

July 1996

# INTERMODAL FREIGHT TRANSPORTATION

## Projects and Planning Issues







United States  
General Accounting Office  
Washington, D.C. 20548

National Security and  
International Affairs Division

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The Honorable John H. Chafee  
Chairman  
The Honorable Max S. Baucus  
Ranking Minority Member  
Committee on Environment and Public Works  
United States Senate

The Honorable John W. Warner  
Chairman, Subcommittee on Transportation  
and Infrastructure  
Committee on Environment and Public Works  
United States Senate

To improve the nation's surface transportation system over a 6-year period ending in fiscal year 1997, the Intermodal Surface Transportation Efficiency Act (ISTEA), Public Law 102-240, Dec. 18, 1991) authorized \$155 billion. Although ISTEA primarily authorized highway construction and improvements, it also emphasized how intermodal connections can enhance the nation's transportation infrastructure. Intermodal connections link the various transportation modes—highways, rail, air, and maritime facilities. According to the National Commission on Intermodal Transportation's 1994 report, these connections are typically the weakest links in the nation's transportation system. Economists and transportation planners believe that productivity and efficiency gains can be achieved by improving intermodal connections.

In preparation for reauthorization of ISTEA, you asked us to review several intermodal freight transportation issues. We reviewed (1) the Department of Transportation's (DOT) efforts to track how states use ISTEA funds for facilitating intermodal transportation and the nature and extent of ISTEA funds used by states for intermodal freight projects, (2) how some local and regional areas that handle a large volume of freight have considered intermodal freight transportation issues as part of their planning process, and (3) what kind of impediments some areas face in improving intermodal freight transportation. In addition, we developed information on intermodal freight transportation trends.

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## Background

ISTEA made it U.S. policy to develop a national intermodal transportation system that "provides the foundation for the Nation to compete in the

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global economy, and will move people and goods in an energy efficient manner.” In terms of freight transportation, an intermodal shipment is one that moves by two or more modes during a single trip. Although intermodalism is not defined in ISTEA, an example of an intermodal freight project would be a port improvement project that facilitates the transfer of cargo from ships to trucks or rail. However, DOT has not established an all-encompassing definition of what constitutes an intermodal freight project. While ISTEA required that DOT develop a data base that included investments in public and private intermodal transportation facilities, it contained no requirement for states to use a specific category of funds for intermodal projects. The majority of ISTEA funding for surface transportation improvements is provided to states through such categories as the Surface Transportation Program or the National Highway System, which have historically been directed to highway construction. However, ISTEA authorized specific “priority intermodal” projects, some of which were freight related.

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## Results in Brief

DOT has not yet developed a data base that provides information on public and private investment in intermodal transportation, nor has it tracked how states use ISTEA funds for such projects. Our analysis of available DOT data and interviews with agency officials showed that 10 states had obligated about \$35.6 million in ISTEA funds for 23 projects identified as intermodal freight related as of September 30, 1995. In addition, DOT provided information that \$68.4 million, or 36 percent of the \$191.8 million authorized for obligation in ISTEA funds for 20 priority intermodal freight projects, had been obligated by states as of December 31, 1995. The total amount of funds obligated for intermodal freight projects through roughly the first 4 of ISTEA’s 6 fiscal years thus equals \$104 million—less than 1 percent of ISTEA funds apportioned to the states during that period for highways and other nontransit infrastructure projects. DOT does not have more complete data on funding for intermodal freight projects. Such information would be necessary to assess whether progress has been made toward improving intermodal connections.

In reviewing the approach of several local and regional areas to meeting intermodal freight transportation needs, it became clear that metropolitan planning organizations (MPO)<sup>1</sup> have had to balance their consideration of

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<sup>1</sup>Transportation planning at the local level is the responsibility of MPOs. Title I of ISTEA designated MPOs “for each urbanized area of more than 50,000 population by agreement among the Governor and units of general purpose local government which together represent at least 75 percent of the affected population (including the central city or cities as defined by the Bureau of the Census) or in accordance with procedures established by applicable State or local law.”

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intermodal freight issues with a wide range of other transportation needs. MPOs are required to consider 15 planning factors when prioritizing projects to include in state transportation plans, only 2 of which relate to intermodal freight transportation. Furthermore, the public sector's transition from a modal planning environment to an intermodal planning approach is taking time to institutionalize. One reason for this delay is that while much intermodal freight expertise resides in the private sector, public sector officials are just beginning to develop appropriate planning tools for this work. These tools include local planning to identify and overcome intermodal freight bottlenecks and regional planning to address interstate freight issues.

