CAMBRIDGE SYSTEMATICS

Florida Strategic Seaport Investment Framework

final report

prepared for

Florida Department of Transportation, Seaport Office

prepared by

Cambridge Systematics, Inc.

June 2007

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Executive Summary

Background

Over the last few years, the Florida DOT has undertaken a major overhaul of its transportation program through the creation of the Strategic Intermodal System (SIS). The SIS has dramatically changed the way in which transportation funds are allocated. One of the critical changes has been a shift towards modes other than highway. As a result, Florida's seaports have benefited through this partnership from a significant increase in funding through highway, waterway, and rail connector improvements, and to a lesser degree, on port projects. Even with this increase, there are significant unmet seaport needs.

Over the last year, significant work has been undertaken by the Florida DOT's Seaport Office to lay the groundwork for a more comprehensive seaport program. Work has focused on documenting current seaport conditions, measuring state benefits in seaport investments, and exploring the implications of changing trends in global trade. The following reports are available on the Seaport Office's website (and included in Appendix A):

- Florida's Seaports: Conditions, Competitiveness, and Statewide Policies;
- Global Trade Trends: Challenges and Opportunities for Florida's Ports; and
- Evaluate Florida's 14 Deepwater Seaports' Economic Performance and the Return on Investment of State Funds.

Continuing this work, Florida DOT leadership called for the development of a consistent, equitable, and strategic approach to guide the Department's investments in Florida's seaport system. In response, the Seaport Office is developing the ***Strategic Seaport Investment Framework*** which will help build a more analytical seaport investment process by providing guidelines and tools to enhance the project identification and evaluation processes, focusing on statewide and regional public benefits. The creation of this program brings seaports in line with other modal programs – both highway and rail projects have undergone similar quantification exercises to measure their public benefit.

Need

FDOT recognizes the critical contributions and needs of Florida's seaports. Florida's fourteen deepwater seaports provide significant statewide benefits, consisting of 290,000 jobs, $16 billion in annual gross state product, $1 billion in annual taxes[1], and 2.2 billion annual truck travel miles avoided. In order to provide these benefits, Florida's seaports undertake comprehensive master planning activities, which drive their capital improvement programs. These programs are paid for directly by the seaports with matching funds in many instances provided by their partners. Even with these multiple funding sources, Florida's seaports, like their other modal partners, have significant unmet needs; these needs span a variety of areas, including:

- Providing services that are competitive and attractive;
- Expanding marine terminal capacity;
- Deepening/maintaining navigation channels and berths;
- Improving highway and rail access;
- Mitigating environment impacts;
- Preserving land for seaport-related activities;
- Ensuring security and addressing new costs; and
- Finding sufficient funding.

In addition to these unmet needs, growth in global trade is forecast to dramatically increase throughout the U.S. and Florida, further straining existing seaport capacity. Over the past two decades we have seen tremendous changes with respect to global and intermodal freight logistics, trading partners and services, trade volumes and cargo handling types, vessel design and deployment, marine infrastructure development and ownership, and inland transportation systems. Based on the continuing effects of globalization and intermodalism on the business of trade, and on projected growth in US and world economies, we can forecast future traffic volumes that the marine transportation system will be asked to accommodate. According to forecasts developed by Global Insight Inc. and presented in the AASHTO Freight Bottom Line Report on Waterborne Transportation:

- The fastest growth will be in higher-value goods that generally travel in containers. U.S. international container traffic is forecast to grow from around 24 million loaded containers in 2004 to around 72 million loaded containers by 2025. In other words, U.S. international container traffic will triple over the next 20 years. The imbalance between loaded import containers and loaded export containers is also forecast to

[1] A Forecast of Florida's International Trade Flows and the Economic Impact of Florida Seaports, The Washington Economics Group, Inc., November 23, 2003.

grow. If we estimate total international container moves at twice the number of imports, which allows for export loads plus the return of the import container as an empty box – the total number of international TEUs would be 110 million in the year 2025. This is versus the current figure of around 42 million TEUs in 2005, which includes all types of moves – international, domestic, loaded, and empty. See Figure ES.1.

- Overall international waterborne tonnage is forecast to increase from more than 1.5 billion tons in 2004 to almost 2.5 billion tons in 2025. Roughly half of this increase will be associated with containerized commodities, and around half with non-containerized commodities. In total, the marine transportation system will need to add around half a billion tons of capacity in both the container and non-container trades to accommodate international demand. See Figure ES.2.

Figure ES.1 Forecasted Growth in U.S. International Container Trade
(Millions of loaded TEUs)

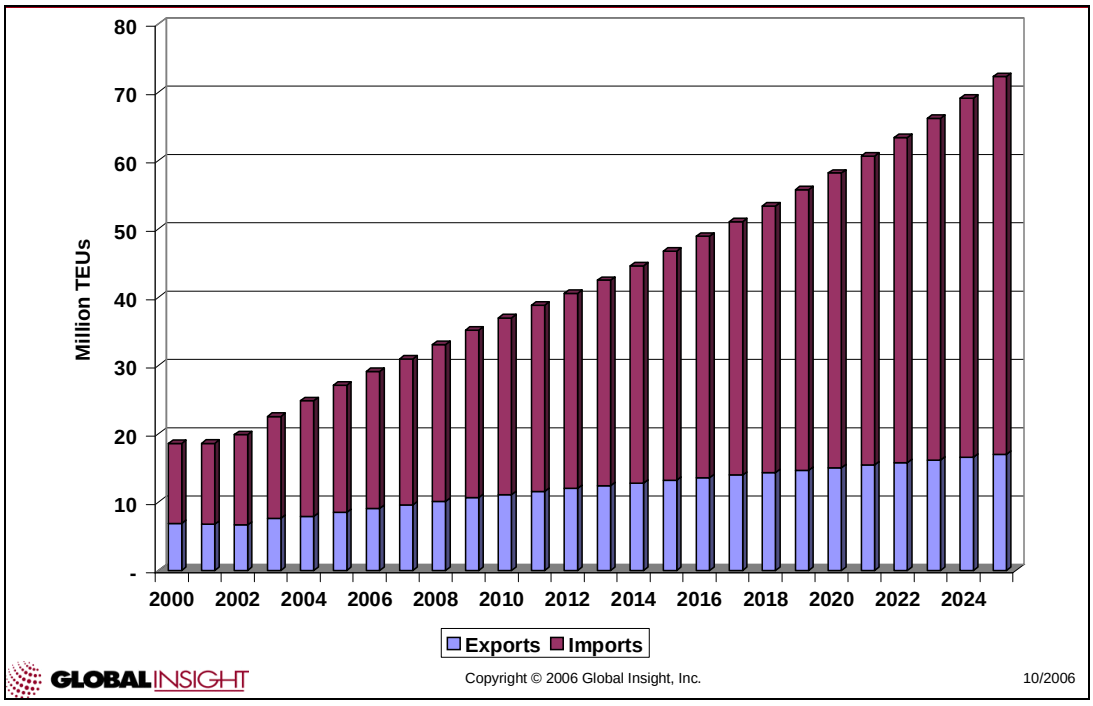
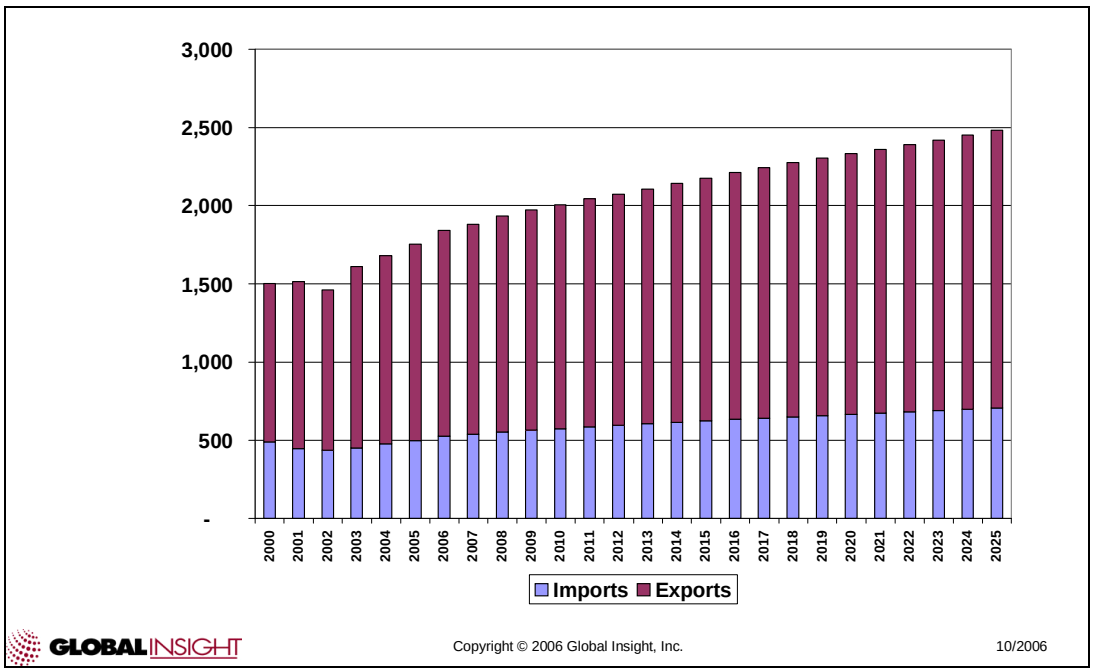


Figure ES.2 Forecasted Growth in U.S. International Waterborne Tonnage
(Millions of Metric Tons)



At the state level, Florida's ports could be asked to handle between 7.24 million and 8.46 million TEUs by the year 2025, up from 2.97 million TEUs in 2005. In addition, Florida's ports could be asked to handle between 155 million and 207 million tons by the year 2025, up from 127 million tons in 2005.[2] As one of the seaports' funding partners, FDOT is responsible for ensuring state dollars are allocated to seaport projects that maximize regional and statewide public benefits. To do this, FDOT has developed the Strategic Seaport Investment Framework to evaluate and prioritize its investments in Florida seaports.

[2] Although Florida's seaports provide an aggregate 5-year forecast, longer term statewide forecasts for cargo demand through Florida's seaports are not currently available. However, useful projections can be developed from three sources: (1) trendline analysis of historic Florida port growth; (2) application of South Atlantic and Gulf Coast "port range" forecasts (source: Global Insight Inc.) to current Florida traffic; and (3) application of national average forecasts (source: Global Insight Inc.) to current Florida traffic. All of these methods are approximations and should be supported by more detailed study in the future, particularly with respect to different commodity classes and handling type.

Objective

The Strategic Seaport Investment Framework will provide a set of analytical tools to support FDOT's investment decisions for all state-funded seaport projects. In the most basic terms, the Framework provides FDOT the ability to evaluate the benefits and costs associated with a particular seaport or seaport-related improvement project, which can be used by FDOT and its partners to support funding allocation activities. Application of the Framework will vary based on the specific funding program and the role that FDOT plays within that program.

Policies and System Approach

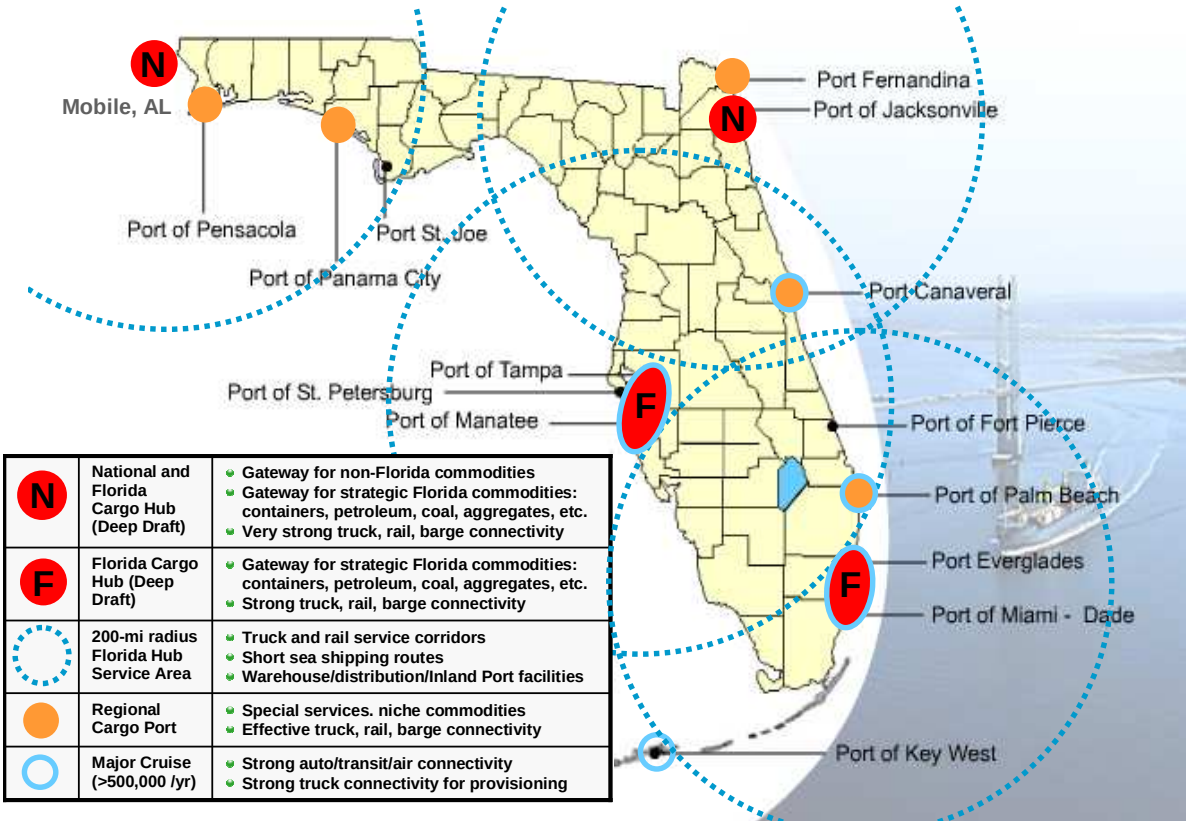
The Framework itself is based on policies that have been developed and adopted by the State of Florida as well as FSTED and the individual seaports. It builds on established transportation goals as laid out in the Florida Transportation Plan (FTP) and Strategic Intermodal System (SIS), and incorporates the adopted policy language from the Seaports' Mission Plan, including the recent seaport visioning exercise which identified eight critical seaport vision elements. Although each of these initiatives have established visions and goals, it is important for the Framework to develop its own to ensure that the associated data collection and analysis activities remain focused and uniform. In addition, the material presented in the Framework directly applies to FDOT's responsibility to evaluate the appropriate investment of state funds in Florida's seaports.

The policy language consists of a vision statement and a set of statewide and regional goals that have been developed for use in the Framework project evaluation process. This policy language has been used to create a policy based component of the tool. In addition to these specific goals, FDOT recognizes the need to plan for capacity, diversity, and redundancy throughout the system.

- **Capacity** to meet Florida's growth needs – all strategic cargo types;
- **Diversity** to meet needs from multiple locations – capacity should not be concentrated in one port or region; and
- **Redundancy** to ensure uninterrupted service – if a port loses capacity for a given period of time, Florida's needs will have to be met from other Florida ports.

Based upon these three concepts, the seaport system has been categorized to reflect national cargo hubs, Florida cargo hubs, regional cargo ports, and major cruise ports. Each has specific needs for waterside, terminal, landside, and market related improvements (see Figure ES.3). These categorizations also will be used within the Framework to provide a system level review of project applications. These categorizations may change in response to increases/decreases in trade lanes and commodity flows. As these conditions change the components of the Framework shall be revised to ensure a proper evaluation of proposed projects.

Figure ES.3. Categorization of Florida's Current Seaport System



Structured FDOT Evaluation and Prioritization Process

The Framework has been designed to facilitate an overall improved data collection and data management function for FDOT and its seaport partners. This will coincide with the current update to the Seaports Capital Improvement Program (SeaCIP). Ultimately, all port improvement projects should be entered into the online SeaCIP interface by each port. Projects eligible for state funding will require additional data necessary to support the Framework. The Framework output will provide an additional tool for FDOT's consistency review of Chapter 311 projects and help guide recommended priorities for other state-funded seaport projects. Project data and analysis will focus on:

- Consistency with system-wide and regional goals (qualitative factors);
- Economic and transportation benefit/ cost (quantified measures); and
- Special considerations (qualitative factors).

