

An hourglass-shaped graphic with a globe inside. The top bulb is dark blue, and the bottom bulb is light blue. The globe is centered in the narrow neck of the hourglass. The text is overlaid on this graphic.

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*Intermodal Connectors: A Method for Improving
Transportation Efficiency?*

John F. Frittelli, Resources, Science, and Industry Division

Updated May 7, 2003

Abstract. At issue for Congress is how to plan for and develop an Intermodal freight network that is largely national, and even international in scope, with a planning process that is largely local in scope. There may be legislative or other alternatives that could lead to an increased focus by decision makers to ensure Intermodal priority. These include addressing freight data needs, evaluating multijurisdictional planning activities, developing partnerships with the railroads to better plan terminal location, or even restructuring the federal transportation decision-making process. Congress may also examine whether existing funding programs are appropriate to directing funds for this purpose, expanding the eligibility of existing programs to include freight projects such as Intermodal connectors, or other approaches.

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May 7, 2003

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Intermodal Connectors: A Method for Improving Transportation Efficiency?

Summary

As Congress considers reauthorization of the nation's surface transportation legislation, the Transportation Equity Act for the 21st Century (TEA-21, P.L. 105-178), which expires in September 2003, one issue policymakers are examining is the flow of commerce to and from U.S. cargo hubs. Recent Department of Transportation (DOT) studies have found persistent traffic bottlenecks and inadequate access to freight transfer facilities. The pavement of access roads, in many cases, is in poor condition and the roads have deficient geometrics (limited turning radii at intersections, low clearances, inadequate shoulder width, etc.) for the heavy truck traffic they serve.

The access roads to these terminals are referred to as "intermodal connectors." Intermodal connectors that are in poor condition may reduce service reliability and predictability. If connectors are a weak link in the transportation system, they may raise shipping costs, reducing the productivity and competitiveness of U.S. businesses. Poor intermodal connectors can also result in long lines of idling trucks, reducing air quality and increasing energy consumption. Some have argued that intermodal connectors are "low hanging fruit," in the sense that relatively modest investment in these route segments could yield substantial returns in freight movement speed and reliability.

As trade volumes have increased and growing congestion is occurring on the nation's highway system, the issue of intermodal connectors can be viewed as a microcosm of broader issues regarding the federal government's role in the nation's intermodal transportation system. A basic premise of TEA-21 is that metropolitan planning organizations (MPOs) are an important element in the identification and prioritization of transportation projects needed in urbanized areas. However, some would argue that this planning arrangement is more suitable to solving commuter concerns than it is in addressing interstate and international commerce concerns.

At issue for Congress is how to plan for and develop an intermodal freight network that is largely national, and even international in scope, with a planning process that is largely local in scope. There may be legislative or other alternatives that could lead to an increased focus by decision makers to ensure intermodal priority. These include addressing freight data needs, evaluating multijurisdictional planning activities, developing partnerships with the railroads to better plan terminal location, or even restructuring the federal transportation decision-making process. Congress may also examine whether existing funding programs are appropriate to addressing the infrastructure needs of intermodal connectors. Congress may consider directing funds for this purpose, expanding the eligibility of existing programs to include freight projects such as intermodal connectors, or other approaches. This report will be updated as developments warrant.

Contents

Introduction	1
Background	1
What Are Intermodal Connectors?	1
Significance of Intermodal Connectors	2
Transportation Efficiency	2
International Commerce	3
Military Mobilization	3
Peaking Behavior	4
Findings of DOT Studies	4
The FHWA Study	4
The MARAD Study	6
Strategies for Improving Mobility To and From Cargo Hubs	6
Redesigning Terminal Infrastructure	6
Improving Port Operations	7
Implementing ITS	8
Issues for Congress	9
Intermodal Planning Issues	9
Freight Information Needs	10
Freight Corridor Planning	11
Terminal Planning	11
Federal Intermodal Planning	12
Intermodal Funding Issues	13

List of Tables

Table 1. Intermodal Freight Terminals	5
Table 2. Poor/Very Poor Pavement Ratings by Terminal Type	5
Table 3. Percentage of Ports Indicating Below Acceptable Flow Conditions on Key Elements	6

Intermodal Connectors: A Method for Improving Transportation Efficiency?

