

**National Strategy
for the
Marine Transportation System:
Channeling the Maritime Advantage
2017-2022**



**National Strategy for the MTS:
Channeling the Maritime Advantage (2017-2022)
October 2017**

This report completes an action directed by the U.S. General Accounting Office in its report: “Maritime Infrastructure: Opportunities to Improve the Effectiveness of Federal Efforts to Support the MTS.” (2012)

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VISION FOR THE MTS

The United States marine transportation system will be a safe, secure, clean, and globally integrated network that, in harmony with the environment, ensures a free-flowing, seamless, and reliable movement of people and commerce along its waterways, sea lanes, and intermodal connections.

U.S. Committee on the Marine Transportation System

October 2017



THE SECRETARY OF TRANSPORTATION
WASHINGTON, DC 20590

As Chair of the U.S. Committee on the Marine Transportation System (CMTS), it is my pleasure to affirm for implementation, the National Strategy on the Marine Transportation System, 2017-2022.

A modern, intermodal transportation system is critical to the competitiveness of our country's economy, and the maritime mode is the backbone to international trade. Every year, more than 71 percent of U.S. foreign trade, measured by weight, goes through our nation's ports. In recent years, that tonnage has been worth more than \$1.5 trillion. Water transportation and support activities directly employ more than 237,600 workers in this country including 77,260 seafarers, and serve six million ferry customers, and an additional 11 million cruise ship passengers.

The maritime transportation system (MTS) challenges today are more complex and diverse than in the past. The CMTS is the interagency structure through which over 25 Federal agencies address mutual MTS issues. The 2017 National Strategy builds upon the twelve years of experience of this invaluable interagency maritime forum to establish a new policy framework to support the MTS through:

- Optimizing System Performance;
- Enhancing Maritime Safety;
- Supporting Maritime Security;
- Advancing Energy Innovation and Development; and
- Facilitating Infrastructure Investment.

The CMTS Coordinating Board is encouraged to implement the 2017 National Strategy, align work plans with policy framework, and report CMTS activities and accomplishments to me on a quarterly basis.

Under the CMTS partnership, we will further advance the MTS within the national transportation network.

Sincerely,

A handwritten signature in blue ink, reading 'Elaine L. Chao', is positioned below the word 'Sincerely,'.

Elaine L. Chao

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PREFACE

In July 2008, the cabinet-level U.S. Committee on the MTS (CMTS) approved the *National Strategy on the MTS: A Framework for Action* (2008 Strategy). The 2008 Strategy identified five priority areas (Capacity; Safety and Security; Environmental Stewardship; Resilience and Reliability; and Finance and Economics) and 34 actions that provided the foundation for subsequent CMTS priority work plans and identified new and emerging issues. The CMTS member agencies created Integrated Action Teams (IATs) to address the 34 actions, and 27 of the actions have been addressed or completed. The remaining items were either broadly written, have been combined with other CMTS work plan activities, or carried over to other emerging issues. Appendix I provides a summary of these actions and steps taken to date.

Since the CMTS was chartered in 2005 and the 2008 Strategy was approved, much has occurred with the CMTS partnership. The CMTS was authorized by statute to:

- Coordinate transportation policy in the U.S. Arctic; and¹
- Serve as a U.S. federal interagency policy coordinating committee for marine transportation, with statutory authority and responsibility to assess the adequacy of the marine transportation system (MTS), promote the integration of the MTS with other modes of transportation and other uses of the marine environment, and to coordinate and make recommendations with regard to Federal policies that impact the MTS.²

The CMTS is a fully functioning and effective interagency forum designed to address a range of marine transportation policy issues including infrastructure investment, enhanced navigation safety services, U.S. Arctic marine transportation, alternative fuels, data management and system performance measures, and MTS resilience.

The CMTS has completed several major projects and reports. The agency members of the CMTS have continuously been engaged and participatory. In fact, the membership continues to grow with the addition of the Marine Mammal Commission, National Maritime Intelligence-Integration Office, and the National Ocean Council.

- The CMTS has made great strides toward providing the best navigation safety information to mariners including the completion of an e-Navigation Strategic Action Plan, adoption of a resolution related to the S100 Universal Hydrographic Data Model, joint presentation of enhanced marine safety information, interagency agreement on a common water level datum, and an interagency initiative to harmonize for commonality and standardization of geographically referenced points of interests throughout the U.S. navigable waters.

¹ Section 307, Arctic Marine Shipping Assessment Implementation, "Coast Guard and Marine Transportation Authorization Act of 2010," Pub. L. 111-281 (2010).

² Section 310, The Committee on the Marine Transportation System, "Coast Guard and Marine Transportation Authorization Act of 2012," Pub. L. 112-213 (2012).

- The CMTS works to understand the challenges and share possible solutions to MTS infrastructure investment. Available for download is the Compendium of Federal Public-Private Partnership Authorities for Infrastructure Investments; the Federal Handbook of MTS-Related Funding Sources; and proceedings from a public-private partnership roundtable held with the DC-based transportation and trade attachés from the embassies in Washington, DC.
- The CMTS prioritizes MTS research and development needs through joint workshops with the Transportation Research Board to support innovative solutions to enhance the MTS. This ongoing effort led to the completion of the Strategic Action Plan for Research and Development in the MTS, establishment of a maritime data integrated action team that supports data exchange and development of MTS performance measures, including the launch of a MTS performance measures website.
- The CMTS completed three reports under the National Strategy for the Arctic Region Implementation Plan: a Ten-Year Projection of Maritime Activity in the U.S. Arctic; a Ten-Year Prioritization of Infrastructure Needs in the U.S. Arctic; and Recommendations and Criteria for Using Federal Public-Private Partnerships to Support Critical U.S. Arctic Maritime Infrastructure. The CMTS also hosted the first-ever Federal technical brief on black carbon in the Arctic that provided the foundation for subsequent interagency discussion related to the use of heavy fuel oil in the U.S. Arctic.
- To address the challenges to maintain a resilient MTS, the CMTS established an interagency resilience team that has published a compendium of Federal activities analyzing MTS resilience; a report to advance coastal systems resilience to improve quantification tools through community feedback; and is coordinating with other Federal resilience initiatives to address regional MTS resilience risks.
- In November 2015, the CMTS celebrated its 10th anniversary with a leadership roundtable. Previous and current CMTS leaders unanimously and enthusiastically supported the CMTS as an essential forum for coordinating, harmonizing, and advancing interagency support of the MTS.

Further, the CMTS recognizes that:

Marine transportation is about people and jobs. The U.S. Department of Transportation estimates that 250,000 workers are directly involved in water transportation and port services.

Marine transportation is about business. Marine transportation is critical to the U.S. supply chain by moving raw and processed materials to factories, getting goods to market, and transporting energy from areas of production to areas of consumption.

Marine transportation is about trade. Marine transportation is an integral part of our Nation's ability to trade with the rest of the world. More international trade is carried by marine transportation than any other mode of transport. In addition, the United States is the world's largest importer and second largest exporter of containerized goods.

Marine transportation is about security. Marine transportation enables the U.S. military to navigate the world by ship, providing logistical support for the rapid deployment and sustainment of American forces anywhere in the world.

Marine transportation is about sustainability. Marine transportation is often the most efficient mode of transportation for certain commodities and routes. It can also help to reduce the number of trucks on the road, minimizing highway congestion while improving air quality. For example, a typical tow of 15 barges can take over 1,000 trucks off the roads, and move a ton of freight almost 600 miles on a gallon of fuel.

Several considerations provided the impetus for a revised MTS National Strategy. At the close of 2016, the CMTS partners had addressed 27 of the 34 actions identified in the 2008 Strategy. The remaining actions were either broadly written, have been combined with other emerging issues, or carried over to the current CMTS work plan.

In a November 2012 report entitled, "Maritime Infrastructure: Opportunities to Improve the Effectiveness of Federal Efforts to Support the MTS," the U.S. Government Accountability Office (GAO) recommended that the CMTS review and update the 2008 National Strategy on the MTS to include accountability mechanisms for the Strategy's recommended actions. Further to GAO's request to report on the status of the actions within the 2008 Strategy, a summary report is provided in Appendix I of the 2017 Strategy. Lastly, to the extent possible, this Strategy is intended to be complementary to other maritime transportation and freight-related documents from Federal agency partners. This 2017 Strategy supersedes the 2008 Strategy.

