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Committee on Transportation

FREIGHT TRANSPORTATION INFRASTRUCTURE: ASSESSING THE NEED FOR STATEWIDE COORDINATION

Issue Description

According to the American Association of State Highway and Transportation Officials (AASHTO), freight infrastructure planning, especially for global freight moves is not currently well coordinated:

The ships are owned by private, international companies. The ports are publicly owned. The railroads serving the ports are private while the local streets reaching the ports are controlled by local municipal governments. Major routes at or near the ports generally are controlled by the state. No entity gathers comprehensive data about the ports, their connections, their bottlenecks, their needs or their plans. This vast, sprawling, critical supply network is managed by a collection of entities who do not share data, plans or needs assessments as often as should be the case.¹

The private shippers and carriers' ability to generate economic benefits from enhanced productivity is intertwined with their ability to move products or their components between their origins and destinations. However, the development, maintenance, operation, and expansion of transportation facilities which allow for enhanced productivity, often fall predominantly within the responsibility of the public sector. In addition, public policy in the form of governmental regulation and investment decisions affects the operations of shippers and carriers as they make logistical decisions.

This report will present basic information on freight transport in order to illuminate the state's process for coordinating the development of the freight transportation infrastructure. Recommendations to the Legislature are offered for the purpose of facilitating a statewide freight policy to maximize efficiency of the entire system used to transport goods from their point of origin to their destination.

Background

Modes of Freight Transport

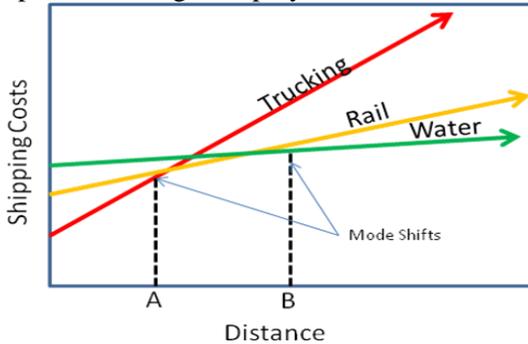
Freight may be moved using one or more modes of transport in the air, over water, or by land. Trucking is clearly the most visible mode of freight transport. However, all the modes play a critically important role in the transportation system, particularly for important individual market segments. Rail is essential for intermodal and bulk movements across the continent, particularly for items such as automobiles, coal, and ore. Domestic water shipment is irreplaceable for high-volume, low-cost movement of chemicals, grains, ore, coal, and aggregates on the inland and intra-coastal waterways, whereas, seaports allow participation in the increasingly significant global-trade sector of the economy. Air carries a small fraction of all freight but is critical for high-value, time-sensitive cargo. Any movement of goods that involves two or more modes of transport is considered intermodal freight. Intermodal includes:

- transport of goods in containers moved on land by rail or truck and on water by ship or barge;
- bulk commodity shipments involving transfers between modes; and
- air freight, which always involves truck movements to and from the airport.

¹ "America's Freight Challenge", AASHTO, May 2007

Modal Usage

Each mode provides certain benefits when compared to the other; however, those benefits typically entail a trade-off for some other cost. Trucking comprises the most significant mode in two measures of modal usage, (*i.e.*, value of freight), and tons transported. The movement of goods by road capitalizes on geographical flexibility factors not available in other modes. Significant energy costs and impacts from non-freight traffic, (*i.e.*, roadway congestion), reduce trucking’s advantage. The movement of goods by rail, which enjoys safety and energy efficiency advantages, holds a much larger modal share in the United States (U.S.) compared to the European Union or Japan where coastal (or short sea) shipping supplants rail in many freight transfers. While trucking moves more freight in the U.S. as measured in total weight, railroads win out when measured in ton-miles, (*i.e.*, the cargo weight multiplied by the mileage traveled by the shipment). Waterborne freight has the lowest energy costs, but is hamstrung by geographical restrictions and slow speed. Air freight employs the value of tremendous speed and geographical flexibility, but at great energy costs.



The different cost functions of shipping usually determine which mode is chosen for a given shipment. The graph shows trucking costs are lower than both rail and waterborne freight up to the theoretical distance of A (usually between 300 to 450 miles). Shipments in the range between A and B (B is usually around 1000 miles) would generally be more profitably served by rail. Beyond that (1000+ miles), the waterborne mode would generally be more advantageous provided waterway access is available.

