



2014 Miami-Dade County Freight Plan Update



prepared for
Miami-Dade MPO



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August 2014



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SYSTEMATICS

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1.0 Background

Miami-Dade County is home to a well-established and expanding freight transportation system. This system serves as the cornerstone of the region's economy, providing goods and services to Florida's largest consumption market as well as connecting the region to the global economy through major sea and air gateways. Miami-Dade County is home to a multi-cultural community with an economy dominated by tourism, international trade, agriculture and mining, and natural resources. PortMiami is one of the largest container ports in Florida and is known as the cruise capital of world, Miami International Airport handles almost 80 percent of Florida's air cargo and is one of the busiest cargo airports in world, and the Miami River, recently designated as an emerging SIS waterway, provides key niche waterborne cargo services to smaller ports in the Caribbean Basin and supports an active industrial core along the river corridor. Two railroads serve the region connecting South Florida to the rest of North America, providing intermodal and carload services, and a well established network of roadways provide regional mobility as well as gateways to Florida and more distant hinterland markets. These transportation facilities complement a mature warehouse/distribution center and international banking and brokerage infrastructure that combined facilitate international trade activities.

This freight infrastructure is undergoing significant improvement and expansion to position the region for future growth opportunities in large part associated with anticipated impacts of the widening of the Panama Canal, which will allow for larger vessels to serve the East Coast from the Far East, shifts in key global manufacturing centers in Asia, which will lead to increased use of the Suez Canal, and new and expanded trade opportunities, including the recent free-trade agreements with Colombia, Panama, and South Korea and the potential reopening of Cuba.

Miami-Dade County is positioning itself to compete for these increases in trade by dredging Port Miami to 50 feet; constructing the port tunnel to connect PortMiami directly to the Interstate System, constructing the 25th Street Viaduct to improve access to Miami International Airport's cargo operation, rehabilitating rail service to Port Miami and construction of an on-port ICTF, development of an intermodal logistics center in Hialeah, replacement of the SR 826/SR 836 interchange, and participation in a U.S. DOT sponsored Freight Advanced Traveler Information System.

With these improvements underway and in some cases complete, the most critical element moving forward is the identification of remaining needs and the setting of priorities. This Update provides an updated list of prioritized needs. These needs have been incorporated into the Miami-Dade 2040 LRTP, the Southeast Florida Regional Plan, the Southeast Florida Regional Freight Plan, and the Florida Freight Mobility and Trade Plan. Ensuring consistency and compatibility with these larger plans helps Miami-Dade qualify and compete for all available funding programs. Previous work completed by the MPO and its partners was reviewed and used to inform the update. The literature review is summarized in Appendix A. This Update also was guided by a Study Advisory Committee. Members are listed in Appendix B.



2.0 Miami-Dade Freight Transportation System and Cargo Flows

2.1 System Overview

Miami-Dade County has an extensive freight system encompassing all major modes of transportation. These modes work to complement one another to ensure a smooth flow of goods throughout the county, the region, the state, and the country. Figure 2.1 shows the extent of this freight network within Miami-Dade County. Contained predominantly within the urban area, this network consists of a complex system of roadways, railways, and freight hubs. In support of these major highways and other freight generators, the Florida Strategic Intermodal System (SIS) was established to help serve mobility needs of Floridians and to ensure and expand Florida's economic competitiveness. In being designated as a SIS facility, corridors, connectors and hubs receive the highest level of priority for capacity improvement funding. The currently designated SIS incorporates all aspects of freight needs: commercial airports, deep-water seaports, rail terminals and corridors, waterways, and highways. Within Miami-Dade, the following hubs have been designated as part of the SIS:

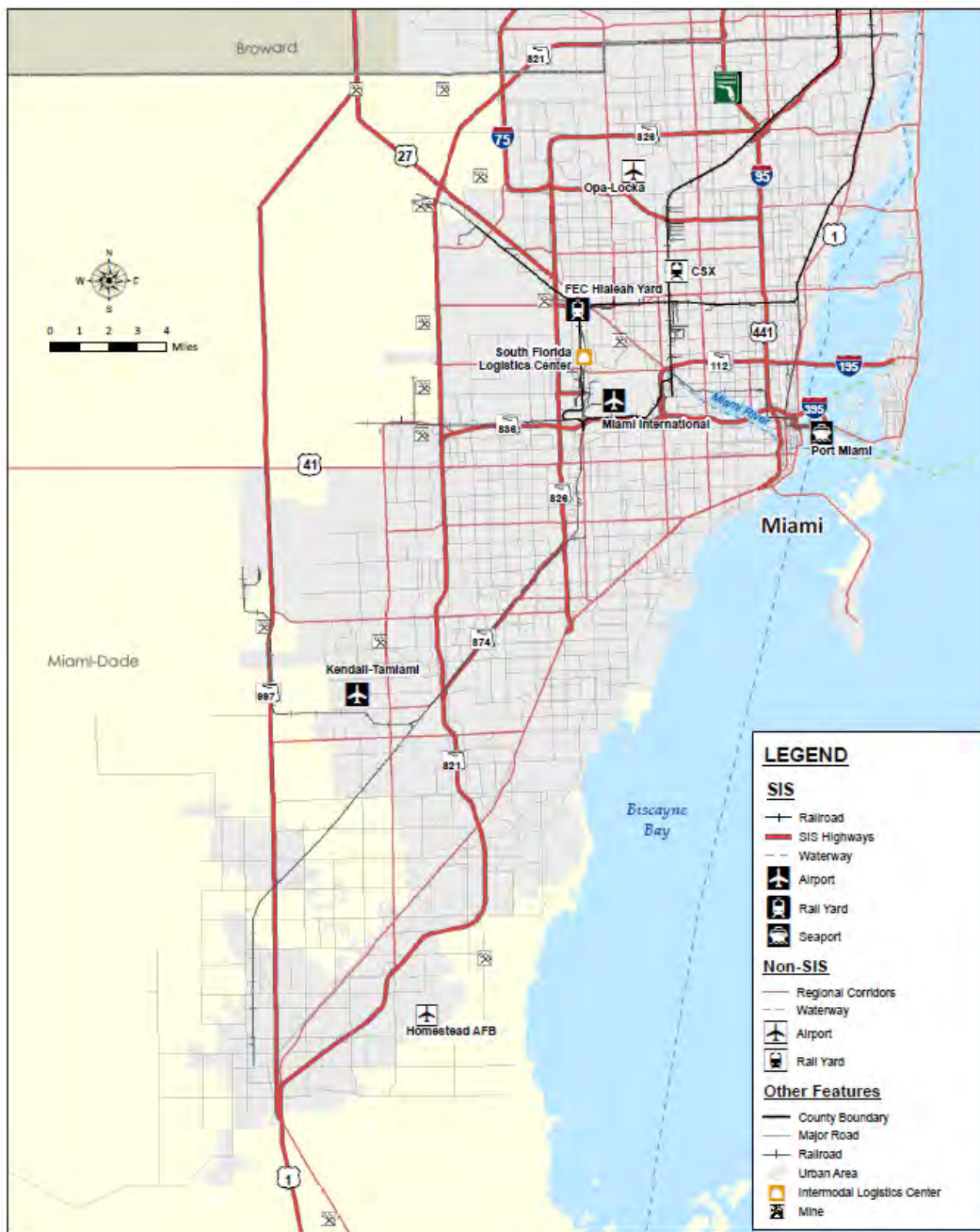
- Airport: Miami International Airport and Kendall-Tamiami Executive Airport;
- Railyard: FEC Hialeah Yard;
- Seaport: PortMiami;
- Waterway: Miami River;
- Roadways: designated highways consist of Interstates, toll roads/expressways, and other key state highways as illustrated in Figure 2.1; and
- Connectors: each of the freight hubs has roadway and/or railway connectors designated to provide access to the SIS corridors.

In addition to the county's freight system, it is important to understand how this system connects to the rest of the South Florida system as well as the state; freight operators do not recognize the artificial boundaries of political jurisdictions and are interested only in overall freight mobility and access to markets.

Figure 2.2 shows how Miami-Dade County serves and connects to the South Florida region. Major connections such as I-75, I-95, and Florida's Turnpike serve as high-volume roadways that provide access between the counties and to the remainder of the country. The U.S.-27 corridor provides access to the heart of industrial Miami-Dade County and connects to the western region of Palm Beach County as well as Hendry and Glades Counties. Each of these counties is moving forward with development of new logistics centers (e.g., Florida Crystals ILC, Airglades ILC, Gateway to the Americas ILC). In addition, U.S.-27 connects South Florida to the rest of the state and represents one of FDOT's "future corridors." This corridor therefore represents a critical facility in years to come. Other key regional components include CSX and FEC Railway, which provide connections to North America.



Figure 2.1 Miami-Dade County Freight System



Source: Quest Corporation of America.

Figure 2.2 Significance of Miami-Dade to the South Florida Region



Source: Quest Corporation of America.

2.2 Highways

Miami-Dade County has a well developed east/west and north/south highway network that provides access throughout the county and connects to the rest of the region and state. I-75, I-95, Florida's Turnpike (Toll) and U.S.-27 represent the primary interregional corridors. Other roadways, consisting of the expressways and state highways provide for internal movements and access to key freight hubs. Some of the other major roadways include the following:

- Airport Expressway (SR 112)/I-195 – Toll;
- Dolphin Expressway (SR 836)/I-395 – Toll;
- Don Shula Expressway (SR 874) – Toll;
- Gratigny Parkway (SR 924) – Toll;
- Hialeah Expressway (SR 934);
- Palmetto Expressway (SR 826); and
- Snapper Creek Expressway (SR 878) – Toll.

Five of these major expressways are maintained by the Miami-Dade Expressway Authority: SR 112, SR 836, SR 874, SR 878, and SR 924. FDOT is responsible for other state roads and the Turnpike. The remaining 5,500 miles of roadways in the county are maintained by the Road, Bridge, and Canal Maintenance Division of the Public Works and Waste Management Department. Of this total roadway network, 62 miles are designated as part of the SIS.

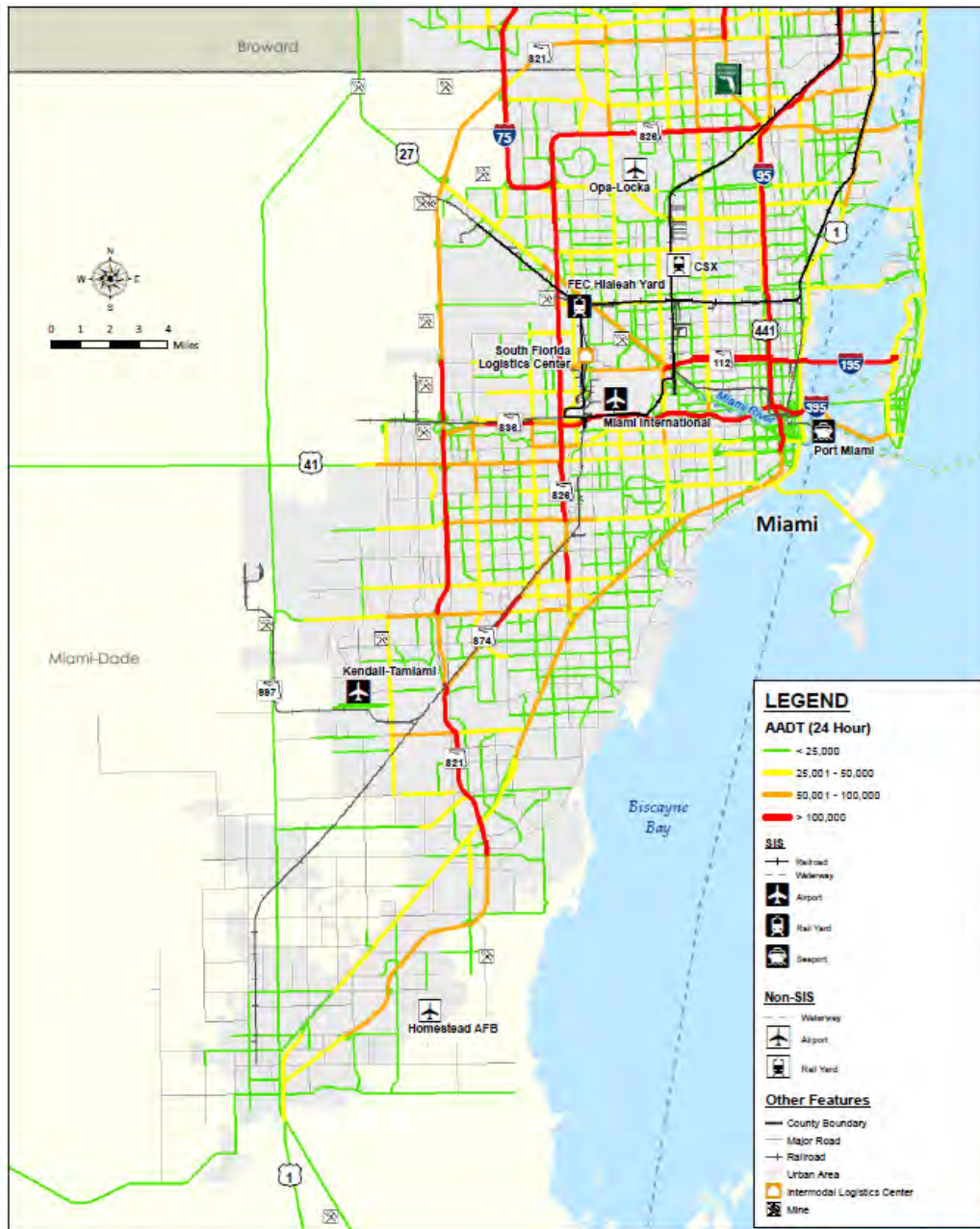
Figure 2.3 shows the average annual daily traffic (AADT) on the roadways in Miami-Dade County. Unsurprisingly, the largest volumes, relative to the remainder of the county, are on the major expressways, including I-95, I-75, Florida's Turnpike, SR 836, SR 826, and the Airport Expressway. Other major traffic volumes are on NW 36th St (extension of the Airport Expressway), U.S.-1, and Okeechobee Road. Nearly all of the SIS roadways and regionally significant corridors register as high-volume roadways. These high volumes illustrate that these roadways are not only significant for the movement of goods, but also for the movement of people within the county.

More interesting for the movement of freight is the volume of trucks moving on the roadways. Figure 2.4 displays the average annual daily truck traffic (AADTT) on the roadways of Miami-Dade County. A truck in this instance is defined by the Federal Highway Administration's (FHWA) vehicle classification scheme. Any vehicle in classes 4 through 13 is grouped into this category which will generally include any truck or bus with six



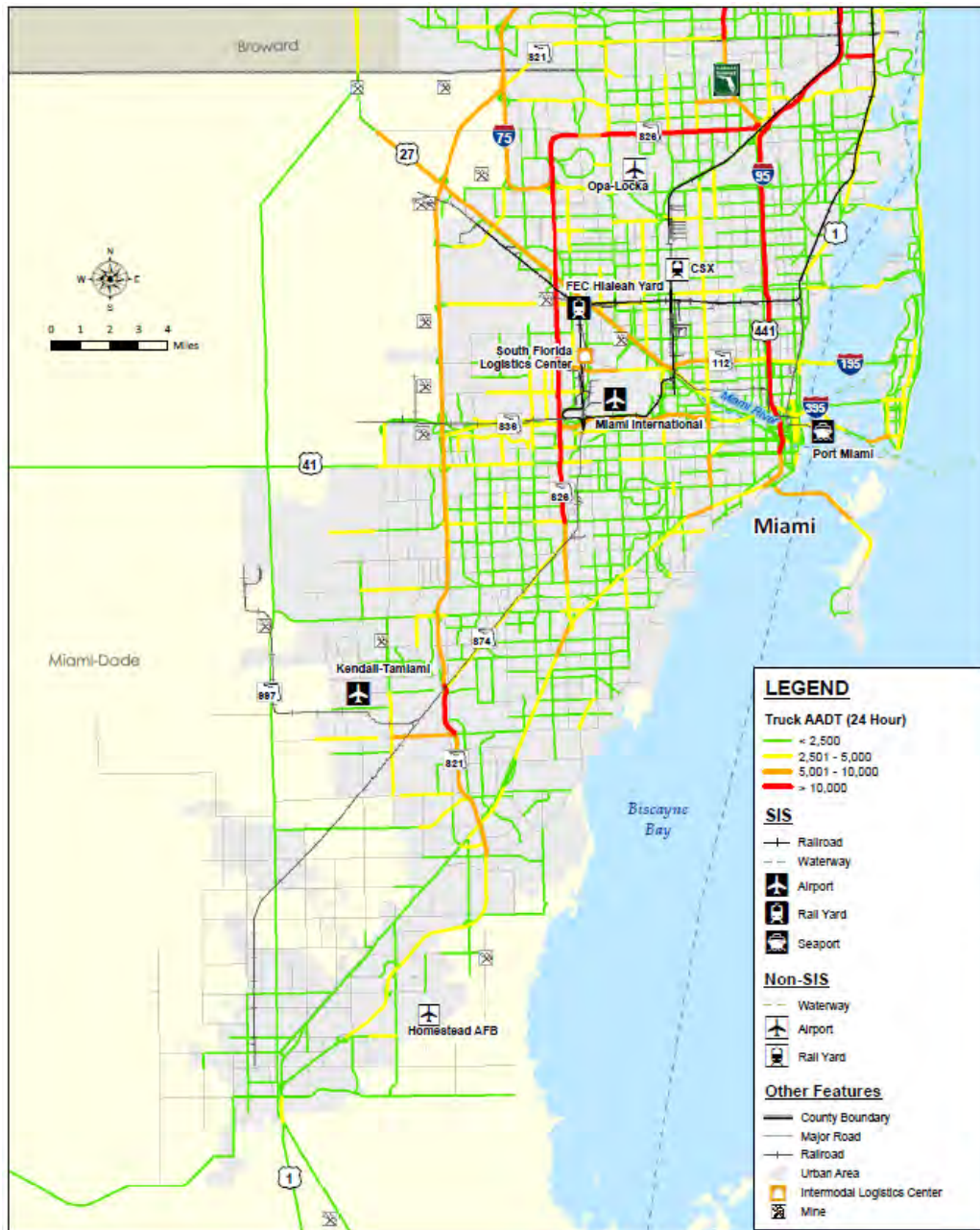
or more tires. For AADTT, I-95 and SR 826 carry over 10,000 trucks per day. Another key corridor for truck movements off of the interstate system is Okeechobee Rd running from the northwest corner of the county at U.S. 27 down to the Airport Expressway.

Figure 2.3 AADT on Miami-Dade Highway System



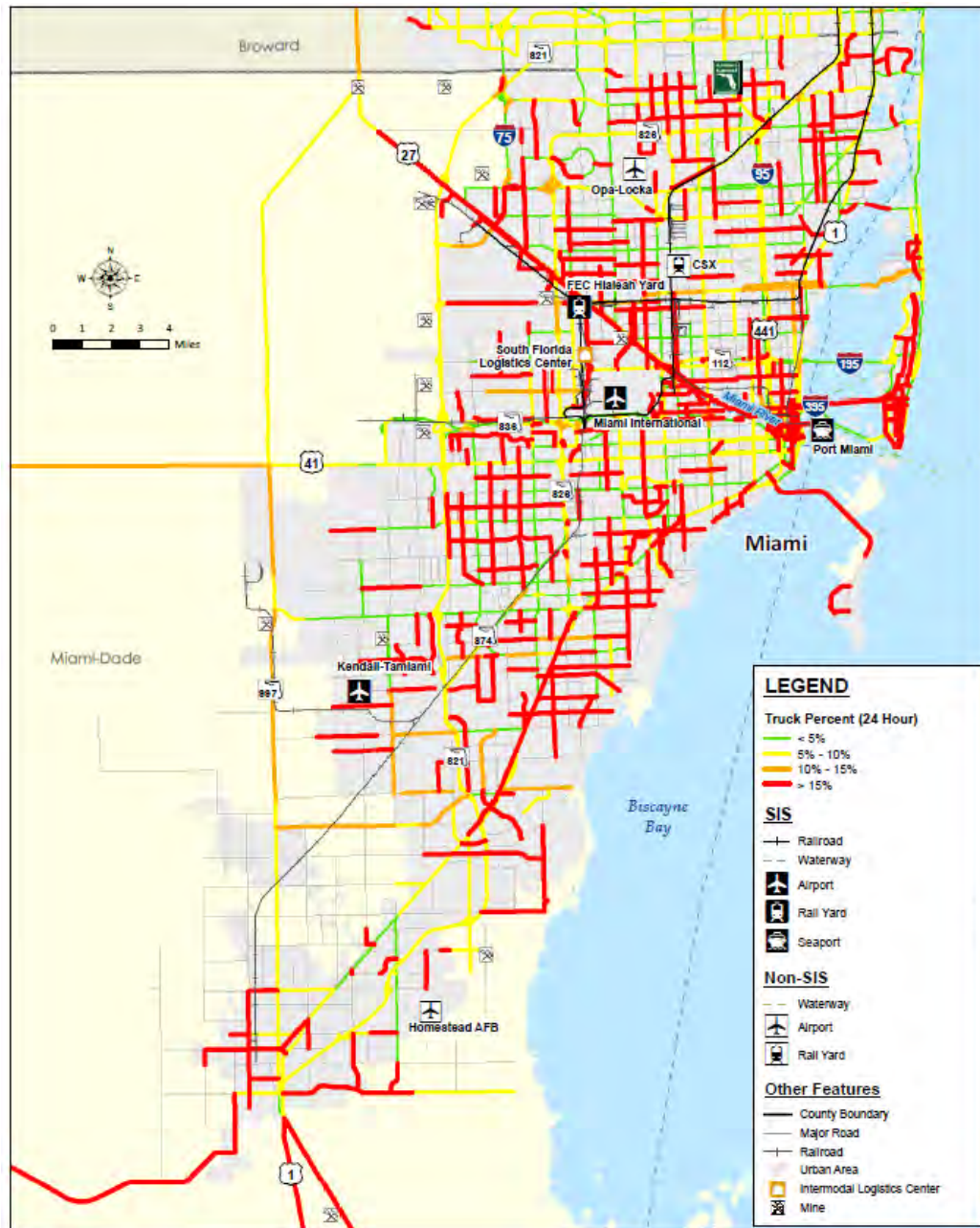
Source: Quest Corporation of America.

Figure 2.4 AADTT on Miami-Dade Highway System



Source: Quest Corporation of America.

To put both AADT and AADTT in perspective, it is important to understand just how significant the volume of trucks is in comparison to the total traffic. Figure 2.5 shows what percentage of the total roadway volume is attributed to trucks on these same roadways. While major volumes are concentrated on a few select roadways, namely the interstate system, high truck counts are present throughout the county. Typically, a 5 percent modal share is significant yet a large proportion of roadways in the county have over a 15 percent share. The interstates and other major SIS facilities are for the most part not in this top tier. While these roads do carry a significant number of trucks, they are counterbalanced by the sheer number of vehicles on the roadway and thus trucks account for a lower percentage of the total.

Figure 2.5 Truck Percentage on Miami-Dade Highway System

Source: Quest Corporation of America.

In addition to the truck volume and truck percent characteristics, roadways also provide access to the region's freight hubs and logistics infrastructure (e.g., PortMiami, FEC rail yard, Miami International Airport, Miami River corridor, western Miami-Dade County warehouse district). Critical investments, like the recently opened PortMiami tunnel and the 25th Street Viaduct, allow trucks to quickly and directly access key freight hubs. FDOT currently also has a study underway to evaluate ways to improve the 74th Street connector to the FEC Hialeah Ramp.

2.3 Railroads

Florida's history in railroads dates back to the times of Henry Flagler and his dream to expand his network down the entire Florida peninsula. Today, Miami's freight rail network is operated by two entities: CSX Transportation and Florida East Coast Railway (FEC). FEC, based in Jacksonville, Florida, is the only railroad along the East Coast of Florida operating 351 miles of mainline track. Connections and track rights with other railroads allow for goods brought in through Florida's East Coast ports to have ready access to the North American market. FEC interchanges in Jacksonville with both CSX and Norfolk Southern. CSX, also based in Jacksonville, operates about 21,000 route miles in 23 states, the District of Columbia, Ontario, and Quebec and has its southern terminus in Miami-Dade County. This allows ready access to nearly two-thirds of the American population with the ability to access additional markets through alliances with other railroads throughout the rest of North America. The existing rail network in Miami-Dade County is illustrated in Figure 2.6.

FEC is undertaking major expansion projects to improve its network in anticipation of increased cargo volumes at PortMiami. The PortMiami project consists of four phases: reconstruction of the FEC Port Lead, reconstruction of the bascule bridge connecting PortMiami and FEC, construction of an on-port rail facility, and modifications to FEC's Hialeah Rail Yard to accommodate an increase in traffic. The majority of these improvements are complete and operational and those that are not, soon will be. Connected to these improvements is the South Florida Logistics Center, a 400-acre logistics complex adjacent to Miami International Airport, operated by FEC's sister company Florida East Coast Industries (FECI). This facility is being built in phases with one building complete and operational and buildings two and three under construction.

Other key rail developments underway in Miami-Dade County include the connection between CSX and FEC via new track at the IRIS connection, as illustrated in Figure 2.7. The northeast connection is funded via a TIGER grant. This will consist of construction of new single track connection between FEC Railway and the South Florida Rail Corridor (SFRC) within FDOT right-of-way. It will facilitate freight connectivity from SFRC to FEC Little River Connection and provide access to the Hialeah maintenance yard. This connection will allow the shifting of freight traffic between the two lines, improving the region's ability to effectively manage the mix of passenger and freight movements, particularly with the expanded passenger service planned and under development on the FEC corridor (e.g., All Aboard Florida and Tri-Rail expansion). Two connections in Broward (Pompano) and Palm Beach (Northwood) counties represent part of this improved connectivity, one of which is unfunded (Pompano). From an industrial development perspective, FEC and CSX continue to work with rail served property owners in Miami-Dade County. As sites redevelop and modernize, and new facilities are constructed, rail access



remains a competitive advantage especially considering the limited number of properties served. Potential development areas, like the Miami River district, have rail access that could be used to promote industrial investments.

Figure 2.6 Miami-Dade County Rail Network



Figure 2.7 Northeast IRIS Connection Between CSX and FEC

Project Location Map IRIS Northeast (NE)



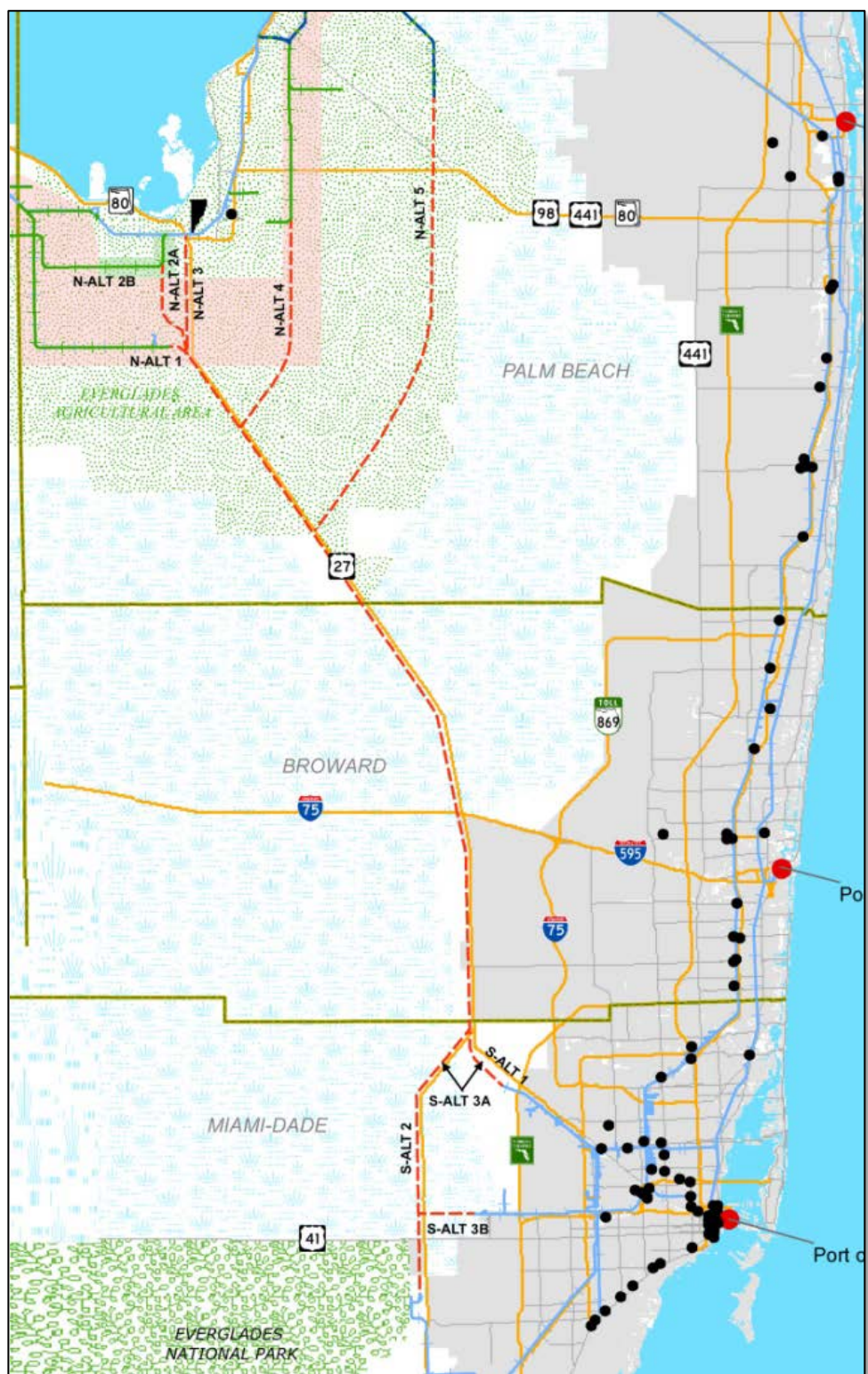
SOUTH FLORIDA FREIGHT AND PASSENGER RAIL ENHANCEMENT PROJECT

8

Source: FDOT District 4.

