I-95 Corridor Coalition

Short-Sea and Coastal Shipping Options Study

Executive Summary

I-95 CORRIDOR COALITION

November 2005

The I-95 Corridor Coalition is a partnership of service providers working together to improve transportation along the Atlantic Coast from Maine to Florida. For more information about this report, please contact Marygrace Parker at (518) 436-2817 or i95mgp@ttlc.net. For more information about the I-95 Corridor Coalition, please contact Noreen Hazelton at (978) 835-3127 or at i95nhaze@aol.com. The full report is available on the Coalition Connection at www.i95coalition.org.

Short-Sea and Coastal Shipping Options Study

Executive Summary

Prepared for:

I-95 Corridor Coalition

Prepared by:

Cambridge Systematics, Inc.

November 2005

Table of Contents

List of Figures

Introduction and Background

The I-95 Corridor Coalition is a partnership of state departments of transportation (DOT), regional and local transportation agencies, toll authorities, and related organizations (including law enforcement, transit, port, and rail organizations) from Maine to Florida with affiliate members in Canada. The Coalition undertakes activities to improve mobility for people and goods, enhance safety for all travelers, and advance the economic vitality of the region. Coalition activities focus on management and operation of the region's transportation system, with emphasis on issues that transcend jurisdictional boundaries.

Rising population in the region, which is expected to grow by 24 percent by 2025; more frequent and longer trips by Coalition residents, more than three-quarters of which occur on the region's highway system; and increasing containerized and non-containerized freight volumes through the region's ports and intermodal terminals, which have risen by more than 35 and 11 percent (respectively) since 1999, have combined to cause significant highway congestion in much of the region. Post-9/11 security requirements, the rise of China as a major trading partner, and the continued use of just-in-time logistics practices also have changed the ways in which shippers and manufacturers use the region's transportation system to transport goods and are exacerbating this congestion in many areas. Taken together, these trends will significantly affect the mobility, safety, and security of the region's transportation system and may impact the region's economic competitiveness and vitality.

One strategy that may help to alleviate these impacts, and in so doing effectively increase the capacity available to freight shipments, is to expand the use of short-sea shipping. Short-sea shipping describes marine shipping operations between ports along a single coast or shipments that involve a short-sea crossing. Examples of short-sea routes include Jacksonville to San Juan; Albany to Boston; or Philadelphia to New York. Proponents argue that in situations where freight could be moved economically and reliably by short-sea shipping, the increasing need for parallel truck or rail operations may be reduced, thereby helping to mitigate highway and rail congestion.

This study, which complements and enhances existing short-sea study and research already conducted by the U.S. Maritime Administration (MARAD) and other organizations, will help state departments of transportation (DOT) and metropolitan planning organizations (MPO) better understand how short-sea shipping fits within local, statewide, and regional transportation systems. In addition, this study will help MARAD and the I-95 Corridor Coalition better understand the role that state DOTs and MPOs could play in supporting short-sea shipping initiatives. The project had four specific objectives:

1. Identify and engage the full range of domestic short-sea shipping stakeholders, including state DOTs and MPOs, and help assess their roles in supporting short-sea shipping activities and initiatives;
2. Identify existing short-sea operations in the Coalition region and provide a better understanding of why these services may not be used to their full potential;

3. Preliminarily identify commodity types and general traffic lanes that could be amenable to short-sea shipping operations; and
4. Develop recommendations to further guide development of MARAD's short-sea shipping initiative and help determine the role that the I-95 Corridor Coalition and its member agencies may play in addressing short-sea shipping issues.

