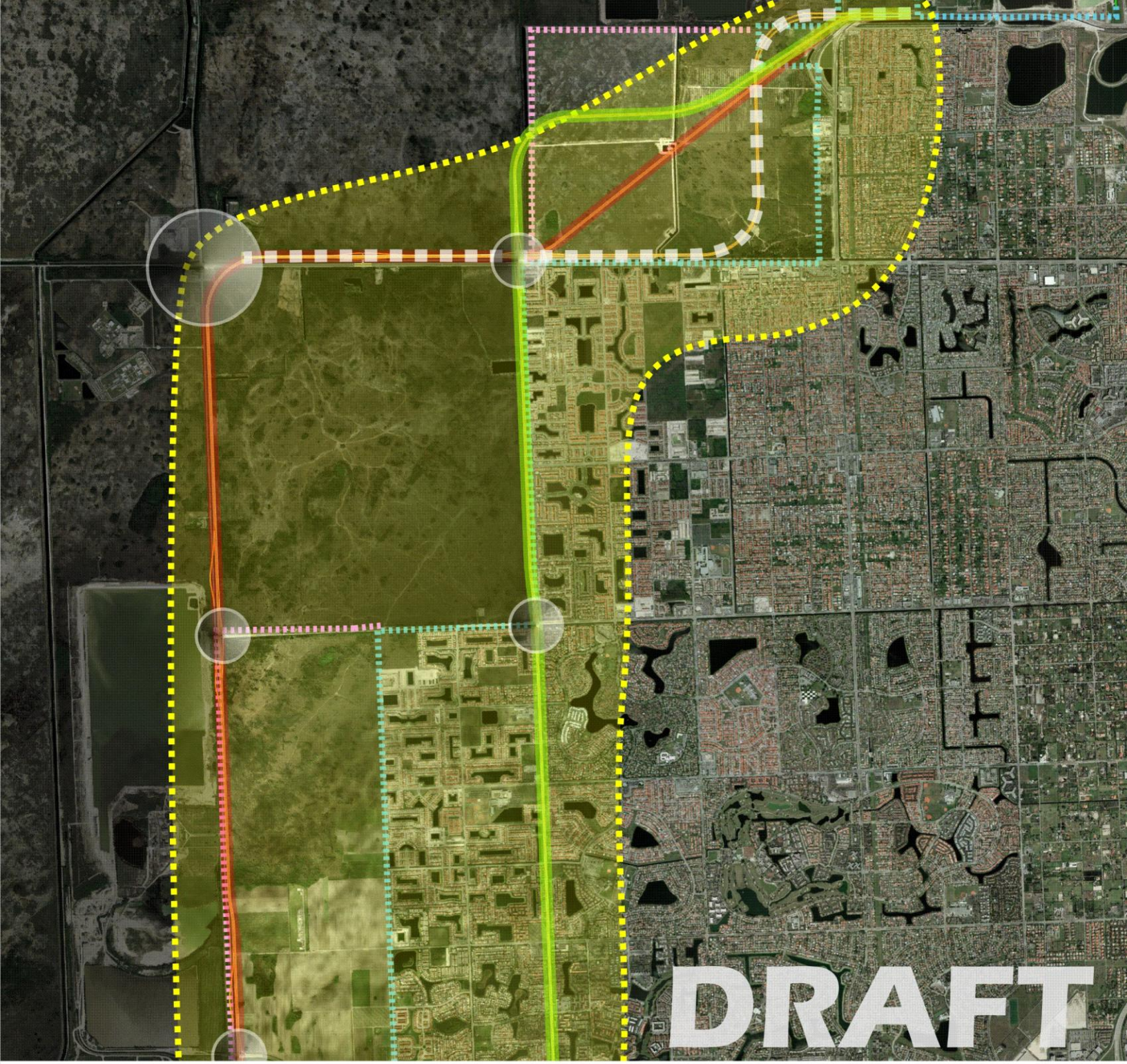


MIAMI-DADE EXPRESSWAY AUTHORITY

MDX 83618
SR 836 Southwest Extension
Draft Project Concept Report

May 2008
August 2009 (Rev)

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

The Miami-Dade Expressway Authority (MDX) is a state-sanctioned, locally administered, public agency enabled by the Legislature of the State of Florida and created in 1994 by the Board of County Commissioners of Miami-Dade County (County). MDX is governed by its Board, comprised of 13 volunteer members appointed by the Board of County Commissioners and the Governor of the State of Florida. MDX oversees, operates and maintains five expressways:

- State Road 836 (the Dolphin Expressway),
- State Road 112 (the Airport Expressway),
- State Road 874 (Don Shula Expressway),
- State Road 878 (Snapper Creek Expressway), and
- State Road 924 (Gratigny Parkway).

All MDX projects are exclusively funded through the use of tolls as user fees which in turn are bonded to finance improvements within its system. MDX is dedicated to the enhancement of mobility in Miami-Dade County and committed to bringing more efficient, market-driven, user-friendly management to its expressways. All of MDX's projects are implemented through an active public involvement program to ensure that the community impacted is involved and informed.

Planning efforts started during Fiscal Years 2007 and 2008 included the preparation of a Concept Report for a proposed SR 836 Southwest Extension from its current terminus at SW 137th Avenue and SW 8th Street to SW 136th Street. The proposed study area is located within unincorporated Miami-Dade County and is roughly bounded by NW 12th Street to the north, SW 136th Street to the south, SW 152 Avenue to the east, and SW 177th Avenue (Krome Avenue) to the west.

The Concept Report evaluates the potential of a new transportation corridor extending SR 836 west and south to SW 136th Street in West Kendall with provision for an urban buffer. It is envisioned as a multimodal corridor, including a limited access highway with limited interchanges and buffered protected areas. Interchanges may be limited to only major arterials, i.e. SW 40th Street (Bird Road), SW 88th Street (Kendall Drive), SW 104th Street (Killian Parkway), and SW 136th Street. The key is to design a cross section that relieves traffic in this area and provides a valid mobility option while limiting further western expansion of urban development by acting as a physical barrier to future development into the Everglades. The Concept Report will confirm the need and benefits to be provided by the new project and identify potential corridors and alignments as well as potential environmental impacts.

As part of the Concept Report process, MDX also implemented a preliminary outreach program which included briefings to all district elected officials and a presentation to the Metropolitan Planning Organization (MPO) Citizen's Transportation Advisory Committee. In addition, presentations were made to Community Councils in the study area and to major homeowners associations. These presentations focused on MDX's Vision Long Range Plan as well as the projects considered including the SR 836

Southwest Extension Project. Potential stakeholders have been identified and include organizations with a special interest in the area, environmental groups, and active civic and homeowner associations. These groups will be contacted on an on-going basis to obtain their input and first reactions to the project once it is included in the 2035 MPO's Long Range Plan. These efforts will establish the framework for a more intensive public outreach effort in the next planning phase of the project.
The proposed project would respond to several local and regional transportation problems and needs:

- Only a limited number of roadway and transit options are available for east-west travel in the project area and in the Southwest Miami-Dade County region. Access to the Homestead Extension of the Florida Turnpike (HEFT) is mainly via SW 120th Street and SW 152nd Street. Previous subarea studies have confirmed that the desire for travel in the area is mostly east west with limited north-south options due to existing land uses such as the Kendall-Tamiami Airport, Metrozoo and large water bodies. As a result, these east-west corridors, especially east of SW 137 Avenue, are projected to operate at congested levels in 2015. Because of the limited north-south options, the HEFT is already constrained and operating above its capacity. These conditions create severe chronic traffic congestion and impair mobility in the area.

- Roadway capacity is further exceeded and congestion is exacerbated as a result of rapid population growth and the establishment of new activity and employment centers that act as trip generators to, from, and through the project area. According to the MPO projections, the southwest planning area of the County is experiencing the greatest growth in terms of population.

- Because of the congested roadway network, travel in the project area is inefficient with increased travel times and unreliable travel conditions.

- Congestion also limits accessibility to and from major activity and employment centers.

- Planned improvements to the roadways, and transit service in the project area, is limited and cannot accommodate future demands to fully optimize local and regional mobility. This is evidenced by the projected Level of Service (LOS) for the east-west corridors in the area. According to the Miami-Dade MPO 2030 Long Range Transportation Plan (LRTP), which includes all future projects, LOS along the major corridors serving the area will continue to be congested LOS D-F in 2030. Level of Service is a measure of congestion that ranges from "A", free flow conditions, to "F" severe congestion.

The benefits of implementing the proposed project and addressing these transportation problems and needs include:

- The SR 836 Southwest Extension would provide additional north-south connectivity and enhance mobility throughout the area. The project would provide greater accessibility to major activity and employment centers located east of the rapidly growing residential suburbs to the south and west. These employment centers include Miami International Airport, Jackson Memorial Hospital, the Downtown Central Business District, and the County's cultural centers.

- Additional transportation capacity would accommodate future residential demand in the area and support local economic development opportunities consistent with regional growth management and land conservation efforts.

- The environmental impacts of traffic congestion (e.g., mobile source air pollutant emissions, neighborhood and community disruption) would be reduced since there would be less cars idling along congested arterials.

- Greater opportunities for connectivity and modal interrelationships (connections to transit and planned non-motorized facilities in the area) would be created within the study area.

- Congestion relief would be provided throughout the surrounding roadway network including SW 120th Street, SW 152nd Street, SW 127th Avenue, and SW 137th Avenue.

The Concept Report discusses some of the existing roadway and land use conditions that will impact the planning process with respect to project implementation. Several alignments were developed for analysis purposes. Traffic and revenue estimates were prepared for each of the alignments and an environmental screening was conducted to determine if there were any fatal flaws with respect to the project. The traffic analysis indicated that each alternative would attract a significant amount of vehicles from neighboring arterial facilities. One of the potential environmental issues identified was the location of some of the alternatives in close proximity to the County's Urban Development Boundary (2015) and Urban Expansion Area (UEA). One alternative was located in close proximity to existing residential development and would engender resistance from residents. The environmental assessment, however, did not identify any fatal flaws for any of the alignments.

The main objective of the Concept Report information at this time is to support the project inclusion into the County MPO's 2035 Long Range Transportation Plan. Once the project is included in the plan it can proceed to the project development phase. Information from the Concept Report will also be used to support a future Project Development and Environment (PD&E) study.

SECTION - 1 INTRODUCTION

This project Concept Report includes the confirmation of the need and benefits to be provided by the SR 836 Southwest Extension project; the identification of potential corridors and alignments; and the evaluation of potential environmental impacts of the various alignment alternatives. As part of the Concept Report, a public involvement program was included to inform and receive input from the neighboring community. The Concept Report process can provide information needed to determine whether a project should proceed to the PD&E phase which is the next step in the implementation process.

1.1 Project Concept Description

The MDX 2025 Long Range Master Transportation Plan (LRMTP) guides the development of all future MDX projects. The MDX LRMTP includes the SR 836 Southwest Extension and discussions were held with the Miami-Dade MPO during their last LRTP update to include this project in the County 2030 LRTP. However, it was determined that additional study would need to be conducted on the project and its impacts prior to inclusion in the County plan. MDX will propose inclusion of the SR 836 Extension into the County's next update, the 2035 LRTP, which is scheduled to be adopted in December 2009. Information from this Concept Report will be used to support inclusion of the project in the County's LRTP.

This project proposes a new transportation corridor extending SR 836 from NW 137th Avenue, west and south to West Kendall (SW 136th Street). The project would provide additional opportunities to provide transit connections to the area as well as highway capacity. At this time three alignments are being studied as shown in **Figure 1-1** and described below:

Alternative 1: This Alternative extends the existing SR 836 from its intersection with NW 137th Avenue south to SW 136th Street in West Kendall. The project runs on a new alignment parallel and immediately east of SW 177th Avenue (Krome Avenue). This project includes interchanges with SW 8th Street, SW 42nd Street, SW 88th Street, and SW 104th Street. This project will improve north-south travel in southwestern Miami-Dade County by providing additional capacity as an alternate to the already congested portions of the HEFT and by providing an alternate to the more local overburdened arterial streets in the area. This Alternative differs from Alternative 3 in that it does not include southbound to westbound movements at SW 88th Street and it includes an interchange at SW 104th Street.

Alternative 2: This Alternative connects the existing SR 836 to Krome Avenue via SW 8th Street. The project includes an interchange at SW157th Avenue. This project may be expected to improve mobility in the area by providing increased access from Krome Avenue to a limited access east-west facility. This Alternative would maintain Krome Avenue as a surface street "back door" option for access from West Kendall. However, currently unfunded improvements to Krome Avenue would be likely in this scenario to accommodate greater traffic attractions.

Alternative 3: This Alternative proceeds from the existing SR 836 to the west and south following the partially built corridor and alignment of SW 157th Avenue terminating at SW 136th Street. The proposed facility would include interchanges with SW 8th Street, SW 42nd Street, and SW 88th Street. Similar to Alternative 1, this alternative would provide an alternative to the HEFT for north-south traffic and has the potential to carry more traffic since it is in closer proximity to existing developments. Because of its close proximity to existing developments, this Alternative may have greater impacts on residential areas.

An additional alternative was included after a meeting with key representatives of CANT (Citizens Against Non-Concurrent Traffic) which has not been evaluated or analyzed. This conceptual alignment can be found in Figure 3-1 and it has been included information purposes. Other alternatives or phases may be included and evaluated in the future, during the Project Development and Environmental study.

1.2 Project Location and Logical Termini

The SR 836 East-West Expressway, also known as the Dolphin Expressway, is one of the primary east-west roadway connections in Central Miami-Dade County. SR 836 is a six lane tolled facility extending from I-95 to the HEFT and terminating at NW 137th Avenue. The SR 836 Southwest Extension proposes a multi-modal transportation corridor extending from the NW 137th Avenue intersection, traversing west to the vicinity of Krome Avenue (SW 177th Street), then south to SW 136th Street. The study area and the differing alignments are depicted in **Figure 1-1**.

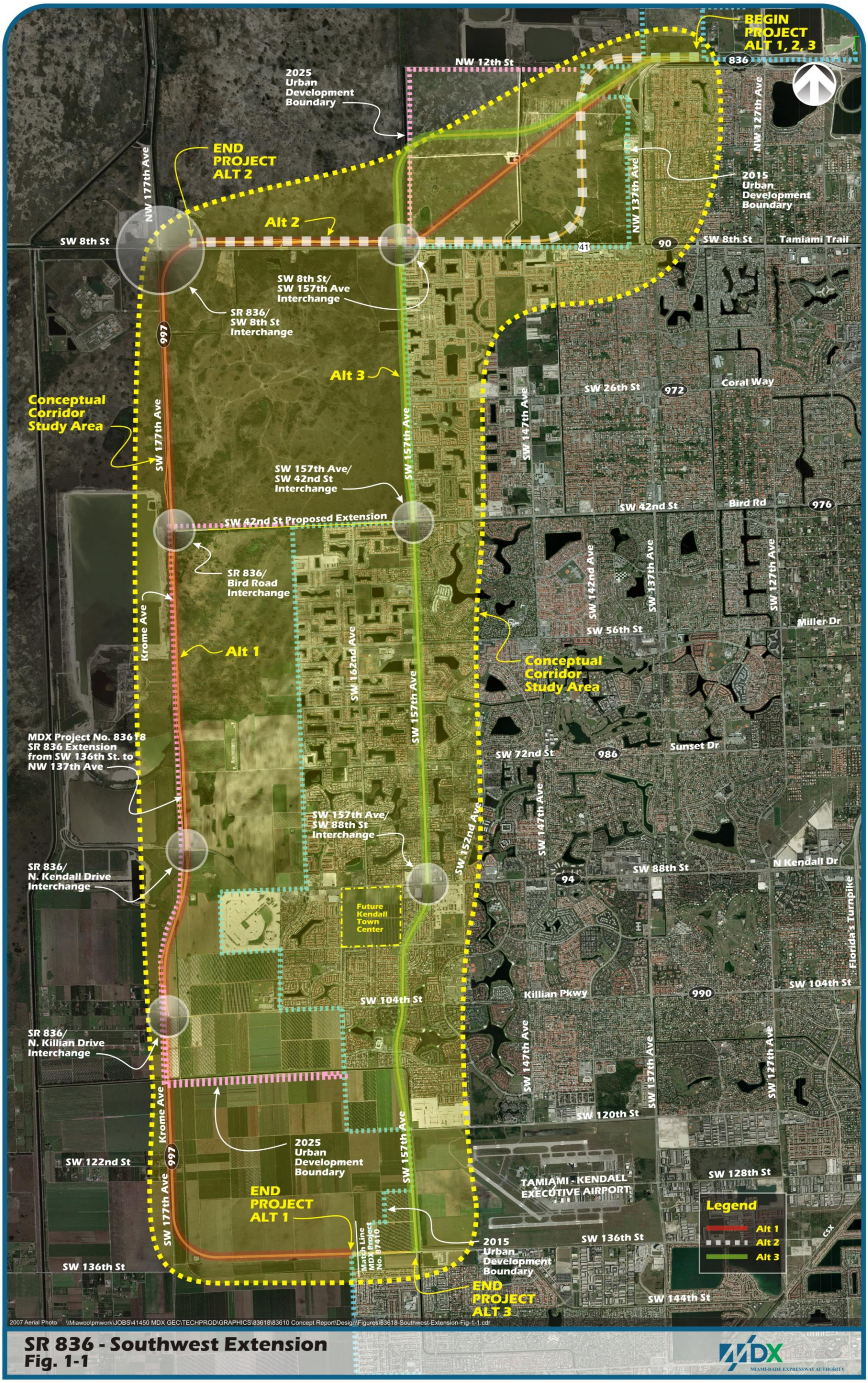


Figure 1- 1 Project Location Map

SECTION - 2 PROJECT NEED

Traffic in the Southwest Miami-Dade area has grown significantly in recent years due to newly developed residential communities, commercial, and light industrial uses. Most of the area's projected growth includes low to medium density housing developments with supporting commercial uses such as neighborhood shopping centers, schools, and services. The County's 2015 Urban Development Boundary (UDB) extends westward in the area to approximately west of SW 157th Avenue. This area is already developed and in high demand for additional residential uses and some light industrial/office developments. Some projects are already under construction and others are anticipated in the short and long-range planning horizons. The traffic generated by this growth, and the limited capacity of the expressway and arterial roadway network in the area to serve the existing and future needs, indicates a need for additional mobility and connectivity options. The SR 836 Southwest Extension project would help to satisfy this need.

2.1 Project Justification

Main access to expressways from the West Kendall area is provided by the HEFT via SW 152nd Street, SW 120th Street and Kendall Drive / SW 88th Street. Additional access to the regional expressway system is provided by SR 874 / Don Shula Expressway via Killian Parkway / SW 104th Street. The arterials providing access to the expressways in the area are currently heavily congested and are anticipated to continue to be congested even in 2030. Assuming implementation of the MPO's 2030 LRTP planned improvements along several east-west corridors, such as SW 152nd Street, and north-south corridors, such as SW 137th Avenue, congestion levels will remain high throughout the arterial roadway network in this area.

The SR 836 Southwest Extension would provide a much needed connection between residential populations in the study area and major employment centers such as Miami International Airport (MIA), the future Miami Intermodal Center (MIC) currently under construction and the Downtown Central Business District. The SR 836 Southwest Extension would provide improved access to major shopping destinations such as the Dolphin Mall and Miami International Mall; educational institutions such as Florida International University (FIU), and major attractions such as Metrozoo.

2.2 Project Objectives

The Concept Report is an important step in defining proposed transportation improvements within the study area and helps to establish the foundation for moving a project from the planning phase to construction and operation. The project development process is guided by both metropolitan planning procedures and MDX requirements. MDX, the study sponsor, has directed that the goals, objectives and evaluation measures be derived from two primary sources: the public involvement process, and the Miami-Dade MPO regional LRTP.

The 2030 LRTP contains six goals and associated objectives for enhancing the Miami-Dade County transportation system. The goals, which were approved by the MPO Governing Board in December 2003, were based on the Transportation Equity Act for

the 21st Century's (TEA-21) guidance for the development of LRTPs. The six goals and associated objectives serve as the preliminary evaluation framework for developing initial alternatives, screening alternatives, and selecting the preferred investment strategy within the study area. During the Concept Report study, the public involvement program has a major role in modifying, expanding, and finalizing these goals, objectives, and alternatives to select the preferred investment strategy.

The Miami-Dade MPO 2030 LRTP goals area as follows:

Goal 1: Improve Transportation Systems and Travel

- Improve accessibility
- Enhance mobility
- Maximize multimodal travel options and provide travel choices
- Improve regional connectivity

Goal 2: Support Economic Vitality

- Increase access to employment areas and sites for both employees within the corridor and employees throughout Miami-Dade County
- Improve access to major activity centers
- Increase reverse commute opportunities
- Increase and improve access to MIA

Goal 3: Enhance Social Benefits

- Increase accessibility to major health care, recreation, education, and cultural facilities within the corridor and throughout Miami-Dade County
- Provide equitable and environmentally just travel facilities and services
- Promote accessibility for the elderly and persons with a disability
- Increase reverse commute opportunities for disadvantaged communities

Goal 4: Integrate Transportation with Land Use and Development Considerations

- Support infill growth and redevelopment in the study corridor consistent with the Miami Dade Community Development Master Plan
- Provide a mechanism for stabilizing the Urban Development Boundary into the future

Goal 5: Optimize Sound Investment Strategies

- Minimize construction costs
- Minimize operating expenses
- Optimize use of private sector funding sources
- Maximize use of external funding sources

Goal 6: Mitigate Environmental and Energy Impacts

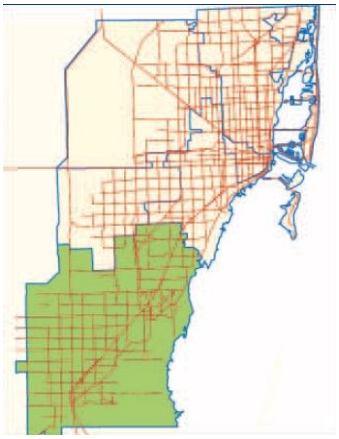
- Promote sustainability in transportation systems
- Minimize impacts to environmentally sensitive areas
- Reduce fossil fuel use and energy consumption
- Minimize air quality impacts of transportation facilities, services, and operations

It is the objective of MDX, during the Concept Report phase, to establish how the proposed SR 836 Southwest Extension will satisfy the LRTP goals, thereby allowing inclusion of this project in the 2035 LRTP update.

2.3 Purpose and Need

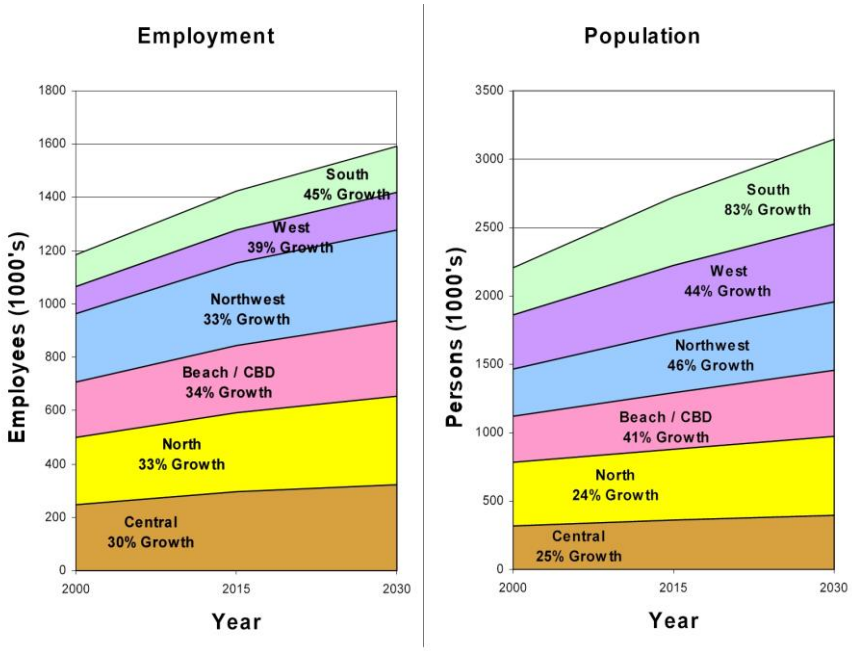
- The roadway network in the study area is heavily congested with many segments experiencing inefficient travel such as unreliable travel conditions and increased travel times. Krome Avenue itself is anticipated to operate at a deficient level of service in 2015 from SW 136th Street to south of Eureka Drive. East of SW 137th Avenue, most of the east-west road segments such as SW 152nd Street and SW 120th Street are also congested in 2015.
- The study area includes several major employment and activity centers: FIU, Metrozoo, Tamiami-Kendall Executive Airport and others. However, the majority of travel appears to be from the residential areas east to the north-south facilities. Because the number of continuous north-south facilities is limited, congestion occurs throughout.
- The efficiency of current public transportation service in the corridor, provided exclusively by bus, is hampered by the same factors that have impaired mobility along the congested roadway network in the corridor. For example, ridership on the Coral Reef express (MAX) is low since transit bus operations and travel time are also hampered by congestion.
- With a limited express access from this Southwest region, the opportunities to maximize transit use would be greatly enhanced. Potential transit users in the area would benefit greatly from a higher level of transit service that could be integrated into the expressway design.
- Much of the growth in Miami-Dade County in recent years has occurred in the western and southwestern portions of the County (**Figure 2-1**). Official growth forecasts indicate that this trend will continue with population increasing by 83% by the year 2030 and jobs increasing by 45% (**Figure 2-2**).

Figure 2- 1
Miami-Dade County Transportation Planning Area - South

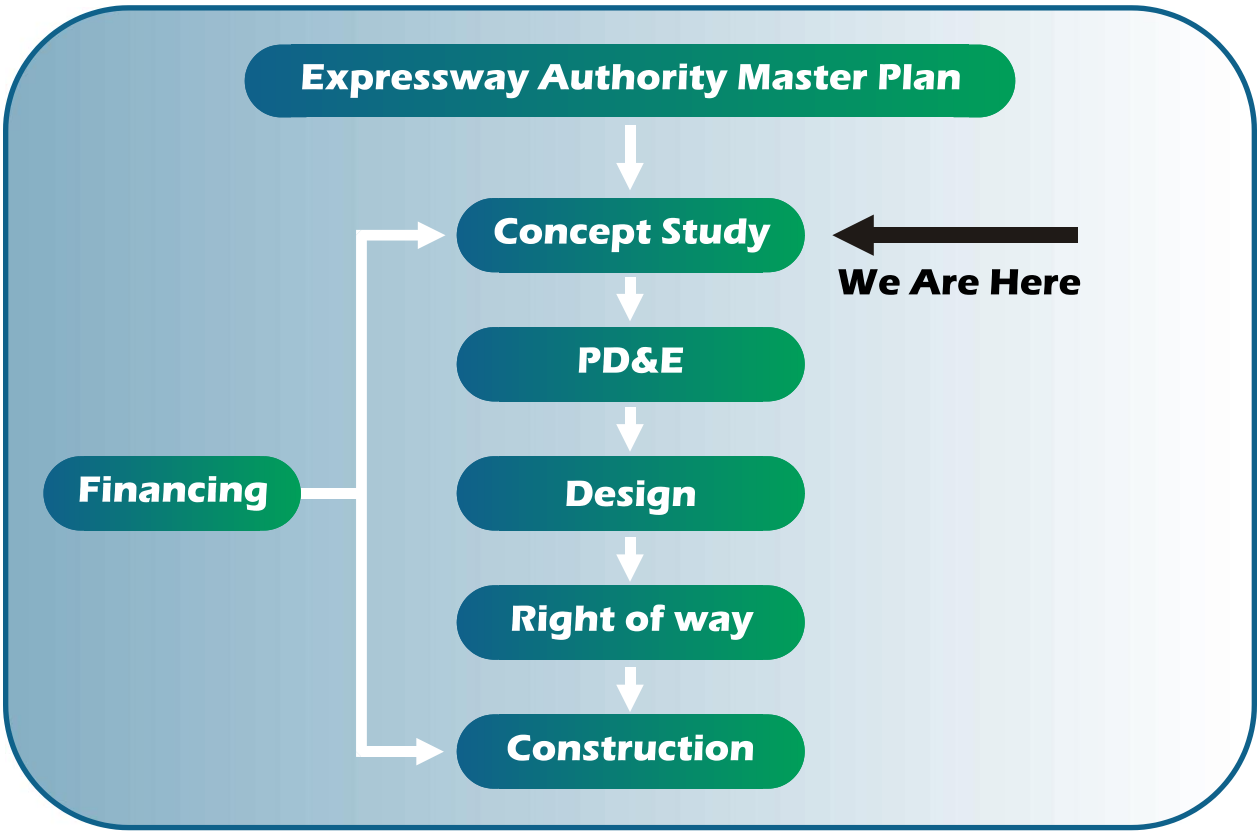


- In order to meet projected growth and sustain continued economic viability within the study area and the region, a major investment in highway infrastructure is needed to meet future mobility needs.
- The SR836 Southwest Extension would provide the needed system linkage that is clearly lacking in the southwest portion of the County. Although much of the growth and development is occurring in this area, a new system linkage to existing expressway facilities to the east does not exist.
- The Extension could be used to stabilize the County's UDB in the future if designed appropriately, with limited access and potentially limited number of interchanges.
- Planning for the Southwest Extension now would help to maximize funding options since the project would be tolled and land values may be less than in a fully urbanized area.
- The SR 836 Southwest Extension would relieve congestion and idling along arterials within the study area, thereby, minimizing negative air quality impacts. Moreover, the multi-modal nature of the corridor would provide a sustainable alternative for those wishing to use transit.

Figure 2- 2
Miami-Dade County Projected Employment & Population Growth by Planning Area



SECTION - 3 STUDY APPROACH AND SCHEDULE



The purpose of the Concept Report is to determine the feasibility of the planned extension and whether a full PD&E study is warranted. As shown above, the PD&E process is one of the first steps in project implementation. This study analyzes the potential impacts each alternative alignment may have. It also outlines whether it is feasible to construct a new toll facility.

3.1 Design Criteria

The proposed project, and the different alternatives, will be designed and constructed in the English system of units. The proposed design speed is 70 mph. The plans and specifications will be prepared in accordance with the latest Florida Department of Transportation (FDOT) Design Standards, Plans Preparation Manual (PPM) and Drainage Manual, Flexible Pavement Design Manual, American Association of State Highway and Transportation Officials (AASHTO), and all current FDOT memorandums.

Table 3-1 lists the design criteria and the reference location used to analyze the proposed cross sections. These criteria may be adjusted in future phases of project development.

Table 3- 1 Design Criteria

DESIGN ELEMENT	DESIGNATION / LOCATION	CRITERIA	REFERENCE
Typical Section			
Functional Classification	Urban Principal Arterial (NHS)		SLD Sec. 87
Design Speed			
Mainline		70 mph	
Auxiliary Lanes		70 mph	
Ramps		30 mph	
Design Year Traffic		2030	FDOT
Lane Width			
Mainline		12 ft	PPM Sec. 2.1 (Table 2.1.1)
Auxiliary Lanes		12 ft	
One Lane Ramps		15 ft	PPM Sec. 2.1 (Table 2.1.3)
Multi-Lane Ramps		24 ft	
Inside/Left Shoulder Width			
Mainline		8 ft w/ 4 ft paved	PPM Sec. 2.3 (Table 2.3.1)
Auxiliary		N/A - This does not mean that a shoulder is unnecessary; rather, shoulder is not typically present at this location (i.e., it is not required when adjacent to the through lane).	
One Lane Ramps		6ft w/ 2 ft paved	
Multi-Lane Ramps		8ft w/ 4 ft paved	
Outside/Right Shoulder Width			
Mainline		12 ft w/ 10 ft paved	PPM Sec. 2.3 (Table 2.3.1)
Auxiliary		12 ft w/ 10 ft paved	
One Lane Ramps		6 ft w/ 4 ft paved	
Multi-Lane Ramps		12 ft w/ 10 ft paved	
Pavement Cross Slope			

DESIGN ELEMENT	DESIGNATION / LOCATION	CRITERIA	REFERENCE
Mainline		Inside 2 lanes 0.02 with outside lanes 0.03	PPM Sec. 2.1.5 (Figure 2.1.1)
Auxiliary Lanes		Match adjacent roadway slope	
Inside/Left Shoulder		Remains as existing	PPM Sec. 2.3 (Figure 2.3.1)
Outside/Right Shoulder		0.1	PPM Sec. 2.3 (Figure 2.3.1)
Max. Algebraic difference in cross slope between adjacent through lanes		maximum allowable 0.04	PPM Sec. 2.1.5 (Figure 2.1.1)
Max. Algebraic difference in cross slope at Turning Roadway Terminals		maximum allowable 0.05	PPM Sec. 2.1.5 (Table 2.1.4)
Max. Shoulder Cross-Slope Break		maximum allowable 0.07	PPM Sec. 2.3 (Table 2.3.1)
Median Width			
With Barrier		26 ft	PPM Sec. 2.2 (Table 2.2.1)
Border Width			
Mainline		94 ft	PPM Sec. 2.5 (Table 2.5.1)
One Lane Ramps		94 ft	PPM Sec. 2.5 (Table 2.5.1)
Roadside Slopes			
Mainline	Front Slope	6:1 for fills to 5 ft 6:1 to edge of CZ & 4:1 for fills 5 ft to 10 ft 6:1 to edge of CZ & 3:1 for fills 10 ft to 20 ft 2:1 (with guardrail) for fill over 20 ft	PPM Sec. 2.4 (Table 2.4.1)
	Back Slope	4:1 or 3:1 with a standard trapezoidal ditch, and 6:1 front slope	PPM Sec. 2.4 (Table 2.4.1)

DESIGN ELEMENT	DESIGNATION / LOCATION	CRITERIA	REFERENCE
	Transverse Slope	10:1 or flatter	
Horizontal Clearance and Clear Zone			
Mainline		36 ft	PPM Sec. 2.11 (Table 2.11.1 - 2.11.11)
Auxiliary Lanes		24 ft	PPM Sec. 2.11 (Table 2.11.1 - 2.11.11)
One Lane Ramp		24 ft	
Horizontal Alignment Elements			
Maximum Curvature			
Mainline		Max. 3 00' 00"	PPM Sec. 2.8 (Table 2.8.3)
Ramps		Max. 24 25' 00"	PPM Sec. 2.8 (Table 2.8.3)
Maximum Superelevation			
Mainline		0.10	FDOT Design Standards Index No. 510
Ramps		0.10	FDOT Design Standards Index No. 510
Min. Stopping Sight Distance			
Mainline		780 ft to 861 ft	PPM Sec. 2.7 (Table 2.71)
Ramps (30 mph)		182 ft to 218 ft	PPM Sec. 2.7 (Table 2.71)
Ramps (35 mph)		226 ft to 276 ft	
Max. Deflection w/o a Horizontal Curve		0 45' 00"	PPM Sec. 2.8 (Table 2.8.1)
Min. Length of Horizontal Curve			
Mainline		30V = 2100 ft and min. 15V = 1050 ft	PPM Sec 2.8 (Table 2.8.2)

DESIGN ELEMENT	DESIGNATION / LOCATION	CRITERIA	REFERENCE
Ramps	For loop ramps (does not apply to compound curves)	400 ft	PPM Sec 2.8 (Table 2.8.2)
Ramp Terminal Criteria			
Min. Ramp Terminal Spacing			
Exit – Entrance		400 ft	AASHTO (A Policy on Geometric Design of Highways and Streets) Chapter 10, Exhibit 10-86, pg. 848
Turning Roadways		600 ft	AASHTO (A Policy on Geometric Design of Highways and Streets) Chapter 10, Exhibit 10-86, pg. 848
Entrance – Exit		1600 ft	
Vertical Alignment Elements			
Max. Grade			
Mainline		3.00%	PPM Sec. 2.6 (Table 2.6.1)
Ramps (30 mph)		7.00%	PPM Sec. 2.6 (Table 2.6.1)
Max. Change in Grade w/o a Vertical Curve			
Mainline		0.20%	PPM Sec. 2.6 (Table 2.6.2)

DESIGN ELEMENT	DESIGNATION / LOCATION	CRITERIA	REFERENCE
Ramps (30 mph)		1.00%	PPM Sec. 2.6 (Table 2.6.2)
Min. Length of Crest Vertical Curve			
Mainline (K=506)		Not less than 1000 ft for open highways and not less than 1800 ft within interchanges	PPM Sec. 2.8.2 (Table 2.8.5)
Ramps (K=31)		Not less than 1000 ft for open highways and not less than 1800 ft within interchanges	PPM Sec. 2.8.2 (Table 2.8.5)
Min Length of Sag Vertical Curve			
Mainline (K=206)		Not less than 800 ft	PPM Sec. 2.8 (Table 2.8.6)
Ramps (K=31)		Varies based on design speed - For 30 mph L=90 ft	PPM Sec. 2.8 (Table 2.8.6)
Roadway Base Clearance Above DHW Elev.			
Mainline		3'-0"	PPM Sec. 2.6 (Table 2.6.3)
Ramps		2'-0"	PPM Sec. 2.6 (Table 2.6.3)
Minimum Vertical Clearance over a Bridge			
Roadway/Railroad over Roadway		16'-6"	PPM Sec. 2.10 (Table 2.10.1)
Roadway over Railroad		23'-6"	PPM Sec. 2.10 (Table 2.10.1)
Min. Bridge Width			
Mainline		Travel lanes + 10 ft outside shoulders (inside shoulder vary)	PPM Fig. 2.0.1 (Table 2.10.1)

DESIGN ELEMENT	DESIGNATION / LOCATION	CRITERIA	REFERENCE
One Lane Ramps		15' Travel lane + 6 ft shoulders	PPM Fig. 2.0.1 (Table 2.10.1)
Two Lane Ramps		12' Travel lanes + 10 ft outside shoulders and 6 ft inside shoulders	
Minimum Vertical Clearance over a Canal			
South Florida Water Management District		6 ft. above Control Elevation	FDOT Drainage Manual, Sec. 4.6.1
FDOT Drift Clearance		2 ft min. between Design Flood Stage and Low Bridge Member	FDOT Drainage Manual, Sec. 4.6.1

References:
2008 FDOT Plans Preparation Manual Volume I
2008 FDOT Design Standard Index
2008 FDOT Drainage Manual
2004 AASHTO A Policy on Geometric Design of Highways and Streets

3.2 Constraints

The results of the conceptual planning and engineering analysis conducted for the Concept Report generally indicates that the proposed alternatives are viable. Adequate right-of-way will be required to accommodate the extension of the expressway and interchanges. Additional right-of-way may be required for stormwater treatment facilities.

