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MARITIME INFRASTRUCTURE

Opportunities Exist to Improve the Effectiveness of Federal Efforts to Support the Marine Transportation System

GAO-13-80

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GAO Highlights

Accountability * Integrity * Reliability

Highlights of GAO-13-80, a report to congressional addressees

Why GAO Did This Study

The MTS is integral to the efficient movement of the nation's freight. The MTS includes navigable waterways, ports, and port connectors, such as roads and railways that provide access to the Interstate highway system and the national rail network. According to DOT, approximately 90 percent of America's overseas imports and exports by tonnage move by ship. Consequently, the continued maintenance and improvement of the MTS is essential to sustaining the nation's competitive position in the global economy. This report examines (1) Corps and DOT programs that can be used to maintain or improve the MTS, (2) key challenges to maintaining and improving the MTS, and (3) opportunities to improve the effectiveness of the federal role in the MTS. GAO analyzed information from the Corps and DOT, interviewed relevant agency officials and industry associations, and conducted site visits to six ports—selected based on tonnage, geographic representation, and other factors—to discuss federal, state, and local investment in MTS infrastructure.

What GAO Recommends

DOT should (1) inform the development of the *National Freight Strategic Plan* with the Corps' planned investments in the nation's navigable waterways and (2) ensure the review and update of the *National Strategy for the MTS* to include accountability mechanisms for the *Strategy's* recommended actions. DOT agreed to consider the report's recommendations.

View GAO-13-80. For more information, contact Lorelei St.James at (202) 512-2834 or stjamesl@gao.gov.

What GAO Found

The U.S. Army Corps of Engineers (Corps) and the Department of Transportation (DOT) use a variety of programs to maintain and improve Marine Transportation System (MTS) infrastructure. The Corps is the lead federal agency responsible for maintaining and improving navigable waterways. Corps data show that obligations for navigable waterways have decreased from over $3 billion in fiscal year 2009 to about $1.8 billion in fiscal year 2011. Most annual DOT funding is provided to states through formulas, and states determine which projects to fund. For example, in fiscal year 2011, the Surface Transportation Program provided $9.5 billion to states for a variety of transportation projects, which may have included port improvements. However, because DOT does not specifically track formula funding used to maintain or improve ports or port connectors, officials were unable to provide GAO the extent to which these funds were used for port improvements, although the officials stated that the number of port-specific projects was likely small. Several DOT grant and credit programs can also provide specific funding to ports, though ports are primarily responsible for maintaining and improving infrastructure on port property.

Aging MTS infrastructure, a growing backlog of projects, and the lack of an MTS system-wide prioritization strategy represent key challenges for the Corps and DOT to maintain and improve MTS infrastructure. For example, some structures that support navigation, such as locks, are over 100 years old, and their condition has resulted in deteriorating performance and costly delays to shippers. The Corps and DOT have taken some steps to prioritize their individual funding decisions, but none of these efforts consider MTS infrastructure system-wide. While the Corps is prioritizing projects within its navigation program, DOT has a more limited ability to prioritize funding for port infrastructure projects because the majority of DOT's funding goes to the states where decisions about transportation priorities are made at the state and local level.

Two efforts in particular provide opportunities to improve the effectiveness of federal support to MTS infrastructure. First, the recently enacted Moving Ahead for Progress in the 21st Century Act requires DOT to develop a *National Freight Strategic Plan* and to consult with appropriate transportation stakeholders. However, DOT and the Corps have historically had limited coordination involving system-wide MTS investments. Involving the Corps in the development of the *National Freight Strategic Plan* is particularly important given the critical role navigable waterways play in freight movement. Second, the Committee on the Marine Transportation System (CMTS), a partnership of federal agencies chaired by DOT, has the opportunity to take further actions to help ensure that its 2008 *National Strategy for the Marine Transportation System* is reviewed and updated to reflect new and emerging challenges, and that its 34 recommendations to improve the MTS are implemented. One recommendation included studying approaches to allocate federal dollars among competing transportation priorities. However, the *Strategy* has not been reviewed and updated since the CMTS published it in 2008 and it does not incorporate accountability mechanisms, such as identifying desired results or performance measures, for the recommended actions. Such mechanisms would help ensure that the actions CMTS recommended to improve the MTS are indeed implemented.

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Abbreviations

CMTS	Committee on the Marine Transportation System
Corps	U.S. Army Corps of Engineers
DOT	Department of Transportation
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
GDP	gross domestic product
MAP-21	Moving Ahead for Progress in the 21st Century Act
MARAD	Maritime Administration
MOU	memorandum of understanding
MPO	Metropolitan Planning Organization
MTS	Marine Transportation System
MTSNAC	Marine Transportation System National Advisory Council
RRIF	Railroad Rehabilitation and Improvement Financing
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
TEU	twenty-foot equivalent unit
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery

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GAO
Accountability * Integrity * Reliability

United States Government Accountability Office
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November 13, 2012

Congressional Addressees

The United States is one of the largest trading nations in the world, and approximately 90 percent of America's overseas imports and exports by tonnage move by ship.[1] Consequently, the continued maintenance and improvement of the nation's Marine Transportation System (MTS) is essential to sustaining the nation's competitive position in the global economy and the efficient movement of freight within the United States. The MTS includes navigable waterways, ports, and port connectors such as the roads and railways that provide access to and from ports.[2] While a worldwide slowdown in economic activity has recently resulted in less freight moving through the MTS, forecasts estimate that U.S. freight tonnage will steadily increase through 2040.[3]

The MTS operates in a complex funding environment, with the federal government, state, local, and private entities all playing a role in helping maintain and develop MTS infrastructure. The U.S. Army Corps of Engineers (Corps) is the lead federal agency for maintaining and improving navigable waterways, and the Department of Transportation (DOT) is the primary federal agency supporting landside infrastructure projects that facilitate the movement of freight to, from, or within ports. In addition, port authorities, some of which are quasi state or local public entities, are primarily responsible for managing infrastructure such as terminals, wharfs, berths, and piers "inside the gate" of a port where cargo is loaded onto and unloaded off of ships.

Given the variety of stakeholders responsible for specific segments of the MTS, nationwide efforts such as adapting to a potential shift in U.S. trade

[1]U.S. Department of Transportation, Maritime Administration, *America's Ports and Intermodal Transportation System,* (Washington, D.C.: January 2009).

[2]According to DOT, the MTS also includes pipelines, vessels, and users. See U.S. Department of Transportation, *An Assessment of the U.S. Marine Transportation System: A Report to Congress* (Washington, D.C.: September 1999). We did not include pipelines, vessels, or users (i.e., people who depend on the system for their livelihood and recreational access) in the scope of our review.

[3]U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 3.2, 2011.

routes because of the expansion of the Panama Canal or developing infrastructure to support an increase in the nation's exports can be challenging. This is particularly true in the current fiscally constrained environment where many MTS infrastructure needs outweigh the resources available. In light of these issues, we prepared this report under the authority of the Comptroller General to conduct evaluations at GAO's initiative to assist Congress with its oversight responsibilities. This report examines:

1. Corps and DOT programs that can be used to maintain or improve the MTS.
2. Key challenges to maintaining and improving the MTS.
3. Opportunities to improve the effectiveness of the federal government's role in the MTS.

To address these objectives, we reviewed program documentation and related reports from the Corps, DOT, the Committee on the Marine Transportation System (CMTS), and the American Association of Port Authorities. We also reviewed prior GAO reports on several topics, including surface transportation programs, freight mobility issues, Corps budget formulation and project delivery processes, marine transportation financing, strategic planning, and interagency collaboration and coordination practices. We reviewed budget documentation and collected and analyzed funding and financing information for federal programs within the Corps and DOT. We reviewed relevant documentation and interviewed knowledgeable officials about these data and determined that they were sufficiently reliable for the purposes of this report. We reviewed legislation related to surface and MTS infrastructure programs and funding, including the new surface transportation reauthorization—the Moving Ahead for Progress in the 21st Century Act (MAP-21).[4] We interviewed officials from a variety of federal transportation programs and representatives from industry associations representing various stakeholders in the MTS. We conducted site visits to the Port of New York and New Jersey, Port of New Orleans, Port of Portland, Port of Savannah, Port of South Louisiana, and the Port of Vancouver (USA). We chose these site visits based on a variety of criteria, including freight tonnage, ongoing and completed port-related infrastructure development

[4]Pub. L. No. 112-141, 126 Stat. 405 (2012).

projects, a mix of coastal and river ports, and geographic representation. During these site visits, we collected relevant documentation and interviewed a range of port stakeholders, including officials from local port authorities, Corps division and district offices, state DOTs, and Metropolitan Planning Organizations (MPO).[5] The results of these site visits are not generalizable, but do provide insights regarding state, local, and private-sector experiences maintaining and improving MTS infrastructure. For additional information on our scope and methodology, see appendix I.

We conducted this performance audit from November 2011 to November 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

As economic activities become more integrated and globalized, foreign trade has become increasingly important to the U.S. economy.[6] According to DOT, recent projections indicate foreign trade may reach 35 percent of the U.S. gross domestic product (GDP) in 2020 and potentially grow to 60 percent of GDP by 2030. As the types of goods exported from and imported to the United States vary greatly, the specific type of cargo can determine the mode of shipment. For example, cargo such as grains, coal, ore, and cement typically ship by dry bulk carrier, oil and gas by tanker, while other commodities such as apparel and appliances ship via

[5]MPOs, representing local governments, are responsible for carrying out the requirements of the transportation planning process in urbanized areas, in cooperation with state departments of transportation and other providers of transportation services. This may include coordination with ports, shippers, and terminal operators to plan needed system improvements to port infrastructure. An MPO must be designated for each urbanized area with a population of more than 50,000 individuals. 23 U.S.C. § 134(d); 49 U.S.C. § 5303(d).

[6]The importance of U.S. exports to the economy was underscored by the President's National Export Initiative with a goal of doubling U.S. exports by 2015 (from $1.57 trillion to $3.14 trillion). This initiative is focused on increasing exports to create jobs.

containership.[7] According to Corps data, U.S. ports handled a total of 2.3 billion tons of commodities in 2010.

Most types of cargo (including agricultural goods such as grains) are increasingly being moved by containership—ships that carry cargo in containers measured in twenty-foot equivalent units (TEU).[8] In 2009, U.S. ports handled $474 billion in containerized imports and $177 billion in containerized exports. In addition, shippers are increasingly using larger ships to gain transportation efficiencies and cost savings in a competitive market. For example, in 2000, the average containership carried 2,900 TEUs; in 2012, the average containership carried 6,100 TEUs. According to DOT, the number of port calls to the United States by very large post-Panamax containerships[9] carrying 5,200 TEUs or greater increased 156 percent (from 1,700 to 4,400 port calls) from 2004 to 2009. These vessels are expected to represent 62 percent of total containership capacity in the world by 2030. Consequently, continued trade growth in coming years, as well as the increasing size of containerships calling on U.S. ports, will place even greater demands on the nation's MTS and necessitate some changes to MTS infrastructure, such as deepening channels to accommodate these larger vessels.

[7]Bulk means cargo that is transported on a ship or barge, but is not unitized and has to be weighed to be measured. Breakbulk cargo is unitized in packages, bundles, or pallets, but is not shipped within a container. Containers are large steel boxes that contain freight that can be transferred from the ship to various transportation modes such as railcar or truck.