Public and private transportation officials experienced several impediments to improving intermodal freight transportation. Two issues identified as particularly problematic involved: (1) obtaining necessary information on freight movement that private firms may consider proprietary and (2) coordinating the different planning time lines between the public and private sectors for meeting immediate versus long-term intermodal needs. However, efforts are under way by some groups to bring both public and private interests together at the MPO and the national level.

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## DOT Has Not Developed Statutorily Required Data Base on Intermodal Investments

Title V of ISTEA established within DOT an Office of Intermodalism and required that the Director of this office, through the Bureau of Transportation Statistics (BTS), develop, maintain, and make publicly available a data base that includes "information on public and private investment in intermodal transportation facilities and services."<sup>2</sup> To date, the data base on investment in intermodal facilities and services has not been developed, and comprehensive data on investment in public and private investment in intermodal transportation facilities and services do not exist. Moreover, DOT does not track ISTEA expenditures on intermodal facilities. DOT officials gave us the following reasons why they have not developed the data base: (1) DOT has a limited role in managing how funds are allocated because states are given primary responsibility for allocating funds according to broad program categories; (2) the term "intermodal" is subject to interpretation, and projects may not be identified consistently among states; and (3) intermodal projects may be financed from multiple

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<sup>2</sup>The two other elements of the data base are (1) "information on the volume of goods and number of people carried in intermodal transportation by relevant classification" and (2) "information on patterns of movement of goods and people carried in intermodal transportation by relevant classification in terms of origin and destination." DOT officials stated that their initial work in addressing the intermodal data base has focused on freight and passenger movement data rather than investment data. DOT efforts to address these two elements of the data base are included in the agency comments section of this report.

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sources, including federal, state, and local funds, and it may be difficult to identify ISTEA funds used for this purpose. Nonetheless, DOT has not sought legislative relief from this ISTEA requirement.

States have provided DOT with detailed information about the use of ISTEA funds on a project-by-project basis; this information has been entered into DOT's computer information system. In an attempt to identify the extent to which states used ISTEA funds for projects that facilitated intermodal freight movement, we reviewed thousands of pages of DOT data and interviewed public sector officials.<sup>3</sup> Our review was based on identifying the use of the term intermodal in project descriptors. We verified with DOT officials that each project we identified involved the movement of freight. We found that only 10 states<sup>4</sup> used ISTEA funds for intermodal freight projects. A total of 23 projects obligated \$35.6 million from two ISTEA funding categories.

We also reviewed the status of ISTEA-designated "priority intermodal" projects (of the 51 projects designated in legislation, 20 were freight related, according to DOT). DOT officials said that \$191.8 million was provided for these 20 freight-related projects in 9 states.<sup>5</sup> As of December 31, 1995, \$68.4 million, or 36 percent, had been obligated by the states for these projects.

Our review of available information in the CMAQ, STP, and "priority intermodal" funding categories found that federal intermodal freight project funding obligated in roughly the first 4 of ISTEA's 6 fiscal years totaled \$104 million.<sup>6</sup> Because most intermodal freight movement is done by private companies, it is likely that the private sector would be responsible for a large portion of investment in intermodal freight facilities.

While some limited information on funding for intermodal projects can be discerned from available information within DOT, DOT has not collected in a

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<sup>3</sup>The two categories of ISTEA funding we reviewed were Congestion Mitigation and Air Quality (CMAQ) and Surface Transportation Program (STP). According to DOT, states were most likely to use these categories to fund intermodal freight projects. Other ISTEA funding categories include National Highway System, Surface Transportation Enhancements, and Bridge Replacement and Rehabilitation.

<sup>4</sup>The 10 states are California, Florida, Maine, New Hampshire, New Mexico, New York, Ohio, Tennessee, Texas, and Washington.

<sup>5</sup>The nine states are California, Florida, Michigan, Mississippi, New York, Oklahoma, Oregon, Pennsylvania, and Utah.

<sup>6</sup>A state-by-state breakdown of information on intermodal freight projects is presented in appendix I.

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data base public and private investment information on intermodal facilities and services, as required. Without such data on funding for intermodal freight projects, decisionmakers can not ascertain if progress is being made toward ISTEA's goal of improving intermodal connections.

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## Intermodal Freight Transportation Planning

In our review of how several local and regional areas are attempting to address intermodal freight transportation needs, we found that MPOs have been given considerable responsibility for a wide range of transportation concerns. ISTEA not only requires that MPOs increase public involvement in the planning process but also that MPO officials prioritize projects and determine their financial feasibility before submitting them to state transportation officials for inclusion in the statewide transportation improvement plan. In addition to these broader concerns about transportation planning, ISTEA specified 15 factors that MPOs were to consider in preparing local plans, two of which relate to intermodal freight: (1) "methods to enhance the efficient movement of freight" and (2) "access to ports, airports, intermodal transportation facilities, major freight distribution routes . . . ."

