GZA GeoEnvironmental Inc.

ProvPort 30-Year Master Plan

(2026–2056)

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1. Executive Summary

ProvPort is one of Rhode Island's most critical economic assets and one of New England's four strategically positioned working waterfronts. As industrial land becomes increasingly scarce across the region, and as supply chains recalibrate in response to global volatility, ports that can efficiently handle bulk and breakbulk cargos, support construction markets, and integrate clean energy infrastructure will define regional competitiveness for decades to come.

The ProvPort Master Plan establishes a clear, accountable, and financially grounded roadmap to ensure that ProvPort remains a competitive working port while meeting the City of Providence's expectations for environmental stewardship, climate resilience, community benefit, and long-term public accountability. This Master Plan translates a 30-year lease requirement into a practical, phased implementation framework that aligns port operations with City, state, and federal planning priorities—while protecting surrounding neighborhoods and strengthening Providence's role in the regional economy. The decisions made in the next decade will determine how ProvPort evolves into a strategic maritime industrial platform that strengthens Providence and Rhode Island's economic future through 2055.

ProvPort is a critical economic asset for Providence and Rhode Island, supporting hundreds of direct jobs, over a billion dollars in annual economic activity, and essential supply chains for construction materials, energy, recycling, and emerging clean-energy industries. At the same time, the port operates in close proximity to Washington Park and South Providence; communities that have historically borne a disproportionate share of industrial and environmental impacts. This Master Plan responds to both realities by setting a balanced course: modernize port infrastructure and operations, reduce environmental and public health burdens, invest in resilience, and formalize long-term community partnership and oversight.

This Master Plan while aspirational, is grounded in real-world market conditions and competitive positioning. A Regional analysis of peer ports across Southern New England demonstrates:

- Increasing demand for marine-served construction aggregates and bulk materials

- Limited remaining industrial waterfront capacity in the Providence region
- Challenges to offshore wind and renewable energy markets
- Trade and tariff shifts impacting bulk commodities and imported materials
- Growing importance of Environmental, Social, and Governance (ESG)-aligned industrial operations

ProvPort's long-term competitiveness depends on strengthening core industrial streams while selectively positioning for emerging market opportunities. The plan reflects these realities and aligns infrastructure investment with durable revenue-generating uses.

Purpose and Policy Context

The Master Plan was prepared pursuant to the 30-year lease extension between the City of Providence and ProvPort, which requires a comprehensive, transparent, and long-range framework to guide investment, operations, and governance of City-owned port lands. Beyond compliance, the Plan serves as a strategic planning document that aligns ProvPort's future with the City's Comprehensive Plan, Sustainability and Climate Justice goals, Rhode Island's Act on Climate, and national port resiliency best practices.

The Plan is intentionally structured to move from existing conditions and risk analysis to actionable strategies and sequenced investments. It recognizes that port planning must address near-term operational and regulatory needs while also anticipating long-term climate risks, market shifts, and community expectations.

Core Outcomes of the Master Plan

Over the next 30 years, implementation of this Plan will:

- Modernize and protect critical port infrastructure to ensure continuity of operations in the face of flooding, sea level rise, and extreme weather.
- Support economic growth and job creation in both core maritime industries and emerging sectors such as offshore wind, clean energy logistics, and advanced materials handling.

- Reduce environmental and public health impacts through phased electrification, emissions monitoring, improved lease standards, and district-scale stormwater and resilience investments.
- Deliver sustained community benefits through dedicated funding mechanisms, workforce pathways, improved public access, and transparent reporting.
- Establish durable governance and accountability structures that embed community engagement, City oversight, and adaptive management into long-term port decision-making.

Planning Framework and Phasing

Port infrastructure decisions require long-range thinking. Bulkhead rehabilitation, dredging cycles, utility upgrades, rail integration, asset modernization needs, tenant repositioning, and capital stacking strategies often unfold over decades, not years. The Master Plan 2055 planning horizon allows ProvPort to align capital improvements with asset life cycles, sequence infrastructure upgrades with market triggers, structure long-term tenant relationships, coordinate revenue growth with community and sustainability investments. This timeframe ensures that ProvPort's evolution is deliberate, financially disciplined, and aligned with broader regional infrastructure planning.

The Master Plan organizes recommendations across four coordinated planning horizons:

- Immediate Actions (0–5 years): State-of-good-repair investments, regulatory alignment, environmental monitoring, governance setup, and advancement of priority projects to "shovel-ready" status.
- Short-Term Actions (5–10 years): Early capital investments, visible environmental and community improvements, and initial deployment of clean technologies.
- Medium-Term Actions (10–20 years): Major infrastructure modernization, land-use transitions, and market repositioning aligned with evolving port functions.
- Long-Term Actions (20+ years): Transformational investments responding to climate conditions, technology shifts, and regional economic trends.

For the immediate and short-term horizons, capital planning is structured in five-year increments to align with the lease framework, public budgeting cycles, and grant funding requirements. Longer-term actions are intentionally

aspirational, allowing future administrations and stakeholders to refine scope and sequencing through periodic plan updates.

Implementation, Funding, and Accountability

A defining feature of this Master Plan is its focus on implementation. Strategies are organized into distinct initiatives with identified lead entities, dependencies, and suggested funding pathways. The Plan outlines a capital investment strategy that leverages ProvPort revenues, City coordination, and state and federal funding to maximize impact while maintaining fiscal discipline.

Equally important, the Plan formalizes transparent governance mechanisms, including ongoing reporting to the City, structured community oversight, and regular performance monitoring. These tools ensure that progress can be measured, adjustments made, and commitments upheld over time.

Looking Forward

This Master Plan positions ProvPort to remain a vital economic engine while serving as a national model for how industrial waterfronts can evolve responsibly. By aligning port modernization with climate resilience, environmental justice, and community partnership, the Plan lays the groundwork for a healthier working waterfront—one that serves Providence's economy, its neighborhoods, and future generations.

Adoption and implementation of this Plan represent a shared commitment by the City, ProvPort, tenants, and the community to steward a public asset with transparency, foresight, and accountability over the next 30 years.

How to Use This Document

Readers are encouraged to view this Master Plan as a **living framework** rather than a static blueprint. While individual chapters may be referenced independently, for example, for regulatory review, capital planning, or community engagement, the document is most effective when read as an integrated whole. Together, the chapters

describe not only *what* ProvPort intends to do, but *why*, *when*, and *how* actions can be advanced responsibly over the next 30 years, consistent with community values, economic goals, and resilience imperatives.

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*Elected officials and decision-makers should begin with the **Executive Summary and the Implementation Framework chapters**, which together summarize the Plan's priorities, near-term actions, governance responsibilities, and funding pathways requiring City coordination and policy direction.*

This Master Plan is organized to allow readers to quickly locate both background context and actionable direction:

- **Chapters II and III** establish the planning framework, governance structure, and existing conditions, including port operations, infrastructure, environmental conditions, regulatory context, and risk and resilience considerations.
- **Chapters IV and V** translate this baseline into a market and community context, documenting economic conditions, growth opportunities, and the priorities expressed through stakeholder and neighborhood engagement.
- **Chapters VI through IX** form the core of the Plan's strategy, presenting the policy directions, thematic strategies, and initiative playbooks that respond directly to identified needs and community goals.
    - Readers seeking specific actions should focus on the **Implementation Framework and Phased Action chapters**, which organize strategies by near-, mid-, and long-term time horizons and identify responsible parties, sequencing considerations, and anticipated outcomes.
    - **The Capital Improvement and Funding chapters** detail how strategies can be financed and coordinated with City, state, and federal programs. Together, these chapters are designed to function as a practical guide for decision-making, budgeting, and oversight, while the appendices provide supporting technical detail without interrupting the main policy narrative.

Major findings:

- Modernization and environmental responsibility are not competing goals, they are mutually reinforcing.
  - Strategic investments in infrastructure, electrification, emissions controls, and resilience are necessary to maintain port competitiveness, protect public health, and meet City and state climate mandates while supporting existing and emerging maritime industries.
- Climate risk is a material operational and financial issue for the port.
  - Flooding, sea level rise, and extreme weather pose real risks to port infrastructure, supply chains, and public investment. The Plan establishes a framework for proactive adaptation that reduces long-term costs, avoids service disruptions, and protects jobs and tax base.
- The relationship between the port and surrounding neighborhoods must be actively managed.
  - The Plan finds that meaningful community benefit does not occur automatically; it must be embedded through enforceable standards, transparent reporting, dedicated funding mechanisms, and sustained engagement with Washington Park and South Providence.
- Clear phasing and accountability are essential to implementation.
  - By organizing strategies into near-, mid-, and long-term actions tied to five-year capital cycles, the Plan enables the City, ProvPort, and partners to prioritize investments, track progress, and adjust course as conditions change.
- Workforce development is central to both economic growth and equity.
  - The Plan identifies workforce pathways, training partnerships, and local hiring strategies as necessary to ensure that port modernization translates into accessible jobs for Providence residents.
- Public oversight and transparency strengthen - not hinder - port operations.
  - Formal governance structures, regular reporting, and community advisory mechanisms are essential to building trust, maintaining compliance, and ensuring that port activities remain aligned with City policy and public expectations over time.

Acknowledgements, per traditional standards

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Acronyms and Terms of Art

BESS – Battery Energy Storage
BIPOC – Black, Indigenous, and People of Color
CAPEX – Capital Expenditures
CIP – Capital Improvement Plan
Deep Water – a harbor, channel, or berth with depth of typically 30 to 45 feet (9–14 meters) or more
EJ – Environmental Justice
GHG – Greenhouse Gas
MPAC – Master Plan Advisory Committee
O&M – Operations and Maintenance
OOM – Order-of-magnitude
PIP – Phased Implementation Plan
ProvPort – lands leased from the city in the 30-year lease and operated under ProvPort
Port of Providence – the wider port area within the City of Providence, including ProvPort-leased lands AND lands outside the lease area, which include industrial and commercial waterfront uses
ROW – Right-of-Way
SWPPP – Stormwater Pollution Prevention Plan
URI – University of Rhode Island
USDOT – United States Department of Transportation
Workforce Pipeline – Coordinated education, training, and job placement programs

2. Introduction

Since its creation in 1994, ProvPort, established as a 501(c)-3) nonprofit to operate the former Providence Municipal Wharf, has functioned under a long-term, bond-backed "pre-paid lease" arrangement: the City of Providence sold the wharf to ProvPort with an agreement stretching across thirty years, granting the City the right to repurchase the property for just one dollar at the end of that term. Under a recent 30-year lease extension, which pushes the repurchase option to 2053, the City stipulated that ProvPort develop a comprehensive Master Plan, and the requirement was embedded as a condition of the lease renewal process to ensure transparency, environmental stewardship, and long-term alignment with City and community goals. This plan was made possible through a collaborative effort between the City of Providence, ProvPort Inc., and Waterson Terminal Services, whose joint commitment to sustainable port operations and community partnership provided the foundation for the planning process. The preparation of this Master Plan was funded by ProvPort to benefit the community and the City of Providence with transparent and long-range capital planning. Stakeholders included port area businesses, state agencies, utility companies, environmental organizations and other non-profits, City of Providence staff, and city residents. Additional technical expertise was provided by academic partners in the University of Rhode Island Marine Affairs Department and Coastal Resources Center, as well as consultants and advisors specializing in port infrastructure, climate resilience, and economic development. Most importantly, the contributions of residents, neighborhood organizations, and stakeholders from South Providence and Washington Park shaped the priorities and outcomes of this plan, ensuring that it reflects both the needs of the working port and the aspirations of the surrounding community.

A. Purpose of the Master Plan

The purpose of this Master Plan is rooted in the City of Providence's vision that ProvPort develop a comprehensive, long-term framework to guide the growth, management, and resilience of its leased lands, while also responding directly to the physical, operational, environmental, and community conditions that define the Port's setting. ProvPort's earliest efforts to outline and catalyze the Master Plan emphasized that the planning process must evaluate existing assets and infrastructure, propose phased capital projects, identify opportunities for modernization and expansion, and develop

meaningful community benefit initiatives. ProvPort operates within a dynamic risk environment shaped by climate change and coastal exposure, market volatility in bulk and renewable energy sectors, trade and tariff shifts, regulatory evolution, and industrial land use pressures. Equally important, the Master Plan is intended to address the Port's relationship with surrounding neighborhoods, particularly Washington Park and South Providence, by recognizing historic industrial impacts, current environmental and public health concerns, and the need for transparency and accountability in future decision-making.

As a result, the Master Plan is designed to go beyond a physical development blueprint, establishing a structured and inclusive process to clarify the port's purpose and use, align with city and state planning goals, integrate risk, environmental, and community-based studies, and define strategies for infrastructure investment, land use, and economic development that advance both port resilience and community well-being. This Master Plan mitigates risk through diversification, infrastructure hardening, environmental performance improvements, and phased capital discipline. By acknowledging uncertainty, the Plan strengthens long-term resilience.

In response, the team developed a plan that is both visionary and implementable, capable of guiding ProvPort's governance, investment, and operations in a manner that adapts to changing environmental, economic, and social conditions. Rather than a static document, this is a living plan that integrates capital planning with community engagement and regional initiatives. It establishes phased strategies such as enhancing resilience, modernizing infrastructure, supporting emerging industries, and communicating clearly to customers, regulators, and residents. ProvPort's long-term strategy must respond to evolving regional market conditions. Across Southern New England, industrial waterfront capacity is limited, construction materials demand remains durable, and supply chains are increasingly sensitive to global trade volatility. At the same time, renewable energy markets, offshore wind development, and ESG performance expectations introduce both opportunity and uncertainty.

Through this approach, the Master Plan serves both as a compliance requirement of the City lease and as a forward-looking strategy to position ProvPort as a sustainable, resilient, and community-aligned working waterfront for the next three decades.

B. Overview of the Study Area

The Study Area (Figure 1) includes the parcels managed by ProvPort and extends beyond ProvPort operations, northward to the I-195 bridge and southward along I-95 and Allens Avenue to the Johnson & Wales University campus, extending over Port of Providence area designated as the W-3 Port/Maritime Industrial Waterfront in the City's Zoning Ordinance. This boundary intentionally includes land outside of ProvPort's control to capture the broader port footprint and adjacent parcels that interface with or are influenced by other port operations within the Port of Providence.

It is important to distinguish between the lands directly managed by ProvPort and the broader Port of Providence. ProvPort oversees a defined set of waterfront parcels under its agreement with the City; however, the larger area that is referred to as Port of Providence encompasses a wider industrial corridor along Allens Avenue and the Providence River that includes numerous privately owned fuel terminals, recycling operations, and other heavy industries. These facilities operate independently of ProvPort. While this Master Plan considers conditions and opportunities within that broader Study Area, ProvPort has no authority to require adoption of its goals or initiatives outside its managed footprint.

Nonetheless, there is immense value to the City in performing the master plan process for areas outside of ProvPort-leased lands. ProvPort may pursue future expansion opportunities as vacancies arise within the wider Providence Port Area. Moreover, this larger industrial district shares many of the region's most significant climate- and flood-risk challenges, environmental justice concerns, and issues related to waterfront land use, public access, and the concentration of sensitive industrial activities such as petroleum storage and chemical facilities. It is for these reasons that the Plan offers general near-, mid-, and long-term recommendations for the broader Providence Port Area in addition to parcel-specific strategies for ProvPort.

Therefore, while the Master Plan focuses on ProvPort's direct responsibilities for resilience, sustainability, and community benefit, it is necessarily situated within a wider geography of port-wide vulnerabilities. Achieving holistic waterfront resilience will require coordinated strategies across City, State, and private operators to

safeguard critical infrastructure, protect surrounding neighborhoods, and ensure the long-term viability of Providence's working waterfront.

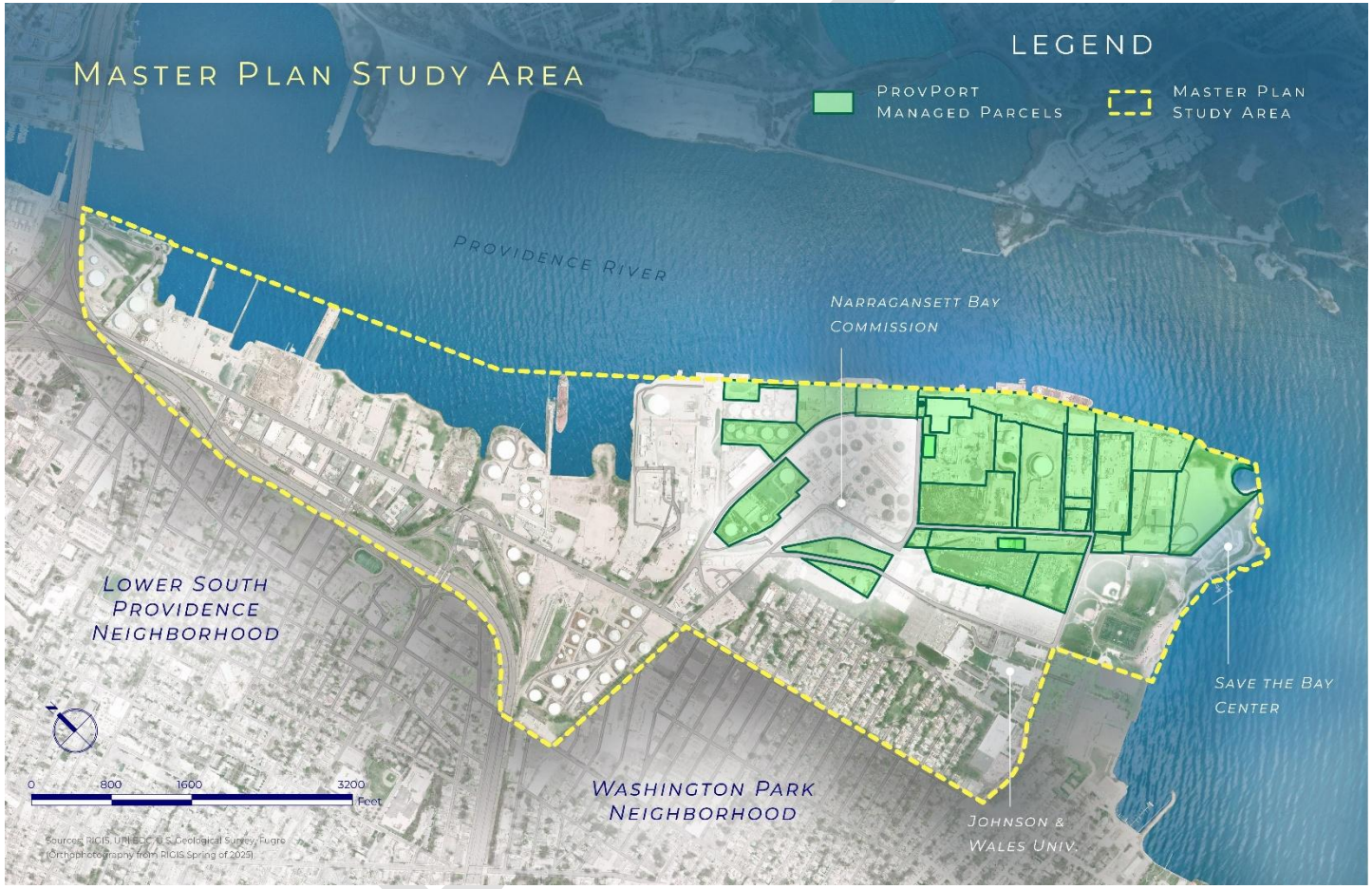


Figure 1. Master Plan Study Area (showing ProvPort operations within the larger Port Area)

C. ProvPort: Past and Present

History of the Port and Washington Park Neighborhood Context

ProvPort and the adjacent Washington Park neighborhood have transformed over three centuries from rural shoreline and scattered farms into one of New England's most intensively used industrial waterfronts. This evolution has been driven by shifting patterns of maritime trade, industrialization, land reclamation, major infrastructure projects, and modern environmental regulation.

Colonial Era (1700s): Trade Hub vs. Rural Outskirts

Providence grew into a major colonial port tied to the Triangle Trade, with ships docking at India Point and along South Water Street to exchange rum, molasses, slaves, and imported goods. While the downtown waterfront became dense with wharves and warehouses, Washington Park remained mostly rural farmland and estates under Cranston jurisdiction, with only limited local shoreline use.

19th Century: Industrial City and Expanding Waterfront

In the 1800s, larger vessels, new bridges, and harbor dredging pushed port activity south toward Allens Avenue and Narragansett Bay. The Washington Park shoreline began to host wharves, warehouses, and rail-served industry, while the inland area was annexed to Providence, platted with streets, and built out with housing. Roger Williams Park (established in the 1870s) anchored neighborhood growth, even as Fields Point remained a mix of recreation and emerging industrial uses.

Early 20th Century: Utilities, Industry, and World War II Shipbuilding

By the early 1900s, Allens Avenue had become an industrial corridor with fuel depots, factories, and the Providence Gas Company plant. At Fields Point, one of the nation's first modern sewage treatment plants was built, cementing its role as a utility and industrial node. During World War II, the massive Walsh-Kaiser shipyard at Fields Point filled wetlands

and reshaped the shoreline, employing tens of thousands and leaving behind extensive piers and industrial infrastructure that persisted long after the shipyard closed.

Post-War Era (1950s–1980s): Decline, Highways, and Pollution

Postwar deindustrialization, highway construction, and port reconfiguration further isolated Washington Park from its waterfront. The Fox Point Hurricane Barrier shifted deep-draft navigation and port operations downstream to Allens Avenue and Fields Point, while I-95 physically cut neighborhoods off from the shore. Fields Point became a focal point for waste management—sewage treatment, landfill, and an incinerator—leading to severe pollution, foul odors, and the filling of remaining wetlands and coves. As environmental laws tightened and community activism grew, agencies upgraded wastewater treatment and began regulating shoreline development, but the neighborhood carried a heavy environmental burden.

Modern Era (1990s–Present): Regulated Working Waterfront and Environmental Justice

ProvPort, Inc. was established in 1994 as a Rhode Island-chartered 501(c)(3) nonprofit organization for the dual purpose of holding and managing the maritime asset formerly known as the Port of Providence (City of Providence Municipal Wharf), which had previously been owned and operated by the City of Providence. From the 1990s to the present, the Port of Providence has undergone substantial operational diversification and modernization under ProvPort's management. What historically functioned primarily as a facility handling scrap metal and petroleum products has evolved into a multi-commodity marine terminal serving regional and national supply chains. Today, the port specializes in bulk and break-bulk cargo (including road salt, cement, asphalt, aggregate materials, and components supporting offshore wind development) supplying markets throughout Rhode Island and the broader Northeast. This expansion has strengthened the port's economic resilience and reinforced its role as critical infrastructure for construction, energy distribution, and winter road safety across a multi-state region.

A pivotal moment in this evolution occurred in 2007, when ProvPort entered into a Terminal Management Agreement with Waterson Terminal Services (WTS), designating WTS as general manager and exclusive stevedore. Under WTS management, the port experienced measurable cargo growth, operational efficiencies, and renewed private-sector

confidence. This period also catalyzed outside investment, including participation by SSA Marine, positioning the facility within broader national and international terminal networks and strengthening its long-term market competitiveness.

At the same time, the past three decades have seen parallel efforts to address the environmental legacy of historic industrial use along the upper Narragansett Bay shoreline. Stronger federal and state environmental regulation, capital improvements at the Fields Point Wastewater Treatment Facility (including on-site renewable energy installations), and initiatives such as Save The Bay's headquarters and coastal education center at Field's Point have contributed to water quality improvements and incremental reintroduction of public access in areas adjacent to the working waterfront. The evolution of the port since 1990 illustrates the central tension inherent to urban maritime facilities: sustaining a regionally significant economic engine while advancing environmental remediation, climate resilience, and improved community well-being along a heavily altered shoreline.

ProvPort Today

ProvPort is a critical economic engine and maritime gateway for Rhode Island and Southern New England, handling approximately two million tons of cargo and over 600 vessel calls annually as of 2025. Today, ProvPort serves as a strategically located, tenant-driven, multi-modal industrial seaport anchored by a stable tenant base of major regional and national companies. It functions as Rhode Island's primary deepwater cargo gateway, supporting energy supply, construction aggregates, recycled materials, and industrial commodities critical to the regional economy. These tenants rely on the port as a critical distribution hub for the New England market, many with decades-long operational histories on the waterfront. Operations occur across a ~140-acre footprint, including berthing facilities, laydown areas, warehousing, and tenant-specific processing facilities.

The ProvPort-managed portion of the port is responsible for existing operations that act as a substantial economic engine for both Providence and Rhode Island as a whole, supporting hundreds of direct jobs across bulk materials, energy products, recycling, and offshore wind staging and fabrication. Current port tenants collectively employ 743 on-site workers, which in turn drives significant multiplier effects throughout the regional economy. When accounting for indirect and induced activity, ProvPort supports an estimated 2,180 jobs, $199 million in annual earnings, and more

than $1.02 billion in economic output within the City of Providence, and 3,281 jobs, $275 million in earnings, and $1.2 billion across Rhode Island. Additional vessel traffic (452 vessel calls in 2024) further boosts local spending by crews and visiting personnel. ProvPort's activities also contributed an estimated $3.37 million in annual sales tax revenue for the State, and contributed $4.2 million annually to the City of Providence through its revenue tax agreement and tenant property taxes, reinforcing its role as a major economic driver and a key component of the state's maritime, logistics, and clean-energy sectors.

D. ProvPort Stewardship

ProvPort, Inc. is a Rhode Island–chartered 501(c)(3) nonprofit established in 1994 to assume ownership, stewardship, and long-term management of the former City of Providence Municipal Wharf. Under its charter and lease structure, ProvPort holds the operating rights to the land and facilities through 2053 at which point all assets and improvements revert to the City of Providence. A seven-member Board of Directors provides governance: one nominated by the Mayor, one by the City Council, two representative tenant companies with leasehold interests, one representative of the Rhode Island Commerce Secretary, and two independent members selected by the other directors.

Since 2007, ProvPort has been managed under a Terminal Management Agreement with Waterson Terminal Services (WTS), which serves as general manager and exclusive stevedore. In this role, WTS oversees vessel scheduling, daily port operations, safety, port development and capital improvements, ensuring the port functions efficiently and maintains compliance with operational and regulatory requirements.

E. Structure of the Master Plan

This Master Plan is intended to function as both a strategic vision document and a practical implementation guide for ProvPort, the City of Providence, public partners, and stakeholders. Like leading resilience and infrastructure plans developed at the state and regional scale, this document is structured to move deliberately from context and analysis to actionable strategies and phased investment, recognizing that port planning must respond to near-term operational needs while also anticipating long-range risks, opportunities, and community expectations.

Organization of the Report

The Master Plan is organized into a series of chapters that build upon one another. Early chapters establish the planning context, purpose, governance structure, resilience/risk, and existing conditions, including physical infrastructure, environmental conditions, regulatory context, market forces, and community considerations. These chapters are intended to ground the reader in the realities facing ProvPort today and to clearly articulate why long-term planning is necessary.

The latter portions of the document present the vision, strategies, and recommendations for land use, infrastructure investment, environmental performance, community integration, and economic development. These chapters are explicitly action-oriented, linking proposed strategies to implementation pathways, responsible parties, and funding considerations. Supporting appendices provide technical detail, reference materials, and background analyses to inform decision-making without interrupting the main narrative.

Time Horizons and Phasing

A defining feature of this Master Plan is its use of defined time horizons to organize recommendations and investments. Strategies are framed across four planning horizons:

- **Immediate (0–5 years):** Actions focused on immediate needs, community benefits, regulatory alignment, state-of-good-repair improvements, and advancing priority projects to a “shovel-ready” level.
- **Short-term (5–10 years):** Capital investments and operational changes that support early growth, resilience upgrades, and community benefit initiatives.
- **Mid-term (10–20 years):** Larger-scale modernization, land use transitions, and market repositioning aligned with evolving port functions.
- **Long-term (20+ years):** Transformational investments and adaptive strategies that respond to long-range climate conditions, technology shifts, and regional economic trends.

These horizons are not rigid endpoints; rather, they provide a framework for sequencing decisions in a way that balances flexibility with accountability.

How to Use This Document

Readers are encouraged to view this Master Plan as a living framework rather than a static blueprint. While individual chapters may be referenced independently the document is most effective when read as an integrated whole. Together, the chapters describe not only *what* ProvPort intends to do, but *why*, *when*, and *how* actions can be advanced responsibly over the next 30 years, consistent with community values, economic goals, and resilience imperatives.

This document is organized to move from context to action:

- **Chapter II: Market & Competitive Analysis** establishes the economic foundation.
- **Chapters III–V: Conditions and Framework** define the strategic framework based on current needs.
- **Chapters VI–VII: Initiatives & Phased Implementation** translate strategy into sequenced action.
- **Economic Development Playbook** provides tools for tenant growth and industrial repositioning.
- **Capital Improvement & Funding Strategy** identifies funding pathways and five-year investment blocks.

