

a report on

FLORIDA TRANSPORTATION TRENDS AND CONDITIONS



TRAVEL DEMAND

Trade and Freight Transportation Demand



July 2012



Produced by the
Florida Department of Transportation
Office of Policy Planning

with support from the
Center for Urban Transportation Research
University of South Florida



www.dot.state.fl.us/planning/trends

List of Figures and Tables

Table of Contents

Introduction 1
Multimodal Strategies for Meeting Freight Transportation Needs..... 2
Surface Trade: Truck and Rail..... 6
Freight Transport: Air and Water 12
Future of Freight 15
Conclusion 20
Bibliography 21

List of Figures

Figure 1 – Florida’s Major Transportation Facilities on SIS as of 2011..... 3
Figure 2 – Florida Originating Freight Shipments by Mode 4
Figure 3 – Weight Based Percent of Originating Freight by Mode..... 5
Figure 4 – Weight Based Percent of Originating Freight by Distance..... 5
Figure 5 – Shipment Size of Florida Originating Freight 6
Figure 6 – Share of Average Daily Travel Attributed to Truck Traffic, 2010 7
Figure 7 – Major Flows by Truck To, From, and Within Florida 8
Figure 8 – Daily Truck Miles Traveled on Florida Strategic Intermodal System, 2003–2010 9
Figure 9 – Daily Truck Miles Traveled on Florida State Highway System, 2003–2010 9
Figure 10 – Florida Truck Tractor Registrations, 2002–2009 10
Figure 11 – Florida Rail Freight Traffic, 1995–2008 10
Figure 12 – Florida Merchandise by Surface Mode, 2001–2010 11
Figure 13 – Florida Surface Trade with Canada and Mexico, 2001–2010..... 12
Figure 14 – Florida International Trade by Air and Water, 2002–2011 13
Figure 15 – Florida Seaport Tonnage, 2001–2011 14
Figure 16 – Florida Seaport Container Movement, 2001–2011 14
Figure 17 – Florida Air Cargo Landed Weight Tonnage, 2000–2010 15
Figure 18 – Florida Freight Tonnage and Value 18
Figure 19 – Percent Change of Imports in Selected Florida Areas from 2007..... 19
Figure 20 – Net Imports 19

List of Tables

Table 1 – Freight Shipments To and From Florida 16
Table 2 – Value of Transported Goods By Mode..... 17

Travel Demand: Trade and Freight Transportation

Introduction

Freight travel demand has been a growing source of demand on the transportation network and, historically, has grown at rates faster than person-travel demand growth. The shipment of materials and products to meet the needs of individuals and businesses is a major source of travel demand on the transportation system. Trucks involved in freight transportation are third only to person travel for daily activities and tourist/visitor travel in terms of vehicle miles of travel on our roadway system. The impact of freight on our transportation system is further accentuated by the fact that trucks consume greater roadway capacity than cars due to their size and performance characteristics and have a more significant impact on the roadway condition due to the weight of trucks and the loads they carry.

The current economic situation has contributed to a dramatic decline in freight demand. Forecasters expected freight demand growth to resume and outpace person-travel demand growth once the economy recovers. However, the changing economic conditions may require a revisiting of fundamental assumptions that underlay freight growth projections.

Freight transported throughout Florida travels through airports and seaports as well as on rail lines and the highway system. Given Florida's geographic nature, it does not handle much interstate freight. However, its location makes it a strategic gateway for handling air and ocean freight to and from the Caribbean and the Central and South America. With the widening of the Panama Canal and the development of South American and Caribbean economies, Florida can expect to see increased freight activity at its major ports.

Today, Florida is the fourth largest state in terms of population. In addition, Florida hosts over 80 million tourists each year. Furthermore, the state produces a number of products shipped both domestically and internationally. These products include phosphates, citrus crops, and tropical fish. As a result, Florida is a major destination and source for freight.

Over the past decade, there has been a growing recognition of the importance of freight and business travel as a major component of transportation demand. As the transportation system becomes more crowded, the performance of the system

Over the past decade, there has been a growing recognition of the importance of freight and business travel as a major component of transportation demand.

negatively affects business and commerce. In addition, as freight traffic using both the surface transportation system and the air travel system increases, it adversely affects the service for person travel. These problems have motivated an effort to develop a richer understanding of

Travel Demand: Trade and Freight Transportation

freight travel demands. One major challenge in this effort is the limited availability of freight data, given the role of the private sector in freight transportation and its proprietary nature. Despite this, the public interest in integrating freight needs into transportation planning has resulted in a rapid expansion of the body of data and knowledge regarding freight transportation. There is evidence that the factors influencing freight demand may be more dynamic than those that govern person movement. For example, the shift to just-in-time manufacturing, the move from rail to truck travel, the impacts of transportation security, and the effects of fuel efficiency and pricing on freight logistics result in a very dynamic situation regarding freight travel demand. Hurricane events and recovery efforts have also influenced the trend of freight demand in Florida.

Multimodal Strategies for Meeting Freight Transportation Needs

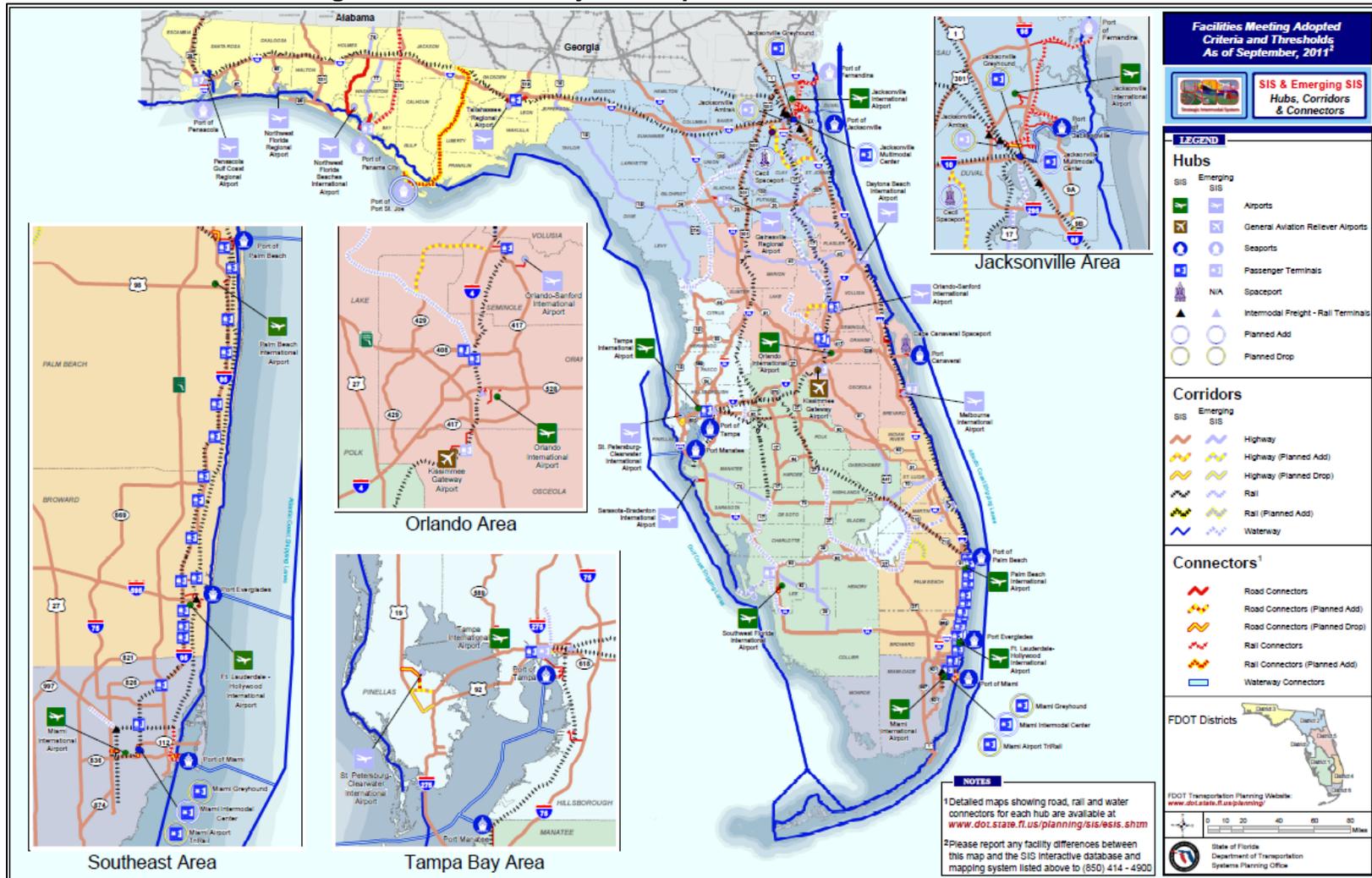
The 2060 Florida Transportation Plan (FTP) envisions the state as a globally competitive economy serving as a hub for international and domestic trade as well as investment that attracts and retains skilled workers. To meet this vision, the FTP has set a goal of developing multi-modal options for moving people and freight within the state as part of an integrated transportation system. The FTP states that in order to achieve that goal, there must be connectivity and mobility for the following three types of trips: trips between regions, other states, and nations primarily via the Strategic Intermodal System; trips between communities in Florida's regions; and trips within local communities. Many state, regional, public, and private entities worked closely with the Florida Department of Transportation (FDOT) to identify significant transportation facilities with modal linkages and options that provide a smooth and efficient transfer of people and freight.

Figure 1 displays the major transportation facilities throughout Florida on the Strategic Intermodal System (SIS). This statewide network of high-priority transportation facilities includes the state's largest and most significant commercial service airports, spaceport, deepwater seaports, freight rail terminals, passenger rail and intercity bus terminals, rail corridors, waterways, and highways. A dynamic system, the SIS will continually consider all transportation facilities that contribute to the economic competitiveness of Florida.

