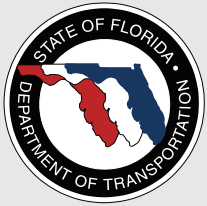




US 27 Transportation Alternatives Study

Prepared for:



Florida Department of Transportation
Systems Planning Office

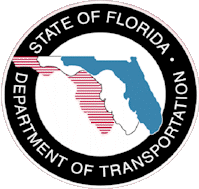
October 2012





Technical Memorandum: **Alternative Options and Policy Implications**

Prepared for:



**Florida Department of Transportation
Systems Planning Office**

Prepared by:



October 2012

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Chapter 1 – Introduction

1.1 Study Background and Purpose

The US 27 Transportation Alternatives Study was initiated in January 2012 by the Florida Department of Transportation (FDOT) Systems Planning Office. This study follows the successful completion of two other major transportation alternatives studies by FDOT's Systems Planning Office: the I-95 Transportation Alternatives Study (June 2010) and the I-75 Transportation Alternatives Study (August 2012).

Transportation alternative studies such as this one have their origin in legislative directives, and have evolved as a broader strategic planning tool for the state. During the 2009 Florida legislative session, HB 1021 was passed which required FDOT, in coordination with a number of statewide and regional agency partners, to complete a study of transportation alternatives for the I-95 Corridor that would take into account the transportation, emergency management, homeland security, and economic development needs of the state. The report was also required to include an identification of cost-effective measures that could be implemented to alleviate congestion on I-95, facilitate emergency and security responses, and foster economic development in the state. In accordance with the provisions of this study, a final report was submitted to the Governor in June 2010. The I-95 Transportation Alternatives Study served to assist the state in proactively planning for effective movement of Strategic Intermodal System (SIS) facilities in the state, and was subsequently awarded the 2011 Institute of Transportation Engineers Best Project Award. Realizing the success and usefulness of these studies as a valuable planning resource to statewide strategic planning of the SIS, FDOT has recently completed a similar I-75 Transportation Alternatives Study and has now initiated this US 27 Transportation Alternatives Study.

Similar to these previous studies, the purpose of the US 27 Transportation Alternatives Study is to analyze the physical environment, demographic elements, mobility and traffic elements, freight movements, emergency and security response, and economic development along the US 27 Corridor, and identify a range of mobility strategies for future consideration to alleviate congestion, facilitate emergency and security responses, and foster economic development in the state. To this end, the US 27 Transportation Alternatives Study consists of three main documents. This Technical Memorandum, *Alternative Options and Policy Implications*, is the second in the series of documents describing the development of the US 27 Transportation Alternatives Study. This document identifies an array of alternative transportation options available for improving transportation, freight movements, emergency management, homeland security, and economic development. It should be noted that this Technical Memorandum does not recommend specific projects or solutions for implementation, but rather presents a comprehensive, context-sensitive list of alternative approaches within the ten-county study area.



Chapter 1 – Introduction

The first Technical Memorandum in this series, *Existing Conditions and Corridor Needs*, was finalized in August 2012 and identifies existing conditions along the US 27 Corridor from different perspectives, including transportation, demographic, environmental, emergency management, homeland security, and economic development. The document also describes deficiencies and corridor related needs for each perspective.

A final report document, titled the US 27 Transportation Alternatives Study, will be developed following this second Technical Memorandum to summarize the full study and conclude the series.

1.2 Special Study Considerations

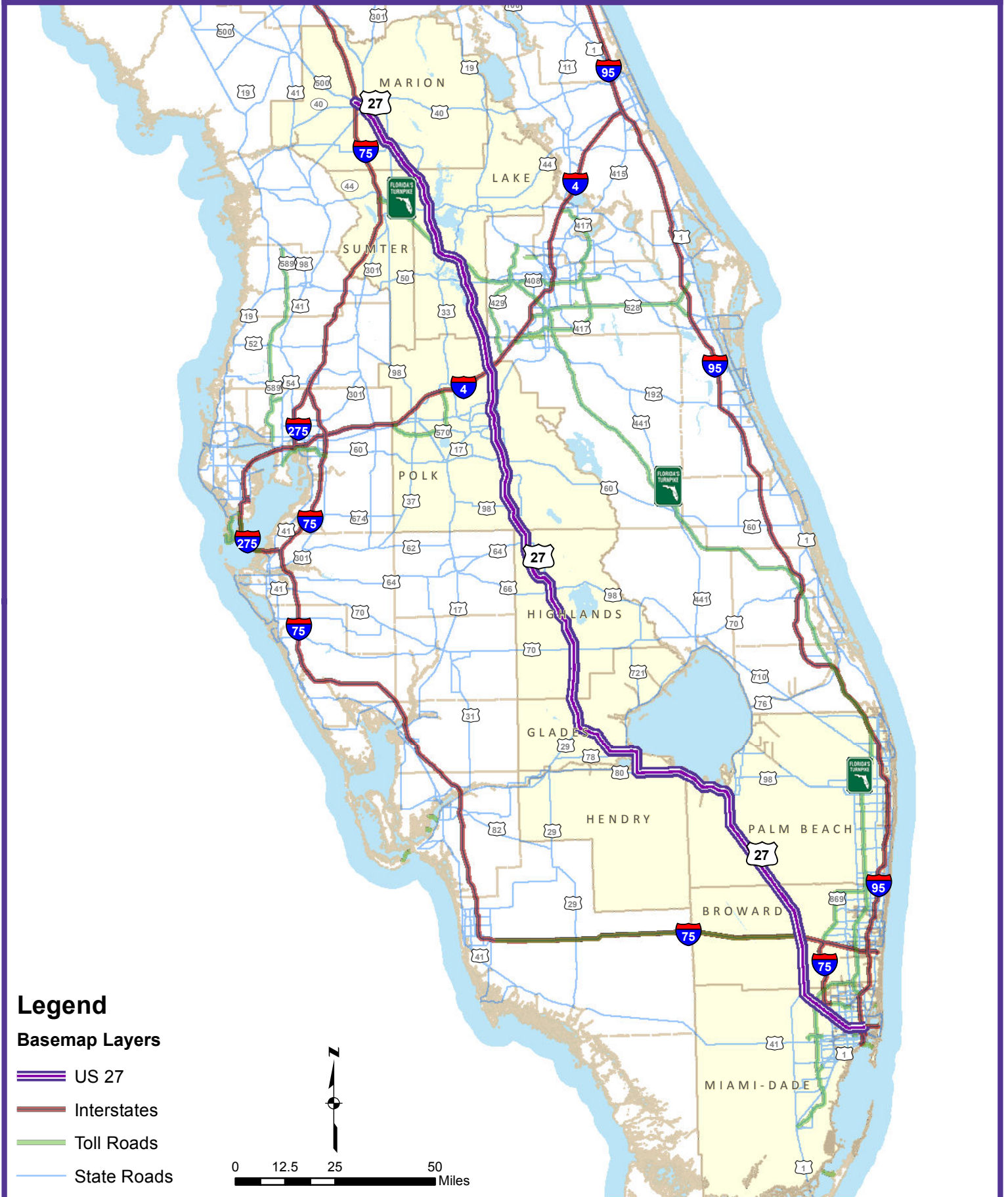
In contrast to the previously studied limited access transportation alternatives studies along I-95 and I-75, it was recognized that US 27 is a controlled access facility that would require a unique approach to provide effective solutions from a statewide perspective. Unlike limited access facilities, which are exclusively used for high speed vehicular traffic, controlled access facilities like US 27 bisect a number of communities and environmental resources in the state, and contain a number of at-grade crossings with rail lines and other roadways, traffic signals, median openings, and adjacent property access. In addition to completing an assessment of environmental and community resources and needs during the development of Technical Memorandum # 1, site specific field visits and additional FDOT District and regional coordination efforts were also undertaken as part of this project. The purpose of these assessment and visits was to provide the framework for a context sensitive approach that will best meet statewide objectives as well as local and regional needs along the corridor. This context sensitive approach framework has been distinctly chosen for the planning of this corridor to provide a collaborative, interdisciplinary and holistic approach to developing transportation solutions during this study and to guide any future phases of corridor evaluation. Site visit findings and this context sensitive approach are further described in Chapter 2, are identified within subsequent chapters on alternative options, and are considered in the discussion of policy implications included in Chapter 6 of this Technical Memorandum.

1.3 Study Corridor

As a major north-south controlled access roadway with connections throughout Florida and into other states, US Highway 27 plays an important role in regional mobility and the state economy. The US 27 Corridor under evaluation includes ten counties through Southeast and Central Florida, as identified in **Figure 1-1**. The corridor spans over 300 miles, beginning at its southern terminus in Miami-Dade County and proceeding through the central part of the state to I-75 in Marion County.

Figure 1-1

US-27 Study Area





Chapter 1 – Introduction

US 27 originates in South Florida at US 1/Biscayne Boulevard, and continues northbound through the center of the state. The US 27 Corridor as a whole provides a direct route from Miami-Dade County through Central Florida, connects to I-75 in Marion County, and provides further access north into Georgia and several other states. In providing direct access between South and Central Florida regions, it also acts as a major truck route and connects with a number of other important SIS facilities in the state. In the central portion of the corridor through Marion County, US 27 provides tourist access to a number of natural recreation areas and regional agricultural and horse farms and is the location of the large master planned retirement community, The Villages, which spans through Lake, Sumter, and Marion Counties. At the northern end of the corridor, access to I-75 and freight movements are of primary state concern. Given the distinct features of this corridor throughout the study limits, more detailed geographic profiles of the corridor are provided in Chapter 2 of this Technical Memorandum.

1.4 Study Participants

An important element of this study is proactive outreach to a number of statewide and regional agency partners, with the goal of facilitating a more comprehensive understanding of the corridor. As such, the US 27 Transportation Alternatives Study is being conducted in coordination and consultation with the following agencies and organizations:

- Florida Department of Law Enforcement
- Florida Division of Emergency Management
- Florida Department of Economic Opportunity
- FDOT Districts One, Four, Five, and Six
- FDOT Modal Offices (Airports, Rail, Seaports, and Transit)
- Other FDOT Offices (Safety, Traffic Operations, Environmental Management and Policy Planning)
- Florida Metropolitan Planning Organizations Advisory Council (MPOAC)
- Six Regional Planning Councils along the US 27 Corridor
 - Withlacoochee RPC
 - East Central Florida RPC
 - Central Florida RPC
 - Treasure Coast RPC
 - Southwest Florida RPC
 - South Florida RPC
- Six Metropolitan Planning Organizations along the US 27 Corridor
 - Ocala/Marion County TPO
 - Lake-Sumter MPO
 - Polk TPO
 - Palm Beach County MPO
 - Broward MPO
 - Miami-Dade MPO



Chapter 1 – Introduction

- Three Counties in the South Central Rural Areas of Critical Economic Concern (RACEC) areas not represented by an MPO
 - Highlands County
 - Glades County
 - Hendry County

The FDOT Systems Planning Office is the lead office coordinating all study activities and is coordinating the discussion between FDOT and its statewide agency partners who are providing data and information for the study. All comments received from agency partners in reviewing technical analyses are being incorporated into the final study products.

The six Metropolitan Planning Organizations (MPOs), six Regional Planning Councils (RPCs), and three counties not represented by an MPO that are located along the study corridor are also key organizations involved in transportation planning activities. The four FDOT Districts located along the corridor have existing working relationships with local and regional governments and are serving as the key points of contact between the municipalities and regional agencies and the study team. Each FDOT District Office is asked to coordinate with their local and regional partners, review study products, assist with policy development activities relating to the US 27 Corridor, and provide any additional input to the study team for inclusion into the final study products.

1.5 Project Information and Communications

Up to date information regarding the progress of the US 27 Transportation Alternatives Study can be found at the study website and SharePoint site established for the study (www.US27Alternatives.com). The SharePoint site is a principal communication link between FDOT and its partner agencies during the course of the study. The site also provides the ability for the general public to review study documents as they are completed.



Chapter 1 – Introduction

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Chapter 2 – A Context Sensitive Approach

To effectively identify a range of alternative corridor strategies to alleviate congestion, facilitate emergency and security response, and foster economic development in the state, it is necessary to review the corridor and provide the contextual focus for the development of these alternative transportation strategies. Unlike limited access facilities, which are exclusively used for high speed vehicular traffic, controlled access facilities like US 27 bisect a number of communities and environmental resources in the state, and contain a number of at-grade crossings with rail lines and other roadways, traffic signals, median openings, and adjacent property access.

Given this diversity, developing solutions along the US 27 Corridor requires a greater context sensitive focus. In developing Technical Memorandum #1, *Existing Conditions and Corridor Needs*, it became clear that the diversity of the corridor and the variety of issues identified required a greater level of analysis to fully understand and balance local and regional challenges and opportunities from a statewide perspective. To obtain a comprehensive geographic understanding of potential alternative strategies to be explored and field verify the findings included the existing conditions analysis, the project team conducted site visits of the entire corridor. As part of these site visits, coordination meetings were conducted with each FDOT District staff and their local partners in the development of this Technical Memorandum.

This chapter provides an overview of the results of these site visits and establishes the framework for the balanced, context sensitive approach that will be the basis for the transportation alternatives to be considered in the remaining sections of this Technical Memorandum. The chapter concludes with a section on the relationship of this study to other ongoing initiatives across the state to develop a systematic approach to improving the US 27 Corridor.

2.1 US 27 Corridor Profile

Site visit summaries were developed within each district to provide a contextual understanding of distinct characteristics and challenges within the corridor, as well to provide a framework for the number of corridor opportunities and challenges noted by agency partners. These detailed summaries are included in **Appendix A**. The following represents an overview of the diversity of roadway and land use characteristics present within the US 27 Corridor. It is meant to provide the general geographic context under which the alternative options in this Technical Memorandum were developed to address corridor needs, and is not meant to provide a comprehensive review of those corridor needs. More comprehensive and quantitative data considered in developing these options along with information on specific segments comprising the corridor, existing and future conditions, policies and plans, and a summary of corridor needs may be found in the *Existing Conditions and Corridor Needs Technical Memorandum*.



Chapter 2 – A Context Sensitive Approach

2.1.1 District 6 Corridor Profile (Miami-Dade County)

The study area boundaries of US 27 within District 6 are from Biscayne Boulevard (US 1) near Downtown Miami to the Miami-Dade/Broward County Line near Krome Avenue (SR 977). The US 27 Corridor within District 6 contains a diverse mix of rural, industrial, and urbanized development patterns.

The US 27 Corridor from US 1 (Biscayne Boulevard) west to I-95 is located north of Downtown Miami and acts as a primarily four-lane arterial roadway with turning lanes at major intersections connecting the surrounding area. Medium to high density development, including a mix of residential and commercial activities, are located adjacent to the US 27 Corridor in this area. Newer mixed-use neighborhoods, such as the Design District, are located immediately adjacent to US 27 and infill and redevelopment opportunities abound. On street parking and some limited bus lanes are also located in this portion of the corridor.

Moving west of I-95, US 27 retains its predominantly four-lane configuration with turn lanes. Schools and other community facilities are located along the corridor in this area, along with bus stops and connections to passenger rail stations and sporadic on street parking. Lower density single family homes are located directly along the corridor in this section as well as other low density commercial development. Sidewalks provide connectivity on both sides of the roadway for the number of pedestrians in this area. At NW 12th Street, a passenger rail overpass crosses US 27 and the roadway narrows to generally two travel lanes with on-street parking or turn lanes at signalized intersections. Density is slightly higher at varying points along the corridor in this section, returning to a primarily four-lane roadway with lower density commercial development through the corridor to the Airport Expressway. At the Airport Expressway, US 27 intersects with North River Drive. An elongated canal (Miami Canal) runs roughly parallel to US 27 from this intersection along the rest of the corridor in District 6. Although sidewalk connections are present along the roadway at this location and through the corridor towards Hialeah, the number of overpasses and the transition of the roadway from a four to six-lane divided highway in this section make it conducive to higher travel speeds and generally less safe conditions for pedestrians.

Miami near US 1/Biscayne Boulevard



West of I-95 near NW 7th Avenue and Moore Park



Approaching Airport Expressway from Hialeah





Chapter 2 – A Context Sensitive Approach

Near SE 4th Street and northwest towards Hialeah Drive, the gateway to the communities of Hialeah and Medley are located directly along the US 27 Corridor, with residential and smaller downtown commercial east and west of the corridor. Single family residential homes are also located directly along the corridor in this section, containing a large number of driveway entrances. Connections to Circle Park southwest of the Corridor are provided across the canal through a number of smaller connector bridges.



Hialeah Gateway at SE 4th Street

Additional commercial and residential development is located east and west of the corridor in this section. US 27 in this section varies from a primarily four to six-lane divided highway with sporadic commercial development along the corridor to the Palmetto Expressway. Sidewalk connectivity is provided throughout much of the corridor in this section, but is prohibited in certain areas where multiple roadways intersect and highway configurations dominate.



Housing and driveways on US 27 near Hialeah

From Palmetto Expressway northwest to Florida's Turnpike, a frontage road provides local residential and commercial access east of the corridor with major freight distribution west of the corridor and the Miami Canal along South River Drive. The US 27 Corridor is predominantly a six to eight-lane roadway in this section, with widened medians and some traffic separation at major intersections. Along the southwestern portion of the corridor, short connector bridges provide access between the canal and US 27, connecting to the number of freight industrial developments along South River Drive.



Frontage road parallel to US 27 south of Florida's Turnpike



Connector bridges to US 27 at South River Drive



Chapter 2 – A Context Sensitive Approach

These connectors experience significant queuing given the large amount of freight movements and local traffic in this area. In addition, South River Drive itself provides limited two lane access parallel to US 27, and experiences congestion and operational issues for effectively moving freight traffic out to US 27. In addition, environmental justice concerns include intermixed, older residential homes located along the canal adjacent to South River Drive. These residential homes are located directly adjacent to heavy freight and industrial uses.



US 27 north of Florida's Turnpike in Miami-Dade County

From Florida's Turnpike north to the Miami-Dade County line, US 27 is a four- to six-lane roadway with significant median islands, sparse rural development, and significant sections of uninterrupted traffic flow with no traffic signalization. Between 10 and 20 percent of traffic along US 27 in this section has been identified as carrying freight. Opa-Locka West Airport is located east of the corridor between NW 186th Street and Krome Avenue near the Miami-Dade/Broward County line. Krome Avenue merges with US 27 just south of the county line near the airport. Development continues to be sparse from this area to the Miami-Dade/Broward County line.



Large US 27 median spacing north of Florida's Turnpike

Framing the Issues in District 6

With a concentration of industrial and freight uses along the portion of the corridor between the Palmetto Expressway and Florida's Turnpike and the Port of Miami just southeast of the US 27 Corridor, freight movements are of primary interest in meeting transportation demands in this section of the state and US 27 Corridor. The southern portion of the corridor connects to major freight and shipping facilities: Florida's Turnpike, I-95, US 27, and a series of existing rail networks. In addition, the US 27 Corridor is within approximately two miles of the northern terminus of the Port of Miami. Connecting freight from the port through enhanced rail corridors and into Hialeah Rail Yard near this southeastern portion of the corridor is being explored to address freight transportation needs in a systematic and strategic way.

Right-of-way along US 27 within Miami and through to Hialeah is limited and mixed use urban development patterns within the corridor, particularly in arising neighborhoods like the Design District, are locations of community concern and are where context sensitive design issues may be most needed. In addition, community



Chapter 2 – A Context Sensitive Approach

gateways in Hialeah and Medley along and adjacent to the US 27 Corridor include a substantial mix of large suburban and dense urban populations, and smaller downtown commercial districts which enhances the need for a community focused context sensitive design. A number of single family homes located directly along the corridor in this area require additional community and safety considerations.

2.1.2 District 4 Corridor Profile (Broward and Palm Beach Counties)

The US 27 study area boundaries within District 4 are from the Miami-Dade/Broward County Line to the Palm Beach/Hendry County Line. Most of the US 27 Corridor within District 4 is a predominantly four-lane, free flow roadway, with limited traffic signals and large divided medians. The US 27 Corridor directly intersects with four Water Conservation Area Boundaries at several access points throughout the corridor. In addition, the corridor study area is located within the boundary of the Comprehensive Everglades Restoration Plan (CERP), is located within the wetlands of the Central Everglades, and provides access to a number of Everglades Agricultural Area (EAA) storage reservoirs. The US 27 Corridor study area also provides access to a number of small and large public parks, as well as other recreational facilities that provide access to The Everglades. The project corridor also contains a number of water management structures such as pump stations and canal flow structures.



US 27 north of the
Broward County line

From the Miami-Dade/Broward County line to approximately I-75, wildlife management districts are located primarily west of the corridor and development is sparse and limited. In this area, US 27 is a four-lane uninterrupted roadway with significant right-of-way and median widths.



US 27 just north of the Miami-Dade County line



US 27 south of Pines Boulevard



Chapter 2 – A Context Sensitive Approach

Smaller, concentrated suburban development is located east of the corridor just north of Miami-Dade County in Broward County, particularly between Pines Boulevard and Griffin Road. These communities are located a significant distance from the corridor itself, and access to these communities from US 27 is provided through major signalized intersections at Pines Boulevard, Johnson Street, Sheridan Street, Stirling Road and Griffin Road. Variable speed limit strategies were recently completed within the corridor, from just south of Pembroke Road to north of Griffin Road (approximately five miles). Just north of Griffin Road is a larger truck stop location. From north of Griffin Road to I-75, development is sparse and limited due to the large swaths of environmentally sensitive lands east and west of the corridor.

Approaching I-75 in Central Broward County, the corridor provides access to the east coast and the four SIS seaports in Southeastern Florida: Port Everglades, Port of Miami, Port of Palm Beach, and Port of Fort Pierce through connections along I-75 with I-95 and/or Florida's Turnpike. US 27 along this portion of the corridor retains an elongated median and divided highway configuration.

North of I-75 in northern Broward County into Palm Beach County, environmentally sensitive lands are located on either side of the corridor with wetlands and other natural features often present directly adjacent to the corridor. North of I-75 along the US 27 Corridor are a number of small parks that provide direct access points to the Everglades. Notably, Sawgrass Recreational Park is a popular recreational facility in this area of the corridor and includes air boating and other fishing and park uses. A number of structures, pump stations, and stormwater treatment areas are located on both sides of the corridor. In addition, power lines and other environmental resources, potentially historic structures and bridges along either side of the US 27 Corridor provide additional constraints to the corridor in these areas.



US 27 approaching Griffin Road



Sawgrass Recreational Park



Everglades and power lines near US 27



Chapter 2 – A Context Sensitive Approach

Traveling to the northbound boundary of US 27 in South Bay near the Palm Beach/Hendry County line, more rural residential development, RV campgrounds, and railroad crossings are present. The median widths narrow approaching the Town of South Bay and a narrow tree canopy median provides roadway separation within South Bay and through the Town of Belle Glade.



Median narrowing south of South Bay



US 27 near South Bay and Belle Glade



US 27 north of Belle Glade

Framing the Issues in District 4

During the corridor review with District staff, the project team was provided further details on the rail location alternatives and logistics centers being planned in the corridor. The location of a freight rail corridor within existing right-of-way is under consideration as part of these plans and would be located west or east of US 27, with additional considerations for location of the rail corridor within the median of US 27 at the I-75 crossing. This rail corridor is being considered to alleviate the number of noted environmental concerns in the corridor and provide greater multimodal connectivity for facilitating freight movements. A primary issue identified in developing the alternative rail corridor along US 27 includes height limitations and the presence of bridge piers inside the median area at the I-75 overpass. At the I-75 overpass, these constraints and geometric concerns on either side of the corridor would dictate moving the rail lines out a considerable distance from the corridor if solutions cannot be reached to address these rail median challenges. Relocating the rail line outside of the US 27 median would be expected to have significant impacts to wetlands and public lands on either side of the corridor.



US 27 at I-75 intersection in Broward County



Rail crossing near South Bay



Chapter 2 – A Context Sensitive Approach

In addition, a rail spur line may be considered near South Bay/Belle Glade to connect to a proposed Americas Gateway Intermodal Logistics Center (ILC). The America Gateway Logistics Center (AGLC) site in Moore Haven is immediately adjacent to the South Central Florida Express (SCFE) rail line, a short line rail run by U.S. Sugar Corporation. The southern tip of the South Florida Regional ILC in Belle Glade is also very close to the SCFE rail line. The proximity of the existing SCFE tracks to the proposed site may require further investigation and engineering considerations.

The US 27 Corridor within District 4 also faces a number of environmental challenges. The corridor directly intersects with four Water Conservation Area Boundaries, is within the boundary of the Comprehensive Everglades Restoration Plan (CERP), and located within the wetlands of the Central Everglades. The project corridor also contains a number of adjacent water management structures such as pump stations and canal flow structures. Finally, parks and environmental justice communities are located throughout the corridor and will need to be considered in making any improvements to this area.

2.1.3 District 1 Corridor Profile (Hendry, Glades, Highlands, and Polk Counties)

The US 27 study area boundaries within District 1 are from the Palm Beach/Hendry County Line to the Polk County/Lake County Line north of I-4. Stretching over 140 miles, this represents the largest portion of the corridor within the US 27 study limits. It is also the location of the state's South Central Rural Area of Critical Economic Concern (RACEC), which includes Hendry, Glades and Highlands Counties in the study area. The RACEC designation was established by the Governor to include rural regions or areas that have been adversely affected by extraordinary circumstances, severe or chronic distress, or natural disasters and which present a unique regional economic development opportunity for the state. In addition to these rural areas of the study corridor, significant growth in Polk County has occurred over recent years due to its strategic location between the Orlando-Tampa mega-region, its connection to I-4, and adjacency to other important industrial and freight clusters.



US 27 in Hendry County



US 27 in Clewiston



Chapter 2 – A Context Sensitive Approach

Throughout most of the rural areas of Hendry, Glades and Highlands Counties, the US 27 Corridor is a predominantly homogenous four-lane, free flow facility within limited traffic signalization and substantial medians. Exceptions to this are at major east-west connection points such as SR 80, SR 78, and SR 29 and near the smaller rural communities of Clewiston and Moore Haven where US 27 provides direct entry into these towns. In Clewiston and Moore Haven, US 27 retains its four-lane configuration; however, speed limits are reduced significantly and a series of traffic signals and pedestrian crossings are in place to provide connections to local roads within these towns and for safety reasons. Schools and other community facilities are located adjacent to the US 27 Corridor in Clewiston and Moore Haven as well. Notably, a large curved bridge across the Caloosahatchee Canal provides an entrance into the Town of Moore Haven along US 27. Speed limits reduce significantly entering the town and visibility may be hindered by the curvature of this bridge, resulting in some additional safety concerns in this area. District 1 has undertaken a number of improvements over the years to address safety concerns in this portion of the corridor.



US 27 bridge into Moore Haven



US 27 in Moore Haven

North of Moore Haven to Lake Placid and Highlands County, the US 27 Corridor returns to a four-lane free flow facility with wide medians and periodic median openings. Much of the corridor in this section includes agricultural lands and orange groves with limited development. A number of these communities in Highlands County, including Sebring and Avon Park, are adjacent to older rail lines (such as Amtrak) and are historic in nature. These communities are located just east or west of the US 27 Corridor. Located near a series of lakes, these historic communities attract recreation-based tourism, particularly RV parks and smaller resorts and campgrounds. Within and surrounding these communities, the US 27 roadway widens from four to six lanes to meet the needs of both local and regional traffic movements. Between these communities, US 27 continues as a predominantly free-flow facility with narrowed medians, and in some locations tree canopies are present.



Citrus groves along US 27



Chapter 2 – A Context Sensitive Approach

From roughly Sebring to the Polk County line, US 27 retains a four- to six-lane configuration and acts both a regional connection for freight traffic as well as a major arterial for local traffic. In some areas of the county, residential housing and community facilities like schools are located within a quarter-mile of the US 27 Corridor. A small section of frontage road, between Tanglewood Drive and Ponce de Leon Boulevard in Sebring, runs parallel to US 27 and addresses local traffic needs near businesses. Notably, as populations in Highlands County have grown so have medical and manufacturing industries. The regional medical center in Highlands County, for instance, has resulted in increased commercial medical business near Sebring and Avon Park.

Entering Polk County, US 27 varies from four to six lanes. A number of east-west connections intersect with US 27 in this area, most notably SR 60 near Lake Wales, where work is currently underway for the Winter Haven/CSX ILC (replacing the old Taft Yard ILC). Access to the Ridge Scenic Highway is provided near Haines City (US 17), and also connects to Bok Tower, a scenic destination along the corridor. Between Lake Wales and I-4, District 1 is conducting a study of Central Polk Parkway, an alternative roadway which could have some impact on providing traffic relief for US 27 in this area.

North and south of I-4 through the Polk/Lake County line near US 17/92, large developments of regional impact are located east and west of the corridor. Manufacturing industries are also prevalent just north and south of I-4. Population growth over the last ten years in this area, known as The Four Corners, is some of the largest in the state.



US 27 north of Lake Placid



US 27 in Sebring



Historic Avon Park near US 27



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Framing the Issues in District 1

The majority of the study area within District 1, particularly in Hendry and Glades Counties, consists of rural and agricultural lands with population concentrations in several communities both in the southern portion of District 1 and in the central portion of the study area in Highland and Polk Counties. Hendry, Glades, and Highlands Counties are currently designated as a RACEC region. Communities noted adjacent to the corridor include the towns of Moore Haven, Clewiston, Lake Placid, Sebring, Avon Park, Lake Wales, Dundee, Haines City, and Davenport. In addition, areas in Polk County near I-4 have seen tremendous growth over the last ten years and will need to be considered in evaluating opportunities to foster regional economic development.

Special considerations may be required at certain locations along the corridor within District 1 where community development has occurred or is proposed. Joint land use and transportation strategies will need to be explored and reviewed and coordination with local comprehensive plans and regional long range plans for proposed improvements will be essential to developing effective strategies in this area. In addition, it should be noted a number of these communities carry historic designations, especially east of the corridor and parallel to older rail lines. These areas will require specific attention, both from an environmental and economic development standpoint.

Freight movements and plans will need to be considered in the development of alternatives to understand regional connectivity needs and policy implications. An Intermodal Logistics Center (ILC) is proposed, but not implemented at this time, in Glades County as part of the District 4 ITIN Study. In addition, work is currently underway for the Winter Haven/CSX ILC (replacing the old Taft Yard ILC) along SR 60 near Lake Wales in Polk County. A roadway extension project that is underway to connect the ILC and other major roadways is planned at SR 60 and could also impact the US 27 Corridor. Coordination with a number of district plans already underway, including the Central Polk Parkway Study, a rail relocation study in Polk County, and a joint District 1 and District 7 freight plan, will be needed to provide systematic improvements along the US 27 Corridor.