F. Vision, Principles, and Objectives

The ProvPort Master Plan is guided by principles that align directly with the City of Providence's Comprehensive Plan and Sustainable Providence framework, while reflecting the Port's unique role as both a driver of economic activity and a neighbor to South Providence and Washington Park. The vision for the ProvPort Master Plan is to establish a resilient, future-ready working waterfront that anchors Rhode Island's economy, supports regional industries, and supports quality of life for adjacent neighborhoods. The ProvPort Master Plan provides a roadmap for responsible growth, aligning with Providence's waterfront planning efforts, Rhode Island's Act on Climate mandates, and national port resiliency frameworks. It is both a compliance requirement under the city lease and a strategic opportunity to integrate port infrastructure, community well-being, and environmental stewardship into a unified framework.

Key Objectives include:

1) **Economic Growth in Emerging and Core Industries:** Position ProvPort to support both traditional cargo operations and growth in emerging sectors such as offshore wind, renewable energy technology, and advanced logistics. Expansion and modernization will be guided by a focus on job creation in responsible industries that contribute to the broader well-being of the Providence community and the environment.
2) **Land Use Policy and Transition:** Align land use within ProvPort's leased area with Citywide industrial waterfront planning objectives. Identify parcels for potential expansion, evaluate transitional uses, and establish a phased buildout strategy that balances industrial development with environmental and community priorities.
3) **Resilient, Net-Zero, and Green Infrastructure:** Advance ProvPort toward net-zero greenhouse gas emissions by 2050, consistent with Rhode Island's Act on Climate and the City of Providence's Climate Justice Plan. Modernize infrastructure through clean energy integration, electrification of port equipment, storm- and flood-resilient design standards, and green infrastructure improvements.
4) **Community-Supportive Strategies:** Guided by the principle that near-port neighborhoods are an important partner; the Master Plan process engaged with the community at the start. The Master Plan aims to reduce potential impacts on the Washington Park and South Providence neighborhoods by ensuring transparency in environmental performance, lowering emissions, and investing in community benefit and sustainability projects.
5) **Waterfront Access and Amenities:** Where feasible and consistent with port operations and security, the Plan explores and proposes ways to increase public access to the waterfront, including supporting parks, walking paths, and educational or observational spaces. Coordinate with the City's waterfront access goals to integrate recreational and cultural enhancements that improve quality of life for surrounding communities.
6) **Workforce Development and Jobs:** Develop pipelines in partnership with unions, schools, and universities to cultivate a skilled maritime, logistics, and clean-energy workforce, with a focus on recruiting from nearby neighborhoods. Leverage port expansion and the growth of new industries to create accessible, well-paying jobs for residents of the greater Providence region.
7) **Transparent and Accountable Governance:** Strengthen mechanisms for inclusive governance by maintaining regular community engagement, providing clear communication on port activities, and ensuring accountability through advisory committees and compliance with community benefit agreements. The plan emphasizes transparency in reporting, decision-making, and tenant oversight.

G. Introduction to Stakeholder Engagement Process

The ProvPort Master Plan was developed through a comprehensive and inclusive public engagement process focused on transparency, accountability, and environmental justice. There is a holistic stakeholder landscape engaged in this planning process, described in Table 1. Stakeholder composition was based on engaging a wide range of involved and interested parties, ensuring representation from community organizations, regulatory agencies, educational institutions, industry, and local governance. These stakeholders helped shape the Master Plan's goals, identified community concerns, and catalyzed strategies to enhance resilience, economic equity, and environmental performance.

Table 1. Stakeholders in the ProvPort Master Plan

Stakeholder Category	Examples	Role / Interest in Master Plan
ProvPort Leadership & Operators	ProvPort, Inc.; Waterson Terminal Services (WTS); SSA Marine (WTS joint venture partner)	Leaseholder, port operator, stevedoring and logistics management, day-to-day operations, long-term capital planning.
City of Providence	Mayor's Office; City Council; Department of Planning & Development; Department of Sustainability	Leaseholder partner; oversight of master plan compliance; integration with Comprehensive Plan, waterfront planning, and sustainability initiatives.
State Agencies	Rhode Island Department of Environmental Management (RIDEM); Coastal Resources Management Council (CRMC); Rhode Island Department of Transportation (RIDOT); Rhode Island Infrastructure Bank	Environmental permitting, coastal zone management, transportation infrastructure, resilience and funding support.

Stakeholder Category	Examples	Role / Interest in Master Plan
Federal Agencies	U.S. Coast Guard; Federal Emergency Management Agency (FEMA); U.S. Army Corps of Engineers; U.S. Environmental Protection Agency (EPA); Department of Homeland Security Cybersecurity & Infrastructure Security Agency (CISA); Occupational Safety and Health Administration (OSHA)	Hazard mitigation and flood resilience planning; permitting for coastal and navigational improvements; resilience funding (e.g., FEMA BRIC).
Academic & Research Partners	University of Rhode Island (Marine Affairs, Ocean Engineering, IRPF study); Brown University; other regional universities	Provide climate risk modeling, infrastructure resilience research, technical analysis, and community engagement expertise.
ProvPort Tenants	Cargo import/export companies; fuel terminals and chemical storage; scrap metal and recycling facilities; Renewable energy companies	Direct users of ProvPort facilities; responsible for compliance with environmental and lease requirements; partners in capital investment.
Labor & Workforce	International Longshoremen's Association (ILA Locals 1329 & 2001); trade unions; maritime and logistics workforce	Employment, workforce training, and economic benefits; role in workforce development for clean energy and port modernization.
Community Stakeholders	Washington Park and South Providence neighborhood residents, neighborhood associations	Directly impacted by port activity and environmental conditions; interested in mitigation of impacts, community benefits, and access.

Stakeholder Category	Examples	Role / Interest in Master Plan
Nonprofits & Advocacy Groups	Save The Bay; Conservation Law Foundation; People's Port Authority (PPA); Providence Resilience Partnership (PRP); community-based organizations	Advocate for environmental protection, public health, climate resilience, and equitable development.
Utility & Infrastructure Partners	National Grid; Narragansett Bay Commission; Providence Water	Coordination on energy transition, electrification, wastewater, and stormwater management.
Private Industry & Business Partners	Offshore wind developers; shipping/logistics companies; regional economic partners	Potential tenants and partners for growth in emerging industries; contribute to economic diversification and port competitiveness.
Funding & Finance Partners	Rhode Island Infrastructure Bank; bondholders (e.g., 2023 Bond Series trustees); federal/state grant programs	Provide financing mechanisms, loans, and grants for capital projects, resilience, and community benefits.
Public-at-Large	Providence residents; Rhode Island public; regional consumers dependent on port cargo	Beneficiaries of economic, environmental, and resilience outcomes; taxpayers funding public investments in resilience.

To facilitate a comprehensive public engagement process, the project team implemented a series of structured outreach activities, including public meetings, advisory committee sessions, and a citywide public event (Table 2). The Master Plan Advisory Committee (MPAC) was convened as a recurring forum for dialogue among residents, port

stakeholders, business operators, and city agency representatives[1]. The committee brings together City officials, academic and institutional partners, community advocates, environmental organizations, utility and energy stakeholders, and representatives from port-related businesses. It's crafted to ensure a broad spectrum of insights and interests frame the Master Plan's vision and execution. Throughout this process, MPAC members played a central role in reviewing technical materials, refining project goals, and advising on the community benefits strategy. In parallel, open community meetings were hosted to provide transparent and accessible platforms for public input and idea-sharing. The process aimed to amplify the voices of residents in South Providence and Washington Park, especially those in Wards 10 and 11, ensuring that planning decisions align with the community's values and needs as well as those of broader stakeholders. Key engagement events are summarized in the table below:

Table 2. Engagement Activities and Timeline

Event Type	Date(s)	Purpose
MPAC Meeting #1	May 2024	Project introduction, timeline, and scope discussion
Community Meeting #1	September 2024	Identify goals, priorities, and initial concerns
MPAC Meeting #2	July 2024	Review existing conditions and public meeting planning
MPAC Meeting #3	September 2024	Discuss climate resilience and environmental concerns

[1] **Master Plan Advisory Committee** membership organizations: ProvPort, Washington Park Neighborhood Association, City Council (Ward 10 & Ward 11 representatives), Johnson & Wales University, University of Rhode Island, Save the Bay, People's Port Authority, Eastern Salt, National Grid, Southside Neighborhood Association, Family Service of Rhode Island, Providence Resilience Partnership, Conservation Law Foundation, Rhode Island Energy, Ørsted.

Event Type	Date(s)	Purpose
Community Meeting #2	December 2024	Review goals, themes, and community benefit options
MPAC Meeting #4	December 2024	Synthesize public input, economic impact, and market position
MPAC Meeting #5	March 2025	Present strategy recommendations and community benefit options
Community Meeting #3	March 2025	Feedback on Master Plan strategies and sustainability initiatives
Port Day	May 2025	Full-day public event with tours, educational talks, and sessions
MPAC Meeting #6	September 2025	Finalize strategies and prepare for the community meeting
Community Meeting #4	October 2025	Present themes of the master plan draft and engage in "future port activity"
MPAC Meeting #7	February 2026	Draft Review Schedule and Delivery of Chapters 6-8
Community Meeting #5	April 2026	Launch of Draft for Public review and presentation of draft material, Open House Session for maximum outreach
MPAC Meeting #8	April 2026	Final review of draft and feedback from MPAC and community

Each engagement event included opportunities for real-time input, and materials were made available in multiple languages to promote equitable access. Meeting formats included interactive activities, small-group dialogues, and presentations by the consulting team and City of Providence staff.

The engagement process culminated in the integration of community-identified issues and stakeholder priorities directly into the ProvPort Master Plan. This ensures that future port development will be responsive not only to economic goals, but also to the health, safety, and long-term resilience of the surrounding community. The community outreach process, goals and strategies, are fully presented and discussed in Chapter V.

3. Existing Conditions Assessment

This chapter provides a baseline understanding of ProvPort's current physical, operational, and environmental conditions, which together form the foundation for all master plan recommendations. Documenting existing upland and waterside infrastructure, utilities, transportation access, and subsurface conditions establish a clear picture of the Port's present-day capabilities and constraints. Equally important, environmental scans of hazardous materials, noise, and air quality highlight the legacy of industrial land uses and their ongoing impacts on surrounding communities. By assembling this comprehensive snapshot of existing assets, risks, and operations, the master plan ensures that future investments, resilience strategies, and land use policies are grounded in current realities. These conditions will serve as a reference point for evaluating opportunities, anticipating challenges, and measuring progress as the Port evolves over the coming decades.

A. Planning Context

ProvPort operates within a complex, multi-layered planning environment shaped by Rhode Island's statewide planning framework, the City of Providence's comprehensive planning and zoning regulations, and a network of federal and state policies that govern maritime commerce, environmental protection, resilience, and transportation. As a municipally owned asset managed through a long-term lease by ProvPort, Inc. (a 501(c)(3) created to steward the former Providence Municipal Wharf), the port's development and investment decisions must align with both citywide planning goals and broader state objectives related to economic development, climate adaptation, and freight mobility. Although ProvPort's enabling legislation allows the organization to act with a degree of operational independence, its physical expansion, infrastructure upgrades, and waterfront activities are deeply intertwined with local land-use policy, coastal zone management, and federal maritime and environmental regulations.

At the state level, several Rhode Island State Guide Plan elements directly influence planning at ProvPort, including the Land Use 2025 framework, the Rhode Island Freight and Goods Movement Plan, the Rhode Island Transportation Improvement Program (TIP), the State Hazard Mitigation Plan, and the State Climate Resilience/Act on Climate implementation policies. These plans identify freight infrastructure priorities, provide coastal resilience directives, and

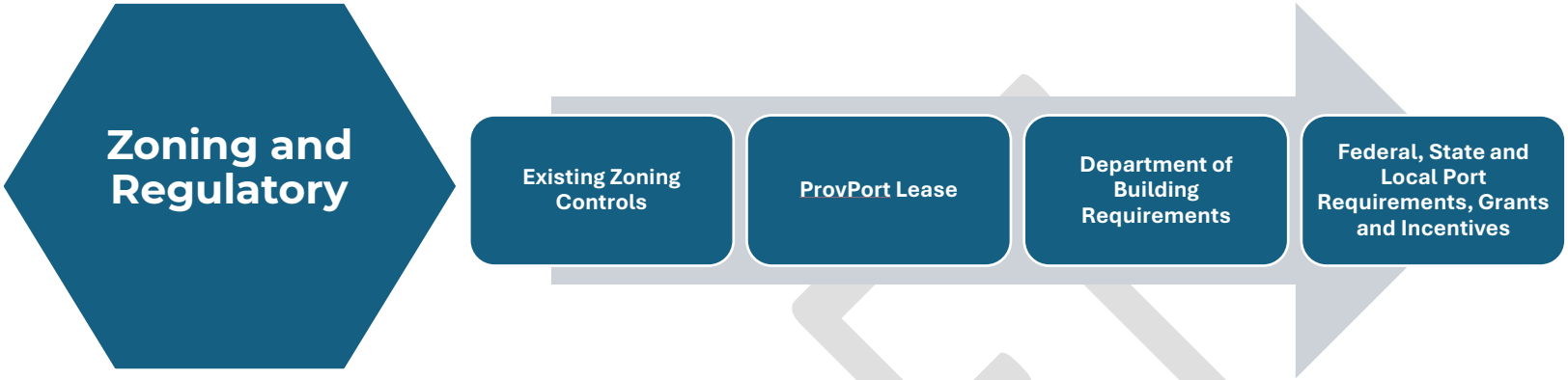
set expectations for waterfront industrial uses, greenhouse gas reductions, and port-adjacent mobility. Together, they shape how ProvPort can modernize its terminals, improve multimodal connectivity, strengthen its energy and utility systems, and plan for long-term climate risks such as sea-level rise, storm surge, and groundwater intrusion.

Within Providence, the City's Comprehensive Plan names the Port as a critical economic engine and one of the city's most important job centers. The Comprehensive Plan emphasizes maintaining and strengthening marine industrial uses, improving environmental performance, enhancing transportation access, and protecting nearby residential neighborhoods from incompatible uses. The City's zoning ordinance, including the Port/Industrial zoning districts and associated overlay zones, governs allowable uses, building standards, waterfront setbacks, and environmental considerations. Additional municipal plans, such as the Providence Climate Justice Plan, Green Infrastructure Plan, and multimodal transportation initiatives, provide further direction relevant to air quality, emissions, electrification, and community benefits.

ProvPort's activities are also shaped by federal and state regulatory frameworks, including the U.S. Army Corps of Engineers (dredging and in-water work), RIDEM (air quality, stormwater, and land-based environmental permitting), CRMC (coastal zone and shoreline change), USDOT Maritime Administration (MARAD) freight initiatives, and emerging climate resilience standards. These regulations affect infrastructure design, capital planning, tenant operations, and the development of future intermodal and clean energy projects at the port.

Regulatory Framework

Land use policies, zoning designations, and regulatory frameworks set the parameters for how ProvPort may expand, adapt, and operate. Understanding the current legal and policy environment, including local zoning overlays, environmental permitting requirements, and state climate mandates, clarifies both the constraints and opportunities for development. This regulatory baseline guides the integration of the Port's growth objectives with citywide and statewide planning priorities.



A complex interplay of local zoning, municipal planning priorities, environmental regulation, and emerging regional resilience initiatives shapes the future development of ProvPort-leased lands and the larger port area outside ProvPort. The Port of Providence is located within waters designated by the Rhode Island Coastal Resources Management Council (CRMC) as **Type 6 – Industrial Waterfront and Commercial Navigation Waters (**Figure 2**)**, as defined in the Rhode Island Coastal Resources Management Program (RICRMP). This designation functions as a form of "water zoning," prioritizing areas that support commercial shipping, cargo handling, marine industrial activity, and direct access to federally maintained navigation channels. In the Providence River, the Type 6 classification aligns with the federally authorized and maintained navigation channel, which provides deep-water access critical to regional commerce and maritime operations. Because CRMC water types influence the suitability and regulatory review of adjacent shoreline uses, the Type 6 designation effectively reinforces and directs landside industrial port activities, while discouraging incompatible residential or passive recreational uses in areas essential to navigation and marine-dependent industry. Accordingly, land use planning within the ProvPort lease area is inherently shaped by this water designation, which establishes commercial maritime use as the priority policy objective for both waterside and immediately adjacent upland development.

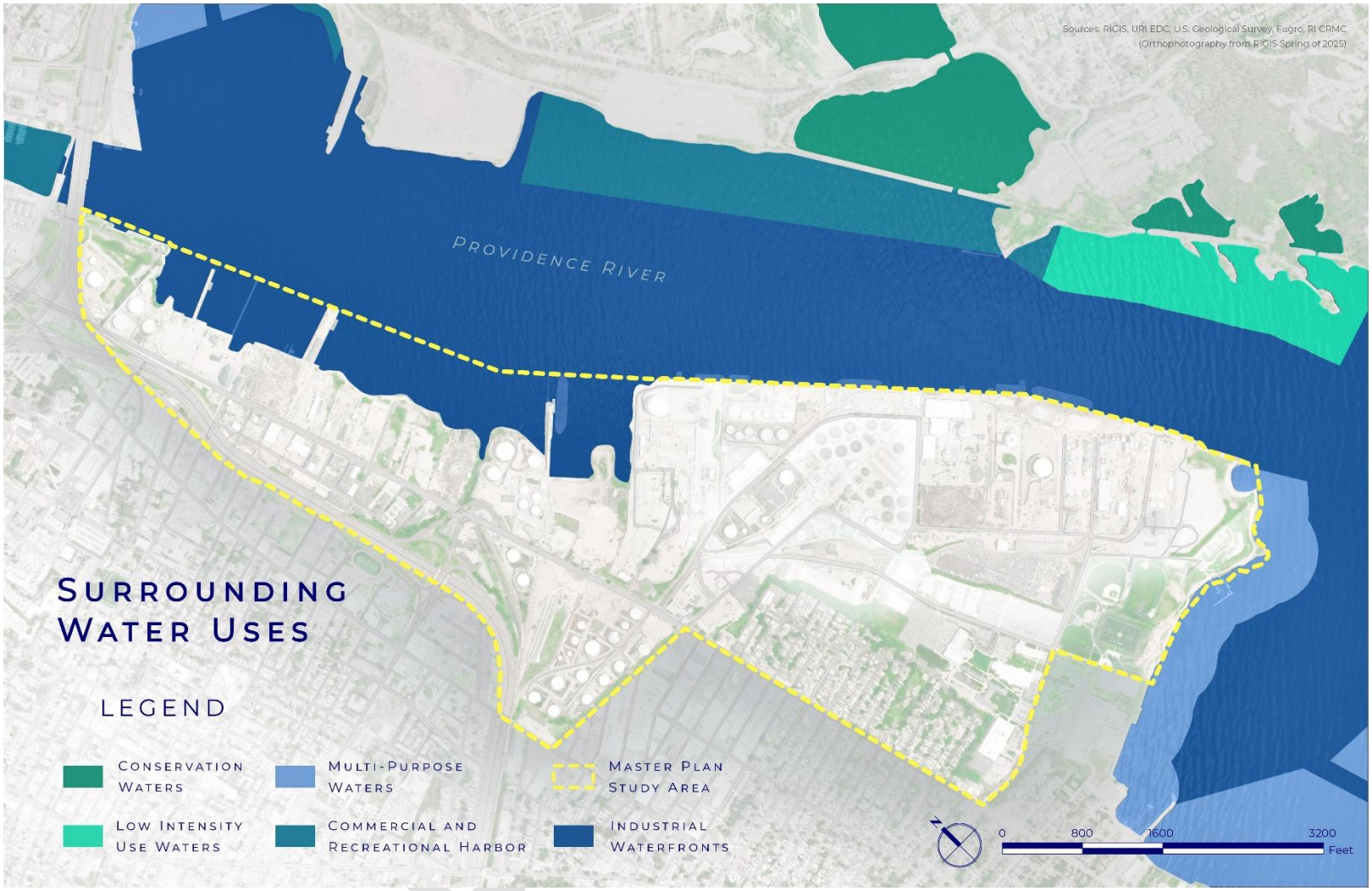


Figure 2. CRMC Water Uses of Port of Providence and Providence River

Situated within a larger port areas zoned for Heavy Industrial (M-2) and Waterfront-Dependent Industrial (W-3) uses, ProvPort occupies W-3 only and remains compatible with the City of Providence's intent to preserve the Allens Avenue corridor for maritime and industrial purposes. Within W-3, a wide range of port-related uses are permitted, from freight terminals, shipbuilding, and tank farms to warehousing, material processing, and marine-related renewable energy facilities. Supporting uses such as offices, small restaurants, vocational training centers, and retail establishments are also allowed. More specialized activities such as heliports or principal-use parking lots require special approval, while short-term contractor facilities and storage containers are allowed as temporary uses. To protect adjacent properties and neighborhoods, the W-3 district also imposes environmental performance standards that regulate noise, vibration, glare, dust, odors, hazardous waste, and fire hazards. These standards provide an important safeguard for nearby communities while maintaining flexibility for heavy maritime commerce. Current tenant activities, including offshore wind logistics, petroleum storage, bulk materials handling, and metal recycling, are all consistent with these zoning designations and contribute directly to the city's economic base (See land use map, Figure 3).

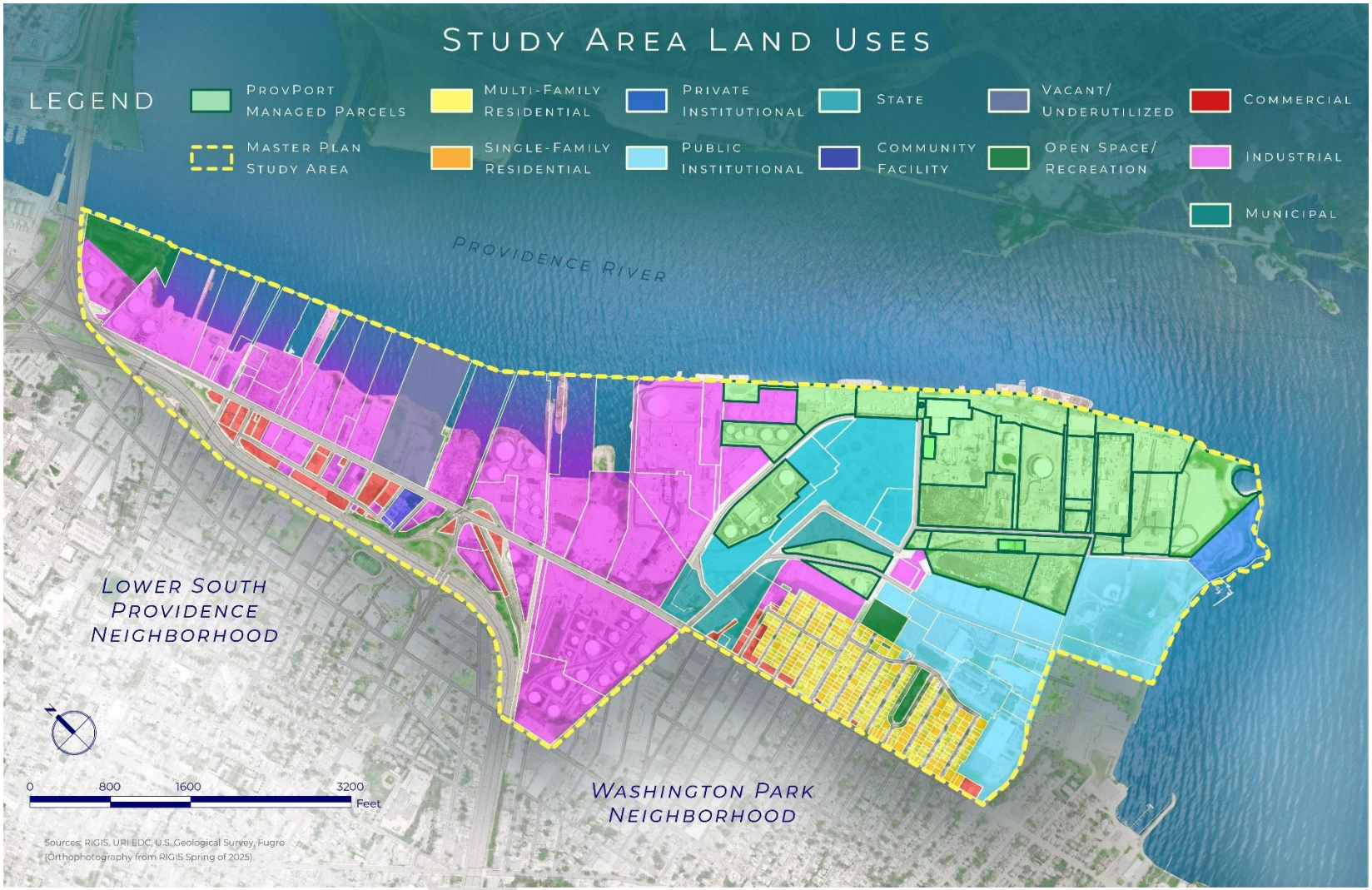


Figure 3. Land Uses in Study Area

ProvPort operates within a comprehensive zoning and regulatory framework that establishes both the opportunities and the limits for future development. At the local level, the Port is located in Providence's W-3 Port/Maritime Industrial Waterfront District, a zoning designation that is expressly designed to protect the waterfront for maritime industrial uses and ensure that activities remain water-dependent or closely tied to maritime commerce. Within this district, a wide range of port-related uses are permitted, from freight terminals, shipbuilding, and tank farms to warehousing, material processing, and renewable energy facilities.

Overlaying this land use framework are citywide sustainability mandates that further shape the Port's path forward. In 2021, Providence established its Office of Sustainability, tasked with advancing the City's goal of becoming a carbon-neutral, climate-resilient, and environmentally just city. The office has set interim targets for electrification of heating systems, reducing vehicle miles traveled, and achieving 100 percent carbon-free electricity by 2050. These commitments intersect directly with ProvPort's operations, signaling a growing expectation that maritime and industrial activities will reduce emissions, electrify equipment and fleets, and adopt climate-resilient infrastructure. The City's Comprehensive Plan, adopted in 2025, identifies specific limitations and conditions on land uses within the M-2 (General Industrial) and W-3 (Waterfront Industrial) districts. These provisions signal the City's intent to refine and potentially prohibit certain uses through forthcoming zoning code updates, which will be advanced through a comprehensive public participation process. This future zoning process will involve property owners, tenants, community members, elected officials, and other stakeholders to ensure that any amendments are transparent, deliberative, and aligned with broader community and economic development objectives.

ProvPort's ownership and fiscal status further distinguish it from other industrial properties. As a nonprofit corporation leasing land from the Providence Redevelopment Agency, ProvPort operates under a long-term tax exemption agreement approved in 2023. This agreement, which extends up to thirty years, requires ProvPort to make annual in-lieu-of-tax payments to the City while also committing to deliver community benefits and sustainability projects. These commitments include investments in racial and environmental justice initiatives, funding for environmental remediation and air quality monitoring, labor and apprenticeship programs, and neighborhood improvements such as parks and recreation amenities. The ordinance requires public engagement through multiple community meetings and a City Council hearing before each Master Plan update, creating a structured process of accountability and transparency. Labor standards, including requirements for minority- and women-owned business participation and

apprenticeship hiring in construction, are also embedded within the agreement. By tying tax status to environmental, social, and economic outcomes, the City has linked ProvPort's growth to broader public benefits.

In addition to zoning and fiscal policies, all new construction, renovations, and tenant improvements at ProvPort are subject to building requirements administered by the Providence Department of Inspection and Standards under the Rhode Island State Building Code. This code, which incorporates the International Building Code with state amendments, sets standards for structural safety, fire protection, accessibility, stormwater, and energy efficiency. Industrial-scale projects that involve hazardous materials or large-scale storage may require additional safety and engineering reviews. Increasingly, projects that incorporate electrification, renewable energy, or green building practices align not only with regulatory compliance but also with the City's sustainability goals and grant priorities, positioning ProvPort to leverage its building projects as opportunities for resilience and clean energy investment.

At the same time, ProvPort operates within a robust regulatory environment. ProvPort operates within a state and federal regulatory framework that governs environmental performance, shoreline management, and navigation. The Rhode Island Department of Environmental Management (RIDEM) regulates air quality, waste, and stormwater permits, while the Rhode Island Coastal Resources Management Council (CRMC) oversees dredging, shoreline alterations, and climate resilience compliance. At the federal level, the U.S. Army Corps of Engineers manages dredging and navigation permits, the U.S. Environmental Protection Agency (EPA) regulates hazardous waste and water quality, and the U.S. Coast Guard enforces maritime safety and security. Importantly, many of these regulatory programs are paired with grant and funding opportunities that can offset compliance costs. Federal funding sources include the U.S. Department of Transportation's Port Infrastructure Development Program (PIDP) for maritime freight improvements, electrification, and resilience, as well as EPA grants for diesel emissions reduction, environmental justice, and brownfield cleanup. At the state level, RIDEM and the Rhode Island Infrastructure Bank provide grants and low-interest financing for climate resilience and green infrastructure, while CRMC programs support shoreline protection and coastal restoration. Locally, Providence's Office of Sustainability and Department of Planning and Development provide technical and financial support for electrification, energy efficiency, and emissions reduction initiatives, often in coordination with federal or state matching funds.

