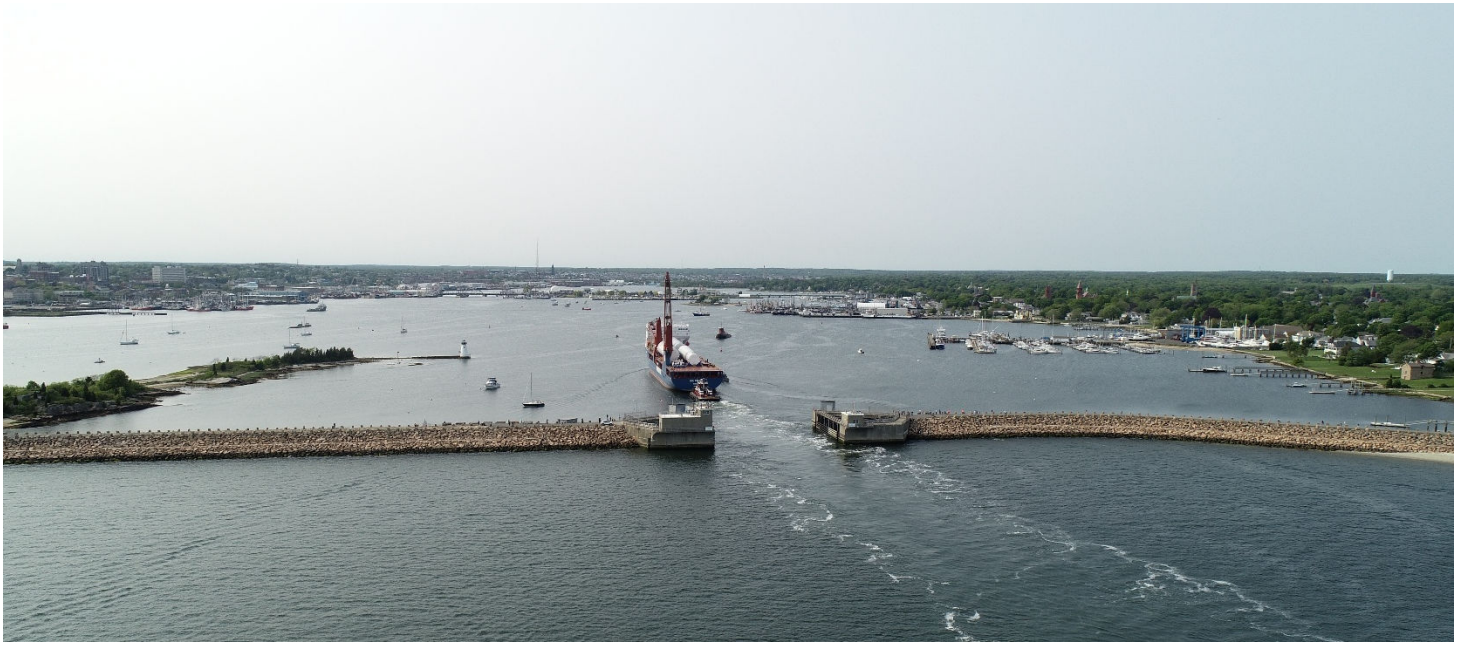
REQUEST FOR EXPRESSIONS OF INTEREST

PROJECT: DEVELOPMENT OF AI-BASED WATERWAYS TRAFFIC MONITORING AND MANAGEMENT SYSTEM

PORT OF NEW BEDFORD

NEW BEDFORD PORT AUTHORITY

September 25, 2025



Project Overview

The New Bedford Port Authority (NBPA) is seeking expressions of interest from qualified firms capable of developing a software and digital visualization system to help understand and manage vessel movements and waterways activities throughout the Port of New Bedford.

The results of this RFI will inform a full RFP to provide the services and deliver the final product. The ultimate goal of the project is to develop an AI-based Waterways Traffic Monitoring System (WTMS) designed to optimize the operations, scheduling, maintenance, and performance of vessels, terminals, marinas, waterways, and other infrastructure within the port. The consultant will leverage artificial intelligence, machine learning, and data analytics to create a system that improves decision-making, enhances operational efficiency, reduces costs, **provides real time monitoring** and ensures safety for vessel fleets.

Background and Context

The Port of New Bedford is the number one commercial fishing port in America and is the home port for more than 300 commercial fishing vessels. The Port is centered on a thriving working waterfront with dozens of shoreside support businesses and services. As one of few marine industrial working waterfronts remaining on the east coast, New Bedford's full suite of shoreside services is also poised to support the creation and growth of the US offshore wind industry, while continuing to support a vibrant fishing industry.

