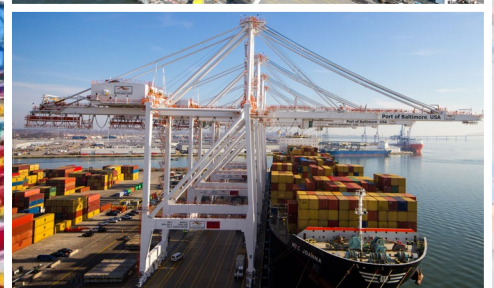
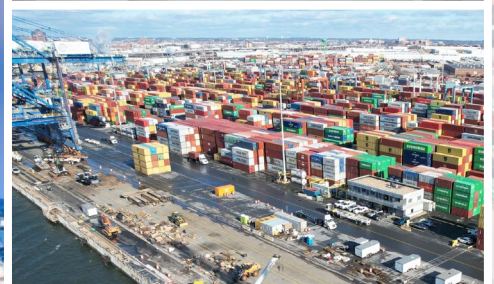


Name of lead applicant	Maryland Port Administration (MDOT MPA)
Is the applicant applying as a lead applicant with any joint applicants?	Applicant: MDOT MPA Private Entity Partner: Ports America Chesapeake, LLC
Project name	Port of Baltimore Electrification and Resiliency Project
Project description	Densify container yard operations, allow for future electrification of yard cranes, increase container capacity and velocity, and build a living shoreline to provide resilient coastal protection made of natural materials that promotes vegetation growth and habitat for marine life.
Is this a planning project?	No
Is this a project at a coastal, Great Lakes, or inland river port?	Coastal Port in Chesapeake Bay, Baltimore, Maryland
Is this project located in a noncontiguous State or U.S. territory?	No
GIS Coordinates (in Latitude and Longitude format)	Latitude 39°15'14.2"N and longitude 76°32'41.2"W (39.2539444, -76.5447777)
Is this project in an urban or rural area?	Urban (Urbanized Area Code: 04843)
Project Zip Code	21224
Is the project located in a Historically Disadvantaged Community (HDC) or a Community Development Zone (CDZ)? (A CDZ is a Choice Neighborhood, Empowerment Zone, Opportunity Zone, or Promise Zone.)	Yes <u>Historically Disadvantaged Community</u> (Census Tract 2606.05, Baltimore City, Maryland) <u>Opportunity Zone ID: 24510260605</u>
Has the same project been previously submitted for PIDP funding?	Yes, the container yard densification component of this project was submitted for FY 2022 PIDP funding, which was not awarded
Is the applicant applying for other discretionary grant programs in 2023 for the same work or related scopes of work?	MPA may apply for future discretionary programs but has not yet determined to which they may apply.
Has the applicant previously received TIGER, BUILD, RAISE, FASTLANE, INFRA or PIDP funding?	Yes
PIDP Grant Amount Requested	\$20,590,909
Total Project Cost	\$51,477,273
Total Federal Funding	\$20,590,909 (40%)
Total Non-Federal Funding	\$30,886,364 (60%)
Will RRIF or TIFIA funds be used as part of the project financing?	No

FY2023 USDOT PIDP Grant Application | April 28, 2023

Port of Baltimore Electrification and Resiliency Project



Submitted by:

Maryland Port Administration

*In association with Ports
America Chesapeake, LLC*



TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS	V
PROJECT SUMMARY	1
1 PROJECT DESCRIPTION	2
1.1 PORT OF BALTIMORE.....	2
1.2 SEAGIRT MARINE TERMINAL OVERVIEW	2
1.3 TRANSPORTATION CHALLENGES	3
1.4 PROJECT DESCRIPTION AND COMPONENTS.....	5
1.5 APPLICANT AND PROJECT PARTIES	7
2 PROJECT LOCATION	7
2.1 GEOGRAPHIC LOCATION AND GEOSPATIAL INFORMATION	7
2.2 CONNECTIONS TO EXISTING TRANSPORTATION INFRASTRUCTURE	9
2.3 AREA DESCRIPTION.....	10
3 GRANT FUNDS, SOURCES, AND USES OF PROJECT FUNDS.....	11
3.1 PORT INFRASTRUCTURE DEVELOPMENT PROGRAM PROJECT COSTS.....	11
3.2 SOURCES OF FUNDS, FUNDING AVAILABILITY, AND FUNDING COMMITMENTS.....	11
4 MERIT CRITERIA	12
4.1 A) ACHIEVING SAFETY, EFFICIENCY, AND RELIABILITY IMPROVEMENTS	12
4.2 B) SUPPORTING ECONOMIC VITALITY AT THE NATIONAL AND REGIONAL LEVELS (LARGE PROJECT).....	13
4.3 C) LEVERAGING FEDERAL FUNDING TO ATTRACT NON-FEDERAL SOURCES OF INFRASTRUCTURE INVESTMENT	17
4.4 D) PORT RESILIENCE	19
5 SELECTION CONSIDERATIONS.....	20
5.1 E) CLIMATE CHANGE AND SUSTAINABILITY	20
5.2 F) EQUITY AND JUSTICE.....	21
5.3 G) WORKFORCE DEVELOPMENT, JOB QUALITY, AND WEALTH CREATION	23
6 PROJECT READINESS	23
6.1 TECHNICAL CAPACITY	23
6.2 ENVIRONMENTAL APPROVALS.....	27
7 DOMESTIC PREFERENCE.....	29
8 DETERMINATIONS	29



LIST OF TABLES

Table 3-1 – Sources and Amounts of Project Cost	12
Table 4-1 – Benefit-Cost Analysis Summary	14
Table 4-2 – Most Significant Recent and Ongoing Projects at Seagirt.....	19
Table 6-1 – Risk Analysis	26
Table 8-1 – Determinations Summary	30

LIST OF FIGURES

Figure 1-1 – Seagirt Marine Terminal Overview	3
Figure 1-2 – Seagirt Marine Terminal’s Containerized Cargo Volumes	4
Figure 2-1 – Seagirt Marine Terminal’s Location.....	8
Figure 2-2 – Project Location	8
Figure 2-3 – Seagirt’s Proximity to Rail Lines AND Roadways.....	9
Figure 2-4 – Seagirt’s Location Proximate to HDCs, Opportunity Zones, and Areas of Persistent Poverty.....	11
Figure 6-1 – Designed eRTG Runway Cross Section.....	25
Figure 6-2 – Living Shoreline Typical Sections	26

LIST OF APPENDICES

Appendix A – Cost Estimate	
Appendix B – Benefit-Cost Analysis	
Appendix C – Project Schedule	
Appendix D – Letters of Support	
Appendix E – Non-Federal Funding Commitment Letters	
Appendix F – Federal Wage Rate Certification	
Appendix G – Technical Project Information	



ACRONYMS AND ABBREVIATIONS

BCA	Benefit-Cost Analysis
BUILD	Better Utilizing Investments to Leverage Development
CRISI	Consolidated Rail Infrastructure and Safety Improvements
CSX	CSX Transportation
CTP	Consolidated Transportation Program
DBE	Disadvantaged Business Enterprise
EPA	U.S. Environmental Protection Agency
eRTG	Electric Rubber-Tired Gantry
FTE	full-time equivalent
FY	Fiscal Year
I-95	Interstate 95
LEED	Leadership in Energy and Environmental Design
MARAD	U.S. Maritime Administration
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MPA	Maryland Port Administration
MTC	Maryland Transportation Commission
NEPA	<i>National Environmental Policy Act</i>
NO _x	Nitrogen Oxide
P3	Public-Private Partnership
PAC	Ports America Chesapeake, LLC
PIDP	Port Infrastructure Development Program
PM	Particulate matter
Port	Port of Baltimore
Ports America	Ports America Inc.
Q4	Quarter 4
RTG	Rubber-Tired Gantry
Seagirt	Seagirt Marine Terminal
SO ₂	Sulfur Dioxide
TEU	Twenty-Foot Equivalent Unit
TIGER	Transportation Investment Generating Economic Recovery
ULCV	Ultra-Large Container Vessel
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
VMТ	Vehicle Miles Traveled
VOC	Volatile Organic Compound



PROJECT SUMMARY

The Maryland Port Administration (MPA) requests a Fiscal Year (FY) 2023 Port Infrastructure Development Program (PIDP) Grant from the U.S. Department of Transportation (USDOT) to fund the **Port of Baltimore (Port) Electrification and Resiliency Project**, which will electrify container yard operations, increase container capacity and velocity, and build a living shoreline to provide resilient coastal protection made of natural materials that promotes vegetation growth and habitat for marine life. Baltimore's Seagirt Marine Terminal (Seagirt) has completed other terminal improvements to allow two ultra-large container vessels (ULCVs) to berth at once, add container storage using electrified yard cranes, and increase gate capacity and truck velocity through the gates. However, current supply-chain issues and changes in consumer preferences have led to significantly increased cargo volumes, requiring additional containerized cargo capacity. Without these improvements, the Port will not achieve its full potential to electrify container yard operations; will reach its container capacity, thereby limiting future growth; and will face the potential of severe erosion of its shoreline.

Achieving Safety, Efficiency, and Reliability

- ✓ New terminal traffic flow creates more efficient and safer yard operations.
- ✓ Reduces truck miles driven and idling time within terminal, reducing potential for accidents.
- ✓ New container capacity and electrified equipment provide more reliable cargo movement.
- ✓ Protected and stabilized living shoreline provides safety and reliability for decades to come.
- ✓ Technology and newer infrastructure enhance safety for terminal workers and users.

Supporting Economic Vitality at the Regional and National Levels

- ✓ Reduces the cost of transporting containerized cargo, representing savings to the U.S. economy, and making U.S. exports, including those from rural areas, more competitive in the global marketplace.
- ✓ Creates additional cargo capacity at a major U.S. gateway.

Leveraging Federal Funding to Attract Non-federal Sources of Infrastructure Investment

- ✓ Has demonstrated collaboration with a diverse group of local, state, federal, and private partners.
- ✓ Obtained a significant non-federal match from committed and dependable funding sources.
- ✓ Part of a \$500 million investment program to modernize, upgrade, and expand Seagirt.
- ✓ Furthers an existing public-private partnership (P3) with entities committed to long-term asset performance and maintenance.
- ✓ Leverages the federally funded Howard Street Tunnel improvements by creating capacity for additional container volumes to pass through the tunnel.

Port Resilience

- ✓ Provides redundancy and resiliency in the U.S. east coast port system, providing additional port capacity in the event of natural disasters or Port closures.
- ✓ Enhances the functionality and capacity of the U.S. Maritime Administration (MARAD)-designated M-95 Marine Highway.
- ✓ Creates a resilient living shoreline to protect against sea level rise and future storm events.

Climate Change and Sustainability

- ✓ Reduces emissions from trucks and heavy equipment within the container yard.
- ✓ Avoids need to power refrigerated (reefer) containers with diesel-driven generators.
- ✓ Decarbonizes operations and cargo movement, serving as a catalyst for regional climate action.
- ✓ Hardens and protects with a natural, environmentally positive living shoreline.

Equity and Justice and Workforce Development, Job Quality, and Wealth Creation

- ✓ Creates high-paying construction and long-term union jobs in an economically distressed area.
- ✓ Improves local neighborhoods through reduced noise and emissions.
- ✓ Has state and private partners committed to workforce development, diversity, and inclusion.

Project Readiness

- ✓ Fully able to meet PIDP obligations and expenditure deadlines with few and well-mitigated risks.
- ✓ Has demonstrated capability and technical capacity to perform the scope of work.
- ✓ Has defined and well-thought out permitting and approval.
- ✓ All aspects are compliant with Domestic Preference requirements, and a waiver is not required.



1 PROJECT DESCRIPTION

1.1 Port of Baltimore

Founded in 1706, the Port, located in the Chesapeake Bay, Maryland, is the seventh largest container port on the east coast. It has a 50-foot channel system that allows it to accommodate some of the largest ships in the world. The Port is the nation's leading automobile and roll-on/roll-off port and handles containers, passengers, automobiles, bulk cargo, and farming equipment. Located in one of the country's strongest urban markets, the Port is also an important gateway for the import and export of cargo to and from rural areas, including heavy farming equipment, such as combines, tractors, and hay balers, providing critical connectivity between domestic and international markets and serving as a vehicle for industrialization, modernization, and growing both the urban and rural economies. The overall economic impact of the Port, measured for cargo and cruise activity, is as follows¹:

- Approximately 37,297 jobs in Maryland are generated by Port activity, including 15,329 direct jobs, 16,780 induced jobs, and 5,188 indirect jobs.
- Approximately 101,880 other jobs in Maryland are related to activities at the Port.
- When combining direct, induced, and indirect jobs with related jobs, there are more than **139,170 jobs linked to the Port**, including jobs in the outlying rural areas.

In 2022, the Port handled nearly 1.1 million twenty-foot equivalent units (TEUs), a standard measurement of containerized cargo, increasing over 2020 and 2021. This year, record volumes are projected again at increasing at an annual growth rate that is greater than its neighboring container ports on the North Atlantic. Intermodal volumes are expected to increase as a share of total volumes, in line with the opening of the updated Howard Street Tunnel, construction of which is currently scheduled for 2025.