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2.1.4 District 5 Corridor Profile (Lake, Sumter, and Marion Counties)

The study area boundaries within District 5 are from the Polk/Lake County Lines near I-4 to the intersection of US 27 and I-75 in Marion County. The number of lanes fluctuates between four and six lanes throughout the corridor, with a number of projects in planning, PD&E and construction phases for six lane improvements. The study area within District 5 consists of a rural and more urbanized mix of uses. This area of the corridor has seen some of the most tremendous population growth in the state over the last ten years. This is in part due to its proximity to the Orlando-Tampa mega-region's surrounding employment centers and the development of The Villages Retirement Community, an age-restricted master planned community with both residential and commercial uses straddling the US 27 Corridor and spanning through Lake, Sumter, and Marion Counties. This three-county area of The Villages serves as a major employment center in the region, is continuing to grow, and has substantial impacts on the transportation network.



The Villages

From the Polk/Lake County line near US 192 north to Clermont and Minneola, the US 27 Corridor varies from four to six lanes with a mix of uninterrupted free flow traffic and signalized intersections providing access throughout the county and region. The intersection of US 27 and US 192 as well as other locations near the Polk and Lake County borders provide connections to Walt Disney World and other major employment centers near the corridor. In addition, economic development sector plans are underway for a proposed "Health and Wellness Way" Corridor that would include over 16,000 acres located near US 192 from east of US 27 to the Lake/Orange County line and including I-4 and the Florida's Turnpike.



US 27 at Polk/Lake County Line



US 27 north of US 192



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This corridor is planned as a regionally significant employment center and is anticipated to complement Medical City economic development in Orange County as well as serving the master planned Horizon's West Community due east of the corridor in Orange County. The corridor is also enhanced by regional connections to SR 429 and the Wekiva Parkway.

The area of South Lake County has experienced significant growth in recent years, particularly in the areas near Clermont and Minneola within the study area. These areas act as natural bedroom communities to surrounding employment centers and have experienced tremendous growth in recent years. Clermont, in particular has grown by over 200 percent between 2000 and 2010. Within these areas along US 27, a number of park and rides have developed to provide alternative transportation options for residents and commuters in the area. Roadway widths vary from four to six lanes in these communities along the corridor and lanes have increased in recent years to accommodate the growth in these communities.

North of Minneola, US 27 runs parallel to and intersects with Florida's Turnpike. From Florida's Turnpike to Leesburg, US 27 is a predominantly four lane facility with rural development and some concentrated suburban residential development. In Leesburg, US 27 acts as a major arterial roadway with narrower medians. Access to Lake Griffin Park is provided via US 27 in this area. Notably, the corridor intersects with US 441 in this area and continues as US 27/US 441 throughout the remaining portion of the US 27 Corridor. From Leesburg to Lady Lake, more concentrated commercial development is located directly along the US 27 Corridor. Local relievers, such as Rolling Acres Road, have been proposed in certain sections of this area to alleviate traffic in these areas.



US 27 approaching SR 50 near Clermont



US 27 at Florida's Turnpike in Lake County



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North of Lady Lake and straddling three counties along the US 27 Corridor is the entry into The Villages Retirement Community and a number of supplemental employment and commercial locations along the corridor which support this large development. Workers who live in other areas within the region utilize US 27 in this area to access jobs in The Villages. During the peak season of November through May, the population of The Villages nearly doubles and US 27 experiences seasonal congested traffic conditions. In addition, a number of features in this area are unique from a transportation perspective. Given that many users are retired, traditional peak and off peak hours do not apply in this area and traffic safety issues related to older drivers are a concern. Alternative transportation modes, specifically walking and bicycling, are prominent in The Villages area and present unique safety



North of The Villages in Marion County to Belleview, the corridor is a four lane divided highway and retains its more rural character with some residential suburban communities and smaller commercial centers. Near Belleview, US 27 is configured for six lanes but is painted for four lanes with some on-street parking available. Notably, near Belleview the corridor merges with US 301 and continues as US 27/US 441/US 301 through Ocala. Between Belleview and Ocala, a large number of older resort motels and RV parks are found adjacent to the corridor. Approaching Ocala, directional signs to the central business district and other locations are provided directly along the roadway. US 27 begins to deviate west in this area towards I-75.

Approaching the intersection with I-75 in Marion County, the Ocala Site 489 is a planned ILC at the northern terminus of the US 27 Corridor. The location covers more than 400 acres and rail access to the ILC is provided through Florida Northern Railroad to the CSX S-Line. This location is currently vacant; however, anticipated employment at build out is expected to create 2,000 to 4,000 jobs. As such, this planned ILC is significant for local economic development in the area.



On-street parking in Belleview



US 27 approaching Ocala



US 27 at I-75 in Marion County



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Framing the Issues in District 5

US 27 is currently not a SIS-designated roadway through the study area in Lake, Sumter, and Marion Counties. As such, policy considerations such as the existing Lake-Sumter MPO policy constraining widening of US 27 to six lanes must be taken into account in effective planning of the corridor in this portion of the study area. In addition, a number of SIS roadways intersecting with US 27 assist freight movements in the District 5 area and there is a need for consideration at the statewide level of how these roadways can effectively facilitate freight movements and integrate with other SIS facilities. In addition, District 5 has a number of initiatives underway that impact SIS movements. Among these are the *I-75 Systems Access Management Report* (SAMR), and the Ocala Site 489 ILC. These initiatives will need to be considered in the development of alternatives that facilitate the SIS, and should also help to inform the recently initiated Statewide Freight Study.

The study area within District 5 has experienced some of the largest growth and development in the state over the last ten years. Given its location near the Orlando-Tampa mega-region and proximity to The Villages Retirement community, a number of special considerations will be needed to develop alternative solutions that address community needs, regional economic development opportunities and plans, and the expected continued growth of the corridor in the District. Low cost improvements such as Transportation Systems Management and Transportation Demand Management strategies, in combination with local reliever roadways and a series of other systematic corridor improvements, may be of particular use in maximizing the efficiency and effectiveness of the US 27 Corridor.

2.2 Balancing Corridor Needs and Opportunities

FDOT's Systems Planning Office is tasked with implementing the strategic intermodal system (SIS) in the state, which includes US 27, as well as to provide guidance and policies in implementing the SIS. The overall purpose of the SIS is to improve mobility for residents, businesses, and visitors and to enhance economic competitiveness in the state. Studies such as this one help to provide a systematic and strategic view of the state's SIS facilities, expanding on corridor and district level plans to provide a greater cohesive narrative that can help prioritize investments to best address mobility and economic vitality at a statewide level. One of the great challenges posed by such a task, however, is balancing overall transportation network connectivity needs across the state and within the corridor with emerging growth patterns, community visions, and the new opportunities growth brings to an area to support local economic development and regional vitality.

Stretching over 300 miles in length and traversing ten counties and four FDOT Districts, the landscape of the US 27 Corridor is as diverse as the state itself. From



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a statewide perspective, the US 27 Corridor is an important SIS facility that provides direct access and connectivity through the center of the state. Its location provides strategic connectivity to major interstate facilities such as I-75, I-95 and Florida's Turnpike as well as other regional destinations east and west of the corridor. Realizing its strategic location and propensity for providing enhanced connectivity between regions and across the state, a number of plans have emerged through FDOT's District Offices to create a multimodal system of gateways and logistics centers that will enhance the efficiency of freight movements within and throughout the state. Inland port expansions in South Florida and Intermodal Logistics Centers (ILCs) planned in Palm Beach and Glades Counties near Lake Okeechobee, in Polk County along SR 60 near Winter Haven, and in Marion County adjacent to I-75 are just some examples of these planned strategies. To leverage these plans and succeed in meeting statewide economic visions for attracting trade, investment and skilled workers to the state, it will be essential to integrate and prioritize these plans into a systematic freight network in coordination with private development trends and directions.

At the same time, the growth and development within the US 27 Corridor is equally important to meeting statewide visions for creating vibrant urban and rural communities where residents have increased choices about where to live, work, learn, play and shop. Throughout Florida's "Heartland" in Glades, Hendry and Highlands Counties are a number of small, historic communities like Clewiston, Moore Haven, Lake Placid, Sebring, and Avon Park that continue to reflect the scenic beauty and rural hometown character of Florida. These areas support Florida's oldest resource industries like agriculture, fishing, forestry and mining, act as natural recreational destinations for residents and tourists alike, and have adapted over time to incorporate emerging health industries into their local economies. Many of these communities have also been designated "rural areas of critical economic concern" (RACEC) by the Governor, and improvements need to be sensitive to impacts on these communities. Operational and safety improvements and maximizing investments in freight and intermodal connectivity to create jobs are just some of the alternative options that may prove effective in these rural and historic areas.

A number of increasingly urbanized areas are also prominent throughout the corridor. These areas reflect the growth of mega-regions in Miami, Orlando and Tampa and the rise of master-planned, mega-retirement communities like The Villages in Lake, Sumter and Marion Counties. These patterns of development have literally transformed the landscape of the US 27 Corridor and provide both new opportunities and challenges for developing effective transportation solutions. For example, the urbanized US 27 Corridor in Hialeah, Medley, and Miami are limited in terms of available right-of-way and capacity improvements no longer meet the needs for effectively moving people and freight. Providing alternative transportation options for moving both people and freight in these areas may represent the most feasible and desirable solutions.



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In contrast to these maturing urbanized areas in Miami are transitioning urban development patterns in “The Four Corners” area, including Polk and Lake Counties, as well as in Sumter and Marion Counties. These counties have seen some of the greatest population growth in the state over the last ten years and continue to adapt to the new opportunities and challenges of such growth. A number of areas in Lake and Polk Counties near the Four Corners area act as natural bedroom communities to the Central Florida megaregion, while other areas of northern Lake County, Sumter County and Marion County have experienced exponential growth in housing and population resulting from The Villages Retirement Community and other new commercial development. Development patterns in these areas varies widely, with portions of the corridor that still retain rural character to more developing and urbanizing patterns in other portions of the corridor that are continuing to grow. Given the regional development trends in these areas, an array of transportation solutions that balance economic opportunities along the corridor with statewide and community needs are needed to effectively plan for the future.

In detailing the diversity of the US 27 Corridor throughout the state and even within each county and district boundaries, it becomes clear that there is a need to integrate alternatives as part of more strategic and context-sensitive strategies to effectively *balance* the needs of passenger and freight mobility with community and regional visions for economic growth. An effective, well thought out integration of strategies has the potential to make the US 27 Corridor a vibrant place to live, work and travel. The implementation of alternative strategies along the corridor should therefore not be viewed as one size fits all solutions, but with the view to incorporate a multitude of strategies that best balances the mobility needs of people and freight and which fosters regional and statewide connectivity and economic opportunities.

2.3 Organization of the Alternatives in this Report

To develop comprehensive context-sensitive solutions along the US 27 Corridor, a number of coordinating strategies will need to be considered in developing improvements that meet the multi-faceted statewide goals of alleviating congestion, facilitating emergency and security response, and fostering economic development. The alternatives within the subsequent chapters, therefore, are focused on three distinct categories (as shown in **Figure 2-1**): community vitality, freight movements, and regional capacity strategies.

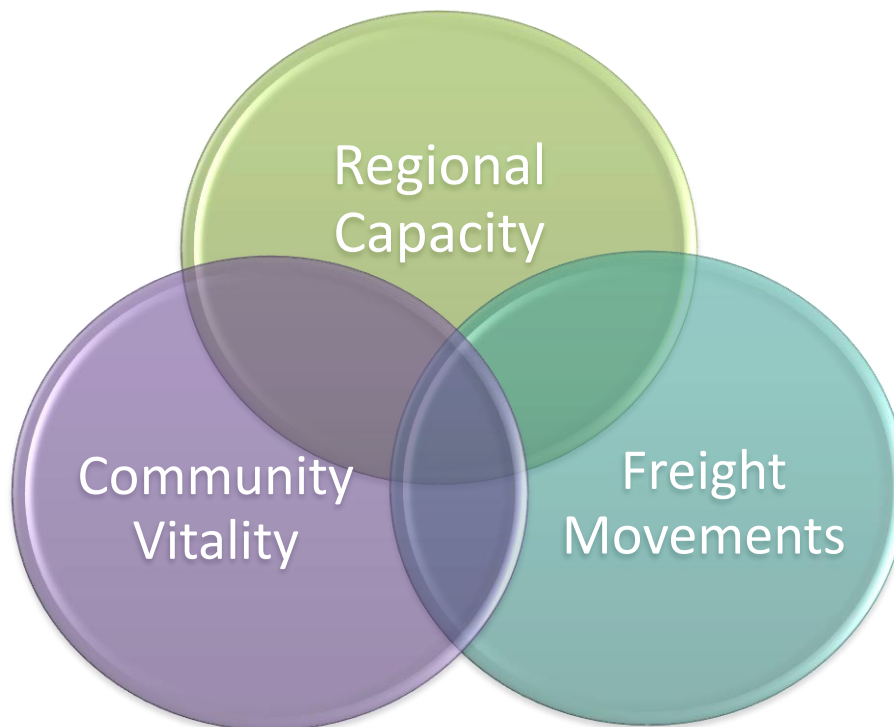
Although distinct in approach, the effect of any of these focused strategies is expected to have an impact on the others. Effective management and planning for the US 27 Corridor will therefore require a mix of these strategies to be employed, and should be developed in coordination with District plans and programs, Metropolitan Planning Organization (MPO) long range transportation plans (LRTPs) and regional visions, as well as local plans and policies.



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Although no specific recommendations are provided within the review of these alternatives, each alternative includes a section on examples and opportunities for these alternatives within the corridor as well as a review of potential benefits and drawbacks of each alternative.

Figure 2-1: Context Sensitive Focus Areas



2.4 Relationship to Other Statewide Plans

The *Existing Conditions and Corridor Needs Technical Memorandum* provided a comprehensive listing of recently completed and ongoing FDOT District studies within the corridor to identify needs and future visions for the corridor. This section is meant to discuss more specifically the relationship of this study to other major statewide initiatives such as the Future Corridors Program and recently initiated studies like the Statewide Freight Mobility and Trade Plan. For a complete listing of recently completed and ongoing plans within the corridor, please see the *Existing Conditions and Corridor Needs Technical Memorandum*.



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2.4.1 Future Corridors Initiative

In 2006, FDOT developed the Future Corridors Program, with a vision to create a statewide network of high-speed, high capacity facilities as the critical foundation for the state's continued growth and development. The Future Corridors Program identified potential new corridor study areas, as well as potential corridor transformation (re-use) study areas. That planning process identified corridors throughout the state that could enhance connectivity to existing and emerging employment centers and economically productive rural lands. The following future corridors and study initiatives were previously identified as important to providing multimodal options for moving people and freight within the state.

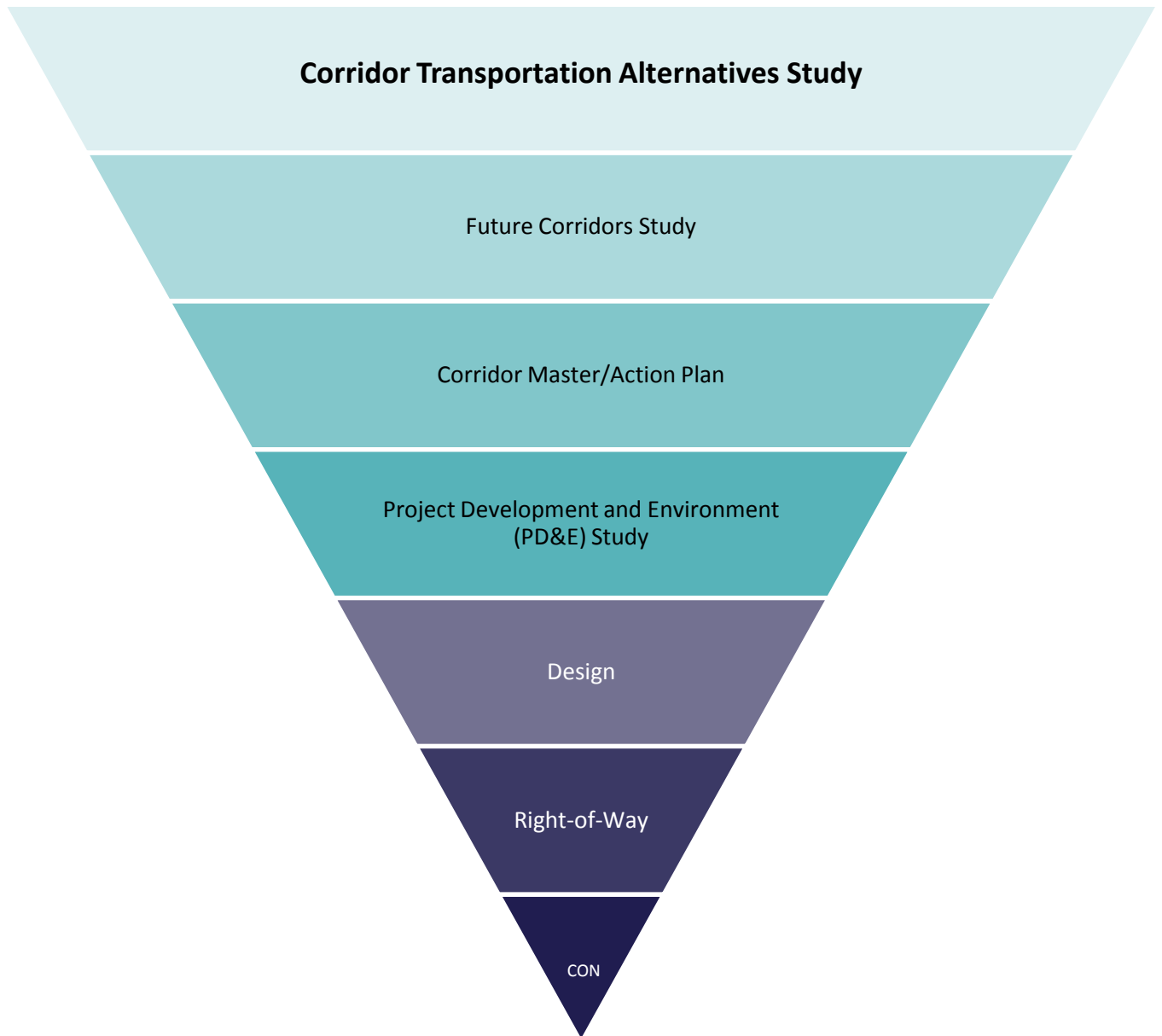
- *US 27 Multimodal Corridor, Southeast Florida to Central Florida* – The study corridor has the potential to serve as a reliever to I-95, Florida's Turnpike, and I-75. This multimodal corridor study will continue to target freight related industry in the state.
- *Tampa Bay to Northeast Florida* – The long-term goal of this study corridor is to improve the connectivity between two of Florida's largest urban areas. The study will identify opportunities to provide congestion relief along the I-75 corridor in this area.
- *Central Florida – Tampa Bay (I-4)* – This study corridor will build upon local visioning processes along the I-4 corridor. The study will look to incorporate centralizing growth in the corridor and developing multimodal corridors to connect to these growth centers.
- *Southwest Florida to Central Florida (Heartland Parkway)* – Commonly referred to as the Heartland North-South Corridor, this corridor runs from eastern Collier County to I-4 in Polk County. The multimodal corridor provides congestion relief for I-75 in southwest Florida and provides an inland emergency evacuation route and access to Rural Areas of Critical Economic Concern (RACEC) in the state.

The US 27 Transportation Alternatives Study is the first in a series of future planning efforts to provide connection to a wide variety of SIS facilities in the state and foster economic development. The relationship of this study to other future studies is shown in **Figure 2-2**. This study provides preliminary information on the needs of the existing facility and a series of alternative strategies for improving US 27. With this backdrop, the US 27 Transportation Alternatives Study was initiated in 2012 by the FDOT Systems Planning Office. FDOT has undertaken the study in order to develop a high level comprehensive view of the entire US 27 Corridor. The outcome of the study is not to provide specific recommendations, but instead to lay the foundation for alternative improvement options to be considered for future planning and implementation efforts.



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Figure 2-2: The Transportation Alternatives Study Process





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2.4.2 Statewide Freight Mobility and Trade Plan

The Office of Freight, Logistics, and Passenger Operations, in coordination with other departments within FDOT and participating organizations and agencies, has recently initiated the Freight Mobility and Trade Plan (FMTP). This plan seeks to define policies and investments that will enhance Florida's economic development efforts into the future. Approved on April 27, 2012, Florida House Bill 599 requires FDOT to develop the FMTP. The goals for the creation of the plan are:

1. Increasing the flow of domestic and international trade through the state's seaports and airports, including specific policies and investments that will recapture cargo currently shipped through seaports and airports located outside the state.
2. Increasing the development of ILCs in the state, including specific strategies, policies, and investments that capitalize on the state's empty backhaul trucking and rail market.
3. Increasing the development of manufacturing industries in the state, including specific policies and investments in transportation facilities that will promote the successful development and expansion of manufacturing facilities.
4. Increasing the implementation of compressed natural gas (CNG), liquefied natural gas (LNG), and propane energy policies that reduce transportation costs for businesses and residents located in the state.

The FMTP recently initiated regional listening forums across the state as a first step in the planning process. Subsequent stakeholder meetings will be held throughout the fall. Scenario planning will be used in the plan development process to explore the plan from different perspectives and provide for the appropriate combination of policy and investment decisions to effectively meet future needs. A series of stakeholder and public involvement opportunities will follow to further inform the plan development process.

The final FMTP is expected to be released in late 2013. The US 27 Transportation Alternatives Study will help to inform this statewide plan by providing preliminary information on planned and programmed freight related activities and needs along the corridor that may provide insights into scenario planning efforts in the state.



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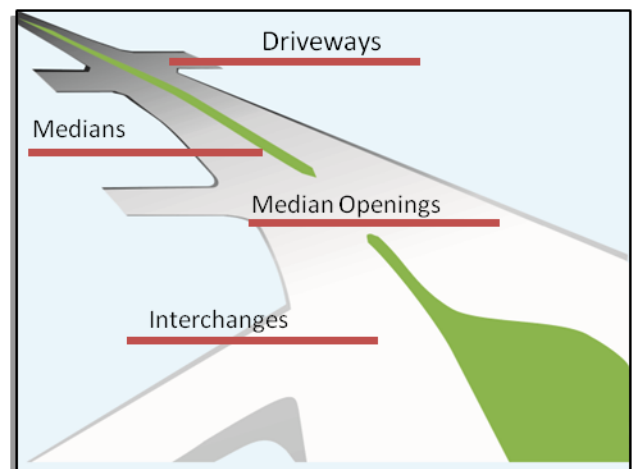
The community vitality focused alternatives represent a number of transportation systems management and operation (TSM&O) and transportation demand management (TDM) strategies for improving the US 27 Corridor. These techniques focus primarily on maximizing the existing investment in the transportation network, and can be best utilized in areas along the corridor where community growth and development have led to more complex local and regional travel demands, and joint land use and transportation goals to enhance economic vitality. In many cases, these options provide low-cost alternatives to capacity improvements and can provide short-term positive enhancements to the transportation network which are better suited to meeting community needs in the corridor. In some cases, consideration for higher cost alternatives, such as local reliever improvements, may be appropriate given current conditions, right-of-way availability, and local development.

3.1 Access Management Strategies

Access management is the planning and coordination of the location, number, spacing and design of access points such as driveways and street connections, medians and median openings, traffic signals, and interchanges. The ability to effectively manage access onto and off of the US 27 Corridor could increase roadway capacity, improve safety by reducing crashes, and decrease travel times.

Chapter 14-97 in the Florida Administrative Code (FAC) provides existing guidance to assist in the realization of access management in the state. The State Highway System Access Management Classification System and Standards are a seven-tier classification system establishing the guidance to assist in the implementation of access management across the state, as shown in **Table 3-1**. In this system, access management classifications are distinctly tied to existing land use development types and guidance is then provided from a statewide level on various access points, such as median types and spacing for median openings, traffic signals, and street connectivity.

Figure 3-1: Access Management



Source: FDOT, Introduction to Access Management, 2012.

In the classification system, Access Class 1 consists of limited access facilities, which are high speed and high volume facilities and do not have direct access to direct property connections and utilize interchanges for their connections to other roadways. Access Classes 2 through 7 consists of controlled access facilities and are



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arranged from the most restrictive (Access Class 2) to the least restrictive (Access Class 7) class based on development. Generally, the roadways serving areas without existing extensive development are classified in the upper portion of the range (Access Class 2, 3, and 4). Those roadways serving areas with existing moderate to extensive development are generally classified in the lower portion of the range (Access Class 5, 6, and 7). The access management standards for each access class are further determined by the posted speed limit.¹

Table 3-1: Statewide Access Management Classifications

Access Class	Median	Median Opening Spacing Standard (feet)		Signal Spacing Standard (feet)	Connection Spacing Standard (feet)	
		Full	Directional		>45 MPH	<45 MPH
2	Restrictive	2,640	1,320	2,640	1,320	660
3	Restrictive	2,640	1,320	2,640	660	440
4	Non-Restrictive			2,640	660	440
5	Restrictive	2,640 (>45 MPH)	660	2,640 (>45 MPH)	440	245
		1,320 (<45 MPH)		1,320 (<45 MPH)		
6	Non-Restrictive			1,320	440	245
7	Both Median Types	660	330	1,320	125	125

Tying Access Management to Land Use and Modes

From an historic perspective, access management plans have focused on transportation solutions to provide more efficient control over vehicle movements to limit conflicts and improve roadway capacity. In this process, primary consideration is typically given to existing access classifications of a roadway as well as programmed capacity improvements to understand future demands. One of the disadvantages of this “transportation silo” approach to access management is the tendency to take a passive approach to access management, using statewide access management guidance as a simple “plug-and-chug” equation, that neglects to consider the important implications of the land use and transportation connection. Throughout the state and across the nation, there is now widespread recognition that transportation and land use decisions are inextricably linked, and this provides a unique opportunity for more active approaches to access management along the US 27 Corridor. This interdependent and often cyclical

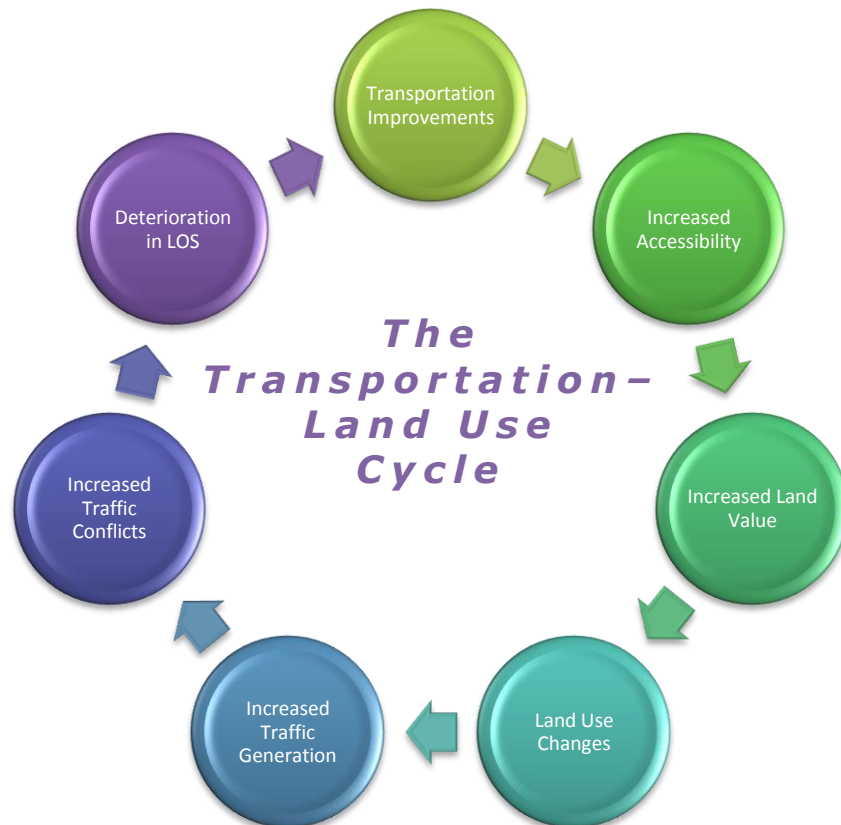
¹ Defined in Florida Statutes, 14-97.003.



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relationship between land use and transportation decisions are best described in FDOT's Transportation Impact Handbook and depicted graphically in **Figure 3-2**.

Figure 3-2: The Transportation/Land Use Cycle



Transportation facilities and services are essential and high levels of mobility and accessibility are needed to attract economic development, a goal of the Florida Transportation Plan. Development often impacts the transportation system's performance. This causes a need to improve nearby transportation facilities. Transportation improvements tend to increase capacity in large increments. After improvements are made, traffic demand increases slowly, from a combination of latent demand, congestion on other facilities, and changes in land development patterns leading to deteriorating levels of service (LOS). The nature of these patterns results in two systems that are rarely balanced. Failure to address the management of land development and the subsequent need for improved transportation planning and facilities will result in premature degradation of the transportation system.

- FDOT Transportation Impact Handbook, 2012.



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In the absence of active corridor access management approaches, growth and development is uncontrolled, often resulting in sprawled and strip development with increased access points that hinder efficient mobility, accessibility, and safety for all users. Without access management planning, traffic increases resulting from enhanced development along a corridor may result in potentially premature recommendations for more costly roadway widening improvements to address congestion, which in turn, perpetuate the cycle of land use and transportation decisions. In these cases, less costly access management strategies better increase capacity and delay the need for widening improvements by several years.²

Active access management plans provide an opportunity for connecting land use and transportation in a way that changes the traditional land use-transportation cycle, improves overall efficiency and safety in the corridor, and has the potential for local economic development by supporting greater nodal development. To do this, access management must consider and incorporate all modes of transportation, carefully consider larger network connectivity issues for the SIS, and work with local and regional land use visions and plans. It must also balance access and mobility in a way appropriate for differing area types within the corridor. The most effective access management plans combine land use and zoning options to help balance access and development needs with larger statewide mobility goals.

Ultimate control of access management policies along the corridor falls to local and regional governments for implementation. However, FDOT may help to facilitate this coordinated approach through establishing regional corridor access management guidelines that consider the unique growth and development conditions and design considerations to be considered within the corridor. These guidelines would need to take into account appropriate access management classifications based on existing and future planned land uses along the corridor, and promote effective methods of extending the life and capacity of the US 27 Corridor. In areas without local access management plans in place, these guidelines help to establish a mechanism for orderly management of the US 27 Corridor. In their most effective format, however, these guidelines would work in concert with local and regional plans and more site specific comprehensive corridor access management plans to provide long-term strategies to reducing congestion, providing alternative transportation options, and improving air quality along the corridor.

Regional access management guidance and techniques must be sensitive to the intensity and type of development patterns within the corridor to best serve efficient movements for this important statewide facility and balance access and

² Florida Department of Transportation, Access Management: Balancing Access and Mobility Brochure. Retrieved from <http://www.dot.state.fl.us/planning/systems/sm/accman/pdfs/am2006brochure.pdf>, August 2012.



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mobility where growth is more concentrated. Given the widely varying land use patterns along the corridor, there are no “one-size fits all” solutions. Some access management techniques, for instance those that seek to limit the intensity of land uses abutting the corridor, may be more appropriate to less developed rural areas. While others, like improving street connectivity or promoting infill and redevelopment, may be more appropriate for transitioning and urbanized areas.