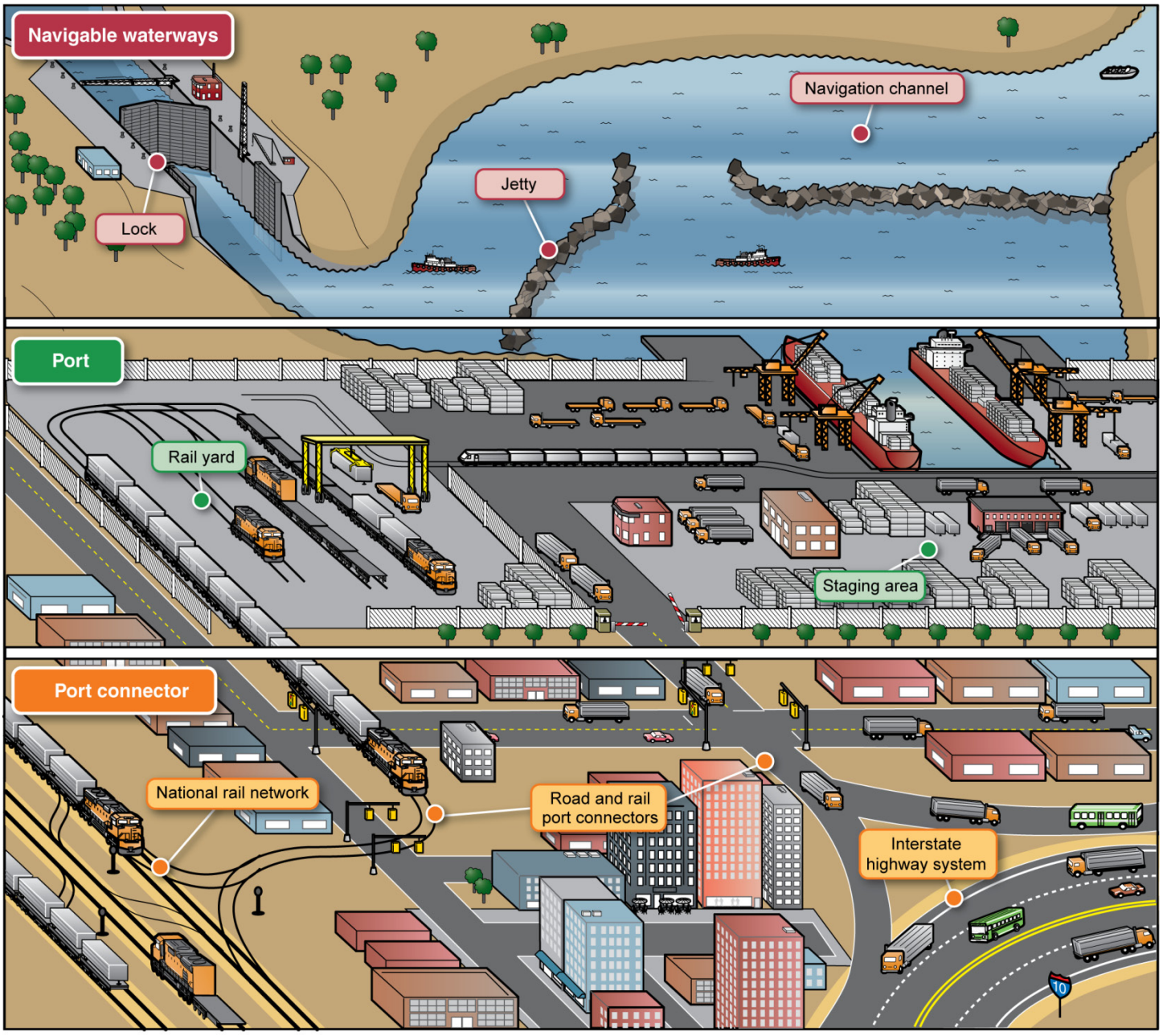
[8]TEU or twenty-foot equivalent unit can be used to measure a ship's cargo carrying capacity. The dimensions of one TEU are equal to that of a standard 20 foot shipping container (20 feet long, 8 feet tall).

[9]These are ships that are currently too large to transit the Panama Canal.

MTS: Navigable Waterways, Ports, and Port Connectors

The MTS is integral to the efficient movement of the nation's freight. It provides a cost effective means of moving bulk, breakbulk, and containerized cargo to U.S. consumers and to foreign markets through a variety of transportation modes. The MTS includes three primary segments: navigable waterways, ports, and port connectors. There are 25,000 miles of commercially navigable harbors, channels and waterways, 4 million miles of public highways and roads, and over 140,000 miles of national, regional, and local railroad networks in the United States over which trillions of dollars worth of freight move annually. Figure 1 below illustrates these three MTS segments.

Figure 1: Three MTS Segments: Navigable Waterways, Port, and Port Connector Infrastructure



Source: GAO.

Navigable Waterways: Navigable waterways include harbors, shipping channels (including both deep and shallow draft), rivers, lakes, and inland waterways, as well as locks, dams, and other navigation structures such as jetties.[10] They provide safe passage for a wide range of shipping vessels including containerships, tankers, bulk carriers, and other vessel types such as inland and oceangoing barges. Inland waterways carry approximately one-sixth of the national volume of intercity cargo on 12,000 miles of commercially active inland and intra-coastal waterways. There are also 13,000 miles of coastal deep and shallow draft harbors and channels that are operated and maintained for commerce. These deep draft harbors and channels provide access to 70 ports, including about 40 ports that have channel depths of 40 feet or more and handle 10 million or more tons of cargo per year.

The federal government pays for all operation and maintenance activities for inland waterways and one-half of the inland waterways construction costs for rehabilitating, modernizing, or replacing locks and dams. The other half comes from commercial waterway users that pay fuel taxes that flow into the Inland Waterways Trust Fund.[11] In contrast, for coastal harbors and channels, the federal government pays from 40 to 90 percent, and the non-federal sponsors pay from 10 to 60 percent of new construction costs depending on the channel depth and sponsor's contribution for land, easement, and rights-of-way.[12] The federal government pays for most operation and maintenance costs for coastal

[10]Inland and intra-coastal waterways have a depth of between 9 and 14 feet and are considered shallow draft waterways. Channels and harbors with a depth of greater than 14 feet are considered deep draft waterways. Today's super-post-Panamax container ships (with at least 8,000 TEU capacity) generally require berth and channel drafts of at least 50 feet deep when fully loaded, but many partially loaded post-Panamax vessels can call at ports with 40 to 45-foot drafts or less.

[11]The Water Resources Development Act of 1986 (Pub. L. No. 99-662, § 102, 100 Stat. 4082, 4084 (1986) codified at 33 U.S.C. § 2212) established the cost-sharing ratios. Fifty percent of the cost of construction is to be paid from amounts appropriated from the General Fund of the Treasury, and the other fifty percent is from a fuel tax paid by commercial inland waterway users that is made available through appropriations from the Inland Waterways Trust Fund. Some waterborne vessels are exempt from the fuel tax, including certain oceangoing ships, passenger boats, recreational craft, or government vessels.

[12]Costs of water resource studies and projects are shared between the federal government and the non-federal sponsor, which can be, for example, a port authority or a state. Cost sharing is a requirement for federal budgetary participation in harbor and inland waterway improvements.

harbors and channels, which are then reimbursed from revenues from the Harbor Maintenance Trust Fund, which comes largely from an excise tax on imports imposed on commercial users at certain ports.[13] The tax applies a second time to cargo that has already arrived at a U.S. port, but is transferred by barge to another U.S. port. Importers or shippers pay an amount equal to 0.125 percent of the value of the commercial cargo involved at the time of unloading. The Harbor Maintenance Trust Fund balance totaled $6.42 billion at the end of fiscal year 2011. Non-federal sponsors are responsible for a small percentage of operation and maintenance costs for harbors and channels that are deeper than 45 feet.

Ports: All ports serve as gateways for the movement of goods between navigable waterways and landside transportation systems, such as the Interstate highway system or the national rail network. For the purposes of this report, we refer to ports as the area "inside the gate" and under the control of the local port authority or private terminal operator, where cargo is loaded and unloaded to and from ships. Ports may be publicly or privately owned and operated, and consist of thousands of large, medium, and small terminals and intermodal facilities in approximately 360 commercial sea and river ports. However, most of the United States' containerized cargo is handled by a few major ports. For example, in 2009 U.S. ports handled over 206 billion tons of containerized imports and exports, and the top 10 U.S. container ports accounted for 85 percent of the total trade, according to DOT.[14]

Port Connectors: Efficient freight movement depends upon the condition of intermodal connections. Port connectors include transportation infrastructure such as roads, railways, and marine highways that connect the port to major trade corridors and allow freight to transfer from one

[13]The Water Resources Development Act of 1986 created the Harbor Maintenance Trust Fund. Pub. L. No. 99-662, § 1403, 100 Stat. 4082, 4269 (1986) (codified at 26 U.S.C. § 9505).

[14]Top 10 container ports include: Los Angeles, CA; New York/New Jersey, NY/NJ; Long Beach, CA; Savannah, GA; Houston, TX; Oakland, CA; Norfolk, VA; Seattle, WA; Charleston, SC; and Tacoma, WA. U.S. Department of Transportation, Bureau of Transportation Statistics, *America's Container Ports: Linking Markets at Home and Abroad* (Washington, D.C.: January 2011).

transportation mode to another (e.g., from a ship to a truck).[15] The Alameda Corridor, a 20-mile, $2.4 billion railroad express line linking the ports of Los Angeles and Long Beach to the transcontinental rail network east of downtown Los Angeles, provides one example of a major port connector that facilitates the movement of containerized freight to the East Coast as well as the Midwest.

The federal government's expenditures for surface transportation infrastructure, including port connectors, are based, in part, on the user pay principle. The government collects taxes and fees, which flow into the Highway Trust Fund—historically the principle mechanism for funding federal highway programs. The Highway Trust Fund generally provides for the construction, reconstruction, restoration, and rehabilitation of roads that serve both freight and non-freight users. State and local governments also invest in public highways and roads. Within the federal-aid highway program, the federal government generally is responsible for funding 80 to 100 percent of highway project costs, while state and local governments are responsible for the remainder.[16] Typically, state and local governments collect revenue from a combination of fuel taxes, vehicle taxes and fees, and tolls. State and local governments supplement user fees with general revenues to support highway and road activities.

[15]The Energy Independence and Security Act of 2007, requires the Secretary of Transportation to establish a short sea transportation (Marine Highway) program and designate short sea transportation projects to mitigate landside congestion. Pub. L. No. 110-140, §§ 1121-1123, 121 Stat. 1492 (2007). America's Marine Highway system accommodates the waterborne movement of passengers and containerized freight between origins and destinations otherwise served solely by roads and railways.

[16]Federal funding for highways is provided to the states primarily through a series of formula grants collectively known as the federal-aid highway program.

GAO's Prior Work on Freight Mobility and a National Freight Policy

Freight mobility is dependent on MTS infrastructure, and we have published a number of reports addressing surface transportation issues identifying a variety of challenges to freight mobility in the United States.[17] We have highlighted challenges such as:

- facilitating the efficient movement of freight and the growing demand for freight transportation;
- adding capacity to accommodate that increased demand;
- limited investment from federal, state, and local government in freight projects; and
- including freight projects in the state and local transportation planning process.

We have also reported on the numerous federal goals for surface transportation and the lack of clarity in federal stakeholder roles. For example, DOT operating administrations with roles in freight transportation include the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), Federal Motor Carrier Safety Administration, and Maritime Administration (MARAD). An office of freight management and operations within FHWA administers programs, develops policies, and undertakes research that promotes freight movement across the nation and its borders, but the office does not coordinate federal actions such as federal funding related to freight mobility.

We have previously reported that although there is a clear federal interest in freight transportation, there has not been a strategy that clearly defines the federal role or a mechanism to implement a national freight strategy. In the past, we have recommended or proposed for congressional consideration a number of actions to address this issue.[18] On July 6,

[17]GAO, *Intermodal Transportation: DOT Could Take Further Actions to Address Intermodal Barriers,* GAO-07-718 (Washington, D.C.: June 20, 2007); *Freight Transportation: National Policy and Strategies Can Help Improve Freight Mobility,* GAO-08-287 (Washington, D.C.: Jan. 7, 2008); *Statewide Transportation Planning: Opportunities Exist to Transition to Performance-Based Planning and Federal Oversight,* GAO-11-77 (Washington, D.C.: Dec. 15, 2010); and *Surface Freight Transportation: A Comparison of the Costs of Road, Rail, and Waterways Freight Shipments That Are Not Passed on to Consumers,* GAO-11-134 (Washington, D.C.: Jan. 26, 2011).

