6	10.00	Fair	CLR	74	51			45%	NA	NA	29.93	1013.5			

03	22:53	NW 6	10.00	Fair	CLR	75	50		42%	NA	NA	29.92	1013.5	
03	21:53	NW 8	10.00	Fair	CLR	76	50		40%	NA	78	29.91	1013.0	
03	20:53	W 8	10.00	Fair	CLR	77	51		40%	NA	78	29.89	1012.5	
03	19:53	NW 10	10.00	Fair	CLR	79	49	86	79	35%	NA	79	29.88	1012.1
03	18:53	NW 15	10.00	Fair	CLR	82	50		33%	NA	81	29.86	1011.3	
03	17:53	NW 14 G 21	10.00	Fair	CLR	83	56		40%	NA	82	29.85	1011.1	
03	16:53	NA	10.00	Fair	CLR	84	61		46%	NA	84	29.85	1010.9	
03	15:53	W 15	10.00	Fair	CLR	86	61		43%	NA	86	29.86	1011.3	
03	14:53	NW 9	10.00	Fair	CLR	86	60		42%	NA	86	29.88	1012.1	
03	13:53	W 8 G 21	10.00	Fair	CLR	84	62	85	74	48%	NA	85	29.91	1012.8
03	12:53	NW 12	10.00	A Few Clouds	FEW044	85	61		45%	NA	85	29.92	1013.5	
03	11:53	W 10 G 20	10.00	Partly Cloudy	SCT045	84	62		48%	NA	85	29.93	1013.8	
03	10:53	NW 9 G 20	10.00	Partly Cloudy	SCT040	82	63		53%	NA	83	29.93	1013.8	
03	09:53	W 12	10.00	A Few Clouds	FEW030 FEW037	81	66		61%	NA	83	29.92	1013.3	
03	08:53	NW 7	10.00	A Few Clouds	FEW024	78	67		69%	NA	80	29.91	1013.1	
03	07:53	Calm	10.00	Partly Cloudy	SCT026	74	68	74	70	82%	NA	NA	29.90	1012.7
03	06:53	Calm	10.00	Partly Cloudy	FEW027 SCT036	71	66		84%	NA	NA	29.88	1012.0	
03	05:53	NW 3	10.00	A Few Clouds	FEW029	73	66		79%	NA	NA	29.87	1011.5	
03	04:53	W 5	10.00	Fair	CLR	72	66		82%	NA	NA	29.86	1011.2	
03	03:53	Calm	10.00	Fair	CLR	72	66		82%	NA	NA	29.86	1011.2	
03	02:53	W 3	10.00	Fair	CLR	73	66		79%	NA	NA	29.86	1011.3	
03	01:53	W 6	10.00	Fair	CLR	73	65	78	73	76%	NA	NA	29.88	1011.9
03	00:53	W 7	10.00	Partly Cloudy	SCT025	74	65		74%	NA	NA	29.88	1012.0	
02	23:53	W 6	10.00	Fair	CLR	74	65		74%	NA	NA	29.89	1012.3	
02	22:53	W 7	10.00	Fair	CLR	75	65		71%	NA	NA	29.90	1012.7	
02	21:53	W 8	10.00	Fair	CLR	76	64		67%	NA	78	29.89	1012.5	
02	20:53	W 10	10.00	Fair	CLR	77	64		64%	NA	79	29.90	1012.5	
02	19:53	W 13	10.00	A Few Clouds	FEW033	78	64	85	78	62%	NA	80	29.89	1012.3
02	18:53	W 15 G 22	10.00	Mostly Cloudy	BKN034	80	64		58%	NA	82	29.87	1011.8	
02	17:53	W 15	10.00	Fair	CLR	82	63		53%	NA	83	29.87	1011.8	
02	16:53	NW 14	10.00	Partly Cloudy	SCT035	82	65		56%	NA	84	29.87	1011.7	
02	15:53	W 16 G 23	10.00	A Few Clouds	FEW034	84	64		51%	NA	85	29.87	1011.8	
02	14:53	SW 8 G 22	10.00	Fair	CLR	83	65		55%	NA	85	29.89	1012.4	
02	13:53	SW 14 G 24	10.00	A Few Clouds	FEW034	83	65	84	71	55%	NA	85	29.90	1012.8

5/5/23, 9:59 AM

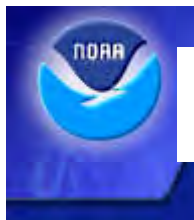
National Weather Service : Observed Weather for past 3 Days : Fort Myers, Page Field

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Air Temperature (°F)	Dwpt	Max. Min.		Relative Humidity	Wind Chill (°F)	Heat Index (°F)	altimeter (in.) Pressure	sea level (mb)	Precipitation (in.)			
								6 hour							1 hr	3 hr	6 hr	
02	12:53	SW 12	10.00	Fair	CLR	83	65			55%	NA	85	29.92	1013.2				
		G 20																
02	11:53	SW 10	10.00	Fair	CLR	82	65			56%	NA	84	29.93	1013.7				
02	10:53	SW 9	10.00	Fair	CLR	81	66			61%	NA	83	29.94	1013.9				

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Weather observations for the past three days