The NBPA's primary charge is to support The Port of New Bedford through the implementation of best management practices over port resources and the development of economic growth strategies. To this end, it is the goal of the New Bedford Port Authority to keep New Bedford on top as the #1 U.S. fishing port, expand existing businesses and capitalize on new opportunities that will maximize the Port's potential as an economic engine to create jobs and strengthen the New Bedford economy. In addition, while it is a vibrant, 24/7 industrial Port, New Bedford Harbor is also home to hundreds of recreational slips and moorings.

The NBPA manages all City-owned waterfront property, including Homer's Wharf, Leonard's Wharf, Steamship Pier, Coal Pocket Pier, and Fisherman's Wharf (also known as Pier 3), as well as a 204-slip recreational marina at Pope's Island and 19 real estate assets. The NBPA also manages the bulkhead at the South Terminal offloading houses. The NBPA assigns moorings and enforces rules regarding use of piers, wharves, and adjacent parking areas under its jurisdiction, and issues permits for harbor events and for use of city-owned waterfront facilities.

The NBPA is currently managing multiple port infrastructure improvement projects including the $44M reconstruction of Leonard's Wharf, one of the Port's most critical commercial fishing piers, and the preparation a harbor-wide dredging program that will support and improve both public and private maritime industrial properties.

The first industrial-scale offshore wind developments in the U.S. is currently being staged in the Port of New Bedford at the New Bedford Marine Commerce Terminal, the only purpose-built offshore wind terminal currently in existence in the U.S. Vineyard Wind is constructing 62 Wind Turbine Generators (WTGs) in their approved lease area approximately 15 miles south of Martha's Vineyard.

This new industry has introduced new types and sizes of vessels and has influenced the investment in significant public and private capital to develop new terminals and other maritime modernization projects

to serve this and future new industries. These newly developed facilities will generate their own new vessel activity of a variety of types and intensity that has not been seen in the Port in decades.

This maritime industrial vessel activity is joined in the harbor by a robust recreational boating industry that hosts over 1,000 boats at various marinas during the peak summer season. There is also an active cruise business with over 54 ports of call in 2025, and two passenger ferry services. Commercial activity is rounded out by a number of marine construction, salvage, and tug/barge product shipping and delivery.

As the NBPA looks to a future of a continually very active harbor with new users, it is essential that the right tools and technologies are developed and deployed to ensure the safest and most efficient operations of the port. The WTMS is key to accomplishing this goal.

Newly Installed A-I enabled Camera System

As a critical first step in this effort, the NBPA recently completed the installation of an entirely new port-wide security camera system. This "Phase 1" effort involved the installation of 54 new camera locations, **(with 65 camera views of the harbor)** providing complete and overlapping views of the harbor from the hurricane barrier to the south up to the Route 195 viaduct to the north. The system captures and records 30 days of data and is a combination of wired and wireless cameras.

Technical specifications and capabilities of the system are included below.

- Cameras:
    - A total of 54 cameras installed, including fixed, multisensory, and PTZ units from Avigilon and FLIR Systems
    - Strategic camera placements covering key port facilities, including the Hurricane Barrier, Boat Ramps
- Network Infrastructure:
    - Deployment of multiple Managed Network Switches for efficient device connectivity
    - NEMA enclosures and associated hardware to protect equipment in harsh environments
- Wireless Communications:
    - High capacity 5GHz and 60GHz deployed for secure wireless backhaul communications between critical infrastructure locations.
    - Configured with secure SSIDs and encryption to meet industry cybersecurity standards
- Recording and Management:
    - Deployed multiple Avigilon NVR Systems (Models ENVR2-PLUS-8P8-NA and AINVR-PRM-64TB) to ensure secure and reliable video storage
    - Centralized management through the Avigilon Control Center Enterprise software, with appropriate licenses.

New Bedford Hurricane Barrier

One of the Port of New Bedford's most attractive features for all port users is the New Bedford Hurricane Barrier, a 4,500-foot-long earthfill dike with stone slope protection. The barrier has a maximum elevation of 20 feet and a 150-foot-wide gated opening to accommodate commercial and recreational navigation, which makes the harbor among the safest and most secure on the East Coast for all users. Every boat or ship entering or exiting the harbor must pass through the opening of the barrier. The new camera system has multiple camera heads installed on the barrier opening itself. This unique feature provides the anticipated system with the ability to ~~identify~~ view every vessel that enters the port by size and type.