[18]GAO, *2012 Annual Report: Opportunities to Reduce Duplication, Overlap and Fragmentation, Achieve Savings, and Enhance Revenue,* GAO-12-342SP (Washington, D.C.: Feb. 28, 2012).

2012, MAP-21 was enacted into law and authorized funding for 2 years to core federal-aid highway and transit programs.[19] This legislation establishes a framework for a national freight policy and directs DOT to develop a national freight network and a *National Freight Strategic Plan*. It encourages states to develop freight plans with a description of procedures states will use to make investment decisions involving freight transportation. It also authorized the increase of the federal cost share of freight-related projects on Interstate highways to 95 percent and to 90 percent on other roads if the Secretary of Transportation certifies that the projects meet specified requirements. On July 19, 2012, the President announced the establishment of a White House-led task force to develop a federal strategy to inform future investment decisions and identify opportunities for improved coordination and streamlined review of investments in coastal port infrastructure. The task force is comprised of senior officials from five departments and five White House offices and plans to build on steps already taken to coordinate across agencies with port-related responsibilities.[20]

Committee on the Marine Transportation System and the MTS National Strategy

A Presidential Directive in the U.S. Ocean Action Plan, issued in 2004, elevated the existing Interagency Committee on the Marine Transportation to a Cabinet-level body, and created the Committee on the Marine Transportation (CMTS).[21] The CMTS adopted a charter in 2005 creating a partnership of federal agencies with responsibility for the MTS

[19]Pub. L. No. 112-141, §§ 115-118, 126 Stat. 405 (2012). The law also expresses the sense of Congress that the administration should request, and the Congress should fully expend each year, all of the revenues collected in the Harbor Maintenance Trust Fund for the operation and maintenance of the nation's federally maintained harbors and channels. Id. at § 1536. It also directs the administration to provide an annual estimate of national harbor maintenance needs, including an estimate of the percentage of waterways that would be available for use based on the annual budget request, as well as how much funding would be needed to achieve 95 percent availability of the nation's ports and waterways within 3 years. Id. at § 1537.

[20]The White House Task Force on Ports is comprised of senior officials from the National Economic Council, Office of Management and Budget, Department of the Army, Department of Commerce, Department of Homeland Security, Department of Transportation, Department of the Treasury, Council of Economic Advisors, Council on Environmental Quality, and the Office of the U.S. Trade Representative.

[21]In the Oceans Act of 2000, Congress established the U.S. Commission on Ocean Policy (Commission). Pub. L. No. 106-256, 114. Stat. 644 (2000). The Commission issued a report, *"An Ocean Blueprint for the 21st Century,"* in 2004. The U.S. Ocean Action Plan was the Administration's response to the Commission's report.

to ensure the development and implementation of national MTS policies consistent with national needs and report to the President its views and recommendations for improving the MTS.[22] The CMTS is a federal cabinet-level, interagency organization chaired by DOT and supported by a sub-cabinet policy advisory body, the Coordinating Board, a dedicated staff body, the Executive Secretariat, and Integrated Action Teams. According to the committee's charter, the CMTS is responsible for:

- improving federal MTS coordination and policies;
- promoting the environmentally sound integration of marine transportation with other modes of transportation and with other ocean, coastal, and Great Lakes uses;
- developing outcome-based goals and strategic objectives for the safety, security, efficiency, economic vitality, environmental health, and reliability of the MTS for commercial and national defense requirements as well as a method for monitoring progress towards those goals;
- coordinating budget and regulatory activities that impact the MTS; and
- recommending strategies and implementing plans to maintain and improve the MTS.

In July 2008, the CMTS published a *National Strategy for the Marine Transportation System (Strategy)* to address challenges to improving the MTS and ensuring that policies and actions of CMTS agencies are synchronized and coordinated.[23] The *Strategy* provided a policy framework for the MTS for 2008 through 2013 and recommended 34 actions in 5 priority areas including capacity, safety and security, environmental stewardship, resilience and reliability, and finance.

[22]Members of the CMTS include the Secretary of Transportation; Secretary of Commerce; Secretary of Defense; Secretary of Homeland Security; Secretary of the Treasury; Secretary of State; Secretary of the Interior; Secretary of Agriculture; Secretary of Justice; Secretary of Labor; Secretary of Energy; Chairman of the Joint Chiefs of Staff; Administrator of the Environmental Protection Agency; Chairman of the Federal Maritime Commission. In addition, there are five Ex-Officio members of the Committee: Director, Office of Management and Budget; Chairman, Council on Environmental Quality; Assistant to the President for Homeland Security; Assistant to the President for Domestic Policy; and Assistant to the President for Economic Policy.

[23]Committee on the Marine Transportation System, *National Strategy for the Marine Transportation System: A Framework for Action* (Washington, D.C.: July 2008).

A Variety of Corps and DOT Programs Can Be Used to Maintain or Improve Some Segments of the MTS

The Corps and DOT have programs that can be used to address three key infrastructure segments of the MTS. Specifically, the Corps is responsible for navigable waterways' infrastructure and provides funding through its navigation program. Projects that improve or maintain ports and port connectors can receive federal funding or financing through a variety of programs administered by the DOT.

Navigable Waterways Segment

The Corps' navigation program is responsible for maintaining navigable harbors, channels, and waterways and supporting structures—such as locks, dams, and jetties—for the MTS.[24] Primary responsibilities of the navigation program include dredging to maintain channel depths at U.S. harbors and on inland waterways as well as planning, constructing, rehabilitating, operating, and maintaining navigation channels, locks, dams, and other structures. The Corps maintains only the federally designated channels in inland and coastal harbors, the depth and width of which are authorized by Congress.[25] Increases in a navigation channel's authorized depth or width—referred to as construction or "new work"—are also congressionally authorized.

The Corps' navigation program activities are generally funded from the Energy and Water Development Appropriations Acts. Funding requests in the President's Budget for the navigation program that primarily supports Corps activities to maintain and improve navigable waterways have decreased from $2 billion in fiscal year 2008 to $1.58 billion in fiscal year 2012. More specifically, the navigation program has decreased as a percentage of the President's budget for the civil works program from 41

[24]Jetties are shore-connected structures generally built on either one or both sides of a navigation channel perpendicular to the shore and extending into the ocean. They are used to stabilize navigation channels and decrease dredging requirements.

[25]See, for example, Section 3028 of the Water Resources Development Act of 2007 (Pub. L. No. 110-114,110 Stat. 1041, 1141 (2007)) providing that the Secretary may dredge the Redwood City Navigation Channel, California, on an annual basis, to maintain the authorized depth of -30 feet below mean low water. Ports are responsible for dredging non-federal channels and berths, which is the area next to the pier where a ship docks.

percent in fiscal year 2008 to 34 percent in fiscal year 2012.[26] Similar decreases occurred in obligations from three of the four separate appropriations accounts that support the Corps' maintenance and improvement activities for navigable waterways: the (1) Investigations, (2) Construction, and (3) Operation and Maintenance accounts. According to a senior Corps official, a separate Mississippi River and Tributaries appropriations account—which is used primarily for flood control—can provide additional funds for investigations, construction, and operation and maintenance. As shown in Table 1 below, our analysis of Corps data found that the Corps' total obligations for these accounts have decreased from over $3 billion in fiscal year 2009 to about $1.8 billion in fiscal year 2011, a reduction of approximately 41 percent.[27] The vast majority of the funds in each fiscal year are obligated for operation and maintenance activities.

Table 1: Corps Navigation Program Obligations by Appropriations Account, Fiscal Years 2009 to 2011

Appropriations Account	FY2009	FY2010	FY2011
Investigations	$15,503,342	$11,528,453	$7,785,470
Construction	473,193,927	334,385,585	233,420,154
Operation and Maintenance	2,478,036,016	1,866,911,203	1,526,723,174
Mississippi River and Tributaries			
Construction	9,328,116	11,888,462	837,855
Operation and Maintenance	37,240,186	54,176,060	20,145,861
Total	**$3,013,301,587**	**$2,278,889,764**	**$1,788,912,515**

Source: GAO analysis of Corps data.

Notes: These data represent obligations using all funding sources, including funds from the Inland Waterway Trust Fund and the American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009).

Totals may not add due to rounding.

[26]The navigation program is one of nine major functional areas, or business lines, in the civil works program. Other business lines within the Corps' civil works program include flood risk management, a regulatory program, water supply, hydropower, recreation, environment, emergency management, and support for others, which covers the Corps' activities related to interagency and international support.

[27]An obligation is a definite commitment that creates a legal liability of the government for the payment of appropriated funds for goods and services ordered or received, or a legal duty on the part of the United States that could mature into a legal liability by virtue of actions on the part of the other party beyond the control of the United States. An agency incurs an obligation, for example, when it signs a contract or awards a grant.

- *Investigations*: Prior to beginning any new navigation project, the Corps studies the proposed project's necessity, feasibility, costs, and benefits. According to data provided by the Corps, the Corps obligated approximately $7.8 million for such investigations in fiscal year 2011, with work on most investigations projects conducted over multiple years. For example, according to the Corps' fiscal year 2012 Budget Justification, the federal share to fund preconstruction engineering and design activities for a navigation channel-deepening project at the Port of Savannah will cost an estimated $31 million. According to the Corps' final report for the project, it will deepen the harbor from its current authorized depth of 42 feet to 47 feet as well as widen areas where the navigation channel bends or where vessels pass or turn. The final report states that the increased depth will result in annual benefits because of the increased transportation cost efficiencies, reduced tidal delays, and reduced channel-congestion delays.[28] Specifically, the report concluded that although deepening the harbor would cost $39 million each year to maintain, it would generate average annual benefits to the nation of $213 million, thereby resulting in $174 million in net annual benefits to the nation.[29]

- *Construction*: The Corps obligates funds for construction and major rehabilitation projects related to navigation through its Construction account—totaling over $234 million in fiscal year 2011, according to data provided by the Corps. Similar to its Investigations account, work on most construction projects is conducted over multiple years. For example, according to the Corps' fiscal year 2012 Budget Justification, the federal share of the New York and New Jersey Harbor-deepening construction project will cost an estimated $1.17 billion. The project will deepen 35 miles of navigation channels at the Port of New York and New Jersey to enhance access to the port's major container terminals, according to the Corps. In addition, as part of its Olmsted Locks and Dam Project, the Corps is replacing two existing locks and dams on the Ohio River that can no longer meet current traffic demands without significant delays. According to a March 2012 Corps fact sheet, the project's current cost estimate

[28]U.S. Army Corps of Engineers, Savannah District, *Final General Re-Evaluation Report: Savannah Harbor Expansion Project* (January 2012).

[29]We did not independently verify the Corps' estimates for the Savannah Harbor Expansion Project.

without inflation at the October 2011 price level is approximately $2.9 billion.

- *Operation and Maintenance*: According to data provided by the Corps, in fiscal year 2011 the Corps obligated over $1.5 billion from its Operation and Maintenance account, which funds activities that maintain existing infrastructure. This generally includes dredging navigable harbors, channels, and waterways up to their congressionally authorized depth and width; however, these funds are also used for other purposes, such as to conduct routine maintenance on existing locks and dams. For example, Corps officials from the New Orleans District told us that dredging needs can vary significantly throughout the year, with some river sections receiving sediment deposits of up to 5 feet in one day. As a result, according to Corps officials, daily dredging of navigation channel sections at the mouth of the Mississippi River during certain times of the year is needed to ensure that ships can safely and efficiently access ports. According to the Corps' Navigation Data Center, New Orleans dredged more material than any other district in fiscal year 2010, removing over 65 million cubic yards of material.

Port Segment

The federal government provides some funding or financing for projects that improve the port segment of the MTS. However, local taxes, private investment, and port authorities have typically financed infrastructure maintenance and improvements "inside the gate." According to the American Association of Port Authorities, ports and their private-sector partners plan to invest $46 billion through 2017 in port operations and infrastructure. Ports that we visited also plan to make such investments. For example, according to Port Authority of New York and New Jersey officials, the port plans to invest an estimated $1.7 billion over the next decade to sustain port growth and improve transportation infrastructure by, among other things, improving capacity of the port marine terminal roadway and rail systems, and local connections to major freight corridors. They noted that the figure does not include an estimated $1 billion Port Authority of New York and New Jersey project to raise the roadway deck of the Bayonne Bridge, which will allow larger ships to pass underneath.

