

# Modernizing Maine's Ports

*Enhancing Maine's Three-Port Strategy for the Future*

*A Port Infrastructure Development Program (PIDP) Grant Application*

Lead Applicant:



**The MaineDOT**

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Co-Applicant:



**The Maine Port Authority**

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This project will modernize the three primary ports in Maine by improving four components in Portland, Searsport, and Eastport. The Portland International Marine Terminal (IMT) is expanding its refrigerated container yard to include reefer racks that will increase its storage capacity to 420 containers. Also, the shoreline along the Fore River in Portland and South Portland will be dredged to enable commercial fishing boats to berth at their docks. Searsport will continue preliminary design, permitting, and environmental work for offshore wind port infrastructure, and Eastport will extend its breakwater and rehabilitate its fish pier.

Project Website:

[PIDP 2023 Modernizing Maine's Ports](#)

Coastal Projects in the following Areas / Zip Codes:

Portland, ME (04101), Searsport, ME (04974), and Eastport, ME (04631)

Area Designations and GIS Coordinates:

Portland IMT Reefer Yard:	Urban	N 43.64414 Lat.,	E -70.26410 Long.
Fore River Shoreline Dredging:	Urban	N 43.65525 Lat.,	E -70.25155 Long.
Searsport Offshore Wind Planning:	Rural	N 44.45882 Lat.,	E -68.92223 Long.
Eastport Breakwater & Fish Pier:	Rural	N 44.90276 Lat.,	E -66.99524 Long.

Previous Funding Received:

Portland IMT		
FY09	TIGER I	\$5,000,000
FY16	FASTLANE	\$7,719,173
FY20	PIDP	\$4,097,600
Eastport Breakwater		
FY09	TIGER I	\$2,000,000
FY13	TIGER V	\$6,000,000

Project Cost and Funding:

Component	Component Cost	Grant Request	Other Funds	BCR
Portland IMT Reefer Yard Modernization	\$17,800,000	\$14,240,000	\$3,560,000	2.6
Fore River Shoreline Dredging	\$34,000,000	\$7,000,000	\$27,000,000	3.2
Searsport Offshore Wind Planning	\$10,000,000	\$8,000,000	\$2,000,000	2.6
Eastport Breakwater & Fish Pier	\$12,900,000	\$10,320,000	\$2,580,000	2.4
<b>TOTAL PROJECT COSTS:</b>	<b>\$74,700,000</b>	<b>\$39,560,000</b>	<b>\$35,140,000</b>	

*There will not be any RRIF or TIFIA funds used as part of this project.*

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Port of Portland



Port of Searsport



Port of Eastport

## PROJECT SUMMARY

The Maine Department of Transport (MaineDOT) in partnership with the Maine Port Authority (MPA) requests \$39,560,000 in PIDP 2023 Grant funding to enable specific improvements at each of Maine's three primary ports. This funding will advance the State's long-term maritime plan known as "**Maine's Three-Port Strategy**." The Three-Port Strategy was developed in 1978 and has been upheld for decades to concentrate state investments in Maine's deep-water port facilities. Portland, Searsport, and Eastport are the focus of this grant application. Maine's Three-Port Strategy is focused on supporting the development of infrastructure improvements with an eye toward the future and attention toward efficiencies, resiliency, equity, and alternative clean energy, as well as the consideration of industrious Mainers and their livelihoods, and so emphasis is placed on working waterfronts through rehabilitation of our infrastructure; the dredging of harbors and channels; and the creation and sustainment of good paying jobs for years to come.

The **Ports of Portland, Searsport and Eastport** are central to the economic development of the state and greater region, providing facilities for a range of commercial maritime industries. For this reason, they are the focal points of this application where the investments will have the greatest return for the people of Maine. Maine ports have experienced strong utilization, much in part to the local, state, and federal investments made over the last fifteen years, as well as by the strong leadership and vision of our port officials. Growth has followed primarily because of prudent investment strategies that have followed the Three-Port Strategy, the robust work ethic, and customer service of Mainers that staff these facilities. For many Maine shippers and businesses looking to export goods, Maine ports have become the preferred choice compared to out-of-state ports.

Maine will build upon the prior achievements from the last several years and modernize our ports, allowing the State to better support existing industries like commercial fishing and embrace new ones like **Offshore Wind Energy**. This application will highlight the underlying strength of our ports and illustrate Maine's commitment to maintaining and improving its own resources but will also show that our waterfront is faced with hurdles that cannot be overcome without funding assistance. This project seeks funding for various elements at each port that will stabilize and strengthen the local economies by diversifying our customer base, while providing our ports with the tools and equipment needed to service these clients.

The total cost of this project is \$74,700,000 for improvements at all three ports, as described herein by four individual components: two of the components are in Portland while one component each at Searsport and Eastport. **Our grant application seeks \$39,560,000 in PIDP funding: only 53% of the total cost.** The State, stakeholders, private partners, and other federal funds are committed to contributing 47% of the total project cost, which is a testament to the importance the community places on modernizing Maine's ports through this grant opportunity.

The Port of Portland has the State's sole deep-draft container handling facility, and the only deep-draft container handling facility in New England other than Boston. **The Portland IMT has**

**seen 20% year-over-year growth in container throughput since 2013.** Moreover, Portland exemplifies a **vibrant working waterfront** with over 120 local fishermen; 17 landing facilities for seafood; and a cruise ship terminal that brings over 100,000 tourists each year. This project aims to support both the container terminal and the working waterfront through modernizing the handling of refrigerated containers at the IMT and dredging over 240,000 cubic yards of silt from the Fore River, respectively. With the arrival of the 107,000 sq-ft Maine International Cold Storage Facility in early 2024, **Portland is becoming a major cold chain logistics hub in New England.**

The Port of Searsport has been undergoing preliminary evaluations as a candidate to support Maine's offshore wind initiative. Ports are critical to the production and installation of fixed bottom and floating offshore wind turbines, and the State of Maine has several sites in Searsport that meet the specific criteria for a floating offshore wind port. Studies have been conducted by MaineDOT to review site characteristics and begin early environmental work to develop the **nation's first floating offshore wind port facility.** This port facility, when constructed, will be capable of fabricating floating offshore wind foundations, wind turbine generator integration, and component delivery and staging. This facility will be necessary to construct the Maine Research Array, a research scale floating wind farm situated about 25nm off the coast of Portland. As the state prepares to enter the final stages of permitting for the Maine Research Array, the Bureau of Ocean Energy Management (BOEM) is planning to auction commercial leases to developers in Q3 2024; a clear indication that offshore wind is coming to the Gulf of Maine to help meet the Biden Administration's goal of 30 GW offshore wind by 2030 and 15 GW floating offshore wind by 2035. The \$10 million planning scope described herein will support the next phase of studies and launch this initiative into preliminary design and allow for National Environmental Policy Act (NEPA) work to begin, as well as state and federal permitting. While the work to date is still at the planning level, the amount of investment required to take this initiative to the next stage requires additional assistance to move the project toward final completion. The Gulf of Maine has been identified as one of the most advantageous regions along the entire eastern seaboard to accommodate offshore wind technology, and the University of Maine's approach using floating turbine technology is a cost-effective manner to capture wind energy while locating the turbines in deep offshore waters. With more than 3,500 miles of coastline, **Maine will leverage the offshore wind potential in the Gulf of Maine, estimated at over 150 GW.**

Finally, the Port of Eastport is the eastern most port in the United States and is the deepest seaport in the Continental United States and Canada. The port maintains a downtown breakwater and fish pier that supports the commercial fishing industry and is vital to the local economy. The **breakwater will receive a 97-ft wingwall-extension** that will improve the berthing and mooring conditions inside the harbor. The fish pier will undergo repairs to provide a **State of Good Repair.**

Overall, this project will focus on modernizing Maine's ports through efficiency, resiliency, and energy-independent measures, while following Maine's Three-Port Strategy. These critical improvements are captured in the four components described on the next several pages.

# 1. PORTLAND IMT REEFER YARD MODERNIZATION

## 1.1 Description

With the revival of the International Marine Terminal (IMT) in 2010, the Port of Portland has seen unprecedented growth in containerized cargo imports and exports. This growth is largely attributed to Icelandic shipping company Eimskip, which began liner service to the IMT in 2013. Utilizing Reykjavik, Iceland as a transshipment hub, Maine shippers are now able to reach markets in Europe and Asia for competitive costs, reliable schedules, and top tier customer service. Since 2010, investments have been focused on expanding the limited space available, purchasing new port equipment, and creating of office buildings for a growing workforce, all of which allow for higher throughput of containers, lower costs, and more efficient use of the Port's marine assets. The project seeks to increase storage capacity for refrigerated containers (reefers), which are a core part of Eimskip's business. These reefers are of great interest to MPA, as well, and they see the additional benefit the IMT can serve the State by continuing to grow as a regional cold-chain logistics hub. Currently, the terminal can support up to 136 refrigerated containers. In the next five years, **Eimskip projects that they will need storage for at least 420 reefers** to support their operations. This project proposes the construction of reefer racks, steel frames that house stairs, lighting, and electrical equipment to plug in the reefers while they are stacked in storage and waiting to be unloaded or transported. Other aspects of this component include gate modifications and lighting. The MPA has entered into a 50-year ground lease with a developer to construct a \$55 million cold storage facility under a separate initiative to support the unloading, storage, repackaging, and transport of goods via refrigerated containers. This project will work in tandem with the cold storage building upon completion, given that the proposed area for reefer rack construction is immediately adjacent to the cold storage site. See [Appendix A](#) for drawings.