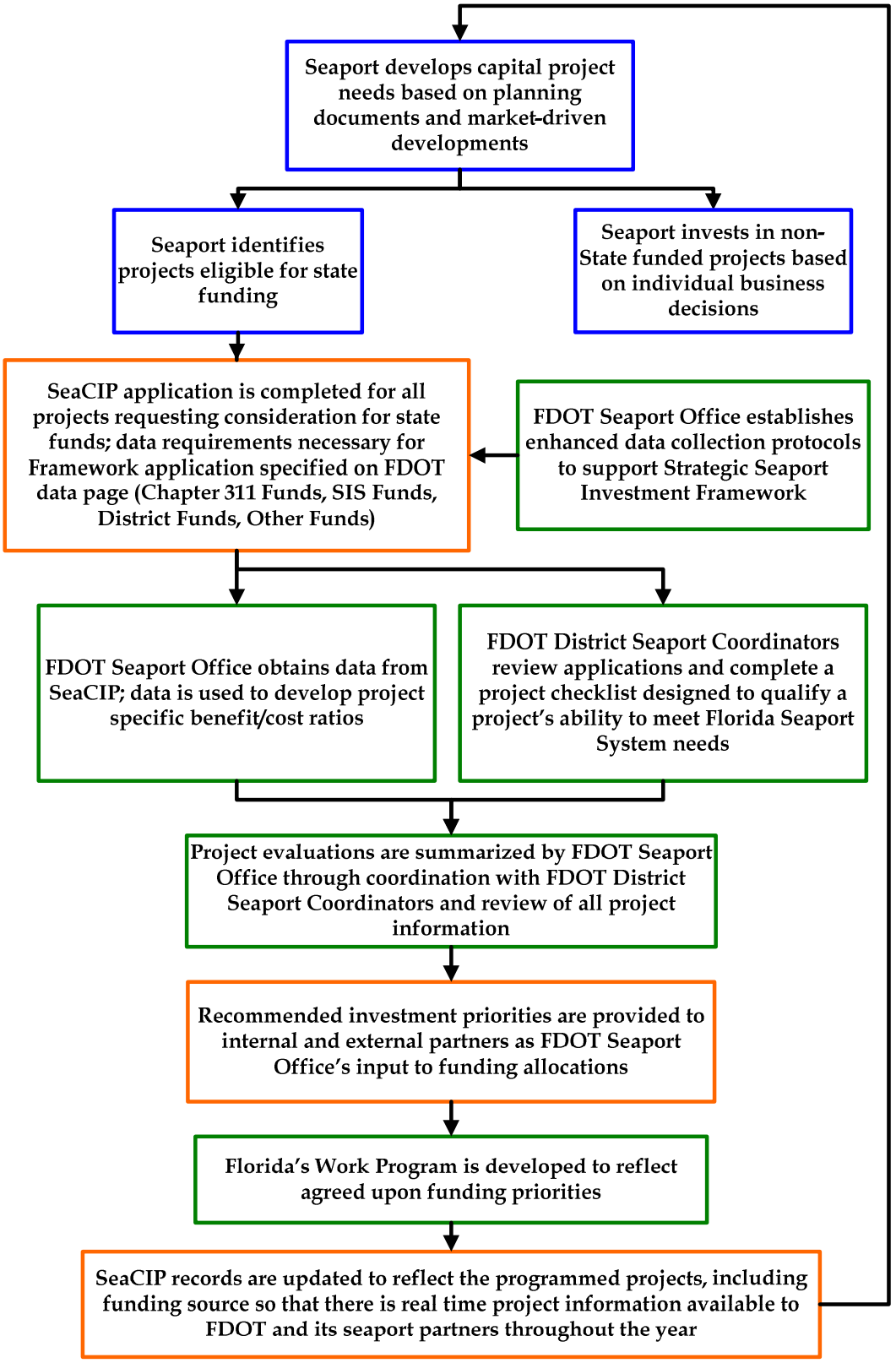
The two key elements that feed the Framework consist of:

1) **District Project Check List.** A check list will be completed by District seaport coordinators as part of their seaport project review process. The questions are linked to regional and statewide system goals as well as address local considerations. Seaports will impact this review through the application process by providing a project justification statement (description of why the project is a priority).

2) **Benefit/Cost Analysis Tool.** The benefit/cost tool is designed to evaluate the economic and transportation benefits of a project. This tool is based on the analytical framework developed as part of the research conducted by FDOT on the public benefits of state seaport investments. Data to feed this analysis will be provided by the seaports through the SeaCIP interface. Results of the analysis will be integrated into the application reviews completed by District and Central Office staff. Benefits shall include return on investment for the seaport in question as well as impact on gross regional product measured through several economic indicators including regional job creation, labor income generated, and tax dollars collected.

These two elements are integrated to provide a comprehensive project evaluation to guide state seaport investment decisions. Figure ES.4 below illustrates the key elements of the Framework.

Figure ES.4. Illustration of the Framework Architecture



Summary of Framework

The ***Strategic Seaport Investment Framework*** has been developed to maximize the benefits of state investments in Florida's deepwater seaports. This tool provides the ability to make the best possible use of available state funds at the project level. The process integrates both qualitative and quantitative analyses to help build a more consistent, transparent and data-driven seaport investment program. Port-supplied data guide the analyses performed for all state-funded seaport projects. The analyses include consideration of economic and transportation benefits and costs, as well as special circumstances and the stated priorities of the seaports.

Impact on Seaports

As discussed above, the Framework has been designed to guide state review of seaport applications requesting state funding. It is not intended to replace established decision making protocols or processes, but rather to provide additional information to better inform project review activities already required. While initial implementation will require training for both seaport and FDOT District staff, the long term impacts should be modest. The following summarizes the overall impact of the tool.

- **Data**. Existing data collection efforts will be refined. Modest amount of new data will be required. Impact will be minimized through training and support.
- **Eligibility**. Project eligibility will be unchanged within established programs. Improved data management will improve tracking of needs across funding sources.
- **Process**. Improved functionality within SeaCIP will facilitate data collection and provide enhanced data management capabilities. Project funding allocation processes will be preserved. Additional data provided by the Framework will guide state funding decisions.
- **Promotion**. Consistent, transparent, data-driven process will facilitate seaport and FDOT efforts to justify ongoing and expanded investments in seaports.

Phased Implementation and Ongoing Development

The first phase of implementation was designed to support off cycle seaport funding requests currently being developed by the seaports. Interim modifications to SeaCIP are under development to collect the required project data for these applications. This will be accomplished through creation of an additional tab within the SeaCIP portal that consolidates all data requirements (existing and new) for the Framework onto one form. Training and support will be provided by FDOT, as necessary, to assist seaport staff in this process.

Comprehensive revisions will be made as part of SeaCIP 4.0 to integrate the new data requirements for subsequent applications for state funds. Discussions currently are underway with DCA and OTTED staff to verify their existing data requirements. In addition to adding a modest amount of additional data requirements, SeaCIP 4.0 also will streamline overall data requirements to eliminate duplication among agency review tabs, and remove data not currently used. There also will be substantial improvements to the functionality of the program to provide enhanced reporting and data management capabilities. The new functionalities will support ongoing implementation of the Framework as well as link into and feed seaport data into the e-SIS initiative.

Implementation of the Framework began with the additional seaport funding provided by the Florida Legislature in 2007. This amounted to a $50 million off cycle funding source for the seaports. Seaport submitted fourteen projects for consideration, all of which showed positive benefit/cost ratios. This initial application of the Framework also provided valuable lessons learned, which will be explored in 2008 as the Framework continues to be revised.

1.0 Introduction

Over the last few years, the Florida DOT has undertaken a major overhaul of its transportation program through the creation of the Strategic Intermodal System (SIS). The SIS has dramatically changed the way in which transportation funds are allocated. One of the critical changes has been a shift towards modes other than highway. As a result, Florida's seaports have benefited through this partnership from a significant increase in funding through highway, waterway, and rail connector improvements, and to a lesser degree, on port projects. Even with this increase, there are significant unmet seaport needs.

Over the last year, significant work has been undertaken by the Florida DOT's Seaport Office to lay the groundwork for a more comprehensive seaport program. Work has focused on documenting current seaport conditions, measuring state benefits in seaport investments, and exploring the implications of changing trends in global trade. The following reports are available on the Seaport Office's website (and included in Appendix A):

- Florida's Seaports: Conditions, Competitiveness, and Statewide Policies;
- Global Trade Trends: Challenges and Opportunities for Florida's Ports; and
- Evaluate Florida's 14 Deepwater Seaports' Economic Performance and the Return on Investment of State Funds.

Continuing this work, Florida DOT leadership called for the development of a consistent, equitable, and strategic approach to guide the Department's investments in Florida's seaport system. While it is accepted that seaport investments have positive ROI in aggregate, there historically has not been a tool available to determine the benefit of state investments at the project level. In response, the Seaport Office has developed the ***Strategic Seaport Investment Framework*** which will help build a more analytical seaport investment process by providing guidelines and tools to enhance the project identification and evaluation processes, focusing on statewide and regional public benefits.

The Strategic Seaport Investment Framework will provide a set of analytical tools to support FDOT's investment decisions for all state-funded seaport projects. In the most basic terms, the Framework provides FDOT the ability to evaluate the benefits and costs associated with a particular seaport or seaport-related improvement project, which can be used by FDOT and its partners to support funding allocation activities. Application of the Framework will vary based on the specific funding program and the role that FDOT plays within that program.

The Framework relies on port-supplied data. The analysis performed includes consideration of economic and transportation benefits and costs, as well as special circumstances, including the stated priorities of the seaports. As part of the development and implementation of the Framework, the Seaport Office will continue to promote its partnership with other state agencies, the FPC, and each of the deepwater seaports. It is important that the partners work together to promote, expand, and improve Florida's

seaport system through their established and successful programs, while respecting their separate (but complementary) roles and responsibilities.

The Framework is organized as follows:

- **Section 2.0, Background and Need.** This section describes the basic trends at the state and national levels driving the need for improved analysis of state funding decisions.
- **Section 3.0, Policy Guidelines.** This section describes the Framework vision, and statewide and regional seaport system goals.
- **Section 4.0, Framework Architecture.** This section describes the process for identifying, prioritizing, and funding seaport improvement projects.
- **Section 5.0, Summary of Framework Implementation.** This section summarizes Framework implementation activities and impacts on seaport staff, and describes the results of the initial application of the tool.

2.0 Background and Need

FDOT recognizes the critical contributions and needs of Florida's seaports. Florida's fourteen deepwater seaports provide significant statewide benefits, consisting of 290,000 jobs, $16 billion in annual gross state product, $1 billion in annual taxes[3], and 2.2 billion annual truck travel miles avoided. In order to provide these benefits, Florida's seaports undertake comprehensive master planning activities, which drive their capital improvement programs. These programs are paid for directly by the seaports with matching funds in many instances provided by their partners. Even with these multiple funding sources, Florida's seaports, like their other modal partners, have significant unmet needs; these needs span a variety of areas, including:

- Providing services that are competitive and attractive;
- Expanding marine terminal capacity;
- Deepening/maintaining navigation channels and berths;
- Improving highway and rail access;
- Mitigating environment impacts;
- Preserving land for seaport-related activities;
- Ensuring security and addressing new costs; and
- Finding sufficient funding.

In addition to these unmet needs, growth in global trade is forecast to dramatically increase throughout the U.S. and Florida, further straining existing seaport capacity. Over the past two decades we have seen tremendous changes with respect to global and intermodal freight logistics, trading partners and services, trade volumes and cargo handling types, vessel design and deployment, marine infrastructure development and ownership, and inland transportation systems. This section describes historic trends and future forecasts for the U.S. and Florida.

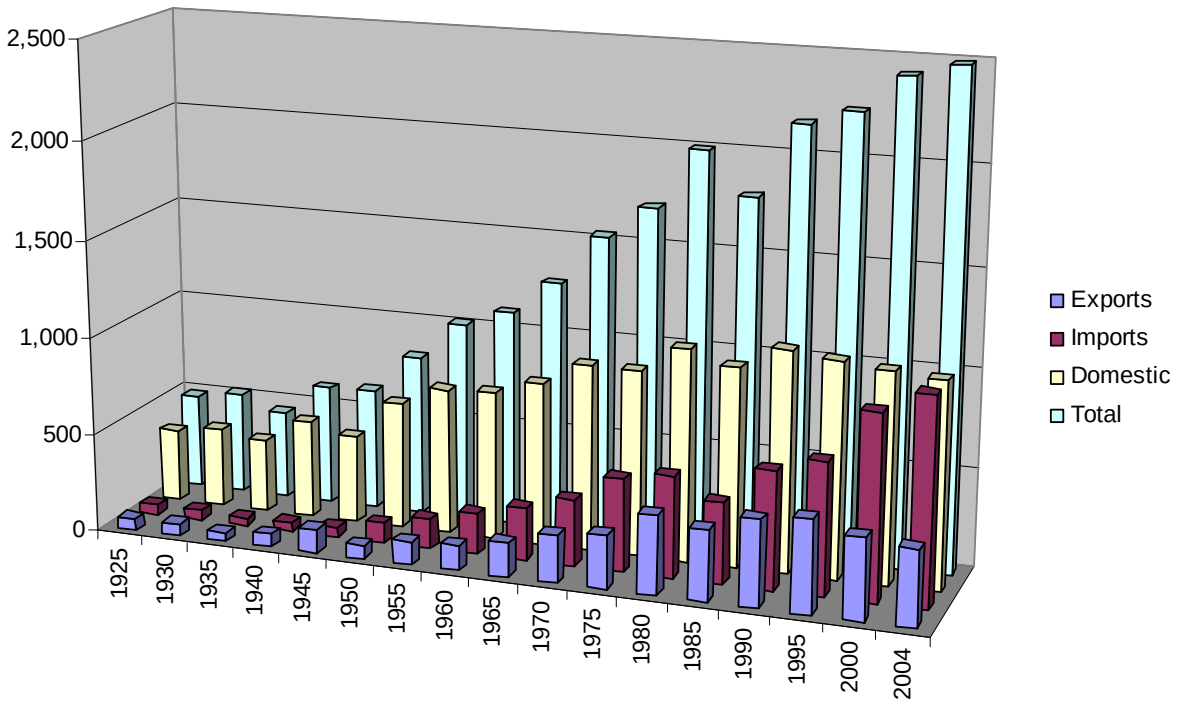
2.1 National Trends in Waterborne Transportation

Between 1925 and 2000, total waterborne trade grew at an average rate of 2.2% annually (see Figure 2.1). Over this period:

[3] A Forecast of Florida's International Trade Flows and the Economic Impact of Florida Seaports, The Washington Economics Group, Inc., November 23, 2003.

- International imports grew at 4.0%, from 50 million tons in 1925 to 940 million tons in 2000. Nearly half of this growth occurred after 1980, with the emergence of intermodalism and globalization. International exports also grew, but at a slower rate of 2.6%, from 59 million tons in 1925 to 415 million tons in 2000.

Figure 2.1. U.S. Waterborne Tonnage is Growing, Especially Imports
(Millions of Tons)



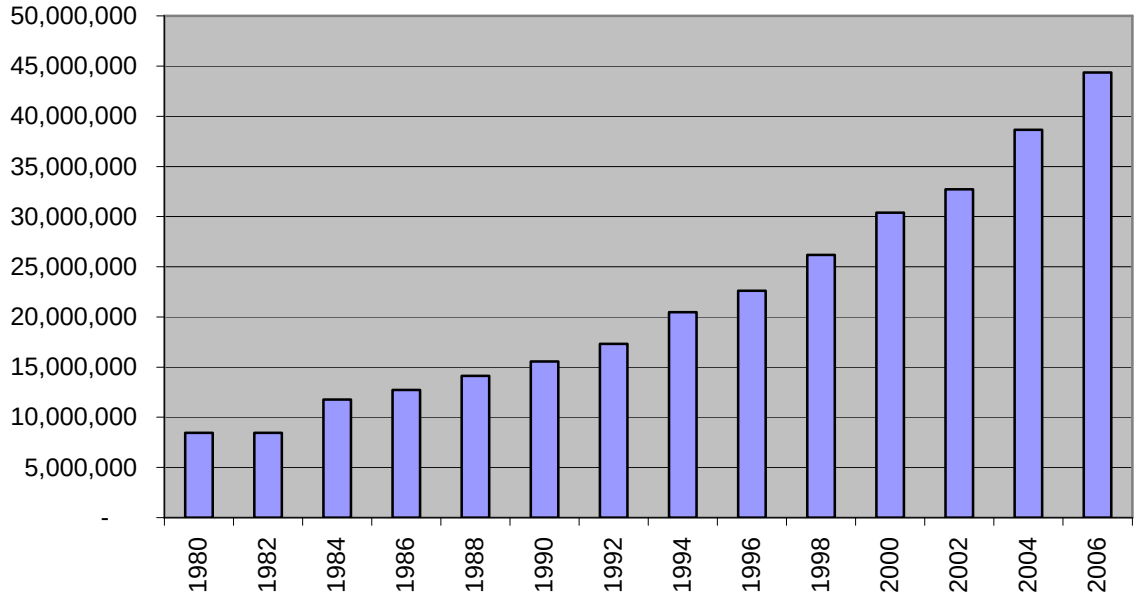
Source: CS analysis of Bureau of the Census and U.S. Army Corps of Engineers data (through 2000) and Bureau of the Census, Army Corps of Engineers, and Transearch data (2004)..