The U.S.-27 corridor represents another possible expansion to South Florida's rail network. A rail feasibility study, completed by FDOT District 4, suggested a new rail link may be feasible. The feasibility study was followed by a Planning and Conceptual Engineering (PACE) Study in 2012. The potential corridor runs from the Homestead Extension of Florida's Turnpike (HEFT) in Miami-Dade County to the Palm Beach and Hendry County line, as illustrated in Figure 2.8. The driving force behind these efforts was the potential to more effectively manage the passenger and freight rail operations in South Florida. With efforts by PortMiami and Port Everglades to double their containerized operations over the next twenty years, expansion of Tri-Rail service and development of the All Aboard Florida service, and overall growth in the communities bordering the existing eastern rail corridors, traffic along existing rail lines will increase significantly. While existing right-of-way can accommodate an expansion through double or triple tracking, the impacts of the increased passenger and rail operations will have a significant impact on the region. In addition, there are ILCs proposed and under development in Palm Beach, Hendry, and Glades counties that will directly serve South Florida and rely on connections to South Florida's freight generators (e.g., PortMiami, Miami International Airport). As such, a new rail corridor in the rural western part of South Florida remains a possible option.

Figure 2.8 Proposed U.S.-27 Rail Corridor



Source: U.S.-27 PACE Study, FDOT.

2.4 Waterways

Miami-Dade County has three main waterways which are linked to success of the freight industry: the Miami River, the Atlantic Intracoastal Waterway and the Atlantic Shipping Lane. All three of these waterways are designated as part of the SIS and are illustrated in Figure 2.9.

Figure 2.9 Miami-Dade County Waterways

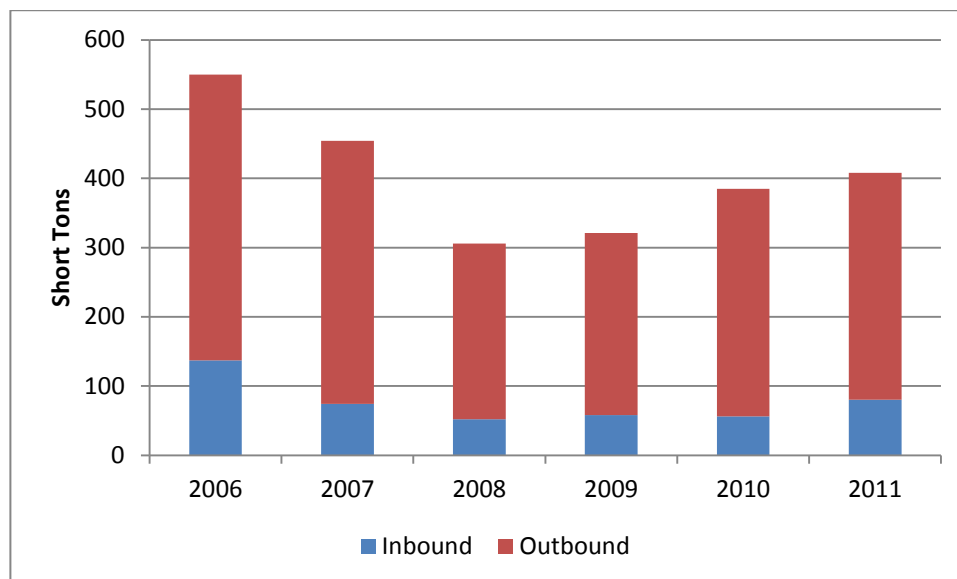


The Miami River, overseen by the Miami River Commission, is a 5.5 mile long waterway running from PortMiami to Miami International Airport where it turns into the Miami Canal. An estimated 2,000 vessels move through this River each year. Use of this waterway has drastically reduced since the highs seen in the mid 1990s of nearly 900,000 short tons of cargo. While tonnage has decreased in recent years, similar trends are also seen at the major freight hubs of PortMiami and Miami International Airport due to the economic downturn. Today, the Miami River handles roughly 400,000 short tons per year with a strong emphasis on exports which make up roughly 80 percent of the total volume. In addition, over the last few years the River traffic has returned to a growth trend as illustrated in Figure 2.10.



Dredging completed in 2008 returned the channel to its project depth of 15 feet in order to preserve its capacity. In addition to dredging, this project also removed pollutants and World War II era munitions to improve conditions along the River. Much of the current waterway has issues with pollutants and brownfields surrounding the water. Efforts have been underway to create a 10 mile greenway as well as new residential developments in order to improve the space.

Figure 2.10 Short Tons Moved Through the Miami River



Source: U.S. Army Corps of Engineers Waterborne Commerce Statistics.

The Atlantic Intracoastal Waterway stretches from Norfolk, Virginia to Key West, Florida as a 1,200 mile portion of the 3,000 mile Intracoastal Waterway. This system was originally designed to reduce the amount of open-ocean travel required. Depths are to be maintained at 12' from Norfolk through Fort Pierce, Florida, but only 10' for the continuation to and through Miami.

Shipping lanes were originally established based on wind patterns to aid vessels using sails. While technology has advanced beyond this, shipping lanes are still utilized in order to prevent heeling from waves. Such lanes are often the busiest area of a body of water and the proximity of PortMiami to such a lane offers ease of travel to cargo ships seeking to call at the Port.

Cargo volumes from Jacksonville to Miami fluctuate annually and are driven largely by petroleum movements. There has been a significant reduction in recent years likely due to conversion of FPL plants from petroleum to natural gas. Table 2.1 summarizes the last five years of cargo traffic. Petroleum has dominated the flows, with total volumes down significantly in recent years.

**Table 2.1 Atlantic Intracoastal Waterway Cargo Volumes
Jacksonville, FL to Miami, FL**

Year	Total Tons	Petroleum Tons	Percent Petroleum
2007	458,639	454,337	99%
2008	75,071	66,746	89%
2009	55,252	49,452	90%
2010	80,217	61,806	77%
2011	12,243	5,800	47%

Source: USACE Waterborne Commerce Data.

There is a desire by some to increase the cargo moving on the Intracoastal Waterway (ICW). This would likely be associated with waterside operations requiring direct barge service for bulk, break bulk, or specialized project cargo. New facilities may need additional dredging to provide access from the Federal channel to the berth. Cargo movement is further complicated by bridges on the ICW, which constrain the movement of larger vessels. In Miami-Dade County, the use of the ICW will likely remain largely recreational other than for access to PortMiami and the Miami River.



2.5 Seaport

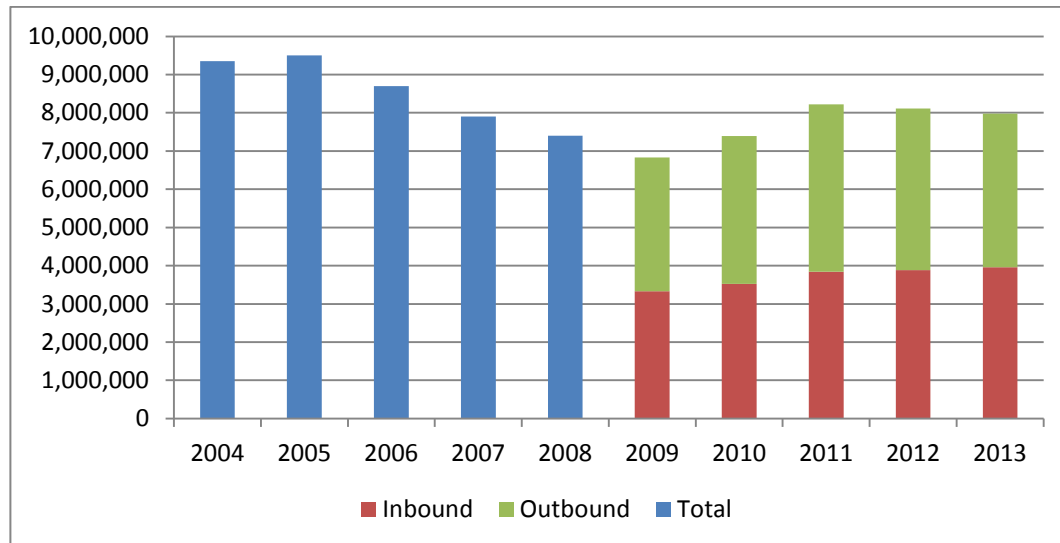
PortMiami, managed by the Miami-Dade County Seaport Department, is located just outside of Downtown Miami on a 520 acre island. Cargo operations account for 309 acres, or approximately 60 percent of the total area. This allows the Port to support four types of cargo operations: roll-on/roll off (Ro/Ro) container operations, lift-on/lift-off (Lo/Lo) container

operations, mixed-use bulk cargo operations, and vehicle exports. PortMiami offers 11,458 lineal feet of berthing space for container ships for these operations.

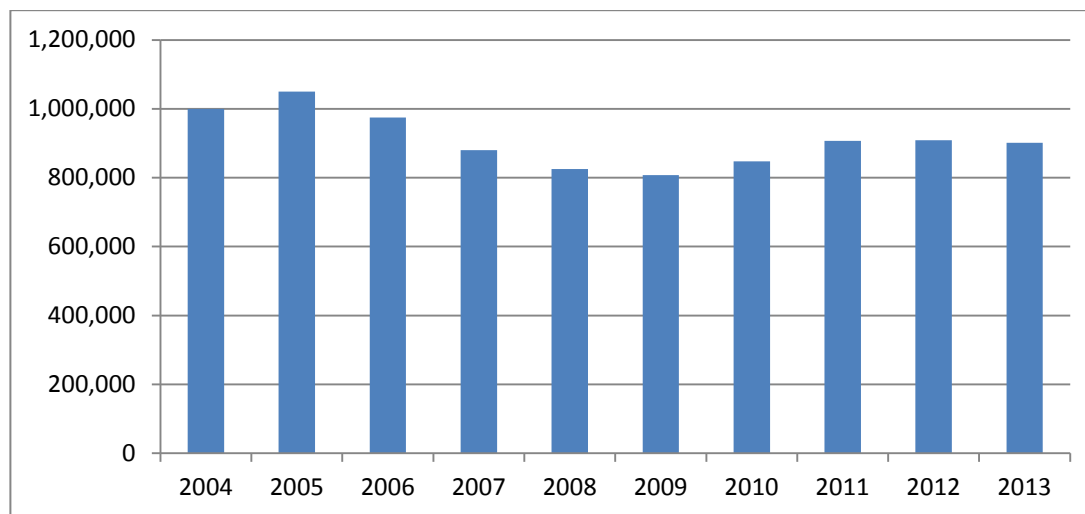
PortMiami's main trade is with north/south flows as over 54 percent of total trade is with Latin America and the Caribbean. At present however, China is the largest single country by trade comprising 27.5 percent of total import tonnage and 12.9 percent of exports. The top imports at PortMiami are beverages, apparel articles and fruits and nuts. Top exports are base metals, wood, miscellaneous food items, and vehicles.

Figure 2.11 shows historic cargo movements through PortMiami by tonnage and Figure 2.12 shows historic TEU movements. Operations peaked in 2005 at nearly 9.5 million tons and over a million TEUs, but declined in the following years due to a combination of the damaged rail connections in 2005, the relocation of carriers such as MSC to other ports, and the economic downturn. However, 2011 and 2012 saw PortMiami increase traffic from the low of 2009.

Figure 2.11 Historic Cargo Movements by Tonnage Through PortMiami



Source: 2004-2008 PortMiami Master Plan, 2009-2013 PortMiami Cargo Facts

Figure 2.12 Historic Cargo Movements by TEU Through PortMiami

Source: 2004-2008 PortMiami Master Plan, 2009-2013 PortMiami Cargo Facts

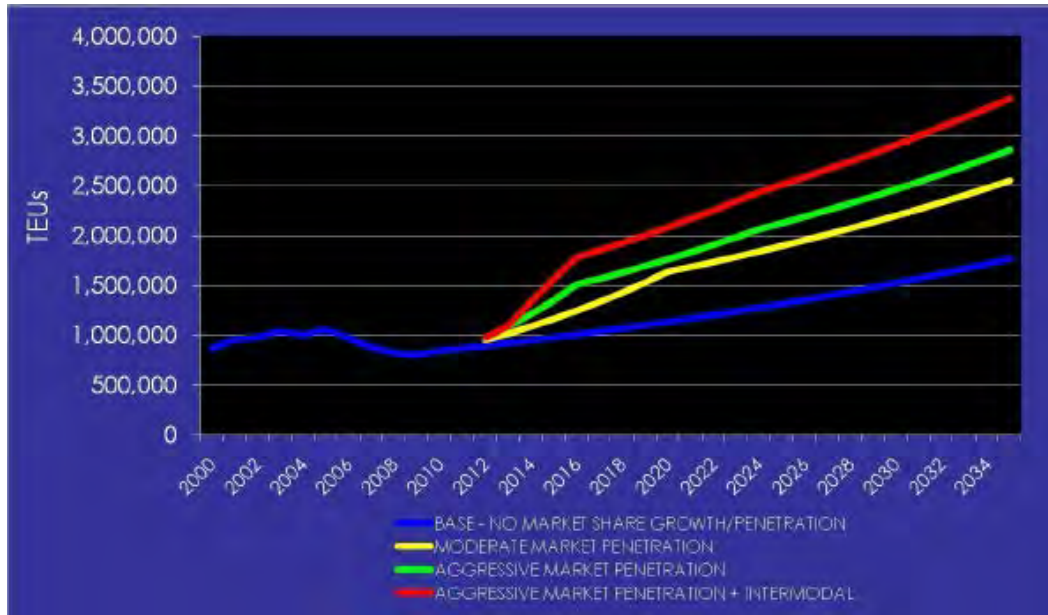
PortMiami has undergone a vast transformation in recent years. The PortMiami Tunnel opened in August 2014 providing direct access to the Interstate System. As a result, the nearly 16,000 vehicles making trips to PortMiami each weekday, of which 28 percent are trucks, no longer have to travel through downtown Miami. The tunnel provides the port with the ability to accommodate its anticipated growth and reduce the impact of port traffic on downtown Miami, which is undergoing significant development. In addition, rail service was restored to the port earlier in 2014 and an on-port intermodal container transfer facility (ICTF) is under construction. Rail connections at PortMiami had been inoperable since the damage done during Hurricane Wilma in 2005. This service was reintroduced in conjunction with Florida East Coast Industries development of the South Florida Intermodal Logistics Center at the south end of the exiting Hialeah Yard. This will decrease traffic congestion and dependency on truck movements as well as reduce emissions. By implementing this project, containerized cargo will be able to reach 70 percent of the U.S. population in four days or less. In addition, it provides direct rail service to the network of distribution centers in western Miami-Dade County.



Finally, the deep dredge is underway. Dredging the Port from the current 42' depth to minus 50-52' will allow for the main channel to accommodate post-Panamax ships. When the Panama Canal opens, this will result in the port being one of the few U.S. Atlantic ports at this depth and the closest to the canal. This project is seen as pivotal to the cargo forecasts developed as part of the 2035 Master Plan. The contract for this project was awarded in May 2013 with work beginning in November 2013 and is to be completed by the opening of the Panama Canal in 2015.

As a result of these major projects and the opening of the expanded Panama Canal, Figure 2.13 shows the expected increase in TEUs at PortMiami. By 2035, container throughput is projected to range between 1.8 million and 3.4 million TEUs with annual growth rates ranging from 3 to 5.8 percent. The range represents moderate to aggressive market penetration by the port.

Figure 2.13 PortMiami Projected Growth by TEUs



Source: PortMiami 2035 Master Plan

2.6 Airports

While there are several smaller airports and airfields in the county, the bulk of air freight movements are handled through Miami International Airport (MIA). MIA is situated on 3,300 acres supporting four runways just 8 miles west of Downtown Miami. MIA is the gateway to Latin America and the Caribbean handling over 80 percent of cargo movements from these markets. Controlling north/south flows in the Western Hemisphere has led to MIA being first among all U.S. airports for international freight and third for total freight. Internationally, MIA is the tenth largest by international freight and eleventh for total freight. Figure 2.14 shows historical trends of cargo movements through MIA. While impacted by the recession, as evidenced in a reduction of tonnage in 2008 and 2009, 2012 saw MIA return to pre-recessions numbers.

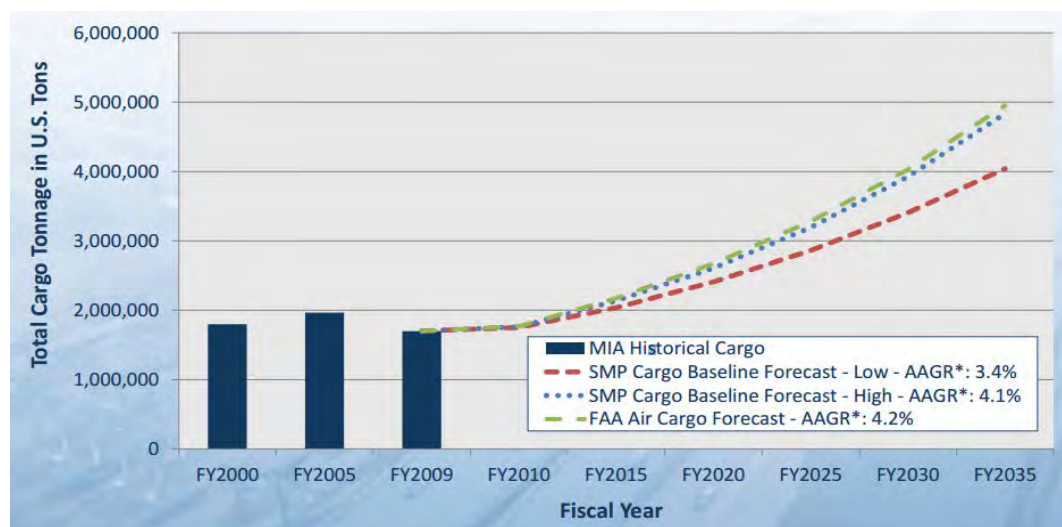
Figure 2.14 Total Freight Tonnage Through Miami International Airport



Source: Miami International Yearly Traffic Reports 2004-2013

The update to MIA's Strategic Airport Master Planning Study (SMP) for 2015-2050 shows MIA continue to grow its cargo volumes. Built off of values and market conditions in 2009, MIA is expected to experience an average growth of 3.4 to 4.2 percent based on SMP cargo forecasts as well as the FAA Air Cargo Forecast as shown in Figure 2.15. These estimates did not have MIA returning to pre-recession levels of over 2 million tons until 2015, however this was achieved in 2012. MIA is anticipated to at least double its cargo volumes by 2035.

Figure 2.15 Estimated Growth of Cargo Tonnage at Miami International Airport



Source: MIA Strategic Airport Master Planning Study 2015-2050

The MIA SMP included an update to the current Capital Improvement Plan (CIP) to prepare for this expected growth. The Westside Cargo Apron project addresses aircraft parking issues at the Eastern U cargo handling facility. As wing spans of aircraft continue to increase, available parking spaces have been reduced. This project removes the vacant U.S. Postal Service building and constructs 4 acres of pavement capable of storing two Boeing 747-800 aircraft as well as a Taxiway connector from Taxiway S.

Eighteen warehouses comprise MIA's cargo facilities, amounting to over 3.5 million square feet of warehousing to complement the 4.4 million square feet of cargo aircraft parking, capable of parking 72 aircraft. In addition, MIA has many unique operations related to cargo movements which help to maintain competitiveness. The functions of U.S. Customs and Border Protection (CBP), Food and Drug Administration (FDA), and the Fish and Wildlife Service (FWS) are all housed in the Cargo Clearance Center for trade documentation processing. MIA is also the only U.S. airport to house the Veterinary Services' import and export operations, inspection station, and air cargo work unit for the USDA in one place. Additionally, MIA is the only U.S. airport to have two on-site fumigation facilities for pest control.

As a result of its extensive infrastructure and unique operating characteristics, MIA has become the dominate airport in a number of commodities. MIA accounts for approximately 72 percent of U.S. fruit and vegetable imports, 90 percent of U.S. flower imports, and 54 percent of U.S. fish imports. While these markets account for the largest amount of goods by tonnage, the bulk of operations by value as result of exports focus on different commodities. The top three export commodities for MIA by value are Computers/Peripherals, Telecommunications Equipment, and Industrial Machinery/Parts for a combined value in 2011 of nearly \$12 billion.

Miami-Dade County is also home to additional airports, albeit with lower traffic volumes: Kendall-Tamiami Executive Airport (TMB), Opa-locka Executive Airport (OPF), Homestead Air Reserve Base (HST), and Homestead General (X51). The Kendall-Tamiami Executive Airport, recently designated as a SIS facility, is located 15 minutes from the business centers in the southern part of the county. With its three runways ranging from 4,001' to 5,999', the 1,380 acre airport acts as a general reliever for MIA. This airport provides U.S. Customers services (Landing Rights Airport) and is home to the MIA AIFSS, the air traffic facility providing en-route communications. Opa-locka Executive is situated on 1,810 acres of land 12 miles northwest of the city center. At 8,002', Runway 9L/27R at OPF is one of the longest general aviation runways in the country enabling the airport to handle virtually any type of aircraft. Two additional runways at the airport measure 4,306' and 6,800'. OPF supports light cargo traffic to the Caribbean and large aircraft maintenance facilities as well as being home to the busiest U.S. Coast Guard Air/Sea Rescue Station. Each of these airports has land available for development.



3.0 Miami-Dade Logistics Infrastructure

The county's freight transportation infrastructure provides the means by which the freight moves into, out of and within the county. However, there are many other factors that impact how freight moves. These factors combine with the transportation system to form a comprehensive logistics infrastructure that provides all the necessary services, warehouse capacity, and international trade expertise. For example, freight forwarders and brokers provide a wealth of knowledge on the laws and regulations imposed on different types of commodities bring imported or exported; many shippers and receivers rely on third party warehouse operators; trucking companies need full service truck parking facilities to maintain their vehicles and adhere to hours of service regulations; and developers need access to land with appropriate zoning and land use designations to allow for industrial facilities. The conditions and amenities available at such facilities have a direct impact on the types of goods which can be handled or stored. Key logistics related components and developments in Miami-Dade County are described below.

3.1 U.S. Customs and Border Protection

U.S. Customs and Border Protection (CBP), as part of the Department of Homeland Security, is charged with protecting the nation's borders while facilitating legal international trade and travel. As part of this, hundreds of U.S. laws and regulations must be followed to enable such movements. Annually, CBP is responsible for the movement of over \$2 trillion in trade. While CBP is essential to both trade and tourism, Federal budget cuts in early 2013 put strains on the system due to a reduction in staffing.

These cuts had profound affects on Miami International Airport and PortMiami as well as other ports of entry across the country. As a result, a new CBP Reimbursable Services Authority was announced in May 2013. This program allows the Commissioner of CBP to enter into public-private partnerships to provide new or enhanced services in any of CBP's non-foreign operational environments on a reimbursable basis. Services can include all Customs and Immigration related inspection activities and may cover all costs, such as staffing, overtime, and transportation. Section 560 of the Consolidated and Further Continuing Appropriations Act of 2013 (H.R. 933) allowed CBP to enter into up to five partnerships by December 31, 2013.

In August 2013, CBP announced preliminary selections for this new program. Selected entities consisted of: Dallas/Fort Worth International Airport, The City of El Paso, Texas, South Texas Asset Consortium, Houston Airport System, and Miami-Dade County. The inclusion of Miami-Dade County benefits both MIA and PortMiami and allows them to return to pre-sequestration levels of service. On December 20, 2013 an agreement was finalized between the Miami-Dade Aviation Department (MDAD) and CBP for additional overtime staffing in the passport control and customs screening areas. Over five years, MDAD will reimburse CBP up to \$6 million for a maximum average of 800 additional CBP inspector hours a month. This overtime will be funded completely by MIA's operating budget which is supported by Aviation Department revenue and tenant fees. While this current effort yields benefits for reducing wait times for international passengers, this initiative paves the way to similar efforts for cargo movements.

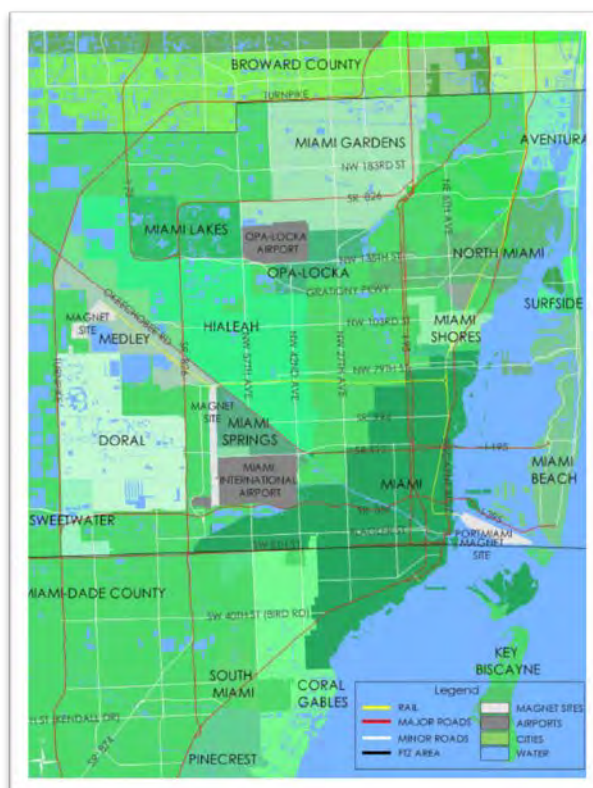


3.2 Foreign Trade Zones

In the United States, foreign trade zones (FTZ) are areas located near Ports of Entry. The idea behind them is that goods receive the same customs treatment as if they were still outside the United States but may be reconfigured or manufactured on U.S. soil. Duties are only paid when goods are transferred to the U.S. consumption market. This lowers the amount of tariffs and taxes paid by companies engaging in international trade by eliminating and/or delaying payment. Effective use of FTZs creates economic opportunity and competitive advantages for a region. At present there are four foreign trade zones in Miami-Dade County, but the structure of such zones is evolving. The defined zones are as follows:

- FTZ No. 32: Miami Free Zone – 47 acre site with more than 850,000 sq. ft. of facilities;
- FTZ No. 166: Homestead – 1,000 acre site roughly 30 miles from both the Airport and Seaport;
- FTZ No. 180: Wynwood –Inactive zone that was never fully established; and
- FTZ No. 281: Miami-Dade County- The Port Miami Free Zone.

FTZ 281 is the newest foreign trade zone designated in Miami-Dade County. The limits of this zone extend from SW 8th Street in the south to the county border with Broward in the north. What is unique about this zone is that it will be among the first to be operated under the Alternative Site Framework's (ASF) streamlined process. Under ASF, two types of sites are designated: Magnet and Usage-Driven. Magnet sites are similar to the way FTZs work today by designating an area in advance in order to attract multiple users to the area. These are not the main goal of the ASF and six or fewer are to be created per grantee. One such designation is the South Florida Logistics Center. On the other hand, Usage-Driven sites are for companies seeking to pursue FTZ activities. In this case, the FTZ designation is tied to the particular company and is limited to the space needed by that company. In the event of a company relocating, the facility will no longer be designated as a Usage-Driven site and a new occupant would need to reapply.



In switching from the traditional FTZ designations to the Alternative Site Framework, unused FTZs will be removed. Currently, FTZs are designated based on speculation about where industries will locate. However, there is little correlation between these sites and actual use,

resulting in locations such as Wynwood. ASF will allow for companies to designate their pre-existing site provided that it is located within the boundaries of the FTZ. In addition, all sites (both Usage-Driven and Magnet) will be given “sunset” limits of three to five years in order to remove excess designations which no longer fit the needs of the FTZ.

3.3 Freight Forwarders and Brokers

While they serve different functions, registered forwarders and brokers have a thorough understanding of the laws and regulations associated with domestic and international shipping. Companies can hire forwarders and brokers to ensure that their goods arrive safely to the markets they wish to serve and within the constraints of the law.

The legal definition of a freight forwarder, according to 49 USC § 13102, is “a person holding itself out to the general public (other than as a pipeline, rail, motor, or water carrier) to provide transportation of property for compensation and in the ordinary course of its business A) assembles and consolidates, or provides for assembling and consolidating, shipments and performs or provides for break-bulk and distribution operations of the shipments; B) assumes responsibility for the transportation from the place of receipt to the place of destination; and C) uses for any part of the transportation a carrier subject to jurisdiction under this subtitle.” In short, a freight forwarder accepts freight for transport and is liable for delivery under their own bill of lading. Domestic freight forwarders must be registered with the U.S. DOT’s Federal Motor Carrier Safety Administration (FMCSA). Those handling international freight, depending on the mode, also require certification from the Federal Maritime Commission, the International Air Transport Association (IATA), and/or the Department of Homeland Security.