## 1.2 Location

The Portland IMT is located on the western end of the Port of Portland near the Casco Bay Bridge and comprises over 33 acres of terminal utility for dry and refrigerated containers. The perimeter is bounded by the Fore River to the south, Commercial Street to the north, and waterfront industries to the east and west. The site is located on the outskirts of the downtown tourism area known as the Old Port, which is home to a vibrant waterfront that supports coastal marinas, fishing vessels, cruise ships, cargo ships and oil tankers. Based on the 2010 Census, the City of Portland is designated as an Urban Area. See [Appendix B](#) for map file.



**Figure 1-1: Portland IMT**

### 1.3 Grant Funds, Sources, and Uses of Funds

Given the spatial constraints noted above, the operational functionality of the terminal is now set by a defined perimeter and lateral expansions are no longer a viable option to support the growth of the container shipping industry. The only option now is to build upwards. The project funds will be used to construct twelve refrigerated container (reefer) racks set on pile-supported concrete slabs upland of the Fore River on the west side of the Casco Bay Bridge. The reefer racks will be constructed in a manner that stacks containers in blocks of seven containers wide by five containers high, as this arrangement has been predetermined to allow for the desired storage capacity of 420 containers. The arrangement and design of the racks is compatible with rubber tire gantry cranes that the MPA is considering purchasing in future years. The terminal will also receive a 9-inch-thick pavement to sustain heavy loads of trucks, reach stackers, and rubber tire gantry cranes. Drainage features, lighting, and security measures are also included.

The electrical features of this system will include underground primary power distribution to the site, pad-mounted transformers, and electrical distribution equipment to support the installation of 150 NEMA 4X, 4-gang refrigerated container receptacles. These receptacles will be mounted on the support structures, two per floor, and each support structure will also be furnished with two manual transfer switches with 400-Amp cam switches for connection to a 300KW portable emergency generator if necessary. All power equipment shall be installed above 100-year flood levels to accommodate for future rising sea levels. The budget entails construction activities including contractor costs, construction oversight, and project administration.

**Table 1-1 Portland IMT Reefer Yard Modernization Funding**

Funding Source	Funding Amounts	%
FY23 PIDP Funding Request:	\$14,240,000	80%
Non-Federal Funds (Match from MaineDOT)	\$3,560,000	20%
See <a href="#">Appendix C</a> & <a href="#">D</a> for cost estimate	<b>TOTAL:</b>	<b>\$17,800,000</b>
		100%

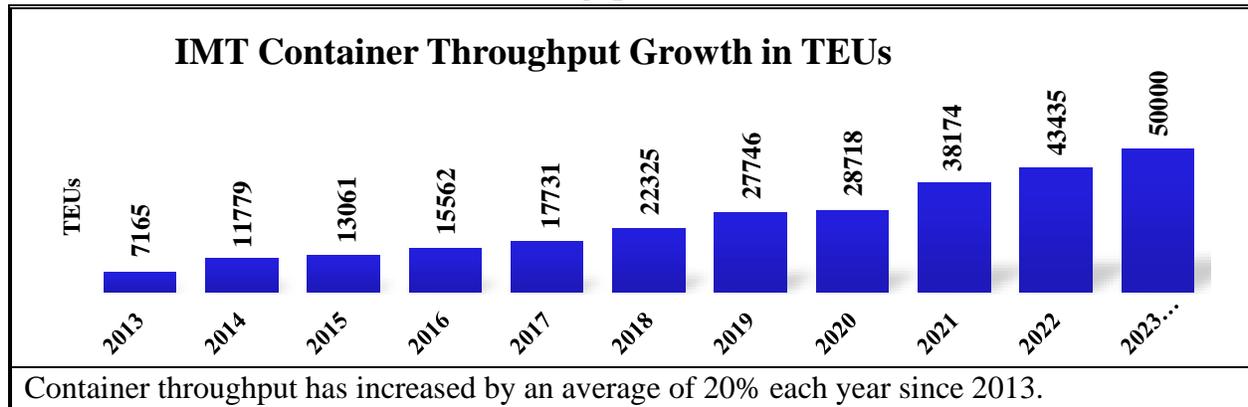
### 1.4 Merit Criteria

#### Achieving Safety, Efficiency, or Reliability Improvements

The exponential throughput growth of containers at the Portland IMT over the last ten years has been exponential, **with over 20% year-over-year growth** coinciding with the arrival of Eimskip in 2013. Despite a brief period of tempered growth due to COVID, the port surpassed 40,000 TEUs in containers in 2022 and is nearing a record year for 50,000 TEUs in 2023. Portland maintains a strategic position on the east coast as the closest port to Canadian, Icelandic, and European markets. Since the arrival of Eimskip in 2013, vessel services commenced with just two ships per month, yet quickly expanded to weekly services in 2018 with 900-TEU vessels and will now see 1,100-TEU vessels in 2023. The goal is to have 3,000-TEU vessels by 2030, and current growth trends support this vision.

Twelve reefer racks are needed to improve operations and increase reefer container storage efficiencies by stacking the containers five-high; an approach not historically practiced due to lack of safe and cost-effective means of access to the container electrical cords and control panels. The addition of these reefer racks support Maine’s Three-Port Strategy, and the modernization of that strategy which will maximize the utilization of the terminal in a planning initiative called **Portland Max**.

**Table 1-2 Portland IMT Container Throughput Growth**



Moreover, the increased throughput will not only rely on the new reefer racks but will also utilize the recently completed railhead and the cold storage warehouse, both of which lie adjacent to the proposed reefer rack site. True intermodal capabilities will be available from Portland IMT. The refrigerated containers will have the support of the forthcoming cold storage warehouse, which will be completed in 2024 around the same time as the reefer racks. The Portland IMT will become a regional **leader in cold chain logistics** and continue its prominence as the U.S. Port of entry for frozen seafoods and other European goods along Eimskip’s shipping routes.

**Supporting Economic Vitality**

To demonstrate the value of this project, we developed a Benefit Cost Analysis following the MARAD guidance, as well as the US DOT Guide. The benefits and costs of the project are estimated compared to a “Do Nothing” scenario where no investment is undertaken, and reefer storage capacity remains the same. In a “Do Nothing” scenario, Portland container handling at the IMT is likely to be stagnant, and result in a significant loss of reefer container traffic.

According to our operational analysis of the port and the pattern of demand for reefer storage, the port will reach storage and handling capacity in 2025, with unmet demand of 450 containers. Given the current growth trajectory, by 2040, nearly 15,000 containers are at risk of diversion to another port, thus taking a longer route. According to Eimskip, 60% of their cargo stays within 30 miles of the port. Therefore, we assumed that if capacity is not increased, 60% of the cargo traffic will be diverted to Boston and trucked to Portland, incurring higher vessel and trucking costs, as well as higher Carbon Dioxide emissions and other negative external costs such as noise.

**Table 1-3 Portland IMT Benefit-Cost Analysis**

Descriptor	Value (High, Med. & Low)	Value (High & Med.)	Value (High)
Total Present Benefits	\$36,000,000	\$27,600,000	\$20,900,000
Total Present Value Cost	\$13,600,000	\$13,600,000	\$13,600,000
Net Present Value (NPV)	\$22,000,000	\$14,000,000	\$7,300,000
<b>Benefit-Cost Ratio (BCA)</b>	<b>2.64</b>	<b>2.13</b>	<b>1.53</b>

Of the remaining 40%, we assumed that half would be diverted at no additional costs, and the other half would evaporate (i.e., Eimskip would reduce its trading volume). Evaporated trade would mean net loss for the U.S. economy, as no other port would pick up the traffic. Carbon Dioxide emission reduction benefits are discounted at 3%, as per the US DOT guidance, and all other costs and benefits are discounted at 7%. To simplify the analysis without a significant loss of accuracy, we assumed project costs will be spread equally in 2023 and 2024. See [Appendix E](#) for BCA.

### Leverage Federal Funding

This project will leverage the participation and investments already made by Eimskip, who have relocated their North American headquarters to Portland, Maine. This is generating revenue, jobs, and business opportunities for other entities given the consistency in the shipping route and reliability of the service.

### Port Resilience

This project will strengthen Portland’s role in the region as both a prominent hub for refrigerated goods and a known terminal capable of expanding to attract other business. To that effect, the project will present infrastructure that is appealing to other businesses since most regional entities ship goods by truck to regions south such as Boston and New York City. Furthermore, the reefer racks will be equipped to accept an emergency generator that protects against power-outages, which can occur in southern Maine during ice/snowstorms and severe weather.

## 1.5 Selection Considerations

### Climate Change and Sustainability

The reefer racks and the implementation of new electrical infrastructure will facilitate the shift toward clean energy in an efficient manner by creating a designated storage area. By having a centralized region within the terminal for refrigerated containers, freight movements will reduce across the yard, reducing emissions and promoting energy efficiency. The reefer rack concrete slab foundations have been designed to a height greater than the site’s flood elevation, eliminating flooding concerns of the electrical equipment.