Approach

While short-sea shipping-related studies conducted to date have made it apparent that the potential to offer a realistic alternative to freight movements by truck and rail modes does exist, there is no clear understanding of how short-sea operations could be integrated within an intermodal transportation system. There also is a lack of understanding of the potential impacts of increased short-sea shipping activities on regional and local transportation systems and economic development efforts. The approach to this study was developed in such a way as to address these gaps by:

- **Maintaining a system-level view of transportation networks and modes.** When developing or supporting short-sea shipping activities, it is important to understand how the various elements of the supply chain and transportation systems work together to meet the needs of users and to determine how the use of short-sea shipping operations can complement and support these systems.
- **Developing a better understanding of the short-sea shipping market.** A fundamental step in understanding short-sea shipping and its potential to become a viable component of an intermodal transportation system is to develop a detailed comprehension of the types of commodities that could be served by short-sea operations, along with the origins and destinations that could be linked.
- **Engaging all of the short-sea shipping stakeholders.** Some stakeholders have not been fully represented within previous short-sea shipping studies and initiatives. State DOTs and MPOs are important stakeholders to include in the short-sea shipping discussion, as they provide important transportation perspectives and also would bear the traffic, economic development, and environmental costs and benefits associated with increased short-sea shipping operations.
- **Identifying potential public policy implications associated with short-sea shipping.** Little has been done to investigate the public policy implications of short-sea shipping or the roles of Federal, state, and local governments in short-sea operations.

The study conducted interviews with more than 40 short-sea shipping stakeholders in order to assess the current perception of the potential need for non-highway shipping services and the potential for short-sea shipping to provide such a service. The study also analyzed available commodity flow data in order to make an initial estimation of the potential market for enhanced short-sea shipping services in the I-95 Corridor Coalition region. A preliminary assessment of the potential for new or enhanced services was conducted by analyzing the Federal Highway Administration's (FHWA) Freight Analysis

Framework (FAF) database and displaying the results in a Geographic Information System (GIS). Two distinct sets of analysis were conducted:

1. **Commodity identification**, which analyzed commodity flows from the FAF to provide a better understanding of the overall weight and value of key commodities that are moved within the region and the modes that currently are utilized; and
2. **Market identification**, which mapped the origins and destinations of the key commodity groups within a GIS to help identify potential markets that may be able to serve as hubs for short-sea shipping operations.

Conclusions

The following conclusions were derived from the interview findings, the analysis of the FAF data, and the use of GIS to identify potential markets for new or enhanced short-sea shipping services within the I-95 Corridor Coalition region.

There are many existing short-sea shipping services within the Coalition region.

There are more than 100 short-sea shipping operators within the Coalition region that provide a variety of transportation, salvage, towing, and other maritime services. However, these services currently do not handle a significant volume of freight within the region, currently accounting for approximately 13 percent of the overall weight and less than two percent of the overall value of freight shipments moving into and out of the region.[1]

Many ports in the Coalition region have taken an interest in short-sea shipping.