Energy Efficiency and Capacity Differences

Energy efficiency varies greatly between transport modes. Numerous studies of fuel efficiency indicate the same hierarchy of energy efficiency, *i.e.*, water transport is most efficient followed by rail- which is more efficient than trucking- which is more energy efficient than air. When comparing efficiency across modes, it is necessary to account for the variations in the amount of energy available in the various fuels used in freight transport (*i.e.*, gasoline, diesel, bunker oil, and jet fuel). Thus, the common energy measurement of BTUs is used to normalize fuel differences. An analysis of 12 different studies of rail and water efficiency shows the average BTUs expended per revenue ton-mile is 433 for water transport and 696 for rail transport. Air freight is the most intensive mode with a range of reported intensities from 9,600 to 32,000 BTU/ton-mile. When competing directly with other means of transport, deep draft ocean shipping, (*i.e.*, ships - not towboats or barges) is by far the most energy efficient with rates of between 60 to 100 BTU/ton-mile, or roughly 1/10th the energy of rail and 1/30th that of trucking. Certainly, much of the difference in energy efficiency is due to economies of scale. Generally, as carrying capacity increases, so does energy efficiency. The table shows the vast differences in the carrying capacities of the different modal units.

Vehicle	Capacity	Truck Equivalency
Barge	1500 tons	58
Rail Car	100 tons	4
100 Car Train	10,000 tons	385
Semi-trailer Truck	26 tons	1
Containership	4,000 TEU ²	2,000
Boeing 747-400F	124 tons	5

The American Association of Railroads suggests that a 10% shift of freight to rail could save one billion gallons of fuel per year nationally. Regional railroads and short lines generally have capacity, but the high cost of intermodal terminals and equipment present a barrier for short line and regional railroads entry into intermodal freight carriage, often requiring 100,000 payloads per year for the profitable operation and full amortization of an intermodal terminal which can cost on the order of \$15 million or more to construct.

² TEU (twenty-foot equivalent unit) is the term used to identify a 20’ long maritime container, or its equivalent. A typical container is 40 feet long or 2 TEUs.

Growth of Intermodal Freight in the United States

As the U.S. economy shifted from a producer economy to consumer economy, a wider array of products required disbursal throughout a wider area. The growth in freight transport is not expected to subside any time soon. The amount of freight moved in the U.S. is forecast to double between 2005 and 2035, from 16 billion tons to 31.4 billion tons. Under current modal usage trends, eighty percent of that freight by weight and 94 percent by value will be moved by truck. International containerized freight, coming primarily from Asia and Europe, grew from 8 million units in 1980 to 40 million by 2000 and is expected to explode to 110 million by 2020. The growth in freight is placing and will continue to place enormous pressure on East and West Coast ports and on the highway and rail distribution systems in between.

While total rail tonnage in the U.S. has grown slowly since 1980 (*e.g.*, an average of 0.6 percent per year from 1980 to 1998), intermodal traffic (measured by number of containers moved by rail) has increased an average of 6.0 percent per year over the same period. The introduction of containers resulted in vast improvements in port handling efficiency allowing better scheduling and lower prices. Because of the introduction of containers and because of competition between railroads and trucking firms, large volumes of imported consumer goods move rapidly and reliably from East- and West-coast ports to interior markets at low rates (*e.g.*, railroads can haul containers from Los Angeles to Chicago for 30 percent of the average truckload rate).

From 1990 to 2005, container traffic at the ports of Los Angeles and Long Beach rose 280 percent, from 3.7 million TEUs to 14.2 million TEUs. The Port of Seattle saw its container volume grow 78 percent, Charleston grew by 147 percent, and Savannah rose by 354 percent. Closer to home, the Port of Tampa expects container shipments to triple in the next three years - from 42,000 containers in 2008 to 125,000 in 2011. The Port of Jacksonville is also projecting extremely high growth with the opening of two new container terminals. Container throughput is expected to be at 3.5M TEUs by 2015, nearly a five-fold increase over the 2007 level of 710,000 TEUs.

Much of the growth of the all-water option to the Gulf Coast and the East Coast, especially through the Panama Canal, was precipitated by a series of labor disruptions on the West Coast and a railroad system meltdown in 2002, forcing shippers to find reliable and efficient routes. Shippers have kept these feed lines open as a hedge against future problems along the intermodal supply chain and because of energy cost savings.