EXECUTIVE SUMMARY

The 2017 *National Strategy on the MTS: Channeling the Maritime Advantage* (2017 Strategy) was developed by the CMTS members through interagency engagement and multiple reviews. Members reviewed the five categories from the 2008 Strategy and established or reaffirmed priority areas for the 2017 Strategy:

- **Optimize System Performance:** Measuring the reliability of physical and operational elements of the MTS to inform and support strategies for targeted improvements as trade and supply chain competitiveness increases.
- **Enhance Maritime Safety:** Promoting an MTS free from collisions, allisions, groundings and injury, death and damage to property and environment as congestion and maximum vessel size within the MTS increases.
- **Support Maritime Security:** Evaluating the infrastructure and operations of the MTS, taking into account possible threats and vulnerabilities while continually assessing existing protective measures, procedures and operations, supported by efforts to understand and incorporate maritime domain awareness into shipping activities.
- **Advance Energy Innovation and Development:** Identifying opportunities to utilize all sources of domestic energy and implement new technologies to ensure energy independence and more efficient fuel use.
- **Facilitate Infrastructure Investment:** Using all available resources efficiently and effectively for the improvement of the MTS.

Taking into account the recommendations from GAO to include performance metrics in the Strategy, the five priority areas now include actions with accompanying measures of success to track and show progress toward achieving the objectives. There are 14 actions for CMTS interagency engagement in the 2017 Strategy under five priority areas as outlined in Section 3.

This Strategy will be implemented across Federal agencies and within the CMTS partnership, as appropriate. The CMTS will assist in coordinating and tracking the actions and measures through the Executive Secretariat, Integrated Action Teams, Task Teams, or a mechanism to be developed as needed. The CMTS will also align its current and future annual work plans with the approved 2017 Strategy. While the 2017 Strategy is a living document that must also meet emerging issues, the CMTS will make progress on each action within the next five years, with the goal of completing most, if not all, of the actions within those five years, pursuant to agency engagement, resources, and Administration policy.

2017-2022 MTS Strategic Priorities

PRIORITY AREA	ACTIONS
<p>OPTIMIZE SYSTEM PERFORMANCE</p>	<p>1. Provide interagency expertise from MTS agencies in support of the development of a high-fidelity, multi-modal freight flow model to improve the efficacy of freight flow forecasting.</p> <ul style="list-style-type: none"> • <i>Measurement: Develop a research statement for a high-fidelity multimodal freight flow model.</i> • <i>Measurement: Coordinate and apply Big Data analytics from the maritime transportation perspective to reveal research gaps and overlap, foster potential collaboration, manage knowledge, and inform decision-making.</i> <p>2. Increase data access, linkages and integration of authoritative data from agencies and organizations with mission areas related to maritime data and the broader intermodal freight flow network.</p> <ul style="list-style-type: none"> • <i>Measurement: Create specific MTS system-scale performance indicators that relate to the freight flow network so they may be periodically updated and used for network calibration and validation.</i> • <i>Measurement: Couple the newly-available vehicle probe data sets with more traditional freight data resources to quantify and contextualize travel times, dwell times, trip counts and other metrics.</i> <p>3. Provide interagency MTS expertise in support of the reduction of system congestion and supply chain bottlenecks.</p> <ul style="list-style-type: none"> • <i>Measurement: Engage and support Federal partners, as appropriate, including DOT's reporting requirements under the FAST Act and existing foundational work performed by CMTS member agencies.</i>

<p style="text-align: center;">ENHANCE NAVIGATION SAFETY</p>	<p>4. Develop and maintain a CMTS-member agency list of most-wanted improvements to enhance or sustain safety of the MTS including U.S. Arctic navigation.</p> <ul style="list-style-type: none"> • <i>Measurement: Once the list is established, monitor reduction in the number of safety-related concerns from the most-wanted list.</i> • <i>Measurement: Provide updates on the recommended actions in the CMTS report, "Priorities of Investments to MTS Infrastructure in the U.S. Arctic."</i> <p>5. Deliver timely, relevant, accurate and user-accessible navigation safety information to mariners.</p> <ul style="list-style-type: none"> • <i>Measurement: Reduce the latency of navigation safety information.</i> • <i>Measurement: Examine NTSB, USCG and other sources of accident investigation information for direct and indirect causes related to navigation information.</i> <p>6. Incorporate MTS resilience and recovery capabilities into waterway design principles to best identify appropriate levels of service relating to delivery of navigation safety services.</p> <ul style="list-style-type: none"> • <i>Measurement: Decrease the number of vessel delays related to loss of navigation services that are not due to natural causes such as high or low water.</i> • <i>Measurement: Coordinate waterway-based resilience risk analyses and models with land-based initiatives across the Federal government.</i> <p>7. Support the presentation of best available weather information in support of MTS operations.</p> <ul style="list-style-type: none"> • <i>Measurement: Form a weather task force to analyze the weather information dissemination and develop best practices for various weather conditions, particularly from extreme weather situations common in the MTS environment.</i> • <i>Measurement: Support NOAA's requirement of increased number of ship-provided weather observations available for use in extreme weather forecasting.</i>
<p style="text-align: center;">SUPPORT MARITIME SECURITY</p>	<p>8. Develop CMTS-member agency list of most-wanted MTS security improvements.</p> <ul style="list-style-type: none"> • <i>Measurement: Produce a catalog of Federal maritime security programs that support interagency assessments and engagements in maritime security initiatives.</i> • <i>Measurement: Determine interagency priorities through CMTS member engagement and coordination with the National Security Council Maritime Security Working Group and other interagency policy coordinating committees.</i> <p>9. Develop policies, as needed, intended to advance security-related information sharing while acknowledging and supporting cyber security requirements.</p> <ul style="list-style-type: none"> • <i>Measurement: Provide support to the interagency related to coordination for implementation of The National Strategy for Maritime Security.</i> • <i>Measurement: Support interagency initiatives that advocate the sharing of maritime related data related to cyber security.</i>

<p>ADVANCE ENERGY INNOVATION AND DEVELOPMENT</p>	<p>10. Promote interagency collaboration encouraging the development of alternative fuels for propulsion purposes.</p> <ul style="list-style-type: none"> • <i>Measurement: Establish an interagency working group to support interagency collaboration in the development of alternative fuels.</i> • <i>Measurement: Report the development, types, availability, and use of alternative fuels.</i> <p>11. Develop a priority list of MTS-related strategies to support domestic energy innovation and development; identify technologies and innovations that lead to more efficient and cheaper energy use (e.g. alternative fuels, shore power applications, conversion to all-electric cranes, vessel pilot projects).</p> <ul style="list-style-type: none"> • <i>Measurement: Adoption rate of strategies on the priority list by MTS users, including Federal agencies and private operators.</i> • <i>Measurement: Encourage the vessel operators to use maritime information to reduce the need for lightering, risk of oils spills, and more efficient fuel use.</i>
<p>FACILITATE INFRASTRUCTURE INVESTMENT</p>	<p>12. Develop and use decision support tools to identify nationally significant priority areas and project locations where agencies can leverage a variety of funding opportunities.</p> <ul style="list-style-type: none"> • <i>Measurement: Percentage of MTS infrastructure projects vetted against the decision support tool.</i> • <i>Measurement: Number of instances of aligned projects recommended for funding and implementation.</i> <p>13. Facilitate innovative private sector financing mechanisms to augment Federal funds, including the use of Public-Private Partnerships (P3s) and other alternative financing tools.</p> <ul style="list-style-type: none"> • <i>Measurement: Number of projects using existing alternative financing to leverage Federal MTS investments.</i> • <i>Measurement: Percent increased use of new alternative financing mechanisms.</i> <p>14. Encourage career opportunities in MTS fields; particularly transitioning Military and Veterans' communities.</p> <ul style="list-style-type: none"> • <i>Measurement: Increased number of military training courses to meet merchant mariner credential requirements.</i> • <i>Measurement: Enhanced outreach to encourage merchant mariner credentialing</i>

SECTION 1: INTRODUCTION AND OVERVIEW

In July 2008, the cabinet-level U.S. Committee on the Marine Transportation System (CMTS) approved the *National Strategy on the Marine Transportation System (MTS): A Framework for Action* (2008 Strategy). As the first-ever interagency national strategy related to the MTS, the 2008 Strategy identified new and emerging issues aligned to five priority areas (Capacity; Safety and Security; Environmental Stewardship; Resilience and Reliability; and Finance and Economics), generating 34 actions that provided the foundation for subsequent CMTS priority work plans.

By the end of 2016, the CMTS partners had addressed aspects of 27 of the 34 actions in the 2008 Strategy. The remaining actions were either broadly written, have been combined with other CMTS work plan activities, or were overcome by other emerging issues. In a November 2012 report entitled “Maritime Infrastructure: Opportunities to Improve the Effectiveness of Federal Efforts to Support the MTS,” the U.S. Government Accountability Office (GAO) recommended that the CMTS should report the status of recommendations in the 2008 Strategy and review and update the document.