Introduction

As Congress considers reauthorization of the nation's surface transportation legislation, the Transportation Equity Act for the 21st Century (TEA-21, P.L. 105-178), which expires in September 2003, one issue policymakers are examining is the flow of commerce to and from cargo hubs. Recent Department of Transportation (DOT) studies have found traffic bottlenecks and inadequate access to some freight transfer facilities. The pavement of access roads, in some cases, is in poor condition and the roads have deficient geometrics (limited turning radii at intersections, low clearances, inadequate shoulder width, etc.) for the heavy truck traffic they serve. Poor intermodal connectors can also result in long lines of idling trucks, reducing air quality and increasing energy consumption.

Compounding the problem, a DOT funded study projects that freight volume will increase significantly by the year 2020.¹ Thus, the issue of intermodal connectors epitomizes larger issues regarding the appropriate federal role in planning and funding the nation's intermodal transportation system. Policy issues and key questions include: Do existing institutional arrangements encourage an intermodal approach in transportation planning? Are existing funding programs capable of effectively addressing intermodal freight projects? Is the system planned and operated as a comprehensive intermodal system, or is emphasis and focus on individual modes and elements?

Background

What Are Intermodal Connectors?

Intermodal freight can be defined as the shipment of goods involving two or more modes of transportation (sea, air, rail, road) from origin to destination under a single contract of carriage (bill of lading).² To facilitate transferability among modes, intermodal cargo is typically shipped in standard size containers. Intermodalism can improve the overall efficiency of our transportation system as it uses the best

¹ U.S. DOT, Press Release FHWA 41-02, Oct. 3, 2002. For further information on DOT's freight forecast, see [<http://www.ops.fhwa.dot.gov/freight>].

² For a discussion of the definition of "intermodalism," see Joseph Szyliowicz, *Intermodalism: The Challenge and the Promise*, National Center for Intermodal Transportation, n.d. [<http://www.ie.msstate.edu/ncit/>].

combination of modes, allowing each mode to be used for the portion of the trip for which it is best suited. Trucks begin and end almost all intermodal moves, whether by rail, ship, or plane, because they perform the “door” movement, moving the cargo from the seaport, airport, or rail terminal to the shipper’s warehouse, or vice versa. The access roads, and in some cases, rail lines to these terminals are referred to as “intermodal connectors.” The connectors tie the intermodal transportation system together. Intermodal connectors are typically short segments of road or railtrack, generally less than two miles in length. Access roads are usually local, county, or city streets. Many of the connectors, especially roads leading to seaports, are in older, industrialized areas and have a preponderance of at-grade rail crossings.³ The freight community refers to these access routes as their “front door” because they are the pivotal link in the intermodal transportation system.

Significance of Intermodal Connectors

Transportation Efficiency. Intermodal connectors that are in poor condition may reduce service reliability and predictability, two of the most important qualities shippers seek in their supply chains. One industry representative has described the nation’s intermodal system as a network of conduits and pipes that is only as efficient as its “weakest link.”⁴ If intermodal connectors are a weak link in the nation’s transportation system, they may raise shipping costs, limiting the productivity and competitiveness of U.S. businesses. Poor intermodal connectors can also result in long lines of idling trucks, reducing air quality and increasing energy consumption.

Recent trends in business logistics demand higher levels of service from intermodal carriers. Retailers and manufacturers have been substituting more frequent shipments for large and costly inventories and outsourcing production to overseas plants with cheaper labor. In a “just-in-time” delivery environment, manufacturers essentially use their carriers as rolling warehouses. A truck may deliver parts from overseas within hours or even minutes before they are used in a manufacturer’s assembly line.

The growth of intermodal container shipping was largely spurred by deregulation of the trucking and railroad industries in 1980. Deregulation fostered new arrangements between these competing modes. Trucks and trains compete fiercely for intermodal traffic, but in some cases trucking companies are partnering with the railroads to move their less time-sensitive line-haul shipments. Rail intermodal can represent a cost savings for the trucking industry. For the rail industry, intermodal is a growing source of revenue. Intermodal, both domestic and international, represents 20% of rail’s revenue base, second only to coal which generates 23%. Intermodal rail traffic has grown from 3.1 million trailers and

³ Harry Caldwell, Freight Policy Team at FHWA, as quoted in “Giving Freight a Voice,” by S. Lawrence Paulson, *Public Roads*, March/April 2001.

⁴ Joni Casey, Pres. of Intermodal Association of North America (IANA), as quoted in “An industry still in need of integration,” *Purchasing*, May 18, 2000.

containers in 1980 to more than 9.0 million in 2000.⁵ Advances in information technology, such as Electronic Data Interchange (EDI), have also spurred intermodal's growth by facilitating the exchange of shipment information between modes at transfer points. According to many industry observers, the U.S. intermodal network is now operating close to its physical capacity.