MPA aims to increase container import and export volumes at a higher rate than other Mid-Atlantic ports that include New York, Philadelphia, Wilmington, and Norfolk, which represent the most immediate competition for containerized cargo imports and exports within Baltimore's market area. Numerous logistics hubs and industrial parks exist or are planned near the Port and across the state that help attract cargo. Distribution centers of major retailers and manufacturers and third-party logistics warehouses are also scattered along the Interstate 95 (I-95)/State Route 40 corridor. Many of these entities are responsible for the increased goods shipped to the area and fully support this project and the need for an additional capacity in the Port. Refer to Letters of Support in **Appendix D**.

1.2 Seagirt Marine Terminal Overview

Owned by MPA, the 284-acre Seagirt is the Port's dedicated container terminal that handles more than 99% of the Port's container volumes. Seagirt handles an annual volume of 1.1 million TEUs and has high vessel productivity rates of 32 moves per hour. **Figure 1-1** shows an overview photograph of Seagirt. It is a unionized public port providing competitive, family-supporting wages and benefits to members of the International Longshoremen's Association.

Seagirt has four container berths: Berth 4 is 50 feet deep (built in 2010 as part of a P3, which is summarized below); Berth 3, which was recently deepened to 50 feet as part of an FY 2018 Better Utilizing Investments to Leverage Development (BUILD) Grant; and Berths 1 and 2, which are 45 feet deep and are unable to support ULCVs. The berths are supported by 12 ship-to-shore container cranes. Seagirt's upland facilities include more than 360 refrigerated container plugs, 134 acres of outside container storage, state-of-the-art new truck gates, 37 rubber-tired gantry (RTG) cranes (including 15 electric/hybrid RTG cranes), 36 top loaders, one reach stacker, and an on-dock intermodal yard that is serviced by CSX Transportation (CSX).

¹ Maryland Port Administration (MPA). October 15, 2018. The Economic Impacts of The Port of Baltimore. https://mpa.maryland.gov/Documents/EcononmicimpactofPOBMaryland2017_101518.pdf



Seagirt is undergoing a modernization and densification program to increase yard capacity, electrify equipment, and enhance operations and safety.

Seagirt's impressive vessel loading and unloading productivities are matched by its truck turn times, which are approximately 30 minutes for single moves and 60 minutes for double moves. This industry-leading productivity has helped drive a significant increase in new business; however, the increased volumes are beginning to reach Seagirt's capacity, especially straining its container storage capacity, and future growth will not be possible without the **Port of Baltimore Electrification and Resiliency Project** to provide additional cargo capacity of both loaded and empty containers.

Ports America Chesapeake, LLC (PAC) currently has 785 full-time equivalent (FTE), highly compensated, union employees; this number is expected to grow as cargo volumes grow due to this project. PAC management staff includes another 96 FTEs.

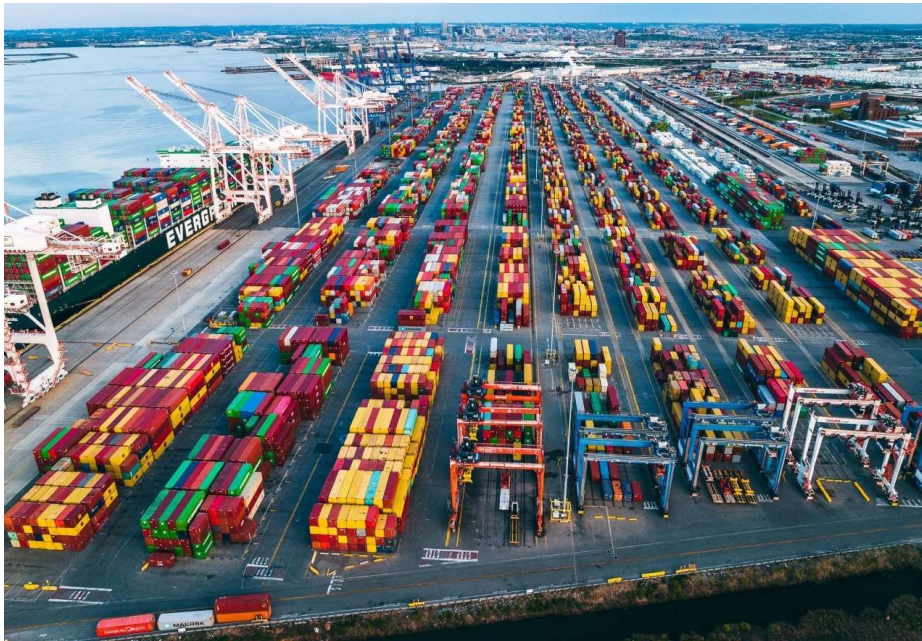


FIGURE 1-1 – SEAGIRT MARINE TERMINAL OVERVIEW

1.3 Transportation Challenges

The development of each component under the **Port of Baltimore Electrification and Resiliency Project** originates from several transportation challenges currently facing operations at the Port, as summarized in the following subsections.

Increasing Population Growth and Container Volume

Maryland's population is expected to increase by 8.2% from 2020 to 2030², creating continued demand growth for imported goods and driving substantial container volume growth, as shown on **Figure 1-2**. The Port saw a 21% increase (7% average annually) in container volumes from 2016 to 2019, growing faster than the population. The difference is a result of Seagirt's efficiency that attracts discretionary cargo bound for or exported from other U.S. regions. This growth is anticipated to continue, and **Figure 1-2** illustrates projected container volumes (in lifts). Seagirt, Maryland, and the surrounding region desperately need additional container capacity to meet this demand growth.

² Maryland State Archives. 2022. Maryland at a Glance. *Maryland Manual On-Line: A Guide to Maryland & Its Government*. September 01. <https://msa.maryland.gov/msa/mdmanual/01glance/html/pop.html#rates>.

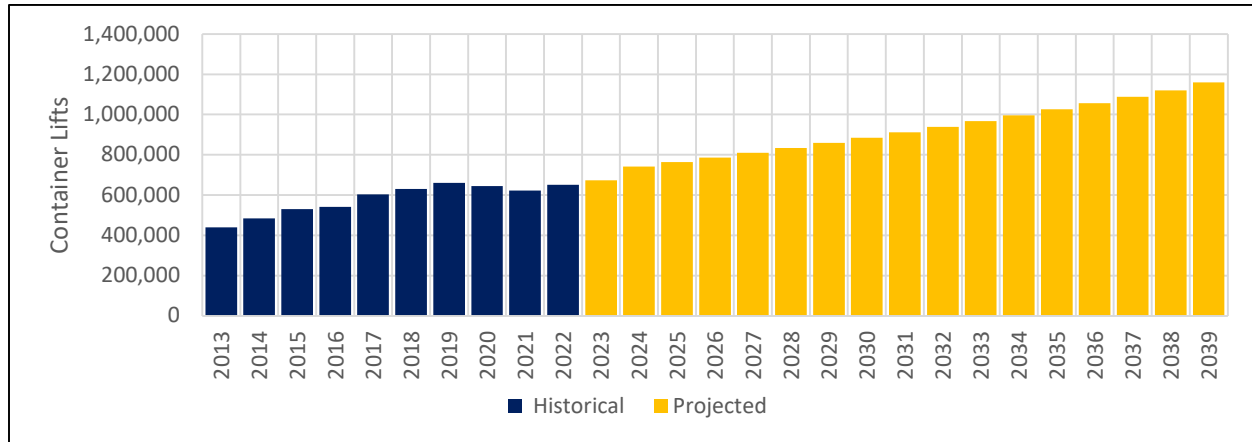


FIGURE 1-2 – SEAGIRT MARINE TERMINAL’S CONTAINERIZED CARGO VOLUMES ³

Ship Size Trends

Global trends in shipping have introduced larger, more economically and environmentally efficient ULCVs to the world’s shipping fleet, which can accommodate 14,000 TEUs. These ULCVs require large-scale infrastructure investments, ranging from the widening of the Panama Canal to improvements in the U.S. national and regional rail systems and improvements to ports and harbors. The expansion of the Panama Canal, completed in June 2016, is particularly important because it allows ULCVs to transit its locks. Before the expansion, the largest vessel that could transit the locks was about 5,000 TEUs. These ULCVs are now transiting the canal and calling on U.S. east coast ports, including Baltimore, which does not have adequate capacity to accommodate the volumes driven by for these big ships.

MPA and the U.S. Army Corps of Engineers (USACE) have invested heavily in dredging and maintaining the Port’s channels to 50-foot depths. Additionally, MPA and PAC have invested heavily to improve Seagirt’s intermodal connectivity (which also helps the Port compete for discretionary intermodal cargo volumes destined for distribution throughout the country). These efforts have allowed ULCVs to start calling on Seagirt. The **Port of Baltimore Electrification and Resiliency Project** will enable Seagirt, and the broader Port, to accommodate more of these ULCVs that would otherwise not be able to call on the Port because of its lack of available infrastructure.

Shifting Trade Routes

As vessel sizes increase, deeper channels, super-post Panamax cranes, and efficient terminal operations will become a necessity at those ports serving the larger vessels, now deployed on the Asian all-water services. In addition, as the larger ships cascade from one trade lane to another, there will be constant growth in the size of vessels deployed on all trade routes. For example, the largest container vessels, those 22,000 TEUs and greater, are deployed on the Asia-Europe trade routes because the economies of the largest container vessels are realized on the longest trade routes with minimal port calls. As these larger ships (22,000 TEUs and greater) are deployed on the Asia-Europe routings, the current vessels on that route are moved to the Transpacific routing, which offers the next level of distance and minimal port calls. These newly deployed vessels on the Transpacific trade (from the Asia-Europe trade) displace the current sized fleet on the Transpacific trade, and these displaced vessels then cascade to the all-water Asia-U.S. East Coast/Gulf Coast trade via the Panama Canal. This is not just theory—in May 2021, a ULCV called three U.S. east coast ports, and services have continued.

³ Ports America Chesapeake, LLC



1.4 Project Description and Components

MPA has partnered with their longtime private partner, PAC, to upgrade Seagirt. These upgrades support the Port's goal to address environmental justice in the community while expanding their ability to accommodate more cargo and meet the changing industry trends. For the **Port of Baltimore Electrification and Resiliency Project**, MPA and PAC will implement the following two components. **Section 6** includes detailed summaries of permits, approvals, and *National Environmental Policy Act* (NEPA) status, and Appendix G includes supporting technical information.

1. Container Yard Density

Need: Import and export cargo volumes are rapidly increasing, and there is limited space to store containers. This component adds much-needed container storage yard capacity by densifying the existing terminal and converts diesel operations to electrified operations, thereby reducing emissions, noise, and other harmful effects. This component will include the following activities:

- Build civil, structural, and electrical infrastructure to enable electrification of container handling equipment (electric rubber tire gantry cranes, eRTGs) for Phases 2, 3, and 4 as shown below in Figure 1-3 [note that Phase 1 is currently under construction].
- Add 8,000 linear feet of new concrete runways specifically designed to support eRTGs in Row N.
- Add 17 rack structures for refrigerated containers to provide additional capacity and to electrify what are currently diesel-powered operations.

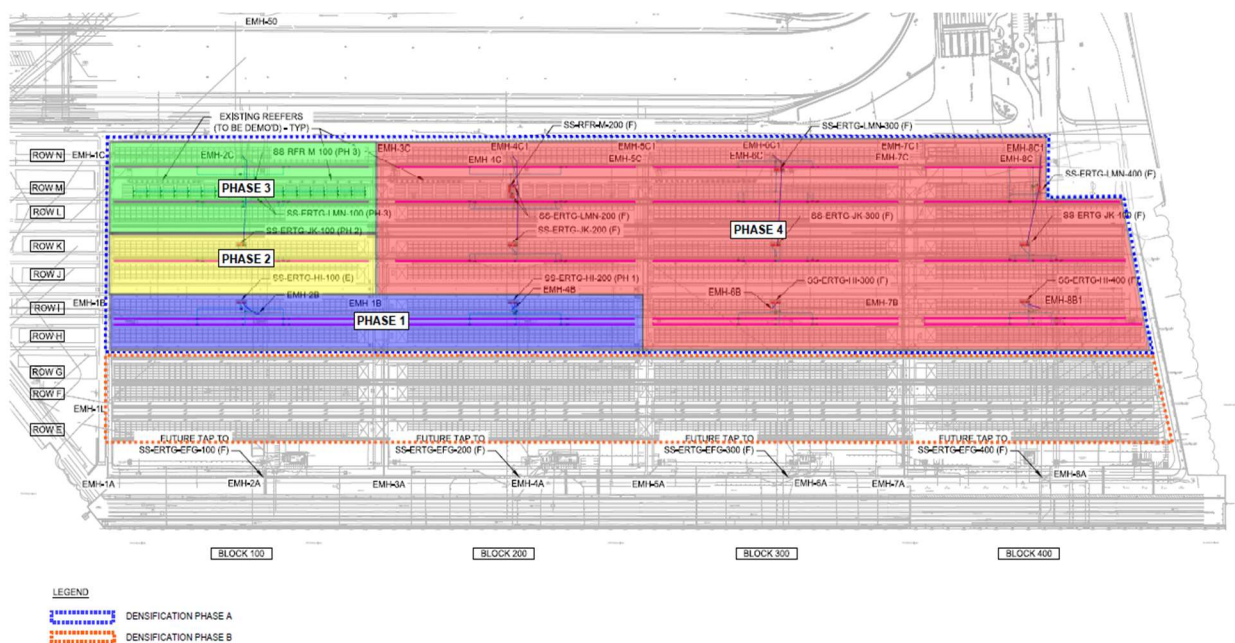


FIGURE 1-3 – SEAGRIT CONTAINER YARD DENSITY & ELECTRIFICATION PLAN⁴

2. Living Shoreline

Need: Seagirt's existing container yard capacity is scarce and often consumed by empty containers that typically dwell in the terminal longer than loaded containers. PAC is designing a 20-acre empty container depot on a dormant parking lot adjacent to Seagirt, thereby freeing up valuable capacity for loaded import and export containers. However, the shoreline around this empty depot is at risk of deteriorating and is not resilient to storm events, sea level rise, and other climate change-related risks.