Unlike freight forwarders, a freight broker never actually touches the cargo. A freight broker serves as a liaison between a company which needs shipping services and an authorized motor carrier. A broker works with the needs of a shipper and connects them with a carrier willing to transport their cargo at an acceptable price. Freight brokers must also obtain a license from the FMCSA and are required to carry insurance to protect both clients and customers. Previously, the surety bond coverage to maintain a broker’s license was \$10,000. However, with the passage of MAP-21, this requirement was raised to \$75,000 starting on October 1, 2013.

For Florida specifically there exists the Florida Customs Brokers & Forwarders Association, Inc. (FCBF) based in Doral to join these various groups together to facilitate discussion among them. In addition to providing industry related information, FCBF also works to advocate on behalf of its members. Key members consist of Customs Brokers, Freight Forwarders and Air Carriers. However, several other types of industry members are also involved including cruise lines, warehouses, trucking services, and seaports. Florida, and specifically South Florida is home to one of the highest concentrations of brokers in the U.S.

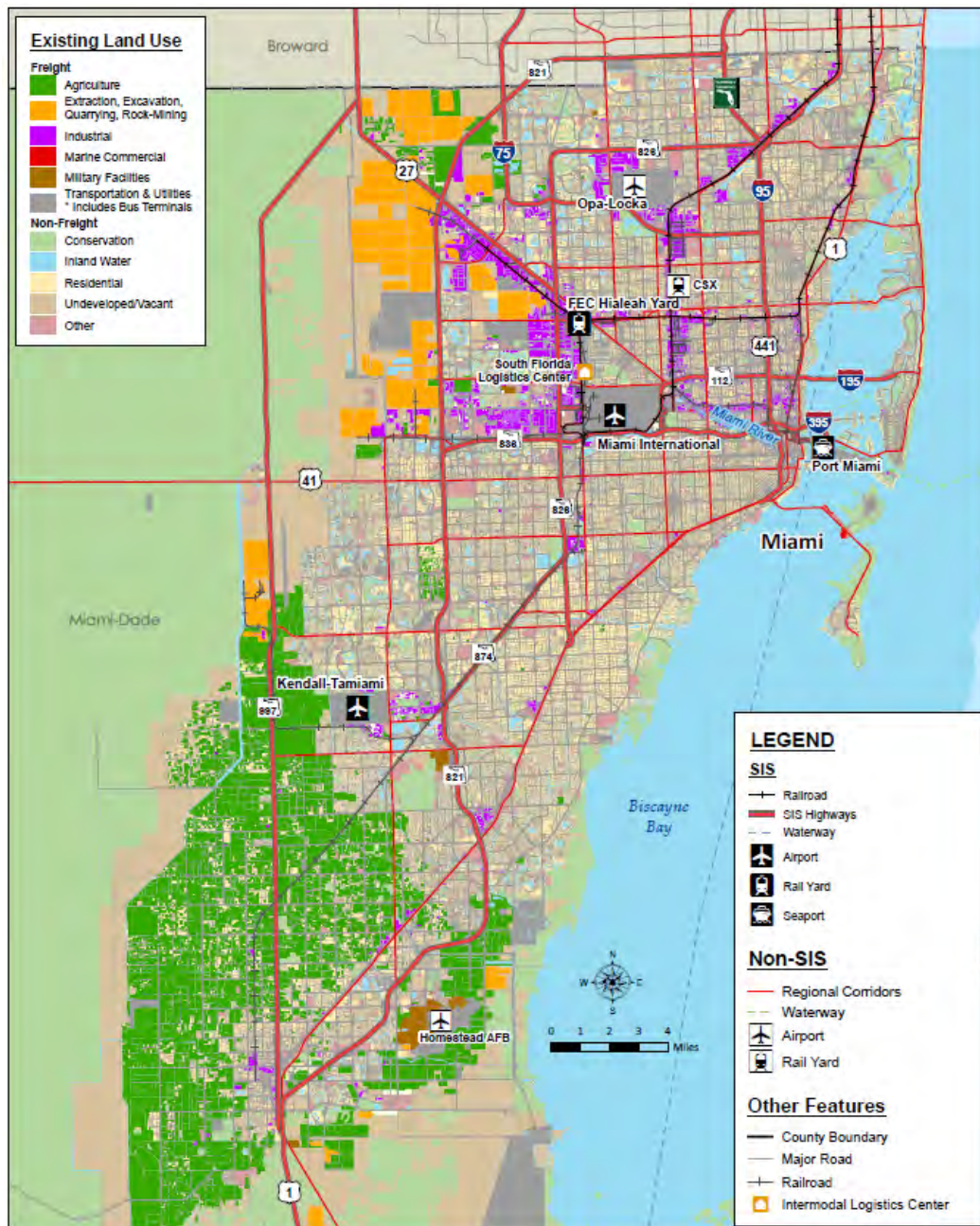
3.4 Land Use Implications

Figure 3.1 shows the existing land use within Miami-Dade County. While this land use data extends beyond the urban area, much of the freight development is still contained within that area with only some agricultural land outside. The freight related land uses within Miami-Dade were summarized into separate categories with their corresponding acreage listed in Table 3.1.



These 180,000 acres may seem small in proportion to the over 1.5 million acres detailed in the Miami-Dade Land Use data, but well over half of this land is protected as part of the Everglades National Park, Water Conservation Areas, and other natural preserves. Excluding these types of land uses and their associated coastal waters, there remains just shy of 450,000 acres of available land within the county. For freight and transportation related land uses to comprise such a large portion, about 40 percent, of that remaining land shows just how tied the county is to the success of this industry.

Figure 3.1 Existing Freight Related Land Uses



Source: Quest Corporation of America.

Table 3.1 Freight Related Land Uses

Existing Land Use	Total Acreage
Agriculture	63,563
Industrial	12,260
Marine Commercial	118
Military	1,500
Mining	16,504
Transportation & Utilities	86,470
Total	180,416

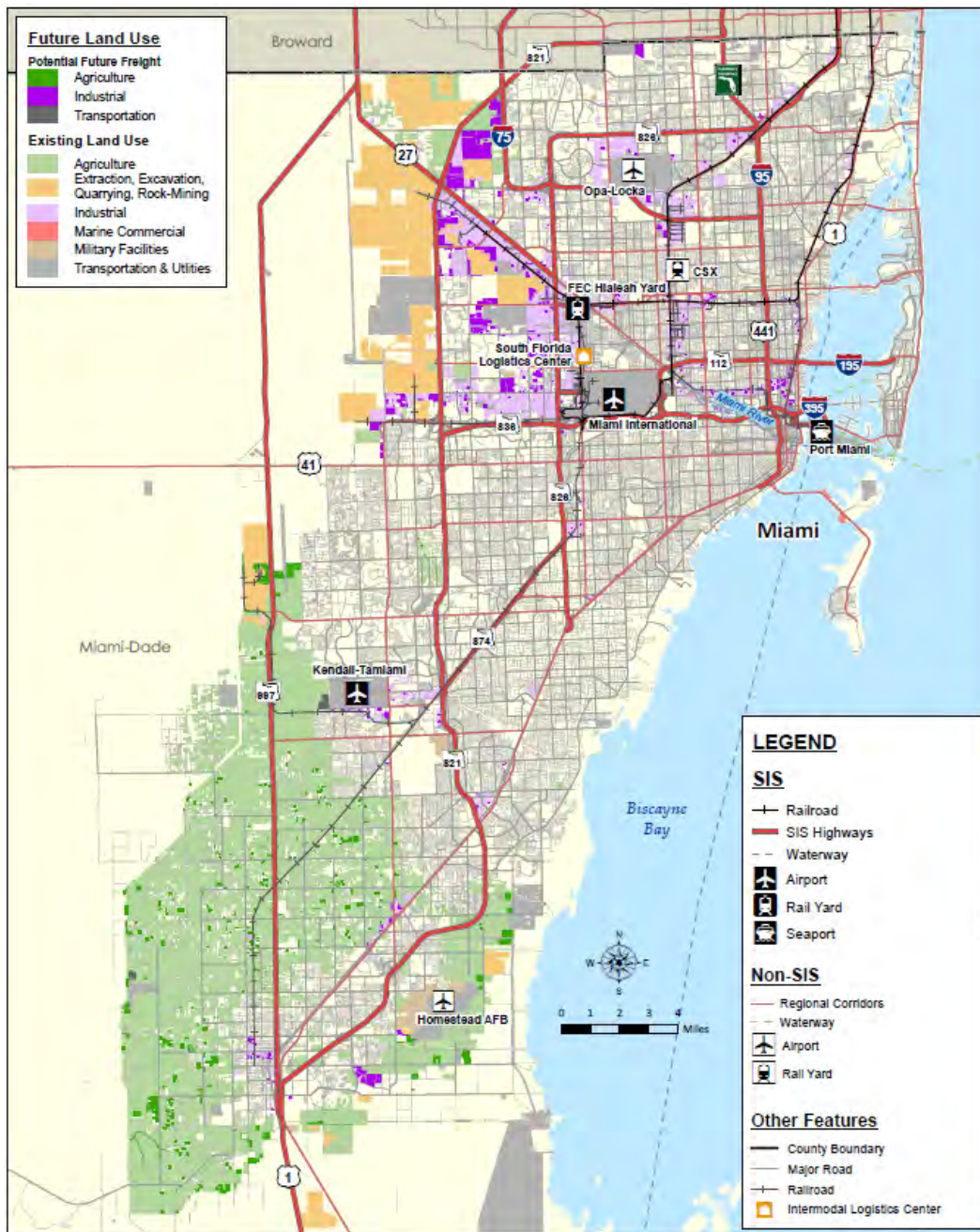
While Miami-Dade has an extensive freight infrastructure, growth is limited as much of the county has already been developed, particularly for residential use, and also due to the location of the Florida Everglades to the west and the environmental concerns associated with the conservation of this unique habitat. With that in mind, acreage is still available. Figure 3.2 displays where potential future developments lie in relationship to the land uses designated today. Parcels were identified by selecting land which is presently “Vacant government owned or controlled” or “Vacant, non-protected, privately owned” but will have either an “Agriculture,” “Industrial and Office,” “Restricted Industrial and Office,” “Terminals,” or “Transportation (ROW, Rail, Metrorail, Etc.)” land use category in the future. Table 3.2 lists the total available acreage for each type of development. Of the nearly 6,900 acres available for development, many of them consist of small parcels. However, there are several large parcels available: 142 parcels are over ten acres, representing 63 percent of the total acreage, including four parcels over 100 acres. Seventy-six percent of the total acreage is made up of parcels at least five acres in size.

Table 3.2 Potential Future Freight Developments

Future Land Use Designation	Total Acreage
Agriculture	2,529
Industrial	3,969
Transportation	359
Total	6,857



Figure 3.2 Existing and Potential Future Freight Land Use



Source: Quest Corporation of America.

3.5 Intermodal Logistics Centers (ILCs), Warehouses, and Distribution Centers

In order to handle the trade passing through the major freight hubs of the county, Miami-Dade must have an extensive network of warehouses and distribution centers. Given the county's long history in international trade, the existing facilities represent a mix of old and new, from the most basic to the technologically advanced. While vacant land is limited for future development, some opportunities still exist for new facilities as well as the potential for the redevelopment of the more obsolete properties.

One of the largest new facilities in the county is being developed on the southern end of the existing FEC rail yard. FECI is developing the South Florida Logistics Center (SFLC). This \$40 million logistics complex will create and support 1,015 jobs. Plans for the 200 acre site include the development of nearly 2 million square feet of industrial space. The first building at this complex, a 170,000 square foot facility, is now open and fully operational. Included in this space is also 30,000 square feet of refrigerated space. Building 2 will provide 274,000 square feet of new Class A Cross-Dock Distribution-Warehouse space and Building 3 will be a Class A Rear-Load Distribution Warehouse with 111,000 square feet; both are planned to come on line in 2014.

Development of this ILC was aided in part by the Florida Department of Transportation. A new grant program was created in 2013 to support ILC development; in addition, designation criteria were developed as part of the last SIS update to allow ILCs to be designated as part of the SIS, which would provide additional funding opportunities.

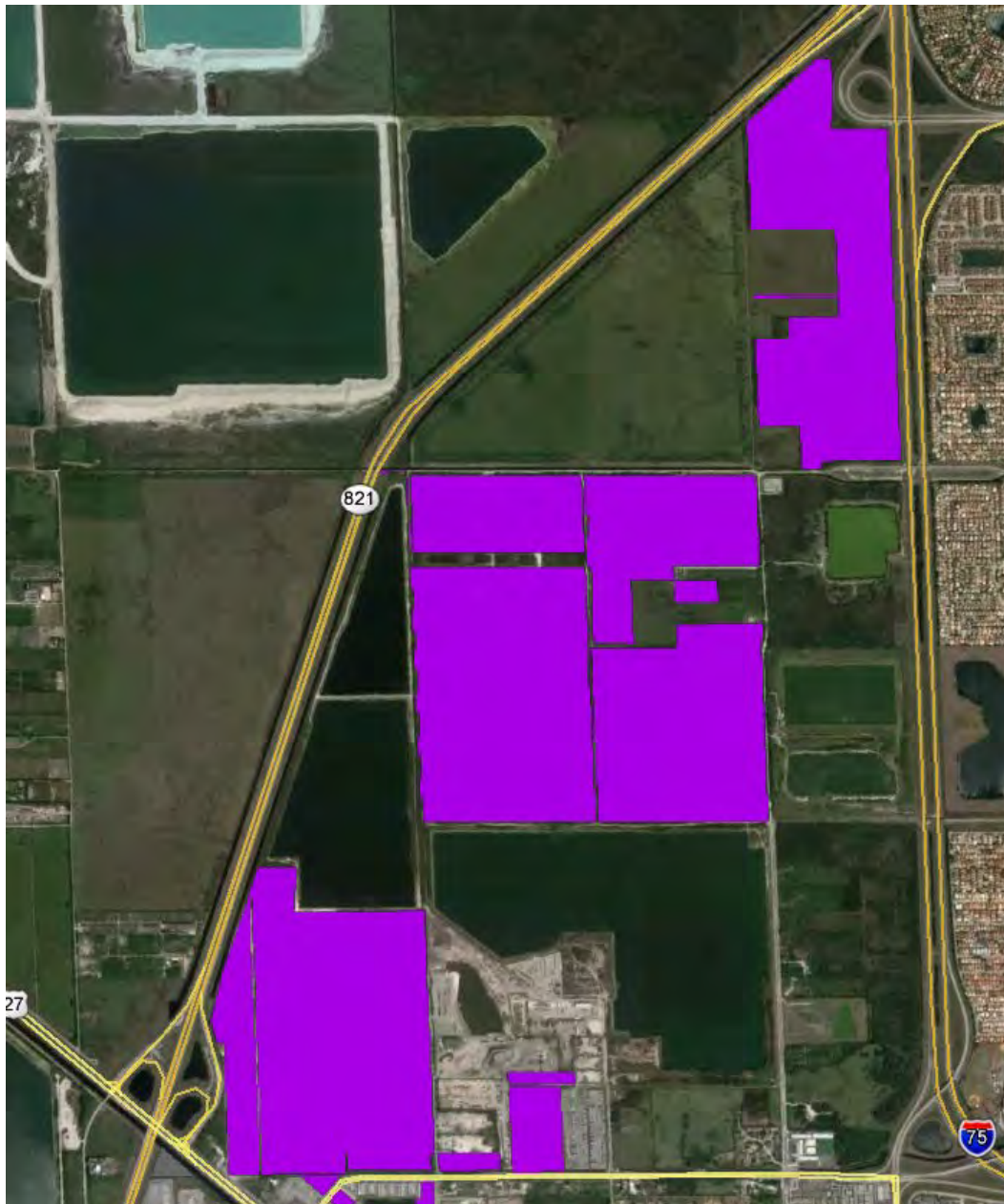
The ILC Infrastructure Support Program allows up to \$5 million per year to be available from the State Transportation Trust Fund for ILC development. A 50 percent match is required of all applicants. The first year of funding yielded investments for four ILCs across the state, including the South Florida Logistics Center in Hialeah. SFLC received \$2.5 million for ILC site access roads at the FEC Hialeah Yard and 67th Ave, truck loading ramps, and internal traffic circulation roads.



While the land and intermodal connections required for an ILC are uncommon in Miami-Dade, one potential large development lies on a former golf course. Westview Country Club, located to the southeast of Opa-locka Airport and at the crossroads of two regionally significant corridors, had been in operation since 1959. When its doors closed in 2011, a group of developers purchased the property in hopes to convert it to a golf-only destination. However, when this idea fell through, the land was purchased by Rosal Westview, LLC with plans for a \$300 million development of the 196 acres site. Original plans for the area called for the development of 2 million square feet of industrial space. However, this clashed with the surrounding residential community, the extent of which can be seen in Figure 3.3. In order to gain approval by the Florida Department of Economic Opportunity for a land use change, the original development plans had to be revised. Industrial and warehousing space is now to be limited to 1.6 million square feet of light industrial, warehouse, and flex space. Furthermore, warehouse and

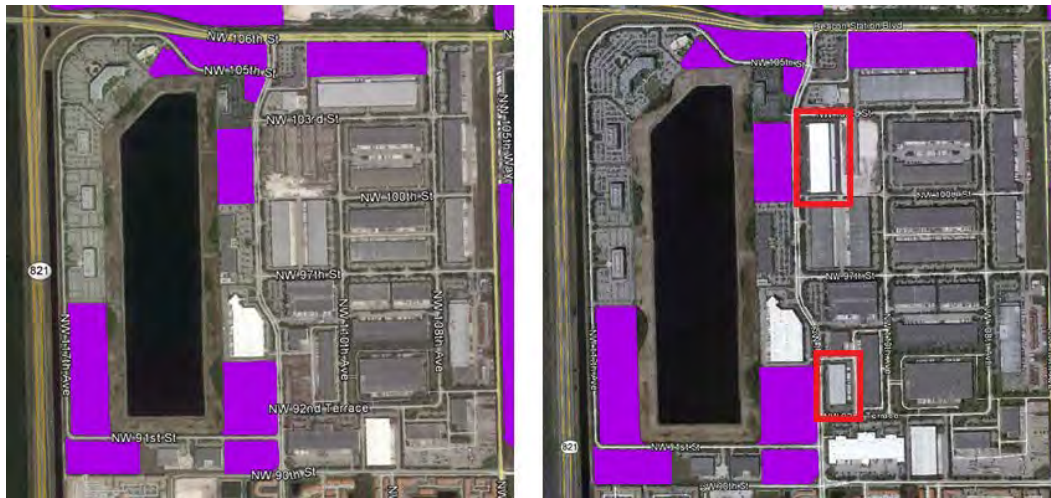


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Figure 3.4 Large Scale Development Potential Example

Other smaller development potential sites lay in various parts of the county. Take, for instance, the area south of NW 106th Street nestled between the Florida Turnpike and NW 107th Avenue. In this small portion of the county, 262 acres have already been developed with an assigned land use of “Industrial Intensive, Heavy Light Manufacturing,” with some nearby office space. The remaining space comprises 77 acres with parcels ranging from 1.5 to 17 acres in size. Future land use designates these areas as either “Industrial and Office” or “Restricted Industrial and Office.” Along these same lines, two new buildings have been constructed in this area since 2011, as can be seen in the aerials in Figure 3.5. While these smaller locations do not afford the opportunity to easily create something on the scale of an ILC, they contribute to the overall framework of the county by providing additional space to create, store, or provide value added services to goods.

**Figure 3.5 Small Scale Development Potential Example
(4/27/2011 vs. 3/6/2013)**



Areas such as these are scattered across the county in places where industrial activity is already occurring. For those seeking to develop warehousing, distribution centers, or even truck parking facilities, the obstacles are not as difficult to face as the appropriate land use is either already there or is planned to be in the future. The MPO and other city planners need to be cognizant of where potential developments are located to ensure that an increase in traffic is properly accounted for in other planning efforts.

Lastly, some existing facilities may no longer fit the needs of modern industrial operations. Common problems include outdated facilities, improper drainage throughout the area, and lack of accessibility. In these cases, a better option may be to tear down such facilities and reconstruct new, state of the art buildings which meet current needs. Unfortunately, many such facilities are small buildings formed in clusters, resulting in multiple individual owners of small parcels. Combining parcels would not only allow for a consolidation of facilities and more effective use of land area, but also potentially require fewer access points for such areas, easing the flow of traffic. To aid in these efforts, the surrounding roadway system needs to be up to par in order to ensure that goods can safely get to and from their destination.

3.6 Truck Parking

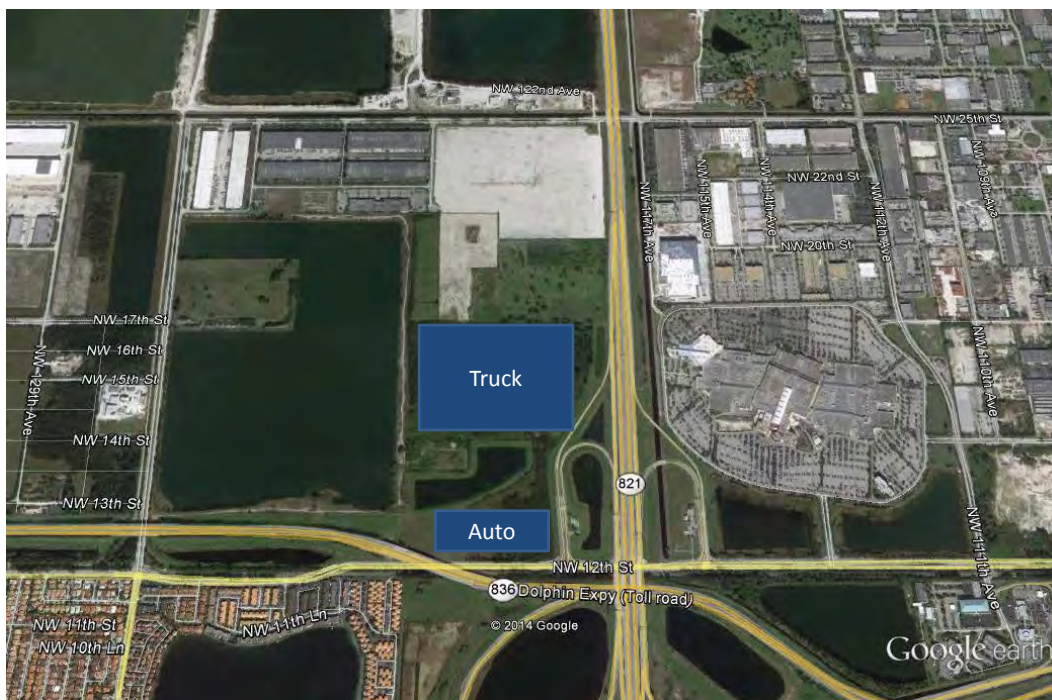
The issue of available truck parking has continued to evolve in Miami-Dade County and throughout South Florida as a whole. A limited number of large parcels hinders the ability to develop an ideal truck parking location complete with all the desired amenities such as fuel, maintenance, showers, and convenience stores. Recognizing this problem, the Miami-Dade MPO has undertaken two phases of a truck parking study.

The first of these studies, completed in September 2010, sought to quantify the extent of this problem. The study identified only 293 truck parking spaces available for local, independent operators and long haul interstate drivers in the county. A majority of these locations, both legal and illegal, are in the western part of the Urban Development Boundary (UDB) and do not offer

amenities. In contrast, estimates put demand at 12,000 spaces. A review of vacant parcels within the county of at least two acres in size and with proper land use and zoning revealed that an additional 6,000 spaces could be developed. This number would leave the county short by 5,700 spaces. In total, at least 1,177 acres would be needed to fulfill the demand. Of this acreage, 170 acres were approved for commercial vehicle storage and parking via Ordinance No. 10-26 on April 28, 2010. Nine properties which meet the allowable characteristics could provide up to 1,700 parking spaces, but no amenities.

The second phase of truck parking facilities in Miami-Dade County looked at the parcels identified in Phase I. Thirteen sites greater than 10 acres within one mile of freeway interchanges within the county were then examined with a preliminary screening process. Four of these parcels are within unincorporated Miami-Dade County, with the remaining nine lying within the incorporated area. An additional eight sites were also identified through the course of this study, four of which are owned by the FDOT. Of the screened sites, twelve were deemed to be feasible for further consideration. The study goes on to identify potential start up costs and business incentives. In October 2013, the Miami MPO contacted the parcel owners to inform them that their properties had been identified as potential sites for truck parking development. FDOT also has initiated a feasibility study for one of the parcels it owns at the intersection of NW 12th Street and Florida's Turnpike. The site would serve as the commuting public as a park and ride as well as a full service truck stop. The site is illustrated in Figure 3.6.

Figure 3.6 Potential FDOT Truck Parking Site



4.0 Global, National, and State Initiatives

4.1 Shifts in Global Trade

4.1.1 Trade Lane Shifts

One of the largest anticipated shifts in international trade is expected to come from the opening of the Panama Canal Expansion. Currently, ships are limited in size based on the existing locks completed in 1914. While there is some variation based on ship type (passenger, container, tug-barge, etc.), the maximum length allowed is 965 feet, with a maximum beam of 106 feet and maximum draft of 39.5 feet. These so called Panamax vessels equate to a container vessel of roughly no more than 5,000 TEU. Recognizing the limitations of the canal and the opportunities to be had, the people of the Republic of Panama voted to expand the canal in 2006. Construction was soon underway with the formal start of the project in September 2007. This expansion project will add a third shipping lane through the construction of lock complexes at each end of the canal. As defined by the Panama Canal Authority in 2009, these new locks will be 1,400 feet long, 180 feet wide, and 60 feet deep. This corresponds to a ship no larger than 1,200 feet long and 160 feet wide with a tropical freshwater (TFW) draft of 50 feet. These ships will have over twice the capacity of the current Panamax ships with the ability of handling upwards of 12,000 TEUs.

What this means for global trade, and the United States in particular, is a shift in trade routes. Rather than trade from Asia entering the United States through the West Coast and either railed or trucked east, it is anticipated that some portion of Asian cargo will traverse the Panama Canal to the East Coast. While this will increase transit time, the all-water route will be potentially cheaper than the current method. In preparation for this expansion, seaports along the Eastern Seaboard of the United States have been transforming themselves in anticipation of these larger ships. In addition to PortMiami, other ports such as Baltimore, Jacksonville, Savannah, and Charleston have made significant investments in their infrastructure to prepare for the canal opening in 2015. Such investments have included channel dredging to at least 50 feet, larger berths, bigger cranes, and intermodal connections.

4.1.2 International Manufacturing Centers

While China has been one of the largest trading partners with the United States, rising costs are driving manufacturers out of the country. Over the last decade, wages have increased 20 percent annually in some parts of China. As costs have risen, manufacturers have taken to Southeast Asia and India. In Vietnam, wages may be half of those in China. Popular leather goods company Coach, Inc. has stated that its Chinese production will decrease from upwards of 80 percent of total production in 2011 to 40-50 percent in 2015. New factories are anticipated to be opened in India, Vietnam, and the Philippines.

This shift to other countries is not found in one company alone. With the desire to find lower labor costs and afford wider profit margins, there has become a significant shift in the major manufacturing centers. In doing so, the typical shipment from China to the United States via the Pacific Ocean is no longer the most lucrative option. Alternatively, vessels are traversing the



Suez Canal which is less restrictive than the current Panama Canal in terms of vessel size. As there are no locks along this canal, the only limitations are in depth (allowable 66 foot draft) and height (223 foot air draft) due to the Suez Canal Bridge. Unlike the Panama Canal, however, one major concern for vessels traveling this waterway is the threat of attacks from terrorist groups who target this important waterway.

While most ports on the Eastern Seaboard of the United States are not planning to dredge to the 66 foot maximum depth of these Suezmax ships, some ships are already making calls to Florida ports, albeit lightly loaded. As early as 2010, the *Suez Canal Bridge* arrived at JAXPORT after visiting other East Coast ports. January 2012 also saw the largest vessel to ever call at JAXPORT with the arrival of the *Yang Ming Milestone*. At over 1,000 feet in length and a width of 131 feet, this vessel would have been too large to fit through the current Panama Canal. Future vessel calls such as these can have a major impact on cargo volumes at Florida's seaports, with some sources believing the Suez Canal will have a greater impact than the increased throughput attributed to the Panama Canal Expansion.

4.1.3 Free Trade Agreements

Free trade agreements also make increasing exports from the United States a more attractive option for manufacturers. A free trade agreement (FTA) is an agreement between two or more countries in which the involved parties agree on certain commitments related to the trade of goods and services. The main goal of FTAs is to reduce barriers to U.S. exports, protect U.S. interests abroad, and enhance the rule of law in the partner country. For example, the United States-Columbia Trade Promotion Agreement (TPA) resulted in over 80 percent of U.S. industrial goods exports becoming duty free when the TPA was implemented on May 15, 2012. Other benefits of this particular TPA were that more than half of U.S. exports of agricultural commodities became duty free and there was stronger protection and enforcement of intellectual property rights within Columbia. At present, the U.S. has 14 FTAs with 20 countries. Negotiations have also been ongoing for the Trans-Pacific Partnership involving the cooperation of 12 countries total. Of the existing FTAs, there is a heavy focus on nearby trading partners such as Canada and Mexico. Particularly important for Miami-Dade County are the agreements in place with several South American countries. As Miami-Dade is a strong international hub for North-South trade movements, these FTAs yield an advantage for increased exports to these countries.