Fort Myers, Page Field

Enter Your "City, ST" or zip code

metric

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Temperature (°F)				Relative Humidity	Wind Chill (°F)	Heat Index (°F)	Pressure		Precipitation (in.)		
						Air	Dwpt	6 hour Max. Min.					altimeter (in)	sea level (mb)	1 hr	3 hr	6 hr
08	07:53	NE 6	10.00	Fair	CLR	71	63	72	67	76%	NA	NA	30.10	1019.3			
08	06:53	E 3	10.00	Fair	CLR	68	61			78%	NA	NA	30.06	1018.2			
08	05:53	E 5	10.00	Fair	CLR	68	61			78%	NA	NA	30.05	1017.6			
08	04:53	E 7	10.00	Fair	CLR	69	62			78%	NA	NA	30.02	1016.7			
08	03:53	E 8	10.00	Fair	CLR	70	62			76%	NA	NA	30.03	1017.0			
08	02:53	E 8	10.00	Fair	CLR	71	62			73%	NA	NA	30.05	1017.6			
08	01:53	E 9	10.00	Fair	CLR	71	62	81	71	73%	NA	NA	30.07	1018.3			
08	00:53	E 9	10.00	Fair	CLR	72	63			73%	NA	NA	30.08	1018.6			
07	23:53	E 12	10.00	Fair	CLR	74	63			69%	NA	NA	30.09	1019.2			
07	22:53	E 9	10.00	Fair	CLR	75	63			66%	NA	NA	30.10	1019.4			
07	21:53	E 14 G 20	10.00	Fair	CLR	77	64			64%	NA	79	30.10	1019.3			
07	20:53	E 10	10.00	Fair	CLR	79	63			58%	NA	81	30.08	1018.9			
07	19:53	E 13 G 21	10.00	Fair	CLR	81	64	90	81	57%	NA	83	30.06	1018.0			
07	18:53	E 13	10.00	Fair	CLR	85	63			48%	NA	86	30.05	1017.6			
07	17:53	E 12	10.00	Fair	CLR	87	64			46%	NA	88	30.03	1017.1			
07	16:53	E 13 G 21	10.00	A Few Clouds	FEW050	87	63			45%	NA	88	30.02	1016.8			
07	15:53	NE 15 G 22	10.00	A Few Clouds	FEW050	90	65			44%	NA	92	30.04	1017.5			
07	14:53	E 10 G 22	10.00	A Few Clouds	FEW050 FEW080	88	64			45%	NA	89	30.07	1018.3			
07	13:53	E 8 G 17	10.00	A Few Clouds	FEW046	89	65	89	72	45%	NA	91	30.08	1018.8			
07	12:53	E 14	10.00	Partly Cloudy	SCT042 SCT055	85	65			51%	NA	87	30.11	1019.7			
07	11:53	E 12 G 20	10.00	Partly Cloudy	FEW038 SCT049	85	66			53%	NA	87	30.13	1020.3			
07	10:53	E 14 G 21	10.00	Partly Cloudy	SCT032	82	67			60%	NA	84	30.13	1020.5			
07	09:53	E 15 G 23	10.00	Fair	CLR	80	67			64%	NA	82	30.13	1020.6			
07	08:53	E 10 G 21	10.00	Fair	CLR	76	67			74%	NA	77	30.12	1020.3			
07	07:53	NE 8	10.00	Fair	CLR	71	67	74	70	87%	NA	NA	30.11	1019.9			
07	06:53	NE 7	10.00	Fair	CLR	70	66			87%	NA	NA	30.09	1019.1			
07	05:53	E 8	10.00	Fair	CLR	70	67			90%	NA	NA	30.07	1018.5			
07	04:53	NE 6	10.00	Fair	CLR	71	67			87%	NA	NA	30.07	1018.5			
07	03:53	NE 7	10.00	Fair	CLR	72	68			87%	NA	NA	30.06	1018.0			

07	02:53	E 8	10.00	Partly Cloudy	SCT080	73	69			87%	NA	NA	30.07	1018.4	
07	01:53	E 10	10.00	Overcast	OVC080	74	69	80	74	85%	NA	NA	30.10	1019.3	0.03
07	00:53	E 7	10.00	Mostly Cloudy	BKN080	74	68			82%	NA	NA	30.12	1020.0	
06	23:53	E 7	10.00	Partly Cloudy	SCT090	75	68			79%	NA	NA	30.12	1020.3	
06	22:53	E 12	10.00	Mostly Cloudy	SCT021 SCT055 BKN085	76	69			79%	NA	77	30.12	1020.0	0.03
06	21:53	E 17 G 24	10.00	Overcast	BKN019 BKN050 OVC065	76	70			82%	NA	77	30.11	1019.8	
06	20:53	NE 12	10.00	Overcast	FEW030 BKN038 OVC055	77	69			77%	NA	79	30.09	1019.0	0.03
06	19:53	N 14	10.00	Overcast	OVC040	80	71	92	80	74%	NA	83	30.06	1017.9	0.03 0.03
06	18:53	NW 12	10.00	Partly Cloudy	SCT060	86	68			55%	NA	89	30.02	1016.8	
06	17:53	W 13 G 16	10.00	Mostly Cloudy	BKN060	87	66			50%	NA	89	30.02	1016.8	
06	16:53	Vrbl 5	10.00	A Few Clouds	FEW100	89	64			43%	NA	90	30.02	1016.9	
06	15:53	NE 5	10.00	Mostly Cloudy	BKN085	90	63			41%	NA	91	30.04	1017.4	
06	14:53	N 3	10.00	A Few Clouds	FEW080	90	64			42%	NA	91	30.06	1017.9	
06	13:53	Vrbl 5	10.00	Mostly Cloudy	FEW050 SCT070 BKN085	89	64	91	74	43%	NA	90	30.07	1018.5	
06	12:53	Vrbl 5	10.00	Partly Cloudy	FEW046 SCT055	88	65			46%	NA	90	30.09	1019.0	
06	11:53	Vrbl 6	10.00	A Few Clouds	FEW040	88	66			48%	NA	90	30.10	1019.5	
06	10:53	NA	10.00	Fair	CLR	83	66			57%	NA	85	30.10	1019.5	
06	09:53	SE 6	10.00	Fair	CLR	81	67			62%	NA	83	30.09	1019.3	
06	08:53	SE 8	10.00	Fair	CLR	78	67			69%	NA	80	30.09	1019.2	
06	07:53	E 7	10.00	Mostly Cloudy	BKN050	74	67	74	71	79%	NA	NA	30.09	1019.2	
06	06:53	E 6	10.00	Fair	CLR	72	67			84%	NA	NA	30.06	1018.0	
06	05:53	E 6	10.00	Fair	CLR	72	67			84%	NA	NA	30.04	1017.4	
06	04:53	E 6	10.00	Partly Cloudy	SCT039	73	67			81%	NA	NA	30.05	1017.7	
06	03:53	E 6	10.00	Overcast	OVC043	74	67			79%	NA	NA	30.05	1017.9	
06	02:53	SE 7	10.00	A Few Clouds	FEW040	73	66			79%	NA	NA	30.05	1017.6	
06	01:53	SE 6	10.00	A Few Clouds	FEW047	74	66	81	74	76%	NA	NA	30.06	1018.1	
06	00:53	SE 9	10.00	Fair	CLR	76	66			72%	NA	78	30.07	1018.3	
05	23:53	SE 7	10.00	Fair	CLR	76	66			72%	NA	78	30.06	1018.2	
05	22:53	E 8	10.00	Fair	CLR	77	64			64%	NA	79	30.06	1018.0	
05	21:53	NE 10	10.00	Fair	CLR	80	65			60%	NA	82	30.03	1016.9	
05	20:53	N 6	10.00	Fair	CLR	79	62			56%	NA	80	30.01	1016.5	