A broader perspective on the extent to which MPOs consider freight issues in their planning activities is provided in a survey that the National Association of Regional Councils (NARC) conducted in 1993 with the nation's 342 MPOs. Of the 259 MPOs that responded to that survey, 78 (30 percent) reported conducting freight-related planning activities. MPOs reported that they took into account the following specific aspects of freight-related planning (which have implications for intermodal freight movement) in performing their activities: truck (65 MPOs); rail (56 MPOs); air (40 MPOs); maritime/port facilities (27 MPOs); and border crossings (17 MPOs). In 1995, a survey of how MPOs deal with freight issues was conducted by the Freight Stakeholders National Network (a group of industry associations). According to that survey, 90 percent of the nation's largest MPOs responding to the survey reported that they lacked sufficient data to conduct adequate freight planning.

While survey results indicate that intermodal freight-related planning is not widespread among MPOs responding to the NARC survey, it does show that freight issues are being considered. According to public and private officials we interviewed, the transition to an intermodal planning environment is a new way of thinking that is taking time to percolate through the public sector. One reason for this is that planning has traditionally been done by a single mode of transportation (e.g.,

highways), and planning has been structured in that manner. Another is that intermodal freight innovations have often originated in the private sector. Consequently, much of the intermodal expertise resides with private officials. Several public sector officials mentioned that ISTEA planning requirements spurred them to develop intermodal planning tools.<sup>7</sup> These same officials found that developing these tools had required time and money. For example, California's DOT officials stated that their intermodal management system took 2.5 years to complete and cost \$1.9 million in outside contracts. Of the 259 MPOs responding to the National Association of Regional Councils survey, 39 percent reported having an ISTEA intermodal management system.

## Local Planning to Address Intermodal Freight Bottlenecks

In our visits to states that have local and regional areas that handle large volumes of freight—California, Illinois, New York, and Texas—public and private officials told us how intermodal freight bottlenecks near ports and rail yards can affect traffic and freight movement. In part, our discussions with these officials focused on the implications of such bottlenecks for goods movement at the local, regional, and national levels as well as specific projects proposed to address such problems. However, in these visits we did not evaluate intermodal freight projects.

Besides handling large volumes of passenger and intermodal freight traffic, Chicago and Los Angeles are also crucial links in what has been termed the nation's "land bridge" between Asia and the northeastern United States.<sup>8</sup> The following examples outline the intermodal problems each city faces and the short- and longer-term solutions proposed to address them.

- Chicago is a major hub for national and international freight movement because it is where the nation's eastern and western rail carriers meet. Nearly half of the nation's intermodal rail shipments originate, terminate, or connect there. The Chicago Area Transportation Study, the local MPO,

<sup>7</sup>ISTEA required that the Secretary of Transportation issue regulations for state development, establishment, and implementation of six transportation management systems, including one for intermodal facilities and systems. It authorized the Secretary to withhold up to 10 percent of a state's federal funds beginning in fiscal year 1996 if the state was not implementing the management systems. A provision in the National Highway System Designation Act of 1995 (P.L. 104-59) allows states to elect not to implement one or more of the management systems without jeopardizing any funding. The act prohibits the Secretary from imposing any sanction on, or withholding benefit from, a state based on a decision not to implement a management system.

<sup>8</sup>"Land bridge" service over U.S. rail tracks is used for Asian-manufactured goods shipped to West Coast ports and on to the northeastern United States because shipments usually arrive on the East Coast 6 days to 2 weeks faster than goods shipped directly to the East Coast by water. G. Muller, *Intermodal Freight Transportation*, 3rd ed. (Lansdowne, VA: Eno Transportation Foundation, 1995), p. 106.



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has identified 23 major intermodal (rail/truck) yards plus 2 lumber transfer points, 3 automobile transloaders, and 5 clusters of freight facilities that serve ships in the Chicago metropolitan region. The “typical” truck-rail intermodal freight facility generates considerable activity, with over 200,000 container transfers from rail to truck or vice versa per year; the largest facility has 670,000 transfers, which represents a reported average 1,000 to 1,400 trucks entering and leaving the facility a day. It is a year-round, around the clock industry. According to the MPO, the resulting traffic contributes substantially to local and regional traffic congestion and is concentrated on a small number of routes between the rail yards. Such congestion can impede national and international freight movement, according to industry officials.