In developing the new strategy, representatives from 17 Federal agencies with a vested interest in the MTS identified and assessed prospective priority areas for consideration, building upon the 2008 Strategy. The interagency team reaffirmed or established the following five priority areas:

- **Optimize System Performance:** Measuring the reliability of physical and operational elements of the MTS to inform and support strategies for targeted improvements as trade and supply chain competitiveness increase.
- **Enhance Maritime Safety:** Promoting an MTS free from collisions, allisions, groundings and preventing injury, death and damage to property and environment as use of and congestion within the MTS increases.
- **Support Maritime Security:** Evaluating the infrastructure and operations of the MTS, taking into account possible threats and vulnerabilities while continually assessing existing protective measures, procedures and operations, supported by efforts to understand and incorporate maritime domain awareness into shipping activities.
- **Advance Energy Innovation and Development:** Supporting MTS operations and growth while protecting and sustaining human health and the environment.
- **Facilitate Infrastructure Investment:** Using all available resources efficiently and effectively for the improvement of the MTS.

In total, 14 actions under five priority areas are presented in the 2017 *National Strategy for the MTS: Channeling the Maritime Advantage*. Section 3 of this Strategy is dedicated to outlining the five priority areas and actions. How the Strategy will be implemented across Federal agencies and the CMTS, as appropriate, is discussed in Section 4. The CMTS will assist in coordinating and tracking the actions and measures through the Executive Secretariat,

Integrated Action Teams or a mechanism to be developed as needed. The CMTS will also prepare annual work plans that align to the actions in the 2017 Strategy to support a collaborative vision to resolve the most challenging issues facing the MTS.

THE MTS

From our Nation's inception, America's abundance of navigable rivers, lakes, and coastal waterways have made the United States a maritime nation. To this day, these natural resources remain a key driver to its continued economic success. The MTS touches virtually every aspect of American life—from the clothes we wear, to the cars and trucks we drive, to the food we eat, to the computers and communications devices that keep us informed and connected, to the appliances and electronics that make our lives easier and more enjoyable, to the oil and natural gas we use to heat and cool our homes, and much more. The MTS is also by far the largest conduit of our Nation's many exports, including manufactured goods, lumber, chemicals, foodstuffs, energy products and much more.

The MTS is the waterborne component of the U.S. multimodal freight system, connecting to a vast network of land-based highways, railways, and pipelines. The MTS is composed of an array of interdependent physical parts, including waterways, coastal and inland ports and terminals, vessels, and intermodal connectors, as well as the companies, organizations, and workers that use, operate, and maintain the system. It has over 25,000 miles of navigable waterways and over 8,000 facilities located within the system. In addition to freight, the MTS supports the movement of passengers by ferries and cruise ships, as well as commercial and recreational fishing, and recreational boating.

The MTS serves the Nation in multiple ways, including:

- Transported 904.8 million short tons of U.S. domestic trade and 1.4 billion short tons of foreign trade in 2015;
- Moved 32 million twenty-foot-equivalent units (TEUs) of containerized cargo in international trade in 2015; a 25.2 percent increase in handling since the end of the 2007 to 2009 recession;
- Accommodated 82,044 vessel calls in 2015;
- Transported 115 million ferry passengers in 2014;
- Supports 32.3 million recreational boating households; and
- Employs over 141,000 active mariners and 67,000 mariners that hold a national credential with a corresponding Standards of Training, Certification, and Watchkeeping endorsement (STCW) totaling 208,000 licensed and documented mariners.

The MTS is essential to U.S. strategic requirements. The military depends on the MTS to deliver a decisive force whenever and wherever it is needed. Nearly 90 percent of the military's supplies and equipment moves overseas via the MTS on military sealift vessels or on U.S.-owned, U.S.-flagged and U.S.-crewed commercial sealift. The capability of the MTS to support

contingency operations as well as humanitarian assistance and disaster relief efforts provides a key strategic advantage for our Nation.

The MTS is the primary system by which goods enter and leave the United States. During 2015, waterborne trade through U.S. ports accounted for over 71 percent of all international trade by tonnage and 44 percent by value, moving \$1.56 trillion of goods. Approximately 2.2 billion tons of domestic and foreign commerce are carried annually on the inland waterways. The MTS is critical for transporting bulk exports such as grain and fossil fuels via the Great Lakes and St. Lawrence Seaway, inland waterways, and coastal and intra-coastal waterways.

The U.S. Census Bureau projects that U.S. population will increase from the current level of 321.5 million to 398 million people in 2050. The demand for goods for this increasing population, coupled with increasing movements of energy resources and strategic requirements, could lead to a significant increase in needed MTS capacity. Federal agencies are working closely through the CMTS and other partners to collaborate on the myriad trends and drivers in the MTS, and these all play a role in the updated actions presented in the 2017 MTS Strategy.

The MTS is a complex and decentralized system, consisting of Federal, State, local, Tribal, and privately-held components. Within the Federal Government alone, over 30 agencies, bureaus, White House offices, and Federal interagency organizations ranging from the U.S. Coast Guard and the U.S. Army Corps of Engineers to the Arctic Executive Steering Committee, and National Maritime Intelligence-Integration Office, are involved or have interest in some aspect of the MTS and engage, at generally high levels, in the CMTS.

SECTION 2: THE CMTS AND ITS ROLE IN THE NATIONAL STRATEGY

The Coast Guard Authorization Act of 1998 directed the Secretary of Transportation to form a task force to assess the adequacy of the Nation's MTS to operate in a safe, efficient, secure, and environmentally sound manner. The MTS Task Force was comprised industry associations, shipper groups, and other stakeholders. Through cooperative efforts between government and private sector partners, the MTS assessment was completed and transmitted to Congress in September 1999. That report, *An Assessment of the U.S. Marine Transportation System*, called for the creation of a coordinating body. In response, a new Interagency Committee on the MTS (ICMTS) was established by a memorandum of understanding with the Departments of Transportation, Defense, Commerce, Agriculture, Treasury, and the Environmental Protection Agency.

The President's U.S. Ocean Action Plan of 2004 called for the elevation of the ICMTS to a cabinet-level committee, and the Administration established the CMTS by charter in August 2005 with the Secretary of Transportation as the full committee chair. The Coast Guard and Maritime Transportation Act of 2012 (Pub. L. 112-213) officially authorized the CMTS, giving the interagency partnership new authority, new responsibilities, and new opportunities.

Section 310 of Public Law 112-313 amends Title 46, United States Code, by adding § 55502, United States Committee on the MTS. The stated purpose of the CMTS is to serve as a Federal interagency coordinating committee to (1) assess the adequacy of the MTS; (2) promote the integration of the MTS with other modes of transportation and other uses of the marine environment; and (3) coordinate and make recommendations with regard to Federal policies that impact the MTS.

The Act also confirms the existing CMTS membership of agencies; allows for these agencies to transfer facilities, equipment, services and personnel, funds, and other support services to carry out CMTS activities; permits the CMTS to consult with MTS-related advisory committees, interested parties, and the public; and directs the CMTS, not more than one year after the date of enactment and every five years thereafter, to report on steps taken to implement actions recommended in the "National Strategy for the MTS: A Framework for Action" and provide an assessment of the condition of the MTS.

By charter, the Secretary of Transportation serves as CMTS Chair. By legislation and charter, the other officials comprising the voting members of the cabinet-level CMTS are the following: the Secretaries of the Department of Defense, the Department of Homeland Security, the Department of Commerce, the Department of the Treasury, the Department of State, the Department of the Interior, the Department of Agriculture, the Department of Justice, the Department of Labor, the Department of Energy, the Administrator of Environmental Protection Agency, the Chairs of the Federal Maritime Commission, the Joint Chiefs of Staff, the National Transportation Safety Board, and the Marine Mammal Commission.

By charter, there are now nine ex-officio members: the Director, Office of Management and Budget; the Director, Council on Environmental Quality; the Chair, National Security Staff; the Director, Domestic Policy Council; the Assistant to the President for Economic Policy; the Director, Office of Science and Technology Policy; the Director, National Maritime Intelligence-Integration Office; Executive Director, Arctic Executive Steering Committee, and the Executive Director, National Ocean Council.

The CMTS reports directly to the President and is supported by:

- a subcabinet Coordinating Board (CB) of Federal Agencies with direct and indirect MTS interests, such as the U.S. Coast Guard (Department of Homeland Security), the Maritime Administration (Department of Transportation), the National Oceanic and Atmospheric Administration (Department of Commerce), the United States Army Corps of Engineers (Department of Defense), and the Federal Maritime Commission (FMC), among others. By statute, the chair of the Coordinating Board rotates annually among the Secretaries of Transportation, Defense, Commerce, and Homeland Security.
- an Executive Director and the Executive Secretariat staff which are charged with supporting CMTS activities; a CMTS Working Group that provides multi-agency subject matter expertise to the Executive Secretariat, and through which work plan tasks are promoted, coordinated and managed; and Integrated Action Teams (IATs) and Task Teams (TTs) that are established as required. The subgroups are composed of interested agencies tasked with cooperatively addressing key short and long-term MTS issues.