International Commerce. Intermodal shipments are especially important to U.S. international trade. Recently, merchandise trade accounted for over 25% of U.S. GDP.⁶ In 1970, it accounted for only 11%. Over the past decade, the volume of intermodal containers moving through ports worldwide has doubled. According to a freight study conducted by DRI-WEFA (now known as Global Insight) for the Federal Highway Administration (FHWA), the volume of international trade is forecast to double by 2020.⁷ The Port Import/Export Reporting Service (PIERS), a maritime economic research firm that tracks the U.S. container trade, is forecasting a 4.6% average annual growth rate in import containers and a 5% average annual growth rate in export containers through 2010.⁸ In certain gateways, such as the Ports of Los Angeles and Long Beach, the volume of trade is expected to triple. It is not likely that many additional seaports or rail terminals will be built to handle this increase in freight traffic. Rather, existing ports and terminals will need to become more productive. A key element for increasing productivity will be improving the throughput of intermodal connectors.

Military Mobilization. The performance of intermodal connectors also has national security implications as the Department of Defense (DOD) increases its reliance on commercial freight systems. In the late 1990s, the DOD relied on commercial carriers for 90% of its peacetime movements and 85% of its wartime movements.⁹ The military relies on commercial carriers through the Voluntary Intermodal Sealift Agreement (VISA). Under the VISA program, private ocean carriers can volunteer ship capacity to the military in a time-phased activation. An important component of the VISA program is that in addition to ship capacity, participating carriers also provide a full range of intermodal services - truck and rail services, freight consolidation, 24-hour monitoring and tracking, and flexible routing and scheduling options. In one scenario, where the DOD would need to respond to two simultaneous contingencies, each the size of Desert Storm, the DOD estimates it will require the capability of shipping 7,000 marine containers per week.¹⁰

⁵ Association of American Railroads, *Railroad Facts*, Oct. 2001, p. 26.

⁶ U.S. DOT, Office of Freight Management, *National Freight Movements*, July 24, 2001.

⁷ U.S. DOT, Press Release FHWA 41-02, Oct. 3, 2002. For further information on DOT's freight forecast, see [<http://www.ops.fhwa.dot.gov/freight>].

⁸ "Questions," *JoC Week*, December 10-16, 2001, p.10.

⁹ Transportation Research Board, *National Conference on Setting an Intermodal Transportation Research Framework*, Conference Proceedings 12, 1997 as cited in FHWA, *The Role of the National Highway System Connectors: Industry Context and Issues*, Feb. 1999, p.18.

¹⁰ U.S. DOT, FHWA, *The Role of the National Highway System Connectors: Industry Context and Issues*, Feb. 1999, p.18.

Peaking Behavior

An important aspect of freight flows on intermodal connectors is peaking behavior. Like commuter traffic, container drayage also experiences daily rush hours. Most warehouses prefer to receive their inbound shipments in the morning while outbound cargo is loaded in the afternoon. Harbor truckers respond to their customers' needs by trying to be first at the port terminal's gate in the morning. Rail ramps and seaports are predominately located in large urban areas where truck and commuter traffic often intermingle.

Surges also occur on a weekly and yearly basis. The import container business largely follows the retail market. The peak shipping season begins in August in anticipation of back-to-school sales and continues through the end of October in anticipation of holiday sales. Container lines also tend to bunch their ship calls at ports on certain days of the week in order to connect with rail timetables.

Traffic volume is further consolidated by the larger container ships being deployed. These larger ships are calling at fewer ports because standing still in port costs money. The result is an increase of container traffic at hub ports. The railroads are also rationalizing their intermodal hubs. They are reducing the number of intermodal terminals and consolidating traffic on unit trains. This also contributes to the concentration of freight activity at key hubs.

Findings of DOT Studies

The FHWA Study

Recent national studies have highlighted the poor condition of intermodal connectors.¹¹ The National Highway System (NHS) Designation Act of 1995 (P.L. 104-59), required the DOT to submit a list of designated intermodal connectors. DOT submitted its list in May 1996 after consultation with state DOTs, metropolitan planning organizations (MPOs), and terminal operators. In TEA-21 (Section 1106), Congress called on the FHWA to examine the condition of intermodal connectors. The FHWA published its findings in January 2001.¹² The criteria used to define an intermodal freight connector were based on the amount of truck traffic on one or more of the principal routes serving a facility. Comparison of truck activity between connectors was made on a national as well as state level. Table 1 shows the inventory of freight connectors by terminal type.