Figure 2 presents the value and tonnage of Florida's freight shipments by mode. As the figure shows, trucks continue to be the dominant mode of freight transportation and are projected to increase in both value and tonnage between 2007 and 2040. In addition, overall freight shipments dipped in tonnage and value from 2007 to 2009 primarily due to the economic downturn.

Travel Demand: Trade and Freight Transportation

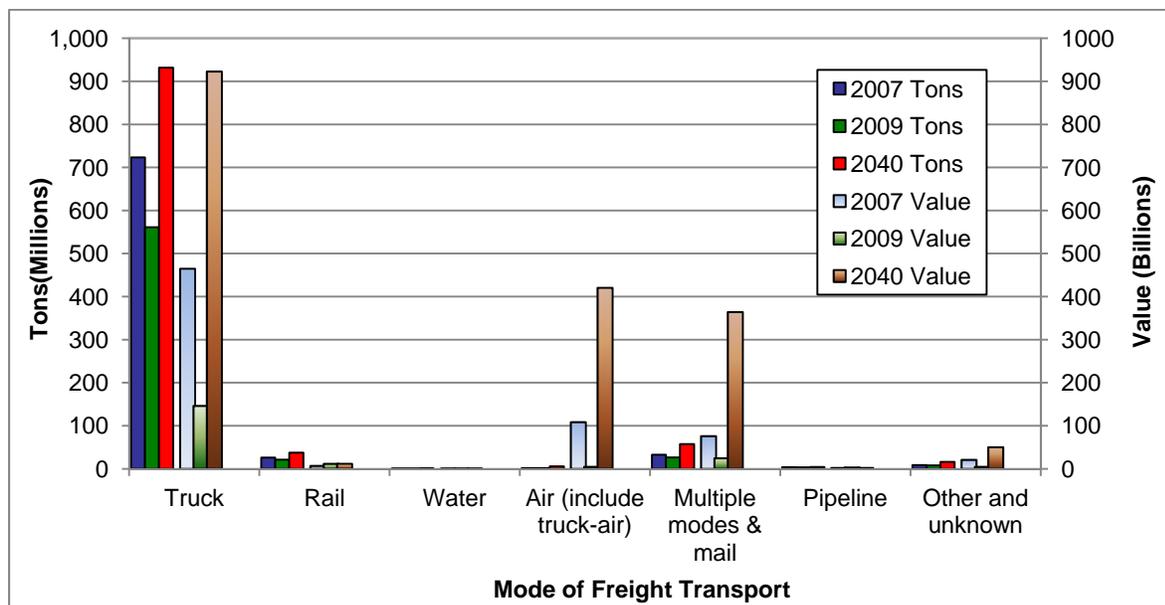
Figure 1 – Florida’s Major Transportation Facilities on SIS as of 2011



Source: FDOT, Office of Policy Planning, 2011.

Travel Demand: Trade and Freight Transportation

Figure 2 – Florida Originating Freight Shipments by Mode



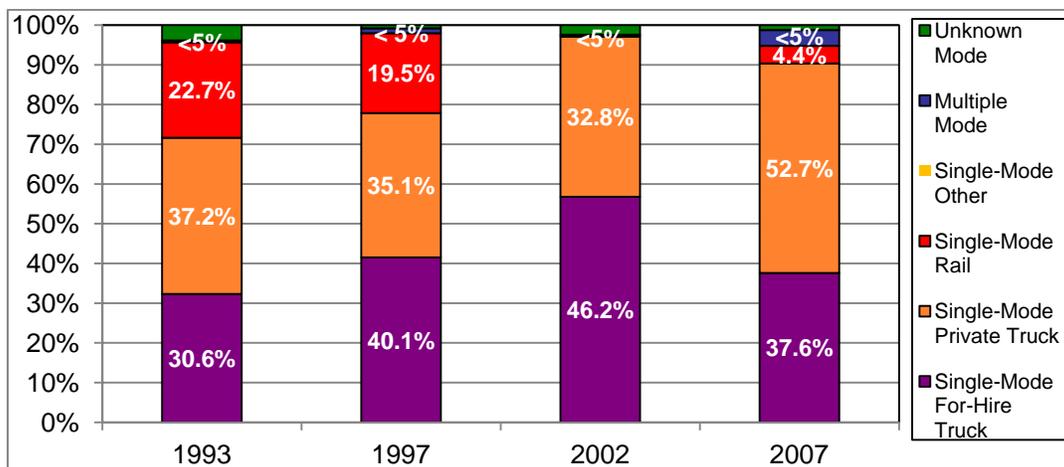
Source: Federal Highway Administration, *Freight Analysis Framework 3*, 2010.

Every 5 years, the Bureau of Transportation Statistics (BTS) and the U.S. Census Bureau conduct the Commodity Flow Survey that provides data on the flow of goods and materials by mode of transport. Figures 3, 4 and 5 show the characteristics of freight shipments originating in Florida as detailed in this survey.

The shares of freight shipments by modes in Florida between 1993 and 2007 (most current year available) are compared in Figure 3. Between 1993 and 2002, Florida saw a meaningful increase in the share of freight transported by “For Hire Truck,” defined as trucks carrying shipment for a collected fee. Between 2002 and 2007, however, the share of tonnage by this mode dropped 9 percent, to 37.6 percent. This corresponded to an increase in the share of tonnage by private truck during the same period. As defined by the Commodity Flow Survey, a private truck is a vehicle typically operated by a temporary or permanent employee of the shipper or receiver of the cargo. The dip in the share of for-hire truck and the simultaneous increase in the share of tonnage by private truck suggest that industries were trying to keep their costs of transport lower by using their own employees and equipment.

Travel Demand: Trade and Freight Transportation

Figure 3 – Weight Based Percent of Originating Freight by Mode

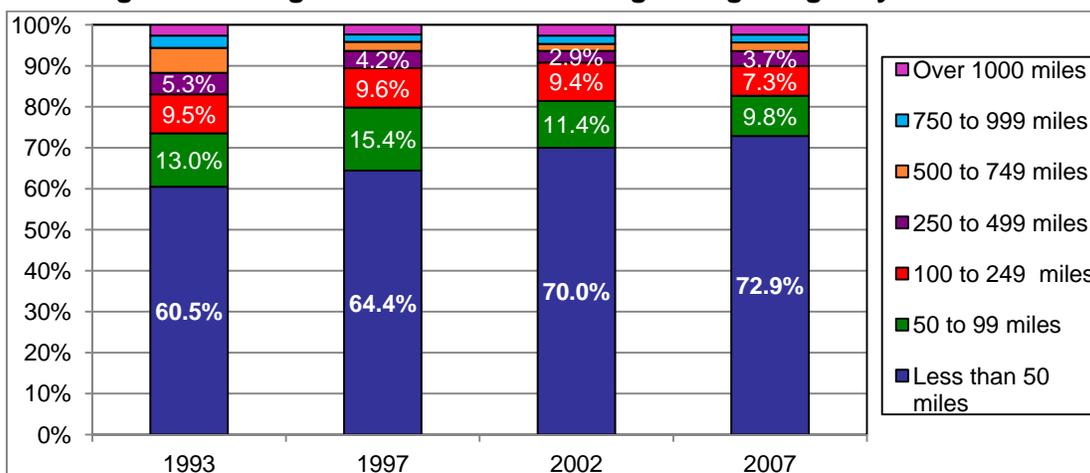


Source: U.S. Census Bureau & BTS, *Commodity Flow Survey*.¹

Note: Single-Mode Rail data suppressed for 2002.

Truck freight is Florida's dominant mode for originating shipments, with almost 90 percent of its tonnage transported via truck in 2007. The distance a freight shipment travels influences the mode(s) it takes for its transport. For example, international freight transport across continents requires at least two modes. Figure 4 exhibits the percentage of freight shipments by distance. As can be seen, most freight shipments are less than 50 miles, which is a key reason why the truck mode transports the largest share of freight. The economics and the limited coverage of the rail network make rail transport very unattractive for most short freight trips. Since 1993, Florida's share of shipments less than 50 miles has been increasing.

Figure 4 – Weight Based Percent of Originating Freight by Distance



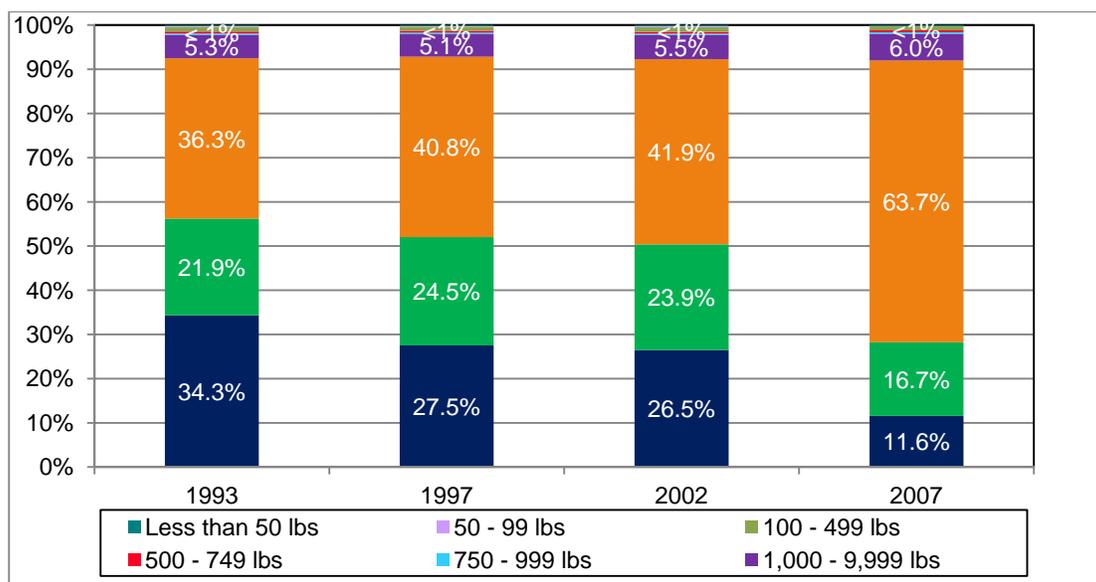
Source: U.S. Census Bureau & BTS, *Commodity Flow Survey*.