The activities of the CMTS have been guided since 2008 by the 34 actions laid out in the 2008 Strategy. The 14 actions in the 2017 Strategy will now guide the activities over the next five years. Unanticipated and emerging issues will also be considered as they arise. When an issue does not fall neatly within the purview of a single agency's authority, or when efficiencies can be gained by leveraging expertise from multiple agencies around a common goal, the CMTS can be a valuable tool for engagement.

The Chair of the CMTS Coordinating Board provides an annual report to the Secretary of Transportation on the status of each action and supports the Secretary's requirements to report to the full Cabinet and President, as appropriate.

SECTION 3: STRATEGIC PRIORITIES

MTS Priority Area 1: OPTIMIZE SYSTEM PERFORMANCE

The MTS is a series of integrated components that drive a system of actions that support our international and domestic supply chain. A recognition of the marine transportation as a system is vital to ensuring it will respond to current and emerging operational requirements and recover from unexpected disruptions. By understanding MTS components and how it all operates within the context of freight flow dynamics across modes, the Federal partners can better support our strategic and marketplace requirements toward the establishment of a more innovative and integrated National freight system.

Benefits:

Accurately understanding freight flow and system performance of the MTS can lead to an improved ability to identify vulnerabilities, increase resilience, predict impacts from disruptions and evolutions within the MTS or from other freight modes, assess regulatory and policy decisions, increase safety, reliability and efficiency, and lower transportation costs. A shared understanding of system performance ultimately reduces uncertainty and increases communication between stakeholders, which should lead to a more efficient freight transportation system that is better integrated across modes.

STRATEGIC ACTION: OPTIMIZE SYSTEM PERFORMANCE

1. Provide interagency expertise from MTS agencies in support of the development of a high-fidelity, multi-modal freight flow model to improve the efficacy of freight flow forecasting.

- *Measurement: Develop a research statement for a high-fidelity multimodal freight flow model.*
- *Measurement: Coordinate and apply Big Data analytics from the maritime transportation perspective to reveal research gaps and overlap, foster potential collaboration, manage knowledge, and inform decision-making.*

2. Increase data access, linkages and integration of authoritative data from agencies and organizations with mission areas related to maritime data and the broader intermodal freight flow network.

- *Measurement: Create specific MTS system-scale performance indicators that relate to the freight flow network so they may be periodically updated and used for network calibration and validation.*
- *Measurement: Couple the newly-available vehicle probe data sets with more traditional freight data resources to quantify and contextualize travel times, dwell times, trip counts and other metrics.*

3. Provide interagency MTS expertise in support of the reduction of system congestion and supply chain bottlenecks.

- *Measurement: Engage and support Federal partners, as appropriate, including DOT's reporting requirements under the FAST Act and existing foundational work performed by CMTS member agencies.*

MTS Priority Area 2: ENHANCE MARITIME SAFETY

The CMTS supports the Department of Transportation's top priority, a safety-focused transportation system, by promoting MTS safety for cargo and passengers alike. Federal agencies will identify common priorities from their respective strategic plans and work collaboratively to coordinate resources to meet the safety requirements of the MTS.

Benefits:

Building, operating and maintaining an MTS free from collisions, allisions, and groundings will help prevent injury, death, loss and damage to property and the environment. Further, this collaborative effort will support the resilience and recovery capabilities of the MTS and make the system more reliable and better able to recover from disasters while improving the safety and efficiency of MTS operations.

STRATEGIC ACTION: ENHANCE MARITIME SAFETY

4. Develop and maintain a CMTS-member agency list of most-wanted improvements to enhance or sustain safety of the MTS including U.S. Arctic navigation.

- *Measurement: Once the list is established, monitor reduction in the number of safety-related concerns from the most-wanted list.*
- *Measurement: Provide updates on the recommended actions in the CMTS report, "Priorities of Investments to MTS Infrastructure in the U.S. Arctic."*

5. Deliver timely, relevant, accurate and user-accessible navigation safety information to mariners.

- *Measurement: Reduce the latency of navigation safety information.*
- *Measurement: Examine NTSB, USCG and other sources of accident investigation information for direct and indirect causes related to navigation information.*

6. Incorporate MTS resilience and recovery capabilities into waterway design principles to best identify appropriate levels of service relating to delivery of navigation safety services.

- *Measurement: Decrease the number of vessel delays related to loss of navigation services that are not due to natural causes such as high or low water.*
- *Measurement: Coordinate waterway-based resilience risk analyses and models with land-based initiatives across the Federal government.*

7. Support the presentation of best available weather information in support of MTS operations.

- *Measurement: Form a weather task force to analyze the weather information dissemination and develop best practices for various weather conditions, particularly from extreme weather situations common in the MTS environment.*
- *Measurement: Support NOAA's requirement for an increased number of ship-provided weather observations available for use in extreme weather forecasting.*

MTS Priority Area 3: SUPPORT MARITIME SECURITY

The United States has a vital national interest in maritime security. The security of infrastructure and operations of the MTS must be evaluated and should take into account the possible threats, vulnerabilities, and existing protective measures including in the U.S. Arctic. Security procedures and operations should be continually assessed to evaluate their effectiveness, including possible negative impacts on MTS efficiency. Toward that end, the United States must take full advantage of strengthened alliances and other international cooperative arrangements, innovations in the use of law enforcement personnel and military forces, advances in technology, and intelligence coordination, analysis, and dissemination.

Benefits:

The MTS is a critical component of the national security and economy of the United States. The National Strategy for Maritime Security and its subordinate supporting plans are in the process of being reviewed and potentially updated. The CMTS and its member agencies will coordinate with the National Security Council (NSC) staff and member agencies to ensure that the security recommendations of the MTS are taken into account in any update. Developing a MTS-related security “most wanted list” will further assist agencies to work together to develop and support strategies to coordinate resources to accomplish the priority security needs. The MTS would benefit from a review of Federal policies relating to the security of foreign cargo entering the United States. Lastly, recognizing that the maritime workforce is an essential component of a secure MTS, it would benefit the security of the MTS to assess how maritime security policies address human element issues and identify any burdensome adverse impacts.

STRATEGIC ACTION: SUPPORT MARITIME SECURITY

8. Develop CMTS-member agency list of most-wanted MTS security improvements.

- *Measurement: Produce a catalog of Federal maritime security programs that support interagency assessments and engagements in maritime security initiatives.*
- *Measurement: Determine interagency priorities through CMTS member engagement and coordination with the National Security Council Maritime Security Working Group and other interagency policy coordinating committees, as appropriate.*

9. Develop policies, as needed, intended to advance security-related information sharing while acknowledging and supporting cyber security requirements.

- *Measurement: Provide support to the interagency related to coordination for implementation of The National Strategy for Maritime Security.*
- *Measurement: Support interagency initiatives that advocate the sharing of maritime related data related to cyber security.*

MTS Priority Area 4: ADVANCE ENERGY INNOVATION AND DEVELOPMENT

As MTS operations grow, they will increasingly depend on adequate low-cost energy fuel sources. The MTS will benefit from the promotion of innovative technologies and development of domestically-based alternative energy sources to improve fuel efficiency and ensure the ability to sustain continued operations without dependence on any foreign nation for the MTS' energy needs.

Benefits

There is a mutually dependent relationship between advancing MTS safety, security, and efficiency, and supporting domestic energy innovation and development. Increased use of domestically-produced alternative fuels reduces dependency on traditional fuel sources while also potentially reducing harmful air quality emissions to increasingly congested port areas. Ensuring that MTS users have adequate access to multiple low-cost energy sources will aid in overall system performance. Actions to support this priority area should be systematic, holistic, environmentally sound, and complementary to existing Federal agency and interagency efforts.

STRATEGIC ACTION: ADVANCE ENERGY INNOVATION AND DEVELOPMENT

10. Promote interagency collaboration encouraging the development of alternative fuels for propulsion purposes.

- *Measurement: Establish an interagency working group to support interagency collaboration in the development of alternative fuels.*
- *Measurement: Report on the development, types, availability, and use of alternative fuels.*

11. Develop a priority list of MTS-related strategies to support energy innovation and development; identify technologies and innovations that lead to more efficient and cheaper energy use (e.g. alternative fuels, shore power applications, conversion to all-electric cranes, vessel pilot projects).