To address these problems in the short term, Chicago’s MPO officials are seeking funds to permit improved connections between intermodal facilities and nearby highways that are part of the recently designated National Highway System. The MPO has not yet developed intermodal freight projects with ISTEA funds with the exception of one CMAQ project approved in 1995 to make improvements at a major rail yard.<sup>9</sup> However, according to a MPO official, a call for projects in February 1996 resulted 47 new project proposals. In 1992 we reported that the intermodal freight traffic problems facing Chicago may require a longer-term solution such as a multiuser intermodal terminal located near or in the city that would permit rail-to-rail connections, thus eliminating crosstown drayage.<sup>10</sup>

- The Southern California Association of Governments, the Los Angeles regional MPO, faces what it termed a problem of “national significance.” This region has the nation’s largest concentration of intermodal freight container movements, with 20,000 truck trips and 29 train trips per day from the port area to Los Angeles intermodal facilities (25 percent of all trade entering the United States by sea passes through the Los Angeles and Long Beach ports). As a result, the region experiences traffic congestion that is linked to air quality problems and passenger and freight delays.

The proposed intermodal solution to these problems is called the “Alameda Corridor” project. This project involves consolidating 90 miles of rail track owned by 3 different rail companies into one 18-mile rail corridor to transport intermodal freight from the Los Angeles and Long

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<sup>9</sup>This project was not included in the DOT projects previously discussed because it fell outside the period covered by our analysis.

<sup>10</sup>Intermodal Freight Transportation: Combined Rail-Truck Service Offers Public Benefits, but Challenges Remain (GAO/RCED-93-16, Dec. 18, 1992).

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Beach ports to distribution centers in Los Angeles. This is expected to ease traffic congestion by taking trucks off the road and eliminating delays at rail crossings. The project, expected to be completed in 2001, is budgeted at \$1.8 billion (ISTEA-authorized "priority intermodal" funds: \$55.4 million). Shippers we met with supported the project, noting that these ports are significant links with Pacific Rim nations as well as with emerging Latin American markets. They indicated that their companies are experiencing 4 to 7 percent annual growth in shipping volume through these ports.

To meet the growth in shipping, planners at the Southern California Association of Governments are already thinking beyond the Alameda Corridor. Specifically, they are examining options to consolidate three rail freight lines operating between downtown Los Angeles intermodal facilities, where the corridor will terminate, and the eastern end of the Southern California Basin (the San Bernardino area). According to a 1995 MPO-commissioned report, this consolidation is motivated by two broad public policy objectives: to (1) enhance the region's ability to manage the flow of international trade goods and (2) reduce emissions resulting from idling vehicles at railroad grade crossings. However, from the perspective of the rail and shipping companies whose operations would be influenced by consolidation, these public policy objectives must be balanced against the potential loss of control over shipping schedules.

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## Regional Intermodal Freight Planning Efforts

In addition to the planning done by MPOS, public and private sector officials are also identifying and addressing intermodal freight movement issues that transcend state boundaries. For instance, at a roundtable discussion we had with 12 public and private officials at the Port Authority of New York and New Jersey headquarters, an official from the New Jersey DOT suggested that while ISTEA was good at delegating authority to local planning officials, for some transportation problems it might be better to view the nation as a series of regions. We identified several initiatives where states are attempting to incorporate a regional perspective into the planning process by identifying freight concerns that cross state lines.

- The recently formed Western Transportation Trade Network, comprised of 16 western states, is identifying high-priority freight (air, land, rail, and marine) corridors and intermodal facilities throughout the western United States based on input from officials from state DOTs, MPOS, and the private sector. This information will be used to assess the performance of the

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region's freight corridors and intermodal facilities as well as coordinate a regional approach in addressing emerging intermodal freight needs.

- The New England Transportation Initiative (NETI), made up of six northeastern states, has been cited by DOT as an example of how regional intermodal planning can function. NETI's goals include improving the region's mobility of persons and goods and promoting its economic competitiveness.

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## Impediments to Improving Intermodal Transportation

In visits to several local and regional areas that handle a large volume of freight, officials emphasized two impediments that hinder intermodal freight transportation planning. One concerns whether public sector officials should have access to data on freight movement that may be considered proprietary. Another impediment concerns differing planning horizons—the private sector's tend to be more short term while the public sector's often require longer time lines to initiate projects. We also found examples of efforts to bring together public and private officials to identify and address specific problems concerning intermodal freight transportation. Two DOT publications<sup>11</sup> discuss other intermodal freight impediments not discussed in this report. These include operational problems at intermodal facilities (compatibility among freight tracking systems); regulatory and institutional barriers (the lack of standardized transportation regulations); and financial constraints (inadequate funding for intermodal improvements).