In summary, ProvPort's zoning and regulatory environment is largely shaped by six interconnected components (outlined in Table 3) : the W-3 maritime zoning district, which preserves the waterfront for industrial commerce under strict environmental standards; the City's sustainability mandates, which establish ambitious climate and equity goals; the tax exemption and community benefits agreement, which ties Port revenues to community and environmental investments; the building requirements, which govern construction, safety, and energy performance; the state and federal permitting framework, which regulates environmental compliance and maritime operations; and the grant and funding landscape, which provides opportunities to advance infrastructure, resilience, and clean energy projects in alignment with regulatory goals. Together, these provisions create both guardrails and incentives, ensuring that ProvPort's industrial growth remains consistent with Providence's land use priorities and environmental standards, while also enabling the Port to leverage public funding to strengthen its resilience, competitiveness, and community benefit.

Table 3. Ordinances, Plans, and Regulations

Category	Ordinance / Plan / Regulation	Key Provisions Relevant to ProvPort
Zoning	**W-3 Port/Maritime Industrial Waterfront District** (Providence Zoning Ordinance)	Preserves waterfront for maritime and industrial uses; permits freight, ship repair, warehousing, tank farms, and renewable energy; sets environmental performance standards (noise, odors, hazardous waste, vibration, dust).
Sustainability Policy	**Office of Sustainability Ordinance (2021-17)**	Establishes citywide climate goals: carbon neutrality by 2050, electrification of heating and vehicles, VMT reduction; mandates a climate resilient, low-carbon, and environmentally just city.
Fiscal / Governance	**ProvPort Tax Exemption Agreement Ordinance (2023-1)**	Extends tax exemption up to 30 years; requires in-lieu payments; funds sustainability projects and community benefits; mandates labor standards and public engagement in Master Plan updates.

Category	Ordinance / Plan / Regulation	Key Provisions Relevant to ProvPort
Building Requirements	**Rhode Island State Building Code** (via Providence Department of Inspection and Standards)	Adopts International Building Code with state amendments; requires compliance on structural, fire, stormwater, accessibility, and energy efficiency; applies to all new construction, renovations, and tenant improvements.
State Regulation	**Rhode Island DEM**; **Rhode Island CRMC**	RIDEM regulates air quality, waste, stormwater permits; CRMC regulates dredging, shoreline alteration, and climate resilience compliance and through water-type can also regulate land use and zoning.
Federal Regulation	**U.S. Army Corps of Engineers, U.S. EPA, U.S. Coast Guard**	Corps permits dredging and navigation; EPA regulates hazardous waste, stormwater, and emissions; Coast Guard oversees maritime safety and security.

ProvPort Operations

ProvPort's day-to-day operations define the functional baseline for handling cargo, supporting tenants, and facilitating maritime commerce. Understanding vessel activity, cargo types, truck movements, and operational procedures provides critical context for evaluating capacity, efficiency, and safety, and highlights opportunities to modernize and strengthen logistics. A summary of findings from physical and operational assessment is in this section, with the full report found under Operational Narrative in Appendices.

a. **Physical**:

ProvPort's operational profile establishes the functional baseline for understanding current capacity, tenant activity, and the logistics that support more than a dozen maritime-dependent industries. As Rhode Island's largest multi-tenant port, ProvPort handles a diverse mix of liquid bulk, dry bulk, breakbulk, roll-on/roll-off (Ro/Ro), high-and-heavy project cargo, and offshore wind staging activities across six deepwater berths and approximately 150 acres of terminals, circulation areas, laydown zones, and specialized infrastructure. This summary draws from detailed operational analysis prepared by Rheia Consulting (Appendix X) and provides the basis for assessing future needs and investment priorities.

ProvPort occupies ~4,500 linear and non-linear feet of waterfront and consists of ProvPort-owned and ProvPort-controlled parcels, along with adjacent lands owned by Commerce Rhode Island, the Providence Redevelopment Agency, Johnson & Wales University, the Narragansett Bay Commission, and private entities. While contiguous, the northern portion of the complex includes several parcels not controlled by ProvPort, creating a fragmented but interconnected footprint. Landside access is anchored by Terminal Road and Allens Avenue, which provide immediate connection to Interstate 95, and the port is linked to the national freight rail network via on-dock rail operated by the Providence & Worcester Railroad. These multimodal connections enable efficient movement of bulk materials, petroleum products, heavy equipment, vehicles, and OSW components throughout the region.

In FY2025, ProvPort handled approximately 1.8 million tons of cargo across import and export categories. The port's cargo mix is exceptionally diverse. Offshore wind (OSW) is the fastest-growing sector, supported by more than 30 acres of leased and controlled land used for component staging, heavy-lift operations, lay berthing of OSW vessels, and fabrication of foundation platforms. Ørsted's activity is supplemented by a broader ecosystem of OSW service providers, contractors, and logistics firms that rely on adjacent common areas and backlands linked to Berth 6.

Dry bulk cargos constitute a major share of the port's throughput. Cement represents nearly 40 percent of total annual cargo volume, with over 570,000 tons imported through two tenant-operated, world-class pneumatic unloading systems connected to large-capacity storage domes and warehouses. Salt imports exceed 500,000 tons annually, with seasonal peaks during winter maintenance periods. Oxides, aggregates, building stone, cobblestone, and other industrial minerals contribute additional dry bulk tonnage, with flexible open storage and on-dock rail enabling efficient staging and distribution.

Liquid bulk operations remain a critical component of port activity. ProvPort serves as a regional receiving point for LPG and supports storage and transfer of petroleum products including heating oil, diesel, biodiesel, and asphalt. These cargos are handled using specialized marine loading arms, high-integrity hoses and pump systems, and corrosion-resistant storage tanks with dedicated pipelines connecting

berths to upland tank farms. Caustic soda imports, distributed by rail tank car and tanker truck, use dedicated bottom-loading racks and secure transfer systems designed for corrosive materials.

ProvPort also supports major export operations, including more than 400,000 tons of scrap metal handled annually by Radius Recycling. The scrap is processed near the dock and transported via dedicated access routes to adjacent berths for direct vessel loading using mobile harbor cranes. Ro/Ro operations rely on approximately 27 acres of paved open storage and are focused primarily on the export of used automobiles and rubber-tired equipment via stern-ramped Ro-Con vessels serving African markets. Other cargos, such as lumber and miscellaneous building products, are handled on an as-needed basis and benefit from the port's flexible apron areas and rail access.

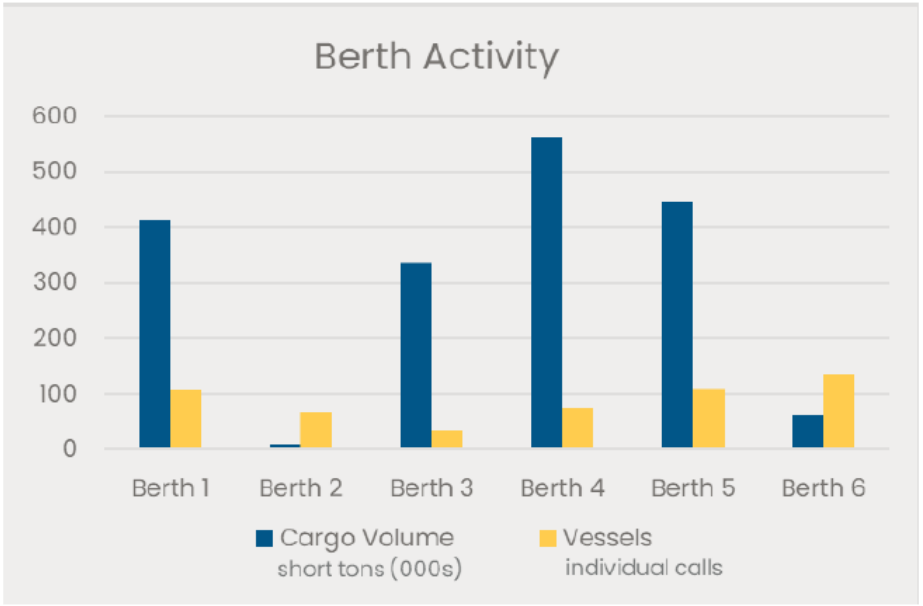


Figure 4. Cargo Volumes and Vessel Calls by Berth, FY 2025

Waterside operations are supported by six deepwater berths with an overall berth length of approximately 4,200 feet. Safe working depths range from 31 to 38 feet MLLW, providing capacity for bulk carriers, tankers, OSW vessels, barges, Ro-Con vessels, and high-and-heavy project cargo carriers. Berths are equipped with pneumatic fenders or foam-filled fenders, continuous bollard arrays, and a wide continuous apron that allows simultaneous or adjacent cargo operations with moveable barriers for safe separation. Berths 1 through the north-end of 5 are served by on-dock rail, while Berths 4–6 support liquid bulk pipelines and high-and-heavy handling requirements. In FY2025, the port hosted more than 500 vessel calls, with average berth stays of approximately two days; OSW and heavy-lift vessels may require

extended durations based on project schedules. Berth utilization is highest at Berth 5 and Berth 6 due to liquid bulk and OSW activity, respectively.

ProvPort's terminal layout and circulation systems are configured to support flexible, high-volume cargo handling. Large open laydown areas accommodate OSW components, salt, scrap metal, and breakbulk materials, while high-capacity warehouse space, including cement domes and covered storage sheds, supports bulk and industrial cargos. Internal circulation roads are sized for heavy truck traffic, dual cargo operations, and oversized equipment movements. Staging areas for Ro/Ro operations are strategically coordinated with vessel ramp orientation and Grimaldi fleet requirements.

Planned and ongoing improvements include modernization of the fendering system, installation of storm bollards for mooring reinforcement, extension of Berth 6 to expand Ro/Ro capabilities, construction of new warehouse facilities, and development of an expanded longshore training center. These investments are intended to support both existing tenants and future cargo diversification.

Operational and development constraints are influenced by several parcels with hazardous material or environmental restrictions. High- and moderate-risk parcels identified in the Hazardous Materials Scan include former petroleum terminals, the historic Fields Point landfill, parcels under RCRA oversight, and sites with ongoing remediation coordinated with RIDEM and EPA. These constraints guide future land use decisions and necessitate engineering controls such as limited excavation, surface stabilization, or restricted-access operations. For example, Ørsted's offshore wind footprint occupies a former municipal landfill capped for environmental containment, which limits vertical development and requires careful management of heavy-lift operations. Similarly, hazardous liquid cargos such as caustic soda and LPG require controlled access during vessel unloading and restricted operations zones at Berth 5 and Berth 4.

Taken together, ProvPort's operations reflect a multi-cargo, multi-tenant, technically sophisticated port environment with heavy industrial capabilities, engineered laydown surfaces, integrated rail connections, specialized liquid bulk systems, and high-capacity berthing infrastructure. This operational baseline provides essential context for assessing

future needs in berth capacity, upland configuration, circulation improvements, tenant support, hazard mitigation, and long-term maritime infrastructure investment.

b. Tenants

ProvPort currently maintains 14 active tenant operations across its managed parcels. Approximately 500 ships call at ProvPort annually as of 2025, importing cargo from ports worldwide and exporting to domestic and international destinations. Operations span a range of industrial and manufacturing activities, from traditional heavy industrial uses such as petroleum storage, bulk material handling, and chemical distribution to a growing cluster of renewable energy sector operations including offshore wind component assembly, subsea cable logistics, and onshore wind generation. Offshore wind and related tenants now encompass approximately 25 percent of ProvPort's land area, reflecting a significant strategic shift in port activity. The following **map** shows the location of existing tenants as of 2025 and associated **table summarizes** each active tenant, their primary operations, and industrial use classification.

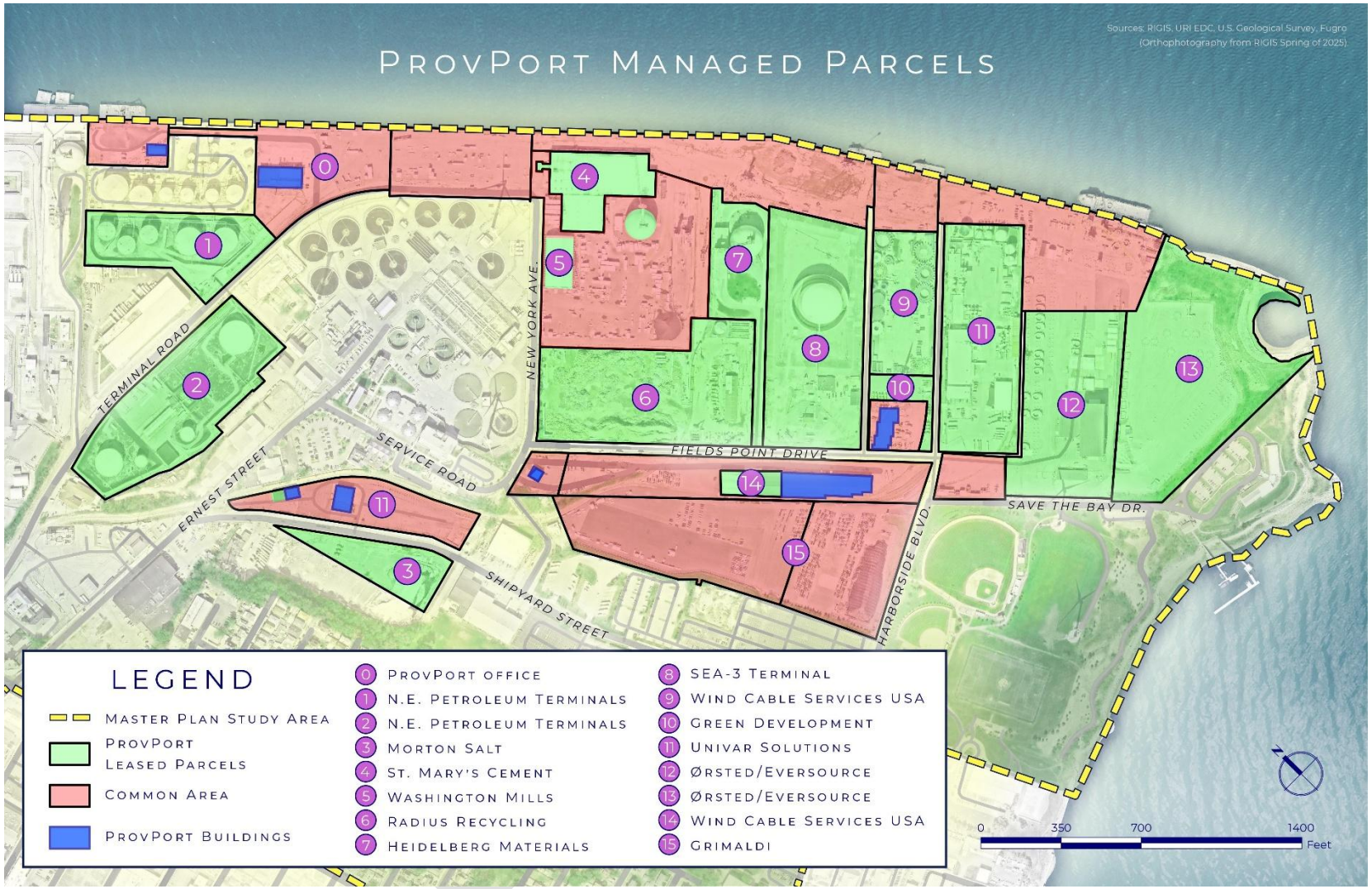


Figure 5. ProvPort Tenant Map

Table 4. ProvPort Active Tenant Summary

Map Key	Tenant	Operations / Use	Industry	Classification
1	New England Petroleum Terminals (North)	Liquid Asphalt Storage and Distribution	Pavement and Infrastructure Distribution	Heavy Industrial
2	New England Petroleum Terminals (South)	Fuel Oil Storage (No RFG or LNG/LPG) and Distribution	Fuel Oil Distribution	Heavy Industrial
3	Morton Salt	Salt Storage & Distribution	Road Salt Distribution	Heavy Industrial
4	St. Mary's Cement	Cement Storage & Distribution	Pavement and Infrastructure Distribution	Heavy Industrial
5	Washington Mills	Aluminum Oxide Distribution	Fused Mineral Manufacturing	Heavy Industrial
6	Radius Recycling	Scrap Metal Processing & Export	Scrap Metal Exporter	Heavy Industrial
7	Heidelberg Materials	Cement Storage & Distribution	Pavement and Infrastructure Distribution	Heavy Industrial
8	SEA-3 Terminal	Propane Storage & Distribution	LPG Storage & Distribution	Heavy Industrial
9	Wind Cable Services (WIND)	Subsea Cable Storage & Logistics	Renewable Energy / Maritime	Light Industrial / Maritime
10	Green Development LLC	Onshore Wind Energy Generation	Renewable Energy	Light Industrial / Energy

11	Univar Solutions	Chemical Packaging & Distribution	Chemical Distribution	Heavy Industrial
12	Ørsted/Eversource	Offshore Wind Component Assembly	Renewable Energy	Light Industrial / Maritime
13	Ørsted/Eversource	Offshore Wind Staging & Logistics	Renewable Energy	Light Industrial / Maritime
14	Wind Cable Services (WIND)	Offshore Wind Cable Storage	Renewable Energy / Maritime	Light Industrial / Maritime

c. Traditional Industrial Operations

The majority of ProvPort tenants are engaged in traditional heavy industrial operations that rely on the port's deep-water berthing (>35'), on-dock rail access, and bulk storage infrastructure. These tenants represent long-established operations that serve as critical supply chain nodes for the regional economy.

New England Petroleum Terminals (Map Keys 1 and 2). New England Petroleum Terminals, operated by Global Partners LP (NYSE: GLP), occupies two parcels at ProvPort designated as the North and South terminals. The facility currently stores liquid asphalt at the North terminal. The facility also serves as a critical supply hub for Global's distillate customers in Rhode Island and southern and central Massachusetts. The terminal receives petroleum products via waterborne delivery and distributes via truck, offering both top and bottom truck rack loading with direct access to Interstate 95. Global Partners operates one of the largest terminal networks of refined petroleum products in the Northeast United States.

Morton Salt (Map Key 3). Morton Salt has partnered with ProvPort under a long-term agreement establishing the facility as a major distribution point for road salt in southern New England. Morton Salt is the primary supplier of road salt to governmental jurisdictions and private entities throughout Rhode Island, Massachusetts, and Connecticut. The

operation leverages ProvPort's waterside access for bulk vessel deliveries and distributes product via truck to regional customers.

St. Mary's Cement (Map Key 4). St. Mary's Cement operates a cement receiving and distribution facility at ProvPort, utilizing waterside access for bulk deliveries by vessel. The operation supports regional construction markets through truck distribution.

Washington Mills (Map Key 5). Washington Mills operates a facility at ProvPort for the distribution of aluminum oxide and fused mineral products. Washington Mills is a manufacturer of abrasive grains and industrial fused minerals, with their ProvPort operations supporting regional distribution of these specialty materials used by myriad manufacturing industries.

Radius Recycling (Map Key 6). Radius Recycling (Metals Recycling Division) has been an active tenant at the port since the mid-1980s, making it one of ProvPort's longest-standing operations. The facility receives various grades of scrap metal for processing and export by both barge and vessel to be recycled for use in new steel products. The operation is jointly owned by local interests along with Hugo Neu Corporation and Schnitzer Steel (now Radius Recycling), both nationally recognized scrap metal processors.

Heidelberg Materials (Map Key 7). Heidelberg Materials operates its New England distribution center at ProvPort, a facility representing a capital investment in excess of $15 million. The centerpiece of the operation is a dome storage structure capable of holding in excess of 35,000 tons of cement, which is received by vessel and distributed to regional customers via truck and rail.

SEA-3 Providence, LLC (Map Key 8). SEA-3 operates the second largest storage and distribution terminal for liquified petroleum gas (propane) in the northeastern United States. Strategically located at ProvPort, the facility is a critical asset to the southern New England propane market and is the only large-scale refrigerated LPG storage facility in southern New England with waterborne supply access. The terminal receives propane by vessel and distributes to regional markets.

Univar Solutions (Map Key 11). Univar Solutions operates a packaging, processing, and distribution facility for specialty chemicals utilized by manufacturers and water treatment agencies throughout New England. Univar's administrative headquarters, processing plant, and distribution facility are located within and adjacent to ProvPort, making it one of the more integrated tenant operations on site.

d. Renewable Energy and Emerging Uses

In recent years, ProvPort has attracted a growing cluster of tenants associated with the offshore wind energy industry and renewable energy generation, reflecting a strategic diversification of port operations. These tenants now represent approximately 25 percent of ProvPort's managed land area and have collectively invested over $100 million in port infrastructure, positioning ProvPort as a regionally significant hub for the emerging blue economy.

Ørsted/Eversource (Map Keys 12 and 13). Ørsted and Eversource, joint venture partners in offshore wind development, occupy two parcels at ProvPort for their offshore wind construction hub. The facility includes a 288-foot-long assembly hall where union workers fabricate advanced foundation components and elevated working platforms for offshore wind turbines. The operation has supported fabrication for the South Fork Wind project (the first completed utility-scale offshore wind farm in the United States) and the Revolution Wind project serving Rhode Island and Connecticut. The ProvPort hub represents a combined investment of over $100 million by Ørsted and Eversource, the largest offshore wind supply chain investment in Rhode Island, with over 125 local union workers employed at the facility. The developers have also recently unveiled the ECO EDISON at ProvPort, the first U.S.-built offshore wind service operations vessel.

WIND Cable Services (Map Keys 9 and 14). WIND, a Netherlands-based subsea cable logistics firm founded in 1991, operates across two parcels at ProvPort dedicated to the storage and handling of subsea cables for offshore wind farms. WIND opened its Providence cable storage yard in 2022 under a long-term cooperation agreement with Waterson Terminal Services, establishing ProvPort as the company's first U.S. facility and a complement to its existing yards in the Netherlands and Taiwan. Services at the Providence yard include cable transfers, cable and accessories storage, and project management. WIND is recognized as the global market leader in subsea cable logistics, storage, and recovery, serving major offshore wind developers and cable installation companies worldwide.

Green Development LLC (Map Key 10). Green Development, Rhode Island's largest onshore wind developer, operates a 1.5 MW wind turbine on leased land at ProvPort. The turbine, approved in 2020 and completed in 2021, reaches a height of approximately 325 feet. Green Development also constructed two additional 1.5 MW turbines on adjacent leased land at Johnson & Wales University, bringing the total local generation capacity to 4.5 MW. The ProvPort turbine contributes to Rhode Island's renewable energy portfolio and is part of Green Development's broader statewide deployment of over 40 MW of onshore wind capacity.

e. Industrial Use Classification Summary

ProvPort tenant operations can be broadly classified into the industrial use categories summarized below. Heavy industrial uses, including petroleum storage, bulk materials handling, chemical manufacturing, and scrap metal processing, constitute the majority of current operations and are concentrated in the northern and central portions of the managed area. Light industrial and maritime uses associated with offshore wind energy and subsea cable logistics represent a growing sector, concentrated in the southern and eastern portions of ProvPort adjacent to Fields Point.

Table 5. Industrial Use Classification Summary

Classification	Description	Active Tenants
Heavy Industrial	Petroleum storage/distribution, bulk material handling, chemical manufacturing/distribution, scrap metal processing/export	8
Light Industrial / Maritime	Offshore wind component assembly and staging, subsea cable storage and logistics	4
Light Industrial / Energy	Onshore wind energy generation	1
LPG Storage & Distribution	Refrigerated propane storage with waterborne supply access	1

f. Recent and Emerging Tenant Activity

ProvPort continues to attract new tenants that align with its evolving strategic direction. In December 2025, ProvPort announced L3Harris Technologies, a national security and defense company, as its newest tenant. L3Harris will utilize ProvPort to support subsea telecommunications cable operations, including the loading, offloading, spooling, and storage of undersea cable. As part of the lease, L3Harris is constructing a 50,000-square-foot warehouse at the port, representing a $6 million investment in port infrastructure. The addition of L3Harris further diversifies ProvPort's tenant base into the defense and telecommunications sectors while leveraging the specialized cable-handling expertise developed through the port's offshore wind operations.

Additionally, ProvPort has executed a lease with Rhode Island Waterfront Enterprises to develop and operate the South Quay port project in East Providence across Narragansett Bay. This expansion, supported by $70 million in combined state and private investment, will create a complementary terminal facility and further establish the Providence area as a hub for offshore wind development and port logistics.

B. Major Industrial Uses Within the Broader Port Area (Outside ProvPort)

Beyond ProvPort-managed parcels, the broader Master Plan Study Area contains significant industrial operations concentrated primarily along Allens Avenue north of ProvPort. These operations are largely heavy industrial in nature and occupy privately owned waterfront land subject to municipal zoning but not under ProvPort management. The Study Area's industrial uses include petroleum tank storage facilities operated by Dominion Energy, Sprague CH & Son Terminal, and Triton Terminal. Scrap metal recycling is conducted by both Sims Metal and RI Recycled Metals. Eastern Salt Company provides salt storage. Narragansett Electric Company / National Grid operates a natural gas liquification facility. Hudson Terminal Corporation stores and transports bituminous materials. Clean Earth manages hazardous waste, and RIDOT operates a maintenance facility. Univar Solutions also maintains chemical storage and transport operations outside of ProvPort's managed boundary.

These Study Area industrial parcels, located outside leased ProvPort lands, are subject to a patchwork of regulatory agencies and are frequently the subject of community concern. Unlike ProvPort's managed parcels, these privately held lands do not operate under a unified management structure and are regulated by the City of Providence only through its zoning ordinance. The Master Plan considers these adjacent properties as areas where opportunities may arise for more productive and environmentally considerate uses if they were to come under ProvPort's management in the future.

Table 6. Major Industrial Operations Within Broader Port Area (Outside ProvPort)

Operator / Tenant	Operations / Use	Classification
Dominion Energy	Petroleum Tank Storage	Heavy Industrial
Sprague CH & Son Terminal	Petroleum Tank Storage	Heavy Industrial
Eastern Salt Company	Salt Storage	Heavy Industrial
Sims Metal	Scrap Metal Recycling	Heavy Industrial
Clean Earth	Hazardous Waste Management	Heavy Industrial
RIDOT	Maintenance Facility	Institutional / Industrial
RI Recycled Metals	Scrap Metal Recycling	Heavy Industrial
Triton Terminal	Petroleum Tank Storage	Heavy Industrial
Narragansett Electric / National Grid	Natural Gas Liquification	Heavy Industrial / Utility
All States Material Group (WT Terminal)	Bituminous Storage & Transport	Heavy Industrial
Univar Solutions	Chemical Storage & Transport	Heavy Industrial

C. Summary of Existing Conditions within ProvPort

ProvPort's ~150-acre managed area currently supports a diverse mix of 14 active tenant operations spanning traditional heavy industrial and emerging renewable energy sectors. The facility's deep-water berthing, on-dock rail, and substantial lay-down areas continue to serve established industries including petroleum distribution, cement and salt handling, chemical manufacturing, and scrap metal recycling. At the same time, ProvPort has successfully attracted offshore wind and clean energy tenants, including the Ørsted/Eversource construction hub (the largest offshore wind supply chain investment in Rhode Island), WIND Cable Services (the global leader in subsea cable logistics), Green Development (onshore wind generation), and most recently L3Harris Technologies (subsea telecommunications cable). Together, these renewable energy and maritime technology tenants occupy approximately 25 percent of ProvPort's managed area.

The broader Study Area beyond ProvPort's managed parcels is characterized by heavy industrial uses of a similar nature, including petroleum storage, scrap metal processing, chemical handling, and utility operations. This concentration of industrial activity along the Providence waterfront underscores the area's long-standing role as a center for bulk material handling and energy distribution. The growth of renewable energy and advanced maritime operations at ProvPort signals an evolving industrial profile for the coming decades, positioning the port as a critical node in the regional blue economy while maintaining its essential role in traditional cargo and material distribution for southern New England.

a. **Financial**:

ProvPort operates as a nonprofit 501(c)(3) public-private partnership, generating revenue through leases, port service fees, and docking operations while reinvesting in port infrastructure and community benefit programs. Its financial operations are structured to support industrial maritime activity while also fulfilling local obligations to the City of Providence. Financial reporting requirements are a part of the ordinance that establishes the ProvPort lease of city lands.

ProvPort's primary sources of revenue include tenant lease agreements, wharfage and dockage fees, and short- and long-term storage fees for laydown yards and warehouse space (see Table 7. Tenant Lease Structure (at the time of this publication)). Based on FY 2025 data, total recorded port revenues were approximately $17.8 million. Tenants include a mix of bulk material handlers (e.g., salt, cement, scrap metal), petroleum storage and distribution companies, offshore wind logistics providers (e.g., Ørsted), and specialty cargo operators.