## Equity and Justice<sup>40</sup>

The Maine Port Authority and MaineDOT believe that equity in transportation ensures that all Maine people have access to safe and reliable transportation options that support economic opportunity and quality of life regardless of a person's economic, social, ethnic, racial, age, sexual orientation, physical, mental, or geographic circumstance. Specifically, this project supports the growth of shipping refrigerated containers, but more importantly, it supports the fisherman, who are the primary end-user. They exemplify our working waterfront and rely on efficient storage of refrigerator containers which keep their daily catch fresh and available for export to regional warehouses and restaurants, as well as European and Asian markets. The rising desirability of Portland's waterfront and need for housing has created pressure against less-lucrative maritime uses, such as fish/lobster marinas and landing piers. This project will help secure the maritime working waterfront and provide direct support to the region's fishing industry and employment to the region's disadvantaged communities. See [Appendix F](#) for Equity Statement.

## Workforce Development, Job Quality, and Wealth Creation

This project will create good paying jobs in the short term, as well as in the long term beyond the original construction activity. **The construction work will require construction crews of 12 to 16 full-time workers for 18 months.** Specialized fields include pile driving; iron work; and electricians. Additional development of the local workforce will continue through fulltime longshoremen jobs based on the increase in container throughput. The Portland waterfront, including **the IMT property, is located within the USDOT's Grant Project Location Verification system as an Area of Persistent Poverty** which serves to further justify the need for Federal funding and investment in the region's working waterfront infrastructure. Additional investment in this area will ensure stable good paying jobs remain impactful to the region for years to come.

## 1.6 Readiness

### Technical Capacity

The Maine Port Authority has a long-standing history of delivering similar projects of unique complexity at the Portland IMT, as seen over the last thirteen years dating back to the original TIGER I grant application. Since then, the MPA and its consultant team have completed projects under RAISE, INFRA, BUILD, and PIDP grant opportunities, all with successful deliveries and outcomes that satisfied the grant requirements. Utilizing the same engineering consultant during this span, the MPA and its team have completed over a dozen terminal improvement projects for the State of Maine and the City of Portland, worth over \$30 million, and leveraging local, state, and federal funds to complete the work. The Maine Port Authority staff who will be involved in the project are noted below. This team of professionals have exceptional working knowledge of the terminal, and their knowledgebase will be enhanced by the consultant team from Jacobs Engineering who will engage supporting subject matter experts with years of experience in delivering projects of similar magnitude. The MPA management team will comprise the following:

- Matthew Burns: Executive Director, Maine Port Authority (MPA)
- Chelsea Pettengill: Port Project Manager, Maine Port Authority (MPA)
- Chris Mayo: Director of Ports and Marine Transportation, MaineDOT

The Maine Port Authority has employed Jacobs Engineering to oversee the design and construction phase services of this especially important project. Jacobs is one of the world’s most prominent engineering consulting firms providing port and marine infrastructure solutions to its clients worldwide. With over 400 offices in 50 countries. Jacobs was ranked No. 1 by *Engineering News-Record* in its list of Top 500 Design Firms in the world in 2022. The Jacobs program manager has worked on similar projects at the Portland IMT over the last thirteen years and knows exactly how to deliver a project in a timely manner to satisfy the grant requirements. Jacobs was hired for this project through a long-standing prequalification process implemented by MaineDOT.

### Project Schedule

The project is on schedule and the design will be 100% complete by July 2023. State and local permitting activities are underway and nearly complete. The City of Portland is currently reviewing the Site Plan Application and public hearings and meetings will follow thereafter. NEPA will commence in the fall. The project will be advertised in Q2 of 2024 and construction will start immediately. The MPA is ready to implement this project.

**Table 1-4 Portland IMT Reefer Yard Schedule**

Activity	2023			2024				2025				2026			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
MARAD Contract Negotiations/NEPA	■														
Complete Engineering Design	■														
Local Site Plan Permitting	■	■													
State Permitting	■	■	■	■											
Construction					■	■	■	■	■	■	■				
Construction Closeout												■			
MARAD Closeout													■		

### Environmental Risk

The project is anticipated to start on schedule. The terminal is cleared of obstructions and ready for construction. The space is currently used for the storage of containers and chassis. Whereas the work is predominantly upland of the waterfront, there is no special work window that would limit the construction timeframe for this project. All permits will be secured prior to construction.

### Letters of Support

The Portland IMT Reefer Yard Modernization project is ready for implementation and is fully supported at all levels of local and state government, as well as by companies and stakeholders who recognize the strategic importance of this international port and the economic contributions that will be generated by increased throughput. Letters of Support are listed in [Appendix G](#). The most notable letter of support is from Eimskip, the Icelandic shipping company that has invested millions of dollars in the last ten years to make the Portland IMT its U.S. headquarters for refrigerated goods.

## 1.7 Domestic Preference

The Portland IMT Reefer Yard Modernization project will be constructed with materials produced in the United States. Construction materials that are included in the project are steel piles, steel racks, concrete and additives, asphalt, drainpipes, lighting, sliding gates, electrical boxes, electrical outlet assemblies, and transfer switches. The work will comply with the Build America Buy America requirements and a waiver is not anticipated to be required.

## 1.8 Statutory Determinations

The following information is simply provided as evidence that this component of the project satisfies requirements of 46 U.S.C. 54301(a)(6)(A).

**Table 1-5 Summary Responses to Statutory Requirements**

Statutory Determination	Response
1. The project improves the safety, efficiency, or reliability of the movement of goods through a port or intermodal connection to the port.	The project will greatly improve the operational efficiency of the port by enabling reefer containers to be stored five-high versus the existing two-high stacking currently done today. Oftentimes the terminal longshoremen use step ladders to reach the plugs and electrical panels at the top containers which poses safety risks. The establishment of the reefer rack system in a designated area of the yard will increase the amount of storage capacity and throughput which will support larger vessels and more containers in the future.
2. The project is cost effective.	The <b>BCA value of 2.6</b> indicates cost-effectiveness. The contractor will have a clear plan of the work and can bring efficiencies to means and methods. Please see <a href="#">Appendix E</a> .
3. The eligible applicant has the ability to carry out the project.	The Maine Port Authority is a quasi-governmental agency that works closely with and relies on the Maine Department of Transportation for capital funding. Please see <a href="#">Appendix G</a> for letters of support from Maine’s leadership.
4. The eligible applicant has sufficient funding available to meet the match requirements.	As noted above, the Maine Port Authority has the financial backing of the MaineDOT and has obligated the matching funds as noted in the letter of support from Commissioner Bruce Van Note. See <a href="#">Appendix H</a> and <a href="#">Appendix I</a> .
5. The project will be completed without unreasonable delay.	The project will be fully designed by the summer of 2023 and ready for construction by September 2023. No delays are anticipated. Contractors are aware of the project and ready to bid.
6. The project cannot be easily and efficiently completed without Federal funding or financial assistance available to the project sponsor.	Without funding the work is unlikely to occur. The shipping company which has made many investments would view the lack of progress as a lack of commitment toward growth. Given the importance of this project, lack of funding would mean that the MPA/MaineDOT would require several more years of capital planning to allocate the necessary funds to complete the project.

## 2. FORE RIVER SHORELINE DREDGING

### 2.1 Description

The other component at the Port of Portland is to dredge the working waterfronts for the Cities of Portland and South Portland along the shorelines of the Fore River, as well as deepening the berth at the Portland IMT. For over 350 years, Portland Harbor has served as a working waterfront, supporting both public and private wharves and a full range of commercial marine activity from freight movement to fishing. The charm and raw working waterfront of the harbor generates **economic strength through the fishing industry, tourism, dockside restaurants**, novelty shops, and waterfront excursions. Over the years, sediment has slowly built up outside of the federal channel and along the working waterfronts in Portland and South Portland, reducing berth capacity for fishing boats, water taxis, emergency response vessels, and cruise ships at the piers and wharves. Mooring locations have been filled-in, and boats sit on the mudflats at low tide causing extra maintenance costs to the owners. See [Appendix A](#) for drawings.

The Fore River Shoreline Dredging work proposes removing a total of 244,677 cubic yards of sediment and constructing a Contained Aquatic Disposal (CAD) cell to permanently sequester the contaminated material in Portland Harbor. Additionally, 5,000 cubic yards will be dredged at the IMT berth, increasing the water depth from 30 ft (MLLW) to 35 ft to allow the larger 3,000 TEU container ships access to the terminal.

It's important to note that the two areas outside of the Fore River's navigable channel, north towards Portland and south towards South Portland, are approximately 1,000 feet wide and **beyond the jurisdiction of the U.S. Army Corps of Engineers**. In 2014, the Army Corps dredged approximately 700,000 cubic yards of silty material from the navigable channel for the first time in 15 years. However, the shorelines to the north and south were not dredged, and according to local records these **areas have not been dredged** since the original development of the channel by the Army Corps between 1836 and 1874.



**Figure 2-1: Portland Dredge Support Video**

(Source: <https://www.youtube.com/watch?v=YudaQtxmtw>)

### 2.2 Location

The Fore River separates Portland and South Portland: a slow-flowing river with a velocity of a half-knot that carries silty soils known as Presumpscot Clays which tend to settle amidst the shoreline, piers, and wharves. The location and density of the piers and wharves along the

waterfronts coincide with the brackish region of the river and hence the reason that silty materials resist flushing through this area. The two cities are in an urban area based on the 2010 Census. See [Appendix B](#) for map file.

### 2.3 Grant Funds, Sources, and Uses of Funds

The project cost and breakdown of funding is noted below in Table 2.1. The budget entails dredging, removal of contaminated sediment, and construction of a Contained Aquatic Disposal (CAD) cell to permanently sequester the contaminated material. Construction activities include contractor costs, dredging equipment, and disposal in a proposed CAD Cell located within the Fore River along the south side of the navigable channel. Funding sources will include FY23 PIDP Funds, a Non-Federal Match through MaineDOT’s capital budget planning, and over \$4,500,000 in contributions from 30 private waterfront owners.