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## Access to Data That Companies Consider Proprietary

Some transportation companies may consider specific data on private freight movement to be proprietary. However, public planners can use these data to identify heavily traveled highways or intersections in order to mitigate intermodal freight bottlenecks. A representative from an ocean shipping company we met with in southern California explained why he believes industry officials are sometimes reluctant to disclose data. He said that when public officials ask for "everything" on a subject (such as port use by a particular shipper), rather than specific information, company officials are unsure how the information may be used. He suggested that public sector requests for such information should be more focused; this might allay private sector doubts about how it would be used.

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<sup>11</sup>Intermodal Freight Transportation (Washington, D.C.: U.S. DOT/FHWA, Dec. 1995) and Landside Access to U.S. Ports (Washington, D.C.: U.S. DOT/MARAD, Jan. 1993).

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In some cases, public sector officials compile data on intermodal freight activity from a combination of inputs. For example, in Chicago, the MPO developed figures on transfers at key intermodal yards through various means, including traffic counts, direct observations, and informal interviews with workers and gate guards to present information to company executives for verification. This information was used to understand how intermodal freight shipments can affect local traffic patterns.

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### Differing Planning Horizons

A second impediment to improving intermodal freight transportation concerns differing public and private sector planning horizons. According to several MPO officials, their planning horizon extends over longer-term periods, such as 25 years. Such a planning time frame is necessary to conduct impact studies or obtain funding. Private officials we met with in visits to California, New York, and Texas, on the other hand, spoke of the difficulty of thinking long term when short-term needs are pressing. The freight industry is also subject to fluctuations in demand for its services because of economic conditions. Likewise, ongoing business mergers sometimes make it difficult for private officials to predict their company's infrastructure needs in 15 to 20 years because they are unsure whether their company will be active at that time in a particular market.

An example that highlights the problem involves Chicago. There, MPO officials commented that when a major shipping company relocated from the downtown area to a nearby suburb where rail service would be more convenient, they were concerned about how the move would potentially influence regional traffic patterns. In light of the volume of goods that is expected to move through the company's new facility and its likely impact on future traffic patterns, the MPO's longer-term planning task was affected. In this case, the shipping company's move was prompted by its current business situation, while MPO officials had to plan for how the company's move would influence the region's long-term intermodal freight needs.

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### Efforts to Use Public-Private Partnerships to Help Overcome Impediments

Because intermodal facilities are a nexus where public and private interests intersect, bringing these groups together to plan or cooperate on a project that neither could complete independently has helped achieve intermodal goals. In visits to four areas that handle large volumes of freight, we found several examples of such efforts:

- The Alliance Facility, located north of Fort Worth, Texas, is a 7,500-acre intermodal transportation complex that began as a partnership of city, state, and federal governments; private businesses; and individuals (total federal investment: \$55 million). Key to this effort was federal funding for construction of a 9,600 by 150-foot runway that serves industrial, business, and general aviation users (private airliners) rather than commercial airliners. The Alliance complex also has an intermodal rail terminal that the Santa Fe railroad built. This rail facility can perform an estimated 300,000 rail-to-truck transfers per year. New highway interchanges and access routes serving the facility and intermodal terminal have been built and were financed by Texas DOT and private investors. The Alliance complex opened in 1989, prior to the enactment of ISTEA. According to a representative of Alliance Air Services, the complex has experienced increased industrial development since 1994. Additional business is expected in 1997 when a major shipping company is scheduled to open a southwestern hub at Alliance.
- The Chicago Area Transportation Study's Intermodal Advisory Task Force convenes regular meetings between public and private officials where major issues are discussed. One tool used to help focus members' attention on bottlenecks in intermodal transportation is a computer-based geographic information system designed to highlight intermodal freight problems and then help the members establish priorities for repairing them.
- The National Freight Partnership, coordinated by DOT, consists of public and private representatives who work at the national level to identify major bottlenecks in the nation's transportation system. The Partnership provides a forum for private sector officials concerned with freight movements to apply their expertise to national problems and establish a dialogue with public sector leaders.
- American Trucking Associations representatives we met with told us about the recently formed Freight Stakeholders National Network. The Network is made up of eight national associations that represent the freight transportation modes and manufacturers.<sup>12</sup> Through this effort, they hope to identify and build support for transportation improvements, provide policy support and technical resources to make local freight coalitions with MPOS successful, and promote best practices for dissemination to other cities.