¹¹ In addition to the two DOT studies described in this report, the Transportation Research Board (TRB) has also studied this issue. See National Cooperative Highway Research Program, (Project 8-39) *Financing and Improving Land Access to U.S. Cargo Hubs*, [<http://www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+8-39>].

¹² U.S. Department of Transportation, *NHS Intermodal Freight Connectors, A Report to Congress*, July 2000. Available at [<http://ops.fhwa.dot.gov/freight/infrastr/nhs/>].

Table 1. Intermodal Freight Terminals

Connector Type	Terminals	Miles of Intermodal Connector Road
Ports (ocean and river)	253	532
Airports	99	221
Truck/Rail Terminals	203	354
Pipeline/Truck Terminals	61	115
Total Number of NHS Freight Terminals	616	1,222

Source: reproduced from *NHS Intermodal Freight Connectors*

As Table 1 illustrates, intermodal connectors are short segments of road, generally less than two miles in length. The study found that the pavement condition of these roads was either poor or very poor for 12% of the total connector mileage. This figure compares with an 8% poor or very poor rating for all National Highway System mileage. “Poor” pavement condition is defined as having shallow rutting or cracks that cause a reduction in speed. “Very poor” pavement is defined as having major problems with potholes causing substantial reductions in speed. Just over half of connector mileage (51%) was found to be in good or very good condition while 37% was found to be in fair condition.

As Table 2 illustrates, roads leading to rail terminals and seaports were in worse shape than those leading to airports. This may be due to the fact that airports serve considerable passenger travel as well as freight.

Table 2. Poor/Very Poor Pavement Ratings by Terminal Type

Terminal Type	Poor/Very Poor
Airports	7%
Truck/Pipeline	7%
Ports (ocean and river)	15%
Truck/Rail	12%

Source: reproduced from *NHS Intermodal Freight Connectors*.

In addition to poor pavement, the FHWA study found other deficiencies with intermodal freight connectors. Almost half the terminals have at least two geometric deficiencies. Geometric deficiencies can be inadequate travel width, tight turning radii at intersections, lack of stabilized shoulders, or railroad crossing deficiencies. The study also noted that there are currently no national, regional, or terminal based design standards for intermodal connectors.

The MARAD Study

In addition to the FHWA, the Maritime Administration (MARAD) has also examined the condition of intermodal connectors. MARAD's study was limited to seaport terminals but examined rail connections as well as road connections.¹³ The survey found that "port access conditions are generally acceptable today but may not sustain continued growth and international trade." The latest survey was conducted in 2001 and reveals the following:

Table 3. Percentage of Ports Indicating Below Acceptable Flow Conditions on Key Elements

Key Element	Top Container Ports	Non-Container Ports
Roadways within the port	10%	3%
Local roads	25%	24%
State/Interstate roads	30%	10%
Rail line-haul moves	22%	18%
Rail moves on rights-of-way shared with passenger rail	37%	10%

Source: Maritime Administration, *Intermodal Access to US Ports -Report of Survey Findings*, August 2002.

Strategies for Improving Mobility To and From Cargo Hubs

There are a number of strategies that state and local governments and private industry have implemented or are developing to expedite the flow of cargo to and from terminals.

Redesigning Terminal Infrastructure

In recent years, ports have redesigned their physical infrastructure to accommodate the growth in container traffic. In the past 10 - 15 years, ports have built on-dock or near dock rail yards. These facilities reduce the amount of "bridge trucking" of containers from port to rail terminal. The downside of on-dock rail is that it absorbs a tremendous amount of scarce surface area at the port. The Port of New York and New Jersey has begun a plan to tranship a portion of its container traffic by barge to less congested ports, such as the Port of Albany, New York. While

¹³ U.S. Department of Transportation, Maritime Administration, *Intermodal Access to U.S. Ports - Report of Survey Findings*, August 2002. Available at [http://www.marad.dot.gov/publications/01%20IAccess%20Report%20pub.doc].

container barges and feeder ships are common in Asia and Europe, they are not widely used in the United States.