**Table 2-1 Fore River Shoreline Dredging**

Funding Source	Funding Amounts	%
FY23 PIDP Funding Request:	\$7,000,000	21%
Existing ARPA Funding	\$10,000,000	29%
Non-Federal Funds (Match by Local & State)	\$17,000,000	50%
MaineDOT	\$6,000,000	
Tipping Fees	\$6,500,000	
Municipality Funding	\$4,500,000	
See <a href="#">Appendix C</a> & <a href="#">D</a> for cost estimate	<b>TOTAL: \$34,000,000</b>	100%

### 2.4 Merit Criteria

#### Achieving Safety, Efficiency, or Reliability Improvements

Stretching the length of Commercial Street, the wharves and waterfront businesses that rely on the harbor are becoming increasingly unsafe to navigate. There is an extensive build-up of contaminated sediment which is beginning to choke the port and is negatively impacting what has historically been a successful multi-modal transportation and planning hub. **There are multiple areas within the harbor where the sea floor sediments are exposed at low tide in sections where vessels were once able to dock.**

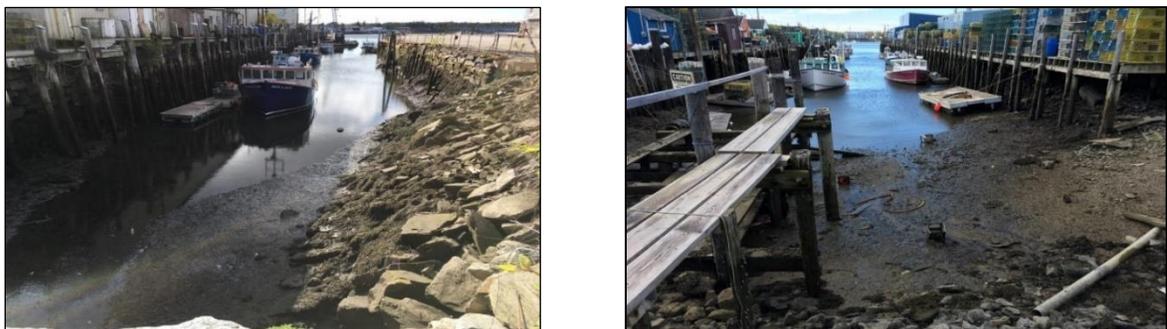
As a result, portions of the waterfront are becoming unusable. Transportation, mobility, economic development, and tourism for the area are negatively impacted by decreased water depths from sedimentation within the piers and waterfront areas. Small fishing and lobster outfits are now contending with siltation and frequent groundings. The siltation found in Portland Harbor includes legacy contaminants from long departed industries which require expensive testing and disposal.

Preliminary testing done through a US Environmental Protection Agency (USEPA) Brownfields Assessment describe in detail how the sediments along the shoreline and between the piers are not eligible for traditional open water disposal at designated offshore disposal sites. Alternatives only include expensive upland disposal or the development of a CAD Cell within the Fore River. Due to prohibitively expensive testing and disposal costs, waterfront owners and investors/lenders have historically been reluctant or unable to afford the cost of action. As a result, dredging between the piers has not taken place for decades.



**Figure 2-2: Fore River Dredging and CAD Cell Location. USACE Drawing, 1976.**

This accumulated sediment now prevents vessels from reaching berths and limits access to the waterfront, resulting in unsafe berthing practices. The Project intends to correct the safety issues of the Harbor through a comprehensive dredge of the Harbor's berthing resources, removing contaminated sediment and constructing a Confined Aquatic Disposal (CAD) to safely store the material. The Project will restore full functionality to vessel berthing at 47 individually designed dredge locations at 32 public and private waterfront properties.



**Figure 2-3: Sedimentation Along the Harbor**

## Supporting Economic Vitality

The project is proposing to dredge accumulated sediments at 47% of all commercial berths, used for fishing, cruises, piloting, and ferries, and 32% of all recreational berths, used for recreational boating and fishing charters, in Portland and South Portland. The Benefit-Cost Analysis compares the “do nothing” scenario in which all berths are no longer usable, to the proposed project which maintains the working waterfront and its varied uses. The design life for the project is assumed to be 50 years, but a sensitivity analysis was completed to analyze a 20-year and 30-year design life. The Benefit-Cost Analysis was run with all three and the results are presented in the table below.

**We strongly believe that no other waterfront project in the country is more important** to its local fishing industry than the Fore River Shoreline Dredging. The benefits, costs, and net present value were calculated based on the capital costs, revenue, and fees, combined with ship volume estimates and productivity gains. See [Appendix E](#) for BCA.

**Table 2-2 Fore River Shoreline Dredging Benefit-Cost Analysis**

Descriptor	Value (High, Med. & Low) \$USD	Value (High & Med.) \$USD	Value (High) \$USD
Total Present Benefits	\$76,836,710	\$71,412,105	\$31,371,705
Total Present Value Cost	\$24,145,125	\$24,145,125	\$24,145,125
Net Present Value (NPV)	\$52,691,585	\$47,266,980	\$7,226,580
<b>Benefit-Cost Ratio (BCA)</b>	<b>3.18</b>	<b>2.96</b>	<b>1.30</b>

## Leverage Federal Funding

The project exemplifies unprecedented partnership between the cities of Portland and South Portland, MaineDOT, the Portland Harbor Commission, and dozens of private businesses across a wide array of maritime uses. **Approximately 50% of the cost will be covered by non-federal matching funds.** The project is leveraging this grant opportunity to secure participation from the more than 30 private waterfront owners who could not afford the cost of dredging. The State of Maine is also contributing a significant non-federal match through its Capital Program.

## Port Resilience

This project will strengthen Portland’s waterfront by addressing significant accumulation of sediment that is limiting navigational areas and berthing options, resulting in more frequent groundings. Dredging the shoreline will foster confidence throughout the fishing industry and create resiliency toward the natural effects of siltation within the harbor. The following aspects speak to how this project will create resiliency within the harbor.

Maneuverability: Vessels operating with little to no water under their keels are more subject to the influences of tide, current, and wind, thus increasing the potential for collisions or groundings that can result in severe injury/death, property damage, capsizing, and harm to the environment and lost revenue.

Collision Reduction: Restored berthing will result in de-rafting of vessels, allowing clear lines of sight for vessels maneuvering. This will result in fewer chances for collision, injury, and damage to piers, docks, and other vessels. Additionally, rafting vessels results in costly damage to the fishing fleet.

## 2.5 Selection Considerations

### Climate Change and Sustainability

The Portland Dredge Project aligns with Maine's decarbonization plan: *Maine Won't Wait*, which addresses both carbon mitigation and climate adaptation by focusing on, and promoting, marine industries. Through local food system development, the plan calls to increase food consumption in Maine from local food producers from 10% by 2025 to 30% by 2030. As recognized by the Maine Seafood Business Council, seafood and fisheries will aid meeting climate objectives as wild caught fish and aquaculture products are both low-carbon alternatives to terrestrial farming and food products. Without access to berthing areas, these low-carbon industries cannot function.

### Equity and Justice<sup>40</sup>

The demographics in the table below showcase Maine's ethnic diversity and demonstrate this **area is increasingly attracting thousands of migrants, refugees, and asylum seekers annually** who come to the area for safety, opportunity, and a quality of life. The project strengthens environmental justice by directing benefits toward a disadvantaged workforce; those employed in the seafood industry. According to *Quarterly and Annual Industry Employment and Wages*, starting wage on Portland's waterfront for seafood employees is \$16 to \$20/hour, well above federal, state, and local minimum wages. The increasing sedimentation and loss of vessel berthing is threatening small business owners who rent berths for their fishing businesses, maritime transportation workers, and unionized lobstermen. Portland Harbor and the natural resources of Casco Bay provide strength and support to those regionally vital assets. See [Appendix F](#) for Equity Statement.

A healthy and vibrant working waterfront positively affects businesses throughout greater Portland such as hotels, restaurants, retail, and more. The marinas taking part in the project supply a significant number of berths for recreational and commercial vessels that provide access to Casco Bay, and the greater Portland region, for thousands of residents and visitors. **Thus, if the waterfront berthing ability continues to diminish, the effects will reverberate throughout the community.** The greater Portland area population and workforce is significantly more diverse than the rest of the state as shown in the following table.

This project will remove barriers related to maritime job opportunities and enhance economic opportunities for disadvantaged populations. Marine and seafood-based industry employment depends on and supports a highly diverse workforce. A recent survey conducted by the Portland Housing and Economic Development Department (HEDD) found that in a representative sample of 11 regional seafood processing companies in southern Maine, up to eight languages are spoken in the processing plants at any given time, with the proportion of non-white employees ranging from 50% to 73%. This demonstrates real-world examples of how the success of Portland Harbor’s seafood industry directly impacts the region’s minority, immigrant, and other disadvantaged communities.