Also, the Panama Canal Authority has begun an expansion project to increase the capacity of the canal to accommodate the increasing size of containerships. Panamax ships (the maximum size of vessels able to transit the current dimensions of the Panama Canal) are expected to become obsolete as shippers shift to post-Panamax containerships which offer scale economies reducing shippers' operational cost per TEU by between 7% and 17%. Transcontinental routes where shippers may use post-Panamax vessels hold an advantage over routes where these ships may not be used. Recognizing the advantages offered by even larger ships, several shipping lines have ordered mega-containerships which will not be able to enter Florida ports due to the draft (depth) limitations of current ship channels, instead berthing at deeper-draft ports such as the Hampton Roads, Virginia facilities. Today, post-Panamax ships already bypass Florida ports in favor of the improved warehousing and distribution facilities at Savannah, Georgia and Charleston, South Carolina.

Florida's Strategic Intermodal System (SIS)

The Florida Department of Transportation (FDOT) leads the state's efforts in coordinating freight infrastructure coordination primarily through the development and implementation of a statewide Strategic Intermodal System, targeting key passenger and freight hubs, corridors, and connectors. The SIS was developed to help guide investments of statewide funds in a well-planned transportation system, and efficiently connect the various forms of travel and transport. Based on information and experience gathered by FDOT and recommendations of the 1999 Freight Stakeholders Task Force, the 2003 Legislature passed ss. 339.61 and 339.62, F.S., creating the SIS comprising the appropriate components of:

- The Florida Intrastate Highway System (FIHS);
- The National Highway System;
- Airport, seaport, and spaceport facilities;

- Rail lines and rail facilities;
- Selected intermodal facilities; passenger and freight terminals; and appropriate components of the State Highway System; county road system, city street system, inland waterways, and local public transit systems that serve as existing or planned connectors between the components; and
- Existing or planned corridors that serve a statewide or interregional purpose.

As designated, the SIS contains about 4,200 miles of the state's most important highways, representing about 3 percent of all of Florida's public roads. With few exceptions, the FIHS comprises the highway element of the SIS. Other major passenger and freight facilities were identified and ten seaports were designated as either SIS or Emerging SIS facilities. This system targets investments across all transportation modes to enhance Florida's economic competitiveness and improve the mobility of both people and goods throughout the state and the Southeast.

Trucking in Florida

In 2006, trucks handled 85 percent of Florida's freight tonnage and 84.1 percent of the total freight value.³ The high percentage of freight transported by trucks illustrates the significance of the roadway network for handling freight traffic. The economy's shift from manufacturing 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 parcel delivery, and internet purchasing, have accentuated the growth of truck freight transportation. Daily truck traffic percentages range from 6 percent of average daily traffic volumes to as much as 32 percent in the northern part of the state due to long-distance route proximities and adjacent trade states. Two surrogate measures of freight movement by trucks are truck miles traveled and truck registrations. Since 1991, the daily truck miles traveled on all state highways have increased, with most growth occurring on non-urbanized highways and turnpike facilities on the Florida Intrastate Highway System (FIHS), the highway component of the SIS. In 2004, trucks accounted for approximately 26.5 percent of all vehicle miles traveled statewide on Florida's State Highway System. In 2004, almost 8 percent of daily truck miles traveled occurred during the peak traffic hour between 5:00 and 6:00 PM. Likewise, the number of truck tractor registrations in Florida has been steadily increasing since the early 90's and more significantly since 2000⁴.

Freight Rail in Florida

There are 13 freight railroads operating in Florida owning a total of 2,796 route miles. Over half the route mileage in Florida is owned by CSX Transportation, one of the largest railroads in the U.S., headquartered in Jacksonville. Florida's second largest railroad, in terms of route miles, is Florida East Coast (FEC), which operates exclusively in Florida. Norfolk Southern, operates 149 route miles of track and carries a moderate quantity of freight within Florida. Eight of Florida's railroads are Short Lines which own less than 100 route miles. Most, but not all, of Florida's freight rail mileage is on the SIS⁵.