Recognizing and addressing these distinct conditions from a regional perspective has the potential to maximize use of the corridor and proactively address the impacts of development. With this in mind, **Table 3-2** provides some potential guidelines to be considered when determining appropriate access management techniques along the corridor. These guidelines are taken from a recent technical analysis conducted by the Maine DOT³, and are not meant to provide an all-inclusive framework for meeting regional corridor objectives. Developing appropriate regional guidelines would require further explanation and definition of how these strategies may be more specifically employed through local site planning processes and zoning regulations.

Examples and Opportunities along the US 27 Corridor

Existing comprehensive access management plans along the corridor include the District 1 *US 27 Corridor Access Management Plan in Highlands County* from one mile south of SR 70 to one mile north of US 98 (completed in 2008) and the District 5 *Accomplishing Access Management on the FIHS: The US 27 Corridor in Ocala/Marion County* (completed in 2002). While neither of these plans represents a regional, district-wide approach to access management, they do provide more active access management techniques which are being employed along the corridor.

The District 1 Comprehensive Access Management Plan was completed in 2008 and covers approximately 18 miles of US 27 in Highlands County from Rozier Road north to George Boulevard. This study was requested by the Highlands County Board of County Commissioners to evaluate the existing and future access management needs along US 27 in this area and to develop an access management plan to serve projected future needs. The access classification along the corridor varies from Class 5 (in the Town of Lake Placid north of US 98/SR 66) to Class 3 in the remaining limits of the corridor. The results of this study indicate that future conditions are not expected to alter these existing access management classifications. A total of 89 median openings were reviewed for consistency with access management classification standards and recommendations for improvements were made. In addition, a number of locations were recommended for further study, particularly in the Town of Lake Placid.

³ Maine Department of Transportation, Central York County Connections Study: Potential Land Use and Access Management Strategies, May 2012.



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Table 3-2: Examples of Regional Access Management Guidelines

Objective	Potential Strategies
<i>REDUCE OR LIMIT THE NUMBER OF VEHICLE TRIPS ALONG THE HIGHWAY.</i>	<ul style="list-style-type: none"> • Limit intensity of development abutting the highway • Transfer Development Right (TDR) Strategies • Limit the use of land fronting highways to those that generate low levels of peak hour traffic volumes. • Incorporate site features that support ridesharing and transit use.
<i>ENCOURAGE ACCESS FROM ROADS OTHER THAN THE HIGHWAY</i>	<ul style="list-style-type: none"> • Require access from streets other than the abutting highway. • Require wider frontages on highways than on other roadways.
<i>IMPROVE STREET INTERCONNECTIVITY AND LOCAL TRAFFIC CIRCULATION</i>	<ul style="list-style-type: none"> • Include future connections on Official Map or Major Thoroughfare Plan. • Use rear lot access driveway or back access roads. • Promote infill and redevelopment patterns. • Encourage interconnected parking lots on adjacent parcels. • Require off-highway frontage for new subdivision lots. • Extend subdivision streets to abutting parcels.
<i>MANAGE THE FREQUENCY AND OPERATION OF ACCESS POINTS</i>	<ul style="list-style-type: none"> • Encourage shared access for abutting lots. • Minimize the number of driveways per parcel on highway frontage. • Promote right turn only driveways. • Promote nodal development, mixed-use development, and other techniques that balance modal opportunities. • Require access plans for large developments.

The District 5 study, entitled *Accomplishing Access Management on the FIHS: The US 27 Corridor in Ocala/Marion County*, includes a series of recommendations in line with this outlined access management approach to the corridor at a smaller geographic level. This study reviewed existing access management practices in the City of Ocala and Marion County, reviewed FDOT plans and policies, and provided summaries from interviews with staff from all jurisdictions in the study area.

Recommendations from the conceptual plan were then developed to identify uniform standards that could assist efforts to promote comprehensive access management for the corridor. These recommendations included:



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1. Changing the access management class at the I-75/US 27 interchange from Class "5" to Class "3"
2. Recommending that the city and county adopt FDOT access management requirements by reference and reinforce them through the land development process
3. Establishing a process for routing FDOT access permitting with local governments for review and comment
4. Expanding the retrofit requirements in the City of Ocala to include all change in use activity
5. Establishing a corridor management team made up of representatives of each local government, the FDOT, and other interested parties
6. Extending the point where the existing median ends along US 27 to 44th Street.

This plan may provide needed insights into lessons learned for implementing larger access management strategies and guidance along the US 27 Corridor, and should be consulted in implementing these strategies from a more systematic, regional viewpoint.

Potential Benefits and Drawbacks

Developing active access management guidelines and coordinating these guidelines with local and regional land use plans and policies has the potential to provide a number of corridor opportunities, including:

- Support a balance of mobility and accessibility in the corridor
- Integrate land use and transportation goals and policies
- Maximize the existing roadway investment through low-cost, easy to implement improvements
- Delay the need for more expensive roadway widening projects by enhancing capacity along the roadway
- Enhance safety for all users of the roadway
- Promote alternative transportation solutions in the corridor, enhancing multimodal opportunities
- Facilitate efficient through movements in the corridor and ensure orderly growth in rural, environmentally sensitive, and primarily agricultural areas

Along the US 27 Corridor, implementation of more active access management strategies could have considerable benefits for the diversity of areas within the corridor. In heavily urbanized areas like Miami and Hialeah, active access



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management can assist in alleviating congestion and improve safety, particularly given the number of access points along the corridor in this denser area. In transitioning urban areas like The Villages in Lake, Sumter and Marion Counties, specific access management practices which take into account the unique peak/off-peak conditions for these retirement communities, as well as, the distinct modal options like golf carts could serve to improve safety and congestion in this area. In the number of rural communities within District 1, such as Clewiston, Moore Haven, Sebring and others, active access management policies can assist these towns in developing enhanced nodal development within town centers. In addition, it has the potential to reduce strip development and sprawl which contributes to safety issues along the corridor, and may reduce the need for larger capacity improvements that could threaten the small-town charm of these areas. By providing context-sensitive access management and guidance, all areas within the corridor may experience a number of benefits. The key is to provide guidance which is appropriate to the context in the corridor.

The greatest challenge in the implementation of this strategy is the increased coordination required between FDOT, Metropolitan Planning Organizations (MPOs) and localities to successfully coordinate access management guidelines, plans, and policies. FDOT oversees access management along state facilities such as US 27; however, local governments enforce access management at the local level and have the ability to create their own access management standards. Memorandums of Understanding (MOUs) or other formal agreements may be required to establish ongoing coordination between regional access management guidelines, long range planning, and more site specific comprehensive access management plans along the corridor. Competing local visions for the future and statewide goals for facilitating through traffic movements along US 27 may require extensive public and stakeholder outreach to obtain the support needed for the ultimate success of these plans. MPO and local government staff must have an understanding of how visions can be incorporated into meeting larger statewide SIS connections and movement goals while state agencies will need to evaluate access management classifications and capacity improvement plans in light of freight and multimodal facilities, growth and development trends, and future land use plans. Existing access management plans and action plans would also need to be coordinated with this more comprehensive regional approach to access management along the corridor.



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3.2 Other TSM&O Improvement Alternatives

In addition to more comprehensive access management guidance and plans along the corridor, other lower cost systems management and operational approaches may be employed to increase efficiencies in the transportation network and promote safety improvements along the corridor. These include, but are not limited to the following improvements: intersection turning movement improvements, traffic signal optimization programs, pedestrian crossings, Intelligent Transportation Systems (ITS) and enhanced signage. These types of improvements represent another performance driven approach for addressing congestion and safety issues.



Figure 3-3: Example Variable Speed Limit Sign

Traffic signalization and signage are important, low-cost solutions to reduce congestion and improve safety along the corridor. Traffic signal optimization along the corridor and for major connecting facilities ensures maximum green light times for the heaviest traffic flows and allows signal cycle time to adjust based on changing demands during peak times, such as rush hour. Safety related and directional signage can also assist travelers by providing reliable and early information that enhances safety and decision making along the corridor. FDOT's *Traffic Engineering Manual*⁴ provides traffic engineering standards and guidelines to be used on US 27 by the Department's District Traffic Operations Offices in making such improvements.

ITS, information and communications technology for infrastructure and vehicle systems, may also be utilized within the corridor to reduce congestion and improve safety. This technology may be used to locate incidents, inform travelers, and correct the causes of congestion in real-time. ITS strategies have been in use by FDOT for many years, and have become an integral part of the transportation system. These strategies can be combined with other techniques to further improve operations.

Examples and Opportunities along the US 27 Corridor

One innovative ITS improvement present in the corridor is the use of variable speed limits, which were recently completed within FDOT District 4 in Broward County. Variable speed limits, shown in **Figure 3-3**, are speed limits that change based on road, traffic, and weather conditions. This alternative provides additional flexibility for speed limits in the corridor and may improve safety by restricting speeds in

⁴ Florida Department of Transportation, Traffic Engineering Manual. January 2012. Available online at: http://www.dot.state.fl.us/trafficoperations/Operations/PDFs/FDOT_Traffic_Engineering_Manual_revised_January_2012.pdf



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adverse conditions. The limits of this variable speed limit project within the corridor are from 800 feet south of Pembroke Road to north of Griffin Road (approximately 5 miles). Although still relatively new in concept, these alternatives provide an opportunity for improvement along the corridor. This type of improvement may be particularly useful in areas within District 1 and 4 where the roadway is unimpeded by traffic signals or development for large stretches of the corridor.

Turn lane efficiencies have also proven successful along the corridor for reducing congestion. For example, a one-mile segment of US 27 in Sumter County implemented a continuous right lane to alleviate traffic congestion in this area caused by increased development. This improvement has assisted in safer movements and additional signal timing/GPS improvements are being considered in this area to facilitate safer and more efficient traffic movements, especially during the peak season for The Villages Retirement Community.

Based on field investigations, there are also a number of opportunities for other traffic signal optimization improvements along the corridor. Specifically, in District 6 just south of Florida's Turnpike, there are a number of short bridges connecting freight truck hubs along South River Drive to the US 27 Corridor. A number of these locations co-mingle with local traffic and traffic queuing occurs at these traffic signals onto US 27. These areas may benefit from a renewed review of traffic signal operations to improve traffic and safety conditions in these areas. In addition, the potential for signage improvements for safety reasons was also noted in the field investigations. These types of improvements may be particularly useful for informing drivers of changes in speed limits expected ahead through the smaller, rural towns of Clewiston and Moore Haven. In Moore Haven, FDOT has installed a series of signs over the Caloosahatchee Canal to improve safety as freight and other traffic enters the town. Sign distances along the bridge may be reviewed to provide additional safety measure recommendations along the entrance into the town given the number of schools near this bridge.

Potential Benefits and Drawbacks

TSM&O strategies, including traffic signal optimization, signage and ITS provide several benefits to the transportation system, including the following:⁵

- Offers lower cost techniques with results in the short-term
- Getting better with time, as information and vehicle technologies are becoming more sophisticated and more available to the average consumer

⁵ Sources: Oregon Transit Association, Annual Conference Resources 2009, ITE Quad Conference 2009, Getting More by Working Together: Opportunities for Linking Planning and Operations- Federal Highway Administration, Traffic Congestion and Reliability: Trends and Advanced Strategies for Congestion Mitigation- Federal Highway Administration, Regional Concept for Transportation Operations: The Blueprint for Action, A Primer- Federal Highway Administration.



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- Encourages coordination of transportation improvements, so operators and planners are able to have a greater impact on the performance of the transportation system in the region
- Reduces delays and travel times with responsive systems
- Coordinating traffic signals decreases fuel consumption and vehicle emissions
- Can improve on-time performance with transit signal priority treatments
- Managing demand reduces congestion
- Providing signage and real-time information allows travelers to alter decisions;
- Managing traffic incidents improves traveler safety and detecting incidents quickly restores lost capacity
- Improving incident clearance times reduces incident delay and cost
- Actively managing transportation system optimizes infrastructure investments
- Provides options for enhanced freight and goods movement as well as emergency response and safety improvements through targeted ITS improvements such as variable speed limits.

Enhanced mobility is a major benefit of TSM&O strategies, as the value of TSM&O is improving the productivity of existing highway facilities through the use of ITS technology and incident management rather than building more capacity. When integrated with existing systems along the US 27 Corridor, parallel facilities should also begin to operate more efficiently. This can encourage locals to use other roads, and open up capacity for longer distance travelers along US 27.

Intersections of evacuation routes with US 27 is one of the emergency management considerations considered critical, and these intersections need to be monitored during an evacuation event to ensure and expedite vehicle movement. The same ITS strategies, such as variable speed limits, used to manage demand and reduce congestion could be used to evacuate travelers efficiently in an emergency and provide directional signs for alternative routes. A TSM&O program of providing real-time information to travelers would allow recovery operations to alter route decisions as needed.

TSM&O could also be used to assist various law enforcement units in monitoring and controlling traffic, investigating accidents, and providing general security enforcement. Reliability and security issues can be difficult to address solely with infrastructure investments. However, TSM&O technologies could provide data to agencies to gather, process, analyze, and disseminate relevant information.



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3.3 Tourist-Oriented Directional Signs

By definition, tourist oriented directional signs are “way finding” signs of standard size and design, usually white on blue. The intent is to safely direct tourists to local destinations whose major portion (51 percent) of income is derived from patrons traveling 20 miles or more.⁶

For example, through the Tourist Oriented Directional Signing (TODS) Program, FDOT allows qualified county and municipal governments to install guide signs on the state highway system to identify local facilities, parks, libraries, tourist attractions, etc. This particular program is currently designed for rural areas, but can be implemented in urban areas as well. **Figure 3-4** shows these example tourist oriented signs. **Table 3-3** identifies categories of local destinations commonly included in the Florida tourist-oriented directional sign program.

Figure 3-4: Tourist Oriented Directional Sign Examples



Table 3-3: Example Categories of Tourist Oriented Directional Signs

Cultural	Historical	Educational	Recreational	Commercial
Drama Theaters Galleries	Memorials Reservations Mansions	Museums Tours Colleges Universities Vocational/ technical schools	Lakes/beaches Parks Scenic/caves Camping* Amusement parks Golf courses Sports complexes	Gift shops Antiques/crafts Winery Farmers markets Food* Lodging* Gas*

*Often already included on Interstate signage with adequate trip generation.

Sources: Florida Department of Transportation Traffic Engineering and Operations Office and Interstate Logos, LLC.

⁶ Florida Department of Transportation Traffic Engineering and Operations Office.



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Examples and Opportunities along the US 27 Corridor

This strategy could be used more specifically within the corridor to reinforce economic development efforts in Rural Areas of Critical Economic Concern (RACECs) along the corridor, including Hendry, Glades and Highlands Counties. A number of localities in these areas contain historic communities and directional signage could have positive impacts on travel into these areas. In addition, a number of scenic highways and byways and natural sites in Polk County along with a number of RV resorts and destination in Marion County might benefit from these signs. Lesser known roadside attractions may also be considered, such as The Presidents' Hall of Fame Museum in Lake County. With the TODS program, each local government has the freedom to set their own criteria, so they could decide to focus on businesses in these underserved areas. Each local government would also have the freedom to define the community image to include local treasures or include national franchise operations based on the economic development goals of the area.

Potential Benefits and Drawbacks

Potential benefits towards implementing the Tourist Oriented Directional Sign program are nearly all economic development related and include the following:⁷

- Promotes local culture and sustainable tourism as often no franchise or national chains are included;
- Allows each local government the flexibility to create criteria for designations to suit the area;
- Creates validity when fabricated and installed according to FDOT standards and specifications; and,
- Addresses tourist-related safety with a problem-related solution, particularly in urban areas.



House of Presidents Museum in Lake County

Potential drawbacks include the following:

- Does not directly benefit emergency management or mobility;
- Could create problems due to limits on the number of destinations included in each location; and,
- Usually requires local governments to construct, maintain, and operate sign program. Some areas may not have adequate resources, particularly in rural areas.

⁷ Florida Department of Transportation Traffic Engineering and Operations Office



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3.4 Interregional Transit and Commuter Services

One of the greatest causes of peak highway congestion in urban areas is single occupant vehicle (SOV) commuters. Traffic congestion in urban areas costs the community in lost time and productivity for commuters. A coordinated effort to provide transit and commuter service alternatives for these communities, using existing or low cost resources, can be beneficial to the development of public transit statewide and also can assist in efforts to relieve traffic congestion, improve air quality and assure energy conservation.⁸ These programs encourage public/private partnership to provide brokerage services to employers and individuals for:

- Carpools
- Vanpools
- Park and rides
- Express bus service
- Emergency Ride Home Services
- Group taxi services
- Implementation of shuttle services
- Preferential parking for ride-sharers
- Telecommuting
- Bicycling/walking programs

Commuter service programs can be public or private agencies designed to help employers create customized solutions to their employees' commuting challenges. Can also include communities working with residents, schools working with students, and even developers with future tenants to provide and promote choices for travelers.

Examples and Opportunities along the US 27 Corridor

The transit and commuter service programs for the US 27 Corridor encourage regional coordination between public/private partnerships to provide resources to reduce highway congestion. Although a number of services are provided within each District, currently the following fixed-route and commuter services are known to operate within or near the US 27 Corridor:⁹

⁸ Commuter Assistance Program, FDOT – Office of Transit, September 2002

⁹ TDM in Florida (www.commuterservices.com)



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District 6 South Florida

- **South Florida Commuter Services** – Serving as FDOT’s regional commuter assistance program in District 6, this service is a one-stop shop for commuter information, including carpooling and park-and-ride options. The program is dedicated to improving traffic conditions by promoting alternatives to drive-alone commuting. One park-n-ride, the Okeechobee Metrorail Station, is located adjacent to the US 27 Corridor in District 6.
- **Miami-Dade Transit (MDT)** – Miami-Dade Transit is the largest transit system in the State of Florida. MDT operates four transit modes of service: bus (Metrobus), heavy rail (Metrorail), automated people-mover (Metromover), and demand-response service (Special Transportation Services or STS). Metrobus services include local, feeder, circulator, limited-stop, express, and Bus Rapid Transit (BRT) (Arterial Busway).
- **Tri-Rail** – Controlled through the South Florida Regional Transportation Authority (SFRTA), this service provides commuter rail in Miami-Dade County from Miami north into Broward and Palm Beach Counties.
- **Hialeah Transit System** – Provides shuttle service just east of US 27 within Hialeah through two routes.
- **95 Express** – Running from just south of the US 27 Corridor in Miami and along I-95 within the corridor, 95 Express provides a variable-priced toll along I-95 that adjusts to congestion levels and encourages travel in less heavily traveled periods. It also offers a toll-free option for those who choose to travel in registered carpools.

District 4 Southeast Florida

- **South Florida Commuter Services** – Serving as FDOT’s regional commuter assistance program in District 4, this service is a one-stop shop for commuter information, including carpooling and park-and-ride options. The program is dedicated to improving traffic conditions by promoting alternatives to drive-alone commuting.
- **Broward County Transit** - BCT serves the metropolitan area within Broward County through fixed route and paratransit services. As of July 1, 2012, BCT operated 41 fixed routes and assists 18 municipalities in the capital and/or operational costs of 47 community bus routes in Broward County. Near the US 27 Corridor, fixed-route and community service is provided along Pines Boulevard to US 27 to serve communities located near the corridor.

District 1 Southwest Florida

- **Commuter Services for Southwest Florida** – Serving as FDOT’s regional commuter assistance program in District 1, this service is a one-stop shop for commuter information, including carpooling and park-and-ride options. The



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program is dedicated to improving traffic conditions by promoting alternatives to drive-alone commuting.

District 5 Central Florida

- **ReThink** – Serving as FDOT’s regional commuter assistance program in District 5, this service is a one-stop shop for commuter information, including carpooling and park-and-ride options and a number of programs for employers and communities.
- **LYNX** – LYNX provides commuter service within Southern Lake County through two routes, one with connection to US 192 near the US 27 Corridor and another at the Clermont Park-and-Ride directly connected to the corridor. LYNX is currently conducting a US 192 Alternatives Analysis (AA) from US 27 near the Polk/Osceola County line to the Florida Turnpike interchange and the Kissimmee Corridor (District 5). This study is looking at transit alternatives, including Bus Rapid Transit (BRT), along the US 192 Corridor (within Osceola County, adjacent to Polk and Lake Counties) and could have an impact on the US 27 Corridor.
- **SunTran** – SunTran is a multi-agency program that provides transit services to Ocala and within Marion County. Operations are generally north of the US 27 Corridor.
- **LakeXpress** – Provides four main fixed-route transit services for Lake County. Two of these routes, Route 1 and 2, intersect with the US 27 Corridor.

Within District 6, a number of connections and park-and-rides exist to access passenger rail and bus options, particularly within Miami and Hialeah. In addition, park-and-rides are present along the corridor within Lake County (District 5) in both Clermont and Minneola to provide additional commuting options in these areas. In Clermont, commuters utilize this park-and-ride to access jobs in Downtown Orlando and express bus is available for this purpose during morning and evening peak hours.



Clermont Park and Ride in Lake County



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Potential Benefits and Drawbacks

How employees travel to work is an issue most often overlooked by businesses. However, employees who are less stressed through commuting are likely to be more productive. Benefits to employers participating in commuter service programs include:

- Expanding the labor market by making transportation to and from employment locations easier for all employees
- Recruit and retain skilled employees. Commute options and flexible schedules reduce turnover
- Reduced overhead costs
- Tax savings benefits for the company and its employees
- Reduced need for parking.

The major public benefit resulting from people participating in commuter service programs is a reduction in the number of cars on the road during the peak commute hours, thus alleviating urban highway congestions. Other benefits include:

- Less air pollution
- Less fuel consumption helping with energy conservation efforts
- Improved mobility for the entire community due to reduced number of vehicles on the road and hence enhancing the economic vitality of the region
- Reduced need for costly highway improvements
- Fewer vehicles on the road, which means faster response times for emergency vehicles.

There are also, however, a number of challenges in the implementation of fixed-route and commuter services along the corridor. Greater population and employment densities are generally related to the ability to provide fixed-route services, both from a cost and time point of view. Increased coordination of public transportation and commuter services may therefore be most viable an option for already urbanized areas within the US 27 Corridor such as the South Florida/Miami areas. In these areas, providing enhanced access to public transportation options and commuter services may help to relieve congestion and have a positive impact mode shifts, particularly at peak hours.

In much of the rural areas of the corridor, current densities are not generally supportive of providing such competitive alternative transportation options. In transitioning and growing areas, however, providing enhanced commuter options



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may be one way to expand labor market potential and opportunity along the corridor. As growth continues in these areas, viable commuter services to surrounding mega-regional employment centers may offer some potentially significant benefits, including:

- Increased economic development along the corridor where service provides greater connectivity for employers and employees.
- The ability to utilize commuter services as a first step in identifying areas where express bus services and other fixed-route options may be most feasible and warranting further investment.
- Potential to delay or reduce the need for more costly roadway widening investments by providing alternatives that may reduce congestion over time.
- Potential for residential land value increases over time due to the provision of viable alternative transportation modes to regional employment centers.

Bus rapid transit (BRT) has been identified along US 27 in the Polk LRTP, and new or enhanced park-and-rides within Lake County (Clermont and Minneola) may provide new opportunities for utilizing this strategy effectively within the US 27 Corridor into the future. In the case of Lake County, for instance, coordination with LYNX's Central Florida transit services has resulted in successful morning and evening commuter services from Clermont to Downtown Orlando.

Education and outreach are essential to the success of these programs. Lack of interest from employers and commuters has been cited as one major obstacle to the success of some of the commuter services programs. Many commuters are used to the idea of driving alone and enjoy the freedom and flexibility associated with it. In order to convince such commuters on the merits of ridesharing or other alternative modes of transportation, there must be a genuinely strong incentive for them to participate. High travel costs and frustrating congestion are typically the best incentives.



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3.5 Parallel Local Relievers

In some cases, making improvements to parallel arterial or collector roads that serve common destinations to US 27 may be considered as an option for improving traffic flow and providing alternatives for local traffic on US 27 to choose other routes. This option is particularly useful in already heavily congested areas and where local relievers already exist adjacent to the corridor. These improvements may involve adding capacity, improving access from US 27 to reliever roads, as well as intersection, signal timing, turn lanes and median improvements. There are also opportunities to integrate corridor development with local street networks to enhance local connectivity. This strategy creates an opportunity to work with MPOs and other agencies to meet mutually beneficial, cost effective transportation solutions along the corridor.

Examples and Opportunities along the US 27 Corridor

Within District 6, parallel local relievers and other facilities are already in place. North of the intersection of US 27 and Palmetto Expressway (SR 826), a local frontage road east of the corridor provides additional local travel options. A canal is located parallel of US 27 west of the corridor, and short connector bridges provide access to and from US 27 to South River Drive, a parallel local roadway providing alternative access to a concentration of industrial and freight development north of Palmetto Expressway and local access south of Palmetto Expressway. Improvements to both of these parallel roadways and the potential to create more short bridge connectors to better connect to South River Drive may be worthy of further investigation in this area. Signal timing improvements as well as strategies to separate out local and freight traffic crossing these short bridges may also be considered. In general, considerations for providing better north-south connectivity near Palmetto Expressway would need to be included in any evaluation of parallel reliever improvements in these areas to systematically improve the roadway network in this area.



Parallel local reliever to US 27 in Miami-Dade County

Within Sebring in Highlands County, a parallel local frontage road exists west of US 27 between Tanglewood Drive and Ponce de Leon Boulevard and provides local business and residential access in this area. Improving capacity along this parallel reliever and better integration with local street networks and development east of



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US 27 may be worthy of further investigation in this area to provide better separation of local traffic from freight traffic along the corridor.

Finally, a potential US 27 reliever road (Rolling Acres Road) from CR 466 to the Lake/Sumter County line is currently under study by FDOT District 5 to address population and network deficiencies in this area. The purpose of the project is to relieve congestion on US 27/441 in western Lake County, improve regional mobility and route choice opportunities, and improve traveler safety. This project would provide relief to US 27/441 where it is approaching capacity on some segments, provide an additional north-south roadway option to the western region of Lake County, and improve traveler safety by reducing traffic volumes on the congested segments of U.S. 27/441.

Potential Benefits and Drawbacks

The opportunities for FDOT to partner with MPOs and local governments to establish and improve parallel relievers offers one option for meeting FDOT objectives of maintaining level of service on US 27 as well as local visions for mobility. Design considerations must, however, consider safety and mobility concerns known to existing with frontage roads. Continuous frontage roads, for instance, are known to lead to crashes and operational problems due to unfamiliar movements and where connecting too closely with a major roadway intersection. In addition, consideration in denser residential communities may also need to consider bicycle and pedestrian facilities in coordination with these parallel improvements to better develop a connected, multimodal network.

In areas of heavy congestion along US 27, especially during the morning and afternoon weekday commute periods, implementing improvements to parallel reliever roads may raise concerns about potential diversion of traffic to other nearby corridors, and vice versa. Heavy congestion on one facility would likely have a spillover effect on other roads. As such, a system-wide review of traffic would need to be undertaken to understand origins and destinations and potential diversion of traffic that could result from proposed improvements.



Chapter 4 – Freight Movement Focus

The 2060 Florida Transportation Plan (FTP) envisions the state as a globally competitive economy serving as a hub for international and domestic trade as well as an investment that attracts and retains skilled workers. To meet this vision, the FTP set a goal of developing multi-modal options for moving people and freight within the state as part of an integrated transportation system.

The freight focused alternatives in this report represent a number of existing, planned and potential strategies for improving freight movements the US 27 Corridor to meet these statewide goals. These techniques focus primarily on maximizing freight opportunities and demands along the corridor, and can be best utilized in areas along the corridor where freight improvements and investments will best serve economic vitality throughout the state and provide enhanced options for distribution along the SIS. There are a number of initiatives already underway in the corridor to improve freight connections, including: port and FEC freight rail improvements in Miami and the Hialeah Rail Yard, a potential US 27 parallel freight rail corridor from Hialeah to south of Lake Okeechobee, potential inland port intermodal logistics centers (ILCs) in Palm Beach and Hendry County near Lake Okeechobee within the study corridor, the planned Winter Haven Rail Terminal and ILC in Polk County adjacent to SR 60 and the US 27 Corridor, and the planned Ocala 489 Commerce Park ILC at the intersection of I-75 and US 27 in Marion County.

Ultimately, the key to success for freight initiatives and opportunities in the corridor will lie in the ability to integrate initiatives in a statewide, systematic manner. Scenario planning techniques and more refined analysis of commodity flows and statewide traffic models will be needed to create a cohesive concept for intermodal freight movements along the entirety of the corridor and throughout the state. Coordination between FDOT and private rail and other entities will also be essential to the effective implementation of these strategies. With this in mind, greater public outreach and involvement with local and regional partners will be needed to combine freight strategies consistent with local and regional growth and economic development plans. The alternatives within this chapter provide some of the options to be considered based on coordination with District staff and field visits, and will serve to inform the current *Statewide Freight Mobility and Trade Plan* of the needs, opportunities and challenges identified within the corridor.



Chapter 4 – Freight Movement Focus

4.1 Parallel Freight Rail Alternatives

Growth in the economy has led to significant rises in the demand for freight transportation over the years, with trillions of dollars annually associated with the freight economy. From a national perspective, the Government Accountability Office (GAO) reports that the nation's transportation infrastructure consists of:¹

- Four million miles of public highways and roads
- Over 140,000 miles of national, regional and local rail networks
- Approximately 25,000 miles of commercially navigable waterways

In attempting to understand freight movements across distance and by volume, ton-miles provide the best measure for understanding freight movement and impact by mode. In 2007 (most recently available data), trucking accounted for 46 percent of the total ton-miles moved annually, while rail modes accounted for 41 percent of ton-miles and waterways accounted for approximately 13 percent.

Table 4-1: Annual Freight Ton-Miles by Freight Mode (U.S.)

Mode	Ton-Miles	Percentage
Trucking	2,040,000	46%
Freight Rail	1,819,633	41%
Waterways/Ports	553,151	13%

Reaching a much larger portion of the transportation network, public highways and roads provide the greatest amount of connectivity for freight and therefore trucks understandably dominate the movement of freight goods in the nation. The challenge of this is the impact and costs placed upon the need for transportation infrastructure improvements and maintenance. Truck freight has substantial impacts on the transportation network, adding both to congestion as well as increasing the rate at which roadways need to be maintained given the large weight. In fact, the recent GAO Study estimates that in terms of societal costs not passed on to consumers of these freight goods, freight trucking costs "...were at least six times greater than rail costs and at least nine times greater than waterways costs per million ton miles of freight transport." In addition to these external costs that generally fall to society such as roadway maintenance, there are also costs related to accidents and air pollution not reflected in these cost estimates. Overall, the GAO determined both the marginal and fixed costs passed on to society rather than freight service consumers are highest for freight trucking and lowest for freight rail.²

¹ Government Accountability Office, *Freight Transportation: A Comparison of the Costs of Road, Rail, and Waterways Freight Shipments that are not passed on to Consumers*, January 2011.