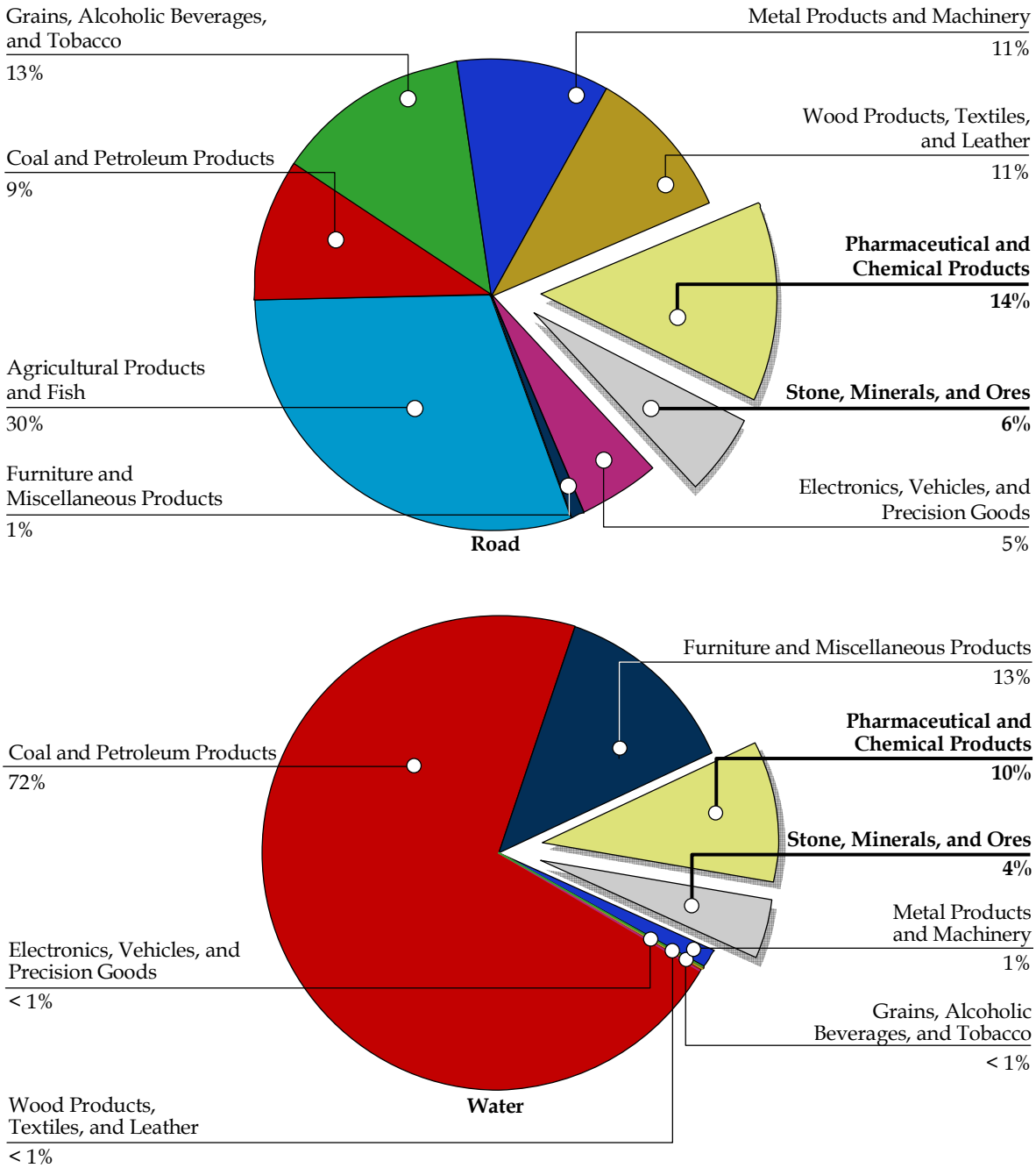
Many ports in the region have undertaken or currently are undertaking short-sea shipping initiatives. Of particular note is the Port Inland Distribution Network (PIDN), currently operating between the Port of New York and New Jersey and the Ports of Albany and Boston. The Ports of Charleston, Savannah, and Jacksonville are also important short-sea shipping hubs; the Port of Bridgeport has recently begun short-sea shipping service; and Port Canaveral and the Ports of Fall River and New Bedford are studying ways to attract short-sea shipping operations. The short-sea shipping activities of these and other ports and terminals in the Coalition region indicate that ports in the Coalition region have recognized enhanced short-sea shipping as a way to improve their operations and/or attract additional business.

There are several commodities that may be served by new or enhanced short-sea shipping operations.

Despite the limitations of the commodity flow data used in this study, there do appear to be several commodity types that could be served by new or enhanced short-sea shipping operations within the Coalition region. Figure 1 shows the top commodities (ranked by

[1] FHWA Freight Analysis Framework.

Figure 1. Road and Water Imports by Weight



total weight) that were imported into the Coalition's region by truck and by water. There are several bulk commodities, particularly stone, minerals, and ore; coal and petroleum products; and pharmaceutical and chemical products that currently are being served by both truck and waterborne movements in the region. Clearly short-sea shipping has the potential to capture an increased share of these markets in some areas.

There are several traffic lanes that may be served by new or enhanced short-sea shipping operations.