The federal government may also provide some funding or financing for projects on port property. For example, DOT's Transportation Investment Generating Economic Recovery (TIGER) grant program has provided funds for infrastructure improvement projects on port property that are expected to have a significant impact on the nation, a metropolitan area,

or a region. We have previously reported that while there was no requirement to distribute grant awards across different modes of transportation, TIGER funding has supported merit-based highway, transit, rail, port, and other projects.[30] The American Association of Port Authorities has strongly supported the TIGER program as a way to fund projects that will sustain and improve the nation's critical gateways for global trade.

Ports that we visited viewed the TIGER program as an opportunity to improve their existing infrastructure. Each of the ports we visited applied for a TIGER grant since funds were first appropriated for this grant program in the American Recovery and Reinvestment Act in 2009.[31] Overall, we found that DOT's TIGER program awarded approximately $357 million for at least 26 port or port-connector projects between fiscal year 2009 and fiscal year 2012. For example, in 2010 the Port of Vancouver (USA) received a $10 million TIGER grant to help complete its West Vancouver Freight Access project, which will create a direct freight rail entry and exit from the port and alleviate rail traffic congestion. The project is divided into 20 elements, with completion anticipated in 2017. Similarly, in 2011 the Port of New Orleans received a $16.7 million TIGER grant to construct a new 12-acre freight rail intermodal terminal and improve a 4-acre storage yard that is used for ultra-heavy project cargoes. The project's objective is to reduce congestion, facilitate the movement of marine and rail cargo, stimulate international commerce, and maintain an essential port asset in a state of good repair.

Other DOT programs may also provide funds for port infrastructure development "inside the gate." For example, the National Defense Authorization Act for Fiscal Year 2010 established the Port Infrastructure Development Program to improve port facilities.[32] Specifically, the act

[30]GAO, *Surface Transportation: Competitive Grant Programs Could Benefit from Increased Performance Focus and Better Documentation of Key Decisions*, GAO-11-234 (Washington, D.C.: Mar. 30, 2011).

[31]Pub. L. No. 111-5, 123 Stat. 115 (2009).

[32]Pub. L. No. 111-84, § 3512, 123 Stat. 2190 (2009). MARAD has existing authorities to conduct port infrastructure programs in Hawaii (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Pub. L. No 109-59, § 9008, 119 Stat. 1144, 1926 (2005); Alaska (SAFETEA-LU at § 10205); and Guam (Duncan Hunter National Defense Authorization Act for Fiscal Year 2009, Pub. L. No. 110-417 § 3512, 122 Stat. 4356, 4770 (2008)).

authorized the MARAD Administrator to, among other things, provide technical assistance to port authorities for project planning, design, and construction as well as to administer and carry out projects. According to MARAD officials, Congress has not appropriated any funds to the Port Infrastructure Development Program. Similarly, MARAD administers the America's Marine Highway Program, intended to, among other things:

- expand domestic water transportation services as an alternative means of moving freight cargo and passengers;
- mitigate the economic, environmental, and energy costs of landside congestion; and
- integrate marine highways into the transportation planning process.

Under the program, ports that are sponsors of designated Marine Highway Projects are eligible to compete for grants, and in September 2010, DOT awarded three projects and three research studies, totaling $7 million in funds. For example, the Virginia Port Authority was awarded $1.1 million to help purchase two barges to expand container transportation services both between the ports of Richmond and Norfolk and between the terminals within the port of Norfolk. This action is intended to relieve congestion along I-64 and within the City of Norfolk.

Port Connector Segment

A variety of DOT formula, grant, and credit programs may be used to maintain and improve port connector infrastructure, such as road and rail connections to the Interstate system or national rail network. MAP-21 restructured highway programs by eliminating or consolidating the number of programs by two-thirds into new core formula programs: the National Highway Performance Program, the Surface Transportation Program, the Highway Safety Improvement Program, the Congestion Mitigation and Air Quality Improvement Program, the Railway-Highway Crossings program, and the Metropolitan Planning program. We did not assess how MAP-21 may affect the programs that DOT uses to fund or finance MTS projects; however, at the time of our review, we identified various surface transportation formula programs that could be used by state and local governments to develop or improve port connectors, all of which were administered by FHWA. These programs included, among others, the Congestion Mitigation and Air Quality Improvement Program, the Highway Safety Improvement Program, and the National Highway System. FHWA distributes this funding to the states through annual apportionments established by statutory formulas, and state and local governments are ultimately responsible for, among other things, selecting, planning, and supervising their infrastructure projects, including

determining which, if any, port connections should be maintained or improved.

FHWA obligations for formula programs in fiscal year 2011 ranged from approximately $232.6 million from the Metropolitan Planning Funds program to $9.5 billion from the Surface Transportation Program. (See app. II for a table of DOT programs we reviewed that may fund MTS infrastructure.) Although FHWA can determine overall obligations for these programs, according to FHWA officials, it does not track the extent to which formula programs fund port connector projects specifically. As a result, we were not able to determine the total funds that were used to benefit ports. FHWA officials noted that FHWA's role is to ensure that state projects meet federal program eligibility requirements and identified several challenges to identifying port-specific projects:

- The number of port-specific projects for which formula funds are obligated is likely small. One FHWA official told us, for example, that less than 1 percent of Congestion Mitigation and Air Quality Improvement Program funds are likely obligated to port-specific projects.
- Although some FHWA division offices may be able to identify port-specific projects because they use distinct accounting codes for these investments, such coding is not required and is inconsistently applied across division offices.
- Some larger highway projects may include components that could benefit a port; however, according to one FHWA official, it can be challenging to make that distinction.

By contrast, several DOT programs allow the department to grant or direct funds to port-connector infrastructure projects. According to data provided by DOT officials, the department obligated the following approximate amounts in fiscal year 2011:

- FHWA's Freight Intermodal Distribution Pilot Grant Program ($14 million), National Corridor Infrastructure Improvement Program ($77 million), and Projects of National and Regional Significance program ($237 million); and
- FRA's Program for Capital Grants for Rail Line Relocation and Improvement Projects ($32 million).

Of these programs we identified, the majority of funds were obligated from the Projects of National and Regional Significance program, under which funds are distributed by congressional directive. For example,

under the program Congress directed $100 million from fiscal year 2005 to fiscal year 2009 to the Cross Harbor Freight Movement Project in New York.[33] According to FHWA, the goal of the project is the near-term rehabilitation and the long-term improvement of the underutilized rail freight network connecting the New York and New England markets to national markets west of the Hudson River.

Some DOT credit programs can also target and finance port connector projects. For example, under these programs, DOT may obligate funds for direct loans to project sponsors. Generally, for credit programs, federal agencies obligate the credit program's subsidy costs and administrative expenses.[34] This amount differs from the credit instrument's principle amount, which represents the total credit provided by the federal government to the project's sponsor. (See app. III for a table of obligations, principal amount, and subsidy cost information related to these programs.) One such credit program is FHWA's Transportation Infrastructure Finance and Innovation Act (TIFIA) program, which provides federal credit assistance in the form of direct loans, loan guarantees, and lines of credit to finance surface transportation projects of national and regional significance.[35] The TIFIA program supported at least one port connector project to date—providing a $341 million direct loan to a public-private partnership project intended to construct a dedicated roadway connector between the Interstate system and the Port of Miami. FRA's Railroad Rehabilitation and Improvement Financing (RRIF) Program is another credit program that may be used to upgrade port connectors to the nationwide rail network. Under the RRIF program, FRA provides direct loans and loan guarantees to (1) acquire, improve, or rehabilitate intermodal or rail equipment or facilities; (2) refinance outstanding debt, or (3) develop or establish new intermodal or railroad facilities. According to data provided by FRA officials, FRA obligated

[33]SAFETEA-LU, Pub. L. No. 109-59, 119 Stat. 1144, 1203 (2005).

[34]Budgeting for the cost of credit programs, including the TIFIA and RRIF program, is governed by the Federal Credit Reform Act of 1990 (Pub. L. No. 101-508, 104 Stat. 1388, 1388-610, title V, codified as amended at 2 U.S.C. § 661-661f), which requires federal agencies to receive budget authority to cover the estimated long-term cost to the government (which includes defaults, delinquencies, and interest subsidies) of providing credit assistance, calculated on a net present value basis, and excluding administrative costs.

[35]For additional discussion of the TIFIA program, see GAO, *Surface Transportation: Financing Program Could Benefit from Increased Performance Focus and Better Communication*, GAO-12-641 (Washington, D.C.: June 21, 2012).

approximately $842 million for direct loans under the program between fiscal year 2009 and fiscal year 2011.

Several Challenges Exist to Maintaining and Improving the MTS

We identified three key challenges to maintaining and improving MTS infrastructure. First, aging infrastructure on the nation's waterways, ports, and port connectors may hinder the efficient movement of freight. Second, the Corps and DOT are faced with more demands for maintaining and improving MTS infrastructure than available federal funding allows. Third, while the Corps and DOT have taken some steps to prioritize funding within their purview for all three segments of the MTS that we reviewed, there is no system-wide strategy for prioritizing MTS investments.

Aging MTS Infrastructure

Navigable Waterways and Supporting Structures

The Corps is facing challenges maintaining and improving navigation infrastructure, such as dredging channels and repairing locks. For example, according to navigation program officials responsible for managing the deep draft Mississippi River channel between Baton Rouge and the Gulf of Mexico, increased dredging costs have precluded the Corps from being able, as of fiscal year 2011, to maintain the Mississippi River channel at its fully authorized width and depth.[36] Figure 2 below shows the Mississippi River at the Port of South Louisiana.

[36]Historically, the Corps has maintained the Mississippi River navigation channel to full dimensions as much as possible at all times using annual and supplemental appropriations, and reprogramming funds from other projects.

Figure 2: Mississippi River at the Port of South Louisiana

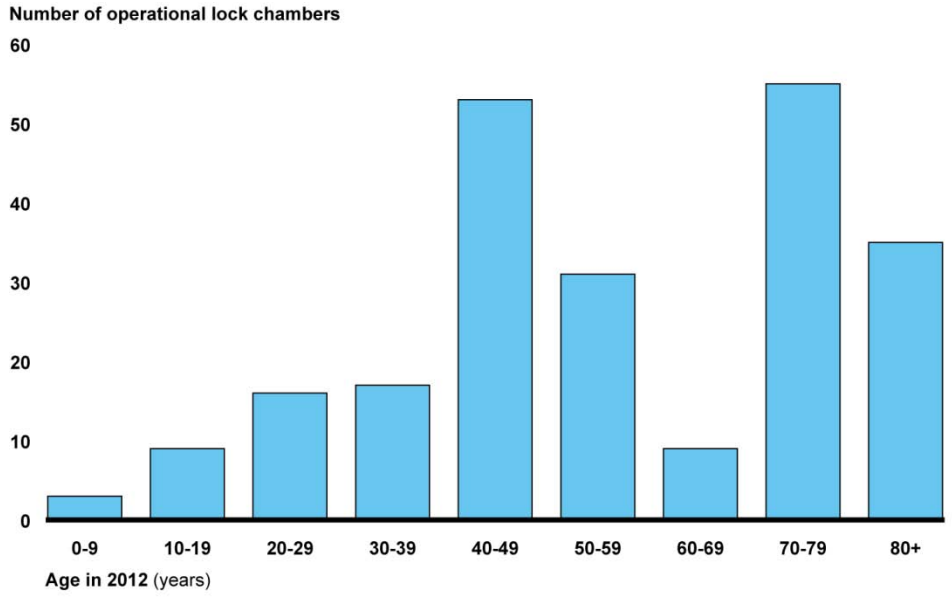
Source: GAO.