² GAO, Ibid.



Chapter 4 – Freight Movement Focus

The freight rail system is an important part of the nation's freight transportation system and is critical to the economy. Given the efficiencies that can be realized by freight rail modes, domestic rail-highway intermodal service has been rapidly growing since 2000. Rail ton miles during this period have been growing faster than truck ton miles. With a moderate three percent per year growth in the U.S. economy, domestic freight tonnage is expected to increase by 57 percent by 2020³. The U.S. Department of Transportation recently forecasted freight railroad demands are expected to increase to 88 percent by 2035 from 2002 levels⁴. Other forecasters predict substantial rail traffic growth – pointing to the urgent need for adequate investment in rail capacity in the years ahead to meet the anticipated growth.

The highway system, particularly in urban areas and intercity corridors, is already experiencing significant congestion, and truck traffic is a major contributor to the situation. The social, economic and environmental costs of adding new highway capacity are prohibitively high in many areas. While it is expensive to add highway capacity to the existing highway system, freight rail is still an underutilized mode of freight transport. The choice between using trucks or freight rail depends on the shipper's logistics costs. However, factors such as reliability, flexibility, cost, timeliness, security and the value of the freight all go into the decision on whether to use trucks or freight rail or any other mode of freight transportation. Some shippers are willing to pay more in order to get a better quality service including quality rail-highway intermodal service.

Examples and Opportunities along the US 27 Corridor

Home to the largest urbanized populations in the state, a series of ports and located near a series of statewide SIS facilities that provide connectivity across and throughout the state, Southeast Florida faces a number opportunities for efficient freight movements that may have an impact on the economy of the entire state. With limited roadway capacity in the more urbanized areas of Miami-Dade and Broward Counties, specifically, new freight rail options west of these areas are under consideration along US 27. This parallel rail option, along with potential intermodal logistics centers (ILCs) in Palm Beach and Glades County may provide significant economic development opportunities in these areas as new employment centers arise to meet the demands of freight. In coordination with the potential ILC locations, the parallel rail facility may also enhance regional distribution efficiency and multimodal freight options from the number of ports located along the southeast coast to locations across and through the state.

FDOT District 4 is currently conducting the US 27 Multimodal Planning and Conceptual Engineering (PACE) Study to investigate the technical and economic

³ AASHTO, *Transportation Invest in America: Freight – Rail Bottom Line Report*, 2002.

⁴ Association of American Railroads, *Overview of America's Freight Railroads*, May 2008.



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feasibility of developing the US 27 Corridor to accommodate multimodal options, including rail and highway modes. A map of the study area for this project is shown in **Figure 4-1**. This study spans along US 27 from the Homestead Extension of Florida's Turnpike, through Broward County to the Palm Beach/Hendry County line. The main objectives of the multimodal PACE Study are to investigate the feasibility of a potential rail by-pass to the west of the densely populated urban areas along the eastern seaboard, to identify conceptual engineering alternatives, and to conduct a preliminary assessment of the potential impact of the alternatives upon the surrounding environment. The study is also addressing the ultimate development of US 27 to accommodate future regional travel demand, in a manner consistent with SIS highway standards.

Five study segments have been identified with the following general roadway characteristics, as identified in **Table 4-2**.

Table 4-2: US 27 PACE Study Limit Segments

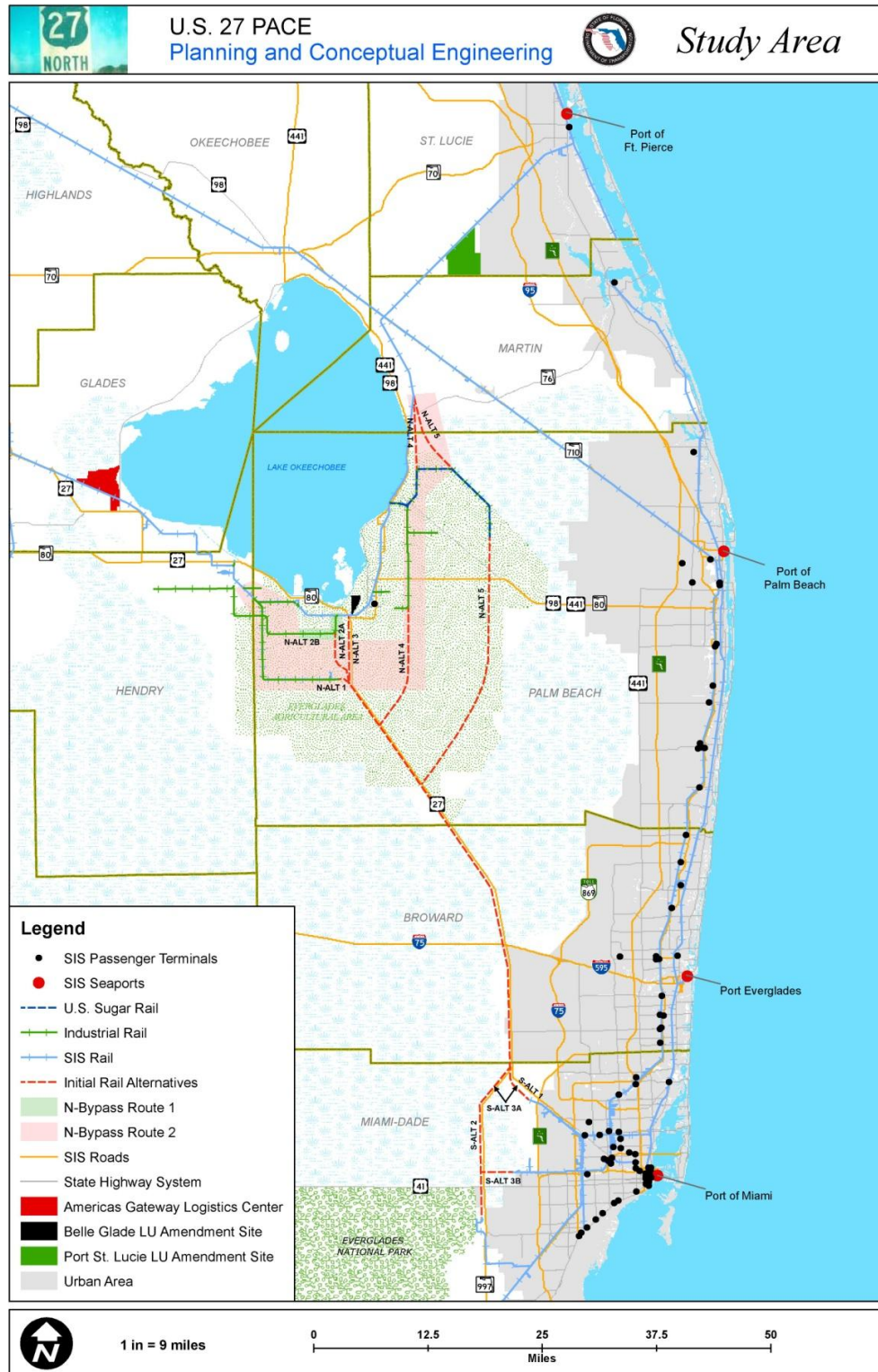
Segment 1 from SR 826/Palmetto Exp. to HEFT:
<ul style="list-style-type: none"> • 6-lane divided Urban Arterial Class I • 65'-125' median, 150' ROW • 2010 AADT varies from 33,000 to 60,500
Segment 2 from HEFT to I-75:
<ul style="list-style-type: none"> • 4-lane divided Urban Uninterrupted Flow Hwy • 65'-135' median, 478' ROW • 2010 AADT varies from 17,900 to 19,800
Segment 3 from I-75 to Palm Beach County Line:
<ul style="list-style-type: none"> • 4-lane divided Rural Uninterrupted Flow Hwy • 65' median, ROW varies 231' -285' • 2010 AADT is 9,600
Segment 4 from Palm Beach County Line to South Bay:
<ul style="list-style-type: none"> • 4-lane divided Rural Uninterrupted Flow Hwy • 31' -65' median, 255' ROW • 2010 AADT is 9,600
Segment 5 from South Bay to Hendry County Line:
<ul style="list-style-type: none"> • 4-lane divided Rural Uninterrupted Flow Hwy • 40' median, 162' ROW • 2010 AADT is 16,500

As part of the study, three rail alternatives are being evaluated at the south end of the corridor from the Hialeah Rail Yard north and six alternative rail options are being evaluated at the northern end of the study limits in Palm Beach County.



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Figure 4-1: US 27 PACE Study Limits



Source: Florida Department of Transportation District 4, September 2012.



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The study also evaluates the location of this parallel freight rail line along west, median and east alignments of US 27. A number of environmental challenges limit acquisition of right-of-way east and west of the US 27 Corridor, including:

- Four Water Conservation Area Boundaries intersect the corridor at several access points
- The study area is within the boundary of the Comprehensive Everglades Restoration Plan (CERP), nearby a number of wetlands and providing access to a number of Everglades Agricultural Areas (EAA) Storage reservoirs
- A number of small and large public parks and recreational facilities providing access to the Everglades are directly within the corridor limits
- A number of environmental justice communities are located directly adjacent to the corridor
- A number of water management structures such as pump stations and canal flow structures are located east and west of the corridor.

Any taking of additional right of way in these areas is expected to have Section 4f concerns and require Section 408 coordination. Section 408 requires all alterations or modification to the Central and Southern Florida Flood Control Project be reviewed and approved by the U.S. Army Corps. This permit coordination is significant and could take years before modifications would be approved.

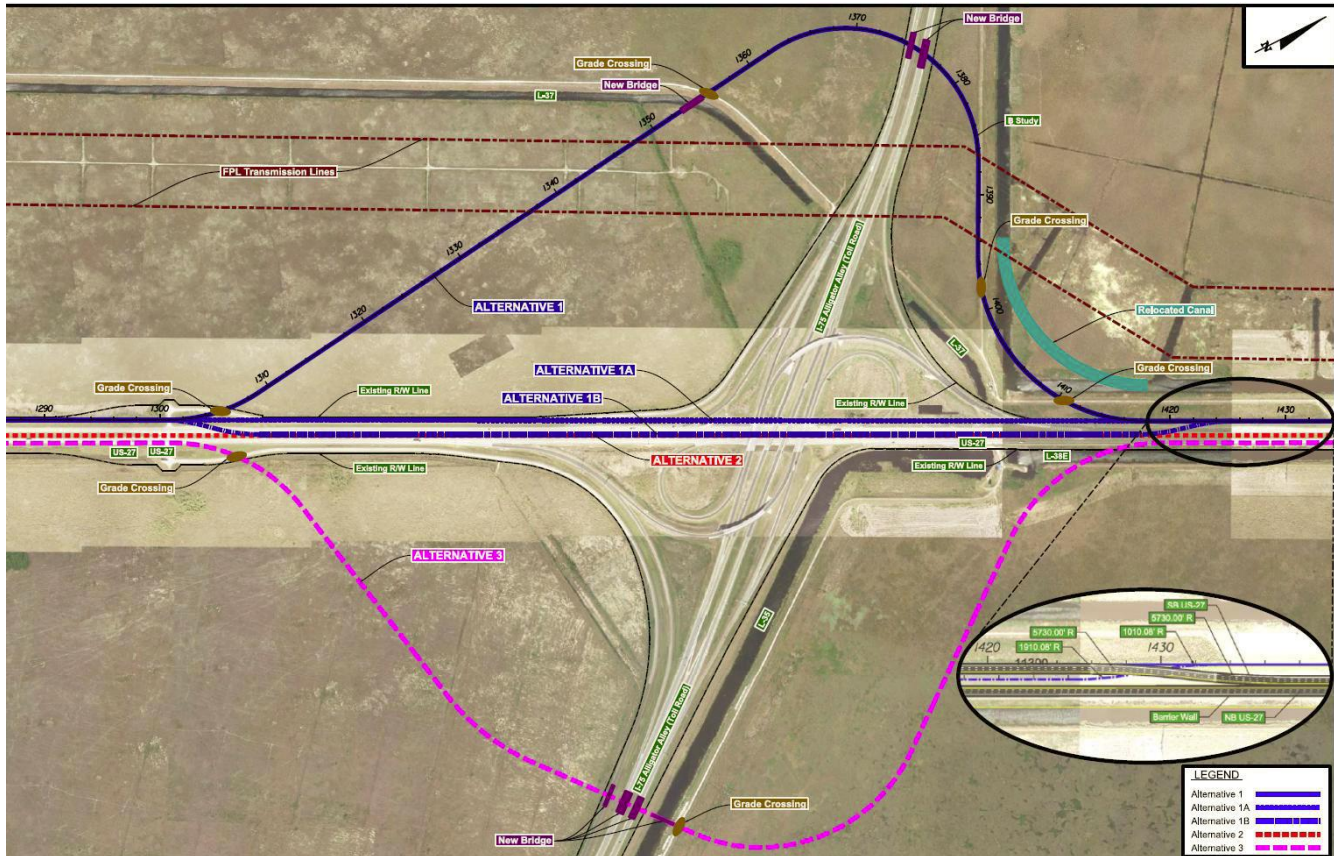
Given these considerations within the US 27 Corridor, a rail line alternative parallel with US 27 may be feasible without negatively impacting these important environmental resources. A primary issue identified in developing the alternative rail corridor along US 27 includes height limitations and the presence of bridge piers inside the median area at the I-75 overpass, as shown in **Figure 4-2**. At the I-75 overpass, these constraints and geometric concerns on either side of the corridor would dictate either reconfiguration of the I-75 bridge overpass to meet height needs or moving the rail lines out by $\frac{1}{2}$ to $\frac{3}{4}$ miles from the corridor. Relocating the rail east or west of the US 27 Corridor in this section would be expected to have significant impacts to wetlands and public lands on either side of the corridor.

In addition, a rail spur line may be considered near South Bay/Belle Glade to connect to the proposed Americas Gateway ILC. The America Gateway Logistics Center (AGLC) site in Moore Haven is immediately adjacent to the SCFE rail line. The southern tip of the South Florida Regional ILC in Belle Glade, is also very close to the South Central Florida Express (SCFE) rail line, a short line owned and maintained by U.S. Sugar Corporation. The proximity of the existing SCFE tracks to the proposed site may require further investigation and engineering considerations.



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Figure 4-2: US 27 Rail Alternatives near I-75 in Broward County



Source: Florida Department of Transportation District 4, August 2012.

Potential Benefits and Drawbacks

Generally, a freight rail system provides the public with several benefits over highway trucking. The AASHTO Freight Rail Bottom Line report lists the following public benefits of a freight-rail system:

- **Reduction in highway maintenance costs** – costs are reduced due to lower truck vehicle miles of travel (VMT) and reduction in shipper logistics costs;
- **Reduction in highway congestion** – congestion and vehicle delays are reduced with fewer trucks on the highway;
- **Cost effective** - freight rail is cheaper and more cost-effective than trucking or aviation for transporting goods over long distances. Depending on the density of the commodity, one railcar may move the same weight or volume as four or five trucks;
- **Fuel efficient** - freight rail is more fuel-efficient and generates less air pollution per ton-mile than trucking;



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- **Intermodal system** - freight rail in partnership with the trucking industry provides intermodal transportation connecting U.S. seaports with inland producers and consumers. Intermodal transportation enables U.S industries to be competitive in the global economy; and,
- **Emergency management** - freight rail also is critical in the case of a national emergency. It is vital for military mobilization and provides critically needed transportation system redundancy.

Freight rail service can be tailored to the customers' needs where adequate rail facilities are in place. Within the US 27 Corridor, establishing freight rail would provide considerable benefits to enhancing regional freight distribution from the Port of Miami to a more central portion of the state. Providing truck or additional freight rail distribution from this location in the state could provide more efficient freight movements and reduce congestion levels currently experienced by trucks competing with local traffic in the Miami-Dade area. The resulting economic development that could flow from these investments, however, could further serve economic vitality in these existing rural communities like South Bay, Belle Glade, and northward towards Clewiston.

Challenges to the implementation of the rail line include the height constraints at I-75 and additional design considerations near South Bay near the potential ILC. Costs for improving the I-75 overpass or alternatives mitigating/clearing environmental impacts for relocation of the rail east or west of the corridor in this area are considerable. In addition, consideration would be needed to identify efficient additional rail corridors to connect freight further through the state and to better serve rail to truck transfers along US 27 and to other statewide SIS facilities like I-75, I-95 and Florida's Turnpike quickly and efficiently.

Further consideration also needs to be given to the transfer time to move freight by rail from Port of Miami into these inland ports utilizing the potential rail system. Freight rail transfer times need to compare or exceed truck travel times to provide competitive advantage for this mode.

Unlike other domestic modes of transport, U.S. rail service is provided over infrastructure largely owned and maintained by private corporations. Expansion efforts on the physical capacity of the railroads to match with expected growth are very costly to implement and maintain on a continuing basis. The AASHTO report cited above found by making a relatively small amount of public investment in the nation's freight railroads, large public benefits would result for the nation's highway infrastructure, highway users and freight shippers.



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4.2 Inland Port Concepts

Given that inland ports vary significantly in terms of operations, facilities and magnitudes, a wide number of definitions for inland ports exist. For the purposes of this study, an inland port is understood to be a facility tied to one or more seaports that serves as an extension of services provided at a seaport. More specifically, once unloaded from a ship, the moving of containers between modes (truck to rail, rail to truck, etc.) can be accommodated off the port site at an inland port acting as transfer centers for shipping containers between modes.

As the private sector has become more and more focused on globalization and efficient global supply chains and available space for port expansions has been limited by other commercial activities, inland ports are starting to emerge in the transportation community. At inland ports, transportation resources such as access to the interstate highway system, intermodal rail facilities, or air cargo operations are viewed as necessary components for businesses seeking competitive advantages. The following list describes the majority of the typical characteristics of inland ports:

- **Regional Centers** – located nearby one or more large markets and have direct transportation access to them;
- **International Trade Facilitators** – assist international trade by being connected to international gateways, international logistics services, and customs;
- **Multi-modal Capabilities** – located at the crossroads of an efficient, multi-modal transportation infrastructure;
- **Foreign Trade Zone status** – encourages secondary development around the facility;
- **Specific Available Labor** – provides higher paying jobs and requires a certain skill-level;
- **Information Technology** – operate efficiently, in real time, and be secure, with IT infrastructure as the foundation;
- **Marketing** – aggressively marketed locally, nationally, and internationally to establish the facility as a node in larger supply chain networks; and,
- **Public/Private Balance** – cooperation among public and private entities helps develop and expand the facility as well as support growth opportunities.

Examples and Opportunities along the US 27 Corridor

Adjacent to the US 27 Corridor and impacting other freight facilities and industry directly along the corridor, the Port of Miami is the largest container port in the state, handling nearly 30 percent of all containers moving through Florida's ports. The Port also serves nearly one-third of all cruise passengers in the state through this home-based port. In 2009, the Port of Miami handled nearly 7.4 million tons of cargo and is estimated to generate roughly 3,200 trucks daily. Major commodities



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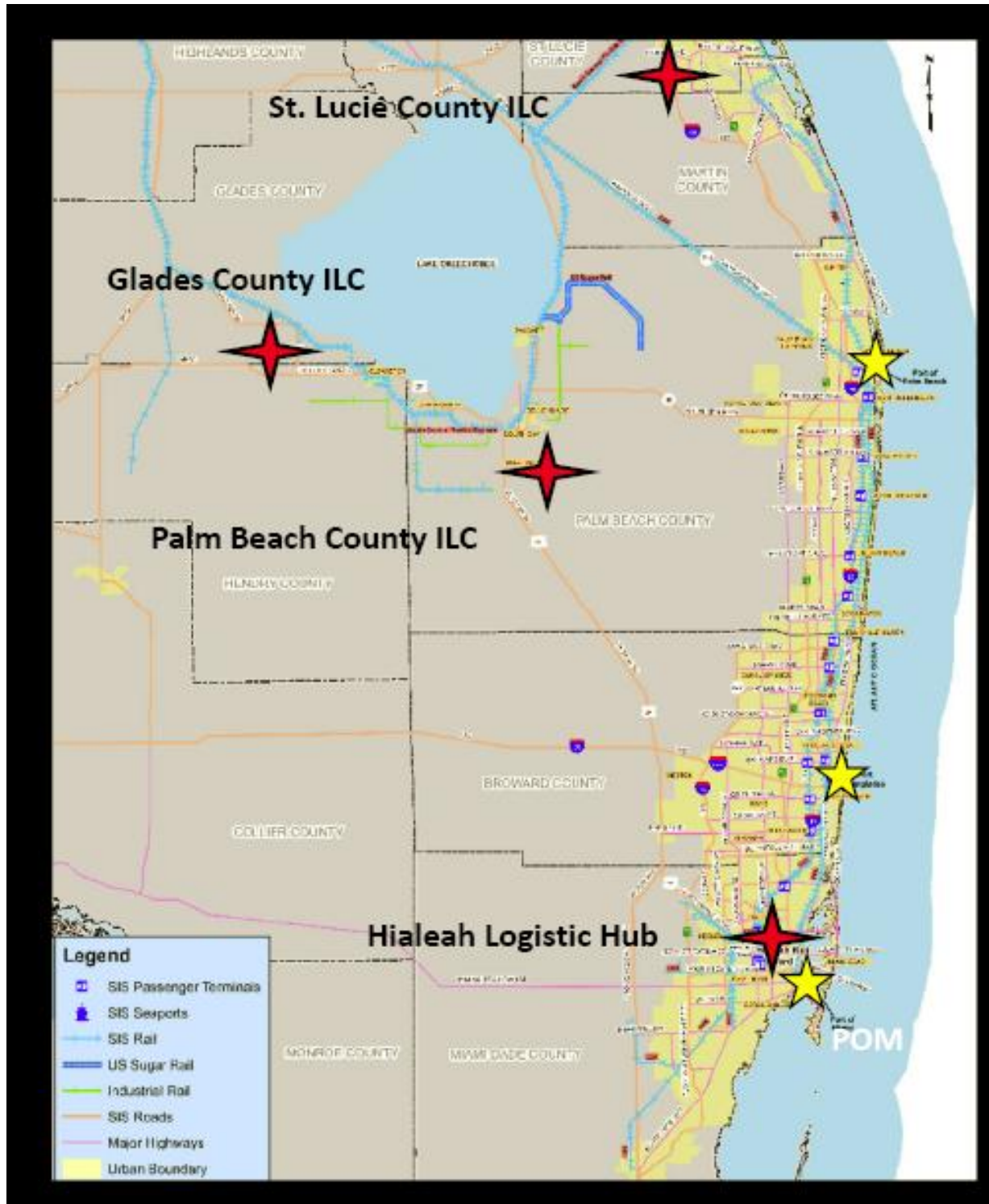
that flow through the port include manufactured equipment, petroleum and petroleum products, and food and farm products. Recently, re-construction of the on-port rail and bridge connection was initiated. In addition, FEC Railway is funding line improvements to connect to the Hialeah Rail Yard, which may serve inland port needs near the corridor and provide an alternative to traditional truck traffic along constrained roadways near Downtown Miami.

In addition, a number of other ports including Port Everglades and Port of Palm Beach are located along the southeastern Florida coastline and have a significant regional and statewide impact on freight goods movements. Recognizing the important role the southeast Florida region plays in initiating freight distribution in and across the state and anticipated increases in freight traffic resulting from shifts in global trade patterns, FDOT has undertaken a number of studies to support the freight program and in response to regional partner initiatives and legislative direction. Most recently, the Interregional Transportation Infrastructure Needs Study (ITINS) was completed by FDOT District 4 to summarize the possible infrastructure needs that could arise from the development of three potential inland port ILCs located in Palm Beach, Glades, and St. Lucie Counties. These three ILCs are shown in **Figure 4-3** and represent private developer initiatives aimed to take advantage of the additional warehouse and distribution center demand generated by the growth in the South Florida consumption market created by the widening of the Panama Canal.

ITINS provides a series of scenarios concerning ultimate development of these ILCs and possible infrastructure needs arising from these scenarios. Of particular relevance to the US 27 Corridor, are two of these three potential ILCs: one proposed in Palm Beach County and one proposed in Glades County. The potential development of these ILCs is also being considered as part of a separate PACE Study to evaluate the potential for freight rail connectivity along US 27, as described in **Section 4.1**.

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Figure 4-3: ITINS Potential ILC Locations



Source: Florida Department of Transportation District 4, July 2012.



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Potential Benefits and Drawbacks

The development of an inland port offers significant advantages to the US 27 Corridor, but also has potential drawbacks. Inland Port facilities can add substantial benefits to existing seaports and the US 27 Corridor, including the following:

- **Economic Development** – existing seaport operations would be enhanced by freeing up land to expand capacity, creating new market opportunities, and enhancing overall efficiency. Inland ports also typically create new regional economic development opportunities, which could be particularly beneficial to rural areas of critical economic concern (RACEC) in the corridor;
- **Alleviating Congestion** – development of an inland port would provide enhancements to the freight system (existing and future), improved intermodal connectivity, dispersal of truck traffic, and diversion of truck trips to rail (emissions reductions), all of which benefit the overall mobility of major SIS facilities in the state, along with other roadways in the transportation network;
- **Environmental Benefits** – diverting truck trips to rail provides emissions reductions and fuel efficiencies in the movement of containers from the port to their final destination; and,
- **Benefits to Other Modes** – supplementary operations at an inland port, such as air cargo, could also help to reduce growth pressures on major commercial airports.

While there are numerous benefits to an inland port there are also drawbacks, such as the following:

- **Capital Costs** – initially, the capital required to acquire land and construct such a facility could be expensive, and private sector support of these inland ports would be needed. Other necessary improvements to the local and regional roadways to accommodate heavier trucks and higher truck volumes, along with any freight rail improvements, could equal or exceed the capital construction costs of the facility itself;
- **Secondary Economic Impacts** – rail and secondary improvements to allow long-haul movements from the seaport to inland port, impacts to secondary businesses located near the seaports, and overcoming shippers desire to not add another node in the transportation network; and,
- **Environmental Concerns** – additional concerns related to an inland port are the potential environmental impacts relating to a new site.



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4.3 Other Intermodal Logistics Centers (ILCs)

Inland ports represent just one type of ILC. Within and adjacent to the US 27 Corridor are a number of other ILCs that serve essential functions for the freight network within the state by efficiently distributing freight goods throughout the state and to other markets. Although not directly tied to a port, they are located strategically within the state nearby other SIS facilities such as I-75, Florida's Turnpike and I-4. These ILCs are characterized by their ability to create modal shifts in the transport of freight, providing active distribution centers and industrial activities adjacent to modal shift facilities, and exhibiting unified management of the facility. Where appropriate, they may also support activities such as office space, restaurants, and hotels. The establishment of ILCs at key locations provides an alternative to increasing highway capacity along US 27 through the integration of freight modes and the potential for modal shifts to rail.

ILCs have seen great success. Criteria used in the determination of the location of a distribution facility include infrastructure, labor costs, proximity to customers, and community and site characteristics. ILCs typically have the following characteristics:

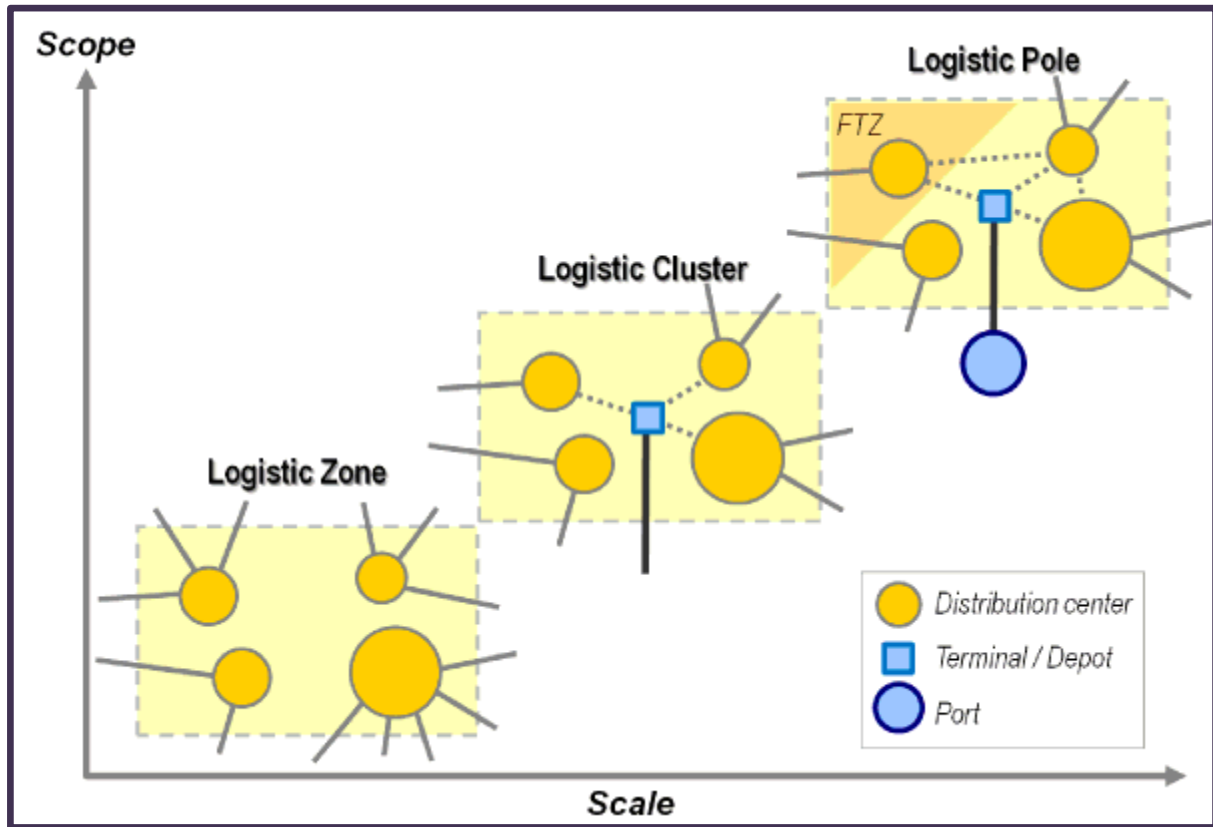
- **Modal Shift** – goods are moved between two or more forms of freight transportation such as rail to truck, barge to rail and/or truck, and air to truck to rail;
- **Active Management** – no passive activity or container storage located on-site; active distribution centers and industrial activities located adjacent to modal shift facilities;
- **Ancillary Activities** – site offers support activities such as truck stops/rest areas, office space, retail and commercial outlets, hotels, etc.;
- **Unified Management** – ILCs are under management of single entity;
- **Location** – located in or near metropolitan areas; and,
- **Typically Compact** – ILC sites can be several thousand acres in size, but a site of this size is highly unlikely in an urban area; urban sites typically comprise 125 or more contiguous acres.