Florida's rail system moves an enormous and increasing amount of freight. In 2004, 119 million tons were carried, up from 113 million in 2002. FDOT estimates freight volumes will nearly double over the next 20 years. In 2004, the railroads operating in Florida carried 2.03 million carloads of freight, the equivalent of six million heavy truckloads that likely would have traveled on the state's highways. Nearly half of the freight movements had an origination and destination within Florida.

Seaports in Florida

Florida has 14 designated deepwater seaports, ten of which are designated SIS facilities. A study commissioned by FDOT⁶ found:

- Florida is the leading state in the Southeast for cruise passengers, vehicles handled, and containers (TEUs), and third of nine states for tonnage (including bulk cargo). However, other states (*e.g.*, Georgia, South

³ Federal Highway Administration, Freight Analysis Framework 2, 2006

⁴ FDOT Trends and Conditions Report: Travel Demand-Trade and Freight Transportation, March 2006

⁵ 2006 Florida Rail System Plan, FDOT

⁶ Evaluate Florida's 14 Deepwater Seaports' Economic Performance and the Return on Investment of State Funds. Cambridge Systematics, July 2006

Carolina, Virginia) are increasing their port activity rapidly and Florida has actually lost market share over the past five years.

- Though Florida has increased the level of state funding available for seaports with the SIS and Growth Management initiatives, other Southeast states are funding seaports at similar or higher levels, especially when compared to port size (tonnage and TEUs) or number of deepwater ports.
- Historic funding allocations to Florida's seaports approximate the relative size of seaports in Florida, though data suggest that smaller ports receive a slightly higher share of funding than would be predicted by port size. This is likely due to the lower self-funding and revenue capabilities of the smaller ports in the state.
- State-level seaport investments are estimated to yield \$6.90 worth of economic and transportation benefits to Florida for every \$1.00 in expenditures, resulting in a net present value (NPV) of \$3.6 billion.
- The FDOT seaport investments programmed in the 2006-2011 Work Program are estimated to generate an additional \$1.6 billion in business output and 15,650 permanent jobs in the Florida economy, and \$491 million in personal income for Florida residents by the year 2020.

An economic assessment⁷ of Florida's seaports, prepared in November 2003, determined the total economic impact of Florida's seaports in 2002 was \$35.3 billion in gross output, supporting 290,000 jobs, \$11.2 billion in labor income, and \$4.2 billion in capital income. This economic activity resulted in nearly \$1.1 billion in state and local government revenues. The analysis further forecasts the total economic impact of Florida's seaports will reach \$42.8 billion in gross output by 2008, supporting more than 348,000 jobs, \$13.6 billion in labor income, and \$4.52 billion in capital income. These economic impact projections are predicated not only on trade flow increases, but also on continuing infrastructure investment and efficient security measures.

An FDOT study⁸ states:

There are additional reasons why Florida does not capture a larger share of out-of-state discretionary markets. First, Florida's major container ports – except Jacksonville – are on a peninsula, and further from inland markets than major container ports in other states. Second, Florida's major container ports – again, except Jacksonville – do not enjoy particularly good connections with the national intermodal rail system, which limits their effective reach into interior markets. Third, while Florida's ports and their surrounding regions offer some warehouse/distribution capability to attract major importers, they pale in comparison to ports like Savannah.

Air Freight in Florida

Annually, Florida's aviation system transports over two million tons of cargo. Although this represents only about 2 percent of Florida's total freight tonnage, it is a high-value part of the state's freight transport mix. This is because air shipping is used primarily to transport items that are fragile, valuable, or needed quickly. The value of Florida air cargo totals to about \$12 billion annually.⁹ Florida's 20 commercial service airports enplane nearly 6% of the nation's air cargo, and transship 36% of Florida's international trade dollars.

Almost 70% of the state's air cargo is handled by a single airport: Miami International which is the fourth largest air cargo airport in the United States and the sixth largest in the world. Other airports with a significant share of air cargo statewide in 2006 include Orlando (with 9% of the state's air cargo weight), Fort Lauderdale (8%), Tampa (5%), and Jacksonville (4%). Seventy percent of Florida's air cargo is transit cargo; it originates from outside the state and is being sent to another state or country. Much of this transit cargo is trucked down the entire length of the state for air shipping from Miami International because trucking is much less expensive.