¹ Some data, such as for rail transport, are suppressed due to unavailability or statistical variation.

Travel Demand: Trade and Freight Transportation

Figure 5 displays the distribution of shipment size for freight originating in Florida. More than 90 percent of freight shipments originating in Florida exceeded 10,000 lbs through the survey years. This was because most of the major commodities originating in the state were inherently heavy, including items such as gravel and crushed stone, fertilizers, nonmetallic mineral products, and natural sands. The overall freight tonnage had increased over the years. The major share of the increase in the freight shipment was in the 10,000-49,999 pound category, which nearly doubled from 1993 to 2007. This coincided with a decline in the 50,000-99,999 pound and the over 100,000 pound categories. This trend verifies Florida's strategic geographic location for freight traffic coming from the Caribbean and Central/South America and acknowledges the growth in truck volumes relative to other freight modes (see also Figure 12- Florida Merchandise by Surface Mode, 2001–2010).

Figure 5 – Shipment Size of Florida Originating Freight



Source: U.S. Census Bureau & BTS, *Commodity Flow Survey*.

Surface Trade: Truck and Rail

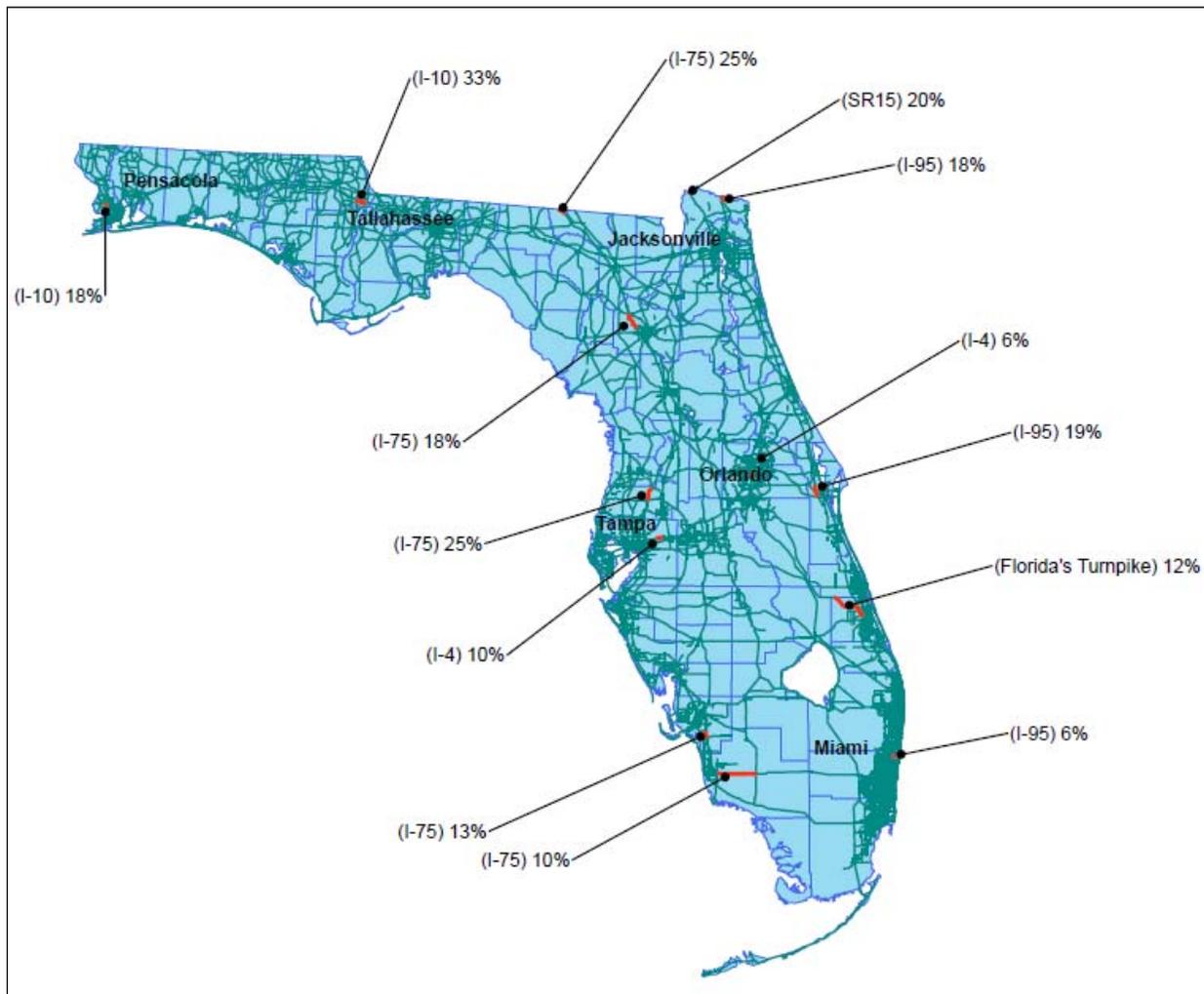
The high percentage of freight transported by trucks speaks to the significance of the roadway network for handling freight traffic. The shift of the economy to services and high value consumer goods, the change to just-in-time inventory systems, the dispersion of population, and the expansion of services, such as overnight delivery and even Internet purchasing, have accentuated the growth of roadway-based truck freight transportation.

Figure 6 shows the share of average daily traffic attributed to trucks at various locations around the state. The share of daily truck traffic ranges from 6 percent in the south to as much as 33 percent in the northern part of the state. The higher percentage in the northern part of the state

Travel Demand: Trade and Freight Transportation

is characteristic of the area being in close proximity to other major trade routes, and to adjacent trade states (Georgia and Alabama). In addition, it is partially attributed to the relatively lower volumes of light vehicle traffic (personal travel by local population) resulting in freight and commercial traffic comprising a larger share. Light vehicle travel generating residential population density in this part of the state is relatively low compared to central and south Florida where the major metro areas are.

Figure 6 – Share of Average Daily Travel Attributed to Truck Traffic, 2010



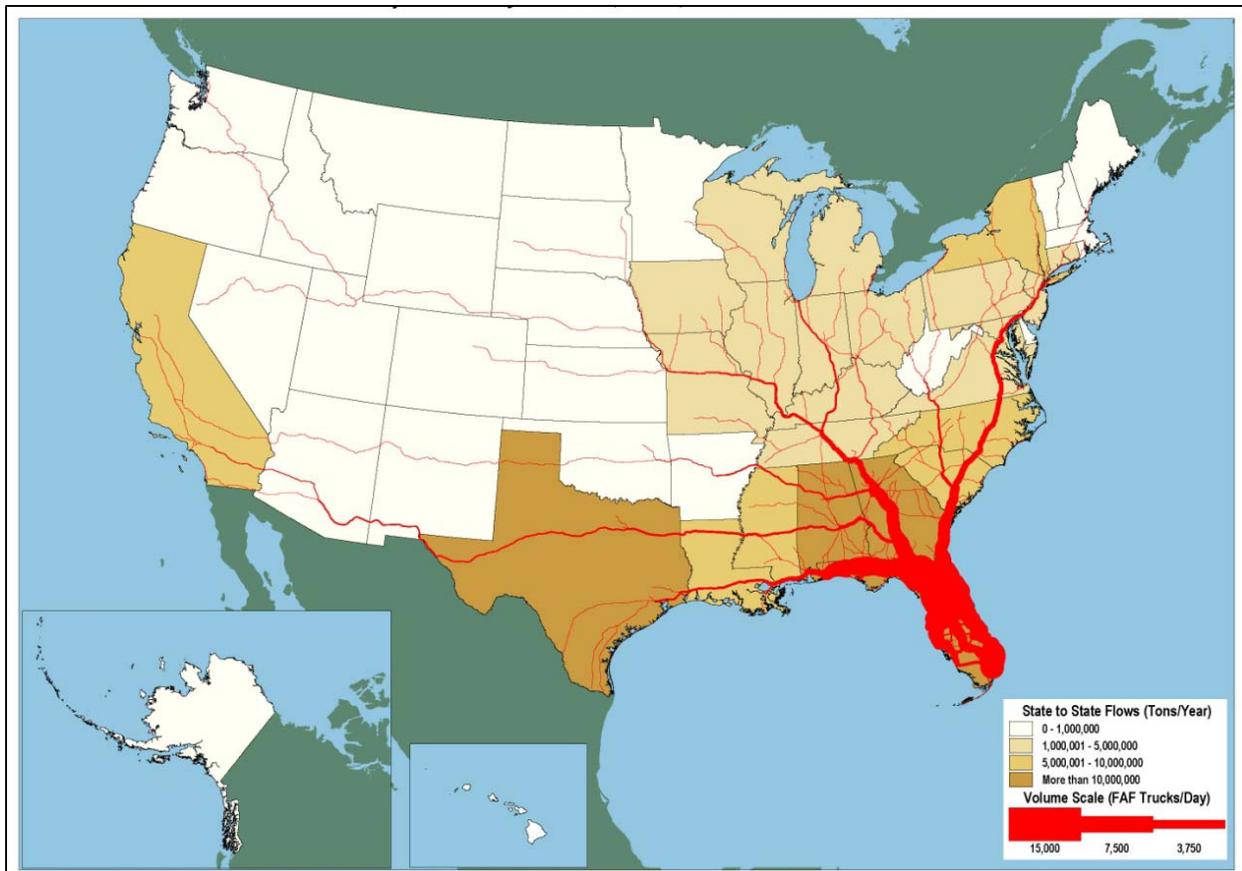
Source: FDOT, *Florida Traffic Information*, 2010.