Another redesign concept that some port logisticians are advocating is the “Inland Intermodal Center.”¹⁴ The idea is to move the container sorting facility, which requires a great amount of space, to a less congested inland area. The sorting facility would be connected to the port by a rail shuttle. All containers unloaded from a ship would be moved to this inland facility where local traffic moving by truck would be separated from traffic moving further inland by rail. This concept has the potential to reduce truck traffic near the port. However, while there may be economic benefits from saving land on shore, these benefits would have to be weighed against the cost of acquiring the right of way for a rail shuttle. Operationally, there would also be the cost of adding an additional link in container movements, namely the cost of the rail shuttle movement and the cost of an additional container unload and load.

According to some, ports have been more aggressive than railroads in investing in the access infrastructure to their facilities. In the executive dialogue discussion of the FHWA study, “it was noted that railroads continue to focus on using their existing yards, which were originally developed for box car traffic that did not require highway connections [while] highway access is crucial to intermodal rail service.”¹⁵ However, this is not to say that railroads are not investing in their intermodal terminals. There are many instances where rail carriers are consolidating their intermodal terminals and/or moving terminals outside metropolitan areas where land area can be expanded and connections to highways improved.

Improving Port Operations

Modifying port operations can also expedite the transfer of cargo between water and land modes. Although rail terminals operate 24 hours a day, seven days a week, traditionally, port terminal gates are open only on weekdays from 8 a.m. to 5 p.m. Expanding gate operations to evening hours is proposed as one solution to relieving congestion on port access roads. Some ports have begun extending their gate operations to off-peak hours. The question, however, is if there will be enough shippers willing to extend the hours of their warehouse operations to generate enough cargo to make off-peak operations cost-effective.

Cargo flow to and from ports can also be expedited by reducing the number of days shippers are allowed to store their container shipments at the port. Large shippers are often granted more than the typical five days of free storage at ports. To accommodate these shippers, containers may be stacked six or seven high. This practice slows the container pick-up process for the truckers as they wait for the containers to be unstacked and re-stacked.

¹⁴ a.k.a. Inland Port Concept and Inland Container Transfer Facility.

¹⁵ FHWA, *The Role of the National Highway System Connectors: Industry Context and Issues*, Feb. 1999, p. 28.

Implementing ITS

Many believe Intelligent Transportation Systems (ITS) can significantly improve cargo flow on intermodal connectors.¹⁶ ITS is described as expanding the capacity of existing infrastructure by substituting information (or “infostructure”) for infrastructure. The idea is to use existing infrastructure more efficiently with the help of information technology. Given the competing land uses surrounding seaports and rail terminals, limiting the amount of space available for widening access roads, ITS may be especially applicable to the problem of increasing freight mobility on intermodal connectors.

Information exchange has been a key element in the success of intermodal transportation. The efficient exchange of shipment data between carriers at transfer points is as important as the hand-off of the cargo itself. The internet is evolving as a popular tool for gathering and providing information on container shipments. Websites such as “eModal” and “First” can increase freight mobility on access roads to ports by sharing information with harbor truckers on congestion areas, road closures, and container availability for pick-up.¹⁷ Providing this information to truckers can reduce the number of “dry runs” they make to the port due to miscommunication. One port provides real-time surveillance video of its gate on its website so truck dispatchers can gauge the waiting time at the gate.¹⁸

An axiom in the intermodal industry is that “the commodity most frequently shipped is air.”¹⁹ A substantial amount of truck traffic to and from intermodal facilities is picking up and returning empty containers. The internet can be used to directly connect an importer with an exporter in need of an empty container. A trucker can deliver an empty container directly to the exporter after unloading its contents at the importer’s warehouse. This eliminates the intermediary truck trip to the container depot to drop off and pick up an empty container.²⁰

ITS is also being deployed to track shipments on intermodal connectors. While ports and railroads provide container tracking information, a black hole often exists when the container moves by truck between facilities. The FHWA is conducting a pilot program to track containers when they leave the port area²¹ and an ocean liner company has recently begun offering a similar service.²² Improving in-transit visibility on intermodal connectors is sought by all parties. Government officials desire greater visibility for security purposes, shippers for better inventory

¹⁶ For further information on ITS, see CRS Report RL31283, *Intelligent Transportation Systems for Highways and Transit: Status, Federal Role, and Options for Reauthorization*.

¹⁷ See [<http://www.emodal.com>] and [<http://www.firstnynj.com/>].

¹⁸ See [<http://www.portofportland.com/tmst6/inquire.asp>].