⁷ A Forecast Of Florida's International Trade Flows And The Economic Impact Of Florida Seaports, The Washington Economics Group, Inc., November 2003

⁸ Global Trade Trends: Challenges and Opportunities for Florida's Ports. Cambridge Systematics, July 2006

⁹ Florida Aviation System Plan, FDOT Aviation Office

Findings

The Public Sector and Freight Transport Policy

The federal government began regulating prices and competition in interstate transportation when Congress created the Interstate Commerce Commission (ICC) to oversee the railroad industry in 1887. Eventually, significant changes in transportation and logistics, and especially changes in the trucking industry, came about as a consequence of deregulation after which, non-productive freight lines were eliminated, freight transport costs declined significantly, and a responsive, flexible trucking industry emerged. The elimination of regulatory barriers to entry, and particularly the requirement for route and commodity-specific operating authority, permitted the rise of efficient operations. Deregulation also allowed guaranteed just-in time (JIT) deliveries which brought the evolution of advanced logistics systems and supply-chain management that help to enhance productivity. This “mobile warehousing” concept significantly increased the demand for transport services. Today, federal regulation is overseen by the Surface Transportation Board (STB). Created by the Interstate Commerce Commission Termination Act of 1995, the STB is the successor agency to the Interstate Commerce Commission. Charged by Congress with the fundamental missions of resolving railroad rate, service disputes and reviewing proposed railroad mergers and abandonments, the STB has no strategic planning or coordination function.

For better or for worse, transportation policy-formation, planning, and investment has, in recent generations, emphasized personal mobility over the needs of a coordinated freight system. Project analysis tools seldom recognize appropriately how and why infrastructure design and capacity problems drive down the productivity of freight transportation and drive up the cost of industrial production. Likewise, transportation planners and decision-makers cannot readily anticipate how infrastructure improvements would make freight carriers, their industrial customers, and the economy at large better off.

The public sector has a critical interest in better understanding the role of transport investments which enable freight service firms to achieve the logistical improvements and related efficiencies, which not only enhance these firms’ productivity, but also that of transport using firms in the larger economy. Macroeconomic analyses conducted in the U.S. and abroad over the past twenty-five years have identified a persistent, positive influence of transportation investments on aggregate economic performance. Policy formulation must address not only the question of whether to invest in infrastructure, but also the question of which among an array of potential projects will yield the greatest economic return.

Infrastructure Investment

The public sector has invested heavily in the highway network and roadway connections to private terminals (rail, air, truck, etc.). Likewise, the private sector has invested heavily in the freight system, particularly rail. Both have invested in projects that benefit the other. Investing in roadways that connect to intermodal freight terminals benefits both the public and private sector. Several studies¹⁰ show that public capital has a significant, positive impact on the output and productivity at the state and macroeconomic level implying that the marginal productivity of public capital is comparable and even higher in some cases than the marginal productivity of private capital. They conclude that publicly-financed infrastructure has a significant role in determining productivity growth.

Public-sector motivations for facilitating private-sector needs of intermodal freight often focus on controlling highway agency costs by reducing truck traffic, reducing highway congestion, reducing pollution, stimulating local employment through terminal developments, and most recently reducing energy consumption.

While the growth of intermodal freight has largely been a private-sector development, federal, state, and local governments have shown increasing interest in facilitating intermodal freight. Intermodalism may be seen by the public sector as a means to ends considerably more diverse than simply improving freight transportation efficiency. Since it often involves manufacturers, shippers, carriers, ports, and distributors, intermodal transportation places a high value on the coordination of the logistics process.

¹⁰ e.g., Aschauer (1990b, 1991) and Munnell (1990)

Development of Florida's SIS Plan

The SIS planning process is based on the policy guidance established in the Florida Transportation Plan (FTP), which provides the general framework for planning, programming, and implementing transportation projects. The process also seeks to ensure that limited transportation funds are invested in the most effective and equitable manner based on an approach of rational planning and systematic decision-making.

SIS Needs Plan

Development of general policy leads to the preparation of a Multi-Modal Needs Plan (MMNP) or simply the Needs Plan, which includes a wide variety of capacity projects. Projects included in the Needs Plan are required to help meet travel and transport demand. Developing the Needs Plan requires close coordination between many FDOT offices. FDOT Districts are responsible for coordination with Metropolitan Planning Organizations (MPO) and other local government entities. The Modal Offices coordinate with their respective modal partners, primarily seaports, railroads, and airports, and the FDOT Decision Support System (DSS), an interactive GIS analytical tool for determining the ranking and relative priority of highway segments on the FIHS, is used to identify roadway segments needing capacity improvements over the 20-year planning horizon. The Needs Plan does not imply a commitment to fund or build any particular project; it is an identification and recognition of transportation need. Projects in the Needs Plan are not given a priority ranking. Priority ranking for projects of all modes occurs during the development of the Cost Feasible Plan.