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Air Temperature (°F)	Dwpt Temperature (°F)	Max. 6 hour Temperature (°F)	Min. 6 hour Temperature (°F)	Relative Humidity	Wind Chill (°F)	Heat Index (°F)	altimeter (in.) Pressure	sea level (mb)	1 hr Precipitation (in.)	3 hr Precipitation (in.)	6 hr Precipitation (in.)
05	19:53	N 8	10.00	Fair	CLR	81	62	91	81	53%	NA	82	30.00	1016.1			
05	18:53	W 10	10.00	Fair	CLR	85	61			45%	NA	85	30.00	1015.9			
05	17:53	W 12	10.00	Fair	CLR	88	62			42%	NA	88	30.00	1016.0			
05	16:53	NW 10 G 18	10.00	Fair	CLR	89	62			41%	NA	90	30.00	1016.1			
05	15:53	W 13 G 17	10.00	Fair	CLR	90	60			37%	NA	90	30.01	1016.4			
05	14:53	W 8	10.00	Fair	CLR	90	56			32%	NA	88	30.02	1016.8			
05	13:53	Calm	10.00	Fair	CLR	88	55	89	72	33%	NA	86	30.04	1017.4			
05	12:53	Vrbl 3	10.00	Fair	CLR	88	57			35%	NA	87	30.06	1018.0			
05	11:53	Vrbl 3	10.00	Fair	CLR	86	56			36%	NA	85	30.07	1018.3			
05	10:53	SE 6	10.00	Fair	CLR	82	63			53%	NA	83	30.06	1018.2			
05	09:53	E 5	10.00	Fair	CLR	77	61			58%	NA	79	30.05	1017.7			
05	08:53	NE 5	10.00	Fair	CLR	74	60			62%	NA	NA	30.05	1017.8			

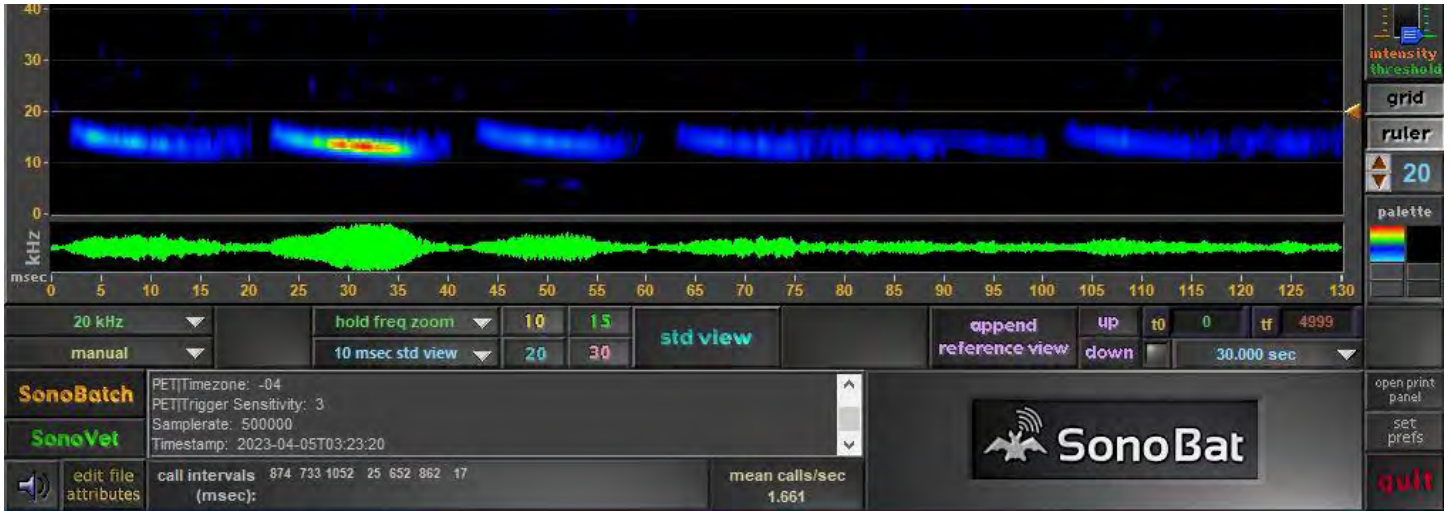
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SONOGRAMS OF CONFIRMED FLORIDA BONNETED BAT CALLS