As a result of the channel's shoaling,[37] the New Orleans-Baton Rouge Steamship Pilot's Association, which is responsible for operating vessels on the lower Mississippi River, began placing restrictions on certain sections of the river when conditions warrant. According to Corps officials, these restrictions can increase the time and cost of shipping services and the channel shoaling may have a negative impact on safety. Structures that support navigation channels, such as jetties, are also aging and in need of rehabilitation. For example, the jetties at the mouth of the Columbia River, which help to maintain the depth and orientation of the shipping channel and provide protection for ships from waves entering and exiting the river, are about 100 years old. The Corps' Portland District recently completed a major rehabilitation report for the jetties, with prescribed near-term repairs, as well as more significant rehabilitation to be pursued between 2014 and 2020. The Pacific Northwest Waterways Association has indicated that these jetties are of critical importance to shippers in the region.

[37]Shoaling is the natural shallowing of a river channel due to sediment build-up.

The locks and dams that support navigation on the nation's inland waterway system are also aging, resulting in decreased performance and costly delays. Over one-half of the Corps' 241 locks at 196 sites have exceeded their 50-year service life, requiring increased maintenance to keep them functioning.[38] Figure 3 shows the age of the nation's navigation lock inventory.

Figure 3: Corps Navigation Lock Inventory, 2012



Source: U.S. Army Corps of Engineers.

Note: Includes all operational deep and shallow draft Corps and Tennessee Valley Authority navigation locks.

[38]When properly maintained, navigation projects, such as locks, traditionally have a 50-year design life, which is the minimal time the project is expected to provide reliable performance without major infrastructure investments to keep it safe and efficient.

As locks age, repair and rehabilitation become more extensive and expensive, according to the CMTS.[39] Corps officials told us that, at current funding levels, replacement of the Inner Harbor Navigation Canal lock (Industrial Canal), a vital link that connects the Mississippi River to the Gulf Intracoastal Waterway system in New Orleans, may not occur until 2030.[40] Moreover, according to the Corps, the current lock, which was completed in 1921, is too small to accommodate modern day vessels. See figure 4 below.

[39]The problem of aging navigation infrastructure is not unique to the Corps. In 2010, GAO examined the U.S. St. Lawrence Seaway Development Corporation's 10-year Asset Renewal Program to address long-term needs of two locks and navigation channels in the U.S. portion of the St. Lawrence Seaway and found that the total project estimates had increased in cost. See GAO, *St. Lawrence Seaway: Estimates for the Asset Renewal Program Will Change, and Implementing Best Practices May Improve the Estimates' Reliability,* GAO-10-541R (Washington, D.C.: May 13, 2010).

[40]The Inner Harbor Navigation Canal Lock Replacement Project was originally authorized by Congress in 1956 (Pub. L. No 84-455, 70 Stat. 65 (1956)) and amended by the Water Resources Development Acts of 1986 (Pub. L. No 99-662, 100 Stat. 4082 (1986)) and 1996 (Pub. L. No 104-3, 110 Stat. 3658 (1996)). According to industry, the average delay is 11 hours, but can be as much as 24 to 36 hours on many occasions.

Figure 4: Construction at the Inner Harbor Navigation Canal Lock, New Orleans, Louisiana

Source: U.S. Army Corps of Engineers.

Corps officials attributed this delay to the years of planning and community involvement needed to reach consensus on the lock design, as well as insufficient resources to address the lock replacement because of other construction projects.[41] The planned replacement lock will provide a nearly three-fold increase in lock chamber capacity; however, Corps officials told us that project costs have also increased considerably over time, with current construction costs estimated at $1.5 billion.

The Corps uses performance indicators to measure the performance of its locks. Each year the Corps measures its performance in meeting a number of high priority goals, and as part of this effort, the Corps assesses the extent to which the navigation projects are meeting

[41]The Olmsted Lock and Dam replacement is affecting the Corps' ability to rehabilitate other navigation projects across the country as costs for the replacement have escalated from $775 million to the current project estimate cost to complete of $2.9 billion.

authorized purposes and evolving conditions.[42] The Corps has developed performance metrics for navigation operation and maintenance activities to provide an indicator of the extent to which the Corps is meeting those goals. Recent data illustrate the effect that aging infrastructure is having on MTS performance (see table 2). These metrics show that the hours of scheduled and unscheduled lock closures because of mechanical failures have increased since fiscal year 2009. Moreover, according to a senior Corps navigation program official, there has been a consistent trend of deteriorating lock performance since 2000. For some indicators, such as the number of preventable lock closures over 24 hours, performance in 2011 was better than in 2010; however, the performance of the locks still failed to meet Corps' targets for 2011. Also, in fiscal year 2011, the Corps did not meet performance targets for locks at both inland waterways and coastal ports and harbors.[43]

Table 2: Selected Corps Navigation Operation and Maintenance Activities Performance Indicators

		2009	2010	2011	
		Actual	Actual	Target	Actual
Inland waterways	Segment availability – closures over 24 hours in thousands of hrs.	11.1	19.6	19	23.1
	Preventable lock closures over 24 hours	37	61	38	50
	Preventable lock closures over 7 days	19	37	21	26
Coastal ports and harbors	Channel availability	50%	38%	35%	Not available[a]

Source: U.S. Army Corps of Engineers – Civil Works, Annual Financial Report, fiscal year 2011.

[a]U.S. Army Corps of Engineers, Waterborne Commerce Statistics data was not available for publication at the time of this report.

[42]In 2009 the Corps developed four high-priority performance goals, including to: (1) provide sustainable development and integrated management of the nation's water resources; (2) repair past environmental degradation and prevent future environmental losses; (3) ensure that projects perform to meet authorized purposes and evolving conditions; and (4) reduce vulnerabilities and losses to the nation and the Army from natural and man-made disasters, including terrorism. The selected navigation operation and maintenance activities performance metrics listed in table 2 address the third goal.

[43]The Corps measures segment availability by assessing the number of hours that mechanical-driven failure or shoaling results in the closure of a high or moderate use river segment. Channel availability is the percentage of time that high-commercial traffic navigation channels are available to commercial users. There are a total of 59 high-use channels, defined as those that pass 10 million or more tons of cargo per year.

Port Connectors

The nation's road connectors at ports are used by trucks with heavy loads and are often in poor condition. DOT has reported that much of the nation's freight transportation infrastructure was developed before 1960 to serve industrial and population centers in the Northeast and Midwest.[44] Since 1960, however, there have been fundamental changes in the American economy as the population and manufacturing have grown in the South and West Coast. According to DOT, the growth in freight transportation is a major contributor to congestion in urban areas and congestion in turn affects the timeliness and reliability of freight transportation. In its December 2000 report to Congress, DOT found that many of the nation's intermodal road connectors to ports were under-maintained. For example, highway connectors to ports had twice the percentage of pavement deficiencies as non-Interstate National Highway System routes.[45] In that study, DOT found that 15 percent of the port connector mileage, which it defined as the roadway used by trucks to travel between major highways and ports, was in poor or very poor condition. More recently in 2004, DOT reported that about one-third of the port connector system was in need of additional capacity because of current congestion and that over 40 percent of the port connector mileage needs some type of pavement or lane-width improvement.[46] Prior surface transportation legislation did not specifically address the condition of port connectors on a systematic basis, but the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) established a Freight Intermodal Distribution Pilot Grant Program to, among other things, facilitate and support intermodal freight transportation activities at the state and local levels to relieve congestion. This program included $30 million for six designated projects aimed at relieving congestion at intermodal facilities, including several ports.[47]

[44]U.S. Department of Transportation, *2008 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance Report to Congress*, (Washington, D.C.: January 2010).

[45]U.S. Department of Transportation, *NHS Intermodal Freight Connectors: A Report to Congress*, (Washington, D.C.: December 2000).

[46]U.S. Department of Transportation, *2004 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance Report to Congress*, (Washington, D.C.: February 2006).

[47]Pub. L. No. 109-59, § 1306, 119 Stat. 1144, 1215-1217 (2005).

Efficient freight movement at ports may also be hindered by aging rail infrastructure, especially key bridges. According to officials from the MPO serving the New Orleans metropolitan area, one of the most pressing rail infrastructure needs at the Port of New Orleans is replacement of the Almonaster Avenue Bridge, which is a central link in the east-west rail traffic across the southern United States handling numerous trains per day. The existing bridge was completed in 1920 and is structurally deficient—in its closed position the bridge provides only one to two feet of vertical clearance above the average water level and must open to virtually all marine traffic.[48] Although the bridge is part of the national highway system, making it eligible for federal funding, it is not a part of the state highway system, and therefore ineligible for state funding, according to state officials. At issue is whether the Port of New Orleans, which owns the bridge, should pay for its share of the $65 million bridge replacement, because the transportation benefits that would come from the bridge's replacement would accrue to the nation.

MTS Infrastructure Backlog

Today, the Corps is faced with more demands for maintaining and improving aging navigation infrastructure than available federal funding allows. According to Corps navigation program data, current authorization of appropriation amounts for navigation construction projects exceeds the amount appropriated by $13.5 billion, and the current estimated operation and maintenance backlog is $3.4 billion, assuming current funding levels. The data only include the federal shares and do not include the non-federal share of the costs provided by project stakeholders.[49] Several factors have been identified as contributing to the size of the current navigation program backlog, including:

- authorizations that have outpaced appropriations in recent years;

[48]For additional discussion on the condition of the nation's bridges and the Federal Highway Administration's Highway Bridge Program, see GAO, *Highway Bridge Program: Condition of Nation's Bridges Shows Limited Improvement, but Further Actions Could Enhance the Impact of Federal Investment,* GAO-10-930T (Washington, D.C.: July 21, 2010).

[49]The Water Resources Development Act of 1986 (Pub. L. No. 99-662, § 102, 100 Stat. 4082 (1986)) imposed new requirements on the financing of Corps navigation projects and established a cost-share requirement for harbor and inland waterways projects. For additional discussion see GAO, *Federal User Fees: Substantive Reviews Needed to Align Port-Related Fees with the Programs They Support,* GAO-08-321 (Washington, D.C.: Feb. 22, 2008).

- the aging of existing infrastructure, which requires more funds for operations, maintenance, and rehabilitation; and
- rapidly increasing costs to construct water infrastructure projects, in part because of price increases for construction materials and fuels.[50]

Other reasons for the increase include the cost associated with environmental mitigation and disposal of dredged material. For instance, according to the Corps, features to mitigate the environmental impact account for 45 percent of the total $652 million cost of the Savannah Harbor Expansion Project. In addition, Corps officials told us that the lack of proximate dredged-material disposal areas and the mitigation costs for feasible alternative sites dramatically increases project costs.

Keeping up with the investment requirements of modern port operations has become a major challenge for many ports, especially at the nation's small and medium-sized commercial ports. According to a senior MARAD official, the majority of the nation's port infrastructure was built in the 1960s, and this infrastructure is now at the end of its useful life and in need of rehabilitation and modernization. As the TIGER program has demonstrated and as MARAD officials concur, port infrastructure development and modernization needs outweigh current funding. According to DOT, in fiscal year 2012 over 80 ports submitted TIGER pre-applications for port development projects representing a variety of port types, including large sophisticated container ports as well as smaller commercial fishing ports, and DOT provided TIGER grant funding to 8 port infrastructure projects.

One of the challenges facing ports is installing adequate infrastructure to handle new larger post-Panamax vessels, which are expected to begin calling at U.S. Gulf and East Coast ports after the expansion of the Panama Canal is completed in 2014. Post-Panamax vessels, for example, require bigger cranes, which can cost over $25 million each, and more staging areas to accommodate peak cargo flow. Some ports, like Georgia Port Authority's Garden City Terminal at the Port of Savannah, have invested heavily to ensure that the port is ready to accommodate the new larger vessels.

[50]Congressional Research Service, *Army Corps Fiscal Challenges: Frequently Asked Questions*, R41961 (Washington, D.C.: Aug. 18, 2011).