4.1.4 Perishables Imports

While South Florida is a major leader for perishable imports such as fish and fresh cut flowers, many fresh fruits and vegetables bypass the state's ports and are instead taken up to Philadelphia and trucked down to the South Florida market. Historically, this move was made due to concerns over pest control, most specifically the medfly, as the introduction of such pests would harm Florida's agricultural industry. However, with advances in technology, the probability of such a threat has been greatly diminished.



In January 2012, the Florida Perishables Trade Coalition (FPTC) was formed to help increase trade of perishable products through both airports and seaports. The efforts of this association and other members of the industry have led to the creation of a pilot program to meet this goal. The strict rules of the pilot program regarding the process of cold treatment will help to ensure

every effort is made to minimize the risk to Florida's agricultural industry. This pilot program began October 1, 2013 and allows for grapes and blueberries from Peru and Uruguay to enter both PortMiami and Port Everglades. By doing so, shipping time will be reduced by roughly six days at a savings of approximately \$4,000 per container, or 10 percent of the cost of delivery to South Florida. This pilot program will not only provide gains to the growers and shippers, but will also provide jobs in South Florida, reduce truck miles on the state's highway system, increase sales of fresher produce at grocery stores, and savings for consumers. PortMiami received its first shipment of Peruvian grapes on December 2, 2013. Pending the continued success of this first stage of the pilot program, the Coalition seeks to expand the program to include other cold-treated products and other countries. Already, discussions are underway to expand this program to six more countries and encompass 15 additional commodities.

4.1.5 Transshipment Committee

Prior to the events of 9/11, transshipment made up nearly 22 percent of total cargo movements at PortMiami. After these tragic events, CBP inspected nearly all transshipped goods, resulting in significant delays and added expenses. As a result, this transshipment opportunity has left the region and gone to other ports, namely Panama, Freeport, and Kingston, who can offer a greater competitive advantage primarily due to the lack of cargo inspections.

In an effort to bring back this cargo, PortMiami contacted CBP in July 2013 to encourage the development of a pilot program. This effort has led way to the creation of a Transshipment Committee which first met on November 15, 2013, and will continue to meet on a quarterly basis. While PortMiami has led this initiative, terminal operators and all other stakeholders are welcome to participate, thus opening up the possibility of other regional hubs, such as Port Everglades, to contribute. In addition to this committee, three other actions were taken as part of this initiative:

- Assignment of a "Customer Service Manager" who terminal operators can contact directly to discuss delays and help facilitate the flow of cargo. Currently, Robert Martin, the Chief of ATCET, has taken on this role.
- Creation of an "Outreach" role to work with FCBF. This collaboration seeks to create an "In-Bond" class to ensure that transshippers understand in-bond requirements. Kenneth Haeffner, the APD of trade for CBP, has filled this position.
- Terminals will provide CBP an advanced list of merchandise. In return, CBP will coordinate the expedited review of in transit merchandise (similar to methods for perishable goods).



4.2 National Freight Program

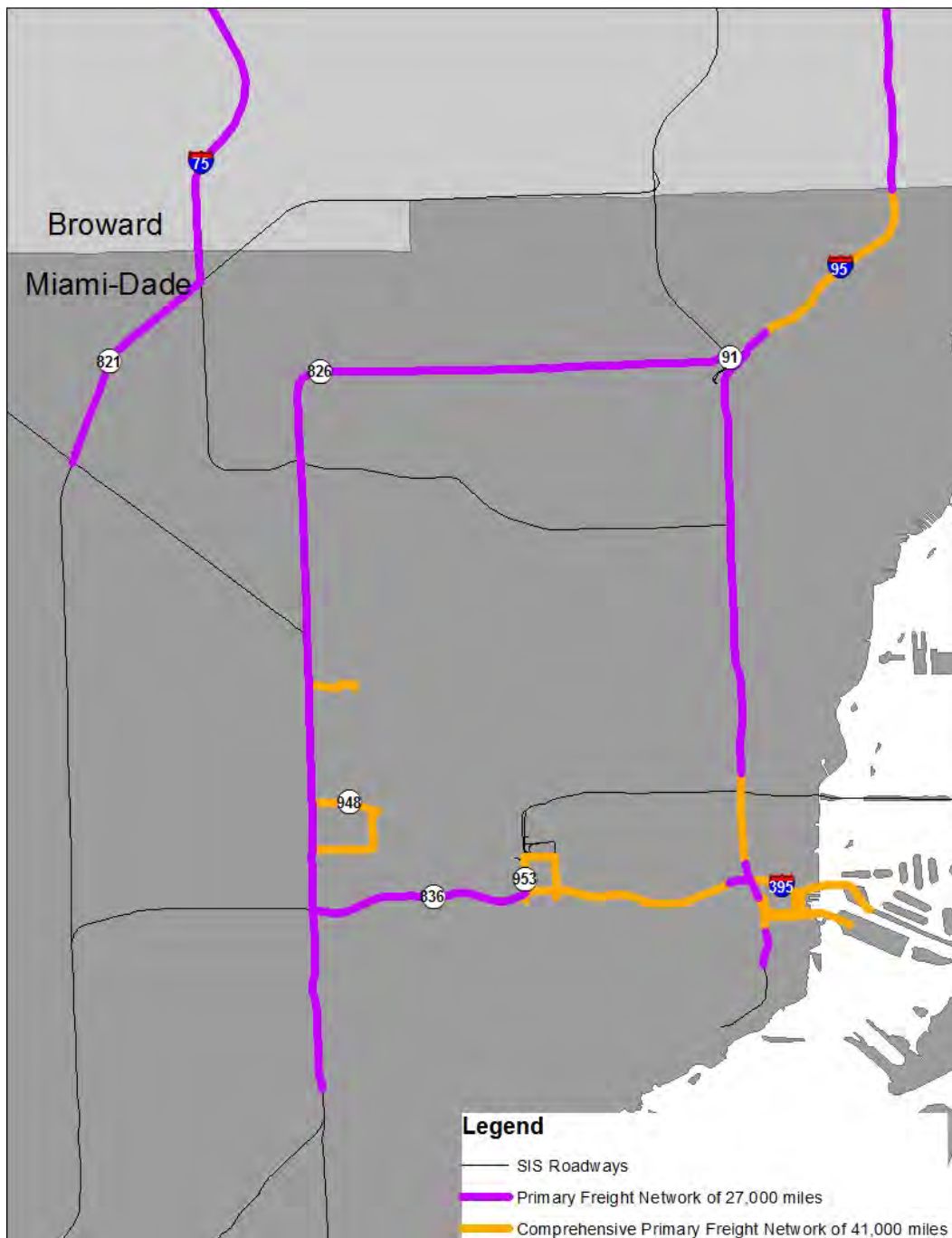
4.2.1 MAP-21

MAP-21 has set the stage for performance-based program management at all levels from planning, to tool development, to reporting requirements. MAP-21 is a “clean bill” free of earmarks and with very little in terms of discretionary programs. Perceived shortcomings of the program include the loss of some valuable initiatives from SAFETEA-LU such as the VMT Pilot Program and the National Cooperative Freight Research Program, and the failure to consider café changes in fuel economy when projecting future revenues. While the elimination of the earmarking system is generally considered a positive development, the lack of discrete nuggets of funding has meant that the fiscal impact of the bill has been less immediate. As its various provisions play out, MAP-21 is intended to act as a slow moving train that gradually gathers momentum behind core initiatives that are worked out through consultations with the industry and stakeholders, rather than by explicit legislative directive. It is possible that certain states and MPO’s may be lulled by the lack of short term deadlines in the bill and discover too late that they have fallen behind with respect to key initiatives described in the bill’s text.

The passage of legislation was only the first step in the process. Equally important is a series of rulemakings that MAP-21 generated that are only now beginning to come into effect. These rulemakings have the capability of slowly but steadily shifting the priorities and approach of the U.S. DOT with respect to freight funding and prioritization. In addition, the legislation set up major initiatives such as the establishment of a national freight network and a national freight advisory committee, the makeup of which will have near term impacts on the way future freight policy is defined and developed. The National Freight Advisory Council (NFAC) consists of 47 voting members from outside of DOT, representing various transportation modes, geographic regions, policy areas, and associations. Members will serve two year terms and will meet at least three times per year. Current membership was announced in May 2013 which includes Carlos Gimenez, mayor of Miami-Dade County, as the only representation for the state of Florida.

As part of MAP-21, DOT is required to establish a national freight network to assist the States in directing resources for the improvement of freight movements on highways. This Primary Freight Network (PFN) must be designated within one year of the enactment of MAP-21. The initial designation may contain no more than 27,000 centerline miles of existing roadways. An additional 3,000 centerline miles may be added which are deemed critical to the future efficient movement of goods. The limitation to 27,000 centerline miles results in an unconnected network, hindered by necessary connections to Mexico and Canada which required several thousand of these limited miles. Other key challenges include the lack of a stated application for the highway network, data limitations, and the centerline requirement versus a corridor approach. In the face of these challenges, Figure 4.1 shows how this draft designation affects Miami-Dade County. As the 27,000 centerline mile designation did not create a connected effort, a 41,000 centerline mile designation is also displayed. Within both of these networks, key roadways are missing. For example, I-395 is designated for the purpose of connecting the Watson Island Seaplane Base, not for its connection to the new PortMiami tunnel which will give trucks direct access to the highway system from the Port. Instead, the roadways in Downtown Miami which trucks previously had to traverse are still under consideration. Even more critical is that the initial 27,000 centerline mile designation assigns no connection for Miami-Dade’s key freight hubs to the rest of the country due to the missing piece of I-95 in the northern part of the county.

Figure 4.1 Draft Designation of the National Freight Network in Miami-Dade County



4.2.2 Water Resources Reform and Development Act

The Water Resources Reform and Development Act (H.R. 3080), or WRRDA, seeks to reauthorize the U.S. Army Corps of Engineers to develop and maintain the United States' port and waterway infrastructure needs as well as targeted flood protection and environmental restoration. This bill will have profound affects across the nation including deepening the Texas Sabine-Neches Waterway, expansion of the Savannah Harbor in Georgia, and other authorizations for North Carolina, California, the Great Lakes region and many other states. For Florida, this bill includes improvements to the ports of Jacksonville and Canaveral in addition to the Everglades Restoration Plan. This bill is also essential for the efforts at Port Everglades to deepen and widen the navigational channels. While PortMiami has already secured funding and is moving forward with dredging, WRRDA is seen as an important factor in increasing cargo traffic. Without additional East Coast deep dredge capacity, it is believed that the U.S. will lose jobs to seaports in other countries who can meet the needs of the larger ships. WRRDA passed both houses of Congress with an overwhelming majority and was signed into law by President Obama in June 2014.

4.2.3 Commercial Vehicle Information Systems and Networks

The Commercial Vehicle Information Systems and Networks (CVISN) program is a key part of FMCSA's goal to improve commercial motor vehicle safety. Goals include improved safety, simplification of operations, and improved security. CVISN manages this by focusing on high-risk operators, improving the accuracy of credentials, electronic screening, and enabling the online application and issuance of credentials. As of August 2012, Florida was one of 29 states to be Core CVISN Compliant. Florida also participates in the nationwide e-screening enrollment program PrePass, exchanges credential data by uploading to SAFER (33), and deploys automatic electronic processing of both the International Registration Plan (IRP) and the International Fuel Tax Agreement (IFTA) credentials. FDOT currently is developing a Commercial Vehicle Operations (CVO) Strategic Plan to help ensure trucking interests remain an integrated component in the state's freight program.

4.2.4 Freight Advanced Traveler Information System

The Freight Advanced Traveler Information System (FRATIS), as part of U.S. DOT's ITS Research Program, is designed to improve truck routing and dispatcher decision-making in order to reduce unproductive moves in an urban setting. The drayage optimization focuses on integrated load matching and freight information exchanges, including appointment scheduling and equipment availability. The daily work plan developed seeks to complete the required movements in the most time efficient manner possible given traffic, driver availability, and required time constraints. Performance of this system will be determined based on improvement in travel time and reductions in fuel consumption and emissions.

South Florida was selected as one of three test sites due to high and growing freight volumes, the existing ITS program, and emergency management activity. Unique to South Florida from the other testing sites is the emergency management aspect of this program. As Florida is vulnerable to severe weather events, most notably hurricanes, FRATIS seeks to increase emergency preparedness and response efficiency by providing real-time information to aid in post-event delivery coordination and critical infrastructure status reports. This will allow the freight industry to contribute to disaster recovery as well as return to normal service in a shorter timeframe.

4.2.5 Smart Roadside

The Smart Roadside program is a joint modal initiative of the Federal Highway Administration (FHWA) and the Federal Motor Carrier Administration (FMCSA). The overall vision for Smart Roadside is for vehicles, motor carriers, enforcement, highway facilities, and the like which collect data for their own purposes to share that data with other interested parties. This sharing will improve safety, security, efficiency, and mobility. Efforts by FHWA and FMCSA include funding tests and demonstrations, developing guiding principles, maintaining a Smart Roadside roadmap and projects database, and collaborating with other entities such as the Department of Homeland Security, the Environmental Protection Agency, and State and industry representatives. Figure 4.2 displays a variety of entities which may plugin to this program in order to facilitate the overall goals.

Figure 4.2 Smart Roadside Concept




Source: U.S. DOT Research and Innovation Technology Administration

4.2.6 Connected Vehicle Research

Connected vehicle applications focus on either safety, mobility, or environmental applications. Safety applications are expected to increase situational awareness and reduce or eliminate crashes through either vehicle-to-vehicle (V2V) or vehicle-to-infrastructure (V2I) data transmissions. Such technologies are anticipated to reduce crash scenarios by up to 82 percent. Mobility applications seek to capture real-time data from equipment on vehicles and within infrastructure. Environmental applications help to capture environmentally relevant real-time transportation data to enable “green” transportation choices. In doing so, trips will become more fuel-efficient and eco-friendly.


Connected Vehicle Research is focused on three areas: Technology, Applications, and Technology Policy and Institutional Issues. Other aspects of Connected Vehicle Research focus on international standards to support harmonization of standards and Dedicated Short Range Communications (DSRC) Technology.



Connected Vehicle Technology will focus on a successful platform allowing for growth, expandability, and incorporation of new technologies. This platform must be based upon the range of human behaviors which will interact with the system. Critical research to address such issues includes: Systems Engineering, Connected Vehicle Certification, and Human Factors Research. Tied to this are the efforts of the U.S. DOT Intelligent Transportation System (ITS) Joint Program Office (JPO) to engage stakeholders to help guide policies related to this. The JPO seeks to ensure that such policies are based on a real-world application of this evolving technology.



4.3 Florida's Freight Program





Florida's freight program is driven by FDOT's Freight Mobility and Trade Plan described below. This Plan is under the umbrella of the Florida Transportation Plan (FTP) and the Strategic Intermodal System (SIS) Plan. The FTP sets the state's transportation policy and the SIS prioritizes capacity investments across all modes. In fact, the statewide freight system consists of a subset of the SIS. In addition to these FDOT initiatives, other partners have undertaken initiatives to specifically address the global trade and logistics opportunities for the state. The Department of Economic Opportunity's Strategic Plan in part addressed the freight and logistics opportunities as related to economic prosperity and the Florida Chamber Foundation's Trade and Logistics Study has helped identify strategies to enhance the state's opportunities.



4.3.1 Freight Mobility and Trade Plan

As required by legislature in 2012, the Florida Department of Transportation released the Freight Mobility and Trade Plan. This plan is intended to guide the programs, decisions, and actions of FDOT and to help inform the freight community of the state's direction in such planning. The main goals of this plan are:

- 
- Increase the flow of domestic and international trade through the state's seaports and airports
 - Increase the development of intermodal logistics centers (ILCs) in the state
 - Increase the development of manufacturing industries in the state
 - Increase the implementation of compressed natural gas (CNG), liquefied natural gas (LNG), and propane energy policy to reduce transportation costs



The first phase, the Policy Element, was released in June 2013. This element laid out the policy framework, identified responsibilities for implementation, and met the requirements of the Florida legislature. The draft Investment Element of this plan, currently out for comment, focuses on identifying and prioritizing freight needs and investments as well as meet the requirements of MAP-21.

4.3.2 Florida Trade & Logistics Study 2.0

In 2010, the Florida Trade and Logistics Study was released by the Florida Chamber Foundation in partnership with FDOT. This study focused on trade flows and related logistics activity

within the state of Florida and recommended actions to prepare for the widening of the Panama Canal. As a follow-up, the Florida Trade & Logistics Study 2.0 was released in 2013 to further build upon the foundation of the first study. The objectives for this second study were to identify opportunities for Florida to become a global trade hub, develop an implementation plan to accomplish this vision, and continue to build consensus among public and private partners in support of the vision and its implementation. Greater emphasis was put on increasing Florida-origin exports and expanding value-added services to support trading businesses and partners. The recommendations from the 2010 study were also expanded upon with greater stress on workforce growth, economic development, and business climate strategies.



5.0 Freight System Needs and Priorities

Recently the County has invested heavily in key infrastructure projects that will transform how freight moves throughout the region. These major projects, including the PortMiami Tunnel, NW 25th St Viaduct and on-port Rail at PortMiami, have long been in the planning stages. For these facilities to finally be constructed recognizes how important freight is to the local economy and the livability of county residents. Even with all these investments completed and underway, significant need remains. These needs represent maintenance and improvements to existing infrastructure as well as new facilities.

5.1 Impacts of Recent Infrastructure Investments and Additional Cargo Volume

With the opening of the Panama Canal, the dredging of PortMiami, the opening of the PortMiami Tunnel, and the reconnection of the on-port rail, PortMiami is well posed for future growth. But the question remains how will the realization of expected growth impact the surrounding infrastructure. In addition to the projected cargo growth at PortMiami are expectations of growth in Downtown Miami, growth in cruise passengers at PortMiami, and the new All Aboard service to be established in the area adjacent to the seaport.

One of the greatest impacts in the near future is the opening of the PortMiami Tunnel. Instead of port traffic being directed through Downtown, drivers will have direct access to I-395. With nearly 16,000 vehicles traveling to and from PortMiami daily and with truck traffic making up 28 percent (4,480 vehicles) of this, removing traffic from local roads will yield significant improvements on travel conditions. Traffic projections show 70 percent of traffic using this tunnel over the existing route through Downtown. In terms of volume, this means that there will no longer be roughly 3,136 trucks traveling through Downtown on a daily basis. The remaining 1,344 trucks are expected to continue to use the Downtown route.¹ As Figure 5.1 shows, roughly 40 percent of all port traffic will be headed northbound on I-95, with 50 percent traveling westbound on SR 836 and the remaining 10 percent traveling southbound on I-95.

¹ Note that not all cargo traffic may use the Port Tunnel. Certain commodities, such as HAZMAT, may not use this route.



Figure 5.1 Cardinal Direction Freight Origin-Destination



Source: Downtown Miami Freight Mobility Study: PORTMIAMI Future Travel Demand Presentation.

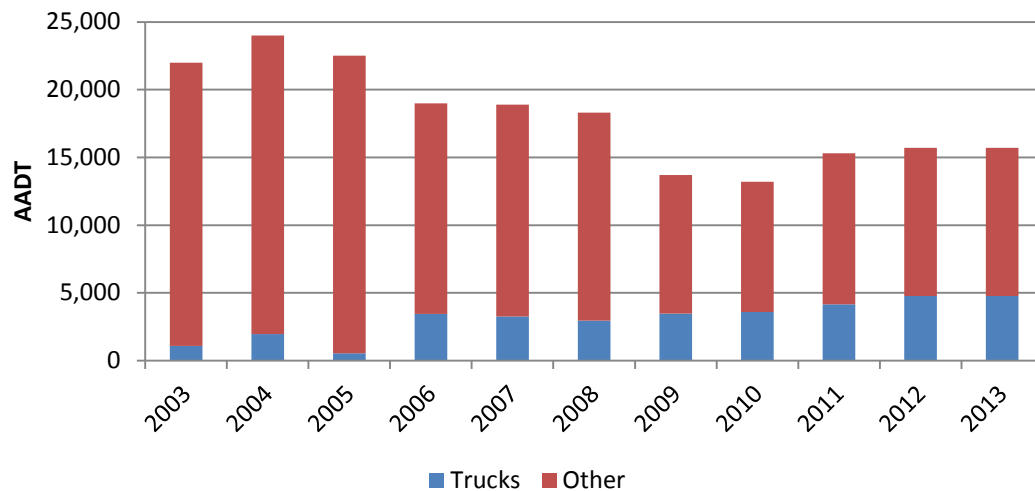
While this tunnel opening eases congestion in the near future, there is a need to look to future plans of growth for PortMiami. Table 5.1 details the anticipated truck volumes through Downtown. While these volumes may appear to be lower than the 4,480 previously detailed, this does not take into account the effects of the on-port rail service. Prior to the rail service being reestablished, only about 1 to 2 percent of freight moved via rail. By 2020, PortMiami expects this to increase to 18 percent. Overall, this should remove 5 percent of the existing truck traffic off the roadway system (roughly 60,000 trucks annually).

Table 5.1 Projected 2040 Daily Truck Volumes at PortMiami

Growth	Bridge	Tunnel	Total
Moderate	842	1,964	2,806
Aggressive	1,092	2,548	3,640
Aggressive+	1,290	3,009	4,299

Source: Downtown Miami Freight Mobility Study: PORTMIAMI Future Travel Demand Presentation.

The impacts of rail service can be seen in historic FDOT traffic data. Figure 5.2 shows volumes reported by FDOT Florida Traffic Online at the site located on Port Boulevard. Prior to 2006, truck percentages at this location were relatively low (less than 10 percent). Once the rail bridge was damaged in 2005 due to Hurricane Wilma, these volumes significantly increased. As of 2013, reported AADT volumes are at 15,700 with 30 percent (4,757) of this traffic comprised of trucks.

Figure 5.2 Historic AADT and Truck Volumes at PortMiami

Source: FDOT Florida Traffic Online (2013) Site 872513 – SR 886/Port Blvd, 100' E of Bridge.

While added rail service may remove trucks from the roadways, an increase in trains as well as longer trains will result in increased delays at rail grade crossings. Within Downtown Miami there are seven grade crossings impacted by this new service, as shown in Figure 5.3. One of the key roadways impacted by this is U.S. 1/Biscayne Boulevard. Given this grade crossing's proximity to PortMiami and American Airlines Arena as well as high volumes on U.S. 1/Biscayne Blvd², this is a primary focus of the Downtown Miami Freight Mobility Study. An initial improvement strategy at this location is to create a grade separation to separate freight from other vehicles and/or consider dedicated facilities for trucks.

² From FDOT's Florida Traffic Online (2013), traffic volumes just north of this intersection at Site 875049 are estimated at 42,500 (AADT). South of this location at Site 875047, AADT is estimated at 38,500.

Figure 5.3 Rail Crossing Locations



Source: Downtown Miami Freight Mobility Study: PORTMIAMI Future Travel Demand Presentation.

In conjunction with the balance of added rail service and modified truck volumes, comes the impact of All Aboard Florida. This new express passenger service will provide rail service between Downtown Miami, Fort Lauderdale, West Palm Beach, and Central Florida. The station serving Downtown Miami will span two sites including: 1) A nine acre transportation hub including mixed use development just east of Miami-Dade County Hall and 2) a two-acre multi-use complex in Historic Overtown at the corner of NW 2nd Ave and NW 6th St. This service is scheduled to run 16 trains a day each way on an hourly basis from 6 a.m. to 9 p.m. These trains are shorter in length than freight trains and as such can clear a grade crossing in around 45 seconds. However, the combination of added passenger service, increased freight rail usage downtown, and additional development may cause significant conflicts in this system.

5.2 Major Missing Links

There are a several major projects in Miami-Dade County that have been discussed over the years that reflect significant investments. Some have advanced while others remain unfunded proposals. Several of these projects are summarized below.

Gratigny Expressway

The Gratigny Expressway is an existing 5.4 mile long toll road connecting I-75, SR 826/Palmetto Expressway, and other major roadways before turning into NW 119th St just two miles short of I-95. The Miami-Dade Expressway Authority (MDX) has long considered extending the Gratigny as it is one of the most heavily used expressways in the county despite its short span. Two possible extensions for the Gratigny are under consideration by MDX. The first consideration is an extension to I-95 in the east at an estimated cost of \$400 million. The second possible extension would align along NW 138th St and link up with Okeechobee Road and

Florida's Turnpike. Completion of both phases would result in a second east-west expressway to complement SR 836/Dolphin Expressway. Historically, this project has not moved forward due to the large capital costs needed to fund this extension as well as local opposition. While many in the community believe it will create jobs and bring new businesses to the community, some fear a similar fate as Overtown from the I-95 construction in the 1960s.

S.R. 826/S.R. 836 Interchange

Initially built in the late 1950s, SR 826 started as a four lane expressway with a 40-foot unpaved median. Over the years, this has evolved and the intersection of this roadway with SR 836 has resulted in an interchange used by over 430,000 motorists daily. Significant investments have been made to reconstruct this intersection in order to enhance safety and reduce congestion. Initial improvements to the Palmetto Expressway began in the last 1990s with construction completed on various interchanges between 1999 and 2012. Beginning in 2009, the reconstruction of the 826/836 Interchange has included new connector ramps, frontage roads, reconstruction of other roadways such as NW 12th Street and Milam Dairy Road, as well as new bridges. This project is estimated to be complete in the Fall of 2015 at a total project cost of \$560 million.

Golden Glades Interchange

The Golden Glades Interchange is the convergence of five major roadways serving Miami-Dade County. With over 400,000 drivers passing through this Interchange on either U.S. 441, the Florida Turnpike, the Palmetto Expressway (SR 826), SR 9, or I-95, safe and effective movement through this interchange is critical. Discussions for improving this interchange have long been in the works. However with such critical facilities dependent on this interchange, modifications are a costly and timely endeavor. In May 2011, a project was begun by FDOT to evaluate connecting a potential managed lane system for SR 826/Palmetto Expressway to the existing I-95 Express managed lanes system. This project was in conjunction with the SR 826 PD&E study from I-75 to the Golden Glades Interchange as well as an Ultimate Master Plan. Moving forward, the process of implementing improvements to the Turnpike Southbound to I-95 Southbound has started in May 2014. Alternatives for these improvements are being studied as part of the PD&E for the Interchange from SR 826/Palmetto Expressway Eastbound to I-95 Northbound. This \$174 million project will procure a design consultant in 2015 with construction anticipated to begin in Winter 2019. Based on the timeframe for this improvement of one direction on two facilities, continued improvements for the other facilities in this Interchange will be an ongoing effort by FDOT.

NW 25th St Extension to HEFT

Construction of the second phase of the NW 25th St Viaduct began in June 2012 to connect to the existing eastern viaduct. This phase includes both the widening and reconstruction of NW 25th St as well as the construction of a viaduct. When complete, the full length of the viaduct will run from Miami International Airport and touch down just east of NW 82nd Avenue. As built, the viaduct will not connect to the HEFT and cargo moved from Miami International Airport will not have direct access to this facility. The City of Doral has put forth a resolution (No. 14-53) in support of construction of Alternative No. 6 of a potential extension of this Viaduct to the HEFT.. This alignment would consist of a flyover bridge as a way to connect NW 25th St to the northbound HEFT ramp via NW 117th Ave, routing traffic over NW 41st St. Furthermore, the City Council requests that the MPO prioritize the construction of Alternative No. 6 to be constructed prior to the completion of the overall NW 25th Street Viaduct Project.



U.S. 27 Corridor

U.S. 27 runs the entire length of the state, beginning in Miami-Dade County. Widened to a four lane divided highway in the 1990s, this roadway offers a limited access facility to northern portions of the state. While only a small portion of this roadway is in Miami-Dade County, it provides a critical future link for goods traveling to and from the area, specifically PortMiami. FDOT projects a significant increase in truck traffic along this corridor, a result of increased traffic at PortMiami and Port Everglades as well as the 50 million square feet of warehousing space planned as part of three proposed ILCs around Lake Okeechobee. U.S. 27 represents one of FDOT's future corridors although no recommended expansion has been developed to date.

To alleviate some of this anticipated truck traffic, and to expand the capacity of South Florida's freight system, one proposal studied by FDOT at the request of Florida's Legislature, is to build a rail link from the existing rail network in western Miami-Dade County to the South Central Florida Express Railroad in western Palm Beach County. This service would allow for the transfer of goods to and from PortMiami to the Lake Okeechobee region without ever putting a vehicle on the roadway. In addition, this rail line could relieve anticipated congestion along the FEC corridor not only for traffic at railroad crossings but also for additional passenger trains. With the proposed All Aboard service running between Miami and Orlando, an increase of 32 trains per day is anticipated. Even with the rail line, FDOT projects that U.S. 27 will need to be widened to six lanes between Griffin Road in Broward County and Old U.S. 27 in Palm Beach County. The Miami-Dade FTAC discussed the potential development of this corridor at its June 2014 meeting and recommended highway and rail improvements be considered as separate projects to ensure the advancement of needed highway projects while support and demand for a rail link is developed.