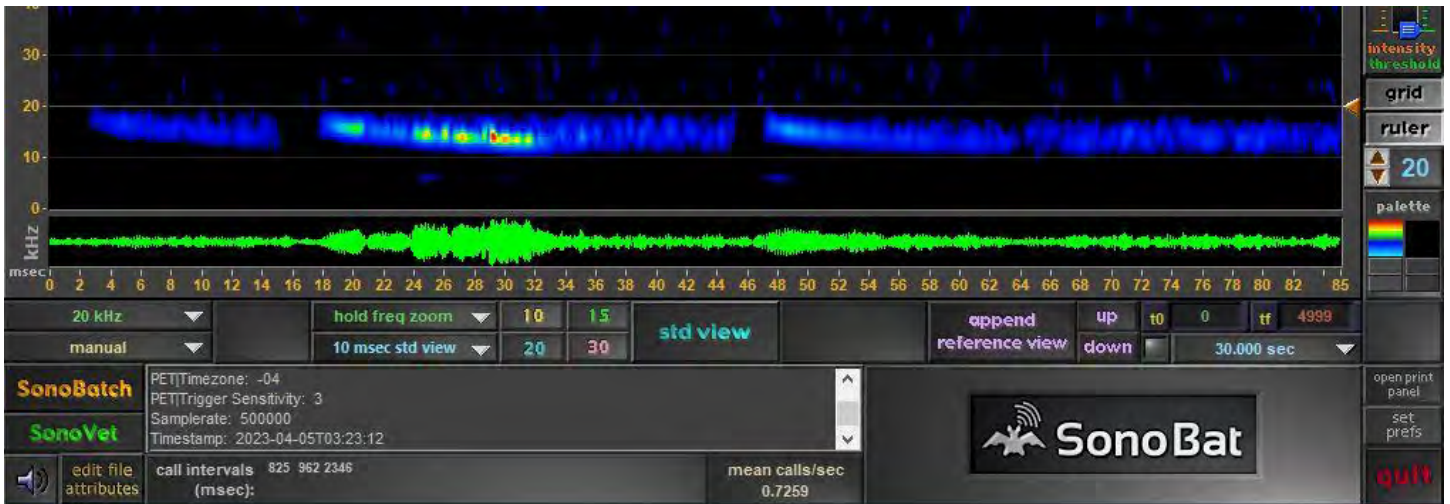
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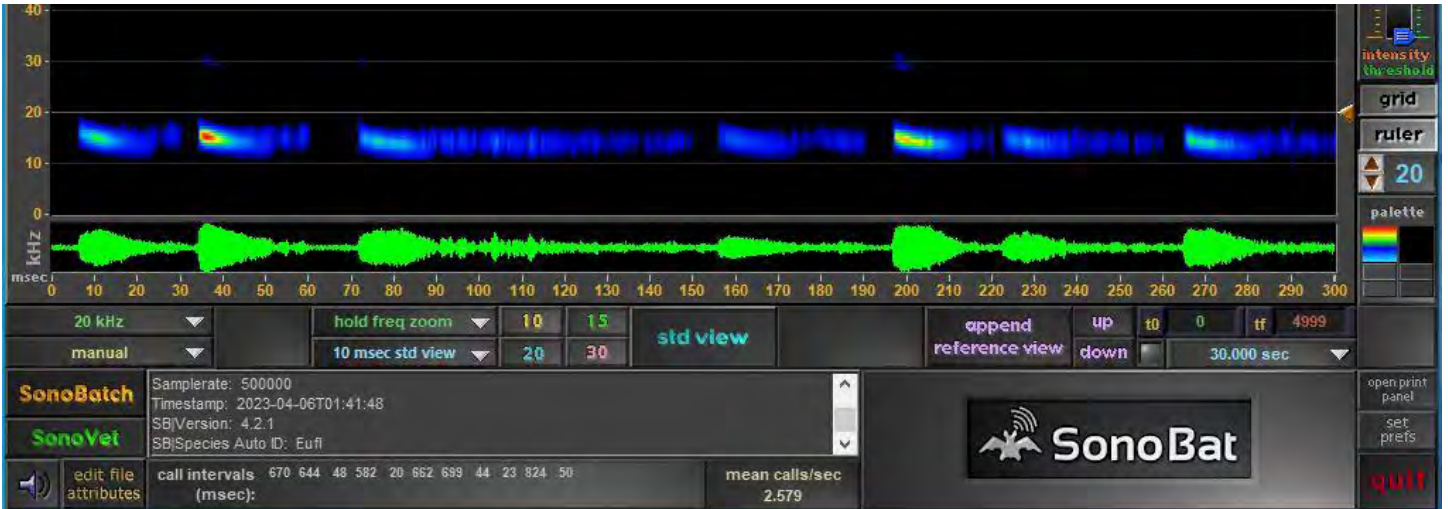
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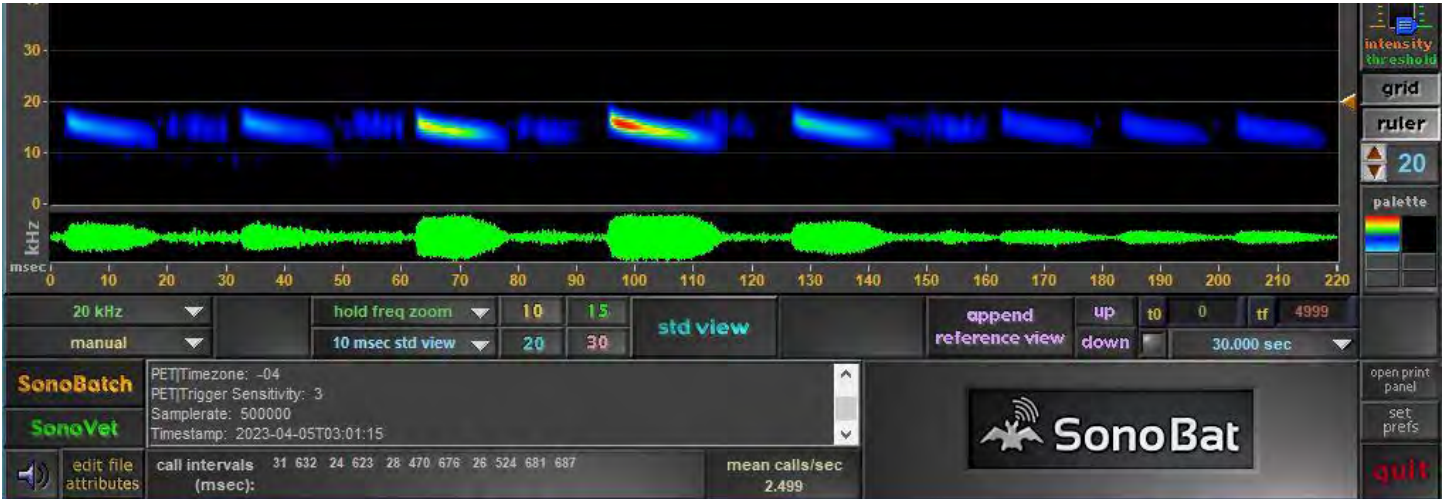
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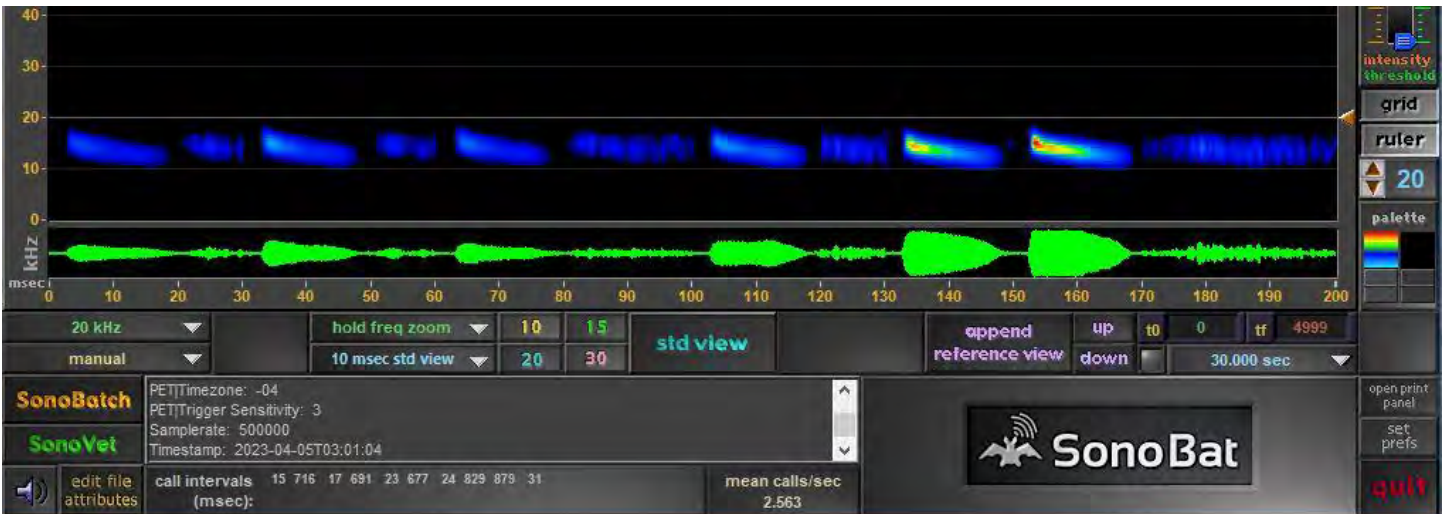
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Station FBB 8 2023-04-04 FBB File 1 of 4