3.3 Potential Issues

A number of potential issues have been identified for the proposed project:

Urban Development Boundary Expansion Pressures – There is the potential that the improved access may increase pressures for the continued extension of the County's UDB. Although the County has approved developments outside the UDB, these actions were ultimately overturned by the Florida Department of Community Affairs.

Environmental Considerations – The proposed roadway will traverse the Tamiami-Bird Canal Basin and may require environmental mitigation and coordination with plans being carried out as part of the Comprehensive Everglades Restoration Plan (CERP) and the South Miami Dade Watershed Study.

Governmental Coordination – The project will require close coordination and cooperation with Miami-Dade County, South Florida Water Management District (SFWMD), U.S. Army Corps of Engineers, and the South Florida Regional Planning Council among others.

Community Acceptance – There is potential for controversy due to the residential nature of some of the alternatives proposed as well as to the alignment that follows closely to the UDB.

3.4 Public Involvement

A Strategic Public Involvement Plan was prepared, and is included in the Appendix to the Concept Report. The plan identifies the activities that have been undertaken in order to fulfill MDX's desire to engage the public and affected agencies as early as possible and throughout the development of the SR 836 Southwest Extension project.

3.4.1 Identification Potential Issues

A Community Awareness Memorandum was prepared and distributed to all project staff. The memorandum, intended to serve as an internal working document, provided a brief background and description of the project, the project purpose and need, goals and benefits, potential controversial issues and discussion points. The purpose of the document was to provide early identification of sensitive community issues that may arise during project planning. This document can also be found in the Appendix.

3.4.2 Preparation of Initial Informational Document

The Community Awareness Memorandum was used as "talking points" in briefings with MDX Board members and elected officials and was the basis for the preparation of the Project Fact Sheet.

3.4.3 Briefings to MDX Members

As the Concept Report was initiated MDX Board Members were briefed individually as to the sensitivity and the breath of such a visionary project. This project was identified during the past MDX planning effort through Visioning Workshops conducted from 2001 to 2003, during first update to the MDX Master Transportation Plan. As part of MDX's participation in the County's MPO 2035 Long Range Transportation Plan (LRTP) process, MDX will once again request inclusion of the SR 836 Southwest Extension into the LRTP.

During the 2007-2008 efforts to update the MDX 2030 Master Transportation Plan, the MDX Board created a Blue Ribbon Committee that included other transportation agencies and providers as well as members of the MDX Board. This Blue Ribbon Committee evaluated all vision projects and identified priorities for MDX's Long Range Plan projects. The SR 836 Southwest Extension was identified as a priority project due to its potential for providing mobility within Miami-Dade County in a long range planning horizon.

3.4.4 Briefings with Elected Officials at the Local, State and Federal Level

Local and state elected officials representing the districts of the project study area were identified as part of the Governmental Affairs portion of the plan. All local and state district elected officials were briefed on a one-on-one basis to provide information of the proposed improvement, discuss potential controversy that had been identified, receive their input and guidance and make them aware of the initial outreach with the public to assure that their input was received and to make them aware of the MDX outreach efforts with the public.

The state and local elected officials contacted included district County Commissioners, MPO members, district State legislators, the County Mayor and the County Commission Transit Committee Chair as follows:

Miami-Dade County Mayor Carlos Alvarez

Miami-Dade County Board of County Commissioners Chairman Bruno Barreiro

Transit Committee Chairman Commissioner Dorrin Rolle, District 2

Commissioner Dennis Moss, District 9

Commissioner Katy Sorenson, District 8

Commissioner Jose "Pepe" Diaz, District 12

Commissioner Javier Souto, District 10

Commissioner Joe Martinez. District 11

Florida Representative Marcelo Llorente, District 116

Florida Representative Anitere Flores, District 114

Florida Representative Juan Carlos Zapata, District 119

Florida Representative Ron Saunders, District 120

Florida Representative David Rivera, District 112

Florida Senator Rudy Garcia, District 40

Florida Senator Alex Villalobos, District 38

Florida Senator Nan Rich, District 34

Miami-Dade County Assistant County Manager Ysela Llort

Other elected officials in the area such as the federal officials and the members of the Community Councils 10, 11, 12, 14 and 15 were notified as part of the notification of the Interagency Meeting and public presentations were scheduled as part of their non-zoning meetings. All other MPO representatives were briefed on the project as part of the on-going MDX long range planning vision projects. Please see the Appendix for details on the governmental briefings.

3.4.5 Interagency Coordination

A list of agencies having potential interest in the project was prepared following the FDOT's Efficient Transportation Decision Making (ETDM) listing. Additional local agencies, such as Team Metro were also included since they serve as staff to the Community Councils and serve as community liaisons for the County. The list can be found in the Public Involvement Plan included in the Appendix. A letter was sent inviting the agency representatives to become a participating agency during the Concept Report Phase. The package also included a fact sheet and a map showing the conceptual potential alignment. MDX received confirmation from those agencies that desired to become "participating agencies". A participating agency is one which may have an interest in the environmental review process for the project. Designation as a participating agency does not imply that an agency supports a proposed project or that it has any jurisdiction over, or special expertise with respect to evaluation of the project.

An Interagency Meeting was held at the William H. Lehman MDX Building on May 29th, 2008. The agenda covered the overview of the proposed project, the need and purpose, and the explanation of the Concept Report phase. The agenda, signup sheets, agency lists and any comment cards can be found in the Appendix section.

The purpose of the Interagency Meeting was to advise potential permitting and reviewing agencies of the project and receive input as to what issues may arise in future phases from a technical perspective.

3.4.6 Initial Key Stakeholders Identification and Outreach

Due to the fact that the study area is so extensive and that a large portion of the segments impacted by the potential alignments do not have actual residential development, a key list of stakeholders was identified that included organizations with a special interest in the area such as environmental organizations and active civic /homeowner association groups to so initial outreach and use it for future reference and outreach. Preliminary presentations were done to some of the key homeowners associations and federations representing the impacted or benefitted area. During a presentation to CANT (Citizens Against Non-Concurrent Traffic) a suggestion was made to hug the alignment of the project closer to the Urban Development Boundary Line. A representation of this suggestion has been included in Figure 3-1. This option may have more impacts on the environmental sensitive lands but the group feels it is important to keep as close to the existing UDB as possible.

A presentation was given to the MPO's Citizens Transportation Advisory Committee on July 25th, 2007 to gauge initial reaction to the project from groups that represents all the districts in Miami-Dade County. This was also the general intent of presenting to non-zoning meetings of the Community Councils in the study area.

Initial reactions and comments to the project can be generally summarized as follows:

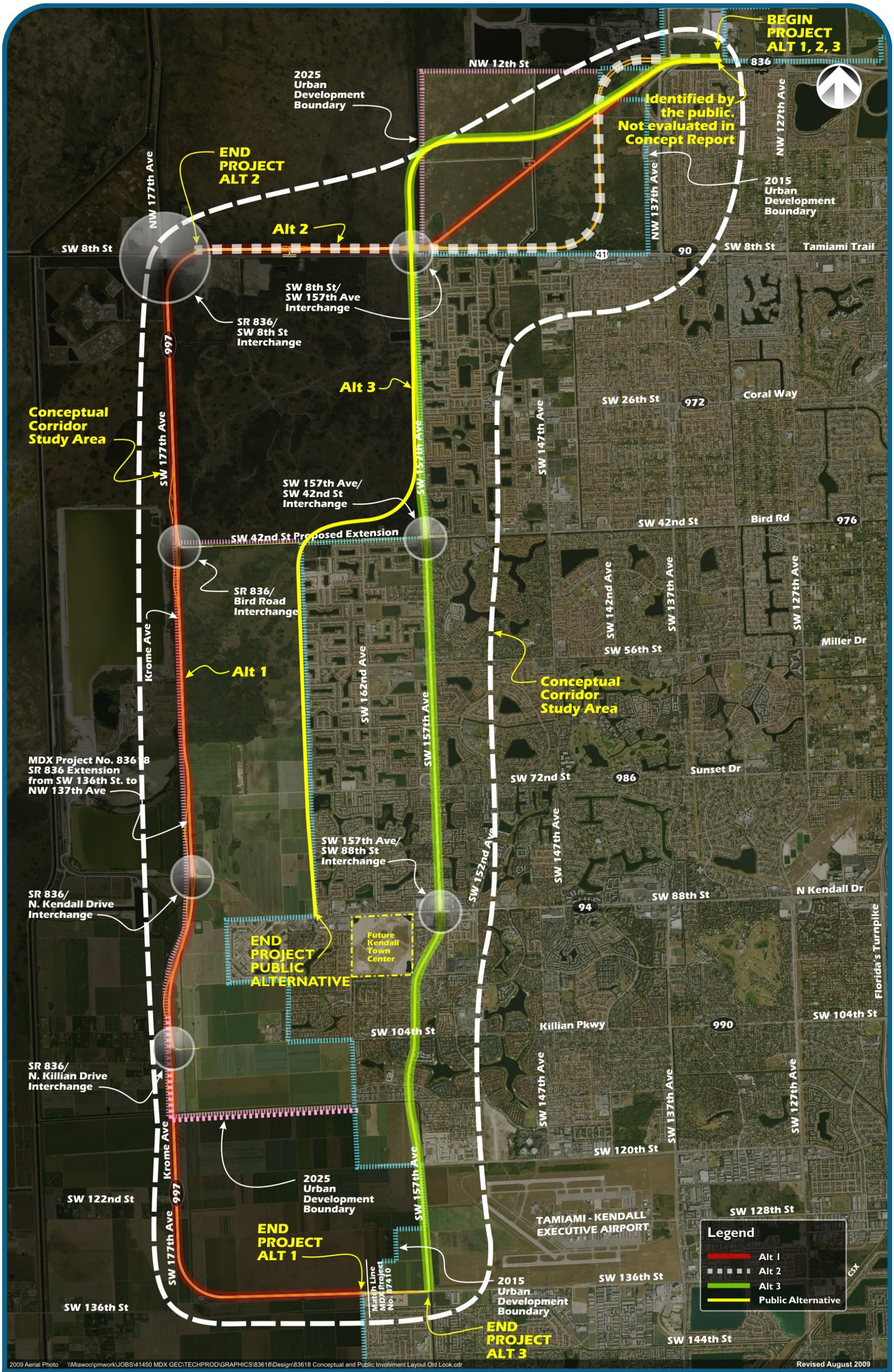
- Several Community Council members and residents of the West Kendall area expressed concerns with the 157th Avenue alternative due to expected major impacts to residential developed areas.
- In general, at all presentations to homeowner's associations meetings, there was acceptance and excitement of a project that would provide mobility to their much congested communities.
- Some individuals expressed concerns with the possibility of greater growth to the western fringe of Miami-Dade County
- A particular group suggested that we include for further study an alternative that would embrace or hug 2015 the Urban Development Boundary line and stop at Kendall Drive. S
- Questions were raised as to the need for widening of Krome given this future project and suggestions were expressed as to the possibility of connecting to Krome from SR 836 and SW 136 Street and using Krome as the north-south connector.

3.5 Needed Reports

Subsequent to the Concept Report, the PD&E study will be conducted in accordance with the current FDOT PD&E Manual and associated rules, policies, procedures and guidelines. Several specific critical design issues that may affect the range and viability of alternatives evaluated during the PD&E study were identified and are described in the following pages. These issues are discussed for information and should be considered during the development of the PD&E scope of services and consultant work plan.

3.6 Schedule

Relevant information from the Concept Report will be submitted to the MPO to substantiate inclusion of the project into the 2035 LRTP update. Once it is included in the LRTP, a PD&E Study will be conducted to ensure that the design of the project appropriately reflects and incorporates the unique engineering and community characteristics of the area. No funding has been identified to advance this project at this time.



SR 836 Southwest Extension Alignments by the Public
Fig. 3-1

MIAMI-DADE EXPRESSWAY AUTHORITY

Figure 3- 1 Alignments by the Public

SECTION - 4 EXISTING CONDITIONS

The following sections discuss the existing expressway system, the roadway network, railroads, structural characteristics, drainage, utilities, traffic data, planned and programmed improvements, and land uses for the SR 836 Southwest Extension study area. Analyses of these considerations will help define the ultimate project location in order to serve the mobility needs of the population.

4.1 Expressway System

The Miami-Dade Expressway Authority (MDX) manages five of the most heavily traveled expressways in Miami-Dade County: State Road 112 (Airport Expressway), SR 836 (Dolphin Expressway), SR 874 (Don Shula Expressway), SR 878 (Snapper Creek Expressway) and SR 924 (Gratigny Parkway) which covers more than 33.7 center-lane miles. Other Miami-Dade County expressways in the study area include Mainline Florida's Turnpike, HEFT, SR 826 (Palmetto Expressway), Interstate 75 and Interstate 95. Below is a detailed description of these facilities:

SR 112 (Airport Expressway) / Interstate 195 is a 4.1 mile long east-west toll expressway connecting Miami Beach to Miami International Airport. An eastbound toll plaza is located near NW 27th Avenue (SR 9) midway between MIA and I-195. SR 112 connects to I-95 on the east and to LeJeune Road (NW / SW 42nd Avenue), NW 36th Street (SR 948), and Okeechobee Road (US 27/SR 25) on the west. Interstate 195 is a short east-west spur route connecting Interstate 95 in the west with Miami Beach in the east via the Julia Tuttle Causeway.

SR 836 (Dolphin Expressway) / Interstate 395 is a 14 mile long major east-west toll expressway that connects NW 137th Avenue in western Miami-Dade County to the HEFT and to SR 826 (Palmetto Expressway). It continues east to I-95 where it becomes I-395 and extends east to US 1 (SR 5) in Miami and SR A1A in Miami Beach. SR 836 is one of Miami-Dade County's most important east-west transportation corridors that provides vital access to some of the County's most important economic and employment drivers such as MIA, Blue Lagoon Business Park, the Civic Center area (Jackson Memorial and University of Miami), downtown Miami and the Port of Miami.

SR 836 is tolled in the eastbound direction with the toll plaza located west of the NW 17th Avenue interchange. The toll plaza includes two Electronic Toll Collection (ETC) lanes for SunPass lanes and six conventional toll lanes. A new bi-directional toll plaza facility has been constructed on SR 836, slightly west of NW 97th Avenue. The new toll plaza features state-of-the-art technology using the Open Road Tolling (ORT) system with electronic toll collection.

SR 874 (Don Shula Expressway) is a 7.2 mile long north-south toll expressway which is a diagonal route from the HEFT northeast to SR 826 / Palmetto Expressway. It provides motorists a route from the HEFT, South Dade, and Homestead to the Palmetto Expressway. The entire expressway follows the South Florida Rail Corridor (SFRC). SR 874 provides a vital connection to and from southwest Miami-Dade County which is the fastest growing area of the County.

SR 878 (Snapper Creek Expressway) is a 3.0 mile long east-west expressway connecting SR 874 and US-1 (SR 5 / South Dixie Highway). SR 878 provides local access in Kendall via a westbound exit and eastbound entrance at SW 88th Street / Kendall Drive and to South Miami via a full interchange at SW 87th Avenue and an eastbound exit and westbound entrance at SW 72nd Avenue. The road crosses over SR 826 (Palmetto Expressway) without an interchange connection to it.

SR 924 (Gratigny Parkway) is a 5.4 mile long east-west limited access toll expressway connecting Interstate 75 and the Palmetto Expressway (SR 826) and SR 909 (West Dixie Highway). The westernmost 5 miles (west of NW 32nd Avenue) is named the Gratigny Parkway. The easternmost three miles is a surface street (NW 119th Street) also known as Gratigny Road.

SR 821 (HEFT) is a southern extension of the tolled Florida's Turnpike, running around the north and west sides of Miami to end at Florida City (near Homestead). It was built in 1974, after the main line of the Turnpike was completed, and is used by both commuters and travelers to the Florida Keys and Everglades. Due to its path, it acts as a partial outer beltway for Miami. Major access points for the HEFT are SR 874, SR 836 and I-75 in Miami-Dade County. The on and off ramps on the Turnpike at the interchanges within the study limits are tolled for traffic to and from the north. A mainline plaza located between Kendall Drive and SW 40th Street collects tolls in both directions.

SR 826 (Palmetto Expressway) is a major north-south facility that connects SR 874 (Don Shula Expressway) in the south to I-75 in north Miami-Dade County. It also extends east from I-75 and terminates at I-95, serving as a connection between several other major facilities. State Road 826 is a bypass route around the greater Miami area, extending 24.4 miles from North Miami Beach along Northeast 163rd Street into the Golden Glades Interchange, then becoming the Palmetto Expressway as it extends westward toward Miami Lakes before bending southward to serve Hialeah, Hialeah Gardens, Doral, West Miami, South Miami, and Kendall on its way to its southern terminus at U.S. Route 1 (SR 5) in Pinecrest.

Interstate 75 connects with the Sawgrass Expressway (SR 869) and I-595, and then turns south into Miami-Dade County between NW 97th and NW 87th Avenues and extends south to NW 138th Street. The interstate then extends east and terminates in Hialeah at its junction with SR 826 (Palmetto Expressway) and SR 924 (Gratigny Parkway). From here, motorists may use SR 826 to reach MIA and SR 836 which is the most direct route from the west into downtown Miami and to Miami Beach.

SR 9A / I-95 is the major north-south expressway in the Miami metropolitan area. Approaching the city from the north along the Atlantic coastline, I-95 has six to eight lanes as it connects West Palm Beach, Boca Raton, Fort Lauderdale, Hollywood, and Miami. I-95 enters Miami-Dade County between NE 15th and NE 20th Avenues, extending south to downtown Miami. Once within downtown Miami, Interstate 95 connects to several spur routes to various destinations within the city, including two Interstates, Interstate 195 and Interstate 395, and one long freeway ramp (Florida 970). I-95 ends at its last junction with US-1, and the heavy traffic continues along US-1 (the

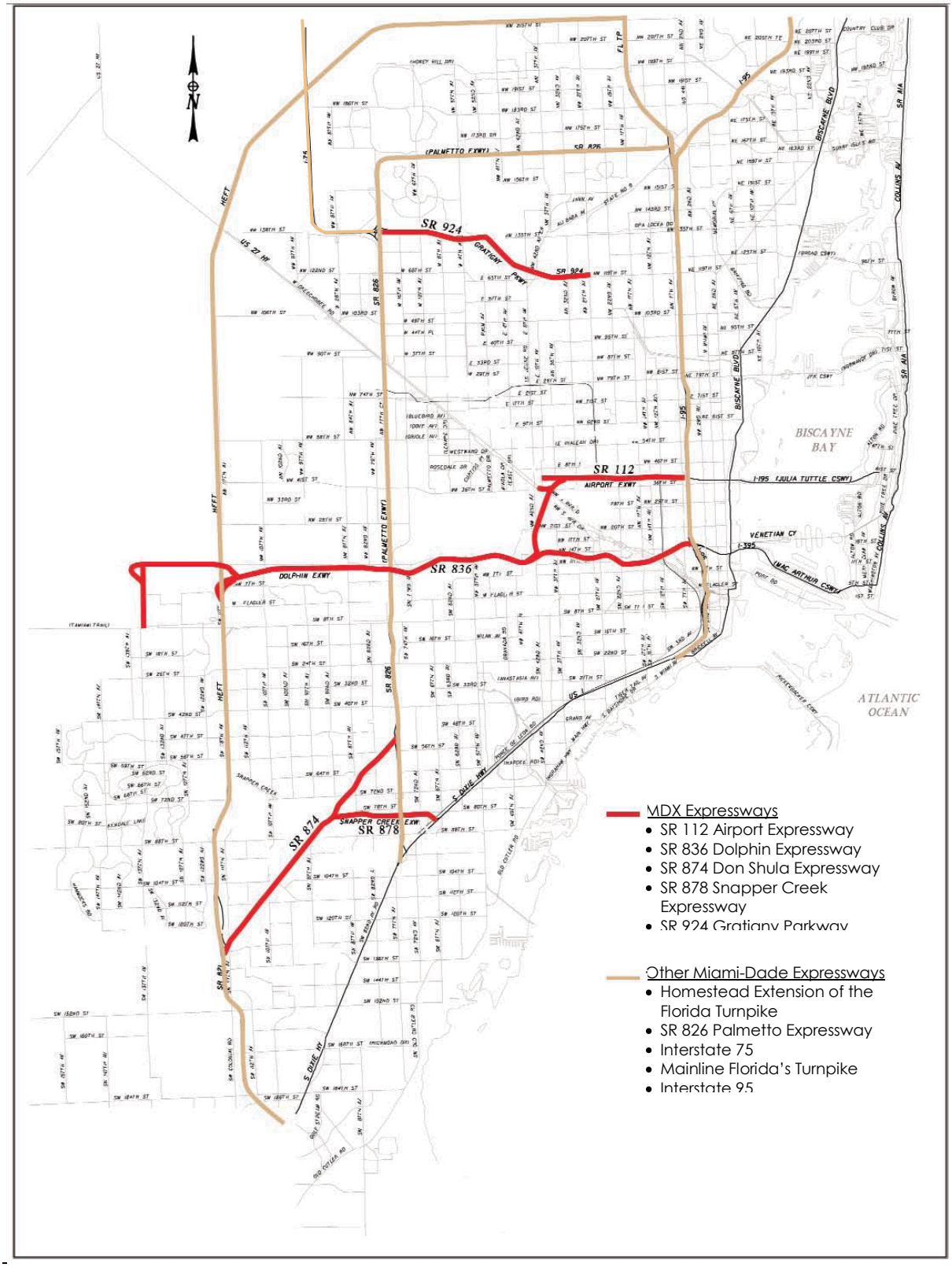
Dixie Highway) towards Coral Gables, Homestead, and the Florida Keys. I-95 also has a major connection point with SR 836. Projects on I-95 include conversion of existing HOV lanes to HOV/HOT lanes from Ives Dairy Road south to SR 112. This project will provide additional capacity to I-95 in Miami-Dade County.

Main access to expressways from the West Kendall area is provided by the HEFT via SW 88th Street (Kendall Drive), SW 40th Street (Bird Road), and SW 8th Street (Tamiami Trail). Additional access to the regional expressway system is provided by SR 874 (Don Shula Expressway) via SW 104th Street (Killian Parkway). Other arterials providing access to the expressways, including SW 152nd Street and SW 120th Street to the HEFT, are currently heavily congested.

The SR 836 Southwest Extension could provide a vital link to the entire expressway system thereby improving mobility and accessibility throughout the County. Currently, none of these expressway systems adequately serve the West Kendall area.

Figure 4-1 illustrates the interconnection among all of the facilities described above.

Figure 4- 1 Expressway System Map



4.2 Roadway Characteristics

SR 836, locally known as the Dolphin Expressway, is a Class 1.2 facility based on the Florida Access Management Rule 14-97 for the State Highway System and Standards. This classification refers to Limited Access Highways within Existing Urban Area excluding Central Business District (CBD) and CBD Fringe for cities in urbanized areas. These highways do not provide direct property connections, allow for one interchange every two miles, and are assumed to provide for efficient and safe high speed and high volume traffic movements. SR 836, within the segment under study, has an interchange approximately every mile. East of the HEFT, SR 836 consists of three mainline lanes in each direction. A fourth lane is added in the westbound direction as an auxiliary lane between NW 87th and NW 107th Avenue. In the eastbound direction, the third mainline lane is added from the HEFT southbound on-ramp. The movement from SR 836 westbound to SW 8th Street is tolled. The posted speed limit along SR 836 is 55 mph. These access management considerations may be implemented along a new extension of SR 836. However, due to the sensitive nature of the surrounding area, adjustments may need to be made including the distance between interchanges and the type of interchanges that are built.

4.2.1 Typical Sections

The existing typical section for SR 836 newly constructed extension to NW 137th Avenue is a four lane divided typical. See **Figures 4-2** and **4-3**. Alignment alternatives will consider these typical sections for the future extension.

Figure 4- 2 4-Lane Typical Section – At Grade

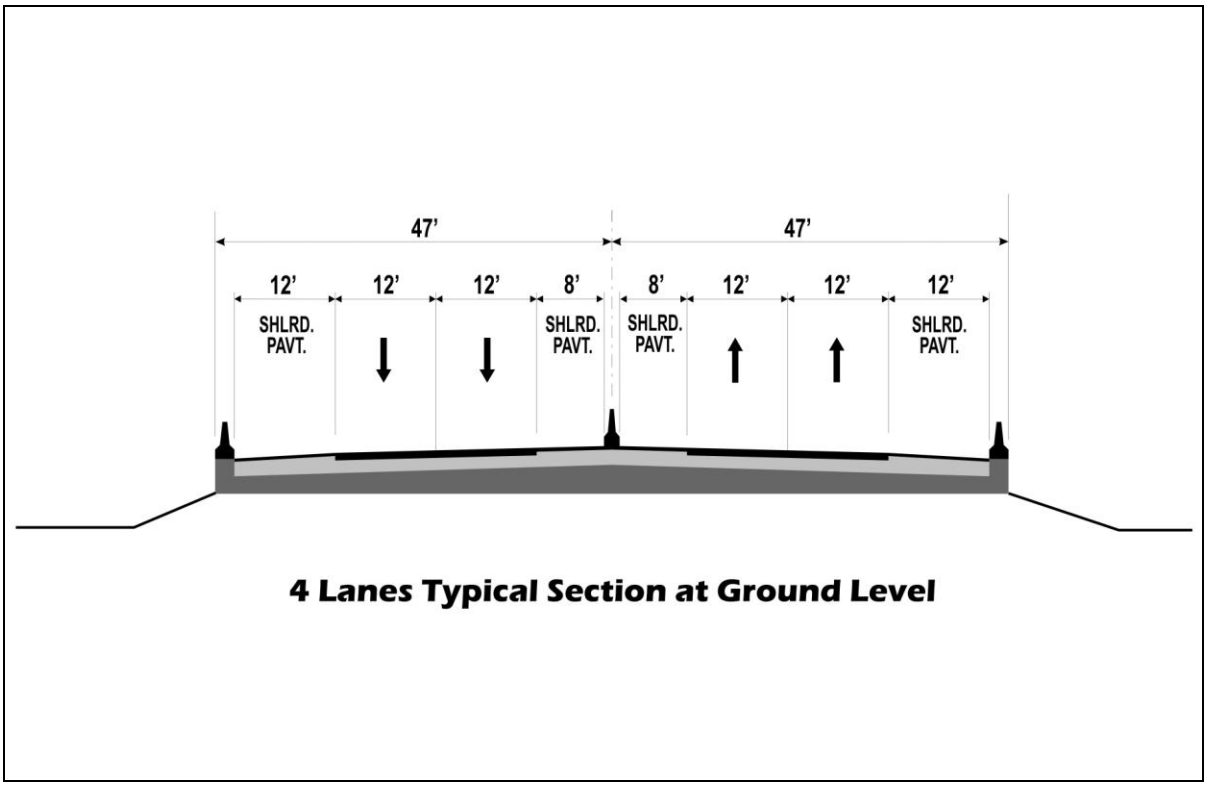
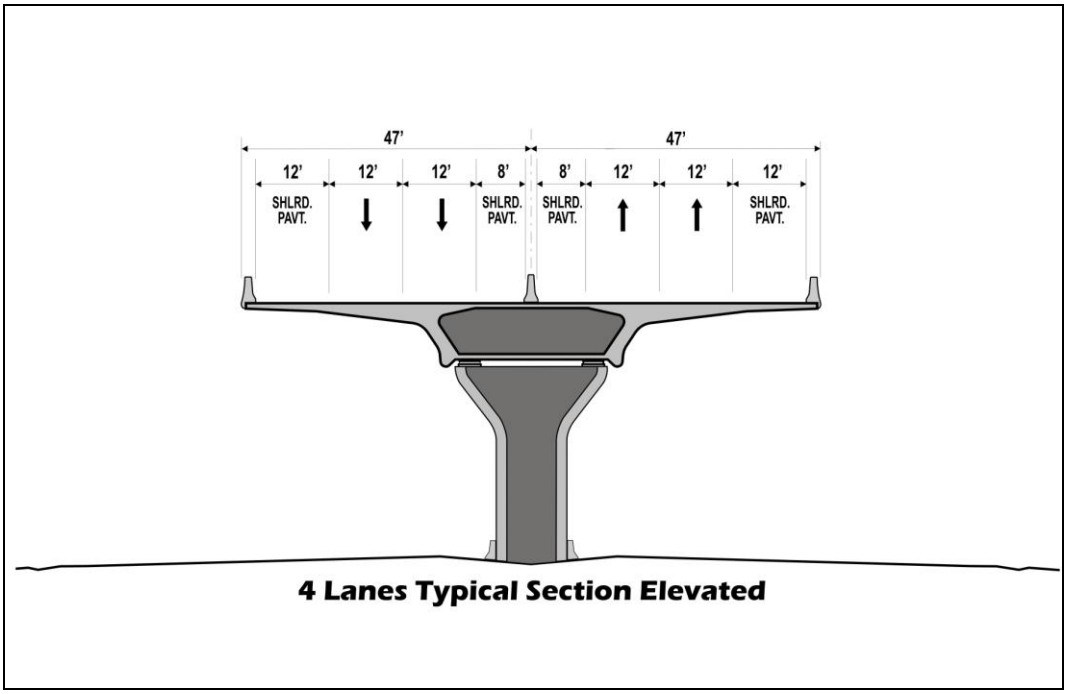


Figure 4- 3 4-Lane Typical Section – Elevated



4.2.2 Right-of-Way

The alternatives to be considered are various within the study area and several may require right-of-way acquisition. MDX does not own any right-of-way along the study area corridors.

4.3 Roadway Network

A street grid stretches from downtown Miami throughout the county. The grid is laid out with Miami Avenue as the base avenue in the north-south direction and Flagler Street as the base street in the east-west direction. The grid is primarily numerical so that, for example, all street addresses south of Flagler and west of Miami Avenue have SW in their address (e.g., SW 8th Street). Because its point of origin is in downtown Miami, which is close to the coast, the NW and SW quadrants are much larger than the SE and NE quadrants. Many roads, especially major ones, are also named, although- with a few notable exceptions (e.g., SW 88th Street / Kendall Drive).

The following describe the characteristics of the various roadways providing access to the land uses within the study area. Some of these roadways would interconnect with a future extension of SR 836.

4.3.1 East-West Arterials

NW 12th Street is an east-west four-lane undivided arterial that turns into a two-lane arterial west of NW 137th Avenue and continues for less than a mile to where it ends. Drainage for the area is a grass-lined ditch on the south side. There is one signalized intersection with NW 137th Avenue. There is limited access right of way for the stretch of NW 12th Street due to a fence that is on both sides of the arterial.

SW 8th Street / Tamiami Trail / US 41 is a major east-west controlled access divided arterial. This street continues through Miami-Dade County into Collier County, located on the west coast of Florida. Southwest 8th Street is a six-lane divided arterial east of SW 157th Avenue. The number of lanes is reduced to four between SW 157th Avenue and SW 177th Avenue. Southwest 8th Street offers a full interchange with the HEFT. There is a direct connection to SR 836 via a tolled ramp from the HEFT. The ramps connecting SW 8th Street to the HEFT to and from the south are not tolled. Throughout SW 8th Street the drainage in use is a standard curb and gutter with drain inlets. Both sides of SW 8th Street have restrictions. On the north side, the C-4 (Tamiami Canal) runs parallel to the arterial, and on the south side businesses and residential housing exist. The posted speed limit on SW 8th Street is 45 mph east of SW 157th Avenue and 55 mph from SW 177th Avenue to SW 157th Avenue.

SW 26th Street / Coral Way is an east-west access-controlled four-lane divided arterial that extends west to SW 157th Avenue. Southwest 26th Street from SW 137th Avenue west to SW 157th Avenue is primarily a residential area, which may hinder any future widening. The drainage is curb and gutter with drain inlets that run throughout the study area. Landscaping on SW 26th Street is palm trees that are located in the median. There are no shoulders. The posted speed limit is 40 mph.

SW 40th Street / Bird Road is an east-west access-controlled four-lane divided arterial that currently terminates at SW 157th Avenue. Southwest 40th Street has a full interchange with the HEFT. The ramps connecting SW 40th Street to the Turnpike to and from the south are not tolled. SW 40th Street within the study area is mostly a residential area with businesses scattered throughout. To the south side of SW 40th Street is a canal that runs parallel. Both of these factors make widening SW 40th Street a challenge. West of SW 149th Avenue, SW 40th Street becomes a two-lane arterial and after roughly 1000 feet it returns to four-lane divided arterial. Landscaping for the area is palm trees that run in the median. The drainage that is in place is curb and gutter with drain inlets. The posted speed limit on SW 40th Street is 40 mph.

SW 56th Street / Miller Road is an east-west four-lane divided arterial that extends west to SW 167th Avenue. Currently there are widening projects that are in progress in the area of SW 137th Avenue west to SW 167th Avenue. The intersection of SW 152nd Avenue is two-lanes but construction is in progress at this location to expand it to a four-lane intersection. Drainage for the area of SW 56th Street from SW 137th Avenue to SW 167th Avenue is curb and gutter with drain inlets. The posted speed limit on SW 56th Avenue is 40 mph.

SW 72nd Street / Sunset Drive is an east-west four-lane divided arterial that extends west to SW 167th Avenue. Currently there are widening projects that are in progress in the area of SW 137th Avenue west to SW 167th Avenue. A school zone is located east of SW 162nd Avenue to 163rd Avenue. Drainage for the area of SW 72nd Street from SW 137th Avenue to SW 167th Avenue is curb and gutter with drain inlets. The posted speed limit on SW 72nd Avenue is 40 mph.

SW 88th Street / Kendall Drive is an east-west six-lane divided arterial with a posted speed of 45 mph within the study limits and 50 mph west to SW 177th Avenue. Kendall Drive is one of the most traveled arterials in Southwest Miami-Dade County as it provides access to numerous commercial and residential land uses and to major expressways such as the HEFT, SR 874, and SR 826. The number of lanes on Kendall Drive reduces to four west of SW 167th Avenue. Kendall Drive currently terminates at SW 177th Avenue. A school zone is located at SW 152nd Avenue. The median of Kendall Drive has palm trees that account for the landscaping of the arterial.

SW 104th Street / Killian Parkway is a six-lane divided roadway between SR 874 and SW 137th Avenue. The number of lanes on Killian Parkway reduces to four and the posted speed limit is 40 mph. Killian Parkway runs in an east-west direction and provides access to residential, educational and light commercial land uses. The Miami-Dade College (MDC) Kendall Campus is located just west of SR 874 on the north side of the arterial between SW 113th Court and SW 108th Avenue. A school zone is located just west of SW 167th Avenue. Drainage for the arterial is curb and gutter with inlets. Palm trees are planted along SW 104th Street in the median for landscaping.

SW 120th Street is an east-west four-lane divided arterial that terminates at SW 147th Avenue. The posted speed limit for SW 120th Street is 40 mph between SW 137th Avenue and SW 147th Avenue. The Kendall-Tamiami Executive Airport is located to the south side of the arterial. Standard curb and gutter with inlets are used for the drainage. Palm trees are used for landscaping that run in the median.

SW 152nd Street / Coral Reef Drive is an east-west two to four-lane undivided arterial that terminates at SW 162nd Avenue. West of SW 147th Avenue, SW 152nd Street converts in to a 2-lane arterial. Landscaping consists of palm trees on both sides of SW 152nd Street with curb and gutter with inlets for drainage. The posted speed limit for SW 152nd Street is 40 mph. There is a bridge that is located near SW 144th Court.