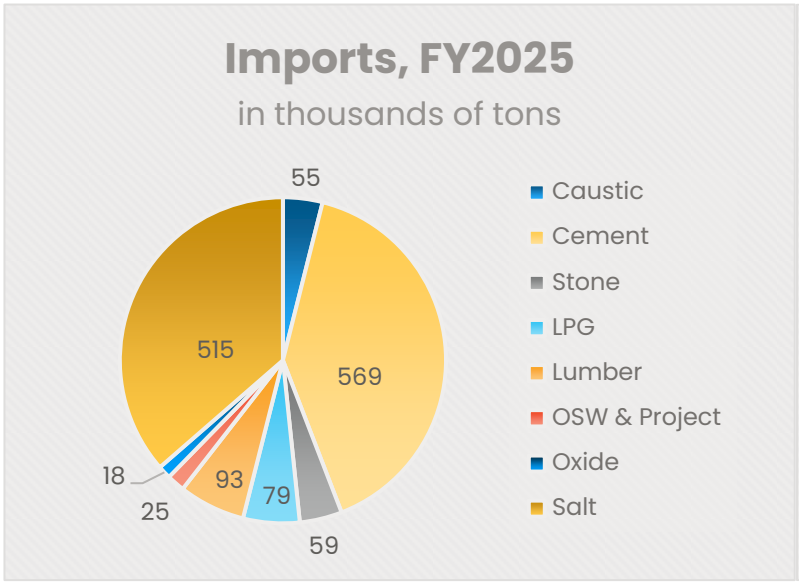


Figure 6. FY 2026 ProvPort Imports

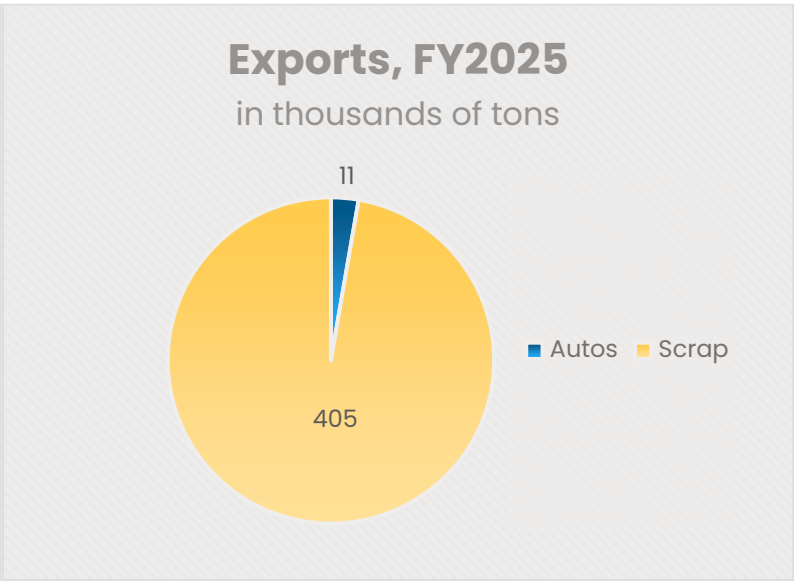


Figure 7. FY 2026 ProvPort Exports

Revenue from ProvPort tenants and users is driven by a combination of acreage occupied, volume of cargo throughput, and vessel calls and duration. ProvPort handled more than 500 vessel calls in FY2025, loading or unloading nearly two million tons of import and export cargo and with average dockage of roughly 2.6 days.

Table 7. Tenant Lease Structure (at the time of this publication)

Cargo	FY25 Tonnage	Share of FY25 Revenue	Revenue per Acre	Revenue per Vessel Call-Day	Revenue per Ton	Other Financial Contributions
OSW	25	40 percent	$214,000	$9,000	$263	Tenant investment in ground improvement for heavy storage
Cement	570	16 percent	$282,000	$22,000	$4.50	Tenant investment in specialized cargo handling and storage
Scrap	405	10 percent	$149,000	$32,000	$4.00	
Petroleum	n.a.	8 percent	$84,000	n.a.	n.a.	
LPG	80	7 percent	$112,000	$276,000	$14.00	
Salt	515	7 percent	$218,000	$35,000	$2.50	
Other	165	5 percent	$49,000	$24,000	$7.50	
Caustic	55	4 percent	$84,000	$66,000	$11.00	
Oxide	20	<1 percent	$184,000	$41,000	$6.00	
Layberth only	n.a.	<1 percent	n.a.	$2,400	n.a.	

Under the 2023 Ordinance Establishing a Tax Exemption Agreement, ProvPort does not pay traditional property taxes but instead contributes financially to the City of Providence through a structured Payment in Lieu of Taxes (PILOT). This includes:

- 7% of port revenues to the City (minimum $500,000)

- 1% to the Community Benefits Reserve Account (minimum $120,000)
- 1% to the Sustainability Projects Reserve Account (minimum $120,000)

The objective of this tax exemption agreement is to realize the economic benefits that are realized by the City and the region from ProvPort operations. ProvPort's broader fiscal impact extends to the state level through income and sales tax generation associated with direct and indirect employment. The port directly supports 743 on-site jobs and contributes to over 3,200 jobs statewide, including indirect (supply chain) and induced (employee household spending) employment. This economic activity results in $275 million in total earnings and over $1.2 billion in annual economic output across Rhode Island. With an estimated $275 million in new earnings, assumptions about household spending behavior (70% of earnings spent locally, with 25% spent on taxable goods) yield approximately $3.37 million in annual state sales tax revenue.

ProvPort's financial structure emphasizes reinvestment into its facilities and operations. Recent and planned capital improvements, including new warehouses, berth upgrades, heavy lift capacity enhancements, and environmental controls, reflect a long-term strategy of operational sustainability and economic competitiveness. The port continues to position itself as a high-functioning, revenue-generating industrial hub, aligned with both market demand and public-sector goals.

Takeaways from Financial Operations

Despite strong performance, there are potential leasing gaps and land use inefficiencies that constrain ProvPort's total revenue potential. Analysis of site usage and lease records reveals:

- Several parcels are underutilized, either vacant or temporarily used for low-revenue storage.
- A handful of parcels are encumbered by environmental constraints, such as capped landfills or historical contamination, which limits redevelopment but does not completely preclude revenue-generating use.

- There are no active leases on some small to mid-size parcels that could support niche industrial, warehousing, or maritime-dependent tenants.

- Short-term laydown or storage areas are often unmonetized for extended periods, especially outside peak seasons.

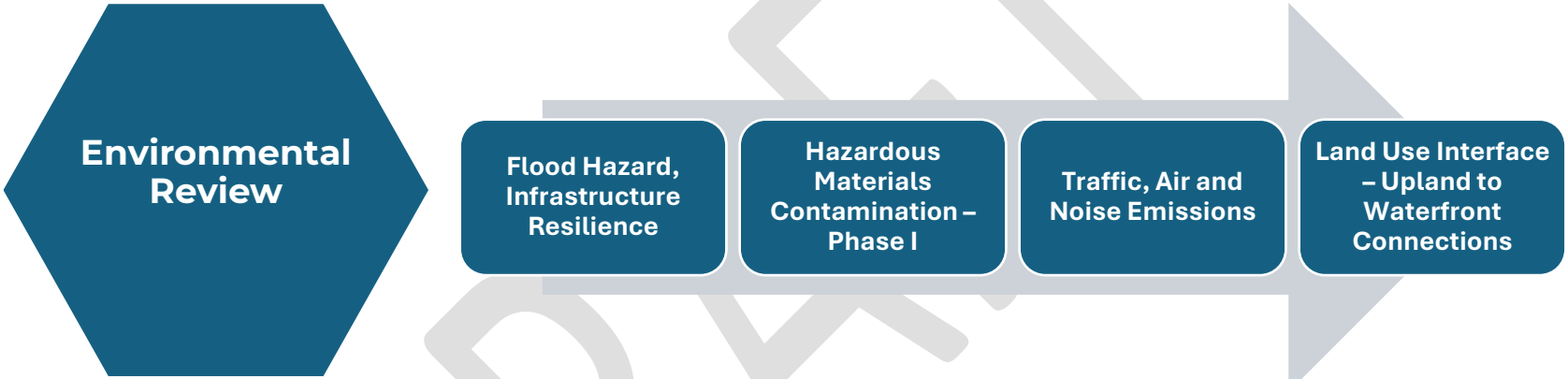
Additionally, certain high-value waterfront areas may be more profitable if leased to higher-throughput, water-dependent tenants, such as cargo distributors or manufacturers of renewable energy components. Strategic reallocation or intensification of existing leases, for instance, consolidating small parcels for larger tenants with capital investment capacity, could result in higher long-term revenues. However, ProvPort is not suitable for potential investment in a container terminal. It lacks land area and landside rail service to support a competitive container operation.

Notably, several tenants operate under legacy lease terms that may not reflect current market values. A systematic lease audit can help identify contracts that are below market rate or those lacking performance-based incentives (e.g., throughput-linked rent escalation). Revisiting these terms during lease renewal cycles offers a pathway to capture additional income.

In the near term, ProvPort should develop a comprehensive capital improvement program that identifies and prioritizes investments necessary to bring existing facilities and infrastructure to a state of good repair. Establishing this baseline provides a clear picture of the port's ongoing reinvestment needs and demonstrates fiscal responsibility in maintaining core operational assets. In parallel, the capital plan should also delineate a distinct category of projects designed to enhance revenue generation by expanding capacity, modernizing infrastructure, or introducing new income-producing capabilities. Highlighting this second tier of investments positions ProvPort to pursue state bond funding or partnership opportunities, showcasing how targeted capital projects can both preserve critical assets and catalyze long-term economic growth. What we provide in Chapter 9 is a CapEx framework; however, ProvPort will ultimately need to go deeper and work toward developing a prioritized Capital Improvement Plan grounded in real-world data. As the Port advances through the PIP and into the next five-year cycle, investments should be sequenced and refined based on operational performance, asset condition, and documented needs.

D. Physical and Environmental Review

The Port sits within a legacy industrial landscape where historic and current activities shape environmental conditions. Scans of hazardous materials, noise, and air quality identify both risks and regulatory concerns that affect on-site uses and adjacent neighborhoods. These findings provide an essential lens for aligning master plan strategies with community health, climate resilience, and state environmental standards.



a. Natural Hazards and Coastal Vulnerability

ProvPort lies outside the protection of the Fox Point Hurricane Barrier, with the facility exposed to both riverine and coastal flooding along the Providence River. The site sits at low elevations, averaging between 3 and 12 feet NAVD88, and is susceptible to storm surge, sea level rise (SLR), and associated metocean forces. Historic hurricanes, including the 1938 Great New England Hurricane, Hurricane Bob (1991), and Hurricane Sandy (2012), produced elevated water levels in Providence Harbor that exceeded 12 feet NAVD88, with wave energy contributing to erosion, inundation, and structural damage. Current FEMA Flood Insurance Rate Maps classify most of the port as within the 100-year floodplain, and modeled conditions confirm widespread inundation under design storm events.

Sea Level Rise and Future Scenarios: The Rhode Island Coastal Resources Management Council (CRMC) recommends using NOAA's 2022 guidance, projecting between 3 and 9 feet of SLR by 2100 under intermediate- to high-emission pathways. Under a 3-foot rise, anticipated by mid-century, nearly all port assets would be exposed to regular tidal flooding, independent of storm surge. By 2100, in high-end scenarios (6–9 feet of SLR), most of the port would be submerged during daily tides, making operations infeasible without significant intervention.

STORMTOOLS Inundation Modeling: Recent modeling using Rhode Island's STORMTOOLS platform depicts both 100-year (1% annual chance) and 500-year (0.2% annual chance) flood events across the ProvPort footprint.

- **100-Year Flood:** Under present-day conditions, much of the port's waterfront and interior parcels experience inundation ranging from 8 to 14 feet NAVD88. Flood depths increase toward the eastern parcels and tank farms, where storage tanks, recycling yards, and bulk storage facilities sit at some of the lowest grades.
- **500-Year Flood:** More extreme scenarios inundate nearly the entirety of the study area, with depths exceeding 17 feet NAVD88 in several locations. Even elevated parcels and capped landfill sites are susceptible to overtopping, with implications for containment systems and upland infrastructure.

Figure 8 and Figure 9 highlight the progression of flooding across the port, showing that both nuisance flooding and catastrophic storm flooding threaten critical operations, utilities, and tenant facilities.

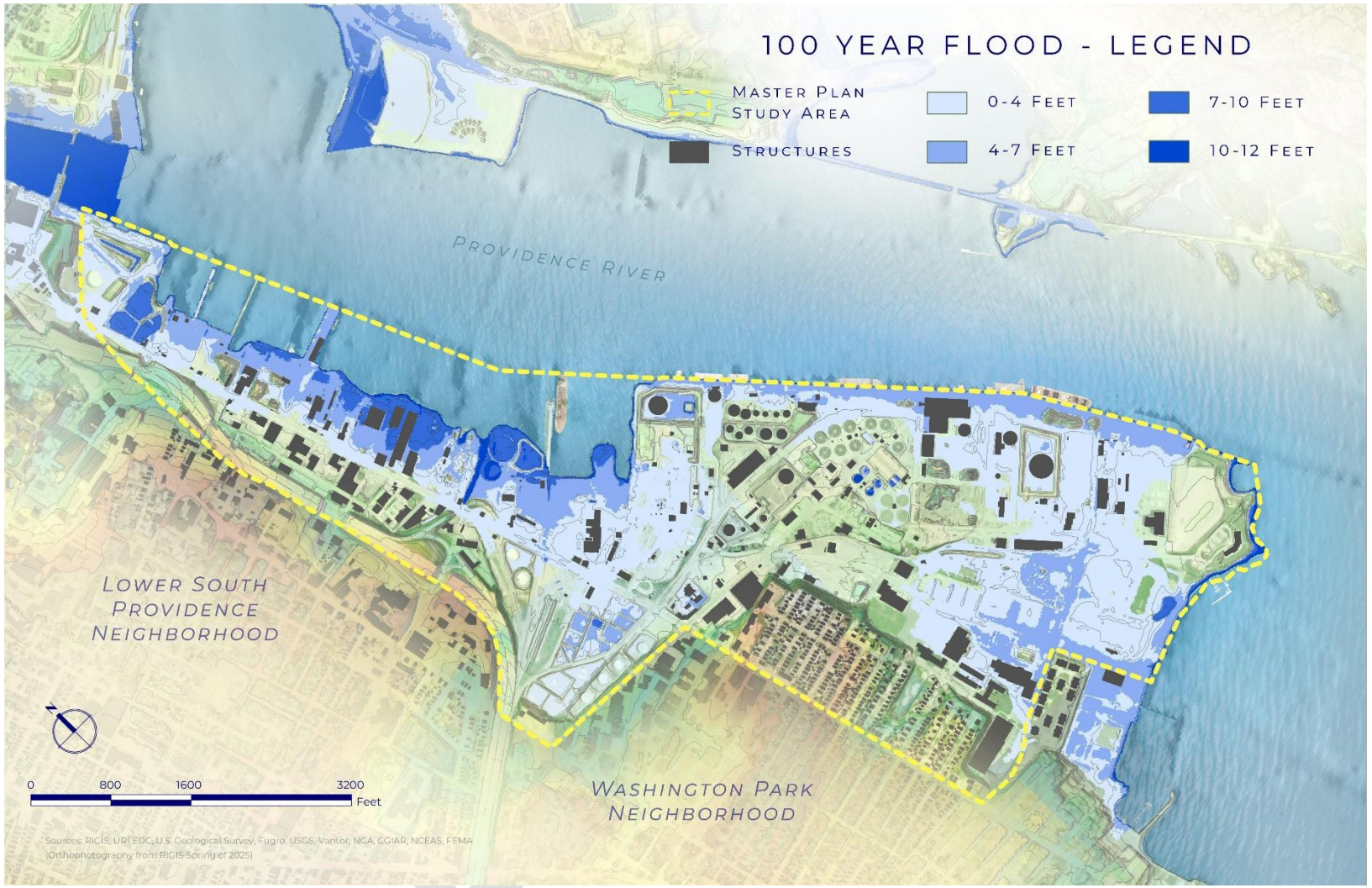


Figure 8. ProvPort 100-year Flood (STORMTOOLS)

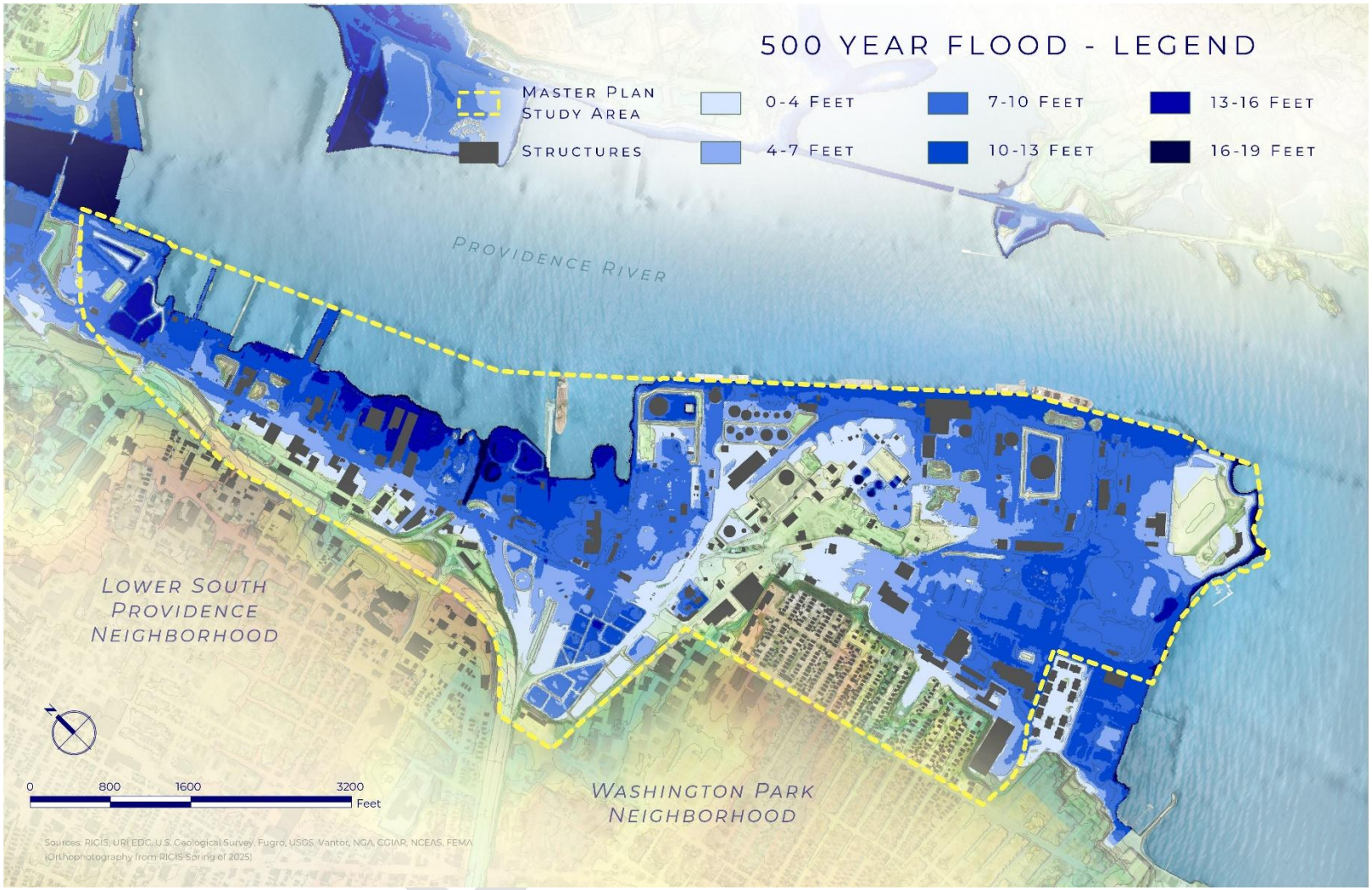


Figure 9. ProvPort 500-year (STORMTOOLS)

Hurricane Models and Inundation: ProvPort's exposure to hurricane-driven flooding was evaluated using the IRPF methodology and scenario-based storm surge modeling developed by the University of Rhode Island. These models simulate both historical and synthetic hurricanes to quantify flooding under a range of storm intensities, track alignments, and barrier conditions. The analysis demonstrates that even with the Fox Point Hurricane Barrier closed, major hurricanes, such as a 1938-type event, produce widespread inundation across the port, with flood depths exceeding critical thresholds for tank farms, laydown yards, electrical equipment, and access routes. When sea level rise is incorporated (e.g., +2 feet added to a 100-year hurricane), inundation expands significantly, overtopping large portions of the port and rendering essential operations inaccessible. These results underscore that hurricane-driven flooding poses acute risks to ProvPort today and escalating system-wide vulnerabilities through mid- and late-centuries.

- **Historic Hurricane Simulation (1938 Modified Track)**: Modeled flood depths around the port exceed 6–10 feet, with multiple operational structures surpassing their flooding thresholds (as illustrated on technical memo pages 6–7 of the report). Both barrier-open and barrier-closed scenarios show inundation across low-lying wharf areas, highlighting that barrier operations only partially reduce surge levels in the upper Providence River.
- **100-Year Hurricane + Sea Level Rise (+2 ft)**: This scenario shows substantial expansion of inundation, with water depths exceeding 10–15 feet in exposed parcels (technical memo pages 12–13). Critical waterfront infrastructure, including crane pads, warehouses, and egress routes, is flooded, and previously protected uplands become vulnerable. This scenario aligns with IRPF projections for mid-century surge amplification under NOAA Intermediate SLR.
- **500-Year Hurricane Simulation**: Serving as a "worst-credible" event for long-term planning, this model demonstrates near-total inundation of the waterfront area, with widespread exceedance of structural flooding thresholds (technical memo pages 14–17). This level of surge would overwhelm access routes, utility corridors, and tank containment systems, underscoring the need for long-range adaptive strategies.

FEMA Flood Insurance Rate Maps (FIRM Panel 44007C0212H, effective 2020): ProvPort is located predominantly within Zone AE and Zone VE, with adjacent uplands extending into Zone X500. These classifications define varying degrees of flood risk and wave exposure across the site:

- **Zone VE** – Areas subject to a 1% annual chance of flooding with additional velocity hazard (wave action). Within ProvPort, VE zones occur along the waterfront and bulkhead edges, particularly near open shoreline exposures where wave runup exceeds three feet.
- **Zone AE** – Areas with a 1% annual chance of flooding for which Base Flood Elevations (BFEs) have been determined. Most of the port's active terminal areas, tank farms, and laydown yards fall within AE zones with BFEs ranging from 12 to 15 feet NAVD88.
- **Zone A** – Areas with a 1% annual chance of flooding, for which BFEs have not been established. Small fringe areas, primarily around the interior drainage swales and low-lying uplands, fall within this category.
- **Zone X500** – Areas with a 0.2% annual chance of flooding (500-year event). These occur toward the northern and inland parcels, representing areas less frequently inundated but still at risk under severe storm conditions or long-term sea-level rise.

This mix of flood zones indicates that the majority of ProvPort's operational footprint lies within the 1% annual chance (100-year) floodplain, with critical infrastructure and tenant parcels exposed to both inundation and wave energy.

Impacts on Port Operations and Tenants: As illustrated in the figures**,** the combination of frequent nuisance flooding, extreme storm surge, and rising base water levels poses direct risks to ProvPort's:

- Petroleum and Chemical Storage – Underground tanks, containment berms, and pumping stations are highly vulnerable to saltwater intrusion and spill risks.
- Utility Infrastructure – Water, sewer, stormwater, and electric systems sit at low elevations and require elevation or hardening to maintain service continuity.
- Tenant Facilities – Scrap metal yards, salt piles, cement terminals, and offshore wind logistics parcels face inundation that can disrupt operations, damage equipment, and cause environmental releases.
- Transportation Links – Terminal Road and Allens Avenue, which connect the port to I-95, are low-lying and would be impassable during storm surges, cutting off critical access for emergency response and freight.

b. *Hazmat*

ProvPort has been historically used for industrial and maritime activities, including shipping, fuel storage, bulk material handling, and metal recycling. The site has undergone various ownership and operational changes, transitioning from a privately owned industrial port to a public-private partnership under city and state oversight. Key industries at the site include petroleum storage, metal recycling, and cargo transportation, which contribute to ongoing environmental concerns.

The Study Area comprises approximately 688 acres of coastal environment. Its northern extent begins at the intersection of I-95 with I-195 and runs southerly along Allens Avenue and Narragansett Boulevard, terminating approximately at the Providence Municipal Boundary at Harborside Boulevard. The Study Area includes coastal lands east of US Route 1A, commercial and industrial parcels west of Allens Avenue, portions of the Washington Park neighborhood, the Johnson and Wales Campus, and the Save the Bay Center. The Study Area overlaps with portions of Providence Municipal Wards 10 and 11.

Environmental Regulatory Timeline

Early 1900s – Industrial Development

The site was developed as a heavy industrial hub, leading to historical contamination concerns associated with petroleum terminals, cement operations, and metal recycling.

Mid to Late 1900s

Initial environmental assessments were conducted in response to industrial activities. Early permits and compliance requirements were issued. Petroleum terminals operated continuously from prior to 1939 through the present day.

1990s – Transition to Public Ownership

ProvPort was established as a quasi-public entity. Environmental remediation and compliance programs were initiated. Multiple gasoline spill cases were opened during this period, particularly on Lots 348 and 349 associated with the Sunoco bulk petroleum storage facility.

2000s – Present

Increased EPA and state oversight for air, water, and soil quality. Ongoing permit renewals and compliance checks continue. Recent assessments highlight continuing concerns related to air emissions, soil contamination, and water discharges. The Fields Point City Dump area (Lot 288) was capped with crushed concrete and is now leased for wind energy operations.

Hazardous Materials Risk Assessment Methodology

The risk assessment methodology is based on Environmental Data Reporter (EDR) documentation of known historic data from regulatory sources. Where data is absent, it does not mean that contamination would or would not be found during sub-surface testing. Parcels within the Study Area have been classified into four risk categories based on the following criteria:

Higher Risk (Red)

- Have experienced historic spills or releases of hazardous substances
- Have no record of remediation or have ongoing remediation processes
- Have a high probability of contamination migration due to topographic gradient or proximity to tidal waters
- Have historical and/or current land uses associated with high risk of hazardous releases
- Are included in regulatory clean-up programs

Moderate Risk (Yellow)

- Have experienced historic spills or releases of hazardous substances
- Have record of ongoing or completed remediation processes

- Have a moderate probability of contamination migration due to topographic gradient or proximity to tidal waters
- Are located adjacent to parcels identified as High Risk
- Have historical and/or current land uses associated with high risk of hazardous releases
- Are included in regulatory clean-up programs

Low Risk (Blue)

- Have not experienced historic spills or releases of hazardous substances
- Have record of completed or ongoing remediation processes, or no record of remediation
- Have a low probability of contamination migration due to topographic gradient or proximity to tidal waters
- Are located adjacent or near to parcels identified as High Risk

Little to No Risk (Green)

- Have not experienced historic spills or releases of hazardous substances
- Have record of completed remediation or no record of remediation
- Have a low probability of contamination migration from higher risk parcels
- Have no historical and/or current land uses associated with high risk of hazardous releases

Parcel-Level Risk Inventory

High Risk Parcels (with Contamination History)

The following parcels have documented contamination histories, ongoing remediation processes, and/or inclusion in regulatory clean-up programs such as RCRA.

Table 8. Hazmat High Risk Parcels

Parcel #	Current Uses	Previous Uses	Contamination History
348	New England Petroleum Terminal LLC (North Site)	▪ Bulk petroleum distribution facility under Sunoco from 1991-2006	• Evidence of dissolved phase compounds migrating with groundwater from the former petroleum terminal (RI DEM)
350	Dock used by McInnis Cement (St. Mary's Cement)	▪ J.J. Hudson Company ▪ Shire Corporation warehouse • Lehigh Portland Cement Co	• RCRA site • Shire warehouse demolished early 2004-5
349	New England Petroleum Terminal, LLC	▪ Former Sunoco bulk petroleum storage facility (portion) ▪ Waterson Terminal Services, LLC ▪ Wilson G E Co ▪ Bishop Terminal Service LLC	▪ RCRA site ▪ Multiple gasoline spill cases (1990s) ▪ Dissolved phase compounds migrating with groundwater (RI DEM)
365	Morton Salt (Road salt distribution and storage)	▪ Hudson Liquid Asphalts Inc (RCRA)	▪ RCRA site ▪ Lot reconfigured in 2007-2008 due to neighborhood complaints; paved to redirect stormwater runoff

Moderate Risk Parcels

Moderate risk parcels have histories of industrial use that may have resulted in contamination, are adjacent to high risk areas, or have previous uses associated with potential hazardous releases.

Table 9. Hazmat Moderate Risk Parcels

Map Ref	Parcel #	Current Uses	Previous Uses
B	339	New England Petroleum Terminal LLC (South Site)	▪ Bulk petroleum distribution facility under Citgo from 1984-2000
Adj. to J	332	Mechanic area in use by Port	▪ American Aerial Equipment LLC ▪ Armed Forces Reserve Center
M	361	South Berth 5 & Berth 6 and dock apron	▪ Formerly used as a scrap metal recycling facility (portion)
M	362	Orsted Wind Power North America LLC	▪ Northern storage metal scrap bin during scrap metal recycling operations (Three Flags)
M	363	Orsted Wind Power North America LLC	▪ Southern storage metal scrap bin during scrap metal recycling operations (Three Flags)
M	288	Orsted Wind Power North America LLC	▪ Remediated former landfill under full environmental cap; formerly part of the Fields Point City Dump

Map Ref	Parcel #	Current Uses	Previous Uses
H	356	Sea-3 Providence, LLC	▪ Previously leased to Enterprise Products and Terminals, TE Products Pipeline Company, and Petrolane

Low Risk Parcels

Low risk parcels have limited or no documented contamination history but may be adjacent to higher risk areas or have past industrial uses that warrant monitoring.