The high percentage of freight transported by trucks speaks to the significance of the roadway network for handling freight traffic.

Travel Demand: Trade and Freight Transportation

Further, the interstates (I-10, I-75 and I-95) serve as connectors to the ports in Florida, which transport freight to and from major states in the southeast (Alabama, Louisiana, Georgia and Carolinas) and Texas (Figure 7). The map shows the maximum truck tonnage movement is between Florida and adjacent states of Georgia and Alabama.

Figure 7 – Major Flows by Truck To, From, and Within Florida

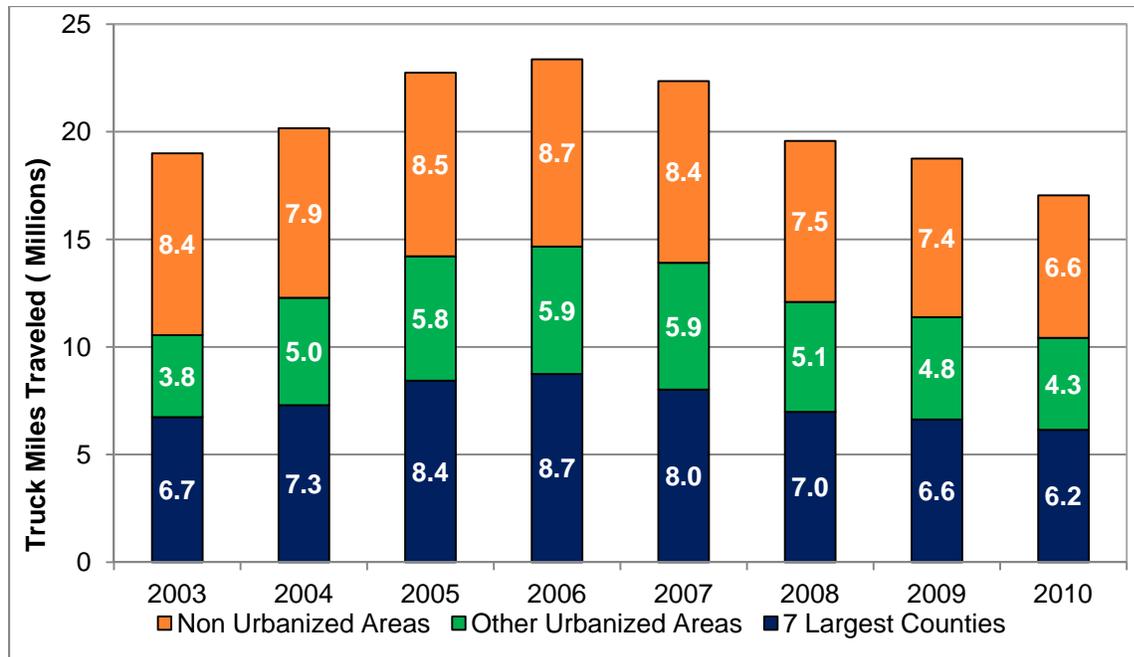


Source: Federal Highway Administration, *Freight Analysis Framework, version 3.1.2, 2011*.

Two proxy measures of freight movement by trucks are truck miles traveled (TMT) and truck registrations. Figure 8, 9 and 10 illustrate trends in these measures for Florida. Figure 8 shows that the daily TMT on the SIS peaked in 2006 and has been declining ever since, in line with the current economic situation. The trend is similar on the State Highway System (Figure 9). The daily TMT on the SIS and the State Highway System dipped by about 1.8 and 2.4 million miles, respectively, in non-urbanized areas in 2010 when compared to the levels observed in 2003. One of the contributing factors to the dip could be the lack of demand for construction materials such as gravel and sand that are used in the home and commercial building industry.

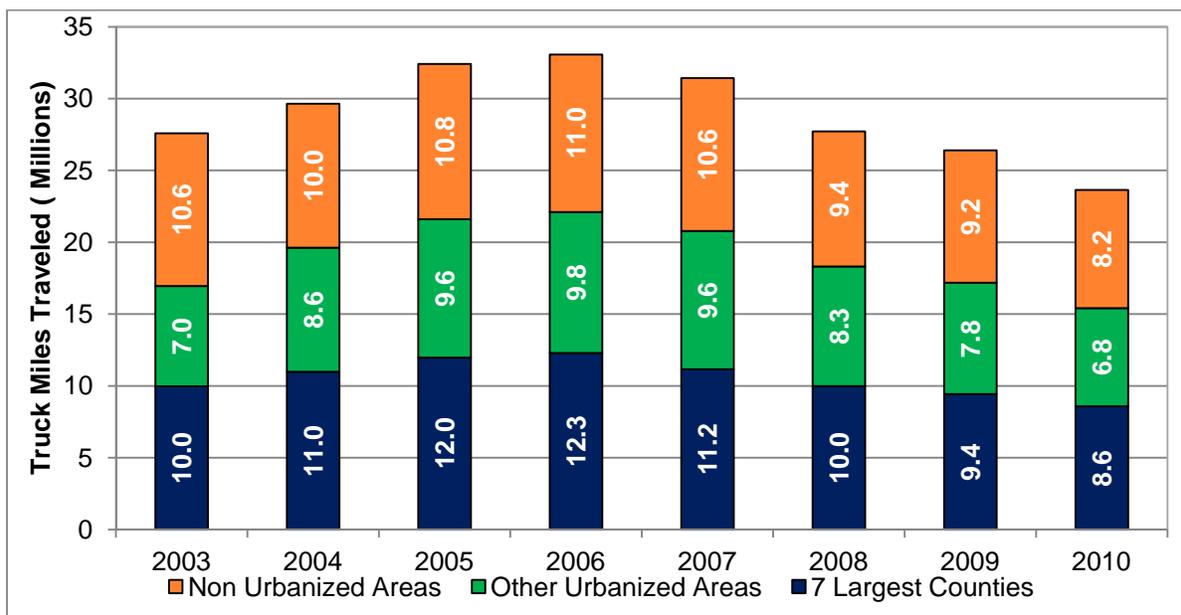
Travel Demand: Trade and Freight Transportation

Figure 8 – Daily Truck Miles Traveled on Florida Strategic Intermodal System, 2003–2010



Source: FDOT, 2010 Florida Highway Data Source Book.

Figure 9 – Daily Truck Miles Traveled on Florida State Highway System, 2003–2010



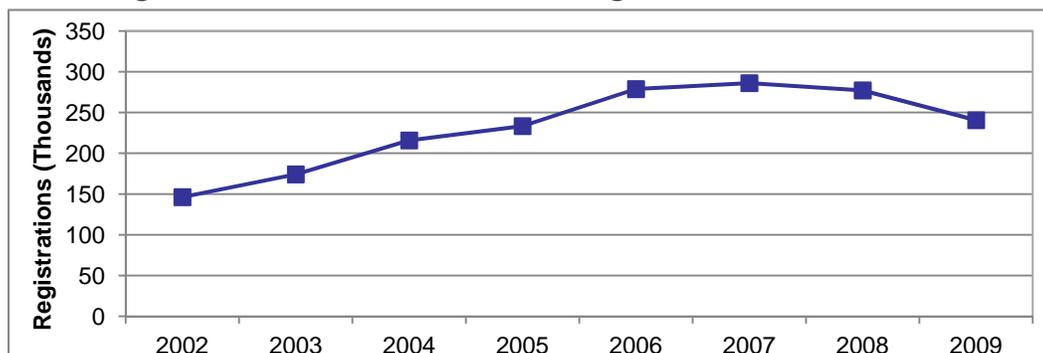
Source: FDOT, 2010 Florida Highway Data Source Book.

Truck tractor registration also witnessed a decline, as illustrated in Figure 10. The number of registrations for truck tractors in the early part of the last decade increased at an annual

Travel Demand: Trade and Freight Transportation

average rate of 16 percent from 2002–2007. It witnessed the first drop of around 3 percent in 2008, followed by another drop of 13 percent in 2009.

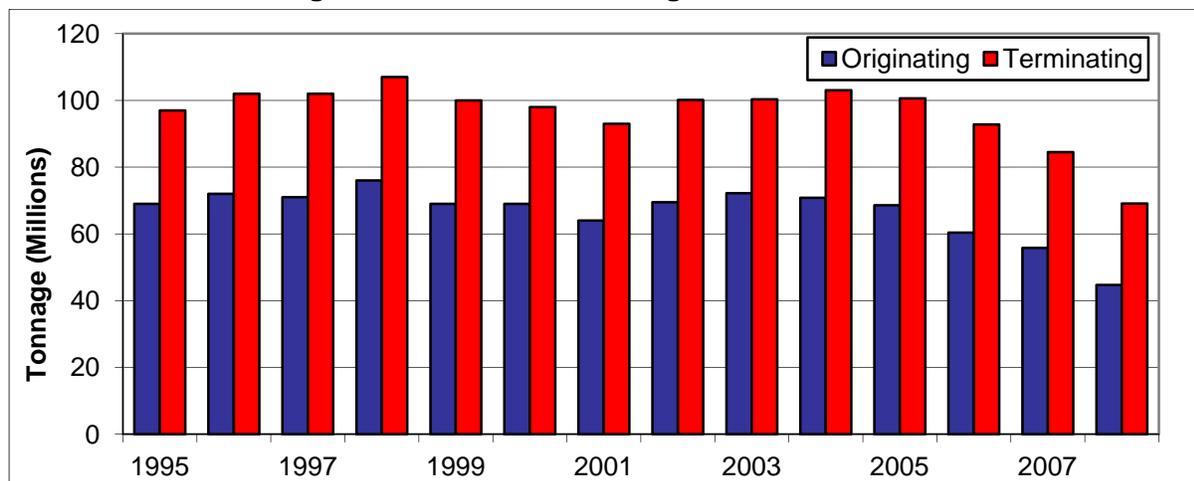
Figure 10 – Florida Truck Tractor Registrations, 2002–2009



Source: Federal Highway Administration, *Highway Statistics*

Rail is the other major surface mode transporting freight. Figure 11 presents the tonnage of rail freight both originating and terminating in Florida. After 1998, Florida freight experienced a decline in rail tonnage, followed by an upward trend beginning in 2002. This is similar to national trends where improved rail services combined with increasing costs of truck operations are causing rail to gain market share. However, this trend was negated by the sluggish economy with rail freight tonnage declining towards the latter half of the decade. The influence of the sluggish economy was witnessed across all modes.