Many of these east-west arterials experience heavy congestion eastward since they are used to access north-south facilities. The characteristic of the roadway is important in determining the possibilities for new interchanges with a potential Southwest Extension of SR 836. Roads that have greater capacity to handle traffic would most likely have interchange locations.

4.3.2 North-South Arterials

SW 137th Avenue is a six-lane divided arterial between NW 12th Street to SW 8th Street and a four-lane divided arterial south of SW 8th Street. At Coral Way, SW 137th Avenue returns to a six-lane divided arterial until it reaches Miller Road where it converts to a four-lane divided arterial. Once past Kendall Drive, SW 137th Avenue changes back to a six-lane divided arterial. Southwest 137th Avenue runs in a north-south direction and provides access to mostly residential, commercial and industrial land uses, including the Kendall-Tamiami Executive Airport located between SW 136th Street and SW 120th Street. Southwest 137th Avenue currently terminates at NW 12th Street. There is a railroad crossing before Country Walk (SW 146th Street). Locally known as Lindgren Road, the six-lane divided highway is mainly used for commuting between South Miami

Heights, Country Walk, and West Kendall. The posted speed on the arterial is 40 mph from NW 12th Street to SW 8th Street and 35 mph south of SW 8th Street.

SW 147th Avenue is a four-lane arterial that has widening and expansion in progress in locations where two-lanes are present. Currently SW 147th Avenue begins at SW 8th Street and ends at SW 15th Street and continues south just north of Coral Way. A school zone is located just south of the intersection of Coral Way and SW 147th Avenue. Southwest 147th Avenue ends at Kendall-Tamiami Executive Airport. Drainage and landscaping are consistent with the surrounding area with curb and gutter with inlets and palm trees along in the median. The posted speed limit for SW 147th Avenue is 40 mph south of Coral Way.

SW 157th Avenue is a four-lane divided arterial that has construction in progress. There are many breaks along SW 157th Avenue but the construction taking place will connect some of the areas. The posted speed limit for SW 157th Avenue is 30 mph north of SW 80th Street and 35 mph south of SW 80th Street. There are three school zones located on SW 157th Avenue within the study area. They are located at SW 80th Street, SW 96th Street and SW 112th Street. Southwest 157th Avenue is mostly a residential area with few businesses. The drainage is curb and gutter with inlets. Palm trees line the median for landscaping.

SW 162nd Avenue is an undivided arterial that begins at Bird Road and continues south to Kendall Drive. Beginning at Bird Road south to SW 47th Street, SW 162nd Avenue is four-lanes. Southwest 162nd Avenue changes to a two-lane arterial south of SW 47th Avenue then returns to a four-lane arterial south of SW 52nd Street. The posted speed limit for SW 162nd Avenue is 35 mph until Sunset Drive. South of Sunset Drive the posted speed limit increases to 40 mph. Southwest 162nd Avenue is surrounded by a residential area. There is a school zone that is located at SW 69th Terrace and SW 162nd Avenue.

SW 167th Avenue is a north-south divided arterial that runs through a residential area. Southwest 167th Avenue begins at SW 47th Street and ends at SW 104th Street. Interchanging between two and four-lanes, SW 167th Avenue is not continuous; breaking at certain intersections. Landscaping for the area includes trees that line the median and curb and gutter with inlets that are used for drainage.

SR 997 / SW 177th Avenue / Krome Avenue is classified as a two-lane undivided rural principal arterial. SW 177th Avenue runs in a north-south direction and provides limited access to sparse industrial land uses and the Krome Immigration and Naturalization Detention Center located between Kendall Drive and Tamiami Trail. The Miccosukee Resort and Gaming Casino is located on Krome Avenue, just north of Tamiami Trail. Krome Avenue is located on the westernmost side of Miami-Dade County on the edge of the 2025 Urban Expansion Boundary Line. Its southern terminus is at US 1 just south of Florida City. From this point it travels north through the cities of Florida City and Homestead as Southwest 177th Avenue until it crosses SW 8th Street (US 41/Tamiami Trail), after which it loses its grid number and direction, becoming just Krome Avenue or State Road 997 and has no other access to the street grid until it veers northeast and terminates at West Okeechobee Road (U.S. Route 27). There is a railroad crossing south

of Kendall Drive. The posted speed limit on Krome Avenue within the study area is 50 mph.

As evidenced by these descriptions, there are few north-south facilities that are continuous and provide the needed north-south mobility. Opportunities for expansion of most of these facilities are limited due to the nature of the adjacent existing land uses. For example, the large land uses of Miami Metrozoo, Kendall-Tamiami Airport and large water bodies act as obstacles to building new or expanded north-south facilities.

4.4 Railroads

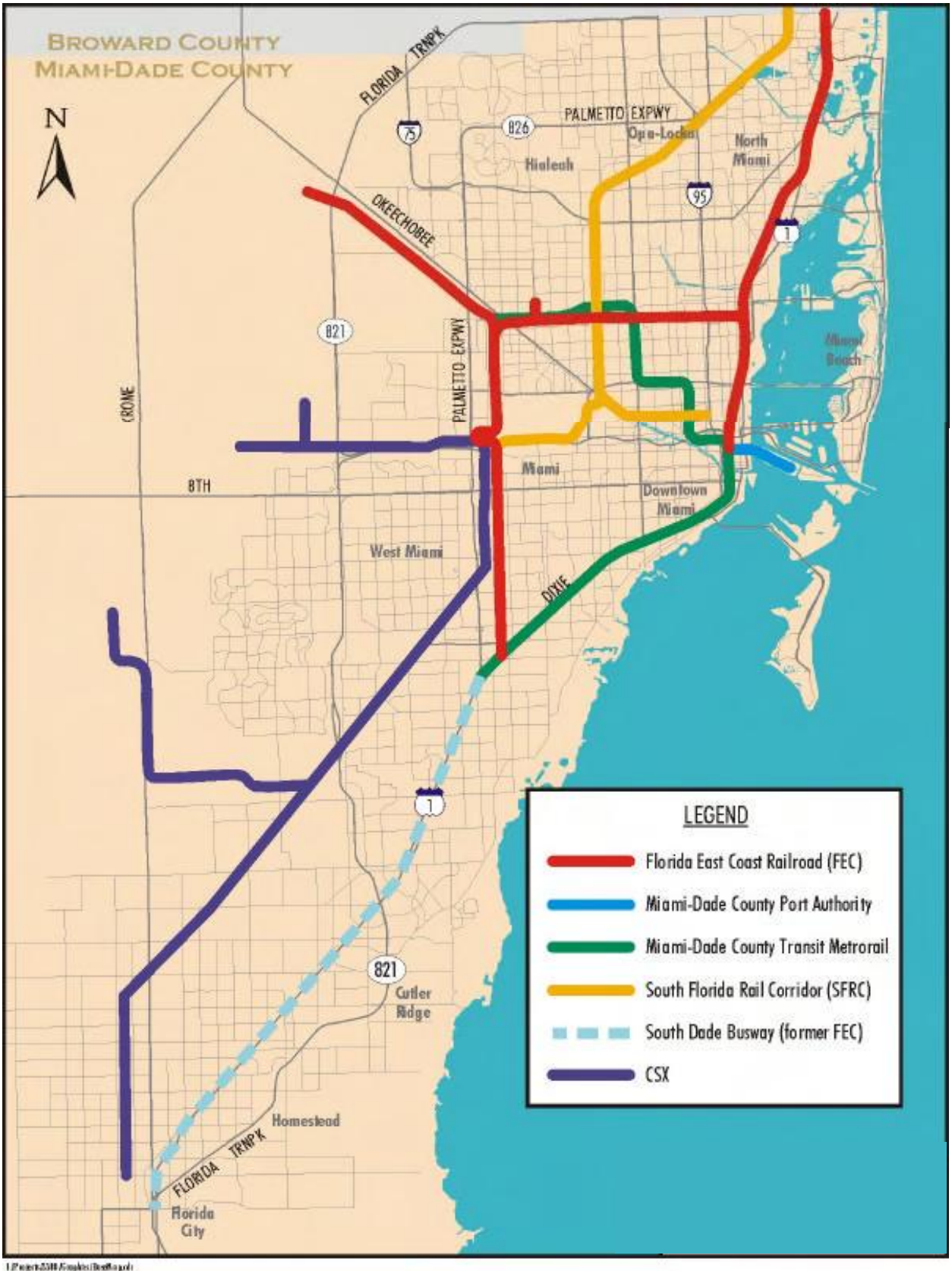
Existing railroad facilities are found in the vicinity of the intersection of NW 12th Street and NW 137th Avenue and along the southern portion of SW 177th Avenue. These railroad facilities are owned, operated, and maintained by CSX Transportation Inc (CSX). The railroad facility running east-west located just north of NW 12th Street could be affected by all three alternatives, depending on the connection point to the existing SR-836 Dolphin Expressway. The railroad facility running north-south on the east side of NW 177th Avenue could be affected by Alternative 1 if the roadway were to run parallel to NW 177th Avenue where it jogs to the west just south of NW 88th Street. This route may require that the roadway cross the railroad twice, once just south of NW 88th Street and then again just north of NW 136th Street. However, crossing impacts could be avoided by situating the roadway route just to the east of the railroad property. **Figure 4-4** presents the existing rail corridors in the County. Also identified is the South Dade Busway, which operates in a former Florida East Coast Railway (FEC)-owned rail corridor.

Within the study area there are two CSX rail spurs: the LeHigh Spur and the Portland Spur. The first segment of the CSX is an eight-mile length of track known as the Lehigh Spur running from the Oleander Junction west to NW 145th Avenue (extended). This single line track parallels SR 836 and is an active freight line. The second section is an 11-mile segment of CSX track known as the Portland Spur that extends westerly from the Homestead Subdivision via a wye, a triangular shaped arrangement of tracks with a switch at each corner, located at SW 144th Street. A single track runs to Krome Avenue where it turns north and terminates at SW 58th Street. Two rock trains a day serve the Rinker Plant at the terminus of this spur.

The following is a list of CSX at-grade railroad crossings along the various road corridors in study area:

- SW 137th Avenue half a mile north of SW 152nd Street (Crossing # 631097R)
- SW 132nd Court between SW 143rd Terrace and SW 144th Terrace (Crossing #'s 639870V and 639869B)
- SW 152nd Street at approximately SW 133rd Avenue (Crossing # 631121P)

For safety reasons, CSX Transportation Inc. strongly discourages installation of new at-grade crossings along their rail network. Therefore, the proposed limited access highway should be designed such that it crosses the existing railroads aerially. An aerial crossing would require a minimum vertical clearance of 23 feet and 6 inches above the top of rail, as well as processing a Right of Entry permit and a fully executed CSX Agreement.


BROWARD COUNTY
MIAMI-DADE COUNTY
N
FLORIDA TRNPK
75
826
PALMETTO EXPWY
Opa-Locka
Hialeah
North Miami
95
OKEECHOBEE
1
821
PALMETTO EXPWY
CROWE
Miami Beach
8TH
Miami
Downtown Miami
West Miami
DIXIE
1
821
Cutler Ridge
Homestead
FLORIDA TRNPK
Florida City
LEGEND
Florida East Coast Railroad (FEC)
Miami-Dade County Port Authority
Miami-Dade County Transit Metrorail
South Florida Rail Corridor (SFRC)
South Dade Busway (former FEC)
CSX

4.5 Structural Characteristics

Existing bridge structures are part of the recent SR 836 West Extension that ends at NW 137th Avenue. There are a total of three new bridges at this location. The first structure, bridge 871007, provides for two lanes of eastbound movement and spans over NW 12th Street and CSX R/R. This is a three-span structure consisting of two curved steel box girders supported on concrete piers. The second structure, bridge 871008, provides for one lane of eastbound movement over NW 137th Avenue, NW 12th Street and CSX R/R. This is a four-span structure consisting of two curved steel box girders supported on concrete piers. The third structure, bridge 871009, provides for three lanes of westbound movement over NW 137th Avenue, NW 12th Street and CSX R/R. This is a three span structure consisting of three curved steel box girders supported on concrete piers. None of these structures will be impacted as part of the alternative alignments for the proposed SR 836 Southwest Extension.

4.6 Drainage and Permitting

A number of Pilot Projects are under study for the Tamiami-Bird Canal Basin area. These include SFWMD Pilot Project for waste-water re-use. Within the CERP, portions of the area are contemplated as the Bird Drive Deep Recharge Area and the Bird Drive Shallow Recharge Area. Additionally, this area will form part of the South Miami Dade County Watershed Study to be administered by the South Florida Regional Planning Council (SFRPC). The Tamiami-Bird Canal Basin will require special considerations for roadway construction and may include additional mitigation measures for this area to be able to construct a major roadway and transit improvements.

The project is to be permitted and the drainage facilities are to be designed for the recommended alternative. During the subsequent PD&E study, a conceptual drainage analysis in accordance with the adopted PD&E Manual will need to be completed. Drainage facilities should be proposed and located within the existing right-of-way if at all possible.

Coordination with the SFWMD and the appropriate permitting agencies should be initiated during the PD&E study while the conceptual drainage analysis is being performed.

4.7 Utilities

A preliminary investigation of the existing utilities in the study area has been conducted. General information concerning the utility facility owner, type of facility, and its approximate location has been collected for the study area.

Each of the alternative project corridors has been analyzed to determine the presence of existing utilities. Many of the areas considered for the project corridors are virtually undeveloped; however, this does not indicate that utilities are non-existent. Nevertheless, utilities in general are either located within existing road right-of-way or within a specifically designated utility easement. In addition, it is safe to assume more utilities exist in more densely populated areas.

The results of the Sunshine State One Call of Florida (SSOCOF) query yielded eleven (11) Utility Facility Owners among the various alternative project corridors. The types of utilities encountered include communications, cable, gas, electric, traffic signalization, water, and sanitary sewer. Thus far, storm sewer drainage has not been located in the study area but can be expected on streets in the more densely populated areas. **Table 4-1**, Utility Facility Owners lists the owners and a point of contact for each.

It is important to note that not all eleven utility facility owners have existing utilities in every design ticket area for each alternative. **Table 4-2**, Utility Facility Owner Utilities per Design Ticket Area indicates the design ticket areas in which each of the utility facility owners has reported existing utility facilities.

Table 4- 1 Utility Facility Owner Contact Information

UTILITY FACILITY OWNER	ADDRESS	CONTACT NAME(S)	PHONE NUMBER(S)	FAX NUMBER(S)	E-MAIL
AT&T COMM - NORTH	2315 SALEM ROAD, 1ST FLOOR-AID CONYERS, GA 30013	NANCY SPENCE GREG JACOBSON STEVE ERIKSSON	770-918-5424 (NS) 813-342-0512 (GJ) 407-578-8000 (SE)	770-785-3125	gtjacobson@att.com seriksson@pea-inc.net
AT&T of FLORIDA (Formerly BELLSOUTH)	9101 SW 24 ST. MIAMI, FL 33165	STEVEN B. MASSIE	305-222-8745	305-221-7652	sm4788@att.com
COMCAST CABLE	2501 SW 145 AVE MIRAMAR, FL 33027	THOMAS CARROLL LEONARD MAXWELL RICHARD THOMAS	954-534-7417 (TC) 954-534-7380 (LM) 954-534-7489 (RT)	954-534-7083 954-534-7039	leonard_maxwell-newbold@cable.comcast.com
FLORIDA CITY GAS	933 E. 25 ST. HIALEAH, FL 33013	ALAN WILLIAMS DEXTER PINKNEY	305-694-6870 (AW) 305-796-5706 (DP)	305-696-7077	AlWillia@aglresouces.com dpinkney@aglresources.com
FLORIDA GAS TRANSMISSION CO.	601 S. LAKE DESTINY RD, SUITE 450 MAITLAND, FL 32794	JOSEPH E. SANCHEZ	407-838-7171	407-838-7101	joseph.e.sanchez@sug.com
FLORIDA POWER AND LIGHT	10705 QUAIL ROOST DRIVE MIAMI, FL 33157	TRACY STERN	305-442-5966	305-442-5975	tracy_stern@fpl.com
FPL FIBERNET	9250 W. FLAGLER ST. MIAMI, FL 33174	NOEL REESE	305-552-3249	305-552-2411	noel_reese@fpl.com
MIAMI-DADE COUNTY PUBLIC WORKS DEPARTMENT (PWD)	7100 NW 36 ST MIAMI FL, 33166	OSCAR RUBIO AURELIO DEL VALLE	305-592-8925 EXT.250 (OR) 305-592-8925 EXT.258 (ADV)	305-477-6422	aurelio2@miamidade.gov
MIAMI-DADE COUNTY WATER AND SEWER DEPARTMENT (WASD)	3575 S. LEJUNE RD. MIAMI, FL 33146	PHILLIP TORRES MANNY MARTINEZ MARIA CAPOTE	786-268-5333 (PT) 786-268-5349 (MM) 786-268-5329 (MC)	305-669-7769	manmark@miamidade.gov mcapot@miamidade.gov
QWEST COMMUNICATIONS	700 WEST MINERAL AVENUE NE J31.2 LITTLETON, CO 80120	KIM JORDAN GEORGE MCELVAIN	1-800-283-4237 303-837-3926 (GM)	303-992-0221 303-707-3049	george.mcelvain@qwest.com
WEEKS BOTTLEGAS & APPLIANCE	2828 NW 17 AVE MIAMI, FL 33142	MARIBEL ESPOSITO JIM HODSON	305-635-4427 (ME) 305-986-4296 (JH)	305-663-7150 305-986-4296	mari@weeksgas.com

Table 4- 2 Utility Facility Owner Utilities per Design Ticket Area

UTILITY NAME	UTILITIES FOUND IN AREA / UNDER DESIGN TICKET #							
	Area:	A	B	C	D	E	F	G
	Ticket No.:	166701407	157707179	157707267	157707343	157707395	157707473	157707563
AT&T COMM - NORTH			X	X	X	X		
AT&T of FLORIDA (Formerly BELLSOUTH)		X	X	X	X	X	X	X
COMCAST CABLE		X	X	X	X	X	X	X
FLORIDA CITY GAS		X	X	X	X		X	X
FLORIDA GAS TRANSMISSION CO.		X	X	X				
FLORIDA POWER AND LIGHT		X	X	X	X	X	X	X
FPL FIBERNET			X	X		X	X	
MIAMI-DADE COUNTY PUBLIC WORKS DEPARTMENT (PWD)		X	X	X	X	X	X	X
MIAMI-DADE COUNTY WATER AND SEWER DEPARTMENT (WASD)		X	X	X	X	X	X	X
QWEST COMMUNICATIONS		X	X	X	X	X		
WEEKS BOTTLEGAS & APPLIANCE			X	X				

Note: The red "X" indicates the presence of utilities owned by each utility company in each design ticket area.

4.8 Traffic Data

The FDOT's Transportation Statistics Office reports Annual Average Daily Traffic (AADT) by County for every existing segment of Florida's State Highway System. This report was used to gather existing traffic data within the study area. Annual Average Daily Traffic (AADT) is the total volume of traffic on a highway segment for one year, divided by the number of days in the year. Both directions of traffic volumes are reported as well as total two-way volumes. K Factor (K) is a factor used for design and analyzes traffic flow on highways. Unless otherwise stated, it is the proportion of Annual Average Daily Traffic (AADT) occurring in the 30th highest hour of the year. K factors can only be calculated at continuous count stations that have a full year of data. D Factor (D) is the directional distribution factor. It is the proportion of traffic traveling in the peak direction during a selected hour, usually expressed as a percentage. T Factor (T) is the percentage of truck traffic in the AADT.

Actual AADT, K, D, and T data are collected from permanent, continuous counters. AADT, K, D and T are *estimated* for all other locations using portable counters. The information collected from Traffic Adjustment Data Sources is used to determine the traffic adjustment factors: Axle Correction Factors, Percent Trucks, and Seasonal Volume Factors. These adjustment factors are applied to short-term traffic counts taken by portable axle and vehicle counters to estimate AADT, K, D, and T for every section break of the State Highway System.

Below are the AADT within Miami-Dade County for the roadways within the study area. The information verifies that some of the east-west arterial roadways in the area such as SW 8th Street, Kendall Drive, and Bird Road are carrying almost half the volume as the current SR 836 Expressway indicating the stated demand for east-west travel.

Table 4- 3 2007 Annual Average Daily Traffic

SITE	DESCRIPTION	DIRECTION 1			DIRECTION 2		AADT TWO-WAY
3	SR 90/US-41/TAMIAMI TRL, 200' W SR 997/KROME AV	E	3000		W	2800	5800 C
4	SR 997/KROME AV, 1050' S OF SW 8 ST/TAMIAMI TRAIL	N	7800		S	8300	16100 C
5	SR 90/US-41/SW 8 ST, 200' E SW 74 AV	E	23000		W	21500	44500 C
10	SR 94/KENDALL DR, 200' E SR 997/KROME AV	E	7600		W	7500	15100 C
60	SR 94/KENDALL DR, 200' E SW 137 AV	E	35500		W	36000	71500 C
72	SR 976/BIRD RD, 600' E FLA TPK/SR 821	E	30500		W	29500	60000 C
88	SR 90/US-41/SW 8 ST, 200' E SW 137 AV	E	26000		W	26000	52000 C
89	SR-90/ SW 8 ST/TAMIAMI TRAIL/US 41. 1000' W SW 137	E	24000		W	24500	48500 C
266	SR-90/US-41/SW 8TH ST,E OF 139TH AV,DADE CO.	E	23943		W	21752	45695 C
582	SR 997/KROME AV, 675' N SR 90/US-41	N	8500		S	9500	18000 C
682	SR 997/KROME AV, 200' S SR 94/KENDALL DR	N	9400		S	3800	13200 C
1080	SR 94/KENDALL DR, 200' W SW 147 AV	E	23000		W	24500	47500 C
2244	SR 836/DOLPHIN EXPWY, 1600' E NW 87 AV	E	66000		W	44000	110000 C
2274	SR 874/S DADE EXPWY, 500' N TOLL/S KILLIAN PKWY	N	44500		S	45500	90000 C
2276	SR 874/S DADE EXPWY, 300' N KILLAN PKWY	N	59500		S	60000	119500 C
2519	SR 825/SW 137 AV, 200' S SW 104 ST	N	21500		S	23000	44500 C
2520	SR 825/SW 137 AV, 200' S SR 94/N KENDALL DR	N	22500		S	22500	45000 C
2529	SR 94/KENDALL DR, 200' W SW 157 AV	E	14500		W	14500	29000 C
2557	SR997/KROME AVE/SW177AVE,200' N OF SR94/KENDALL DR	N	9200		S	9000	18200 C

Source: FDOT 2007 Annual Average Daily Traffic Report - Report Type: County

Table 4- 42007 K, D, T Factors

SITE	DESCRIPTION	"K" FCTR	DEMAND K100	"D" FCTR	"T" FCTR
3	SR 90/US-41/TAMIAMI TRL, 200' W SR 997/KROME AV	7.90F	9.50	63.12F	14.49A
4	SR 997/KROME AV, 1050' S OF SW 8 ST/TAMIAMI TRAIL	7.90F	9.50	63.12F	10.63A
5	SR 90/US-41/SW 8 ST, 200' E SW 74 AV	7.90F	9.00	63.12F	5.11A
10	SR 94/KENDALL DR, 200' E SR 997/KROME AV	7.90F	9.00	63.12F	7.40A
60	SR 94/KENDALL DR, 200' E SW 137 AV	7.90F	9.00	63.12F	2.90A
72	SR 976/BIRD RD, 600' E FLA TPK/SR 821	7.90F	9.00	63.12F	5.13A
88	SR 90/US-41/SW 8 ST, 200' E SW 137 AV	7.90F	9.00	63.12F	6.78F
89	SR-90/ SW 8 ST/TAMIAMI TRAIL/US 41. 1000' W SW 137	7.90F	9.00	63.12F	6.78F
266	SR-90/US-41/SW 8TH ST,E OF 139TH AV,DADE CO.	8.24A	9.00	63.89A	2.44A
582	SR 997/KROME AV, 675' N SR 90/US-41	7.90F	9.50	63.12F	14.51A
682	SR 997/KROME AV, 200' S SR 94/KENDALL DR	7.90F	9.50	63.12F	20.10A
1080	SR 94/KENDALL DR, 200' W SW 147 AV	7.90F	9.00	63.12F	4.51F
2244	SR 836/DOLPHIN EXPWY, 1600' E NW 87 AV	10.02F	9.64	74.90F	2.49F
2274	SR 874/S DADE EXPWY, 500' N TOLL/S KILLIAN PKWY	10.02F	9.64	74.90F	6.12A
2276	SR 874/S DADE EXPWY, 300' N KILLAN PKWY	10.02F	9.64	74.90F	6.11F
2519	SR 825/SW 137 AV, 200' S SW 104 ST	7.90F	9.00	63.12F	4.52A
2520	SR 825/SW 137 AV, 200' S SR 94/N KENDALL DR	7.90F	9.00	63.12F	3.52F
2529	SR 94/KENDALL DR, 200' W SW 157 AV	7.90F	9.00	63.12F	4.51F
2557	SR997/KROME AVE/SW177AVE,200' N OF SR94/KENDALL DR	7.90F	9.50	63.12F	13.17F

Source: FDOT 2007 ANNUAL AVERAGE DAILY TRAFFIC REPORT - REPORT TYPE: COUNTY

4.9 Planned / Programmed Improvements

Transportation Plans

The Miami-Dade County MPO 2008 Transportation Improvement Program (TIP) identifies a number of projects that are under development. The TIP is a staged multi-year program that prioritizes transportation improvement projects for federal, state and local funding. The TIP is also the capital improvements element of the MPO's LRTP. The projects are listed in **Tables 4-5** and **4-6** below.

Table 4- 5 TIP-listed improvements on roadways in the vicinity of study area

Project or Facility	Limits		Project Description
	From	To	
Black Creek Trail	SW 136 Street	SR 997/Krome Avenue	Bike Path/Trail
Kendall Drive	SW 162 Avenue	SW 157 Avenue	Widening: to 6 lanes
Kendall Drive	SW 157 Avenue	SW 150 Avenue	Widening: to 6 lanes
NW 137 Avenue	NW 12 Street	NW 17 Street	New construction: 4 lanes
Open Road Tolling (ORT) Master Plan	Systemwide		
Special Use Lanes (SUL)	SR 821/HEFT, SR 836/Dolphin Express		Premium Bus Service
SR 836 Extension from NW 137th Avenue to NW 107th Ave	NW 137th Avenue	NW 107th Avenue	New Construction: 4-lane expressway extension
SR 997/Krome Ave	SR 94/ Kendall Drive	SR 90/SW 8 ST	Add Lanes & Reconstruct
SR 997/Krome Ave	SW 136TH ST	TO SR 94/KENDALL DR	Add Lanes & Reconstruct
SR 997/Krome Ave	350' N OF SW 8 ST.	MP 3.478	Add Lanes & Reconstruct
SR Extension from SW 136th Street to NW 137th Avenue	SW 136th Street	NW 137th Avenue	Miami-Dade Expressway Authority
SW 120 Street	SW 150 Avenue	SW 157 Avenue	New construction: 2 lanes
SW 120 Street	SW 137 Avenue	SW 117 Avenue	Widening: 4 to 6 lanes
SW 120 Street (North side)	SW 152 Avenue	SW 157 Avenue	2 lanes of 4 lanes divided
SW 120 Street Bridge over Black Creek Canal			New 4 lane bridge
SW 136 Street	SW 127 Avenue	FL Turnpike	Widening: 2 to 4 lanes
SW 136 Street	SW 149 Avenue	SW 139 Court	Widening: 2 to 4 lanes
SW 136 Street (South side)	SW 162 Avenue	SW 157 Avenue	1/2 of R4.4 (R4.4: 4 lane divided)
SW 137 Avenue	Sunset Drive	Kendall Drive	Widening: to 6 lanes
SW 137 Avenue	SW 88 Street	SW 84 Street	Reconstruction, drainage, intersection improvements,

Project or Facility	Limits From	To	Project Description
SW 142 Avenue	SW 42 Street	SW 8 Street	Re-aligning roadway, intersection improvements, milling
SW 143 Terrace	SW 145 Place	SW 144 Avenue	Extension of SW 143 Terrace (New 2 lanes)
SW 147 Avenue	SW 15 Street	SW 22 Street	2 lanes
SW 147 Avenue	SW 8 Street	SW 10 Street	2 lanes
SW 147 Avenue	SW 15 Street	SW 22 Street	New construction: 2 west lanes
SW 147 Avenue	SW 8 Street 600 ft south		Widening: 2 to 4 lanes
SW 147 Avenue (East side)	165ft North of SW 16 Street	165ft South of SW 16 Street	2 lanes of 4 lanes divided
SW 152 Avenue (East side)	SW 92 Street	SW 88 Street	1/2 of R4.5 (R4.5: 4 lane divided)
SW 152 Street	SW 157 Avenue	SW 147 Avenue	Widening: 2 to 4 lanes
SW 157 Avenue	SW 94 Street	SW 96 Street	New construction: SB lane
SW 157 Avenue	at SW 152 Street		Intersection Improvements
SW 157 Avenue	SW 42 Street	SW 8 Street	Additional 2 lanes
SW 157 Avenue	SW 54 Terrace	SW 52 Street	Widening: 2 to 4 lanes
SW 157 Avenue	SW 72 Street	SW 70 Street	New Construction: 4 lanes
SW 157 Avenue	SW 136 Street	SW 120 Street	New 4 lanes
SW 157 Avenue	SW 120 Street	SW 112 Street	New 4 lanes
SW 157 Avenue	SW 184 Street	SW 152 Street	New 4 lane road
SW 162 Avenue	Kendall Drive	SW 96 Street	New construction: 4 lanes
SW 162 Avenue (East side)	SW 136 Street	R/R Right-of-Way	1/2 of R3.3 (R3.3: 2 lanes)
SW 167 Avenue	SW 43 Street	SW 44 Street	2 lanes of 4 lanes divided
SW 167 Avenue	SW 42 Street	SW 43 Street	2 lanes of 4 lanes divided
SW 167 Avenue (West side)	North of SW 96 Street	Matching existing to the North	
SW 172 Avenue (East side)	SW 88 Street	SW 96 Street	2 lanes and 1/2 of turn lane
SW 42 Street	SW 157 Avenue	SW 162 Avenue	New construction: 2 lanes
SW 42 Street	SW 157 Avenue	SW 162 Avenue	2 lanes of 4 lanes divided
SW 42 Street	SW 157 Avenue	SW 162 Avenue	New Construction: 2 lane road
SW 42 Street (Bird Road)	SW 149 Avenue	SW 150 Avenue	Widening: 2 to 4 lanes
SW 56 Street	SW 158 Avenue	SW 152 Avenue	Widening: 2 to 4 lanes
SW 96 Street	SW 162 Avenue	SW 157 Avenue	New construction: 4 lanes
SW 96 Street (South side)	SW 167 Avenue	SW 172 Avenue	2 lanes and 1/2 of turn lane
SW 137 Avenue	SW 8 Street	NW 12 Street	New Construction: 6 lanes

Source: MPO FY 2008-2012 Transportation Improvement Program, May 2007

The following improvements relevant to this study area were identified for the MDX System.

Table 4- 6 TIP-listed improvements on SR 836

Project or Facility	Limits From	Limits To	Project Description
SR 836 / I-95 Interchange	NW 17th Ave	I-95	Coordination of Operational Improvements
SR 836 / NW 57th Ave. WB Ramp Improvements	East of NW 57th Avenue	West of NW 57th Avenue	Improvements: interchange and westbound exit ramp
SR 836 / SR 112 Interconnector	SR 836	NW 28th Street	Design & Construction: C-D roads / Acquisition: ROW
SR 836 EB Auxiliary Lane	SR 826/836 Interchange	NW 45th Avenue	
SR 836 Extension - Toll Plaza Section	NW 107h Avenue	NW 87th Avenue	New construction: bi-directional mainline toll plaza
SR 836 Extension from NW 137th Avenue to NW 107th Avenue	NW 137th Avenue	NW 107th Avenue	New Construction: 4-lane expressway extension
SR 836 Landscaping	NW 137 Avenue	NW 87th Avenue	Landscaping
SR 836 Mainline Reconstruction and Connections t			Connections to MIA
SR 836 Managed Lanes - NW 87th Avenue to HEF	NW 87th Avenue	HEFT	
SR 836 Westbound Auxiliary Lane - NW 57th Ave t	SR 826	NW 57th Avenue	New Construction: auxiliary lane
SR 826 / SR 836 Interchange Improvements	HEFT	SR 836/826 Interchange	New Construction: 4-lane divided express lanes
SR 836 Extension from SW 136th Street to NW 137th Ave	SW 136th Street	NW 137th Avenue	

Source: MPO FY 2008-2012 Transportation Improvement Program, May 2007

Level of Service information from the model indicates that implementation of these projects by 2015 may have little impact on mobility. Moreover, projects that are listed in the TIP are not necessarily programmed in FDOT's work program and therefore may not be implemented in the timeframe indicated.

The most recent 2030 LRTP update for Miami-Dade County was adopted in November of 2004 and the next major update is anticipated to be approved by the MPO in December 2009.The LRTP includes a number of other longer-term projects and proposed improvements for SR 836, the HEFT, and surrounding roadways, which will have an impact in the area under study. **Tables 4-7** and **4-9** depict the improvements

listed in the 2030 LRTP within the study area. Funds for these improvements have not been identified and implementation may be difficult due to the surrounding land uses along the roadways.

Definition of Priority Categories

The MPO 2030 LRTP recommended phasing for highway capacity improvements are classified into four priority categories:

Priority 1 - Priority improvements to be constructed and opened to traffic by the year 2009. Includes those projects needed to respond to existing traffic problems. Funds for most of these improvements are already programmed in this Transportation Improvement Program.

Priority 2 - Improvements where project development and funding efforts would take place between 2010 and 2015. This priority category includes projects required to respond to traffic problems projected for the year 2015 and shortly thereafter.

Priority 3 - Improvements to be funded between the year 2016 and 2020. In many cases, project development activities would need to commence in the 2010 and 2015 period, due to the amount of lead-time required to plan and implement a project. The priority category includes responding to problems that will emerge after the year 2015.

Priority 4 - Improvements to be funded in the latter part of the 20-year plan period, and includes projects responding to long-range travel needs and roadway improvements constructed through the county.

Because of the uncertainties of funding availability and the time required to develop a detailed project, the specific time periods and dates indicated in the above priority listing should be considered only as guidelines for project implementation.