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<sup>12</sup>The eight members of the Freight Stakeholders National Network are the Air Freight Association, the American Association of Port Authorities, the American Trucking Associations, the Association of American Railroads, the Intermodal Association of North America, the National Association of Manufacturers, the National Industrial Transportation League, and the National Private Truck Council.

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## Recommendation

We recommend that the Secretary of Transportation (1) establish a definition of freight intermodal projects and (2) ensure that the data base on intermodal investments required by title V of ISTEA be developed and maintained in accordance with the statute.

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## Agency Comments and Our Evaluation

In commenting orally on a draft of this report, DOT officials indicated that they (1) have collected some basic information on where and how goods were shipped in the United States, (2) have efforts underway to collect information on long distance passenger travel by all modes, and (3) are currently developing information on roads that link intermodal facilities and the National Highway System. DOT officials acknowledged that the investment data they are collecting do not meet the requirements established by ISTEA, emphasizing the difficulty inherent in collecting information on private investment in intermodal facilities that is part of the ISTEA requirement. We believe a reasonable approach toward meeting the ISTEA requirement would be to first establish a definition of intermodal freight projects and develop the data base on public investment, and then incorporate data on private investment that is already available or could be readily ascertained.

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## Scope and Methodology

To obtain information for this report, we (1) reviewed ISTEA and its legislative history; (2) interviewed DOT headquarters and regional officials; (3) interviewed state, local, and private sector officials; (4) interviewed representatives of major transportation organizations; (5) reviewed DOT data from fiscal years 1992 to 1995 showing the funding status of ISTEA-authorized priority intermodal projects; and (6) reviewed volumes of DOT data highlighting projects funded with the two categories of ISTEA money that DOT officials believed states would most likely use to fund intermodal freight projects. We identified projects based on the use of the word “intermodal” in project descriptions. We did not independently verify DOT data, but we confirmed that these were intermodal freight projects by interviewing DOT officials at headquarters and in selected DOT regions. Our findings may not be comprehensive because of limitations in DOT data.

We visited four states—California, Illinois, New York, and Texas—that transportation officials and reports identified as having local and regional areas that handle large volumes of intermodal freight and as having considered projects to address such problems. Our site visits included interviews with state and local government transportation officials and meetings with private officials to discuss their perspectives on intermodal

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transportation. In addition, in each state we visited intermodal rail, truck, or port facilities to see firsthand intermodal problems, bottlenecks, and areas targeted for specific projects to address these problems. However, in these visits we did not evaluate existing or potential intermodal freight projects. To obtain additional information on local planning efforts, we analyzed data from the National Association of Regional Councils' 1993 national MPO survey. We also reviewed state transportation plans and other materials relevant to intermodal freight transportation planning and attended professional meetings where intermodal freight issues were discussed.

Our state visits were complemented by interviews in Washington, D.C., with a range of individuals at DOT, including officials from the following offices: DOT's Office of Intermodalism, the Federal Highway Administration (FHWA), the Maritime Administration (MARAD), and the Federal Rail Administration. We also interviewed officials representing the Transportation Research Board, the Intermodal Association of North America, the American Trucking Associations, and the American Association of State Highway and Transportation Officials. Moreover, we met with several private sector transportation consultants. In addition, we reviewed recent literature on intermodal transportation.

We conducted our review from February 1995 to February 1996 in accordance with generally accepted government auditing standards.

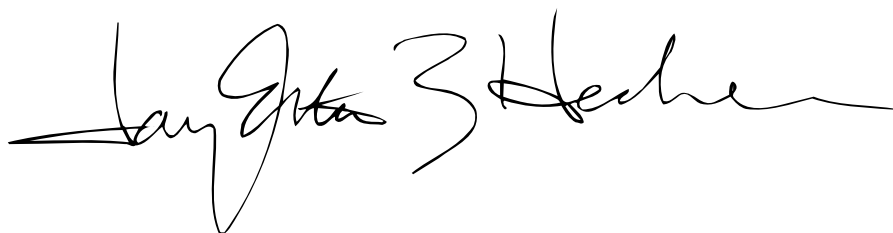
More detailed information on how states used ISTEA funds for intermodal freight transportation is presented in appendix I. Information on trends that influence intermodal transportation is presented in appendix II.

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As arranged with your office, unless you publicly announce its contents earlier, we plan no distribution of this report until 14 days after the date of this letter. We will then send copies of this report to the Secretary of Transportation as well as other interested parties. Copies will also be made available to others on request.