The GIS analysis demonstrated that stone, minerals, and ore are transported along the Coalition region's highways in high volumes, yet the coastal traffic lanes are barely used to transport those same commodities. As shown in Figures 2 and 3, there also is a heavy flow of stone, minerals, and ore along the highways between other regions in North America, while the flow of the same commodity group along the water network is minimal. This analysis indicates that there may be an opportunity for the transportation of rock, minerals, and ore to undergo a mode shift from truck to water.

States and MPOs can play a critical role in supporting short-sea shipping operations.

State DOTs and MPOs are critical stakeholders to engage in short-sea shipping activities and initiatives for several reasons. First, these agencies provide a systems-level view of transportation and are increasingly planning and managing their transportation systems in an integrated and systematic fashion rather than as a collection of individual modes and networks. Second, these agencies are often the conduit to Federal transportation funds and other capital improvement funding programs and can play an important role by improving access to port and intermodal facilities. Thirdly, as managers of statewide and local intelligent transportation systems (ITS), these agencies can help ports, terminal operators, and short-sea shipping providers understand how existing maritime information systems can fit within existing ITS architectures. Finally, many of these agencies have existing relationships with the private-sector freight industry, economic development agencies, and Port Authorities, and could leverage these existing relationships to build advocates for increased short-sea shipping or develop public-private partnerships to support short-sea shipping activities. However, few state DOTs or MPOs have a solid understanding of how enhanced short-sea shipping operations would impact their transportation planning or economic development activities. In addition, few states and MPOs are aware of the Marine Transportation System (MTS) and where their transportation planning activities fit within that system.

Domestic commodity movements represent a potential focus area for enhanced short-sea shipping activities.

Domestic commodity movements could offer more potential for short-sea shipping than international shipments for several reasons. First, international shipments have many characteristics that are not conducive to short-sea shipping operations. They typically are located at major load center ports that cannot always accommodate short-sea shipping activities among their existing traffic mix. In addition, the increased handling and storage fees that are often related to customs requirements can drive up costs for these international shipments, making short-sea shipping a less attractive option. Domestic shipments, on the other hand, have fewer customs requirements and often do not have to be concentrated at major load center ports, which may allow for the use of underutilized ports in the region. Most importantly, though, is the sheer volume of domestic freight flows, which outnumber international volumes by almost a 2:1 ratio. Domestic shipments not only offer more volume, they also consist of a more diverse commodity mix and move between a larger number of origins and destinations. As a result, domestic shipments offer many more opportunities for short-sea shipping to increase its overall market share for freight shipments in the region.