Clustered freight activities, ILCs, or less complex strategies, range in type based on their proximity to ports, organization, and function. For the purposes of this study, these typologies have been broken down to better describe differences in clustered freight activities within the corridor and across the state, from port centric ILCs, to land-locked ILCs near major rail lines and interstate highways, and to less organized freight activities that tend to occur through zoning of land uses. A graphic depiction of three major levels of functional integration of freight clustered activities and distribution centers is shown in **Figure 4-4**, and described below.⁵

⁵ Jean-Paul Rodrigue, Claude Comtois and Brian Slack. *The Geography of Transport Systems*, 2009. New York: Routledge. Retrieved from: <http://people.hofstra.edu/geotrans/eng/ch4en/conc4en/freightclusters.html>, August 2012.

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Figure 4-4: A Typology of Freight Distribution Clusters



Source: <http://people.hofstra.edu/geotrans/eng/ch4en/conc4en/freightclusters.html>, August 2012.

- Logistic Poles:** These ILCs represent freight clustered activities with a high level of integration with intermodal terminals, including ports, rail yards or airports, resulting in an intermodal freight distribution system. These logistic poles tend to be located adjacent to ports and directly integrated or co-located with an intermodal terminal. Logistic poles tend to be the outcome of a concerted action between high level government agencies and the private sector since regulatory changes are required as well as large scale infrastructure investments. Local governments, port authorities, rail operators, and commercial real estate developers may all play important roles in development of this type of freight logistics zone.
- Logistic Clusters:** These ILCs are typically located some distance from a port and contain a concentration of freight related activities within a specific area. Creation of these types of logistics clustered ILCs are master planned and managed. Activities within logistics clusters may include distribution centers, warehouses and storage areas, transport terminals, offices and other facilities supporting those activities. Although a logistic cluster in its most generalized definition can be serviced by a single mode, logistics cluster



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type ILCS within the state contain intermodal facilities (such as rail terminals, interstate highways or airports) that can offer direct access to global and regional markets. Logistic clusters can have many benefits to manage the freight flows generated by several unrelated users through economies of scale since they are sharing the same facilities and equipment, mostly around a transport terminal or a depot. This can reduce transportation costs and promote greater reliability. State agencies, regional and local governments, private terminal operators and others may all play important roles in the development of these types of ILCs.

- **Logistic Zones:** Logistics zones represent other non-ILC freight related activities that may be found in more suburban areas where land is available and where highway networks serve to connect distribution activities. Logistics zones are less organized distribution centers often resulting from zoning enacted by local governments to define areas for warehousing and freight distribution activities. Activities within these logistics zones are commonly unrelated. Accessibility tends to be the main factor favoring agglomeration within the freight cluster. They are likely to appear rather spontaneously as several firms realize the advantage of a location for freight distribution centers.

Examples and Opportunities along the US 27 Corridor

Within and adjacent to the US 27 Corridor, all three types of clustered freight activities can be found. In South Florida, inland port logistics poles dominate given the proximity to ports along Florida's east coastline. Two logistics clustered ILCs are proposed along or near the corridor and may have important implications to the statewide freight network as well as to the US 27 Corridor itself.

Winter Haven Terminal Facility and ILC

The Winter Haven Terminal Facility and ILC is proposed along 1,250 acres of land acquired by CSX Corporation within Winter Haven in Polk County. The proposed terminal and ILC will include a truck, rail and warehousing hub for the transfer and storage of containerized consumer goods. The site is located just west of an existing CSX rail line near Pollard Road and access to the parcel of land is being made available through SR 60, which connects to US 27 in Polk County. A roadway expansion project along SR 60 is currently under construction to provide access to the site and south and west bound ramps are being investigated at US 27 and SR 60 to address potential safety issues connecting to the planned ILC. In addition, the Central Polk Parkway Study is underway and could have some impact on providing alternative traffic relief to US 27 between Lake Wales and I-4. These proposed improvements could bypass US 27 and provide additional connectivity east and west just north of CR 540A.



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The Winter Haven Terminal and ILC, along with freight rail improvements made by CSX, are being planned to improve freight movement in the state and enhance Florida's ability to compete for global trade. The site is proposed to include over five million square feet of industrial, warehouse and office facilities. Over a ten-year build-out period, it is projected to generate more than \$10 billion of economic impacts and more than \$900 million in local, state and federal tax revenues.⁶ Railroad service, related trucking operations and development of an adjacent light industrial center is expected to generate additional growth and jobs.

Figure 4-5: Winter Haven Terminal and ILC Location



Source: Winter Haven Chamber of Commerce, Rail Terminal Application for Development Approval, 2007.

Note: Traffic impacts in black represent traffic increases anticipated from employees while traffic impacts in red are traffic increases anticipated from trucking.

⁶ City of Winter Haven, Strategic Initiatives. Retrieved from http://www.mywinterhaven.com/strategic_initiatives.htm, August 2012.

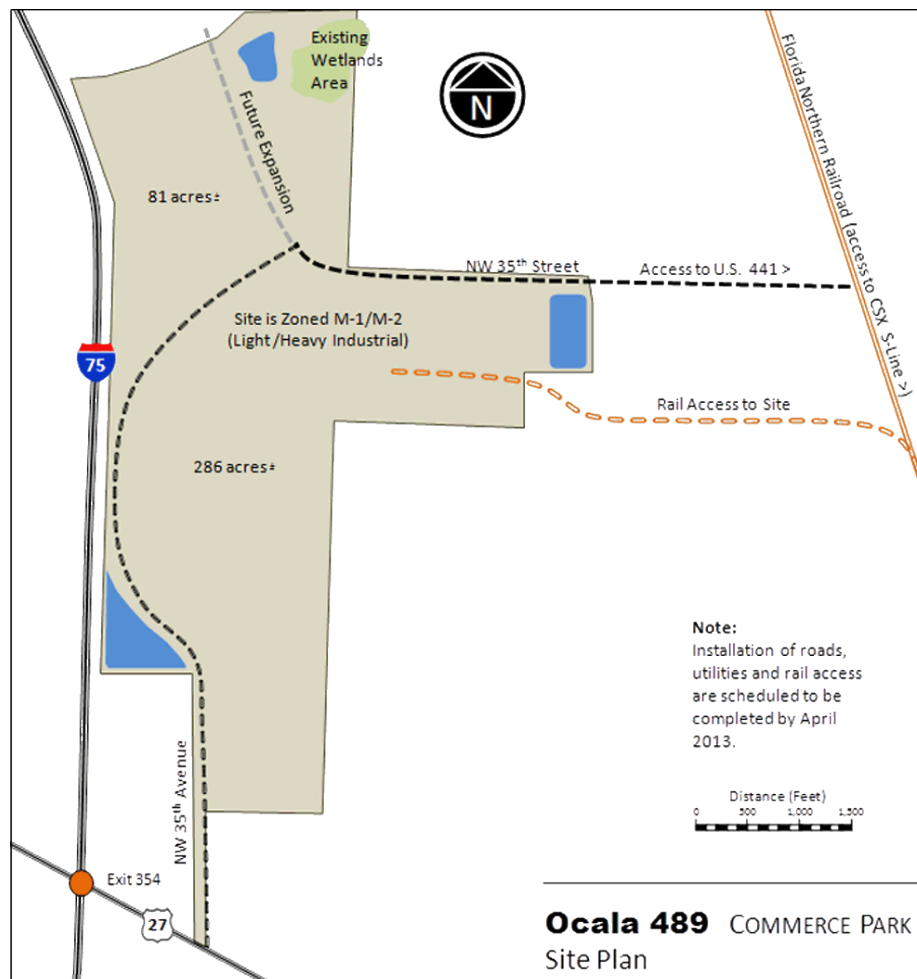


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Ocala 489 Commerce Park

The Ocala 489 ILC is located in Marion County adjacent to the intersection of I-75 (Exit 354) and US 27. The location covers more than 400 acres and rail access to the ILC is provided through Florida Northern Railroad to the CSX S-Line. This location provides over 140,000 jobs and is of significance to economic development in the area.

Figure 4-6: Ocala 489 Commerce Park Location and Site Plan



Source: <http://ocala489.com>

An Economic Development profile was recently completed for the Ocala 489 Commerce Park, with relevant information on freight goods movement economic development opportunities in this area given its strategic location within the state and to important rail and highway facilities.⁷ Effective integration of the Site 489

⁷ Ocala-Marion Economic Resource Profile, 2012. Retrieved from <http://ocala489.com/Ocala-MarionCoProfile2012.pdf>, August 2012.



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ILC and other statewide freight plans could offer distinct economic opportunities for the US 27 Corridor in this area as well as in facilitating better goods movement throughout the state.

Potential Benefits and Drawbacks

ILCs offer many advantages, including the following:

- **Alleviating Congestion** – provides a location to shift goods to a different mode of transportation, consolidating freight loads into fewer trucks thereby reducing corridor volumes. Removes long distance trucks from SIS facilities through a mode shift to rail;
- **Improved Safety** - provides a location for truckers to wait out peak travel times, thereby minimizing the interaction between truck and passenger traffic in dense urban areas;
- **Environmental Benefits** - consolidating smaller trucking loads into fewer loads facilitates reduced vehicle miles traveled (VMT), thereby assisting in alleviating energy consumption and reduced emissions⁸. Given that ILCs are active centers for modal shift in the transport of goods, their establishment has the potential to decrease land devoted to warehousing, thereby potentially allowing more land to remain undeveloped. A ILC is also an excellent use for brownfield redevelopment; and,
- **Economic development** – reducing the cost of trucking from excessive fuel usage and extended staff time, as well as reducing the time it takes to move freight supports existing industries while also fostering an environment to attract more businesses. Additionally, ILCs attract ancillary, support business activities benefitting the host communities through increased revenues and job creation.

Challenges within the corridor for the build-out of these planned ILCs include the need to establish the context under which these ILCs will integrate with other freight movements throughout the state. Additional coordination with private rail carriers, such as CSX, are needed to better understand the potential transportation impacts to the US 27 Corridor and how SIS development of US 27 can best serve the needs of freight movements in the state. In addition, careful land use planning is needed near these ILCs to ensure community cohesion and coordination with long range plans. Finally, the quantity of land required to establish an ILC and the potential cost of assembling large amounts of acreage within an urbanized area may result in potential environmental impacts which should be carefully considered through the plan development process.

⁸ The Sustainable Urban and Regional Freight Flows program (1998) found modifying transport, warehousing and logistics processes usually decreased negative environmental impacts and resulted in a roughly 20% reduction in VMTs.



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4.4 Improved Integration with Connecting SIS Facilities

The US 27 Corridor provides key access throughout the center of the state and connects with other SIS facilities essential for goods movement throughout the state. As such, US 27 has the potential to act as a reliever for statewide and regional freight movement, thereby improving system-wide performance of the SIS throughout the state. Efficient and effective systems access to these facilities serves statewide goals to improve mobility and support economic development. Improvements to better integrate these connecting east-west facilities along the corridor may include (but are not limited to) road widening, intersection and/or ramp improvements, the potential for flyovers and other options for creating seamless transition between facilities, as well as tolling feasibility studies and other measures. These needs, however, will need to be balanced with local and regional visions along the corridor to fulfill public participation requirements, ensure community support and to develop a balanced approach to facilitating freight goods movement along the corridor and throughout the state. Determining locations where US 27 can most appropriately act as a reliever to other statewide facilities and where connections to other facilities are needed to deviate freight traffic from US 27 to other facilities to meet larger regional and local development plans is essential to effective planning of the US 27 Corridor into the future.

Examples and Opportunities along the US 27 Corridor

US 27 is a designated SIS facility throughout the majority of the corridor. Exceptions to this include: from the southern terminus of US 27 at US 1 (Biscayne Boulevard) north to SR 826 (Palmetto Expressway) in Miami-Dade County and from Florida's Turnpike South of Leesburg to the northern terminus at I-75 in Marion County. SIS seaports and airports located near the US 27 Corridor include the Port of Miami and Miami International Airport. Enhanced connectivity to these SIS hubs as well as considerations to improve connectivity to other private airports that may provide enhanced freight movement provide opportunities for enhancing the existing SIS. More specifically, the US 27 Corridor also connects with a number of SIS and emerging SIS corridors throughout the ten county study area, and enhanced connectivity to US 27 as well as the potential for providing relief to congested SIS corridors are important considerations in this strategy. The SIS and emerging SIS corridors include the following by FDOT District:



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District 6 (Miami-Dade County)

- I-95
- SR 826 (Palmetto Expressway)
- SR 821 (Florida's Turnpike)
- SR 997 (Krome Avenue)

District 4 (Broward and Palm Beach Counties)

- I-75 (Broward County)
- SR 80 (Palm Beach County at South Bay)

District 1 (Hendry, Glades, Highlands, and Polk Counties)

- SR 80 (Hendry County)
- SR 29 (Glades County)
- SR 70 (Highlands County)
- SR 64 (Highlands County)
- SR 60 (Polk County)
- I-4 (Polk County)

District 5 (Lake, Sumter and Marion Counties)

- Florida's Turnpike (Lake County)
- I-75 (Marion County)

Freight movement and connectivity is bounded to a complex system of commodity flow needs. Use of alternative SIS facilities like US 27 to statewide facilities such as I-75, I-95 and Florida's Turnpike will be dictated by these commodity flow needs and depends on improved efficiencies realized in cost or time savings from utilizing alternative routes. In addition, regional and local development patterns within a number of sections of the corridor may limit the effectiveness of US 27 as a reliever given decreases in speed limits, increased traffic signals and intersections, and competing local and regional traffic conditions. Any opportunities for enhancing SIS connectivity and utilizing the US 27 Corridor as a reliever for truck traffic movements must be coordinated with regional and district-wide plans to ensure consistency and more refined levels of analysis are needed to determine traffic impacts to US 27 and other adjacent facilities.

Opportunities are limited to deviate truck traffic near the Port of Miami given existing connections to I-75, I-95, and Florida's Turnpike. US 27 in this area is congested, right-of-way is limited, and competition between truck and local traffic is heavy. A combination of rail and truck freight modes in this area may provide the greatest opportunities for enhancing freight movements in this portion of the corridor. Near the intersection of US 27 and SR 821 (Florida's Turnpike) in Miami-Dade County, however, US 27 provides a potential for deviating traffic north and southbound to existing freight and manufacturing adjacent to the corridor. Connections to I-75 in Broward County provide east and west access throughout the state.



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In Palm Beach and Hendry Counties, SR 80 provides additional east-west connectivity to I-75, I-95, and Florida's Turnpike. Given recent plans for ILCs in this area and potential port goods transfers, further investigation of enhancing SR 80 access may provide an opportunity for trucks connecting to these other statewide facilities along either coastline. In addition, SR 29 in Glades County also connects with US 27 and provides shorter connections to I-75 along the west coast of Florida. This area is already heavily utilized by freight truck traffic for this purpose and additional connectivity to this facility may provide another option for western connectivity.

In Highlands County, SR 70 provides east and west coast connectivity. Particularly, shorter east coast connections to Florida's Turnpike and I-95 provide an opportunity for further investigating enhanced access along SR 70. This added connectivity may also provide an opportunity for truck traffic to connect east and west of the US 27 Corridor south of more developed areas along the corridor such as Lake Placid, Sebring and Avon Park where traffic signals and speed limits may hinder more efficient regional and statewide truck movements. The intersection of US 27 and SR 64 is located in the northwestern quadrant of Highlands County and may provide additional east-west connectivity.

Connections to other SIS facilities east and west of the corridor in Polk County may provide opportunity for investments that increase freight connectivity in the center of the state, especially given intermodal plans in this area and limited SIS connecting facilities from this area of Polk County northbound through the remaining portion of the US 27 Corridor. SR 60 within Polk County may help to facilitate better east-west SIS connectivity with US 27. Along SR 60, access to the Winter Haven Rail Terminal and ILC is planned and connections to this facility may warrant further investigation. Currently, FDOT is enhancing access on SR 60 and reviewing needs for connecting ramps along US 27 to address emerging truck traffic needs in the area. Additionally, the Central Polk Parkway Study is underway and could have some impact on providing alternative traffic relief to US 27 between Lake Wales and I-4. These proposed improvements could bypass US 27 and provide additional connectivity east and west just north of CR 540A. Connections to I-4 are also provided directly along the US 27 Corridor. Opportunities for enhancing this connection may provide essential east-west connections across the center of the state; however, these need to be coordinated with existing and future traffic congestion along I-4, future tolling plans, and existing and proposed intensified development in the Four Corners area.

System connectivity to Florida's Turnpike and I-75 in Lake and Marion Counties, respectively, may provide an opportunity for better SIS integration in these areas. In addition, connections from US 27 to CR 470 in Lake County may provide additional opportunities for enhanced connections to SR 44, I-75 and Florida's Turnpike in this portion of the corridor. In Marion County, FDOT is current conducting an I-75 Systems Access Management Report (SAMR), which will include



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a detailed analysis of traffic impacts from proposed development such as the Ocala Site 489 ILC, referenced in **Section 4.3** along the corridor to determine impacts to I-75 and identify solutions to maximize the state's investment. Coordination with existing regional and district-wide plans is needed in this area, especially given the dramatic growth seen in this area over the last ten years.

Potential Benefits and Drawbacks

Benefits to enhancing connectivity between US 27 and other important SIS connectors include:

- Potential for reduced congestion on other statewide facilities
- Providing greater freight connectivity throughout the state
- Potential for deviating freight traffic from US 27 to other facilities in more urbanized areas and those with greater concentrations of local traffic
- Potential for trucks to connect to planned and potential ILCs throughout the corridor.

Drawbacks of this strategy include the need for enhanced coordination with local and regional plans to effectively integrate statewide freight movement needs with regional growth and economic development plans. Refined analysis at a regional and local level would be needed to provide a more comprehensive understanding of how enhanced access to the SIS may impact other state and local roadways by creating greater congestion in these areas. This will need to be coordinated with regional and local long range plans to achieve needed public support and ensure that roadways can be feasibly improved over the long range planning horizon. In addition, another challenge with implementation of this strategy is the need to create seamless connections between SIS facilities to maximize the utility of this strategy. Unless these enhanced connections provide some competitive advantage for the private sector freight market, implementation of these strategies may not be warranted.

4.5 Truck-Only Lanes

Truck only lanes are special use lanes separating trucks from passenger traffic. This strategy is designed to reduce congestion, increase the longevity of pavement, and expand the economic benefits of streamlined freight mobility. Two common methods of separating trucks from general traffic are lane striping and concrete barriers. Tolls may be imposed to generate revenue. Barrier separated dedicated truck lanes achieve optimum feasibility when truck volumes exceed 30 percent of the total vehicle mix, peak hour volumes exceed 1,800 vehicles per lane-hour, and off-peak volumes exceed 1,200 vehicles per lane hour.⁹ A graphic of truck only lanes and feasibility criteria are shown on **Figure 4-7**.

Figure 4-7: Truck-Only Lane Criteria

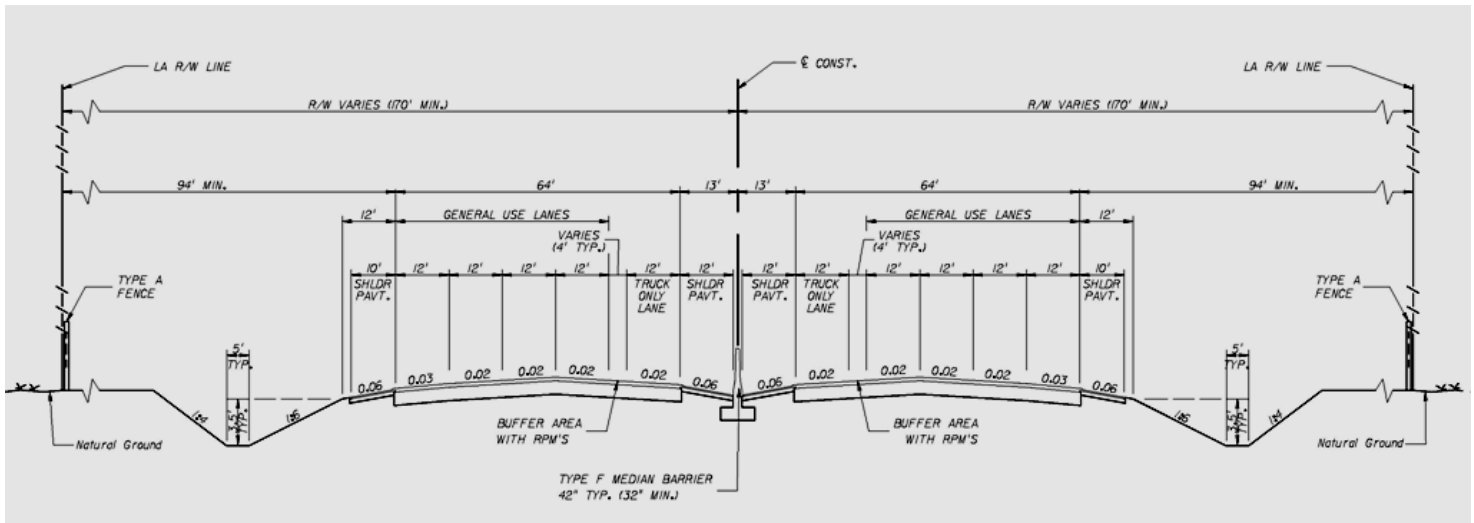


Source: Volvo Trucks North America Website: http://www.moreproductivetrucks.com/truck_only_lanes.html

FDOT District Five has prepared a document entitled *Truck-Only Lane Quick Reference* to provide a general introduction to truck-only lanes, discuss current status, and to provide quick reference to basic design criteria for these facilities. It also includes typical sections for buffer and barrier separated truck lanes for informational purposes. One of these typical sections is illustrated in **Figure 4-8**.

⁹ FHWA, Public Roads Magazine, *Issues in the Financing of Truck Only Lanes*. Publication Number FHWA-HRT-05-007, October 2005.

Figure 4-8: Example Typical Section of Interstate Truck Only Lane



Source: Truck-Only Lane Quick Reference, FDOT District 5, March 2008.

Examples and Opportunities along the US 27 Corridor

There are currently no existing truck lanes along the US 27 Corridor. Based on the sampling of count locations provided in Technical Memorandum 1, *Identification of Corridor Conditions and Needs*, the only areas within the corridor that meet or are close to meeting the 30 percent guideline for truck traffic are within Hendry and Glades Counties. Additional data on peak and off-peak vehicles per lane mile would be needed to support implementation of this strategy. However, even given these factors, truck only lanes may have limited benefits versus the costs of implementation in these more rural areas of the US 27 Corridor given the lack of congestion in this portion of the corridor. Further investigation may be warranted to determine how truck traffic volumes may be expected to increase in these areas as a result of implementation of ILCs in these areas. A mix of strategies to improve east-west SIS connectivity (discussed in Section 4.4) and establish truck only lanes may be an opportunity for further analysis.

Potential Benefits and Drawbacks

Truck only lanes provide benefits to both freight and passenger vehicles. Benefits include the following:

- Reduces many passenger vehicle and heavy truck conflicts by separating these vehicles;
- Contributes to the reduction of congestion and emissions, and improves safety in general purpose lanes; and,



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- Economic benefits can be viewed in terms of more efficient movement of goods resulting in reduced freight costs, as well as improving travel speeds in the general purpose lanes.

Truck only lanes also have some drawbacks, such as the following:

- Costs for constructing truck ways are estimated to be higher than typical per lane mile freeway costs. The increased costs are due to design changes sometimes required to accommodate heavy trucks, such as thicker pavements, increased lengths of acceleration and deceleration lanes, changes to horizontal and vertical curvature, and grades on overpasses.
- If tolled, the cost may deter some independently operated truck drivers from using the lanes;
- Without expensive direct access ramps serving truck only lanes, there are safety and mobility issues with trucks weaving from truck only lanes in the median to typical right-hand exit ramps;
- Difficulties may arise when accidents occur or maintenance needs to be conducted;
- Truck only lanes may be viewed by the public as providing a minimal overall benefit because citizens will not be able to use them; and,
- Truck lanes may discourage growth of the rail-highway intermodal system, which is more energy efficient and more effective in reducing greenhouse gas (GHG) emissions.



Chapter 4 – Freight Movement Focus

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Chapter 5 – Regional Capacity Focus

Florida as a whole has been at the forefront of a decades-long shift in population from the nation's traditional economic centers in the North and Midwest to the Sunbelt. Urbanized and expansive growth in a number of locations along the US 27 Corridor continues. In Miami-Dade County, for example, the corridor covers some of the largest urbanized areas in the state and serves both commuter and significant truck traffic originating from the number of intermodal connections near the coast. In addition, the "Four Corners" region in the heart of the mega-region of Central Florida through Polk and Lake Counties in particular, has seen exponential population growth in recent years with a number of developments of regional impact (DRIs) and a series of retirement communities dominating residential development patterns in these once rural areas. In Lake, Sumter and Marion Counties, The Villages Retirement Community has transformed this portion of the corridor and surrounding area to the fastest growing area in the state. With these factors in mind, providing responsive transportation infrastructure to efficiently move people and goods now and into the future is of key importance to the state.

The focus of this chapter is to provide alternatives that maximize total throughput for people and goods, regardless of mode along US 27. While both the community vitality and freight focused alternatives also focus on maximizing the efficiency and effectiveness of the transportation network, the strategies within this chapter represent ways to move *more* people in a proactive manner along the corridor in response to increasing demands on the network over time.

5.1 Passenger Rail Options

Passenger rail service presents a mobility option to serve statewide passenger movements in a more efficient and effective manner. As growth and development spur on greater congestion, alternatives to single driver automobile use are being explored throughout the state.

One of the major goals and objectives of Florida's Transportation Plan (FTP), Horizon 2060, is to improve mobility and connectivity for people and freight by developing a statewide high speed and intercity passenger rail system connecting all regions of the state and linking to public transportation systems in rural and urban areas. This offers a viable mobility option for the state's future transportation network and is of key state importance.

Examples and Opportunities along the US 27 Corridor

The following paragraphs include a brief overview of current or planned passenger rail systems within the corridor. Passenger rail systems relevant to US 27 considered for this alternative mobility option include Amtrak, the newly proposed All Aboard Florida initiative to connect Orlando to Miami through high speed passenger rail service, and commuter services including the South Florida Tri-Rail System and a proposed Orange Blossom Express commuter rail corridor along



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US 441 in Lake and Orange Counties. Although a number of these options are outside of the US 27 Corridor, these options provide regional passenger mobility that may have a statewide impact on the transportation network.

All Aboard Florida

Florida East Coast Industries (FECI) is developing a privately owned, operated and maintained intercity passenger rail service to connect South Florida and Orlando which is proposed to be operational by 2014. Approximately 200 of 240 miles of right-of-way (ROW) are already in place along Florida East Coast (FEC) rail line to implement this service between Orlando International Airport and Downtown Miami, with proposed extensions proposed for subsequent implementation in Tampa and Jacksonville. Travel time from Orlando to Miami is expected to be approximately three hours, with one segment of the proposed line expected to operate at speeds of up to 125 miles per hour, meeting the U.S. Department of Transportation's definition of high speed rail.

Figure 5-1: All Aboard Florida Proposed Route



Source: All Aboard Florida Brochure, 2012.

Feasibility studies were initiated in late 2011 for this proposed service, and the proposed service was announced to the public in late March 2012. Detailed ridership and engineering studies are in progress. Service is planned to begin in 2014; however developing track lines into Orlando are not yet completed. Once



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fully implemented, the service could tie into four international airports and three seaports in the state.

FEC owns the former site of its downtown Miami station, as well as other real estate throughout Florida through a subsidiary known as Flagler Development Company. The nine acre parcel adjacent to Government Center in Downtown Miami could be used to connect the existing MetroRail and MetroMover systems to this high speed rail system. In Orlando, the service is proposed to connect to Orlando's SunRail commuter rail service which is also positioned to open in 2014. Double tracking and other improvements to the line could also help integrate Amtrak and Tri-Rail service in South Florida.

South Florida Regional Transportation Authority (SFRTA) Tri-Rail System

The Tri-Rail commuter rail system serves south Florida including Palm Beach, Broward and Miami-Dade Counties. Tri-Rail is operated by the South Florida Regional Transportation Authority (SFRTA) and is supported by select feeder bus services in Broward County, Miami-Dade and Palm Beach County. Tri-Rail has eighteen (18) stations along its 71 mile route, as illustrated in **Figure 5-2**. The commuter rail corridor utilizes the South Florida Rail Corridor and is parallel to I-95 throughout its length from the Miami International Airport to Mangonia Park in West Palm Beach. The corridor also provides for CSX freight service.

Tri-Rail serves a number of intermodal facilities in South Florida, including Miami International Airport, Fort Lauderdale-Hollywood International Airport, Palm Beach International Airport, the Tri-Rail/Metrorail Transfer Station, and the Miami Amtrak Station. In March 2010, Tri-Rail had a ridership of approximately 12,566 passengers per day for an estimated 3.3 million annual riders.

The proximity of Tri-Rail to the coastline and urbanized areas within it provides a rail passenger mobility option for motorists traveling north and south in the three county area of West Palm, Broward, and Miami-Dade Counties. Within the US 27 Corridor, a number of nearby Metrorail stations, including the Palmetto Station, Okeechobee, Hialeah, and Allapatah Stations provides commuter access to Tri-Rail in Miami-Dade County via a transfer at the Tri-Rail/Metrorail Transfer Station. Pedestrian access to these facilities is somewhat limited due to the highly urbanized highways near the stations, and distances between US 27 and these stations. Increasing pedestrian circulation is needed to enhance these alternative options. In addition, diversion of potential riders from much of US 27 may be limited due to lack of direct access to Tri-Rail from a number of locations along US 27. Park-n-ride stops and other passenger distribution options may maximize the effectiveness of the system and generate additional ridership from US 27.



SYSTEM MAP

KEY

Metrorail Station
○ Tri-Rail/Metrorail Transfer Station
— Metrorail
✈ Access to International Airport

Key For Metrorail Service

1. Palmetto
2. Okeechobee
3. Hialeah
4. Tri-Rail/Metrorail Transfer
5. Northside
6. Dr. Martin Luther King, Jr.
7. Brownsville
8. Earlington Heights
9. Allapattah
10. Santa Clara
11. Civic Center
12. Culmer
13. Historic Overtown/Lyric Theatre
14. Government Center (Connects with Metromover)
15. Brickell (Connects with Metromover)
16. Vizcaya
17. Coconut Grove
18. Douglas Road
19. University
20. South Miami
21. Dadeland North
22. Dadeland South

The map shows the Tri-Rail route along the coast of Florida. It starts at Mangonia Park Station in Palm Beach County and travels south through West Palm Beach, Lake Worth, Boynton Beach, Delray Beach, Boca Raton, Deerfield Beach, Pompano Beach, Cypress Creek, Ft. Lauderdale, and Ft. Lauderdale/Hollywood Int'l. Airport Station at Dania Beach. From there, it continues through Sheridan Street, Hollywood, Golden Glades, Opa-locka, and Tri-Rail/Metrorail Transfer Station. The line ends at Hialeah Market Station and Miami Airport Station. Major highways like I-95, US-1, and SR-112 are shown. A key lists 22 Metrorail stations and transfer points. A north arrow is present. County boundaries for Palm Beach, Broward, and Miami-Dade are indicated.