Figure 11 – Florida Rail Freight Traffic, 1995–2008



Source: FDOT Rail Office; Association of American Railroads.

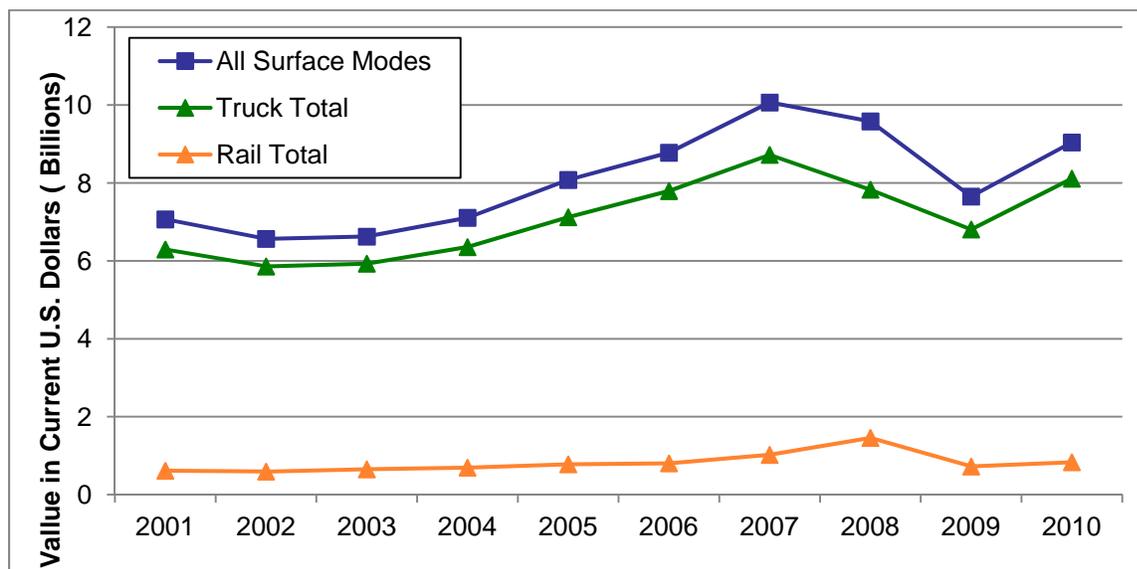
The historical trend in the value of freight by surface modes illustrates trucks' dominance in the share of surface freight transport in Florida (Figure 12). Over the past 10 years, the total value of freight experienced mostly growth despite two major dips. This upward trend of freight

Travel Demand: Trade and Freight Transportation

transport by surface modes stems, in part, from the growth of international trade that often use truck and rail modes to reach their final destinations. As for the two dips, the first can be attributed, in part, to the September 11 terrorist attacks, while the decline in 2008–2009 was mostly tied to a global economic downturn.

One interesting phenomenon was that the spike in shares for rail occurred at the same time truck shares were falling in 2008 and 2009. This spike in rail shares suggested a possible shift in merchandise being transported from truck to rail due to rising gas prices in 2008. In 2009, the shares for rail fell below 2007 levels and remained unchanged in 2010, while the share for truck rose in 2010. It could be due to the slow but steady drop in fuel prices from its peak during the onset of the economic downturn, along with a probable increase in local economic activities involving the increased use of trucks for transportation. The above-discussed comparative trend between modes (rail and truck) indicates rail's ability to serve as an alternate or contingency mode during adverse times. In addition, the value of merchandise shipped via rail continues to grow, albeit at a slower rate in comparison to trucks.

Figure 12 – Florida Merchandise by Surface Mode, 2001–2010



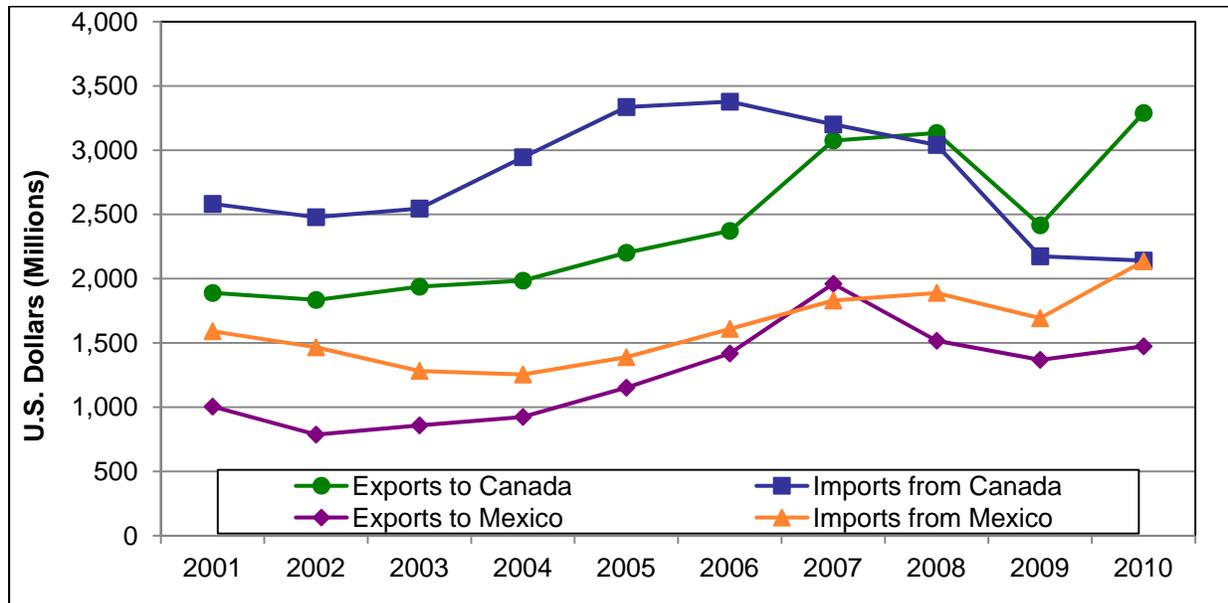
Source: BTS, *Transborder Freight Data*, 2010.

Figure 13 presents the trend of Florida surface trade with Canada and Mexico in the last decade. The values of imports and exports with Canada and Mexico have steadily increased over the past decade, with the exception of a slight decline post 9/11, 2001. Most freight travel between Mexico and Canada peaked around 2006–2008. Data for 2010 suggest a possible recovery in trade with both nations — exports to Canada and imports from Mexico. Specifically, the data show that exports to Canada and imports from Mexico rose, while imports from Canada remained relatively flat and exports to Mexico ticked up to the 2006 level. Imports from Canada

Travel Demand: Trade and Freight Transportation

that rose in the earlier part of the last decade have dipped and are below the levels observed in early 2000. This is intuitive and reflective of the position of the U.S. relative to Canada and Mexico in the global economy, with the growing Canadian economy anticipated to have higher demand for consumption.

Figure 13 – Florida Surface Trade with Canada and Mexico, 2001–2010



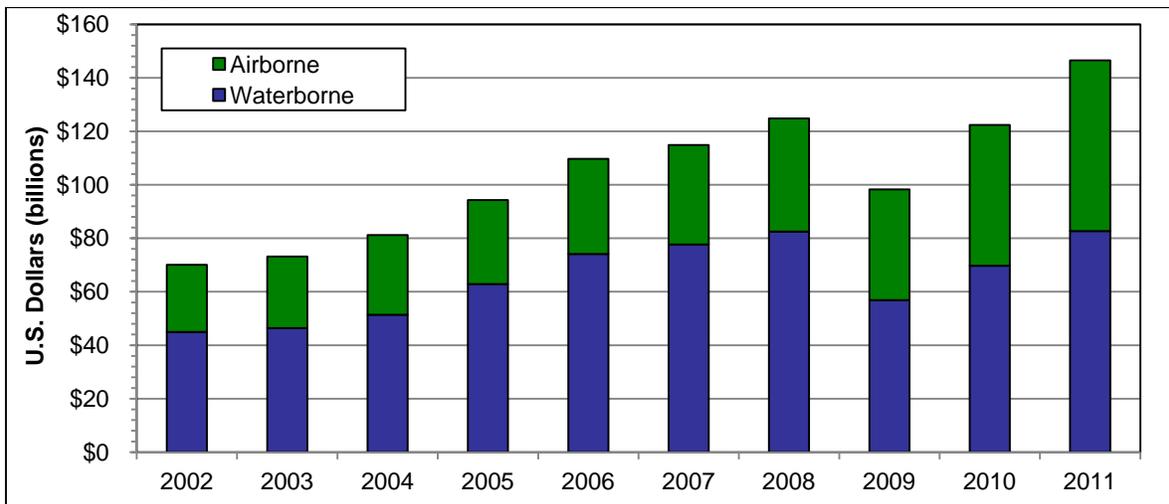
Source: BTS, *Transborder Freight Data*, 2010.