**Table 2-3: Fore River Shoreline Dredging Demographic Indicators**

Due to the number associated with the Project CTs in and around the project area, the average for Portland and South Portland CTs are shown in this table. Complete demographic data per CT can be found in Attachment 11.							
Demographic Indicators 2015-2019 <sup>10</sup>	Average of Portland CT's <sup>11</sup>	City of Portland	Average of South Portland CT's <sup>12</sup>	City of South Portland	Cumberland County	State of Maine	US
Population	24,194 (total)	66,595	22,156	25,906	292,307	1,335,492	324,697,795
Black population	13.28%	10.2%	3.62%	4.25%	4.0%	1.9%	12.7%
Non-White population	22.40%	17.7%	11.15%	11.59%	9.7%	6.8%	39.3%
Hispanic population	4.15%	3.0%	3.17%	2.79%	2.1%	1.7%	18.0%
Disabled Population	14.39%	12.3%	12.05%	11.97%	11.4%	16.0%	12.6%
Median Household Income	\$48,602	\$60,467	\$71,769	\$68,665	\$73,072	\$57,918	\$62,843
Median Family Income	\$68,624	\$86,612	\$86,131	\$87,968	\$94,813	\$73,756	\$77,263
Poverty rate	23.48%	14.7%	8.59%	8.90%	9.0%	11.8%	13.4%

## Workforce Development, Job Quality, and Wealth Creation

This project will prevent the loss of the regional fishing industry. The legacy of the fishing industry, and the ability for families to continue their generational work traditions, is vital to coastal Maine and the Portland waterfront. As noted in Section 1.1, the interconnectivity between the projects in the Port of Portland highlight the importance of the fishing industry to the region which is significant to the fisherman themselves; the refrigerated containers at the Portland IMT; and the construction of the cold storage building already in progress. **The Portland waterfront is located within the USDOT’s Grant Project Location Verification system as an Area of Persistent Poverty** which serves to further justify the need for Federal funding and investment in the region’s working waterfront infrastructure. Additional investments through the PIDP program will ensure stable good paying jobs remain impactful to the region for years to come.

## 2.6 Readiness

### Technical Capacity

The Maine Port Authority staff previously identified in Section 1.6 will also oversee and administer the Fore River Shoreline Dredging. This team has also engaged local experts in Stantec, who specialize in site/civil and environmental engineering, planning, and permitting. Stantec

employs more than 25,000 engineers and scientists at over 400 locations nationwide and collaborates across disciplines and industries to bring energy, environmental, and infrastructure projects to life. Stantec’s Dredging and Coastal Engineering and Environmental teams have been working on the Portland Harbor Dredge and CAD Cell Project since 2016, providing geotechnical analyses, environmental surveys, design, and permitting services. Stantec was hired through a long-standing prequalification process implemented by MaineDOT.

### Project Schedule

This work will start immediately upon execution of the MARAD contract. The permits pursuant to the Corps authority under Section 10 and Section 14 of the Rivers and Harbors Act, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act have been approved. The U.S Army Corps of Engineers has noted: *“It has been determined that the activities authorized do not impair the usefulness of the USACE Navigation project and is not injurious to the Public Interest.”* There is a special in-water work window that limits the amount of dredging which can be accomplished in any given year; hence, the work is scheduled to endure over a six-year period.

**Table 2-4: Fore River Shoreline Dredging Schedule**

Activity	2023			2024				2025				2026				2027				2028				2029			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
MARAD Contract Negotiations/NEPA	■	■	■																								
Conclusion of OSWPAG (Public Input)	■	■																									
CAD Cell Bid Specifications/Contract				■	■	■																					
Dredge Investigation				■	■	■																					
Design Dredge (Brownfields Funded)				■	■	■																					
Final Design Dredge							■																				
CAD Cell Construction							■	■																			
Dredge Bid Specifications/Contract								■	■	■																	
Dredge Year 1											■	■															
Dredge Year 2													■	■													
Dredge Year 3																		■	■								
Dredge Year 4																						■	■				
MARAD Closeout																									■		

### Environmental Risk

There is a special in-water work window for the Fore River. The in-water work window protects fish and wildlife, such as Winter Flounder and lobster, which are protected species in Maine. External factors which could impact the schedule include severe winter weather, significant contractor workload, and labor shortages. NEPA will commence upon execution of the MARAD contract.

### Letters of Support

The Fore River Shoreline Dredging component is long-overdue, and it has been fully endorsed at all levels of local and state government, as well as regional organizations, companies, and stakeholders. This important project is vital to Portland’s fishing community, which derives its identity from the multitude of fishing vessels that line the shores of the Fore River, in both Portland and South Portland. Letters of Support have been received from over 28 waterfront property owners, 8 government officials, and 12 local companies and organizations. The letters are provided in [Appendix G](#).

## 2.7 Domestic Preference

Fore River Shoreline Dredging will not require construction materials, as it will remove sediments from the shoreline of the Fore River and place it into a CAD cell. Therefore, the work will comply with the Build America Buy America requirements and not require a waiver.

## 2.8 Statutory Determinations

The following information is simply provided as evidence that this component of the project satisfies requirements of 46 U.S.C. 54301(a)(6)(A).

**Table 2-5: Summary Responses to Statutory Requirements**

Statutory Determination	Response
1. The project improves the safety, efficiency, or reliability of the movement of goods through a port or intermodal connection to the port.	The project will greatly improve the operational efficiency of the port and its fishing industry by creating safe and reliable berthing spaces that were once prolific throughout the harbor. Safe and efficient landings are necessary for the timely delivery of daily catches and cannot be dependent upon the tides and available berthing grounds.
2. The project is cost effective.	The <b>BCA value of 3.2</b> indicates cost-effectiveness of this component of the project. Please see <a href="#">Appendix E</a> .
3. The eligible applicant has the ability to carry out the project.	The Maine Port Authority is a quasi-governmental agency that works closely with and relies on the Maine Department of Transportation for capital funding. Please see <a href="#">Appendix G</a> for letters of support from Maine’s leadership.
4. The eligible applicant has sufficient funding available to meet the matching requirements.	As noted above, the Maine Port Authority has the financial backing of the MaineDOT and has obligated the matching funds as noted in the letter of support from Commissioner Bruce Van Note. See <a href="#">Appendix H</a> and <a href="#">Appendix I</a> .
5. The project will be completed without unreasonable delay.	The project is ready to commence immediately. No delays are anticipated. Contractors are aware of the project.
6. The project cannot be easily and efficiently completed without Federal funding or financial assistance available to the project sponsor.	The project has already been deferred for decades due to lack of federal assistance. Several years have been necessary for the State and local entities to generate in-state funds necessary to complete the work, and still there is a shortfall of approximately \$7 million. Without federal funding the work is unlikely to occur additional delays will ensue. This scenario would be detrimental to the fishing industry. The funding is needed now so that the work can commence immediately.

## 3. SEARSPORT OFFSHORE WIND PLANNING

### 3.1 Description

The State of Maine is currently pursuing significant opportunities in Offshore Wind (OSW), part of which is to develop a port facility to support the industry. Since March 2020, MaineDOT has been tasked to site, fund, design, and construct port infrastructure to support the development of OSW as soon as possible. Maine has now completed its own stakeholder-based Offshore Wind Roadmap, and there is pending legislation to potentially solidify Maine's commitment to commercial scale offshore wind development. The Bureau of Ocean Energy Management (BOEM) also anticipates Gulf of Maine commercial lease auctions to occur in Q3 2024, which means it is likely that the first turbines could be installed in the water of the Gulf of Maine in the beginning of the 2030's. The State of Maine believes **it is now time to pursue the development of a dedicated floating offshore wind port facility.**

The state is taking a measured approach by pursuing a research lease in federal waters of the Gulf of Maine, and they have partnered with a developer to construct a research test array, called the Maine Research Array (MERA). The 144 MW project with up to twelve turbines will be Maine's first step to lead the nation in floating offshore wind. MaineDOT and the Maine Port Authority have also taken steps forward to begin site selection and preliminary design in Searsport, and the state has spent millions of dollars to date in exploring concepts for a dedicated OSW port facility. This will require a site with approximately 100 acres and construction of a 1500-ft heavy-lift quay structure; flat and level staging area; and 35-ft water depths to support commercial scale OSW projects.

A dedicated offshore wind port facility is highly specialized and not a traditional marine cargo terminal. Because **Maine is considering floating offshore wind due to the deep waters** near the coast, the proposed facility is even more complex and expensive. This is primarily because of the need to fabricate floating OSW turbine foundations which are massive and must support the Wind Turbine Generator (WTG). These floating foundations can be hundreds of feet wide and weigh thousands of tons. The WTG components themselves are also of substantial size and can generate up to 20 MW, while by comparison a standard land-based WTG generates 2 to 3MW.

Informed by technical analysis and stakeholder engagement, the state is currently moving forward with designs at two sites in the Port of Searsport: Mack Point Cargo facility and the Sears Island Transportation Parcel. Mack Point is an industrial-use terminal owned and operated by Sprague Operating Resources LLC which imports and stores petroleum, bulk, break-bulk, liquid bulk, and project cargoes. The facility is outfitted with two 800ft long berths. The Sears Island site is a 330-acre parcel which is currently undeveloped and has been the subject of several failed developments in previous years. See [Appendix A](#) for drawings.

With the requested funding, MaineDOT and the MPA will continue design, site selection, NEPA, environmental work, and permitting. MaineDOT has contracted with specialists for preliminary engineering services at the two sites and would utilize the requested funding to:

- Continue the preliminary design work at both sites. The state sees value in continuing design work at both sites even though only one site will be selected for construction. First, there is an alternative that includes a hybrid scenario, with 50+ acre footprints on both sites. Second, in future years once the OSW industry matures in the Gulf of Maine, there may be a need for a second facility in Maine which could include one of these alternative sites. MaineDOT anticipates a primary site to be selected, and the design to be completed in 2024.
- Begin NEPA work. MaineDOT will conduct an agency meeting in April 2023; identify a lead federal agency; and begin the NEPA process in earnest to produce a draft EIS by 2024.
- State and Federal permitting. This work targets a permits-in-hand date of Q1 2025.