Figure 2. Road Exports of Stone, Minerals, and Ore by Weight

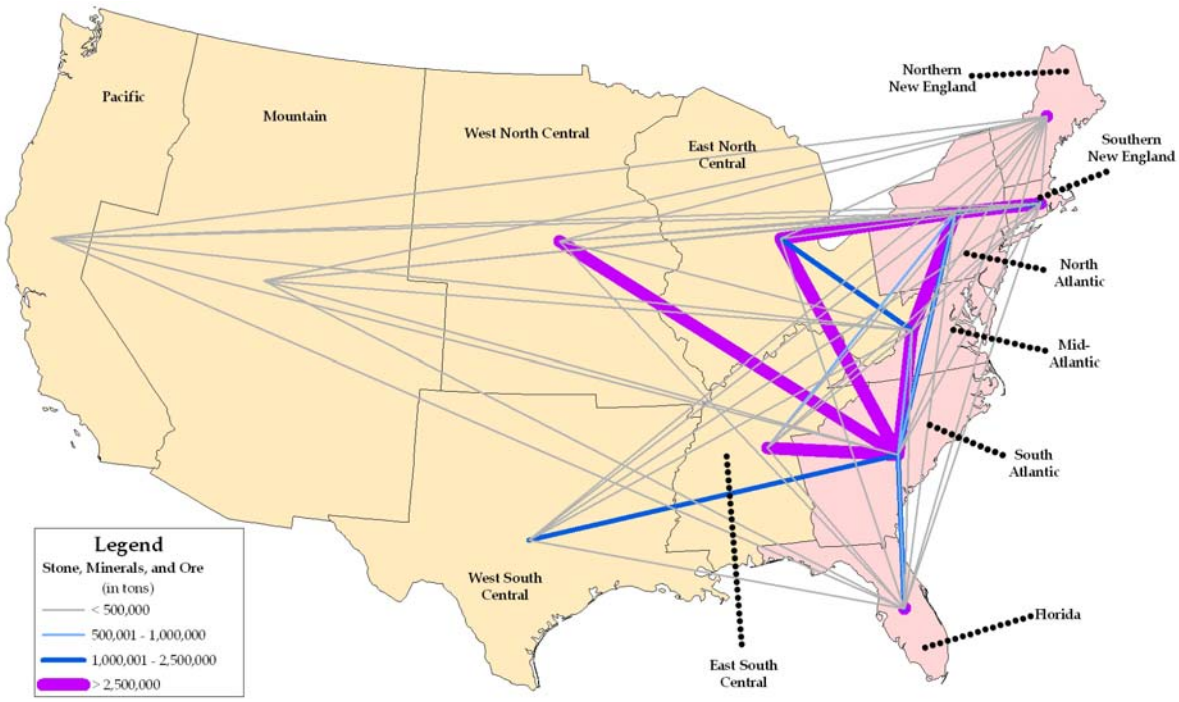
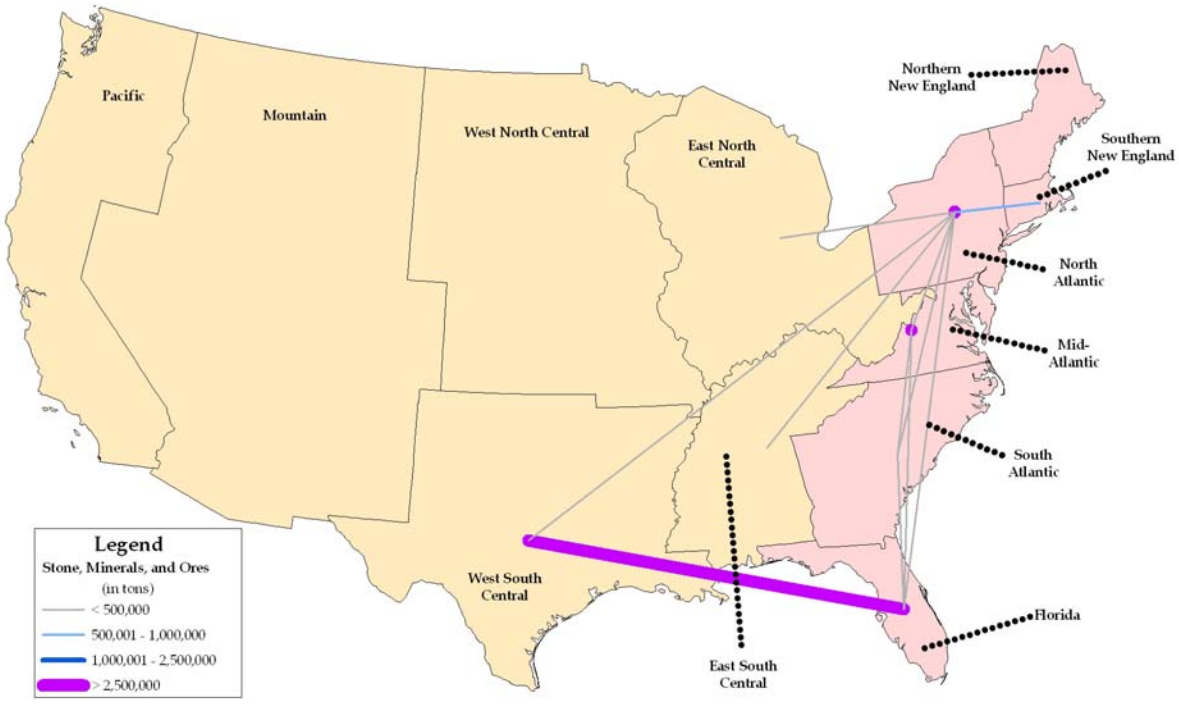


Figure 3. Water Exports of Stone, Minerals, and Ore by Weight



The Coalition region is a logical place for expanded short-sea operations.