Table 10. Hazmat Low Risk Parcels

Parcel #	Current Uses	Previous Uses
271	Heidelberg Materials (formerly Lehigh Cement/Lehigh Glens Falls)	—
352	Washington Mills / McInnis USA	▪ Formerly Metals Recycling, LLC DBA Schnitzer Northeast (Patriot Metals Company)
355	Berths 2, 3, & 4 and adjacent dock apron	—
357	North Berths 5 and adjacent dock apron	—
351	Saint Mary's Cement (McInnis Cement)	▪ Warehouse was former general port warehouse use (rolled steel, lumber, other project cargoes)

Parcel #	Current Uses	Previous Uses
		▪ Surrounding lots to the West were all part of Metals Recycling former leased area
353	Radius Recycling (Schnitzer NE Steel)	▪ Former Metals Recycling/Patriot Metals
358	Wind Cable Services USA	▪ "Ace warehouse" – demolished 2020 ▪ George Mann Co
360	Univar USA, Inc.	▪ George Mann Co ▪ Vopak
364	Orsted Wind Power North America	▪ Formerly part of the Fields Point City Dump ▪ Lehigh Portland Cement Company

Little to No Risk Parcels

These parcels have no documented contamination history and minimal likelihood of contamination migration from adjacent properties.

Table 11. Hazmat Little to No Risk Parcels

Parcel #	Current Uses	Previous Uses
292	Johnson & Wales Harborside Campus	—

Parcel #	Current Uses	Previous Uses
366	Commerce RI	Eco Depot building (20 Fields Point Drive)
367	Wind Cable Services USA	PLI property conveyed to RI Commerce (former Lot 343 and 344)
371	Johnson & Wales Harborside Campus	—
354	Heidelberg Materials (formerly Lehigh Cement/Lehigh Glens Falls)	Portion of parcel is part of former Metals Recycling/Patriot Metals
359	Green Development	Parking area

Key Findings and Considerations for Environmental

Environmental Concerns

Air quality issues persist due to emissions from fuel storage and transport operations. Soil and groundwater contamination from historical industrial activities remains an ongoing concern, particularly on parcels associated with petroleum terminals (Lots 348, 349, 350) and the former scrap metal recycling facility. Community exposure risks are elevated due to the proximity of the Washington Park residential neighborhood. Several RCRA sites within the port boundaries require continued regulatory oversight.

Regulatory Actions and Compliance

Continuous environmental monitoring and reporting requirements are in place across the Study Area. Permitting conditions govern emissions, waste handling, and stormwater management. RI DEM reports have documented dissolved phase compound migration from petroleum terminal operations. Asbestos abatement remains ongoing at Lot 350 (Hudson Terminal). The Fields Point City Dump area has been capped but represents a legacy concern.

Path Forward

Continued enforcement and oversight may be necessary for parcels with ongoing contamination concerns. Further remediation efforts should be evaluated where contamination persists, particularly at tidally influenced parcels where contaminant migration is a factor. Balancing the economic benefits of port operations with environmental responsibilities to the adjacent community remains a central challenge for the Master Plan. Any future redevelopment or repurposing of parcels should incorporate comprehensive environmental due diligence consistent with RI DEM requirements.

c. *Air*

Overview

Air quality in the Port of Providence area is shaped by a complex mix of industrial operations, heavy truck traffic, marine vessel emissions, interstate highway traffic on I-95, and regional pollutant transport. Rhode Island's Department of Environmental Management (RIDEM), in partnership with the Department of Health and U.S. EPA, operates a statewide monitoring network of seven permanent sites and has conducted targeted community-scale monitoring around the Port since 2020. In parallel, EPA Region 1 commissioned a two-phase Truck Count and Assessment Study (2020) to inventory medium and heavy-duty freight truck activity in the Port area and identify emission reduction strategies. The findings below synthesize data from the 2020 Community-Scale Air Toxics Monitoring Study, the RI 2024 Annual Monitoring Network Plan, the EPA Truck Count and Assessment Study (Phases I and II), and related investigations.

Criteria Pollutants

Rhode Island currently meets all National Ambient Air Quality Standards (NAAQS) for criteria pollutants. However, several trends and conditions are relevant to the Port area:

- Fine Particulate Matter (PM2.5): Annual and 24-hour concentrations remain below the revised NAAQS (9.0 µg/m³ annual; 35 µg/m³ 24-hour), but design values have been trending upward at nearly all monitors due to increased

wildfire smoke events, particularly during summer 2023. The Vernon Street site adjacent to I-95 consistently records the highest annual averages (7.7 µg/m³ for 2021–2023), while the Near Road site in Cranston is expected to surpass it with full data capture. Community-scale monitoring at Port study sites (Animal Shelter, Seastreak, Ohio Ave) recorded annual PM2.5 averages of 7.7–8.7 µg/m³ using low-cost sensors — modestly higher than permanent FEM network sites (5.3–6.4 µg/m³), though direct comparison is limited by sensor bias. All Port study site readings exceeded the WHO guideline of 5 µg/m³ annually.

- Ozone (O_3): Design values have generally declined over the past two decades (from 90+ ppb in the early 2000s to 64–68 ppb at the three long-running sites for 2021–2023), and Rhode Island remains in attainment under the 70 ppb standard. However, the state is designated Nonattainment/Unclassifiable as part of the Ozone Transport Region.
- Nitrogen Dioxide (NO_2), Carbon Monoxide (CO), and Sulfur Dioxide (SO_2): All are well below NAAQS thresholds. The Near Road NO_2 1-hour design value is 40 ppb (40% of the 100 ppb standard). CO levels are at 5–18% of standards. SO_2 is at approximately 2.6% of the primary standard.
- PM10: Never exceeded in the state. Highest recent 24-hour values range from 32–49 µg/m³ (21–32% of the 150 µg/m³ standard), though coarser particle concerns from industrial dust, truck traffic, and materials handling along Allens Avenue remain a qualitative concern warranting further characterization.

Air Toxics — Key Findings from the Community-Scale Study

The 2020 Community-Scale Air Toxics Monitoring Study deployed VOC samplers at five locations around the Port over approximately one year (October 2021–September 2022). The study identified several contaminants of concern at levels exceeding EPA health benchmarks:

Contaminants of Primary Concern:

- Ethylene Oxide: The greatest contributor to cancer risk at all monitoring sites. Average concentrations ranged from 0.070–0.139 ppb, well above the EPA annual screening level of 0.0002 ppb. Estimated cancer risk reached 409–757 per million at study sites.

- Acetaldehyde: Average concentrations of 3.5–6.5 ppb across sites, exceeding the EPA annual screening level of 0.45 ppb. Estimated cancer risks of 17–31 per million. Sources include fuel combustion, industrial solvents, and secondary atmospheric formation.
- Benzene: Average concentrations of 0.14–0.29 ppb, above the EPA annual screening level of 0.13 ppb. The Animal Shelter site on Port property recorded the highest averages (0.29 ppb) and peak concentrations (1.76 ppb), consistent with proximity to fuel handling and truck traffic. Cancer risk estimated at 13–28 per million.
- 1,3-Butadiene: The Animal Shelter site recorded the highest average (0.06 ppb) and maximum (1.21 ppb) concentrations. This compound is associated with petroleum operations, rubber manufacturing, and vehicle exhaust.
- Acrolein: Consistently exceeded EPA chronic non-cancer reference concentrations at all sites, raising concerns for respiratory irritation. Highest levels were found at the SUEZ Pump Station, Ohio Avenue, and Animal Shelter locations.

Location-Specific Patterns:

- The Animal Shelter (200 Terminal Rd), centrally located on Port property, consistently recorded the highest concentrations of benzene, 1,3-butadiene, and naphthalene — pollutants associated with fuel handling and heavy diesel traffic.
- Ohio Avenue, a residential neighborhood site, showed moderate but persistent VOC levels, reflecting community exposure from both vehicular and nearby industrial sources.
- Comparison sites farther from the Port (CCRI, East Providence, Alton Jones) showed lower concentrations, confirming that proximity to Port operations correlates with elevated air toxics levels.

Temporal and Meteorological Patterns: Higher VOC concentrations were observed during colder months due to increased combustion and atmospheric conditions favoring pollutant accumulation. Wind direction was a significant factor in pollutant transport, with sites downwind of industrial clusters recording episodic spikes. The 24-hour, once-every-six-day sampling protocol limited the ability to identify specific emission events or sources.

Truck Traffic and Mobile Source Emissions

The EPA-commissioned Truck Count and Assessment Study (Phases I and II, 2020) provides the most detailed available characterization of heavy-duty truck activity in the Port area. The study inventoried medium and heavy-duty freight trucks (Class 5–8) serving businesses in both ProvPort and the broader working port study area along Allens Avenue and Terminal Road.

Truck Volume and Composition: Phase I field observations recorded over 1,300 truck movements across nine observation locations during summer 2020. Bulk carriers (including dry powder and bulk trailers) constituted 41% of all trucks observed, followed by tankers at 18%, flatbeds at 7%, and car transporters at 10%. The overwhelming majority were Class 7 and 8 heavy-duty vehicles. Hourly truck volumes ranged from 19 to 43 trucks per hour depending on intersection, with the highest volumes observed at Thurbers Avenue near the I-95 interchange (43 trucks/hour daily average) and in the vicinity of the ProvPort entrance (36 trucks/hour).

Fleet Age and Emissions Technology: Truck ages ranged from new to over 20 years, with an average fleet age of approximately 7 years from fleet manager interviews and 9 years from driver interviews. Approximately 17% of trucks observed in Phase I showed obvious visual signs of age (significant body deterioration, belching smoke). Pre-2007 trucks lack diesel particulate filters (DPF) and selective catalytic reduction (SCR) technology, making them substantially higher emitters of particulate matter and NOx. The trucks serving ProvPort are owned by independent operators and not under ProvPort control. Only two of the companies interviewed in Phase II had anti-idling technology installed on their trucks.

Trip Patterns and Efficiency: Most trucks access the Port area via I-95 ramps at Thurbers Avenue, with the majority exiting onto Allens Avenue. Drivers make an average of 5 trips per week to the Port (median), with some making up to 45 trips weekly. A significant finding was that 90–100% of return hauls are empty, representing a substantial inefficiency and source of unnecessary truck miles and emissions. Most port businesses do not dictate routes to trucking companies and do not utilize scheduling windows or appointment systems, limiting the ability to manage truck flows and reduce congestion-related idling.

Neighborhood Impacts: The study documented that trucks use secondary roads through residential areas to access I-95, particularly for southbound travel given the lack of a direct ramp from Allens Avenue. Trucks queue on public roadways waiting to enter port facilities, sometimes violating Rhode Island's 5-minute idle limit, restricting bicycle lane access, and generating noise and emissions in adjacent residential neighborhoods including Washington Park and South Providence.

Source Attribution — A Critical Data Gap

A fundamental challenge in characterizing air quality impacts on the Washington Park and South Providence neighborhoods is the inability to definitively apportion observed pollutant concentrations among the multiple contributing source categories. The elevated levels of air toxics and particulate matter documented in the studies reviewed reflect the cumulative influence of at least three overlapping source categories:

ProvPort operations and tenants — including vessel loading/unloading, on-terminal truck movements, material handling equipment, and the industrial operations of ProvPort tenants such as cement, salt, and metals recycling businesses.

Broader Port area industrial operations outside ProvPort — the working port study area extends well beyond ProvPort's boundaries to include petroleum storage and distribution terminals along Allens Avenue (Sprague, Global Partners/New England Petroleum, Shell), asphalt processing (Narragansett Improvement, Hudson Terminal), chemical storage (Univar), metals recycling (Schnitzer, SIMS), and other industrial uses. These facilities generate their own truck traffic, fugitive emissions, and point-source air pollutant discharges independent of ProvPort.

I-95 corridor traffic — the interstate highway runs immediately adjacent to the study area and surrounding neighborhoods. The Vernon Street and Near Road monitoring sites, both situated near I-95, consistently record the highest PM2.5 design values in the state. Highway traffic — including but not limited to Port-related trucks — is a major contributor to NO_2, CO, PM2.5, black carbon, and certain VOCs in the airshed.

The community-scale monitoring study confirmed that sites closer to the Port show higher pollutant concentrations than comparison sites, and that wind direction plays a significant role in transporting emissions to residential areas. However, the study's sampling methodology (24-hour integrated samples collected every six days) was not designed to isolate individual source contributions. As the study authors noted, during a 24-hour sampling period, winds change frequently, making it nearly impossible to determine when elevated readings occurred or from which direction they originated. Additionally, the NO_2 data from low-cost sensors proved unusable due to poor correlation with reference monitors, further limiting the ability to fingerprint combustion sources.

The investigative recommendations for the Port area identify specific facilities warranting further fenceline and stack monitoring — including VOC sampling at petroleum tank vents (New England Petroleum, Sea-3), dust monitoring around uncovered material storage piles (Washington Mills, Morton Salt, McInnis Cement), and combined VOC/dust assessments at metals recyclers (Schnitzer) and chemical distributors (Univar). Until this source-specific characterization work is completed, the relative contributions of ProvPort, the broader industrial port corridor, and I-95 to neighborhood-level air quality impacts will remain uncertain.

This uncertainty does not diminish the significance of the documented air quality concerns — multiple pollutants exceed health-based benchmarks, and the affected neighborhoods are designated environmental justice areas. Rather, it underscores the need for continued investment in real-time, source-apportioned monitoring to inform targeted emission reduction strategies.

Emission Reduction Strategies Identified

The Phase II Truck Count and Assessment Study identified several potential strategies to reduce air emissions, noise, and congestion from port-related trucking, including: accelerating the replacement of older pre-2007 trucks lacking modern emission controls through DERA funding and incentive programs; implementing vehicle booking and appointment systems to reduce truck queuing and idling on public roads; developing a designated truck route network to separate heavy truck traffic from residential streets; exploring the feasibility of direct I-95 southbound access to reduce truck intrusion into neighborhoods; promoting EPA SmartWay and Green Marine voluntary environmental programs among port carriers; and strengthening anti-idling enforcement and technology adoption. The study also

noted that electric trucks, while not yet prevalent in the Providence market, could significantly reduce emissions for the short-haul trips characteristic of Port operations.

Monitoring Gaps and Future Plans

RIDEM has identified several monitoring needs and is pursuing expanded capabilities through multiple Inflation Reduction Act (IRA) funding sources, including real-time VOC monitoring using Sensit SPOD systems at the Animal Shelter with automated grab sampling when thresholds are exceeded; enhanced particulate monitoring for PM1.0, PM2.5, and PM10 along Allens Avenue; expanded Purple Air network coverage across Providence's urban core; portable FLIR optical gas imaging cameras and PID-based VOC detectors for compliance inspections and fugitive emission detection; and new permanent monitoring planned for Woonsocket and other Environmental Justice areas statewide.

Summary of Key Takeaways for Air Quality

1. Rhode Island meets all federal air quality standards, but the Port of Providence area experiences measurably elevated levels of several hazardous air pollutants compared to background and urban comparison sites.
2. Ethylene oxide, acetaldehyde, benzene, 1,3-butadiene, and acrolein are the primary contaminants of concern, with cancer and chronic health risk benchmarks exceeded at multiple locations.
3. Heavy-duty truck traffic is a significant mobile source of emissions, with over 1,300 truck movements documented during the Phase I observation period. Bulk carriers and tankers dominate the fleet, and 17% of trucks showed obvious signs of age. Nearly all return trips are empty hauls.
4. The relative contributions of ProvPort operations, the broader industrial port corridor along Allens Avenue, and I-95 highway traffic to neighborhood air quality impacts cannot be disaggregated with currently available data. All three source categories are likely contributing cumulatively to the elevated pollutant levels documented in Washington Park and South Providence. Targeted source-apportionment monitoring — including real-time VOC systems, fenceline dust monitoring, and facility-specific stack sampling — is needed before definitive source attribution can be made.

5. PM2.5 levels, while below NAAQS, are trending upward and exceed WHO guidelines at Port-area sites. Coarser particle dust from industrial operations and truck traffic is a qualitative concern needing further characterization.
6. Multiple actionable strategies have been identified to reduce truck-related emissions and neighborhood impacts, including fleet modernization incentives, truck route management, vehicle booking systems, anti-idling enforcement, and infrastructure improvements for I-95 access.

Sources: RIDEM 2024 Annual Monitoring Network Plan; 2020 Community-Scale Air Toxics Monitoring Study Final Report; EPA Truck Count and Assessment Study Phase I (September 2020) and Phase II (December 2020); Phase II Presentation (Dawson/HDR, December 2020); Air Monitoring Investigation Recommendations (RIDEM); AQ Summary — 2020 Community Scale Air Toxics Monitoring

d. Noise

Regional Noise Context

ProvPort is located within a heavily industrialized and transportation-intensive corridor of South Providence characterized by immediate proximity to Interstate 95, Allens Avenue truck corridors, rail activity, marine industrial operations, and commercial and bulk material handling uses. This setting results in a high ambient urban-industrial noise environment independent of individual tenant activities.

Measured ambient levels generally ranged:

- 55–60 dBA at residential receptors such as Thurbers Avenue and Oxford Street.
- 65–70 dBA at locations closer to I-95 and heavy traffic corridors.
- 55–60 dBA at the monitoring location nearest ProvPort (Toronto Avenue).

These levels are consistent with typical urban industrial environments and align with common reference ranges for 'Typical Urban Area' conditions (60–70 dBA). A 3 dBA change is just perceptible, and a 10 dBA increase is generally perceived as a doubling of loudness.

Overview and Data Limitations

An environmental noise scan was conducted using available 24-hour monitoring data originally collected in association with a Federal Energy Regulatory Commission (FERC) study. While these measurements provide a general understanding of ambient sound levels in the broader Port of Providence area, the dataset is limited in scope and does not constitute a comprehensive operational noise assessment of ProvPort activities.

- Only one monitoring location was directly adjacent to ProvPort operations.
- Monitoring did not coincide with peak operational events (e.g., major vessel loading, salt pile management during winter months).
- The data reflects cumulative ambient conditions and do not isolate specific operational noise sources.
- Mobile sources (I-95 and Allens Avenue truck traffic) significantly influence measured levels.

The information presented should therefore be interpreted as a baseline ambient conditions summary, not a definitive evaluation of peak port-generated noise.

Primary Noise Sources in the ProvPort Environment

Transportation Sources (Dominant Contributor)

- I-95 vehicular traffic
- Allens Avenue truck movements
- Terminal Road intersection movements

- General port-related trucking
- Mobile source traffic appears to be the largest continuous contributor to the overall noise environment.

Industrial / Port Operational Sources (Intermittent)

- Vessel loading and unloading operations
- Crane activity
- Backup alarms and heavy equipment
- Bulk material handling
- Rail interface activities

Tenant-Specific Major Noise Generating Activities

Morton Salt – Seasonal loader operations, dump trucks climbing salt piles, backup alarms (winter peak activity not reflected in monitoring data).

Radius Recycling – Scrap metal handling, pile management, and vessel loading (impact noise from metal-to-metal contact).

These operational sources are generally episodic and activity-driven, rather than continuous background noise.

Community Observations of Noise

During public engagement meetings, residents noted that metal loading operations associated with scrap recycling activities could reportedly be heard as far away as the Edgewood neighborhood in Cranston. While anecdotal, this

observation is consistent with the acoustic characteristics of impulsive metal-on-metal impact sounds and elevated sound propagation over water under favorable atmospheric conditions. No monitoring data currently verifies these long-distance propagation claims.

Regulatory and Compliance Context for Noise

The Providence Port Area is zoned for heavy industrial use, and background sound levels are elevated due to cumulative transportation and industrial activities. The existing monitoring was not designed as a compliance study and does not evaluate conformance with municipal nuisance standards, peak impulse noise, or worst-case vessel loading events.

Risk Interpretation

Measured ambient levels of 55–70 dBA fall within typical urban exposure ranges and are generally considered acceptable to marginally acceptable for residential receptors. However, impulse noise events may generate short-duration peak levels not captured in averaged 24-hour Leq data. Seasonal activities and peak vessel calls were not included in the monitoring dataset.

Key Takeaways for the Master Plan

- ProvPort operates within an already elevated ambient transportation and industrial noise corridor.
- Traffic (I-95 and Allens Avenue) is likely the dominant continuous noise source.
- Port operations contribute intermittently, particularly during loading and material handling events.
- Existing monitoring is limited and does not reflect peak operational periods.
- Community concern regarding scrap metal loading warrants further targeted evaluation.
- A focused operational noise assessment during peak activity periods would provide a more definitive compliance and nuisance evaluation.

e. *Transportation and Traffic*

ProvPort and the broader port district are situated in a transportation context shaped by the surrounding roadway network, freight operations, commuter travel patterns, and the safety and livability concerns of adjacent neighborhoods. The following summarizes available traffic and transportation data relevant to the ProvPort area.

Roadway Network and Traffic Volumes

Allens Avenue (Route 1A) is the primary surface roadway serving ProvPort and the surrounding port district. It is a four-lane principal arterial running in a generally north-south orientation, providing connections to Downtown Providence to the north and the City of Cranston to the south. Based on historic traffic volume data, Allens Avenue carries approximately 22,500 vehicles per day south of Thurbers Avenue. A 2018 FERC environmental assessment reported an annual average daily traffic (AADT) of approximately 12,000 vehicles on U.S. Route 1A (Allens Avenue/Narragansett Boulevard), confirming that the corridor consistently carries significant traffic. Seven signalized intersections are located along the corridor: Allens Avenue at Eddy Street, Blackstone Street, Public Street, Thurbers Avenue, the Motiva Enterprises driveway, Terminal Avenue, and Ernest Street. Numerous unsignalized intersections and commercial driveways also provide access along the corridor.

Regional highway access is provided by Interstate 95, which runs north-south to the west of the port district, and Interstate 195, which connects to the east. The short merge from Allens Avenue and Thurbers Avenue onto I-95 northbound can create bottlenecks during peak periods, particularly with slow-moving commercial trucks entering the freeway. During a 2019 lane closure, RIDOT advised port truck drivers to seek alternate routes or travel during off-peak hours to avoid delays at this on-ramp.

Public transit service is provided by the Rhode Island Public Transit Authority (RIPTA). Routes 3 and 4 travel along Allens Avenue, connecting Kennedy Plaza in Downtown Providence to destinations in Cranston and Warwick to the south.

Truck Traffic and Freight Operations

A substantial share of traffic on Allens Avenue consists of heavy trucks serving port businesses. Virtually all freight trucks accessing ProvPort must use Allens Avenue, and truck traffic is a near-constant presence along the corridor. Common truck types include fuel tankers, dump trucks, bulk material haulers, and other Class 7–8 vehicles moving petroleum, scrap metal, cement, and cargo to and from the port. The steady flow of large trucks contributes to noise, emissions, pavement wear, and environmental justice concerns in adjacent South Providence neighborhoods, including Washington Park.

Port-related truck volumes are closely tied to cargo throughput. The Port of Providence has expanded operations in recent years, with cargo tonnage in 2023 approximately 28 percent higher than pre-pandemic averages and have only increased in the last two years. This resurgence in shipping activity translates to increased truck trips on Allens Avenue, as more vessels unloading fuel, salt, cement, and other bulk commodities require additional truck haul-out. Future projections anticipate continued growth in freight movement; Rhode Island's statewide freight plan identifies the Providence port as critical to freight networks, suggesting that freight demand will grow through 2030 and beyond. Providence's Climate Justice Plan (2019) and the EPA-led Port Working Group (established 2020) both call for strategies to reduce the negative impacts of port truck traffic while accommodating continued commerce.

Commuter Origin-Destination Patterns and Modal Split

U.S. Census journey-to-work data, as compiled in the American Community Survey (ACS), provide insight into how workers access the port area and how port-area residents commute to employment elsewhere. Two complementary datasets characterize these patterns: the Residence-to-Job-Workplace (RJTW) data describe workers commuting into the ProvPort census tract (Tract 1.01, Providence County), while the Journey-to-Work (JTW) data describe where residents of Tract 1.01 commute for employment.

Inbound Commuters (Workers Traveling to ProvPort). An estimated 2,435 workers commute to the ProvPort area by car, truck, or van, with an additional 154 commuting by bus and approximately 150 arriving by walking or other means, for a total of roughly 2,740 workers. The automobile mode share for inbound commuters is approximately 90 percent.

The majority of auto commuters originate from within Providence County, which accounts for approximately 1,706 of the 2,435 vehicle-based commuters (70 percent). Within Providence County, workers travel from census tracts distributed in all directions, with notable concentrations arriving from the north (via I-95 and surface streets) and the west (via Cranston and the broader metro area). Kent County is the second-largest origin, contributing approximately 450 auto commuters (18 percent), who likely access the port area via I-95 southbound or Route 10. Smaller numbers of commuters originate from Washington County (150), Bristol County (89), and Newport County (40). Bus commuters primarily travel from census tracts within Providence County, including Tract 160 (35 workers) and Tract 135 (30 workers), both located to the north. A notable share of walk and other-mode commuters (110 out of 150) originate from within the ProvPort census tract itself, reflecting the presence of workers who reside in the immediately surrounding neighborhoods.

Outbound Commuters (ProvPort-Area Residents Traveling to Work). The JTW data (2019–2023 ACS) show that approximately 1,465 workers reside in Tract 1.01. Of these, 1,110 commute by auto (81 percent), 116 by bus (8 percent), 21 by rail (2 percent), and 121 by walking or other means (9 percent), with 97 working from home. The auto mode share for outbound commuters (81 percent) is notably lower than the inbound commuter rate (90 percent), reflecting a resident population with greater reliance on transit and non-motorized travel. Among auto commuters, the largest share travel to workplaces within Providence County (approximately 1,154 vehicle trips), while Kent County accounts for about 295 outbound auto trips. Residents also commute by bus to locations including Tract 116 (30 workers), Tract 8 (45 workers), and Tract 36.02 (15 workers) within Providence County. These patterns confirm the importance of both the roadway network and transit service for the residential population adjacent to ProvPort.

Modal Split Trends. Comparing the JTW modal split across two available survey periods reveals some shifts. In the 2015–2019 ACS period, the tract had a total of 2,078 workers with an 81 percent auto mode share, 8 percent bus, and 10 percent walk/other. In the more recent 2019–2023 period, total workers declined to 1,465 while the auto mode share remained stable at 81 percent, bus share remained at 8 percent, and walk/other at 9 percent. The earlier RJTW data (2012–2016) for inbound workers showed a higher auto mode share of 90 percent with a lower bus share (2 percent) and walk/other share of 8 percent, suggesting that the workforce commuting into the port area is more auto-dependent than the resident population commuting out.

Roadway Safety and Crash History

A Road Safety Assessment (RSA) was completed for Allens Avenue in January 2017 by VHB under RIDOT's Highway Safety Improvement Program. The assessment documented a range of safety and operational conditions relevant to the port district. Over the five-year study period (2012–2016), 72 crashes were recorded along the corridor. The majority (57 percent) resulted in property damage only, though one fatal crash and three incapacitating-injury crashes were documented. Rear-end collisions accounted for 50 percent of all crashes, and angle-type crashes represented 25 percent. Six crashes (7 percent) involved vulnerable road users, including four pedestrians and two bicyclists.

Several crash hotspots emerged from the analysis. A pedestrian fatality occurred near the Stericycle facility (between Swan and Sherburne Streets), where a worker was struck while crossing Allens Avenue at an unmarked mid-block location. A pedestrian suffered an incapacitating injury crossing Thurbers Avenue. At Ernest Street, multiple bicycle crashes were documented, including "left-hook" and "right-hook" collisions where turning vehicles struck cyclists. These intersections handle complex turning movements associated with port terminal access and I-95 ramp connections, creating particularly hazardous conditions for vulnerable road users.

Speed data collected as part of the RSA found that the 85th-percentile speeds on Allens Avenue exceed the posted 35 mph speed limit in both directions, reaching 42 mph northbound and 44 mph southbound. Average travel speeds were also above the posted limit at 38 and 39 mph, respectively. The combination of excessive speed, wide lanes, and heavy truck traffic contributes to crash severity and creates challenging conditions for pedestrians and bicyclists. The RSA identified a range of additional safety concerns, including inadequate bicycle accommodation, deficient pedestrian crossings and sidewalk conditions, poor drainage, inactive railroad tracks in the roadway, access management challenges related to heavy vehicle queuing in travel lanes and bicycle lanes, and inadequate nighttime lighting.

Capacity analysis of the four signalized intersections between Thurbers Avenue and Eddy Street showed that all intersections operate at Level of Service (LOS) C or better during both the AM and PM peak hours under existing conditions. This finding indicated that, despite high volumes, the corridor has excess capacity attributable to its four-

lane configuration - suggesting that a lane reduction could be feasible without unacceptable degradation of traffic operations.

Pedestrian and Bicycle Safety

Pedestrian infrastructure on Allens Avenue is limited despite the presence of bus stops and foot traffic from nearby neighborhoods and workplaces. Sidewalks exist but are often directly adjacent to the wide roadway with minimal buffer, and many segments are not ADA-compliant. Crosswalks are few and far between, and long stretches between signalized intersections leave pedestrians with no protected crossing opportunities. The pedestrian fatality near Stericycle and the injury at Thurbers Avenue both occurred at locations lacking adequate crossing facilities. The RSA recommended installation of a pedestrian crosswalk with a refuge island at the Stericycle location, along with rectangular rapid flashing beacons (RRFBs) at key crossings, continental-style crosswalk markings, and pedestrian signal heads with countdown timers at all signalized intersections.

