Executive Summary

A Ten-Year Prioritization of Infrastructure Needs in the U.S. Arctic

National Strategy for the Arctic Region Implementation Plan Task 1.1.2

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For the

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EXECUTIVE SUMMARY

This document, "A Ten-Year Prioritization of Infrastructure Needs in the U.S. Arctic" (Prioritization Framework), presents a framework to address Arctic infrastructure gaps by identifying needs that are considered to be critical requirements for a safe and secure U.S. Arctic Marine Transportation System (MTS) over the next decade.

This report by the U.S. Committee on the Marine Transportation System (CMTS) fulfills directive 1.1.2 under the White House National Strategy for the Arctic Region (NSAR) 2014 Implementation Plan objective to "Prepare for Increased Activity in the Maritime Domain." The deliverable for 1.1.2 is to "Deliver a 10-year prioritization framework to coordinate the phased development of Federal infrastructure through Department and Agency validated needs assessment by the end of 2016." Transportation Secretary Anthony Foxx tasked this action to the CMTS in a May 2014 memorandum.

Using the CMTS 2013 report U.S. Arctic Marine Transportation System: Overview and Priorities for Action (CMTS 2013 Arctic Report) definitions, this Prioritization Framework organizes the U.S. Arctic MTS into five core components:[1]

- *Navigable Waterways*
- *Physical Infrastructure*
- *Information Infrastructure*
- *Response Services*
- *Vessels*

The recommendations set forth for consideration in this report are grouped into three categories under each of the five primary components: (1) infrastructure considerations that require both near-term planning and implementation; (2) infrastructure considerations requiring near term planning for mid- to long-term implementation; and (3) infrastructure considerations requiring long-term planning and implementation. This categorization facilitates the discussion of many coordinated infrastructure needs while acknowledging planning and funding requirements and limitations.

Over the past five years, with the continuing trend in diminishing Arctic sea ice, discussions and projections for the Arctic as a new international trade route have increased. Some vessels, particularly smaller recreational vessels, currently operating in the Arctic are neither designed

[1] U.S. Committee on the Marine Transportation System (2013). U.S. Arctic Marine Transportation System: Overview and Priorities for Action. A Report to the President. Available at: http://www.cmts.gov/downloads/CMTS%20U%20S%20%20Arctic%20MTS%20Report%20%2007-30-13.pdf as of December 2015.

nor equipped for hazardous Arctic conditions.[2] As sea ice retreats, the lack of U.S. Arctic infrastructure to support increased maritime activity grows more apparent. Limited nautical charts, aids to navigation, communication, emergency response, and rescue capabilities make operations difficult and potentially dangerous. Other elements contributing to accident risks in the Arctic include inadequate maritime infrastructure and environmental and economic uncertainties, all major challenges identified in the CMTS 2013 Arctic Report.

To address some of these risks, a number of studies have examined the gaps and potential infrastructure needs of the U.S. Arctic MTS. These needs include not only physical infrastructure such as ports, support vessels, and communication networks, but also the informational infrastructure enabling mariners to operate safely, such as nautical charts and electronic aids to navigation. The NSAR Implementation Plan (IP) identifies separate actions related to Arctic communications and aviation infrastructure [Objectives 1.2 Sustain and Support Evolving Aviation Requirements; and 1.3 Develop Communication Infrastructure in the Arctic]. This report synthesizes existing information on Arctic MTS infrastructure and gaps in order to distill requirements for future infrastructure needs over the next decade.

There are 43 recommendations put forward in this report for necessary elements of a comprehensive Arctic MTS. This framework necessarily involves elements of the traditional definition of infrastructure, but also includes communication, planning, management, environmental policies, regulatory implementation, and the human element, all of which are required for safe, secure, and successful maritime transportation.

Of the total list of recommendations, 25 are near-term recommendations to address the current gaps in U.S. Arctic infrastructure.

Near-Term Recommendations	
Navigable Waterways	Designate Port Clarence as an Arctic Maritime Place of Refuge.
	Review Port Clarence facilities to assess whether adequate support facilities are available at Port Clarence or in the region for a ship in need of assistance.
	Support Arctic Waterways Safety Committee efforts to bring stakeholders together
	Leverage existing data-sharing frameworks, such as Data.gov, the Alaska Regional Response Team, and Alaska Ocean Observing System, to facilitate waterways planning and response to environmental emergencies.
	Leverage international partnerships supporting waterways coordination.
	Work with stakeholders to coordinate research efforts to de-conflict research within commercial and subsistence use areas.

[2] Mooney, C. (April 8, 2015). *The Arctic has lost so much ice that now people want to race yachts through it.* The Washington Post. Available at: https://www.washingtonpost.com/news/energy-environment/wp/2015/04/08/the-arctic-has-melted-so-much-that-people-want-to-race-yachts-through-the-northwest-passage/ as of February 2016.

	Designate M-5 Alaska Marine Highway Connector to connect the Arctic Ocean and the western section of the Northwest Passage.
Physical Infrastructure	Prioritize the need for Arctic port reception facilities to support international regulatory needs and future growth.
	Expand Arctic coastal and river water-level observations to support flood and storm-surge warnings.
	Review U.S. Arctic maritime commercial activities to identifying major infrastructure gaps that should be addressed to promote safe and sustainable Arctic communities.
	Co-locate new Continuously Operating Reference Stations and National Water Level Observation Network stations to significantly improve the Arctic geospatial framework with precise positioning and water levels.
Information Infrastructure	Improve weather, water, and climate predictions to an equivalent level of service as is provided to the rest of the nation.
	Implement short-range, sea-ice forecasting capability.
	Place hydrography and charting of the U.S. maritime Arctic among the highest priority requirements for agency execution.
	Advance Arctic communication networks to ensure vessel safety.
	Finalize the Port Access Route Study for the Bering Strait and continue efforts to provide routes for vessel traffic in the U.S. Arctic.
	Expand partnerships to provide new satellite Automatic Identification System (AIS) capabilities for offshore activity information.
MTS Response Services	Continue collaboration with State and local authorities to ensure readiness of Arctic maritime and aviation infrastructure for emergency response and Search and Rescue (SAR).
	Continue coordination through international fora to provide significant opportunities for engagement across the Federal Government and the international Arctic response community.
	Support Pan-Arctic response equipment database development, best practices recommendations, and information sharing for continued development of guidelines for oil spill response in the Arctic.
	Develop a plan to transport critical response equipment from the contiguous U.S. into the Arctic area in the event of a catastrophic event.
	Evaluate facilities currently available on the North Slope for use as seasonal staging areas by those engaged in readiness exercises or research.
Vessel Operations	Expand U.S. icebreaking capacity to adequately meet mission demands in the high latitudes.
	Update domestic law to implement the mandatory provisions of the Polar Code and the Convention on Standards of Training, Certification and Watchkeeping for Seafarers.
	Examine existing training and safety standards applicable to the U.S. fishing fleet with respect to the new Polar Code requirements.

The CMTS recommendations in this report cover the five core MTS components and provide a path for Federal activities needed to preserve the mobility and safe navigation of U.S. military and civilian vessels throughout U.S. Arctic waters.

As sea ice retreats, the United States must recognize the importance of providing infrastructure to support increased domestic and international maritime activity. The current limitations in nautical charts, aids to navigation, communication, emergency response, and rescue capabilities make operations difficult and potentially dangerous, hindering U.S. maritime activities in the Arctic. The priorities and recommendations presented in this document create an actionable framework to improve the U.S. Arctic MTS and facilitate responsible activity and growth in the region for a safe and secure Arctic over the next decade and beyond.

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