5.3 Freight Needs and Priorities

A prioritized list of freight needs for Miami-Dade County was developed using stakeholder interviews, review of past plans, consultation with the FDOT Work Program, and identification of hot spots/bottlenecks based on a combination of screening and field review. The hotspots are described in detail in Appendix C. Individual lists were developed for the seaports, airports, rail, and highways. The following section presents the prioritized lists for each mode. In addition, it includes a list of freight only highway projects identified for funding through the MPO's new freight set aside.

Seaport Needs

With dredging underway and the tunnel complete and open, PortMiami has had high capital cost projects over the course of the last few years to prepare for the opening of the Panama Canal. As such, with nearly all of the high profile projects underway or complete, there are not many significant projects planned at the seaport. For the most part, improvements at PortMiami focus on the operations and maintenance of existing facilities to enhance the benefits of this large investments, and the purchase of new cranes capable of serving the larger vessels. The list of needs was developed in close coordination with PortMiami staff.

The list of needs was prioritized using the methodology developed as part of the Southeast Florida Regional Freight Plan. This methodology scored the projects based on Project Type, Traffic Type, Level of Impact, Timeframe, and Inclusion in an Established Plan. A more detailed

description of this approach is available in Appendix D. Table 5.2 details the top ranking seaport projects at PortMiami.

Table 5.2 Prioritized Seaport Needs

Rank	Project	Project Category	Score
1	Development of MDC ILC Facility	Capacity	70
2	Reefer Expansion Project	Capacity	65
3	Wharves V & VI Curved Gantry Crane Rail	Operations	55
3	Crane 12 Relocation	Operations	55
3	Crane Electrification 4, 5, 6, 7, 11, 12	Operations	55
3	Relocation of Cranes 4, 5, 6, 7	Operations	55
3	RPM Rails for Cargo Yards	Operations	55
3	Runway/Rails for Future RTG in Cargo Yards	Operations	55
9	Seaboard Parking Relocation (due to rail)	Maintenance/Other	50
9	Trailer Relocation (Seaboard)	Maintenance/Other	50
9	Trailer Relocation (Cargo Terminal 3)	Maintenance/Other	50
9	Cargo Terminal 3 Reconfiguration – Electrical	Maintenance/Other	50
9	Port Crane Management Facility	Maintenance/Other	50
9	Cranes 7-10 Wire Replacement	Maintenance/Other	50
9	Crane Network Connectivity	Maintenance/Other	50
9	Crane Lighting Study	Maintenance/Other	50
9	Relocation of Fumigation Yard	Maintenance/Other	50
9	Fence Relocation – Chute Road	Maintenance/Other	50
9	Pavement Repairs (Various Locations)	Maintenance/Other	50
9	Shed E Canopy	Maintenance/Other	50
9	Shed G Chiller Building Demolition	Maintenance/Other	50
9	Shed C Demolition	Maintenance/Other	50
9	Bays 148-195 Seawall Upgrades	Maintenance/Other	50
9	North Bulkhead Repairs	Maintenance/Other	50
9	Bays 0-65 Seawall Rehabilitation	Maintenance/Other	50
9	Comprehensive Way Finding Signage Project	Operations	50

Source: Southeast Florida Regional Freight Plan.

Airport Needs

Miami International Airport has recently made extensive investments in its cargo infrastructure. The \$500 million Cargo Development Program included 17 new cargo buildings with over 3.5 million square feet. As such, many of their recent endeavors have been completed and extensive



capital improvement projects are not planned. For the most part, improvements at MIA are limited in scope and focus more so on general facility improvements which benefit all types of aircraft movement over cargo-specific improvements.

Opa-locka Executive, while handling significantly less than MIA, does have some cargo activity. For the most part, this is light cargo traffic to the Caribbean and large aircraft maintenance facilities. Some amount of improvements are also planned at this airport which would benefit this traffic movement.

The list of needs was prioritized using the methodology developed as part of the Southeast Florida Regional Freight Plan. This methodology scored the projects based on Project Type, Traffic Type, Level of Impact, Timeframe, and Inclusion in an Established Plan. A more detailed description of this approach is available in Appendix D. Table 5.3 displays the output of this methodology.

Table 5.3 Prioritized Airport Projects

Rank	Airport	Project	Project Category	Score
1	MIA	Additional Air Cargo Apron	Cargo Capacity	100
2	MIA	Fuel Tanker Parking Facility	Ops Improvement @ West Cargo Base	55
2	MIA	Perimeter Road Widening and Realignment	Access	55
2	MIA	Miami-Dade Aviation GPS Landing System	Aircraft Ops Improvement/Safety	55
5	MIA	Northeast Apron and Drainage Improvements	Cargo Ramp	50
5	MIA	Acquisition of FOD equipment	Airport Safety	50
5	MIA	Taxiway S Rehabilitation	Aircraft Ops Improvement	50
5	MIA	Taxiway T Rehabilitation	Aircraft Ops Improvement	50
5	Opa-Locka	Rehab Aprons	Airport Ops	50
5	Opa-Locka	OPF Taxiway Repair	Airport Ops	50

Source: Southeast Florida Regional Freight Plan.

Rail Needs

Similar to the airports, extensive infrastructure improvements are not planned for the railroads in Miami-Dade. For the most part, planned improvements focus on key track upgrades, connection improvements, and safety improvements. Prioritized based on the same criteria as the airport and seaport projects, short term, freight focused capacity improvements continue to be the highest prioritized items. A more detailed account of this methodology is available in Appendix D. Table 5.4 details the identified rail projects in the county.

Table 5.4 Prioritized Rail Needs

Rank	Rail	Projects	Project Category	Total
1	CSX/FEC	IRIS Connection from CSX Mainline to FEC Mainline (FECR movement south from Tri-Rail's rail yard to FECR Hialeah yard)	Freight Capacity-Access	75
3	FEC	FEC Miami Freight Forwarding Yard	Freight Capacity-Access	70
3	FEC	FEC N. Miami to Ojus Double Track	Freight Capacity-Line Expansion	70
5	FEC	NE 203rd St & NE 215th St Intersection Improvements between US-1 & W Dixie Hwy	Safety- Grade Crossing	60
5	SFRC	MR MIC Double Track Last Mile of SFRC	System Capacity	60
7	FEC	FEC N. Miami to Little River Track Upgrade	Freight Capacity-Rehabilitation	55
10	CSX	CSXT Positive Train Control	Safety- Grade Crossing	50

Source: Southeast Florida Regional Freight Plan.

Highway Needs

Highway needs include corridors and connectors and major and minor facilities. Given the role trucks play in the county's freight system, the extent of the list is much greater than the other modes. The list of needs was prioritized using the methodology developed as part of the Southeast Florida Regional Freight Plan. This methodology scored the projects based on Truck AADT, Truck Percentage, Proximity to Activity Centers, Project Type, Facility Type, and Intermodal Connectivity. A more detailed account of this methodology is available in Appendix D. Table 5.5 details the top 20 highway projects in the county identified through this prioritization process.

Table 5.5 Prioritized Highway Needs

Rank	Facility	From	To	Description	Score
1	SR 826/Palmetto Expressway	NW 87 th Ave on I-75	SR 836	Add managed lanes	86
1	SR 826/SR 836	NW 25th St to SW 8th St	NW 87th Ave to 57th Ave	Interchange/Add lanes - DT2495811	86
3	SR 886/Port Bridge	Biscayne Blvd	PortMiami	Repairs to bascule rail and vehicle bridge	84
4	SR 826/Palmetto Expressway	U.S. 27/Okeechobee Rd	SR 874	Interchange improvements	81

5	NW 12th St	NW 107th Ave	SR 826	Widen from 4 lanes to 6 lanes, improve signal coordination	79
5	NW 20th St	NW 27th Ave	I-95	Roadway infrastructure improvements	79
5	SR 826/ Palmetto Expressway	Golden Glades	Dadeland	Create separate barriered truck lane with manageable entry/exit	79
8	NW 25th St	NW 89th Ct	SR 826	Widen from 4 to 6 lanes	78
8	Medley Bridge/Canal Improvement Program	NW 121st Way, NW 116th Way NW 105th Way, NW 79th Ave		Improve the connections between Okeechobee Rd and Medley through a combination of bridge widening and canal improvements	78
8	NW South River Drive	NW 107th Ave	NW 74th Ave	Widen North River Drive to include shoulders and improved access management	78
8	SR 25/ Okeechobee Rd/U.S. 27	Krome Ave	NW 79th Ave	Expressway Conversion - Construct Grade Separated Overpasses at Major Intersections. New Interchange at NW 79th Avenue, Krome Avenue / SR-997, NW 103rd Street / NW 87th Avenue	78
8	SR 25/ Okeechobee Rd/U.S. 27	Krome Ave	SR 826	Conversion to limited access toll facility	78
8	SR 821/HEFT	Kendall Dr	I-75	Widen from 6/8 lanes to 10 lanes	78
8	SR 821/HEFT	Eureka Dr	Kendall Dr	Widen to 8-, 10-, 12-lanes plus auxiliary lanes	78
8	SR 821/HEFT	SW 216th St	Eureka Dr	Widen from 6 to 10 lanes	78

16	NW 25th St Viaduct	NW 87th Ct	SR 826	Phase 2 – construction of Viaduct from SR 826 to NW 87th Court	76
16	SR 826/ Palmetto Expressway (NB)	Okeechobee Rd	NW 103rd St	Add 1 NB auxiliary lane	76
18	NW 21st St/ NW 32nd Ave	NW 37th Ave	NW 28th St	Construct high level bridge	75
18	NW 25th St	HEFT	Miami International Airport	Widen 25th street from 4 to 6 lanes. Provide adequate left-turn bay lengths, study the possibility of median opening closures within 1,000 feet of the intersection and provide adequate turning radii	75
18	SR 826/ Palmetto Expressway	I-75	Golden Glades Interchange	Add managed lanes	75

Source: Southeast Florida Regional Freight Plan.

Freight Only Projects

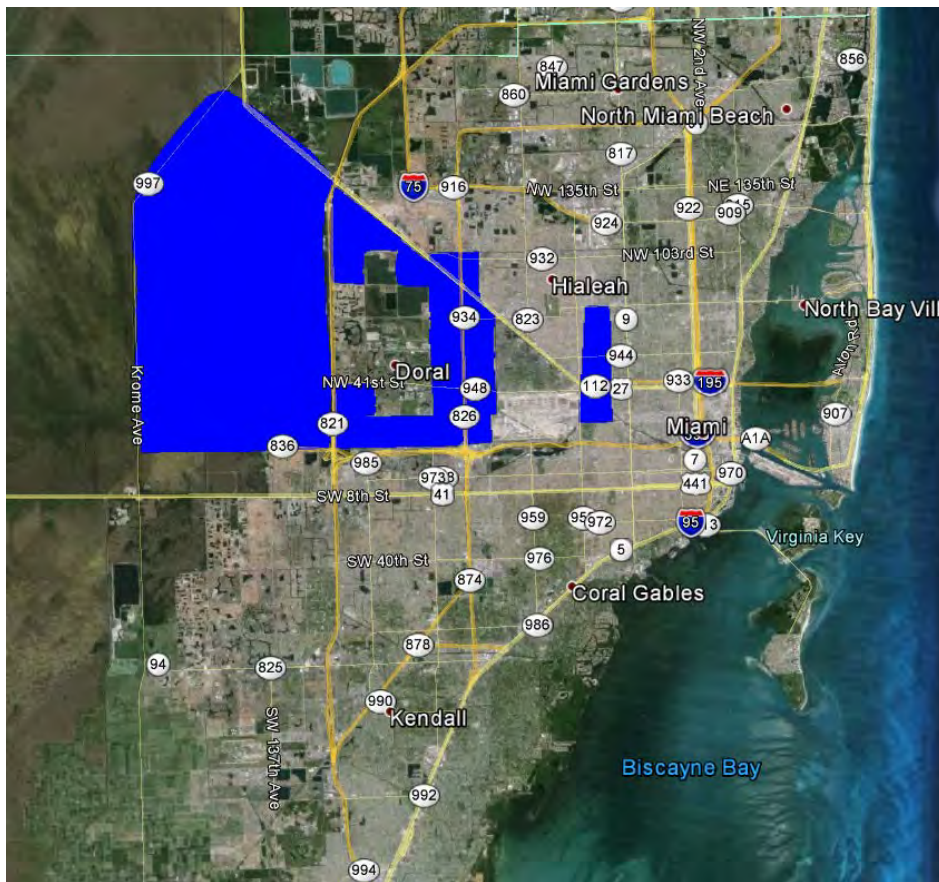
As part of this Freight Plan Update, numerous highway infrastructure needs were identified throughout the county. While all identified projects will have an impact on freight movements, some also improve passenger movements. For instance, the PortMiami Tunnel, while giving trucks direct access to the interstate system, also improves traffic conditions in Downtown Miami as well as ease of access for cruise passengers traveling to PortMiami to embark on a cruise. As part of the 2040 LRTP Financial Set-Asides, the Miami-Dade MPO has approved financial set asides for freight, along with other set asides for congestion management and bicycle/pedestrians. As of June 2014, Table 5.6 details the revenue set aside for freight specific purposes.

Table 5.6 2040 LRTP Financial Set-Asides for Freight

2040 Freight Set Aside (Millions)	2020	2021-2025	2026-2030	2031-2040	Total
TMA (5%)	\$ 1.7	\$ 8.4	\$ 8.4	\$ 16.8	\$ 35.3
Other Arterials (5%)	\$ 4.8	\$ 21.5	\$ 20.3	\$ 44.4	\$ 91.0
TRIP (5%)	\$ –	\$ 0.3	\$ 0.3	\$ 0.6	\$ 1.2
Total	\$ 6.5	\$ 30.2	\$ 29.0	\$ 61.8	\$ 127.5

Source: Miami-Dade MPO 2040 LRTP.

To help facilitate the disbursement of this set-aside, freight only projects have been identified. This projects were identified based on the identification of projects located in areas in the county that are exclusively industrial, predominantly located in locations with significant warehousing activity, such as west of the airport. Figure 5.4 shows the areas designated as 100 percent industrial. The list of projects was then prioritized based on the following: Facility Type, Adjacent Freight Center Density, Truck ADT, Project Cost, Attraction to General Traffic, and Type of Project. Table 5.7 shows how each of these factors were rated for each project.

Figure 5.4 Locations of Freight Only Projects

Source: Cambridge Systematics, Inc.

Table 5.7 Ranking Priority

Category	Item	Points
Facility Type	Local Collector	1
	County Rd	2
	State Highway	3
Adjacent Freight Center Density	Low	0
	Medium	1
	High	3
Truck ADT	< 1,000	1
	> 1,000	2
	> 2,500	3
Project Cost	> \$20 M	1
	> \$5 M	2
	< \$5 M	3
Attraction to General Traffic	Significant	1
	Moderate	2
	Insignificant	3
Type of Project	Capacity	3
	Operations	2
	ITS	1

Source: Cambridge Systematics, Inc.

Table 5.8, 5.9, and 5.10 detail the high, medium, and low ranking freight projects, respectively. With the exception of Phase 2 of the NW 25th St Viaduct from SR 826 to NW 87th Ct, all of the High ranking projects are relatively low cost (< \$5 million) improvements. Such projects are important as they allow for more areas to be improved with the same funding allotment.



Table 5.8 High Ranking Freight Only Projects

Facility	From	To	Type
NW 72nd Avenue	NW 74th Avenue	SR 836	Corridor Traffic Ops. Improvements
Truck Parking Improvement	Okeechobee Road/HEFT		Truck Parking
Truck Parking Improvement	NW 36th Street/NW 37th Avenue		Truck Parking
NW 74th Street	NW 84th Avenue	NW 74th Avenue	Corridor Traffic Ops. Improvements
NW 25th Street Viaduct	NW 87th Court	SR 826	Arterial Capacity Improvements
NW South River Drive	NW 107th Avenue	NW 74th Avenue	Arterial Capacity Improvements
Le Jeune Road	NW 28th Street	North of NW 31st Street	Corridor Traffic Ops. Improvements
Le Jeune Road	NW 28th Street		Intersection Traffic Ops. Improvements
Milam Dairy Road	NW 58th Street	NW 74th Street	Corridor Traffic Ops. Improvements
NW 58th Street	NW 74th Avenue		Intersection Traffic Ops. Improvements

Table 5.9 Medium Ranking Freight Only Projects

Facility	From	To	Type
NW 12th Street	NW 87th Avenue		Intersection Traffic Ops. Improvements
SR 25/Okeechobee Road/U.S. 27	NW 138th Avenue	NW 79th Avenue	Corridor Traffic Ops. Improvements
NW 107th Avenue	Okeechobee Road	1000 ft north of NW 122nd Street	Arterial Capacity Improvements
NW 58th Street	NW 82nd Avenue	NW 74th Avenue	Corridor Traffic Ops. Improvements
Truck Parking Improvement	Golden Glades Interchange Multimodal facility		Truck Parking
Port of Miami Operations			ITS Improvements
NW 87th Avenue extension	Okeechobee Road	NW 58th Street	Arterial Capacity Improvements
NW 82nd Avenue	NW 41st Street	NW 25th Street	Arterial Capacity Improvements
NW South River Drive	NW 36th Street		Intersection Traffic Ops. Improvements
Truck Parking Improvement	NW 12th Street/HEFT		Truck Parking
NW 25th Street	NW 89th Court	SR 826	Arterial Capacity Improvements
NW 12th Street	NW 107th Avenue	SR 826	Arterial Capacity Improvements
W 16th Avenue	S Okeechobee Road	NW South River Drive	Corridor Traffic Ops. Improvements
NW 36th Street / NW 41st Street	HEFT	Le Jeune Road	Corridor Traffic Ops. Improvements
NW North River Drive	SR 112	NW 27th Avenue	Corridor Traffic Ops. Improvements
SR 826/Palmetto Expressway	Golden Glades	Dadeland	Freeway Capacity Improvements (Unfunded)
SR 836/I-395/MacArthur Causeway	NW 137 Ave	Miami Beach	Freeway Capacity Improvements (Unfunded)

Table 5.10 Low Ranking Freight Only Projects

Facility	From	To	Type
Medley freight hub streetlight and local roadway improvements			Corridor Traffic Ops. Improvements
Integration of Truck Route System and Regional ITS Network			ITS Improvements
Way-Finding Sign Improvement Program			Corridor Traffic Ops. Improvements
NW 116th Way	Okeechobee Road	South River Drive	Corridor Traffic Ops. Improvements
Medley Bridge/Canal Improvement Program	NW 121st Way, NW 116th Way, NW 105th Way, NW 79th Avenue		Corridor Traffic Ops. Improvements
NW 25th Street	HEFT	NW 89th Court	Corridor Traffic Ops. Improvements
SR 997/Krome Truck By-Pass	Along Flagler Avenue/Civic Court	NW 6th Street	Arterial Capacity Improvements
NW 107th Avenue	NW 25th Street	NW 41st Street	Arterial Capacity Improvements
NW 25th Street to NW 117th Avenue to HEFT			Arterial Capacity Improvements
NW 117th Ave	NW 12th St	NW 58th St	Corridor Traffic Ops. Improvements

6.0 Findings and Strategies

With an established and mature logistics infrastructure, and critical investments in place or under construction to modernize and advance the region, Miami-Dade County is well positioned for continued growth in freight related industries. With the next wave of priorities identified, an effective investment strategy is critical to Miami-Dade's future. The freight set aside included in the 2040 LRTP will help promote critical freight investments and the investment element of the state's Freight Mobility and Trade Plan should further advance needs of statewide significance. Formal adoption of the national freight network should also promote freight investments as Congress works to reauthorize the Federal transportation bill.

Many of the planned investments external to Miami-Dade County likely to have an impact have been delayed. The Panama Canal expansion schedule has slipped. This ensures PortMiami will complete its key expansion program in advance of the Canal opening, however, it may also push the port's forecasts out a few years. Regionally, development of ILCs has been limited. Proposed sites in St. Lucie, Palm Beach, Hendry and Glades counties have advanced slowly, and while in some cases the necessary land use and zoning changes have been made, construction has not begun at any of them. Locally, Miami-Dade County has been successful in expanding its warehouse and distribution capacity as illustrated by the South Florida Logistics Center and other private developers primarily in the northwestern part of the county. To complement these investments, efforts are also underway to locate and construct additional truck parking and service centers.

As global shifts continue, and Florida advances its global logistics competitiveness, Miami-Dade County needs to continue to develop and implement strategies that ensure it remains competitive and positioned for growth. Maximizing freight and logistics opportunities will complement other investments designed to transition Miami into a world class city. The following highlights key short term and ongoing strategies to advance Miami-Dade County's freight program:

- Promote economic contributions of freight and logistics industry.** Transportation and economic development investments take place within a competitiveness environment. The funding PortMiami has received to prepare it for the next generation of cargo vessels was hard fought for through demonstration of overall benefits. The ability to quantify the economic impacts associated with freight project investments will be critical in the successful solicitation of local, state, and Federal funds. Impact tools and marketing materials should be developed and used to educate key decision-makers.
- Maximize use of available funding programs.** Although the level of funding available has diminished in recent years, there are a significant number of programs available to help advance freight projects. Programs like Transportation Investment Generating Economic Recovery (TIGER), State Infrastructure Banks (SIB), FDOT Strategic Intermodal System (SIS), and FDOT District 6 Intermodal Funds have been used to advance critical projects in Miami-Dade County. Applications, as appropriate, should be routinely submitted to these and other programs to ensure Miami-Dade County and its partners are competing for all available funding. For example, with the recent designation of Tamiami Airport and the Miami River as SIS facilities, they are now eligible for state funding.



- **Leverage investments through public private partnerships.** Miami-Dade County is home to one of the largest public private partnerships; this partnership helped successfully deliver the PortMiami Tunnel. Regardless of the scale of the project, P3s can help accelerate critical investments through shared risk. Opportunities for additional P3s should be identified and pursued as appropriate to help advance remaining freight system needs. In addition, these types of partnerships can help put together local funding matches when pursuing available funding grants from state and Federal partners.
- **Evaluate the effectiveness of the freight system.** As identified in the 2009 Plan, and since further promoted by MAP-21, it is important to identify and implement a performance monitoring program to help track the performance of the freight system, as well as the effectiveness of the freight program. It is critical that this continue in Miami-Dade County to ensure freight can successfully compete for available funding.
- **Engage the freight community in the identification of freight bottlenecks.** The Miami-Dade FTAC provides the county with freight industry input. This group of professionals drives the freight research agenda for the MPO and identifies and advances critical needs. The 25th Street Viaduct is an example of their ability to advance key projects. This group should remain engaged in the county's freight program. In addition, opportunities for additional outreach to other partners should be fostered (PortMiami, MIA, FEC, CSX, and other private companies).
- **Ensure trade and logistics remains a targeted industry.** Significant work has been undertaken over the last several years by the Florida Chamber Foundation and the Beacon Council, along with many others, to elevate trade and logistics to the list of targeted industries. As a result, different types of economic incentives are available to these industries to drive growth. It is critical that these industries remain designated and that economic development professionals use available incentive to attract and grow businesses in Miami-Dade County.
- **Support work force development programs.** The trade and logistics industry is aging and the availability of a trained workforce has become one of the most critical concerns to many companies. Workforce Florida, FDOT, and the Florida Chamber have all for the need for more training programs; in fact FDOT recently conducted a study designed to explore the development of an Intermodal and Logistics Academy. Miami-Dade County should take an active role in workforce development.
- **Continue to develop, test and expand pilot programs.** Miami-Dade County is home to several innovative and cutting edge pilot programs developed to address critical bottlenecks in our international trade regulations and operations. The Perishables Coalition, the Transshipment Committee, and CBP's Reimbursable Services Authority all represent exceptions to Federal trade regulations or new ways to manage the programs. Local leaders should continue to expand these pilots and identify new innovative ways to streamline operations to drive the competitiveness of the trade and logistics industry.
- **Monitor ILC developments and partner as appropriate.** The larger master planned ILC proposals in the heartland of South Florida have the potential to significantly expand the logistics capacity of the region and the state as they come online. These developments are taking longer than expected to break ground, but when they do it will be important for Miami-Dade County businesses and government leadership to engage with these developers to develop business relationships. In the longer term, this will be even more critical as the county's ability to expand warehouse capacity diminishes.

- **Support advancement of solutions for missing freight links.** Several missing freight links have been described in this document. While some are being addressed as part of ongoing projects, others are not currently advancing. As the county continues to grow its cargo operations, finding a way to advance some of these remaining projects will help communicate to the world that Miami is open for business and committed to being a global logistics hub.
- **Promote regional freight mobility.** Finally, it is important to recognize that the Miami Urbanized Area covers three counties in South Florida. This integrated region is home to over five million residents and millions of annual tourists. The freight companies serving this market do not recognize county lines; they only care about overall access and mobility. The Miami-Dade MPO has partnered with its counterparts in Broward and Palm Beach counties to ensure there is a regional plan. It will be important to ensure consistency, as appropriate, between the county and regional plans.