Bicycle facilities on the corridor are substandard. At the time of the RSA, the existing marked bicycle lane varied in width between 3 and 8 feet with inconsistent signage and striping. Cyclists must share the roadway with heavy trucks, and the high-speed, four-lane configuration makes the corridor a daunting and dangerous route. The bicycle crashes documented at Ernest Street demonstrate the hazard at intersections where turning vehicles conflict with cyclists. Allens Avenue was identified both in the RSA and in the City of Providence's Vulnerable Road User Safety Action Plan (VRUSAP) as a high-priority corridor for pedestrian and bicycle safety improvements.

Hazardous Materials Transport

The Port of Providence contains petroleum terminals, chemical storage facilities, an asphalt plant, and other heavy industries, generating daily movement of tank trucks carrying gasoline, diesel, propane, and chemicals along Allens Avenue to and from I-95. This hazardous materials transport raises the risk of dangerous incidents. In March 2017, a natural gas pipeline ruptured along Allens Avenue, and around the same time a freight train car carrying ethanol derailed in the port area. On October 3, 2018, a tanker truck carrying approximately 11,500 gallons of gasoline rolled over on the Allens Avenue ramp to I-95 North, rupturing the tank and spilling approximately 11,000 gallons of gasoline onto

Allens Avenue and into storm drains leading to the Providence River. This incident caused road closures, prompted an extensive HAZMAT cleanup, and sent fumes into nearby neighborhoods. It was the third major South Providence hazardous materials accident in 18 months.

In addition to acute incident risks, routine hazardous materials transport raises ongoing health and safety concerns for residents of Washington Park and South Providence, who report frequent chemical and petroleum odors. Rhode Island's anti-idling law for diesel trucks is reportedly seldom enforced along Allens Avenue. In 2021, State regulators rejected a proposal to expand a liquefied petroleum gas (LPG) storage facility at the port following public opposition about the added hazard of more propane railcars and trucks in the area. A working group involving RIDOT, RIDEM, and RIDOH was established to improve hazardous materials safety coordination at the port.

Prior Roadway Improvement Initiatives

The 2017 RSA recommended a road diet for Allens Avenue between Thurbers Avenue and Eddy Street, which would reduce the corridor from two travel lanes in each direction to one lane in each direction with a two-way left-turn lane (TWLTL). The capacity analysis demonstrated that the corridor could accommodate this reconfiguration with all signalized intersections maintaining LOS C or better during peak periods. A road diet was projected to reduce total crashes on the corridor by approximately 37 percent based on crash modification factors from the FHWA CMF Clearinghouse. RIDOT programmed funding in the Transportation Improvement Program (TIP) for fiscal year 2020 to implement the road diet, bicycle lanes in each direction, a crosswalk with RRFBs at Stericycle, and signal timing modifications. Correspondence between RIDOT, EPA, VHB, and the City of Providence documented that the project was on schedule as of April 2019, with RIDOT's Project Management section handling final design.

However, RIDOT had also been developing a broader Complete Streets-inspired plan to install a two-way bicycle lane on Allens Avenue and implement additional pedestrian safety measures. That initiative was discontinued in 2022. The RSA-recommended improvements, including the road diet, bicycle lanes, and crosswalk enhancements have not been fully implemented as of this writing. The combination of the stalled RSA recommendations and the abandoned Complete Streets effort indicates that Allens Avenue continues to operate in a condition that prioritizes vehicular throughput over multimodal safety and accessibility. These conditions are a significant consideration for the Master

Plan, particularly as they relate to community concerns about the compatibility of port-related truck traffic with the safety, public health, and livability of adjacent environmental justice neighborhoods

f. Public Access

Although ProvPort is a secure, working waterfront governed by federal and state safety regulations, the overall port area (including and outside ProvPort-leased lands) contains several established public access points that provide visual, educational, and recreational connections to the Providence River. Regionally significant public access amenities, such as India Point Park, Gano Park, and multiple CRMC-designated rights-of-way, including Public Street and Fields Point, form the broader public interface with the industrial waterfront through shoreline viewing, trails, fishing areas, and kayak launches.

Within and immediately adjacent to ProvPort-leased parcels, additional public-facing facilities contribute to community access and environmental education. Save The Bay's headquarters at Fields Point, located at the southern edge of the port district, includes an interpretive center, public programming, and direct shoreline access for school groups, researchers, and visitors. Nearby, Fields Point Landing and associated shoreline paths allow limited public access while maintaining compatibility with port activities. These facilities provide some of the closest public vantage points to the working port and are integral to how the community experiences the waterfront.

The City of Providence, Waterson Terminal Services, Save The Bay, and other community partners continue to invest in signage, vegetation management, shoreline stabilization, ADA accessibility, and public programming to maintain and enhance these access points. Because these assets are so valuable to placemaking and stakeholders, the strategies in this master plan identify opportunities to support, protect, and complement public access.

E. Infrastructure

ProvPort's physical plant includes multiple berths with deep-draft access, rail and road connectivity, and defined upland storage and laydown areas that collectively forms the foundation for the Port's operational capacity. Utilities such as energy, water, drainage, and telecommunications further define functionality. Assessing the current condition,

capacity, and vulnerabilities of these assets ensures that future investment strategies are built on a realistic understanding of both infrastructure strengths and deficiencies.

Maintaining the current standard of care and planning for the future standard of care for the Port infrastructure requires regular inspection and maintenance, as well as rehabilitation and replacement when necessary. Operating aging structures and systems that may not be designed for current and future vessel sizes, cargo volumes, and changing environmental conditions can inhibit the port's performance.

Investing in resiliency, maintenance, and structural improvements will bring the infrastructure into a state of good repair, positioning the Port for long-term functionality and resiliency. Inspections and maintenance will extend the life of a structure, reducing the likelihood of emergency repairs. Investing in port infrastructure will help ProvPort adapt to changing demands and increase operational capacity by enabling new equipment, larger vessels, new cargo types, and higher cargo volumes. Updating the Port infrastructure also appeals to successful tenants and new businesses.

Comprehensive documentation of today's infrastructure conditions, by means of as-built record review, condition assessments, surveying, and databasing of infrastructure/systems, will set a baseline for normal asset renewal, investment opportunities, and infrastructure needs that will increase resiliency and support the Port's operational growth.

a. Upland Infrastructure

Overall, ProvPort encompasses around 150 acres of leased parcels. The majority of ProvPort operations are on impervious (paved) with the general topography ranging between a low elevation of approximately 7 feet (NAVD 88) at the top of the seawall/berth apron, up to a high elevation of approximately 30 feet (NAVD 88) near the parcels on the west side of Fields Point Drive. The average ground surface elevation of the majority of the laydown and open areas of the Port range between about 7 and 12 feet in elevation.

Upland infrastructure at the Port generally consists of administrative buildings (offices and maintenance buildings), covered storage and warehouses, and above- and below-ground storage tanks. The Port consists of approximately 30 acres of common areas with direct access to the waterfront. The common areas include the 6 berths for vessel

moorings, the administration building. The Port also consists of 11 acres of commons areas without direct waterfront access. These common areas include a 13,000 square foot warehouse, a 45,000 square foot warehouse, and a 13,000 square foot mechanics building.

b. Subsurface Considerations

Much of the area of the Port consists of "made land" created by earthen fill within the the Providence River. The filling of the river occurred in the early to mid-1900s. The generalized subsurface profile consists of fill, underlain by organic silt in some areas, naturally deposited sand and silt, glacial outwash, glacial till, and bedrock. Bearing capacities at the Port are somewhat limited in certification, particularly in the quay-side laydown areas that are subject to heavy equipment loading. This may leave uncertainty in certifying the maximum safe loads for cargo handling and future growth scenarios.

Because portions of ProvPort's laydown areas and support infrastructure were developed incrementally over time, there may be gaps in understanding how existing subsurface soils will perform under heavier port equipment and expanded cargo types (e.g., offshore wind project staging or heavy industrial cargos). A Port-wide bearing capacity characterization program would help facilitate identification of areas in need of ground improvement or designated high-capacity staging areas to support future uses.

c. Waterside Infrastructure

The Port is supported by a granite block seawall along the shoreline of the Providence River, which was constructed in the late 1930's. The elevation of top of the seawall is approximately 7 feet NAVD88. Historical records indicate that the face of the approximately 55-foot-foot seawall was designed to be sloped at approximately 1H:8V and the landside face was battered at approximately 1H:3V. The base of the wall is approximately 30 feet wall and is supported on piles. In the 1980s, steel sheet piles were installed along the toe of the majority of the wall to support deeper dredging for the vessel berths. Berth 3 was also underpinned with drilled piles around this time period.

An underwater survey of the seawall was performed in 2011 by Childs Engineering Corporation (Childs) due to the apparent bulging and movement of the wall. Based on the original plans, the face of the seawall was designed to be sloped at approximately 1H:8V, battered toward the landside. Childs discovered areas of the wall that were determined to have a vertical or near-vertical face alignment between the top of the wall and the mudline. Childs also noted gaps between granite blocks up to 6 inches wide and offsets between layers of blocks up to 6 inches. Upland surveying of

the seawall alignment was also initiated in 2011 due to the observed bulging of the wall. Based on surveying of the wall alignment performed by Waterfront Structural Consulting LLC (WSC), minimal movement (less than 1 inch on average) has been observed in the alignment of the North Seawall over the period of surveying from 2011 to 2021. Over that same period, gradual outward movement up to 8 inches along portions of the North Seawall was observed. Continued monitoring of the wall was recommended by Childs and WSC.

The Port consists of 6 berths for vessel mooring along the granite block seawall. Berth 1 is 620 linear feet with an approximately 4.2-acre asphalt laydown area. Berth 2 is 580 linear feet, Berth 3 is 600 linear feet, and Berth 4 is 450 linear feet. Berths 2, 3, and 4 share an approximately 7-acre asphalt laydown area. Berth 5 is 600 linear feet and Berth 6 is 650 linear feet. Berths 5 and 6 share an approximately 1.8-acre asphalt laydown area. Berths 1, 2, and 3 are located along the North Seawall while Berths 4, 5, and 6 are located along the South Seawall. The North and South Seawall sections are divided by a small change in the direction of the wall face.

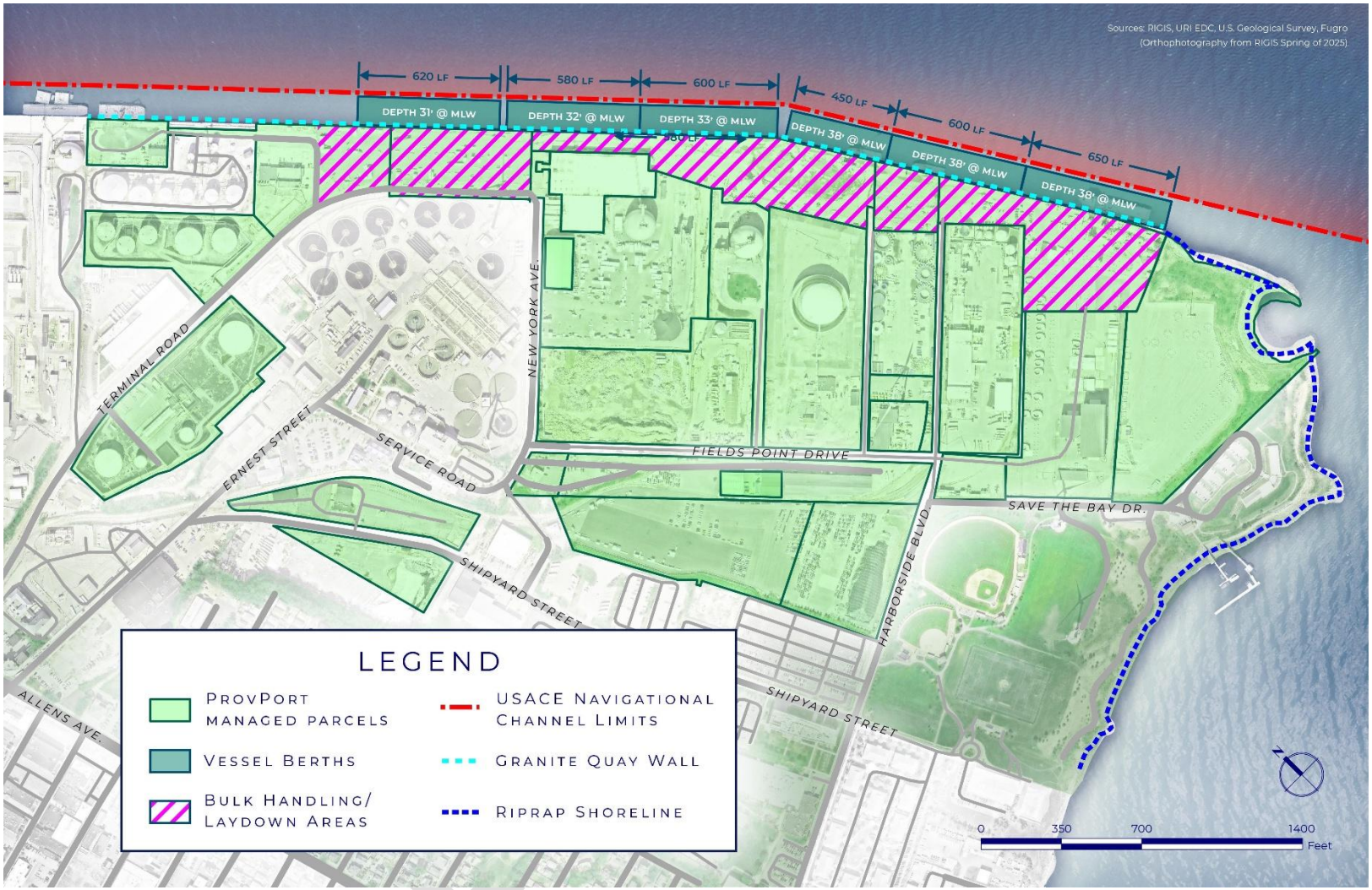


Figure 10. ProvPort Marine Infrastructure

All berths consist of steel mooring bollards along the top of the seawall and pneumatic fenders. Ten different bollard types are used at the facility. Structural Consulting LLC (WSC) performed a condition assessment of the bollards in 2022 and a load test rating in 2023.

- Berth 1 consists of 10 bollards, including Type 3, Type 5, Type 6, Type 7, and Type 8 bollards.
- Berth 2 consists of 7 bollards, including Type 2, Type 3, and Type 6 bollards.
- Berth 3 consists of 10 bollards, including Type 2, Type, 6, Type 9, and Type 10 bollards.
- Berth 4 consists of 9 bollards, including Type 1, Type 2, Type 3, Type 9, and Type 11 bollards.
- Berth 5 consists of 5 bollards, including Type 2, Type 3, Type 9, and Type 11 bollards.
- Berth 6 consists of 10 bollards, including Type 1, Type 2, and Type 3 bollards.

Initial rated capacities for each bollard type are summarized in the table below:

Bollard Type	Initial Rated Capacity (tons)
1	43.7
2	43.7
3	92.7
5	28
6	43.7
7	50
8	28
9	50
10	75
11	111

Typical defects observed on the bollards included corrosion and section loss, missing hardware, and broken base plates. Load reduction factors based on the observed conditions ranged from 0.5 for advanced deterioration to 1.0 for little to no deterioration. Refer to the Seawall Analysis Mooring Hardware Plan drawings, dated October 31, 2022, for individual bollard ratings. Load test results indicate most of the bollards have a recommended 30-ton working load. Bollard test results can be found in the Mooring Hardware Load Testing report, dated September 8, 2023. Depths along the seawall are designed to accommodate berthing requirements of typical vessel calls at the Port.

Dredging of the Providence River in the vicinity of ProvPort was most recently performed in 2005. During the most recent maintenance dredging, 6 million cubic yards of material was removed from the river. The channel was dredged to 40 feet deep and 600 feet wide. A USACE maintenance dredging permit application was submitted by ProvPort in 2002 to dredge 40,000 cubic yards of material. Berth 1 was proposed to be dredged to -30 feet MLW. Berths 2 and 3 were proposed to be dredged to -35 feet MLW. Berths 4, 5, and 6 were proposed to be dredged to -40 feet MLW. These dredge depths were proposed to maintain historical draft depths at the facility. The post dredging correspondence letter, referencing the post dredging survey, indicates that a total of 30,259 cubic yards of material was dredged from the ProvPort Facility.

The most recent bathymetric surveys of the berths at ProvPort, dated August 2020, indicate the following mudline elevations:

- Berth 1: El. -27 feet MLW at the face of the seawall and El. -34 feet MLW 40 feet outboard of the seawall
- Berth 2: El. -25 feet MLW at the face of the seawall and El. -34 feet MLW 40 feet outboard of the seawall
- Berth 3: El. -26 feet MLW at the face of the seawall and El. -35 feet MLW 40 feet outboard of the seawall
- Berth 4: El. -33 feet MLW at the face of the seawall and El. -39 feet MLW 40 feet outboard of the seawall
- Berth 5: El. -33 feet MLW at the face of the seawall and El. -41 feet MLW 40 feet outboard of the seawall
- Berth 6: El. -37 feet MLW at the face of the seawall and El. -40 feet MLW 40 feet outboard of the seawall

Based on the 2020 bathymetric survey, all the berths range from 2 to 7 feet above the existing permitted maintenance dredge elevation at the face of the seawall. 2020 bathymetry indicates the mudline elevations are within a foot of the permitted maintenance elevations approximately 40 feet outboard of the seawall. The existing mudline conditions may lead to issues, dependent on the draft of the intended vessels at the facility, if siltation of the berths continues.

d. Stormwater Infrastructure

ProvPort's operations have the potential to impact the water quality of the Providence River from runoff leaving the site and increase the overall runoff volume due to the large portion of the property's surface being impermeable. Stormwater quality around the Port is impacted by deposition of contaminants from multiple sources – heavy equipment and machinery on roadways and at facilities, storage of materials and products in exterior areas, fuel storage and refueling areas, asphalt and cement facilities, and scrap metal recycling. These activities can release pollutants and particulates on the ground surface that are captured in runoff from storm events, transferring additional contamination and suspended solids into the Providence River. The Providence River is a listed as a Category 5 Section

303(d) impaired water body in the area around ProvPort specifically for impacts from dissolved oxygen levels, nitrogen eutrophication, and fecal coliform[2]. This plan provides a comprehensive strategy to reduce port-related runoff contributions to the Providence River. The plan aligns with Rhode Island's water quality restoration goals of restoring and maintaining water quality for impaired and polluted waters[3], meets or exceeds the United States Environmental Protection Agency's (EPA) Clean Water Act (CWA), and leverages the Rhode Island Pollution Discharge Elimination System (RIPDES) permitting framework for continual improvement.[4]

Providence utilizes a combined sewer system to divert water from properties across the City to local wastewater treatment facilities prior to discharging to the environment. Combined sewer systems covey both sanitary wastewater and stormwater in the same subsurface pipes rather than in separate systems. During storm events, the combination of both wastewater and stormwater will often exceed the capacity of the conveyance pipes and the overflow is discharged directly to a nearby body of water (Providence River) before it can be treated. This is referred to as combined sewer overflow (CSO).

Narragansett Bay Commission (NBC) has been working on improvements to the combined sewer in Providence through improved storage capacity and an automated tracking system documenting the CSO events occur at outfalls across the city, including one outfall in ProvPort[5]. The improvements have been implemented through a phased approach by NBC with oversight from RIDEM and funding through the USEPA's Water Infrastructure Finance and Innovation Act (WIFIA). By implementing improved stormwater management practices and improving localized

[2] Rhode Island Section 303(d) list of Impaired Waters - 2024

[3] Rhode Island Department of Environmental Management Water Quality Restoration Studies

[4] Rhode Island Department of Environmental Management Stormwater Permitting

[5] Combined Sewer Overflow (CSO) – Narrabay

storage and infiltration at the port, ProvPort can lessen their impact on the sewer system and prevent potential CSO events in the area.

e. *Utility Infrastructure*

Utility infrastructure at ProvPort includes water, sewer, gas, power, and drainage systems (Figure 2. Site Infrastructure). In response to rising climate risks, the port has prioritized resiliency upgrades such as elevating critical utilities, installing flood berms around underground storage tanks (USTs), and evaluating the feasibility of providing shore power connections for docked vessels. These investments support both operational continuity and environmental compliance. Comment on notable resiliency needs in relation to utilities

Utility Governance and Service Providers

ProvPort does not operate independent utility systems. Core services are provided by regional utility providers. Tenants typically maintain internal lateral connections, transformers, panels, and distribution equipment within leased parcels.

- Rhode Island Energy – Electric and natural gas distribution
- Providence Water – Potable water supply
- Narragansett Bay Commission – Sewer and wastewater conveyance
- Private telecommunications providers

Water Infrastructure

Potable water is supplied through municipal mains located along Allens Avenue and adjacent roadways. Distribution occurs via underground water mains, fire hydrants, and tenant-owned service laterals. Further assessment by ProvPort may be warranted to evaluate system capacity, reliability under peak demand conditions, and redundancy in the event of service disruption. These represent priority areas for further evaluation by ProvPort to better understand system vulnerabilities, performance limitations, and potential service gaps:

- Fire suppression
- Dust suppression
- Industrial process water (tenant-specific)
- Limited domestic use

Resiliency considerations include low-elevation infrastructure exposure to flooding, hydrant reliability during storm events, and the need for backflow prevention and elevation of critical service connections.

Sewer Infrastructure

Wastewater is conveyed via municipal lines operated by the Narragansett Bay Commission (NBC). The system includes gravity sewer collection infrastructure, with some areas potentially served by combined sewer systems. Some systems may warrant additional study to better understand system performance during extreme weather events, compliance obligations for tenants, and opportunities to align port improvements with NBC's capital planning and combined sewer overflow (CSO) mitigation initiatives. The following items highlight operational and regulatory factors that may require continued coordination, technical evaluation, and long-term planning:

- Industrial discharge subject to pretreatment requirements
- Risk of surcharge and backflow during extreme precipitation events
- Need for coordination with NBC CSO mitigation programs

Stormwater and Drainage

Stormwater management includes catch basins, on-site drainage systems, and permitted outfalls to the Providence River. Infrastructure is vulnerable to tidal flooding, storm surge, sea-level rise, and increased rainfall intensity. Collectively, the below items identify opportunities for further engineering analysis and coordinated planning to reduce flood risk, address regulatory compliance, and improve long-term system performance under projected climate conditions. The following items represent potential focus areas for a more comprehensive port-wide drainage evaluation:

- Integrated port-wide stormwater master planning
- Flood protection for underground storage tanks (USTs)
- Site-wide grading improvements

Natural Gas Infrastructure

Natural gas service is provided by Rhode Island Energy through underground distribution lines. Gas is primarily used for space heating and industrial process heating. The below topics may inform future coordination with the utility provider, risk assessments related to coastal flooding, and long-term energy transition planning consistent with decarbonization goals identified elsewhere in this Master Plan. These considerations identify infrastructure vulnerabilities and broader strategic planning questions that may require additional evaluation:

- Vulnerability of underground lines to saltwater intrusion
- Flood risk to regulator stations
- Potential long-term reduction in use due to electrification trends

Electrical Infrastructure

Electric distribution is provided by Rhode Island Energy via regional substations serving South Providence. The system includes medium-voltage feeders, pole-mounted and pad-mounted transformers, and tenant-owned switchgear. Long-term planning should evaluate substation vulnerability, floodproofing of equipment, and microgrid feasibility. There are potential areas for additional engineering study, capital planning, and collaboration with Rhode Island Energy to support both resiliency and electrification objectives. The following items highlight areas where further technical analysis and coordination may be needed to identify system constraints and resilience gaps:

- Inconsistent elevation of transformers and switchgear
- Panels located near grade in some areas
- Need for grid capacity evaluation for shore power, electrified cargo handling, and EV truck charging

Long-term planning should evaluate substation vulnerability, floodproofing of equipment, and microgrid feasibility.

Telecommunications

Telecommunications infrastructure is privately provided and supports tenant operations, security systems, and logistics functions. Redundancy varies by tenant and may require hardening for storm resilience. Given the critical role telecommunications plays in port operations, emergency response, and supply chain continuity, further assessment may be appropriate to evaluate redundancy, backup power availability, and opportunities for coordinated resilience upgrades across tenants.

Security and Monitoring Systems

Security systems include perimeter fencing, CCTV monitoring, access control systems, and lighting. These systems are dependent on grid power and telecommunications connectivity. There are opportunities for further coordination between ProvPort, tenants, and utility providers to ensure continuity of operations during extreme weather events and power outages. The items below represent potential resilience enhancement measures that may warrant additional planning and evaluation:

- Backup generation for security systems
- Elevated camera and control infrastructure
- Redundant communications routing

4. Market Strategy

ProvPort's market strategy establishes the framework for how the port will strengthen its role as a regional economic engine while adapting to changing industries, technologies, and community expectations. This section begins with an assessment of the port's economic impact, which demonstrates ProvPort's current significance in terms of jobs, earnings, and fiscal contributions. It then examines regional economic trends shaping Rhode Island and Southern New England, including demographic shifts, infrastructure investment patterns, and trade dynamics that influence port competitiveness. Finally, it names growth industries and target sectors (from offshore wind and renewable energy to bulk materials, advanced logistics, and circular economy enterprises) that will drive demand for port facilities in the coming decades. Together, these elements provide the foundation for aligning ProvPort's infrastructure, land use, and governance with opportunities for sustainable growth and long-term resilience.

A. Economic Impact Summary

ProvPort is a critical driver of Providence's and Rhode Island's economy, providing substantial employment, income generation, and fiscal contributions to the City and State. An economic and fiscal impact analysis, conducted by Camoin Associates in 2025 assessed the Port's current operations and quantified their direct, indirect, and induced effects. Camoin's report is included under **Appendix X**. The findings demonstrate the scale of ProvPort's role in supporting regional prosperity and underscore the importance of aligning the Master Plan with strategies that sustain and expand these benefits.

The analysis found that ProvPort directly supports 743 on-site jobs across its tenants and operators, spanning petroleum, cement, scrap, salt, wind energy, and logistics industries. When ripple effects through supply chains and household spending are included, ProvPort supports an estimated 2,180 jobs in the City of Providence and 3,281 jobs statewide, with total annual economic impacts exceeding $1 billion in sales and nearly $275 million in new earnings across Rhode Island. The Port's ~600 vessel calls in 2025 further add to this impact, as crews and associated personnel contribute to local business activity during their stays.

Fiscal contributions are also significant. In 2024, ProvPort generated an estimated $3.37 million in annual sales tax revenue for the State, and contributed $4.2 million annually to the City of Providence through its revenue tax agreement and tenant property taxes (Table 4). This includes support for the City's general budget, as well as contributions to the Community Benefits Reserve and Sustainability Projects Reserve accounts.

Table 12. ProvPort Economic Impact Summary

Category	City of Providence	State of Rhode Island
Direct Jobs	743	743
Indirect Jobs	673	806
Induced Jobs	764	1732
Total Jobs	2180	3281
Total Earnings	$198.9M	$275.3M
Total Sales	$1.02B	$1.21B
ProvPort Contribution to Providence (Revenue + Property Taxes)	$4.2M	-

For the Master Plan, these findings highlight several important considerations. First, preserving and expanding maritime industrial land uses is vital to maintaining the scale of economic activity and tax contributions that the Port currently provides. Second, the growth of emerging industries, such as offshore wind, is already reshaping the Port's job base and offers opportunities to capture additional net new economic impacts. Third, sustaining the Port's fiscal contributions to the City requires continued investment in infrastructure, tenant support, and resilience measures to ensure uninterrupted operations.

In summary, the economic impact analysis confirms that ProvPort is not only a working port but also a central economic asset for Providence and Rhode Island. The Master Plan must therefore balance long-term infrastructure modernization, resilience, and sustainability initiatives with strategies that reinforce and expand the Port's role as a source of jobs, tax revenue, and economic vitality.

B. ProvPort's Competitiveness in Regional Economic Trends

ProvPort holds a distinctive position among mid-sized ports in the Northeast and Mid-Atlantic. Its deepwater channel, multimodal access, and specialization in bulk and breakbulk commodities establish it as a critical regional hub. ProvPort's capacity places it in the same competitive range as ports such as New Bedford, New Haven, and Wilmington, and ahead of facilities like Davisville/Quonset and New London. This scale, combined with reliable rail and highway connectivity, makes it a vital gateway for commodities essential to New England's economy, including salt, cement, asphalt, and scrap.