- *Measurement: Adoption rate of strategies on the priority list by MTS users, including Federal agencies and private operators.*
- *Measurement: Encourage the vessel operators to use maritime information to reduce the need for lightering, risk of oils spills, and more efficient fuel use.*

MTS Priority Area 5: FACILITATE INFRASTRUCTURE INVESTMENT

As growth of the MTS continues and improvements are made, Federal agencies will need to look at ways to use resources more efficiently and effectively through investments in data collection, sharing, and usage. Information infrastructure such as e-Navigation, communications, and integrated MTS data systems, should be developed and implemented to enable the safest and most efficient use of physical infrastructure. Investment in the hiring, education, and retention of the human capital necessary to operate and maintain the infrastructure vital to the MTS is also critical to the long-term sustainability of the system. MTS infrastructure investment promotes development and growth of the Nation's economy. Additionally, a number of agencies, focusing on infrastructure investment, are evaluating the benefits of public-private partnerships (P3s) to ensure effective and efficient business models for the future of the MTS.

Benefits:

This Strategy aims to provide a process for a coordinated Federal investment plan for all aspects of MTS related infrastructure that leverages individual investment projects to assure better system-wide performance. By leveraging private sector financing and expertise with Federal investment initiatives, the government will be able to recapitalize, maintain the existing infrastructure of the MTS more efficiently, and share risk with the private sector. Additionally, ensuring MTS stakeholder input is incorporated into state freight plans will place a higher visibility on the MTS as States and local governments make infrastructure investment plans and decisions.

STRATEGIC ACTION: FACILITATE INFRASTRUCTURE INVESTMENT

12. Develop and use decision support tools to identify nationally significant priority areas and project locations where Agencies can leverage a variety of funding opportunities.

- *Measurement: Percentage of MTS infrastructure projects vetted against the decision support tools as developed*
- *Measurement: Number of instances of aligned projects recommended for funding and implementation*

13. Facilitate innovative private sector financing mechanisms to augment Federal funds, including the use of Public -Private Partnerships (P3's) and other alternative financing tools.

- *Measurement: Number of projects using existing alternative financing to leverage Federal MTS investments*
- *Measurement: Percent increased use of new alternative financing mechanisms*

14. Encourage career opportunities in MTS fields; particularly transitioning Military and Veterans' communities.

- *Measurement: Increased number of military training courses to meet merchant mariner credential requirements.*
- *Measurement: Enhanced outreach to encourage merchant mariner credentialing*

SECTION 4: IMPLEMENTATION

In order to accomplish the 14 actions outlined in this Strategy, the CMTS will continue to engage the member agencies and build upon the strong interagency partnership established by the forum. In 2012, the CMTS released a compendium detailing Federal MTS agency roles and responsibilities and determined that there are 37 Federal agencies with MTS responsibilities, covering 80 prescribed functions and program areas.³

Pursuant to funding, resources and Administration policy, the agencies will continue to cooperate and agree on work plans and milestones that can be accomplished during the given time frame. Within six months of the approval of this Strategy by the CMTS principals, the CMTS will incorporate the current work plan into the 2017 priority areas. On an annual basis, the work plan and milestones for implementation will be updated to include the work anticipated during that year and will indicate the progress made towards accomplishing the measures of success.

Since most of the actions outlined in this Strategy are related to agency strategic plans and Administration priorities, many of the actions are already being undertaken or are planned to be undertaken, at an agency level. However, cross-agency coordination within the CMTS supports these actions to make them apply more comprehensively to the MTS. Though time and capabilities to implement all of the actions will vary, the CMTS member agencies are committed to working toward ***Channeling the Maritime Advantage***.

³ Committee on the Marine Transportation System. "A Compendium of Federal Programs in the MTS," (2013), available at <http://www.cmts.gov/Resources/Compendium.aspx>.

APPENDIX I: 2008 NATIONAL STRATEGY ON THE MTS - STATUS OF ACTIONS BY PRIORITY AREA

The 2008 *CMTS National Strategy for the MTS: A Framework for Action* put forth 34 recommendations within five priority areas: (1) Capacity, (2) Safety and Security, (3) Environmental Stewardship, (4) Resilience and Reliability, and (5) Finance and Economics. The CMTS member agencies created numerous Integrated Action Teams (IAT) to address these recommendations and 27 of the actions have been addressed or completed. The remaining items were either broadly written, have been combined with other CMTS work plan activities, or carried over to other emerging issues. This Appendix provides a summary of these actions and steps taken to date.

1. Capacity

Action #	Action Summary	Steps taken
1	Work collaboratively to address Federal statutory, regulatory, and institutional requirements in order to improve MTS performance.	<ul style="list-style-type: none"> • CMTS Infrastructure Investment IAT decision-criteria development, once finalized, will allow for cross-agency infrastructure investment coordination using a whole-of-government approach. • CMTS Infrastructure Investment IAT reviewed FY 2013 TIGER V applications. • CMTS provides its members weekly reports on current MTS regulatory notices. • The CMTS R&D IAT has hosted biennial R&D conferences in 2010, 2012, 2014, and 2016 with the Transportation Research Board (TRB) to address needs & generate strategies to advance operational success of the CMTS across different agencies, industry, and academia. The latest 2016 conference drew 130 participants.
2	Encourage the expansion of shipping on the Marine Highways, including the establishment of a pilot program to designate Marine Highway Corridors to relieve congestion on roadways.	<ul style="list-style-type: none"> • MARAD's Marine Highway Program has designated 24 Routes throughout the United States, designated 18 Marine Highway Projects that expand short sea shipping throughout the nation, and awarded \$12 million in grants for new and expanded services.
3	Propose economic incentives for private sector investment in MTS	

	infrastructure and operational technologies to make the MTS more efficient for existing and future needs.	<ul style="list-style-type: none"> • The Infrastructure Investment IAT MTS Infrastructure Finance Resource Library is currently under development. Among other things, this resource will help provide a unified framework for cross-government implementation of P3s. • In its January 2017 report to the President titled “Recommendations and Criteria for Using Federal Public-Private Partnerships to Support Critical U.S. Arctic Maritime Infrastructure”, the CMTS Arctic IAT made recommendations for the use of P3s for infrastructure development in the U.S. Arctic.
4	Collaborate with State, local, and private entities to ensure environmental and National Environmental Policy Act compliance, and to plan for land use in and near ports.	<ul style="list-style-type: none"> • Title XLI of the FAST Act established an interagency Federal Permitting Improvement Steering Council, which includes the following members of the CMTS, the Secretary of Agriculture, the Secretary of the Army, the Secretary of Commerce, the Secretary of the Interior, the Secretary of Energy, the Secretary of Transportation, the Secretary of Defense, the Administrator of the Environmental Protection Agency, and the Secretary of Homeland Security. [Fixing America’s Surface Transportation (FAST) Act. Public Law 114-94. December 4, 2015. Title XLI—Federal Permitting Improvement. pp. 129 STAT. 1741 to 129 STAT. 1762. https://www.gpo.gov/fdsys/pkg/PLAW-114publ94/pdf/PLAW-114publ94.pdf]
5	Share best practices and create incentives to encourage private sector interests and local governments to pursue initiatives for increased efficiency and environmental sustainability.	<ul style="list-style-type: none"> • Within the Maritime Energy and Air Emissions Working Group (MEAEWG) Action Plan, the group intends to address best practices for government programs and incentives that improve environmental sustainability practices.
6	Publish valid, reliable, and timely data on the MTS including cargo movements, capacity, and productivity.	<ul style="list-style-type: none"> • On January 17, 2017, DOT's Bureau of Transportation Statistics (BTS) released the Port Performance Freight Statistics Program: Annual Report to Congress 2016. This report is BTS’s first edition of the annual report on the Port Performance Freight Statistics Program, established by the FAST Act, Section 6018. The Port Performance Freight Statistics Working Group is composed of CMTS representatives from DOT, DHS, and FMC as well as representatives of