- Domestic tonnage grew at a much slower rate of 1.4%. Domestic tonnage represented around 78% of the nation's waterborne tonnage in 1925, but by 2000, it represented around 44% of the nation's waterborne tonnage.

Starting in the 1980's, the expansion of waterborne trade – particularly international trade -- received a huge boost from the dramatically increased use of intermodal shipping containers. Between 1980 and 2005, container traffic through US ports grew six-fold, at a compounded average rate of 6.6% per year. U.S. container traffic hit another new high in 2005, at almost 42 million TEUs (see Figure 2.2).

Based on the continuing effects of globalization and intermodalism on the business of trade, and on projected growth in US and world economies, we can forecast future traffic volumes that the marine transportation system will be asked to accommodate. According to forecasts developed by Global Insight Inc. and presented in the AASHTO Freight Bottom Line Report on Waterborne Transportation:

Figure 2.2. U.S. Annual Containerized Waterborne Traffic in TEUs,
Container Growth (6.6% Annual) Has Far Outpaced Tonnage Growth



Source: American Association of Port Authorities

- The fastest growth will be in higher-value goods that generally travel in containers. U.S. international container traffic is forecast to grow from around 24 million loaded containers in 2004 to around 72 million loaded containers by 2025. In other words, U.S. international container traffic will triple over the next 20 years. The imbalance between loaded import containers and loaded export containers is also forecast to grow. If we estimate total international container moves at twice the number of imports, which allows for export loads plus the return of the import container as an empty box – the total number of international TEUs would be 110 million in the year 2025. This is versus the current figure of around 42 million TEUs in 2005, which includes all types of moves – international, domestic, loaded, and empty. See Figure 2.3.

- Overall international waterborne tonnage is forecast to increase from more than 1.5 billion tons in 2004 to almost 2.5 billion tons in 2025. Roughly half of this increase will be associated with containerized commodities, and around half with non-containerized commodities. In total, the marine transportation system will need to add around half a billion tons of capacity in both the container and non-container trades to accommodate international demand. See Figure 2.4.

Figure 2.3. Forecasted Growth in U.S. International Container Trade
(Millions of loaded TEUs)

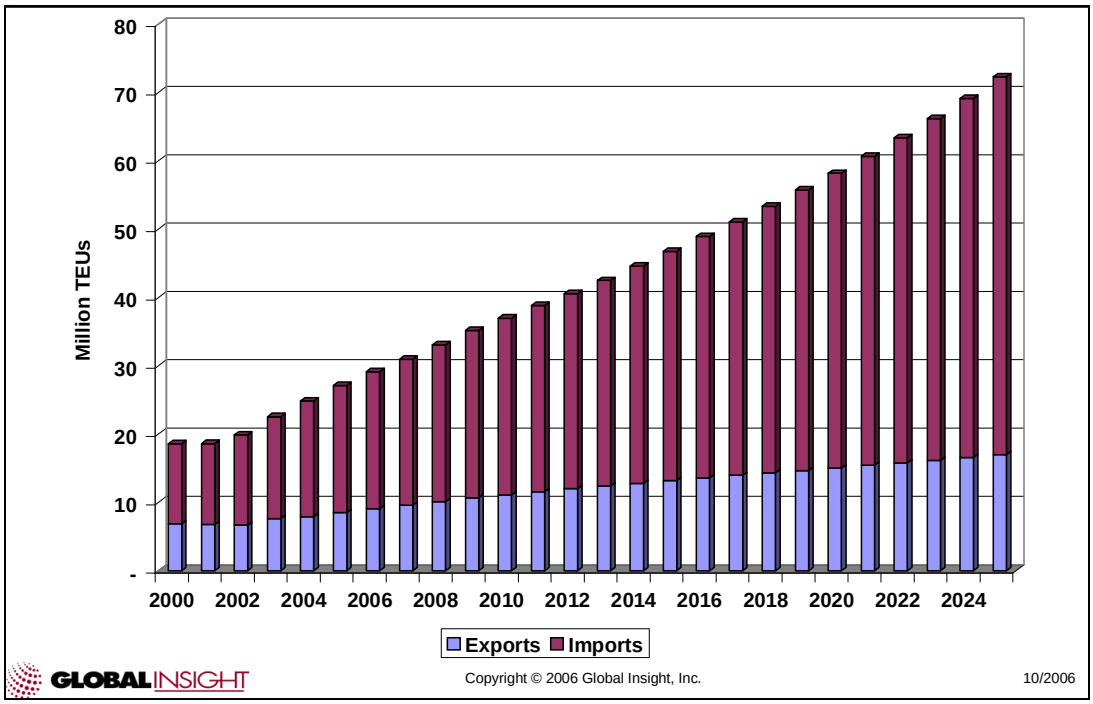
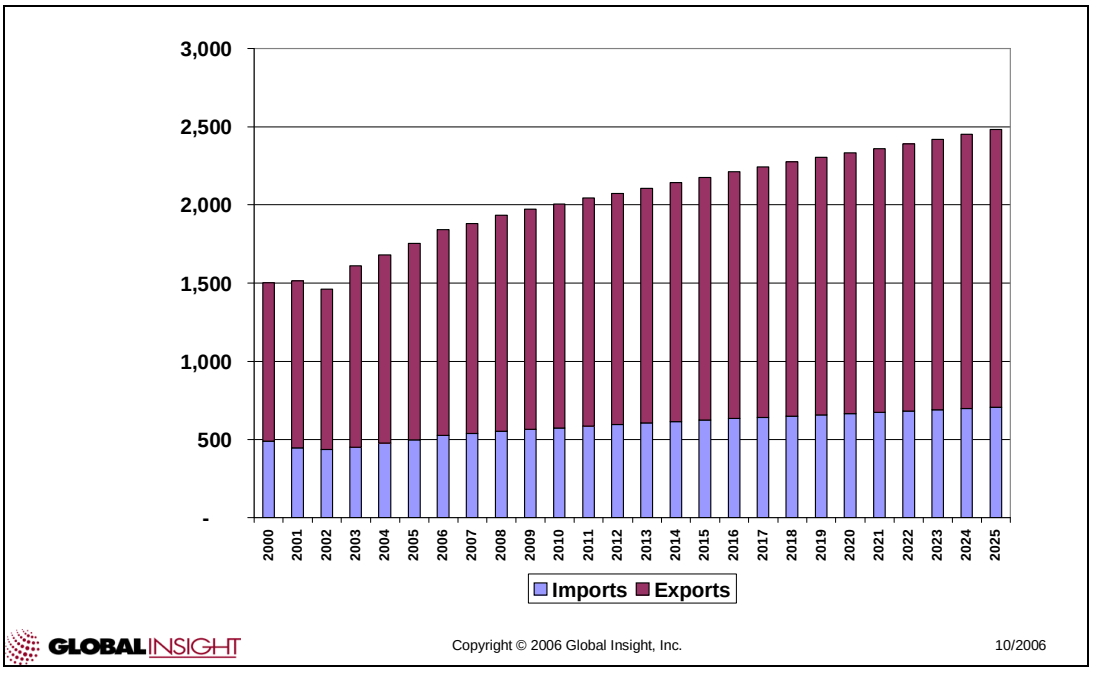


Figure 2.4. Forecasted Growth in U.S. International Waterborne Tonnage
(Millions of Metric Tons)



2.2 Demand Projections for Florida's Ports

At the state level, Florida's ports could be asked to handle between 7.24 million and 8.46 million TEUs by the year 2025, up from 2.97 million TEUs in 2005. In addition, Florida's ports could be asked to handle between 155 million and 207 million tons by the year 2025, up from 127 million tons in 2005.[4] Present analysis suggests (as shown in Table 2.1):

- Florida's ports could be asked to handle between 7.24 million and 8.46 million TEUs by the year 2025, up from 2.97 million TEUs in 2005.
- Florida's ports could be asked to handle between 155 million and 207 million tons by the year 2025, up from 127 million tons in 2005.

Table 2.1 Projected Traffic Through Florida Ports

State	1994	2005	2025	Annual Growth Rate
FL Containers (TEUs)	1,709,499	2,970,545		
(1) Projection from 10-Year Trendline			8,112,231	5.2%
(2) Projections from "Port Range" forecasts			7,244,809	4.6%
(3) Projections from National Avg forecasts			8,457,409	5.4%
FL Tonnage (all commodities)	109,267,000	127,418,253		
(1) Projection from 10-Year Trendline			168,493,005	1.4%
(2) Projections from "Port Range" forecasts			154,744,954	1.0%
(3) Projections from National Avg forecasts			207,260,323	2.5%

[4] Although Florida's seaports provide an aggregate 5-year forecast, longer term statewide forecasts for cargo demand through Florida's seaports are not currently available. However, useful projections can be developed from three sources: (1) trendline analysis of historic Florida port growth; (2) application of South Atlantic and Gulf Coast "port range" forecasts (source: Global Insight Inc.) to current Florida traffic; and (3) application of national average forecasts (source: Global Insight Inc.) to current Florida traffic. All of these methods are approximations and should be supported by more detailed study in the future, particularly with respect to different commodity classes and handling type.

3.0 Policy Guidelines

3.1 Incorporating Established Language

The Framework provides specific policy guidance for development, enhancement, and preservation of Florida's Seaport System. It builds on established transportation goals as laid out in the Florida Transportation Plan (FTP) and Strategic Intermodal System (SIS). In addition, it recognizes and incorporates the adopted policy language from the Seaports' Mission Plan, including the seaport visioning exercise completed in 2006, which identified eight critical seaport vision elements. Tables 3.1 and 3.2 highlight these existing goals and missions. The mission statement and goals will be revisited, in coordination with the Department's partners, as part of the Seaport System Plan, which will be developed in 2008.

Existing policy language from the Florida DOT and the seaport community complement each other with each providing a comprehensive listing of what is needed to ensure Florida's transportation system meets the needs of residents and businesses. However, the language, provided as mission statements and goals, falls short of establishing strategic guidance in a form that can be used effectively as a tool for seaport investment decisions. That is, they do not provide measurable benchmarks for the long-term development of Florida's ports as a system. These benchmarks are needed to guide Florida DOT investment decisions, and to measure progress towards a desired outcome.

The Framework ensures that:

- Seaport investments address a broad range of needs – preservation and enhancement of a balanced, intermodal system;
- Existing policies and mission statements are promoted and supported – development of processes and tools that complement existing Department and industry priorities;
- Investment decisions promote a statewide system, while preserving and enhancing core competencies within each region of Florida – balancing of state and regional needs to serve overall state interests; and
- Processes and tools evolve and change overtime to keep pace with domestic and international trade patterns and the needs of Florida's residents – flexibility to respond to dynamic environment.

Table 3.1 Policy Guidance for Seaports – FDOT Plans

Florida Department of Transportation Mission

The mission of Florida's Department of Transportation is to provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities. To further these goals, the Department establishes specific goals for, and makes substantial investments in, all modes of transportation affecting Florida residents, businesses, and visitors

FTP Goals	SIS Goals
1. A safer and more secure transportation system for residents, businesses, and visitors.	1. A safer and more secure transportation system for residents, businesses and visitors.
2. Enriched quality of life and responsible environmental stewardship.	2. Effective preservation and management of Florida's transportation facilities and services.
3. Adequate and cost-efficient maintenance and preservation of Florida's transportation assets.	3. Increased mobility for people and for freight and efficient operations of Florida's transportation system.
4. Stronger economy through enhanced mobility for people and freight.	4. Enhanced economic competitiveness and economic diversification.
5. Sustainable transportation investments for Florida's future.	5. Enriched quality of life and responsible environmental stewardship.

Table 3.2 Policy Guidance for Seaports – Florida's Ports

2006 Seaport Mission	2006/2007 Mission Plan Goals
The collective mission of Florida's seaports is to enhance the economic vitality and quality of life in the State of Florida by fostering the growth of domestic and foreign waterborne commerce. Each of the seaports furthers this statewide mission at the regional level by providing facilities and services that both expand the economic opportunities available to the local community for trade and tourism and enable the seaport to compete effectively in global markets	1. Provide efficient and cost-effective facilities for cargo and passengers
Seaport Visioning Elements	2. Build the intermodal facilities needed by Florida's seaports to move their goods and passengers more efficiently than competing out-of-state and off-shore seaports
1. Strategic port planning – locally, regionally, and statewide	3. Maintain and expand existing trade markets and patterns, increasing cargo flow
2. Deepwater access	4. Develop funding alternatives that will enable Florida's seaports to implement required improvements in a timely manner and meet revenue projections
3. Efficient landside access	5. Implement security measures that balance compliance with federal and state minimum security standards and the need for an efficient flow of commerce through our seaports
4. Capacity for port growth – locally and regionally	6. Develop a state policy on economic development recognizing that international trade is dependent on Florida's transportation system
5. Balance between user needs and the cost of maritime operations	
6. Ability to build and sustain key partnerships	
7. Value of investing in Florida seaports and serving Florida's population	
8. Enhanced public understanding and support for Florida's seaports	

3.2 Seaport System Vision Statement

As noted above, the mission of Florida's Department of Transportation is to provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities. To further these goals, the Department establishes specific goals for, and makes substantial investments in, all modes of transportation affecting Florida residents, businesses, and visitors. To inform the Department's mandated planning and investment responsibilities for Florida's ports and waterways, the Department has determined:

- Florida's ports are more than a collection of individually operated facilities pursuing their respective business missions. They comprise a larger system that provides transportation and economic benefits to the state as a whole. But ports also incur costs – capital investment costs, operating costs, environmental impacts, community impacts – etc. to the state as a whole.

- As a system, the public benefits of Florida's ports substantially outweigh their costs. But these benefits are not fully captured in port revenue streams, and the stated financial needs of Florida's ports are far greater than their ability to pay from self-generated revenues. Florida's ports therefore rely on additional revenues from federal, state, and local sources.

- The Florida Department of Transportation makes funding available for port and port-serving transportation improvements, through a variety of programs. But this funding also falls well short of the stated investment needs of Florida's ports. Moreover, every dollar that the Department invests in ports is a dollar that is not invested in other critical state transportation priorities.

- Therefore, it is essential that the Department be as efficient as possible with respect to its investments in Florida's seaports. The Department will base these decisions on: (1) consistent, transparent, and fairly-applied decision criteria; (2) the sound evaluation of benefits and costs, similar to the level of analysis it applies to its investments in other modes of transportation; and (3) a clear vision. The vision is provided in Table 3.3.

Table 3.3 State Seaport Vision Statement

State Seaport Vision Statement
As a system, Florida's seaports will serve the waterborne mobility needs of Florida's freight shippers and receivers, residents, and tourists, by providing capacity, operational sustainability, safety, and security across the entire transportation system, sufficient to meet current and anticipated future needs and demands. The Department will continue to actively support Florida's ports by investing to preserve and increase the demonstrable public benefits that ports provide, including both transportation and economic benefits, in a manner that is sensitive to the quality of Florida's environment and communities.