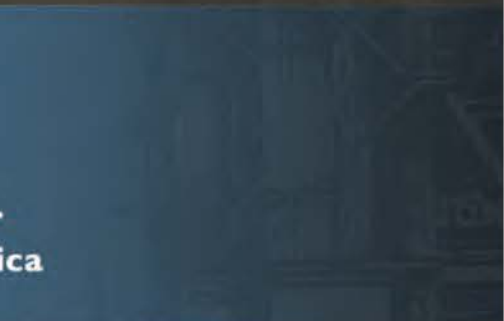
2014 Miami-Dade County Freight Plan Update Appendices



prepared for
Miami-Dade MPO



prepared by
Parsons Brinkerhoff
with
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August 2014



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Appendix A

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Appendix B

Literature Review

Category	Name	Year	Purpose	Key Goals/Findings	Relevance to Freight Plan Update	Link
MPO	Existing County Freight Plan	March 2009	Describes the County freight system and needed infrastructure improvements and policies until the year 2035.	<ul style="list-style-type: none"> •Support economic development by enhancing system connectivity. •Document flow of imports/exports in the county •Enhance freight transportation safety and convenience to ensure mobility and access. •Give greater priority and attention to freight in the regional planning process. •Implement and maintain freight initiatives that provide long-term returns on investment. 	This is the study that is currently being updated.	https://skydrive.live.com/?cid=cb30042f1b5faf4f&id=CB30042F1B5FAF4F%21255
MPO	Economic Impact of Freight Industry	December 2011	Document the primary and secondary impacts of the freight industry. Applies economic multipliers to determine the full impact on the economy of South Florida	<ul style="list-style-type: none"> •Identify freight industry segments •Estimate freight activity today (2010) and in the future (2035). •Estimate direct economic impacts from freight activity. •Estimate indirect and induced economic impacts. •Forecast direct, indirect and induced economic impacts (2035). 	One compenent of the Freight Plan Update is to look at the magnitude of freight activity in Miami-Dade County. This study will be revisited to use as a starting point.	https://skydrive.live.com/?cid=cb30042f1b5faf4f&id=CB30042F1B5FAF4F%21258
MPO	Truck Parking	September 2010	Estimate demand for truck parking in the county and make recommendations for implementation of truck parking program.	<ul style="list-style-type: none"> •1,177 acres of property to be identified, purchased, and developed for truck parking. •Identify number of trucks in county. •Analysis of financial model best suited to truck parking business. •Assist in determining the viability of private sector entrepreneurs providing truck parking 	This study focused on identifying locations for future truck parking. Such locations may indicate where larger truck volumes will be in the future should they be implemented.	http://www.miamidade.gov/mpo/docs/MPO_comprehensive_parking_freight_transport_final_20100930.pdf
MPO	Truck Parking	August 2012	Guide for implementing truck parking facilities by building upon prior efforts.	<ul style="list-style-type: none"> •Examined potential truck parking locations in greater detail •Identified additional truck parking locations. •Outlined an action plan to develop truck parking locations 	As Phase II of the truck parking study, this examines the most likely truck parking areas, including such details as site challenges, potential capacity, and acreage.	https://skydrive.live.com/?cid=cb30042f1b5faf4f&id=CB30042F1B5FAF4F%212205
MPO	Turbo Lanes Study	May 2010	Evaluate T-intersections turbo lane conversion candidates and prepare schematic concept diagrams for 25 intersections that could be converted to turbo lane configuration.	<ul style="list-style-type: none"> •Available Right of Way •Minimum or no environmental impact •Low Cost •Less than 3 Years for Construction and Design 	This study examined potential locations for turbo lanes in Miami-Dade county. Turbo lanes increase the capacity of an approach, resulting in less delays, shorter queues, and a better level of service. The estimated cost of the 30 intersections studied ranged from \$95,000 to \$325,000. Should any of these locations correspond to the determined hot spots, than such a modification may be a way to increase capacity with minimal construction	https://skydrive.live.com/?cid=cb30042f1b5faf4f&id=CB30042F1B5FAF4F%21555
MPO	Grade Separation Study	July 2005	Examines high volume intersections throughout the County that could benefit from constructing a continuous flow intersection.	<ul style="list-style-type: none"> •4 options for grade separation •5 options for non-grade separation (untraditional approaches) •Criteria based on crash history and traffic volume. 	This study examined potential loactions for grade separation at intersections. However, each intersection would cost an estimated \$5.6 million (\$2004). Falls under "Additional needed improvements" in freight update.	https://skydrive.live.com/?cid=cb30042f1b5faf4f&id=CB30042F1B5FAF4F%212427
Airport	Miami International Airport	SMP 2015-2050 (in progress)	Assess future transportation needs and balance infrastructure and facility modernization and preservation, capacity, affordability, cost control, and environmental stewardship.	<ul style="list-style-type: none"> •Guide long-term development •Preserve and enhance MIA's role as an international gateway •Seek opportunities to enhance the efficient and timely movement of goods •Enhance system to support and expand economic activities of surrounding communities while serving future growth 	Will lay out plans of MIA. Take into consideration for future freight movements and volumes based on their development plans.	http://www.miamidadeairport-s-smp.com/index.html
Seaport	Port of Miami	2035 Master Plan	Planning tool used to update the Port of Miami Master Plan Sub element of the County's Comprehensive Development Master Plan (CDMP).	<ul style="list-style-type: none"> •Dredge: Dredging of the South Channel. •Rail: Reintroduce and develop on-Port yard to help decrease congestion and emissions •Inland Distribution Center: Develop off-Port Center in warehousing district to handle increased container traffic •Port of Miami Tunnel: Connect traffic directly to the interstate system. •Cranes: Break down purchase of new cranes for a total of 23 cranes by 2034 	Major enhancements by Port Miami will impact future freight volumes, especially considering the tunnel project and dredging. The tunnel will redistribute some traffic away from downtown Miami and the effect on truck routes needs to be considered. Reintroducing rail will also have an effect on this. Dredging and new crane will increase the amount of cargo handled and therefore increase freight movements throughout the county.	http://www.miamidade.gov/portmiami/master-plan.asp
Rail	Florida Rail System Plan	December 2010	Identifies goals, objectives, and strategies to guide transportation investment decisions in Florida over a 20-year period.	<ul style="list-style-type: none"> •Identify the needs of Florida's rail system •Establishing priorities for investment of state funds using the goals, objectives, and strategies of the Policy Element •Detailed information on the future needs of Florida's rail system •Strategized priorities to meet needs of rail system 	Lays out priority and timeframe of projects which will have a freight impact. Projects outlined for Miami-Dade County can be incorporated into the Freight Update as an indicator of changing needs.	http://www.dot.state.fl.us/rail/publications.shtm
Work Program	FDOT	2013-2017	Developed in accordance with section 339.135 Florida Statutes and in coordination with local governments.	<ul style="list-style-type: none"> •Port of Miami Tunnel Project •Miami Intermodal Center 	5 Year Work Program. List of projects through 2017.	http://www2.dot.state.fl.us/fmsupportapps/workprogram/WorkProgram.aspx
Work Program	FTE	2013-2014	Continuous improvements of the roadway, toll plazas and service plazas and pursuit of new projects designed to alleviate traffic congestion	<ul style="list-style-type: none"> •Interchange Improvements at Northwest 12th Street (Milepost 27) •Ramp Construction, Bridge Widening and Road Resurfacing (Milepost 9-20) •Golden Glades All-Electronic Tolling and Roadway Improvements 	Turnpike construction projects	http://www.floridasturnpike.com/construction_future.cfm

Work Program	MDX	2013-2017	Series of ongoing projects to expand the current network and introduce new technology to improve efficiency.	<ul style="list-style-type: none"> •Transportation Improvement Program •Renewal and Replacement Program 		http://www.mdx-way.com/projects/five_year_work_plan
Regional	US 27 Pace Study	December 2012	To redevelop US 27 as a multimodal corridor to accommodate rail and highways to meet growing needs for freight and passenger movement.	<ul style="list-style-type: none"> •Connect Port of Miami by rail with inland logistics centers around Lake Okeechobee •Examine feasibility of a rail corridor through forecasting highway traffic and freight traffic for a new rail bypass, developing conceptual engineering alternatives, and cost estimates •Remove freight traffic from congested coastal corridors. •Enhance proposed opportunities to restore passenger rail along South Florida East Coast. 		
Regional	Florida Freight Mobility and Trade Plan	In Progress	To define policies and investments to enhance Florida's economic development efforts into the future	<ul style="list-style-type: none"> •Increase flow of domestic and international trade through the state and recapture cargo shipped outside the state •Increase development of intermodal logistic centers •Increase development of manufacturing industries •Increase implementation of CNG, LNG, and propane energy policies 	Locations of future freight developments and planned increases in trade volumes which will have an impact and need to be considered.	http://www.freightmovesflorida.com/home.aspx
Regional	South Florida Regional Freight Plan	March 2010	Develop a formalized regional freight plan and implementation strategy inclusive of individual planning efforts to prioritize critical freight projects.	<ul style="list-style-type: none"> •Provide an efficient and reliable transportation system for regional passenger and freight operations •Provide multimodal access to major regional passenger and freight activity centers •Provide an integrated multimodal transportation •Provide a safer and more secure transportation system 		
Regional	South Florida FRATIS	In Progress	Seek to use recent advances in real-time traveler information to develop a flexible program for Freight DMA that can result in deployments in a relatively short period of time	<ul style="list-style-type: none"> •Freight Real-Time Traveler Information with Performance Measures •Freight Dynamic Route Guidance •Drayage Optimization 	In Progress - Coordination	
Regional	MAP-21	2013-2014	Creates a performance-based surface transportation program and builds on earlier programs and policies	<ul style="list-style-type: none"> •About \$105 billion for surface transportation programs for FY2013-2014 •Guides the growth and development of the country's transportation infrastructure 	Designation of National Freight Network and its impact on future freight movements.	http://www.dot.gov/map21
National	Connected Vehicle Research	In Progress	Combination of well-defined technologies, interfaces, and processes that ensure safe, stable, interoperable, reliable system operations to minimize risk and maximize opportunities.	<ul style="list-style-type: none"> •Connected Vehicle Technology •Connected Vehicle Applications •Connected Vehicle Technology Policy and Institutional Issues •Use of Dedicated Short Range Communications (DSRC) technology 	Impact of real time data collection, dynamic mobility communications, and safety improvements on the future network.	http://www.its.dot.gov/connected_vehicle/connected_vehicle.htm

Appendix C

Hot Spot Analysis

Miami-Dade County Hotspot Analysis Summary

South Florida Regional Freight Plan

As part of the South Florida Regional Freight Plan, there is a desire to identify bottlenecks in the county which impede truck movements and thereby the flow of goods. In order to identify these locations, a screening methodology was developed. This relied on the following factors: Volume/Capacity Ratio, Truck Percent, Total Daily Volume, Total Daily Truck Volume, Number of Employees of Freight Related Establishments Within 1 Mile, and Sales Volume of Freight Related Establishments Within 1 Mile. A normalizer and weight was applied to each factor, which were adjusted for each county, and the sum of these values resulted in the overall score for a link. Links scoring the highest both overall and in each factor were considered for observation. This screening process resulted in roughly 30 locations per county, some of which were removed due to errors in the model or existing planned improvements.

Site visits were conducted for the remaining locations to observe what may be hindering truck movements today. Additional links likely to be impacted by planned developments, such as NW 67th Avenue between 36th Street and 25th Street (providing access to the South Florida Intermodal Logistics Center under development by FECI), were also reviewed. Many of the locations visited had similar problems and/or constraints.. Some general observations from the site visits include:

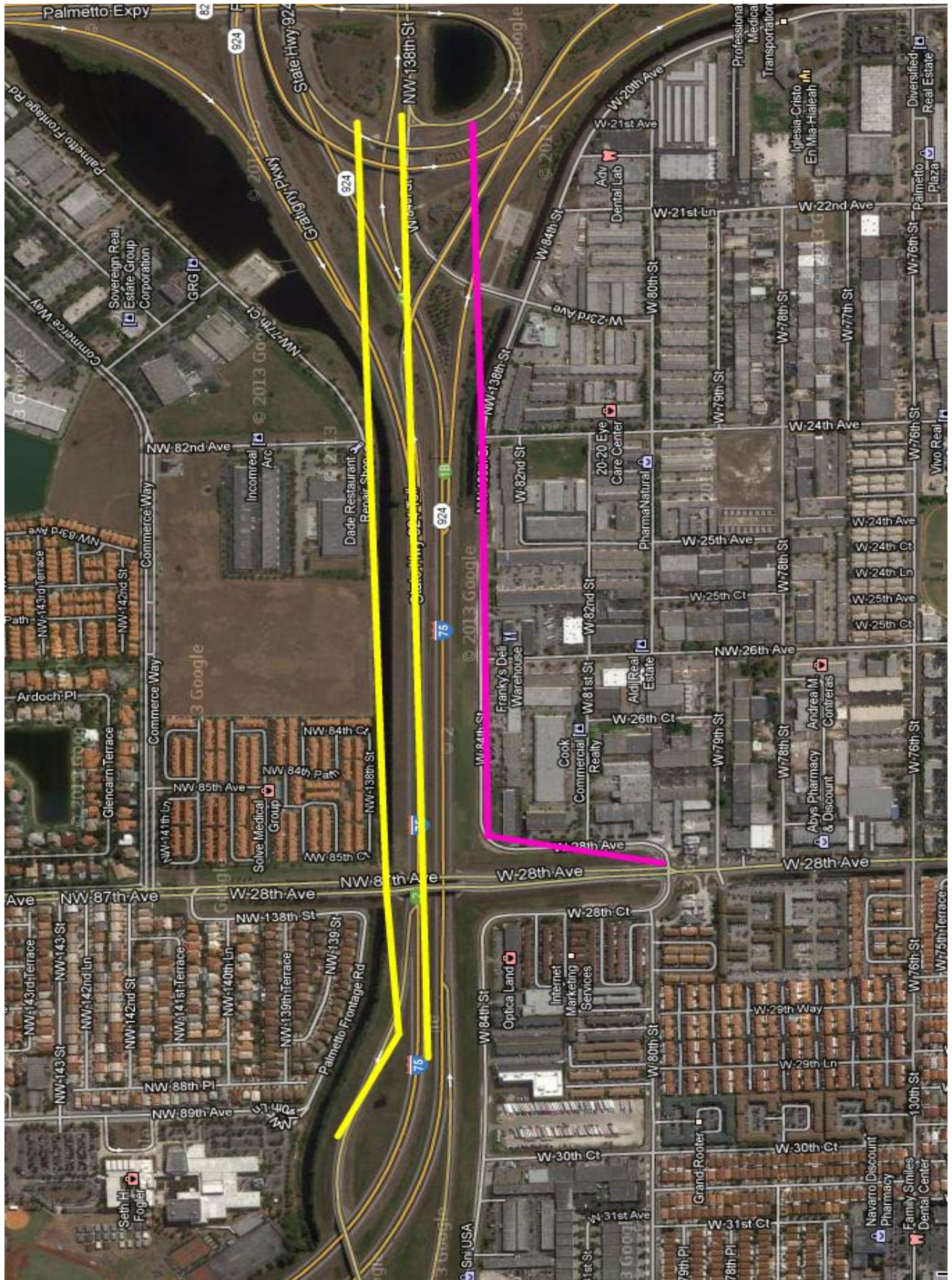
Observation	Recommendation
Right turn radii are too short for trucks	Lower curbs, restripe, or widen radius
Long queues and unused green time	Optimize signal timing
Access point density	Merge and close some access points
Improper or confusing signage	Replace or remove signage
Deteriorated pavement	Repave and improve conditions
Roadway not aligned	Restripe lanes
Slow left turns	Move stop lines back

The following describes the sites visited as well as site-specific observations.

Location 1 - W 84th St from W 80th St to W 28th Ave

Observation	Recommendation
Eastbound through movement at W 84 th St and W 28 th Ave needs to make a sharp bend at the intersection. With the combination of pavement slope, the movement is hard for trucks even auto.	Restripe pavement marking to make wider lanes. Slightly lift pavement south side of W 84 th St. or lower EB and WB speed limit for this curve and add warning signs.
Right turn radii are short for trucks at W 84 th St and W 23 Ave.	Lower curbs to allow wider turns.

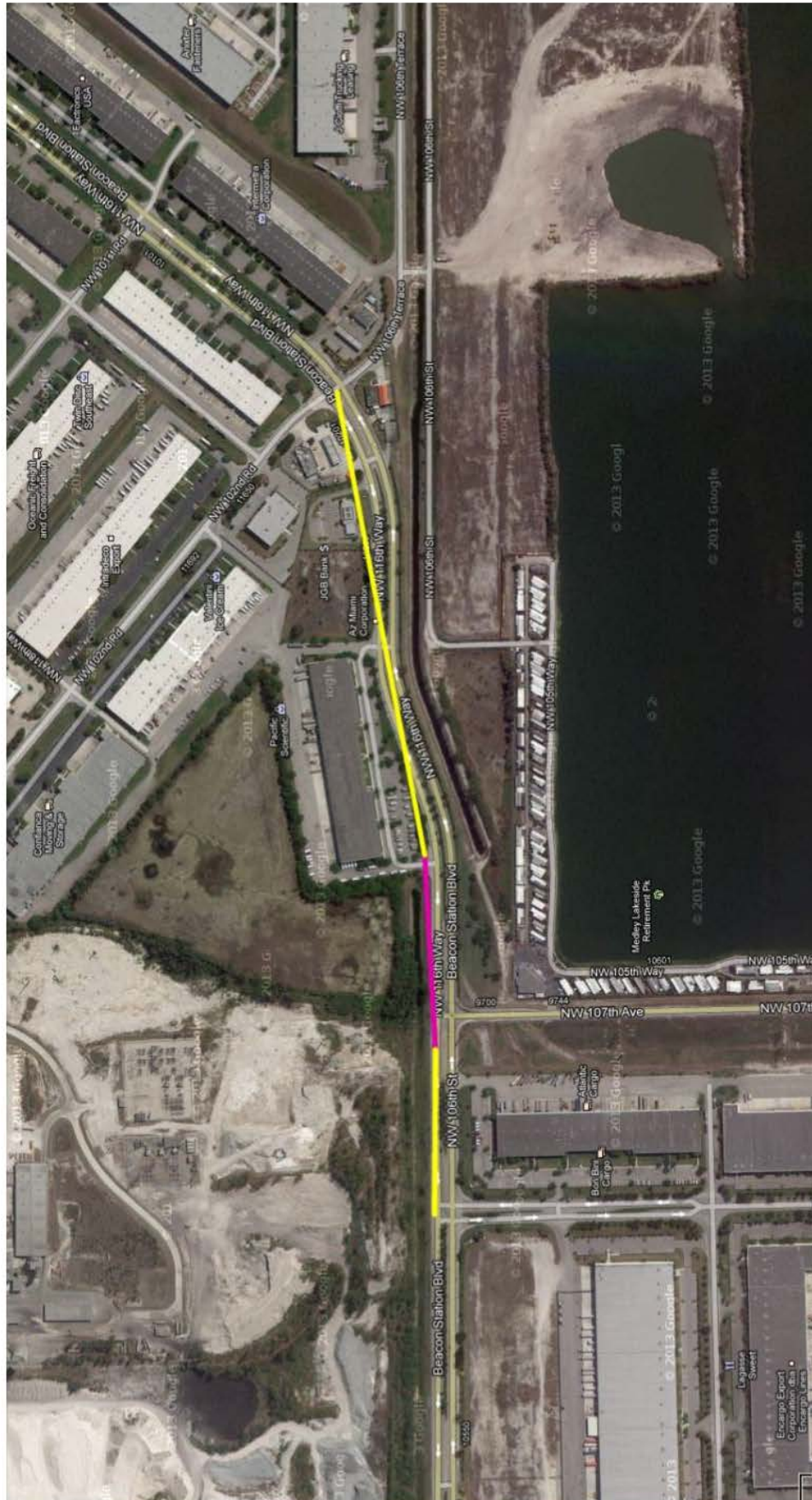




Location 2 – NW 116th Way from NW 102nd Rd to NW 107th Ave

With traffic moving smoothly, this location appears to have no problem under existing conditions.





Location 4 – N Okeechobee Rd and NW South River Dr. by SR826

Observation	Recommendation
Trucks and autos from WB South River Dr use NB ramp terminal and the flyover ramp to travel on SB SR826. High truck volume from South River Dr can cause intersection blockage during peak hours.	Add WB South River Dr access to SB SR826 for truck and auto. Add signage to disable NB through movement at NB ramp and Okeechobee.
Long queue on NB and WB at the NB ramp terminal.	Evaluate and optimize signal timing and coordination at ramp termini and W 18 th Ave.

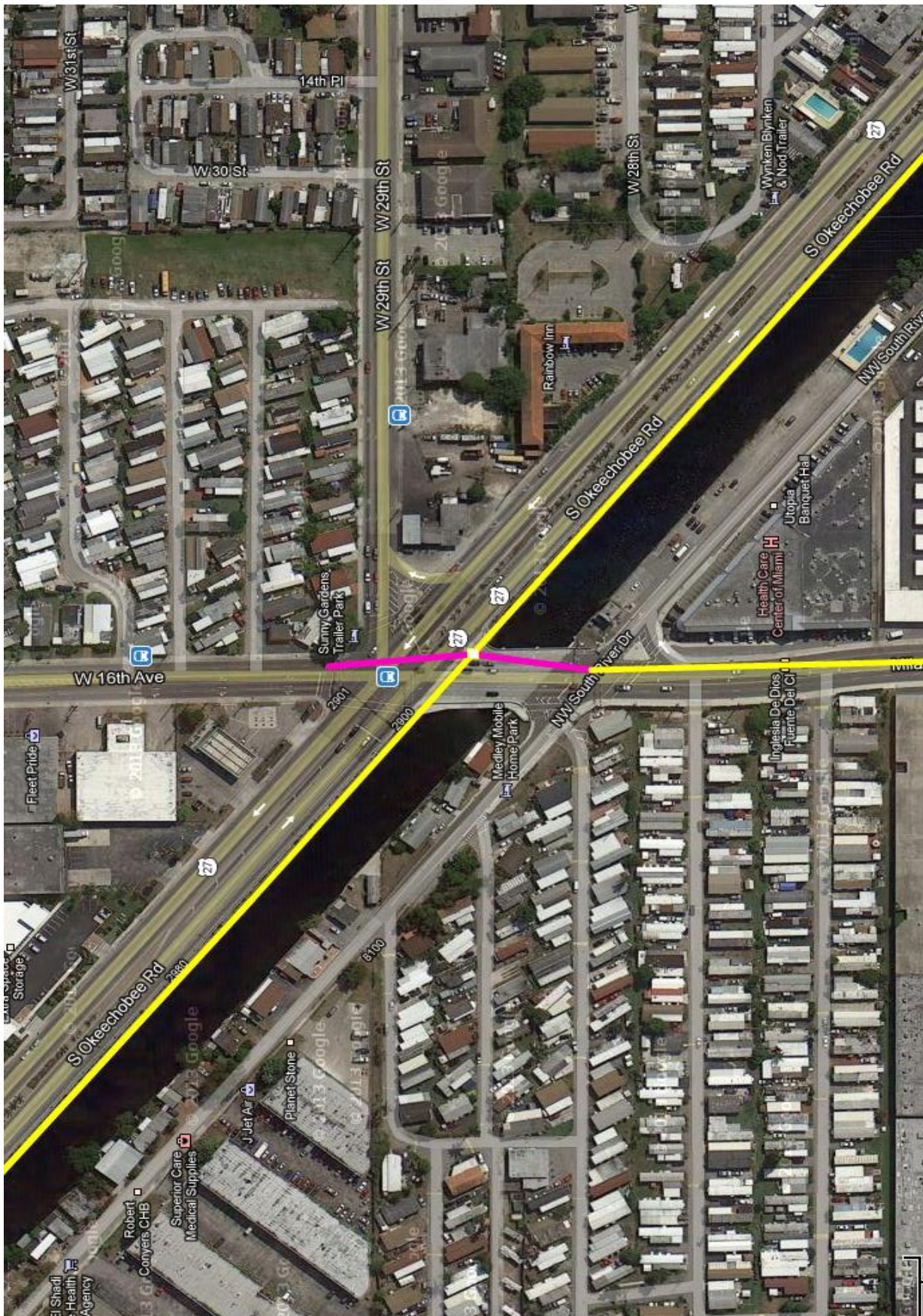




Location 5 – W 16th Ave at Okeechobee Rd and South River Dr.

Observation	Recommendation
Signal coordination between South River Dr and Okeechobee seems to be off.	Improve signal timing and coordination considering truck headways.
Due to pavement slope above the river, NB trucks spend longer time accelerating on left turn movement at intersections of South River Dr and Okeechobee.	Lift pavement at South River Dr. Improve signal coordination so that trucks have longer timing for acceleration before hitting green.
SB right turn trucks on W 16 th Ave makes difficult turns.	Pull back curb at the right turn spot to allow wider right turn radius.
Low sight clearance for NBRT traffic at Okeechobee	Move traffic signs and pull back stop bars for left-turn and through movements.

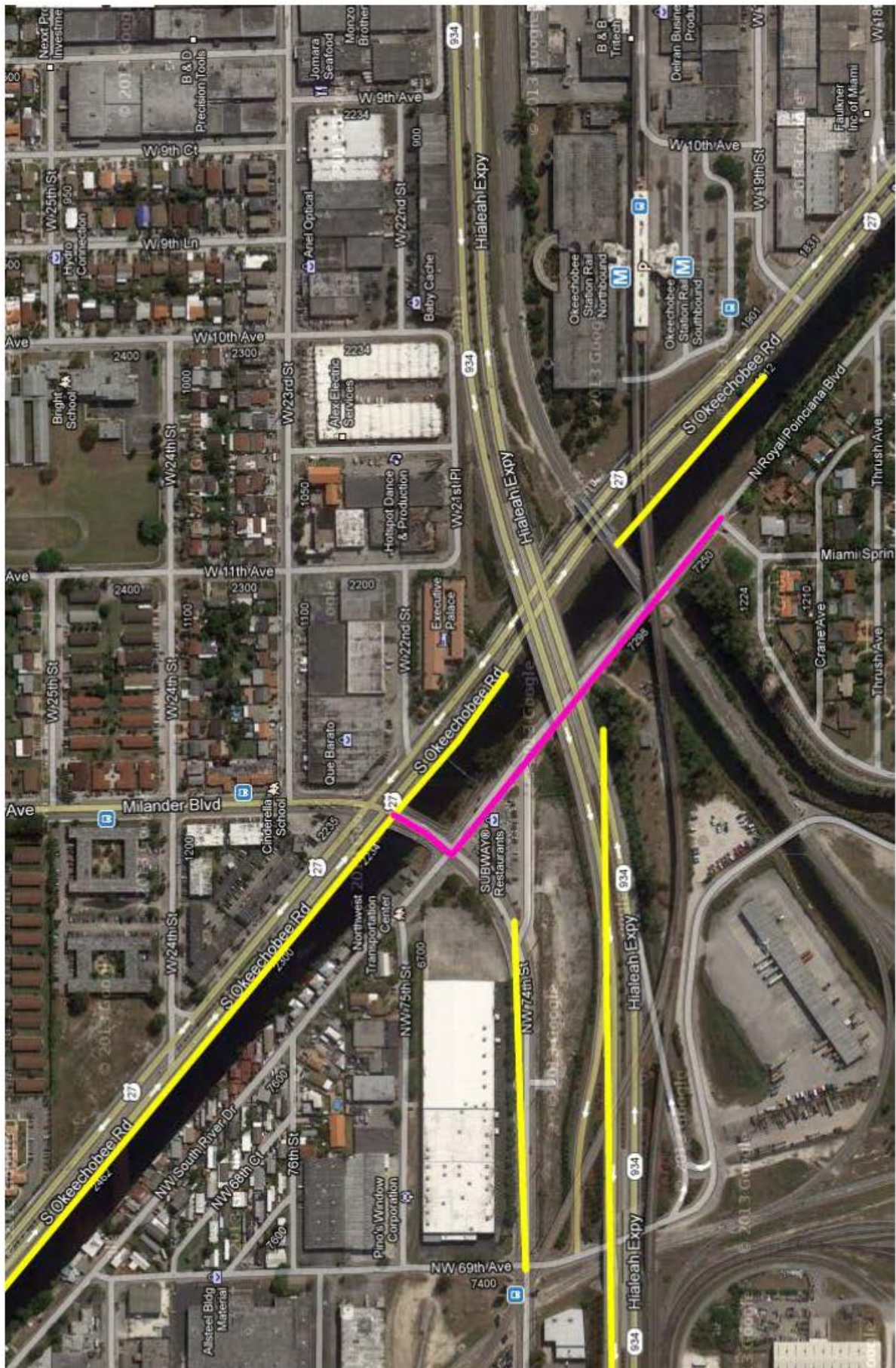




Location 6 – N Royal Poinciana Blvd and BW 76th St near Okeechobee Rd and Hialeah Expressway

With traffic moving smoothly, this location appears to have no problem under existing conditions.

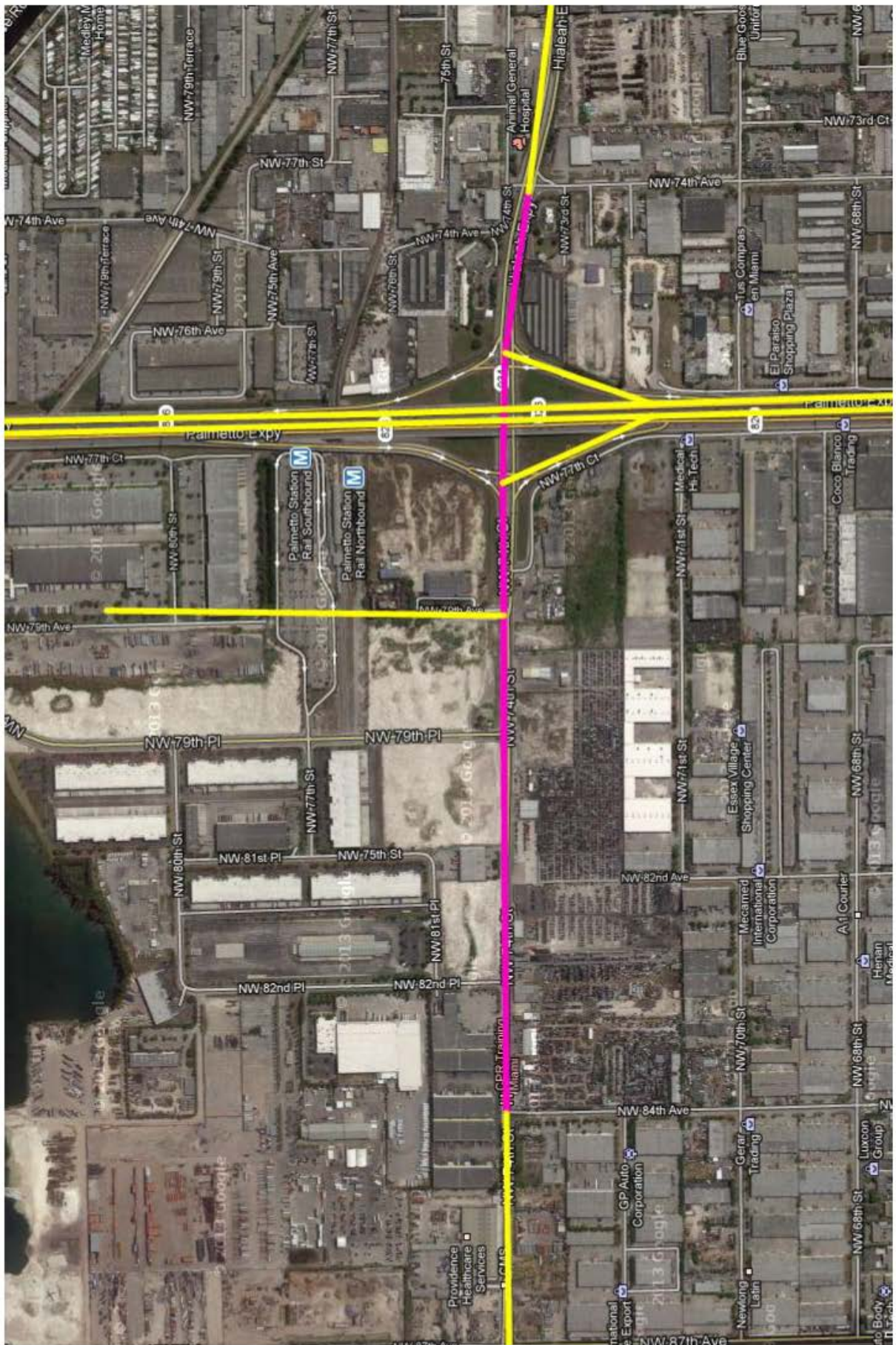




Location 7 – NW 74th St from NW 74th Ave to NW 84th Ave

Observation	Recommendation
Dense access point on south side of 74 th St.	Merge and close some access points if possible
WB lane drop after NW 79 th Pl.	Provide advance signage.
Deteriorated pavement on WB west of NW 77 th Ct.	Improve pavement conditions.
EB trucks made difficult right turns at NW 87 th Ave.	Extend EB right turn radius.