Freight Transport: Air and Water

Florida's geographic location is strategic for international trade, with widening of the Panama Canal and continuing globalization of the economy. Thus, it could serve as a gateway for the nation's international trade and critical multimodal node for freight transport via air and water transport modes. Figure 14 demonstrates the value of trade by air and water modes from 2002 through 2011. The total value of freight transported by water through Florida's ports and waterways is approximately twice that of airfreight. International trade by air and water modes has doubled over the decade from 2002 to 2011.

Travel Demand: Trade and Freight Transportation

Figure 14 – Florida International Trade by Air and Water, 2002–2011



Source: Florida Ports Council, *Charting a course for economic success: 2012 to 2016 (The Five Year Florida Seaport Mission Plan)*.

International trade has grown annually at an average rate of 9 percent, except for the dip in 2009 where trade dropped by 21 percent. Trade has since recovered, with 25 percent growth from 2009 to 2010, and 20 percent from 2010 to 2011. Historically, waterborne trade has handled more value than air, having its peak market share of 68 percent in 2006 and 2007. More recently, the share of airfreight has increased, especially in the latter half of the last decade. This shift could be due to the significant increase in the monetary value of goods transported via air, which increased by more than 2.5 times to \$63.80 billion over the decade. The value of goods transported via water declined, especially following the economic downturn in 2009, but has recovered as well returning to the 2008 peak of around \$82 billion.

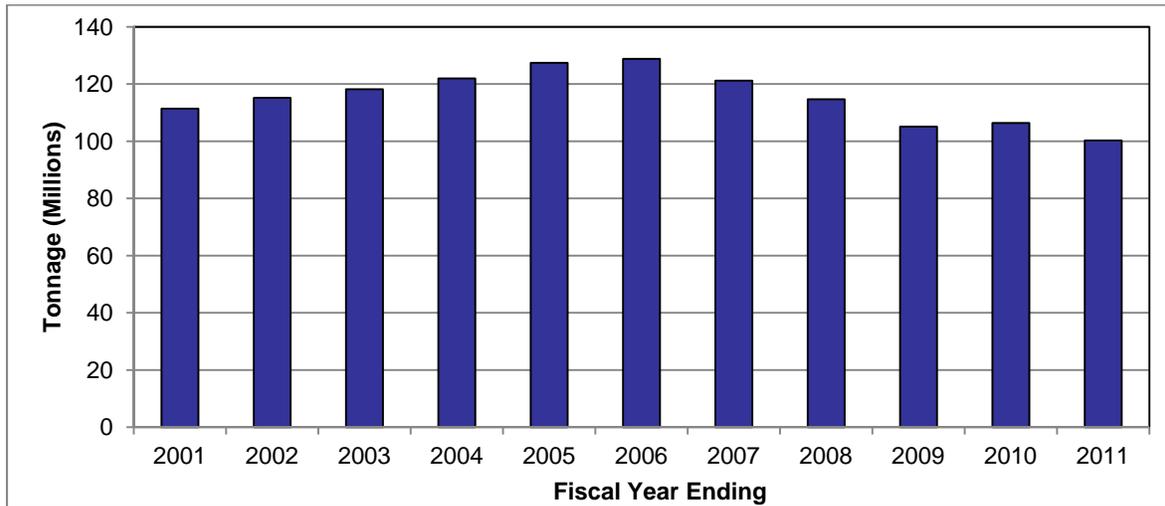
A continuation of the rising trend in value of goods via air suggests a shift in trade mode dominance from water to air. However, this is linked to changing product demand conditions of the state and the nation as a whole rather than to shifts of preferred means of product transportation. The trend observed in the last decade is an indicator of a shift in demand from the need for heavier bulk materials that could be transported economically only by water as compared to air. An example would be the demand for construction materials during the housing boom. The increasing value of goods via air witnessed in the latter part of last decade could be due to relatively higher demand for goods (other than raw materials) such as high value manufactured products via air which demand faster delivery times.

The tonnages handled at Florida's seaports, as shown in Figure 15, illustrates a decline in waterborne trade. Tonnage handled at Florida's seaports rose until 2006, but experienced a drop of nearly 6 percent in 2007, mainly due to a downturn in the housing and construction

Travel Demand: Trade and Freight Transportation

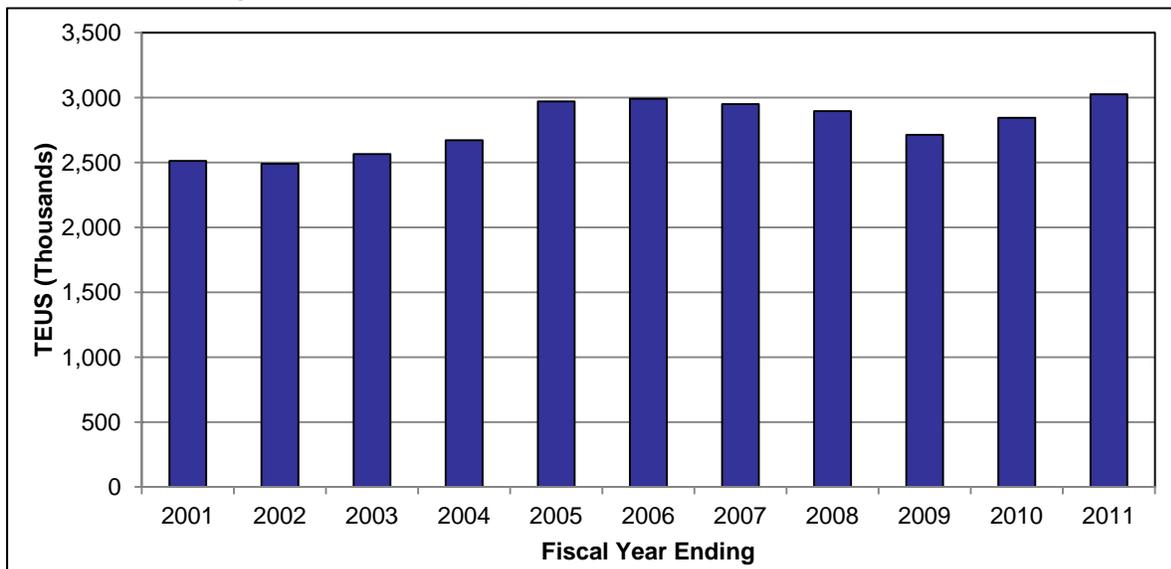
industries. The downward trend in tonnage at Florida's seaports continued until 2009, followed by a fluctuating trend in 2010 - 2011.

Figure 15 – Florida Seaport Tonnage, 2001–2011



Source: Florida Ports Council, *Charting a course for economic success: 2012 to 2016 (The Five Year Florida Seaport Mission Plan)*.

Figure 16 – Florida Seaport Container Movement, 2001–2011



Source: Florida Ports Council, *Charting a course for economic success: 2012 to 2016 (The Five Year Florida Seaport Mission Plan)*.

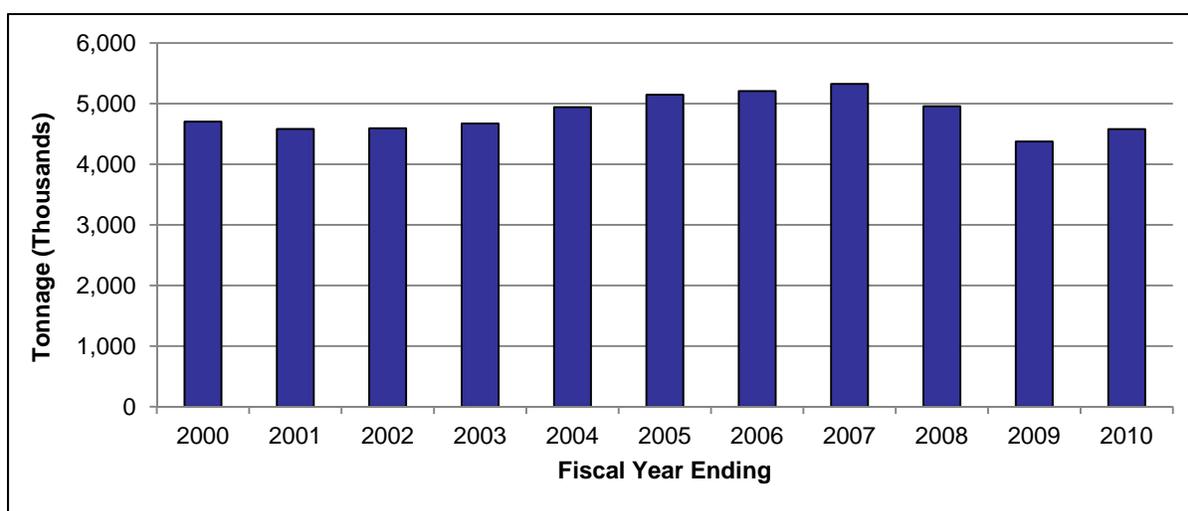
The trend of container movements at Florida's seaports is similar to that of freight tonnage (Figure 16) up until 2009. The unit TEU refers to a 20-ft equivalent unit that is equal to the space occupied by a standard 20-ft shipping container. Freight traffic declined from 2007 through

Travel Demand: Trade and Freight Transportation

2009 but recovered relatively well compared to tonnage, with an annual increase of over 5 percent from 2010. Container movements are expected to increase in the future, as it has been the fastest-growing segment of the global trade market recently.