		<p>labor, port, private sector associations, and other organizations as specified in FAST Act.</p> <ul style="list-style-type: none"> • The CMTS Maritime Data IAT has produced an inventory of maritime datasets and has collaborated with the General Services Administration to ensure that all datasets in the inventory appear under a “Maritime” topic on the data.gov website. • The Maritime Data IAT is producing content, which will include regular updates and blog posts, to appear on a “homepage” for the Maritime topic on Data.gov. This content is intended to keep data users informed of new datasets, updates to existing datasets, and other developments in the realm of maritime data. • A CMTS R&D IAT project providing publicly available MTS performance measures on economic benefits, safety, capacity and reliability, resilience, and environmental stewardship through an online portal was launched in August 2015 to inform mission requirements. The portal can be accessed at http://navigation.usace.army.mil/MTS/performance. • USACE Waterborne Commerce Statistics Center published annual aggregated data for port utilization by cargo category, tonnage amount, vessel type, and selected waterway segments. The portal can be accessed at http://www.navigationdatacenter.us/wcsc/wcsc.htm. R&D IAT member work also allows for analysis of this data through the CPT and other USACE tools. • The USACE LPMS via the Corps Locks website (http://corpslocks.usace.army.mil/) provides a snapshot of U.S. flag vessels and foreign vessels operating in U.S. waterways that transited a USACE-owned or operated lock structure. The information is available via a public website, updated every half hour, searchable by vessel, lock, or river system. The LPMS also provides information on delay time at locks for commercial vessels waiting to pass through the locks. • CMTS R&D IAT member work on USCG AIS data has led to the Automatic Identification System Analysis Package (AISAP) to understand capacity constraints for inland and coastal navigation. • The R&D IAT is development an MTS travel time atlas, starting with ports along the inland river system. • CMTS has produced outreach materials, including recently updated MTS Fact Sheet (Available at: www.cmts.gov)
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7	Facilitate standardized terminologies, interpretations, and flow-through models to foster increased productivity.	<ul style="list-style-type: none"> • In 2015, the CMTS established an interagency Maritime Data IAT in order to improve interoperability and sharing of maritime data. • The CMTS Navigation Technology IAT (precursor to current FutureNav IAT) facilitated development of common water level datum to facilitate survey data transfer from USACE to NOAA. • The CMTS FutureNav IAT developed a CMTS resolution designation the International Hydrographic Office (IHO) S-100 Data Model as the framework for marine data and product specifications.
8	Develop performance measures to assess the productivity of the MTS and the risk of potential infrastructure failures to the MTS.	<ul style="list-style-type: none"> • On January 17, 2017, DOT's Bureau of Transportation Statistics (BTS) released the Port Performance Freight Statistics Program: Annual Report to Congress 2016. This report is BTS's first edition of the annual report on the Port Performance Freight Statistics Program, established by the FAST Act, Section 6018. The Port Performance Freight Statistics Working Group is composed of CMTS representatives from DOT, DHS, and FMC as well as representatives of labor, port, private sector associations, and other organizations as specified in FAST Act. • The CMTS R&D IAT is collaborating with Oak Ridge National Laboratory to develop a freight flow model that links landside freight movements (via road and rail) with waterborne freight movements. No such model currently exists for the United States at the county-to-county level. • CMTS R&D IAT member work on USCG AIS data has led to the AISAP work to understand capacity constraints for inland and coastal navigation. • A list of 60 recommended performance measures was developed with expert input during 2012-2013 through a brief series of workshops in coordination with the CMTS-TRB R&D Conference, <i>Diagnosing the MTS: Measuring Performance and Targeting Improvement</i>. Research into data sources is occurring via the CMTS R&D IAT led to a 2015 launch of a MTS performance measures dashboard featuring publicly available data from authoritative sources displayed in an easy to read format at http://navigation.usace.army.mil/MTS/performance/economic

		<ul style="list-style-type: none"> • An ERDC Technical Report, <i>MTS Performance Measures Research</i>, was published by R&D IAT members, and includes an appendix of assembled data sources. This report is available to the public at http://acwc.sdp.sirsi.net/client/en_US/search/asset/1050326 • The CMTS contributed to working groups under DOT-led efforts to develop a 'Conditions and Performance' report in response to the MAP-21 legislation and emphasize the importance of intermodal connections as part of long-term freight transportation planning efforts as well as the need for greater recognition of the critical role that waterways play in supporting U.S. industries engaged in international trade. • The MTS Data IAT supports the BTS Port Performance Freight Statistics Working Group by providing authoritative foundational data and definitions.
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2. Safety and Security

Action #	Action Summary	Steps taken
9	Coordinate existing Federal navigation programs to ensure collaboration, reduce duplication, and standardize terminology and presentation.	<ul style="list-style-type: none"> • In 2012, the CMTS completed the Compendium and Matrix of federal MTS programs and functions. To download, view: http://www.cmts.gov/Resources/Compendium.aspx • The CMTS established the Navigation Technology Integrated Action Team (IAT) in 2006, completing 10 interagency work items, including establishing common water level datum. • In 2012, the Navigation Technology IAT evolved into the e-Navigation IAT and published the CMTS e-Navigation Strategic Action Plan and completed a more eNav centric work plan. • In 2013, the e-Navigation IAT conducted a National Dialog on the Future of e-Navigation and in 2014 was re-chartered to the broader FutureNav IAT. • Based on the recommendation of the FutureNav IAT, the CMTS adopted the IHO's S-100 Universal Hydrographic Data Model as its preferred data framework for the dissemination and exchange of digital marine safety information and related MTS data collection requirements in 2014.

		<ul style="list-style-type: none"> • In response to the CMTS Coordinating Board's direction to produce more electronic marine safety information, the FutureNav IAT stood up an enhanced Marine Safety Information (eMSI) Task Team (TT) and is working on developing a new interagency integrated eMSI bulletin and helping to facilitate the broad transmission of NOAA's PORTS® real time oceanographic data via the NAIS. • CMTS FutureNav IAT and eMSI TT members continue to actively participate in International, Federal and NGO organizations and initiatives including IMO, IHO, International Association of Lighthouse Authorities, PIANC, Radio Technical Commission for Maritime Services, FILS/FINDE and others to ensure collaboration and information sharing regarding navigation safety programs. • In 2015 the MTS Data IAT initiated a data call to collate and coordinate all Federal maritime related datasets for inclusion on the data.gov website under a specific Maritime Topic to enable sharing of information.
10	<p>Deliver timely, relevant, accurate navigation safety information to mariners, including real-time information systems such as the Physical Oceanographic Real Time Systems PORTS®, e-navigation, under-keel clearance, High Frequency Radar (HFR) air gap technology, Real Time Current Velocity systems at locks, and those systems associated with development of the Integrated Ocean Observing System to improve navigation safety and efficiency and reduce the risk of accidents.</p>	<ul style="list-style-type: none"> • The Future of Navigation IAT has established a Task Team to develop and deliver eMSI, which will ultimately improve the timeliness and usefulness of marine safety information delivery to end users. • USACE has implemented the LOMA to leverage AIS technology for improvement of inland waterway operations. • USACE has initiated several efforts to implement River Information Services on US inland waterways, including development of RIS key technologies in cooperation with other CMTS agencies and leveraging the work of the CMTS FutureNav and Maritime Data IATs • NOAA has continued to expand its PORTS® and interagency work is underway to operationalize the delivery of PORTS® information via USCG AIS in selected locations. • NOAA's IOOS has established a portal for users to access its data, including high frequency radar, tides and currents, and other marine safety information as available. • A national performance measure on number of high commercial tonnage harbors served by PORTS® is reported online at http://navigation.usace.army.mil/MTS/.

11	Encourage, coordinate, and support navigation technology research and development to enhance navigation safety.	<ul style="list-style-type: none"> • The CMTS developed and adopted a <i>Strategic Action Plan for Research and Development in the MTS</i>. • The CMTS R&D IAT has hosted biennial R&D conferences in 2010, 2012, 2014, and 2016 with the TRB to address needs & generate strategies to advance operational success of the CMTS across different agencies, industry, and academia. The latest 2016 conference drew 130 participants. • At the CMTS-TRB 2016 Conference, the CMTS's Resilience Integrated Action Team (R-IAT) co-led a session on Climate Change at Seaports with academia, and presented a summary of work within the R-IAT to advance climate decisions at seaports. • A Strategic Action Plan for R&D in the MTS is being updated based on the outcomes of the 2016 CMTS-TRB conference.
12	Enhance and improve existing frameworks that plan for, operate, maintain, and mitigate risks to vessels and the environment, and respond to accidents and natural disasters.	<ul style="list-style-type: none"> • The CMTS Preparedness Task Team published a report, <i>Best Practices in Managing and Preventing Breakaway Vessels</i>, in November 2011. The document is released annually by USCG District 8 to remind stakeholders of how they can prevent breakaways, and thus reduce the risk of spills and damage to MTS infrastructure, particularly during high water events.
13	Ensure coordination among maritime transportation and maritime security policy-making bodies and programs.	<ul style="list-style-type: none"> • CMTS membership has been expanded to include NMIO as an Ex Officio Member. • The CMTS Executive Director has designated a member of the CMTS Executive Secretariat to serve as the subject matter expert for maritime security. • CMTS is a member of and Executive Secretariat staff regularly participates in the National Maritime Interagency Advisory Group. • CMTS member agencies have identified maritime security as one of five strategic priorities for the MTS National Strategy update (underway). • CMTS staff participates as maritime mode representatives on the DOT's MAP-21 Safety, Security and Resilience Committee.