¹⁹ U.S. DOT, RSPA, *Partnership to Promote Enhanced Freight Movement at Ports and Intermodal Terminals*, Feb. 2000.

²⁰ “Gridlock on L.A. Agenda,” *Traffic World*, Jan. 15, 2001, p. 42.

²¹ See [<http://www.ops.fhwa.dot.gov/freight/Info%20Highway/Freight%20Info.htm>].

²² “Maersk Data offers drayage tracking,” *JOC Online*, May 10, 2002.

management, ocean carriers for better asset utilization, and local transportation planners for better information on freight flows in their jurisdictions.

Issues for Congress

With significant increases in intermodal freight traffic projected over the next two decades, the adequacy of intermodal connectors raises the broader issue of the appropriate role for the federal government in planning and funding the nation's intermodal transportation system. Policy questions include: Do existing institutional arrangements encourage an intermodal approach to transportation planning? Is the system planned and operated as a comprehensive intermodal system, or is emphasis and focus on individual modes and elements? Are existing funding programs capable of addressing intermodal freight projects and are intermodal connectors the weak link in achieving a more efficient intermodal system?

Intermodal Planning Issues

At issue for Congress is how to plan for and develop an intermodal network, that is largely national and even international in scope, with a transportation planning process that is largely local in scope. As noted earlier, the FHWA intermodal connector report contends that intermodal connectors have not received the policy attention they deserve. The report described intermodal freight connectors as 'orphans' in the traditional planning process of state DOTs and metropolitan planning organizations (MPOs). TEA-21, and its precursor ISTEA, (P.L. 102-240) gave states and MPOs primary responsibility for allocating funds for transportation projects. ISTEA and TEA-21 did not specify a category of funds for intermodal freight projects, rather it suggested and encouraged local decision makers to consider an intermodal approach when deciding on projects for funding.

MPOs may often be the appropriate body for determining funding for intermodal connectors because these routes largely lie in urban areas. However, some policy analysts suggest that this planning arrangement may be more logical for solving commuter concerns than it is in addressing interstate and international commerce concerns.²³ Freight stakeholders contend that because MPOs are largely staffed by elected officials, they give priority to commuter projects. While commuter trips likely begin and end within their geographic jurisdiction, freight trips (particularly intermodal) are more likely to extend beyond their jurisdiction.

Some MPOs may perceive that while the cost of a freight project is born locally, the benefits of the project may flow to shippers located outside their region.²⁴ This may be especially true where the preponderance of freight traffic is passing through the terminal area from one region of the country to another rather than serving as a

²³ Jeremy F. Plant, "Railroad Policy and Intermodalism, Policy Choices after Deregulation," *Review of Policy Research*, June 22, 2002.

²⁴ *Freight Financing Options for National Freight Productivity*, FHWA, Office of Freight Management and Operations, April 2001, p.7.

terminus for local manufacturers or retailers located in their jurisdiction. There may also be concern by local officials that improvements in intermodal capacity are primarily terminal-oriented improvements that worsen existing conditions off-terminal, such as increasing pollution, truck traffic, and noise. In some instances, local officials may be reluctant to make significant landside investments in improved intermodal connectors when there are equally pressing infrastructure needs elsewhere. On the other hand, competition among local and regional economic development agencies to attract business to their area may encourage investments in freight facilities. Many MPOs may view intermodal terminals as engines of economic growth.

Freight Information Needs. A 1995 survey by the Freight Stakeholders National Network found that 90% of MPOs responding reported that they lacked sufficient data to conduct adequate freight planning.²⁵ Lack of information on intermodal shipments has been mentioned as an existing gap in available freight data. Better information on freight flows at the local level, such as shipment origin and destination, type and value of cargo, seasonality and peaking behavior, and time delays, could assist localities in making sound transportation investment decisions. It could also assist them in evaluating the potential economic benefit of investing in freight projects.

It appears that MPOs could benefit from better information on how local freight moves are connected to regional, national, and international markets. The FHWA's Office of Freight Management and Operations is developing a cost-benefit model for goods movement that is intended to assist state DOTs and MPOs in this regard.²⁶ This office, along with the Bureau of Transportation Statistics (BTS), also recently released a report on freight flows in each state that is intended to assist them in freight planning.²⁷ An issue of likely interest to Congress is assessing whether current freight information sources are adequate in addressing local needs and, if not, whether the federal government, or state, and local governments should be responsible for collecting and providing this information in a useful format.²⁸ Freight movement is largely controlled by the private sector, so much of the information that would be useful for freight planning may not be readily available. One of the barriers government agencies must overcome when enlisting assistance from the private sector is the private sector's fear of providing information that it considers

²⁵ GAO, *Intermodal Freight Transportation, Projects and Planning Issues*, July 1996, (NSIAD-96-159). The Freight Stakeholders National Network is a consortium of eight trade associations: the Air Freight Assoc., the American Assoc. of Port Authorities, the American Trucking Assoc., the Assoc. of American Railroads, the Intermodal Assoc. of North America, the National Assoc. of Manufacturers, the National Industrial Transportation League, and the National Private Truck Council.