In order to achieve this vision, Florida must invest in the four key elements of seaports: 1) waterside marine assets; 2) on-port freight and passenger terminals; 3) landside intermodal connections; and 4) market connectivity. Each of these elements impacts a seaport's ability to serve customer needs. Investments in these areas yield public and private benefits. Public benefits drive the Florida DOT's overall transportation program and can be tied to the goals defined in the FTP and SIS, that is, to provide, preserve, and enhance a system that is safe, secure, economically competitive, and environmentally friendly while providing mobility for people and freight.

As such, the Framework must be able to identify and evaluate the public benefits associated with seaport and seaport-related projects (e.g., job creation; job retention; reduction in air/noise pollution; reduction in roadway congestion; increased modal choice; local market capture). State investments in the seaport system will seek to: maximize public benefits to Florida's economy, transportation system, environment, and communities; minimize public costs and negative impacts, whether direct or indirect; and respect the independent entrepreneurial missions of each of Florida's seaports.

3.3 System-Wide Goals

Florida is home to 14 deepwater seaports, some more developed than others. These ports serve a variety of markets, primarily related to the demands of their local and regional business and residential communities. As Florida works to make smart investments in its seaport system, it is important to recognize each of the 14 ports as one component in a larger network. The seaport system or network must have the necessary infrastructure in place to serve the State's needs; in some cases this may mean providing bulk capacity throughout the network, while in other cases this may mean a focused effort to ensure that the Florida seaport system has the deep water (50+ feet) to handle post-Panamax vessels.

Given the State's geography and its high growth status, each of the seaports has the potential to play a significant role within the State's system through regional and statewide contributions. Table 3.4 provides descriptions of the goals for each identified planning component. These goals address a full range of activities that apply differently to each of the 14 ports based on their current level of development and mix of services.

When making investment decisions, it also is critical to look at specific regions throughout the State. While certain capacities and services should be provided in each region, it also is important to promote and support regional strengths. For example, bulk capacities to handle commodities of statewide significance, such as construction materials or petroleum, should be provided in all regions; however, not every region is going to have a major cruise port or serve a specific niche industry. Table 3.5 describes the port infrastructure at the regional level. It is important to realize that within any given region, the defined goals may have very different applications and priorities among the ports and not every goal applies to each port. For example, there may be a goal to expand container or cruise capacities which may apply to one of three seaports in a region.

Table 3.4 Seaport System Goals

Key Planning Components	Goals
Market - system capacity, competitiveness with other seaports, preservation and expansion of key emerging and dominant markets, and ability to provide innovative state of the art services	• Increase seaport system capacity to meet projected demand. • Provide seaport services competitive with neighboring states and countries. • Maintain dominant position in key markets, position seaports to compete for emerging markets, and take advantage of shifts in global trade lanes. • Expand market capture through investments in innovative service strategies and infrastructure
Waterside Access - need for preservation and expansion of water resources, including channels, turning basins, and berths; this includes discussion of deepwater capacity	• Preserve and enhance channels, turning basins, and berths throughout system. • Position Florida to capture new generation of megaship vessels through creation of deepwater capacity. • Focus deepwater investments to serve Florida origin/destination markets and minimize impacts of out-of-state discretionary traffic
Seaport Terminals - preservation and expansion of existing terminal capacity, increase in the efficiencies of existing terminals, and creation of new port-related lands	• Preserve and increase existing terminal capacities and operations • Focus investments on advanced operating practices to increase efficient use of existing terminal space • Support acquisition, redevelopment, and creation (via landfill) of new waterfront land for port operations
Landside Access - direct connections to highway and rail networks, appropriate level of intermodal facility development, and restriction of non-complementary development along key access corridors	• Provide direct connections to major highway and rail networks. • Promote complementary developments along key access routes
Land Use - protection of existing industrial lands and the acquisition of additional lands to prevent rezoning for non-industrial use	• Promote preservation of industrial zoning in proximity to ports. • Support land acquisition/preservation initiatives designed to protect lands adjacent or in close proximity to seaports
Environment - promotion of the positive environmental contributions of seaports and the need for streamlined permitting processes	• Promote environmental contributions of seaport investments • Support seaport initiatives to streamline environmental permitting requirements
Security - assistance to seaports to help them meet Federal requirements, promote standardized inspections throughout the State	• Promote safe and secure seaport operations • Promote fair and equitable regulatory program requirements for seaport access • Promote fair and equitable cargo inspection and immigration activities.

Table 3.5 Description of Seaports by Region

Region	Description of Seaport Activity
East Central – Ports of Canaveral and Fort Pierce	• The East Central region is home to two ports. Port Canaveral is one of the largest cruise ports in the world. In addition, it continues to develop and expand its cargo operation, which currently consists of bulk and break bulk products. A major petroleum tank farm is planned and future expansion into the container market is not unlikely. Port Canaveral is unique in its mixed use development strategy. It is home to cargo, cruise, and recreational facilities. Port of Fort Pierce currently is working to redevelop and grow its cargo operation, focusing on bulk products, as well as a mega yacht repair facility.
Northeast – Ports of Jacksonville and Fernandina	• The Northeast region is home to two ports. With the signing of two new steamship lines, the Port of Jacksonville is positioned to become the largest container port in Florida over the next several years. It also handles a variety of bulk, break bulk, and RO-RO products, including automobiles, and has limited cruise operations. A significant warehouse and distribution center infrastructure has been developed in the region to support regional and hinterland markets. Port of Fernandina is a small niche port handling a variety of forest products, steel, and containerized cargo serving markets in the Caribbean and Central and South America.
Panhandle – Ports of Panama, Pensacola, and St. Joe	• The Panhandle region is home to three small ports, one of which currently is inactive. These ports handle a variety of bulk and break bulk products; recent expansion into containerized cargo at Port of Panama City has been successful and primarily the result of shifts in trade following Hurricane Katrina. These ports are based in small communities and serve local markets as well as specialized niche markets (such as copper at Port of Panama City). The Panhandle coast is undergoing significant growth and development, which will increase the demand for goods and services moving through these ports.
Southeast – Ports of Miami, Everglades, Palm Beach, and Key West	• The Southeast region is home to four ports and currently represents the largest population in Florida. The Port of Miami is the second largest container port in Florida and handles the largest number of multi-day cruise passengers. Port Everglades handles the largest number of containers in Florida , the second largest number of multi-day cruise passengers; and provides petroleum to the southern half of Florida, including jet fuel to the region's three international airports. Port of Palm Beach has an established niche export market to the Caribbean Basin, serves Palm Beach County's sugar industry, and handles limited day cruises. The Port of Key West is the largest port of call for cruise ships in the U.S. Major projects, such as the Port of Miami Tunnel and the potential development of an inland port could impact future seaport growth in the region.
West Central – Ports of Tampa, Manatee, and St. Petersburg	• The West Central region is home to three seaports, including the largest of Florida's ports (by tons). The Port of Tampa is one of most diverse ports in the State, moving huge volumes of bulk and break bulk products, as well as limited but growing container traffic and cruise passengers. This includes exports of a huge volume of phosphate from Bone Valley. Port Manatee moves a significant amount of cargo and is positioned for significant expansion and growth. Port of St. Petersburg is developing research facilities and is not a mover of cargo or passengers. The Tampa Bay region is growing significantly and is home to significant industry, which will continue to drive and demand growth in seaport capacity. Development of CSX's integrated logistics center in Winter Haven will impact the region's intermodal network access.

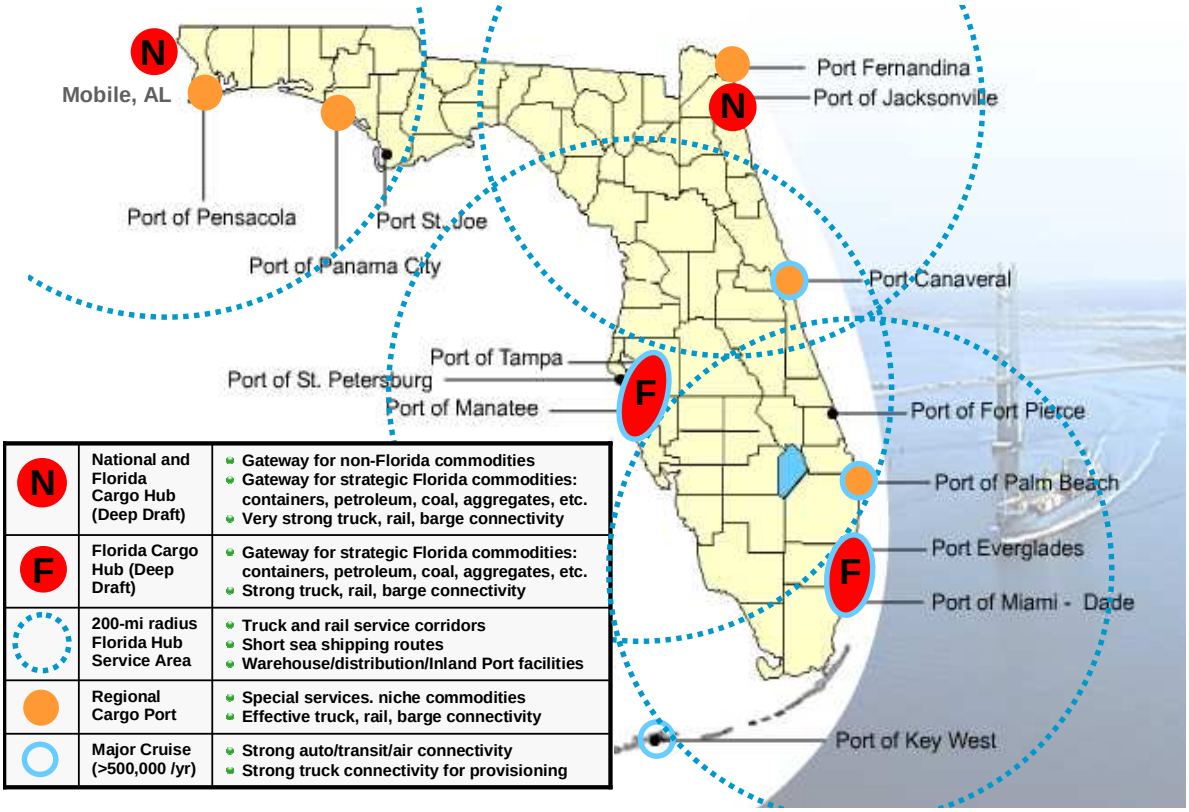
3.4 Application of Policies

The policy language consists of a vision statement, a set of system-wide goals, and an acknowledgment of the diversity among regions. These policy related materials are integrated into the Framework to support the project review process (see discussion in Section 4.0). In addition to these specific goals, FDOT recognizes the need to plan for capacity, diversity, and redundancy throughout the system.

- **Capacity** to meet Florida's growth needs – all strategic cargo types;
- **Diversity** to meet needs from multiple locations – capacity should not be concentrated in one port or region; and
- **Redundancy** to ensure uninterrupted service – if a port loses capacity for a given period of time, Florida's needs will have to be met from other Florida ports.

Based upon these three concepts, the current seaport system has been categorized to reflect national cargo hubs, Florida cargo hubs, regional cargo ports, and major cruise ports. Each has specific needs for waterside, terminal, landside, and market related improvements (see Figure 3.1). These categorizations also will be used within the Framework to provide a system level review of project applications. These categorizations also will be used within the Framework to provide a system level review of project applications. These categorizations may change in response to increases/decreases in trade lanes and commodity flows. As these conditions change the components of the Framework shall be revised to ensure a proper evaluation of proposed projects.

Figure 3.1. Categorization of Florida's Current Seaport System



4.0 Framework Architecture

4.1 Overview of the Framework

The Framework has been designed to facilitate an overall improved data collection and data management function for FDOT and its seaport partners. This will coincide with the current update to the Seaports Capital Improvement Program (SeaCIP). Ultimately, all port improvement projects should be entered into the online SeaCIP interface by each port. Projects eligible for state funding will require additional data necessary to support the Framework. The Framework output will provide an additional tool for FDOT's consistency review of Chapter 311 projects and help guide recommended priorities for other state-funded seaport projects. Project data and analysis will focus on:

- Consistency with system-wide and regional goals (qualitative factors);
- Economic and transportation benefit/ cost (quantified measures); and
- Special considerations (qualitative factors).

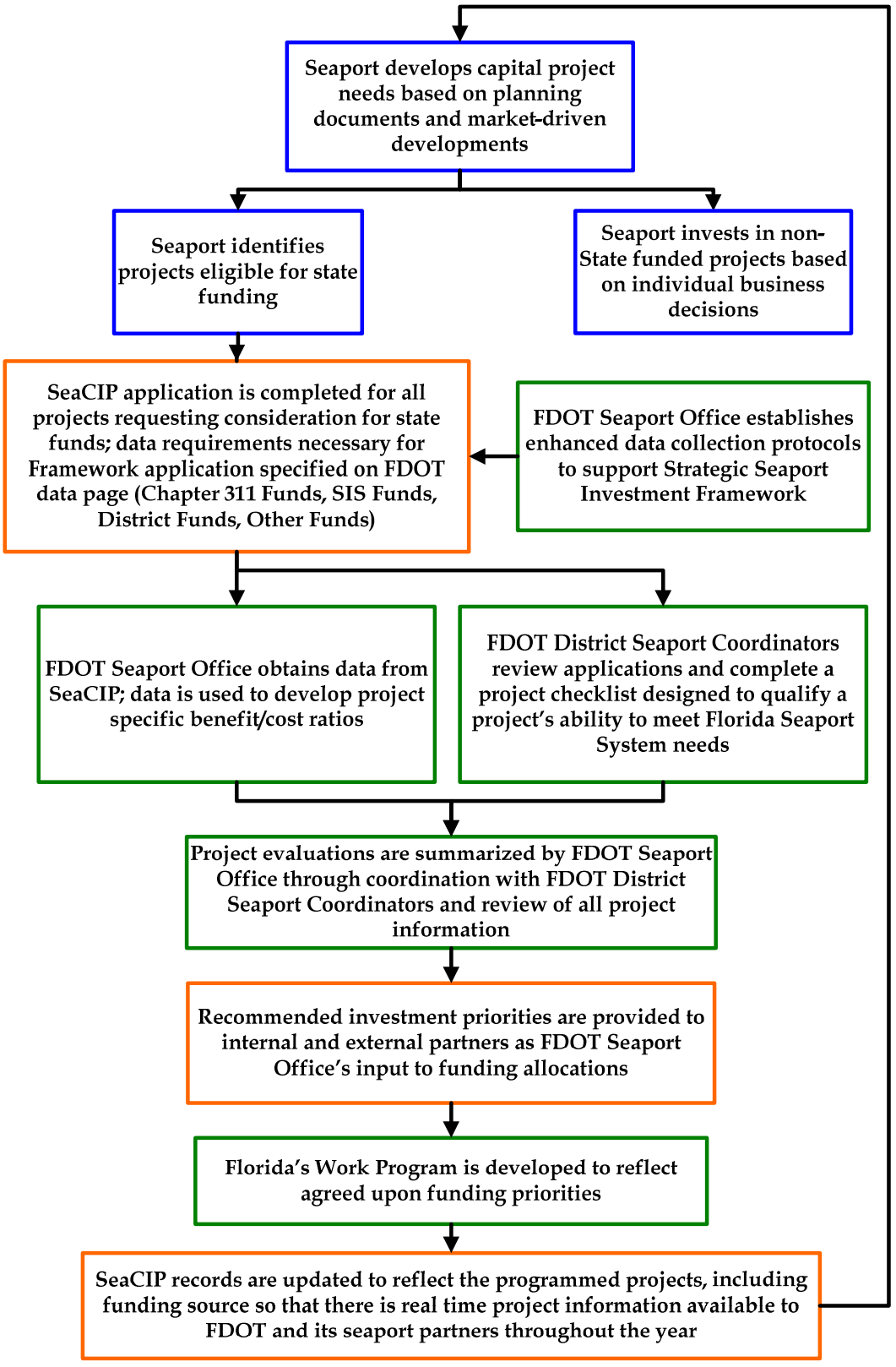
The two key elements that feed the Framework consist of:

1) **District Project Check List.** A check list will be completed by District seaport coordinators as part of their seaport project review process. The questions are linked to regional and statewide system goals as well as address local considerations. Seaports will impact this review through the application process by providing a project justification statement (description of why the project is a priority).