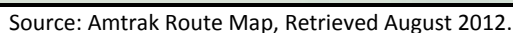
Tri-Rail trains and stations are accessible to persons with disabilities

5-4



Amtrak

Figure 5-3: Florida Amtrak Routes





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With stops in Sebring, this service provides the only passenger rail service within the designated rural areas of critical economic concern (RACEC) in the US 27 Corridor. Connections to Miami and the other urbanized areas are provided to this service; however, limited scheduling and three-hour travel time from Sebring to Miami reduce the ability for this service to be used in commuter services.

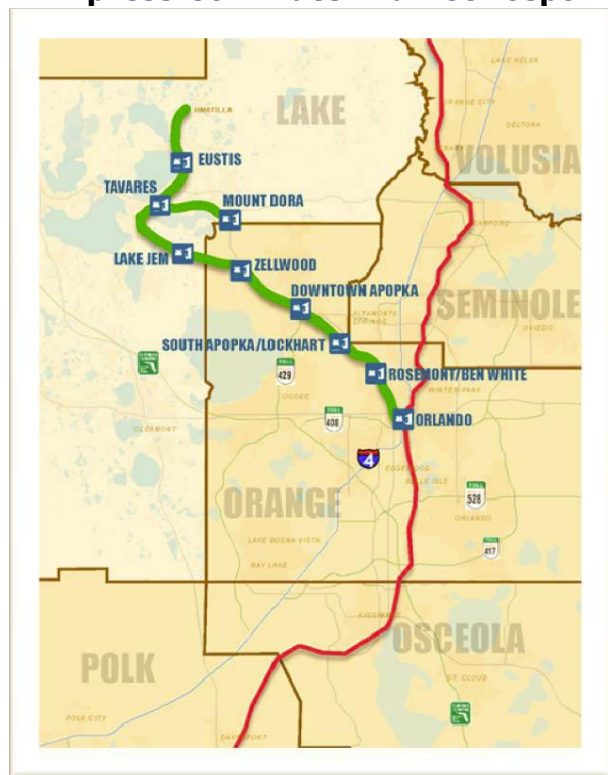
Orange Blossom Express

The Orange Blossom Express is a proposed 36 mile commuter rail project that would extend from the City of Eustis in Lake County to Downtown Orlando. The proposed rail would utilize existing Florida Central Rail track parallel to the US 441 Corridor between Lake County and Orange County. Communities where service is proposed included Eustis, Tavares, Mt. Dora, and Lake Jem in Lake County and Zellwood, and Lockhart, Apopka, Rosemont/Ben White, and Orlando in Orange County. FDOT District 5 has recently initiated a US 441 Alternatives Analysis to evaluate alternatives for providing premium transit service along this corridor, and includes evaluation of the proposed Orange Blossom Express Commuter Rail. Results from this study are not available at this time.

The Orange Blossom Express is proposed to provide a new transportation choice for the region, support economic development at proposed station areas and provide an alternative to the already congested roadway corridors for commuters traveling to downtown Orlando for jobs. At the same time, the Florida Central Railroad tracks are proposed to continue to provide freight service to the region.

Although not directly linked to the US 27 Corridor, this passenger service may impact development of transportation options in the Central Florida region. If implemented, the service would ultimately connect to a number of other commuter rail services proposed and under construction, including the Central Florida SunRail Commuter Rail service and eventually the All Aboard Florida high speed rail service.

Figure 5-4: Orange Blossom Express Commuter Rail Concept



Source: Lake-Sumter MPO, July 2010.



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Potential Benefits and Drawbacks

Potential benefits associated with the implementation of passenger rail services around the state include the following:

- Divert large population from single automobile use to passenger rail service, thereby reducing congestion;
- These projects promote extensive economic development across the state. Proposed rail services vary in the number of jobs created but all would provide temporary jobs during the construction periods and new, permanent jobs during the subsequent years of operation. They also promote transit-oriented development and new business opportunities, particularly near stations;
- Passenger rail service achieves environmental benefits through reductions in vehicle miles of travel from diverting drivers and reductions in green house gases (GHG); and,
- Some of these options, such as All Aboard Florida, are anticipated to improve accessibility to airports and seaports throughout the state, increasing economic development benefits from these investments.

The proposed and existing passenger rail services, however, do not reach a large number of residents living directly along the US 27 Corridor. Enhanced options for connecting these important statewide passenger rail services to some of the RACEC's over time may be explored to promote greater economic development potential in these areas. In addition, proposals for interregional transit modes such as express bus services and park-and-rides, among others, may provide additional opportunities for maximizing the usefulness of these services to residents near the US 27 Corridor.

5.2 Add Capacity to US 27

US 27 provides key connectivity through the center of the state and is located between two major megaregions in south and central Florida. Although the majority of the corridor is currently performing at acceptable levels of service, traffic demands in the corridor are expected to continue to increase with continued urban development in Hialeah and Miami, explosive development trends in the central and northern portions of the corridor, and expansive freight plans throughout the corridor that will help distribute freight more efficiently throughout the state. Preservation of mobility within the corridor is of strategic importance to Florida and US 27 is a critical corridor for statewide and economic development reasons.

To meet increasing transportation needs, FDOT is focused on key strategies to improve traffic flow on US 27. These strategies include adding new roadway capacity where it provides the most benefit, making our highways more efficient at moving people and goods with new traffic technology, and managing traffic demand through a combination of strategies. This section will focus on the opportunities and



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constraints for adding new roadway capacity as a viable alternative to capture growing demand.

Examples and Opportunities along the US 27 Corridor

A number of roadway widening projects are planned within the corridor. Through the 2035 planning horizon, the US 27 Corridor is planned as a four to six lane facility. Importantly, in some areas like Lake County, lane constraint policies exist to limit the widening of US 27 to a maximum of six lanes. Alternative strategies will be needed in these areas to meet anticipated traffic demands along the corridor where roadway widening is not feasible by these policy restrictions.

The following provides just some of the major considerations for roadway capacity improvements throughout the corridor. More detailed data on traffic count locations and existing and future projected traffic may be found in Technical Memorandum 1, *Identification of Corridor Conditions and Needs*. Additionally, a number of initiatives are underway at the District for addressing capacity needs based on growth and development and plans within the corridor. Given the large study area of the US 27 Corridor, these descriptions are provided to give some context to opportunities and challenges to adding capacity improvements along varying portions of the corridor.

Within Miami-Dade County, a large portion of the US 27 Corridor is limited in widening capability given limited right-of-way and the urbanized nature of the corridor. Particularly, the urbanized area near SR 826 (Palmetto Expressway) is currently operating at below the level of service (LOS) standard and is expected to continue to operate as such into the future. Parallel local relievers and other strategies are being planned in this portion of the corridor to address competing local and regional traffic needs.

Within Broward and Palm Beach Counties, the US 27 Corridor is currently performing at acceptable LOS. A number of freight initiatives are underway within District 4, however, that could have impacts on capacity needs. The recently completed ITIN Study evaluated potential traffic impacts resulting from implementation of three proposed intermodal logistics centers (ILC) near the corridor. Scenario planning techniques were utilized to understand the variation in traffic impacts associated with development of one or a series of proposed ILCs. Based on this analysis of two-way peak hour traffic, the study found that under all scenarios the US 27 may need additional number of lanes beyond the Cost Feasible Plan to maintain acceptable adopted LOS.

In the more rural portions of the corridor in Hendry and Glades County, roadway capacity is meeting LOS standards. Based upon the latest SIS 2040 Multimodal Unfunded Needs Plan, however, roadway widening of US 27 from four to six lanes is proposed in Hendry County between CR 720 and SR 80 (2015-2020) and between the Palm Beach/Hendry County line and CR 720 (2021-2030). As future ILC



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developments occur in these areas, however, additional study may be needed to understand impacts on the statewide freight network resulting from implementation of these facilities. Moving towards the center of the corridor near Lake Placid in Highlands County (near US 98), the roadway exhibits LOS D and is expected to reach LOS F through 2035 without capacity improvements or other alternatives to alleviate traffic in this area.

The continued explosion of development in Polk, Lake, and Sumter Counties from south of I-4 and north into Marion County are anticipated to create failing LOS conditions throughout this portion of the corridor, even with six lane widening projects. Within Polk County, continued growth and development along with intermodal freight plans and proximity to I-4 are anticipated to create increasing demands on the US 27 Corridor into the future. FDOT District 1 is working to address these needs through capacity projects and development of the Central Polk Parkway Study (CPP), which may help to alleviate some traffic from US 27.

In addition, in South Lake County near the Four Corners area, economic development sector plans are underway for a proposed "Health and Wellness Way" Corridor that would include over 16,000 acres located in the "Golden Triangle," inside of I-4, Florida's Turnpike, and US 27. This corridor is planned as a regionally significant employment center is anticipated to complement Medical City economic development in Orange County as well as serving the master planned Horizon's West Community due east of the corridor in Orange County. These plans may have a significant impact on traffic needs into the future.

Within Lake, Sumter, and Marion Counties, growth and development of The Villages Retirement Community poses unique traffic challenges. During the peak season of November through May, the population of The Villages nearly doubles and US 27 experiences seasonal congested traffic conditions. A number of demographic factors make this area unique from a transportation perspective. Given the majority of local road users are retired, traditional peak and off peak hours for traffic do not necessarily apply in this area and traffic safety issues related to older drivers are of particular concern. Widening of US 27 is also limited to six lanes by MPO lane constraint policies in Lake County, meaning that other options besides widening in this area will need to be considered to address increased congestion.

Marion County roadway widening may also be limited by a series of plans for the US 27 Corridor in this area. Although a specific policy is not in place for maximum lanes within Marion County at this time, the Marion/Ocala TPO has initiated a study to review the potential for reducing all or portions of the six lane section of US 27 from CR 475 to NW 2nd Street to four lanes. This project was identified part of the City of Ocala's Vision 2035 Plan and has been incorporated into the TPO Priority Project List.



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Finally, it is important to note that US 27 converges with US 441 in Lake County as well as US 301 in Marion County. These areas of convergence are heavy traffic generators and enhance traffic needs in these locations.

Potential Benefits and Drawbacks

Adding capacity to US 27 is reached by the construction of through lanes, along with operational improvements like adding or modifying median openings to improve traffic flow and safety. Through lanes may operate as general-purpose lanes or special use/managed lanes, a strategy discussed in a subsequent section of this chapter. Expanding highway capacity generally means widening and constructing at grade directional lanes and reducing existing median widths. Performance objectives for increased mobility benefits include the following:

- Reduced congestion;
- Reduced travel times;
- Decreased interference between “through traffic” and “short trips”;
- Improved emergency response;
- Improved freight flow; and,
- Increased connectivity.

Economic benefits include the following:

- Lowered production and distribution costs;
- Increased productivity;
- Jobs creation;
- Overall contribution to improving social welfare; and,
- Congestion reduction could decrease greenhouse gas emissions.

There are also a number of drawbacks to adding capacity to US 27, including:

- Potential high cost, especially in congested urban areas like Miami and Hialeah, where right-of-way will likely be required;
- Relocation or division of communities by acquisition of additional right-of-way;
- Reducing community cohesion between destinations along either side of the roadway;
- Reducing community safety and accessibility for bicyclists, pedestrians, and other alternative modes, especially near schools and other community destinations located along the corridor; and,
- Additional greenhouse gas (GHG) emissions from increased number of motor vehicles.



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5.3 New Location Corridors

This alternative involves building one or more entirely new roadway facilities to help reduce traffic congestion on US 27, facilitate emergency and security responses, and foster economic development. In some locations, growth and development pressures have created increased needs for regional connectivity and enhancing freight mobility to support economic development opportunities within the state. In these areas, new location corridors may be proposed to alleviate congestion and address the needs of the regional transportation network in a proactive manner.

Examples and Opportunities along the US 27 Corridor

Given the tremendous growth and development along and near the corridor in proximity to I-4 in Polk County, FDOT District 1 completed a study for the new Central Polk Parkway. The proposed parkway will extend from the Polk Parkway (SR 570) at SR 540 west of Winter Haven and looping through south central Polk County, as shown in **Figure 5-5**.

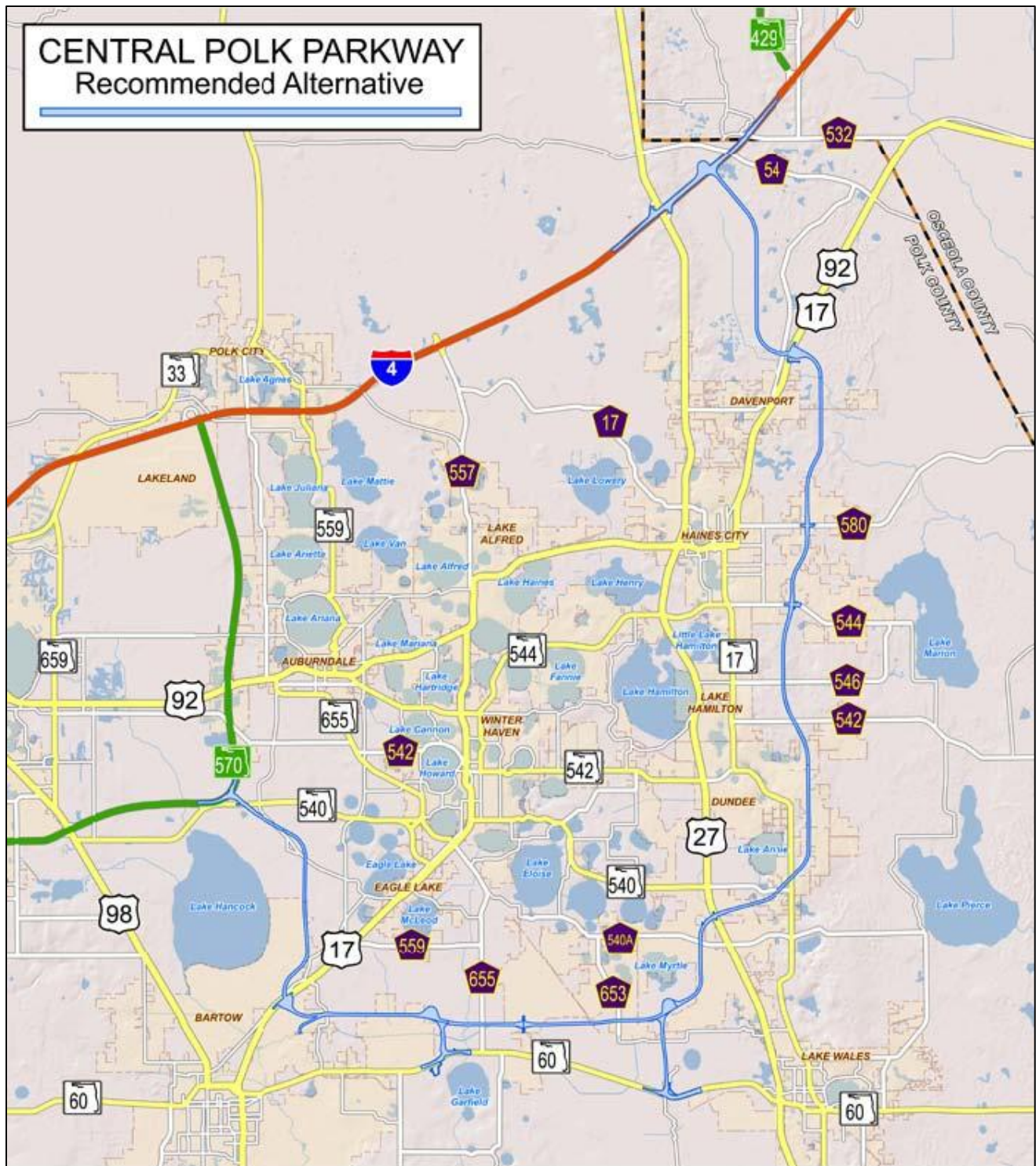
The purpose of the Central Polk Parkway study was to identify an environmentally sensitive preferred alternative for a new four lane limited access highway. The objective of the new facility is to provide an additional north-south facility to enhance mobility and increase accessibility on the regional roadway network and also improve emergency evacuation and response times. The addition of another north-south facility to the network is anticipated to reduce traffic congestion, including truck traffic, on several corridors in central Polk County, particularly parallel facilities such as U.S. 98, U.S. 17 and U.S. 27. The Central Polk Parkway is being planned to support the increased travel demands expected from the continued residential and employment growth projected within the County and throughout the entire region.

This new roadway will also connect with I-4 between US 27 in Polk County and SR 429 in Osceola County. This I-4 interchange is currently going through the Interchange Access Review process to narrow down the alternative locations. The locations identified will be submitted as an Interchange Modification Report (IMR) or Interchange Justification Report (IJR). This will be followed by the PD&E process to determine the proposed final interchange location. A map of the proposed I-4 interchange with the proposed new facility is shown in **Figure 5-6**.



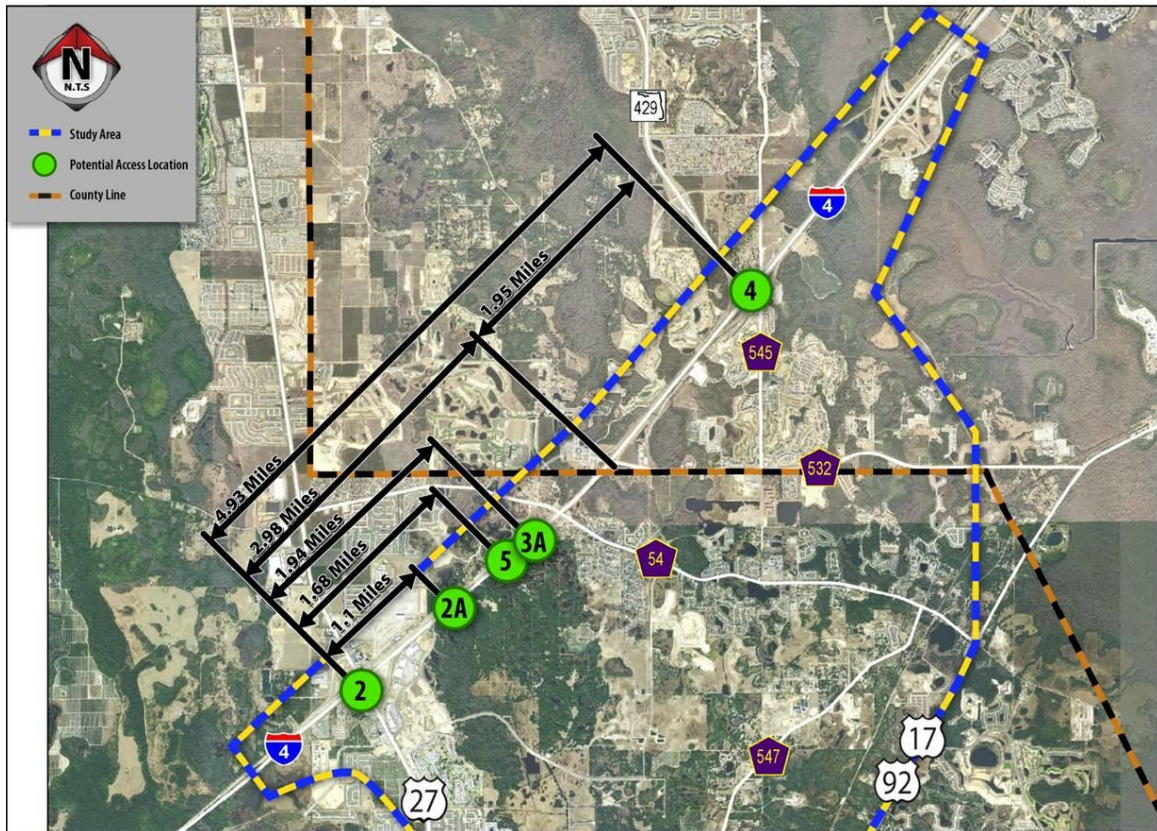
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Figure 5-5: Central Polk Parkway



Source: FDOT, I-4 Interchange at Central Polk Parkway Website, Retrieved September 2012.

Figure 5-6: I-4 Interchange with Central Polk Parkway



Source: Florida Department of Transportation District 1, Presentation to District Interchange Committee, July 2012.

Potential Benefits and Drawbacks

Developing new location corridors to US 27 certainly provides many benefits in terms of both mobility and emergency management. These benefits include the following:

- Overall reduction in congestion and vehicle hours traveled (VHT) on the transportation network as a whole, as a new location roadway provides additional capacity and circulation options. In terms of US 27, new location corridors like Central Polk Parkway could provide alternatives for moving freight and people in the region;
- Vehicle operating cost savings can be realized if the new location corridor provides a reduction in vehicle miles traveled by providing shorter, more direct connections between origins and destinations;
- Improves emergency management by providing an alternate route to US 27 and additional options for local trips to begin the evacuation process, such as the connectivity to other regional facilities;



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- Provides safety benefits for US 27, such as a reduction in congestion along a corridor, resulting in a corresponding reduction in incidents; and,
- Economic development benefits occur as a new location corridor opens given the additional land it provides for development of new businesses and residential neighborhoods. In addition, developers typically partner with governmental agencies on the costs associated with development of the new corridors as they may be mutually beneficial.

Along with the potential benefits are a few drawbacks, including the following:

- There are large capital and maintenance costs associated with development of new location corridors, and development of these corridors is typically a long process;
- In urban areas, limited or no options exist for locations of new corridors, without major impacts to existing land uses;
- New Corridors typically result in urban sprawl and create new environmental and community impacts
- Historically, increases in demand for highway facilities have continued over time, which may make congestion reduction along the US 27 Corridor only temporary in nature; and,
- Limited funds are available in transportation budgets, making the competition for those funds very strong. New arterial corridors are typically local government investments in response to development/land use patterns.

Building a new location corridor has direct impacts to mobility on any part of the corridor, whether urban or rural in nature. In urban areas, the travel time savings due to higher speeds and fewer intersections would allow for greater access to destinations. In rural areas a new facility would expand the transportation network and provide access to entirely new destinations. However, the greatest impacts would likely be felt in areas with shorter travel patterns. Additional facilities best serve regional and local patterns, and do not necessarily translate to relieving interregional travel along US 27.



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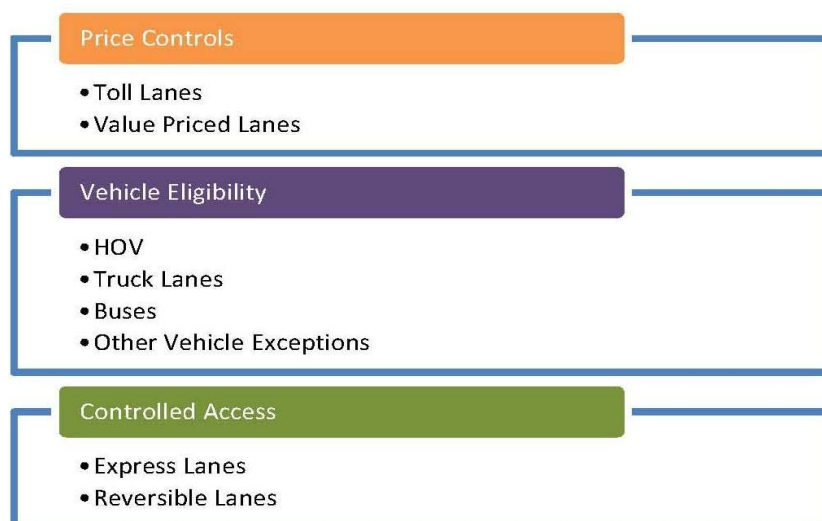
5.4 Managed Lanes

Managed lanes, as defined by FDOT, are highway facilities or sets of lanes within an existing highway facility where operational strategies are proactively implemented and managed in response to changing conditions with a combination of tools. These tools may include accessibility, vehicle eligibility, pricing, or a combination thereof. Types of managed lanes, which include high occupancy vehicle (HOV) lanes, high occupancy toll (HOT) lanes, and truck only lanes, generally involve the development of dedicated lanes along the interstate highway reserved for a specific use. The goal of managed lanes is to aid in alleviating congestion, improve safety conditions, and enhance mobility in a more cost efficient manner but still maintaining the integrity of the US 27 Corridor. Managed lane concepts include the following:

1. **Express Lanes** are a type of managed lane that uses access and vehicle eligibility requirements in combination with congestion pricing. The pricing manages the congestion in these lanes by ensuring trip time reliability at a certain speed threshold.

Express lanes are lanes created to help relieve congestion in the general-purpose lanes and improve travel time reliability. They are proactively managed in response to changing conditions to reach the desired outcome. Three broad application types encompass many individual strategies. Those application types include price controls, vehicle eligibility, and controlled access. The figure below outlines each application and associated managed lane type.

Figure 5-7: Express Lane Types



Source: Florida Department of Transportation Systems Planning Office, June 2010.



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- **Price Controls** utilize either traditional tolling methods or variable tolls, which adjust in response to demand or congestion (e.g. peak charge, off-peak discounts).
 - **Vehicle Eligibility** is managed to allow certain vehicles access while restricting others. Examples would be high occupancy vehicles, buses, Inherently Low Emissions Vehicles (ILEVs), or emergency response vehicles.
 - **Controlled Access** allows all vehicles but minimizes access points. One example is limited access express lanes which improve the flow of traffic by minimizing the weaving maneuvers of vehicles by bypassing multiple interchanges. A second example would be ramp metering, which controls the flow of traffic entering a facility allowing a fluid traffic flow.
2. **Reversible lanes** are lanes in which traffic may travel in either direction depending on traffic conditions and time of day. Typically, they are meant to improve traffic flow in the peak direction of traffic during both the morning and afternoon rush hours. This is accomplished by daily phasing in of traffic to the reversible lane using overhead message boards, special signing, traffic control safety devices (signal lights, gates, vehicle restraints, etc.) on a regularly scheduled daily time interval. Reversible lanes are designed to reverse direction to handle peak travel times. Peak hours are normally considered between the hours of 6 a.m. and 9 a.m. and 3 p.m. and 6 p.m. Reversible lanes are typically operational, during time blocks. For example, 5 a.m. to 11 a.m. peak direction and 2 p.m. to 8 p.m. peak direction. The lanes would be open for both directions in off-peak times or not open at all, depending on travel demand needs for the adjacent general purpose lanes.
3. **High Occupancy Vehicle (HOV), High Occupancy Toll (HOT), Value Priced Lanes, and Dedicated Bus Lanes** are specific types of special use lanes. HOV lanes or carpooling lanes are reserved for vehicles with a driver and one or more passengers. HOV lanes may either be designated simply by diamond markings, double-white line striping, or separated by a physical barrier. HOT lanes give single occupancy motorists access to HOV lanes by paying a toll; however, "toll lanes" can be in combination with most of the other special use lanes. Typically, the tolls are variable depending on time of day and traffic conditions. Value priced lanes are price-controlled by offering higher tolls during the peak travel times and discounted tolls during the off-peak travel time periods. Dedicated bus lanes are provided for the exclusive use of bus and transit vehicles to improve reliability and travel times of buses.



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In addition to these types of managed lanes, *truck-only lanes* are another form of managed lane concepts available. Because these are more related to freight mobility management, this strategy is discussed in further detail in **Chapter 4** which deals more specifically with freight focused alternatives.

Examples and Opportunities along the US 27 Corridor

Currently, no managed lanes programs are proposed within the US 27 Corridor. FDOT has typically utilized these types of concepts along congested interstates and expressways. Within the corridor, for instance, US 27 intersects with the Palmetto Expressway (SR 826). Managed lanes are being considered along Palmetto Expressway to address congestion along this roadway. Currently, volumes along the US 27 Corridor do not support investment of these types of options. However, as FDOT attempts to address transportation needs and congestions in a proactive manner, a review of all available strategies and concepts is required. Given the number of freight and population growth scenarios within various portions of the corridor, these strategies may be explored in tandem with other options to proactively address needs arising from increased development in the corridor. The context for these types of improvements will be key to identifying areas of the corridor where this option may be feasible and where it is neither feasible nor desirable for the surrounding community development. Given the existing development in a number of areas, these strategies may be deemed inappropriate to the context of the community. At the same time, developing managed or toll lanes along parallel and new roadways may also be utilized to help reduce costs for these facilities and provide alternative transportation options.

It should be noted that FDOT is currently developing a statewide express lanes policy which would serve as a guide for implementation of express lanes on limited access facilities in the state. The policy will include guidance on identification, prioritization, and implementation (funding options) of express lanes. This initial process will include the mapping and prioritizing of planned limited access highway capacity improvements to be evaluated for the feasibility of implementing lanes. The policy will also include the identification of the lead entity responsibility for future feasibility studies.

Potential Benefits and Drawbacks

Depending upon the type of managed lane concepts employed, a variety of benefits and drawbacks can result. Some of the noted benefits and drawbacks from implementation of each of these types of managed lane concepts and summarized below.



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Express Lanes

Benefits of Express Lanes include:

- Express lanes offer opportunities to reduce congestion, create more travel options, and support the use transit;
- The congestion pricing management strategy allows the price of the toll to change in response to the level of congestion and can be used to manage demand and generate revenue for operations and maintenance of the lanes and associated transit; and,
- The pricing strategy also promotes emission reduction and encourages a reduction in vehicle miles traveled (VMT).

Drawbacks of Express Lanes are:

- Funding express lane development may be challenging in the present economic climate with many agencies and local governments struggling with a severe transportation funding crisis;
- Works best in areas where there is no development along the roadway that would impede traffic flows;
- Need for additional entrance and exits to accommodate safe in and outflow of traffic along the US 27 Corridor; and
- Needs to be developed away from smaller community areas along the corridor where safety and community development visions may be compromised.

Reversible Lanes

Tampa's Crosstown Expressway is an example of Reversible Express Lanes (REL) employed in Florida. Opened to motorists in July 2006, the Crosstown Expressway combines the innovations of concrete segmental bridges, reversible express lanes, cashless open-road tolling, and full electronic controls. It provides three lanes toward Tampa in the morning peak and three lanes out of Tampa and into the suburbs of Brandon in the afternoon peak. Reversible lanes provide benefits to both mobility and economic development, as noted in Tampa. Identified benefits include the following:

- Good alternative when highway widening is neither physically nor financially feasible;
- In the case of Tampa, REL constructed within the existing right-of-way of the Lee Roy Selmon Crosstown Expressway;
- Technological innovations, including cashless road tolling at free-flow speeds and video toll collection; and,
- Accommodated continued development growth in both Tampa and Brandon when widening would not have been possible.



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A drawback to implementation of reversible lanes is the potential for confusion and need to educate drivers on a controlled access facility such as US 27. Safety is of particular concern, and special considerations would be needed for implementation along the US 27 Corridor.

HOV/HOT Lanes

Potential benefits of implementation of HOV or HOT lane concepts include:

- Encourages carpooling and vanpooling, as the HOV/HOT lane provides an incentive to share rides. This in turn provides environmental benefits relating to reduced fuel consumption and fewer emissions;
- Maximizes use of existing highway capacity; and,
- Dynamic pricing strategy can be used to manage demand and generate revenue.