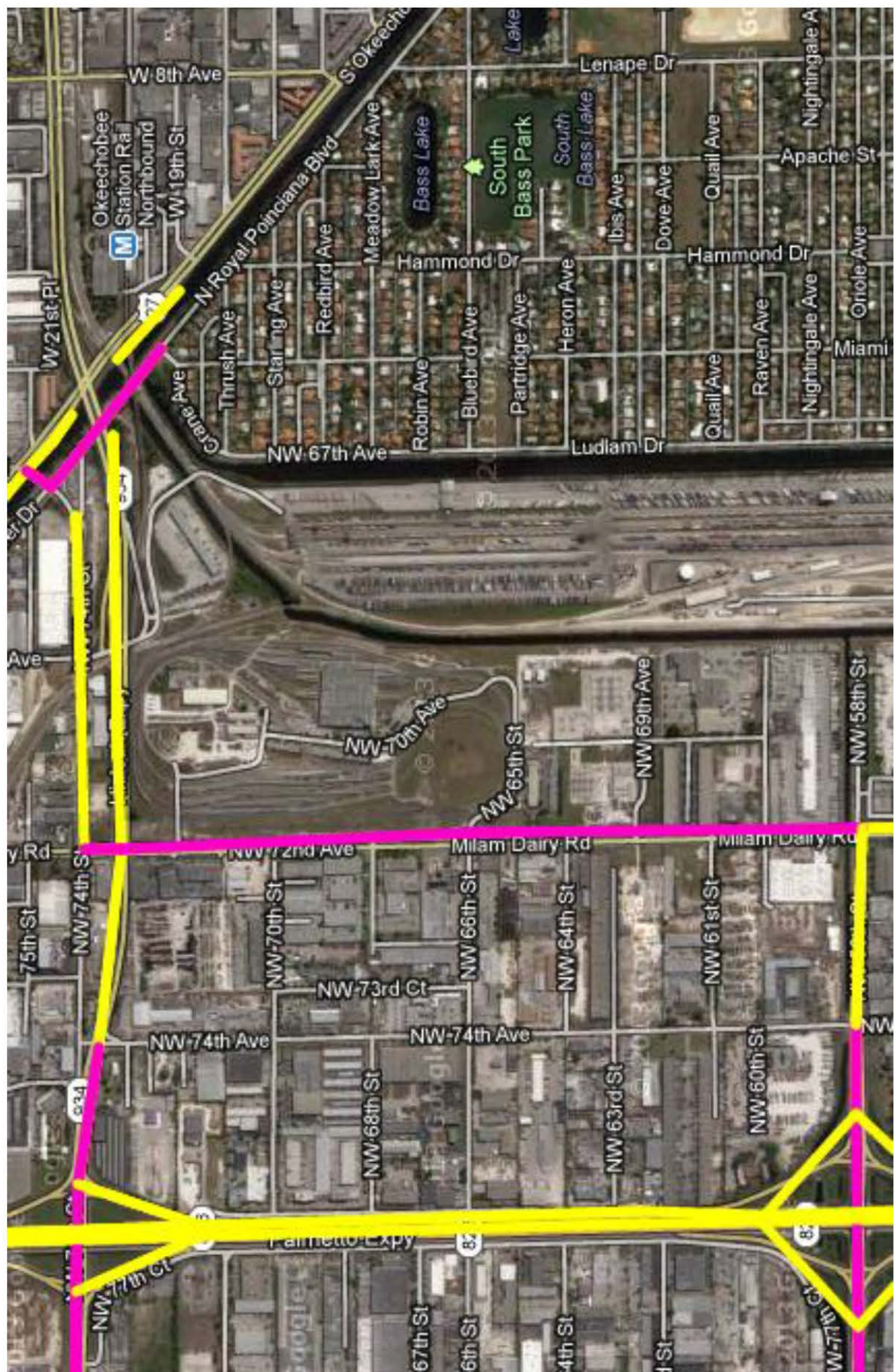




Location 8 – Milam Dairy Rd from NW 58th St to NW 74th St

Observation	Recommendation
NB lane three becomes left turn only at Hialeah Expressway and NW 58 th St.	Move and signage further upstream.
NB lane striping is not aligned at Hialeah Expressway. Pavement deteriorated at the intersection.	Restripe lane configuration for better alignment. Improve pavement conditions.
High number of access points and side streets on the west side of Milam Dairy Road.	Merge and reduce access points, extend right turn radius onto side streets
Trucks spent long time making mid-block left turns.	Pull back raised medium to allow wider turn radius.
Raised access points causing trucks to spend longer time pulling in.	Flatten pavement for access points with high truck in-and-outs
Unused green time at the signal of Milam Dairy Road and NW 58 th St.	Retime this signal.
Deteriorated pavement observed at NW 36 th St.	Improve pavement conditions.





Location 9 – NW 58th St from NW 74th Ave to NW 82nd Ave

Observation	Recommendation
High number of access points and on the south side of NW 58 th St.	Merge and reduce access points close to busy intersections if possible.
Uneven pavement at NW 79 th Ave.	Improve pavement conditions.
SB right turn trucks made hard maneuver at NW 74 th Ave.	Extend right turn radius at this location.
Truck backing up at NB downstream of the intersection at NW 74 th Ave blocked incoming traffic.	Move the access/egress point future downstream.
Signals seem to be operating under a uncoordinated condition.	Retime and improve signal coordination of this segment.





Location 10 – NW 79th Ave from NW 36th St to NW 48th Way

Observation	Recommendation
High number of access points on both sides of NW 79 th Ave. Trucks backing up on NW 76 th Ave causing NB traffic congestion.	Merge and reduce access points if possible. Move access points to businesses to side streets.





Location 11 – NW 36th St East of NW 87th Ave

Observation	Recommendation
Right turn radii to and from north side accesses are narrow. Raised access point caused trucks to ride on curb.	Extend turn radii and open access gore. Flatten pavement of access to the north side of NW 36 th St.

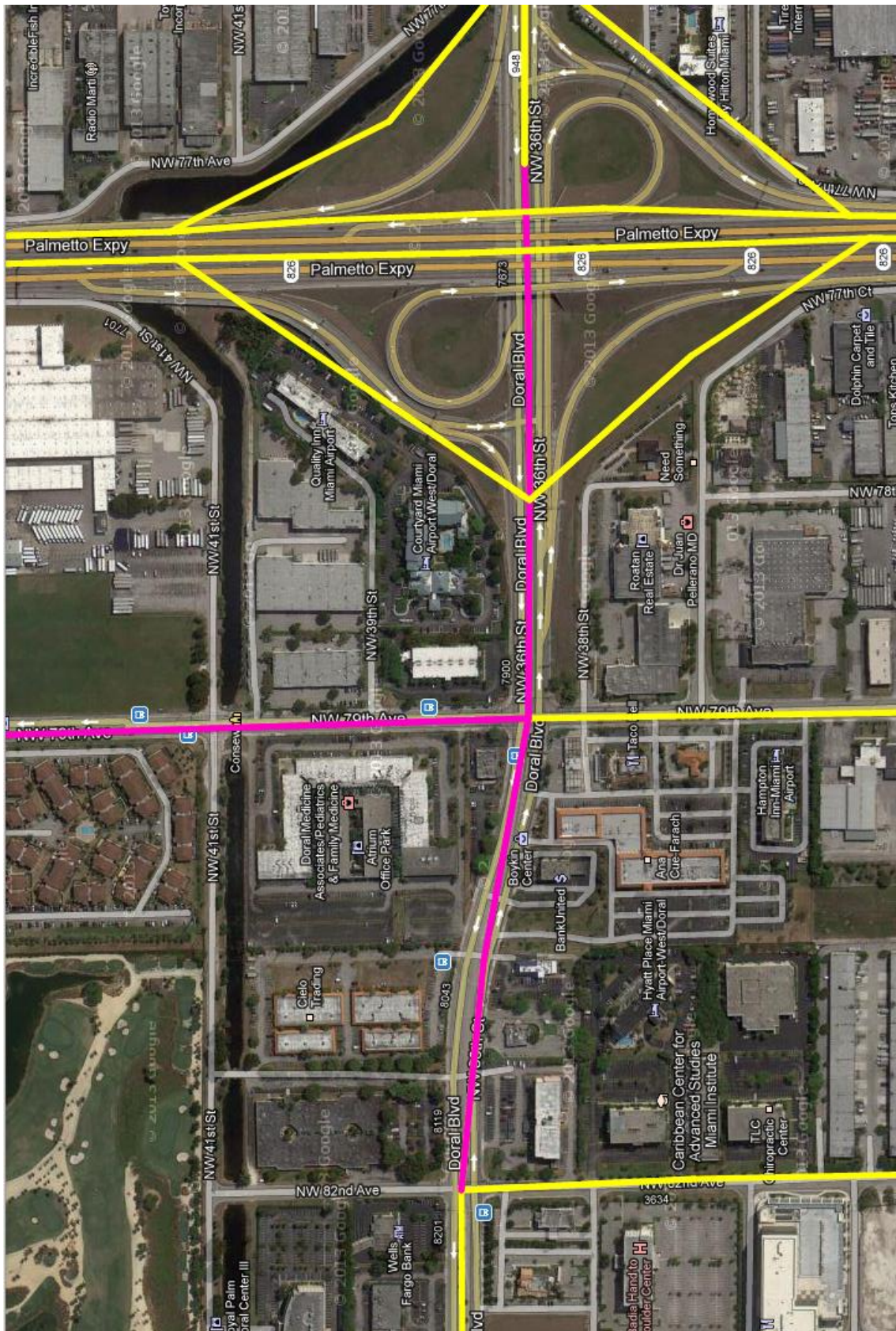




Location 12 – NW 36th St from Palmetto Expressway to NW 82nd Ave

Observation	Recommendation
WB trucks making difficult right turns at NW 79 th Ave.	Widen the right-turn radius. Restripe SB approach to allow wider WBRT.
Signal coordination between 79 th Ave and SR826 terminal seems to be non-optimal.	Retime and improve signal coordination.

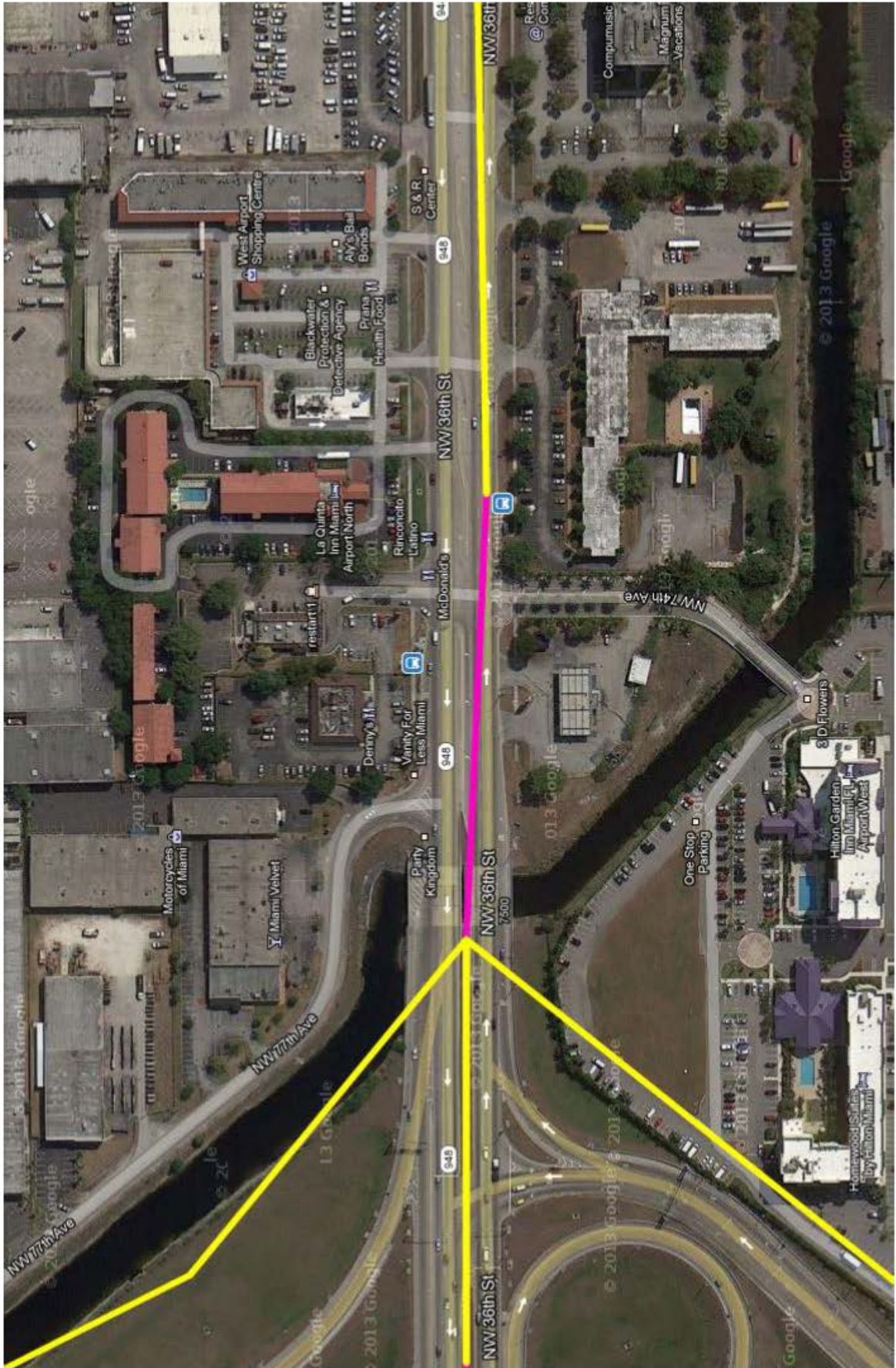




Location 13 – NW 36th St between NW 74th Ave and Palmetto Expressway Ramps

Observation	Recommendation
SBRT trucks ride on curb at NW 72 nd Ave and NW 36 th Terrance.	Widen the right turn radius at this location.





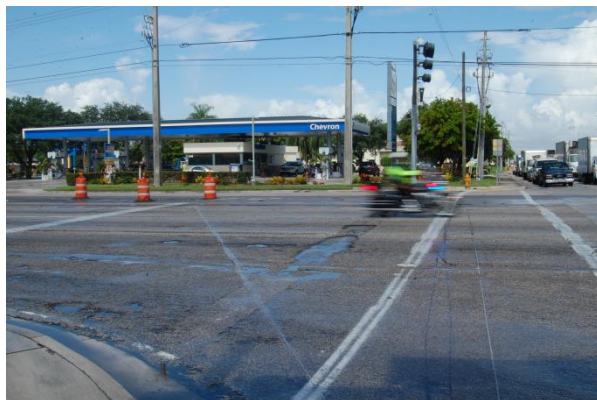
Location 14 – NW 36th St from NW 66th Ave to Milam Dairy Rd

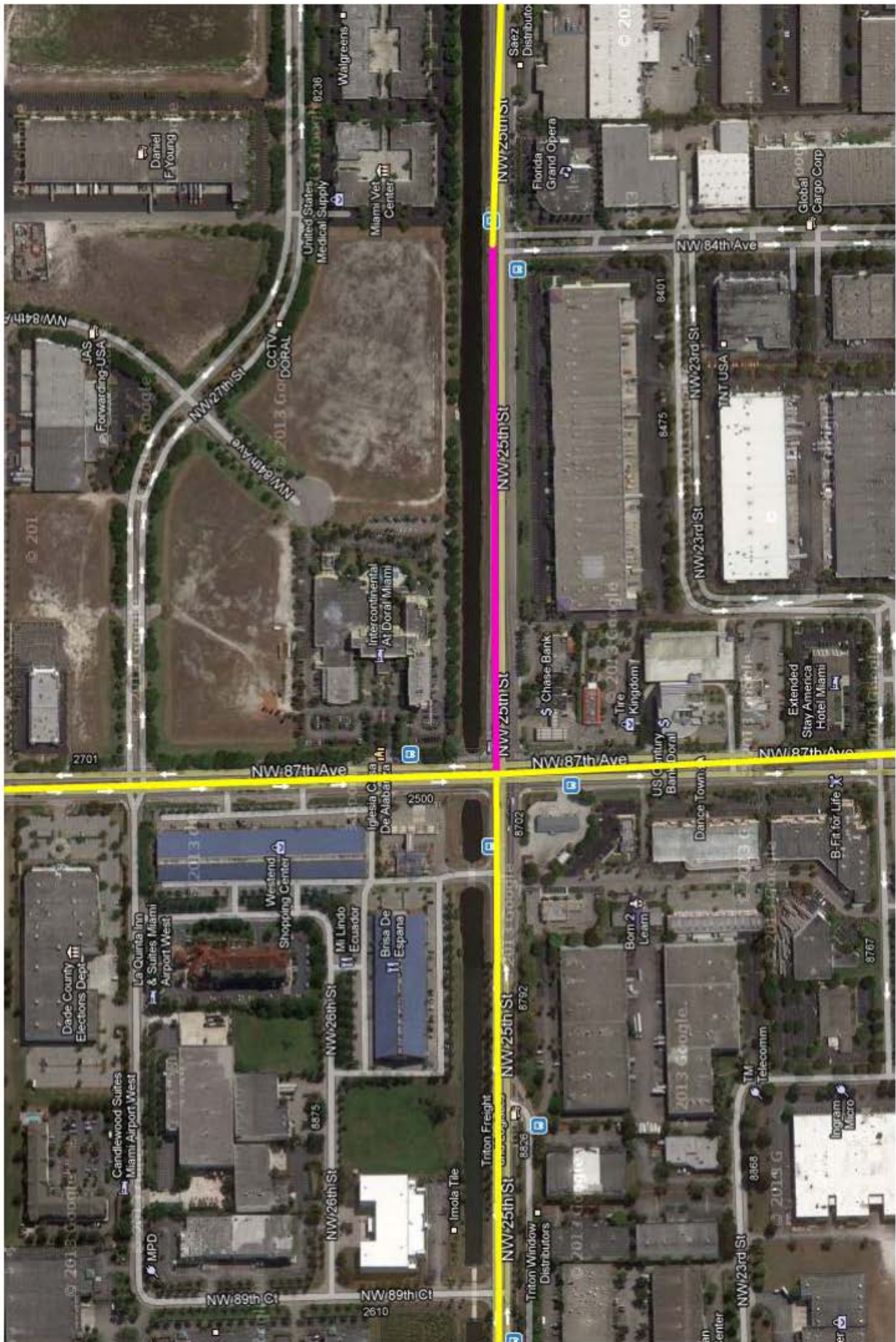
Observation	Recommendation
NBRT turn radius is low at NW 67 th Ave and NW 36 th St. WBLT turn radius may be low for truck movements.	Widen the right turn radius at this location. Pull back the WBLT stop line and the raised median.



Location 15 – NW 25th St from NW 84th Ave to NW 87th Ave

Observation	Recommendation
NBRT trucks ride on curb at NW 87 th Ave intersection.	Widen the right turn radius
Deteriorated pavement on multiple approaches of the NW 87 th Ave intersection	Improve pavement conditions.
Signal failure at NW 87 th Ave caused long queue on WB NW 36 th St.	Signal retiming.
NB and SB left turn trucks move relatively slow to avoid stopped EB and WB left turn vehicles at the intersection of NW 87 th Ave.	Pull back the EB and WB left turn stop bar to allow smoother SB and NB truck left turns.
Trucks made difficult movement pulling in and out of the T-intersection at NW 84 th Ave.	Widen EB and NB right turn radii at the intersection.

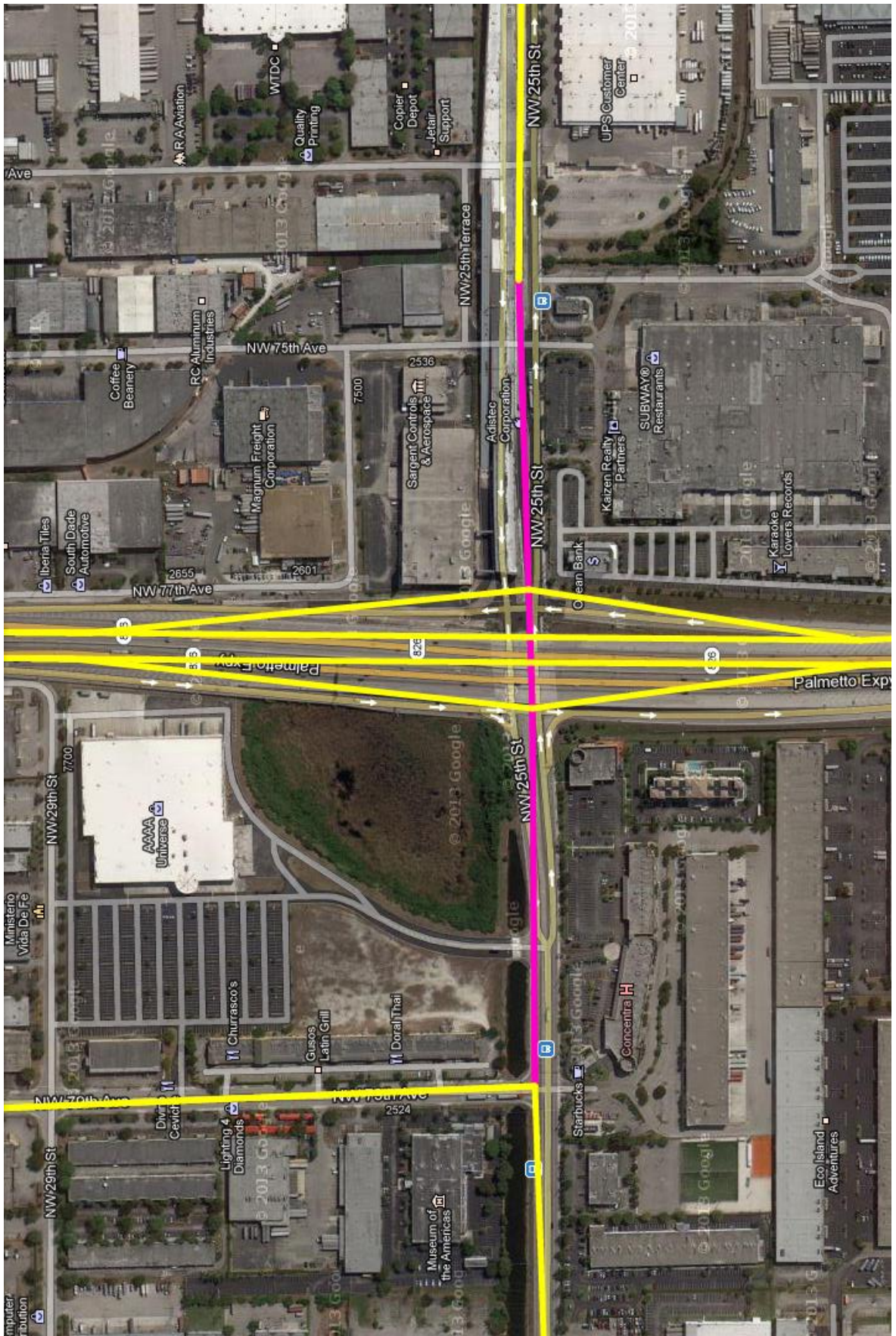




Location 16 – NW 25th St at Palmetto Expressway

Observation	Recommendation
For the intersection at 79 th Ave, right turn radii on all approaches are small. Heavy vehicles have to spend extra time to complete right turn movement.	Widen all right turn radii.
EBLT queue spillback to through lane at the intersection of NW 74 th Ave.	Make access to the EB left turn bay wider so that trucks will not block through lanes while waiting at the signal. Also improve signal timing to reduce instances of such blockages.

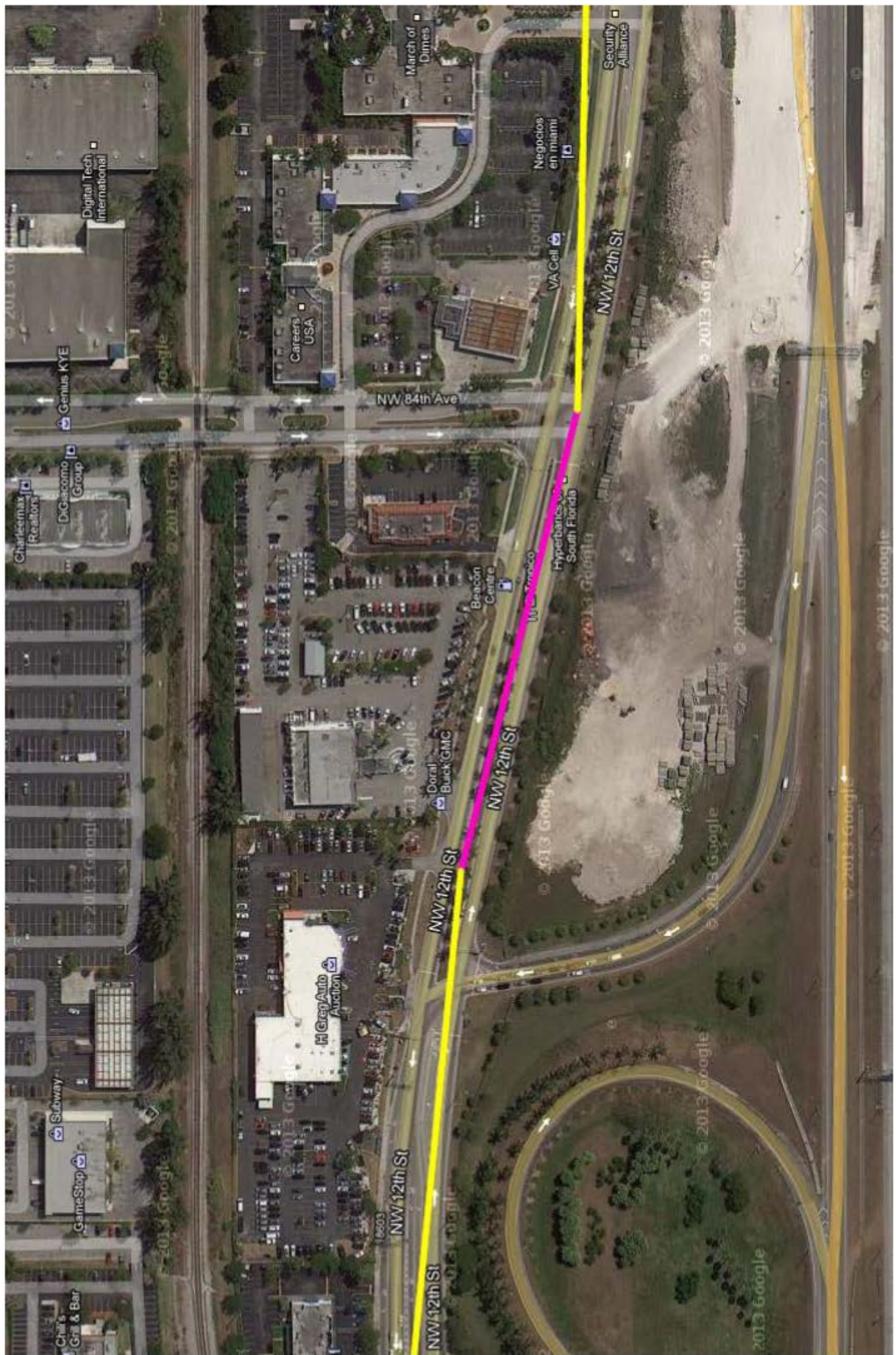




Location 20 – NW 12th St from NW 84th Ave to NW 87th Ave

Observation	Recommendation
WB signage may cause confusion at the SR836 off-ramp terminal and the intersection at NW 87 th Ave.	Improve signage and add WB guidance lane striping at the intersection of NW 87 th Ave.
SB off-ramp trucks made difficult right turn.	Widen the right turn radius.
Off-ramp from SR836 backed up due to downstream intersection operations. The left phases were not fully used since WB queue from NW 87 th Ave intersection was not cleared.	Signal retiming and coordination between the ramp terminal and NW 87 th Ave.