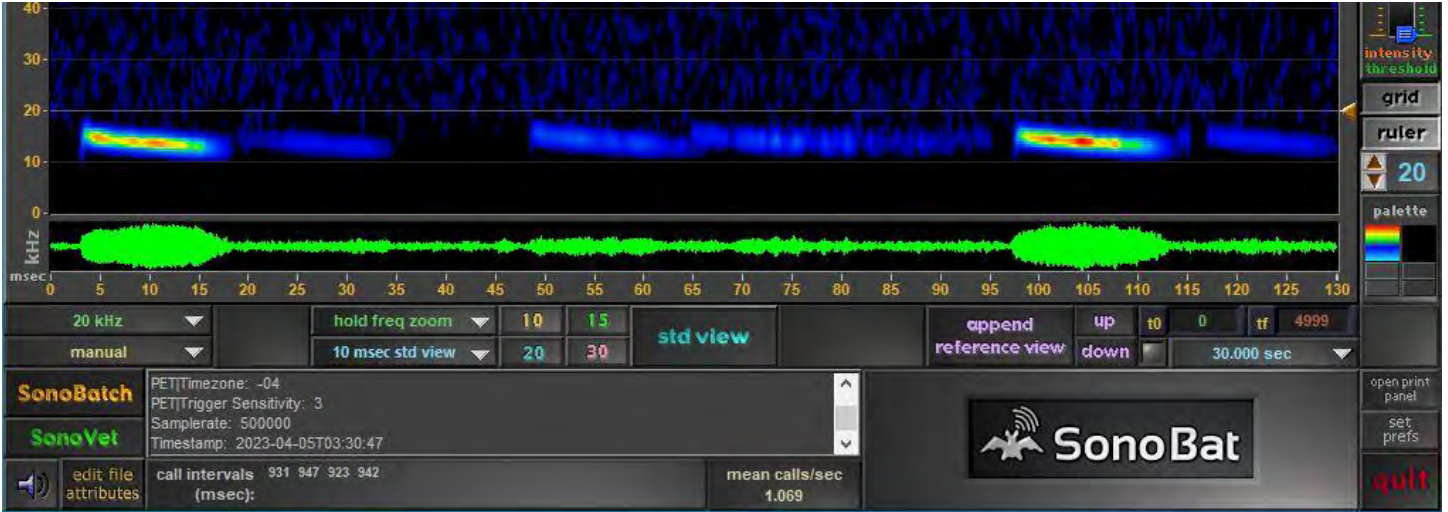
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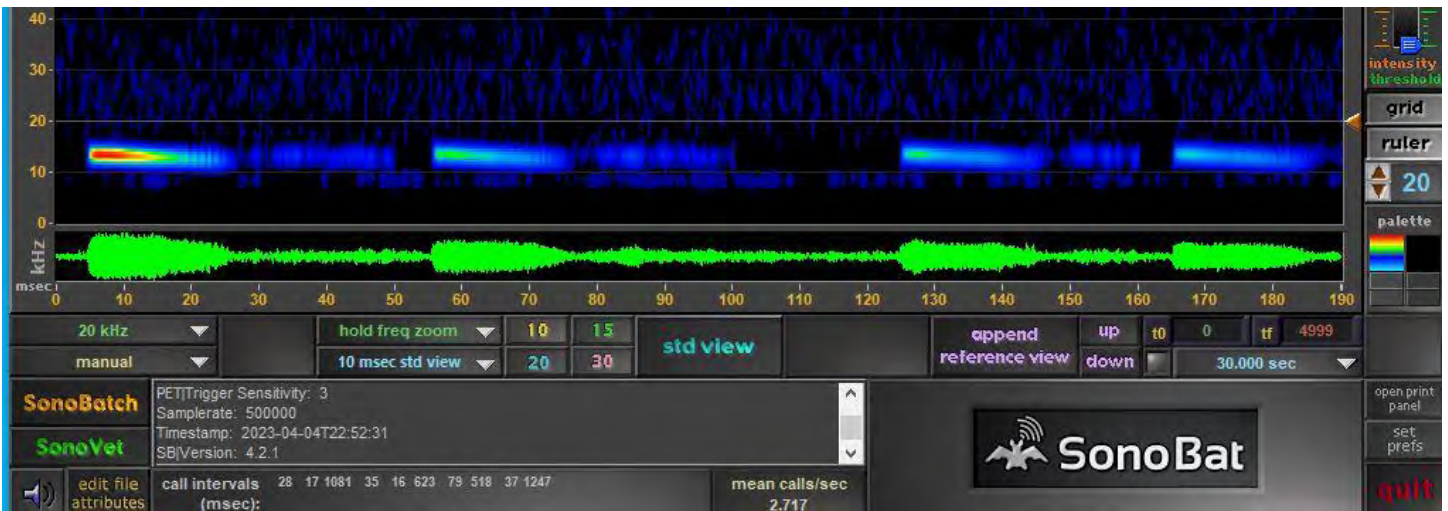
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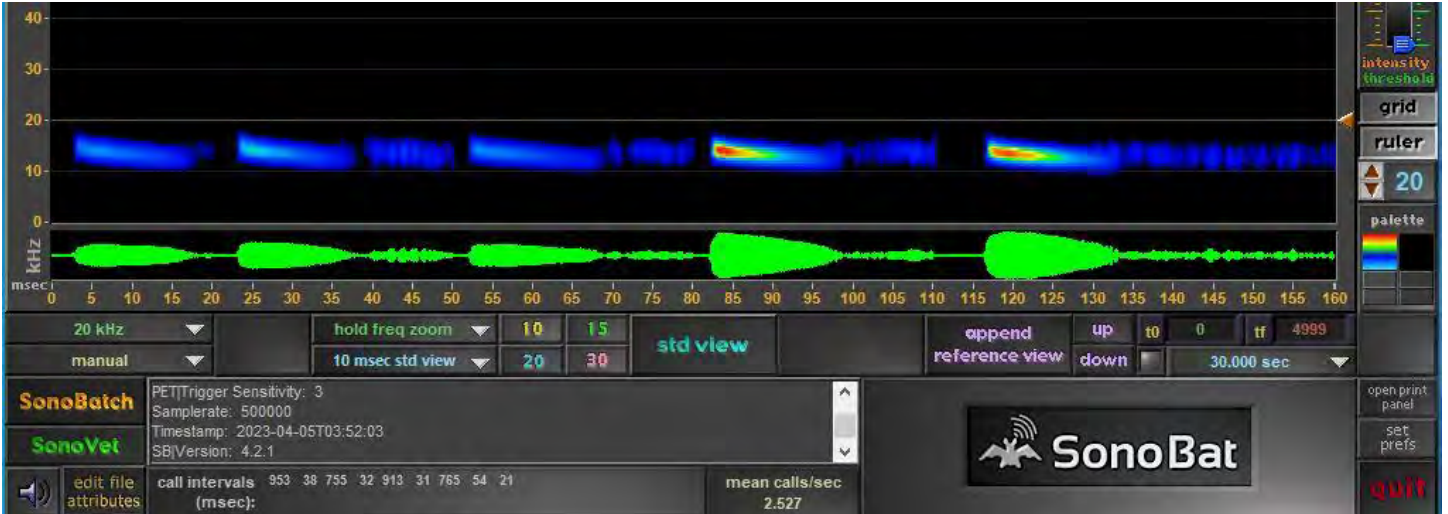
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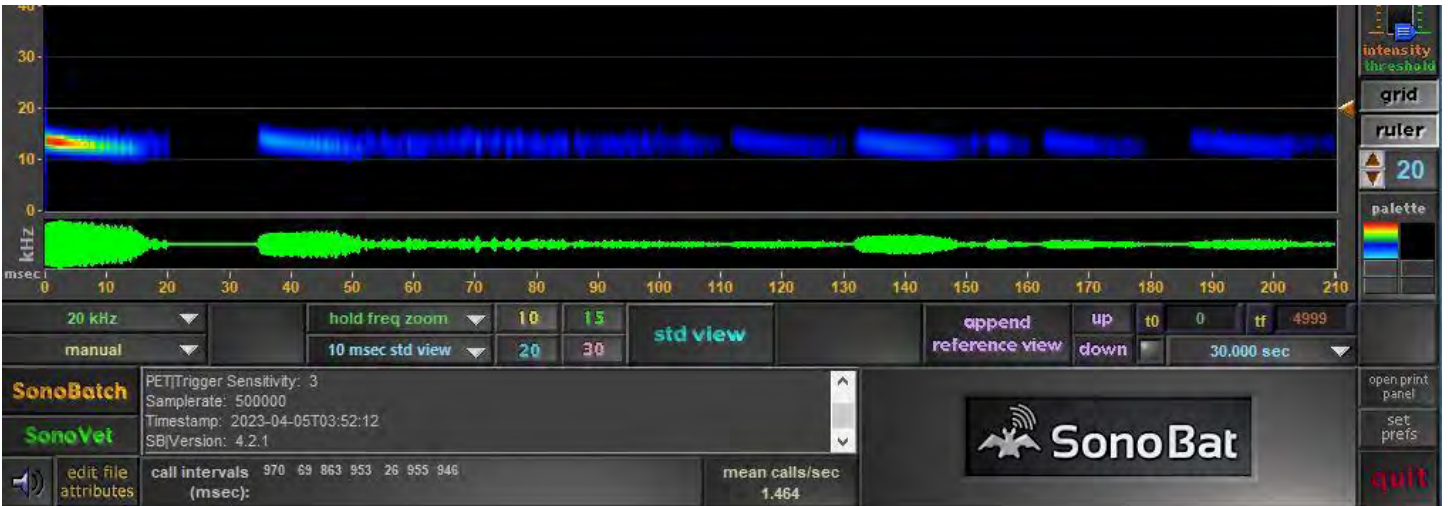
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Station FBB 9 2023-04-04 FBB File 2 of 3



