

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS

COMPLETE STATEMENT OF

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BEFORE THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

SUBCOMMITTEE ON COAST GUARD AND MARITIME
TRANSPORTATION

AND

SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

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ON

“Federal Maritime Navigation Programs: Interagency Cooperation
and Technological Change”

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Chairman Hunter, Chairman Gibbs and distinguished members of the Subcommittees, I am Eddie Belk, Chief of the Operations and Regulatory Division for the U.S. Army Corps of Engineers (Corps). I am honored to appear before you today to discuss the issues associated with Federal Maritime Navigation Programs, with an emphasis on Interagency Cooperation and Technological Change.

The Corps works in partnership with Federal agencies, particularly the United States Coast Guard and National Oceanic and Atmospheric Administration (NOAA), along with local, regional, and national stakeholders.

This fiscal year (FY), the Corps is investing just over \$2.6 billion appropriated by Congress, to study, design, construct, operate and maintain its national navigation infrastructure, including channel deepening projects to accommodate Post-Panamax vessels and recapitalizing locks and dams to increase reliability and efficiency on our inland waterways. This represents almost 45% of the entire Corps Civil Works appropriation for FY 2016 and includes approximately \$1.25 billion from the Harbor Maintenance Trust Fund and \$108 million from the Inland Waterways Trust Fund. The Corps navigation mission area supports over 1,000 coastal ports with 13,000 miles of coastal navigation channels; a large portfolio of inland waterways with 12,000 miles of channels; 241 navigation locks at 197 sites nationally; and over 900 breakwaters, jetties and other navigation structures.

Over the past decade or so, the Corps has experienced meaningful improvement in the data we collect, create, and use to operate and manage Corps maritime assets. We have contributed to and benefited from this same trend across the broader marine transportation community. No matter what the waterways of the future may look like, there is no doubt in my mind that managing them will require creating, managing, analyzing, and sharing more data and information than ever before, whether across partner agencies or with waterway users. That is why we have focused much of our research and technological innovation in this area.

Over the past several years, the Corps has developed data frameworks and strategies to maximize data value by converting raw data into usable information and knowledge. Our philosophy is to collect data once and then use it many times by making it broadly available, both across the Corps and to others. E-Navigation is about harmonizing data and information across all stakeholders, whether public or private. Our efforts in this area are in alignment with the e-Navigation concept as defined by the International Maritime Organization and documented in the US Committee on the Marine Transportation System "e-Navigation Strategic Action Plan." The Corps interagency e-Navigation efforts directly contribute to improved safety, efficiency and reliability of the national maritime channels, harbors, and waterways.

The Corps is successfully applying e-Navigation capabilities today, with more on the way, through ongoing research and development programs. The Corps is the United States nautical charting authority for inland waterways. For the past decade, the Corps has created over 7,200 miles of detailed inland electronic navigational charts. Since 2013, over six million of our charts and chart updates have been downloaded by mariners, providing the most up to date information for safely navigating on our rivers. Additionally, through the use of Automatic Identification System (AIS) vessel tracking technologies, electronic data communications, and “virtual” Aids to Navigation, our waterways are made safer and more efficient for navigation.

The Corps is responsible for surveying all Federal channels, harbors, and waterways in order to report channel conditions to our partners and stakeholders. This is accomplished with both in-house resources and with resources contracted from the private sector. This past year, the Corps deployed our eHydro tool across all Corps coastal offices, which takes hydrographic surveys of latest navigation channel conditions and then standardizes the data for use in enterprise tools. This improves our ability to create and disseminate more consistent products from standard surveys more quickly. A few example products include automatic development of channel condition reports that we provide to NOAA for their use in nautical charting of coastal waters and standardized GIS maps for use by waterway operators and the public. The eHydro tool is being expanded on the inland waterways with applications that create inland survey overlays for Coast Guard use to improve the accuracy and efficiency of setting physical buoys on our rivers.

Several years ago, the Corps created an e-Navigation tool that combines the information from our inland electronic charts with the marine vessel AIS. The result was our Lock Operations Management Application, or LOMA, which uses real-time vessel tracking data from AIS to provide our lock operators with visibility on the movement of commercial vessels along the inland waterways. LOMA was deliberately designed to be interoperable with the Coast Guard Nationwide AIS system, using common architecture and software to manage the millions of daily AIS data messages. The data from over 130 LOMA-installed AIS hardware sites on the inland waterways are shared with the U.S. Coast Guard Nationwide AIS system, providing real-time visibility on inland waterways. The Coast Guard provides additional system monitoring and data archive services, allowing access by researchers and planners in the Corps to valuable high-resolution historical vessel movement data that allows us to better target limited infrastructure investments. Building LOMA in partnership with the Coast Guard has saved the Corps time and significantly reduced the risk of developing a new system. The Corps and the Coast Guard continue to work in partnership to improve the system and make the most of these shared capabilities.

In addition to providing both agencies with real time waterway situational awareness through AIS data received from maritime vessels, LOMA also

transmits information directly to vessel captains via AIS. LOMA is currently transmitting real-time water levels, river currents, weather observations, and lock queue information to vessels in the area of a joint Coast Guard-Corps test bed on the lower Ohio River. This year we are testing electronic notifications of work areas where floating plant may obstruct portions of the waterway. This directly addresses a recent National Transportation Safety Board recommendation from an incident where a vessel collided with Corps floating plant performing critical channel maintenance work near a blind bend on the Mississippi River. There were no serious injuries associated with that incident.

Other capabilities being tested include the transmission of information on physical Aids to Navigation that augment those aids. Also, for the first time on US inland waterways, the Corps, working closely with the Coast Guard, transmitted a “virtual” Aid to Navigation to mark a sunken vessel when the establishment of a physical buoy was not possible due to environmental conditions. Additional capabilities include transmitting water current velocities derived from Corps-developed numerical models to towboat operators as they approach lock structures so they are situationally aware of unexpected adverse conditions at lock entrances. We believe transmitting such information will help increase lock reliability and improve mariner safety by reducing allisions that can damage or close our locks.

Longer term, we are working with NOAA, the US Coast Guard, the National Geospatial Intelligence Agency, and other federal providers of navigation information to create an integrated marine safety information service for all waters of interest to U.S. mariners. This will provide commercial mariners and the public with common access to marine safety information that is tailored for their specific needs, available in formats usable by their equipment or systems. This Enhanced Marine Safety Information, or eMSI service, is in the proof of concept stage as we identify data harmonization needs and ensure alignment with similar international efforts.

The Corps has an extensive portfolio of data and information capabilities and products, with plans for more. We are working well with other Federal agencies through the U.S. Committee on the Marine Transportation System and with other public and private stakeholders to create waterways of the future that link information and provide it to mariners and operators to improve safety, efficiency, and reliability.

In closing, the Corps is actively engaged with partner agencies and maritime users to accelerate the development and deployment of technological enablers for the mariner by harmonizing data through e-Navigation principles. We are committed to improving our use of data from other agencies and waterway stakeholders, and to making our data and information available for others to use.

This concludes my statement. Again, I appreciate the opportunity to testify today. I would be pleased to answer any questions you may have.