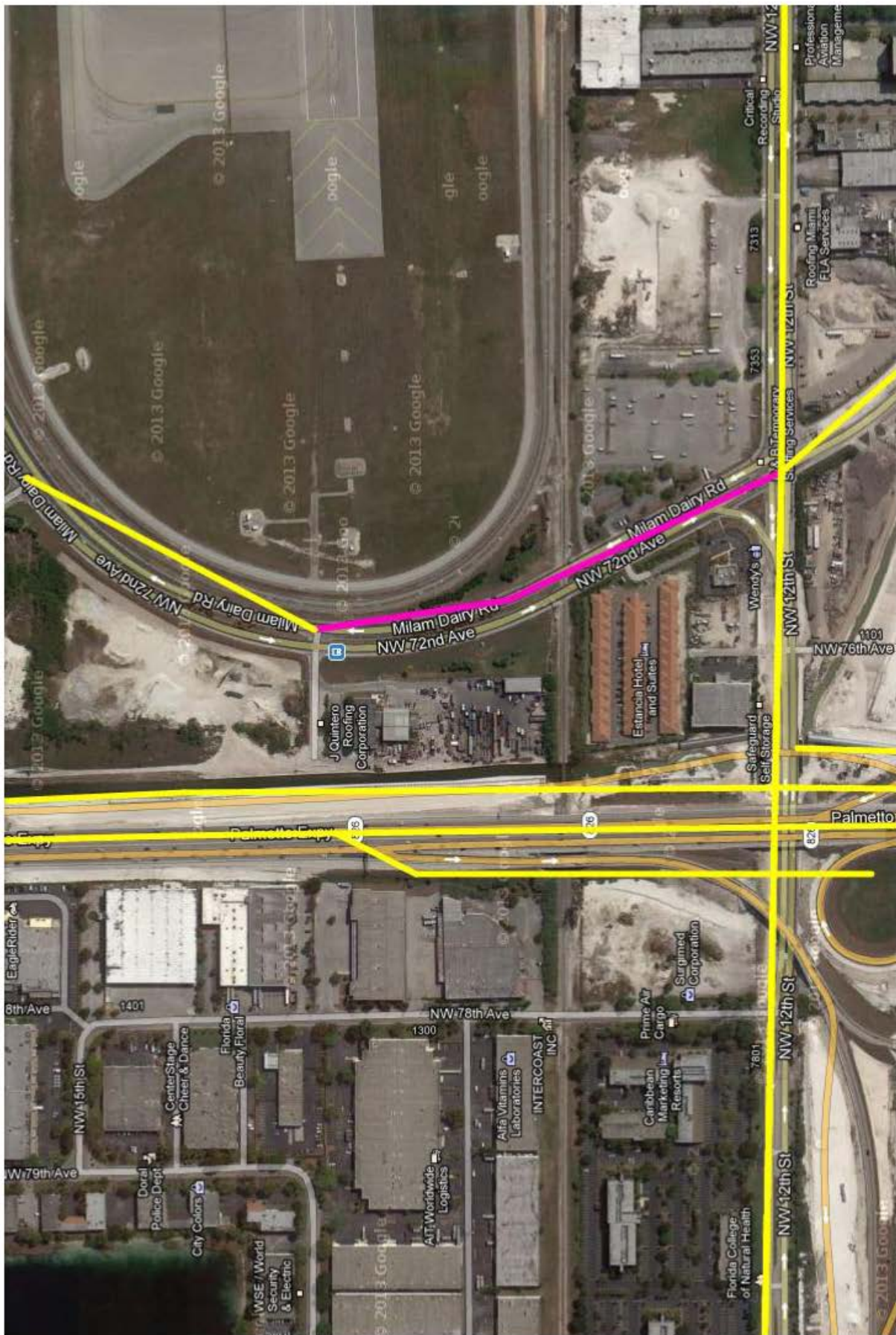




Location 21 - Milam Dairy Rd North of NW 12th St.

With traffic moving smoothly, this location appears to have no problem under existing conditions.

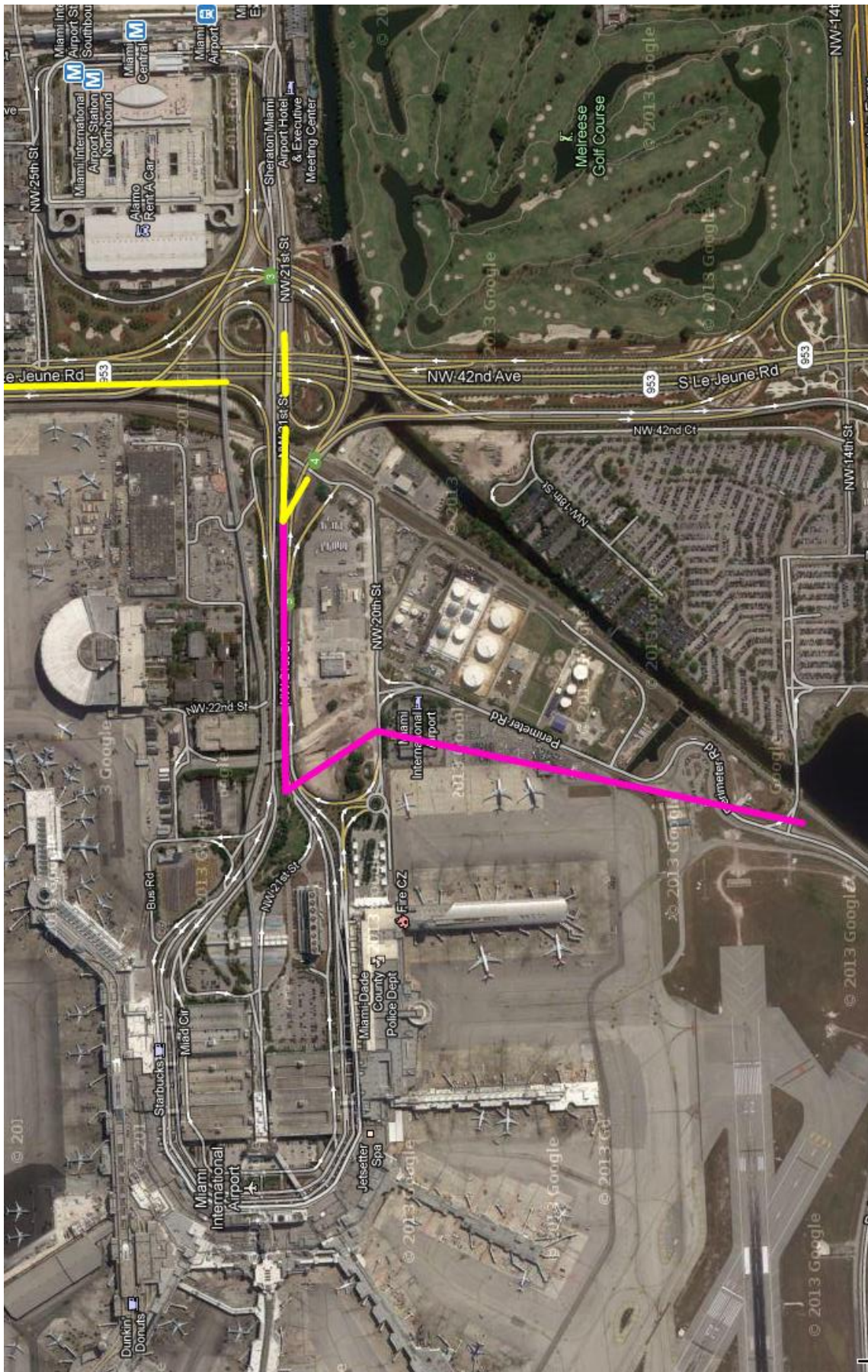




Location 22 – NW 21st St & Perimeter Rd from LeJeune Rd to NW 15th St

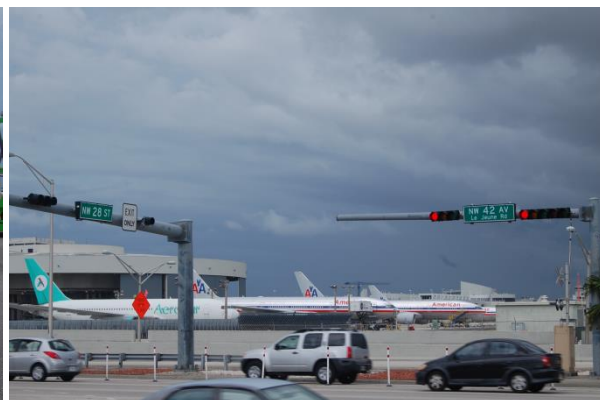
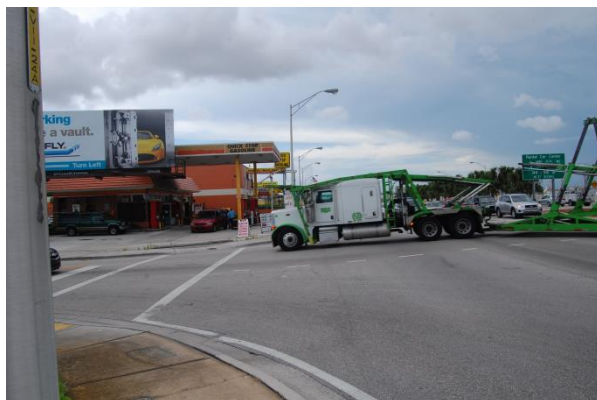
Observation	Recommendation
Sharp curves, blocked sights, and narrow lane widths bring difficulty for heavy vehicle movements.	Use low advisory speeds.





Location 23 – Le Jeune Rd from NW 27th St to North of NW 31st St.

Observation	Recommendation
Raised access between NW 28 th St and NW 31 st St	Flatten the access point to allow fast in-and-out.
High access point density on the east side of Le Jeune Rd.	Merge and close some access points and move them to side streets if possible.
SBLT is protected plus permitted at the intersection of NW 28 th St. Trucks making left turns during permitted often force NB traffic to slow down.	Make SBLT protected only.
Discontinued sidewalk north of NW 28 th St on the east side of Le Jeune.	Close the gap for sidewalks.



Location 24 - Le Jeune Rd from SE 10th Pl to North River Dr.

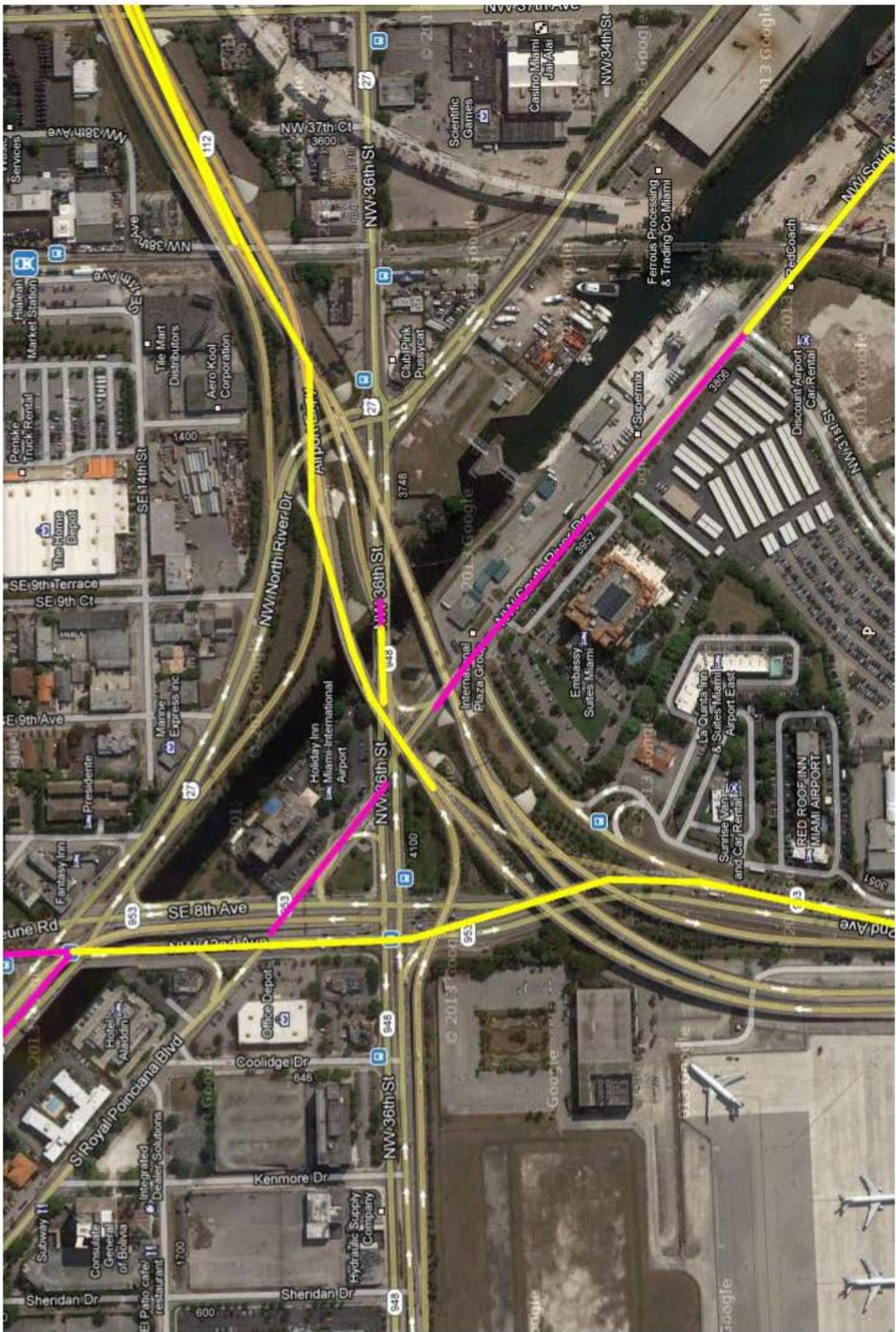
Observation	Recommendation
Many banned movements at the intersection of Le Jeune Road and Okeechobee Rd may cause confusion.	Improve advance signage for intersection lane alignment.



Location 25 – South River Drive Intersection with NW 36th St

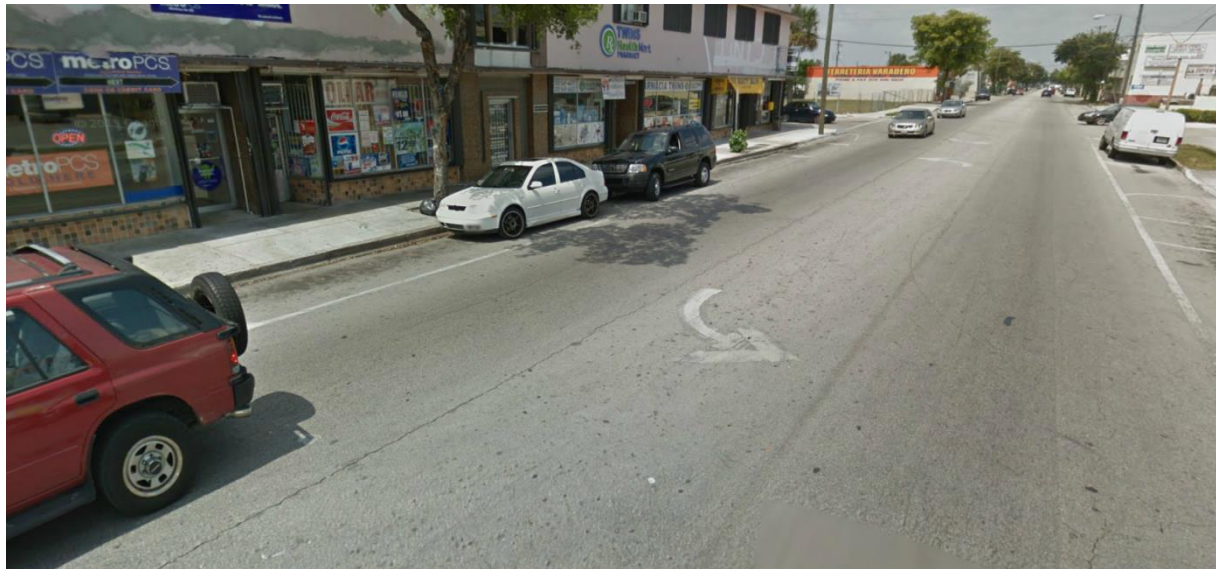
Observation	Recommendation
NB trucks from South River Drive need long time to accelerate through the intersection.	Reduce the slope on NB approach if possible. Improve timing and coordination between South River Dr and Le Jeune Rd.
NBRT trucks from South River Dr made difficult turns.	Widen right turn radius and provide auxiliary lane if possible.
WB traffic approach the intersection with high speed due to a down slope.	Use advisory sign and low speed limit for the WB approach on NW 36 th St.

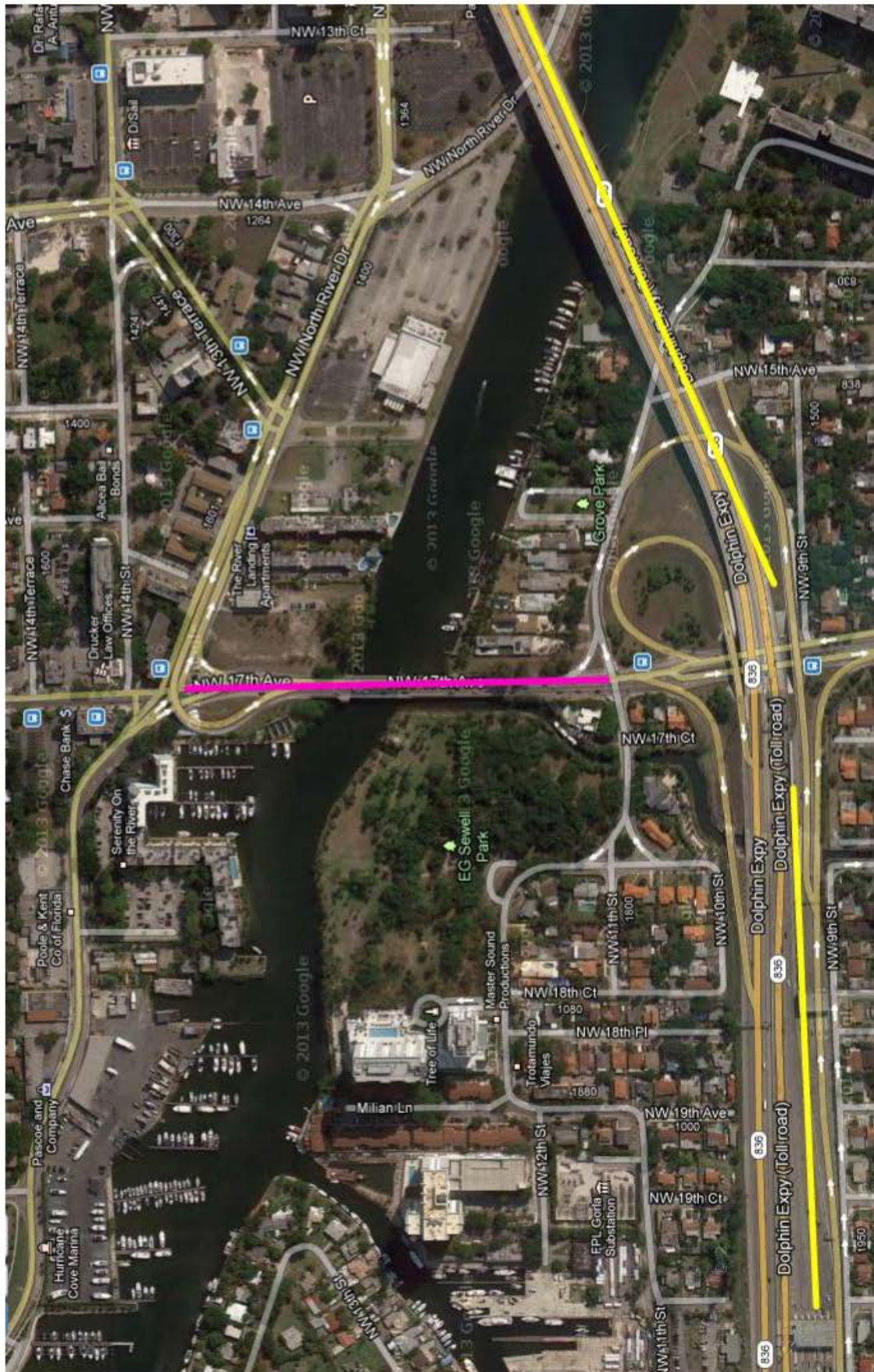




Location 27 – NW 17th Ave from North River Dr to Dolphin Expressway

Observation	Recommendation
On street parking is allowed along NW 17 th Ave. Lane widths are narrow in general.	Use low speed limit.
Pavement condition is deteriorated.	Improve pavement conditions.





Additional Location –NW 116th Way from South River Dr to Okeechobee Rd.

Observation	Recommendation
The NW 116 th Way has direct access to I-75 and therefore is a popular road for both truck and auto traffic. This roadway segment has operational issues due to truck turning from and to South River Drive.	Reevaluate signal operations with truck headways and lost time. Retime and improve signal coordination. Widen turn radii at intersections of South River Drive and Okeechobee Rd.



Appendix D

Regional Needs Prioritization Methodology

2040 Southeast Florida Regional Freight Plan

Roadway Project Prioritization Worksheet

Prioritizing roadway needs based on freight movement.

1- Truck Traffic

Truck Percentage _____

Total Truck AADT _____

Truck Traffic - 40 Points			
Percentage (20 pts)	1-20 pts	Volume (20 pts)	1-20 pts
≥30%	20 pts	>10,000	20 pts
25-29%	19 pts	9,501-10,000	19 pts
21-24%	18 pts	9,001-9,500	18 pts
18-20%	17 pts	8,501-9,000	17 pts
16-17%	16 pts	8,001-8,500	16 pts
15%	15 pts	7,501-8,000	15 pts
14%	14 pts	7,001-7,500	14 pts
13%	13 pts	6,501-7,000	13 pts
12%	12 pts	6,001-6,500	12 pts
11%	11 pts	5,501-6,000	11 pts
10%	10 pts	5,001-5,500	10 pts
9%	9 pts	4,501-5,000	9 pts
8%	8 pts	4,001-4,500	8 pts
7%	7 pts	3,501-4,000	7 pts
6%	6 pts	3,001-3,500	6 pts
5%	5 pts	2,501-3,000	5 pts
4%	4 pts	2,001-2,500	4 pts
3%	3 pts	1,501-2,000	3 pts
2%	2 pts	1,001-1,500	2 pts
1%	1 pts	<1,000	1 pt

Truck Percent Score (1-20) _____

Truck Volume Score (1-20) _____

"Truck Traffic" Total Score (1-40) _____

2- Truck Activity Centers (located within 0.5-mile distance)

Number of Transportation businesses (threshold 10 employees or more): _____

Number of Manufacturing businesses (threshold 20 employees or more): _____

Number of Retail/Restaurant businesses (threshold 50 employees or more): _____

Total Number of Establishments: _____

Truck Activity Centers - 25 Points	
Number of Establishments	1-25 pts
> 30	25 pts
27-29	24 pts
24-26	23 pts
22-23	22 pts
21	21 pts
20	20 pts
...	... pts
1	1 pts

"Truck Activity Center" Score (1-25): _____

2040 Southeast Florida Regional Freight Plan

3- Type of Project. The projects were categorized into the following groups: Infrastructure, Operational/Technology, and Regulatory/Institutional/Other. “Infrastructure” includes projects that increase current capacity on a given corridor. “Operational/Technology” includes projects that streamline traffic flow without increasing capacity. “Regulatory/Institutional/Other” includes projects related to policies and regulations, or projects that could not be categorized into the two preceding categories.

Type of Projects - 15 Points	
Infrastructure	5-15 pts
Adding lanes/New roadways	15 pts
Improving Interchanges	10 pts
Improving Intersections	5 pts
Operational/Technology	3-10 pts
Intelligent Transportation Systems	10 pts
Geometric/Traffic Improvements	8 pts
Congestion Management	3 pts
Regulatory/Institutional/Other	5 pts

“Type of Project” Score: _____

4- Facility Type. This identifies the roadway classification of the corridor or arterial that the project will occur on.

Facility Type - 10 Points	
SIS Corridor	10 pts
SIS Connector	8 pts
Other Expressway	6 pts
Other Principal Arterial	4 pts
Other Minor Arterial	2 pts

“Facility Type” Score: _____

5- Intermodal Connectivity. This identifies whether a project improves access to an intermodal facility.

Intermodal Connectivity - 10 Points	
Connectivity to three or more modes	10 pts
Connectivity to two modes	7 pts
Connectivity to one mode	4 pts
None	0 pts

“Intermodal Connectivity” Score: _____

Total Project Score (out of 100): _____

2040 Southeast Florida Regional Freight Plan

Non-Highway Project Prioritization Worksheets

Rail Worksheet

The rail freight needs identified for each railroad represent the projects identified and submitted by agencies/railroads in South Florida for consideration for state funding. As part of the SFRFP, a project prioritization process was developed to guide regional priorities. The specific elements and points assigned to rank rail projects are described below.

- **Type of Project.** Projects were categorized into three types: capacity, operations, and maintenance. Projects designed to increase capacity received the greater value, followed by operations and maintenance. System preservation and maintenance is critical to the freight system and typically is addressed in large part by the owner of the infrastructure. New capacity therefore becomes the priority for a collaborative regional freight program.
- **Type of Traffic.** A distinction was made between projects designed specifically to address freight operations and those designed to benefit the entire facility. A greater value was given to “freight” projects. Projects that only benefit passenger traffic have been excluded.
- **Project Identified in Plan.** Projects that are already included in FDOT’s work program, an MPO LRTP, or a railroad CIP receive points. This factor was included to call out the importance of projects that are being considered for state funding or have already been partially funded.
- **Project Impact.** The level of impact a project is anticipated to have has a direct relationship with the priority. Those projects with a significant order of magnitude impact (e.g., will it create significant capacity or economic impact) receive points.
- **Intermodal Connectivity.** Projects were categorized by their type of intermodal connectivity. Projects that improved rail access to ports received the greatest value, followed by improved connections to highways/trucks. This factor highlights the importance of having waterways and rail lines that can compete, where practical, with trucks to achieve a balanced freight transportation system. Mainline corridor improvements with no access component did not score points on this factor.
- **Timeframe.** It is critical to focus on short-term priorities. The projects have been designated as short, medium, or long term. The greatest value was assigned to those projects planned for the next five years.

The worksheet used to score each project is illustrated below:

Category	Measure	Points
Project Type	Capacity	20
	Operations	10
	Maintenance	5
Type of Traffic	Freight	15
	Both	5
Project Identified in Plan	Yes	15
	No	0
Project Impact	High	15
	Low	0
Intermodal Connectivity	Port	15
	Truck	5
Timeframe	Short	20
	Medium	10
	Long	5
Total		100

Seaport Worksheet

Each seaport is responsible for developing an improvement program and setting investment priorities based on business opportunities. The intent of the SFRFP is to identify a comprehensive list of seaport needs, based upon a review of available plans and conversations with seaport staff, and develop a process to establish regional priorities. While individual county or facility priorities may differ, the priorities presented below represent regional priorities. The specific elements and points assigned to rank seaport projects are described below.

- **Project Type.** Projects were categorized into three types: capacity, operations, and maintenance. Projects designed to increase capacity received the greatest value, followed by operations, and then maintenance. System preservation and maintenance is critical to the freight system and typically is addressed in large part by the owner of the infrastructure. New capacity therefore becomes the priority for a collaborative regional freight program.
- **Type of Traffic.** A distinction was made between projects designed specifically to address freight operations and those designed to benefit the entire facility. A greater value was given to “freight” projects. Projects that only benefit passenger traffic have been excluded.
- **Project Identified in Plan.** Projects that are already included in FDOT’s work program, an MPO LRTP, or a seaport master plan or CIP receive points. This factor was included to call

out the importance of projects that are being considered for state funding or have already been partially funded.

- **Project Impact.** The level of impact a project is anticipated to have has a direct relationship with the priority. Those projects with a significant order of magnitude impact (e.g., will it create significant capacity or economic impact) receive points. Any project evaluated by FDOT with a BCR greater than 5, or anticipated to generate significant volumes/capacities received points.
- **Intermodal Connectivity.** Projects were categorized by their type of intermodal connectivity. Projects that improved rail access received the greatest value, followed by water access, and finally truck access. This factor highlights the importance of having waterways and rail lines that can compete, where practical, with trucks to achieve a balanced freight transportation system. On-port improvements with no access component did not score points on this factor.
- **Timeframe.** It is critical to focus on short-term priorities. The projects have been designated as short, medium, or long term. The greatest value was assigned to those projects planned for the next five years.

The worksheet used to score each project is illustrated below:

Category	Measure	Points
Project Type	Capacity	20
	Operations	10
	Maintenance	5
Type of Traffic	Freight	15
	Both	5
Project Identified in Plan	Yes	10
	No	0
Project Impact	High	15
	Low	0
Intermodal Connectivity	Rail	20
	Water	10
	Truck	5
Timeframe	Short	20
	Medium	10
	Long	5
Total		100

Aviation Worksheet

Airport projects have to be justified in airport master plans. The need for each project is based on an extensive evaluation of forecasts of types of based aircraft and types of aeronautical activity expected at the airport. Forecasts are developed for domestic and international passengers, domestic and international cargo, and related landside access. Facility needs are based on the various forecasts. Master plans include a cost feasible financial plan for the airport; any proposed project must be financially feasible. As part of the SFRFP, a project prioritization process was developed to guide regional priorities. This process is similar to the seaport and rail processes described above. The following describes the specific elements used to rank airport projects in South Florida.

- **Type of Project.** Projects were categorized into three types: capacity, operations, and maintenance. Projects designed to increase capacity received the greater value, followed by operations and maintenance. System preservation and maintenance is critical to the freight system and typically is addressed in large part by the owner of the infrastructure. New capacity therefore becomes the priority for a collaborative regional freight program.
- **Type of Traffic.** A distinction was made between projects designed specifically to address freight operations and those designed to benefit the entire facility. A greater value was given to “freight” projects. Projects that only benefit passenger traffic have been excluded.
- **Project Identified in Plan.** Projects that are already included in FDOT’s work program, an MPO LRTP, or an airport master plan or CIP receive points. This factor was included to call out the importance of projects that are being considered for state funding or have already been partially funded.
- **Project Impact.** The level of impact a project is anticipated to have has a direct relationship with the priority. Those projects with a significant order of magnitude impact (e.g., will it create significant capacity or economic impact) receive points.
- **Implementation Timeframe.** It is critical to focus on short term priorities. The projects have been designated as short, medium, or long term. The greatest value was assigned to those projects planned for the next five years.

The worksheet used to score each project is illustrated below:

Category	Measure	Points
Project Type	Capacity	20
	Operations	10
	Maintenance	5
Type of Traffic	Freight	25
	Both	5
Project Identified in Plan	Yes	20
	No	0
Project Impact	High	15
	Low	0
Timeframe	Short	20
	Medium	10
	Long	5
Total		100