Station FBB 9 2023-04-04 File 3 of 3



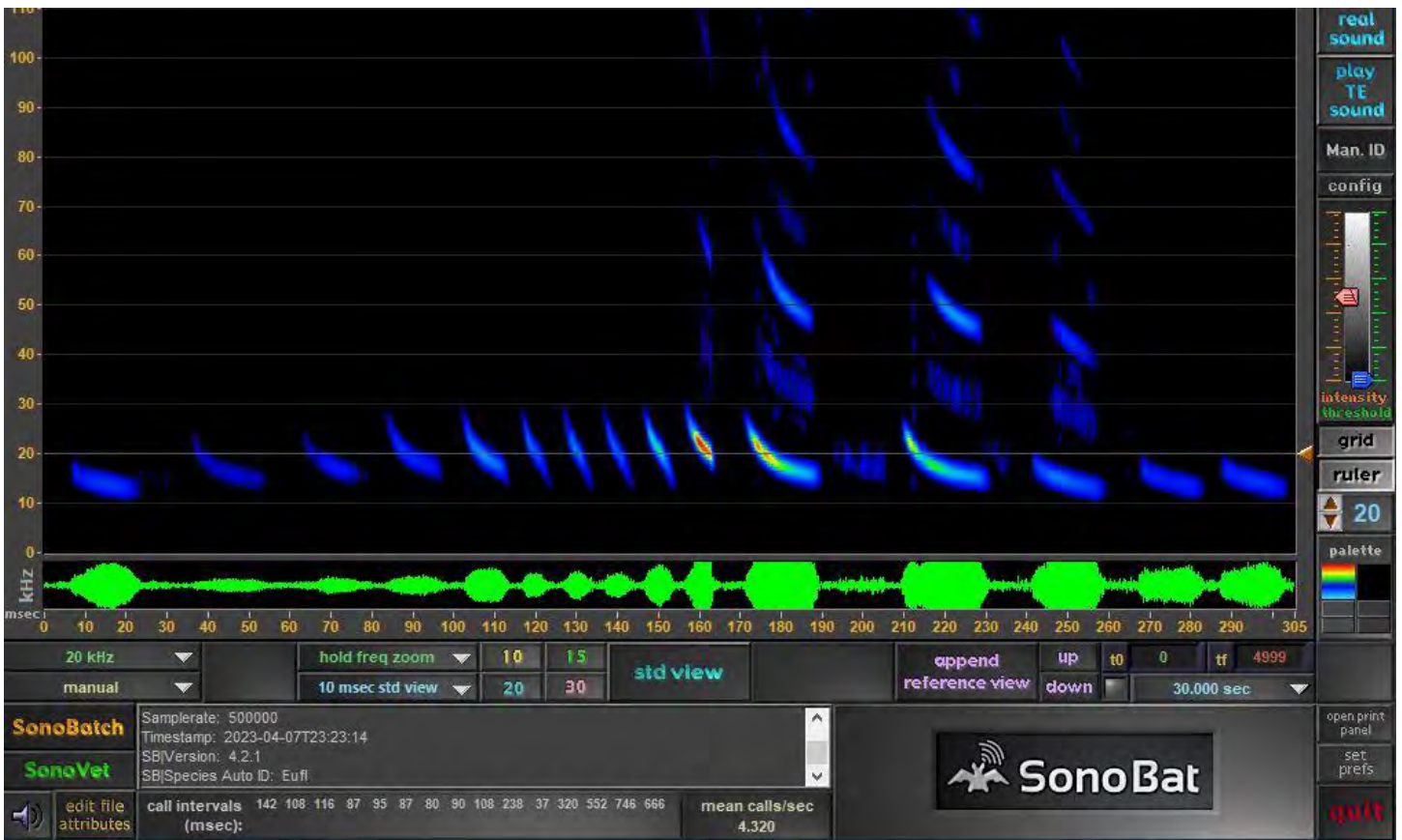
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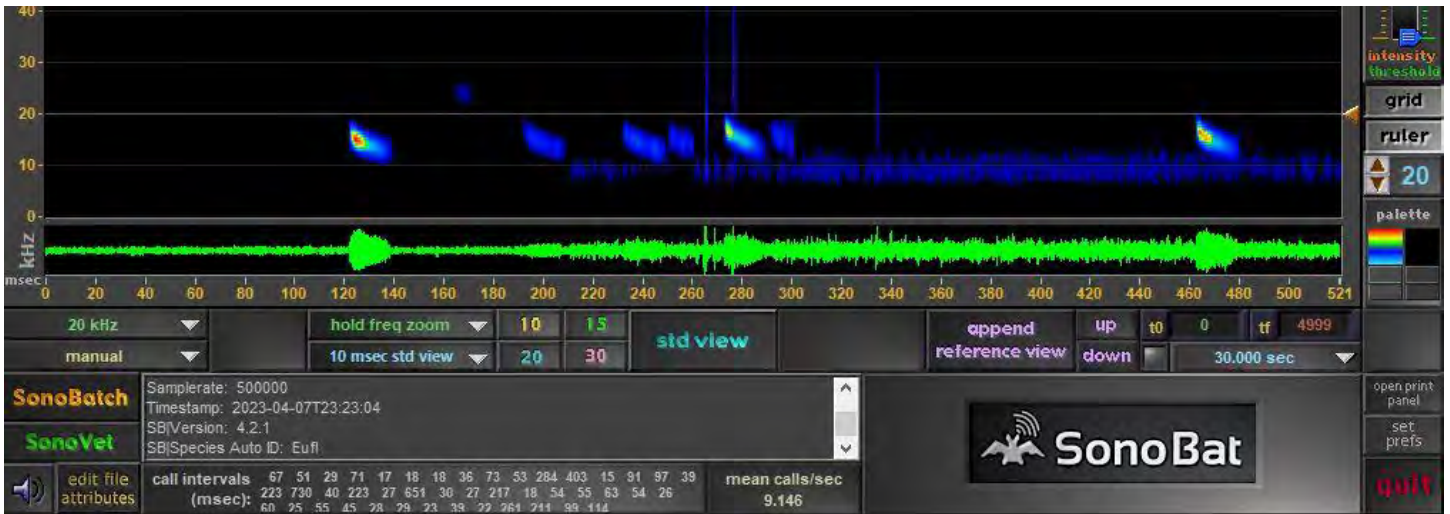
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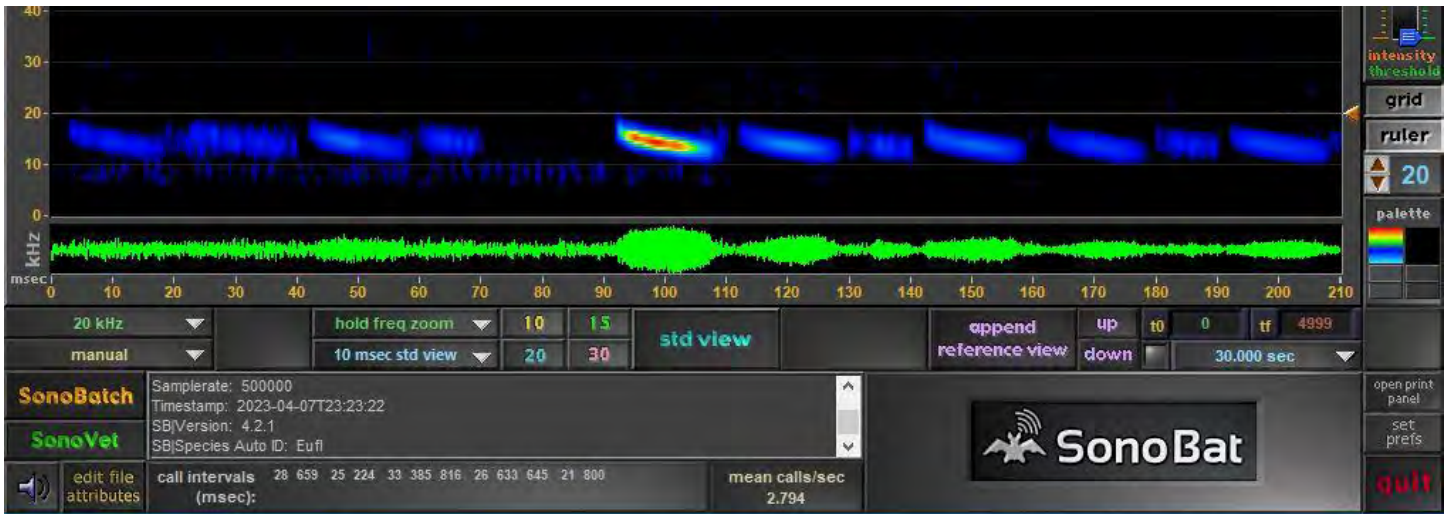
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Station FBB 8 2023-04-07 File 2 of 3



Station FBB 8 2023-04-07 File 3 of 3



FLORIDA BONNETED BAT CONSULTATION KEY

Florida Bonneted Bat Consultation Key[#]

Use the following key to evaluate potential effects to the Florida bonneted bat (FBB) from the proposed project. Refer to the Glossary as needed.

- 1a. Proposed project or land use change is partially or wholly within the Consultation Area (Figure 1).....**Go to 2**
1b. Proposed project or land use change is wholly outside of the Consultation Area (Figure 1).....**No Effect**
- 2a. Potential FBB roosting habitat exists within the project area.....**Go to 3**
2b. No potential FBB roosting habitat exists within the project area.....**Go to 13**
- 3a. Project size/footprint* \leq 5 acres (2 hectares)..... **Conduct Limited Roost Survey (Appendix C)**
then **Go to 4**
3b. Project size/footprint* $>$ 5 acres (2 hectares).....**Conduct Full Acoustic/Roost Surveys (Appendix B)** then
Go to 6
- 4a. Results show FBB roosting is likely**Go to 5**
4b. Results do not show FBB roosting is likely.....**MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**
- 5a. Project will affect roosting habitat.....**LAA⁺ Further consultation with the Service required.**
5b. Project will not affect roosting habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 6a. Results show some FBB activity.....**Go to 7**
6b. Results show no FBB activity.....**No Effect**
- 7a. Results show FBB roosting is likely.....**Go to 8**
7b. Results do not show FBB roosting is likely.....**Go to 10**
- 8a. Project will not affect roosting habitat.....**Go to 9**
8b. Project will affect roosting habitat.....**LAA⁺ Further consultation with the Service required.**
- 9a. Project will affect* $>$ 50 acres (20 hectares) (wetlands and uplands) of foraging habitat.....**LAA⁺ Further consultation with the Service required.**
9b. Project will affect* \leq 50 acres (20 hectares) (wetlands and uplands) of foraging habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 10a. Results show high FBB activity/use.....**Go to 11**
10b. Results do not show high FBB activity/use.....**Go to 12**
- 11a. Project will affect* $>$ 50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **LAA⁺ Further consultation with the Service required.**
11b. Project will affect* \leq 50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**
- 12a. Project will affect* $>$ 50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **LAA⁺ Further consultation with the Service required.**
12b. Project will affect* \leq 50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**