### 3.2 Location

The Port of Searsport commences at the mouth of the Penobscot River and includes waterfront locations such as Mack Point and Sears Island. Mack Point is a deep-water marine terminal with a 35-foot-deep approach channel with two piers: a dry cargo pier and a liquid cargo pier. Sears Island is a 940-acre island with a 330-acre transportation parcel owned by the state. The port is in a rural area based on the 2010 Census and serves the needs of shippers transporting goods in and out of Maine to the heartlands of both the eastern United States and Canada through the onsite railyard. See [Appendix B](#) for map file.



**Figure 3-1: Searsport Location**

### 3.3 Grant Funds, Sources, and Uses of Funds

The project cost and breakdown of funding is noted in the table below. The budget entails continued planning activities for future phases of site evaluation, early environmental work, and permitting. The project has undergone much development since the delivery of the 2021 MaineDOT OSW Port Infrastructure Feasibility Study and is now nearing site identification for this future \$450 million project. Funding sources will include FY23 PIDP Funds and a Non-Federal Match through MaineDOT capital budget planning.

**Table 3-1 Searsport Offshore Wind Study Funding**

Funding Source	Funding Amounts	%
FY23 PIDP Funding Request:	\$8,000,000	80%
Non-Federal Funds (Match from MaineDOT)	\$2,000,000	20%
See <a href="#">Appendix C</a> & <a href="#">D</a> for cost estimate	<b>TOTAL:</b>	<b>\$10,000,000</b>
		100%

### 3.4 Merit Criteria

#### Achieving Safety, Efficiency, or Reliability Improvements

The State of Maine has been presented with an opportunity to affect meaningful change in the state economy and environment by responsibly pursuing Offshore Wind (OSW) development. This new industry will create new job opportunities and support emerging and existing businesses throughout the state. Maine intends to invest in infrastructure to support a dedicated offshore wind port facility in the state, and this facility will be able to support a variety of different technologies and offer a state-of-the-art facility to fabricate floating foundations unlike any other facility in the world.

**The development of an OSW port facility in Maine will provide a substantial economic benefit for the state. This is a once in a lifetime opportunity to transform the Maine economy** by: introducing a new additive industry with a technology familiar to Maine and its construction industry by utilizing the UMaine Voltturnus floating OSW foundation; providing floating foundations for projects in the Northeast and U.S. east coast to achieve clean energy goals; and creating hundreds of good paying and reliable jobs.

The state believes that the OSW industry has the potential to transform Maine into a leader in renewable energy. Maine is poised to take a leadership role in a fast-growing OSW industry expected to generate as much as \$1 trillion in worldwide investment by 2040. The 18-month long [roadmap](#) effort studied multiple areas and utilized a collaborative and inclusive process to make recommendations to the state for how to proceed with the OSW industry. There are currently 80+ Businesses Across Maine engaged or interested in offshore wind. See locations in Figure 3-1.

In March 2020, the MaineDOT was directed to initiate a [feasibility study](#) to construct port infrastructure in Searsport, and in November 2021 the feasibility study was completed. The study concluded that there were two sites that should be considered: Mack Point and the Sears Island **Transportation Parcel**. As an immediate next step, a 19-member Offshore Wind Port Advisory Group (OSWPAG) was created to serve as an advisor to the MaineDOT, MPA, and other state officials regarding the development of a wind port. It is expected that full commercial-ready build-out of a port will cost \$400 million to \$500 million. This includes development of a 100-acre site and 1,500 ft of wharf which will support regional OSW projects sized 0.8 GW to 1.2 GW for foundation fabrication and marshalling/integration. Searsport would be viewed as a world class multi-use bulk cargo terminal. There are no purpose-built floating OSW ports in the country; Maine would be the first and could serve the Northeast region. The state has a competitive advantage with UMaine R&D and is ready to take advantage of this OSW opportunity and create a new, clean-energy industry within the state. The climate, economy, and our workforce development can all benefit from OSW development.



**Figure 3-1: Maine Businesses Interested in Offshore Wind**

(Source: Maine Offshore Wind Roadmap, 2023)

### Supporting Economic Vitality

Developing an offshore wind project on the Maine coast could have significant economic benefits to the state of Maine and to the U.S. Given the preliminary stage of the project, it is too early to determine the full range of costs and benefits involved as potential commercial arrangements are likely to be made following the completion of the project. Nevertheless, based on similar projects we can estimate the potential lease payments that are likely to be made by offshore wind energy generation companies. Based on four recent similar lease agreements, we estimated between \$60,000 and \$280,000 of lease payments or participation in construction costs, per acre per year. Therefore, over a period of 25 years, a 100-acre site is likely to generate between \$125m and \$560m in private sector contributions. While lease/contribution payments represent financial transfers, they are also a good approximation for net benefits to society due to the improvement in efficiency of delivering OSW projects. In addition to operational efficiencies, this investment will enable significant environmental benefits which amount to \$480m to \$785m of benefits from Carbon Dioxide reductions.

**Table 3-2 Searsport Benefit-Cost Analysis Wind Study Funding**

Descriptor	Value (High, Med. & Low)	Value (High & Med.)	Value (High)
Total Present Benefits	\$950,000,000	\$775,000,000	\$643,000,000
Total Present Value Cost	\$360,000,000	\$360,000,000	\$360,000,000
Net Present Value (NPV)	\$590,000,000	\$416,000,000	\$283,000,000
<b>Benefit-Cost Ratio (BCA)</b>	<b>2.63</b>	<b>2.15</b>	<b>1.78</b>

Lastly, we considered the impact of developing OSW on the local and national economy. Based on research by the National Renewable Energy Laboratory, the construction of OSW project generates economic output of \$1.2m/MW through increased employment. The operations of OSW projects generate approximately \$110,000/MW. See [Appendix E](#) for BCA.

### Leverage Federal Funding

This project will leverage federal funds to continue the development of preliminary design and site selection. Overall, the funding will be used to leverage clean energy opportunities within the state which supports the governor’s initiatives. In the years ahead, offshore wind will be an essential tool to accomplish energy goals of New England states. **Maine has set ambitious statutory climate and clean energy targets:** Using 80% renewable energy by 2030, and 100% by 2040; cutting emissions by 45% by 2030 and 80% by 2050; doubling our clean energy jobs to 30,000 by 2030; and achieving carbon neutrality as a state by 2045.

### Port Resilience

This project will strengthen Searsport as a key figurehead in the offshore wind industry by diversifying its waterfront utility to include and support clean energy and energy independence for

the region. The development of a new and specialized port terminal in the region will provide additional infrastructure for the emerging wind industry which is critical for Maine and the New England region.

### 3.5 Selection Considerations

#### Climate Change and Sustainability

Maine is unfortunately the most fuel-dependent state within the United States, with six in ten homes heated by oil or kerosene. Residents spend more than \$4 billion a year importing fossil fuels. The state is committed to transforming the state into a clean-energy economy with the vision led by Governor Janet Mills to generate 30,000 clean energy jobs in Maine by 2030. Within the past decade, the University of Maine's (UMaine) Advanced Structures and Composites Center has been pioneering research and development (R&D) into a floating-hull technology center. Numerous Maine engineering, construction, and manufacturing firms are engaged in the national and global OSW industry with the positive vision cultivating the necessary path to help establish its OSW goals into the next decade. The Gulf of Maine's wind resource stands to play a critical role in meeting Maine's energy needs, allowing the State to reduce its dependence on costly, imported fossil fuels and meet its clean energy targets. Offshore wind has the potential to diversify and boost Maine's renewable energy sources by releasing the significant amount of energy that is now locked up in the Gulf of Maine. Because offshore winds are highest and most dependable in winter, when regional power demand for heating peaks, offshore wind has a greater energy potential than other renewables during the day and during those seasons. With moderate restrictions on the amount of onshore renewable energy accessible, Maine would require 2.1 to 2.8 GW of offshore wind by 2050 to fulfill rising energy requirements and lessen our dependency on fossil fuels. The Gulf of Maine is important for New England States to satisfy their needs for renewable energy.

#### Equity and Justice<sup>40</sup>

As noted in Section 1.5, the Maine Port Authority and MaineDOT believe that the essence of equity in transportation is to ensure that all Maine people have access to safe and reliable transportation options that support economic opportunity and quality of life regardless of a person's economic, social, ethnic, racial, age, sexual orientation, physical, mental, or geographic circumstance. These agencies are committed to providing equitable delivery of its programs and services. More specifically, this project supports clean energy initiatives to bring affordable energy to all areas of the state regardless of economic status and region. This technology and coastal area will benefit all communities. See [Appendix F](#) for Equity Statement.

#### Workforce Development, Job Quality, and Wealth Creation

The State of Maine has an opportunity to affect momentous change in the state economy and environment by responsibly pursuing Offshore Wind (OSW) development. Moreover, Maine Port Authority and the State of Maine have a strong commitment to advance workforce development by **creating opportunities for an expected 350 to 400 workers per day, 6 days per week**. Floating offshore wind provides an opportunity to attract new talent to Maine by expanding

training programs and attracting companies to the State. Maine and its partners can work to ensure disadvantaged populations and communities have access to career exploration programs, training and apprenticeship programs, post-secondary education, and career opportunities in the industry. **Governor Mills has set a goal of 30,000 clean energy jobs in Maine by the year 2030**, and the growth and development of offshore wind plays an essential role in reaching that goal.