Figure 17 shows the trend of landed weight tonnage for Florida air cargo from 2000 through 2010. From 2000 to 2003, air cargo tonnage remained relatively constant and trended upward until 2007. Despite rising fuel prices and the increased cost of security regulations at airports, the future demand of air cargo is expected to rise and, therefore, reverse the downward trend.

Figure 17 – Florida Air Cargo Landed Weight Tonnage, 2000–2010



Source: Federal Aviation Administration, Qualifying Air Cargo Airports, Landed Weight Totals, 2000-2010.

Most often, air transport is used for higher value, more fragile, or more time-sensitive commodities, such as mail and sophisticated manufactured items. The volume of many of these commodities depends, in large part, on the population and business activities in the state and the economic conditions.

Future of Freight

This section reviews the future of freight traffic across modes and geographies using the data from the Freight Analysis Framework. Table 1 shows prior and forecasted net exports (exports minus imports) of freight from Florida to destinations around the world. The freight movement in Table 1 accounts for goods originating in the U.S, with Florida being the port of entry. This table shows the share of trade between U.S. and the rest of the world through Florida in terms of tons and value. This trade volume is the basis for a significant share of the freight volume within Florida.

The growth in the consumer driven economy of the U.S. is evident from the change in share of imports over exports over the years. Beyond the imports, the U.S. caters to a growing market

Travel Demand: Trade and Freight Transportation

for exports to Southwest and Central Asia, Africa and the rest of the Americas. The tonnage is lower for the goods to Southwest and Central Asia and Africa, but the value of the goods being exported to these destinations are higher compared to major U.S. trading partners in Canada, Mexico and Europe. Note that these are forecasts, and waterborne freight volumes will be impacted by the success of various ports in attracting Panama Canal traffic and international carriers in the future.

Table 1 – Freight Shipments To and From Florida

	NET EXPORTS: KILOTONS				
	2007	2010	2015	2020	2025
Canada	(4,455.23)	(3,020.05)	(3,765.17)	(4,730.15)	(5,971.23)
Mexico	(4,834.95)	(2,263.56)	(2,635.28)	(3,666.03)	(4,975.11)
Rest of Americas	(8,794.19)	663.15	(3,882.43)	(2,745.19)	(1,027.72)
Europe	(8,894.16)	(5,213.80)	(7,536.29)	(8,322.47)	(9,161.59)
Africa	(348.27)	(247.53)	(215.05)	(251.33)	(283.38)
SW & Central Asia	(377.47)	135.83	(63.17)	(23.80)	26.64
Eastern Asia	(2,987.23)	(1,417.43)	(1,733.81)	(2,001.74)	(2,302.07)
SE Asia & Oceania	(330.28)	(6.35)	(301.36)	(363.11)	(441.84)
Florida Total	(31,021.78)	(11,369.72)	(20,132.56)	(22,103.82)	(24,136.31)
	NET EXPORTS: MILLIONS of DOLLARS				
	2007	2010	2015	2020	2025
Canada	\$ (954.92)	\$ (1,019.65)	\$ (967.16)	\$ (1,148.78)	\$ (1,382.20)
Mexico	\$ (349.90)	\$ (2,061.65)	\$ 14.98	\$ (109.84)	\$ (263.34)
Rest of Americas	\$ 41,892.14	\$ 56,866.39	\$ 69,824.26	\$ 87,671.86	\$ 109,513.79
Europe	\$ (2,748.86)	\$ (538.22)	\$ (222.48)	\$ 319.26	\$ 1,037.80
Africa	\$ 692.43	\$ 703.99	\$ 1,383.62	\$ 1,533.73	\$ 1,756.32
SW & Central Asia	\$ 1,017.42	\$ 2,271.40	\$ 1,681.06	\$ 1,892.22	\$ 2,161.44
Eastern Asia	\$ (6,618.64)	\$ (5,349.85)	\$ (6,344.65)	\$ (7,768.56)	\$ (9,512.82)
SE Asia & Oceania	\$ (660.12)	\$ (559.72)	\$ (668.21)	\$ (868.35)	\$ (1,097.00)
	\$ 32,269.55	\$ 50,312.70	\$ 64,701.42	\$ 81,521.54	\$ 102,213.99

Source: BTS, *Freight Analysis Framework 3*.

Table 2 presents an estimate of the value in kilo tons of goods transported across modes within, from and to Florida in 2007, 2010 and forecasted for 2040. As is evident, per kilo ton of freight carried by air (include truck-air) is the most valuable. In addition, its value coming into Florida is projected to more than triple in value over three decades from 2010 to 2040. This suggests a growth in demand for highly valuable goods that could be transported by air, possibly for the professional services industry. The projected increase in the value of goods by air follows the observed trend in the growing use of air as a mode for freight as mentioned in an earlier section

Travel Demand: Trade and Freight Transportation

of this report. This growth is anticipated to not only impact air cargo, but surface modes of transport as well, given that trucks serve as the complementary ground mode for these goods to reach their final destination. A significant share of freight movement to Florida in the future is anticipated to come from increasing trade activities around the globe as is evident from Table 1, with Florida's ports playing a key role as one of major hubs for the U.S.

Table 2 – Value of Transported Goods By Mode

\$ MILLIONS/KILOTON							
	Truck	Rail	Water	Air (include truck-air)	Multiple modes & mail	Pipeline	Other and unknown
2007							
Within	\$0.57	\$0.12	\$2.59	\$58.83	\$1.84	\$0.27	\$1.80
From	\$1.73	\$0.38	\$0.16	\$67.78	\$3.09	\$0.27	\$2.42
To	\$2.47	\$0.36	\$0.47	\$71.05	\$4.67	\$0.39	\$3.78
2010							
Within	\$0.58	\$0.13	\$2.63	\$60.98	\$1.90	\$0.24	\$1.88
From	\$1.73	\$0.38	\$0.17	\$70.11	\$3.30	\$0.27	\$2.19
To	\$2.46	\$0.28	\$0.48	\$67.97	\$4.65	\$0.39	\$3.56
2040							
Within	\$0.83	\$0.14	\$3.37	\$69.22	\$4.73	\$0.27	\$2.43
From	\$2.66	\$0.40	\$0.22	\$80.93	\$8.59	\$0.40	\$3.58
To	\$5.083	\$0.44	\$0.255	\$235.99	\$14.77	\$0.29	\$7.41

Source: BTS, *Freight Analysis Framework 3*.

It is imperative to develop a multimodal transportation plan across modes and purposes to cater to the increasing demand for efficient on-time delivery of high value goods from around the globe.

As is intuitive, this growth in trade activities would consequently affect our highway system. The Federal Highway Administration (FHWA) estimates that by 2040, the transportation system in the United States is expected to carry approximately 27.1 billion tons of

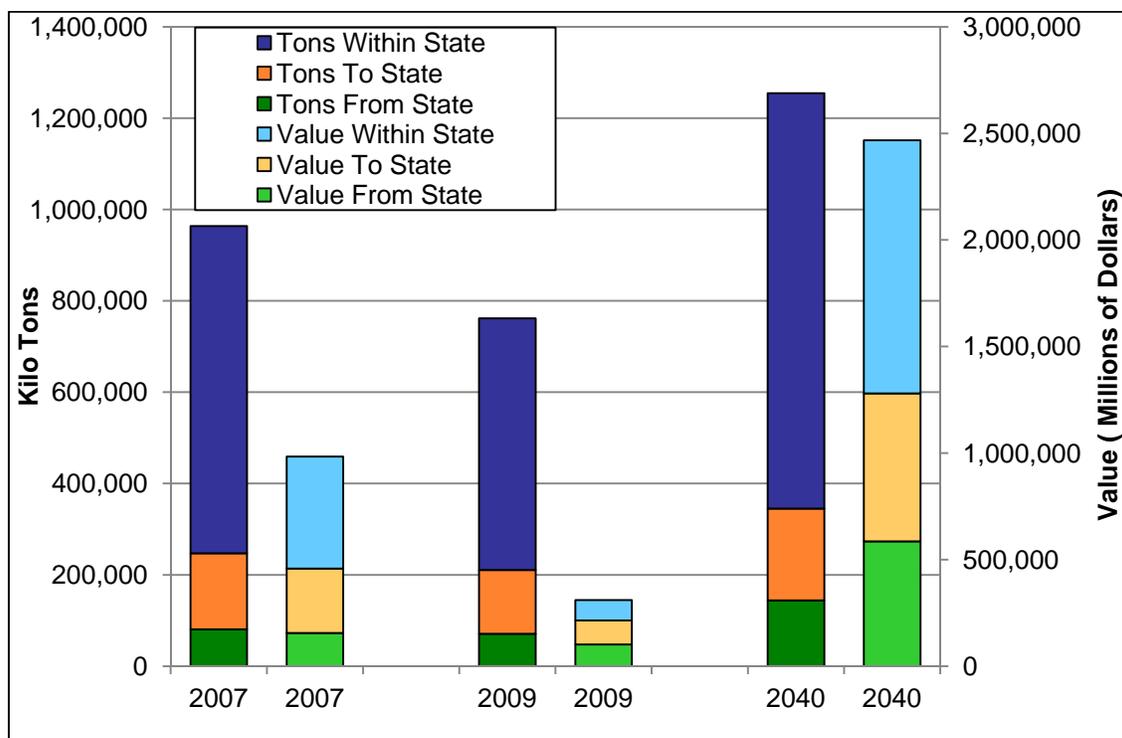
cargo worth nearly \$39 trillion, with Florida carrying about \$2.5 trillion. Hence, it would be critical to plan for infrastructure and develop travel demand management strategies for this anticipated demand. Thus, it is imperative to develop a multimodal transportation plan across modes and purposes to cater to the increasing demand for efficient on-time delivery of high value goods from around the globe.