2) **Benefit/Cost Analysis Tool.** The benefit/cost tool is designed to evaluate the economic and transportation benefits of a project. This tool is based on the analytical framework developed as part of the research conducted by FDOT on the public benefits of state seaport investments. Data to feed this analysis will be provided by the seaports through the SeaCIP interface. Results of the analysis will be integrated into the application reviews completed by District and Central Office staff. Benefits shall include return on investment for the seaport in question as well as impact on gross regional product measured through several economic indicators including regional job creation, labor income generated, and tax dollars collected.

These two elements are integrated to provide a comprehensive project evaluation to guide state seaport investment decisions. Figure 4.1 illustrates the key elements of the Framework.

Figure 4.1 Florida Strategic Seaport Investment Framework



4.2 District Project Check List

The purpose of the project check list is to engage District staff in a more rigorous review of seaport project applications. This check list provides the opportunity to pull together all available quantitative and qualitative information to complete the most informed evaluation possible. The checklist asks seven key questions designed to validate overall project effectiveness. As illustrated in Figure 4.2, the checklist addressed the following areas:

- **Adopted within local plans** – acceptance and documentation of projects within established regional plans illustrates community support, acceptance, and funding commitment;
- **Supported by local leaders/communities** – local support drives project advancement;
- **Consistent with existing transportation visions** – extensive work has been completed by a variety of partners to develop acceptable guidelines for transportation investments;
- **Improves key seaport operations without negative consequences** – waterside, terminal, landside, and market access improvements must be advanced while minimizing community impacts;
- **Adequate funding commitment** – ability to fully fund a project, especially in the case of multi-year projects, is critical to project success; and
- **Positive ROI** – state investments in seaports should have a positive economic impact in terms of return on investment for the seaport, jobs created for the region, and overall gross regional product.

In addition to these areas of interest, seaport and district staff are provided with the opportunity to identify critical elements that make the project a priority. Seaport staff have this opportunity as part of the SeaCIP application process, through an enhanced project justification element. In addition to the project description, seaports are asked to describe why the project is critical. This is a seaport's opportunity to make sure district staff understand the importance/significance of a project. District staff have the opportunity to document all available information into a consolidated project evaluation for recommendation to Central Office. In addition, the same level of detail can be obtained and used to allocate District discretionary intermodal funds, if desired. As such, the effective use of the project review check list is critical for the successful implementation of the Framework.

Figure 4.2. District Project Review Check List

Florida Strategic Seaport Framework – District Project Review Check List

Port: _____ **Project Name:** _____ **Project Number:** _____

1. Is the project reflected in local planning documents? *(Check All That Apply)*

- MPO and/or Regional Transportation Plans ☐
- Port Master Plan ☐

2. Is the project consistent with Department and Seaport goals?

- Florida's Transportation Plan (see attached goals) ☐
- Strategic Intermodal System (see attached goals) ☐
- FDOT Seaport Planning Framework (see attached goals) ☐
- Florida's Seaports Mission Plan (see attached vision elements) ☐

3. Will the project result in any of the following:?

- Improve or maintain waterside access? ☐
- Increase seaport terminal capacity and/or efficiency? ☐
- Improve or maintain landside access/connectivity? ☐
- Improve or maintain cargo or cruise market competitiveness ☐
- Reduce or minimize truck impacts? ☐
- Ensure capacity for strategic Florida commodities? ☐
- Maintain or achieve new market dominance? ☐
- Provide ability to serve new generation of mega-ship vessels? ☐
- Enhance or promote safe and secure operations? ☐
- Mitigate negative consequences with respect to waterside access, terminal activity, landside access, or market competitiveness ☐

4. Is the project supported?

- By local and regional governments? ☐
- By the community? ☐

5. Is there adequate funding for all phases of the project?

- Will multiple years of funding be required? ☐
- Are matching funds for all years identified? ☐

6. Is there an expected positive return on investment?

- What were the results of the benefit/cost calculation? _____
- How many new jobs are created? _____

7. Are there other factors that make this project a priority?

- Please describe.

4.3 Benefit/Cost Tool

Overview of Tool

The evaluation tool is designed to quantify the benefits and costs of a specific improvement project related to economic competitiveness and mobility factors. The input values have been grouped into three categories, as follows:

- **Project Description.** The first set of input relates to the project itself, including years for completion, costs, and percent to be paid by the State.

- **Throughput Impacts.** The second category contains a list of variables to be included in the MARAD port economic impact model; these include bulk tonnage volumes, TEUs, vehicles, and information regarding the expected impact of the project on cruise ships and passengers.

- **Travel Efficiency Impacts.** The third set relates to travel efficiency measures such as travel time savings and other cost savings, such as modal diversion, to the seaport and its tenants.

Many of the required data items are already required and collected through the Seaport Capital Improvement Program (SeaCIP) process. Figure 4.3 describes the data currently required through SeaCIP by the Florida DOT and the Office of Tourism, Trade and Economic Development (OTTED) that feeds the benefit/cost tool. In addition to these tabs, overall project information is collected on the General and Financial tabs. Appendix B provides detailed data collection sheets, definition of terms, and field specific instructions.

While the project specific information is always required, a project typically addresses either seaport capacity/throughput, or travel efficiencies associated with landside operations. For example, some improvement projects are specifically aimed at cruise passenger terminals and will not affect cargo operations at all. Similarly, some projects directly improve efficiency and travel time but do not directly impact the inputs required by the MARAD port model. Therefore, the specific data required for a given project are dependent on the project itself. For some data, such as the modal share of cargo handled (rail, truck) or average length of haul for trips leaving the port, ports can provide averages or project specific information. The effectiveness of the tool, however, depends on the ability of the seaports to provide enough project-specific data to estimate impacts.

Along with the project-specific input variables described above that are obtained from the seaports, the tool uses other parameters/analytical information such as a discount rate, and value of time estimations to process all input data to produce benefit estimates. Once all of this information is compiled, some elements are run first through the MARAD model to obtain throughput related economic impacts. These impacts are incorporated into the tool to determine overall benefits.

Figure 4.3 Existing Data Required for Consistency Reviews Data Collected Via SeaCIP for the Benefit/Cost Tool

Transportation Impact Criteria (FDOT)

- Provide a map indicating existing highway and proposed roadway access/connections to the port and port project.
- Provide a map of existing and proposed railroad access/connections to the port and port project.
- Provide a traffic impact analysis sufficient to identify existing and projected level of service impacts on off-port roadways.
- Describe public and private passenger transportation services existing or required to serve the project location.
- Provide an estimate of the increase in number of vehicles per day resulting from implementation of the project.
- Provide an estimate of the increase in number of railcars and/or TEUs per day resulting from implementation of the project.
- Provide an estimate of the maximum length of vehicles expected to be utilizing the facility as a result of the project.
- Please attach a statement from the appropriate local government(s) or governmental agency concerning impacts related to the adopted level of service standards of the highway facilities impacted.

Economic Benefit Analysis (OTTED)

- Explain how this project is consistent with the Florida Seaport Mission Plan.
- On what projections of additional service or capacity is the project based or how is it needed to maintain existing service?
- Compare present activity at the port with anticipated increases in activity resulting from completion of the project.
- What is the expected life of the project?
- Provide estimated project employment and wages.
- What port revenue estimates are associated with the project or will result from the project?
- How will the port project affect and enhance the local, regional, and state economies?

The output is composed of the numbers obtained from the MARAD model, which include the number of jobs created by industry, personal income generated, business output, and GSP. Separately, the tool computes direct business and non-business travel cost savings and additional logistics effects based on available inputs. Benefit and cost elements are estimated over time to generate the benefit/cost ratio and the net present value of the project.

Figure 4.4 illustrates the benefit/cost analysis framework.

Estimate of Benefits

To estimate benefits using the DOT's project analysis tool, applicants must supply project-related estimates regarding effects on port capacity and/or travel efficiency. Note that ports need to enter values in one or more of the four impacts: cargo, cruise passenger, travel time, or other. Project benefits can generally be evaluated using one of the four approaches explained below. This list is not meant to be all-inclusive, or encompass all possible methodologies available to evaluate projects, but should provide a clear idea for the most common and effective methods.

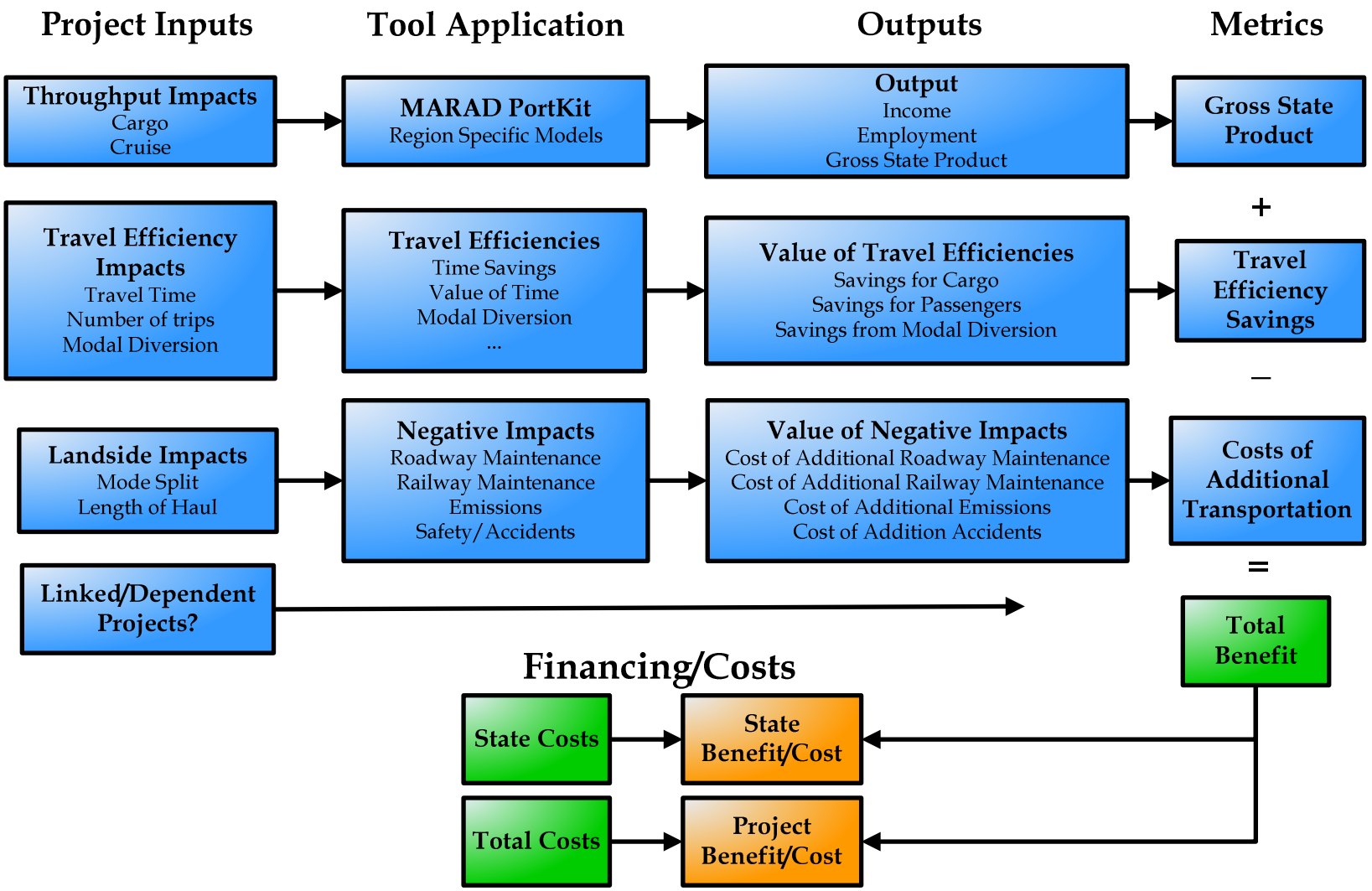
1. **Existing reports and/or analyses conducted by the port.** This approach entails carrying out an engineering and economic feasibility study to evaluate the costs and benefits of the project in question. These studies shall include impacts on cargo and cruise passenger activity as well as (if applicable) the impact on traffic in and around the port facilities. If these analyses are conducted, they should be provided to FDOT as backup for the benefits estimated.

2. **Using information about real, known, business opportunities to retain, attract, or expand port operations.** This approach relates to a seaport having known demand for certain facilities from a client(s) and carrying out a project to fulfill this demand. For example, a seaport striking a deal with an automobile company to add/improve roll-on/roll-off facilities in return for the automobile company conducting operations there for a certain number of years.

3. **Growth analysis.** Projects may be carried out to ensure that the port is able to competitively handle the growing demand for freight and passenger operations. For these projects, seaports should assess their projected growth and the role the investment plays in achieving that growth. For example, a seaport might project that bulk tonnage will grow by 5 percent annually and will require terminal expansion. Under this approach, the seaport should enter the additional traffic that can be expected as part of this project.

4. **Improved efficiency.** Some projects will not have a direct impact on total throughout but rather have an effect on the efficiency of port operations. These improvements are likely to result in lower cost and time to handle cargo and/or cruise activities. Ports should provide documentation regarding the benefits derived from this improved efficiency.

Figure 4.4 Benefit/Cost Analysis Framework



Note that when analyzing the impacts of particular projects seaports should not use the added capacity as the impact, but rather the additional traffic (tons, TEUs, passengers…) that can be expected as part of the project.

One of the goals of this tool is to maintain a database of results that can be used over time to compare the anticipated benefits and costs to the actual benefits and costs created by the project. This will provide improvements to the tool over time, resulting in more accurate evaluations of future projects. Finally, the DOT recognizes the importance of all fourteen deep water seaports and will work to promote investments in all geographical regions of the state.

Application of the Tool

The tool has been designed to evaluate waterside, terminal, landside access, and market connectivity improvements based on estimates of the throughputs and travel efficiencies, as defined above. To illustrate how the tool works, two examples have been developed based on actual seaport projects analyzed as part of the seaport research completed in 2006.[5] The following describes each of the examples.

Jacksonville Talleyrand Marine Terminal - Toyota Berth

This project consists of completely renovating/replacing the existing berth used to handle import of Toyota vehicles. Currently, the berth handles approximately 250,000 vehicles/year. Without reconstruction of the berth, the port anticipates losing the business to a competitor. Thus, the port estimated the impact of the project to be the retention of 250,000 vehicles/year and a projected conservative growth of 2% per year. The retention and growth equates to "additional" throughput for the port. The volume, based on the life of the project, serves as input to the MARAD Port Kit model. Model output, representing the benefit of this project, amounts to over $61 million in benefits to the region from port business, employment, and contribution to the GSP. This "additional" throughput also generates negative impacts, primarily on the landside, in the form of infrastructure wear and tear, increased emissions, and increased accidents of nearly $10 million. The total cost of the project is $12 million, resulting in a B/C ratio of 4.3. The requested state match amounted to $3.4M, resulting in a state B/C ratio of 15.4. See Table 4.1

[5] Evaluate Florida's 14 Deepwater Seaports' Economic Performance and the Return on Investment of State Funds.

Table 4.1. Data and Results:
Jacksonville Talleyrand Marine Terminal - Toyota Berth

Benefit	$61,401,458
Negative Impacts	$ 9,675,846
Net Benefits	$51,725,612
Total Costs	$12,000,000
State Costs	$ 3,400,000
Project B/C	4.3
State B/C	15.4

Everglades Midport Roadway Expansion

This is an on-port roadway improvement impacting internal cruise ship related passenger and truck trips. It is not expected to have a measurable impact on throughput (i.e., ship calls) but will improve system efficiency through reduced travel times for impacted trips. Travel times for passengers moving from home/hotel/airport to the port was estimated to decrease from 30 minutes to 22.5 minutes (7.5 minute savings, or approximately 25%). This time savings was applied to 25 percent (conservative estimate accounting for vehicle occupancy) of the 2.2 million passengers handled in FY 2004, amounting to 68,750 hours in savings to multi-day passengers using the impacted terminals. Using a value of time estimate of $10.83 (2005) obtained from STEAM,[6] the benefit was estimated to be $745,000, or $4.3M over the life of the project. No negative impacts were attributed to this project as there was no assumption of additional throughput, only an improvement in conditions for existing traffic. The total cost of the project is almost $1 million, resulting in a B/C ratio of 4.5. The requested state match amounted to $500,000, resulting in a state B/C ratio of 9.0. See Table 4.2.