### 3.6 Readiness

#### Technical Capacity

The Maine Port Authority staff previously identified in Section 1.6 will also oversee and administer the Searsport Offshore Wind Planning efforts. Their knowledge, insight, and understanding of the details associated with this work will ensure the work is carried out in a professional and timely manner to satisfy the schedule proposed below. This team has also engaged Moffatt and Nichol (M&N) for their experience with port planning and permitting. M&N is an engineering consultancy that specializes in Ports and Maritime engineering services. These services include marine structural, coastal, port planning and logistics modeling, and dredge design. They currently have over 900 staff in 40 offices in the Americas and Europe. Their ports division is dedicated to the planning, modeling, and detailed design of ports to support the offshore wind industry. M&N has completed a feasibility study, modeling effort, and/or detailed design on over twenty OSW port sites on a worldwide basis. M&N were hired for this project through a long-standing prequalification process implemented by MaineDOT.

#### Project Schedule

Maine’s offshore wind initiative is an ongoing effort which will continue for the next several years including design, environmental impact statement, permitting, and construction. The table below outlines the schedule for the work on the horizon. Given the ongoing nature of this project, the next phases to be completed are ready for undertaking. Permitting and NEPA will commence in the fall of 2023.

**Table 3-3 Searsport Offshore Wind Planning Schedule**

Activity	2023			2024				2025				2026				2027				2028				2029				
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Conclusion of OSWPAG (Public Input)																												
MARAD Contracting; Begin Design																												
Draft EIS Published																												
Apply for Construction Funding																												
Complete Design																												
Final EIS Submitted																												
Obtain Permits																												
Advertise for Construction																												
Secure Federal Funding																												
Construction																												
Construction Closeout																												
MARAD Closeout																												

#### Environmental Risk

The current work product pertains to design and permitting over the next few years. The development of this work will require standard review periods by agencies involved in the implementation of offshore wind. There are no immediate risks to the schedule given the early stages of the overall project.

## Letters of Support

The Searsport Offshore Wind project is ready to perform the next phases of planning and evaluation of potential sites for offshore wind development. Support for the next phases has been received from all levels of local and state government, as well as regional organizations, companies, and stakeholders. Letters of Support have been received from utility companies, government officials, and local companies. Hyperlinks to the letters are listed in [Appendix G](#).

### 3.7 Domestic Preference

The Searsport project is in the planning stages and will not require construction materials at this time.

### 3.8 Statutory Determinations

The following information is simply provided as evidence that this component of the project satisfies requirements of 46 U.S.C. 54301(a)(6)(A).

**Table 3-4 Summary Responses to Statutory Requirements**

Statutory Determination	Response
1. The project improves the safety, efficiency, or reliability of the movement of goods through a port or intermodal connection to the port.	The project will fund the continued development of a specialized port that serves Maine’s and the region’s long-term goals toward offshore wind production. The creation of this port will diversify the waterfront operations in the region and enable the existing ports to focus on their current lines of business.
2. The project is cost effective.	The <b>BCA value of 2.6</b> indicates cost-effectiveness. Please see <a href="#">Appendix E</a> .
3. The eligible applicant has the ability to carry out the project.	The Maine Port Authority is a quasi-governmental agency that works closely with and relies on the Maine Department of Transportation for capital funding. Please see <a href="#">Appendix G</a> for letters of support from Maine’s leadership.
4. The eligible applicant has sufficient funding available to meet the matching requirements.	The Maine Port Authority has the financial backing of the MaineDOT and has obligated funds as noted in the letter of support from Commissioner Bruce Van Note. See <a href="#">Appendix H</a> and <a href="#">Appendix I</a> .
5. The project will be completed without unreasonable delay.	The project will continue its progress toward site evaluation and planning activities immediately following successful MARAD contracting.
6. The project cannot be easily and efficiently completed without Federal funding or financial assistance available to the project sponsor.	Without federal funding the work will be delayed and the Governor’s initiative to provide clean wind energy will be stalled. The State of Maine is committed to expediting the initial phases of the project, and now federal funding is needed to propel the project further.

## 4. EASTPORT BREAKWATER AND FISH PIER

### 4.1 Description

The Port of Eastport is the easternmost port in the United States and the deepest seaport in the Continental United States and Canada. The port is naturally positioned to be at the forefront of all overseas transportation operations due to its unique capabilities. The port has a 64 ft natural channel (MLW), a strong flow rate which provides essential clearing of the channel, and one of the highest tidal ranges in the United States. The downtown terminal has a breakwater and a fish pier which serve the local community, fisherman, and tourism. The location is prime for importing and exporting commodities from Europe, Canada, and within the east coast of the United States.

This project entails **extending the existing breakwater and upgrading the existing fish pier**, which will provide necessary upgrades to the local infrastructure that serves the surrounding community. The fish pier upgrades will undergo structural repairs to maintain a Status of Good Repair and ensure that remains viable for use as a place to moor and berth vessels, and the breakwater extension to provide a safe harbor for the local fishing fleet. See [Appendix A](#) for drawings.

### 4.2 Location

The Port of Eastport, located approximately 0.5 miles from the Canadian Border, is a small-scale port of nearly 1,300 residents and over 5,000 seasonal residents. The port is in a rural area based on the 2010 Census and is adjacent to a Native American Community. See [Appendix B](#).

### 4.3 Grant Funds, Sources, and Uses of Funds

The project cost and breakdown of funding is noted in the table below. The budget entails construction activities including contractor costs, construction oversight, and project administration. The project is nearing final design in June 2023 and permitting will commence soon thereafter. Funding sources will include FY23 PIDP Funds and a Non-Federal Match through MaineDOT.



**Figure 4-1: Eastport Location**

The existing breakwater will be extended to create a safer harbor for the fishing fleet. This facility was the subject of a 2015 construction project provided much needed and drastic upgrades to the structure. The proposed extension includes the installation of steel sheet pile bulkhead extending from the southwestern corner of the Breakwater Terminal out in a southwesterly direction to an existing dolphin structure. This structure would be 97 ft long and would serve as a multipurpose structure. The main purpose is to provide a wave break for the berthing area inside the Breakwater Terminal. The second function would be to provide longshoremen and dock workers direct access to the dolphin, which is currently only accessible via boat.

The fish pier has been a staple along the Eastport waterfront since its original construction in 1981. Since that time, minor repair and upgrade projects have been undertaken as a course of routine maintenance. Multiple waterfront structural inspections have been conducted, including the most recent in June 2015 by a structural-marine engineering team. The results of that inspection indicate that the structure is reaching the end of its normal service life and needs major upgrades in a reasonable time period. The sheet pile cells have corrosion and minor section loss, leading to a reduction in structural capacity and the concrete deck has cracking and small voids found throughout. While the existing structure remains usable, the upgrades should be made prior to any serious deterioration which can lead to failures.

**Table 4-1 Eastport Breakwater and Fish Pier Funding**

Funding Source	Funding Amounts	%
FY23 PIDP Funding Request:	\$10,320,000	80%
Non-Federal Funds (Match from MaineDOT)	\$2,580,000	20%
See <a href="#">Appendix C</a> & <a href="#">D</a> for cost estimate	<b>TOTAL:</b>	<b>100%</b>
	<b>\$12,900,000</b>	

## 4.4 Merit Criteria

### Achieving Safety, Efficiency, or Reliability Improvements

The market sectors that Port of Eastport aim to establish within the facility are new bulk cargo materials and the importation of green energy components. The region requires investment into expanding its current capabilities to create desirable long-term economic growth for the port and meet anticipated growth within the two sections in the prime location. With the demand of green and renewable energy, the Maine Port Authority has established relationships with leaders within the offshore wind sector, and as such Eastport was selected as the cost-effective site to house the offshore wind components (wind turbine blades) due to the reliability of the supply chain being greater than other nearby ports. Due to the demands and needs of the offshore wind sector, The Port of Eastport desperately needs to complete critical improvements to ensure the life of infrastructure continues to meet anticipated growth: the current infrastructure will not suffice.

### Supporting Economic Vitality

Eastport is a critical economic infrastructure for the local economy. The proposed project will ensure that the port remains viable and can be used for modest commercial operation and benefits the long-standing fishing heritage of the adjacent tribal community. The most critical economic impact of the port is the employment of more than 300 employees, which produce approximately \$3.6m each year. By comparison to the rest of Maine, **Eastport is poorer than the state average given its region of Persistent Poverty and has a relatively high unemployment rate.** For this analysis, we assumed that in a “Do Nothing” scenario, 100% of the FTEs that currently depend on the port for their income would become unemployed and the region would suffer a net loss of economic stability. Studies showed that for an area with high unemployment, the benefits of job

creation (or maintaining jobs in this case) are a benefit from society due spill-over effects from employment and the negative stigma of unemployment. See [Appendix E](#) for BCA.

**Table 4-1 Eastport Breakwater and Fish Pier Benefit-Cost Ratio**

Descriptor	Value (High, Med. & Low)	Value (High & Med.)	Value (High)
Total Present Benefits	\$24,000,000	\$17,000,000	\$12,000,000
Total Present Value Cost	\$10,000,000	\$10,000,000	\$9,500,000
Net Present Value (NPV)	\$14,000,000	\$7,000,000	\$1,900,000
<b>Benefit-Cost Ratio (BCR)</b>	<b>2.36</b>	<b>1.69</b>	<b>1.18</b>

### Leverage Federal Funding

The project leverages PIDP funding to provide maintain and improve one of Maine’s very important deep-water ports that serves our regional fishing industry. Without the federal funding opportunity, this project would take years to complete and would become more costly.