⁴ Straughan Environmental. 2023. 30% Design. January. (Full documents are included in Appendix G.)

By building this resilient living shoreline with natural materials, the empty depot and its capacity will be protected for years to come. This project component includes the following activities:

- Planning, surveys, investigation, design, permitting, and stakeholder engagement
- Construction using a suitable sediment source, transfer of the sediment to the project site, placement activities, and then the proper monitoring and adaptation methods; particular attention to constructability issues, such as consolidation of sediment and the marsh surface, pH/sulfides, and access/egress
- Additional considerations, including utility abandonment/relocation plan, final storm drainage plans for the adjacent upland area, and general project coordination with landside development

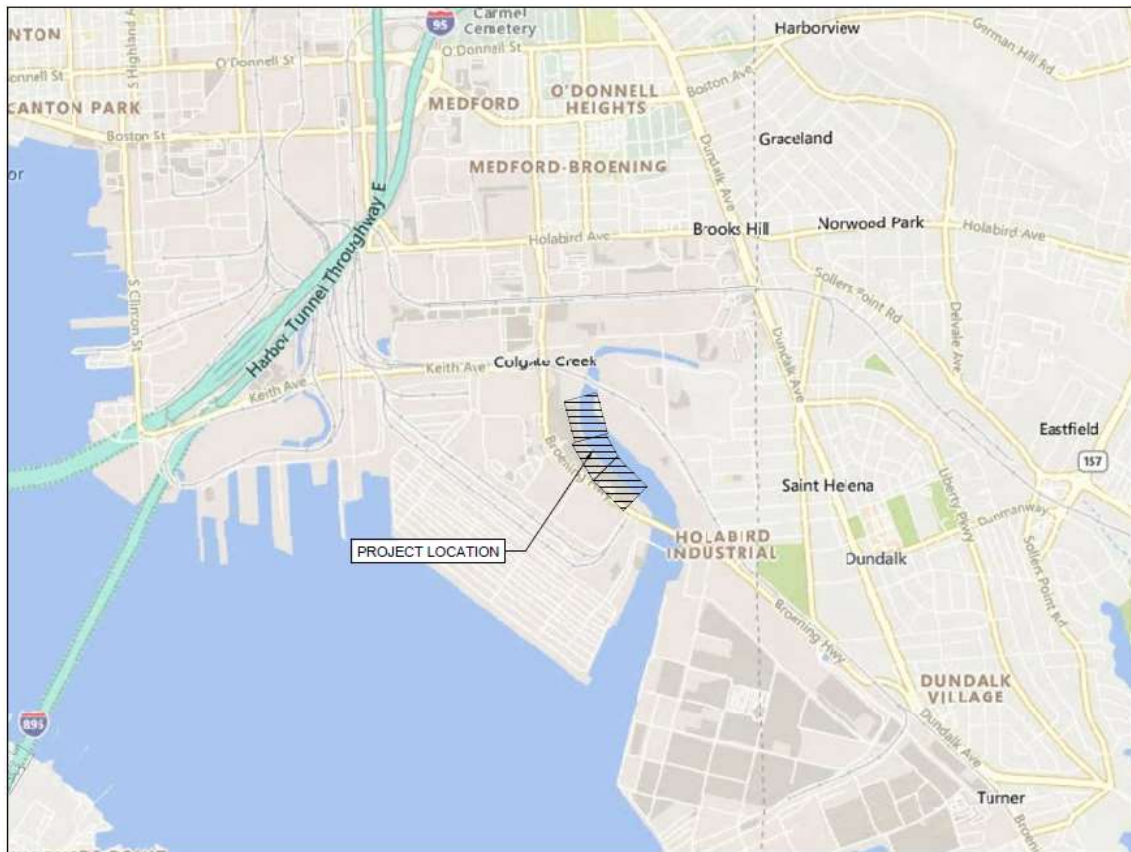


FIGURE 1-4 – SEAGRIT LIVING SHORELINE PLAN⁵

This **Port of Baltimore Electrification and Resiliency Project** will accomplish the following:

- Relieve Seagrit's capacity bottlenecks in the storage yard.
- Support the region's cargo growth demand.
- Reduce the all-in costs of moving cargo in and out of the Port.
- Provide good-paying jobs in an Area of Persistent Poverty and enhance racial equity.
- Reduce traffic, congestion, emissions, and noise, and enhance safety by increasing intermodal and barge capacity, electrifying terminal operations, and speeding cargo velocity.
- Construct resilient, nature-based infrastructure on a living shoreline.

⁵ PIDP project scope includes Phases 2, 3, and 4. Phase 1 is currently under construction



With appropriate funding, the project will be completed in 2029. PIDP Grant funding awarded for the project will be fully obligated before the September 30, 2026 deadline, and all funds expended within the five years of the date of obligation. Refer to **Appendix C** for the project schedule.

1.5 Applicant and Project Parties

Maryland Port Administration – Applicant and Lead Recipient

MPA is the Transportation Business Unit within the Maryland Department of Transportation (MDOT) and is the Applicant and Lead Recipient for this PIDP Grant. As a political subdivision of the State of Maryland, MPA is therefore eligible for a PIDP Grant. MPA owns Seagirt and is the landlord to its private sector partner and terminal operator, PAC.

Ports America Chesapeake, LLC – Marine Terminal Operator

PAC is the operator of Seagirt and MPA's private sector partner. In 2010, MPA entered into a unique \$1.3 billion P3 with PAC, signing a 50-year lease to operate Seagirt. PAC committed to investing \$500 million in Seagirt and, under the agreement, constructed a new 50-foot-deep container berth (Berth 4) and purchased four state-of-the-art, all-electric, high-efficiency, super-post Panamax cranes that can serve ULCVs, which are 22 containers wide and carry 14,000 TEUs. In 2022, PAC completed its \$142 million investment to deepen Berth 3 to 50 feet and procured four additional capable of working vessels 23 containers wide (part of its overall \$500 million investment). These projects help to accommodate increased container demand and driving additional volume growth that necessitates additional capacity.

2 PROJECT LOCATION

The Port is strategically located in the Mid-Atlantic region of the U.S. East Coast, in the center of the enormous Washington/Baltimore Common Market. This inland location makes it the closest Atlantic port to major midwestern population and manufacturing centers, and it is within a day's reach to one third of U.S. households. The Port provides immediate access to the 9.76 million people in the Washington/Baltimore region, the third-largest and one of the wealthiest consumer markets in the United States. Maryland has the highest household income in the nation. This area would see direct benefit from the ability of the Port to handle the increased volume of goods being brought from ULCVs. Because of the outstanding highway access, trucks can reach 35% of America's manufacturing base and 32% of its population overnight. Steel manufacturers in Pittsburgh, furniture makers in North Carolina, and consumers in Boston can all be served in less than 24 hours from the Port.

Although the greater Washington/Baltimore region is a thriving consumer market, Baltimore, where Seagirt and the Port are physically located, is a Historically Disadvantaged Community, Opportunity Zone, an Urbanized Area, and an Area of Persistent Poverty as defined in **Section 2.3**.

2.1 Geographic Location and Geospatial Information

Seagirt is a coastal seaport in an Urbanized Area, located at latitude 39°15'14.2"N and longitude 76°32'41.2"W (39.2539444, -76.5447777), in the Chesapeake Bay, within the, in Baltimore City, Maryland (**Figure 2-1**). **Figure 2-2** presents the location of the **Port of Baltimore Electrification and Resiliency Project** within Seagirt.

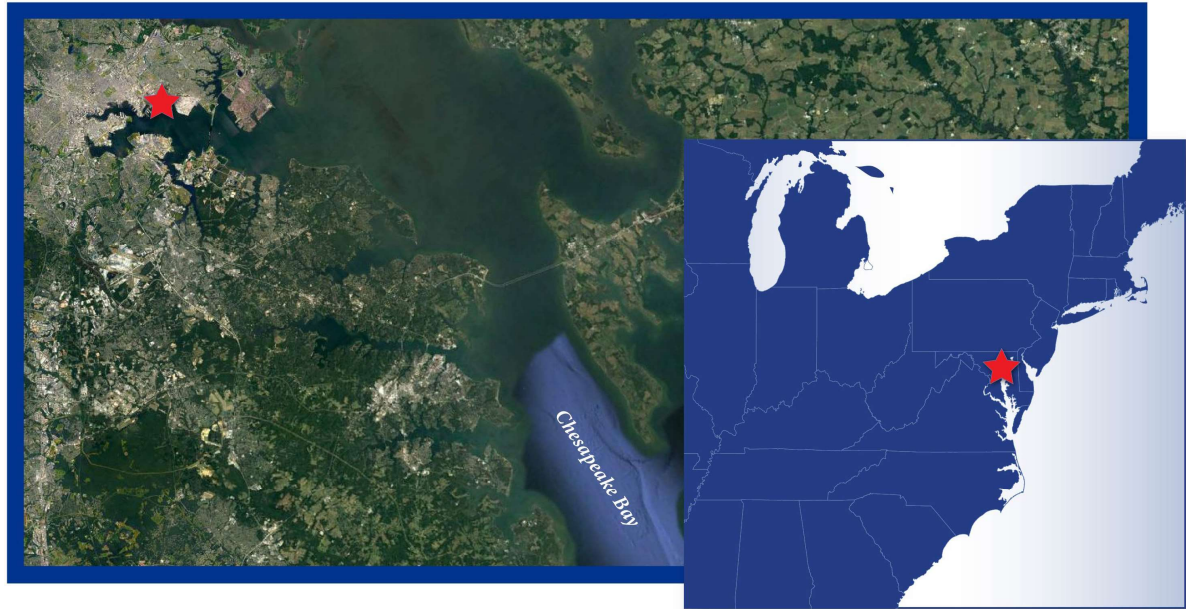


FIGURE 2-1 – SEAGIRT MARINE TERMINAL’S LOCATION

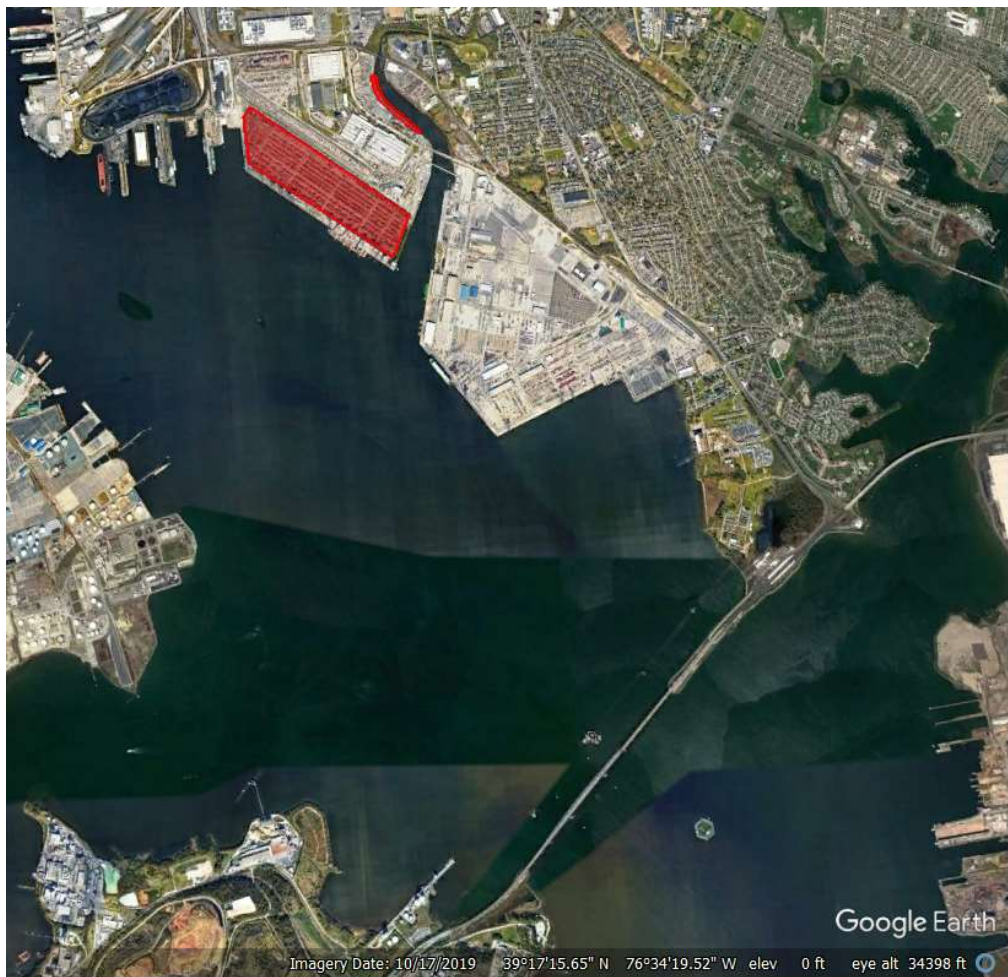


FIGURE 2-2 – PROJECT LOCATION

2.2 Connections to Existing Transportation Infrastructure

Seagirt has direct access to multiple modes of transportation—major local, state, and interstate roads, major rail lines, and Baltimore Harbor, as illustrated on **Figure 2-3**. Many of the major transportation arteries are within minutes of Seagirt. East-west corridors include Interstate 70, and north-south corridors include Interstates 81, 83, 95, 97, and 895. Seagirt’s proximity and access to these dense roadway hubs provides connectivity of goods and supplies to remote communities ranging from Pittsburgh to New York City, down through rural Virginia, southern Maryland, and the surrounding Chesapeake area. Seagirt has its own on-dock intermodal rail facility with rail service provided by CSX. Seagirt has direct access to Baltimore Harbor and other local waterways, is the designated container terminal at the Port and is on the MARAD-designated M-95 Marine Highway.