Table 4- 7 LRTP-listed improvements on expressways in the vicinity of study area

Priority	Project or Facility	Limits		Project Description
		From	To	
I	SR 836 EB TOLL PLAZA	NW 27TH AVE	NW 17TH AVE	NEW TOLL PLAZA ON EB RAMP TO NW 17TH AVE
I	SR 836 EB TOLL PLAZA	NW 14TH ST	NW 28TH ST	DESIGN & CONSTRUCTION: CD ROADS / ACQUISITION: ROW
I	SR 836 EXPRESS LANES	HEFT	SR 826 / 836 INTERCHANGE	4 LANE DIVIDED EXPRESS LANES IN MEDIAN OF SR 836
I	SR 836 WB AUXILIARY LANE	SR 826	NW 57TH AVE	ADD AUXILIARY LANE IN WB DIRECTION
I	SR 836	E OF NW 57TH AVE	W OF NW 57TH AVE	INTERCHANGE IMPROVEMENTS AND WB EXIT RAMP
I	SR 826 & SR 836 INTERSECTION	NW 87TH AVE	NW 57TH AVE	WIDEN INTERCHANGE TO 10 LANES
I	SR 836 EXPRESS LANES	HEFT	SR 826 / 836	4 LANE DIVIDED EXPRESS LANES IN MEDIAN OF SR 836
I	TURNPIKE - GOLDEN GLADES TOLL PLAZA			3 EXPRESS AND 3 MANUAL LANES
I	SR 836 WB TO SB HEFT CONNECTION	TURNPIKE	NW 107TH AVE	RECONSTRUCTION OF EXISTING WB SR 836 TO SB HEFT CONNECTION TO PROVIDE AN ADDITIONAL LANE
I	HEFT (OKEECHOBEE TOLL PLAZA)			3 EXPRESS AND 4 MANUAL LANES
I	SR 836 EXTENSION	NW 111TH AVE	NW 87TH AVE	IMPROVEMENTS FROM NW 107TH TO NW 87TH AVE INCLUDING A NEW BIDIRECTIONAL MAINLINE TO PLAZA
I	HEFT	SW 8TH ST		INTERCHANGE MODIFICATION
I	SR 874 / KILLIAN PKWY	HEFT	KENDALL DR	NEW NB AND SB MAINLINE TOLL PLAZAS, NB RAMP PLAZA TO KILLIAN
I	HEFT	SW 117TH AVE / SR 874	SR 874 / KENDALL DR	12 LANES + 3 LANE CD / 8 LANES
II	SR 836 / I-395	EAST OF I-95	MCARTHUR CSWY	MODIFY INTERCHANGE - IMPROVEMENTS
II	HEFT	N OF EUREKA DR.	N OF SW 117TH AVE	WIDEN TO 12 LANES
III	SR 836 / I-395	EAST OF I-95	MCARTHUR CSWY	MODIFY INTERCHANGE - IMPROVEMENTS
III	SR 836 / NW 27 AVE INTERCHANGE	NW 27TH AVE	NW 17TH AVE	RECONSTRUCT SR 836
III	SR 836 / I-395	WEST OF NW 17TH AVE	I-95	CORRIDOR IMPROVEMENT; C-D ROAD

Priority	Project or Facility	Limits From	Limits To	Project Description
III	SR 874 / KILLIAN PKWY	KENDALL DR	SR 826	INTERCHANGE IMPROVEMENTS INCLUDING NEW BRIDGE OVER SR 874 FROM SR 878 AND SB CD ROAD TO KENDALL DR (INCLUDES SR 874 / 878 INTERCHANGE)
III	HEFT - MIRAMAR TOLL PLAZA			3 EXPRESS LANES
III	SR 836 / I-395	WEST OF NW 17TH AVE	I-95	CORRIDOR IMPROVEMENT; C-D ROAD
III	HEFT	NW 74TH ST		INTERCHANGE (MAJOR)
III	HEFT	I-75 INTERCHANGE		INTERCHANGE IMPROVEMENTS
III	HEFT	SW 216TH ST SW 200TH ST US-1	SW 200TH ST US-1 N OF EUREKA DR	WIDEN TO 6 LANES 8 LANES 10 LANES
III	HEFT - HOMESTEAD TOLL PLAZA			3 EXPRESS LANES
III	SR 874	SW 120TH ST	SW 117TH AVE	PROVIDE SB OFF RAMP, NB ON RAMP AND INSTALL NOISE ATTENUATION WALLS
III	SR 874	KENDALL DR	SR 826	INTERCHANGE IMPROVEMENTS INCLUDING NEW BRIDGE OVER SR 874 FROM SR 878 AND SB CD ROAD TO KENDALL DR (INCLUDES SR 874 / 878 INTERCHANGE)
III	HEFT	SW 104TH ST	NW 107TH AVE / SR 836	EXPRESS LANES
III	HEFT	KENDALL DR	SW 8TH ST	WIDEN TO 8 LANES
IV	HEFT	US-27	I-75	WIDEN TO 8 LANES
IV	HEFT	SR 836	US-27	6 TO 8 LANES + AUX LANES
IV	HEFT	I-75	FL TURNPIKE	4 TO 6 LANES (SHOWN AS FUNDED IN BROWARD LRTP)
IV	HEFT	US-1 (SOUTHERN TERMINUS OF HEFT)	SW 216TH ST	4 TO 6 LANES
IV	SR 874	SW 138TH ST	SR 874 / KENDALL DR	PROVIDE ACCESS RAMP TO SR 874 FROM SW 138TH ST

Source: MPO Miami-Dade Transportation Plan (to the Year 2030), December 2004, Final Draft

Table 4- 8 LRTP-listed improvements on roadways in the vicinity of study area

Priority	Project or Facility	Limits		Project Description
		From	To	
I	KROME AVE	SW 8TH ST	US 27	ACCESS MGT. / SAFETY / TRAIL
I	SR 836 EXTENSION	NW 137TH AVE	NW 107TH AVE	CONSTRUCTION OF A NEW 4 LANE EXPRESSWAY EXTENTION ON SR 836 AND CONSTRUCTION OF A PORTION OF NW 137TH AVE FROM SW 8TH ST TO SW 12TH ST
I	W 137TH AVE	SW 8TH ST	NW 12TH ST	NEW CONSTRUCTION: 6 LANES
I	SR 997 / KROME AVE			ADD TURN LANES AT SW 288, SW 272, SW 256, SW 216, SW 200, SW 192, SW 184, SW 168, SW 136 INTERSECTIONS
I	SW 56TH ST	SW 158TH AVE	SW 152ND AVE	2 TO 4 LANES
I	SW 56TH ST	SW 158TH AVE	SW 167TH AVE	NEW 2 LANES
I	SW 136TH ST	SW 157TH AVE	FL TURNPIKE (SR 874)	WIDENING FROM 2 TO 4 LANES
I	SW 157TH AVE	SW 184TH ST	SW 152ND ST	2 TO 4 LANES
I	SW 120TH ST	SW 137TH AVE	SW 117TH AVE	4 TO 6 LANES
I	ACCESS TO COUNTRY WALK			EXTENSION OF SW 143RD TERR. FROM RR TO SW 136TH ST
I	SW 26TH ST	SW 149TH AVE	SW 147TH AVE	2 TO 4 LANES
I	SW 137TH AVE	SW 8TH ST	SW 26TH ST	4 TO 6 LANES
I	SW 42ND ST	SW 157TH AVE	SW 167TH AVE	NEW 2 LANES
I	SW 42ND ST	SW 149TH AVE	SW 150TH AVE	2 TO 4 LANES
I	SW 42ND ST	SW 157TH AVE	SW 162ND AVE	2 TO 4 LANES
I	SW 142ND AVE	SW 42ND ST	SW 8TH ST	NEW 2 LANES
I	KENDALL DR	SW 162ND AVE	SW 150TH AVE	WIDEN TO 6 LANES
I	KENDALL DR	SW 157TH AVE	SW 150TH AVE	WIDEN TO 6 LANES
II	KROME AVE	SW 296TH ST	SW 136TH ST	ACCESS MGT. / SAFETY / TRAIL
II	KROME AVE	SW 296TH ST	SW 136TH ST	ACCESS MGT. / SAFETY / TRAIL
II	KROME AVE / SW 177TH AVE	SW 136TH ST	SW 8TH ST	ADD 2 LANES TO 2 LANE ROADWAY
II	SW 167TH AVE	SW 56TH ST	SW 88TH ST	NEW 2 LANES
II	SW 72ND ST	SW 117TH AVE	SW 157TH AVE	4 TO 6 LANES
II	SW 88TH ST / KENDALL DR	SW 177TH AVE	SW 167TH AVE	4 TO 6 LANES

Priority	Project or Facility	Limits From	Limits To	Project Description
III	SW 147TH AVE	SW 184TH ST	SW 152ND ST	ADD 2 LANES AND RESURFACE
III	SW 152ND ST	SW 147TH AVE	SW 157TH AVE	2 TO 4 LANES
III	SW 104TH ST	SW 160TH AVE	SW 167TH AVE	NEW 4 LANES
III	SW 157TH AVE	SW 8TH ST	SW 42ND ST	NEW 4 LANES
III	SW 167TH AVE	SW 40TH ST	SW 56TH ST	NEW 2 LANES
IV	SW 104TH ST	SW 167TH AVE	SW 177TH AVE	NEW 2 LANES
IV	SW 120TH ST	SW 137TH AVE	SW 147TH AVE	4 TO 6 LANES
IV	SW 26TH ST	SW 147TH AVE	SW 157TH AVE	NEW 4 LANES
	SW 137TH AVE	SW 88TH ST	SW 84TH ST	PRIVATE SECTOR IMPROVEMENTS
	SW 147TH AVE	SW 10TH ST	SW 22ND ST	PRIVATE SECTOR IMPROVEMENTS
	SW 137TH AVE	SUNSET DR	KENDALL DR	PRIVATE SECTOR IMPROVEMENTS
	SW 162ND AVE	KENDALL DR	SW 96TH ST	PRIVATE SECTOR IMPROVEMENTS
	SW 157TH AVE	SW 94TH ST	SW 96TH ST	PRIVATE SECTOR IMPROVEMENTS
	SW 96TH ST	SW 162ND AVE	SW 157TH AVE	PRIVATE SECTOR IMPROVEMENTS
	SW 147TH AVE	SW 10TH ST	SW 22ND ST	PRIVATE SECTOR IMPROVEMENTS

Source: MPO Miami-Dade Transportation Plan (to the Year 2030), December 2004, Final Draft

According to the LRTP and TIP, the following improvements are planned along the cross streets within the study area. These are noted in **Table 4-9** below.

Table 4- 9 LRTP and TIP planned improvements along cross streets

Project or Facility	Limits		Project Description
	From	To	
Kendall Drive	SW 162 Avenue	SW 157 Avenue	Widening: to 6 lanes
Kendall Drive	SW 157 Avenue	SW 150 Avenue	Widening: to 6 lanes
SR 997/KROME AVE	SR 94/KENDALL DR	SR 90/SW 8 ST	ADD LANES & RECONSTRUCT
SR 997/KROME AVE	SW 136TH ST	SR 94/KENDALL DR	ADD LANES & RECONSTRUCT
SR 997/KROME AVE	350' N OF SW 8 ST.	MP 3.478	ADD LANES & RECONSTRUCT
SW 120 Street (North side)	SW 152 Avenue	SW 157 Avenue	2 lanes of 4 lanes divided
SW 136 Street (South side)	SW 162 Avenue	SW 157 Avenue	1/2 of R4.4 (R4.4: 4 lane divided)
SW 157 Avenue	SW 94 Street	SW 96 Street	New construction: SB lane
SW 157 Avenue	at SW 152 Street		Intersection Improvements
SW 157 Avenue	SW 42 Street	SW 8 Street	Additional 2 lanes
SW 157 Avenue	SW 54 Terrace	SW 52 Street	Widening: 2 to 4 lanes
SW 157 Avenue	SW 72 Street	SW 70 Street	New Construction: 4 lanes
SW 157 Avenue	SW 136 Street	SW 120 Street	New 4 lanes
SW 157 Avenue	SW 120 Street	SW 112 Street	New 4 lanes
SW 42 Street (Bird Road)	SW 157 Avenue	SW 162 Avenue	New construction: 2 lanes
SW 42 Street	SW 157 Avenue	SW 162 Avenue	2 lanes of 4 lanes divided
SW 42 Street	SW 157 Avenue	SW 162 Avenue	New Construction: 2 lane road
SW 56 Street	SW 158 Avenue	SW 152 Avenue	Widening: 2 to 4 lanes
SW 96 Street	SW 162 Avenue	SW 157 Avenue	New construction: 4 lanes
SW 96 Street (South side)	SW 167 Avenue	SW 172 Avenue	2 lanes and 1/2 of turn lane

Source: MPO FY 2008-2012 Transportation Improvement Program, May 2007 and MPO Miami-Dade Transportation Plan (to the Year 2030), December 2004, Final Draft

There are two projects involving transit and non-motorized modes of transportation such as rail, buses, bikeways and pedestrian facilities planned within the study area. These are noted in **Table 4-10** below. Any proposed SW Extension alignment would need to coordinate with these planned improvements

Table 4- 10 LRTP and TIP planned improvements transit and non-Motorized modes

Project or Facility	Limits		Project Description
	From	To	
BLACK CREEK TRAIL	SW 136 ST	SR 997/KROME AVE	BIKE PATH/TRAIL
Special Use Lanes (SUL)	SR 821/HEFT, SR 836/Dolphin Expressway		Premium Bus Service

Source: MPO FY 2008-2012 Transportation Improvement Program, May 2007 and MPO Miami-Dade Transportation Plan (to the Year 2030), December 2004, Final Draft

The SFRPC has identified the following DRIs under consideration within the study area. Therefore, most of the anticipated users will also be local commuters and area residents. These are noted in **Table 4-11** below.

Table 4- 11Developments of Regional Impact (DRIs)

DCA Number	Order	Project Name	Date Submitted to SFRPC	Project Type	Status
11-07-005	1	Parkland	08/10/06	ADA	SIN2
11-00-012	3	Kendall Town Center	12/15/05	NOPC	Staff Review

Source: South Florida Regional Planning Council DRI Database, Updated: 06/20/07

4.10 Land Use

The project area is located in the most westerly section of central Miami-Dade County and extends into the 2015 UDB established in the County's current Comprehensive Development Master Plan (CDMP). Portions of Alternative 1 extend to the 2025 UEA.

The UDB separates the area where urban development may occur through the year 2015 from areas where it should not occur. Development orders permitting urban development will generally be approved within the UDB at some time through the year 2015 provided that level-of-service standards for necessary public facilities are met. Adequate countywide development capacity will be maintained within the UDB by increasing development densities or intensities inside the UDB, or by expanding the UDB, when the need for such changes is determined to be necessary through the plan review and amendment process.

The 2025 UEA is comprised of that area located between the 2015 UDB and generally west of Krome Avenue. The UEA is the area where current projections indicate that further urban development beyond the 2015 UDB is likely to be warranted some time between the year 2015 and 2025. Until these areas are brought within the year 2015 UDB through the plan review and amendment process, they are allowed to be used in a manner consistent with the provisions for lands designated as Agriculture or Open Land.

Land uses within the study area are a mix of multi-purpose conservation, agricultural, commercial, recreational, institutional and low to medium density residential housing. The study area is densely developed along the northern and eastern perimeters of the study area; however, the southern and western perimeters remain primarily undeveloped farmlands and protected wetlands. The proposed alternatives traverse both agriculture and conservation lands and follow existing right-of-way and thoroughfares within the residential areas.

4.10.1 Existing Land Use

From the intersection of SR 836 and SW 137th Avenue to SW 8th Street (Tamiami Trail), there is a mix of vacant and improved properties. Most of the land along the Tamiami Trail west of SW 147th Avenue is in a natural wooded state, has fair/poor access, and is located between the 2015 UDB and 2025 UEA. The Land Use Plan categories are Industrial and Office east of the 2015 UDB and Open Land west to SW 157th Avenue.

Within the limits of SW 8th Street (Tamiami Trail) from SW 157th Avenue to SW 177th Avenue (Krome Avenue), most of the land is in a natural wooded state, and is located outside the 2025 UEA. The dominant Land Use Plan category is Environmental Protection. Other categories include Parks and Recreation, Open Land, and Business and Office.

Most of the land along SW 177th Avenue (Krome Avenue) from the Tamiami Trial to a theoretical SW 42nd Street (Bird Road) is in a natural wooded state, has fair/poor interior access, and is located outside the 2025 UEA. The Land Use Plan category is Open Land.

Most of the land along Krome Avenue from theoretical Bird Road to south of SW 88th Street (Kendall Drive) has fair/poor interior access, and is located between the 2015 and 2025 urban boundaries. Land in the north section is in a natural wooded state, and land in the south section has been or is being used for farming of crops. The Land Use Plan categories are Open Land in the north section and Agricultural in the south section.

Land for most of the segment along Krome Avenue south of Kendall Drive to SW 136th Street has been or is being used for farming crops. The Land Use Plan categories are Agriculture in most of the segment and Low Density Residential at SW 136th Street. West of Krome Avenue is existing and new construction of estate-type residences on 5+ acre tracts.

Primary improvements along SW 157th Avenue from Tamiami Trail to SW 136th Street are single-family subdivisions, condominium developments, and rental apartment complexes. Commercial improvements are located at the intersections of SW 56th Street, SW 72nd Street, and SW 88th Street. Four public schools are interspersed along SW 157th Avenue. The primary Land Use Plan category is Low Density Residential, Business and Office, Open Land, Parks and Recreation (south end), Agricultural, Terminal (airport property), and Industrial and Office. The County Parks Department owns the 155 vacant acres at the south end of SW 157th Avenue. The County Aviation Department owns 101 vacant acres on the north side of the Kendall-Tamiami airport.

4.10.2 Project Study Area Facilities and Institutions

There are many community facilities and services located within the study area which are itemized in Section 6.2.4 of this Concept Report. All alignment alternatives will consider these facilities and minimize impact to them to the extent feasible.

4.11 Area Characteristics

The areas west of NW 137th Avenue from NW 12th Street to SW 8th Street (US 441), consists of vacant undeveloped lands that fall outside the 2015 UDB. The land area from SW 8th Street (US 441) to SW 40th Street west of SW 152nd Avenue is designated as Open Land in the CDMP. This Open Land is also designated as the Tamiami-Bird Canal Basin.

Areas south of SW 40th Street (Bird Road) to the theoretical SW 112th Street and west from SW 167th Avenue to SW 177th Avenue (Krome Avenue) fall outside the 2015 UDB. As illustrated in the aerial photographs, the Tamiami-Bird Canal Basin runs from SW 8th Street (US 441) south to SW 56th Street (Miller Drive) and west from SW 152nd Avenue from SW 8th Street to SW 40th Street. At SW 40th Street, it jogs west to SW 167th Avenue and south to SW 56th Street.

Urban expansion is occurring westward to the 2015 UDB as illustrated in the oblique aerial color photos. Given CDMP designation for urban expansion to the line along Krome Avenue from SW 40th Street to theoretical SW 112th Avenue, this area is anticipated to be developed after 2005.

A single large commercial development is planned and will be under construction shortly at SW 88th Street (Kendall Drive) and SW 155th Avenue, as illustrated in the aerial photo. This will be one of the largest commercial developments in Miami-Dade County. This mixed use commercial development will consist of 1.35 million square feet of retail, 400,000 square feet of office, a 200,000 square foot community medical facility and wellness center, a 2,400 seat theater, a 220 room hotel, 200 Elderly/Senior Assisted Living Facility, a one acre transit hub, and ten acres of public areas.

The SR 836 Southwest Extension will provide expressway and transit access directly to the growing west and southwest areas of Miami-Dade County. The CDMP Policies state the need to provide expressway and transit access to the major Activity Centers throughout the County. The SR 836 Southwest Extension will serve this purpose by providing access to a major developing center known as West Kendall.

Major expressways at the edge of the urban development line do not necessarily imply suburban expansion. In some cases it is a delimiting line to suburban expansion. For example, the Sawgrass Expressway (SR 837) delimits the western edge of Broward County's development boundary. Although a final alignment has not been established, the proposed SR 836 Southwest Extension can create, as in Broward County, the edge of the urban development area. Except for a section that goes through an area designated as Open Land in the CDMP, the proposed alternatives for the SR 836 Southwest Extension proposed right-of-way are all located within the 2025 UEA.

SECTION - 5 FUTURE TRAFFIC CONDITIONS AND REVENUE ESTIMATES

As part of the planning process, traffic and revenue potential for the three extension alignments and the potential traffic impacts on existing MDX facilities as well as on key arterials was analyzed. Both the travel benefits and level of service benefits that may accrue if any of the alternatives were to be constructed was also determined.

5.1 Traffic Projections

Several assumptions were fundamental to the development of the traffic and revenue study. First, it was assumed that the projects currently programmed in the MPO's TIP would be implemented as scheduled. This includes the widening of Krome Avenue as indicated in **Table 4-5**. It was also assumed that MDX would implement Open Road Tolling (ORT) in accordance with the adopted Open Road Tolling Master Plan. The implementation of ORT affects every aspect of the proposed project as well as the MDX system. In addition to these assumptions it was, as a matter of course, also assumed that no unforeseen catastrophic occurrence or prolonged economic slowdown would occur during the forecast period. It must also be noted that this study was conducted on a sketch level without the significant review or manipulation of the underlying socioeconomic data that would be necessary for the in-depth analysis required for a bond grade or design level traffic study. The results of this study are most applicable as part of a long-range planning study to determine if the proposed project is deserving of more careful scrutiny and inclusion in the 2035 LRTP.

The most recent version of the Miami-Dade MPO's Florida Standard Urban Transportation Model Structure (FSUTMS) model developed for the Urban Area's LRTP update was used. The model was run in Tranplan as the current platform for the MPO Model using the base socioeconomic data prepared for the MPO. Assignments from this model were run for a variety of purposes. Estimates were developed of project mainline traffic, and estimates of project impacts on the adjacent street network, including estimates of turning movements at the project interchanges. These estimates were developed for 2015 and 2030 using Average Weekday Traffic (AWDT) to provide preliminary guidance on the capacity that may be needed if one of the project alternatives were to be implemented. Given the preliminary nature of the study, there was no "ramp up" calculated for the opening of any of the project alternatives.

The potential project impacts calculated included an examination of AM peak-hour traffic level of service, the vehicle to capacity ratio on selected adjacent streets, and a link analysis of the travel time between selected points. The estimated AM peak period traffic was developed by using factors developed for the Southeast Regional Planning Model (SERPM), developed by the Palm Beach, Broward, and Miami-Dade County MPO's and FDOT. These were applied to the Miami-Dade MPO's adopted model which without this input only provides weekday traffic (AM Peak Period 7:00 – 9:00 AM, 20 percent of Weekday Traffic; PM Peak Period 3:30 – 6:30 PM, 25 percent of Weekday Traffic; 3 percent Truck Traffic). The AM peak was selected for analysis because it reflects the greatest project impact and it has the highest hourly traffic volumes. In the

level of service analysis, the traffic volumes are estimated at the same locations from base model runs for 2015 and 2030 without the proposed project.

In general each alternative analyzed would improve mobility in southwest Miami-Dade County. While Alternative 1 and 3 would serve a larger portion of southwest Miami-Dade County due to their greater length, Alternative 2 would also provide some benefit. The summaries below highlight some of the most significant impacts of the proposed projects. It should be noted that the projects benefit many major facilities by removing up to 6,600 average weekday vehicles per direction from major facilities at some locations. All of these positive impacts may not be noted in the text below. It is important to note that the removal of this level of traffic would have very significant benefits to the facilities impacted. While these benefits may not be reflected in the level of service calculated for the facility, the practical impact of reduced traffic could be a significant reduction in travel time as identified in the travel time analysis performed in this study. Unless otherwise noted the discussion below focuses on benefits in 2015.

Table 5- 1Projected Future Traffic Volumes

ALTERNATIVES	VOLUME (VEHICLE PER DAY)	
	2015	2030
ALTERNATIVE 1	25,000	36,000
ALTERNATIVE 2	10,000	17,000
ALTERNATIVE 3	30,000	40,000

Alternative 1

This alternative has the potential for the least impact on the built environment due to its location away from the most densely populated portions of the study area. This alternative draws less traffic than Alternative 3, the alternative that it most nearly resembles because of its travel distance length. As shown on **Figure 5-1**, this alternative is anticipated to carry traffic volumes of just under 25,000 vehicles per day (vpd) in 2015 and approximately 36,000 vpd in 2030, if it were to be built in the configuration shown. It is anticipated that this alternative along with the other alternatives would improve the level of service on SW 88th Street west of the HEFT in the WB morning period from level of service E to level of service D. Approximately 6,500 vpd in 2015 would be removed. The model anticipates that this alternative would significantly reduce traffic on SW 42nd Street (Bird Road) by removing approximately 3,200 vpd in 2015. While these volumes would not improve the level of service calculated for these facilities, the potential to improve the actual operation of these facilities is palpable.

Alternative 2

This alternative connects existing SR 836 to Krome Avenue in a path parallel to SW 8th Street. Due to the short length of the project it is anticipated to carry the least amount of total traffic. Anticipated traffic volumes on this facility are shown on **Figure 5-2**. The highest traffic volume anticipated on this project is projected to occur on the segment between SW 157th Avenue and SW 137th Avenue (**Figure 5-2**) with volumes of 10,000 vpd in 2015 and just fewer than 17,000 vpd in 2030.

Alternative 3

Alternative 3 proceeds south and west from the existing western terminus of SR 836 to the corridor defined by SW 157th Avenue. This alternative has the highest volumes of any of the three alternatives carrying approximately 30,000 vpd in 2015 and 40,000 vpd in 2030. The alternative has the most impact on SW 137th Avenue south of SW 8th Street and north of SW 120th Street reducing 2015 daily traffic by approximately 6,600 vpd, Alternative 1 reduces the traffic at this location by approximately 4,900 vpd while Alternative 2, reduces traffic by approximately 1,600 vpd as can be seen on **Figure 5-3**.

Figure 5- 1 Alternative 1 – Estimated Average Weekday Traffic Volumes

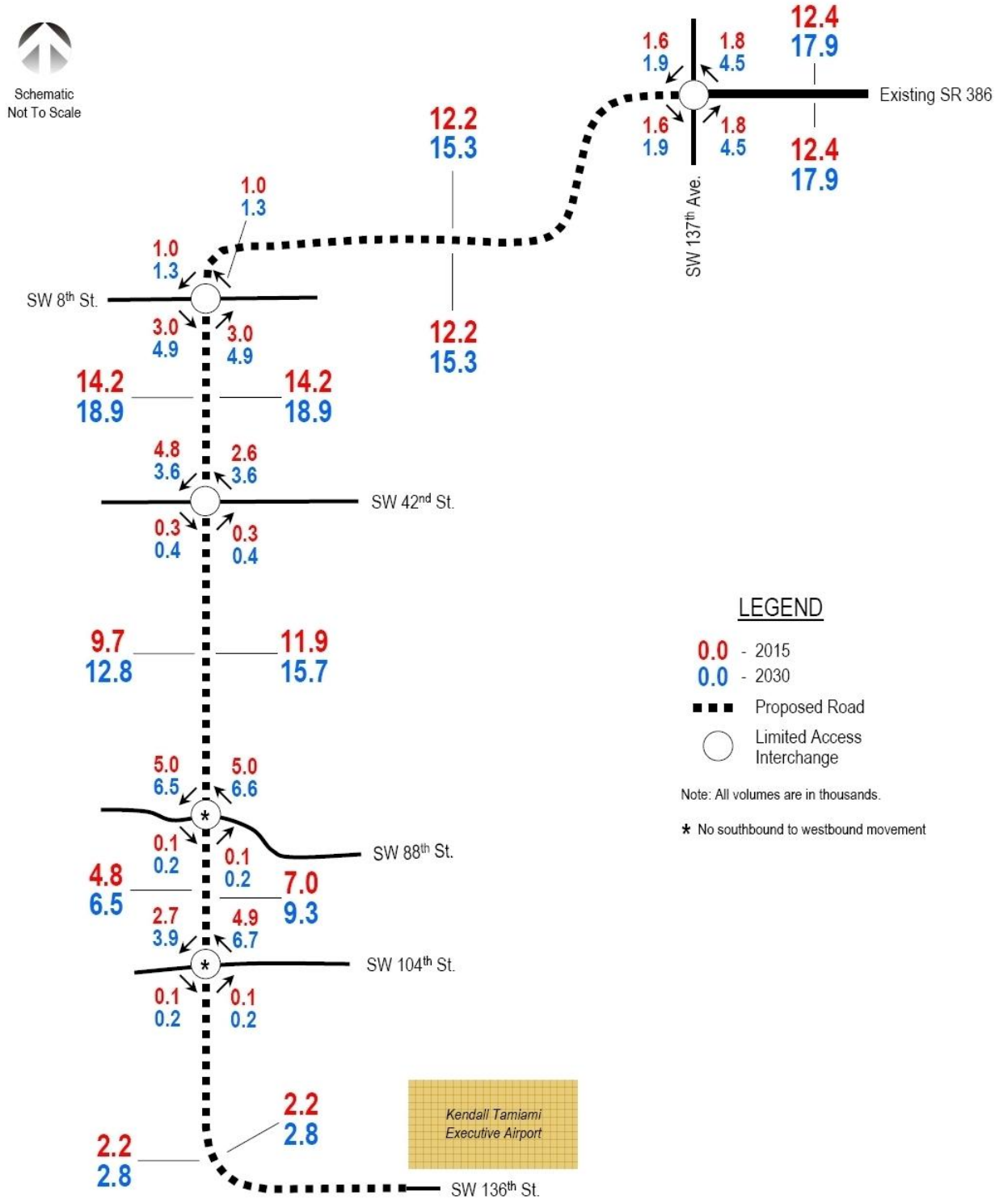


Figure 5- 2 Alternative 2 – Estimated Average Weekday Traffic Volumes

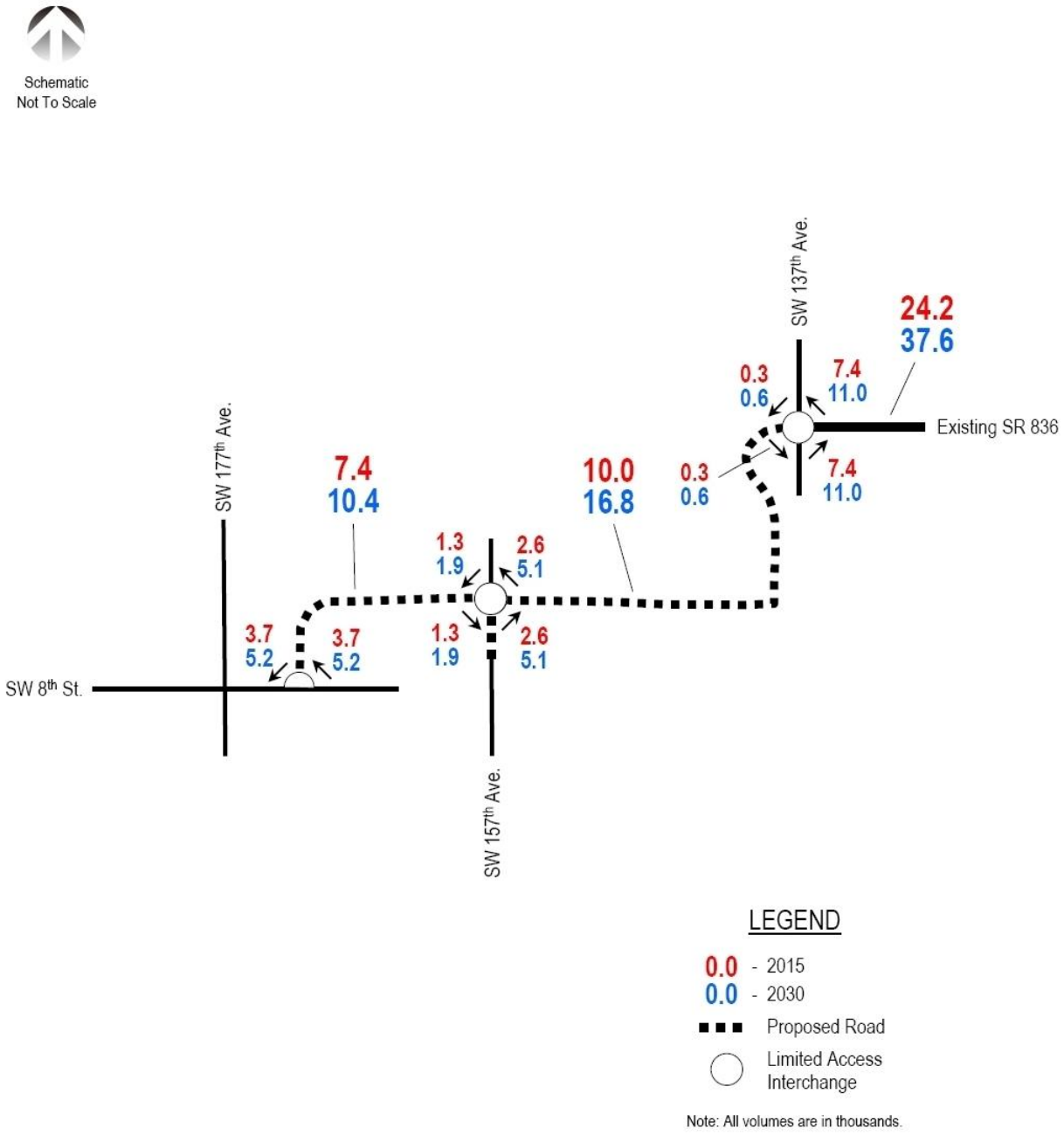
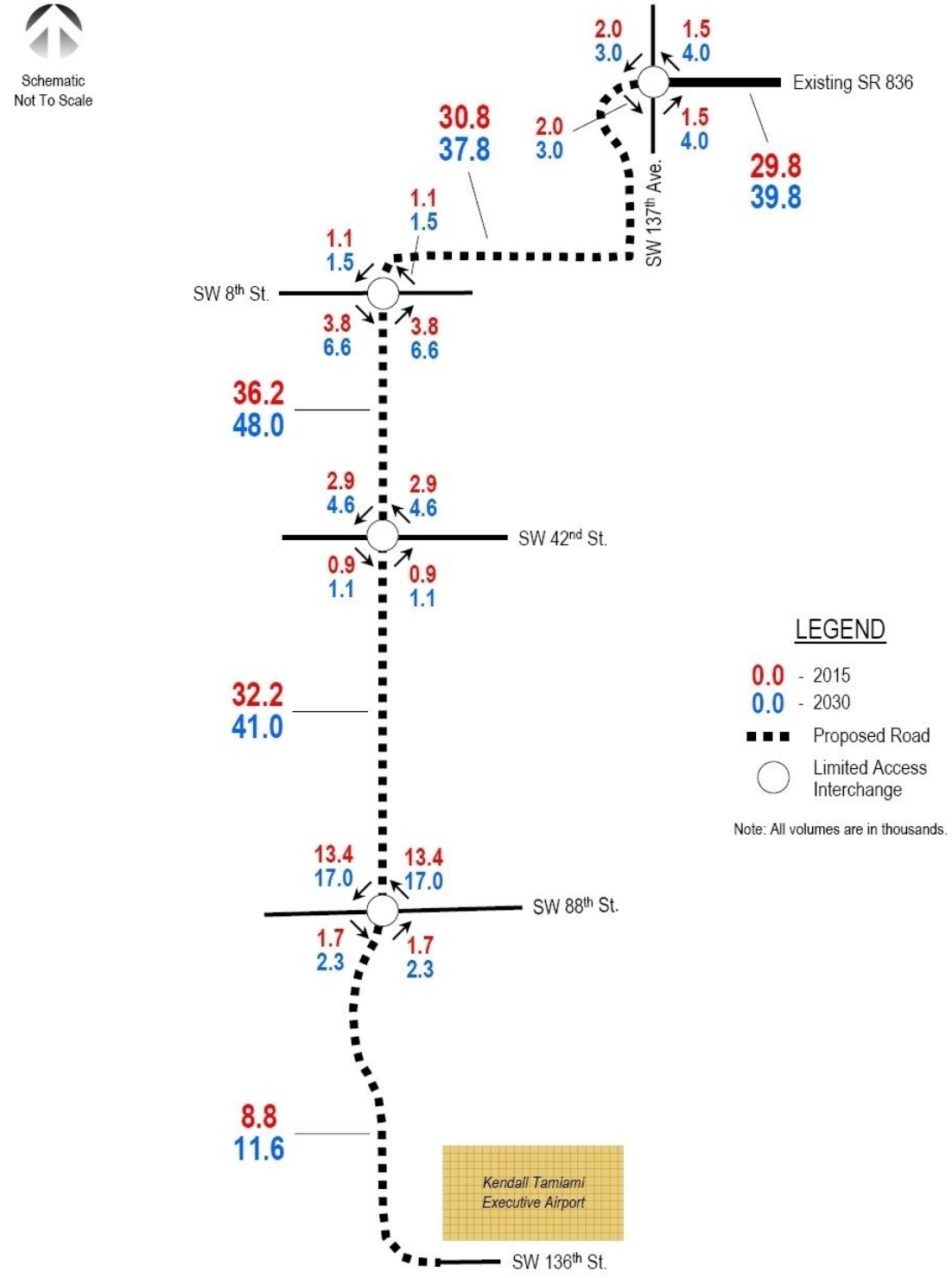


Figure 5- 3 Alternative 3 – Estimated Average Weekday Traffic Volumes



5.2 Travel Time Differentials

An analysis of the potential time differentials that may result from the implementation of each of the project alternatives was performed. This analysis was performed utilizing the computer model results to compare the estimated travel times between a designated pair of points along different paths during the morning peak period. This analysis was performed for three points for all three alternatives as well as the base network with no extension of SR 836 in both 2015 and 2030. The points utilized in this analysis were selected to be representative of typical trip-making. One relatively long distance trip between SW 157th Avenue at SW 136th Street and the Miami Intermodal Center (MIC), approximately 21 miles long, was analyzed. One intermediate length trip between SW 157th Avenue at SW 136th Street and SW 137th Avenue at SW 8th Street, a distance of approximately 14 miles was also analyzed. Lastly, one slightly shorter alternative set of pairs was selected for analysis. This pair compared the travel times between SW 157th Avenue at SW 88th Street and SW 137th Avenue at SW 8th Street a distance of approximately 10 miles. The analysis was performed using one of three primary routes for the purposes of this comparison. The primary alternative routes analyzed were the proposed project, the HEFT, and Krome Avenue. In the case of Alternative 2, the only alternative examined was the HEFT and Krome Avenue since this alternative does not have a significant north-south component. The findings are summarized in **Tables 5-2** and **5-3** below.

The information found on **Tables 5-2** and **5-3** indicate that each alternative in the short term provides a significant benefit in time savings when compared to the no-build alternative. The model also indicates that in 2015 each build alternative provides a travel time substantially lower than comparable routes even though in some instances the distance traveled is greater on the project alternative. In those cases the speed of travel more than compensates for the longer distance.

The computer model anticipates that in 2015, if no extension of SR 836 is constructed, the travel time between the MIC and SW 157th Avenue at SW 136th Street will take approximately 104 minutes utilizing the HEFT and approximately 115 minutes using Krome Avenue. With the implementation of any of the SR 836 Extension alternatives, the travel time between these two points on both Krome Avenue and the HEFT improves considerably. This improvement is in addition to the faster travel time found on the proposed project.