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Please contact me at (202) 512-8984 if you or your staff have any questions concerning this report. Major contributors to this report are listed in appendix III.

A handwritten signature in black ink, reading "JayEtta Z. Hecker". The signature is written in a cursive style with a large, sweeping initial "J" and a distinct "Z" before the last name.

JayEtta Z. Hecker, Associate Director  
International Relations and Trade Issues



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## Abbreviations

BTS	Bureau of Transportation Statistics
CMAQ	Congestion Mitigation and Air Quality
DOT	Department of Transportation
FHWA	Federal Highway Administration
GAO	General Accounting Office
MARAD	Maritime Administration
ISTEA	Intermodal Surface Transportation Efficiency Act
MPO	Metropolitan Planning Organization
NARC	National Association of Regional Councils
NETI	New England Transportation Initiative
STP	Surface Transportation Program
TEU	Twenty-foot equivalent container units

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# Intermodal Surface Transportation Efficiency Act Funds Used for Intermodal Freight Transportation

Based on our review of Department of Transportation (DOT) data and interviews with public and private sector officials, we attempted to identify intermodal freight projects financed with the Intermodal Surface Transportation Efficiency Act (ISTEA) funds not specifically targeted for priority projects (see table I.1).

## Status of Projects Funded Under ISTEA

The 23 projects in 10 states represented a range of improvements to facilitate intermodal freight transportation. Some projects were funded with as little as \$40,000, others with as much as \$11 million. For instance, state officials in New York used \$6 million in ISTEA funds to purchase a barge and to improve operations between the Red Hook container barge terminal in Brooklyn, New York, and Port Elizabeth, New Jersey. These projects were expected to enhance the competitiveness of the bistate port facilities as well as eliminate an estimated 54,000 truck trips from the major regional highways of New York and New Jersey annually, thus reducing traffic congestion and improving air quality.

**Table I.1: Summary of Intermodal Freight Transportation Projects Funded With Two ISTEA Financing Funds, as of September 30, 1995**

Dollars in millions

State	Number of intermodal projects	Total intermodal project costs	ISTEA funds obligated to intermodal projects	Total ISTEA funds allocated to state
California	2	\$0.5	\$0.3	<b>\$6,408</b>
Florida	1	0.6	0.5	<b>2,869</b>
Maine	3	2.7	2.0	<b>339</b>
New Hampshire	2	1.1	0.9	<b>326</b>
New Mexico	2	4.5	3.7	<b>721</b>
New York	5	12.0	9.6	<b>3,537</b>
Ohio	2	50.2	16.3	<b>2,525</b>
Tennessee	2	0.2	0.2	<b>1,418</b>
Texas	2	0.5	0.4	<b>4,477</b>
Washington	2	2.0	1.7	<b>1,311</b>
<b>Total</b>	<b>23</b>	<b>\$74.3</b>	<b>\$35.6</b>	<b>\$23,931</b>

Note: The two types of ISTEA funds were (1) Congestion Mitigation and Air Quality and (2) Surface Transportation Program.

Source: GAO summary of data provided by DOT's Office of Information Management and Systems Control.

## Status of Priority Intermodal Projects Authorized in ISTEA Legislation

Section 1108 of ISTEA authorized funds to various states for “priority intermodal projects,” commonly referred to as “demonstration” projects.<sup>1</sup> For projects specifically related to improving intermodal freight transportation, ISTEA authorized \$191.8 million for 20 projects in 9 states. The projects include a variety of improvements to interchanges and other roads in locations such as the Alameda Corridor in southern California and improvements to airport access in such cities as Detroit, Michigan; Pittsburgh, Pennsylvania; and Jackson, Mississippi. According to a DOT official, the priority projects are in various stages of development. The official told us that ISTEA authorized only enough money to start the projects and that it is the responsibility of each state to obtain funding to complete the projects. While some states have provided financing for these projects, others have not.

Table I.2 contains a breakout of the total number of priority intermodal freight projects in each state, the total contract authority for the projects, and the amount of funds obligated, as of December 31, 1995.

**Table I.2: Status of ISTEA-Designated Priority Intermodal Projects, as of December 31, 1995**

Dollars in millions			
State	Number of priority projects	Total funds authorized	Obligated funds
California	8 <sup>a</sup>	\$82.7	\$31.0
Florida	1	6.9	0.3
Michigan	2	37.2	7.8
Mississippi	1	3.0	0.6
New York	1	15.3	3.0
Oklahoma	1	2.4	2.5
Oregon	1	2.1	0.5
Pennsylvania	4	41.2	22.7
Utah	1	1.0	0
<b>Total</b>	<b>20</b>	<b>\$191.8</b>	<b>\$68.4</b>

<sup>a</sup>Of the total projects authorized in California, five were associated with improvements related to the Alameda Corridor. These five projects were authorized \$55.4 million, of which \$18.5 million was obligated as of December 31, 1995.