Drawbacks include:

- Works best in areas of free flow where there is no development along the roadway to impede traffic flows;
- Need for additional entrance and exits to accommodate safe in and outflow of traffic along the US 27 Corridor;
- Needs to be developed away from smaller community areas along the corridor where safety and community development visions may be compromised.



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Chapter 6 – Policy Implications

The Florida Transportation Plan (FTP), Horizon 2060, is the state's long range transportation plan. The FTP identifies the goals, objectives, and strategies to guide transportation decisions and addresses how Florida's transportation system can meet the mobility needs of our growing population, help make our economy more competitive, help build great communities, and help preserve our natural environment. Through the identification of identified alternative options, several policy implications emerged for consideration in conjunction with the implementation of alternatives and in light of the goals, objectives and strategies included in the FTP. These policy implications can be summarized in six major policy initiatives:

- Achieving a Context Sensitive Solutions Approach
- Enhancing Public and Interregional Coordination
- Strengthening the Land Use and Transportation Connection
- Providing Modal Options
- Providing a Safe and Secure Transportation System
- Securing Funding

The policy implications identified in relation to the US 27 Corridor are consistent with the goals and objectives of the FTP and are summarized in the following sections.

6.1 Developing Context-Sensitive Solutions

The term "context-sensitive solutions" has taken on a variety of meanings over time, but is most accurately defined as follows:¹

Context sensitive solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.

A CSS approach is guided by four core principles:

1. Strive towards a shared stakeholder vision to provide a basis for decisions.
2. Demonstrate a comprehensive understanding of contexts.
3. Foster continuing communication and collaboration to achieve consensus.
4. Exercise flexibility and creativity to shape effective transportation solutions, while preserving and enhancing community and natural environments.

In 2009, the National Cooperative Highway Research Program (NCHRP) worked to expand these core principles to 15 distinct and actionable principles to guide CSS

¹ FHWA, *Results of Joint AASHTO/FHWA Context Sensitive Solutions Strategic Planning Process*, March 2007.



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projects, and may become the basis for developing quantitative performance measures:²

1. Use interdisciplinary teams.
2. Involve stakeholders.
3. Seek broad-based public involvement.
4. Use full range of communication strategies.
5. Achieve consensus on purpose and need.
6. Address alternatives and all modes.
7. Consider a safe facility for users and community.
8. Maintain environmental harmony.
9. Address community and social issues.
10. Address aesthetic treatments and enhancements.
11. Utilize full range of design choices.
12. Document project decisions.
13. Track and meet all commitments.
14. Use agency resources effectively.
15. Create a lasting value for the community.

In support of these federal policies and principles, FDOT has also provided statewide guidance related to context sensitive solutions, stating that: "It is the policy of the Department to consider Transportation Design for Livable Communities (TDLC) features on the State Highway System when such features are desired, appropriate and feasible. This involves providing a balance between mobility and livability." FDOT's policy identifies the following features of context sensitive design considerations:

1. Safety of pedestrians, bicyclists, motorists and public transit users
2. Balancing community values and mobility needs
3. Efficient use of energy resources
4. Protection of the natural and man-made environment
5. Coordinated land use and transportation planning
6. Local and state economic development goals
7. Complementing and enhancing existing Department standards, systems and processes

The state and federal policies on CSS is more expansive than environmental or any other specific planning area, and may be understood as an overall process that incorporates considerations for the natural and community environments, public involvement, and active communication processes to create a shared vision that

² NCHRP, *Quantifying the Benefits of Context Sensitive Solutions*, 2009.



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can be supported. This approach will be necessary for successfully implementing changes within this diverse corridor.

This study provides the starting point for this CSS approach. In assessing the travel demands of people and goods moving along the US 27 Corridor against five measures of transportation, freight movement, emergency management, homeland security and economic development, a comprehensive framework for identifying needs was formulated for the US 27 Corridor. Field visits and additional outreach with state and regional agency partners through this study provided key insights into corridor needs and potential alternatives. From these study processes, a comprehensive context was developed, including meeting community vitality, freight needs, and regional capacity needs through a variety of options. Incorporating these focus areas will require enhanced public and stakeholder coordination to further develop a shared vision for the US 27 Corridor.

From a policy standpoint, the CSS principles also lay a foundation for maximizing investments in the US 27 Corridor. The outcomes of this CSS approach create lasting value for communities, the environment and the corridor transportation system, and substantiate the most effective and efficient allocation of state resources. These principles also provide important performance based mechanisms for monitoring progress of SIS improvements along the US 27 Corridor. With recent federal transportation bill changes focused on performance-based management systems, this could provide an invaluable tool for measuring progress in a consistent and quantitative manner.

6.2 Enhancing Interregional Coordination

A key ingredient of the CSS approach to corridor planning is an active and ongoing public involvement process which creates a holistic vision for the US 27 Corridor. This US 27 Transportation Alternatives Study provided coordination and consultation with statewide agencies and organizations throughout the state and from a wide variety of disciplines as a first step in meeting this need. Coordination with regional and local governments was also solicited through FDOT District coordination with their regional and local agency partners. As future phases of study move forward for the US 27 Corridor, extended public and agency outreach techniques will be essential to implementation of this approach.

While some alternatives may be developed locally or regionally to serve a specific purpose, the alternatives identified within this report have been outlined to integrate solutions and form a complete, effective and efficient transportation system. This integration will require a high level of coordination among all of the planning and implementing agencies. The State of Florida should promote growth leadership through regional visioning initiatives. Regional visioning efforts engage experts and the public in a process to establish transportation and community



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development goals for a specified point in the future. These efforts are in line with a proactive, systems-based approach to growth leadership.

Currently, metropolitan planning organizations (MPOs) serve to coordinate the local transportation network throughout their metropolitan area. In areas outside MPO boundaries, such as Hendry, Glades and Highlands Counties, FDOT coordinates directly with the County. MPOs act in cooperation with FDOT to coordinate projects and to meet statutory provisions. A mechanism does exist for coordinating all MPOs. However, the development of some of the alternative options for the US 27 Corridor, such as passenger rail service, would require coordination at a higher level. Coordination with traditional partners, such as FDOT, Federal Highway Administration (FHWA), the Federal Transit Administration (FTA) or the Federal Railroad Administration (FRA) will continue, and other partners, such as the Division of Emergency Management (DEM) and Florida Department of Law Enforcement (FDLE), should also be included in coordination efforts along the US 27 Corridor.

Developing a greater understanding of the importance of connectivity between rural and urban areas is also important to meeting rural challenges in the corridor. Intense urbanization of Florida's coastal areas and the location of the Everglades within the study area in South Florida contribute to environmental challenges in South Florida and additional conservation pressures in rural Florida. Growth management regulations and preservation initiatives can challenge the success of rural development plans. Internal connectivity among rural areas may provide opportunities for coordinated economic development. Improved personal mobility can also enhance economic development by expanding access, improving individual's employment opportunities, and supporting increased commercial activity.

It is important to note this study is a first a step in the early planning process for the US 27 Corridor. As efforts advance and specific recommendations are made for advancement, the study will progress through the federal National Environmental Policy Act (NEPA) as described in the FDOT PD&E Manual. The beginning step would be for qualifying project(s) resulting from studies to be screened through FDOT's Efficient Transportation Decision Making Process (ETDM) as a means of scoping the potential effects of the project as well as to facilitate coordination with the various federal and state resource permitting agencies in Florida. Studies and actions taken, such as this study, will be used to inform each subsequent step in the process as projects advance.



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6.3 Strengthening the Land Use-Transportation Connection

The relationship between land use and transportation is reciprocal — land use creates a demand for transportation facilities and transportation facilities support economic development generating additional demand. As a result, it is important to continue to strengthen the linkages between land use and transportation planning. Land use decisions, such as where to develop new residential neighborhoods or locate new shopping centers or schools, have significant impacts on the US 27 Corridor and are typically made by local governments. Alternatives presented in this report, such as active access management plans, provide some mechanism for bridging the gap between land use and transportation in the US 27 Corridor.

Active access management plans provide one opportunity for connecting land use and transportation in a way that changes the traditional land use-transportation cycle, improves overall efficiency and safety in the corridor, and has the potential for local economic development by supporting greater nodal development. To do this, access management must consider and incorporate all modes of transportation, carefully consider larger network connectivity issues for the SIS, and work with local and regional land use visions and plans. It must also balance access and mobility appropriately for differing area types within the corridor. The most effective access management plans combine land use and zoning options to help balance access and development needs with larger statewide mobility goals.

Ultimate control of access management and other land use objectives along the corridor falls to local and regional governments for implementation. However, FDOT may help to facilitate this coordinated approach through establishing guidelines that consider the unique growth and development conditions, and design considerations to be considered within the corridor. In areas without strong local planning provisions, these guidelines could help establish a mechanism for orderly management of the US 27 Corridor. In their most effective format, however, these guidelines would work in conjunction with local and regional plans and site specific plans to provide long-term strategies to reduce congestion, provide alternative transportation options, and improve air quality along the corridor.

Land use decisions also impact emergency management and homeland security efforts, as residential development location and density greatly impact emergency evacuation efforts. While local land use improvements are an important economic development mechanism, their development should also be balanced with emergency management needs. Appropriate local circulation and connectivity within local communities as well as connectivity to numerous regional transportation systems are important components to balance economic development with emergency management needs.



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Finally, local land use decisions should help to ensure the transportation system supports community livability and is implemented in an environmentally responsible manner. The FTP encourages conservation of natural resources and sustainable development patterns. The FTP also guides transportation investments at the local level to enhance the livability of Florida's communities, while transportation investments at the statewide or interregional level typically should be oriented towards mobility and economic competitiveness needs and should strive to minimize impacts on the built and natural environments.

6.4 Providing Modal Options

The ability to expand the US 27 Corridor is limited in some areas, particularly in Miami-Dade County, as build-out of the corridor in this area is generally complete and adjacent land uses generally prohibit the ability to expand the right of way. While corridor expansion options are appropriate in some areas and investments can clearly be made in relieving physical and operational bottlenecks, it is clear that investment in the US 27 Corridor should focus on a combination of alternatives to provide greater modal choices, both in terms of passenger and freight movements. FDOT and its agency partners are already working towards developing many of these options throughout the corridor. Examples include promotion of parallel freight rail facilities, regional transit and commuter service options, investigation of inland ports and other ILC facilities, and implementation of high speed rail service.

Modal options are also important from an emergency management standpoint. Enhanced transportation options will provide additional opportunities for an emergency evacuation or moving supplies into an area during recovery operations. For example, passenger rail options can provide additional capacity to move citizens out of a region, while freight rail track improvements can move supplies back into a region.

The development of park and rides, express bus services, and regional commuter services are also important in providing modal options. However, development densities are not great enough in less urbanized portions of the corridor to support some of these modal alternatives. New or improved corridors can help to address major gaps in connectivity and service, and can be leveraged over time to provide increased modal options in developing communities.

6.5 Providing a Safe and Secure Transportation System

Safety and security considerations must be integrated into any alternative considered for implementation in the US 27 Corridor. All aspects of transportation planning should address safety and security concerns during the development of alternatives, while at the same time continuing to improve passenger and freight mobility.



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Passenger safety and security is critical for successful implementation of new transportation alternatives, while the security of the US 27 corridor's freight transportation system is crucial for the continued economic development of the corridor.

Some of the alternatives within this report, such as transportation systems management alternatives, attempt to proactively address community safety concerns within the corridor. Real-time emergency response times along the corridor can also be improved by adding capacity to the US 27 Corridor and parallel corridors and by the development of new corridors. Policies that consider managed lanes and truck-only lanes can also promote reduced passenger vehicle and heavy truck conflicts. Finally, utilization of regional traveler information signs to inform travelers of transportation system updates can also be a significant aid to public safety along US 27.

It is important that transportation providers continue to help identify and deter security threats, effectively manage the transportation network during emergency evacuation events, and help minimize incident response times.

6.6 Securing Funding

Revenue for transportation expenditures is generated from multiple sources. While there are many categories of funding sources available, funds generally come from the following generalized sources:

- State Funds:
 - Fuel tax (gasoline, diesel, aviation fuel);
 - Fees (initial registration, tag, rental car surcharge); and,
 - Documentary stamp revenue.
- Federal Funds
 - Highways (Federal gas tax – distributed to states); and,
 - Transit (funds distributed to providers)
- Other Funds
 - Turnpike and Tolls;
 - Bonds; and
 - Local Revenues (local motor fuel taxes, local option sales taxes and other sources).

Funding the development of alternatives along the US 27 Corridor will be challenging in the present economic climate, as State and local governments struggle with a transportation funding shortfall. During the 2012 Florida Legislative Session, the transportation bill passed by the Florida Legislature (HB 599/SB 1998)



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which includes new funding opportunities and programs of regional interest, including the following:

- Redirects a portion of title fees from the General Revenue Fund to the State Transportation Trust Fund, resulting in \$200 million of new revenue for transportation. Beginning in Fiscal Year 2013-2014, these revenues will be allocated as follows:
 - \$10 million for the Seaport Investment Program;
 - \$35 million for Turnpike Enterprise;
 - \$10 million for the Transportation Disadvantaged Program;
 - \$10 million for the Small County Outreach Program;
 - \$135 million for Strategic Transportation Projects.
- Repeals the Toll Facility Revolving Trust Fund and transfers those revenues and future revenues to the State Transportation Trust Fund;
- Repeals the transfer of \$5 million annually from the Highway Safety Operating Trust Fund to the Transportation Disadvantaged Trust Fund;
- Creates the Strategic Port Investment Initiative, which directs \$35 million annually towards seaport improvement projects; and,
- Creates the Intermodal Logistics Center Infrastructure Support Program which allocates \$5 million per year towards eligible projects.

A number of alternatives presented for the US 27 Corridor, such as access management and transportation systems management options, are low cost policy or operational improvements that may serve to maximize the investment in the existing transportation infrastructure along US 27. Other US 27 alternative options, like managed lanes, generate revenue from user fees. However, the revenue is not usually sufficient to cover more than the operating and maintenance costs. Significant initial investments are typically required for development of new systems and major modifications to existing systems. Additional funding appropriations may be required to support a consistent and connected system throughout the state as well. Freight oriented alternatives, in particular, may have significant positive impacts to economic development within the state and should continue to be pursued. Policies and initiatives to support development of planned intermodal logistics centers (ILCs) and parallel freight rail corridors may have a lasting return on investment for the state.

This massive level of need dictates that Florida must continue to fund and support the transportation trust fund which in turn will foster job-creating connectivity



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projects. Additionally, new means of funding major improvements must be explored. One of these new means is the new federal transportation bill, Moving Ahead for Progress in the 21st Century (MAP-21), which replaces the current Surface Transportation Program. MAP-21 extends the current SAFETEA-LU through the remainder of fiscal year (FY) 2012 and will provide over \$105 billion in funding for FY 2013 and FY 2014. The new federal bill, signed into law on July 6, 2012, will look to streamline the process for improving the safety, maintenance of existing infrastructure, reducing traffic congestion, improving efficiency of the transportation system and freight movement, protecting the environment, and reducing delays in project delivery.



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Chapter 7 – Summary of Alternatives and Policy Implications

7.1 Alternatives Summary

FDOT's Systems Planning Office is tasked with implementing the strategic intermodal system (SIS) in the state, which includes US 27, and to provide guidance and policies in implementing the SIS. The overall purpose of the SIS is to improve mobility for residents, businesses, and visitors and to enhance economic competitiveness in the state. Studies such as this one help to provide a systematic and strategic view of the state's SIS facilities, expanding on corridor and district level plans to provide a greater cohesive narrative that can help prioritize investments to best address mobility and economic vitality at a statewide level. One of the great challenges posed by such a task, however, is balancing overall transportation network connectivity needs across the state and within the corridor with emerging growth patterns, community visions, and the new opportunities growth brings to an area to support local economic development and regional vitality.

Stretching over 300 miles in length and traversing ten counties and four FDOT Districts, the landscape of the US 27 Corridor is as diverse as the state itself. As part of the alternatives identification process, extensive outreach was undertaken with FDOT District Staff and other statewide agency partners to provide a comprehensive view of the needs within the US 27 Corridor. This process included field visits and coordination meetings with FDOT District staff and their local partners. What became clear through this outreach was the need to integrate alternatives as part of more strategic and context-sensitive strategies to effectively *balance* the needs of passenger and freight mobility with community and regional visions for economic growth. While numerous alternative transportation options for improving mobility, emergency and security response, and economic development from varying perspectives are identified throughout this report, it should be noted that specific projects or solutions for implementation are not recommended in this study.

An effective, well thought out integration of strategies has the potential to make the US 27 Corridor a vibrant place to live, work and travel. The implementation of alternative strategies should therefore not be viewed as one size fits all solutions, but with the view to incorporate a multitude of strategies that best balance the mobility needs of people and freight and foster regional and statewide connectivity and economic opportunities throughout the corridor. With this context-sensitive study approach in mind, alternatives were developed based on three distinct focus areas: community vitality, freight, and regional capacity strategies. A summary of these alternatives by type is shown in **Table 7-1**.



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Table 7-1: Identified US 27 Corridor Alternatives

Community Vitality Focused Alternatives	Freight Focused Alternatives	Regional Capacity Focused Alternatives
<ul style="list-style-type: none"> • Access Management • Other Transportation Systems Management • Tourist-Oriented Directional Signs • Interregional Transit and Commuter Services • Parallel Relievers 	<ul style="list-style-type: none"> • Parallel Freight Rail • Inland Ports • Intermodal Logistics Centers (ILCs) • Improved Integration with Connecting SIS Facilities • Truck-Only Lanes 	<ul style="list-style-type: none"> • Passenger Rail • Add Capacity to US 27 • New Location Corridors • Managed Lanes

- Community Vitality Alternatives** - The community vitality focused alternatives represent a number of transportation systems management and operation (TSM&O) and transportation demand management (TDM) strategies for improving the US 27 Corridor. These techniques focus primarily on maximizing the existing investment in the transportation network, and can be best utilized in areas along the corridor where community growth and development have led to more complex local and regional travel demands, and joint land use and transportation goals to enhance economic vitality. In many cases, these options provide low-cost alternatives to capacity improvements and can provide short-term positive enhancements to the transportation network which are better suited to meeting community needs in the corridor. In some cases, consideration for higher cost alternatives, such as local reliever improvements, may be appropriate given current conditions, right-of-way availability, and local development.
- Freight Focused Alternatives** - The freight focused alternatives represent a number of existing, planned and potential strategies for improving freight movements along the US 27 Corridor to meet statewide goals. These techniques focus primarily on maximizing freight opportunities and demands along the corridor, and can be best utilized in areas where freight improvements and investments will best serve economic vitality throughout the state and provide enhanced options for distribution along the SIS. There are a number of initiatives already underway in the corridor to improve freight connections, such as providing freight rail alternatives and development of a number of ILCs.



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- **Regional Capacity Focused Alternatives** – The regional capacity focused alternatives represent a number of alternatives to maximize total throughput for people and goods, regardless of mode. While both the community vitality and freight focused alternatives also focus on maximizing the efficiency and effectiveness of the transportation network, the regional capacity strategies represent options to move *more* people in a proactive manner along the corridor in response to increasing demands on the network over time.

Although distinct focus areas were chosen based on the diversity of needs identified in the corridor, it is understood that the effect of any of these strategies is expected to have an impact on the others. Effective management and planning for the US 27 Corridor will require a mix of these strategies to be employed, and should be developed in coordination with District plans and programs, Metropolitan Planning Organization (MPO) long range transportation plans (LRTPs) and regional visions, as well as local plans and policies.

7.1.1 Summary Evaluation of Alternatives

The overall purpose of this is to assess the travel demand from people and goods moving along the US 27 Corridor in the State of Florida against five measures: transportation, freight movements, emergency management, homeland security, and economic development. Improving mobility, freight movements, emergency and security response, and economic development on the US 27 Corridor can be accomplished using a variety of alternatives, as discussed throughout this report. All of the alternatives considered for implementation provide some positive impact in terms of mobility, freight movements, emergency management, homeland security, and economic development. Consistent with the method of evaluation used in previous Transportation Alternatives Studies (I-95 and I-75) and to provide a summary evaluation of the alternative options considered herein, information for each alternative was generalized to a rating scale based on its individual impact to the main goals of the study, with the degree of impact indicated by the number of symbols. A low impact strategy to each of the goal areas was ranked using one symbol, a medium degree of impact was ranked using two symbols and a high impact of the proposed strategy was ranked using three symbols. The degree of impact was determined using relative low, medium, and high impacts as follows:

- **Mobility** – All alternatives improve mobility in some form, either for passenger movements, freight movements, or a combination of the two. Three symbols indicate these alternatives have the largest positive impact to mobility in terms of improved traffic flow, reduced congestion, and modal choices. Two symbols indicate some reductions in congestion and increased modal choices, but not as large an impact as three symbols. One symbol indicates those alternatives with the smallest impact on improving mobility along the US 27 Corridor;



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- **Freight Movements** – Three symbols indicate that the alternative provides enhanced benefits for facilitating freight movements, such as improving efficiencies of freight movement. Two symbols indicate an alternative has some positive and some negative effects on freight movements. One symbol indicates the alternative will have a negligible impact on freight movements;
- **Emergency Response** – Three symbols indicate a positive impact to emergency response by providing additional capacity for evacuation efforts or improving communication for response efforts. Two symbols indicate some positive and some negative effects of the alternative with little overall change to emergency response. One symbol indicates the alternative will have a negligible effect on emergency response;
- **Homeland Security** – Three symbols indicate the alternative provides benefits to homeland security preparedness, such as increased communication or ability to respond to incidents. Two symbols indicate the alternative has some positive and some negative effects, while one symbol indicates the alternative will have a negligible impact on homeland security;
- **Economic Development** – All alternatives improve economic development to some degree, typically in terms of job creation, spurring new businesses or commercial developments, or a combination of factors. Three symbols indicate these alternatives have the largest positive impact to economic development within the US 27 study area, while two symbols indicate some increase in economic development activities, but not as large an impact as three symbols. One symbol indicates those alternatives with the smallest impact on economic development along the US 27 Corridor;
- **Affordability** – Three symbols indicate the alternative is highly affordable compared to other alternatives and generally costs significantly less than other alternatives. Two symbols indicate the alternative has a medium cost level, while one symbol indicates the alternative has significant cost issues and is likely expensive; and,
- **Ease of Implementation** – Three symbols indicate the alternative is easy to implement, with little or no right-of-way required, minimal environmental mitigation efforts, and can be completed within a few years time. Two symbols indicate the alternative takes longer to implement and may require some right-of-way, mitigation efforts, or longer to design and construct. One symbol indicates the alternative will take much longer to implement and will require coordinated efforts of various agencies and groups over a multiple year period.

The summary evaluation of alternatives is illustrated in **Table 7.2**.






































Chapter 7 – Summary of Alternatives and Policy Implications

Table 7-2: Summary of Impacts by Alternative Option

Alternative Type	Mobility	Freight Movements	Emergency Response	Homeland Security	Economic Development	Affordability	Ease of Implementation
Access Management							
Transportation Systems Mgmt and Operation							
Tourist-Oriented Directional Signs							
Interregional Transit and Commuter Services							
Parallel Relievers							
Parallel Freight Rail Corridors							
Inland Port Concepts							
Intermodal Logistics Centers (ILCs)							
Improved Integration with Connecting SIS Facilities							



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Alternative Type	Mobility	Freight Movements	Emergency Response	Homeland Security	Economic Development	Affordability	Ease of Implementation
Truck Only Lanes							
Passenger Rail Options							
Add Capacity to US 27							
New Location Corridors							
Managed Lanes							

Legend:*

- 1 Symbol = Low Ranking
- 2 Symbols = Medium Ranking
- 3 Symbols = High Ranking

*Please see text descriptions for further details on each of the seven categories.



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7.2 Policy Summary

Through the process of identifying the alternative options, several policy implications emerged for consideration in conjunction with the implementation of the alternatives. The six major policy initiatives and their relationship to the proposed alternatives are summarized below:

- **Achieving a Context Sensitive Approach**
 - Context sensitive solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions;
 - CSS is guided by core principles that allow for the development of quantifiable and action-oriented performance measures. With recent federal transportation bill changes focused on performance-based management systems, these performance measures could provide an invaluable tool for measuring progress as this study develops through future phases in a consistent and quantitative manner;
 - This study provides the starting point for a CSS approach to project development. From these study processes, a comprehensive context was developed, including meeting community vitality, freight needs, and regional capacity needs through a variety of options. Incorporating these focus areas will require enhanced public and stakeholder coordination to further develop a shared vision for the US 27 Corridor.
- **Enhancing Public and Interregional Coordination**
 - This US 27 Transportation Alternatives Study provided coordination and consultation with statewide agencies and organizations throughout the state and from a wide variety of disciplines as a first step in meeting this need. As future phases of study move forward for the US 27 Corridor, extended public and agency outreach techniques will be essential to implementation of this approach;
 - The State of Florida should promote growth leadership through regional visioning initiatives. Regional visioning efforts engage experts and the public in a process to establish transportation and community development goals for a specified point in the future. These efforts are in line with a proactive, systems-based approach to growth leadership;



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- Developing a greater understanding of the importance of connectivity between rural and urban areas is also important to meeting rural challenges in the corridor. In particular, internal connectivity among rural areas may provide opportunities for coordinated economic development. Improved personal mobility can also enhance economic development by expanding access, improving employment opportunities, and supporting increased commercial activity;
- As efforts advance and specific projects are identified for advancement, the qualifying projects will progress through the FDOT environmental (ETDM) process for screening and agency scoping for input. Once a project(s) advances into the PD&E phase, project(s) will likely proceed through the federal National Environmental Policy Act (NEPA) process.

• **Strengthening the Land Use and Transportation Connection**

- Active access management plans provide one potential opportunity for connecting land use and transportation in a way that changes the traditional land use-transportation cycle, improves overall efficiency and safety in the corridor, and has the potential for local economic development by supporting greater nodal development;
- Ultimate control of access management and other land use objectives along the corridor falls to local and regional governments for implementation. However, FDOT may help to facilitate this coordinated approach through establishing guidelines on the SIS that consider unique growth and development conditions, as well as design considerations to be considered within the corridor;
- Land use and transportation development should also be balanced with emergency management needs. Appropriate local circulation and connectivity within local communities as well as connectivity to numerous regional transportation systems are important components to balance economic development with emergency management needs;
- The Florida Transportation Plan (FTP) guides transportation investments at the local level to enhance the livability of Florida's communities, while transportation investments at the statewide or interregional level typically should be oriented towards mobility and economic competitiveness needs and should strive to minimize impacts on the built and natural environments.



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- **Providing Modal Options**

- While corridor expansion options are appropriate in some areas and investments can clearly be made in relieving physical and operational bottlenecks, it is clear that investment in the US 27 Corridor should focus on a combination of alternatives to provide greater modal choices, both in terms of passenger and freight movements;
- Enhanced transportation options will provide additional opportunities for an emergency evacuation or moving supplies into an area during recovery operations. For example, passenger rail options can provide additional capacity to move citizens out of a region, while freight rail track improvements can move supplies back into a region;
- Development of park and rides, express bus services, and regional commuter services are important in providing modal options, as development densities are not great enough in non-urbanized portions of the corridor to support some of the modal alternatives.

- **Providing a Safe and Secure Transportation System**

- Effective network management and coordination along the corridor can facilitate efficiency during emergency evacuation events and minimize incident response times;
- Real-time emergency response times along the corridor can be improved by adding capacity to the US 27 Corridor and parallel corridors and by the development of new corridors;
- Policies that consider managed lanes and truck-only lanes can promote reduced passenger vehicle and heavy truck conflicts; and,
- Utilization of regional traveler information signs to inform travelers of transportation system updates can also be a significant aid to public safety along US 27.

- **Securing Funding**

- A number of alternatives presented for the US 27 Corridor, such as access management and transportation systems management options, are low cost policy or operational improvements that may serve to maximize the investment in the existing transportation infrastructure along US 27;



Chapter 7 – Summary of Alternatives and Policy Implications

- Alternative options along the corridor such as managed lanes could generate revenue from user fees;
- Freight oriented alternatives, in particular, may have significant positive impacts to economic development within the state and should continue to be pursued. Policies and initiatives to support development of planned intermodal logistics centers (ILCs) and parallel freight rail corridors may have a lasting return on investment for the state.

The policy implications identified in relation to the US 27 Corridor are consistent with goals and objectives from the state's transportation plan, Horizon 2060.

7.3 Next Steps

The US 27 Transportation Alternatives Study is the first in a series of future planning efforts to provide connection to a wide variety of SIS facilities in the state and foster economic development along the corridor and within the state. This study provides preliminary information on the needs of the existing facility and a series of alternative strategies for improving US 27. This study will also help to inform the recently initiated statewide Freight Mobility and Trade Plan by providing preliminary information on planned and programmed freight related activities and needs along the corridor. As future phases of study progress for the US 27 Corridor, such as the state's Future Corridors Initiative, FDOT will continue to work with local, regional, and statewide partners to develop a shared vision for the future for the corridor.

The US 27 Transportation Alternatives Study consists of three main documents. This Alternative Options and Policy Implications Technical Memorandum is the second in the three-part series of documents in the development of the US 27 Transportation Alternatives Study. This document has identified numerous alternative options available for improving mobility, freight, emergency and security response, and economic development along the US 27 Corridor, along with the policy implications of implementing these alternatives. This document does not recommend specific projects or solutions for implementation, but rather presents a comprehensive list of alternative approaches within the 10 county study area. A final report document, titled the US 27 Transportation Alternatives Study, will summarize and conclude the full study by December 2012.



US 27 District Site Visit Summaries

July 2012



District 6 Site Visit

US 27 Transportation Alternatives Study

District 6 Site Visit

District 6 Offices - 1000 Northwest 111th Avenue, Miami, FL

Tuesday, July 17, 2012

I. Introductions

The US 27 Alternatives Study project team met with FDOT District 6 staff for a short morning coordination meeting and conducted a site visit on July 17, 2012. Attendees at the coordination meeting included: H. Walker (FDOT Central Office), Mike Plagens (CDM Smith), Jenifer Palmer (CDM Smith), Aileen Boucle (FDOT District 6), Dionne Richardson (FDOT District 6), and Paola Baez (FDOT District 6). Attendees were provided information on the status of this project and an opportunity to discuss important factors along the corridor prior to the site review. A site visit was subsequently conducted and included the following participants: H. Walker (FDOT Central Office), Mike Plagens (CDM Smith), Jenifer Palmer (CDM Smith), Dionne Richardson (FDOT District 6), Paola Baez (FDOT District 6), and Michael Laas (Gannett Fleming).

II. Coordination and Site Visit Notes

The following summary provides salient items related to the US 27 Corridor that were reviewed and discussed during the coordination and site visit of the US 27 Corridor. This information serves to verify the desktop analysis and supplement findings noted in Technical Memorandum 1, *Identification of Corridor Needs*. It will also serve to inform and provide the context for development of the US 27 Alternatives Study Technical Memorandum 2, *Transportation Alternatives and Policy Implications*. It was noted through these coordination meetings that the intention of this study is to provide an array of alternative options to be considered along the US 27 Corridor, and not provide specific recommendations for improvements.