FIGURE 2-3 – SEAGIRT’S PROXIMITY TO RAIL LINES AND ROADWAYS



2.3 Area Description

Seagirt is in Baltimore City, Maryland, an Urbanized Area as defined by the 2010 Census with the Urbanized Area name of **Baltimore, MD**, and the **Urbanized Area Code is 04843**.⁶ According to the 2010 Census, this Urbanized Area has a population of 2,203,663. The project is located in Census Tract 2606.05, Baltimore City, Maryland, a **Historically Disadvantaged Community**⁷ that meets both County and Census Tracts Definitions of Areas of Persistent Poverty, is within a federally designated **Opportunity Zone** (ID 24510260605),⁸ and is adjacent to **Empowerment Zones** and **Choice Neighborhoods** in Baltimore, Maryland.

Baltimore City is in an economically distressed region, with an unemployment rate of 6.0%, compared with the national average of 4.1%.⁹ The Congressional Research Service defines an Area of Persistent Poverty as one in which 20% of the population is below poverty and experiences acute systematic problems compared with areas with lower poverty. Baltimore City is an **Area of Persistent Poverty** (Federal Information Processing Standards Geographic Identification Code 24510), with a poverty rate of 20.4% in 2018.¹⁰

Baltimore City's population is 62.3% Black or African American¹¹, and the acute systematic problems identified in this area classification presents a racial inequity in its population versus other areas with lower poverty. The **Port of Baltimore Electrification and Resiliency Project** will support re-stabilization of Baltimore City's economic growth, will enhance racial equity, and will catalyze future redevelopment and economic prosperity.

⁶ U.S. Census Bureau (USCB). 2010. *2010 Census - Urbanized Area Reference Map: Philadelphia, PA--NJ--DE--MD*. https://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/ua/ua69076_philadelphia_pa--nj--de--md/DC10UA69076_000.pdf.

⁷ U.S. Department of Transportation (USDOT). n.d. *Transportation Disadvantaged Census Tracts (Historically Disadvantaged Communities)*. Accessed April 24, 2023. <https://usdot.maps.arcgis.com/apps/dashboards/d6f90dfcc8b44525b04c7ce748a3674a>.

⁸ Opportunity Now. n.d. *Opportunity Zones*. Accessed April 24, 2023. <https://opportunityzones.hud.gov/>.

⁹ U.S. Bureau of Labor Statistics. 2023. *Baltimore area Economic Summary*. April 05. https://www.bls.gov/regions/mid-atlantic/summary/blssummary_baltimore.pdf.

¹⁰ Congressional Research Services (CRS). 2022. *The 10-20-30 Provision: Defining Persistent Poverty Counties*. April 14. <https://fas.org/sfp/crs/misc/R45100.pdf>.

¹¹ U.S. Census Bureau (USCB). n.d. *QuickFacts: Baltimore city, Maryland; United States*. Accessed April 25, 2023. <https://www.census.gov/quickfacts/fact/table/baltimorecitymaryland,US/PST045221>.

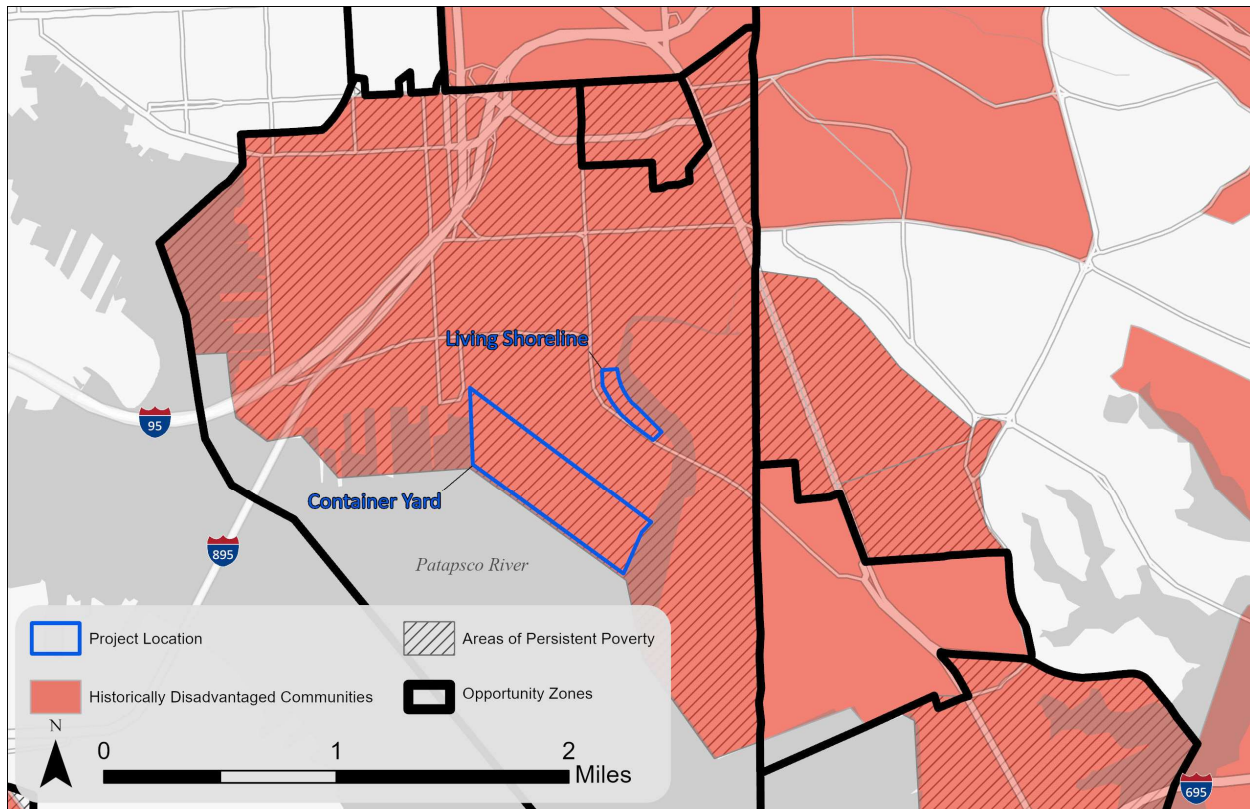


FIGURE 2-4 – SEAGIRT’S LOCATION PROXIMATE TO HDCS, OPPORTUNITY ZONES, AND AREAS OF PERSISTENT POVERTY

3 GRANT FUNDS, SOURCES, AND USES OF PROJECT FUNDS

3.1 Port Infrastructure Development Program Project Costs

The **Port of Baltimore Electrification and Resiliency Project** has a construction cost of \$51.5 million and meets the requirements for a PIDP Grant. **Appendix A** includes a detailed cost estimate that is well-defined and developed and is based on recent engineering projects. These project costs do not include any previously incurred expenses. MPA does not expect that there will be any pre-obligation expenses incurred before executing a PIDP Grant agreement.

3.2 Sources of Funds, Funding Availability, and Funding Commitments

MPA requests \$20,590,909 in PIDP Grants to complement \$26,981,672 of private and \$3,904,692 of state funds for construction of the \$51,477,273 **Port of Baltimore Electrification and Resiliency Project**. The project, therefore, would be funded 40.0% by PIDP, 52.4% by private investment, and 7.6% by State of Maryland funds, with no additional federal funds. **Table 3-1** summarizes project costs and percentage of funding respective grant allocation. The breakdown of funding is presented in the following subsections. There are no restrictions or conditions on the timing, sequencing, or availability of non-federal funding.



Table 3-1 – Sources and Amounts of Project Cost

	Container Yard Densification	Living Shoreline	Total
PIDP Funds:	\$17,987,781	\$2,603,128	\$20,590,909 (40%)
Other Federal Funds:	\$0	\$0	\$0
Non-federal Funds:	\$26,981,672	\$3,904,692	\$30,886,364 (60%)
<i>State (MPA)</i>	\$0	\$3,904,692	<i>\$3,904,692 (7.6%)</i>
<i>Private (PAC)</i>	\$26,981,672	\$0	<i>\$26,981,672 (52.4%)</i>
Total:	\$44,969,453	\$6,507,820	\$51,477,273

Non-Federal Funding

State of Maryland Funds

If a PIDP Grant is awarded, MPA commits to funding its \$3,904,692 portion of the project. **Appendix E** includes a letter stating MPA’s commitment to funding its portion.

Private Funds

If a PIDP Grant is awarded, PAC will fund its \$26,981,672 portion of the Project’s cost through private contributions that consist of free cash flow, parent company contributions, and potential third-party financing. PAC generates operating cash flow through handling charges for each container moved, as well as ancillary charges for storage, inspections, and maintenance. PAC commits to funding the private share. **Appendix E** includes a funding commitment letter.

Federal Funds

No federal funds are currently committed to this project. MPA may apply to the FY 2023 Multimodal Project Discretionary Grant Opportunity or other Federal funding programs for this project. Federal funding will not exceed 80% should MPA be awarded multiple grants.

Without federal funding, the **Port of Baltimore Electrification and Resiliency Project** will be delayed, stalling the region’s economic growth, hindering racial equity and Port resiliency, increasing roadway congestion from additional truck traffic, and limiting additional export of U.S.-grown agricultural products.

4 MERIT CRITERIA

4.1 A) Achieving Safety, Efficiency, and Reliability Improvements

As the country’s largest terminal operator and stevedore, MPA’s partner PAC is committed to providing a safe environment for employees, contractors, and visitors at each of its facilities. Seagirt has achieved industry-leading, loss-time-incident frequency rate and a culture of safe practices throughout all aspects of operations. MPA and PAC are committed to implementing projects that not only improve efficiency and capacity, but more importantly do so in a way that enhances safety. Several safety-enhancing components of the **Port of Baltimore Electrification and Resiliency Project** are described in this section.

Terminal Worker Safety

As terminal operator, PAC is committed to the safety of its workers and users, such as drayage truck drivers. The **Port of Baltimore Electrification and Resiliency Project** will enhance the safety of Seagirt’s longshoremen and truck drivers by 1) providing infrastructure that enable safer terminal operations and traffic flow; 2) reducing emissions-emitting on-terminal container handling equipment; 3) installing infrastructure to enable modern technology; and 4) restoring a deteriorating shoreline to a new and safe condition. Smart landing systems in the eRTGs will automatically profile working areas under the crane with lasers and prevent the containers from contacting the truck, other containers, or personnel, decreasing the opportunity for accidents to occur. The smart landing systems will also reduce on-terminal noise.



Reduced Vehicle Truck Miles Traveled

The public will benefit from fewer accidents and associated injuries as the result of the reduced vehicle truck miles traveled on local, state, and interstate roadways as well as within Seagirt. In 2013, large trucks accounted for 4% of all registered vehicles but resulted in 7.8% of all vehicles involved in fatal crashes.¹² Furthermore, there were 2.36 fatalities per billion ton-miles moved for cargo moved by truck versus 0.23 fatality per billion ton-miles moved for cargo moved by waterborne vessels.¹³ By reducing the number of trucks on the roads, accidents, fatalities, injuries, and property damage will be reduced. This project is expected to reduce the vehicle miles traveled (VMT) by more than 1.7 billion miles over the life of the project. **Appendix B** provides the benefit-cost analysis (BCA), which includes the VMT reduction calculation and quantified benefits.

4.2 B) Supporting Economic Vitality at the National and Regional Levels (Large Project)

The **Port of Baltimore Electrification and Resiliency Project** is cost effective, as indicated in the BCA¹⁴ (**Appendix B**) and summarized in the following text. The project will provide additional cargo capacity at the Port, preventing the diversion of cargo bound for the Metropolitan Washington, D.C. area from other ports; will provide enabling infrastructure for additional refrigerated container cargo; will install concrete runways for eRTGs; and will protect a shoreline around a proposed empty container depot that is vulnerable to climate change impacts. This project's monetized benefits are summarized as follows, with a full BCA undertaken in accordance with USDOT requirements in **Appendix B**:

1. **Determination of the Safety Benefits** which results from the savings in the truck travel distance and resulting vehicle miles traveled (and ton-miles) to serve the consumption markets served by the Seagirt Marine Terminal compared to the use of the container terminals at the Port Authority of New York/New Jersey that would occur without the completion of the project.
2. **Determination of Environmental Benefits** which results from the savings in the truck travel distance and resulting vehicle miles traveled (and ton-miles) to serve the consumption markets served by the Seagirt Marine Terminal compared to the use of the container terminals at the Port Authority of New York/New Jersey that would occur without the completion of the project.

The reduction in truck idling time by 16 minutes with the project will also result in the reduction of emissions.