14	Consider ways in which security measures impacting the movement of trade by water can be streamlined, and where economies and coordination can be realized between safety and security imperatives.	<ul style="list-style-type: none"> • In 2007, the CMTS established an ad hoc business development team to address US Customs and Border Protection 24-hr Notice requirements that hindered cross-Lake container traffic to operate using the same rules as rail and truck commerce between the United States and Canada.
15	Work closely with State and local boating authorities and entities, recreational boating organizations, commercial shipping interests, and ports to reduce accidents resulting from competing uses of navigation channels, and increase and manage safety of the MTS.	<ul style="list-style-type: none"> • CMTS member agencies and staff regularly participate in Harbor Safety Committees, including the annual Harbor Safety Committee Conference where these issues are addressed on a nationwide basis with stakeholders and Federal partners. • CMTS engaged in National Ocean Council (NOC) Marine Spatial Planning development efforts to assure regional representation of the MTS in determining the future uses of the oceans, including how the competing oceans uses may co-exist and be managed. • CMTS coordinated interagency communication regarding North Atlantic Port Access Route Study (PARS) and offshore energy placement siting. • CMTS member agencies conducted a nation-wide outreach effort to discuss the “Future of Navigation” with MTS stakeholders. The goal is to solicit stakeholders’ needs and desires for operating more safely and efficiently. • CMTS assists member agencies in communicating their individual tools, products and services to stakeholders. This included sharing and distributing the TSA training DVD series to address improving passenger vessel security in six areas. • National safety-related performance measures are recognized and reported at http://navigation.usace.army.mil/MTS/.

3. Environmental Stewardship

Action #	Action Summary	Steps taken
16	Advocate transportation projects, technologies, and mitigation activities that improve air quality, reduce greenhouse gas emissions, and reduce congestion in port areas and other MTS components.	<ul style="list-style-type: none"> • CMTS established the MEAEWG to provide a forum to exchange information and offer opportunities for interagency collaboration. Among other goals, the MEAEWG is exploring ways to promote sustainable energy sources and reduce air emissions while promoting economic development. • CMTS conducted meetings of the Environmental Stewardship Discussion Group and Subcommittee to facilitate networking and information sharing to advance knowledge regarding environmental issues and rules and practices relevant to the MTS. • CMTS Infrastructure and Investment Integrated Action Team (II IAT) reviewed and provided input for the DOT 2013 TIGER V allocations. The IAT highlighted the value of investing the in wireless inland waterway systems to provide for increased safety, reduction of collision risk, real-time communication, and data exchange, as well as supporting other TIGER applications for MTS improvements.
17	Work collaboratively to foster the collection of data and information that will underpin environmental impact assessments and decision-making in MTS planning and development.	<ul style="list-style-type: none"> • The CMTS is an active participant in the subgroups of the NOC. In this capacity, the CMTS promotes the use of Regional Ocean Planning and Ecosystem-based Management (EBM) principles to inform MTS planning and to include MTS in EBM. The CMTS will link these principals to the MTS community. • CMTS R-IAT is leveraging Federal data to evaluate the performance of a regional subset of ports to include navigation, environmental, infrastructure, data and information to assess networked navigation and port resiliency.
18	Support research and develop and implement practical strategies to control and mitigate effects on the marine environment from pollutants, invasive species, and anthropogenic sound, and to reduce negative	<ul style="list-style-type: none"> • The MMC and NOC have been added as members of the CMTS. • The CMTS provided MTS perspective to the 2009 White House interagency Ballast Water Working Group and provided comment on EPA VGP process.

	interactions between ships and marine mammals.	<ul style="list-style-type: none"> • The CMTS-led U.S. Arctic MTS Report to the President called for agreements to promote vessel traffic management and associated protective measures for identified areas of heightened ecological significance in the Bering Strait. • A national performance measure on the number of reported whale strikes in Atlantic and Gulf coast waters is reported online at http://navigation.usace.army.mil/MTS/.
19	Ensure environmentally appropriate dredged material management.	<ul style="list-style-type: none"> • At request of the CMTS, the National Dredging Team reevaluated the National Dredging Policy. It was determined that no change was needed to the 1998 Policy established under President Clinton. • A national performance measure on dredged material placement is reported online at http://navigation.usace.army.mil/MTS/.
20	Promote coordinated regional and watershed efforts of States, Federal Agencies, and other partners to manage sediment, dredging and dredged material, point source discharges and storm water runoff, oil or hazardous material spills, harmful anti-fouling systems, and sources of marine debris to restore habitats, reduce pollution, and plan for conservation and mitigation.	<ul style="list-style-type: none"> • Title XLI of the FAST Act established an interagency Federal Permitting Improvement Steering Council, which includes the following members of the CMTS, the Secretary of Agriculture, the Secretary of the Army, the Secretary of Commerce, the Secretary of the Interior, the Secretary of Energy, the Secretary of Transportation, the Secretary of Defense, the Administrator of the Environmental Protection Agency, and the Secretary of Homeland Security. [Fixing America's Surface Transportation (FAST) Act. Public Law 114-94. December 4, 2015. Title XLI—Federal Permitting Improvement. pp. 129 STAT. 1741 to 129 STAT. 1762. https://www.gpo.gov/fdsys/pkg/PLAW-114publ94/pdf/PLAW-114publ94.pdf]
21	Support harmonization of State, Federal, and international environmental standards, policy, laws, and regulations through work with	<ul style="list-style-type: none"> • In its report to the President on the U.S. Arctic MTS in June 2013, the CMTS indicated its support for the United States to join UNCLOS, and for the development and adoption of a Mandatory Polar Code for Ships Operating in Polar Waters. (The Polar Code entered into force on 1 January 2017.)

	Federal interagency bodies, in the International Maritime Organization and other organizations, and implement international treaties such as those regarding prevention of maritime pollution at sea.	<ul style="list-style-type: none"> The recommendations of this document were clearly visible in the President's <i>NSAR Implementation Plan</i> released in January 2013 and <i>Integrated Arctic Management Plan</i> of 2013.
22	Support national and international solutions to environmental problems related to ship decommissioning and dismantling.	<ul style="list-style-type: none"> NOT ADDRESSED WITHIN THE CMTS
23	Encourage use of industrial land banks and formerly polluted industrial areas for MTS and intermodal transportation system facilities, and promote MTS development that avoids disproportionate impacts on minority and low-income communities.	<ul style="list-style-type: none"> Title XLI of the FAST Act established an interagency Federal Permitting Improvement Steering Council, which includes the following members of the CMTS, the Secretary of Agriculture, the Secretary of the Army, the Secretary of Commerce, the Secretary of the Interior, the Secretary of Energy, the Secretary of Transportation, the Secretary of Defense, the Administrator of the Environmental Protection Agency, and the Secretary of Homeland Security. [Fixing America's Surface Transportation (FAST) Act. Public Law 114-94. December 4, 2015. Title XLI—Federal Permitting Improvement. pp. 129 STAT. 1741 to 129 STAT. 1762. https://www.gpo.gov/fdsys/pkg/PLAW-114publ94/pdf/PLAW-114publ94.pdf]

4. Resilience and Reliability

Action #	Action Summary	Steps taken
24	Provide coordination, expertise, and resources to ensure continuity of operations, essential public services, and the resumption of commercial marine activities following a disruption.	<ul style="list-style-type: none"> The CMTS Preparedness Task Team drafted a report, <i>Best Practices for Preventing and Managing Breakaway Vessels</i>. Prevention of breakaways during high-water events reduces the risk of vessels losing control and negatively impacting infrastructure along waterways, such as bridges, levees, and water intake pipes. CMTS staff engaged in interagency National Level Exercise Planning to assure all member agencies with equities in the MTS are aware of the practices and protocols in responding to emergency events to minimize negative impacts on the MTS. CMTS established the R-IAT to assess risk and identify practices that may be used to improve the resiliency of the MTS to both immediate and long-term environmental and non-environmental hazards and constraints, including extreme weather events, human actions, competing use of waterways, fought, precipitation, and sea level rise.
25	Develop a reserve and surge capacity in the MTS and coordinate with industry on response and recovery operations.	<ul style="list-style-type: none"> Though establish to support veteran's hiring, the CMTS Military to Mariner TT works to support sealift surge capacity by encouraging veteran hiring in critical capacity positions, among other mariner employment opportunities.
26	Develop a coordinated approach to emergency permitting for channel restoration following a large-scale sediment deposit in navigation channels from natural disasters such as hurricanes, which may obstruct the channel and disrupt port activities.	<ul style="list-style-type: none"> Title XLI of the FAST Act established an interagency Federal Permitting Improvement Steering Council, which includes the following members of the CMTS, the Secretary of Agriculture, the Secretary of the Army, the Secretary of Commerce, the Secretary of the Interior, the Secretary of Energy, the Secretary of Transportation, the Secretary of Defense, the Administrator of the Environmental Protection Agency, and the Secretary of Homeland Security. [Fixing America's Surface Transportation (FAST) Act. Public Law 114-94. December 4, 2015. Title XLI—Federal Permitting Improvement. pp. 129