### Port Resilience

The rehabilitation of the Eastport Fish Pier ensures that this critical piece of infrastructure remains viable, usable, and safe for future generations of local fishermen, aquaculture support vessels, additional commercial berthing, and general port operations. The breakwater portion of the project will add wave protection that will shelter a large berthing area and protect infrastructure while allowing safe and effective access to longshoremen and dock workers using the dolphin to secure lines for larger vessels such as cruise ships, navy vessels, cargo vessels, and construction barges.

## 4.5 Selection Considerations

### Climate Change and Sustainability

**The breakwater and fish pier are vital to Eastport’s longevity as a fishing community.** The extension of the breakwater and the repairs to the fish pier will provide a sustainable harbor for the region whereby commercial fisherman, private industry, and tourism can continue to rely on the waterfront for its livelihood. The work on the breakwater is the completion of an original investment made nearly ten years ago to rebuild the structure. The work proposed on both structures will create a safe harbor for generations to come.

### Equity and Justice<sup>40</sup>

As noted in Section 1.5, the Maine Port Authority and MaineDOT both believe that the essence of equity in transportation is to ensure that all Maine people have access to safe and reliable transportation options that support economic opportunity and quality of life regardless of a person’s economic, social, ethnic, racial, age, sexual orientation, physical, mental, or geographic circumstance. These agencies are committed to providing equitable delivery of their programs and

services. More specifically, this project supports clean energy initiatives to bring affordable energy to all areas of the state regardless of economic status and region. This technology and coastal area will benefit all communities. See [Appendix F](#) for Equity Statement.

### **Workforce Development, Job Quality, and Wealth Creation**

Eastport's rural geographic location makes it and its residents reliant on a vibrant working waterfront to sustain the community through commercial fishing and maritime related jobs. These jobs offer higher than average wages and the ability to generate generational wealth of the inhabitants of the community and region. After the closing of the regional pulp and paper mill in Baileyville, Maine, the region has relied more and more on the coastline and commercial fishing for its sustainment. The hard-working people of Eastport and Washington County have turned to the seas to maintain their livelihood and contribute to the Maine economy. Their work fosters good paying jobs, strengthens the local fishing community, and promotes and supports tourism through its downtown charm and several restaurants. Maintaining this way of life is important to Eastport, Washington County, and the State of Maine.

## **4.6 Readiness**

### **Technical Capacity**

The Maine Port Authority staff previously identified in Section 1.6 will also oversee and administer the Eastport Breakwater and Fish Pier efforts. Their knowledge, insight, and understanding of the details associated with this work will ensure the work is carried out in a professional and timely manner to satisfy the schedule proposed below.

This team has also engaged Childs Engineering for their experience with structural-marine engineering and permitting. Childs Engineering is a structural engineering firm specializing in marine structures with over fifty years of experience. The firm's experience includes shore protection, bulkheads, piers, wharves, floating docks, marine terminals, various marine parks, and recreation facilities including public and private marinas. Childs takes into consideration coastal resiliency, future sea-level rise, and special design features to meet the goals of its client today and into the future. Childs was hired for this project through a long-standing prequalification process implemented by the MaineDOT.

### **Project Schedule**

The project is currently undergoing final design and construction plans and will be fully completed by Q2 of 2023. Local and State permitting activities will be underway soon thereafter but are anticipated to be completed in a timely manner given the previous activities associated with the breakwater design in 2018, and the fact that the work on the fish pier is merely a maintenance activity to keep the structure in a state of good repair. NEPA will commence in the fall of 2023. The project is scheduled to be advertised in Q2 of 2024, and construction will commence immediately. The following table outlines the general tasks for this component of the project.

**Table 4-3 Eastport Breakwater & Fish Pier Schedule**

Activity	2023			2024				2025			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
MARAD Contract Negotiations/NEPA	■										
Complete Engineering Design	■										
Local Site Plan Permitting	■	■									
State Permitting	■	■									
Construction			■	■	■	■	■				
Construction Closeout							■	■			
MARAD Closeout									■		

**Environmental Risk**

There is a special in-water work window that limits the amount of waterfront work which can be accomplished in any given year. The in-water work window protects fish and wildlife and will limit the periods when the steel sheet piles may be installed, and the construction barges can be in the water with their spud legs extended. The scheduled work is expected to be completed during the in-water work window. External factors which could impact the schedule and pose a risk to timely completion include severe winter weather, significant contractor workload, and labor shortages. The NEPA process will commence upon MARAD contract signing.

**Letters of Support**

The Eastport project is ready for implementation and has been fully vetted at all levels of local and state government, as well as regional organizations, companies, and vested stakeholders. Letters of Support have been received from pier and waterfront property owners, commercial fisherman, government officials, and local organizations. Hyperlinks to the letters are listed in [Appendix G](#) for reference.

**4.7 Domestic Preference**

The Eastport Breakwater and Fish Pier project will be constructed with materials produced in the United States. Construction materials that are included in the project are steel sheet piles, timber, concrete, and additives. Elements that may be challenging to locate within the U.S. are bollards and fender elements; however, the design is researching manufacturers within the country that can supply these materials. Overall, the work will comply with the Build America requirements.

## 4.8 Statutory Determinations

The following information is simply provided as evidence that this component of the project satisfies requirements of 46 U.S.C. 54301(a)(6)(A).

**Table 4-4 Summary Responses to Statutory Requirements**

Statutory Determination	Response
1. The project improves the safety, efficiency, or reliability of the movement of goods through a port or intermodal connection to the port.	The project will greatly improve the operational efficiency of the port by ensuring a safe and secure landing and loading area for commercial vessels and protected berthing basin for the commercial fishing fleet near the downtown district and associated services.
2. The project is cost effective.	The <b>BCA value of 2.4</b> indicates cost-effectiveness for this project. Please see <a href="#">Appendix E</a> .
3. The eligible applicant has the ability to carry out the project.	The Maine Port Authority is a quasi-governmental agency that works closely with and relies on the Maine Department of Transportation for capital funding. Please see <a href="#">Appendix G</a> for letters of support from Maine’s leadership.
4. The eligible applicant has sufficient funding available to meet the matching requirements.	As noted above, the Maine Port Authority has the financial backing of the MaineDOT and has obligated the matching funds as noted in the letter of support from Commissioner Bruce Van Note. See <a href="#">Appendix H</a> and <a href="#">Appendix I</a> .
5. The project will be completed without unreasonable delay.	The project will be fully designed by the summer of 2023 and ready for construction by spring 2024. No delays are anticipated. Contractors are aware of the project.
6. The project cannot be easily and efficiently completed without Federal funding or financial assistance available to the project sponsor.	Without federal funding the work will be deferred until sufficient funds are available in the MaineDOT’s capital work plan. The state has initiated the project, but now federal funding is needed to complete the project.

## Appendix A

### Project Drawings

The Project Drawings pertaining to each of the four components discussed in this grant application are attached in order and named as below:

- [Portland IMT Reefer Yard Modernization Drawings](#)
- [Fore River Shoreline Dredging Drawings](#)
- [Searsport Offshore Wind Planning Drawings](#)
- [Eastport Breakwater and Fish Pier Drawings](#)

## **Appendix B**

### **Location Map File**

- [Location Maps](#)

## **Appendix C**

### **Cost Estimates**

- [Project Component Summary Cost Estimates](#)
- [Portland IMT Reefer Yard Modernization Cost Estimate](#)
- [Fore River Shoreline Dredging Cost Estimate](#)
- [Eastport Breakwater and Fish Pier Cost Estimate](#)

## **Appendix D**

### **SF 424 Files**

- [SF-424 – Maine Department of Transportation](#)
- [SF-424C – Portland IMT Reefer Yard Modernization](#)
- [SF-424C – Fore River Shoreline Dredging](#)
- [SF-424C – Searsport Offshore Wind Planning](#)
- [SF-424C – Eastport Breakwater and Fish Pier](#)

## **Appendix E**

### **Benefit Cost Analyses Spreadsheets & Summary Reports**

- [Portland IMT, Searsport, and Eastport BCA](#)
- [Fore River Shoreline Dredging BCA](#)
- [Portland IMT Reefer Yard Modernization BCA Summary](#)
- [Fore River Shoreline Dredging BCA Summary](#)
- [Searsport Offshore Wind Planning BCA Summary](#)
- [Eastport Breakwater and Fish Pier BCA Summary](#)

## **Appendix F**

### **Equity Statement**

- [Equity Statement](#)

## **Appendix G**

### **Letters of Support**

#### General Support by Governmental Officials

- [Governor Janet Mills](#)
- [Senator Angus King](#)
- [Senator Susan Collins](#)
- [Congresswoman Chellie Pingree](#)
- [Congressman Jared Golden](#)

#### Component-Specific Support Letters

- [Portland IMT Reefer Yard Modernization Support Letters](#)
- [Fore River Shoreline Dredging Support Letters](#)
- [Searsport Offshore Wind Planning Support Letters](#)
- [Eastport Breakwater and Fish Pier Support Letters](#)

## **Appendix H**

### **Documentation of Matching Funds**

- [Documentation of Matching Funds, MaineDOT](#)

# **Appendix I**

## **Memorandum of Understanding**

- [Memorandum of Understanding](#)