3. **Determination of External Trucking and National Infrastructure Benefits** which results from the savings in the truck travel distance and resulting vehicle miles traveled (and ton-miles) to serve the consumption markets served by the Seagirt Marine Terminal compared to the use of the container terminals at the Port Authority of New York/New Jersey that would occur without the completion of the project.
4. **Determination of Economic Competitiveness Benefits** which results from the savings in the truck travel distance and resulting vehicle miles traveled (and ton-miles) to serve the consumption markets served by the Seagirt Marine Terminal compared to the use of the container terminals at the Port Authority of New York/New Jersey that would occur without the completion of the project.

Economic Competitiveness Benefits will also result from the reduced fuel consumed due to the reduced time of idling, and further in terms of trucker time savings, due to the reduced time in terminal per gate move under the completion of the project. These benefits can be viewed as economic competitiveness benefits, as the reduced trucker time in terminal will lower the overall cost to serve the Port of Baltimore, due to lower fuel costs and less trucker time dedicated to idling prior to container retrieval or discharge at the gates.

¹² National Highway Traffic Safety Administration (NHTSA). 2015. *Traffic Safety Facts 2015 Data – Large Trucks*. DOT HS 812 373. February. <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812373>.

¹³ U.S. Department of Transportation Maritime Administration. 2011. *America's Marine Highway Report to Congress*. April. <https://www.maritime.dot.gov/sites/marad.dot.gov/files/docs/intermodal-systems/marine-highways/3051/maradamhreporttocongress.pdf>.

¹⁴ Martin Associates. 2023. *Seagirt Marine Terminal Enhancement Project*. Prepared for the Maryland Port Administration. April 26.



These benefits are quantified over a 20-year period (2023-2043). It is assumed that project will be completed by 2029, with the capacity of Seagirt increased from 1.2 million TEUS currently to 1.9 million TEUS by 2029. The year 2021 is used as base year 0 in both the benefits and the cost calculations and discounting, as stipulated in the “Benefit-Cost Analysis Guidance for Discretionary Grant Programs”, U.S. Department of Transportation, January 2023. All benefits are estimated using monetized values prescribed by USDOT or, where specific guidance was not provided, standard industry practice as detailed in **Appendix B. Table 4-1** provides a high-level summary for BCA, and **Appendix B** outlines methods, data, and assumptions. The full BCA model is included in the submission.

Table 4-1 – Benefit-Cost Analysis Summary

Current Status/Baseline and Problem to be Addressed	Baltimore’s Seagirt Marine Terminal has completed other terminal improvements to allow two Ultra Large Container Vessels to berth at once, add container storage using electrified yard cranes, and increased gate capacity and truck velocity through the gates. However, current supply chain issues and changes in consumer preferences have led to significantly increased cargo volumes, requiring additional containerized cargo capacity. Without these improvements, the Port of Baltimore will not reach its full potential to electrify container yard operations, reach its container capacity thereby limiting future growth, and face the potential of severe erosion of its shoreline.	
Change to Baseline/ Alternatives	With the completion of the Container Yard Densification and Electrification Project Element, the container yard capacity would be increased to 1.9 million TEUS by 2029, from the current yard capacity of 1.2 million TEUS. As a result, Seagirt would be able to accommodate the projected container throughput though the year 2041, and the containers projected to be lost to New York marine terminals under the without project scenario would not be diverted to New York through the year 2041. However, in 2041, the 1.9 million TEU capacity is projected to be reached and would result in a diversion of 101,301 TEUs in 2041, growing to 204,307 TEUS by 2043, the end of the 20-year project period under consideration. As a result of the project, the TEUS would not be diverted to New York container terminals until 2041, resulting in the savings of vehicle miles traveled and ton-miles traveled from 2026 to 2041, with the project completion. Furthermore, with the completion of the Container Yard Densification and Electrification Project Element, truck time in the terminal would be reduced by about 16 minutes, resulting in the reduction of emissions.	
Type of Impacts	1. Reduced emissions 2. Reduced traffic accidents and injuries 3. Reduced truck operating costs 4. Economic competitiveness	
Population Affected by Impacts	Residents and communities (including the HDC and opportunity area), consumers, businesses in the region, and businesses throughout the US	
Economic Benefit	Benefit	Net Benefits at 7% Discount Rate
	EMISSIONS	\$321,494,583.58
	SAFETY	\$56,053,770.76
	EXTERNAL TRUCK	\$85,630,651.21
	ECONOMIC COMPETITIVENESS	\$301,298,706.00
	TOTAL BENEFITS	\$764,477,711.55



Summary of Results	Result	Present Value at 7% Discount Rate
	Total Discounted Benefit	\$764,477,711.55
	Total Discounted Costs	\$34,974,992.38
	Benefit-Cost Ratio	21.86
Reference	Appendix B	

The competitive benefit-cost ratio reflects the reduction in truck traffic on the nation's highways, in turn resulting in significant environmental benefits, safety benefits, external truck benefits, and economic competitive benefits. Using a 7% discount rate, the project has a 21.86 benefit cost ratio, underscoring the strong economic value to the nation, particularly in terms of reducing carbon footprint and enhancing the economic competitiveness to the nation's exporters and importers by completing the Project.

Non-monetized Benefits

The **Port of Baltimore Electrification and Resiliency Project** includes many other benefits that have not been monetized and captured in the BCA model but provide significant value to the region and nation.

Increasing Competitiveness of the Port of Baltimore

The Port is one of few U.S. east coast ports currently unable to service double-stacked rail cars. The Howard Street Tunnel Project (construction of which is currently scheduled for Q4 2025) will allow Seagirt to process double-stacked trains in the future, gaining a competitive advantage for intermodal rail handling. PAC performed a detailed yard study¹⁵ to determine the most feasible container yard concept, the one included in the **Port of Baltimore Electrification and Resiliency Project**, which will be able to support the anticipated volume of 1.4 million containers. Through other projects and investments, Seagirt's share of international rail is expected to increase to 15% of the terminal's throughput, whereas the share of domestic rail is expected to increase to 10% of terminal's throughput.

State of Good Repair

Currently, PAC operates top picks for the container-handling equipment in the yard on asphalt paving. By installing the new reinforced concrete, eRTG runways will eliminate the need, and the \$441,000 cost, to resurface the asphalt paving every 3 years. The container-handling equipment (such as trucks and RTGs) currently require significant maintenance because of operating on poor, uneven pavements with potholes and major settlement. The container-handling equipment will require less maintenance due to the new paving runways

Job Creation

This project has the potential to attract new ocean carrier services, improve supply-chain efficiency, and create new jobs and additional personal income. It is a unionized public Port providing family-supporting wages and benefits to members of the International Longshoremen's Association.

Beyond the direct economic benefits of the proposed project, the project will generate a multiplier or domino effect - as the improvements are constructed and more employees are hired, Port productivity will increase. As Port productivity increases, Seagirt will continue to become more cost competitive, enhancing its ability to capture and sustain an increasing share of cargo volume and create additional jobs.

Maintaining Existing Trade and Supporting Trade Growth

Seagirt (and the Port) is nearing its containerized cargo capacity. The **Port of Baltimore Electrification and Resiliency Project**, therefore, will not only allow Seagirt to meet demand by providing capacity, but will do so in an environmentally and socially conscious way. The additional reefer racks will enable growth in export of refrigerated container units, one of the fastest growing subsegments of container terminals.

¹⁵ Ports America Chesapeake, LLC (PAC). 2021. *Ports America Baltimore Rail and Gate Planning and Simulation Study*. TBA. April.



Other Environmental Benefits

The RTGs in the container yard are electric, whereas the current top picks they are replacing are diesel. Without expansion of the electrified reefer racks, Seagirt would be required to use diesel generators that contribute to emissions. The improvements will lead to further reductions in emissions and noise. None of these emissions or noise reduction benefits have been captured in the BCA.

Supply Chain Security

There are new port developments and expansions are underway along the U.S. East Coast and Canada. By providing an economically competitive Port to offload discretionary goods, such as agricultural imports and exports from U.S. rural areas, within the U.S. rather than Canada, the security of the national and regional supply chain will be maintained.

Sustainable Development

All work will consider sustainable development guidelines and industry best practices for sustainability. MPA and PAC are committed to sustainably accommodating volume growth business while seeking to eliminate detrimental effects on resources and the ecosystem and contributing to the economic development of its communities. Sustainable practices during construction include the following:

- Minimize the impact to the environment, particularly by implementing Best Management Practices for stormwater management, reducing air pollution, minimizing waste, increasing recycling, and reducing other environmental nuisances including noise and light pollution that may affect neighboring communities and the environment. Particular attention will be paid to encouraging the use of emission-efficient construction equipment and limiting construction activities to certain periods. All efforts will be made to encourage the use of public transportation for staff. As part of the Leadership in Energy and Environmental Design (LEED) certification process, construction sustainability includes reducing construction and demolition waste material.
- Recycle and encourage the use of demolition materials for beneficial use, as PAC's parent company, Ports America Inc., has a strong history of doing. More than 85% of a recent demolition project's waste material was either recycled or reused for other developments.
- Improve the quality of life in neighboring communities by promoting constant engagement and offering prevailing wages and equal opportunity.
- Ensure and improve the quality of human life by offering a construction environment where zero harm to workers, visitors, and the public is the highest priority.
- Provide adequate corporate governance and processes to monitor and guide sustainable goals while maintaining proper accountability.
- Incorporate resiliency practices into all processes, including construction, working to ensure that no effort or resource is affected or wasted due to natural disasters during the construction period. This includes storing construction materials in areas that are not sensitive to frequent flooding, planning for backup power, etc.

Expected Users or Beneficiaries

The public in the greater Washington/Baltimore Metropolitan area will be the primary beneficiary of the **Port of Baltimore Electrification and Resiliency Project** because as the goods they purchase will be able to come directly into the region.

The community surrounding the Port of Baltimore is affected by congested streets and highways carrying an ever-increasing number of trucks to and from Seagirt. The mixed use of passenger and truck traffic in congested conditions presents safety concerns for the public and motor carrier communities. The reduction in truck traffic that this project provides will reduce traffic congestion on the local roads.

Container vessels, container-handling equipment, and diesel truck emissions negatively affect air quality. These conditions will worsen as container volumes grow. This project will reduce harmful emissions by



shifting a portion of the truck volumes to other transportation modes, thereby benefiting residents, port workers, and businesses. This project's completed design also includes provisions for future electrification of the RTGs, reducing emissions from container-handling equipment.

The region is home to an ever-growing number of logistics hubs, industrial parks, and distribution centers that serve consumers in Baltimore, Washington, the Mid-Atlantic, and the U.S. East Coast. This project will support millions of consumers who rely on food and goods shipped through the Port.

The **Port of Baltimore Electrification and Resiliency Project** will create high-paying jobs in Baltimore City, a Historically Disadvantaged Community and Area of Persistent Poverty. The increased cargo demand will allow PAC to retain 785 FTEs and directly hire additional well-paid employees. In addition to the direct jobs, indirect jobs in the immediate vicinity and surrounding rural areas will multiply well beyond those gained at Seagirt.

Rural communities will benefit from the project because exported and imported cargo from and bound for these areas often passes through Seagirt. The national economy will directly benefit from increased freight volume. This project supports the forecasted increased volumes by allowing Seagirt to handle freight volume on the terminal and prevent congestion on the roads.

As summarized in **Section 2**, the **Port of Baltimore Electrification and Resiliency Project** is in Baltimore City, Maryland, an economically distressed region with higher-than-average unemployment rates and an Area of Persistent Poverty with more than 20% of the population below poverty. This project will not only increase the number of good-paying jobs and reduce harmful emissions, noise, and congestion, but it will reduce the cost to ship goods to and from the region and the broader U.S.

4.3 C) Leveraging Federal Funding to Attract Non-Federal Sources of Infrastructure Investment

This project continues MPA's successful P3 and, with the addition of the Federal dollar, accelerates delivery of a critical and beneficial project, saving limited funds for further investment. As noted earlier, there is a significant non-Federal match, with committed and reliable private and state funding sources. This project also leverages major local, state, Federal, and private sector infrastructure projects, and initiatives, a few of which are summarized in the following subsections.

Significant Regional Projects and Initiatives

Howard Street Tunnel Project

As container traffic through the Port of Baltimore continues to grow, one of the major obstacles to providing a viable rail transport option into and out of the region has been clearance restrictions that did not allow double stacking of containers. Reconstruction of the 8,700-foot, 126-year-old Howard Street Tunnel that runs beneath the heart of the City of Baltimore is critical to expanding capacity for freight transportation in the I-95 corridor and addressing a longtime bottleneck in its rail network. The Howard Street Tunnel Project will improve rail clearances at the tunnel and 22 other locations where obstructions exist and is the last major impediment for the rail network to accommodate full, double-train rail service along the CSX I-95 corridor between Baltimore and Philadelphia. By allowing double-stacked trains to access the Port, the project will increase efficiencies and capacity for commercial train traffic and will facilitate business growth between the Port and the Northeast and Midwestern markets.

MPA, CSX, the State of Pennsylvania, and the Federal government are funding the \$466 million project and have completed environmental reviews¹⁶ with a Finding of No Significant Impact issued in June 2021.¹⁷ Construction will be completed in stages, with final completion anticipated in Q4 2025. The project is funded by \$202.5 million from the State of Maryland, \$125 million from a USDOT Infrastructure for

¹⁶ Maryland Port Administration (MPA). n.d. *Howard Street Tunnel Project*. Accessed May 1, 2022. <https://mpa.maryland.gov/Pages/hst.aspx>.