Table 5- 2 Typical Time – Distance Relations

2030 AM PEAK		ALTERNATIVE ONE				
		DISTANCE				
MOVEMENT BETWEEN	PRIMARY ROUTE	MILES	SAVINGS (MILES)	AVERAGE SPEED	TIME	TIME SAVINGS
ORIGIN PAIR 1 SW 157TH AVE AT 136TH STREET TO MIAMI INTERMODAL CENTER	PROJECT	26		13	116	
			-4			-6
	HEFT	22		11	122	
			4			31
	KROME	30		12	147	
ORIGIN PAIR 2 SW 157TH AVE AT 136TH STREET TO 137TH AVE AT SW 8TH STREET	PROJECT	15		21	42	
			0			31
	HEFT	15		12	73	
			2			29
	KROME	17		14	71	
ORIGIN PAIR 3 SW 157TH AVE AND KENDALL DR. TO 137TH AVE AT SW 8TH STREET	PROJECT	11		19	34	
			0			32
	HEFT	11		10	66	
			1			8
	KROME	12		17	42	

2030 AM PEAK		ALTERNATIVE TWO				
		DISTANCE				
MOVEMENT BETWEEN	PRIMARY ROUTE	MILES	SAVINGS (MILES)	AVERAGE SPEED	TIME	TIME SAVINGS
ORIGIN PAIR 1 SW 157TH AVE AT 136TH STREET TO MIAMI INTERMODAL CENTER	PROJECT	26		11	143	
			-5			-1
	HEFT	21		9	142	
			0			6
	KROME	26		11	149	
ORIGIN PAIR 2 SW 157TH AVE AT 136TH STREET TO 137TH AVE AT SW 8TH STREET	PROJECT	14		10	83	
			0			11
	HEFT	14		9	94	
			0			0
	KROME	14		10	83	
ORIGIN PAIR 3 SW 157TH AVE AND KENDALL DR. TO 137TH AVE AT SW 8TH STREET	PROJECT	11		10	71	
			0			14
	HEFT	11		8	85	
			0			0
	KROME	11		9	71	

2030 AM PEAK		ALTERNATIVE THREE				
		DISTANCE				
MOVEMENT BETWEEN	PRIMARY ROUTE	MILES	SAVINGS (MILES)	AVERAGE SPEED	TIME	TIME SAVINGS
ORIGIN PAIR 1 SW 157TH AVE AT 136TH STREET TO MIAMI INTERMODAL CENTER	PROJECT	23		12	116	
			-1			7
	HEFT	22		11	123	
			8			34
	KROME	31		12	150	
ORIGIN PAIR 2 SW 157TH AVE AT 136TH STREET TO 137TH AVE AT SW 8TH STREET	PROJECT	10		16	40	
			5			32
	HEFT	15		12	72`	
			7			34
	KROME	17		14	74	
ORIGIN PAIR 3 SW 157TH AVE AND KENDALL DR. TO 137TH AVE AT SW 8TH STREET	PROJECT	7		14	32	
			4			34
	HEFT	11		10	66	
			4			13
	KROME	11		15	45	

2030 NB AM PEAK–NO BUILD				
		AVERAGE		
MOVEMENT BETWEEN	PRIMARY ROUTE	DISTANCE (MILES)	SPEED (MPH)	TIME (MIN.)
ORIGIN PAIR 1 SW 157TH AVE AT 136TH STREET TO MIAMI INTERMODAL CENTER	HEFT	22	9	141
	KROME	26	11	149
ORIGIN PAIR 2 SW 157TH AVE AT 136TH STREET TO 137TH AVE AT SW 8TH STREET	HEFT	15	9	94
	KROME	14	11	79
ORIGIN PAIR 3 SW 157TH AVE AND KENDALL DR. TO 137TH AVE AT SW 8TH STREET	HEFT	11	8	85
	KROME	11	10	68

Table 5- 3 Typical Time – Distance Relations

2030 AM PEAK	ALTERNATIVE ONE					
		DISTANCE				
MOVEMENT BETWEEN	PRIMARY ROUTE	MILES	SAVINGS (MILES)	AVERAGE SPEED	TIME	TIME SAVINGS
ORIGIN PAIR 1 SW 157TH AVE AT 136TH STREET TO MIAMI INTERMODAL CENTER	PROJECT	26		13	116	
			-4			-6
	HEFT	22		11	122	
			4			31
	KROME	30		12	147	
ORIGIN PAIR 2 SW 157TH AVE AT 136TH STREET TO 137TH AVE AT SW 8TH STREET	PROJECT	15		21	42	
			0			31
	HEFT	15		12	73	
			2			29
	KROME	17		14	71	
ORIGIN PAIR 3 SW 157TH AVE AND KENDALL DR. TO 137TH AVE AT SW 8TH STREET	PROJECT	11		19	34	
			0			32
	HEFT	11		10	66	
			1			8
	KROME	12		17	42	

2030 AM PEAK	ALTERNATIVE TWO					
		DISTANCE				
MOVEMENT BETWEEN	PRIMARY ROUTE	MILES	SAVINGS (MILES)	AVERAGE SPEED	TIME	TIME SAVINGS
ORIGIN PAIR 1 SW 157TH AVE AT 136TH STREET TO MIAMI INTERMODAL CENTER	PROJECT	26		11	143	
			-5			-1
	HEFT	21		9	142	
			0			6
	KROME	26		11	149	
ORIGIN PAIR 2 SW 157TH AVE AT 136TH STREET TO 137TH AVE AT SW 8TH STREET	PROJECT	14		10	83	
			0			11
	HEFT	14		9	94	
			0			0
	KROME	14		10	83	
ORIGIN PAIR 3 SW 157TH AVE AND KENDALL DR. TO 137TH AVE AT SW 8TH STREET	PROJECT	11		10	71	
			0			14
	HEFT	11		8	85	
			0			0
	KROME	11		9	71	

2030 AM PEAK	ALTERNATIVE THREE					
		DISTANCE				
MOVEMENT BETWEEN	PRIMARY ROUTE	MILES	SAVINGS (MILES)	AVERAGE SPEED	TIME	TIME SAVINGS
ORIGIN PAIR 1 SW 157TH AVE AT 136TH STREET TO MIAMI INTERMODAL CENTER	PROJECT	23		12	116	
			-1			7
	HEFT	22		11	123	
			8			34
	KROME	31		12	150	
ORIGIN PAIR 2 SW 157TH AVE AT 136TH STREET TO 137TH AVE AT SW 8TH STREET	PROJECT	10		16	40	
			5			32
	HEFT	15		12	72`	
			7			34
	KROME	17		14	74	
ORIGIN PAIR 3 SW 157TH AVE AND KENDALL DR. TO 137TH AVE AT SW 8TH STREET	PROJECT	7		14	32	
			4			34
	HEFT	11		10	66	
			4			13
	KROME	11		15	45	

2030 NB AM PEAK–NO BUILD				
		AVERAGE		
MOVEMENT BETWEEN	PRIMARY ROUTE	DISTANCE (MILES)	SPEED (MPH)	TIME (MIN.)
ORIGIN PAIR 1 SW 157TH AVE AT 136TH STREET TO MIAMI INTERMODAL CENTER	HEFT	22	9	141
	KROME	26	11	149
ORIGIN PAIR 2 SW 157TH AVE AT 136TH STREET TO 137TH AVE AT SW 8TH STREET	HEFT	15	9	94
	KROME	14	11	79
ORIGIN PAIR 3 SW 157TH AVE AND KENDALL DR. TO 137TH AVE AT SW 8TH STREET	HEFT	11	8	85
	KROME	11	10	68

An examination of the alternatives shows there are wide differences between each alternative's impacts to travel time between locations. As may be expected, Alternative 1 and 3 reduce travel times and improve speeds the most. In 2015, Alternatives 1 and 3 improve the travel times from the Kendall area to the MIC by approximately 28 minutes while Alternative 2 improves the travel time by approximately six minutes. In 2030, both Alternatives 1 and 3 and the HEFT operate at significantly higher speeds and lower travel times than the no-build option, while Krome Avenue operates at approximately the same speed as the no-build option. In contrast with the implementation of Alternative 2, the model suggests that in 2030 the travel times on all paths will be approximately the same as the no-build option. This finding is highly indicative of the primary difference between Alternatives 1 and 3 and Alternative 2. While Alternative 2 adds additional access to Krome Avenue for travelers seeking to travel between south Miami-Dade County and central Miami-Dade County, it does not add capacity for north-south travel. This alternative only improves access to an existing facility allowing better use of that capacity. This may be seen as temporarily alleviating congestion issues on the HEFT, the primary north-south arterial in western Miami-Dade County. However, since it does not add additional north-south capacity, it is not likely that the proposed facility would have the long-term impact of the two other alternatives.

5.3 Annual Revenue Estimates

The project revenues were calculated using Average Annual Daily Traffic (AADT) in accordance with the standard revenue calculation methodology. The conversion factor from Average Annual Week Day Traffic (AAWDT) to Average Daily Traffic (AADT) was accomplished by multiplying the AAWDT by 335. The estimates of project revenue for interim years as well as the system-wide revenue impact for interim years were derived by interpolating revenue streams between 2015 and 2030. The toll rates for the system impact were calculated in accordance with the MDX Board's adopted Open Road Tolling Master Plan. The toll for the project analyzed here was $0.20 a mile to be consistent with previous work performed for MDX.

Traffic and revenue for the proposed alternatives was calculated using Average Annual Daily Traffic (AADT) which is slightly lower than the Average Weekday Traffic (AWDT) used when discussing the traffic impacts of the proposed projects. AWDT was used for the traffic impacts because it is more indicative of potential issues with congestion. AADT is used for calculating revenue because it captures the lower traffic volumes usually associated with weekends. The revenue calculations also assumed the implementation of ORT, in accordance with adopted MDX policy. The revenue calculations also included the proposed surcharge for video tolling. MDX system-wide tolls were calculated at $0.135 per mile; while the tolls on each of the proposed projects were analyzed at $0.20 per mile.

In addition to calculating individual project revenue, WSA estimated the revenue impacts to the MDX system of constructing each alternative from the results of the computer model.

Interestingly the positive system-wide revenue impact of constructing Alternative 3 decreases over time. In 2015, Alternative 3 is estimated to generate an additional $2.17 million in system-wide revenue. In 2030, it is estimated to generate an additional $1.95 million in system-wide revenue. This decrease in system impact is due to Alternative 3's proximity to SR 874. In effect the project feeds traffic into SR 874 in 2015. By 2030 congestion on SR 874 is such that less traffic from the project is attracted to SR 874 thereby reducing the projects system-wide benefit. See **Table 5-4** for a summary of the revenue impacts.

Table 5- 4 Estimated Annual Revenue Stream

	ALTERNATIVE 1				ALTERNATIVE 2				ALTERNATIVE 3			
YEAR	ESTIMATED AVERAGE DAILY TRAFFIC (1)	ESTIMATED ANNUAL GROSS TOLL REVENUE (2) ($1,000s)	ESTIMATED ANNUAL SYSTEM REVENUE IMPACTS	ESTIMATED ANNUAL TOTAL REVENUE IMPACTS	ESTIMATED AVERAGE DAILY TRAFFIC (1)	ESTIMATED ANNUAL GROSS TOLL REVENUE (2) ($1,000s)	ESTIMATED ANNUAL SYSTEM REVENUE IMPACTS	ESTIMATED ANNUAL TOTAL REVENUE IMPACTS	ESTIMATED AVERAGE DAILY TRAFFIC (1)	ESTIMATED ANNUAL GROSS TOLL REVENUE (2) ($1,000s)	ESTIMATED ANNUAL SYSTEM REVENUE IMPACTS	ESTIMATED ANNUAL TOTAL REVENUE IMPACTS
2015	83,100	20,911	2,360	23,271	16,000	4,277	3,796	8,073	99,200	25,188	2,169	27,357
2016	84,596	21,207	2,370	23,577	16,479	4,400	3,845	8,245	100,794	25,518	2,154	27,672
2017	86,119	21,508	2,381	23,889	16,972	4,526	3,895	8,421	102,414	25,852	2,140	27,992
2018	87,669	21,812	2,391	24,203	17,480	4,655	3,946	8,601	104,060	26,190	2,125	28,315
2019	89,247	22,121	2,402	24,523	18,003	4,789	3,997	8,786	105,732	26,533	2,111	28,644
2020	90,854	22,434	2,412	24,846	18,542	4,926	4,049	8,975	107,431	26,880	2,096	28,976
2021	92,490	22,752	2,423	25,175	19,096	5,067	4,102	9,169	109,158	27,232	2,083	29,315
2022	94,155	23,074	2,434	25,508	19,668	5,212	4,155	9,367	110,912	27,588	2,068	29,656
2023	95,849	23,401	2,444	25,845	20,256	5,362	4,209	9,571	112,695	27,949	2,054	30,003
2024	97,575	23,733	2,455	26,188	20,863	5,515	4,264	9,779	114,506	28,315	2,040	30,355
2025	99,331	24,069	2,466	26,535	21,487	5,673	4,319	9,992	116,346	28,686	2,026	30,712
2026	101,120	24,410	2,477	26,887	22,130	5,836	4,376	10,212	118,216	29,061	2,012	31,073
2027	102,940	24,755	2,488	27,243	22,792	6,003	4,432	10,435	120,115	29,442	1,998	31,440
2028	104,793	25,106	2,499	27,605	23,474	6,175	4,490	10,665	122,046	29,827	1,985	31,812
2029	106,680	25,461	2,510	27,971	24,177	6,352	4,548	10,900	124,007	30,217	1,971	32,188
2030	108,600	25,822	2,520	28,342	24,900	6,534	4,593	11,127	126,000	30,613	1,946	32,559
Total		**372,576**	**39,032**	**411,608**		**85,302**	**67,016**	**152,318**		**445,091**	**32,978**	**478,069**

Note:
(1) The AADT is the total traffic on each mainline section of the project from SW 137th Avenue to SW 136th Street. It is assumed that the mainline traffic will be
(2) The gross toll revenue assumes no ramp-up in the initial years of operation.
Source: WSA, SR 836 Southwest Extension Preliminary Traffic and Revenue Analysis, January 2008

SECTION - 6 ENVIRONMENTAL CONSIDERATIONS

A planning level assessment of key environmental factors and potential permitting issues was performed as part of this conceptual engineering analysis. The results of the Environmental Review are described in the following sections.

6.1 Environmental Assessment Methodology

The proposed new Southwest extension of SR 836 from approximately NW 137th Avenue to SW 136th Street was evaluated for potential environmental concerns. A desktop environmental analysis of existing Geographic Information Systems (GIS) databases was conducted within the general boundary area of NW 14th Street to the north, SW 136th Street to the south, SW 152nd Avenue to the east, and SW 177th Avenue to the west (**Figure 6-1**). The information reviewed during the desktop analysis was verified by a field visit to the study area. A more detailed analysis needs to be conducted during subsequent planning efforts.

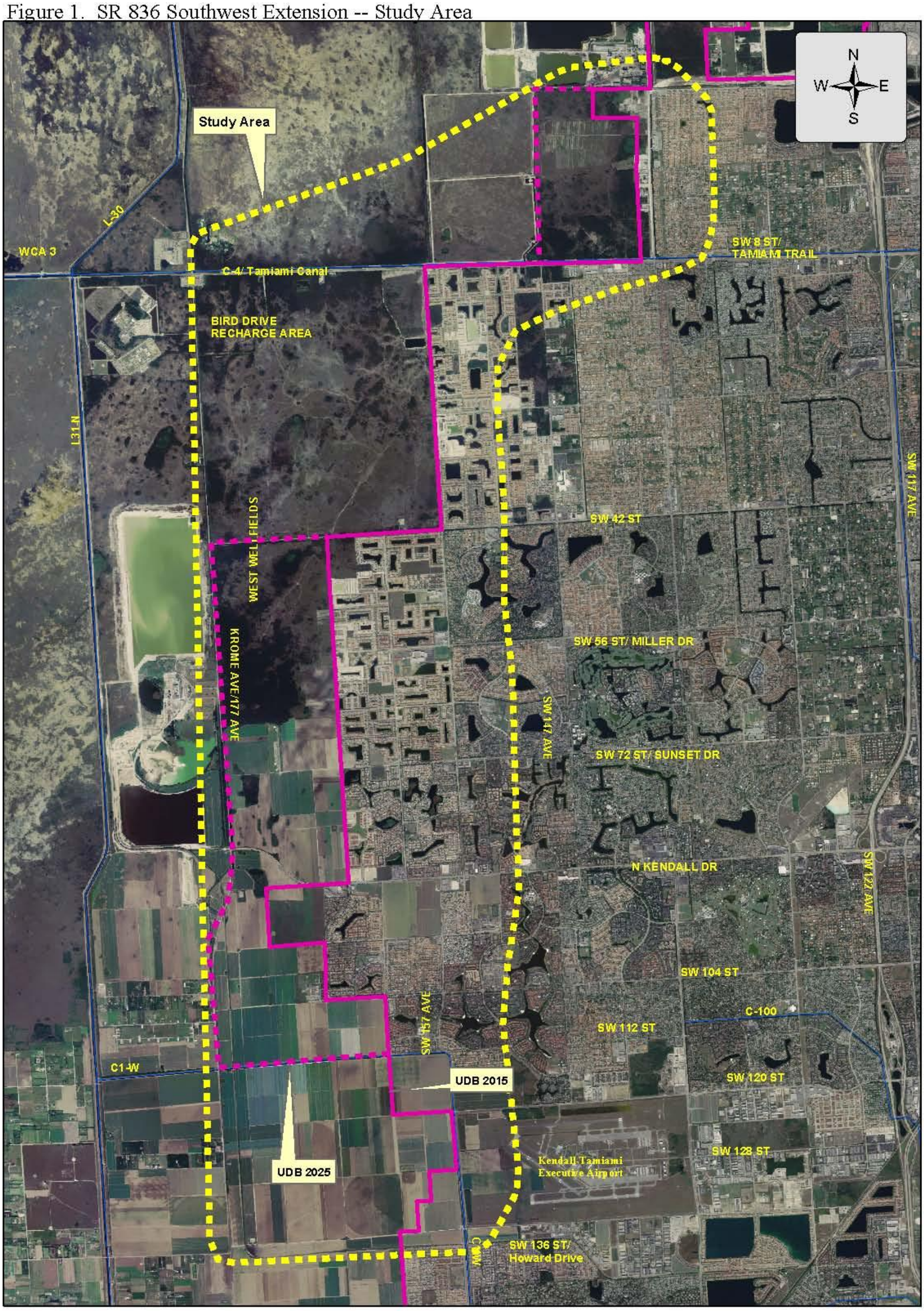
The three (3) alternatives developed for the Concept Report were evaluated and are depicted in **Figure 6-2**. A matrix is presented in **Table 6-1** that summarizes the preliminary environmental impacts for each conceptual alternative.

6.2 Social and Cultural Environment

6.2.1 Land Use

Detailed land use information was presented in Section 4.10. As indicated in existing land use information from the SFWMD, land uses within the study area consists of a mix of multi-purpose conservation, agricultural, commercial, recreational, institutional and low to medium-density residential housing (**Figure 6-3)**.

Figure 1. SR 836 Southwest Extension -- Study Area

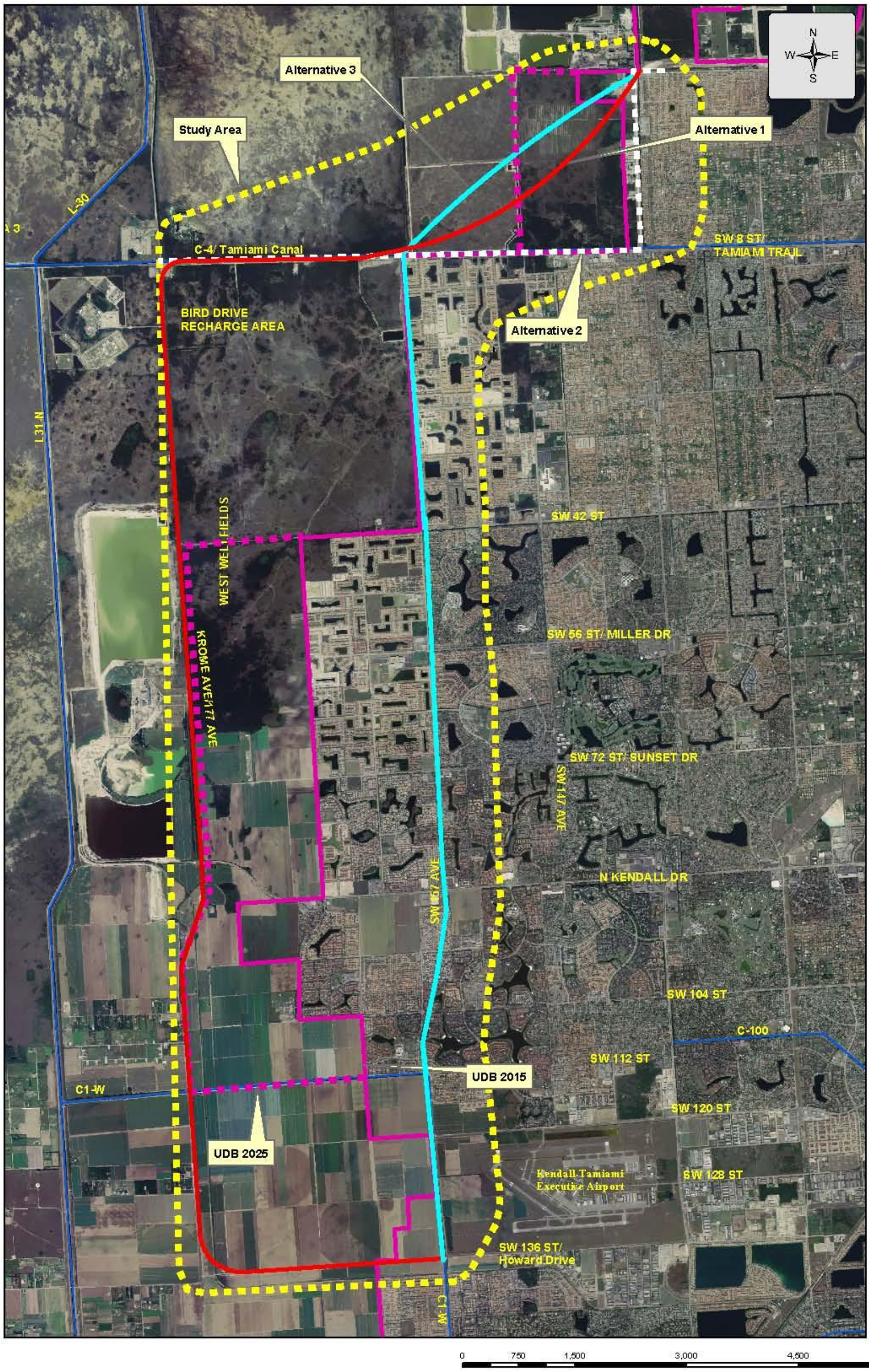


0 700 1,400 2,800 4,200 5,600 Meters

Source: South Florida Water Management District Canals 1997;
South Florida Water Management District Lands 2004;
Land Boundary Information System 2004;
Florida Department of Transportation 2007

Figure 6- 1Project Location

Figure 2. SR 836 Southwest Extension -- Alternatives



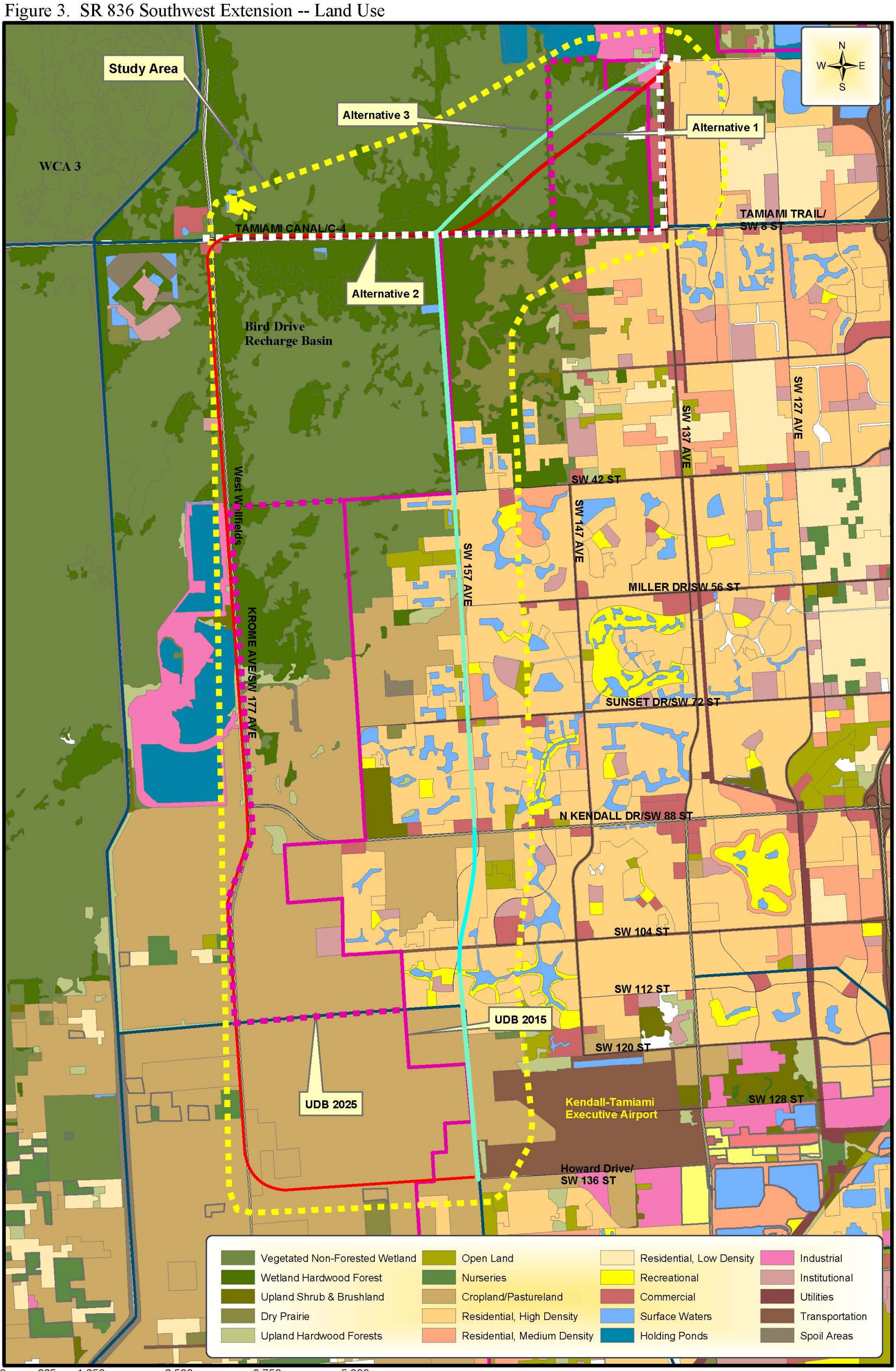
Source: Land Boundary Information System 2004;
Florida Department of Transportation 2007

Figure 6- 2 Alternatives

Table 6- 1 *Proposed Alternatives Evaluation Matrix*

Evaluation Matrix					
	Criteria	Corridor Alternatives 1	2	3	Comments
Environmental	Major Wetland Features	**High**	**Moderate**	**Moderate**	Alternative 1 traverses and parallels freshwater wetlands for most of the corridor. Alternative 2 borders the Bird Drive Recharge Basin wetlands. Alternative 3 borders the Bird Drive Recharge Basin wetlands.
	Surface Water Bodies	**Moderate**	**Moderate**	**Minimal**	Study area contains drainage ponds and canals. Alternatives 1 and 2 parallel drainage canals along SW 8th Street and SW 177th Ave.
	Floodplains	**Minimal**	**Minimal**	**Minimal**	Proposed alternatives fall within designated 100-year Flood Zone AH
	Wildlife and Habitat	**Moderate**	**Minimal**	**Moderate**	Alternative 1 traverses and parallels freshwater wetlands for most of the corridor. Alternative 2 borders the Bird Drive Recharge Basin wetlands. Alternative 3 borders the Bird Drive Recharge Basin wetlands
	Historic & Archaeological Sites	**Moderate**	**Moderate**	**Minimal**	There are several historical and archeological artifacts, such as middens and burial mounds, in the northern portion of the study area, including the Tamiami Trail Bridge and Miccosukee Resort
	Recreation Areas & Potential Section 4(f) properties	**Minimal**	**Minimal**	**Minimal**	Historic Structures: Tamiami Trail Bridge and Miccosukee Resort
	Community Impacts	**Minimal**	**Minimal**	**High**	Alternative 3 extends through existing residential, commercial, and light industrial areas.

Figure 3. SR 836 Southwest Extension -- Land Use



Source: South Florida Water Management District 2004

Figure 6- 3 Land Use

6.2.2 Community Cohesion

Demographic Profile

In recent years the study area has grown from an area of primarily undeveloped farmland to an area developed for commercial businesses and residential purposes. Based on 2005 FDOT demographic data for the zip codes that comprise the study area, the total population was 285,692 persons living in 91,406 total housing units (**Figure 6-4; Table 6-2**).

The average ethnic composition of the project area is 75% White, 4.7% Black, 1.9% Asian and 4.5% other. These numbers, however, mask the true diversity of the project area as approximately 66% of the residents in the study area are of Hispanic origin, classified as white by the Census but coming from a variety of countries and cultures throughout Central and South America and the Caribbean. Overall, the demographics of the area indicate an ethnically diverse population. **Table 6.2** shows the demographics for the study area at the zip code level compared to state and national averages. Usually, the diversity of the community enhances the potential use of multi-modal travel choices.

Alternative 1 would not necessarily affect community dynamics since the majority of the constructed roadway parallels the UEA which is not in close proximity to many developments. Alternative 2 could affect community dynamics since it parallels current Miami Dade County roadways. The southern portion of Alternative 3 travels through established developments along SW 157th Avenue and could potentially disturb existing uses.

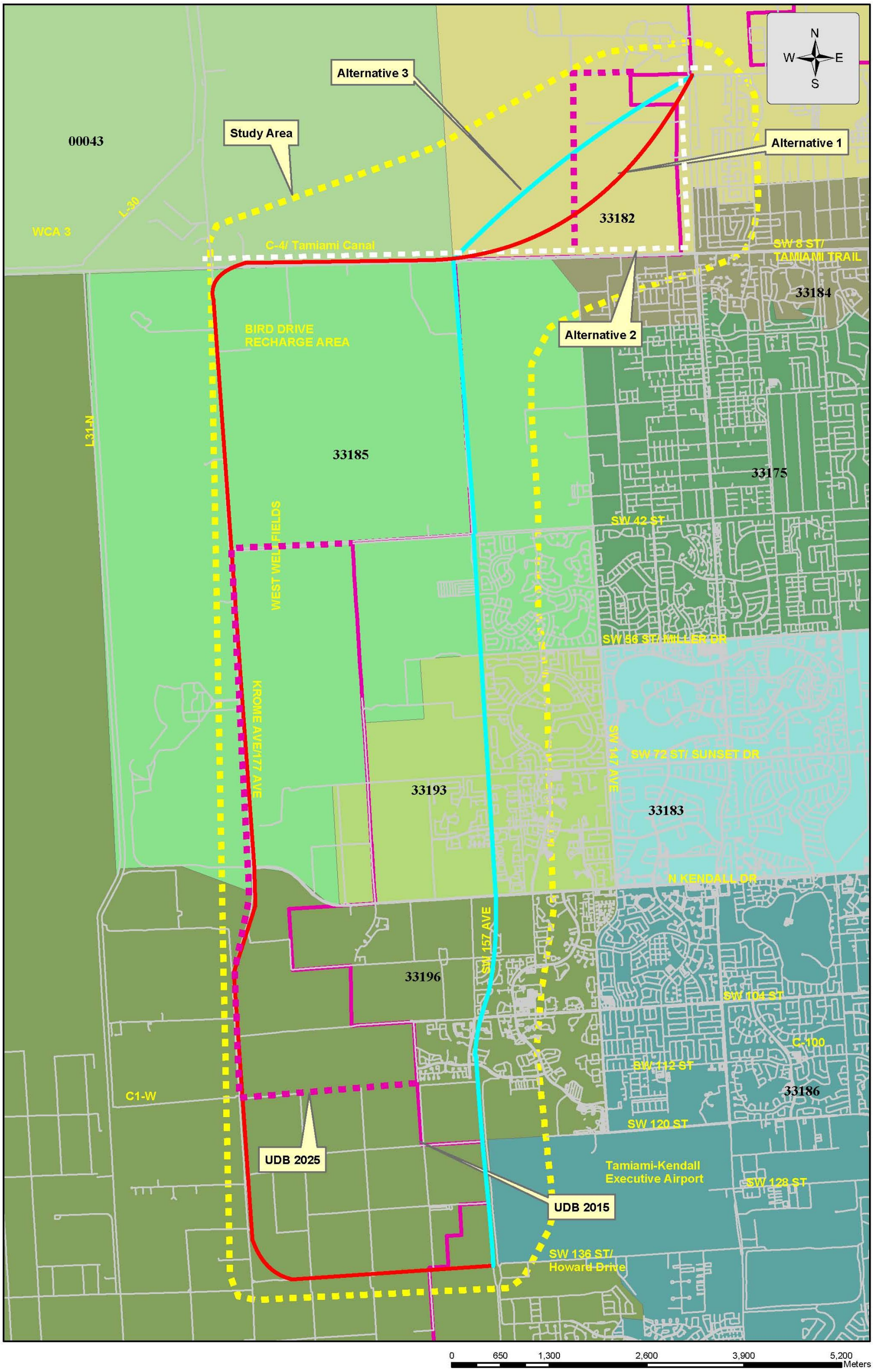
Development of proposed alternatives shall be consistent with guidelines established in Title VI and Title VIII of the Civil Rights Act of 1964, as amended in 1968.

6.2.3 Social and Economic Characteristics

All conceptual alternatives are intended to facilitate commuting options and increase mobility for residents and businesses in the project area. Currently, there are commercial, agricultural, and residential land uses, within the study area.

Table 6-3 shows the number of people employed over the age of 16 per zip code, per capita income, and families and individuals below the poverty line compared to state and national averages. Per capita income in the study area is less than both the state and national averages. The majority of people living within the vicinity of the study area commute alone with a minimum daily commute of 30 minutes to more than one and a half hours to get to work. Most workers in the study area are employed in private wage or salary jobs, followed by government jobs, then self-employed unincorporated businesses. Occupational trends were similar with management, professional, sales, and office occupations comprising the majority of employment for workers in the study area. Total families and individuals living under the poverty level made up approximately 11% of the total population, compared to 12.6% and 13.0% for Florida and the United States; respectively. The economic health of a community can help to determine pricing options for tolling as well as the design of the multi-modal facility.

Figure 4. SR 836 Southwest Extension -- Zip Codes



Source: Land Boundary Information System 2004;
Florida Department of Transportation 2007

Figure 6- 4 Zip Code

Table 6- 2 General Characteristics by Zip Codes

General Characteristics	Zip Code 33175	Zip Code 33182	Zip Code 33183	Zip Code 33184	Zip Code 33185	Zip Code 33186	Zip Code 33187	Zip Code 33193	Zip Code 33194	Zip Code 33196	Study Area Average	Study Area Total	Florida	National
Population (2000)	52,581	16,887	35,422	19,855	9,868	59,935	14,014	42,469	0	34,661	28,569	285,692	15,982,378	281,421,906
Number of Housing Units	15,881	3,900	11,882	6,190	3,054	21,535	4,624	12,927	1	11,412	9,141	91,406	8,256,847	124,521,886
Median Age	37.5	32.8	34.7	37.9	34.2	33.7	33.3	31.5	0	31.2	30.5		38.7	35.3
Median Household Income	$53,888	$39,481	$37,053	$33,967	$47,177	$43,525	$45,048	$43,713	$0	$53,333	$39,275		$42,433	$44,334
Racial Composition														
White	91.0%	78.6%	86.3%	90.0%	89.9%	81.1%	81.3%	79.9%	0.0%	78.4%	75.7%	26.5%	80.4%	80.2%
Black or African American	1.0%	11.5%	2.8%	1.0%	1.9%	7.0%	7.2%	7.0%	0.0%	7.6%	4.7%	1.6%	15.7%	12.8%
American Indian or Alaska Native	0.3%	0.1%	0.1%	0.1%	0.0%	0.1%	0.2%	0.2%	0.0%	0.2%	0.1%	0.0%	0.4%	1.0%
Asian	1.1%	0.8%	2.0%	0.4%	1.6%	3.3%	2.2%	1.8%	0.0%	3.0%	1.6%	0.6%	2.1%	4.3%
Native Hawaiian/Pacific Islands	0.0%	0.0%	4.8%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.5%	0.2%	0.1%	0.2%
White person not Hispanic	4.4%	4.9%	3.9%	4.9%	3.4%	4.6%	5.3%	6.8%	0.0%	6.3%	4.5%	1.6%	62.1%	66.9%
Hispanic/Latino (of any race)	84.3%	76.5%	73.9%	88.1%	78.4%	58.0%	59.9%	76.8%	0.0%	65.4%	66.1%	23.1%	19.5%	14.4%

Table 6- 3 Economic Characteristics by Zip Code

Economic Characteristics	Zip Code 33175	Zip Code 33182	Zip Code 33183	Zip Code 33184	Zip Code 33185	Zip Code 33186	Zip Code 33187	Zip Code 33193	Zip Code 33194	Zip Code 33196	Study Area Average	Study Area Total	Florida	National
In Labor Force (16 years & over)	24,810	6,508	17,272	9,462	4,982	31,824	6,959	19,302	0	17,294	13,841	138,413	7,869,210	151,000,000
Per Capita Income	$17,797	$16,655	$18,613	$16,535	$20,608	$21,638	$20,604	$13,820	0	$19,205	$16,548	$165,475	$21,557	$21,587
Families Below Poverty Level	935	255	832	441	165	952	159	1,352	0	535	563	5,626	422,000	7,143,000
Individuals Below Poverty Level	4,448	1,263	3,650	1,760	630	4,509	851	6,058	0	1,604	2,477	24,773	2,174,000	35,846,000

6.2.4 Community Services

Figure 6-5 graphically depicts the location of community facilities and services identified within the study area. These facilities were identified through the use of currently available data bases.