RFI GOALS

NBPA is seeking information and qualifications from firms capable of assisting with the development of the WTMS, which we believe to be a first-of-its-kind tool to manage, simulate, and optimize marine vessel traffic in an industrial port. The following are the key elements we believe to be essential to the project:

- Identify and develop collection methodologies for data from the camera system, vessel AIS, sensors, radar, and other external sources for use in AI algorithms.
    - Develop full understanding of new camera system's capabilities and data generation
    - Identify additional data sources, including AIS information, radar, GIS, and others
    - Address any gaps in data collection, such as the need for additional sources or manual data entry processes.
    - Determine the optimal vessel identification software – License Plate Recognition (LPR) equivalent technology for maritime use
- Assessment of Current Conditions
    - Review current vessel traffic, including fishing vessels, offshore wind vessels, and recreational craft, and identify challenges related to port congestion, safety, and navigational constraints
    - Conduct a space management and usage assessment to optimize the allocation of berthing space for various vessel types, considering current and future demands
- Build AI and machine learning models to optimize waterways management
    - Develop predictive vessel movement models using AI and other data sources to forecast transits, timing, origin/destination
    - Develop route optimization algorithms, utilizing AI to determine the most efficient and time-saving routes based on real-time data and predictive models.
    - Implement machine learning models to improve berth optimization, bridge scheduling, and de-conflicting of large vessel movements.
    - Customize AI models to handle specific operational needs and constraints of the port, considering different vessel types, routes, and operational goals.
- Develop the real-time software platform to support AI-based waterways management capabilities.
    - Design and develop a user-friendly interface to interact with the system, visualize key metrics, and monitor vessel activity in real time.
    - Implement real-time monitoring features, such as dashboards displaying vessel status, location, and transiting routes.
    - Integrate external data sources, such as weather forecasts, port schedules, and traffic conditions, to enhance decision-making.

- Develop a digital simulation platform based on the multiple sources of data
    - Simulation/graphic imaging that can be manipulated and modeled based changes to data and other inputs
    - Heat maps/density maps to view and illustrate vessel movements and destinations in the harbor
- Provide long-term support and ensure the system evolves with the needs of the Port.
    - Offer ongoing system maintenance, including SaaS, software updates, bug fixes, and performance optimization.
    - Continuously improve AI models with new data to ensure ongoing accuracy and effectiveness of predictive models.
    - Provide regular system health checks and updates to integrate new features, improve efficiency, and respond to changes in fleet operations or external conditions.

NOTE: If consultant/vendor identifies other critical elements not included in this general scope that they believe is essential to the successful development of the WTMS, those should be included in the RFI response.

Timeline:

This grant-funded project is on an expedited timeframe. Provide an estimated schedule to complete these tasks based on your approach and technology applications.

This RFI will be followed shortly after by a full RFP, with the goal of streamlining the process within the grant contract term.

If a consultant's approach and deliverables cannot be provided within 6-9 months, explain why and whether your approach can be phased and completed subject to future grant funding to be determined.

RFI SCHEDULE

RFI issued	September 25, 2025
Questions Due	October 12, 2025
Question Responses	October 19, 2025
RFI Responses Due	November 5, 2025

SUBMISSION GUIDELINES

RFI submissions should include:

- A general narrative understanding of the proposed goal to develop a WTMS
- A general explanation of how the consultant proposes to develop the WTMS
- Description of consultant's expertise and examples of similar projects completed
- Description of what additional equipment, software or third party services may be required
- Statement on the proposed timeline and ability to achieve desired goals
- Optional: general outline of anticipated up-front development costs and ongoing maintenance expenses

DEADLINE FOR QUESTIONS

Questions may be submitted via email to:

Email Ceasar.Duarte@newbedford-ma.gov

Questions are due by 5:00 pm October 12, 2025.

NO OBLIGATIONS

This RFI is being issued to gather information for planning purposes only. It does not commit the NBPA to taking any additional steps, including any future issuance of an RFP. NBPA bears no responsibility for costs incurred in responding to this RFI and responding to the RFI does not entitle respondents to any rights or incur any contractual obligations on the NBPA. The NBPA may extend the deadline for this RFI, suspend this RFI, or make any other changes at its sole discretion.

SUBMITTAL DEADLINE

RFI responses are due by 5:00 pm on November 5, 2025 and may be delivered either hard copy (with electronic copy) or via email to:

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