Table 4.2. Data and Results:
Everglades Midport Roadway Expansion

Benefit	$ 4,290,415
Negative Impacts	$ 0
Net Benefits	$ 4,290,415
Total Costs	$ 952,357
State Costs	$ 500,000
Project B/C	4.5
State B/C	9.0

[6] STEAM is the Surface Transportation Efficiency Analysis Model developed by the FHWA, which uses information developed through a travel demand modeling process to compute the net value of mobility and safety benefits attributable to regionally important transportation projects. More information is available at http://www.fhwa.dot.gov/steam/.

5.0 Summary of Framework Implementation

The ***Strategic Seaport Investment Framework*** has been developed to maximize the benefits of state investments in Florida's deepwater seaports. This tool provides the ability to make the best possible use of available state funds at the project level. The process integrates both qualitative and quantitative analyses to help build a more consistent, transparent and data-driven seaport investment program. Port-supplied data guide the analyses performed for all state-funded seaport projects. The analyses include consideration of economic and transportation benefits and costs, as well as special circumstances and the stated priorities of the seaports.

5.1 Impact on Seaports

As discussed above, the Framework has been designed to guide state review of seaport applications requesting state funding. It is not intended to replace established decision making protocols or processes, but rather to provide additional information to better inform project review activities already required. While initial implementation will require training for both seaport and FDOT District staff, the long term impacts should be modest. The following summarizes the overall impact of the tool.

- **Data**. Existing data collection efforts will be refined. Modest amount of new data will be required. Impact will be minimized through training and support.

- **Eligibility**. Project eligibility will be unchanged within established programs. Improved data management will improve tracking of needs across funding sources.

- **Process**. Improved functionality within SeaCIP will facilitate data collection and provide enhanced data management capabilities. Project funding allocation processes will be preserved. Additional data provided by the Framework will guide state funding decisions.

- **Promotion**. Consistent, transparent, data-driven process will facilitate seaport and FDOT efforts to justify ongoing and expanded investments in seaports.

5.2 Phased Implementation and Ongoing Development

The first phase of implementation was designed to support off cycle seaport funding requests currently being developed by the seaports. Interim modifications to SeaCIP are under development to collect the required project data for these applications. This will be accomplished through creation of an additional tab within the SeaCIP portal that consolidates all data requirements (existing and new) for the Framework onto one form. Training and support will be provided by FDOT, as necessary, to assist seaport staff in this process.

Comprehensive revisions will be made as part of SeaCIP 4.0 to integrate the new data requirements for subsequent applications for state funds. Discussions currently are underway with DCA and OTTED staff to verify their existing data requirements. In addition to adding a modest amount of additional data requirements, SeaCIP 4.0 also will streamline overall data requirements to eliminate duplication among agency review tabs, and remove data not currently used. There also will be substantial improvements to the functionality of the program to provide enhanced reporting and data management capabilities. The new functionalities will support ongoing implementation of the Framework as well as link into and feed seaport data into the e-SIS initiative.

5.3 Initial Implementation

The Florida 2007-08 General Appropriations Act specified that $50M in funds from non-recurring General Revenue be provided to the Seaport Grants appropriations category for seaport projects to be selected jointly by the Department of Transportation and the Florida Seaport Transportation and Economic Development Council. The intent of these funds was to foster economic benefits for the regions surrounding Florida's Seaports and for the State as a whole. This provided the Department with its first opportunity to test the Framework.

Florida's deepwater seaports submitted 14 projects for evaluation and funding through this program. These projects were submitted by 8 out of the State's 14 deepwater seaports. These had a combined total cost of nearly $400 million, out of which $92 million were to be covered by the State of Florida. The projects ranged from additional or replacement cranes, to general terminal improvements/expansions, warehousing, and container yard renovations. Table 5.1 lists whether these projects were expected to result in additional throughput or were meant more as replacement/maintenance projects needed to maintain or improve current operations without necessarily adding more traffic. Appendix C provides a detailed summary of the analysis.

Table 5.1 List of Seaport Projects for Submitted for Evaluation

Seaport	Project Name	Project Type	Total Cost	State Costs
Canaveral	South Cargo Pier Improvements	Additional.	$ 11,075,000	$ 5,500,000
Fernandina	2 Replacement Gantry Cranes	Maintenance.	$ 4,000,000	$ 2,000,000
Jacksonville	MOL/TRAPAC Container Terminal Development	Additional.	$220,000,000	$20,000,000
Jacksonville	Talleyrand Infrastructure Improvements	Additional.	$ 10,000,000	$ 5,000,000
Miami	Cruise Terminals B and C Improvements	Both	$ 8,000,000	$ 4,000,000
Miami	Seaboard Terminal Improvements	Additional.	$ 8,000,000	$ 4,000,000
Panama City	80K ft² Bulk Warehouse	Additional.	$ 10,500,000	$ 2,275,000
Panama City	Mobile Harbor Crane	Additional.	$ 3,500,000	$ 1,750,000
Pensacola	Freezer Warehouse Expansion	Additional.	$ 800,000	$ 400,000
Port Everglades	Cruise Terminal 18 Improvements/Expansion	Additional.	$ 37,400,000	$18,700,000
Port Everglades	FPL Canal Intermodal Bridge and Yard Renovation	Maintenance	$ 9,700,000	$ 1,708,951
Port Everglades	Replace Midport Cranes & Electrification of Docks	Maintenance.	$ 20,000,000	$10,000,000
Port Everglades	Southport phase VIII Container Yard	Additional.	$ 16,500,000	$ 6,150,000
Tampa	Hookers Point Improvements	Additional.	$ 40,000,000	$10,450,000

The results from the analysis tool range from a B/C ratio of 3.4 to 91.4 for a combined ratio of 26.7 for all 14 projects. The results for the State B/C ratio ranged from 11.5 to 225.7 with a combined ratio of 116.8 for all projects. As Table 5.2 shows, most of the projects had an overall ratio under 30 while two outliers were over 40.

Table 5.2 Number of Projects by Range of Benefit/Cost Ratio

B/C Ratio	# of Projects
< 10	3
10 - 20	3
20 - 30	4
30 - 40	2
40-50	1
> 50	1
Total	**14**

These ranges indicate that the projects being proposed by the ports were not only necessary, but could act as a catalyst for the development of not only the Port but also the surrounding region and the State of Florida.

Lessons Learned and Key Points Moving Forward

The first iteration of the use of the Framework provided the opportunity to better understand the advantages and limitations of the benefit/cost tool. While the tool was generally able to handle all of the projects submitted for evaluation, several issues were raised during the process that could be improved upon in future applications. Lessons were also learned about improving not only the tool but also the entire Framework process, from definitions and data collection to estimation of benefits. These lessons and key points necessary to move forward as the Framework is advanced in 2008 are described below.

- Clarify definitions in the data needs guide so that ports are better able to understand what they need to submit under each item.
- Hold sessions with port representatives to educate them on the Framework's evaluation process including what they need to submit, where, when, how often, and how they should go about different types of projects.
- Work with ports to possibly tweak the current version of the MARAD Portkit model used. This would result in a more accurate representation of the benefits for the Ports and the surrounding community. The parameters in the model could possibly be edited so that they reflect more closely the results from Martin Associates' model, if reasonable.

- Work on integration between the tool and data collected through SeaCIP. Eventually users should be able to take the latest data dump from the SeaCIP portal, which will contain all of the projects from the current iteration, and import them into the tool through a simple process. Currently the user has to enter the data manually one by one.
- Once the integration between SeaCIP and the Tool is complete the next step is to automate, if possible, the benefits estimation process from MARAD's model. In the current state, the user has to take the information provided by the ports, enter it manually into the MARAD model and then manually enter the results back into the tool. In the initial iteration this process was not too troublesome given the limited number of projects, however if in the future the number of projects (and the number of times they have to be evaluated after corrections) grows significantly, this process might prove to be very time-consuming and lend itself to user error when copying values. It may be possible in the future to work with MARAD on having the software import input data from the tool and export results in a format that the tool can read.
- The user interface for the Tool can be improved to eliminate minor bugs/limitations and improve the overall user experience.

Appendix A

Appendix A

Please see separate Appendix A document, which contains:

1. Evaluate Florida's 14 Deepwater Seaports' Economic Performance and the Return on Investment of State Funds;
2. Global Trade Trends: Challenges and Opportunities for Florida's Ports; and
3. Florida's Seaports: Conditions, Competitiveness, and Statewide Policies.

Appendix B

Appendix B – Overview of Benefit/Cost Tool

This document covers the data requirements for Florida's Strategic Seaport Investment Framework. This data will be used to evaluate seaport projects in the State and provide the DOT with better information on their return on investment. The document defines each of the entries in the data form and provides examples of previous projects to give seaports a better understanding of what is expected from them during this process.

I- General

Port Name.

Project Name.

Project Description. Please provide an attachment describing the project, including (when available) engineering plans, economic studies, funding sources, and any other documents that might help the DOT better understand the project's need, desired outcome, and its economic feasibility.

Project Justification. Please provide an attachment describing the importance and merits of the project, including its significance for the port and the region/state. This information will be used by your DOT district staff along with the output of the benefit/cost tool and other qualitative information in order to evaluate projects and develop funding recommendations.

II- Financing

Total Project Costs. Provide total costs for the project in 2007 dollars. This figure should include the amount that will be covered by the port and the State. To convert dollar amounts in different years to 2007 dollars use an annual inflation rate of 3%.

Total Amount of State Funds Requested. Total amount of funds requested from Florida's SIS funds, Chapter 311 funds, and other funds in 2007 dollars. To convert dollar amounts in different years to 2007 dollars use an annual inflation rate of 3%. Note that you should

provide total funds requested for the entire life of the project, and not for the current Fiscal Year as currently requested on SeaCIP.

Estimate year of anticipated project completion. Provide an estimate of when the project is expected to be finalized and start producing benefits for the seaport and the community.

Estimated life of project. Project life is a combination of the expected duration of the infrastructure or equipment and how long the port expects to reap benefits from it. In most cases project life should be no longer than 20 years for structures and 10 years for equipment unless otherwise specified in the evaluation of the project.

What type of employment will be created by the project? Although MARAD PortKit models will be used to evaluate the project's impact on number of jobs created, the ports can supply their own estimates which should serve as a means for quality control. If the numbers differ significantly, then they will be analyzed in more detail. Ports should provide an estimate for the following three measures along with computations used to estimate them:

1. Estimated total number of new, full-time jobs created by the project.
2. Estimated total number of temporary jobs created during construction.
3. Estimated annualized average wage (not including benefits) of the new jobs created by the project.

III- Estimate of Benefits

To estimate benefits using the DOT 's project analysis tool, applicants must supply project-related estimates regarding effects on port capacity and/or travel efficiency. Note that ports need to enter values in one or more of the four impacts: Cargo, cruise passenger, travel time, or other. Short definitions for each impact concepts are provided, along with suggestions on methodologies to estimate relevant impacts.

Project benefits can generally be evaluated using one of the four approaches explained below. This list is not meant to be all-inclusive, or encompass all possible methodologies available to evaluate projects, but should provide a clear idea for the most common and effective methods.

1. Existing reports and/or analyses conducted by the port. This approach entails carrying out an engineering and economic feasibility study to evaluate the costs and benefits of the project in question. The studies shall include impacts on cargo and cruise passenger activity as well as (if applicable) the impact on traffic in and around the port facilities. If these analyses are conducted, they should be provided to FDOT as backup for the benefits estimated.

2. Using information about real, known, business opportunities to retain, attract, or expand port operations. This scenario relates to a seaport having known demand for certain facilities from a client(s) and carrying out a project to fulfill this demand. For example a seaport striking a deal with an automobile company to add/improve roll-on/roll-off facilities in return for the automobile company conducting operations there for a certain number of years.
3. Growth analysis. Projects may be carried to ensure that the port is able to competitively handle the growing demand for freight and passenger operations. For these projects, seaports should assess their projected growth and the role that investment plays in achieving that growth. For example, a seaport might project that bulk tonnage will grow by 5 percent annually and will need to expand one of their yards to achieve this. Under this scenario, the seaport should enter the additional traffic that can be expected as part of this project.
4. Improved efficiency. Some projects will not have a direct impact on total throughout but rather have an effect on the efficiency of operations at the port. They are likely to result in lower cost and time to handle cargo and/or cruise activities. Ports should provide documentation regarding the benefits derived from this improved efficiency.

Note that when analyzing the impacts of particular projects seaports should not use the added capacity as the impact, but rather the additional traffic (tons, TEUs, passengers…) that can be expected as part of the project.

A. Annual Seaport Capacity and Throughput Impacts. If the project is expected to result in increased capacity at the seaport or specific terminals resulting in higher levels of cargo or passenger throughput, please provide an estimate of the relevant impact(s). The impacts are the increase in demand as a result of the new capacity (the additional cargo that will be going through the port due to the project).

Annual Cargo Impacts

- TEUs. Annual number of additional containers (aka twenty-foot equivalent units) handled at the port.
- Vehicles. Annual number of additional vehicles handled at the port (cars, vans, trucks).
- Dry Bulk tons. Annual number of additional tons (short tons - 2000 lbs) of dry bulk cargo.
- Liquid Bulk tons. Annual number of additional tons (short tons - 2000 lbs) of liquid bulk cargo.
- Break-Bulk tons. Annual number of additional tons (short tons - 2000 lbs) of break-bulk cargo.

Annual Cruise Passenger Impacts

- Number of Passengers. Annual number of additional cruise passengers embarkations due to seaport project. Note that seaports usually count each

passenger ticketed by a cruise line twice for embarkation and debarkation, however the tool only requires data for embarkation.

- Number of Ship Calls. Annual number of additional cruise ship calls due to seaport project.
- Percent Share Multi-Day Cruises. The % of impacted cruise passengers that are boarding ships for overnight cruises (compared to day-trip); if not readily available, then a reasonable estimate may simply use the current split at your port between overnight (multi-day) cruise passengers versus day-trip.

Growth

- Growth Rate. Please provide an estimate (in terms of percent) of how this additional growth, or the travel efficiency impacts listed below, are expected to grow on a annual basis (i.e. 2% or 4%).

B. Travel Efficiency Impacts If the project is supposed to impact the travel time, costs or mode split of seaport-related activity, please provide an estimate of the relevant impact(s). Impacts in this category are most typically due to roadway or rail improvements to internal or connector facilities.

Travel Time Impacts

For these impacts, numbers should be provided either for change in VHT and percent share of truck trips, or if not available, the number of trips impacted and the expected average reduction in travel time. The port's mode split numbers will be used to estimate the impact on truck traffic. Note that monetary benefits will be estimated by the tool using parameters for value of time for trucks, buses, and passenger vehicles, they do not need to be computed by the seaports.

- Change in VHT. Reduction in the annual number of vehicle hours of travel (VHT) for all vehicles on relevant roadways due to seaport project - use 260 annualization factor, if necessary.
- Percent Share of Truck Trips. Percent of vehicles on affected roadway(s) that are trucks, as compared to autos or buses.
- Percent Share of Bus Trips. Percent of vehicles on affected roadway(s) that are buses, as compared to autos or trucks.

OR

- Number of Trips Impacted. Annual number of vehicle trips on the impacted/improved transportation facility; if rail, use # of carloads rather than # of trains.
- Average reduction in travel time (minutes). The average reduction in travel time (or delay) per trip due to the transportation improvement project.

Other Potential Impacts

- Number of Trucks Diverted to Rail. If a rail-related improvement project, estimate the number of annual freight trucks diverted to rail, and/or the additional volume of rail trips (thereby reducing truck trips).
- Other cost savings to seaport and tenants ($/year). If appropriate, estimate any additional cost savings (labor, supplies, etc) to the seaport or its tenants due to the seaport project. Note that if a figure is entered here an attachment with detailed explanation should also be provided, including the computations used to estimate the benefits.

Other Potential Impacts

- Phasing. Benefits from projects may be felt immediately, or phased in over time. Please identify which of these two applies to this project, and if you expect the benefits to be phased in over time state how many years/months you expect it will take for the full benefits to start accruing.

C. Port- and Project-Specific Transportation Impacts. If project-specific impacts to the following transportation factors are available, please enter the appropriate values. If not, default values for average seaport-specific operations will be used.

Mode Split

- Aggregate Mode Split. Please provide mode split values for all cargo entering and leaving the port average (aggregate numbers including containers, bulk, break-bulk, and Roll-on/Roll-off cargo). State volume moving by truck, rail, and barge.
- Project-specific Mode Split. In some cases, cargo resulting from specific projects might have different values than the port average provided above. If this is the case, please provide the values associated with this project below. If left blank, the values provided above will be used for the analysis. State volume moving by truck, rail, and barge.