According to DOT's most recent estimate, $4.3 billion is needed to improve the condition of the nation's port connectors.[51] We have previously reported that the nation's surface transportation system, including port connectors, is under growing strain, and the cost to repair and upgrade the system to safely and reliably meet current and future demands may exceed what the nation can afford.[52]

Prioritization of MTS Investments

Both the Corps and DOT are taking some steps to prioritize funding within their purview for all three segments of the MTS that we reviewed. We have previously reported that a systematic approach to help guide decisions on federal investment in the MTS is needed because of the growing awareness of, and agreement about, the need to view the various transportation modes that comprise the MTS from an integrated standpoint, particularly for the purposes of developing and implementing a federal investment strategy.[53]

The Corps has taken steps to prioritize limited funding within its navigation program and civil works budget process. Within the navigation program specifically, the Corps has developed the Operational Condition Assessment tool for all inland navigation structures, such as locks and dams, to ensure that structures are consistently assessed and to provide relative risk ratings and project ratings. The Corps is developing a similar tool for rating coastal navigation structures, such as jetties, and Corps officials expect this tool to inform the Corps' fiscal year 2014 budget. For navigation channels, the Corps is developing a uniform framework tool, anticipated to be available for fiscal year 2015 to assess the condition of all navigation channels. With respect to its civil works program, the Corps began using performance-based budgeting beginning in fiscal year 2006 as a way to focus funding requests on those projects with the highest anticipated return on investment.[54] Under the current civil works budget

[51]U.S. Department of Transportation, *2002 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance Report to Congress*, (Washington, D.C.: January 2003).

[52]GAO, *High Risk Series: An Update*, GAO-11-278 (Washington, D.C.: February 2011).

[53]GAO, *Marine Transportation: Federal Financing and a Framework for Infrastructure Investments*, GAO-02-1033 (Washington, D.C.: Sept. 9, 2002).

[54]GAO, *Army Corps of Engineers, Budget Formulation Process Emphasizes Agencywide Priorities, but Transparency of Budget Presentation Could be Improved*, GAO-10-453 (Washington, D.C.: Apr. 2, 2010).

formulation process, the Corps uses performance metrics and a benefit-to-cost ratio to evaluate projects' estimated future outcomes and gives priority to those with the highest expected returns for the national economy and the environment. In part, the Corps focuses on anticipated outcomes because most of the construction and investigation projects being considered in its civil works budget requests are new or have not yet been completed, and thus have not generally begun to achieve benefits. Because the Operation and Maintenance account includes projects that have already been constructed, the Corps incorporates ongoing performance information, such as assessments of whether infrastructure meets current engineering and industry standards. Nevertheless, the number of investigations and construction projects receiving appropriations is typically greater than the number requested, and as we have previously reported, the Corps' budget presentation does not include an explanation of the relative priority given to projects or how they are evaluated against each other.

In addition to these efforts, the Corps recently issued a report to provide advice on how Congress should address the need for additional port and inland waterway modernization to accommodate post-Panamax vessels.[55] The Corps reported that it is critical that the U.S. develop and move forward with a strategic vision for ensuring adequate investment in maintaining navigation infrastructure and for facilitating the strategic targeting of investments to ensure that the United States is ready for these larger vessels when the expanded Panama Canal opens in 2014. The Corps also presented a variety of financing options to initiate a national discussion of possible paths to meet the challenge of modernizing MTS infrastructure.

DOT has a more limited ability to prioritize funding for port infrastructure projects given the structure of federal surface transportation funding. The vast majority of DOT funding goes directly to state DOTs through formulas where decisions about transportation priorities are made at the state and local level.[56] In fiscal year 2011, FHWA provided states with

[55]U.S. Army Corps of Engineers, Institute for Water Resource, *U.S. Port and Inland Waterways Modernization: Preparing for Post-Panamax Vessels* (Washington, D.C.: June 20, 2012).

[56]While the federal government provides most funding from the Highway Trust Fund directly to the states and the states oversee the use of these funds, by statute, states must provide some trust fund revenues to other organizations, such as MPOs, for planning purposes.

over $39 billion in federal-aid highway funding. The statewide transportation planning process is the forum through which states decide how to spend significant amounts of federal transportation funds. This process is informed by MPOs that lead transportation planning in urbanized areas—geographic areas with populations of 50,000 or more. Although states must comply with federal planning requirements administered jointly by FHWA and the Federal Transit Administration, states have considerable discretion to allocate federal funds and select projects. According to a senior DOT official, states and MPOs make the decisions about how best to prioritize their formula funding and how to integrate port infrastructure projects into their transportation plans. However, as we have previously reported, data limitations and the lack of performance measures for these projects can make it difficult to quantify the benefits of these projects and to achieve state-wide or community support.[57]

DOT's competitive grant and credit programs provide one opportunity for the agency to prioritize funding for port infrastructure, yet funding for these projects is relatively limited compared to formula funding. For example, in fiscal year 2012, DOT had $500 million in TIGER funds to obligate across all modes for a variety of transportation projects and $122 million in budget authority for the TIFIA program.[58] The new surface transportation legislation, MAP-21, significantly expands the TIFIA program by authorizing $750 million in budget authority in fiscal year 2013 and $1 billion in fiscal year 2014 to pay the subsidy cost of supporting federal credit.[59] According to FHWA, a $1 billion TIFIA authorization of budget authority will support about $10 billion in actual lending capacity.

[57]We have identified some challenges facing states and MPOs in developing freight—and by extension—port projects. See GAO, *Statewide Transportation Planning: Opportunities Exist to Transition to Performance-Based Planning and Federal Oversight*, GAO-11-77 (Washington, D.C.: Dec. 15, 2010), and *Metropolitan Planning Organizations: Options Exist to Enhance Transportation Planning Capacity and Federal Oversight*, GAO 09-868 (Washington, D.C.: Sept. 9, 2009).

[58]According to DOT, actual TIFIA lending capacity is subject to the calculation of the estimated subsidy cost for each credit assistance transaction. The amount varies based on the risk profile of the project and the repayment stream. According to DOT, actual original subsidy rates have ranged from less than 1 percent to over 15 percent of the TIFIA credit assistance received. See GAO, *Surface Transportation: Financing Program Could Benefit from Increased Performance Focus and Better Communication*, GAO-12-641 (Washington, D.C.: June 21, 2012).

[59]Pub. L. No.112-141, § 1101(a)(2), 126 Stat. 405 (2012).

MAP-21 also calls for a number of significant program reforms including a 10 percent set-aside for rural projects and an increase in the share of eligible project costs from 33 percent to 49 percent. Projects that received credit assistance through TIFIA tend to be large, high-cost highway projects. Even with the additional budget authority authorized for the TIFIA program, DOT officials told us that the funding process is driven by applicants as opposed to a national assessment of priority.

Moreover, port projects may not always compete well against other transportation-funding projects. According to DOT officials, ports may be less accustomed to the processes and procedures involved in applying for federal funds, making it harder for them to compete for competitive grants and loans. Given the short program timelines for the TIGER program, some ports may have difficulty meeting timelines given the complexity of their proposals. Additionally, port applicants may not be as familiar with developing and completing federal environmental review requirements making it difficult to remain eligible for funding. According to one senior MARAD official, many ports lack sufficient expertise to conduct early planning or are not well positioned to leverage existing relationships with state DOTs. As a result, some ports may be less prepared to participate in DOT's competitive funding processes and compete against applicants with more experience participating in the federal funding process.

Federal Government Has Taken Steps to Address MTS Challenges; However, Opportunities Exist to Improve the Effectiveness of Its Role in the MTS

A number of efforts are under way to address MTS challenges through better coordination of federal investments. Specifically, the Corps and DOT are taking steps to better coordinate MTS infrastructure investments between the two agencies. Other federal efforts such as a government-wide task force, advisory groups, and an interagency coordination committee also have been established to address MTS issues. While these federal efforts to align and better coordinate MTS infrastructure investments are good steps, some are limited in their scope and, for others, it is not clear how effective they will be in addressing the complex and wide-ranging challenges to maintaining and developing MTS infrastructure.

Federal Efforts to Address MTS Infrastructure Investments System-Wide

In March 2012, DOT and the U.S. Department of the Army signed a memorandum of understanding (MOU) to identify and capitalize on opportunities to improve the nation's transportation infrastructure investments.[60] Specifically, DOT and the U.S. Department of Army agreed to (1) develop project prioritization criteria consistent to the greatest degree possible, (2) look for opportunities to reflect national priorities for waterside and landside infrastructure investment alignment, and (3) coordinate project evaluation and selection processes as it relates to DOT grant programs and the Corps' project prioritization. Although it is too early to assess progress made in achieving these objectives, senior DOT and Corps officials told us that the MOU played an important role in ensuring interagency coordination on MTS infrastructure investments for the last round of the TIGER program. However, as noted above, the bulk of DOT's transportation funding is directed through state and local transportation agencies.

MARAD, the one federal entity charged with an MTS-wide mission, has few programs to address system-wide challenges and a limited field presence. MARAD is developing the Port Infrastructure Development Program to improve the state of repair of all U.S. ports and enhance the competitiveness of ports for public and private funds through comprehensive planning. According to a senior MARAD official, the program is being designed to create a level playing field for all ports, including small- and medium-sized ports, to attract private-sector financing, and it is being developed together with MTS stakeholders. However, despite MARAD's efforts to obtain consensus on the program from MTS stakeholders, the program has not been funded, and MARAD officials acknowledge that the agency has more work to do to ensure that its staff have the right skill set and expertise needed to manage the program. Moreover, several MTS stakeholders whom we met with during our site visits told us that MARAD does not currently have a major role to play in MTS infrastructure development. For example, local transportation-planning officials we spoke to in one major coastal city said that MARAD representatives are not at the table during the MPO's

[60]We have reported that agencies can strengthen their commitment to work collaboratively by articulating their agreements in formal documents, such as a MOU signed by senior officials in respective agencies. GAO, *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, GAO-06-15 (Washington, D.C.: Oct. 21, 2005).

planning process, and therefore, DOT is missing an opportunity to coordinate investments in the various MTS segments.

The recently enacted MAP-21 also provides an opportunity to better coordinate investments in the MTS. First, MAP-21 directly addresses the fragmented nature of DOT programs, including those that address ports and port connectors, by consolidating the number of federal-aid highway programs to focus resources on key national goals. While MTS stakeholders we met with generally told us they appreciated having access to a variety of federal transportation programs that can be used for surface transportation projects, we have previously reported on coordination challenges within DOT that result from a modal approach to administering and funding programs.[61]

Second, MAP-21 establishes a national freight policy and mandates that DOT develop a *National Freight Strategic Plan* and a national freight network. Specifically, in the development of the *National Freight Strategic Plan* MAP-21 requires DOT to consult with state departments of transportation and other appropriate public and private transportation stakeholders. As we have previously reported, to develop an effective strategic plan, agencies should involve their stakeholders, assess their internal and external environments, and align their activities, core processes, and resources to support mission-related outcomes.[62] As noted above, both the Corps and DOT have taken some steps to invest in their respective segments of the MTS. However, there has been limited coordination of MTS investments system-wide. The *National Freight Strategic Plan* is an opportunity to address the MTS system-wide by considering the Corps' future investments in navigable waterways. Involving the Corps in the development of that plan is particularly important given the nexus between freight and the entire MTS, since the vast majority of the nation's freight is imported and exported via navigable waterways through our nation's ports.

[61]GAO, *2012 Annual Report: Opportunities to Reduce Duplication, Overlap, and Fragmentation, Achieve Savings, and Enhance Revenue*, GAO-12-342SP (Washington, D.C.: Feb. 28, 2012).

[62]GAO, *Agencies' Strategic Plans Under GPRA: Key Questions to Facilitate Congressional Review,* GAO/GGD-10.1.16 (Washington, D.C.: May 1997).