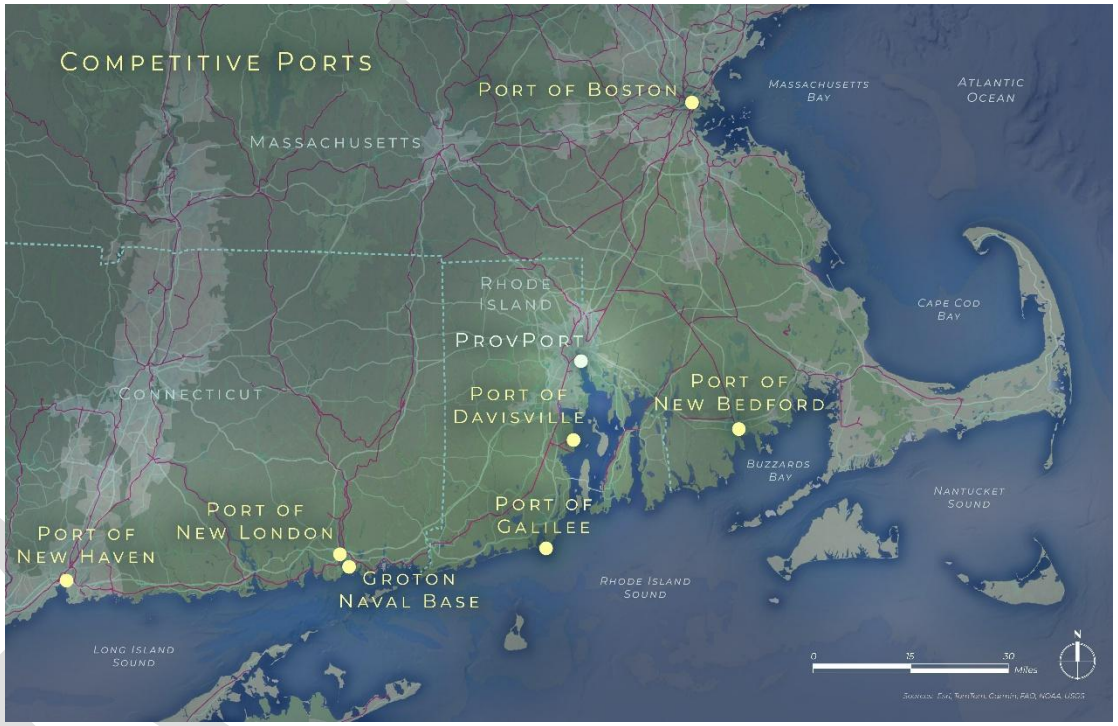


Figure 11. ProvPort Competitive Ports Context Map

At the same time, the competitive landscape reveals both opportunities and challenges. Ports like Boston and Wilmington have diversified into containerized cargo and cruise operations, while New London and New Bedford have secured substantial State and private investment to develop dedicated offshore wind terminals. By contrast, ProvPort's offshore wind role remains significant but less specialized (anchored in component fabrication for Orsted's Northeast Project portfolio, in service vessels (SOVs), and submarine cable logistics), but lacking a fully dedicated clean energy terminal. This limits its ability to capture the full spectrum of supply chain activity compared to peers that have designed tenant-ready facilities for offshore wind staging and assembly.

Land availability is another factor shaping competitiveness. Compared to expansive complexes such as Tradepoint Atlantic in Baltimore or Portsmouth Marine Terminal in Virginia, ProvPort operates within a more constrained urban footprint. This limitation necessitates careful land use planning and creative redevelopment of existing parcels to maximize throughput, attract higher-value tenants, and ensure flexibility as new market opportunities arise.

Another area where ProvPort lags behind peers is electrification and green infrastructure. While it has launched pilot projects such as rooftop solar and small-scale renewable energy installations and is a participant in the Green Marine Program, ports like New Haven, Boston, and counterparts along the West Coast are already implementing large-scale electrification of yard equipment, shore power for vessels, and net-zero terminal design. Closing this gap will be critical to remain competitive in an era when shippers, regulators, and nearby communities increasingly expect climate-forward port infrastructure.

Despite these challenges, ProvPort's governance model as a nonprofit operator within a public-private framework provides flexibility and aligns growth with community benefit, a feature that distinguishes it from many of its competitors. By leveraging this governance model, pursuing strategic infrastructure upgrades, securing federal and state funding for electrification, and aligning with regional offshore wind and logistics growth, ProvPort can sharpen its competitive edge.

In sum, ProvPort's competitiveness within regional economic trends will depend on balancing its current strengths (deepwater access, bulk specialization, and multimodal links) with forward-looking investments in clean energy infrastructure, land use optimization, and collaborative partnerships. Doing so will position the Port to remain a resilient, sustainable, and indispensable hub in the Northeast's evolving port economy.

C. Growth Industries and Target Sectors

The Master Plan identifies several key industries projected to grow over the next 30 years. These sectors and opportunities are discussed and elaborated on in Chapter VIII. This section explores how ProvPort can support and stimulate growth in sectors that align with the vision of this master plan:

- **Offshore Wind and Clean Energy Hub:** Perhaps the most significant opportunity is ProvPort's established and expanding role in the offshore wind industry. The executed leases for offshore wind and the long-term outlook continue to support the industry's growth. The port served as the staging area for America's first offshore wind farm (Block Island) and now hosts a significant new fabrication hub for larger wind projects.[6] A new assembly facility for turbine foundation components was constructed at ProvPort through a private investment of over $100 million, the most significant offshore wind supply chain investment in Rhode Island to date[7]. This facility, backed by Ørsted and Eversource, will enable the short-term completion of the manufacturing facility to support the rollout of projects like Revolution Wind (704 MW), Sunrise Wind, and South Fork Wind[8]. Medium-

Figure 12. ECO EDISON, the first American-built offshore wind service operations vessel

[6] ProvPort and Gridwealth Announce New Renewable Energy Projects for Providence Port Facility | Gridwealth, New Phase of Offshore Wind Construction Hub at ProvPort

[7] New Phase of Offshore Wind Construction Hub at ProvPort

[8] ProvPort executes lease to develop E.P. port; Waterson Terminal pledges $35M match for project

term, the port can attract additional manufacturers (e.g., turbine blade or tower fabrication) and serve as a logistics base for installing and maintaining hundreds of offshore turbines in the region. In the long term, ProvPort will remain a critical operations and maintenance hub, supporting turbine servicing vessels and possibly next-generation renewable energy systems. ProvPort's evolution into a clean energy hub is exemplified by its support for offshore wind. The ECO EDISON (Figure 2), the first American-built offshore wind service operations vessel, is based out of ProvPort to service current wind farms. Such developments highlight the port's growing role in renewable energy, bringing investment and skilled maritime jobs to Rhode Island. By embracing the offshore wind boom, ProvPort helps Rhode Island meet clean energy demand while firmly establishing itself in clean ocean technology.

- **Bulk and Breakbulk Materials including Construction Commodities:** Rhode Island and the surrounding region will continue to require large volumes of bulk and breakbulk materials for infrastructure and development, and ProvPort's deep-water berths and intermodal links make it a key supply point. The port's current primary imports – including cement, steel, lumber, and road salt – are expected to see steady or increased demand as the Northeast upgrades transportation networks and builds new housing and commercial projects. The construction materials industry at ProvPort presents a significant opportunity due to steady demand from local and regional construction projects, including infrastructure development, housing, and commercial building. The strategic location near a port allows for cost-effective logistics, reducing the need for long-distance overland transport of heavy materials. This setup can provide reliable, fast delivery of essential materials to construction sites, contributing to local economic growth. The industry can also benefit from reduced shipping times, lower transportation costs, and environmentally friendly practices by consolidating bulk shipments via water routes. Additionally, expanding this sector would create job opportunities and foster industrial growth in the region.

  The plan calls for maintaining and improving facilities (e.g. covered storage, conveyors) for dry bulk cargo in a sustainable manner (dust controls, stormwater management) to support these industries. New England's construction sector is projected to grow (see Market Scan: Camoin XXX), and ProvPort can capitalize by expanding its capacity for materials like cement, aggregate, and recycled steel, ensuring the region's builders

have the supplies they need. Modernizing bulk handling equipment will also improve efficiency and reduce local pollution (for example, enclosed conveyors to reduce dust).

- **Logistics and Distribution:** ProvPort's strategic location at the intersection of I-95/I-195 and its on-dock rail connections will remain a competitive advantage for freight movement. The plan anticipates growth in regional freight needs and aims to expand ProvPort's role as a distribution hub, particularly for specialty cargos and in-process manufactured goods. In the short term, this means optimizing the existing port layout to improve truck flow and rail usage. In the medium term, ProvPort may develop additional warehouse space and yards to handle truck and rail transfers, thereby relieving highway congestion between New York, Providence, and Boston. While Providence is not a container port, rising demand for supply chain diversification might create niche opportunities (such as feeder services from larger ports or handling specialty break-bulk cargo for regional distribution). The port will explore partnerships with third-party logistics firms to establish a freight consolidation and distribution center on or near port property. This could create new jobs in warehousing, trucking, and supply chain management, and meet the surrounding market's need for efficient goods movement. All such growth should be considered in context of environmental goals – for instance, incentivizing the use of cleaner trucks and optimizing rail and vessel options to move cargo with lower emissions.

- **Roll-on/Roll-off Goods:** The roll-on/roll-off (RoRo) operations primarily serve industries such as automotive transport, heavy machinery, and equipment shipping. This includes transporting vehicles, trucks, and construction equipment, which can, in some cases, be driven directly onto and off the vessel, facilitating efficient loading and unloading processes. ProvPort's deep-water access is crucial for RoRo operations. Its facilities can accommodate large vessels carrying heavy cargo, providing direct access to both domestic and international shipping routes. The port's capabilities to handle RoRo traffic efficiently and its proximity to major highways and rail services improve logistics for these industries. Provport's infrastructure supports the efficient logistics of vehicles and heavy equipment, making it an attractive hub for manufacturers and distributors. Additionally, as industries expand and international trade increases, the ability to handle RoRo cargo will enhance ProvPort's competitive edge in the Northeast.

- **Research and Development Incubator:** J.P Morgan recently cited innovation through research and design as a space to watch for U.S. port growth[9]. An R&D initiative focused on the Blue Economy would primarily operate in sectors such as marine biotechnology, oceanographic research, renewable energy, experimental marine crafts, aquaculture, and marine resource management. A potential facility would develop innovative technologies and methodologies to enhance sustainable practices in these industries, including environmental monitoring, resource conservation, and improved efficiency of marine operations. Collaborative projects with local universities, startups, and established companies in marine technology would also be a key focus. Proximity to a port is essential for an R&D entity in the Blue Economy, as it facilitates direct access to marine environments for research activities and testing. Ports serve as critical logistics hubs, allowing for the transportation of research equipment, samples, and personnel. They also provide access to various marine resources necessary for research and experimentation. This connectivity supports collaboration with industry partners engaged in marine operations and enhances the R&D entity's ability to implement field studies and trials. Establishing an R&D initiative, whether a facility or larger area, near a port in Rhode Island, presents significant opportunities. By leveraging ProvPort's infrastructure and the region's focus on the Blue Economy, such an R&D sector could drive advancements in marine science and technology while supporting environmental sustainability and economic resilience.

- **High-Value/High-Tech Manufacturing:** High-value/high-tech manufacturing encompasses sectors such as advanced manufacturing, marine technology, robotics, clean energy, and biotech. Rhode Island is increasingly focusing on industries such as ocean technology, robotics, and renewable energy, driven by the establishment of innovation hubs and partnerships with educational institutions. Proximity to a port is crucial for high-value manufacturing operations, as it facilitates efficient shipping and logistics for both raw materials and finished products. Ports enable manufacturers to engage in international trade, reducing transportation costs and

[9] Now or never: Port cities at a key moment for climate change adaptation and mitigation. - AIVP 2024

improving delivery times. In Rhode Island, access to ports enhances the supply chain for high-tech industries, allowing them to leverage maritime routes for shipping specialized products and components.

- **Seafood/Cold Storage Facilities:** Access to deep water at ProvPort is important for attracting and developing a seafood facility, as it facilitates the import of fresh seafood from various regions. The port's multimodal capabilities enhance distribution options, allowing for efficient transfer of goods via water, rail, and truck. This connectivity supports timely delivery of fresh products, which is essential in the seafood industry. Establishing a seafood/cold storage facility at ProvPort presents a significant opportunity due to the region's rich fishing resources and growing demand for the regional seafood sector. The port's location offers competitive advantages in terms of logistics and supply chain efficiency. Moreover, with a focus on sustainability and traceability in seafood sourcing, there is a potential to collect a market premium for locally sourced seafood products.

- **Ship Repair and Service Support:** ProvPort's deep-water access, industrial zoning, and established maritime tenant base position it well for expanded ship repair and service-support operations, even though the port does not currently have the specialized infrastructure (such as dry docks, marine railways, or launch facilities) required to construct and launch new vessels. Instead, its opportunity lies in strengthening maintenance, retrofit, and marine service functions that build upon existing berthing capacity, upland industrial areas, and a regional network of marine contractors and suppliers. Located along key East Coast shipping routes and adjacent to active sectors such as offshore wind, commercial fishing, tug and barge operations, and government maritime activity, ProvPort is well situated to meet growing demand for vessel repair, system upgrades, emissions retrofits, and equipment staging. By strategically investing in service-dedicated berths, heavy-lift capability, shore power, and workforce development, the port can formalize and expand its existing service ecosystem, diversify revenue streams, support regional decarbonization efforts, and strengthen its role as a resilient working waterfront without requiring the significant capital investments associated with new vessel construction infrastructure.

- **Recycling and Circular Economy Industries:** Given Providence's existing scrap metal export operations and waste processing facilities, another growth area is the modern recycling and reuse sector. There is potential to upgrade and expand recycling industries at the port in a way that's cleaner and more community-friendly. In

the short term, ProvPort will work with tenants like metal recyclers to implement best practices to control dust, runoff, and noise. Over the long-term, ProvPort could attract new circular-economy businesses, such as beneficial reuse, plastics upcycling, renewable fuels (a significantly growing industry, given the international shipping trend towards renewables) or even decommissioning old wind turbines and ships for materials recovery. By investing in state-of-the-art recycling infrastructure, the port can create jobs in materials processing while reducing waste and supporting Rhode Island's environmental goals. Any new facilities would be subject to strict environmental performance standards and oversight.

In summary, ProvPort's 30-year market strategy centers on renewable energy industries, continued bulk/trade services, and innovative new uses that meet regional needs. This balanced growth will make Providence a key hub in the Northeast's economy. Economic analysis shows that these sectors can generate substantial new jobs and revenue: for example, the offshore wind investments already underway are "fueling investment, job growth, and economic development in the Ocean State".[10] By 2035, ProvPort's expansion into wind and other industries is expected to significantly increase the port's annual economic output, with ripple effects across construction, manufacturing, and services. This growth will be guided by the following sections on sustainability, community impact, and workforce, ensuring it is achieved responsibly.

D. Population Trends in Providence

Providence's population story is one of dramatic shifts that continue to shape the city's economic and social landscape. From its early 19th-century growth into a bustling industrial hub, the city peaked at more than 250,000 residents by 1940, only to experience steep decline in the decades that followed as suburbanization, disinvestment, and urban renewal hollowed out its core. By 1980, Providence had lost nearly 100,000 residents from its mid-century high.

[10] New Phase of Offshore Wind Construction Hub at ProvPort

Since then, the city has entered a period of renewal. Over the past forty years, Providence has steadily regained population, with the 2010–2020 decade marking a particularly notable increase of 7.2%, bringing the total to 190,934 residents. Today, Providence stands as New England's second-largest city by density and metro population, and its growth trajectory signals renewed confidence in urban living, industry, and cultural vitality.

This resurgence is accompanied by profound demographic change. Providence is now one of the most diverse cities in the region, with Hispanic, Black, Asian, and multiracial residents forming a growing share of the population. While household incomes and homeownership are rising in some neighborhoods, pockets of persistent economic vulnerability remain, reinforcing the need for inclusive strategies that link job creation and workforce development to community well-being. At the same time, an aging population and densifying housing patterns bring new demands on infrastructure, services, and economic opportunity.

For ProvPort and the City, these population dynamics underscore the critical importance of cultivating clean markets, good jobs, and a resilient working waterfront. As Providence grows and diversifies, residents require access to safe, well-paying employment, as well as assurance that industrial activity contributes to healthier neighborhoods rather than environmental burdens. A working port - modernized, sustainable, and tied to emerging industries such as offshore wind, clean energy, and circular economy enterprises - will be central to meeting these needs. By aligning its growth strategy with the city's demographic trajectory, ProvPort can serve as both an anchor of economic opportunity and a partner in building a healthier, more resilient Providence for the next generation.

5. Community Integration - Washington Park and South Providence

Ensuring that port development is community-sensitive and equitable is a top priority of the 30-year plan vision. The vision is for a "healthy port / healthy community," where industrial growth does not come at the expense of residents' well-being. This Master Plan recognizes the Washington Park and South Providence neighborhoods (see Figure 1) as key stakeholders in ProvPort's future. Through pollution reduction, buffers, benefit funds, inclusive hiring, and sustainable practices the port seeks to greatly enhance its relationship with its neighbors. By 2055, we envision a scenario where local residents feel *protected* from the port's impacts and *connected* to the port's opportunities. This is how ProvPort will help address a legacy of environmental injustice within the broader Port of Providence Study Area and serve as a model for equitable industrial development.

A. Community Engagement Process

To shape this vision, ProvPort and the City undertook a robust community engagement process that placed Washington Park and South Providence residents at the center of the planning process, as outlined in the earlier section "vi. Summary of Public and Stakeholder Engagement Process". A Master Plan Advisory Committee (MPAC) was convened to bring together community leaders, industry and port stakeholders, policy and environmental organizations, institutional neighbors, and elected officials. The MPAC met for official meetings eight times between May 2024 and March 2026, and numerous other smaller meetings and calls, to discuss the project scope and timeline, existing conditions, market position, environmental and flood resilience, and community benefits. The Master Plan team remained in close contact with both MPAC members and community representatives throughout the process. In parallel, five open community meetings were held to solicit broad public input on issues, goals, objectives, and project ideas. A Port Day in May 2025 offered tours, talks, and seminars that allowed residents to see port operations firsthand and engage directly with staff and tenants.

The outreach process focused on the neighborhoods most affected by port operations, particularly Wards 10 and 11, but was open to all Providence residents and interested parties. Community members were invited to name specific concerns, identify what "success" would look like, and suggest concrete strategies and projects. Feedback from this

process was organized into three core components (issues, goals, and strategies) which together provide the foundation for this chapter's themes and the initiatives that form the foundation of the Master Plan.

B. What We Heard: Community Issues and Concerns

Across MPAC and open community meetings, residents and stakeholders described a clear set of problems that they feel must be addressed if the port and community are to thrive together. These concerns spanned environmental health, social and neighborhood impacts, port governance and finance, waterfront access, and infrastructure.

a. **Environmental and public health.** Residents repeatedly emphasized air and water pollution as primary concerns. Community members described exposure to dust, diesel exhaust, chemical vapors, and odors from port and industrial activities, and noted that Washington Park has among the highest asthma rates in Rhode Island. They expressed fears about spills, industrial contamination, noise, and the cumulative effect of multiple facilities operating without adequate enforcement. Residents also questioned whether the port and surrounding neighborhoods are sufficiently prepared for flooding, sea-level rise, and storm surge, and they called for climate resilience measures—such as living shorelines and protective infrastructure—that prioritize the wellbeing of frontline neighborhoods. Finally, they raised concerns about emergency preparedness, evacuation procedures, and homeland security risks, emphasizing the need for clear, accessible emergency response plans.
b. **Community engagement, transparency, and trust.** A recurring community concern was the feeling of exclusion from port decision-making. Many residents described a long history of changes happening around them with little or no community input. People asked basic questions about what is shipped through the port, which companies operate there, and how environmental risks are monitored. They worried that promised community benefits might never materialize and debated how a community liaison or advocate could be truly independent if paid by ProvPort. Overall, residents called for long-term accountability, clear communication, and formal mechanisms to ensure community oversight and representation in port governance.
c. **Social and neighborhood impacts.** Community members voiced fears about displacement and gentrification—concerned that port expansion or related development could price out long-time residents or erode the cultural identity of South Providence and Washington Park. They noted the lack of basic amenities and safe, attractive

public spaces: clean streets, public restrooms, street trees, parks, and accessible green spaces. Residents stressed that any expansion of port activity must be tied to tangible improvements in neighborhood livability, not just economic gains for operators.

d. **Economic and governance issues.** Residents and stakeholders raised many questions about ProvPort's structure and financial arrangements, such as: Who owns which parcels? How does the city benefit from port activities? Concerns extended to how the Community Benefit and Sustainability Funds will be governed, such as: who decides which projects are funded, and how will those decisions be made transparent and equitable? At the same time, residents noted that it is not clear how local people can access jobs at the port or how small businesses can take part in port-related contracts. Without defined pathways, stakeholders feared that economic growth would bypass the neighborhoods bearing the biggest impacts.
e. **Infrastructure and land use.** Heavy truck traffic, poor road conditions, and limited waterfront access were recurring concerns. Residents described Allens Avenue as unsafe and degraded, with trucks cutting through residential streets and "messed up" pavement. They highlighted a lack of safe pedestrian and bicycle infrastructure and limited transit options to reach jobs in the port area. With much of the shoreline fenced and perceived as "unapproachable," residents felt cut off from the bay despite living close by. Finally, stakeholders questioned how land will be used if the port expands, expressing unease about which industries might move in, how zoning changes along Allens Avenue and Thurbers Avenue will be handled, and why only part of the port appears to be covered by the master plan.

C. Key Themes and Strategies (Healthy Port / Healthy Community)

In response to these problems, the outreach process produced a set of shared goals that are integrated into the Phased Implementation Plan in Chapter VII, and which define what residents and stakeholders want the port's future to look like. These goals align closely with the "healthy port / healthy community" vision that guides this overall master plan.

Community and social goals: Residents want to be included in port decision-making through ongoing, formal mechanisms such as advisory committees and community representation on boards. They seek development without displacement: preserving neighborhood identity and affordability while ensuring existing residents can remain and

share in port-related benefits. A core goal is that port success should translate into enhanced amenities, such as parks, green spaces, waterfront access, community centers, and cleaner, more attractive streets, so that stakeholders in Washington Park and South Providence are supported and able to thrive.

Environmental and health goals: The community's environmental expectations are unequivocal: reduce pollution, improve air and water quality, and create a safe, healthy environment for residents and workers. This includes robust monitoring of air, water, and soil conditions, and transparent public reporting of the results. It also asks that meaningful investments in flood defenses, green infrastructure, and sustainable practices like renewable energy and electrified equipment, are implemented in ways that advance climate justice. Overall, stakeholders want to see contamination risks managed, hazardous materials inventories maintained and shared, and noise and odor impacts reduced.

Economic and workforce goals: On the economic side, community members want ProvPort's growth to generate real opportunities for local people. This means job creation tied to clear pathways for Washington Park and South Providence residents to be hired, trained, and promoted in maritime, logistics, and "blue economy" careers. It also means that port-driven economic development should diversify into cleaner, future-oriented sectors and that community benefits from economic success (grants, amenities, environmental projects) are transparently reinvested in the neighborhoods adjacent to the port.

Infrastructure, resilience, and access goals: Stakeholders want to see infrastructure upgrades that support both community well-being and port operations, such as safer roads, designated truck routes, better transit, and improved bike and pedestrian connections. The public engagement sessions included discussion that many such opportunities may be reliant on expansion and reclamation of under-utilized and deteriorated area outside of the current ProvPort bounds. Expanded and improved public access to the waterfront (via walkways, parks, fishing spots, and trails) was named as an objective. These amenities are envisioned to double as resilience features, such as green buffers and parks that also provide flood protection. Neighborhood resiliency more broadly includes emergency preparedness, social networks, and alignment with citywide climate adaptation plans.

Governance and transparency goals: Finally, residents and MPAC members called for clearer accountability and transparency in all aspects of port operations and expansion. In general, there is a call for more transparency of how

environmental performance is monitored. They want measurable goals and routine public reporting on progress. They also want port planning aligned with Providence's Comprehensive Plan, zoning, and regulatory frameworks, so that port development is integrated into the City's broader sustainability and equity agenda.

D. How the Master Plan Responds to the Key Themes and Strategies

The master plan translates the robust community input into a set of strategies and commitments that cut across environmental, economic, social, and governance dimensions. We included a "Response Matrix" that lists the ways the plan responds and address specific input from community representatives (Appendix XX). Many of the strategies identified in the response matrix and the following chapters align closely with requests proposed during outreach and MPAC meetings. Therefore, derived from community engagement, the strategies are integrated into the Phased Implementation Plan (Chapter VI) and detailed in the implementation playbook in Chapter VI, which ties what we heard below to anticipated timelines.

Environmental Quality, Air Pollution, and Public Health

Washington Park's exposure to diesel exhaust, dust, and industrial emissions make air quality and public health protection a central topic. The Master Plan accelerates ProvPort's comprehensive approach to electrification and shore power initiatives (described in Chapter VI). Electric yard trucks, cleaner cargo-handling equipment, and low- or zero-emission vehicles will be prioritized for port operations that may have impacted neighboring areas in the past. New tenants will be required, through lease language, to use the cleanest feasible technologies and to maintain robust dust control and spill-prevention practices.

To meet the community's call for monitoring and transparency, the plan commits to installing an air quality monitoring network around the ProvPort perimeter, building on existing monitoring efforts and coordinated with Rhode Island Department of Environmental Management (RIDEM) and Providence Emergency Management Agency (PEMA). Results are intended to be reported via a public dashboard and annual summaries, allowing residents to see trends and advocate for targeted emission reductions. Where monitoring indicates hotspots, equipment upgrades and operational changes will be prioritized so that emission reductions are meaningful and measurable.

The plan also recognizes the community's concerns about emergency preparedness and public safety. ProvPort will work with PEMA to build on the newly established warning systems and protocols, and to share clear emergency response initiatives for port-related incidents (including spills, fires, or security events).

Noise, Light, and Buffer Zones

Living near a 24-hour industrial port means exposure to noise, light, and visual impacts. Responding to community concerns, the Master Plan commits ProvPort to adopting noise reduction measures (e.g., quiet-zone procedures, mufflers, and operational controls) and dark-sky-compliant lighting that reduces glare into nearby homes.

At the same time, the plan includes strategies for new buffer zones and green infrastructure between heavy industrial operations and residential areas. Over the first 5–10 years, ProvPort will work with the City and community to implement at least one major green buffer project, potentially combining landscaped berms, tree canopies, and multi-use paths that serve both as environmental mitigation and as improved public realm. Buffers respond directly to community ideas for street trees, vegetated noise barriers, and shoreline improvements, and they provide a visible, tangible sign that port-community interfaces are being addressed in a more careful, respectful way.

Waterfront Public Access and Greenway Vision

Although ProvPort is a secured industrial facility, the engagement process made clear that residents value access to Narragansett Bay and want to reconnect to the working waterfront. The Master Plan builds on existing access points and envisions new, carefully designed opportunities for public use that do not compromise security or port efficiency.

ProvPort and its partners have already facilitated public access at Fields Point, where the former landfill was remediated and repurposed as an Urban Coastal Greenway with walking paths, fishing access, scenic viewpoints, and native plantings. Save The Bay's headquarters and public pier provide additional access for kayaking, fishing, and birdwatching, with visitors routed around active cargo terminals via the current Johnson & Wales Harborside campus road. The Master Plan commits to maintaining and enhancing these assets through better signage, modest amenities (appropriate lighting), and ongoing maintenance.

In response to community calls for closer, more direct access, the plan also supports the longstanding effort to open a public waterfront access point at the end of Public Street by including the recommendation in Chapter VI strategies. Public Street is a public right-of-way (ROW) and designated CRMC access way, but it has been identified as needing street-level improvements for users and adequate signage. Working collaboratively with the City, community organizations, adjacent landowners, and state agencies, ProvPort can help support a small park or observation platform that provides a safe, permanent public right-of-way to the shoreline.

Longer term, the plan recommends a connected waterfront greenway linking existing and future public access sites, from Collier Point Park through Fields Point and, over time, as redevelopment allows, northward along the river towards downtown. This is in conjunction with projects already underway outside ProvPort-leased lands and envisioned through initiatives and local access visioning for Oxford Street and other east-west streets such as Public and O'Connell.

This overlaps with the work of the NOAA Shoreline project (focusing on the port area north of ProvPort and engaging residents of South Providence and Washington Park). This project has analyzed shoreline typologies, and is developing concepts for restoration, resilience, and access, as well as ideas for a resident-led demonstration project. A project StoryMap serves as a chronicle of project research, concepts, and recommendations.

This Master Plan also recommends a project to improve the Allens Avenue/Narragansett Boulevard streetscape and connect Columbia Park, Michigan Avenue, southern Shipyard Street, Wildcat Way Drive, and the existing waterfront trail to the Save The Bay Center with enhanced bicycle and pedestrian amenities. Together, these efforts respond directly to community priorities for improved access, mobility, and quality of life.

All public access initiatives are required to be developed in coordination with the U.S. Coast Guard and port security officials, clearly separated from active terminals, and designed to be temporarily closed during heightened security conditions.

Workforce Development and Local Economic Equity

Community feedback emphasized that a thriving port must also be a source for jobs in the surrounding neighborhoods. Stakeholders showed a strong desire for clear job pathways, local hiring commitments, and training that prepares residents for long-term careers in both traditional maritime trades and emerging sectors like offshore wind and other clean energy industries.

Building on these goals, the Master Plan outlines a workforce development and local economic equity strategy. ProvPort will partner with Providence public schools, nearby institutions such as the Juanita Sanchez Education Complex, WindWinRI, and local higher education and training providers to introduce maritime curriculum elements, guest lectures, port tours, and hands-on learning opportunities. In the mid-term, the plan envisions a Maritime Innovation and Training Center at or near ProvPort, developed in partnership with state workforce programs, unions, and higher-education institutions, to deliver certificate programs in sectors such as global logistics, heavy-equipment operations, and offshore wind and related trades.