27	Work collaboratively to resolve cross-cutting jurisdictional issues surrounding abandoned, wrecked, or damaged vessels.	<ul style="list-style-type: none"> • Separate from CMTS activities, USACE and USCG have signed an MOU outlining the appropriate protocols, roles and responsibilities for addressing, marking or removing debris in Federal channels, including abandoned, wrecked or damaged vessels.
28	Develop and promote national and international strategies for addressing potential climate change impacts on ports, waterways, and other vulnerable elements of the MTS.	<ul style="list-style-type: none"> • CMTS established the R-IAT in 2014 with representation from 14 Federal agencies to assess risk and identify practices that may be used to improve the resiliency of the MTS to both immediate and long-term environmental impacts, including extreme weather events, precipitation, drought, and sea level rise. • At the CMTS-TRB 2016 Conference, the CMTS' R-IAT co-led a session on Climate Change at Seaports with academia, and presented a summary of work within the R-IAT to advance climate decisions at seaports. • The CMTS R-IAT is working with academia to conduct an assessment of port resiliency to climate change for a regional port system. • CMTS provided to the President the U.S. Arctic Transportation Report highlighting the needs, challenges and impacts of the changing environment in the Arctic. • CMTS members and staff participated in the development of the <i>National Ocean Policy Implementation Plan</i> to highlight the role of marine transportation with respect to other ocean uses.
29	Provide appropriate consultation and coordination with other policy facilitation structures, such as the Committee on Ocean Policy (now known as the National Ocean Council).	<ul style="list-style-type: none"> • The CMTS Infrastructure Investment IAT supported the Working Group of the Administration's Ports Task Force and provided the initial literature search used to initiate the Task Force activities. • The CMTS member agencies and Executive Secretariat staff participated in and led several of DOT's MAP-21 Implementation working groups. • The CMTS has established a forum for Designated Federal Officers of MTS-related Federal Advisory Committees.

		<ul style="list-style-type: none"> Established a Task Team to bridge MTS and National Ocean Policy objectives; In addition, CMTS Executive Secretariat staff have: <ul style="list-style-type: none"> Participated in the writing team to compose the Arctic objectives of the National Ocean Policy and the National Ocean Policy Implementation Plan. Assisted White House in the <i>NSAR Implementation Plan</i>; Participated as Ex-officio members of NOC subcommittees; Provided input into the Northeast and Mid-Atlantic Regional Ocean Plans. Developed procedures to ensure that Alaska tribes were able to comment on the development of the Arctic-related CMTS reports and to ensure that Alaska tribes understand the Federal role in the MTS. The CMTS Coordinating Board approved a resolution in 2016 in enhance coordination among Federal agencies when conducting tribal outreach to Alaskan tribal communities and organizations.
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5. Finance and Economics

Action #	Action Summary	Steps taken
30	Study alternative approaches to financing construction, rehabilitation, and maintenance of infrastructure projects, as well as environmental impact mitigation. This study should consider fees, taxes, and general revenue contributions for financing infrastructure projects, depending on the characteristics of the projects. The study should involve high-level discussions and collaboration with Federal, State, local, and Tribal governments, and also with private	<ul style="list-style-type: none"> The work plan of the Infrastructure Investment IAT includes development of an Alternative Finance Tool Kit to assess an array of options for infrastructure investment, including P3s, user fees, non-traditional revenue streams and other mechanisms. The Infrastructure Investment IAT has developed the “Handbook of Federal Funding Sources” as a tool for local, state, Tribal and private developers to understand and leverage all of the potential Federal funding sources available for MTS-related infrastructure investment. In a January 2017 Report to the President titled “Recommendations and Criteria for Using Federal Public-Private Partnerships to Support Critical U.S. Arctic Maritime Infrastructure”, the CMTS Arctic IAT made recommendations for the use of P3s for infrastructure development in the U.S. Arctic.

	entities, as appropriate, on funding strategies.	
31	Study approaches to prioritizing how Federal dollars should be allocated among competing priorities.	<ul style="list-style-type: none"> • The Infrastructure and Investment IAT has identified a set of decision criteria that may be used by the Administration to prioritize and compare various MTS-related infrastructure investments that have been screened by individual agency evaluations. • The Infrastructure Investment IAT has provided DOT with input for evaluating highly recommended TIGER grant proposals. • The Infrastructure Investment IAT team leads served on the Administration's Ports Task Force to assist in analyzing and developing tools to evaluate various MTS-related infrastructure investment decisions. The Infrastructure Investment IAT provided technical expertise to the Administration's Ports Task Force leadership.
32	Ensure that cost allocation takes into consideration environmental and human health costs, promotes economic efficiency, and that the allocations do not create unfair competitive disadvantages.	<ul style="list-style-type: none"> • Title XLI of the FAST Act established an interagency Federal Permitting Improvement Steering Council, which includes the following members of the CMTS, the Secretary of Agriculture, the Secretary of the Army, the Secretary of Commerce, the Secretary of the Interior, the Secretary of Energy, the Secretary of Transportation, the Secretary of Defense, the Administrator of the Environmental Protection Agency, and the Secretary of Homeland Security. [Fixing America's Surface Transportation (FAST) Act. Public Law 114-94. December 4, 2015. Title XLI—Federal Permitting Improvement. pp. 129 STAT. 1741 to 129 STAT. 1762. https://www.gpo.gov/fdsys/pkg/PLAW-114publ94/pdf/PLAW-114publ94.pdf]
33	Study how best to coordinate the allocation of Federal funds for projects across Agencies.	<ul style="list-style-type: none"> • CMTS developed a snapshot of Federal investments in the MTS in 2008. • The CMTS supported the Council on Environmental Quality in developing the MTS section of the Biennial Oceans Report to Congress assessing the Federal investment in the oceans.
34	Coordinate a CMTS membership policy recommendation to the President for	<ul style="list-style-type: none"> • The work plan of the Infrastructure Investment IAT includes development of an Alternative Finance Tool Kit to assess an array of options for infrastructure

	congestion prices, which should be charged when appropriate. The revenue collected from congestion pricing can offset fixed costs and thereby reduce economic distortions.	investment, including P3s, user fees, non-traditional revenue streams and other mechanisms.
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APPENDIX II

LIST OF ACRONYMS

AIS	Automatic Identification System
ATON	Aids to Navigation
BTS	Bureau of Transportation Statistics (DOT)
Bureau	Build America Bureau (DOT)
CBP	Customs and Border Protection (DHS)
CMTS	U.S. Committee on the Marine Transportation System
CPT	Channel Portfolio Tool (USACE)
DHS	U.S. Department of Homeland Security
DOC	U.S. Department of Commerce
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOJ	U.S. Department of Justice
DOL	U.S. Department of Labor
DOT	U.S. Department of Transportation
EBM	Ecosystem-Based Management
EEZ	Exclusive Economic Zone
eMSI	enhanced Marine Safety Information
eNav	Electronic Navigation
ENC	Electronic Navigation Chart
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FAST Act	Fixing America's Surface Transportation Act
FILS	Federal-Industry Logistics Standardization
FINDE	Federal Initiative for Navigation Data Enhancement
FMC	Federal Maritime Commission
FutureNav	Future of Navigation (CMTS)

GAO	Government Accountability Office
IAT	Integrated Action Team (CMTS)
IMO	International Maritime Organization
IOOS	Integrated Ocean Observing System
LOMA	Lock Operations Management Application (USACE)
MAP-21	Moving Ahead for Progress in the 21 st Century Act (P.L. 112-141)
MARAD	U.S. Maritime Administration (DOT)
MEAEWG	Maritime Energy and Air Emissions Working Group (CMTS)
MMC	Marine Mammal Commission
MOU	Memorandum of Understanding
MTS	Marine Transportation System
NAIS	National Automatic Identification System
NGO	Non-Governmental Organization
NMIO	National Maritime Intelligence-Integration Office
NOAA	National Oceanic and Atmospheric Administration (DOC)
NOC	National Ocean Council
NSAR	National Strategy for the Arctic Region
NTSB	National Transportation Safety Board
OMB	Office of Management and Budget
P3	Public-Private Partnership
PORTS	Physical Oceanographic Real Time System (NOAA)
R&D	Research and Development
STCW	Standards of Training, Certification, and Watchkeeping
TEU	Twenty-Foot Equivalent Unit
TIGER	Transportation Investment Generating Economic Recovery
TRB	Transportation Research Board (NAS)
UNCLOS	United Nations Convention on the Law of the Sea
USACE	U.S. Army Corps of Engineers (DOD)
USCG	U.S. Coast Guard (DHS)
USDA	U.S. Department of Agriculture
VTs	Vessel Traffic Services