Highway Needs

As it is shared by a multitude of users, the development of the highway component of the Needs Plan does not specifically entail a trucking element. Instead, the DSS is used to assist policy makers in determining needs based on capacity, freight, and safety scenarios. The crucial step in the preparation of the highway component is input from FDOT districts, which working closely with MPOs and Expressway Authorities, identify needed projects. Thus, several levels of government contribute to the development of the Needs Plan.

Rail Needs

The state's rail system is somewhat different from other SIS modes of transportation as the vast majority of the system is owned and operated by the private sector. Only 81 miles of Florida's rail system are in public ownership. The remaining 97 percent of the system is owned by 17 different railroad companies. The state's input on many railroad decisions is limited, but it works with rail carriers to resolve common problems and issues of mutual concern. FDOT, however, does have a statutory role relating to the "proper maintenance, safety, revitalization, and expansion of the rail system to assure its continued and increased availability to respond to statewide mobility needs." Thus, the State can influence decisions affecting private rail system operations as they may relate to the public interest. Through the FDOT's Rail Office, the state pursues those mandates where authorized by statute. The rail component of the Needs Plan is based on the FDOT Rail System Plan with input from the a Rail Stakeholders Advisory Committee comprised of rail industry, shippers, seaports, passenger rail, legislative, state and local agencies, growth management and environmental interests. Most of the traffic on SIS rail corridors is freight movement, but the SIS includes interregional passenger rail service. Major categories of SIS freight projects include double tracking, sidings, railyard improvements, grade separation or grade crossings, track upgrades and new rail lines.

The State also makes investments that indirectly facilitate rail freight business through its various intermodal programs, improving modal connections between Florida's seaports and rail/highway transfer facilities. The FDOT works with the ports on rail access matters as the amount of associated rail business represents significant freight traffic in terms of tonnage and value.

Seaport Needs

Ten of Florida's 14 ports are eligible for SIS funding. In developing the Seaport component of the Needs Plan, the FDOT Seaport Office works closely with FDOT district staff and the individual ports, as well as the Florida Ports Council through the mechanism of the Florida Seaport Transportation and Economic Development Council (FSTED). FSTED is the statutorily created FDOT body charged with preparing the Florida Seaport Mission Plan. In contrast, the Florida Ports Council is a voluntary association of all the deepwater ports. Both FSTED and the Florida Ports Council address passenger cruise service, as well as freight transportation. Through the annual update of the Seaport Mission Plan, FSTED identifies capital improvement projects for all 14 deepwater ports. Seaport projects eligible for SIS

funding represent only a portion of the total capital improvement needs. Therefore, the methodology for developing the list of unfunded SIS needs involves working with FDOT Districts, the FSTED Council and the ten SIS seaports to identify eligible unfunded projects from the appropriate seaports' capital improvement plans. Estimated project costs for hub (on-port) projects are obtained from individual port staff. FDOT is currently developing a Florida Seaport System Plan, which will provide a coordinated statewide system approach for identifying high priority seaport projects.

Aviation Needs

The Aviation Component of the SIS Needs Plan is developed using the Joint Automated Capital Improvement Plan (JACIP), a web-based planning and scheduling tool working through a cooperative process among the 16 SIS-designated airports, the FDOT Aviation Office, and the Federal Aviation Administration (FAA). All SIS airport projects must expand airport capacity and be consistent with local comprehensive plans. The next step is the review of the projects by Aviation staff and SIS staff. A final set of reviews by staff and management determines which SIS-eligible projects are incorporated into the Needs Plan.