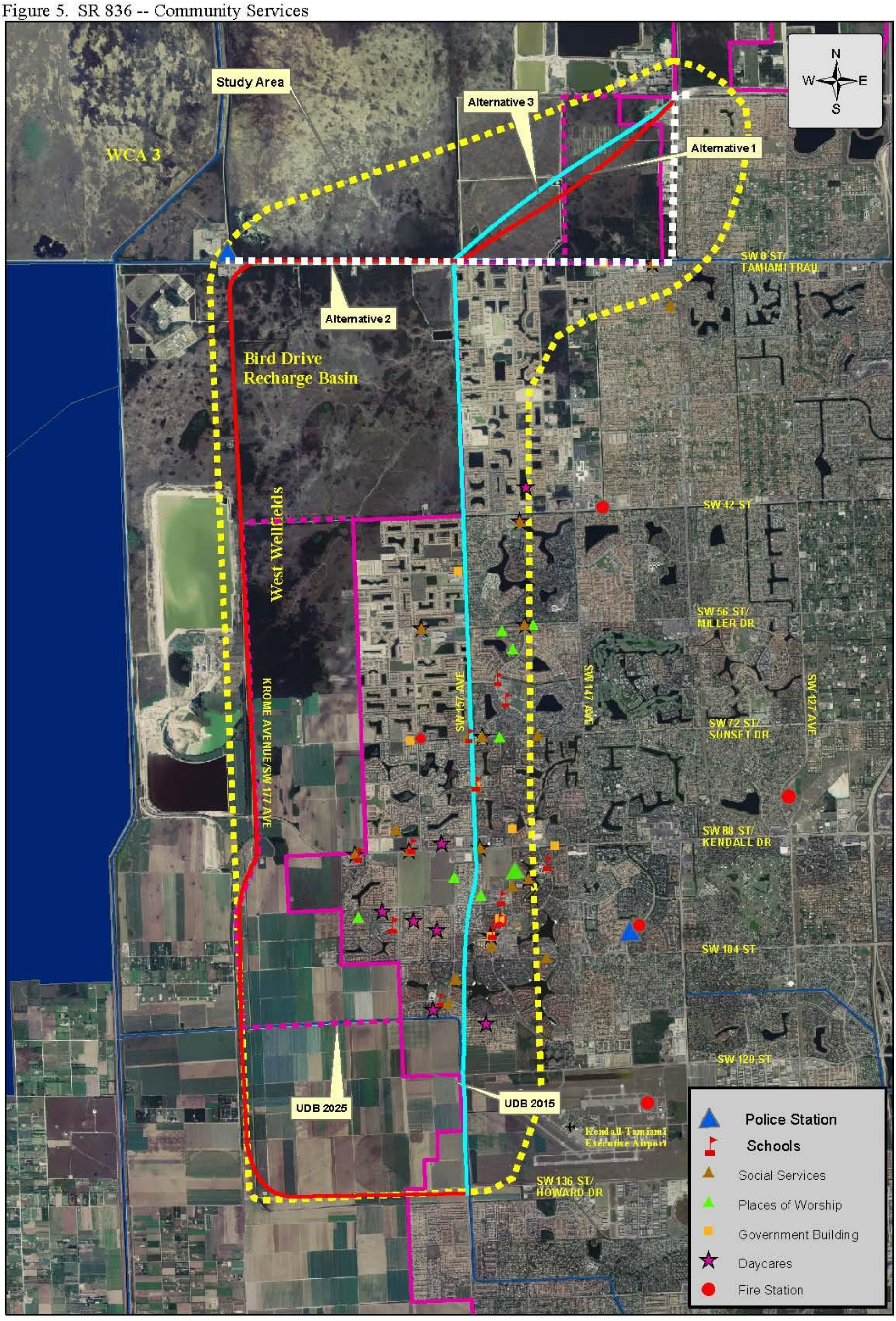
The religious facilities located within the study area:

- Prince of Peace Catholic Church, 12800 NW 6th Street
- Florida Conference of Seventh Day Adventist Auditing. 16504 SW 97th Street
- The Mission of Tao Confucianism of Miami, 395 NW 128th Avenue
- Church of Jesus Christ of Latter Day Saints, 15400 SW 72nd Street
- Iglesia Cristiana Discípulos de Cristo. 15544 SW 72nd Street
- Word of Faith World Outreach Ministry, 9488 SW 154th Avenue
- Mercy Family Center, 9227 SW 157th Path
- Mother of Christ Catholic Church, 14141 SW 26th Street
- Jubilee Community Church, 3350 SW 144th Avenue
- Iglesia Cristo Rompe Las Cadenas, 15513 SW 32nd Terrace
- Iglesia Espiritu Santo Y Fuego, 4386 SW 163rd Path
- Templo El Rey Jesús, 9353 SW 152nd Avenue

The childcare facilities located within the study area:

- Coral Park Day School & Kindergarten, 325 NW 136th Court
- Happy Hippo Day Care & Learning Center, 15673 SW 88th Street
- Kids Rainbow Learning Center and Childcare, 13860 SW 8th Street
- Kidz Ark Learning Center & Day Care, 15536 SW 72nd Street
- Kinder House Learning Center, 15785 SW 56th Street
- Paradise Lakes Learning Center, 16760 SW 88th Street
- Laverde Large Family Child Care Home, 15804 SW 99th Terrace
- Morales Large Family Child Care Home, SW 159th Place
- Salcedo Large Family Child Care Home, SW 112th Terrace
- Huayamave Family Day Care Home, 15985 SW 98th Street
- Martinez Family Day Care Home, 9622 SW 163rd Avenue
- Veliz family Day Care Home, 11279 SW 154th Avenue
- Kinder Kids Daycare & Learning Center,13700 Southwest 13th Street
- Kinder Prep School Inc., 8391 SW 163rd Place
- Lago Mar Pre School, 15732 SW 72nd Street
- Early Education Child Care Center, 9270 SW 150th Avenue
- Kinder Care Learning Center, 4801 SW 140th Avenue
- Little Promises Daycare Center, 15194 SW 56th Street
- Town Center Pre-School, 1002 Hammocks Boulevard #149
- Kidz Ark Learning Center and Daycare, 15532 SW 72nd Street
- Kidz Learning Center of Miami, 16237 SW 88th Street

Figure 5. SR 836 -- Community Services



Source: Statewide Water Management District Land Use 2004

Figure 6- 5 Community Features

Miami-Dade County Public Schools within the study area:

- Lamar Louise Curry Middle School, 15750 SW 47th Street
- Dante Fascell Elementary, 15625 SW 80th Street
- Bowman Foster Ashe Elementary , 1625 SW 72nd Street
- Oliver Hoover Elementary 9600 SW 157th Avenue
- Dr. Gilbert L. Porter Elementary School, 15851 SW 112th Street
- Dr. Gilbert L. Porter Primary Learning Center, 15751 SW 112th Street
- John Ferguson High School, 15900 SE 56th Drive
- Christina M. Eve Elementary 16251 SW 99th Street
- Ashe Bowman Foster Elementary PLCN, 16251 SW 72nd Street
- Felix Varela Senior High, 15255 SW 96th Street
- Hammocks Middle School, 9889 Hammocks Boulevard

In addition to the above facilities or services there is a United States Postal Service (USPS) office (14310 SW 8th Street), two private schools, 30 elder care and/or assisted living facilities, three dental offices and several private community parks located in the study area. Police service is provided by the Hammocks Station located at 10000 SW 142nd Avenue. The Miccosukee Police station (SW 8th Street and Krome Avenue) is also located within the study area. Fire stations within the study area are located at 10001 Hammocks Boulevard and 15155 SW 10th Street. Additional fire stations in the vicinity are West Sunset (16250 SW 72nd Street), Miami Dade Fire Department Air Rescue (14150 SW 127th Street), West Bird (4200 SW 142nd Avenue), and West Kendall (8501 SW 127th Avenue). While there are no hospitals or public parks located within the study area, the nearest facilities for residents are Baptist Hospital (8900 North Kendall Drive), Kendall Regional Medical Center (11750 SW 40th Street), and South Miami Hospital (6200 SW 73rd Street).

All proposed alternatives will be designed to increase mobility within the study area and minimize any negative effects on these community services to the extent feasible. In particular, the maintenance of access to schools along the Alternative 3 corridor would especially need to be considered during subsequent planning and design efforts.

6.2.5 Archaeological and Historical

Fifteen (15) historical sites listed in the Florida State Historic Preservation Office (SHPO) Master Site File (**Figure 6-6**) are found within the northern portion of the study area. The listed sites are as follows:

- L and L Site-Prehistoric Burial
- Refugee Island-Prehistoric Burial
- Krome Avenue Historic Road Segment
- John-Prehistoric Camp Site Bird-Prehistoric Midden
- Jane Gray-Prehistoric Midden
- Miccosukee Resort and Gaming, 17700 SW 8th Street
- Lookout Tower Island-Prehistoric Midden
- Tamiami Trail #1-Prehistoric Burial Ground

- Willow Camp-Prehistoric Campsite
- C-4 Site-Prehistoric Campsite
- Lehigh Portland-Prehistoric Midden
- Tamiami Trail Bridge (SW 137th Avenue & SW 8th Street)
- Corolla Site
- Turtle Mound-Prehistoric Burial
- Daniels Estates #1

In addition to these sites, Miccosukee tribal lands are located in the north and northwest portion of the study area and consultation with the Tribal Historic Preservation Officer (THPO) for the Miccosukee Tribe of Indians of Florida would be required. Alternatives 1 and 2 are adjacent to parcels owned by the Miccosukee tribe along SW 8th Street between SW 157th Avenue and Krome Avenue. All design alternatives should minimize potential impacts to these facilities.

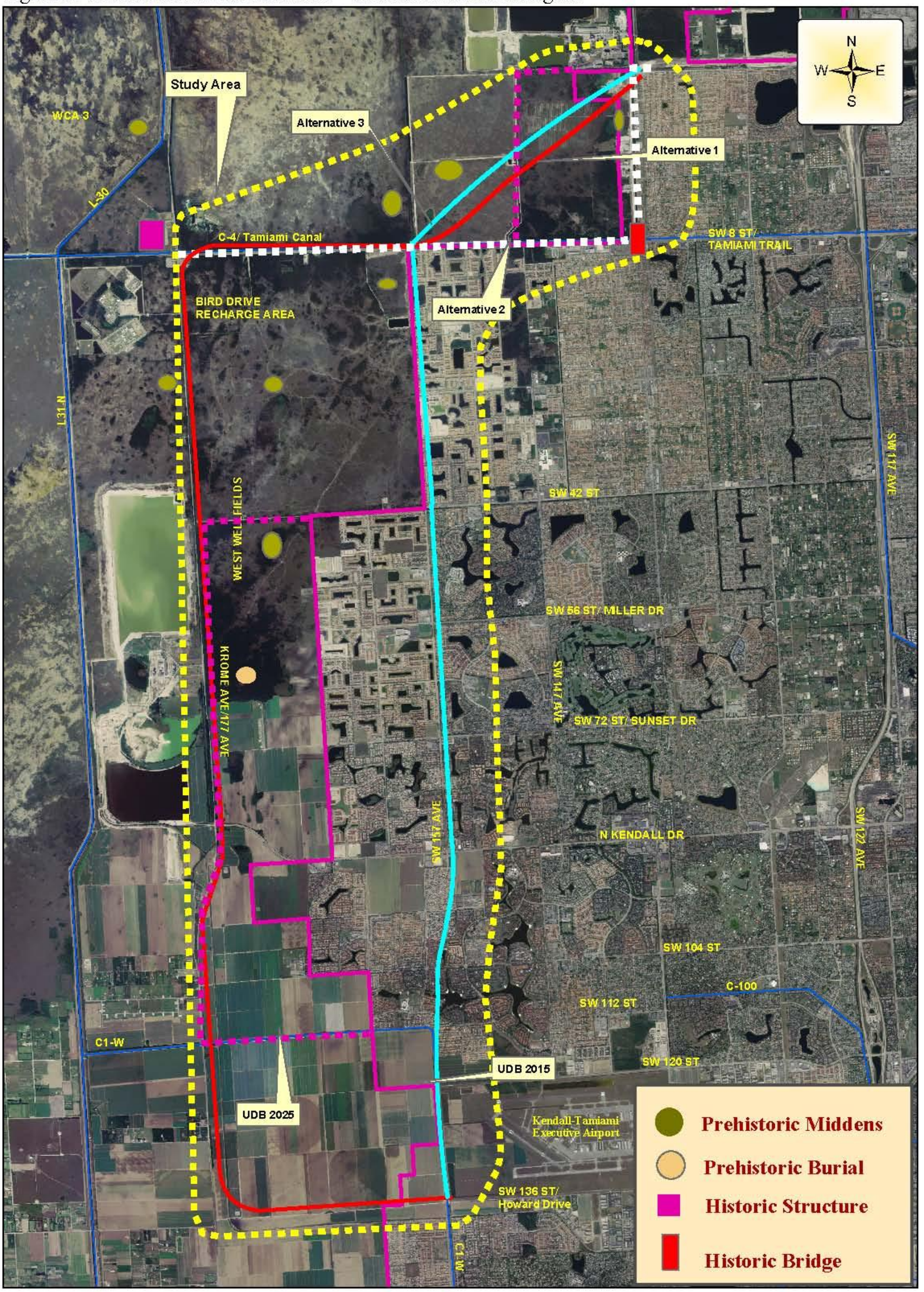
6.2.6 Visual Characteristics and Aesthetics

The aesthetic quality of a community is composed of visual resources: those physical features that make up the visible landscape. These resources include land, water, vegetation and man-made features such as buildings, roadways, signage, structures, lighting, and utilities. An assessment of the existing features surrounding the project has been conducted as part of this study. The visual resources vary by segment. The heavily populated northern and eastern portion of the corridor consists of residential dwellings with landscaping, commercial structures and Miami-Dade school properties with landscaping. The southern and western portions of the study area consist of farmlands and conservation areas. A notable structure along the western part of the corridor is Miccosukee Resort & Gaming at the intersection of SW 8th Street and SW 177th Avenue.

Viewscapes in the northern and eastern portions of the study area are highly urbanized. However, the southern and western portion viewscapes currently have unobstructed views of the existing open space of agriculture and the Florida Everglades. In particular, residents living in the western portion of the study area have a view towards the Water Conservation Areas (WCA's), Everglades National Park (ENP), and general natural system.

Any elevated structures incorporated into all three alternatives would have an impact on the current unobstructed open and residential viewscapes. Additionally, any surface widening in Alternative 3 would impact the aesthetics of the corridor.

Figure 6. SR 836 Southwest Extension -- Historical & Archeological



Source: Land Boundary Information System 2004;
Florida Department of Transportation 2007;
Bureau of Archeological Research 2008

Figure 6- 6 Archaeological and Historic Features

6.3 Natural Environment

6.3.1 Wetlands

Freshwater marsh and swamp abut the study area to the north and west (**Figure 6-7**). The Miccosukee and the SFWMD own most of this land in the north and northwest portion of the study area. Specifically, in the northwest, the proposed study area traverses conservation lands containing freshwater wetlands considered recharge basins for the Biscayne Aquifer and South Dade Conveyance Systems. The Bird Drive Recharge Basin, a component of the CERP, is within the project area and it serves to recharge groundwater and aid in seepage reduction from Everglades National Park (ENP).

The Everglades wetlands are the dominant wetland ecosystem in south Florida. The ENP ecosystem federally protects 2,354 square miles within its boundaries. The northern boundary of the ENP follows Tamiami Trail/ Tamiami Canal (C-4) while its eastern boundary follows SFWMD L-3 levee/canal. The ENP is approximately 2 miles west of the study area. Water Conservation Area 3 (WCA-3) encompasses 915 square miles and is divided into units 3A (786 square miles) and 3B (128 square miles) by the L-67 levees/canals. Additionally, the Pennsuco wetlands, which are north of the study area, are also located within this wetland ecosystem.

The WCA-3B borders the project area to the west. In WCA-3B, sawgrass (*Cladium jamaicense*) and Gulf coast spikerush (*Eleocharis cellulose*) are the dominant grasses within the ridge/slough community ecotone. However, the wetlands bordering the study area's west side are generally dominated by exotic species such as Melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolius*), and Australian pine (*Casuarina equisetifolia*). As such, the wetlands in the north and central portions of the project are classified according to Florida Land Use, Cover and Forms Classification System (FLUCCS) as 619 (exotic wetland hardwoods), and according to U.S. Department of the Interior, Fish and Wildlife Service -National Wetlands Inventory – 1991 (NWI) as follows: SYSTEM – Palustrine; CLASS – Emergent Shrub; SUBCLASS – Persistent Broad-leafed Evergreen; WATER REGIME – Seasonally Flooded.

A ditch parallels SW 177th St (Krome Avenue) to the east and is co-dominated by a mixture of nuisance/exotics [cattails (*Typha domingensis*), Burma reed (*Neyraudia reynaudiana*), and common reed (*Phragmites australis*)], and native sawgrass. The bank of the ditch is dominated by Brazilian pepper as is classified by FLUCCS as 619 (exotic wetland hardwood), and by NWI as follows: SYSTEM – Palustrine; CLASS – Emergent Shrub; SUBCLASS - Persistent Broad-leafed Evergreen; WATER REGIME – Temporarily Flooded, with the exception that the ditch is permanently flooded.

Due to the on-going melaleuca eradication program, some areas in the northern portion of the study area dominated by dead melaleuca stumps and trunks are currently re-colonized by sawgrass. These wetlands are classified by FLUCCS as 641 (marsh), and by NWI as follows: SYSTEM – Palustrine; CLASS – Emergent; SUBCLASS – Persistent; WATER REGIME – Seasonally Flooded.

Alternative 1 lies adjacent to WCA-3B, the Bird Drive Recharge Basin, and undeveloped Miccosukee and State-owned lands. Alternative 2 also borders the Bird Drive Recharge Basin, and Miccosukee and State-owned lands from SW 157th Avenue to Krome Avenue along SW 8th Street. Alternative 3 has a small portion bordering the Bird Drive Recharge Basin, but remains well east of Miccosukee and State-owned land. All Alternatives will need to minimize impacts to these sensitive areas or provide a mitigation plan should impacts occur.

6.3.2 Water Quality

Water features of the study area include: wetlands, canals, ditches, artificial lakes, and retention ponds. The Biscayne aquifer, the sole source aquifer of potable drinking water for Dade County, underlies all of Miami-Dade. A portion of the study area is located within the Miami-Dade West Wellfield and any operation or construction of non-residential land uses is restricted within the wellfield protection area.

Surface waters within the study area and surrounding area drain to the southeast Atlantic coast through SFWMD canals (C-111, C-1W / Black Creek, and C-4 / Tamiami Canal). Both the C-1W and C-4 pass through the study area and provide flood protection; drainage and supply water for this basin; they maintain the water table elevation to prevent impacts from salt water intrusion into local groundwater; and transport discharges into Biscayne Bay. These wetlands, canals, and ditches are designated Class III Waters of the State.

The Alternatives are not anticipated to negatively impact or alter water quality within the study area.

6.3.3 Aquatic Preserves, Outstanding Florida Waters, Wild and Scenic Rivers

There are no aquatic preserve, Outstanding Florida Waters (OFWs), or wild and scenic rivers within the study area.

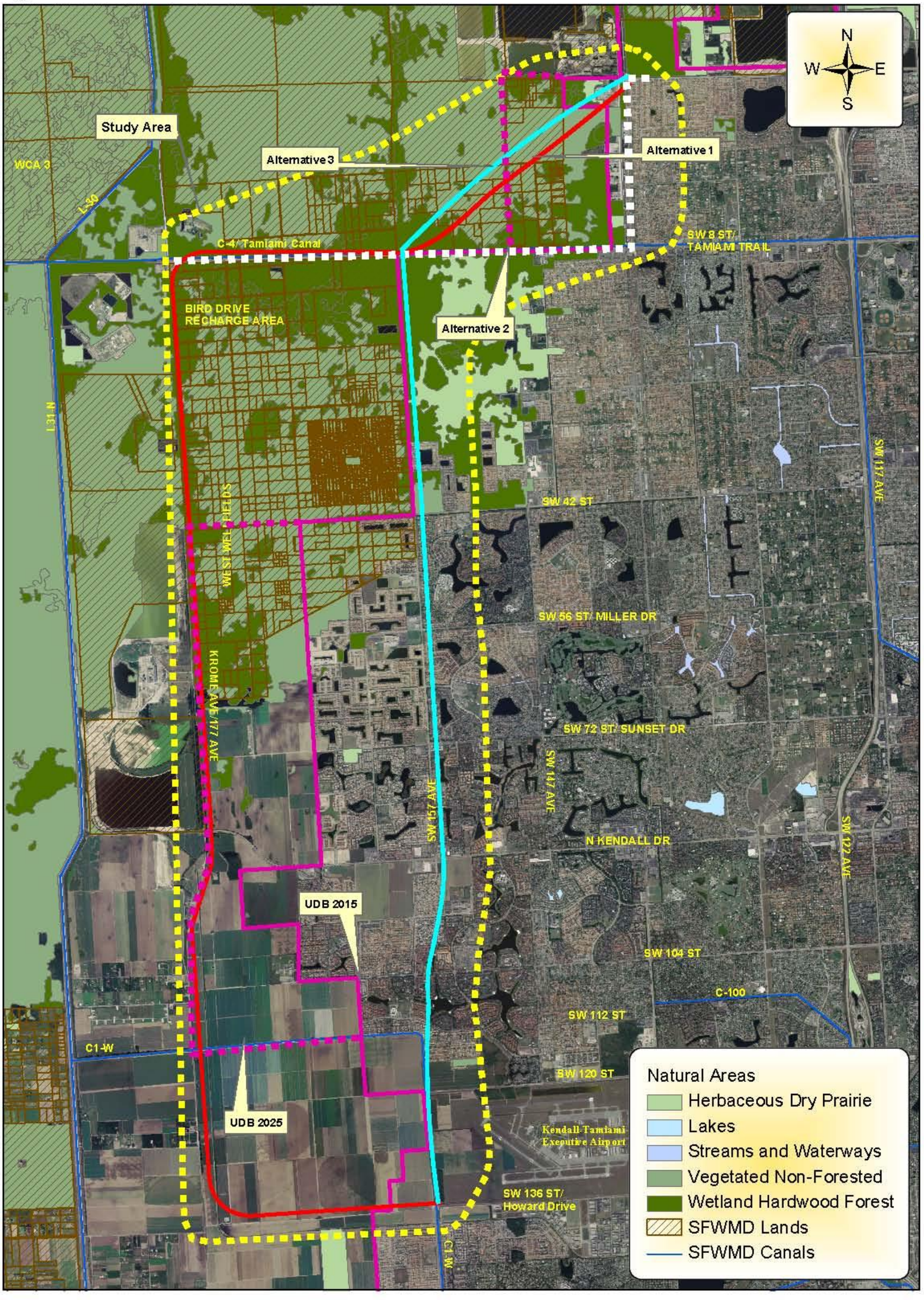
6.3.4 Essential Fish Habitat (EFH)

There are no designated EFH within the study area.

6.3.5 Floodplains

With the exception of a relatively small segment designated Zone X north of SW 88th Street (Kendall Drive), the entire study area is designated within the 100-year floodplain (Zone AH). Zone AH - elevation 8 applies to the area north of Kendall Drive, while Zone AH - elevation 9 applies to the area south of Kendall Drive.

Figure 7. SR 836 Southwest Extension -- Natural Areas



Source: South Florida Water Management District Canals 1997;
South Florida Water Management District Lands 2004;
Land Boundary Information System 2004;
Florida Department of Transportation 2007

Figure 6- 7 Wetlands

6.3.6 Wildlife and Habitat

Field surveys conducted by the FDOT (2004-2006) and other federal, state, and local regulatory agencies concluded that along the project area's southern and western portion, four federally listed species may be present (**Table 6-4**). A wood stork rookery and core foraging area (CFA) are within the vicinity of the study area. The eastern indigo snake utilizes a vast variety of habitats from xeric scrub and wet prairies to mangrove swamps. It is common and highly distributed throughout South Florida. The study area lies outside the boundaries of the Florida Panther Consultation Area (PCA); therefore, according to the US Fish and Wildlife Service (USFWS) key for Florida panthers, a determination of "no effect" is appropriate. All waterways, including canals, are considered to be potential habitats (not critical habitat) of the West Indian manatee. **Table 6-5** depicts state listed floral species with the possibility to be found within the study area.

Table 6- 4 Federally Listed Species Potentially Found Within Study Area

Common Name	Scientific Name	Federal Status
Florida panther	*Puma concolor coryi*	E
West Indian manatee	*Trichechus manatus latirostris*	E
Wood stork	*Mycteria americana*	E
Eastern indigo snake	*Drymarchon corais couperi*	T

E = Endangered; T = Threatened

Table 6- 5Floral State Listed Species Possibly Found Within Study Area

Common Name	Scientific Name	State Status
Tamarindillo	*Acacia choriophylla*	E
Golden leather fern	*Acrostichum aureum*	T
Everglades leaf lace	*Alvaradora amorphoides*	E
Joewood	*Jacquinia keyensis*	T
Florida thatch palm	*Thrinax radiata*	E

E = Endangered; T = Threatened

Table 6-6 contains a complete listing of fish and wildlife species listed as endangered, threatened, or species of special concern by either the USFWS or the Florida Fish and Wildlife Conservation Commission (FFWCC) with the potential to occur within the project area. Due to the high urbanization within the study area's northern and eastern portions, neither federally nor states listed species would be expected to frequent. However, it is possible that some species may traverse the study area and forage on occasion on the way to less urbanized areas.

Table 6- 6 Status of Federal and State Listed Wildlife Species with Possible Habitat in the Study Area

Species		Designated Status	
Common Name	**Scientific Name**	**FFWCC**	**USFWS**
American Alligator	*Alligator mississippiensis*	SSC	T (S/A)
Arctic Peregrine Falcon	*Falco peregrinus tundirus*	T	T
Bald Eagle	*Haliaeetus leucocephalus*	T	T
Eastern Indigo Snake	*Drymarchon corais couperi*	T	T
Florida Burrowing Owl	*Athene cunicularia floridana floridana*	SSC	-
Florida Mastiff Bat	*Eumops glaucinus floridanus*	E	-
Florida Mouse	*Podomys floridanus*	SSC	-
Florida Pine Snake	*Pituophis melanoleucus mugitus*	SSC	-
Florida Sandhill Crane	*Grus canadensis pratensis*	T	-
Gopher Frog	*Rana capito*	T	-
Gopher Tortoise	*Gopherus polyphemus*	SSC	-
Limpkin	*Aramus guarauna*	SSC	-
Little blue Heron	*Egretta caerulea*	SSC	-
Everglades mink	*Mustela vison evergladensis*	T	-
Reddish egret	*Egretta rufescens*	SSC	-
Roseate Spoonbill	*Ajaia ajaja*	SSC	-
Sherman's Fox Squirrel	*Sciurus niger shermani*	SSC	-
Snail Kite	*Rostrhamus sociabilis plumbeus*	E	E
Snowy Egret	*Egretta thula*	SSC	-
Southeast American Kestrel	*Falco sparverius paulus*	T	-
Tricolored Heron	*Egretta tricolor*	SSC	-
West Indian Manatee	*Trichechus manatus latirostris*	E	E
White Ibis	*Eudocimus albus*	SSC	-
Wood Stork	*Mycteria americana*	E	E

FFWCC = Florida Fish and Wildlife Conservation Commission
USFWS = U.S. Fish and Wildlife Service
T (S/A) = Threatened/ Similarity of Appearance to a Threatened Taxon in the Entire Range
T = Threatened
E= Endangered
SSC= Species of Special Concern

Alternative 1 is directly adjacent to WCA-3 freshwater marshes and forested areas of the Bird Drive Recharge Basin, where the occurrence of the species listed above is likely to exist. Alternative 2 also traverses lands of the Bird Drive Recharge Basin and Miccosukee owned lands which may be used by listed flora and faunal species. Alternative 3 is more urbanized, such that, federal and state listed species would be less likely to frequent. However, it is possible that some species may traverse the area and forage on occasion on the way to less urbanized areas to the west and south. Special technical provision would be in place to protect listed species that may be found in the study area and project corridor during construction.

6.3.7 Permit Conditions

Table 6- 7 Anticipated Permits

Type of Permit	Issuing Agency
Environmental Resource Permit	SFWMD
Right-of-Way Permit	SFWMD
Section 404 Dredge and Fill Permit	USACE
Class IV Wetlands	DERM
Tree Removal/Relocation Permit	DERM

6.3.8 Farmlands

Located in the project area are farmlands which consist of large produce farms (row crops/tree crops) and plant nurseries. These farmlands make up a large portion of the southern project area from SW 52nd Street to SW 136th Street.

Alternative 1 traverses agricultural lands from SW 72nd Street south to SW 136th Street, while Alternative 3 traverses agricultural lands from SW 112 Street south to SW 136th Street. Alternative 2 is far north of the agricultural lands and would have no impact on them.

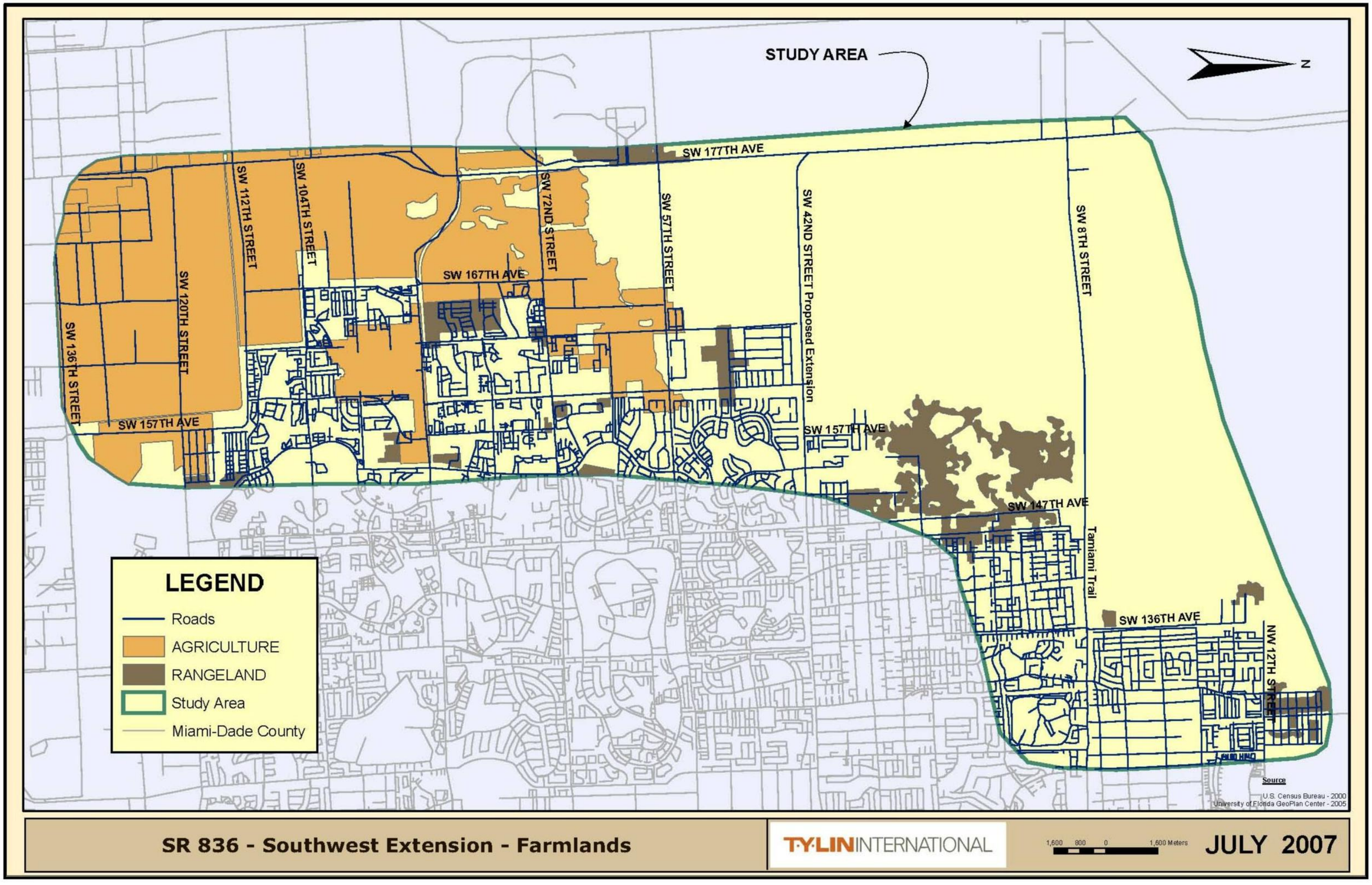


Figure 6-8 Farmlands

6.4 Physical Environment

6.4.1 Noise

This section describes the noise exposure on surrounding communities that could be affected by the development of the proposed SR 836 Southwest Extension project alternatives.

The objectives of this section are to identify noise sensitive sites adjacent to the project alternatives corridors, to quantify future traffic noise levels, and to evaluate the need for noise abatement measures. Noise may be defined as unwanted sound. Noise and sound are physically the same, but the difference is in the opinion of the receiver. A sound is produced by a source that has induced vibrations in the air. The result of the air movement is sound waves that are radiated in all directions; these sound waves can be scattered or reflected back depending on the surroundings.

The traffic noise levels must comply with FHWA Noise Abatement Criteria (NAC) contained in the Code of Federal Regulations (23 CFR Part 772) and presented by the FDOT in Part 2, Chapter 17 of the PD&E Manual.

To evaluate traffic noise, the Federal Highway Administration (FHWA) has established the NAC shown in Table 6-8 below. When predicting traffic noise levels "approach" or exceed the NAC, or when predicted traffic noise levels increase substantially from existing levels, Florida Statute 335.17 requires that noise abatement measure be consistent with 23 CFR 772. FDOT defines the word "approach" as within 1 dBA of the NAC, and a substantial increase occurs if noise levels are predicted to increase by 15 dBA or more as a direct result of the transportation improvement project.

Table 6- 8 Noise Abatement Criteria (Hourly A-Weighted Sound Level-decibels (dBA)

Activity Category	Abatement Level (in L_{Aeq1h})		Description of activity category
	FHWA	FDOT	
A	57	56 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	66 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, RV parks, day care centers and hospitals.
C	72	71 (Exterior)	Developed lands, properties, or activities not included in Categories A and B above.
D	- -	- -	Undeveloped lands.
E	52	51 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

The study area has a number of noise sensitive areas such as churches, schools, libraries and hospitals. Preliminary data show five highly sensitive facilities (hospitals, nursing homes or adult living facilities). Approximately seventeen churches of different denominations and three golf courses are located in the surrounding general area of this corridor. **Table 6-9**, **Table 6-10** and **Table 6-11** provide a list of high, medium and low sensitive noise receptors on the Conceptual Corridor Study area for each alternative analyzed.

Alternatives 2 and 3 could be more susceptible to noise and vibrations during construction due to the presence of residences along their alignments. It should be noted that no known sensitive receptors exist along the Alternative 1 alignment. A noise analysis should be conducted as part of the PD&E study.