¹⁷ U.S. Department of Transportation (USDOT) Federal Railroad Administration and Maryland Department of Transportation (MDOT) Maryland Port Administration (MPA). 2021. *Howard Street Tunnel Project, Finding of No Significant Impact*. June. <https://mpa.maryland.gov/Documents/hst/HSTFONSI20210622FinalpdfUApdFA.pdf>.



Rebuilding America (INFRA) grant, \$116 million from CSX, \$22.5 million from the State of Pennsylvania, and \$3 million in Federal highway formula funding.

Baltimore Harbor Deepening Project

USACE, in conjunction with the MPA, has invested hundreds of millions of dollars to deepen the Port's harbors and channels to 50-foot depths, providing ULCVs vessels access to Seagirt and other cargo terminals within the Port.¹⁸

M-95 Marine Highway

Although the Federal government, state agencies, and private entities are investing in Baltimore's ability to handle these much larger vessels and additional cargo, many ports on the East Coast will not be able to handle these ships, necessitating a short sea route via barge or feeder vessels. The Port is specifically listed as a port of call on the MARAD-designated M-95 Marine Highway.¹⁹

Complementary Seagirt Projects

This **Port of Baltimore Electrification and Resiliency Project** is part of a larger plan to expand Seagirt's capacity and modernize and enhance operations, safety, and efficiency. PAC and MPA have spent more than \$350 million in capital expenditure since 2010 and committed over \$235 million more. Assuming completion of this project, PAC plans to spend over \$500 million to upgrade and improve the terminal. The following text summarizes other key projects.

Seagirt Marine Terminal Berth 3 Modernization P3 Project

This project consisted of increasing the ULCV-capable berths from one to two and used funds from MPA, PAC, and USDOT through an FY 2018 BUILD grant. The BUILD grant also includes the construction of new RTG runways, which support the RTG Electrification Project detailed later in this section. The berth upgrades were completed in 2022, and the runways are under construction as of the time of this application and are expected to be completed and fully operational by July 2023.

Terminal Operating System Upgrades Project

The Terminal Operating System (TOS) is the information technology system that ports use to control the movement of containers into, through, and out of the terminal. PAC implemented the latest, state-of-the-art system, Navis N4, which allows Seagirt to continue leveraging technology with increased transparency and capabilities. In addition, various yard technologies will continue to be deployed to increase visibility to yard flows and allow aggressive management with equipment and labor to help reduce congestion, decrease truck turn times, and increase safety.

Main Gate Upgrades Project

PAC invested \$1.5 million into the Seagirt main truck gate to increase truck flow and reduce truck turn times. The gate included an optical character recognition building that continuously captures truck license plate, chassis, and container numbers, as well as a radio frequency identification tag during truck arrivals. A weigh-in-motion scale was installed to allow inbound trucks to be weighed without stopping on a conventional static scale. By reducing stops, the time that each truck spends in the terminal is reduced, thereby increasing cargo velocity, and benefiting local truckers by increasing their turn times.

RTG Electrification Project

PAC is in the process of converting from a split top loader and RTG operation to a purely RTG operation. This process focuses on the benefits associated with electrification of RTG equipment, which include reduced emissions, noise, operating costs, and maintenance and repair costs compared with diesel equipment. The **Port of Baltimore Electrification and Resiliency Project** builds on this start by adding

¹⁸ U.S. Army Corps of Engineers (USACE) Baltimore District. 2006. Fact Sheet: Baltimore Harbor & Channels, Maryland, and Virginia. January. <https://www.nab.usace.army.mil/Portals/63/docs/Navigation/1LP/Map/map.pdf>.

¹⁹ U.S. Department of Transportation Marine Administration (MARAD). 2021. America's Marine Highway Route Designations. April. [https://cms.marad.dot.gov/sites/marad.dot.gov/files/2021-04/Route Designation one-pagers Apr 2021.pdf](https://cms.marad.dot.gov/sites/marad.dot.gov/files/2021-04/Route%20Designation%20one-pagers%20Apr%202021.pdf).



**Maryland Port Administration
Port of Baltimore Electrification and Resiliency Project
FY 2023 PIDP Grant Application**

more RTG runways, enabling further conversion to electrified equipment. In addition to these projects, PAC and MPA have invested significantly in a multitude of complementary projects (**Table 4-2**).

Table 4-2 – Most Significant Recent and Ongoing Projects at Seagirt

Project Description	Project Dates	Funding Type	Amount (\$million)
Build new ULCV-capable Berth 4	2010–2012	Bonds issued by PAC	55.7
Purchase four ULCV-capable, ship-to-shore cranes	2010–2012	Bonds issued by PAC	39.5
Terminal electric upgrades	2012–2013	Bonds issued by PAC	0.8
Purchase four RTGs	2014–2015	Bonds issued by PAC	2.5
Seagirt Access Channel Widening	2015	State funding	9.8
Land acquisition for 39-acre expansion	2017	State funding	53.6
Purchase six RTGs	2017–2018	Bonds issued by PAC/PAC cash	12.0
Vail Street Gate	2017–2018	PAC cash	1.0
Navis N4 Terminal Operating System implementation	2017–2018	PAC cash	3.0
Purchase new terminal operating equipment	2018–2019	PAC cash	15.0
Purchase new RTGs	2018–2020	Bonds issued by PAC	24.0
Berths 2 and 3 capital repairs	2018–2020	PAC cash	2.8
Purchase new terminal operating equipment	2019	PAC cash	25.0
Purchase new terminal operating equipment	2021	PAC cash	16.3
Purchase 15 new electric / hybrid RTGs	2021	PAC cash	43.0
Berth 3 Modernization, 4 x New Super-post Panamax Ship-to-Shore Cranes, medium voltage upgrades	2018–2022	Bonds issued by PAC, FY 2018 BUILD Grant, and state funding	142.0
Yard densification and electrification – Phase 1: H-Row concrete runways and electrical busbar	2022–2023	PAC cash	5.0
Gate upgrades to inbound gate (paperless, pre-advise) and new outbound gate at Vail Street	2022–2023	PAC cash	3.0

4.4 D) Port Resilience

U.S. East Coast ports are receiving larger vessels uniformly. Although these vessels have a positive impact on environmental emissions, the large vessels tend to discharge many more containers at a given time and spend longer times at berth. When poor weather moves into a single port, the entire supply chain can be disrupted. This has been seen repeatedly in the fall and spring with dense fog impacting container vessel movement into and out of the Port of New York and New Jersey. Vessels need alternate places to go to prevent the stoppage of goods. Additional cargo capacity at Seagirt will provide resiliency in the U.S. East Coast port system and provide an alternate location to go if a harbor is negatively impacted by a storm event, such as a hurricane.



5 SELECTION CONSIDERATIONS

5.1 E) Climate Change and Sustainability

The Port remains committed to closely aligning its goals and accomplishments with the stewardship of Maryland's ecological resources and the wellbeing of neighboring communities. This project recognizes the synergy between environmental compliance, initiatives exceeding compliance, community engagement, effective cost management, and operations efficiencies at the Port.

Reduced Air Pollution

This project will reduce truck emissions by preventing a major increase in VMT. This benefit is realized through increased installation of infrastructure to support electric container-handling equipment and refrigerated container plugs, use of the intermodal rail yard, reduction in truck wait time with the empty depot, and increased proximity to the market by attracting new services. The BCA in **Appendix B** outlines in more detail and quantifies the benefits. The truck-based reduction in VMT will also reduce noise on the region's roadways.

Green Technology

MPA and PAC are committed to the implementation of green technology in its operations. The new container-handling equipment will have the latest energy-saving technology, such as power regeneration when lowering containers or braking.

State of Good Repair

Currently, PAC operates top picks for the container-handling equipment in the yard on asphalt paving. The new reinforced concrete eRTG runways have a design life of 30 years, eliminating the need to spend \$441,000 on resurfacing the asphalt paving on the runway footprint (which is 7 feet wide by 31,500 feet long) every 3 years. The container-handling equipment (such as trucks and RTGs) currently require significant maintenance because of operating on poor, uneven pavements with potholes and major settlement. Because of the new pavements and eRTG runways, the container-handling equipment will require less maintenance.

Living Shoreline

The proposed project component involves removing of the existing deteriorated seawall and timber bulkhead along Colgate Creek and replacing with a living shoreline design to stabilize and protect the shoreline and provide ecological uplift. The work includes installation of a stone sill in the water along the shoreline to retain and protect the new marsh area, constructed with sandy fill material, and planted with various high and low marsh plantings. A flood barrier will also be installed to protect from storm surge, and storm drain outfalls will be integrated into the living shoreline to maintain drainage from the adjacent upland area. This design is the most environmentally friendly and will provide protection for years to come.

This location provides a significant opportunity to use current and developing nature-based restoration knowledge to develop climate resiliency while starting the process of restoring natural function to a hardened shoreline using sustainable sediment sources. Future climate projections show that this area will be prone to worsened flooding as sea levels rise in 2050 and 2100 scenarios. A restored shoreline would help achieve safety and improve reliability on nearby roadways that could face inundation as sea levels rise and storms become more severe. The Maryland Department of Natural Resources reported that there are no State or Federal records for rare, threatened, or endangered species within the boundaries of the project site; however, they did indicate that the open waters adjacent to or part of the site are known historical waterfowl concentration areas. Colgate Creek is a Use I and II stream, and Patapsco River is a Use II stream, which means they are important for water contact recreation, protection of non-tidal warmwater aquatic life and the support of estuarine, and marine aquatic life and shellfish harvesting. Because of the current condition of the Colgate Creek shoreline, restoration improvements will be beneficial in this location. A living shoreline would act to protect and restore ecological value at a site at risk of degradation from climate change impacts such as increased precipitation events, sea level rise, and storm surge. Projected sea level



rise in the Chesapeake region is occurring at a faster rate than any other location on the Atlantic coast of the United States and is a major threat to tidal marsh ecosystems as well as infrastructure, with expected water elevation increases of 1.2 to 2.3 feet by 2050. This project will serve as an example of how to create a sustainable future involving ecological restoration and climate resiliency using sustainable sediment resources in areas adjacent to socially vulnerable populations. The design will also incorporate expected sea level rise and storm surge projections, as well as opportunities for the future marsh elevation resiliency through addition of sediment with innovative techniques, such as thin layer placement. These portions of the project will be defined within an Adaptive Management Plan for the site that stakeholders can use as a template for future improvements based upon actual sea level rise over time.

EcoPort

Projects and priorities at the Port are closely aligned with the stewardship of Maryland's natural resources and the wellbeing of neighboring communities. MPA is committed to being a good neighbor to all the communities that surround its terminal operations and are also committed to meeting its obligations for improved air and water quality, reduction of impacts to the Patapsco River and the Chesapeake Bay, and sound environmental management for dredging projects. MPA is working to reduce diesel emissions, manage stormwater in a responsible manner, become more energy efficient, and offset environmental impacts from port operations with green projects that meet stewardship goals and provide community benefits. Through its **EcoPort** initiative, Port leaders, employees, tenants, and community volunteers work together to meet more stringent environmental standards and deliver excellent results.

Environmental Justice

The USDOT's Screening Tool²⁰ identifies Baltimore City as Disadvantaged in Sustainable Housing, Legacy Pollution, Clean Water and Wastewater Infrastructure, Health Burdens, and Workforce Development. The U.S. Environmental Protection Agency's (EPA's) EJSCREEN tool identifies Baltimore City as high in a multitude of indicators, such as Demographic Index, People of Color, Low Income, Unemployment Rate, Less Than a High School Education, Diesel Particulate Matter, Air Toxics, Particulate Matter, and Traffic Proximity. This project will improve the various indicators by creating stable, high-paying jobs, reducing truck traffic and associated emissions, and electrifying terminal operations.

5.2 F) Equity and Justice⁴⁰

The Port remains committed to closely aligning its goals and accomplishments with the wellbeing of neighboring communities, advancing racial equity, and reducing barriers to opportunity. This project supports these initiatives through job creation, community engagement, and quality-of-life improvements in the neighborhoods surrounding the Port.

DBE Goals

MDOT, and its modal agencies that include MPA, partners with Disadvantaged Business Enterprises (DBEs) (to deliver projects like this **Port of Baltimore Electrification and Resiliency Project**. MPA looks at each contract individually based on the exact contract bid items, quantities, etc., and then compares that information with the available DBE subcontractors in the geographic area of the state for each bid item. This information is used along with other factors to determine the DBE goal for each specific contract. Recent community enhancement contracts have yielded DBE goals in the range of 12% to 25%. Because this project is in Baltimore City, MPA anticipates that the DBE goal for this contract will likely be higher.

Justice⁴⁰

The project team will provide education and outreach opportunities to stakeholders to solidify essential community buy-in of the project objectives. The project will support goal IN-12 of the City of Baltimore's Disaster Preparedness and Planning Project to enhance the resiliency of the City's waterfront to better adapt to impacts from hazard events and climate change. Opportunities to increase accessibility, safety, and mobility to evacuation routes and key emergency facilities during and after extreme weather events will be

²⁰ <https://ejscreen.epa.gov/mapper/>



discussed with the adjacent underserved communities. Risks from sea level rise and storm surge disproportionately affect different socioeconomic populations, with higher property damage and lower protection investments being deployed in socially vulnerable communities, as identified by various Social Vulnerability Indices. It is important to MPA to continue to improve not only the environmental resources on and adjacent to its property, but also be a positive steward of environmental justice and provide opportunities to focus investments on underserved communities in ways that mitigate negative impacts of climate change, pollution, and environmental hazards.