In addition to these Corps and DOT-specific efforts, there are a number of other federal efforts that have been recently created to address MTS infrastructure investment system-wide. On July 19, 2012, the White House established a Task Force on Ports to develop federal strategies to address coastal port infrastructure investments. This high-level effort is designed to address specific issues and provide immediate benefits to, among other things, help ensure that the nation's navigable waterways and ports are prepared to handle any increase in trade expected from the expansion of the Panama Canal in 2014. In particular, the task force plans to examine challenges to coastal ports including increased competition from ports in Canada and the Caribbean and is tasked with developing a strategy to inform future investment decisions and identify opportunities for improved coordination and streamlined environmental review of investments in port-related infrastructure. According to the White House, the establishment of the task force responds to calls from state and local governments, as well as ports and other maritime stakeholders, for a more strategic framework for allocating federal investments. While this particular effort targeting coastal ports provides an immediate focus on some of the most pertinent MTS infrastructure challenges, it is too soon to know how the task force's efforts will be realized and whether it will provide the long-term commitment and management needed to address MTS challenges.

We also identified two federal advisory groups established to advise the federal government agencies on system-wide MTS issues. Federal advisory groups can play an important role in the development of policy and government regulations by providing advice to federal agency policymakers.[63] For example, the Marine Transportation System National Advisory Council (MTSNAC) was established to, among other items, provide advice to the Secretary of Transportation via the MARAD Administrator on marine highways and ports and their road, rail, and marine highway connections. Members of MTSNAC reflect a cross section of maritime industries and port and water resources stakeholders from the private sector, academia, labor, and federal, state and local entities. In addition, the Advisory Committee on Supply Chain Competitiveness was recently established to advise the Secretary of Commerce on the necessary elements of a comprehensive national

[63]GAO, *Federal Advisory Groups: DOT and DOE Can Take Steps to Better Assess Duplication Risk and Enhance Usefulness*, GAO-12-472 (Washington, D.C.: Mar. 29, 2012).

freight policy designed to support U.S. export growth and competitiveness, among other items. The committee consists of 40 private-sector members, including representatives from supply chain firms and their associations, stakeholders, academia, community organizations, and others directly affected by the supply chain. These two federal advisory groups provide an opportunity for federal agencies involved in the MTS to obtain input from internal and external stakeholders such as academics, industry associations, or other agencies to address MTS challenges.

CMTS Efforts to Address MTS Challenges

The Committee on the Marine Transportation System (CMTS), created to address a broad range of MTS challenges, provides another opportunity to coordinate MTS infrastructure investment system-wide. Established in 2004 by a directive from the President in the U.S. Ocean Action Plan, the CMTS is a long-standing committee designed to foster a partnership of federal agencies with responsibility for the MTS and to provide a forum through which agencies coordinate and take action to address a wide range of MTS challenges. For example, the CMTS reported in 2010 that multi-agency efforts to address navigation technology issues could lead to significant improvements to navigation safety information, especially in and around ports. Specifically, the Corps, the National Oceanic and Atmospheric Administration, and the U.S. Geological Survey have developed, published and adopted common data standards. According to the CMTS, these efforts provide improved delivery of navigation information and enable agencies to better share information of navigational value. Similarly, to build on the MOU signed between the DOT and the U.S. Department of the Army to coordinate and improve infrastructure investment between the two agencies, the CMTS Coordinating Board agreed in June 2012 to establish a CMTS Infrastructure Investment Integrated Action Team to provide a forum for participation by other agencies that are stakeholders in MTS infrastructure.[64]

In July 2008, the CMTS published the *National Strategy on the Marine Transportation System (Strategy)* to provide a framework and 5-year action plan to address MTS challenges. The *Strategy* is intended to

[64]According to the CMTS Charter, Integrated Action Teams are created as needed, can be either temporary or permanent in nature, and consist of representatives from relevant agencies depending on the topic.

present the most pressing challenges facing the MTS and provide a framework for addressing MTS needs through 2013. It recommends 34 actions to address these issues, some of which touch upon key challenges we identified. For example, to address challenges related to the prioritization of federal investments in the MTS, it recommends studying approaches to prioritizing how federal dollars should be allocated among competing priorities as well as studying how best to coordinate allocation of federal funds for projects across agencies. Similarly, to address infrastructure capacity issues the CMTS recommended that agencies publish valid, reliable, and timely data on the MTS including cargo movements, capacity, and productivity as well as develop performance measures to assess the productivity of the MTS and the risk of potential infrastructure failures.

The CMTS has taken steps to address some of the recommended actions included in the *Strategy*. According to a 2010 implementation plan, the CMTS developed a list of six priority actions taken from the *Strategy's* 34 recommended actions and identified 3 other priorities that address emerging issues. According to CMTS officials, when at least three CMTS members agree to address a long-term MTS issue, they may form an Integrated Action Team or subcommittee. CMTS guidance states that, once formed, these teams operate on a consensus basis and are responsible for preparing an action plan that, among other things, includes (1) a list of deliverables, (2) a schedule for completing them, (3) identification of the parties responsible for completing them, and (4) funding sources available. For example, the CMTS Coordinating Board established the Research and Development Integrated Action Team in March 2009 to respond to several recommended actions included in the *Strategy*, including the need for valid data and for the development of performance measures. CMTS members may also establish task teams to address short-term issues; however, these teams are not responsible for developing an action plan. For example, in December 2011 the National Export Initiative task team was established in support of the President's National Export Initiative to, among other things, monitor the availability of export containers.[65] CMTS officials noted that, although the National Export Initiative is not addressed in the *Strategy*, the CMTS must be flexible to adapt to and address new MTS issues as they emerge.

[65]According to the White House, the March 2010 National Export Initiative is intended to improve conditions that directly affect the private sector's ability to export and to help meet the administration's goal of doubling exports over the next 5 years.

Opportunities to Improve the Effectiveness of the CMTS

While the CMTS has taken steps to address a number of recommended actions identified in the *Strategy* and has made progress facilitating interagency cooperation, it is unclear if those steps have achieved their intended results. Moreover, we found some limitations to the implementation of the *Strategy*, including:

- The CMTS has not kept the *Strategy* up to date and has no plan to replace the *Strategy's* 5-year action plan. Although the CMTS website states that the *Strategy* is a "living document" to be enhanced and updated, CMTS officials told us that agencies had not updated the *Strategy* since it was published in 2008 and have no current plans to do so. As a result, the *Strategy* does not specifically address new and emerging challenges, such as the President's National Export Initiative. CMTS officials told us that updating the *Strategy* would be useful and that—should sufficient resources be available—the CMTS would review the recommendations of the *Strategy* and update them with respect to current and projected needs of the MTS. An up-to-date *Strategy* that reflects the most important challenges can help ensure agencies remain focused on key priorities and help stakeholders, including the Congress, target limited resources to those priorities.

- The CMTS did not incorporate clear desired results, specific milestones, and outcome-related performance measures throughout the *Strategy* to help ensure steps taken achieve the intended results. While CMTS member agencies have taken steps to introduce accountability mechanisms through action plans developed by individual Integrated Action Teams, action plans were only developed for those areas or activities where consensus existed among agencies to establish them. For other areas, the *Strategy's* recommended actions remain—as a CMTS response to Congress describes—broad in scope, rather than finite, individually defined tasks. While identifying broad objectives is a good first step, without a clearly defined and articulated "end-state" for each recommended action, it is difficult to evaluate the extent to which progress has been made or determine whether the CMTS is achieving its intended results. Furthermore, CMTS officials told us that identifying broad actions was the only way to gain consensus among all CMTS member agencies when the *Strategy* was developed. However, without incorporating accountability mechanisms throughout the *Strategy*, agency and Congressional decision-makers may lack information needed to evaluate progress and determine the extent to which agency activities are achieving their intended results to address MTS challenges. We have previously identified desirable characteristics that we believe would provide additional guidance to responsible parties for

developing and implementing national strategies. Those characteristics include incorporating accountability mechanisms, such as the clear identification of priorities, specific milestones, and outcome-related performance measures.[66] National strategies are intended to provide broad direction and guidance—rather than be prescriptive, detailed mandates—to the relevant implementing parties. Nonetheless, a more detailed strategy can facilitate implementation and help agencies achieve strategic goals.

- The CMTS does not have a process for reporting the extent to which the *Strategy's* recommended actions have been addressed. Such a process could enable more effective oversight and accountability. Although the CMTS created reports in 2009 and 2010, these reports describe its annual accomplishments and do not address all of the *Strategy's* recommended actions. For example, the CMTS annual report for 2010 states that it summarizes "the high points and accomplishments achieved" by the CMTS. We have previously reported that including a process for reporting on progress could help agencies implement national strategies more effectively.[67] According to CMTS officials, with no budget and limited member resources, the *Strategy's* recommended actions were prioritized resulting in a set of six top priority actions, with the work done on these priority actions reflected in the 2009 and 2010 annual reports. However, without a schedule for regular reporting on the extent to which all recommended actions included in the *Strategy* have been addressed, agency and congressional decision-makers lack key information needed to hold agencies accountable and enable effective oversight.

Finally, according to the CMTS, activities undertaken by the CMTS are dependent on member agencies' ability to dedicate resources and staff support. CMTS officials told us that commitment of necessary staff time and resources to CMTS activities is driven by CMTS member interest in the work to be done and the availability of resources. Specifically, CMTS members that participate in Integrated Action Teams or task teams provide time and resources to carry out their responsibilities, which range from full staff support to providing comments on documents. In addition, MARAD, the Corps, and the National Oceanic and Atmospheric

[66]See GAO, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, GAO-04-408T (Washington, D.C.: Feb. 3, 2004).

[67]GAO-04-408T.

Administration dedicate one full time senior staff to the CMTS's Executive Secretariat. Managing competing priorities and coordinating interagency actions are key challenges given the complex nature of the MTS and the variety of task forces, advisory groups, and other MTS stakeholders involved in supporting the MTS. However, these challenges also highlight the benefits and opportunities of ensuring that the *Strategy* remains up to date, reflects current conditions, and is focused on the areas of greatest need.

Conclusions

Given aging MTS infrastructure, the uncertainty around the Panama Canal expansion and its potentially significant impact on the MTS, and the renewed focus on ports and their importance to the U.S. economy, improving the effectiveness of federal MTS efforts is critical. There are a variety of efforts under way—recent and long standing—to help the wide range of MTS stakeholders coordinate to address system-wide prioritization of MTS investments. For example, efforts such as the recently announced White House Task Force on Ports directly address some of the challenges facing the nation's MTS infrastructure. While the task force plans to build on some of the more recent steps taken to improve coordination of port-related responsibilities, it is too soon to know how the task force will proceed and the extent to which it will leverage more established long-standing efforts in this area. Moreover, the recent proliferation of efforts to address system-wide investment in the MTS runs the risk of being less effective unless properly coordinated.

The recently passed MAP-21 will focus efforts on improving freight mobility and the surface infrastructure that supports it, but it also provides an opportunity to better coordinate MTS investments system-wide. Besides establishing a framework for a national freight policy, MAP-21 requires DOT to develop a *National Freight Strategic Plan* in consultation with appropriate state DOTs and other appropriate private and public stakeholders. While the *National Freight Strategic Plan* requirements do not specifically mention consultation with the Corps and its plans to maintain and develop the nation's navigable waterways, consideration of these waterside infrastructure investments is important to strategically investing in the MTS system-wide. Considering all MTS segments—navigable waterways, ports, and port connectors—and coordinating the prioritization of infrastructure investments between the Corps and DOT will help to ensure that limited resources are efficiently targeted and invested.

The CMTS, a long-standing interagency coordinating committee, is tasked with addressing a wide array of MTS challenges. The committee has made some progress facilitating information sharing, coordinating member agencies and taking some actions to address a variety of MTS issues. However, it is unclear if the committee's actions have improved the MTS. Given the breadth and complexity of the MTS challenges and the numerous stakeholders and on-going efforts, an up-to-date *Strategy* with mechanisms to measure progress and hold member agencies accountable for these actions is critical. Interagency coordinating bodies such as the CMTS face a variety of obstacles and gaining consensus on priorities, measuring progress and holding member agencies accountable can be challenging. However, without developing a sound *Strategy* that considers the changing landscape of MTS efforts, the CMTS will not be able to capitalize on its established coordinating body or to effectively contribute to the growing number of federal efforts to support the nation's Marine Transportation System.