- The study area boundaries within District 6 are (south to north) from the Miami-Dade/Broward County Line near I-95 to Biscayne Boulevard (US 1) in downtown Miami.
- The study area within District 6 contains a diverse mix of urban, industrial, and rural development. An elongated canal runs along the majority of the western portion of the corridor parallel to US 27. Particularly within the southeastern portions of the corridor, industrial and freight uses are predominant, with the Hialeah Rail Yard located near the center of the corridor. Residential development is intermixed and includes the areas of Medley, Hialeah Gardens, Hialeah, Miami Springs and Brownsville.

- The number of lanes fluctuates throughout the corridor, and signalization is sparse north of the intersection with Florida's Turnpike where the corridor is a six lane divided highway with significant available right of way. At the southern end of the corridor just south of the Turnpike and within the industrialized area, lane widths vary from four to six lanes and a parallel frontage road along the eastern portion of the corridor assists local and residential traffic adjacent to the corridor. Moving towards the central and northern portions of the corridor from LeJeune Road to I-95, lane widths vary from four lanes to two lanes in some sections with limited right of way and median spacing. From I-95 to Biscayne Boulevard (US 1), the roadway is primarily four lane, with additional turn lanes on either side of the roadway at several intersections. This area is significantly more urbanized in nature; right of way is severely constrained by development, and contains residential and commercial driveways that directly border the corridor.
- Along the southwestern portion of the corridor, short connector bridges provide access between the canal and US 27, connecting to a number of industrial developments along South River Drive. These connectors experience significant queuing given the large amount of freight movements and local traffic in this area. Signal time optimization may be considered at these bridges. In addition, South River Drive itself provides limited two lane access parallel to US 27, and experiences congestion and operational issues for effectively moving freight traffic out to US 27.
- Environmental justice and community concerns in the area include intermixed, older residential homes along the canal and adjacent to South River Drive. These residential homes are located directly adjacent to heavy freight and industrial uses. Mobile home parks and low income housing are also located along the corridor and access management may need to be reviewed in these areas.
- Near Miami Springs and Hialeah, the area becomes increasingly urban in nature with limited right of way and main streets containing commercial activities are located orthogonal to US 27 near Red Road and Royal Poinciana Boulevard. These streets provide a gateway to these communities, with a prominent community gateway landmark directly along US 27. Future land use plans in these areas may need to be reviewed to provide context sensitive solutions.
- In addition, a large pedestrian crossing bridge is located at the 74th Street Connector/Hialeah Expressway. The roadway slopes downward in this area, with US 27 tunneled on either side by support structures. No direct pedestrian access is provided in this area for safety reasons. A number of Metrorail stations are located near the corridor in the central/northern portions of the study area, with the Okeechobee Rail Station Southbound located directly adjacent to the corridor at the 74th Street Connector/Hialeah Expressway. Pedestrian traffic is also heavy near the MetroRail close to Northwest 27th Avenue.
- In the northern portion of the corridor, US 27 is directly adjacent to a number of activity centers. Locations noted included Jackson High School near 18th Street, the Social Security Administration Building near 12th Avenue, and Miami Jai Alai.

Activity and community centers in these areas will need to be further examined in reviewing appropriate alternative strategies in this portion of the corridor.

- The Design District, a revitalized mixed use neighborhood is located at the northern end of the corridor. In addition to a number of commercial and mixed use development, on street parking and limited bus lanes become available.
- From approximately Northwest 42nd Avenue to the southern terminus of the corridor at Biscayne Boulevard (US 1), US 27 parallels the Airport Expressway and intersects with I-95.
- With a concentration of industrial and freight uses along the southeastern portion of the corridor, freight movements are of primary interest in District 6. The southern portion of the corridor connects to major freight and shipping facilities: Florida's Turnpike, I-95, US 27, and a series of existing rail networks. Between 10 and 20 percent of traffic in these areas has been identified as carrying freight. In addition, the US 27 Corridor is within approximately two miles from the Port of Miami at its southern terminus.
- District 6 has recently prepared a scope of work for an Okeechobee Road/US 27 Freight Master Plan Study which could have significant impact on plans for the corridor. This study is proposed as a tiered planning study focusing on improving and developing components of Miami-Dade's rail network. The goals of the study are to increase intermodal freight efficiency by utilizing existing rail facilities, establish a separate freight corridor along US 27 to alleviate freight congestion along the FEC line and I-95, provide access to a potential Intermodal Logistics Centers (ILCs) proposed within District 4 (as part of their Interregional Transportation Infrastructure Needs (ITIN) and Planning and Conceptual Engineering (PACE) Study Efforts), and link Miami-Dade County's rail infrastructure to provide an alternative route to US 27 for moving freight traffic throughout the region.
- A PD&E Study has commenced between the Palmetto Expressway and the Miami-Dade/Broward County Line. Grade separated intersections are also being reviewed as part of this study. Study findings are not yet available.



District 4 Site Visit

US 27 Transportation Alternatives Study

District 4 Site Visit

District 4 Offices - 3400 West Commercial Boulevard, Ft. Lauderdale, FL

Tuesday, July 17, 2012

III. Introductions

The US 27 Alternatives Study project team met with FDOT District 4 staff for a short coordination meeting and conducted a site visit on July 17, 2012. Attendees at the coordination meeting included: H. Walker (FDOT Central Office), Mike Plagens (CDM Smith), Jenifer Palmer (CDM Smith), Miguel Vargas (FDOT District 4), Lisa Dykstra (FDOT District 4), Gus Schmidt (FDOT District 4), Amie Goddeau (FDOT District 4), David Bogardus (FDOT Planning Environmental Management, District 4), Chuck Deeb (T.Y. Lin) and Vikas Jain (T.Y. Lin). Attendees were provided information on the status of this project and an opportunity to discuss important factors along the corridor prior to the site review. Following this coordination meeting, a site visit was conducted. Participants in the site visit included: H. Walker (FDOT Central Office), Mike Plagens (CDM Smith), Jenifer Palmer (CDM Smith), Miguel Vargas (FDOT District 4), Lisa Dykstra (FDOT District 4), and Chuck Deeb (T.Y. Lin).

IV. Coordination and Site Visit Notes

The following summary provides salient items related to the US 27 Corridor that were reviewed and discussed during the coordination and site visit of the US 27 Corridor. This information serves to verify the desktop analysis and supplement findings noted in Technical Memorandum 1, *Identification of Corridor Needs*. It will also serve to inform and provide the context for development of the US 27 Alternatives Study Technical Memorandum 2, *Transportation Alternatives and Policy Implications*. It was noted through these coordination meetings that the intention of this study is to provide an array of alternative options to be considered along the US 27 Corridor, and not provide specific recommendations for improvements.

- The US 27 study area boundaries within District 4 are (south to north) from the Miami-Dade/Broward County Line to the Palm Beach/Hendry County Line. Most of the corridor within the District is free flow, with limited traffic signals. I-75 intersects with US 27 in central Broward County and provides access to the east coast and the four SIS seaports in Southeastern Florida: Port Everglades through I-75 and Port of Miami, Port of Palm Beach, and port of Ft. Pierce through connections along I-75 with I-95 and Florida's Turnpike.
- District 4 has undertaken a number of initiatives within the corridor which may have a significant impact on development of transportation alternatives. The

potential for Intermodal Logistics Centers (ILCs) and parallel rail corridors are being considered through District 4's Interregional Transportation Infrastructure Needs (ITIN) Study and Planning and Engineering (PACE) Study. The ITIN Study area includes US 27 in Districts 6, 4 and 1 and included multiple SIS roadways within multiple FDOT Districts. The PACE Study limits include the US 27 Corridor from north of the HEFT in District 6 to the Palm Beach/Hendry County line (District 4).

- The ITIN Study provides a review of three potential ILCs to facilitate efficient freight movements and utilizes scenario planning to investigate conditions should any or all of these ILCs be implemented. The three proposed ILCs are: South Florida Regional Intermodal Logistics Center (located just south of Lake Okeechobee near the Towns of South Bay and Belle Glade in Palm Beach County), Florida Inland Port (located in St. Lucie County near the St. Lucie/Martin County Line), and Americas Gateway Logistics Center (located on the western end of Lake Okeechobee in Glades County). The proposed Americas Gateway Logistics Center is located in District 1. These locations intersect a number of existing rail corridors.
- The PACE Study is currently in progress and is investigating the technical and economic feasibility of developing the US 27 Corridor to accommodate multimodal options, including rail and highway modes. The main objectives of the multimodal PACE Study are to investigate the feasibility of a potential rail by-pass to the west of the densely populated urban areas along the eastern seaboard, to identify conceptual engineering alternatives, and to conduct a preliminary assessment of the potential impact of the alternatives upon the surrounding environment. The study is also addressing the ultimate development of US 27 to accommodate future regional travel demand, in a manner consistent with Strategic Intermodal System (SIS) highway standards.
- District 4 and its consultants provided the project team with a number of study area maps and multimodal typical section materials developed for the PACE Study. Five study segments have been identified with the following general roadway characteristics:
 - Segment 1 from SR 826/Palmetto Exp. to HEFT:
 - 6LD Urban Arterial Class I
 - 65'-125' median, 150' ROW
 - 2010 AADT varies from 33,000 to 60,500
 - Segment 2 from HEFT to I-75:
 - 4LD Urban Uninterrupted Flow Hwy
 - 65'-135' median, 478' ROW
 - 2010 AADT varies from 17,900 to 19,800
 - Segment 3 from I-75 to Palm Beach County Line:
 - 4LD Rural Uninterrupted Flow Hwy
 - 65' median, ROW varies 231' –285'
 - 2010 AADT is 9,600

- Segment 4 from Palm Beach County Line to South Bay:
 - 4LD Rural Uninterrupted Flow Hwy
 - 65' –31' median, 255' ROW
 - 2010 AADT is 9,600
- Segment 5 from South Bay to Hendry County Line:
 - 4LD Rural Uninterrupted Flow Hwy
 - 40' median, 162' ROW
 - 2010 AADT is 16,500
- The US 27 Corridor directly intersects with four Water Conservation Area Boundaries at several access points. In addition, the corridor study area is located within the boundary of the Comprehensive Everglades Restoration Plan (CERP), is located within the wetlands of the central Everglades and provides access to a number of EAA Storage reservoirs and a number of small and large public parks and recreational facilities that provide access to the Everglades. The project corridor also has a number of water management structures such as pump stations and canal flow structures. Any taking of additional right of way in these areas are expected to have Section 4f concerns and require Section 408 coordination. Section 408 requires that all alterations or modification to the Central & Southern Florida Flood Control Project be reviewed and approved by the US Army Corps. This permit coordination is significant and may take years before modifications are approved.
- Socio-cultural features along or near the corridor include potential historic structures and bridges, economically distressed communities, and environmental justice concerns.
- Section 4f issues include public lands, parks, historic sites and recreation areas. In particular, access issues to air boating near Sawgrass Recreational Park and other fishing and park uses adjacent to the corridor should be considered.
- During the corridor review with the District staff, the project team noticed a number of structures, pump stations, stormwater treatment areas on both sides of the corridor. In addition, power lines and other environmental constraints along either side of the US 27 Corridor limit rail location alternatives. The location of the rail corridor within the median is being considered to alleviate these environmental concerns and provide multimodal connectivity.
- The potential to bring the rail line into the median is being considered along the corridor. A primary issue identified in developing the alternative rail corridor along US 27 includes height limitations and the presence of bridge piers inside the median area at the I-75 overpass. At the I-75 overpass, these constraints and geometric concerns on either side of the corridor would dictate moving the rail lines out by $\frac{1}{2}$ to $\frac{3}{4}$ miles from the corridor should rail within the median be unable to be accommodated due to these height restrictions. This would be expected to

have significant impacts to wetlands and public lanes on either side of the corridor.

- In addition, a rail spur line may be considered near South Bay/Belle Glade to connect to the proposed Americas Gateway ILC. The America Gateway Logistics Center (AGLC) site in Moore Haven is immediately adjacent to the SCFE rail line. The southern tip of the South Florida Regional ILC in Belle Glade, is also very close to the SCFE rail line. The proximity of the existing SCFE tracks to the proposed site may require further investigation and engineering considerations.
- Variable speed limit strategies were recently completed within the corridor, and signs for limits of these variable speed limits were identified within the corridor. The limits of this variable speed limit project are from 800 feet south of Pembroke Road to north of Griffin Road (approximately 5 miles). This strategy should also be considered in reviewing alternative strategies already underway in the corridor.
- Historically, when US 27 consisted of a primarily two-lane roadway, there were a number of safety issues in the corridor. Although widening of the roadway has resolved a number of these safety issues, safety strategies are worth noting in the development of alternative strategies, particularly given uninterrupted flows and the heavy freight movements in the corridor. No rumble strips or other traffic calming mechanisms were noted and lighting is sparse to non-existent through much of the corridor. It was noted, however, that in 2010, raised, audible, wet weather pavement markings were installed along a 20-mile section of US 27 from Griffin Road to the Broward/Palm Beach County line. Any considerations for lighting must consider not only public safety but negative impacts to wildlife and surrounding parks. If lighting is considered in the corridor, it should be limited and be shielded or cantered to ensure that it reaches only areas needing illumination. In addition, wildlife crossing areas should be evaluated in coordination with USFWS during the PD&E process.



District 1 Site Visit

US 27 Transportation Alternatives Study

District 1 Site Visit

Residence Inn – 3221 Tubbs Road, Sebring, FL

Wednesday-Thursday, July 17-18, 2012

V. Introductions

Because of the large distance of the corridor that traverses through District 1, the study team conducted site visits over a two-day period. The first site visit, conducted on July 17, 2012, consisted of the US 27 Alternatives Study project team only and covered the southern portion of the corridor within Hendry and Glades Counties. The US 27 Alternatives Study project team then met with FDOT District 1 staff on July 18, 2012 for a short coordination meeting to go over the findings of the previous day's site visit, identify additional areas of interest along the corridor, and to conduct a second site visit through Highlands and Polk Counties. Attendees at the coordination meeting/site visit on July 18, 2012 included: H. Walker (FDOT Central Office), Mike Plagens (CDM Smith), Jenifer Palmer (CDM Smith), and Amy Perez (FDOT District 1). The study team provided information on the status of this project and an opportunity to discuss important factors along the corridor prior to the site review.

VI. Coordination and Site Visit Notes

The following summary notes provide salient items related to the US 27 Corridor reviewed and discussed during this coordination and site visit. This information serves to verify the desktop analysis and supplement findings noted in Technical Memorandum 1, *Identification of Corridor Needs*. It will also serve to inform and provide context for development of the US 27 Alternatives Study Technical Memorandum 2, *Transportation Alternatives and Policy Implications*. It was noted through these coordination meetings that the intention of this study is to provide an array of alternative options to be considered along the US 27 Corridor, and not provide specific recommendations for improvements.

- The US 27 study area boundaries within District 1 (south to north) are from the Palm Beach/Hendry County Line to the Polk County/Lake County Line north of I-4. Free flow traffic characteristics are prevalent throughout this portion of the corridor, with the exception of areas nearby and within the boundaries of a number of small communities as well as at major intersections connecting US 27 to surrounding east-west connections. A number of traffic signals are located near these areas to facilitate safe and efficient transportation movements.
- The majority of the study area within District 1, particularly in Hendry and Glades Counties, are rural and agricultural lands with population concentrations in several

communities both in the southern portion of District 1 and in the central portion of the study area in Highland and Polk Counties. Hendry, Glades, and Highlands Counties are currently designated as Rural Areas of Critical Economic Concern (RACEC). Communities noted adjacent to the corridor include the towns of Moore Haven, Clewiston, Lake Placid, Sebring, Avon Park, Lake Wales, Dundee, Haines City and Davenport.

- The number of general use lanes varies between four and six lanes throughout the corridor, with recent construction of six lanes in several sections of Highlands County and Polk Counties. The roadway is four lanes throughout Hendry and Glades Counties.
- Special considerations may be required at locations along the corridor within District 1 where community development has occurred or is proposed. Joint land use and transportation strategies will be explored and reviewed along with local comprehensive plans and regional long range plans in these areas. In addition, it should be noted a number of these communities carry historic designations, especially east of the corridor and parallel to older rail lines. Specific notes on community issues are provided here.
 - Through Clewiston, the project team reviewed sites that have been noted within the Clewiston Comprehensive Plan as intersections with higher incidents of crashes. These included the intersections of US 27 with Berner Street, Olympia Street, W.C. Owen Avenue, San Pedro Street, and Francisco Street. Signal timing improvements may be reviewed at these locations to improve safety conditions. North of Clewiston, near SR 80, was noted as a previous high crash location. This intersection is being improved.
 - Moving north towards Moore Haven, a large bridge across the Caloosahatchee Canal connects to the town near schools and some municipal buildings. This confluence of potential increased travel speeds due to the bridge and downtown has experienced some safety issues in the past. Speed limits and signage improvements may need to be reviewed to facilitate safety in this area.
 - A review of Developments of Regional Impact (DRIs) north of Moore Haven near SR 78 and County Road 720 may be warranted to identify future land use plans in the northern portion of Glades County.
 - A *US 27 Access Management Plan* was developed within Highlands County, particularly to address access management in the Lake Placid area (approximate study limits were from SR 70 to US 98). The project team has obtained a copy of this report to review for consideration of access management strategies within the corridor.
 - A number of items of note were provided in the Sebring area. Truck traffic mixing with local traffic has been noted as a safety issue through the Sebring community in Highlands County. Speeds through the corridor in this area are of concern to the community and attention has been paid to addressing signal issues. In addition, Sebring Parkway acts as major east-

west connector within Sebring, connecting to Sebring Regional Airport. Finally, a frontage road that acts as a local reliever for businesses was identified between Tanglewood Drive and Ponce de Leon Boulevard in the Sebring area.

- A number of relevant factors were noted within Avon Park. A major training facility and old bombing range is located near Avon Park and CR 64. Manufacturing industry uses are proposed just northwest of Avon Park and the Comprehensive Plan should be reviewed in understanding east-west movements.
- A large mixed use development is being implemented near I-4 and Deer Creek Boulevard and Ernie Caldwell Boulevard provide local access to the surrounding communities and this mixed use commercial area.
- A number of hospitals were identified adjacent to the corridor including Hendry Regional Medical Center, Highlands Regional Medical Center, and Florida Hospital Heartland. These locations provide regional medical care facilities and in many cases serve economic development within the corridor.
- Schools are also located throughout the corridor and should be reviewed for their relationship to access and safety in these areas.
- Access to the Ridge Scenic Highway is provided near Haines City (US 17), and also connects to Bok Tower, a scenic destination along the corridor.
- In a number of locations where communities are adjacent to the corridor, residential development is located within less than a ¼ mile from the US 27 Corridor. Addressing local travel patterns versus freight movements as well as access management in these areas may be of special consideration in the development of safe alternative strategies in these areas.
- Freight movements and plans will need to be considered in the development of alternatives to understand regional connectivity needs and policy implications. More specific notes on these areas within the corridor are provided below.
 - East-west SIS roadway connectivity is provided at a number of locations along the corridor in District 1: SR 80, SR 29/CR 78, SR 70, SR 64, SR 60, and I-4.
 - The intersection of SR 29 near the Hendry/Glades County Line provides linkage to CR 74 and Florida's west coast and is sometimes used as a "shortcut" for truck freight. Given the higher truck volumes using this path, some maintenance issues have been noted in the past along CR 74. The intersection of US 27 and SR 29 had previously been a location of high crashes, and a light has been installed to address safety issues in this area.
 - An Intermodal Logistics Center (ILC) is proposed, but not implemented at this time, in Glades County as part of the District 4 ITIN Study. In addition, work is currently underway for the Winter Haven/CSX ILC (replacing the old Taft Yard ILC) along SR 60 near Lake Wales. A roadway extension project is

underway to connect the ILC and other major roadways are planned at SR 60. South and west bound ramps are being investigated at US 27 and SR 60 to address potential safety issues connecting to the planned ILC.

- District 1 is currently conducting a Rail Relocation Study within Polk County. Although documentation is not yet available for this study, the project team may follow up as progress on this study is made and as documentation becomes available.
- District 1 and 7 are currently working on a freight plan (TampaBayFreight.com) which should be reviewed in considering alternatives, particularly for freight movements, along the US 27 Corridor from a regional perspective. In addition, the Heartland 2060 Vision Plan provides greater insights into regional visioning plans within the District and should be reviewed in the development of alternatives.
- The Central Polk Parkway Study is underway and could have some impact on providing alternative traffic relief to US 27 between Lake Wales and I-4. These proposed improvements could bypass US 27 and provide additional connectivity east and west just north of CR 540A.
- A number of private airports, in addition to SIS connectors, are located adjacent to the corridor and should be identified to understand east-west and transportation connectivity needs in these areas.
- A number of hammocks and other environmental constraints are located west of the corridor through Highlands County. These are not anticipated to have an effect on the corridor itself, but may be relevant in considering development patterns in the area and coordinating land use and transportation. Some cemetery locations were also noted directly abutting the corridor in Highlands County, and present the need for environmental analysis for proposed improvements in those areas.
- Bus Rapid Transit (BRT)/express bus plans have been identified in the Polk County long range transportation plan (LRTP) and provide additional strategies being reviewed for alternatives along the corridor. The US 192 Alternatives Analysis Study from US 27 east (in Lake County) to the Florida Turnpike interchange and the Kissimmee Corridor (Osceola County) from the Osceola Parkway SunRail Station to Pleasant Hill Road currently underway by Central Florida Regional Transportation Authority (LYNX). This study is looking at transit alternatives, including BRT, along the US 192 Corridor (within Osceola County) and could have an effect on the US 27 Corridor.



District 5 Site Visit

US 27 Transportation Alternatives Study

District 5 Site Visit

Lake-Sumter MPO Offices - 1616 South 14th Street (US 27), Leesburg, FL

Thursday-Friday, July 19-20, 2012

VII. Introductions

The US 27 Alternatives Study project team conducted a site visit on Thursday, July 19, 2012 and met with FDOT District 5 staff and key agency partners for a coordination meeting on Friday, July 20, 2012. Attendees at the coordination meeting included: H. Walker (FDOT Central Office), Mike Plagens (CDM Smith), Jenifer Palmer (CDM Smith), John Zielinski (FDOT District 5), Mansoor Khuwaja (HDR, Inc.), Lori Sellers (HDR, Inc.), Greg Slay (Ocala-Marion TPO), John Voges (Ocala-Marion TPO), T.J. Fish (Lake-Sumter MPO), Pam Richmond (Lake Sumter MPO), Brian Snyder (Marion County), and Scott Cottrell (Sumter County). Attendees were provided an overview of the project, information on the project status and an opportunity to discuss important factors along the corridor to supplement the site review findings.

VIII. Coordination and Site Visit Notes

The following summary provides salient items related to the US 27 Corridor reviewed and discussed during the site visit and coordination meeting for the US 27 Corridor. This information serves to verify the desktop analysis and supplement findings noted in Technical Memorandum 1, *Identification of Corridor Needs*. It will also serve to inform and provide the context for development of the US 27 Alternatives Study Technical Memorandum 2, *Transportation Alternatives and Policy Implications*. It was noted through these coordination meetings that the intention of this study is to provide an array of alternative options to be considered along the US 27 Corridor, and not provide specific recommendations for improvements.

- The study area boundaries within District 5 are (south to north) from the Polk/Lake County Lines near I-4 to the intersection of US 27 and I-75 in Marion County.
- A number of SIS roadways assist freight movements in the District 5 area, and there is a need for consideration at the statewide level of how these roadways can effectively facilitate freight movements and integrate with other SIS facilities. In addition, District 5 has a number of initiatives underway that impact SIS movements. Among these are the *I-75 Systems Access Management Report* (SAMR), and the Ocala Site 489 Intermodal Logistics Center (ILC). These initiatives will need to be considered in the development of alternatives that facilitate the SIS, and should also help to inform the recently initiated Statewide Freight Study.

- The *I-75 SAMR* study area is located in Ocala where US 27 meets I-75 in Marion County and provides a detailed analysis of traffic impacts from proposed development along the corridor to determine impacts to I-75 and identify solutions to maximize the state's investment.
- The Ocala 489 ILC is located in Marion County adjacent to the intersection of I-75 (Exit 354) and US 27. The location covers more than 400 acres and rail access to the ILC is provided through Florida Northern Railroad to the CSX S-Line. This location provides over 140,000 jobs and is of significance to economic development in the area.
- The study area within District 5 consists of a rural and urban mix of uses. A number of unique land use patterns and economic development plans have been identified within the US 27 Corridor that may require additional consideration of context sensitive strategies for alternatives developed as part of this study.
 - The area of South Lake County has experienced significant growth in recent years, particularly in the areas near Clermont and Minneola within the study area. In addition, the intersection of US 27 and US 17/92 as well as other locations near the Four Corners area provides access for a large number of residents living in Lake County and working at Walt Disney World and other employment centers in this Four Corners area.
 - The Villages Retirement Community, an age-restricted master planned community with both residential and commercial uses, straddles US 27 and spans through Lake, Sumter and Marion Counties within the US 27 Corridor. This area serves as a major employment center in the region, is still continuing to grow, and has substantial impacts on the transportation network. Workers who live in other areas within the region utilize US 27 to access jobs in The Villages. During the peak season of November through May, the population of The Villages nearly doubles and US 27 experiences seasonal congested traffic conditions. In addition, a number of demographic factors make this area unique from a transportation perspective. Given the majority of local road users are retired, traditional peak and off peak hours for traffic do not necessarily apply in this area and traffic safety issues related to older drivers are of particular concern. Alternative transportation modes, specifically golf carts, are also prominent in The Villages area and present unique safety conditions that should be considered as well.
 - Lake-Sumter MPO is utilizing a land use and growth pattern that reflects the Centers, Corridors, Countryside and Conservation principles articulated through the Central Florida regional "How Shall We Grow?" process, and affirmed in Lake-Sumter MPO's "Our Community, Our Future" visioning effort. These efforts provide an underpinning for growth and development in the region and will impact the consideration of viable alternative strategies along the US 27 Corridor.

- In South Lake County near the Four Corners area, economic development sector plans are underway for a proposed "Health and Wellness Way" Corridor that would include over 16,000 acres located in the "Golden Triangle," inside of I-4, Florida's Turnpike, and US 27. This corridor is planned as a regionally significant employment center is anticipated to complement Medical City economic development in Orange County as well as serving the master planned Horizon's West Community due east of the corridor in Orange County. The corridor is also enhanced by State Road 429 and the Wekiva Parkway. In addition, CR 470 provides connectivity to a number of SIS facilities in this same area (SR 44, I-75, Florida's Turnpike) and is the location of three Developments of Regional Impact (DRIs).
- The number of lanes fluctuates between four and six lanes throughout the corridor, with a number of projects in planning, PD&E and construction phases for six lane improvements. In addition, it is noteworthy that US 27 converges with US 441 in Lake County as well as US 301 in Marion County. These areas of convergence are heavy traffic generators and enhance traffic needs in these locations.
- MPO initiatives regarding lane widths will need to be considered in the development of alternatives and policy implications. Lake-Sumter MPO has enacted a Corridor Constraint Policy along the US 27 that limits roadway widening to six lanes. In addition, the Ocala-Marion TPO has initiated a study to review the potential to reduce all or portions of the six lane section of US 27/US 441 from CR 475 to NW 2nd Street to four lanes in an attempt to improve the pedestrian connectivity along the corridor and expand the downtown area to incorporate areas west of US 27.
- Low cost improvements such as Transportation Systems Management and Transportation Demand Management strategies may be of particular use in this corridor and in maximizing the US 27 Corridor. This could include intersection improvements, signal timing improvements and other strategies that maximize operations within the corridor. As a recent example, a one-mile segment of US 27 in Sumter County implemented a continuous right lane to alleviate traffic congestion in this area. This improvement has assisted in safer movements and additional signal timing/GPS improvements are being considered in this area to facilitate safer and more efficient traffic movements, especially during the peak season for The Villages.
- Local relievers are also being considered in specific locations within the study area. In particular, Rolling Acres Road runs west of and parallel to the US 27 Corridor between Lake Ella Road and CR 466 near Lady Lake and has been identified by the Lake-Sumter MPO as a potential local reliever. A US 27 reliever from SR 25/500 (US 27/441) to SR 44 is also proposed as a priority project for further PD&E Study phases.
- Strategies addressing the potential for alternative passenger transportation modes should consider the number of plans within the corridor that have the potential to impact implementation of this strategy. A number of park-n-rides are located

along the corridor in the Clermont and Minneola areas and the in-progress Lake County Transit Development Plan (TDP) is considering transit improvements that could serve South Lake County and SR 50 areas. Commuter rail plans have also been proposed in the Lake-Sumter MPO's Long Range Transportation Plan (LRTP); a US 441 Alternatives Analysis is being conducted through FDOT District 5 and will identify preferred transit improvements along this corridor. In addition, a US 192 Alternatives Analysis Study is currently underway by LYNX to identify potential transit alternatives, including bus rapid transit (BRT) along the US 27 Corridor in Osceola County. This study includes a small portion of US 27 in Lake County near an existing Walmart park-n-ride that provides bus passengers in Lake County with access to US 192 employment opportunities, including Walt Disney World.

- The US 27 Corridor also provides access to a number of parks, including access to Lake Louisa Park and Lake Griffin Park, and impacts relating to access of these parks and regional trail plans should be considered in development of alternatives in these areas. In addition, the Palatka Environmental and Agricultural Reserve is located along the west end of the corridor between Florida's Turnpike and CR 48 and is a large environmental feature.
- The List of Priority Projects (LOPPs) in each of the MPO areas should be considered in understanding the needs along the corridor and proposed alternatives and solutions to address these needs. A summary of the LOPPs relevant to the US 27 Corridor were provided by each MPO and are listed below.
 - Ocala-Marion TPO:
 - US27 Interchange Improvements (SAMR), from NW 44th Avenue to to NW 35th Avenue, Design Phase
 - US27 NW 44th Avenue to NW 27th Avenue (widening, add two lanes) PD&E Phase
 - Lake-Sumter MPO:
 - SIS Projects: SR 25 (US 27) from N. of Boggy Marsh Road to north of Lake Louisa Road, widening to 6 lanes (Construction Phase requested); SR 25 (US 27) from CR 561 to CR 561A, Corridor Study (PD&E Phase requested).
 - State Roads - Other Arterials: SR 25/500 (US 27/441) From MLK Jr. Boulevard To Lake Ella Rd., widening to 6 lanes (Construction 2013/12); SR 25/500 (US 27/441) from Lake Ella Road to Avenida Central, widening to 6 lanes (Construction Phase requested); US 27 from CR 561 to CR 561A, widening to 6 lanes (PD&E Phase requested).
 - County Capacity Projects: US 27 Reliever from SR 25/500 (US 27/441) to SR 44, corridor improvements (PD&E Phase requested).