Cost Feasible Plan

Consistent with the goals and objectives of the FTP, potential projects are selected from the SIS Needs Plan for inclusion in the Cost Feasible Plan (CFP) by Central Office staff working with district staff and modal partners. The CFP evaluates SIS needs in light of future revenues and develops a phased multi-modal plan for cost feasible future improvements. Potential projects are prioritized for funding and move forward as recommended solutions for increased mobility throughout a long-term planning horizon. The current Needs Plan identifies major capacity improvements needed for the SIS by 2030. These improvements are unconstrained by cost, unfunded in the FDOT Work Program and not planned in the 10-Year Plan or the CFP. The CFP feeds into a SIS Ten Year Plan and ultimately leads to the development of the Work Program.

Project Prioritization and Selection

From the potential projects identified in the SIS Needs Plan and proven to be cost feasible through the CFP process, FDOT Central Office staff, and district staff working with modal partners prioritize SIS projects for inclusion in the FDOT Work Program based on various factors, including:

- The extent to which the project meets the goals and objectives of the SIS;
- The “readiness” of the project, as measured by whether partners have agreed for the project to advance to the next phase of the project planning and delivery process (planning, design, right-of-way purchase, construction or operation) and how far along the project is in that process;
- The project’s cost and availability of partner financial contributions;
- A balance of quick fix, operational improvements and longer-term capacity investments;
- A reasonable distribution of investments between SIS and Emerging SIS facilities and among economic regions of the state; and
- Whether the public benefits exceed public investment where the facility is owned by the private sector.

The final decision to include a SIS project in the FDOT Work Program is made by the FDOT Secretary.

Other States

Other states have attempted to designate high-priority transportation systems similar to the SIS, but most efforts have focused exclusively on highways or specific components of freight networks such as seaports. States with large or complex transportation networks like New York, Texas, and California have not attempted to develop a high-priority intermodal system on the scale of Florida’s SIS; instead, most states continue to generate their long-range transportation plans in terms of broad goals, policies, strategies, and actions. Also, in contrast to Florida’s complex transportation network, most state transportation systems consist only of the major highways and rail lines radiating from medium-sized or large cities, plus a small number of commercial airports and possibly a few inland or deep water seaports. Although many states have not designated multimodal transportation systems, some states do have one or two components of such a system. Most commonly, states have developed strategic highway networks similar to the Florida Intrastate Highway System (FIHS).

Perhaps most important to Florida freight transport are the efforts of nearby states' with regard to their seaports. For example:

- The Georgia Ports Authority (GPA) is a quasi-state agency administered by a thirteen-member, gubernatorially-appointed Board of Directors. The GPA owns and operates facilities at both of Georgia's deepwater ports and employs more than 880 trained logistics professionals directly, but with the private sector, is responsible for generating more than 295,006 jobs statewide, billions of dollars in revenue, and income exceeding \$10.8 billion annually. Through massive public investment in recent years, the Port of Savannah has become home to the largest single-terminal container facility of its kind in North America. The Port of Brunswick is one of the fastest growing auto and heavy machinery ports in North America, serving more than 12 major auto manufacturers and is also home to the South Atlantic's fastest growing bulk export/import operation specializing in the handling of forest products and other bulk commodities.
- The South Carolina State Ports Authority (SCSPA) owns and operates public marine terminals at the state's two port facilities: The Port of Charleston and the Port of Georgetown. These facilities are owner-operated terminals, meaning the SCSPA owns the terminals and operates them with its own staff. The SCSPA is governed by a nine-member Board of Directors, each appointed by the Governor and confirmed by the Senate. Despite its status as a public agency dedicated to the economic development of the State of South Carolina, the SCSPA does not receive direct appropriations from the state for capital or operations expenses. Instead, the SCSPA operates like a private business, and funds its operations and investment efforts through its own revenue stream and ability to issue bonds.
- The Alabama State Port Authority owns and operates the public terminals at the Port of Mobile.
- The Virginia Port Authority is an agency of the Commonwealth of Virginia, reporting to the Secretary of Transportation. The agency owns four general cargo terminals-Norfolk International Terminals, Portsmouth Marine Terminal, Newport News Marine Terminal, all located in Hampton Roads and the Virginia Inland Port in Front Royal. All four terminals are operated by its affiliate, Virginia International Terminals, Inc.

Unlike Florida's designation of 14 deepwater ports, a commonality in the neighboring states' approach to seaport development is their ability to concentrate their efforts on a small number of functionally-specific ports.