Source: GAO summary of data provided by DOT’s Office of Information Management and Systems Control, as of December 31, 1995.

<sup>1</sup>“Priority intermodal projects” represent a broad subgroup of demonstration projects included in ISTEA legislation. By way of reference, ISTEA contained over 500 specifically named demonstration projects.

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# Intermodal Freight Transportation Trends

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Several factors have transformed the nation's intermodal freight transportation industry over the past 20 years; these factors are expected to influence it in the future. Among them are (1) the need to reduce costs and streamline production using improved inventory management, (2) the partial deregulation of the U.S. rail and trucking industries, and (3) the use of computer-based technologies.

Demands will continue to be placed on the nation's transportation system for efficient freight movement so that companies can compete in the global marketplace. For instance, the time it takes warehouses to fill orders is expected to decrease by 15 to 20 percent during the next 5 years, and transit times are expected to be reduced between 5 and 10 percent. Moreover, inventory turnover is expected to increase by about 10 percent, and the percent of products shipped "just in time" is expected to grow from 28 to 39 percent.<sup>1</sup> According to the Intermodal Association of North America and the National Industrial Transportation League, the estimated intermodal market share of trailerload shipments moving 500 miles or more increased from 10 percent in 1991 to 18 percent in 1994 and is projected to rise to 25 percent by 1997.<sup>2</sup> Overall, however, trucking is currently the most frequently used freight transportation mode because trucks provide convenient pickup and delivery of shipments.

Partial deregulation of the transportation industry in 1980 has also influenced the intermodal freight industry.<sup>3</sup> One outcome of deregulation that continues to influence the freight industry is strategic alliances among carriers that have been made to capitalize on each mode's strength. For example, truckload carriers provide door-to-door access to businesses, while rail carriers—particularly double-stacked intermodal containers—provide low-cost, long-distance service. A 1995 study discussed what these transport alliances portend for intermodal shipping, taking into consideration the business environment that stresses flexibility in suppliers and product lines, more frequent shipments of goods in smaller lot sizes, and a more diverse mixture of commodities in each

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<sup>1</sup>See Intermodal Freight Transportation (Washington, D.C.: DOT/Federal Highway Administration, 1995), p. 1-8.

<sup>2</sup>Intermodal freight shipments become more economical at 500 miles; shipments beyond that distance often mean that rail transport is an option, with goods being placed on trucks for final delivery. For distances under 500 miles, trucks usually carry the freight, although this may depend on the type and value of goods being shipped.

<sup>3</sup>More detailed information is provided in our report Railroad Competitiveness: Federal Laws and Policies Affect Railroad Competitiveness (GAO/RCED-92-16, Nov. 5, 1991).

shipment. The study concluded that the use of intermodal containers will expand for both domestic and international shipments.<sup>4</sup>

Apart from noting consolidation among domestic companies, shipping officials we interviewed in southern California mentioned ongoing mergers among the world's major ocean carriers. As consolidation continues, companies are seeking greater economies of scale by purchasing ships capable of carrying larger loads. While current ships carry 3,000 to 4,000 20-foot equivalent container units (TEU), shippers said that 5,000 TEU vessels are on order. The implication is that port gate structures will have to be improved in order to accommodate the larger vessels. Further, the loads these larger ships will carry will place increased demands on the infrastructure surrounding ports because of the pressure to unload ships quickly and move cargo to its destination.

Technological innovations linked to computers and satellites have also influenced how intermodal freight shipments are handled. These innovations include bar coding that allows shipments to be verified and tracked, electronic data interchange that permits on-line transmission of business data and documents, and in-vehicle navigation systems that identify the most direct routes to avoid congestion and delays.

Improved intermodal freight transportation can result in economic benefits such as lower transportation costs. This, in turn, can enhance the productivity and competitiveness of U.S. businesses. According to transportation planners, other benefits from intermodalism include improved air quality and environmental conditions through reductions in energy consumption and traffic congestion. Other benefits might include increased employment from jobs associated with constructing intermodal facilities and greater employment at intermodal facilities themselves.

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<sup>4</sup>U.S. - Mexico Trade and Transportation: Corridors, Logistics Practices, and Multimodal Partnerships  
LBJ School of Public Affairs, University of Texas at Austin (Austin, TX: 1995), p. 45.

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