- 13a. FBB foraging habitat exists within the project area and foraging habitat will be affected.....**Go to 14**
- 13b. FBB foraging habitat exists within the project area and foraging habitat will not be affected **OR** no FBB foraging habitat exists within the project area.....**No Effect**
- 14a. Project size* > 50 acres (20 hectares) (wetlands and uplands)**Go to 15**
- 14b. Project size* ≤ 50 acres (20 hectares) (wetlands and uplands) **MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**
- 15a. Project is within 8 miles (12.9 kilometers) of high quality potential roosting areas^.....**Conduct Full Acoustic Survey (Appendix B) and Go to 16**
- 15b. Project is not within 8 miles (12.9 kilometers) of high quality potential roosting area^.....**MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**
- 16a. Results show some FBB activity.....**Go to 17**
- 16b. Results show no FBB activity.....**No Effect**
- 17a. Results show high FBB activity/use.....**LAA+ Further consultation with the Service required.**
- 17b. Results do not show high FBB activity/use..... **MANLAA-P if BMPs (Appendix D) used and survey reports submitted. Programmatic concurrence.**

If you are within the urban environment and you are renovating an existing artificial structure (with or without additional ground disturbing activities), these Guidelines do not apply. The Service is developing separate guidelines for consultation in these situations. Until the urban guidelines are complete, please contact the Service for additional guidance

*Includes wetlands and uplands that are going to be altered along with a 250- foot (76.2- meter) buffer around these areas if the parcel is larger than the altered area.

+Project modifications could change the **LAA** determinations in numbers 5, 8, 9, 11, 12, and 17 to **MANLAA** determinations.

^Determining if **high quality potential roosting areas** are within 8 mi (12.9 km) of a project is intended to be a desk-top exercise looking at most recent aerial imagery, not a field exercise.

BEST MANAGEMENT PRACTICES FOR DEVELOPMENT PROJECTS

Appendix D: Best Management Practices (BMPs) for Development Projects

Ongoing research and monitoring will continue to increase the understanding of the Florida bonneted bat and its habitat needs and will continue to inform habitat and species management recommendations. These BMPs incorporate what is known about the species and also include recommendations that are beneficial to all bat species in Florida. These BMPs are intended to provide recommendations for improving conditions for use by Florida bonneted bats, and to help conserve Florida bonneted bats that may be foraging or roosting in an area.

The BMPs required to reach a “may affect, but is not likely to adversely affect” (MANLAA) determination vary depending on the couplet from the Consultation Key used to reach that particular MANLAA. The requirements for each couplet are provided below followed by the list of BMPs. If the applicant is unable or does not want to do the required BMPs, then the Corps (or other Action Agency) will not be able to use this Guidance and formal consultation with the Service is required.

Couplet Number for MANLAA from Consultation Key	Required BMPs
4b	BMP number 1 if more than 3 months has occurred between the survey and start of the project, and any 3 BMPs out of BMPs 4 through 13
5b	BMP number 2, and any 3 BMPs out of BMPs 3 through 13
9b	BMPs number 2 and 3, and any 4 BMPs out of BMPs 5 through 13
11b	BMPs number 1 and 4, and any 4 BMPs out of BMPs 5 through 13
12b	BMP number 1, and any 3 BMPs out of BMPs 3 through 13
14b	Any 2 BMPs out of BMPs 3 through 13
15b	Any 3 BMPs out of BMPs 3 through 13
17b	Any 4 BMPs out of BMPs 3 through 13

BMPs for development, construction, and other general activities:

1. If potential roost trees or structures need to be removed, check cavities for bats within 30 days prior to removal of trees, snags, or structures. When possible, remove structure outside of breeding season (*e.g.*, January 1 – April 15). If evidence of use by any bat species is observed, discontinue removal efforts in that area and coordinate with the Service on how to proceed.
2. When using heavy equipment, establish a 250 foot (76 m) buffer around known or suspected roosts to limit disturbance to roosting bats.
3. For every 5 acres of impact, retain a minimum of 1.0 acre of native vegetation. If upland habitat is impacted, then upland habitat with native vegetation should be retained.
4. For every 5 acres of impact, retain a minimum of 0.25 acre of native vegetation. If upland habitat is impacted, then upland habitat with native vegetation should be retained..
5. Conserve open freshwater and wetland habitats to promote foraging opportunities and avoid impacting water quality. Created/restored habitat should be designed to replace the function of native habitat.

6. Conserve and/or enhance riparian habitat. A 50-ft (15.2 m) buffer is recommended around water bodies and stream edges. In cases where artificial water bodies (*i.e.*, stormwater ponds) are created, enhance edges with native plantings especially in cases in which wetland habitat was affected.
7. Avoid or limit widespread application of insecticides (*e.g.*, mosquito control, agricultural pest control) in areas where Florida bonneted bats are known or expected to forage or roost.
8. Conserve natural vegetation to promote insect diversity, availability, and abundance. For example, retain or restore 25% of the parcel in native contiguous vegetation.
9. Retain mature trees and snags that could provide roosting habitat. These may include live trees of various sizes and dead or dying trees with cavities, hollows, crevices, and loose bark. See “Roosting Habitat” in “Background” above.
10. Protect known Florida bonneted bat roost trees, snags or structures and trees or snags that have been historically used by Florida bonneted bats for roosting, even if not currently occupied, by retaining a 250 foot (76 m) disturbance buffer around the roost tree, snag, or structure to ensure that roost sites remain suitable for use in the future.
11. Avoid and minimize the use of artificial lighting, retain natural light conditions, and install wildlife friendly lighting (*i.e.*, downward facing and lowest lumens possible). Avoid permanent night-time lighting to the greatest extent practicable.
12. Incorporate engineering designs that discourage bats from using buildings or structures. If Florida bonneted bats take residence within a structure, contact the Service and Florida Fish and Wildlife Conservation Commission prior to attempting removal or when conducting maintenance activities on the structure.
13. Use or allow prescribed fire to promote foraging habitat.