Principles to Guide Government Freight Programs

The Transportation Research Board, a branch of the National Academy of Sciences, has developed the following four principles of public sector investment in or coordination of the freight transportation system to enable the system to provide the level of capacity and performance that makes the greatest contribution to the nation's economic well-being¹¹:

- Economic efficiency ought to be the primary goal of government transportation policy; those capital improvements and operating practices for public facilities should be selected that yield the greatest net economic benefit.
- Government involvement should be limited to circumstances in which market-dictated outcomes would be far from economically efficient. These include preventing exercise of monopoly power and dealing with nonmarket costs. Government also is responsible for management of facilities for which it has a historically established responsibility that could not feasibly be altered in the near term, and in settings where institutional complexity necessitates government leadership.
- A government responsibility to provide facilities or leadership in developing a project does not necessarily justify government subsidy of the costs. Wherever the important benefits of a public-sector freight-related project are the direct benefits that users of the facilities receive in the form of reduced transportation and logistics costs, users should pay the costs.
- Finance provisions in public-sector transportation programs are a major determinant of performance, affecting both the quality of investment decisions and the efficiency of operations. Reliance on revenue from users, and from local matching funds in federal grant programs, will increase the likelihood that the most worthwhile improvements will be carried out and that facilities will be operated and maintained efficiently.

¹¹ Special Report 271: Freight Capacity for the 21st Century, Transportation Research Board, 2003

Application of these principles is frequently controversial, especially when proposals are made for changing existing practices regarding user fees or funding sources (*e.g.*, instituting user charges on previously uncharged public facilities) and when particular industries or local interests argue a project's significance justifies public subsidy instead of funding through project-generated revenues.

Consideration of the geographically-equitable distribution of benefits is commonly a factor in state transportation spending decisions; however, this practice has efficiency costs. It is important to economic welfare that resources be concentrated on the high-payoff capital investments that are available, rather than diverted to constructing facilities that will be high-cost or underutilized.

Recommendations

The process by which FDOT conceptualizes, evaluates, and analyzes for financial feasibility the multitude of freight infrastructure projects appears to comprehensively and effectively involve the many partners in the state's freight transportation arena. However, there may be opportunities to improve the competitiveness and efficiency of the state's freight industry.

Recommendation 1

In light of neighboring states' ability to intensely focus resources and efforts at relatively few freight transport facilities, *the Legislature may wish to direct FDOT to reexamine the designation of SIS facilities for all modes with the goal of reducing the size of the system.* Designation of SIS facilities and the subsequent investment should generally be limited to reflect statewide, rather than regional or local priorities. This is especially germane to seaport designations due to the economic importance of international trade and the complexities of accommodating fewer but larger ships. Economies of scale and return on investment would likely be far more favorable in the designation of a select number of seaports, with each specializing in a predominant type of freight, *e.g.*, bulk, containerized, or roll-on/roll-off.

Recommendation 2

The Legislature may wish to investigate potential policy changes to facilitate mode shifts with the goals of reducing the energy costs of freight transport and creating a greater degree of competition among modes. As stated in the report, shifting 10% of truck freight to rail would save one billion gallons of fuel and also significant wear and tear on the state's highways. However, even a more modest mode shift of 1% may be difficult to achieve without additional public investment in intermodal transfer facilities. A reported finding of the Transportation Research Board suggests public-sector involvement in the freight transportation system be limited to circumstances in which market-dictated outcomes have failed to prevent monopolistic practices. It may be most beneficial to target or even limit intermodal investment to intermodal transfer facilities allowing open access for multiple carriers to compete for a freight shipment.

Recommendation 3

The Legislature may wish to consider restructuring the SIS project selection process used in the prioritization of SIS projects for inclusion in the FDOT work program. For example, one criterion used in prioritizing projects, (*i.e.*, whether the public benefits exceed public investment where the facility is owned by the private sector) might be shifted to the Cost Feasible Plan process. This criterion would better determine a project's eligibility for public funding and thus whether it should be programmed in the Work Program at all, rather than assessing its rank among other candidate public facility projects to which this criterion is not even applicable. The process could also be amended to provide for additional consultation (*e.g.*, DCA) with regard to designated freight capacity projects. Additionally, the process could be revised to better reflect a goal of ensuring the highest public benefit to the entire state with minimal regard to geographically-based equity distribution of state revenues. Based on the findings presented, professional staff is of the opinion that the project selection process could be more accountable and open, particularly for high cost projects.