Traffic Origin/Destination

- Percent of trips moving through the seaport with destinations and/or origins within Florida. Please provide the percent of shipments (all modes) with an origin and/or destination in the state. For example a shipment going from Fort Lauderdale to South America through Port Everglades vs. a shipment going from Georgia to South America through the Port of Jacksonville.
- Average length of haul to/from seaport for truck trips (miles). Please provide the average length of haul for cargo going to/from the seaport to from/to its origin or destination by truck.
- Average length of haul to/from seaport for rail moves (miles). Please provide the average length of haul for cargo going to/from the seaport to from/to its origin or destination by rail. This should be the average distance traveled by a shipment to/from a single shipper and not the distance traveled by the entire train.

D. Other Related Projects. In some cases, it is very difficult to estimate the impacts of a single project, as often times, multiple projects are needed to achieve capacity or efficiency benefits. Therefore, if necessary, list other related projects required to achieve the impacts estimated in sections A and B.

IV- Examples

Everglades Midport Roadway Expansion

This is an on-port roadway improvement most directly impacting internal cruise ship related passenger and truck trips. It is not expected to have a measurable impact on throughput (i.e., ship calls) but will improve efficiency and reduce travel times. Port staff provided estimates of current travel time and travel time savings created by the proposed project. The project was estimated to improve travel time by 25%. This savings was applied to multi-day passengers at the relevant terminals to estimate travel time savings (in minutes and hours) and applied a value of time. To be more conservative, it was assumed this benefit would impact just 1/4 of travelers (which also accounts for average vehicle occupancy greater than 1 person).

Formulation:

Current travel times for passenger are approximately 30 minutes from home/hotel/airport to the port (or return trip). The project proposes to reduce this by approximately 25% to 22.5 minutes, or 7.5 minute time savings. The port handled approximately 2.2 million passengers in FY 2004, and the benefits would apply to ¼ of the travelers.

Time saved: 4,125,000 minutes or 68,750 hours
Value of time from STEAM: $8.90 (1998$) or $10.83 (2005$)[1]
Benefits: $745 thousand

As shown in Table 1, the benefits over the life of the project amount to $4.3 million, with a cost of $1 million producing a B/C ratio of 4.5.

[1] STEAM is the Surface Transportation Efficiency Analysis Model developed by the FHWA, which uses information developed through a travel demand modeling process to compute the net value of mobility and safety benefits attributable to regionally important transportation projects. More information is available at http://www.fhwa.dot.gov/steam/.

Table 1 – Data and Results from Example Project

Project Name	Midport Roadway Expansion
Seaport	Everglades
Discount Benefit	$ 4,290,415
Discount Negative Benefits	$ -
Discount Net Benefits	$ 4,290,415
Discount Costs	$ 952,357
B/C	4.5

Jacksonville Talleyrand Marine Terminal - Toyota Berth

This project will completely renovate/replace the existing berth for import of Toyotas, which currently handles about 250,000 vehicles/year. If this berth is not replaced, they would expect to lose this business. Thus, the port estimated the impact to be the retention of 250,000 vehicles/year and a projected conservative growth of 2% per year.

As shown in Table 2, by completing this project the port and the Jacksonville region will generate over $61 million in benefits from port business, employment, and contribution to the GRP. Additionally it will generate nearly $10 million in negative benefits and cost $12 million, thus resulting in a B/C ratio of 4.3.

Table 2 – Data and Results from Example Project

Project Name	Toyota Plant
Seaport	Jacksonville
Discount Benefit	$61,401,458
Discount Negative Benefits	$ 9,675,846
Discount Net Benefits	$51,725,612
Discount Costs	$12,000,000
B/C	4.3

Definitions

Project Analysis Tool

FDOT has developed an analytical tool to assess the benefits and costs of proposed seaport projects eligible for state-supported funding. The tool requires quantitative estimates of direct impacts to capacity and/or travel efficiency to estimate benefits and asks seaports to provide estimates based on either existing studies or analysis, or based on professional judgment given existing and projected activity at the seaport.

Seaport Capacity and Throughput Impacts

In many cases, seaport investment projects will result in the retention or attraction of additional port business by improving throughput capacity. For example, dredging or channel widening to allow for larger ships or new/expanded marine terminals that facilitate additional cargo or cruise passenger ships will directly impact the port's level of activity. Impacts in this section should be based on projections of the additional port activity (above conditions without the project) or port business retained (that would've left and shifted to other ports) due to the project. Impacts should be measured in TEUs, tonnage, vehicles, or cruise passengers.

TEUs

Annual number of additional containers (aka twenty-foot equivalent units) handled at the port.

Vehicles

Annual number of additional vehicles handled at the port (cars, vans, trucks).

Dry Bulk Tons

Annual number of additional tons (short tons - 2000 lbs) of dry bulk cargo.

Break-Bulk Tons

Annual number of additional tons (short tons - 2000 lbs) of break-bulk cargo.

Liquid Bulk Tons

Annual number of additional tons (short tons - 2000 lbs) of liquid bulk cargo.

Annualization Factor

For most ports, to convert from daily volumes to annual, multiply daily values by 260 (52 weeks x 5 days/week).

Number of Passenger Embarkations

Annual number of additional cruise passengers due to seaport project. Note that seaports usually count each passenger ticketed by a cruise line twice for embarkation and debarkation, however the tool only requires data for embarkation.

Number of Ship Calls

Annual number of additional cruise ship calls due to seaport project.

Percent Share Multi-Day Cruises

The % of impacted cruise passengers that are boarding ships for overnight cruises (compared to day-trip); if not readily available, then a reasonable estimate may simply use the current split at your port between overnight (multi-day) cruise passengers versus day-trip.

Travel Efficiency Impacts

In some cases, seaport-related investment projects will impact the efficiency (travel time or cost) of freight or passenger trips within the seaport property and/or on connecting facilities. Travel efficiency impacts are most common with highway or rail projects that add capacity thus increasing speeds, reducing delays, or facilitating the use of alternative modes (e.g., truck to rail diversion). Sometimes, traffic analysis studies are conducted for these projects providing data on the number of impacted trips, average speeds with and without the project and split of trips that are truck versus auto. Lacking that, basic information on port operations can be used to generate approximations of likely impacts to the reduction in travel time or cost. Some projects will also reduce port operating costs (e.g., requiring less equipment or labor to handle operations).

Change in VHT

Reduction in the annual number of vehicle hours of travel (VHT) for all vehicles on relevant highways due to seaport project - use 260 annualization factor, if necessary.

Truck/Auto % Split

Percent of vehicles on affected highway(s) that are trucks, as compared to autos.

Number of Trips Impacted

Annual number of vehicle trips on the impacted/improved transportation facility; if rail, use # of carloads rather than # of trains.

Average Reduction in Travel Time

The average reduction in travel time (or delay) per trip due to the transportation improvement project.

Number of Truck Trips Diverted to Rail

If a rail-related improvement project, estimate the number of annual freight trucks diverted to rail, and/or the additional volume of rail trips (thereby reducing truck trips).

Other cost savings to seaport and tenants ($/year)

If appropriate, estimate any additional cost savings (labor, supplies, etc) to the seaport or its tenants due to the seaport project.

Data Requirements for Investment Framework

I. GENERAL

Port Name	Seaport
Project Name	Seaport Project
Project Description	Provide attachment.

II - FINANCING

Total Project Costs	$ -
Total Amount of State Funds Requested	$ -
Estimate year of anticipated project completion	
Estimated life of project	-

What type of employment will be created by the project?

1. Estimated total number of new, full-time jobs created by the project:	
2. Estimated total number of temporary jobs created during construction:	
3. Estimated annualized average wage (not including benefits) of the new jobs created by the project:	

III. ESTIMATE OF BENEFITS

To estimate benefits using the DOT project analysis tool, applicants must supply project-related impacts on port traffic and/or travel efficiency.
Note that ports need to enter values in one or more of the four impacts: Cargo, cruise passenger, travel time, or other.
Short definitions for each impact concepts are provided, along with suggestions on methodologies to estimate relevant impacts.

A. Annual Seaport Capacity and Throughput Impacts

If the project is expected to result in increased capacity at the seaport or specific terminals resulting in higher levels of cargo or passenger throughput, please provide an estimate of the relevant impact(s).
The impacts are the increase in demand as a result of the new capacity (the additional cargo that will be going through the port due to the project)

Annual Cargo Impacts

TEUs	Vehicles	Dry Bulk tons	Liquid Bulk tons	Break Bulk tons
-	-	-	-	-

Annual Cruise Passenger Impacts

# of Passengers	# of Ship Calls	% Share Multi-Day Cruises
-	-	

B. Travel Efficiency Impacts

If the project is supposed to impact the travel time, costs or mode split of seaport-related activity, please provide an estimate of the relevant impact(s).
Impacts in this category are most typically due to roadway or rail improvements to internal or connector facilities.

Travel Time Impacts

Change in VHT	% Share of Truck Trips	% Share of Buses
-	-	-

OR

# of Trips Impacted	Average reduction in travel time (minutes)
-	-

Other Potential Impacts

# of Trucks Diverted to Rail	Other cost savings to seaport and tenants ($/year)
-	$ -

If other cost savings were entered, please provide a detailed explanation of these savings, including the computations used. Attachment preferred.

For the project benefits estimated above (Sections A and B), will the impacts be phased in over time?

C. Port- and Project-Specific Transportation Impacts

Get project-specific and general values

If project-specific impacts to the following transportation factors is available, please enter the appropriate values.
If not, default values for average seaport-specific operations will be used.

Please provide average values for all cargo moving through the port
(aggregate numbers including containers, bulk, break-bulk, and Roll-on/Roll-off cargo)

	Truck	Rail	Barge
I. % of cargo leaving the port by mode:	0%	0%	0%
J. % of cargo entering the port by mode:	0%	0%	0%

K. % of trips moving through the seaport with destinations and/or origins within Florida	0%
L. Average length of haul to/from seaport (miles)	-

Note: Placeholders use for mode split and average length of haul. Actual numbers will be obtained from seaports.

In some cases cargo resulting from specific projects might have different values than the port average provided above.
If this is the case, please provide the values associated with this project below.
If left blank, the values provided above will be used for the analysis.

	Truck	Rail	Barge
M. % of cargo leaving the port by mode:	0%	0%	0%
N. % of cargo entering the port by mode:	0%	0%	0%

O. % of trips moving through the seaport with destinations and/or origins within Florida	
P. Average length of haul to/from seaport (miles)	

D. Other Related Projects

In some cases, it is very difficult to estimate the impacts of a single project, as often times, multiple projects are needed to achieve capacity or efficiency benefits.Therefore, if necessary, list other related projects required to achieve the impacts estimated in sections A and B.

Appendix C

Initial Implementation

The Florida 2007-08 General Appropriations Act specified that $50M in funds from non-recurring General Revenue be provided to the Seaport Grants appropriations category for seaport projects to be selected jointly by the Department of Transportation and the Florida Seaport Transportation and Economic Development Council. The intent of these funds was to foster economic benefits for the regions surrounding Florida's Seaports and for the State as a whole. This provided the Department with its first opportunity to test the Framework.

The Florida DOT evaluated the candidate projects using the recently completed Florida Strategic Seaport Investment Framework, which uses qualitative and quantitative data to measure a project's impact on the State's economy. The Framework was used for the first time with this group of projects. This document summarizes the experience with the use of the Framework's qualitative and quantitative aspects including issues related to data collection, computations, and definitions.

Overview of Projects

Florida's deepwater seaports submitted 14 projects for evaluation and funding through this program. These projects were submitted by 8 out of the State's 14 deepwater seaports. These had a combined total cost of nearly $400 million, out of which $92 million were to be covered by the State of Florida. The projects ranged from additional or replacement cranes, to general terminal improvements/expansions, warehousing, and container yard renovations. Table C.1 lists whether these projects were expected to result in additional throughput or were meant more as replacement/maintenance projects needed to maintain or improve current operations without necessarily adding more traffic.

Table C.1 List of Seaport Projects for Submitted for Evaluation

Seaport	Project Name	Project Type	Total Cost	State Costs
Canaveral	South Cargo Pier Improvements	Additional.	$ 11,075,000	$ 5,500,000
Fernandina	2 Replacement Gantry Cranes	Maintenance.	$ 4,000,000	$ 2,000,000
Jacksonville	MOL/TRAPAC Container Terminal Development	Additional.	$220,000,000	$20,000,000
Jacksonville	Talleyrand Infrastructure Improvements	Additional.	$ 10,000,000	$ 5,000,000
Miami	Cruise Terminals B and C Improvements	Both	$ 8,000,000	$ 4,000,000
Miami	Seaboard Terminal Improvements	Additional.	$ 8,000,000	$ 4,000,000
Panama City	80K ft² Bulk Warehouse	Additional.	$ 10,500,000	$ 2,275,000
Panama City	Mobile Harbor Crane	Additional.	$ 3,500,000	$ 1,750,000
Pensacola	Freezer Warehouse Expansion	Additional.	$ 800,000	$ 400,000
Port Everglades	Cruise Terminal 18 Improvements/Expansion	Additional.	$ 37,400,000	$18,700,000
Port Everglades	FPL Canal Intermodal Bridge and Yard Renovation	Maintenance	$ 9,700,000	$ 1,708,951
Port Everglades	Replace Midport Cranes & Electrification of Docks	Maintenance.	$ 20,000,000	$10,000,000
Port Everglades	Southport phase VIII Container Yard	Additional.	$ 16,500,000	$ 6,150,000
Tampa	Hookers Point Improvements	Additional.	$ 40,000,000	$10,450,000

Port Canaveral – South Cargo Pier Improvements

This project consists of a 5,000 sq. ft. expansion to the South Cargo Pier One (SCP1) deck along its entire 290 ft long deck, and a 31,000 sq. ft. extension of South Cargo Pier Four (SCP4) for additional ship berthing space, ship deck, and land bridges. The proposed SCP1 development will facilitate improvements in cargo handling and throughput capacity and reductions in pier congestion, while the proposed SCP4 improvements will provide berthing capacity for additional ships in addition to improvements in cargo handling and reductions in pier congestion.

Port of Fernandina – Replacement Gantry Cranes

The port of Fernandina is looking to replace two aging Gantry cranes in its container terminal with newer ones. The current cranes require frequent repair work and operate at a slower pace than the expected replacements. This project will allow the port to continue handling its growing volume of container traffic and do so at a more efficient rate.

Port of Jacksonville - MOL/TRAPAC Container Terminal Development

This project consists of constructing a new container terminal with 2400' dock, dredging, pre-gate, guard house, interchange facility, new administration building, lights (high mast), fencing, asphalt paving, maintenance shop, repair shop, marine building for crane department and tree migration. The project will create a facility that will be leased to a JAXPORT customer for the import of containers bound for the Southeast U.S. Upon completion of this project, JAXPORT will be doubling its throughput and will create 1,600 direct port jobs and 4,000 indirect jobs. This terminal will provide direct container ship service between Jacksonville and ports throughout Asia, a critical new market for JAXPORT and the northeast economy.

Port of Jacksonville – Talleyrand Infrastructure Improvements

This project will develop terminal facilities on a 25 acre parcel to handle 250,000 additional vehicles. This will include other necessary infrastructure improvements in the surrounding terminal area. This project will allow for efficient internal traffic circulation thereby reducing the loading time for vessels while in berth and provide for quicker turnaround times for vessel calls to facilitate increased usage of the berth. The project will add cargo capability to JAXPORT thereby increasing the potential for new revenue from existing tenants and/or new tenants and giving additional much needed space to grow and retain current business relationships.

Port of Miami - Cruise Terminals B and C Improvements

Project includes improvements and additions to Cruise Terminals B and C to accommodate Cruise Line vessels starting in November of 2007, and a larger new vessel already in production and expected in 2009. Project involves planning, design, permitting, and construction of all improvements. These improvements include replacement of the roof system and flooring at the terminals, the relocation of two passenger gangways and the addition of two passenger boarding bridges. New foundations, terminal doors, landing areas, and related infrastructure modifications are included to accommodate the new passenger bridges and gangways. Improvements to the existing terminals involve repairs to the existing emergency exit stairs, the segregation of embarkation/debarkation operations, interior enhancements to accommodate security measures, rehabilitation and modifications to the luggage areas and ticket counters, painting, and other related work. It also requires improvements to the intermodal facilities, including roadwork, sidewalks, and canopies. The scope at the berthing areas involves the addition of new fenders, mooring bollards and water stations, as well as pavement rehabilitation and improvements to the drainage system. Any modifications to existing security systems, required as a result of these upgrades, are also included in this project. This project is consistent with the Miami-Dade County Five Year Capital Improvement Plan, is reflected in the Transportation Improvement Plan and is incorporated into the amended Port Master Development Plan.