As part of the Justice40 Federal Initiative, there is a goal that 40% of the overall benefits of federal investments go to disadvantaged communities. The commitment of Justice40 was created by President Biden with Executive Order 14008 to reverse decades of underinvestment in burdened communities. Justice40 Federal Initiatives include investments toward combating climate change, remediation and reduction of legacy pollution, and development of critical clean water and wastewater infrastructure. The living shoreline would help to clean water in Colgate Creek and the Patapsco River, reduce the effects of future sea level rise, store carbon, and act as a natural filter for pollution, legacy, or otherwise. Combined, these positive effects would help to build resilience in the vulnerable community.

Using EPA's EJSCREEN tool, a geospatial mapping tool used to identify disadvantaged communities that are marginalized, underserved, and overburdened by pollution, the census tract containing the potential shoreline restoration is identified as a disadvantaged community. The tract is identified as disadvantaged because it meets burden thresholds for health, housing, legacy pollution, water and wastewater, and workforce development, and meets the associated socioeconomic threshold to be considered a burdened community. Socioeconomically, the community is in the 94th percentile for households with income that is less than twice the federal poverty level. The community is in the 94th percentile for the number of unemployed people as a part of the labor force, and 33% of the community are people 25 years or older without a high school diploma. The community is above the 90th percentile for communities that have asthma, heart disease, and low life expectancy. The share of households that make less than 80% of the area median family income and spend more than 30% of income on housing is above the 90th percentile. In the vicinity of the community, the count of hazardous waste facilities, the count of Risk Management Plan facilities, and the count of Superfund sites are all above the 90th percentile for a community. Wastewater discharges within the community are modeled to be above the 90th percentile for toxic concentrations at parts of streams. By investing in this community as part of Justice40, it would be an essential step toward promoting environmental justice and addressing the disproportionate impacts of environmental degradation on burdened communities. The living shoreline would help restore and protect the natural environment, improve water quality, protect against erosion, and bring economic benefits to the community.

The Maryland Department of the Environment (MDE) developed the Socioeconomic Environmental Justice Score to highlight underserved communities within Maryland. The Socioeconomic Environmental Justice Score is calculated using three key indicators: percentage minority population, percentage of households impoverished, and percentage of households with limited English proficiency. The Point Breeze neighborhood immediately surrounding the potential project location has a population of 5,080 people as of the 2020 Census. Of that population, 33% are a member of a minority population and 63.3% of households are impoverished. Minority population is defined as individuals who do not identify as non-Hispanic White, and impoverished households are those whose income is less than 200% of the federal poverty threshold. Of the households, 7.6% have limited English proficiency. A limited English-speaking household is one in which no member older than 14 years of age speaks English proficiently. All these factors combined place the Point Breeze neighborhood in the 74th percentile for MDE's socioeconomic score, with three quarters of the state having better overall socioeconomic conditions compared with Point Breeze. Protecting this underserved community's shoreline from worsened future flooding because of climate change is important to ensure that building up resilience in Baltimore is equitable and protects those who are most vulnerable.

MPA will coordinate with various resource agencies and local stakeholder groups to solicit input and provide review opportunities. Key participants include MDE, the USACE Research and Development



Center team of coastal restoration experts, Maryland Department of Natural Resources, and U.S. Fish and Wildlife Service. Conducting early regulatory agency coordination will generate buy-in from and facilitate engagement with permitting agencies. It will also provide opportunities to better inform data and refine site hydrology and hydraulic modeling, which are key to developing a reasonable, permittable, and implementable design. The project team will engage additional stakeholders including Baltimore City and the adjacent underserved communities. The project team will establish frequent stakeholder communication events or workshops to ensure project objectives meet stakeholder needs and will maintain open communication that provides educational outreach opportunities to solidify essential stakeholder and community buy-in of the project objectives.

5.3 G) Workforce Development, Job Quality, and Wealth Creation

Baltimore City is an Area of Persistent Poverty with a predominantly Black population, which experiences more acute systematic problems than lower-poverty areas. In addition to the monetized benefits included in the BCA, the **Port of Baltimore Electrification and Resiliency Project** would benefit this area through the previously created workforce development and job training program in use at the Port today. This project will help address the racial inequity and barriers to opportunity by increasing employment opportunities and training the population to be a better fit for other opportunities. In addition, MPA and PAC have provided a federal wage rate certification, see **Appendix F**.

Property values may increase by improving the future quality of life in the neighborhoods near the Seagirt Marine Terminal due to the reduced numbers of ships required to move the same volume of freight compared with the baseline. By moving more freight with fewer larger ships, the nearby neighborhoods would benefit from improved air quality standards (larger ships are more energy efficient on a per-container basis than smaller vessels), noise control, and improved marine channel safety and congestion concerns. These property value-increasing benefits are difficult to quantify and, therefore, are not included in the BCA.

Civil Rights and Title VI

As a Transportation Business Unit within MDOT, MPA is committed to civil rights and compliance with Title VI. As evidenced by MPA's successful delivery of Federally funded projects, MPA is capable of and experienced in compliance with civil rights obligations and nondiscrimination laws, including Title VI of the Civil Rights Act of 1964 and implementing regulations (49 CFR part 21), the Americans with Disabilities Act of 1990 (ADA), Section 504 of the Rehabilitation Act, and all other civil rights requirements and accompanying regulations. MPA will develop a Title VI program plan and implement a Community Participation Plan.

6 PROJECT READINESS

MPA has the proven experience and expertise to deliver capital investment projects. With the award of an FY 2023 PIDP Grant, MPA can proceed through the anticipated project delivery timeline and ensure that the project is ready to obligate funds well in advance of the obligation date of September 30, 2026.

6.1 Technical Capacity

Capacity to Implement Project

The MPA has prepared this PIDP Grant Application to be in full compliance with USDOT's Notice of Funding Opportunity. The MPA has ongoing experience with USDOT Discretionary Grants and successfully executes capital projects of this size annually. The MPA also confirms that it has sufficient funds to ensure operations and maintenance of items funded under the PIDP Discretionary Grant that MPA will own or control. The MPA confirms that these funds are available only for this project and will remain available until the project is completed and closed out.

MPA and PAC are experienced in undertaking large infrastructure projects, delivering them on time and within budget, and meeting the project goals. For example, the privately funded 50-foot draft, 1,200-linear-foot Seagirt Berth 4 Project, opened in January 2013, ahead of schedule and under budget. MPA also



successfully managed a \$10 million USDOT FY 2014 Transportation Investment Generating Economic Recovery (TIGER) Grant for the Port of Baltimore Export Expansion Project that was closed out in September 2020. **Appendix F** includes letters from MPA and PAC committing to following Federal wage rate compliance.

MPA and PAC also have excellent records of successfully completing significant infrastructure projects on time, within budget, and in compliance with the procurement processes that accompany a federal grant award, all while maintaining an elevated level of operational performance in the terminal, including:

- FY 2021 Consolidated Rail Infrastructure and Safety Improvements (CRISI); \$15.8 million: The Port of Baltimore Rail Capacity Modernization Project is modernizing the terminal's intermodal rail yard infrastructure and supporting increased demand for double-stacked trains of containerized cargo to markets across the country.
- FY 2020 BUILD (\$10 million): The Resiliency and Flood Mitigation Improvements Project at Dundalk Marine Terminal Project will mitigate flooding and consequent damages caused by storm surge events at the terminal.
- FY 2019 INFRA (\$125 million): The Howard Street Tunnel Project, as described earlier in this narrative, will allow double-stacked trains to travel between Baltimore and Philadelphia. This project is currently in the NEPA stage.
- FY 2018 BUILD (\$6.6 million): The Seagirt Marine Terminal Berth 3 Modernization P3 Project will deepen and strengthen Berth 3 and provide associated container yard improvements for a second ULCV-capable berth. The berth construction is completed, and the concrete runways in the container yard will be completed by July 2023.
- FY 2013 TIGER (\$10 million): The Port of Baltimore Export Expansion Project, successfully closed out in 2020, expanded handling capacity at Fairfield Marine Terminal by filling in the obsolete West Basin and constructing a rail intermodal facility to handle expanded automotive export and imports.

The MPA also confirms that it has sufficient funds to ensure operations and maintenance of items funded under the PIDP Grant that MPA will own or control, and these funds are available only for this project and will remain available until the project is completed and closed out.

Engineering, Design, and Cost Estimate

Engineering for the **Project** and its components is underway. MPA, PAC, and their consultants all have considerable experience designing and planning terminals. The designs used for the **Port of Baltimore Electrification and Resiliency Project** include a basis of design specifically tailored to the site conditions and intended uses and have been proven to be effective and constructable. **Appendix G** includes the Technical Project Information. As the owner and approver, MPA is committed to efficiently working to review and approve the final design. **Appendix A** includes a Basis of Estimate.

Technical Feasibility

Container Yard Densification

New eRTG Runways

PAC currently operates diesel-powered RTG cranes and top pick equipment in the container storage yard, which is where the containers unloaded from and waiting to load onto vessels are stored and stacked. This project will upgrade the yard layout to allow the container yard to be densified, providing more container storage capacity on the same footprint, by using more RTG cranes versus top picks. This densification will add a total of eight import blocks, providing capacity for thousands of additional containers per year. Further, the yard layout is planned to accommodate eRTG cranes.

To balance berth and yard capacity, and leverage capacity and efficiency provided by the modernized Berth 2, improvements to enable the use of eRTGs are necessary because this type of equipment is more efficient (and safe) and can handle more cargo but imposes different loads into the pavement. Reinforced concrete

runways that are 7 feet wide by 1 foot deep will be installed to enable RTG operations. A total length of approximately 31,500 feet of concrete runways will be installed. **Figure 6-1** includes a typical RTG runway.

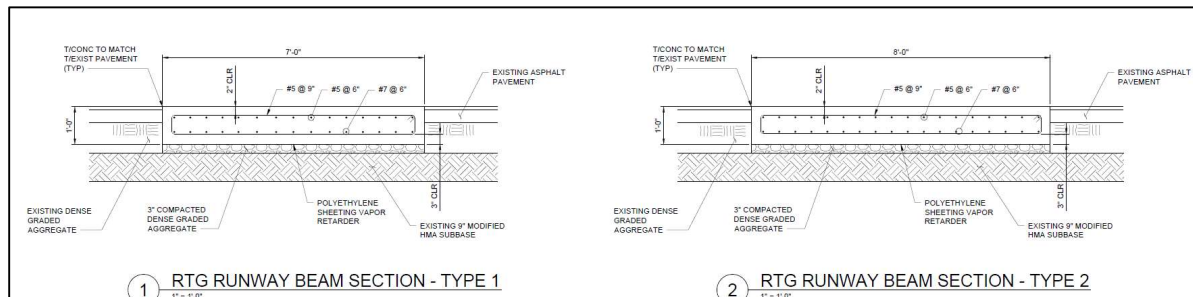


FIGURE 6-1 – DESIGNED ERTG RUNWAY CROSS SECTION²¹

Reefer Racks

Currently, a key area of growth for all container ports is the handling of refrigerated containers, otherwise known as reefers. A significant increase in both import and export of reefers has been seen, significantly in support of Midwestern agriculture, and additional electrified racks are needed to continue to support economic growth. Without racks, Seagirt would resort to diesel-driven generators, which are inefficient and less environmentally friendly.

Living Shoreline

The MPA has completed a 30% design and initial regulatory agency coordination for the Point Breeze shoreline restoration project. The proposed design that was developed as part of concept development includes demolition and removal of over 1,000 linear feet of existing concrete sea wall and timber substructure, and construction of a living shoreline. A stone sill is proposed in the water along the shoreline to retain and protect the new marsh area, which will be constructed with sandy fill material and planted with native tidal high and low marsh species. A flood wall barrier will also be installed along the upland to protect from storm surge, and storm drain outfalls will be integrated into the living shoreline to maintain drainage from the adjacent upland area. Upland utilities in the project area will be relocated as required.

Opportunities to use available resources of dredged sediment will be considered to install a living shoreline. This will provide habitat opportunities for aquatic and avian species, carbon storage, and resiliency to projected sea level rise at the site and adjacent areas.

This project will use nature-based features and sustainable sources to restore natural processes to a hardened stream bank, provide climate resiliency, improve upland drainage and stormwater management treatment facilities, increase habitat opportunities for aquatic and avian species, improve carbon sequestration, and reduce nutrient inputs to Colgate Creek. The following activities are being proposed to do so and to meet the desired project outcomes:

- Inventory existing site data, local / regional studies, and relevant engineering or restoration activities.
- Topography and bathymetry data will be collected. Additional data collection efforts will include an evaluation of the sediment source, habitat mapping, marsh migration corridors for future sea level rise, soil or geotechnical data, and design marsh elevation details. As part of the field assessment, drone imagery will also be collected for baseline monitoring and developing a communication video.
- The data will be examined, and an analysis of risks and threats will be developed through the compilation of a matrix table to prioritize risks or threats for the living shoreline creation and carbon storage opportunities linked to the project. As part of identifying and describing design opportunities, a detailed narrative and description of what the opportunity entails, including the opportunity objectives, challenges, obstacles, and costs/benefits likely faced during implementation, will also be

²¹ Jacobs. 2021. *Seagirt Densification Phase 1*. April.



developed. As applicable, other mitigation and adaptation techniques to improve the resiliency within the project area will also be evaluated.