²⁶ For further information, see [<http://ops.fhwa.dot.gov/freight/benefit-cost.html>].

²⁷ "State Freight Profiles," uses data from the "Freight Analysis Framework," available at [http://www.ops.fhwa.dot.gov/freight/state_profiles.htm].

²⁸ For further information on this topic, see *Data Needs in the Changing World of Logistics and Freight Transportation*, Conference Synthesis, January 2002, [<http://www.dot.state.ny.us/ttss/conference/index.html>].

proprietary. Companies may fear that providing information to the government will allow access to that information for their competitors.

In addition to providing more useful freight information, policymakers may also consider resource issues for adding freight expertise to local planning staffs. Some MPOs already have “freight advisory committees” that consist of freight specialists.

Freight Corridor Planning. A common theme found in the literature on intermodal planning is for policymakers to focus on the trip or transportation corridor rather than focusing on the mode of travel. To incorporate a corridor perspective into the planning process, some state officials have created multi-state organizations so that states could work as a team on end-to-end investments in corridors that cross state lines.²⁹ Two examples are the “I-95 Corridor Coalition” which includes the DOTs from five mid-Atlantic states and the “I-35 Trade Corridor” composed of seven states in the Midwest. In the reauthorization debate, Congress may consider formalizing multijurisdictional arrangements or allowing existing arrangements to continue or to expand.

Terminal Planning. The issue of improving access to intermodal terminals raises the related issue of planning for the best location of the terminals themselves. Many large cities have multiple rail terminals. For example, in the greater Chicago area there are 26 intermodal terminals; in the metropolitan New York area there are 11; and in Detroit there are seven. These terminals largely developed as a result of historical forces in which multiple Class I railroads (many of whom have now consolidated) independently planned for additional space and facilities to meet growing demand for intermodal traffic. In some cities, the uncoordinated manner in which some of these facilities developed has generated fragmented freight activity. For example, repositioning freight containers between multiple facilities generates unnecessary truck trips which increases costs for shippers and creates more congestion on local highways.³⁰

With the projected increase in intermodal traffic over the next two decades, many experts assert that we can no longer afford to truck containers across cities to make rail connections. These experts suggest that the solution is to build rail terminals in which two or more railroads jointly use a single facility. A multiuser facility could concentrate intermodal activity at a single location, thereby reducing the amount of truck traffic between rail terminals. In addition to improving goods movement, they suggest it could have a positive effect on community mobility, economic development, and other quality of life issues. Terminal location and access may therefore involve larger public interests. State and local officials could partner with the railroads in developing common user facilities. A partnership approach offers the potential for a more orderly and coordinated terminal development strategy.

²⁹ Transportation Research Board, *Global Intermodal Freight, State of Readiness for the 21st Century*, Conference Proceedings 25, February 23-26, 2000, p. 103.

³⁰ “Freight Transportation Research Needs Statements,” *Transportation Research Circular*, No. E-C048, Dec. 2000.

Shared intermodal rail facilities may be too massive and expensive to be financed and built by the railroads themselves. This raises the question of whether public funds should be provided to help finance their construction. Congress may evaluate whether this is an issue to be resolved between local government officials and the railroads or if, given the volume of freight moving through these hubs, it is a matter of national significance.

Federal Intermodal Planning. Many observers believe that a major obstacle to achieving the goal of a national intermodal transportation network as envisioned in ISTEA is that the modes are separately managed and funded. Because each mode tends “to jealously guard their independent source of infrastructure financing,” the infrastructure linking the modes may fall through the cracks of existing modal funding categories.³¹ Intermodal supporters argue the focus should be on improving the connectivity and interoperability among modes. In 1966, one of the principal reasons for creating the DOT was to facilitate a unified approach to transportation planning. In 1991, ISTEA created the Office of Intermodalism and the Intermodal Transportation Advisory Board to further facilitate intermodal connections. DOT’s recent initiative called “OneDOT” is an attempt to integrate the ten agencies in the department into an unified unit.