Port of Miami - Seaboard Terminal Improvements

Project includes rehabilitation of the bulkhead wall system and pavement of the South Cargo Wharf from approximately Berths 165 to 177. Scope of work includes planning, permitting, design and construction for the removal and replacement of the steel sheet pile bulkhead wall system and reinforced concrete cap, and the removal and replacement of water stations (water distribution systems), fenders, and mooring bollards. The project also includes apron and pavement enhancements and drainage improvements in this area. Apron work includes site preparation including excavation, placement of sub-grade and lime rock base, and resurfacing to accommodate heavy crane loads.

Port of Panama City - 80K sq. ft. Bulk Warehouse

The project consists of an 80,000 square foot bulk warehouse with related site work, driveways, and electrical service. It also includes totally enclosed conveyor systems with dust control for receiving and reclaiming bulk products. The Port identified new bulk facilities as a priority in its 2003 Master Plan and began planning for such a facility. The facility will immediately be operating near capacity.

Port of Panama City – Mobile Harbor Crane

The port plans to acquire a new or used (late model) mobile harbor crane including automatic container spreader. The additional mobile harbor crane will help the Port retain the container trade which has relocated to Panama City after Hurricane Katrina. Currently there is just one container-handling crane supporting four to five ship calls per week. That crane is operating fifty hours per week. The second mobile harbor crane will allow the Port to add a second container line (increasing container trade from the current levels of 55,000 TEUs to 75,000 TEUs).

Port of Pensacola – Freezer Warehouse Expansion

The planned project will increase the Port of Pensacola's freezer warehouse from +/- 22,000 square feet to +/- 45,000 square feet. The existing freezer facility was constructed by retrofitting 1/3 of an existing dry cargo warehouse with a freezer floor, freezer cell walls and other improvements required for the conversion. The expansion will utilize the same type of process to convert an additional 1/3 of the existing dry cargo warehouse to freezer storage. This project will create the needed capacity resulting in: increased tonnage throughput through the terminal from 50,000 short tons annually to 108,000 short tons annually; additional revenue to the port of approximately $770,000 annually – a 33% increase in total annual port revenue; creation of approximately 24 full-time construction jobs during the project's 6-9 month construction period; additional employment of approximately 95 permanent jobs with an average annual salary of $30,000; and total direct and induced employment of 218 jobs with a total annual payroll of approximately $6.5 million.

Port Everglades - Cruise Terminal 18 Improvements/Expansion

This project is to be completed in two phases. Phase I consists of the conversion of an existing 33,000 sq. ft. warehouse into a baggage lay down area complete with new flooring, air conditioning, life safety, and elevator/escalators along with other mandated items. A passenger check-in area as well as Customs and Border Patrol (CBP) facilities are also included. Phase II will consist of the addition of a 72,000 sq. ft. building addition to be used for additional baggage processing and CBP activities, and the addition of a new intermodal area adjacent to the building in order to accommodate buses, taxis, and passenger drop-off/pick-up zones. This phase will also consist of marine infrastructure improvements as required, such as new fendering and bollard systems. New high capacity passenger loading bridges may also be included.

Port Everglades - FPL Canal Intermodal Bridge and Yard Renovation

This project involves the construction of a new bridge over the existing FPL discharge canal in Midport. The purpose of the new bridge is to connect the dockside of the existing

Midport area to the backlands west of the FPL discharge canal in Southport. Currently containerized cargo that needs to get to Southport from the Midport dock area must utilize the existing Eller Drive which requires leaving the secure area of the port, this cargo must re-enter the secure area of the Port from the security checkpoint on McIntosh Road in Southport.

Port Everglades – Replacement of Midport Cranes & Electrification of Docks

This project involves the replacement of two Midport cranes as well as the electrification of the Midport crane docks. The project is intended to reduce crane downtime, increase rental revenues, and overall terminal throughput for the Port's largest container terminal operator in Midport. The Port projects that these improvements will increase revenue to their primary Midport users by approximately 28%. The existing diesel-run cranes are over 20 years old and were targeted for replacement several years ago. The existing Midport crane users are not satisfied and the Port risks the loss of their current revenue streams if new and more efficient cranes are not installed.

Port Everglades - Southport Phase VIII Container Yard

This project involves the development of an approximately 35-40 acre container cargo terminal yard along the Dania Cut-Off Canal in Southport. Currently, this area of Southport is undeveloped and with the implementation of this project the Port will be able to expand its overall throughput capacity from a containerized cargo standpoint. In addition, with the development of the containerized cargo yard, it is anticipated that Port Everglades will be able to capture a greater portion of the expanding Far East cargo market for which it competes with other US East Coast Ports such as Charleston and Savannah.

Port of Tampa – Hooker's Point Improvements

This project consists of construction of berthing facilities, warehousing, site clean up, paving, upland improvements, cargo storage yards, cargo handling equipment, gate and other related improvements on the South End of Hookers Point. Hookers Point improvements include berths 213 extension, Berth 214, 220 expansion and related dredging and upland improvements.

Data Collection Process and Requirements

The Florida DOT met with the seaports during May of 2007 to discuss the Framework, including the data needs and requirements, the data collection process, and the methodology for evaluating benefits from a variety of seaport projects. This section discusses the details of the data collection needs and requirements. The data requested was grouped into three categories: general information, financial information, and data to be used for estimating benefits.

General Information

- Data requested: port name, project name, project description, and project justification.
- Comments: The last two are key to understanding the project under consideration, they allow the reviewer to properly evaluate the numbers submitted by the port and the benefits numbers generated by the tool. Several ports submitted these two as separate detailed attachments which proved to be very helpful in the evaluation process.

Financial Information

- Data Requested: total project costs, amount requested from State, year of completion, estimated life of project, and expected employment generation.
- Comments: These numbers are very straightforward and most ports were able to generate them without much trouble. The Data Needs Guide given to the ports suggest that project life should be no longer than 20 years for structures and 10 years for equipment, however ports had different guidelines about these numbers, especially with equipment such as cranes. A better definition for this value along with several examples should be provided for the ports prior to the next round of project evaluations.

Information Related to Estimation of Benefits

The tool has been programmed to estimate two different types of benefits, those coming from additional throughput for the ports and those from improved efficiencies. The first is related to projects that will add capacity to a port and stimulate contracts with operators for more business. The second type relates to improved operations, for example a new crane that will handle containers at a faster pace than before or other new technology that will allow for truckers to enter and exit the port's gates quicker than before.

Below are the data requirements for these two types of benefits depending on the projects (A and B) in addition to other requirements in this section (C and D). Most

projects will only have an impact in one of the two categories (A or B), therefore data would not be needed for the other; however in some cases projects might have an impact in both categories. The data requirements also include two other concepts described below relating to port/project-specific data and phase-in period (C and D).

A. Annual Throughput Impacts. Data requested include annual cargo impacts in terms of TEUs, vehicles, and bulk tons; cruise passenger impacts in terms of number of passengers and number of ship calls; and an estimated growth rate through the life of project.

B. Travel Efficiency Impacts. Data requested include change in vehicle-hours traveled and how many of these hours/vehicles are trucks and buses; number of trucks diverted to rail; and other cost savings to the seaports.

C. Port- and Project-Specific Transportation Impacts. Data requested include mode split for the project and information about the origin/destination of the trips (i.e. % originating/terminating in the state, average length of haul for truck and rail trips).

D. Finally the seaports must submit information about how they expect the benefits to be phased in from the beginning of the project. In most cases the ports will not see the full benefits of the project in the year after completion, but rather 3-5 years afterwards. Ports are expected to provide information about how this phase-in period is expected to happen.

Comments: The biggest source of confusion for the ports was the fact that the data request sheet contained reference for both types of benefits, additional throughput and travel efficiency. Several port representatives entered data under both sections even though the project's benefits fell only under one category. Follow up conversations were required to clarify this point with them. Presumably as more iterations of the process come to pass users will be more familiar with the data entry process and understand how to categorize each project. Nonetheless more emphasis can be placed on this differentiation.

Another item that can be improved is the data relating to phasing of benefits. As stated above, in most cases ports will not get the full benefits of the project in the first year after completion, instead it will grow progressively over several years. This information was often missing from the data input sheets and the analysts had to follow up with port representatives to clarify.

Experience with Projects Evaluated

The tool has been designed to evaluate waterside access, terminal, landside access, and market connectivity improvements based on estimates of the throughputs and travel efficiencies, as defined in the previous section. The tool was generally able to properly evaluate the projects submitted which ranged from new additional cranes, to general terminal improvements/expansions, warehousing, and container yard renovations.

However several challenges/limitations were presented during this initial evaluation run. These are summarized below.

MARAD vs Other Models for Benefits Estimation

The tool currently uses 5 versions of the MARAD Portkit configured to reflect the economies of 5 regions in Florida (the Northeast, East Central, Southeast, West Central, and Panhandle Region). However, port representatives often pointed out that they used either a tweaked version of the MARAD model using parameters that apply specifically to them or a different model altogether. The difference in the economic model may result in different measures of benefits by the ports and FDOT. FDOT will continue to explore the potential impacts of these discrepancies, however, FDOT's process is not replacing the ports B/C assessment process; it is just a tool for FDOT to estimate the impacts and validate the importance of specific project applications.

Improvements vs. Maintenance Projects

A major issue in the evaluation process was the fact that while some projects add capacity/throughput or improve efficiency at a designated terminal, a significant portion of the projects represented maintenance work for infrastructure or equipment (such as maintenance dredging or replacement of an aging crane). These maintenance projects proved harder to evaluate using the MARAD Portkit Model because they do not add any throughput to the port's current operations or generate new jobs. Instead the benefits had to be measured in terms of opportunity costs. Without these cyclical improvements/replacements, the operators at the terminals would slowly lose the ability to maintain their current customers and eventually would run out of business. An example of this is a replacement crane. Once cranes get to a certain age they require more repairs which are costly and slow down operations, eventually the crane cannot operate any longer and the operator would lose the ability to render services to its clients. The same idea applies to maintenance dredging and other similar projects.

As a result, the benefits of a maintenance project of this type are the total traffic handled by that equipment, infrastructure, or even the entire terminal in the case of maintenance dredging. Given that the drop-off would not happen immediately, these benefits have been phased-in in the tool over a period of 10 years. For example, if a crane that handles 10,000 TEUs a year needs replacement, then the benefits of the project would be 1,000 TEUs the first year, 2,000 the next, and so on until the tenth year when all traffic would be lost. This approach is reasonable for some type of maintenance projects but not for others, hence they have to be handled on a case-by case basis in order to have a proper balance between projects with additional equipment/infrastructure and those with maintenance work.

Land Acquisitions

Ports regularly try to acquire land for expansion of their facilities. This land could be purchased with immediate plans in mind or for development after several years. Given the uncertainty that usually comes with the development and use of the land, it is often difficult to estimate the impacts that such an acquisition project would have on future port traffic. As a result the tool is not suited to evaluate this type of project.

Cruise Passenger Projects vs. Cargo Projects

The results of the first iteration of projects showed that the tool produces more favorable results for cruise ship projects than for cargo projects. This is a potential concern that needs to be studied in more detail. The disparity is a combination of difference in input data, the difference in roadside impacts (between trucks and passenger cars), and the configuration of the MARAD Portkit Model. This will be studied and resolved in future iterations.

Benefits Estimation and Data Verification

Each port and terminal is different from the others in terms of the type of commodities handled, the number of workers, connectivity to other modes, space available and many other characteristics. As a result it is difficult to establish or define parameters for the impacts that certain types of projects would have in terms of added throughput for any given port in the State. This, combined with the fact that most of the projects submitted are significantly different from the others, makes the process of estimating additional throughput at a facility very intricate. This poses a problem for a leveled playing field: Are all ports estimating their benefits in the same approach? Could some be using more aggressive projections than others? How does FDOT verify that the approaches are consistent with the others? There's currently no clear answer for these issues, but as more iterations of the process are done and more projects are evaluated a database of previous entries can be generated which would allow the ports and FDOT to compare current projects to similar ones from the past.

Roadside Impact Limitations

The current version of the model accounts for a portion of the roadside impacts that new throughput would have on the State of Florida. The impacts are measured by the VMT estimated from the additional traffic at the port. This is done using the parameter provided by the port relating to mode split, commodity type, and average distance traveled in Florida. Landside impacts are estimated for truck and rail traffic in terms of accidents and environmental impacts. The tool also measures the impact of additional truck VMT on road deterioration. However it does not account for delays for current road users because of the complications involved with network modeling and all of the

additional data that would have to be collected. As a result the full impacts of large projects generating significant amounts of truck traffic cannot be fully measured by this tool. Instead the Framework relies on review from FDOT District Offices who would study the roadside impacts in more detail.

Analysis Process

Two benefit/costs ratios were calculated, the traditional one which takes into account the full benefits and costs of each project and a second one that accounts for the full benefits while only using the share of the costs that belongs to the State. This second one serves to account for the difference of the State's share of the costs in all projects. For example, two different projects might cost $8 million and have $16 million in benefits for a B/C ratio of 2. However one might require the State to cover 50% of the costs ($4M) resulting in a State B/C ratio of 4, while the other might require Florida to cover 25% of the costs ($2M) resulting in a ratio of 8. Both numbers are simply meant as a reference for FDOT when evaluating projects and not as the sole measure of the project's merits or to necessarily rank all of the projects.

The results from the analysis tool range from a B/C ratio of 3.4 to 91.4 for a combined ratio of 26.7 for all 14 projects. The results for the State B/C ratio ranged from 11.5 to 225.7 with a combined ratio of 116.8 for all projects. As Table C.2 shows, most of the projects had an overall ratio under 30 while two outliers were over 40.

Table C.2 Number of Projects by Range of Benefit/Cost Ratio

B/C Ratio	# of Projects
< 10	3
10 - 20	3
20 - 30	4
30 - 40	2
40-50	1
> 50	1
Total	**14**

These ranges indicate that the projects being proposed by the ports were not only necessary, but could act as a catalyst for the development of not only the Port but also the surrounding region and the State of Florida.

Lessons Learned and Key Points Moving Forward

The first iteration of the use of the Framework provided the opportunity to better understand the advantages and limitations of the benefit/cost tool. While the tool was generally able to handle all of the projects submitted for evaluation, several issues were raised during the process that could be improved upon in future applications. Lessons were also learned about improving not only the tool but also the entire Framework process, from definitions and data collection to estimation of benefits. These lessons and key points necessary to move forward as the Framework is advanced in 2008 are described below.

- Clarify definitions in the data needs guide so that ports are better able to understand what they need to submit under each item.
- Hold sessions with port representatives to educate them on the Framework's evaluation process including what they need to submit, where, when, how often, and how they should go about different types of projects.
- Work with ports to possibly tweak the current version of the MARAD Portkit model used. This would result in a more accurate representation of the benefits for the Ports and the surrounding community. The parameters in the model could possibly be edited so that they reflect more closely the results from Martin Associates' model, if reasonable.
- Work on integration between the tool and data collected through SeaCIP. Eventually users should be able to take the latest data dump from the SeaCIP portal, which will contain all of the projects from the current iteration, and import them into the tool through a simple process. Currently the user has to enter the data manually one by one.
- Once the integration between SeaCIP and the Tool is complete the next step is to automate, if possible, the benefits estimation process from MARAD's model. In the current state, the user has to take the information provided by the ports, enter it manually into the MARAD model and then manually enter the results back into the tool. In the initial iteration this process was not too troublesome given the limited number of projects, however if in the future the number of projects (and the number of times they have to be evaluated after corrections) grows significantly, this process might prove to be very time-consuming and lend itself to user error when copying values. It may be possible in the future to work with MARAD on having the software import input data from the tool and export results in a format that the tool can read.
- The user interface for the Tool can be improved to eliminate minor bugs/limitations and improve the overall user experience.