Figure 18 illustrates the share of tonnage and value of freight from, to, and within the state of Florida for 2007, 2009, and projected 2040 values. In terms of tonnage, Florida is expected to

Travel Demand: Trade and Freight Transportation

see an increase in outbound freight by 100 percent. The value of goods (in 2007 dollars) transported within Florida is projected to grow the most, more than twice its 2007 value, while freight tonnage is anticipated to increase by around one quarter from 2007, suggesting relatively high value commodities being transported within Florida.

Figure 18 – Florida Freight Tonnage and Value

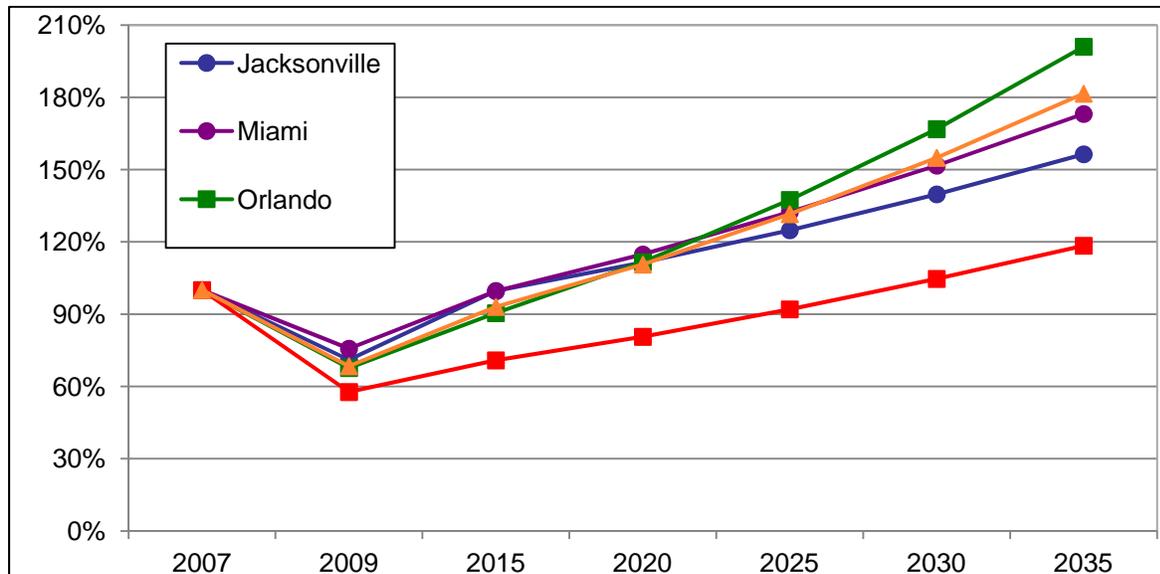


Source: BTS, *Freight Analysis Framework 3*.

Overall, freight movement is projected to grow again. Figure 19 presents the rate of growth in imports by regions in Florida, with 2007 as the base. Forecasts show that imports are expected to resume growth and eventually exceed 2007 levels. Given the complexity of the factors that influence trade and shipments, it is uncertain how actual freight trends will evolve over time. As the local population and economic characteristics, along with a host of national and global considerations, are constantly changing, the future of freight can never be predicted with great accuracy.

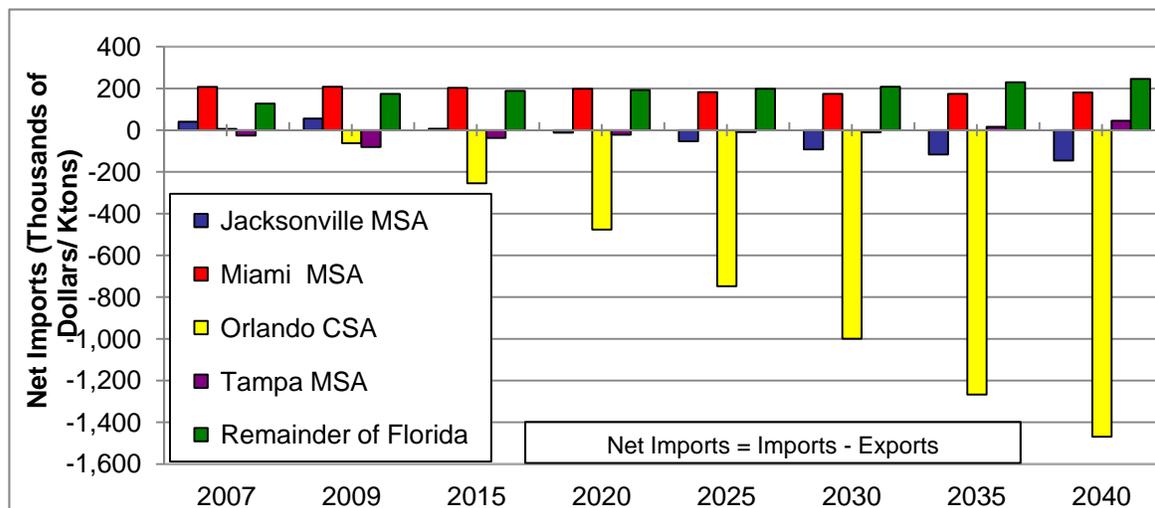
Travel Demand: Trade and Freight Transportation

Figure 19 – Percent Change of Imports in Selected Florida Areas from 2007



Source: BTS, *Freight Analysis Framework 3*.²

Figure 20 – Net Imports



Source: BTS, *Freight Analysis Framework 3*³

Figure 20 presents the difference between imports and exports in terms of value by the Freight Analysis Framework classified region in Florida. This graph presents an overall picture of the share of goods predicted to be produced or consumed, depending on the dominant industries in these regions. As the figure shows, within the next 30 years, Orlando is projected to significantly increase its exports. Over time, Jacksonville and Tampa are expected to have

^{2, 3} Please read this chart with caution given the trend is represented with unequal data year spacing on the x-axis.

Travel Demand: Trade and Freight Transportation

some fluctuations in their import-export shares, while Miami is expected to remain steady, importing more goods than exporting. The remainder of Florida is expected to see a slight increase in freight imports as well. (All values of goods are reported in 2007 dollars.)

Conclusion

The past few decades have seen significant shifts in the nature of the economy. Changes in demographic characteristics and technology have

Economic competitiveness and safe and efficient travel are supported by understanding freight travel demand.

affected freight volumes. Freight's share of overall vehicle miles traveled increased up until the economic recession. The current economic situation suggests that a "new normal" may evolve in terms of economic activities, and personal and government spending. Pressure on consumer expenditures as personal and government debt levels limit new spending, a renewed interest in domestic manufacturing to provide jobs, slowing demand for housing and commercial space growth with substantial existing inventories, higher energy costs, and other factors may influence the recovery of and future forecasts for freight volumes. Looking ahead, studies predict resumed growth in freight volumes, as several factors, like a consolidation and restructuring of the rail freight business, the popularity of just-in-time business inventory strategies, the dispersion of business and population in urbanized areas, and the globalization of manufacturing and production, continue to drive demand.

In light of higher overall travel volumes and more congested facilities, the public has an increasing interest in understanding and accommodating freight activities. Economic competitiveness and safe and efficient travel are goals whose attainment requires understanding and addressing how the multimodal system handles freight travel.

A leader in project development, innovative financing, and project delivery, Florida DOT is embracing the nation's increased freight needs with the creation of the Office of Freight, Logistics and Passenger Operations and working in reaching a goal of mobility and connectivity, which translates to the motoring public in increased commerce and enhanced livability. The Office of Freight, Logistics and Passenger Operations includes the Aviation and Aerospace Office, the Rail and Motor Carrier Operations Office, the Seaports and Waterways Office, and the Transit Office. The office will coordinate with FDOT's seven district offices in establishing freight coordinators to enhance the best plan for freight within Florida's diverse urban and rural segments throughout the state and work with FDOT federal and local government partners in planning, coordination, financing, grant management, ridership, and regional analysis. Acting as a tool to help better connect, develop, and implement a freight planning process that will maximize the use of existing facilities, this office will play a key role in advancing Florida's economy by becoming a global hub for trade, logistics, and export-oriented manufacturing activities.

Bibliography

Bibliography

Bureau of Transportation Statistics (BTS). "North American Transborder Freight Data." *Bureau of Transportation Statistics*. (accessed August 5, 2011).

Federal Aviation Administration. "Passenger Boarding (Enplanement) and All - Cargo Data for U.S. Airports." *Federal Aviation Administration*.
http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/ (accessed August 5, 2011).

Federal Highway Administration. "Freight Analysis Framework." Office of *Freight Management and Operations*. http://www.ops.fhwa.dot.gov/freight/freight_analysis/faf/ (accessed August 5, 2011).

—. "Highway Statistics ." *Office of Highway Policy Information*.
<http://www.fhwa.dot.gov/policyinformation/statistics/> (accessed August 5, 2011).

Florida Department of Transportation. "Florida Highway Data Source Book." *Florida Department of Transportation*. 2009. <http://www.dot.state.fl.us/planning/statistics/sourcebook/> (accessed August 5, 2011).

—. "SIS Maps & Lists of Designated Facilities." *Florida Department of Transportation*.
<http://www.dot.state.fl.us/planning/sis/atlas/> (accessed August 5, 2011).

Florida Ports Council. "Five Year Seaport Mission Plan." *Florida Ports Council*.
http://www.flaports.org/Sub_Content2.aspx?id=32&pid=5 (accessed August 5, 2011).

Surface Transportation Board. "Waybill." *Surface Transportation Board*. 2009.
http://www.stb.dot.gov/stb/industry/econ_waybill.html (accessed August 5, 2011).

U.S.Census Bureau & BTS. "Commodity Flow Survey." *Bureau of Transportation Statistics*.
http://www.bts.gov/publications/commodity_flow_survey/index.html (accessed August 5, 2011).