Congress may wish to assess whether institutional arrangements for transportation policymaking are keeping pace with changing economic circumstances. A recent Transportation Research Board (TRB) conference on intermodal planning concluded that, “because the old modal boundaries are becoming increasingly blurred at critical nodes and along key corridors, a compartmentalized approach presents clear challenges to DOT in advancing these important types of investments.”³² As in past reauthorization discussions, policymakers may renew debate on whether to restructure federal transportation institutions. For example, one proposal is to divide DOT and congressional transportation subcommittees along two divisions - passenger and freight - rather than along modal divisions. This view holds that these are more appropriate distinctions than modal distinctions in pursuing greater mobility through an integrated transportation system.³³

Defenders of the current system argue that initiatives to restructure DOT have already been attempted but failed in the past, partly due to industry opposition. They point to the Unified Transportation Infrastructure Improvement Program (UTIIP) in 1995 as one example. Some argue that while intermodal’s market share is increasing, it still represents only a minority of total freight movement in the United States. Carriers themselves tend to give greater priority to their mode specific needs than to intermodal needs.

³¹ Paul Dempsey, “The Law of Intermodal Transportation: What It Was, What It Is, What It Should Be,” *Transportation Law Journal*, Summer 2000.

³² TRB, *Planes, Trains, and Automobiles: Multimodal Reauthorization Opportunities*, Scottsdale, AZ, Aug. 21, 2000.

³³ Paul Dempsey, “The Law of Intermodal Transportation: What It Was, What It Is, What It Should Be,” *Transportation Law Journal*, Summer 2000.

Intermodal Funding Issues

Intermodal connectors have been described as “low hanging fruit,” a metaphor used to express the notion that relatively modest investment in these route segments could yield substantial returns in freight movement speed and reliability.³⁴ U.S. DOT’s 2002 *Conditions and Performance Report* estimates that addressing the backlog of deficiencies on intermodal connectors would cost approximately \$2.6 billion while improving service to cope with expected increases in freight volumes would cost about \$4.3 billion. At issue for Congress is assessing whether existing funding programs are adequate in financing the infrastructure needs of intermodal connectors and if not, evaluating alternative proposals.

Some advocate creating a specific funding category for intermodal connectors in the Surface Transportation Program (STP) in TEA-21 (section 1108). Setting aside funds specifically for intermodal connectors might help ensure that they are given greater priority in the state and local transportation planning process. The downside is that setting aside funds for a specific purpose could reduce local transportation planners’ ability to direct funds to where they may be needed most. In some cases, a set-aside program could result in allocating funds to a marginally important freight project while other, more pressing non-freight needs go unmet.³⁵ Additionally, local governments may be unwilling to provide a match for projects unless the perceived public benefits are clear.

Another proposal Congress may debate is creating an intermodal trust fund. As suggested by one policymaker, this fund could be financed through a user fee charged per container shipment.³⁶ Others have proposed pooling resources by taking a portion from existing transportation trust funds. The funds could be used to finance projects that improve the intermodal network. Establishing a dedicated pool of funds for freight projects could overcome the hurdle that freight projects face in competing with passenger projects for funding. However, it may be difficult to collect and distribute the funds in an equitable manner that does not result in one port or cargo hub subsidizing another port or cargo hub.

Policymakers could consider expanding the requirements of existing funding programs to specify that freight projects such as intermodal connectors be included. For instance, the language in the “Corridors and Borders” (CORBOR) program in TEA-21 (section 1118 and 1119) could specify that improving access roads to ports is eligible for funding. CORBOR provides funds for the development and construction of projects that serve border regions. Similarly, policymakers could consider expanding the Railroad Rehabilitation and Improvement Financing (RRIF) credit program in TEA-21 (section 7203) to include access roads to intermodal rail yards. The RRIF program provides low-interest loans and loan guarantees for new

³⁴ American Assoc. of State Highway and Transportation Officials, *Transportation Invest in America, Freight Intermodal Linkages*, 2002.

³⁵ FHWA, Office of Freight Management and Operations, *Freight Financing Options for National Freight Productivity*, April 2001.

³⁶ “Intermodal Bottleneck Ahead,” *Journal of Commerce*, March 31- April 6, 2003.

railroad facilities or improvements to existing facilities such as terminals, track, bridges, rail buildings, and shops.