Table 6- 9 Land Use and Potential Noise Receptors - Alternative 1

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
HIGH SENSITIVITY LEVEL					
	(RED)				
		Hospitals, Nursing Homes and Adult Congregate Living Quarters.			
	430		USMD	HOSPITAL/MED	Miami Cerebral Palsy Residential Services Inc. 11801 NW 2nd Street
	430		USMD	HOSPITAL/MED	Miami Cerebral Palsy Residential Services Inc. 7100 SW 122 Avenue
MEDIUM SENSITIVITY LEVEL					
	(BLUE)				
		Residential			
	0	Residential	URSM	SINGLE FAMILY	East side of NW 12th St. between NW 127th Ave and NW 137th Ave, North side of SR 836 Ramp between 11th St. and 9th St., East of SW 8th St. between SW137th Ave. and SW147th Ave.,
	10	Single-Family, Med.-Density (2-5 DU/Gross Acre).	URSM	SINGLE FAMILY	
	11	Single-Family, High Density (Over 5 DU/Gross Acre, other than Townhouses	URSM	SINGLE FAMILY	
	12	Townhouses.	URMF	MULTY-FAMILY	
	13	Single-Family, Low-Density (Under 2 DU/Gross Acre).	URSL	SINGLE FAMILY	
	20	Two-Family (Duplexes).	URSM	SINGLE FAMILY	
	30	Multi-Family, Low-Density (Under 25 DU/Gross Acre).	URMF	MULTY-FAMILY	
	35	Multi-Family, High Density (Over 25 DU/Gross Acre).	URMF	MULTY-FAMILY	
	50	Migrant Camps.	URMF	MULTY-FAMILY	
	61	Mobile Home Parks and Permanent Mobile Homes.	URMH	MOBILE HOME	

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
	(YELLOW)				
		Public Schools, Including Playgrounds (K-12, Vocational Ed., Day Care)			
	411	Public School	USGF	GOVERNMENT	School Board of Miami Dade Paul Bell Middle School 11800 NW 2nd Street Miami, FL 33182 (305)220-2075
	411	Public School	USGF	GOVERNMENT	School Board of Miami Dade Marjory Stoneman Douglas School 11901 SW 2nd Street Miami, FL 33184 (305)226-4356
		Private Schools, Including Playgrounds (K-12, Vocational Ed., Day Care)			
	412	Private School	USGF	GOVERNMENT	Florida Conference Association of Seventh-Day Adventist Greater Miami Adventist Academy 500 NW 122nd Avenue (305)220-5955
	412	Private School	USGF	GOVERNMENT	Conchita Espinosa Academy 12975 SW 6th Street, Miami, FL 33184 (305)227-1149
	412	Private School	USGF	GOVERNMENT	Belen School Inc. 350 SW 127th Avenue, Miami, FL 33184 (786) 621-4631
	412	Private School	USGF	GOVERNMENT	Gladeview Christian School 12201 SW 26th Street Miami, FL 33175-2213 (305) 551-6143
	(ORANGE)				
		Houses of Worship and Religious.			
	440	Church	USRL	Religious Facility	Archdiocese of Miami Prince of Peace Catholic 12800 NW 6 Street
	440	Church	USRL	Religious Facility	The Redeemer Presbyterian Church Inc., 11975 SW 2nd Street
	440	Church	USRL	Religious Facility	Chinese Baptist Church of Miami 12385 SW 6th Street
	440	Church	USRL	Religious Facility	Gladeview Baptist Church of Miami 12201 SW 26th Street Miami, FL 33175-2213 (305) 226-1414

FHWA NAC CATEGORY: B 56 dBA (Exterior)

Table 6- 10 Land Use and Potential Noise Receptors - Alternative 2

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
HIGH SENSITIVITY LEVEL					
	(RED)				
		Hospitals, Nursing Homes and Adult Congregate Living Quarters.			
	430		USMD	HOSPITAL/MED	Miami Cerebral Palsy Residential Services Inc. 11801 NW 2nd Street
	430		USMD	HOSPITAL/MED	Miami Cerebral Palsy Residential Services Inc. 7100 SW 122 Avenue
MEDIUM SENSITIVITY LEVEL					
	(BLUE)				
		Residential			
	0	Residential	URSM	SINGLE FAMILY	East side of NW 12th St. between NW 127th Ave and NW 137th Ave, North side of SR 836 Ramp between 11th St. and 9th St., North of NW 137th Ave between NW 6th St. and SW 8th St., East of SW 8th St. between SW137th Ave. and SW147th Ave.,
	10	Single-Family, Med.-Density (2-5 DU/Gross Acre).	URSM	SINGLE FAMILY	
	11	Single-Family, High Density (Over 5 DU/Gross Acre, other than Townhouses	URSM	SINGLE FAMILY	
	12	Townhouses.	URMF	MULTY-FAMILY	
	13	Single-Family, Low-Density (Under 2 DU/Gross Acre).	URSL	SINGLE FAMILY	
	20	Two-Family (Duplexes).	URSM	SINGLE FAMILY	
	30	Multi-Family, Low-Density (Under 25 DU/Gross Acre).	URMF	MULTY-FAMILY	
	35	Multi-Family, High Density (Over 25 DU/Gross Acre).	URMF	MULTY-FAMILY	
	50	Migrant Camps.	URMF	MULTY-FAMILY	
	61	Mobile Home Parks and Permanent Mobile Homes.	URMH	MOBILE HOME	
	(YELLOW)				
		Public Schools, Including Playgrounds (K-12, Vocational Ed., Day Care)			
	411	Public School	USGF	GOVERNMENT	School Board of Miami Dade Paul Bell Middle School 11800 NW 2nd Street Miami, FL 33182 (305)220-2075
	411	Public School	USGF	GOVERNMENT	School Board of Miami Dade Marjory Stoneman Douglas School 11901 SW 2nd Street Miami, FL 33184 (305)226-4356

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
		Private Schools, Including Playgrounds (K-12, Vocational Ed., Day Care)			
	412	Private School	USGF	GOVERNMENT	Florida Conference Association of Seventh-Day Adventist Greater Miami Adventist Academy 500 NW 122nd Avenue (305)220-5955
	412	Private School	USGF	GOVERNMENT	Conchita Espinosa Academy 12975 SW 6th Street, Miami, FL 33184 (305)227-1149
	412	Private School	USGF	GOVERNMENT	Belen School Inc. 350 SW 127th Avenue, Miami, FL 33184 (786) 621-4631
	(ORANGE)				
		Houses of Worship and Religious.			
	440	Church	USRL	Religious Facility	Archdiocese of Miami Prince of Peace Catholic 12800 NW 6 Street
	440	Church	USRL	Religious Facility	The Redeemer Presbyterian Church Inc., 11975 SW 2nd Street
	440	Church	USRL	Religious Facility	Chinese Baptist Church of Miami 12385 SW 6th Street

FHWA NAC CATEGORY: B 56 dBA (Exterior)

Table 6- 11 Land Use and Potential Noise Receptors – Alternative 3

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
HIGH SENSITIVITY LEVEL					
	(RED)				
		Hospitals, Nursing Homes and Adult Congregate Living Quarters.			
	430		USMD	HOSPITAL/MED	Miami Cerebal Palsy Residential Services Inc. 11801 NW 2nd Street
	430		USMD	HOSPITAL/MED	Miami Cerebal Palsy Residential Services Inc. 7100 SW 122 Avenue
	431		USMD	HOSPITAL/MED	Kendall Regional Medical Center 11750 SW 40th Street, Miami, FL 33175 (305) 222-2200
	432		USMD	HOSPITAL/MED	HCRA Properties I LLC 9400 SW 137th Avenue
	433		USMD	HOSPITAL/MED	Kendall Crossings Inc. 5914 SW 120th Street

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
	434		USMD	HOSPITAL/MED	Oceans Star Pro-Medical Center 2623 SW 147th Avenue, Miami, FL 33185 (305) 553-5155
MEDIUM SENSITIVITY LEVEL					
	(BLUE)				
		Residential			
	0	Residential	URSM	SINGLE FAMILY	East side of NW 12th St. between NW 127th Ave and NW 137th Ave, North side of SR 836 Ramp between 11th St. and 9th St., East of SW 8th St. between SW137th Ave. and SW 147th Ave.,
	10	Single-Family, Med.-Density (2-5 DU/Gross Acre).	URSM	SINGLE FAMILY	
	11	Single-Family, High Density (Over 5 DU/Gross Acre, other than Townhouses	URSM	SINGLE FAMILY	
	12	Townhouses.	URMF	MULTY-FAMILY	
	13	Single-Family, Low-Density (Under 2 DU/Gross Acre).	URSL	SINGLE FAMILY	
	20	Two-Family (Duplexes).	URSM	SINGLE FAMILY	
	30	Multi-Family, Low-Density (Under 25 DU/Gross Acre).	URMF	MULTY-FAMILY	
	35	Multi-Family, High Density (Over 25 DU/Gross Acre).	URMF	MULTY-FAMILY	
	50	Migrant Camps.	URMF	MULTY-FAMILY	
	61	Mobile Home Parks and Permanent Mobile Homes.	URMH	MOBILE HOME	
	(YELLOW)				
		Public Schools, Including Playgrounds (K-12, Vocational Ed., Day Care)			
	411	Public School	USGF	GOVERNMENT	School Board of Miami Dade Paul Bell Middle School 11800 NW 2nd Street Miami, FL 33182 (305)220-2075
	411	Public School	USGF	GOVERNMENT	School Board of Miami Dade Marjory Stoneman Douglas School 11901 SW 2nd Street Miami, FL 33184 (305)226-4356
	411	Public School	USGF	GOVERNMENT	School Board of Dade County Wesley Matthews Elementary School 12345 SW 18th Terr. Miami, FL 33175 (305)222-8150

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Joe Hall Elementary School 1901 SW 134th Avenue Miami, FL 33175 (305)223-9823
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County W.R Thomas Junior School 13001 SW 26th Street Miami, FL 33175 (305)995-9823
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Zora Neale Thurston Elementary School 13137 SW 26th Street Miami, FL 33176 (305)222-8152
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Greenglade Elementary School 3060 SW 127th Avenue Miami, FL 33175 (305)223-5330
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade CountyVillage Green Elementary School12265 SW 34th Street Miami, FL 33175(305)226-0441
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Braddock G. Holmes Senior High 3601 SW 147th Avenue Miami, FL 33185 (305)225-9729
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Lamar Louise Curry Middle 15750 SW 47th Street Miami, FL 33185 (305)222-2775
	411	Public School	USGF	GOVERNMENT	Dade County School Board John A Ferguson Senior High School 15900 SW 56th Street Miami, FL 33185 (305)408-2700
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Jane S. Roberts Elementary School 14850 Cottonwood Circle Miami, FL 33185 (305)222-8254

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Ethel Beckam Koger Elementary School 4702 SW 143rd Ct. Miami, FL 33175 (305)222-8161
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Bent Tree Elementary School 4861 SW 140th Avenue Miami, FL 33175 (305)221-4462
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Royal Green Elementary School 13047 SW 47th Street Miami, FL 33175 (305)221-4462
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Miami Sunset Senior High School 13125 SW 72nd Avenue Miami, FL 33183 (305)385-4255
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Howard McMillan Middle School 13100 SW 59th Street Miami, FL 33183 (305)385-6877
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Howard Doolin Middle School 6401 SW 152nd Avenue Miami, FL 33193 (305)386-6656
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Bowman Foster Ashe Elementary School 6601 SW 152nd Avenue Miami, FL 33194 (305)386-6667
	411	Public School	USGF	GOVERNMENT	Dade County School Board Bowman Foster Ashe Primary Center 16251 SW 72nd Street Miami, Florida 33193 (305)380-1927
	411	Public School	USGF	GOVERNMENT	B P I Dante B Fascell Elementary 15625 SW 80 Street, Miami, FL 33193 (305) 380-1927

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Kendall Lakes Elementary School 8000 SW 142nd Avenue, Miami, FL 33183 (305)385-2575
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Winston Park Elementary School 13200 SW 79th Street, Miami, FL 33183 (305)386-7622
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Claude Pepper Elemtary School 14550 SW 96th Street, Miami, FL 33186 (305)386-5244
	411	Public School	USGF	GOVERNMENT	School Board of Dade County Oliver Hoover Elementary School 9050 Hammocks Blvd., Miami, FL 33196 (305)385-4382
	411	Public School	USGF	GOVERNMENT	School Board of Dade CountyFelix Varela Senior High School15255 SW 96th Street, Miami, FL 33196(305)752-7900
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Calusa Elementary School 9580 w Calusa Club Dr., Miami, FL 33186 (305)385-0589
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Hammocks Middle School 9889 Hammocks Blvd., Miami, FL 33196 (305)325-0896
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Christina M Eve Elementary School 16251SW 99th Street, Miami, FL 33196 (305)383-9392
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Gilbert Porter Elementary School 15851 SW 112th Street, Miami, FL 33196 (305)382-0792

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
	411	Public School	USGF	GOVERNMENT	School Board of Miami-Dade County Devon k-8 Center 10501 SW 122nd Avenue, Miami, FL 33186 (305)274-7100
		Private Schools, Including Playgrounds (K-12, Vocational Ed., Day Care)			
	412	Private School	USGF	GOVERNMENT	Florida Conference Association of Seventh-Day Adventist Greater Miami Adventist Academy 500 NW 122nd Avenue (305)220-5955
	412	Private School	USGF	GOVERNMENT	Conchita Espinosa Academy 12975 SW 6th Street, Miami, FL 33184 (305)227-1149
	412	Private School	USGF	GOVERNMENT	Belen School Inc. 350 SW 127th Avenue, Miami, FL 33184 (786) 621-4631
	412	Private School	USGF	GOVERNMENT	Village Green Christian School 4707 SW 127th Ave, Miami, FL, 33175 (305) 559-4297
	413	Private School	USGF	GOVERNMENT	Calusa Preparatory School 12515 SW 72nd Street
	414	Private School	USGF	GOVERNMENT	Archimedean Prop. LLC 12425 SW 72nd Street
	415	Private School	USGF	GOVERNMENT	Reverend John C Favalora as Archbishop 10300 SW 167th Avenue
	416	Private School	USGF	GOVERNMENT	Happy Hippo Daycare 13268 SW 120th Street, Miami, FL 33186 (305) 233-9528
	417	Private School	USGF	GOVERNMENT	John C Favalora Archbishop Our Lady-Lourdes Elementary 14000 SW 112th Street, Miami, FL 33186 (305)386-8446
	418	Private School	USGF	GOVERNMENT	Lifetime International Education Heritage School 13300 SW 120th Street, Miami, FL 33186 (305)232-2222
	419	Private School	USGF	GOVERNMENT	St. Kevin Catholic School 4001 SW 127th Avenue, Miami, FL, 33175 (305)227-7571

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
	420	Private School	USGF	GOVERNMENT	Gladeview Christian School 12201 SW 26th Street Miami, FL 33175-2213 (305) 551-6143
	(ORANGE)				
		Houses of Worship and Religious.			
	440	Church	USRL	Religious Facility	Archdiocese of Miami Prince of Peace Catholic 12800 NW 6 Street
	440	Church	USRL	Religious Facility	The Redeemer Presbyterian Church Inc., 11975 SW 2nd Street
	440	Church	USRL	Religious Facility	Chinese Baptist Church of Miami 12385 SW 6th Street
	440	Church	USRL	Religious Facility	Gladeview Baptist Church of Miami 12201 SW 26th Street Miami, FL 33175-2213 (305) 226-1414
	441	Church	USRL	Religious Facility	Archdiocese of Miami John C Favalora Archbishop Mother of Christ Catholic 14141 SW 26 Street, Miami, FL 33175 (305) 559-6111
	442	Church	USRL	Religious Facility	Archdiocese of Miami Edward A. McCarthy Archbishop 12525 SW 42 Street
	443	Church	USRL	Religious Facility	Village Green Baptist Church 4707 SW 127th Avenue
	444	Church	USRL	Religious Facility	Iglesia Evangelica Nueva 5400 SW 122nd Avenue
	445	Church	USRL	Religious Facility	Southeast Regional Conference of Brethrem in Christ Church Inc. 12101 SW 56th Street, 33175 (305) 229-3901
	446	Church	USRL	Religious Facility	Asambleas Misioneras Elim Inc. 11989 SW 56th Street, 33175 (305) 225-8803
	447	Church	USRL	Religious Facility	Encuentros Familiares Inc. 12190 SW 56th Street
	448	Church	USRL	Religious Facility	1st Baptist Church of Westwood Lake Inc. 5801 SW 120th Avenue
	449	Church	USRL	Religious Facility	Moravian Church in America 6001 SW 127th Avenue
	450	Church	USRL	Religious Facility	First Baptist Church of Village Green Inc. 6565 SW 127th Avenue
	451	Church	USRL	Religious Facility	Kendale Faith United Methodist Church 12601 SW 72nd Street
	452	Church	USRL	Religious Facility	Freedom Baptist Church of DC Inc. 12515 SW 72nd Street

LEVEL	MD PROPERTY ID NUMBER	LAND USE CATEGORY	DERM CLASSIFICATION	DESCRIPTION	ADDRESS AND/OR LOCATION
	453	Church	USRL	Religious Facility	Sunset Church of Christ Inc. 12001 SW 72nd Street
	454	Church	USRL	Religious Facility	International Center of Praise 7205 SW 125th Avenue
	455	Church	USRL	Religious Facility	Church of Jesus Christ of Later-Day Saints -Tax Administration 15400 SW 72nd Street, 33193 (305) 385-0480
	456	Church	USRL	Religious Facility	Oasis Ministry International Inc. 7615 SW 127th Avenue
	457	Church	USRL	Religious Facility	The Lord of Life Lutheran Church 9225 SW 137th Avenue
	458	Church	USRL	Religious Facility	West Kendall Baptist Church Inc. 14955 SW 88th Street
	459	Church	USRL	Religious Facility	John C Favalora Archbishop Our Lady-Lourdes Catholic 14000 SW 112th Street, 33186
	460	Church	USRL	Religious Facility	Central Presbyterian Church TRS Creative Learning Center 12455 SW 104 Street (305)274-4006
	461	Church	USRL	Religious Facility	St. Luke the Physician Inc. 12355 SW 104th Street
LOW SENSITIVITY LEVEL					
(GREEN)					
Local Parks and Playgrounds (Other than Schools). Includes public					
	510	Golf Course	USGF	GOVERNMENT	Miccosukee Tribe of Indians of Florida/ Golf Course 6400 SW 145th Avenue
	510	Golf Course	USGF	GOVERNMENT	Miccosukee Tribe of Indians of Florida/ Golf Course 6805 SW 152nd Avenue
	510	Golf Course	USGF	GOVERNMENT	Northeastern Golf LLC 9400 SW 130th Avenue

FHWA NAC CATEGORY: B 56 dBA (Exterior)

6.4.2 Air Quality

The purpose of this section is to present the findings of a pre-screening air quality analysis for the SR 836 Southwest Extension to SW 136th Street for the three alternatives proposed by the MDX. The project is located in unincorporated Miami-Dade County.

Potential air quality impacts in the surrounding areas of the three alignments should be assessed in accordance with Chapter 16 of the FDOT PD&E Manual and consistent with the guidance provided by the FHWA.

Any of the proposed alternatives will alter traffic conditions and influence the air quality within the study area. The pollutants of primary concern with roadway traffic according to the National Ambient Air Quality Standards (NAAQS) are ozone (O^3), oxides of

nitrogen (NOx), hydrocarbons (HC), small particulate matter (PM10) and carbon monoxide (CO). Ozone, NOx, HC and PM10 are analyzed at the program level in Miami-Dade County, unless specific review of an individual project is requested by reviewing agencies.

Since CO is a localized pollutant that is emitted directly into the atmosphere by vehicles, it is analyzed for individual roadway projects where substantial changes to the traffic conditions are anticipated. The NAAQS for CO is set at 35 parts per million (ppm) for one hour periods and 9 ppm for eight-hour periods.

A previous air quality report developed by FDOT on an improvements project for Krome Avenue (FDOT, May 2006) indicated that levels of CO were not considered to cause any exceedance of the one-hour or eight-hour NAAQS. Therefore, no air quality impacts were expected. The Tamiami Trail intersection with Krome Avenue was selected for this analysis.

As of June 2005, Miami-Dade County is an area designated by the Environmental Protection Agency (EPA) full attainment for all of the National Ambient Quality Standards under the criteria provided in the Clean Air Act Amendments of 1990. Therefore, the Clean Air Act conformity requirements for transportation conformity no longer apply.

6.4.3 Contamination

A preliminary Contamination Screening Evaluation Report (CSER) was prepared to identify properties and businesses that use, store, or distribute petroleum products, hazardous wastes, or other regulated materials, or potentially contain environmental contamination, that may be located within or adjacent to the proposed right-of-way of the three possible alignments. The purpose of the evaluation is to determine the potential risks associated with any soil and groundwater contamination within the proposed alternatives from properties or operations located within the right-of-way (ROW) or project vicinity. This section presents the findings of a Contamination Screening Evaluation needed to fulfill the requirements in Volume 2, Chapter 22 of the FDOT, PD&E Manual.

Based on the available information in Environmental Data Resources (EDR) reports and regulatory agencies (FDEP and DERM) files reviewed contamination of soil and groundwater by petroleum hydrocarbon, metals and solvents has been documented at several locations adjacent to three corridor alternatives as follows:

- Nine sites in Alternative 1;
- Sixteen sites in Alternative 2; and
- Twenty seven sites in Alternative 3.

It is important to note that the information available in the regulatory agencies files did not clearly define the presence, location or extent of the site contamination within the proposed right-of-way. Therefore, further investigation is warranted on the high ranked

sites. A Level II Contamination Assessment must be conducted prior to right of way acquisition or prior to final design. The sites ranked as "HIGH" adjacent to the three corridor alternatives are as follows:

- Four (4) sites in Alternative 1, including Sites 2, 9, 10 and 11;
- Eleven (11) sites in Alternative 2, including Sites 2, 4, 5, 6, 8, 9, 10, 11, 12, 13 and 15; and
- Eleven (11) sites in Alternative 3, including Sites 2, 4, 5, 6, 8, 12, 13, 15, 28, 31 and 32.

The possibility of other environmental contamination within the project, but not identified during this contamination screening, may exist and must be recognized. Also, information provided by the regulatory files may not be current nor account for any unknown or unreported activities not represented within the regulatory records.

Based on information obtained from the review of all available databases, file reviews and site reconnaissance, 35 sites of potential concern were identified for the three corridor alternatives. Fourteen sites were rated high, two medium, and nine sites rated low. **Figure 6-8** illustrates the location of these potential contaminated sites and **Table 6-12** summarizes the 35 sites. More detailed evaluation of the proposed alignment impacts to these identified sites should be conducted during the PD&E study and impacts should be avoided or minimized to the extent practicable. Information contained in the CSER will be field verified and updated by the PD&E consultant.

Table 6- 12 Potential Contaminated Sites

Site #	Site Name	Site Address		Contaminants of Concern	Risk Rating
1	TALLOWMASTERS LLC	13101 NW 14TH ST	Miami, Fl 33182	Diesel fuel, motor oil, hydraulic oil, antifreeze, ATF	Low
2	RINKER MATERIALS SWEETWATER PLT	1200 NW 137TH AVE	Miami, Fl 33165	Contaminated soil, diesel fuel, waste oil, oil, hazardous waste (Mercuric Cloride), Transmission Fluid	High
3	FL POWER & LIGHT CO SOUTHERN TRANS/FPL SWEETWATER SUBSTATION	805 NW 137TH AVE	Miami, Fl 33182	None	Low
		13655 NW 6TH ST	Miami, Fl 33144		
4	DEBESA CORP/GEM CONSTRUCTION	400 NW 137TH AVE	Miami, Fl 33182	Diesel fuel, motor oil	High
5	AZPEITIA TRUCKING CORP	550 NW 137TH AVE	Miami, Fl 33182	Gasoline, diesel fuel, motor oil, used battery cores	High
6	EAGLE CREST INC/	13775 NW	Miami, Fl	Septic Tank, raw sewage,	High

Site #	Site Name	Site Address		Contaminants of Concern	Risk Rating
	DADE COUNTY SCHOOL BOARD - TRANSP./C	6TH ST	33182	Gasoline, diesel fuel, Used oil, coolant, Volatile organic compounds, heavy metals, and petroleum hydrocarbons	
7	SOUTH FL WATER MGMT DIST-PUMP STAT G-420	SW 147 AVE & NW 6TH ST	Miami, Fl 33194		Low
8	VOLUNTEER CONSTRUCTION/ SILVER EAGLE ENTERPRISES	90 NW 137TH AVE	Miami, Fl 33182	Waste oil, Antifreeze, Transmission Fluid	High
9	COMMERCIAL CARRIER CORP	805 SW 177TH AVE	Miami, Fl 33194	Septic Tank, Used oil, coolant, batteries, heavy metals, and petroleum hydrocarbons	High
		814 SW 177TH AVE	Miami, Fl 33144		
10	DADE CORNERS MARKET PLACE	17696 SW 8TH ST	Miami, Fl 33194	Gasoline, diesel fuel	High
11	MDPR-TRAIL GLADES RANGE DUMP	17601 SW 8 ST	Miami, Fl 33194	Heavy metals	High
12	CHEVRON #53381	13700 SW 8 ST	Miami, Fl 33184	Gasoline, diesel fuel, Volatile organic compounds, heavy metals, and petroleum hydrocarbons	High
13	FARM STORE #160/WALGREEN CO. STORE #06013/MARALI INC	13698 SW 8TH ST	Miami, Fl 33184	Developer, fixer, bleach	High
14	BP AMOCO #60494-CEM #L3494	13900 SW 8TH ST	Miami, Fl 33184	Gasoline, diesel fuel, Volatile organic compounds, heavy metals, and petroleum hydrocarbons	Medium
15	CLEANERS LEADER DRYCLEAN USA	13808 SW 8TH ST	Miami, Fl 33184	Petroleum Naptha, Exxon 2000	High
16	PUBLIX SUPER MARKET #327	13850 SW 8TH ST	Miami, Fl 33184	Diesel fuel	Low
17	SOUTH FL WATER MGMT DIST-PUMP STAT G-422	SW 147 AVE & SW 8TH ST	Miami, Fl 33194	Diesel fuel	Low
18	SHELL OIL	13190 SW 8 ST	Miami, Fl 33184	Gasoline, diesel fuel	No Risk
19	U.S.D.H.S./B.I.C.E./ USDJ INS KROME SERVICE PROCESSING	18201 SW 12 ST	Miami, Fl 33194	Used oil, Used batteries, Motor oil, Gasoline, paints, solvents, spray paints and cleaner, fuel, antifreeze, weed killers, household cleaners, coil cleaner, diesel fuel	No Risk
20	LAMAR LOUISE CURRY MD	15750 SW 47TH ST	Miami, Fl 33185	- -	No Risk
21	GULF PRODUCTS	15700 SW 56 ST	Miami, Fl 33193	None	No Risk
22	PUBLIX SUPER MARKET #889	15755 SW 56TH ST	Miami, Fl 33185	Diesel fuel	No Risk

Site #	Site Name	Site Address		Contaminants of Concern	Risk Rating
23	CONRAD YELVINGTON DIST INC	5800 SW 177TH AVE	Miami, Fl 33193	Gasoline, diesel fuel	No Risk
24	MOBIL #12131	15198 SW 72TH ST	Miami, Fl 33193	Gasoline, diesel fuel	No Risk
25	SHELL #168252	15200 SW 72ND ST	Miami, Fl 33193	Gasoline, diesel fuel	No Risk
26	AMOCO SERVICE STATION #60186/ BP AMOCO #60186-CEM #L2724	7227 SW 157TH AVE	Miami, Fl 33193	Gasoline, diesel fuel Gasoline, diesel fuel	Medium
27	PUBLIX SUPER MARKET #0529	15750 SW 72 ST	Miami, Fl 33193	Diesel fuel	No Risk
28	S CASTELLI CORP	15738 SW 72ND ST	Miami, Fl 33193	Perchloroethylene, DF 2000, General Formula 209, Rust go	High
29	MIAMI DADE WATER & SEWER PUMP STA #673	15550 SW 80TH ST	Miami, Fl 33193	Diesel fuel	Low
30	RINKER MATERIALS CORP. KROME	8800 SW 177 AVE	Miami, Fl 33196	Gasoline, diesel fuel	Low
31	CHEVRON #200188	15698 SW 88TH ST	Miami, Fl 33183	Gasoline, diesel fuel	High
32	7-ELEVEN FOOD STORE #29423/ MOBIL OIL CORP SS #588	15699 SW 88TH ST	Miami, Fl 33196	Gasoline, diesel fuel	High
33	AMERICLEAN DRY CLEANERS	15665 SW 88 ST	Miami, Fl 33196		Low
34	HOME DEPOT #6339	15750 SW 88TH ST	Miami, FL 33196	Fuel, hazardous materials, hazardous waste	No Risk
35	WAL MART STORE #1680	15885 SW 88TH ST	Kendall, Fl 33196	Fixer	Low

Notes: 1. EDR Facilities ID denotes either FDEP Facility ID or UST ID, depending on the site industrial activity.
- - denotes no information is available or is no applicable

SECTION - 7 PROPOSED PROJECT CONCEPTS

The conceptual design study area is a polygon defined approximately as follows: the west boundary runs along SW 177th Avenue (SR 997/Krome Avenue and along SW 157th Avenue on its east side. This area is bounded on the north by NW 12th Street and to the south by SW 136th Street. The study includes three possible alignments. A detailed description and assessment of each of the alternatives is provided in this section.

7.1 Concept Studies

Three alternatives were evaluated: Alternative 1 generally runs along Krome Avenue from SW 136th Street to the western end of SR 836 at SW 137th Avenue; Alternative 2 is a shortened extension connecting to Krome Avenue at SW 8th Street; and Alternative 3 is an extension of SR 836 from SW 136th Street generally along SW 157th Avenue to the western end of SR 836 at SW 137th Avenue and is completely contained within the UDB. The three alignments are shown in **Figure 7-1** and described below:

Alternative 1: This alternative continues from the existing SR 836 at the NW 137th Avenue intersection south to SW 136th Street in Kendall. The project runs along a new location parallel and immediately east of SW 177th Avenue (Krome Avenue). This proposed alignment includes interchanges with SW 8th Street, SW 42nd Street, SW 88th Street, and SW 104th Street. This project differs from Alternative 3 in that it does not include southbound to westbound movements at SW 88th Street and it includes an interchange at SW 104th Street.

Alternative 2: This alternative begins with the existing SR-836 Dolphin Expressway terminus at NW 12th Street and NW 137th Avenue. This alternative continues in a southwestern direction to eventually meet SW 8th Street (US 41/Tamiami Trail). The corridor continues west along the north side of SW 8th Street until it meets SW 177th Avenue (SR 997/Krome Avenue). Alternative 2 terminates at and connects to SW 177th Avenue. At this juncture, the plan is to use the existing SW 177th Avenue as the limited access highway facility to service western as southwestern Miami-Dade.

Alternative 3: This alternative begins with the existing SR-836 Dolphin Expressway terminus at NW 12th Street and NW 137th Avenue. This alternative continues in a southwestern direction to eventually meet SW 8th Street (US 41/Tamiami Trail). The corridor continues west along the north side of SW 8th Street until it meets SW 157th Avenue, where it turns south following the partially built corridor defined by SW 157th Avenue. Alternative 3 continues southward along SW 157th Avenue, approximately seven miles to the Black Creek Canal. The proposed corridor follows the Black Creek Canal on the north side, turning south along the canal's east side, and continues south where it terminates onto SW 136th Street just west of the Kendall-Tamiami Airport. The proposed facility would include interchanges with SW 8th Street, SW 42nd Street, and SW 88th Street.

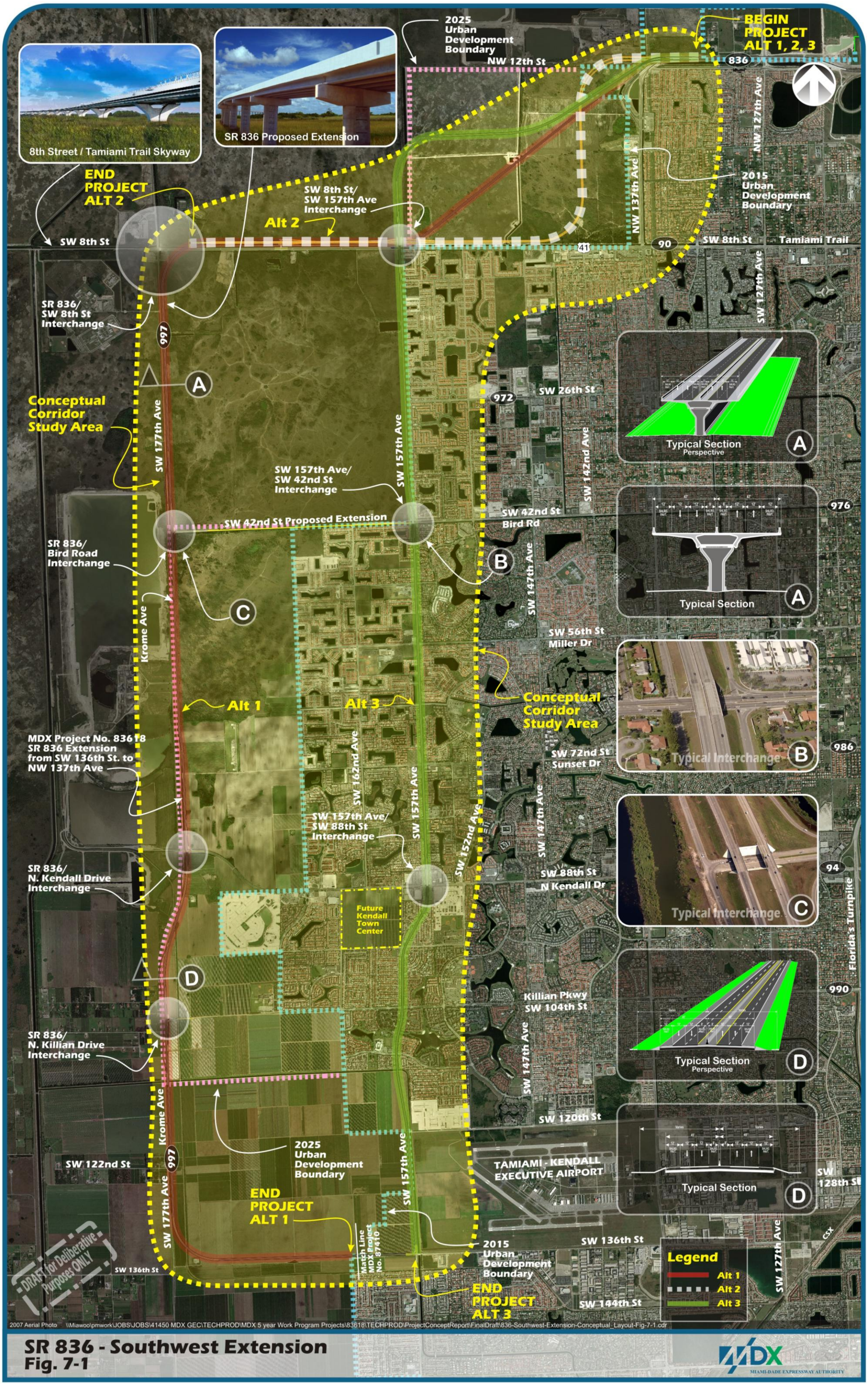


Figure 7- 1 Proposed Alternatives

7.2 Evaluation of Concepts

Based on available information, right-of-way must be acquired to accommodate the roadway concepts developed during this analysis. The following sections highlight critical issues associated with the proposed widening project and better define specific analytical activities required of the PD&E Consultant.

7.2.1 Physical Design Issues

All of the proposed alignments are anticipated to be elevated except for the south end. From the railroad east of Krome Avenue to SW 157th Avenue (along SW 136th Street), the roadway will be at-grade with a two-way frontage road on the north side.

Other major issues that should be avoided and have been assumed include:

- No part of the Rinker property at the north end will be taken.
- No SFWMD structures, improvements, or canals will be impacted.
- No FPL substations will be impacted.
- Communication towers near Krome Avenue at both the north and south ends will be avoided.
- No platted streets, improved or unimproved, will be impacted.

7.2.2 Traffic Evaluation Issues

The PD&E Consultant will use information developed from the traffic and revenue report included in the Concept Report to develop the PD&E Traffic Technical Memorandum for the study. Based on the results of the traffic and revenue analysis for the SR 836 Southwest Extension project alternatives, the following statements and recommended improvements are suggested:

- All freeway segments, signalized intersections, and ramp junctions will operate at acceptable level of service D or better during both peak hours for years 2015 and 2030.
- Two-lanes in each direction on SR 836 can accommodate the forecast traffic demand for years 2015 and 2030 for both peak hours.
- A 2-lane on-ramp will be needed at SW 137th Avenue in the northbound direction by the year 2030. All other locations can be accommodated with a one-lane ramp. Minimum FDOT Design lengths for the deceleration and acceleration lanes at the ramps can accommodate the freeway/ramp traffic operations.

Table 7-1 summarizes all recommended improvements at the signalized intersections and at the proposed interchanges.