The Coalition region could be an excellent test bed for enhanced short-sea shipping operations. The region's economy and industry base is very diverse, consisting of high value-added manufacturing, which produces finished or semifinished consumer goods; resource-based industries, which often ship raw materials for use in secondary manufacturing processes; and national and international freight gateways. As a result, a wide variety of commodity types are shipped into, out of, and within the Coalition region. The region's population base also is a key asset, as it includes major urban markets up and down the eastern seaboard. There are many potential markets for short-sea shipping operations and many areas within the region – particularly in the Northeast – have ports that currently are underutilized. These ports, many of which are located within or near major urban markets, could be attractive areas on which to focus expanded short-sea shipping operations.

The inland and coastal waterway system may provide important transportation system redundancy benefits.

In addition to mitigating highway and rail congestion and increasing the number of transportation options available to shippers, enhanced use of the inland and coastal waterway system may also have important system redundancy benefits. Just-in-time logistics practices, coupled with the globalization freight operations, have caused supply and distribution chains to become highly sensitive to service disruptions caused by natural disasters (e.g., hurricanes), labor issues (e.g., West Coast ports lockout of 2002), security threats (e.g., Baltimore Harbor Tunnel closure of 2005), and non-recurring congestion caused by traffic incidents or other events. Making better use of the inland and coastal waterway system could have important benefits by helping to sustain regional mobility during and immediately after these kinds of events.

Recommendations

There are several opportunities for increased short-sea shipping-related activities and possible next action steps for MARAD and the I-95 Corridor Coalition to consider. These are presented below.

- **Enhance existing short-sea shipping education and outreach efforts –** MARAD and the I-95 Corridor Coalition should continue to reach out to states and MPOs both formally, through recruitment and participation in the Short-Sea Shipping Cooperative Program (SCOOP) and the I-95 Corridor Coalition Intermodal Program Track Committee; and informally, through participation in industry associations, the marine-related activities of the Transportation Research Board, and other associations. MARAD may even consider developing marketing materials targeted at shippers, intermodal marketing companies, and third-party logistics providers that describe short-sea shipping, where it is being used, and its effectiveness.

- **Continue to engage all the short-sea shipping stakeholders –** MARAD should actively recruit state DOT and MPO representatives to participate in SCOOP. Similarly, the I-95 Corridor Coalition's Intermodal Program Track Committee should continue to engage the maritime community and continue to support regional short-sea shipping activities.

- **Conduct a more detailed market assessment of short-sea shipping –** MARAD and the I-95 Corridor Coalition should consider acquiring more detailed commodity flow data and conducting a more detailed market assessment for short-sea shipping that builds on the initial estimations provided in this study.

- **Develop detailed case studies of existing short-sea shipping activities –** MARAD and the I-95 Corridor Coalition should develop detailed case studies of existing short-sea shipping efforts in order to provide updates on existing and future markets for these services, their status, and lessons learned.

- **Develop a list of desirable characteristics for ports interested in attracting or enhancing short-sea shipping activities –** Better understanding the specific characteristics that can lead to a successful short-sea shipping deployment can help states, MPOs, and industry identify the locations in their regions that may have the most potential and the types of improvements that may be required. MARAD and the I-95 Corridor Coalition may wish to develop a list of short-sea shipping characteristics.

- **Develop a GIS program to support short-sea shipping activities –** MARAD should consider developing a GIS program to support its short-sea shipping activities to help build awareness of the effects of short-sea shipping among transportation agencies at the Federal, state, and local levels. In addition, the Coalition should consider incorporating short-sea shipping data and information into the Integrated Corridor Analysis Tool (ICAT), currently under development.