- Develop final design documents including plans, specifications, and an estimate, which will include regulatory permit approval. These documents will provide the level of detail needed to identify a suitable sediment source, transfer of the sediment to the project site, placement activities, and then the proper monitoring and adaptation methods. Particular attention will be paid to constructability issues, such as consolidation of sediment and the marsh surface, pH/sulfides, and access/egress.
- Additional considerations will include existing utility abandonment/relocation plan, final storm drainage plans for the adjacent upland area, and general project coordination with any landside development plans.
- Prepare assessment report that defines restoration and resiliency opportunities along the shoreline.

Sections of the proposed Living Shoreline from the 30% design are included in **Figure 6-2** below.

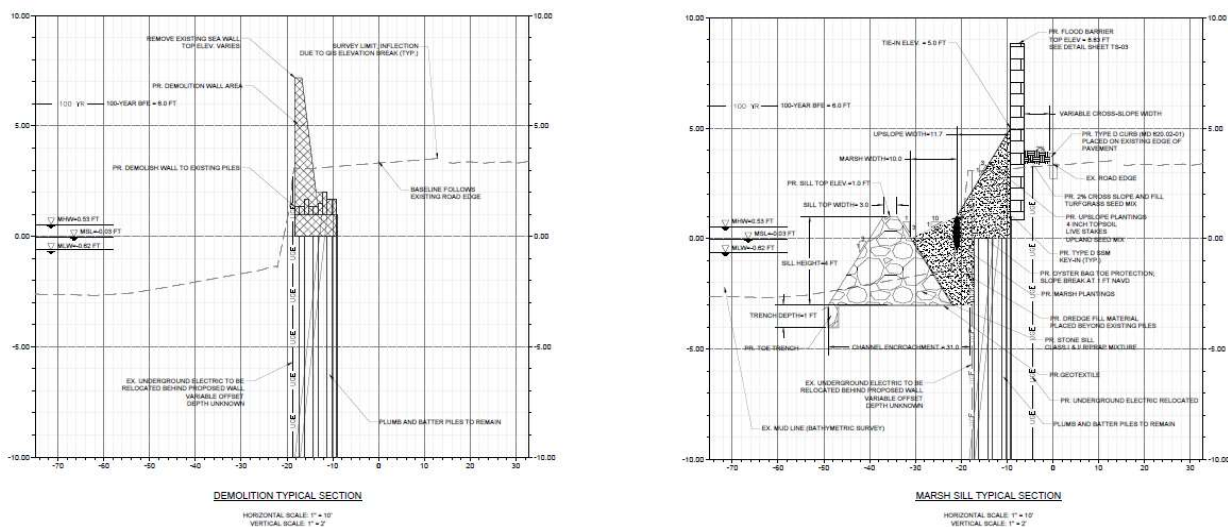


FIGURE 6-2 – LIVING SHORELINE TYPICAL SECTIONS²²

Project Schedule

MPA is confident that the project can be delivered within the FY 2023 PIDP requirements, including obligation of funds by September 30, 2025, and expending funds by September 20, 2030. **Appendix C** includes a project schedule.

Risk Mitigation

Table 6-1 includes an assessment of the project's potential risks and associated mitigation strategies.

Table 6-1 – Risk Analysis

Risk	Description	Risk Mitigation Strategy
Low	Market Risk – Lack of Demand	Seagirt is the Port of Baltimore's dedicated container terminal, and it is reaching capacity. With cargo growth exceeding the national average, Seagirt and the Port of Baltimore are at risk for inadequate capacity rather than inadequate demand.
Low	Non-Federal Funding Match	Non-Federal funding will be provided by MPA and PAC, both of which are committed to funding the project and operations and maintenance and have prepared commitment letters (Appendix E).

²² Straughan Environmental. 2023. *30% Design*. January. (Full documents are included in **Appendix G**.)



Table 6-1 – Risk Analysis

Risk	Description	Risk Mitigation Strategy
Low	Design and Construction Schedule	MPA, PAC, and their consultants have undertaken many similar projects recently, including ongoing, identical, container yard densification and electrification. Therefore, there is a high degree of confidence in the design and construction schedules and the ability to constructing around ongoing terminal operations. The current supply-chain issues are delaying projects, specifically around long-lead items. MPA, PAC, and their consultants have considerable experience designing infrastructure projects to enable alternative sources and will work with construction contractors on value engineering should supply-chain issues prevent timely availability. MPA and PAC will monitor and proactively identify alternatives should the schedule slip, such as procuring certain materials to be issued to the contractor.
Low	Contractor Availability and Qualifications	The scope of work requires highly specialized construction contractors, of which and there is a limited group locally. With the industry being busy and no shortage of upcoming infrastructure projects, there is a risk that there are limited responses to the requests for proposals for each project component. MPA and PAC have strong relationships with qualified contractors who have performed work at Seagirt and other MPA and PAC facilities, and MPA and PAC are confident that the project scope and relationships will yield industry interest. MPA and PAC will begin industry outreach early to allow potential contractors to allocate resources appropriately to this project and increase the likelihood of multiple bidders.
Low	Third-party Approvals	Other than local, state, and Federal permitting agencies, there are no third-party approval required. MPA and PAC, and their consultants, have demonstrated experience in successfully and expeditiously applying for permits and approvals. The mitigation is to accept this risk and to commence permitting as soon as possible.
Medium	USACE and MDE Permits	MDE has indicated that permits will fall under its general license, and USACE indicated that the permit will be a General Permit Category A. Public notice and Board of Public Works involvement, therefore, will not be required, and MPA does not anticipate issues with the permitting process. MPA, PAC, and their consultants will work closely with the agencies to obtain permits.
Medium	Construction Cost Overrun	PAC, MPA, and their consultants have a high degree of confidence in the construction cost estimates, based on similar, recent, and ongoing projects in the northeastern United States. Any cost overrun will be absorbed by PAC and MPA, or value engineering may be used to meet the estimated cost.

6.2 Environmental Approvals

National Environmental Policy Act

Container Yard

Because the issuance of a FY 2023 PIDP grant would be MARAD's only Federal action on this project for the upland work, MPA has not yet asked the USDOT for a NEPA review. However, MPA is confident that



a Categorical Exclusion will be the applicable NEPA review and that it can be completed quickly, as MPA and MARAD have done on prior grants.

Living Shoreline

Based on the positive environmental impacts of this project, it is expected that the NEPA review would also be a Categorical Exclusion. MPA is confident that it can expeditiously work with MARAD to complete the review.

Other Federal Approvals

A USACE Individual Permit (Section 404 Clean Water Act and Section 10 Rivers and Harbors Act) will be required for the Living Shoreline. MPA and its consultants routinely prepare successful USACE permits and have an excellent working relationship. MPA expects that the approval timeline will take 9-12 months. Based on the positive environmental benefits created and discussions with agencies to date, MPA does not anticipate that mitigation will be required. As part of the USACE permit, coordination with NOAA Fisheries will be required. The USACE permit may include in-water time-of-year work restrictions and coordination on shallow water habitat resources, and MPA's schedule has accounted for these restrictions.

USACE permits and approvals are not required for the container yard project.

USACE Investment

The project is not dependent on, or affected by, USACE investment.

State Permits and Approvals

The **Port of Baltimore Electrification and Resiliency Project** will be processed under MDE's general license. Public notice and Board of Public Works involvement, therefore, will not be required, and it is expected that permits will be obtained by the time the project is bid out.

Typical site development permits will be required as project designs are finalized, including Chesapeake Bay Critical Area and MDE stormwater management and erosion/sediment control plan approvals, which are expected to be authorized under the General Permit for Stormwater Associated with Construction Activity (No. 20-CP). PAC and MPA will also apply for wetlands licensing.

As a modal agency of MDOT, MPA's projects must be approved for capital funding by MDOT. This project is fully supported by MDOT, and if a PIDP Grant is awarded, it will be incorporated into the Consolidated Transportation Program (CTP), which is presented to the Maryland State Legislature for approval each year. Once the CTP is approved by the Maryland legislature, specific project approvals are not required. Because this project has the support of MDOT and elected officials because of its importance, CTP approval will be routine.

When a construction contract is advertised and released for bid by MPA, award is contingent on approval of the Maryland Board of Public Works. If state procurement regulations have been followed and Minority-Owned Business Enterprise goals complied with, the contract is usually approved and awarded.

Container Yard

Phase 1 of the container yard is currently under construction. MPA and PAC successfully obtained all permits. No further permits/approvals are expected other than stormwater, TAR, and electrical.

Living Shoreline

MPA anticipates that the following non-Federal permits/approvals will be required for the Living Shoreline:

- MDE Water Quality Certification (Section 401 Clean Water Act)
 - Approval timeline 6-9 months.
 - No major new discharges proposed, just construction activity.
- State Tidal Wetlands License
 - Approval timeline 9-12 months.



- Do not anticipate mitigation. Will require coordination with DNR. In-water time-of-year work restrictions expected.
- MDE Stormwater Management & Erosion and Sediment Plan Approval (for the landside disturbance)
 - Approval timeline 6-9 months.
 - Would not anticipate the shoreline work to trigger stormwater management treatment requirements. Erosion and sediment control plans are included in the 30% design drawings.
- Critical Area Commission approval
 - Approval timeline 4-6 months.
 - MDOT has an MOU with the Critical Area Commission and MPA has an Exhibit attachment under the MOU defining project submittal requirements and impacts requiring mitigation.
- 20-CP General Permit for Stormwater Associated with Construction Activity (for >1 ac disturbance)
 - Approval timeline 2-3 months.
 - Would apply for this after the ESC Plans are approved.

MPA, PAC, and their consultants routinely prepare and obtain permits and are familiar with the requirements, timelines, and conditions. MPA's schedule includes time to prepare and obtain these permits and MPA is confident in the proposed schedule and timing of the work.

Maryland Port Administration Tenant Alteration Request

MPA, the primary permitting agency, issues permits to its tenants through issuance of a Tenant Alteration Request, which is a formal review process of the design that requires submissions of engineering design documents (such as technical calculations, specifications, and drawings). MPA also checks for signed drawings and code compliance.

State and Local Planning

Baltimore's Metropolitan Planning Organization, Baltimore Regional Transportation Board, supports this project and will include it in its Transportation Improvement Plan should MPA be awarded a PIDP grant. The State of Maryland authorizes the Maryland Transportation Commission (MTC) to study the state's transportation system and advises the Secretary of Transportation and Department administrators on policy and programs. The MTC is fully supportive of this project.

National, Regional, State, Local, and Industry Support

The project has complete support from throughout the region and supply chain, as confirmed by the Letters of Support (**Appendix D**).

7 DOMESTIC PREFERENCE

The **Port of Baltimore Electrification and Resiliency Project** will be compliant with the *Build America, Buy America Act*, and materials and manufactured products used in this project will be manufactured domestically. Container-handling equipment and specialty items that typically require a waiver or are only available domestically at a higher cost (such as fenders or bollards) are not part of the project. Therefore, MPA will not require a waiver. MPA will include appropriate domestic preference requirements in its construction contracts and closely monitor all construction to ensure compliance as it has done on other Federally funded projects.

8 DETERMINATIONS

As demonstrated in the project narrative, the **Port of Baltimore Electrification and Resiliency Project** meets the determinations listed in **Table 8-1**, as specified in the Notice of Funding Opportunity.



Table 8-1 – Determinations Summary

Project 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.	This project's BCA recognizes the following benefits: 1. Reduced emissions 2. Reduced traffic accidents and injuries 3. Reduced truck operating costs 4. Economic competitiveness
2. The project is cost effective.	The project has a benefit-cost ratio of 21.86 at a 7% discount rate. This Project is financially feasible and provides a high benefit-to-cost ratio, underscoring the strong economic value to the nation, particularly in terms of reducing carbon footprint and enhancing the economic competitiveness to the nation's exporters and importers by completing the Seagirt Marine Terminal Environmental Enhancement Project. Additional details can be found in the BCA (Appendix B). The Project has an extraordinarily strong benefit-cost ratio, reflecting the cost of the project due to the reduction in truck traffic on the nation's highways, in turn resulting in significant environmental benefits, safety benefits, external truck benefits, and economic competitive benefits. This project, which uses and leverages significant private and state funding, has firm funding commitments from MPA and PAC. Both parties are confident that the project will enhance Seagirt's efficiency and operations and will maintain the improvements undertaken through this project.
3. The eligible applicant has the authority to carry out the project.	The MPA is a Transportation Business Unit within MDOT and, therefore, is eligible for a MARAD grant as a political subdivision of the state. MPA owns Seagirt and has the statue authority to carry out the project, as defined in the <i>Maryland Transportation Code</i> § 6-204 (2015) Subpart E.
4. The eligible applicant has sufficient funding available to meet the matching requirements.	The project has firm commitments from both state and private funding sources, as evidenced in the application and in funding commitment letters in Appendix E . The funding sources are committed to the long-term performance and maintenance of the facility, ensuring that Federal dollars provide benefit for years to come and for future generations.
5. The project will be completed without unreasonable delay.	MPA is confident, as shown in this application, that the project can be delivered within the FY 2023 PIDP requirements, including obligation of funds. Appendix C includes a project schedule.
6. The project cannot be easily and efficiently completed without Federal funding or financial assistance available to the project sponsor.	MPA and its private partner, PAC, have committed over \$30 million to the project. Without Federal funding, the project will be delayed indefinitely until additional funds are obtained or the project will be implanted in many phases, delaying the benefits, and increasing total costs.