Table 7- 1 Intersection and Roadway Recommendations

Project Alt.	Location		Recommendations for Analysis Years	
	Intersection	Signal	2015	2030
One	SW 137th Avenue	*North*	---	►*Dual *westbound* left-turns.
		South	---	---
	SW 8th Street	*East*	►*Dual *northbound* left-turns. ►300' storage for single *eastbound* left-turn.	►In addition, provide dual *northbound right-*turns *(**consider free-flow operation).* ►Single *eastbound* left-turn protected-permissive. ►Extend single *eastbound* storage to 360'.
		West	►250' storage for single *westbound* left-turn.	►Single westbound left-turn *protected-permissive* for PM *only.* ►Extend single *westbound* storage to 460'.
	SW 42nd Street	*East*	---	---
		West	►*Dual *southbound* left-turns.	►In addition, provide dual *southbound right-*turns *(**consider free-flow operation).*
	SW 88th Street	*East*	---	---
		West	►*Dual *southbound* left-turns.	---
	SW 104th Street	*East*	►Single *eastbound* left-turn protected-permissive. ►550' storage for single *eastbound* left-turn.	►Dual *eastbound* left-turns. ►Extend *eastbound* storage to 660' (dual).
		West	►*Dual *southbound* left-turns.	---
Two	SW 137th Avenue	*North*	►*Dual *westbound* left-turns.	---
		South	►Dual *northbound* right-turns (**consider free-flow operation). ►Single *southbound* left-turn protected-permissive for PM only. ►280' storage for single *southbound* left-turn.	►Extend single *southbound* left-turn storage to 360'.
	SW 157th Avenue	*South*	►Dual *eastbound* right-turns (**consider free-flow operation). ►Dual *northbound* free-flow right-turns.	---
	SW 8th Street	*East*	►Dual *eastbound* left-turns. ►380' storage for dual *eastbound* left-turns.	►Extend dual *eastbound* left-turn storage to 550'.
		West	►Dual *southbound right-*turns (**consider free-flow operation).	---
Three	SW 137th Avenue	*North*	---	►*Dual *westbound* left-turns.
		South	---	►*Dual *eastbound* left-turns.
	SW 8th Street	*East*	►350' storage for single *eastbound* left-turn.	►Single *eastbound* left-turn protected-permissive for AM only. ►*Dual *northbound* left and right turns (**consider right-turn free-flow operation). ►Extend single *eastbound* storage to 390'.
		West	►Single westbound left-turn protected-permissive for PM only. ►480' storage for single *westbound* left-turn.	►*Dual *westbound* left-turns.
	SW 42nd Street	*East*	---	►Single *eastbound* left-turn protected-permissive for AM only. ►Extend single *eastbound* storage to 350'.
		West	►*Dual *southbound* left-turns. ►210' storage for single *westbound* left-turn.	---
	SW 88th Street	*East*	►Dual *westbound* right turns (**consider free-flow operation). ►Dual *eastbound* left-turns. ►600' storage for dual *eastbound* left-turns.	►Extend dual *eastbound* storage to 800'.
		West	►*Dual *southbound* left-turns.	---

7.2.3 Interchanges

The planned multi-modal transportation corridor would include sufficient right-of-way to accommodate an extension of the regional transit system to the Kendall area. The SR 836 Southwest Extension may terminate at the interchange with SW 88th Street, although continuation to SW 136th Street may be considered to provide interconnectivity with the MDX proposed SR 874 Ramp Connector project.

7.2.4 Environmental Issues

No environmental fatal flaws were discovered during the desktop assessment of the corridor. See Section 6 – Environmental Analysis for a discussion of potential environmental issues.

7.3 Alternatives Comparison Matrix

An alternatives comparison evaluation matrix was developed to quantitatively analyze the project alternatives. This process for evaluating potential effects of transportation actions to natural, cultural, and community resources consisted of evaluating the potential effects of transportation actions to natural resources.

The alternatives were evaluated based on the degree of effects to natural resources, cultural resources, social/community resources and transportation purpose and need. Each of the three alternatives were rated based on criteria with the degree of effects individually and then ranked against one another. The goal is to select the best alternatives with the most benefit and the least impact.

7.3.1 Criteria

The criteria used for the evaluation are divided into two main categories: 1) Direct Effects which includes natural resources, cultural resources and community resources and 2) Transportation Purpose and Need. **Table 7-2** shows each criterion that was used to evaluate the alternatives.

Table 7- 2 Evaluation Criteria

Criteria			Comments
Evaluation of Direct Effects	Natural Resources	Air Quality	Assess the potential for air quality effects caused by the proposed project. Used in non-attainment or maintenance areas for ozone or particulate matter. In 2005, all areas in Florida will be in attainment of federal air quality standards.
		Coastal and Marine	Evaluate coastal ecosystems, marine life, sensitive shorelines, and degradation/preservation concerns.
		Contaminated Sites	Evaluate the likelihood of contamination and its effect on the proposed project.
		Farmlands	Determine the potential involvement of any farmlands within the proposed project study/construction area.
		Floodplains	Evaluate the 100-year floodplain within the proposed project study/construction area. Considerations include the type of encroachment, potential for backwater effects, and project influence on floodplain development.
		Navigation	Determine if a United States Coast Guard (USCG) navigation permit is required.
		Special Designation	Identify all specially designated lands within the project study area.
		Water Quality and Quantity	Assess the potential for surface water and groundwater quality and quantity effects.
		Wetlands	Identify the amount of wetlands affected by the proposed project, the type of wetlands involved, and their overall significance to the surrounding area.
		Wildlife and Habitat	Consider any species or habitat affected by the proposed project.
	Cultural Resources	Historical and Archaeological Sites	Assess the potential involvement with properties eligible for or listed in the National Register of Historic Places
		Native American Resources	Assess the potential involvement with Native American Resources
		Recreation Areas	Grounds used for recreation. Primary focus of recreational activity (activity based – sports fields; resource-based – beaches.)
		Section 4(f) Potential	Publicly owned park, Publicly owned recreational area (active or passive), Wildlife and/or waterfowl refuge, Land and/or structure of a historic site of national, state, or local significance
	Community Resources	Social	Quality of L, Community, Cohesion, Community Goals, Changes in Demographics, Population, Employment, Income, Age/Sex, Education, Occupancy, Ethnicity
		Economic	Effect on Businesses, Regional Employment, Travel Patterns, Traffic Levels, Business Visibility, Special Needs Patrons, Tax Base
		Land Use	Consistency with Future Land Use Plan, Character of Land Use / Urban Form, Effect on Open Space, Potential for Sprawl
		Noise / Vibration	Evaluate areas sensitive to noise and vibration
		Aesthetics	Viewshed, Proximity to Community Focal Point, Community Aesthetic Compatibility, Landscaping
		Relocation/ROW	Effect on Residential, Business, Public Facilities and relocation potential
Transportation Purpose & Need	Mobility	Access/Accessibility	The opportunity to reach a given end use within a certain time frame, or without being impeded by physical, social or economic barriers. Enhancing mobility is one way of improving access.
		System Linkage / Route Continuity	Individual facilities, services, forms of transportation (modes) and connectors combined into a single, integrated transportation network.
		Ability to complete tie to Adjacent Facilities	Minimum interference with roads, streets, sidewalks, and other adjacent occupied or used facilities.
		Access to Existing / Planned Activities	Identify the candidate SIS/FIHS transportation projects required to support projected growth and development statewide. These include planned new and widened roadways and bridges
		Consistency with Adopted Plans	Provide determination of project consistency with Comprehensive Plan(s), State Growth Management Plan, Long Range Transportation Plan, etc.
		Future Traffic Projection	Greatest Ability to Relieve Unmet Demand
		Modal Interrelationships	Form of transportation, such as automobile, transit, bicycle and walking. Intermodal refers to the connections between modes and multimodal refers to the availability of transportation options within a system or corridor.
		Evacuation Routes	Emergency Facilities/Evacuation, Safety

7.3.2 Degree of Effects

The Degree of Effects table provides guidance in assigning a degree of effect for natural, cultural, community resources and transportation purpose and need. The degree of effect that corresponds to each level of concern is chosen from one of five different levels. The highest level of concern indicates a Potential Dispute degree of effect. **Table 7-3** shows the degrees of effect used to evaluate each alternative. The results (potential community and environmental impacts) were used to evaluate each alternative for further evaluation during the PD&E phase. Each alternative is ranked (#1, #2, #3) according to each criterion and the degree of effects. The result of the rating and ranking is shown in **Table 7-4**.

Based on the ranking evaluation, Alternatives 1 and 2 are recommended to be carried forward and detailed cost estimates were developed for both. However, all alternatives should be revisited during the PD&E study.

SR 836 Southwest Extension Project Concept Study
Degrees of Effect

Degrees of Effect		Definition	
		Natural and Cultural Resources	Community Resources
N/A	No Involvement	No Involvement	No Involvement
-1	Enhanced	Project concept has positive effect on the Agency resource or can reverse a previous adverse effect leading to environmental improvement.	Project concept has positive effect on community. Affected community supports the proposed project.
1	None	None	None
2	Minimal to None	Project concept has little adverse effect on Agency resources. Low cost options are available to address concerns. Permit issuance or consultation involves routine interaction with the Agency.	Project concept has minimum adverse effect on elements of the affected community. Minimum community concern about the planned project. Little or no mitigation is needed.
3	Moderate	Natural or cultural resources are affected by the proposed project, but avoidance and minimization measures are available and can be addressed during project development with a moderate amount of Agency involvement and moderate cost impact.	Project concept has adverse effect on some elements of the affected community. There is moderate community concern about the planned project. Public involvement is needed to seek alternatives more acceptable to the community. Moderate community involvement is required during project development. Some mitigation or minimization is needed to gain support from the community.
4	Substantial	The project concept has substantial adverse effects, but Agency understands the project need and is able to seek avoidance, minimization or mitigation measures during project development. Substantial interaction is required during project development and permitting.	Project concept has substantial adverse effects on the affected community and faces substantial community opposition. Intensive community interaction with focused public involvement is required during project development to address community concerns. Project will need substantial mitigation to gain public acceptance.
5	Potential Dispute	Project concept may be contrary to a state or federal resource Agency's program, plan or initiative. Project concept may have significant environmental cost. Reasons for indicating a potential dispute are contained in Agency Operating Agreements. Project concept may not be permittable. Reference Section 4.6, Process to Resolve Potential Dispute.	Project concept is not in compliance with approved Local Government Comprehensive Plans, or may involve significant adverse effects on adjacent community.

SR 836 Southwest Extension Project Concept Study
Ranking Result Summary

Level 1 Evaluation Matrix

Criteria			John Kulpa									Juan Carlos Villalba									Rene de Huelbes								
			Corridor Alternatives									Corridor Alternatives									Corridor Alternatives								
			1			2			3			1			2			3			1			2			3		
					Total			Total			Total			Total			Total			Total			Total			Total			Total
Evaluation of Direct Effects	Natural Resources	Air Quality	2	2	4	2	1	2	3	3	9	2	2	4	-1	1	-3	5	3	15	2	2	4	3	1	3	5	3	15
		Coastal and Marine	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
		Contaminated Sites	2	2	4	2	1	2	3	3	9	2	2	4	2	1	2	4	3	12	2	2	4	2	1	2	4	3	12
		Farmlands	4	3	12	1	1	1	2	2	4	4	3	12	-1	1	-3	3	2	6	4	3	12	2	1	2	3	2	6
		Floodplains	3	3	9	3	1	3	2	2	4	2	1	2	2	2	4	2	3	6	4	2	8	3	1	3	4	3	12
		Navigation	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
		Special Designation	2	1	2	2	2	4	1	3	3	3	2	6	3	3	9	2	1	2	3	3	9	3	1	3	1	2	2
		Water Quality and Quantity	3	2	6	3	3	9	2	1	2	3	3	9	2	1	2	2	2	4	3	3	9	2	1	2	3	2	6
		Wetlands	4	1	4	3	2	6	3	3	9	3	3	9	2	1	2	2	2	4	4	3	12	2	1	2	-1	2	-2
		Wildlife and Habitat	3	1	3	3	2	6	2	3	6	3	3	9	1	1	1	2	2	4	4	3	12	2	1	2	2	2	4
	Cultural Resources	Historical and Archaeological Sites	2	1	2	2	2	4	2	3	6	1	1	1	1	2	2	1	3	3	1	3	3	1	2	2	1	1	1
		Native American Resources	3	2	6	3	3	9	1	1	1	2	2	4	2	3	6	1	1	1	3	3	9	-1	2	-2	2	1	2
		Recreation Areas	2	1	2	2	2	4	3	3	9	2	1	2	2	2	4	3	3	9	-1	2	-2	-1	1	-3	3	3	9
		Section 4(f) Potential	1	1	1	1	2	2	2	3	6	2	1	2	2	2	4	2	3	6	2	3	6	2	2	4	2	1	2
	Community Resources	Social	2	1	2	2	2	4	4	3	12	-1	1	-3	-1	2	-2	3	3	9	2	2	4	2	1	2	4	3	12
		Economic	3	1	3	2	3	6	4	2	8	-1	1	-3	-1	2	-2	3	3	9	-1	1	-3	1	3	3	-1	2	-2
		Land Use	2	1	2	2	2	4	3	3	9	-1	1	-3	1	2	2	2	3	6	4	1	4	2	3	6	3	2	6
		Aesthetics	2	1	2	2	2	4	4	3	12	2	1	2	2	2	4	3	3	9	2	2	4	1	1	1	3	3	9
		Noise / Vibration	2	1	2	2	2	4	4	3	12	2	2	4	2	1	2	4	3	12	2	2	4	-1	1	-3	5	3	15
		Relocation / R/W	2	1	2	2	2	4	4	3	12	2	2	4	2	1	2	4	3	12	2	2	4	-1	1	-3	5	3	15
Transportation Purpose & Need		Access / Accessibility	-1	1	-3	1	3	3	-1	2	-2	-1	1	-3	2	3	6	-1	2	-2	-1	2	-2	2	3	6	-1	1	-3
		System Linkage / Route Continuity	-1	2	-2	1	3	3	-1	1	-3	-1	1	-3	1	3	3	-1	2	-2	-1	2	-2	2	3	6	-1	1	-3
		Ability to complete tie to Adjacent Facilities	-1	1	-3	-1	2	-2	-1	3	-1	-1	1	-3	-1	2	-2	-1	3	-1	-1	2	-2	2	3	6	-1	1	-3
		Access to Existing / Planned Activities	-1	1	-3	1	3	3	-1	2	-2	-1	1	-3	2	3	6	-1	2	-2	-1	2	-2	2	3	6	-1	1	-3
		Consistency with Adopted Plans	2	1	2	2	2	4	2	3	6	2	1	2	2	2	4	2	3	6	2	1	2	2	2	4	2	3	6
		Future Traffic Projection - Greatest Ability to Relieve Unmet Demand	-1	1	-3	2	3	6	-1	2	-2	-1	1	-3	2	3	6	-1	2	-2	-1	2	-2	3	3	9	-1	1	-3
		Modal Interrelationships	1	1	1	1	2	2	1	3	3	-1	1	-3	-1	3	-1	-1	2	-2	-1	2	-2	-1	3	-1	-1	1	-3
		Evacuation Routes	-1	1	-3	1	3	3	-1	2	-2	-1	1	-3	-1	3	-1	-1	2	-2	-1	2	-2	2	3	6	-1	1	-3
TOTAL			54			100			130			46			57			122			91			68			109		

Criteria			Mayra Diaz									William Junkin								
			Corridor Alternatives									Corridor Alternatives								
			1			2			3			1			2			3		
					Total			Total			Total			Total			Total			Total
Evaluation of Direct Effects	Natural Resources	Air Quality	2	2	4	1	1	1	4	3	12	1	2	2	1	1	1	2	3	6
		Coastal and Marine	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
		Contaminated Sites	2	1	2	2	2	4	4	3	12	1	2	2	1	1	1	1	3	3
		Farmlands	3	2	6	3	3	9	2	1	2	2	3	6	1	2	2	2	1	2
		Floodplains	1	1	1	1	2	2	1	3	3	2	3	6	2	2	4	1	1	1
		Navigation	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
		Special Designation	2	1	2	2	2	4	2	3	6	1	2	2	2	3	6	1	1	1
		Water Quality and Quantity	2	1	2	2	2	4	2	3	6	2	2	4	1	1	1	2	3	6
		Wetlands	3	1	3	3	2	6	2	3	6	2	3	6	1	2	2	1	1	1
		Wildlife and Habitat	3	2	6	3	3	9	2	1	2	2	3	6	1	2	2	1	1	1
	Cultural Resources	Historical and Archaeological Sites	2	2	4	2	3	6	1	1	1	1	3	3	1	2	2	1	1	1
		Native American Resources	2	2	4	2	3	6	1	1	1	2	2	4	2	3	6	1	1	1
		Recreation Areas	1	1	1	1	2	2	2	3	6	1	2	2	1	1	1	2	3	6
		Section 4(f) Potential	2	1	2	2	2	4	2	3	6	1	2	2	1	1	1	1	3	3
	Community Resources	Social	-1	1	-3	-1	2	-2	5	3	15	1	1	1	1	2	2	5	3	15
		Economic	-1	1	-3	-1	2	-2	-1	3	-1	-1	1	-3	1	2	2	4	3	12
		Land Use	2	1	2	2	2	4	3	3	9	2	2	4	1	1	1	1	3	3
		Aesthetics	2	1	2	2	2	4	5	3	15	1	2	2	1	1	1	5	3	15
		Noise / Vibration	2	1	2	2	2	4	4	3	12	1	2	2	1	1	1	5	3	15
		Relocation / R/W	2	1	2	2	2	4	5	3	15	2	2	4	2	1	2	5	3	15
Transportation Purpose & Need		Access / Accessibility	-1	1	-3	-1	2	-2	2	3	6	-1	1	-3	1	3	3	-1	2	-2
		System Linkage / Route Continuity	-1	1	-3	-1	2	-2	2	3	6	-1	1	-3	1	3	3	-1	2	-2
		Ability to complete tie to Adjacent Facilities	-1	1	-3	-1	2	-2	-1	3	-1	-1	1	-3	1	3	3	-1	2	-2
		Access to Existing / Planned Activities	-1	1	-3	-1	2	-2	-1	3	-1	-1	1	-3	1	3	3	1	2	2
		Consistency with Adopted Plans	1	1	1	1	2	2	1	3	3	1	2	2	1	1	1	1	3	3
		Future Traffic Projection - Greatest Ability to Relieve Unmet Demand	-1	1	-3	-1	2	-2	-1	3	-1	-1	1	-3	1	3	3	-1	2	-2
		Modal Interrelationships	-1	1	-3	-1	2	-2	2	3	6	-1	1	-3	1	3	3	1	2	2
		Evacuation Routes	-1	1	-3	-1	2	-2	-1	3	-1	-1	1	-3	1	3	3	-1	2	-2
TOTAL			19			57			145			36			60			104		

SR 836 Southwest Extension Project Concept Study
Ranking Result Summary

Level 1 Evaluation Matrix

Criteria			Diana Rodriguez									Chris Kruger								
			Corridor Alternatives									Corridor Alternatives								
			1			2			3			1			2			3		
					Total			Total			Total			Total			Total			Total
Evaluation of Direct Effects	N/Atural Resources	Air Quality	3	2	6	2	1	2	3	3	9	2	2	4	2	1	2	3	3	9
		Coastal and Marine	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
		Contaminated Sites	3	2	6	2	1	2	3	3	9	2	2	4	2	1	2	3	3	9
		Farmlands	2	2	4	1	1	1	4	3	12	4	3	12	1	1	1	3	2	6
		Floodplains	3	3	9	2	1	2	3	2	6	2	1	2	2	2	4	2	3	6
		Navigation	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
		Special Designation	2	3	6	3	2	6	3	1	3	2	2	4	1	1	1	2	3	6
		Water Quality and Quantity	2	3	6	2	1	2	2	2	4	2	2	4	2	1	2	4	3	12
		Wetlands	5	3	15	4	2	8	4	1	4	2	3	6	2	2	4	1	1	1
		Wildlife and Habitat	4	3	12	3	2	6	2	1	2	2	3	6	2	2	4	1	1	1
	Cultural Resources	Historical and Archaeological Sites	3	3	9	2	2	4	2	1	2	2	3	6	1	2	2	1	1	1
		Native American Resources	3	3	9	2	2	4	3	1	3	2	3	6	1	2	2	1	1	1
		Recreation Areas	3	3	9	3	1	3	3	2	6	1	2	2	1	1	1	2	3	6
		Section 4(f) Potential	2	3	6	2	1	2	2	2	4	1	1	1	1	2	2	1	3	3
	Community Resources	Social	2	2	4	2	1	2	4	3	12	1	1	1	1	2	2	3	3	9
		Economic	4	3	12	4	1	4	4	2	8	1	1	1	1	2	2	3	3	9
		Land Use	5	3	15	5	1	5	5	2	10	1	1	1	1	2	2	3	3	9
		Aesthetics	4	3	12	3	1	3	5	2	10	1	2	2	1	1	1	4	3	12
		Noise / Vibration	2	2	4	2	1	2	4	3	12	1	1	1	1	2	2	4	3	12
		Relocation / R/W	2	2	4	2	1	2	4	3	12	3	2	6	2	1	2	5	3	15
Transportation Purpose & Need		Access / Accessibility	-1	2	-2	-1	1	-3	-1	3	-1	-1	2	-2	1	3	3	-1	1	-3
		System Linkage / Route Continuity	-1	2	-2	-1	1	-3	-1	3	-1	-1	2	-2	1	3	3	-1	1	-3
		Abilty to complete tie to Adjacent Facilities	-1	2	-2	-1	1	-3	-1	3	-1	-1	1	-3	-1	2	-2	-1	3	-1
		Access to Existing / Planned Activities	-1	2	-2	-1	1	-3	-1	3	-1	-1	2	-2	1	3	3	-1	1	-3
		Consistency with Adopted Plans	2	2	4	2	1	2	2	3	6	1	1	1	1	2	2	1	3	3
		Future Traffic Projection - Greatest Ability to Relieve Unmet Demand	-1	2	-2	-1	1	-3	-1	3	-1	-1	1	-3	1	3	3	-1	2	-2
		Modal Interrelationships	-1	2	-2	-1	1	-3	-1	3	-1	-1	1	-3	1	3	3	-1	2	-2
		Evacuation Routes	-1	2	-2	-1	1	-3	-1	3	-1	-1	2	-2	1	3	3	-1	1	-3
TOTAL			138			41			127			53			56			113		

Criteria			Dennis Martinez									Mark Besoner								
			Corridor AlterN/Atives									Corridor AlterN/Atives								
			1			2			3			1			2			3		
					Total			Total			Total			Total			Total			Total
Evaluation of Direct Effects	N/Atural Resources	Air Quality	2	2	4	2	1	2	3	3	9	2	2	4	2	1	2	4	3	12
		Coastal and Marine	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
		Contaminated Sites	2	2	4	2	1	2	3	3	9	2	2	4	2	1	2	3	2	6
		Farmlands	3	3	9	1	1	1	2	2	4	3	3	9	1	1	1	3	2	6
		Floodplains	2	3	6	2	1	2	2	2	4	4	3	12	3	2	6	3	3	9
		Navigation	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
		Special Designation	2	3	6	2	2	4	1	1	1	3	3	9	3	2	6	2	1	2
		Water Quality and Quantity	3	2	6	2	1	2	3	3	9	2	2	4	2	1	2	3	3	9
		Wetlands	3	3	9	2	2	4	2	1	2	3	3	9	3	2	6	2	1	2
		Wildlife and Habitat	2	3	6	2	2	4	1	1	1	3	3	9	3	2	6	2	1	2
	Cultural Resources	Historical and Archaeological Sites	2	3	6	1	1	1	1	2	2	3	3	9	3	2	6	2	1	2
		Native American Resources	2	3	6	1	1	1	1	2	2	3	3	9	3	2	6	2	1	2
		Recreation Areas	1	1	1	1	2	2	3	3	9	2	2	4	2	1	2	2	3	6
		Section 4(f) Potential	1	1	1	1	2	2	2	3	6	2	2	4	2	1	2	2	3	6
	Community Resources	Social	2	2	4	1	1	1	4	3	12	1	2	2	1	1	1	4	3	12
		Economic	4	2	8	2	1	2	4	3	12	2	2	4	1	1	1	4	3	12
		Land Use	1	1	1	1	3	3	1	2	2	3	2	6	3	1	3	4	3	12
		Aesthetics	3	2	6	2	1	2	3	3	9	3	2	6	3	1	3	5	3	15
		Noise / Vibration	2	2	4	2	1	2	4	3	12	2	2	4	1	1	1	5	3	15
		Relocation / R/W	3	2	6	2	1	2	4	3	12	2	2	4	2	1	2	4	3	12
Transportation Purpose & Need		Access / Accessibility	-1	1	-3	-1	3	-1	-1	2	-2	-1	2	-2	-1	2	-2	-1	3	-1
		System Linkage / Route Continuity	-1	1	-3	-1	3	-1	-1	2	-2	-1	2	-2	-1	2	-2	-1	3	-1
		Abilty to complete tie to Adjacent Facilities	-1	1	-3	-1	3	-1	-1	2	-2	-1	2	-2	1	3	3	-1	1	-3
		Access to Existing / Planned Activities	3	2	6	2	1	2	4	3	12	-1	2	-2	-1	3	-1	-1	2	-2
		Consistency with Adopted Plans	3	2	6	2	2	4	2	3	6	2	2	4	2	3	6	2	1	2
		Future Traffic Projection - Greatest Ability to Relieve Unmet Demand	3	1	3	2	2	4	3	3	9	-1	2	-2	-1	3	-1	-1	1	-3
		Modal Interrelationships	3	1	3	2	3	6	2	2	4	-1	2	-2	-1	3	-1	-1	1	-3
		Evacuation Routes	3	1	3	2	3	6	3	2	6	-1	2	-2	-1	3	-1	-1	1	-3
TOTAL			110			61			162			102			61			124		

Criteria			Tere Garcia									
			Corridor Alternatives									
			1			2			3			
					Total			Total			Total	
Evaluation of Direct Effects	N/Atural Resources	Air Quality	2	1	2	2	2	4	4	3	12	
		Coastal and Marine	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	
		Contaminated Sites	2	1	2	2	2	4	3	3	9	
		Farmlands	3	3	9	1	1	1	2	2	4	
		Floodplains	2	1	2	2	2	4	2	3	6	
		Navigation	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	
		Special Designation	4	3	12	3	1	3	3	2	6	
		Water Quality and Quantity	3	3	9	2	2	4	3	3	9	
		Wetlands	3	3	9	2	2	4	2	1	2	
		Wildlife and Habitat	3	3	9	2	2	4	1	1	1	
	Cultural Resources	Historical and Archaeological Sites	2	3	6	2	2	4	1	1	1	
		Native American Resources	3	3	9	2	2	4	1	1	1	
		Recreation Areas	1	1	1	2	1	2	2	3	6	
		Section 4(f) Potential	1	1	1	1	2	2	1	3	3	
	Community Resources	Social	-1	1	-3	-1	2	-2	4	3	12	
		Economic	-1	1	-3	-1	2	-2	-1	3	-1	
		Land Use	2	1	2	2	2	4	3	3	9	
		Aesthetics	-1	1	-3	-1	2	-2	4	3	12	
		Noise / Vibration	1	1	1	1	2	2	4	3	12	
		Relocation / R/W	1	1	1	1	2	2	3	3	9	
Transportation Purpose & Need		Access / Accessibility	-1	1	-3	-1	2	-2	-1	3	-1	
		System Linkage / Route Continuity	-1	1	-3	-1	2	-2	-1	3	-1	
		Abilty to complete tie to Adjacent Facilities	-1	1	-3	-1	2	-2	-1	3	-1	
		Access to Existing / Planned Activities	-1	1	-3	-1	2	-2	-1	3	-1	
		Consistency with Adopted Plans	2	3	6	2	2	4	2	2	4	
		Future Traffic Projection - Greatest Ability to Relieve Unmet Demand	-1	1	-3	-1	2	-2	-1	3	-1	
		Modal Interrelationships	2	2	4	3	3	9	3	3	9	
		Evacuation Routes	-1	2	-2	-1	3	-1	-1	1	-3	
TOTAL			53			38			111			

SR 836 Southwest Extension Project Concept Study
Ranking Result Summary

Level 1 Evaluation Matrix

Criteria			Rachel Ferradaz									Ricardo A. Martinez								
			Corridor Alternatives									Corridor Alternatives								
			1			2			3			1			2			3		
					Total			Total			Total			Total			Total			Total
Evaluation of Direct Effects	N/Atural Resources	Air Quality	2	1	2	2	2	4	3	3	9	2	1	2	2	2	4	3	3	9
		Coastal and Marine	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	3
		Contaminated Sites	3	2	6	2	1	2	4	3	12	2	1	2	2	2	4	3	3	9
		Farmlands	4	3	12	1	1	1	3	2	6	3	3	9	2	1	2	2	2	4
		Floodplains	2	3	6	2	2	4	2	1	2	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
		Navigation	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	2
		Special Designation	3	3	9	2	2	4	2	1	2	3	3	9	2	1	2	3	2	6
		Water Quality and Quantity	3	3	9	3	1	3	3	2	6	3	1	3	2	3	6	3	2	6
		Wetlands	3	3	9	3	2	6	3	1	3	2	2	4	2	3	6	1	1	1
		Wildlife and Habitat	3	3	9	3	2	6	2	1	2	3	3	9	2	1	2	2	2	4
	Cultural Resources	Historical and Archaeological Sites	2	3	6	2	2	4	1	1	1	1	1	1	1	3	3	1	2	2
		Native American Resources	2	3	6	2	2	4	1	1	1	2	2	4	2	3	6	1	1	1
		Recreation Areas	2	1	2	2	2	4	4	3	12	2	1	2	2	2	4	3	3	9
		Section 4(f) Potential	2	3	6	1	2	2	1	1	1	1	1	1	1	3	3	1	2	2
	Community Resources	Social	2	1	2	2	2	4	4	3	12	1	1	1	2	2	4	3	2	6
		Economic	-1	1	-3	2	3	6	-1	2	-2	1	2	2	2	3	6	-1	1	-3
		Land Use	3	3	9	1	1	1	1	2	2	1	1	1	1	3	3	1	2	2
		Aesthetics	2	2	4	1	1	1	4	3	12	4	3	12	2	2	4	1	1	1
		Noise / Vibration	2	2	4	1	1	1	4	3	12	1	1	1	2	2	4	3	3	9
		Relocation / R/W	3	2	6	2	1	2	4	3	12	2	1	2	3	2	6	5	3	15
Transportation Purpose & Need		Access / Accessibility	-1	1	-3	1	2	2	-1	3	-1	2	3	6	1	2	2	-1	1	-3
		System Linkage / Route Continuity	-1	1	-3	1	2	2	-1	3	-1	-1	3	-1	1	1	1	-1	2	-2
		Abilty to complete tie to Adjacent Facilities	-1	1	-3	-1	2	-2	-1	3	-1	-1	1	-3	1	2	2	-1	3	-1
		Access to Existing / Planned Activities	-1	1	-3	-1	3	-1	-1	2	-2	-1	1	-3	1	3	3	-1	2	-2
		Consistency with Adopted Plans	1	1	1	1	2	2	1	3	3	-1	1	-3	1	3	3	-1	2	-2
		Future Traffic Projection - Greatest Ability to Relieve Unmet Demand	-1	1	-3	1	3	3	-1	2	-2	1	1	1	1	3	3	-1	2	-2
		Modal Interrelationships	-1	1	-3	1	2	2	2	3	6	1	1	1	1	3	3	1	2	2
		Evacuation Routes	-1	1	-3	1	3	3	-1	2	-2	-1	1	-3	-1	2	-2	-1	3	-1
TOTAL			84			70			105			60			84			77		

Average Rating/Ranking	
Alternative 1	70.5
Alternative 2	62.9
Alternative 3	119.1

SECTION - 8 PROJECT COST AND SCHEDULE

8.1 Estimate of Probable Construction Cost

The project cost estimates are based upon the conceptual plan sheets shown in **Appendix A**. The conceptual project cost estimate should be updated during the PD&E and design evaluation. Estimates were not developed for Alternative 3 since it did not rank high in the Section 7 ranking and evaluation process.

Table 8- 1 Preliminary Engineering Cost Estimate

COST COMPONENT	ALTERNATIVE 1	ALTERNATIVE 2
ROADWAY	$19,419,205	$1,801,977
MILLING	$155,343	$48,099
BRIDGES	$583,762,614	$288,859,075
DRAINAGE	$16,927,875	$7,706,356
LIGHTING	$3,133,544	$1,139,924
SIGNAGE	$1,697,020	$631,280
TOLLING	$2,200,000	$1,100,000
INTELLIGENT TRANSPORTATION SYSTEMS (ITS)	$6,374,654	$1,750,836
SUB-TOTAL DIRECT CONSTRUCTION COST	$633,670,255	$303,037,547
UTILITY RELOCATION (5%/2%)	$31,683,513	$6,060,751
MAINTENANCE OF TRAFFIC (MOT) (5%)	$31,683,513	$15,151,877
MOBILIZATION (10%)	$63,367,026	$30,303,755
LANDSCAPE (3%)	$19,010,108	$9,091,126
ESTIMATE-CONTINGENCY (10%)	$63,367,026	$30,303,755
SUB-TOTAL	$842,781,439	$393,948,811
ENVIRONMENTAL INVESTIGATION & REMEDIATION	$7,000,000	$5,000,000
TOTAL CONSTRUCTION COST ESTIMATE	$849,781,439	$398,948,811

8.2 Estimate of Probable Construction Right of Way Cost

The first detailed right-of-way estimate was prepared in July 2007 based on basic average land and improved property costs, rather than specific parcel costs in each alternative. These cost estimates are based on sales, listings, and published data by the Marshal & Swift building cost estimating service. A preliminary planning level estimate was performed in April 2008 and the totals for basic real estate based on July 2007 inspections, were **Alt. 1, $92,736,000**; and **Alt. 2, $42,515,000**.

The project was re-inspected on May 1, 2008, and the right-of-way cost estimates are now parcel specific and also include the following items when applicable: litigation support and settlement costs, site improvements, modification allowances for business damages. The May 2008 totals for all the above factors except relocation are: **Alt. 1, $171,161,000**; and **Alt. 2, $57,867,000**.

8.3 Cost Estimate

The project construction cost were estimated using the FDOT unit cost data based on statewide averages from the Florida Department of Transportation and recent cost data provided by HNTB. Unit costs have not been adjusted for the specific project location.

Additionally, FDOT Flexible Pavement Design Manual (FDOT, March 2008), and the FDOT Design Standards (2008) have been used as guidelines in the estimate of the proposed design of roadway pavement construction.

In general, assumptions considered are very similar for both alternatives despite their difference in length and construction structures quantities. Design and CE&I costs are based on a percentage of Construction cost. Right-of-way is based on preliminary assessment of property parcel values. If this project is advanced, updated project costs would need to be prepared. Project costs are in present day dollars and summarized below in **Table 8-2**.

Table 8- 2 Alternative Cost Estimate

	ALTERNATIVE 1	ALTERNATIVE 2
CONSTRUCTION	$849,781,439	$398,948,811
DESIGN (10%)	$84,978,144	$39,894,881
CE&I (16%)	$127,467,216	$59,842,322
RIGHT OF WAY	$171,161,000	$57,867,000
TOTAL COST	$1,233,387,799	$556,553,014

Factors except relocation are: **$171,161,000** for Alternative 1 and **$57,867,000** for Alternative 2.

8.4 Project Schedule

This project is not included in the MPO's 2030 Long Range Transportation Plan or the County's Comprehensive Development Master Plan. The proposed schedule is to include the project in the MPO 2035 LRTP which is scheduled to be adopted in December 2009. Once included, it can proceed to PD&E and design based on funding availability.

SECTION - 9 CONCLUSION AND RECOMMENDATIONS

The results of the conceptual engineering and planning analysis of the SR 836 Southwest Extension from SW 137th Avenue to SW 136th Street support the following conclusions:

1. An alternative to enhance mobility and accessibility within the study area and from the study area east to the dense economic and cultural centers in downtown Miami, the Port of Miami, and Miami Beach is needed.
2. Additional transportation capacity would accommodate increasing residential density in the study area and support local economic development opportunities, consistent with regional growth management and land conservation efforts.
3. The environmental impacts of traffic congestion (e.g., mobile source air pollutant emissions, neighborhood and community disruption) would be reduced since an alternative would be provided to the congested arterials in the area.
4. Greater connectivity and opportunities for modal interrelationships would be created within the regional transportation system.

Based on the study conclusions, it is recommended that this project be submitted for inclusion in the MPO 2035 LRTP update. Once it is included in the LRTP, a PD&E study should be performed on the SR 836 Southwest Extension. MDX staff should use the information gathered and derived through the PD&E study to determine if the limits, configuration, or any other features of the project currently programmed for final design and construction should be modified or if additional projects should be added to the MDX work program.