Recommendations for Executive Action

To help ensure coordination of U.S. Army Corps of Engineers and Department of Transportation infrastructure investments in the Marine Transportation System, we recommend that the Secretary of Transportation take the following two actions:

1) Direct the Administrator of the Federal Highway Administration to inform the development of the *National Freight Strategic Plan* with information from the U.S. Army Corps of Engineers' planned investments in the nation's navigable waterways.

2) As the Chair of the Committee on the Marine Transportation System, ensure the review and update, as needed, of the *National Strategy for the Marine Transportation System*. In ensuring the review and update of the *National Strategy for the Marine Transportation System*, the Secretary should:

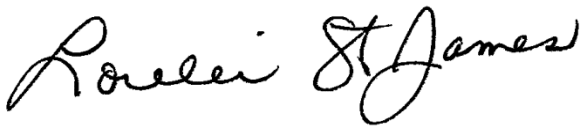
- establish accountability mechanisms—such as developing clear and desired results, specific milestones, and outcome-related performance measures—for the recommended actions of the *National Strategy for the Marine Transportation System*, and
- establish and implement a schedule for regular reporting of progress made in addressing the recommended actions of the *National Strategy for the Marine Transportation System*.

Agency Comments

We provided a draft of this report to the Corps and DOT for review and comment. DOT agreed to consider the report's recommendations. The Corps and DOT also provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to interested congressional committees, the Secretary of Defense, Secretary of Transportation, and the Chief of Engineers and the Commanding General of the U.S. Army Corps of Engineers. In addition, this report is available at no charge on the GAO website at http://www.gao.gov.

If you have any questions about this report, please contact me at (202) 512-2834 or stjamesl@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributes to this report are listed in appendix IV.



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The Honorable Maria Cantwell
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Appendix I: Objectives, Scope, and Methodology

The objectives of this report are to (1) identify programs the U.S. Army Corps of Engineers (Corps) and the Department of Transportation (DOT) administer to maintain or improve the Marine Transportation System (MTS); (2) determine the key challenges to maintaining and improving the MTS; and (3) discuss opportunities that may exist for the federal government to improve the effectiveness of its role in the MTS.

To identify programs the Corps and DOT administer to maintain or improve the MTS we reviewed and analyzed federal program documentation, including authorizing legislation, federal program guidance, and other federal program reports describing federal roles and responsibilities for MTS infrastructure. We reviewed legislation related to surface and MTS infrastructure programs and funding, including the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)[1] and the new surface transportation reauthorization, Moving Ahead for Progress in the 21st Century Act (MAP-21).[2] We interviewed officials from the Corps' civil works navigation program at the headquarters, division, and district level to determine how the Corps maintains and improves navigation infrastructure on inland and coastal waterways. We also interviewed officials from DOT including officials from the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), Maritime Administration (MARAD), and Office of the Secretary of Transportation to confirm the federal transportation programs and discuss how these programs are used to support ports and port connectors. In addition, we interviewed officials from the Waterborne Commerce Statistics Center to determine data efforts to support the Corps' navigation program, and we reviewed transportation statistics—including freight commodity and port statistics—from the Bureau of Transportation Statistics. We also conducted interviews with a variety of industry associations including the American Association of Port Authorities, American Association of State Highway and Transportation Officials, American Trucking Association, the American Association of Railroads, and the Waterways Council, Inc., to obtain their perspectives on federal Corps and DOT programs.

We obtained program budget data for programs that may be used to support MTS infrastructure by reviewing budget documentation, including

[1]Pub. L. No. 109-59, 119 Stat. 1144 (2005).

[2]Pub. L. No. 112-141, §§ 115-118, 126 Stat. 405 (2012).

annual budget justifications, from the Corps and DOT. We used navigation project obligations data provided by the Corps to determine program obligations for the Investigations, Construction, and Operation and Maintenance accounts. To determine obligations for DOT programs, we developed a short data collection instrument to collect and analyze financial obligations data. We administered the data collection instrument to obtain data from a total of 16 DOT programs, including 11 FHWA programs, 2 FRA programs, 2 MARAD programs and 1 Office of the Secretary of Transportation program. We conducted one pretest with FHWA to test the use of our instrument for grant and formula funding programs. We also conducted one pretest with FRA to test the use of our instrument for credit programs. Based on agency input, we revised the data collection instrument and submitted it to the relevant agency for the programs that we identified. We received a 100 percent response rate. We used Corps navigation program data to determine the current backlog for navigation construction and operations and maintenance projects, and reviewed published DOT reports to identify the backlog of projects affecting ports, including port connectors. In determining the reliability of the financial data, we reviewed relevant documentation about the agencies' data collection and quality assurance processes, talked with knowledgeable officials about these data, and compared these data against other sources of published information to determine data consistency and reasonableness. We determined that the data were sufficiently reliable for the purposes of this report.

To determine key challenges to maintaining and improving the MTS, we reviewed GAO work on surface transportation programs and issues related to freight transportation. Our work is informed by prior GAO reports on freight mobility, intermodalism, and marine transportation finance. We also reviewed prior GAO reports assessing the Corps' organization, budget formulation process, project delivery process, and programs. To obtain current examples of challenges facing port stakeholders at the state and local level, we conducted site visits to the Port of New York and New Jersey, Port of New Orleans, Port of Portland, Port of Savannah, the Port of South Louisiana, and the Port of Vancouver (USA). We identified these ports using the following criteria:

- ranking by total tonnage (domestic and foreign), 2010;
- ranking by container traffic (domestic and foreign), 2010;
- ranking by total value of foreign trade shipments, 2010;
- existence of current or recently completed navigation, port, or port connector expansion projects; and
- geographic diversity.

For our final selection, we chose larger ports (both in tonnage and container traffic) in order to get representation from (1) both container and bulk ports, and (2) river and coastal ports. We also selected ports that had ongoing or completed expansion projects funded or financed by the federal government and for which the site visits would provide some geographic diversity in experiences. We also included the Port of Vancouver (USA), a small port based on tonnage and container traffic, to provide some context and comparison to larger ports. The results of these site visits are not generalizable, but do provide insights regarding state, local, and private-sector experiences maintaining and improving MTS infrastructure.

During the site visits, we collected and reviewed relevant documentation on port operations, projects, and trade statistics. We also interviewed a range of MTS stakeholders during each site visit, including officials from the port, Corps division and district offices, state DOTs, and Metropolitan Planning Organizations (MPO). Table 3 below provides a table of stakeholders that we met with during each site visit.

Table 3: MTS Stakeholders with Whom GAO Met during Site Visits

Site visit location	MTS stakeholders
Port of New York and New Jersey	• Port Authority of New York and New Jersey • Corps' North Atlantic Division and New York District Office • New York Metropolitan Transportation Council • North Jersey Transportation Planning Authority
Port of New Orleans and Port of South Louisiana	• Port of New Orleans • Port of South Louisiana • Louisiana Department of Transportation and Development • Corps' Mississippi Valley Division and New Orleans District Office • New Orleans Regional Planning Commission
Port of Portland and Port of Vancouver (USA)	• Port of Portland • Port of Vancouver (USA) • Corps' Northwestern Division and Portland District Office • Pacific Northwest Waterways Association • Tidewater Barge Lines
Port of Savannah	• Georgia Ports Authority • Georgia Department of Transportation • Corps' South Atlantic Division and Savannah District Office • Chatham County Metropolitan Planning Commission

Source: GAO.

To identify and assess opportunities for the federal government to improve the effectiveness of its role in the MTS, we reviewed documentation from the Committee on the Marine Transportation System (CMTS), including the CMTS Charter and the *National Strategy for the Marine Transportation System (Strategy)*. We interviewed staff from the CMTS Executive Secretariat and observed a session of the Coordinating Board to determine actions taken by the CMTS to implement the *Strategy*, as well as any opportunities for improvement. During interviews with Corps and DOT officials, and industry associations, we also asked about their perspectives on the federal government role in maintaining and improving the MTS. In assessing the implementation of the *Strategy*, we reviewed prior GAO reports on enhancing and sustaining federal agency collaborative efforts and evaluated progress in implementing the *Strategy*.

We conducted our review from November 2011 to November 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: DOT Programs We Reviewed That May Fund MTS Infrastructure

This appendix includes DOT programs at the time of our review that may fund MTS infrastructure and their obligations data for fiscal years 2009 to 2011. The data reflect overall obligations for each program, and do not represent support for MTS infrastructure projects specifically. The list of programs is not exhaustive; thus, other DOT programs may exist that could fund MTS infrastructure projects.

Table 4: DOT Obligations for Programs We Reviewed That May Fund MTS Infrastructure

		Total Program Obligations		
Agency	**Program**	**FY 2009**	**FY 2010**	**FY 2011**
Department of Transportation				
Federal Highway Administration	Freight Intermodal Distribution Pilot Grant Program	$ 6,655,000[a]	$ 1,500,000[a]	$ 13,688,000[a]
	National Corridor Infrastructure Improvement Program	275,658,000[a]	83,782,000[a]	77,043,000[a]
	Projects of National and Regional Significance	231,072,000[a]	292,753,000[a]	237,408,000[a]
	Congestion Mitigation and Air Quality Improvement Program	1,252,177,262	1,245,927,532	1,346,991,087
	Highway Safety Improvement Program	1,592,099,302	1,481,157,556	1,688,660,663
	Metropolitan Planning Funds	229,705,770	230,727,013	232,596,851
	National Highway System	6,824,320,360	8,459,646,662	8,200,767,635
	State Planning and Research	681,605,402	731,939,243	765,019,201
	Surface Transportation Program	9,443,235,250	9,603,097,643	9,500,370,566
	Surface Transportation Research, Development, and Deployment	128,928,721	115,089,182	149,093,533
Federal Railroad Administration	Program for Capital Grants for Rail Line Relocation and Improvement Projects	392,000[a]	6,657,000[a]	31,766,000[a]
Maritime Administration	America's Marine Highway Program	0[a]	7,060,000[a]	0[a]
	Port Infrastructure Development Program	0	0	0
Office of the Secretary of Transportation	Transportation Investment Generating Economic Recovery Program	0	421,772,616	1,551,564,686

Source: GAO analysis of DOT data.

[a]DOT officials provided total program obligations rounded to the nearest thousand.

Appendix III: DOT Programs We Reviewed That May Finance MTS Infrastructure

This appendix includes DOT programs at the time of our review that may finance MTS infrastructure and their total direct loan obligations data, total principal amount of loan disbursements through September 30, 2012, and net lifetime subsidy re-estimate amount including interest. The data reflect overall amounts for each program and do not represent support for MTS infrastructure projects specifically. The list of programs is not exhaustive; thus, other DOT programs may exist that could finance MTS infrastructure projects

Table 5: DOT Obligations, Principal Amount and Net Lifetime Subsidy Reestimate for Programs We Reviewed That May Finance MTS Infrastructure

		Cohort fiscal year[a]		
Agency	**Program**	**FY 2009**	**FY 2010**	**FY 2011**
Department of Transportation				
Federal Highway Administration	**Transportation Infrastructure Finance and Innovation Act**			
	Total direct loan obligation	$990,104,000	$2,157,638,000	$472,405,000
	Total principal amount of loan disbursements through 9/30/12	686,206,000	457,433,000	0
	Net lifetime subsidy re-estimate amount (including interest)	-11,719,000	0	0
Federal Railroad Administration	**Railroad Rehabilitation and Improvement Financing**			
	Total direct loan obligation	103,500 ,000	172,000 ,000	566,136 ,000
	Total principal amount of loan disbursements through 9/30/12	98,147 ,000	46,392 ,000	65,279 ,000
	Net lifetime subsidy re-estimate amount (including interest)	-429 ,000	-2,092 ,000	2 ,000

Source: GAO analysis of DOT data.

[a]The cohort represents all direct loans or loan guarantees of a program for which a subsidy appropriation is provided for a given fiscal year, even when disbursements occur in subsequent fiscal years.

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

In addition to the contact named above, Sharon Silas (Assistant Director); Jonathan Carver; William Colwell; Bradley Dubbs; Geoff Hamilton; Carol Henn; Vondalee Hunt; Delwen Jones; Joshua Ormond; and Elizabeth Wood made key contributions to this report.

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