Formal local hiring and apprenticeship provisions will be encouraged for major capital projects and tenants, building on existing Project Labor Agreements and union partnerships. The plan recommends the creation of a Port Jobs Registry and a public job information portal to centralize postings from ProvPort and its tenants, as well as outreach through community centers and housing authorities. Upskilling programs will help existing workers transition into new roles as the port electrifies and fossil fuel facilities wind down, supporting a “just transition” for workers and families.

To further advance equity, the plan recommends recruiting from Washington Park and South Providence specifically, including women, people of color, and residents who have historically been excluded from port-related employment. Partnerships with community organizations and minority contractor associations, combined with supportive measures such as stipends or childcare for trainees, will reduce barriers to participation. Over time, successful local hiring and training efforts, such as increased Providence resident employment in port jobs and greater gender and racial diversity in the port workforce (to be explored through union hiring), will be tracked through the dashboard.

Strengthening Local Hiring, Apprenticeship, and Just Transition Mechanisms

Formal local hiring and apprenticeship participation should not rely solely on encouragement. Instead, ProvPort can embed workforce expectations into its lease structures, capital planning, and partnership agreements to create consistent, transparent pathways for local employment.

1. Lease and Development Agreement Provisions

For new leases, renewals, and major tenant expansions, ProvPort should:

- Include **Local Workforce Participation Plans** as part of lease negotiations for projects exceeding a defined capital threshold (e.g., $5–10 million).
- Require tenants to submit:
    - A projected workforce profile (construction and operations)
    - A good-faith local hiring strategy
    - Identification of apprenticeship pathways or union participation
- Incorporate **annual workforce reporting requirements** into lease compliance reviews.

These provisions can be structured as performance expectations rather than rigid quotas, consistent with legal constraints.

2. Alignment with Project Labor Agreements and Union Partnerships

Where Project Labor Agreements (PLAs) apply, ProvPort can:

- Coordinate with unions to prioritize outreach in Wards 10 and 11
- Establish pre-apprenticeship pipelines in partnership with:
    - Local high schools
    - CCRI or other training institutions

    - Workforce development nonprofits
- Encourage tenants to utilize union hiring halls that maintain community referral pipelines.

This approach builds on existing labor frameworks rather than creating parallel systems.

3. Port Jobs Registry and Public Job Information Portal

The Master Plan recommends establishing a **Port Jobs Registry and Public Employment Portal** that would:

- Centralize job postings from ProvPort and its tenants.
- Track:
    - Job category
    - Required certifications
    - Pay ranges
    - Union or non-union status
- Provide automated alerts for residents who register.
- Serve as a data backbone for annual workforce reporting.

To ensure accessibility, postings should also be distributed through:

- Community centers
- Housing authorities
- Faith-based institutions
- Workforce agencies

ProvPort can require tenant participation in the registry as a condition of lease compliance.

4. Targeted Upskilling and "Just Transition" Programs

As port operations modernize, including electrification and potential phase-down of fossil fuel–related uses, ProvPort should coordinate with the following entities to develop targeted reskilling pathways for affected workers:

- State workforce agencies
- Labor unions
- Community colleges
- Environmental justice organizations

Priority program areas may include:

- Electric vehicle and equipment maintenance
- Shore power and microgrid operations
- Environmental monitoring and compliance
- Maritime logistics technology
- Renewable energy systems

ProvPort can support these programs by:

- Advocating for seed funding from the Sustainability Fund (where eligible and approved through the city process),
- Partnering on grant applications (e.g., federal workforce or clean energy grants),
- Offering training space within port-controlled facilities where feasible

5. Accountability and Transparency

To move beyond encouragement, ProvPort should publish an annual Port Workforce Report (potentially through the dashboard) including:

- Total jobs supported (construction and operations)
- Percentage of local hires (where voluntarily reported)
- Apprenticeship placements
- Training partnerships established
- Transition outcomes for displaced workers

This report would be presented to the proposed Port Community Advisory Body (PCAB) and made publicly available.

Why This Matters for ProvPort

ProvPort's role as a landlord and economic development catalyst gives it leverage, even where it is not the direct employer. By embedding workforce expectations into:

- Lease negotiations
- Capital approvals
- Tenant reporting requirements
- Funding coordination
- Public transparency mechanisms

ProvPort can shift from encouraging local hiring to structurally supporting it. This approach ensures that as the port modernizes and transitions, economic benefits remain rooted in surrounding communities, particularly Wards 10 and 11 and that workers are not left behind as industries evolve.

Transparent Governance and Community Oversight

Finally, the engagement process underscored that implementing an ambitious, 30-year plan requires strong, transparent governance. The Master Plan responds by formalizing structures that embed community oversight and align port decisions with city and regional priorities.

Building on the MPAC model, the plan recommends establishing a permanent ProvPort Community Advisory Board (PCAB) that includes Washington Park and South Providence residents, community organizations, advocacy groups, institutional neighbors, major port users, and City representatives. The PCAB will meet regularly to review progress, discuss new initiatives, and advise on community benefit and sustainability investments. The potential structure of the board is detailed in the Phased Implementation Plan strategies.

ProvPort will hold one annual "State of the Port" public meeting to share updates on capital investments, environmental performance, and workforce programs, and to collect community feedback. ProvPort will post key documents and meeting minutes on their website as part of this "State of the Port" annual conversation.

Reporting protocols established in the lease and tax agreement will be reinforced through this plan: ProvPort will submit a 5-Year Capital Improvement Plan to the City on a recurring basis, share information on tenant leases and sustainability projects, and make such information available to the City Council and the public. A Community Environmental Monitoring Program, potentially as a PCAB subcommittee, will review emissions and environmental data, oversee complaint logs, and recommend corrective actions when thresholds are exceeded.

At the policy level, the plan supports strategies identified in outreach: phasing out or relocating the most polluting and non-water-dependent uses where feasible; advocating for zoning and land use changes along Allens Avenue that discourage harmful uses and promote cleaner, maritime-supportive activities; strengthening enforcement in coordination with RIDEM, CRMC, and City code enforcement; and supporting local community organizations with funding or capacity-building so they can fully participate as partners in implementation. Periodic ten-year reviews will allow the Master Plan to be updated and adapted as conditions and opportunities evolve, with the community actively involved at each milestone.

Regional and Regulatory Coordination

Transparent governance also extends beyond Providence's borders. Recommended as part of the short-term strategies, ProvPort will coordinate with other Rhode Island ports as warranted, and stay up to date on best practice in the field of port management and operations. The Port will also engage in regional planning for transportation and

infrastructure, working with RIDOT on truck and rail improvements and, where appropriate, MBTA/Amtrak and freight rail operators on rail capacity and safety. On the environmental side, ProvPort will participate in Narragansett Bay–wide initiatives and pursue EPA, federal, and state grants that support water quality, resilience, and emissions reduction. In parallel, ProvPort will coordinate closely with RIDEM, CRMC, and other regulatory agencies on permitting, enforcement, and funding, ensuring that local community priorities are reflected in State and federal decisions affecting the port and its neighbors. Over the long-term horizon, ProvPort aims to take a leadership role among Northeastern ports on sustainability, including participation in multi-port coalitions and commitments (such as green ports forums or AAPA climate programs) to benchmark and share progress. .

E. Stakeholder Vision for How to Use the Public Funds from Port Revenue

This Master Plan recommends that Community Benefit Fund (CBF) and Sustainability Fund (SF) dollars be deployed in close collaboration with residents, and the ProvPort Community Advisory Board (PCAB), through administrative processes managed by the City of Providence (Parks Commission and Sustainability Commission, respectively).

Stakeholders should participate in fund oversight structures to ensure that Sustainability and Community Benefit investments:

- Align with the priorities identified through community outreach;
- Advance environmental justice objectives in Wards 10 and 11;
- Are coordinated across City departments; and
- Are reported transparently on an annual basis.

Community Identified Priorities for the Community Benefit Fund

Based on engagement conducted during development of this Master Plan, stakeholders identified the following priority areas for potential implementation by the City through the Community Benefit Fund:

1. Quality of Life and Neighborhood Amenities

- *Improvements to neighborhood parks and playgrounds*
- *Community gardens and green spaces*
- *Beautification of key corridors such as Allens Avenue (street trees, lighting, landscaping)*
- *Public restrooms in public access areas*
- *Benches, trash receptacles, and maintenance enhancements*

2. Access and Mobility

- *Improved bicycle and pedestrian infrastructure*
- *Traffic calming on residential streets affected by truck traffic*
- *Safer crossings and sidewalk enhancements*
- *Potential public transit or shuttle connections to port-related job sites*

3. Workforce and Youth Support

- *Maritime, logistics, and port-industry job training programs*
- *Youth internships and summer employment initiatives*
- *A job opportunities portal or dashboard connecting residents to port-related employment*
- *Small business support and incubator programs linked to maritime and industrial growth*

4. Health and Community Well-Being

- *Mobile clinics and neighborhood-based health services*
- *Asthma treatment and respiratory health support programs*
- *Free public health screenings*
- *Emergency preparedness programming and drills*

5. Civic Engagement and Transparency

- *Community liaison positions*
- *Support for advisory boards and neighborhood-based organizations*
- *Ongoing port tours, open houses, and educational programming*

Community Vision for the Sustainability Fund

In parallel, stakeholders expressed that the Sustainability Fund should prioritize resiliency and environmental initiatives, including:

- *Air, water, and soil quality monitoring (ProvPort has already committed their own funds to monitoring inside ProvPort-leased lands)*
- *Green buffers, vegetated berms, and dust control measures*
- *Living shorelines and flood mitigation infrastructure*
- *Solar and renewable energy installations*
- *Climate justice–oriented resilience investments benefiting frontline communities*

Current Fund Program Context and Rules

ProvPort deposits 1% of gross revenue into the Community Benefit Fund and 1% into the Sustainability Fund. Both funds are administered by City agencies and are subject to a minimum annual allocation of $149,000 per fund. Fund balances grow proportionally with ProvPort revenue.

Critical Eligibility Constraint

- ***Community Benefit Fund (CBF):*** *Administered by the Board of Parks Commissioners. Limited to Providence Parks Department–eligible projects (e.g., parks, green buffers, street trees, recreational improvements, and public realm enhancements under Parks jurisdiction).*
- ***Sustainability Fund (SF):*** *Administered by the Sustainability Commission. May be used for any eligible project or program consistent with sustainability and environmental objectives.*

It is important to acknowledge that, while the community's vision for fund deployment is broad and aspirational, both funds are subject to ordinance-based and administrative limitations. As currently structured, many of the strategies identified through outreach cannot be fully funded or in some cases funded at all through the Community Benefit Fund due to the Board of Parks Commissioners charter.

ProvPort supports the broadest community-based application of these funds within the limits of the Ordinance. However, coordination with the Board of Parks Commissioners, Sustainability Commission, and the proposed Port Community Advisory Body (PCAB) will be essential to establish priorities, confirm eligibility, and determine annual allocations.

Strategic Use of Benefit Funds

To reflect what was heard during community engagement, the following framework proposes potential uses of Community Benefit Fund and Sustainability Fund resources as catalytic or "seed" funding. These funds are not intended to function as a comprehensive capital program or binding schedule. Rather, they should serve as:

1. ***Pre-development capital***
    - *Feasibility studies*
    - *Baseline data collection*
    - *Concept design and 10–30% engineering*
    - *Permitting and regulatory analysis*
2. ***Grant match or reserve funds***
    - *Meeting local match requirements*
    - *Leveraging federal, state, philanthropic, or private capital*
3. ***Accountability infrastructure***
    - *Public dashboards*
    - *Monitoring systems*
    - *Annual reporting and community transparency tools*

The Master Plan acknowledges that not all community priorities can be fully funded using ProvPort-generated revenue alone. Realistically, these funds will most often partially seed selected strategies, positioning projects to compete successfully for additional external funding sources. Additionally, other port-related businesses can be encouraged to contribute to these funds through agreements with the City.

General Allocation Framework

As an internal leveraging strategy — recognizing that the City retains discretion in final distribution — the following proportional approach is recommended:

Early-action Investments (25–35%)

Visible, lower-cost actions delivered within 6–24 months, such as:

- *Community events and engagement initiatives*
- *Small-scale plantings and beautification*

- *Signage and wayfinding*
- *Public dashboards and transparency tools*

Seed and Shovel-Ready (40–55%)

Strategic investments that advance projects toward implementation readiness:

- *Feasibility and traffic/safety studies*
- *10–30% design development*
- *Environmental review and permitting*
- *Benefit-cost analysis*
- *Grant packaging and funding applications*

Match / Reserve (15–25%)

Funds held to:

- *Meet time-sensitive grant match requirements*
- *Leverage state or federal capital programs*
- *Respond to opportunistic funding windows*

Governance and Coordination

Final determinations regarding allocation of funds should be coordinated through:

- *The proposed Port Community Advisory Body (PCAB)*
- *The Providence Sustainability Commission*
- *The Providence Board of Parks Commissioners*
- *Relevant City departments and funding entities*

Through this structure, ProvPort-generated funds can serve as strategic, transparent, and community-responsive capital that advances environmental justice priorities in Wards 10 and 11 while maintaining compliance with ordinance constraints.

In an effort to highlight what was heard from community stakeholders, below are tables that propose possible uses of funds toward environmental justice. The proposed uses would be brought by the community to the administrative process run by the city and offer ideas for how to allocate monies from the community benefit and sustainability funds as "seed" funding, or a portion of the cost to get the project off the ground and pursue additional funds from external sources (public or private). This analysis should not be interpreted as a final funding program or binding schedule. Rather, it is intended to provide approaches that support strategic prioritization, coordination, and transparent communication with community partners, City agencies, and funding entities.

Community Priorities for Benefit Fund Uses (*note that in all tables, CBF ineligibility is due to the current ordinance structure*), tabled by major theme:

Environmental & Public Health		
Strategy from Community Input for Funds	**Fund Eligibility / Role**	**Potential Exterior Partners to work with the City and Community**
Install air, water, and soil quality monitors around the port, with results shared publicly (e.g., online dashboard)	Sustainability only (CBF not eligible)	RIDEM, Academia (ProvPort installing monitors inside the port)
Support public health partnerships (mobile clinics, asthma screening)	Sustainability only (CBF not eligible)	RIDOH, Academia
Collaborate with RIDEM for enforcement and compliance tracking	Sustainability only (CBF not eligible)	RIDEM, Politicians

Create green buffers and tree plantings buffers around the Port of Providence and neighborhood to improve environmental quality, establish living shorelines or coastal buffers for habitat and flood protection	Community Benefit (Parks-only) + Sustainability (optional)	GrowSmartRI, Groundwork RI, Providence Neighborhood Planting Program, City Forester, RIDEM, RI Native Plant Society, Academia, ProvPort
Upgrade equipment and vehicles to cleaner technologies, incentivize electric/low-emission trucks and cargo handling, and study the feasibility and impact of ship shore-power hookups	Sustainability only (CBF not eligible)	ProvPort, RIEnergy (this is a strategy the port is already pursuing in this Master Plan)

Workforce Development & Education		
Strategy from Community Input for Funds	**Fund Eligibility / Role**	**Potential Exterior Partners to work with the City and Community**
Develop apprenticeships, summer jobs, and mentorship programs to build local talent pipeline	Sustainability only (CBF not eligible)	ProvPort, RI Commerce, Providence Public Schools, Marine Trades Association, International Longshoremen's Association Local 1329 (Providence, RI), University of Rhode Island, RI College, RI

		Department of Education, and more
Establish policies giving hiring preference to local residents with union membership access; track data transparently	Sustainability only (CBF not eligible)	ProvPort, International Longshoremen's Association Local 1329 (Providence, RI)
Create central dashboard listing employment opportunities at ProvPort and tenant companies	Sustainability only (CBF not eligible)	ProvPort
Partner with schools and colleges to create maritime career pathways including internships and apprenticeships	Sustainability only (CBF not eligible)	ProvPort, Providence Public Schools, University of Rhode Island, RI College, IYRS School of Technology & Trades, New England Institute of Technology (NEIT), Warwick Area Career & Technical Center (WACTC), CHARIHOtech

Infrastructure, Land Use & Accessibility		
Strategy from Community Input for Funds	**Fund Eligibility / Role**	**Potential Exterior Partners to work with the City and Community**
Direct port traffic away from residential streets with improved signage. Support I-95 to ProvPort connection as identified in STIP.	Sustainability only (CBF not eligible)	RI DOT, Providence Department of Public Works,

		Planning and Development
Enhance bike, pedestrian and transit access to jobs and the waterfront, via dedicated bus routes and improved bike and pedestrian infrastructure	Sustainability only (CBF not eligible)	RI DOT, Providence Department of Public Works, Providence Police Department, ProvPort
Conduct a study to upgrade Allens Avenue infrastructure and modernize or remove railroad tracks	Sustainability only (CBF not eligible)	RI DOT, Providence Department of Public Works, Genesee & Wyoming Railroad
Install renewable energy projects on port property to provide cheaper energy to residents	Sustainability only (CBF not eligible)	ProvPort, Private Solar
Advocate for stricter city zoning against heavy industrial uses near residential areas	Sustainability only (CBF not eligible)	Providence Department of Planning
Incorporate flood resilience and environmental sustainability infrastructure in any ProvPort expansion permitted with the city	Sustainability only (CBF not eligible)	ProvPort, Providence Department of Planning

Waterfront Access & Community Spaces		
Strategy from Community Input for Funds	**Fund Eligibility / Role**	**Potential Exterior Partners to work with the City and Community**
Plan and apply for kayak launches and fishing piers where safe and feasible for community use, within Park Commissioners jurisdiction	Community Benefit (Parks-only) + Sustainability (optional)	City of Providence (BOPC, DPW, Planning), RIDEM,

		NOAA (potentially in ongoing projects)
Support beautification projects	Community Benefit (Parks-only) + Sustainability (optional)	City of Providence (BOPC, DPW, Planning), RIDEM, NOAA (potentially in ongoing projects)
Enhance entry gateway to Collier Point Park	Community Benefit (Parks-only) + Sustainability (optional)	City of Providence (BOPC, DPW, Planning and Development)
Create a streetscape and urban design plan in line with a Master Plan for Allens Ave corridor, to coordinate with RIDOT	Sustainability + Community Benefit (Parks-only—trees/greening only)	City of Providence (BOPC, DPW, Planning and Development)
Build public Allens Ave to River greenway with observation areas and small parks along the shoreline	Community Benefit (Parks-only) + Sustainability (optional)	City of Providence (BOPC, DPW, Planning and Development)

Governance, Community Engagement & Inclusion, Transparency		
Strategy from Community Input for Funds	**Fund Eligibility / Role**	**Potential Exterior Partners to work with the City and Community**
Establish Community Advisory Group to ProvPort, charged with overseeing the implementation of community benefit targets (ex: local jobs, community projects, and pollution reduction with periodic reviews.)	Sustainability only (CBF not eligible)	ProvPort, City of Providence Planning and Development

Establish transparent governance for the Community Benefit and Sustainability Reserve Accounts with clear community input on fund allocation decision-making that directly impacts South Providence and Washington Park neighborhoods.	Sustainability only (CBF not eligible)	City of Providence (BOPC, Sustainability, DPD)
Maintain online transparency portal to share leases, environmental data, project updates, and regular public meeting information, including translated materials.	ProvPort-funded	ProvPort (this is already designated as an Immediate Action in the Master Plan with ProvPort leading)
Arrange meaningful engagement like Port Day events and virtual tours to build understanding and trust	ProvPort-funded, with Sustainability only if needed (CBF not eligible)	ProvPort, City of Providence, Non-Profits, Academia

Over 30 years, these combined funding mechanisms, driven by ProvPort revenue and administered by the City of Providence, will direct millions of dollars into Washington Park and South Providence, reinforcing the principle that economic development must make people's lives better in host communities.

In conclusion, the Master Plan establishes governance mechanisms to embed transparency and accountability into ProvPort's DNA. This is crucial for the plan's legitimacy and success. Community members should feel that the port is not a mysterious entity operating behind fences, but rather a part of the community fabric, subject to public oversight and input. By 2055, ProvPort can become known not just for its economic might, but for its collaborative way of doing business – a port where decisions are made openly and with stakeholder participation, yielding outcomes that are broadly supported. This cultural shift in governance, which ProvPort launched through lease stipulations (discussed in Chapter III and Chapter VI), is formalized and expanded by the Master Plan's recommendations.

6. Implementation Framework

This Phased Implementation Plan translates the ProvPort Master Plan into an actionable, time-sequenced program. It is organized around four core building blocks: Themes, Strategies, Phases, and Initiatives. Together, these elements provide (1) a strategy-based phasing roadmap that identifies what actions should occur in each time period, and (2) an initiative-based playbook that sequences the strategies and projects required to deliver major programs over the life of the Master Plan.

To achieve the goals outlined in this Master Plan, recommended actions are organized into a phased implementation framework that aligns long-term vision with near-term decision-making and investment. The framework (phased implementation plan) is structured into four implementation phases: Immediate Action (0–5 years, or approximately 2026-2030), Short-Term (5–10 years, or approximately 2030–2035), Medium-Term (10–20 years, or 2035–2045), and Long-Term (20+ years, or 2045 and beyond). Each phase identifies strategies for meeting the plan goals, which include infrastructure investments, governance and policy measures, and predicted economic and community outcomes. This phased approach allows ProvPort to address urgent needs, build momentum through early successes, and adapt strategies over time as conditions, funding, and technologies evolve.

How the Framework is Structured

- Themes reflect recurring priorities identified through existing conditions analysis, technical studies, and community and stakeholder engagement.
- Strategies are the recurring actions and policy directions used to respond to each Theme.
- Phases organize Strategies by time horizon: Immediate (0-5 years), Short-Term (5-10 years), Medium-Term (10-20 years), and Long-Term (20+ years).
- Initiatives bundle multiple strategies into deliverable programs with defined lead entities, dependencies, and phased action sequences.

Figure placeholder: Implementation framework diagram (Themes -> Strategies -> Phases -> Initiatives)

Capital Planning and Time Horizons

For the Immediate Action and Short-Term phases, capital improvements are organized in five-year increments, reflecting the structure of the lease agreement between ProvPort and the City of Providence and the practical realities of public-sector capital budgeting, grant cycles, and bond financing. This approach supports clear accountability, regular reporting, and coordinated investment planning with City, State, and federal partners. It also allows ProvPort to reassess priorities at regular intervals and to refine project scopes such as feasibility studies, engineering, and as funding advances.

The Medium-Term and Long-Term phases are intentionally more aspirational. These phases identify the direction and scale of future investments (such as major infrastructure modernization, port electrification, berth expansion, and district-scale resilience measures) while recognizing that specific projects, costs, and delivery mechanisms will be refined through cyclical master planning updates, anticipated to occur every ten years. This structure ensures the Master Plan remains a living framework rather than a fixed blueprint. It also allows the port to adjust and pivot as needed to market opportunities and constraints.

A. From Existing Conditions and Community Engagement to Implementation Themes

The phased implementation plan is grounded in what the Master Plan team learned through the existing conditions analysis, technical studies, and community and stakeholder engagement conducted as part of this planning effort. These activities established recurring priorities and concerns related to environmental performance, resilience to flooding and climate hazards, operational efficiency, workforce development, transparency, and community well-being. From this work, a set of implementation themes emerged that reflect shared values and strategic needs.

These themes provide the organizing structure for the phased plan. Within each theme, related strategies were grouped and refined into cohesive initiatives. Packages of mutually reinforcing actions that can be implemented incrementally over time. Each initiative is designed to advance multiple Master Plan goals simultaneously, rather than addressing issues in isolation.

The strategies in the Phased Implementation Matrix are organized under the following themes, which reflect the priorities identified through existing conditions analysis and community engagement.

Table 13. Phased Implementation Matrix Themes

	Description of Theme
Clean Energy / Environmental	This theme focuses on reducing emissions, improving air and water quality, and transitioning the port toward cleaner energy systems. Strategies include electrification of equipment and vessels, renewable energy generation, emissions monitoring, waste reduction, and compliance with environmental performance standards.
Community & Governance	This theme addresses transparency, accountability, and meaningful engagement with surrounding neighborhoods and public partners. Strategies include formalizing community advisory structures, improving communication and reporting, coordinating emergency response planning, and aligning port actions with City and State policy goals.
Workforce Development & Education	This theme centers on expanding access to port-related careers and building long-term economic opportunity for local residents. Strategies include job training programs, partnerships with schools and higher-education institutions, apprenticeships, and initiatives that connect community members to maritime and industrial career pathways.
Infrastructure & Resilience	This theme focuses on maintaining and modernizing port infrastructure while reducing vulnerability to flooding, sea level rise, and extreme weather. Strategies include stormwater and flood mitigation, adaptable waterfront infrastructure, berth and bulkhead improvements, and long-term resilience planning at both site and district scales.

Land Use & Access	This theme addresses how port land is organized, managed, and connected, both internally and with surrounding neighborhoods. Strategies include truck routing and circulation improvements, public access enhancements, green buffers, redevelopment of underutilized parcels, and coordination with City land use planning efforts.
Port Operations	This theme focuses on improving day-to-day port efficiency, safety, and performance. Strategies include operational planning, asset management, emergency preparedness, internal coordination, and systems that support more efficient and lower-impact port operations.
Economic Development	This theme supports ProvPort's role as a regional economic engine. Strategies include attracting and supporting emerging cargo markets, investing in infrastructure that enables growth, coordinating with regional partners, and documenting economic impacts to support continued public and private investment.
Tenant Relations	This theme addresses collaboration and accountability between ProvPort and its tenants. Strategies include lease provisions, sustainability and reporting requirements, incentives for cleaner operations, coordination on infrastructure and emergency planning, and mechanisms to ensure tenant activities align with the Master Plan's goals.

B. How to Read the Phased Implementation Matrix

The Phased Implementation Matrix translates the Master Plan's vision into an actionable roadmap. Strategies are organized first by theme, then grouped into initiatives, and finally sequenced across the four implementation phases. Each row represents a specific strategy and identifies the lead entities, anticipated timeframe, relative priority, and potential funding sources. Strategies within an initiative are intentionally sequenced so that early actions (such as feasibility studies, policy updates, or pilot projects) lay the groundwork for more capital-intensive investments in later phases. The matrix is designed to be used as a living management tool: it can guide annual work planning, inform five-

year capital improvement programs, support grant applications, and provide transparency to the City and the public about how plan recommendations will be advanced over time.

Initiatives and Incremental Strategy Building

Within each initiative are specific, sequenced strategies that build on one another across phases. For example, the Electrification Initiative begins with near-term feasibility studies and grid assessments, advances to early investments in on-site renewable generation, electric equipment, and shore power infrastructure, and ultimately positions the port to accommodate emerging fuels and zero-emission vessel operations over the long term. Similarly, the Resilience Initiative progresses from vulnerability assessments and stormwater audits to targeted infrastructure upgrades, adaptable engineering designs, and eventually district-scale and regional resilience solutions.

This initiative-based structure, documented in the Phased Implementation Strategy Matrix, ensures that early actions support and de-risk future investments, that funding opportunities are aligned with readiness, and that progress can be clearly tracked over time.

Implementation Themes and Strategy Phasing Plan

The Master Plan themes summarize the shared values and priorities that emerged from the planning process. Each theme is advanced through a set of strategies that are phased over time and delivered through initiatives described later in this chapter. ensuring that when ProvPort invests, it does so with clarity and coordination.

This section answers the question: what strategies and actions should be advanced in each time period. Strategies are grouped by time horizon and organized by theme/category. Each action is cross-referenced with the initiative playbook in Section 4.

Placeholder: Theme map / diagram showing where initiatives advance multiple themes.

Phasing Approach

Phasing reflects readiness, dependencies, and the practical sequencing required to deliver benefits early while setting up larger capital transitions. The phases are used consistently across all initiatives.

Immediate (0–5 years)

Start programs, baselines, and governance systems; complete feasibility, design, and permitting; deliver quick operational wins and early visible upgrades.

Short-Term (5–10 years)

Deliver early capital projects and policy/lease standards; scale monitoring and reporting; launch workforce pipelines; begin electrification and modern material-handling pilots.

Medium-Term (10–20 years)

Expand major infrastructure modernization; implement district-scale flood protection where warranted; transition equipment fleets; deliver land-use transitions triggered by market and policy conditions.

Long-Term (20+ years)

Complete large-scale transitions and redevelopment opportunities; replace or repurpose legacy uses; sustain performance through governance, reporting, and periodic plan refreshes.

C. Immediate Actions (0–5 Years): Initiating the Systems That Enable Long-Term Transformation

In the Immediate Phase, ProvPort builds off its strong foundation and continues to improve how it operates, how it communicates, and how it prepares for the future, even if large-scale construction is not yet underway. This is the

period when the port moves from legacy, largely reactive practices to a more intentional, transparent, and data-driven operating model. Stakeholders (tenants, regulators, funders, and neighboring communities) will start to see clearer expectations and early signals that the port continues to be serious-minded about resilience, sustainability, and modernization.

This phase is largely feasibility studies and setting baselines that will guide initiatives through future phases. On the ground, it is characterized by measurement, monitoring, and institutional setup (with heavy focus on Environmental, Community, and Infrastructure themes). Air quality monitors are deployed, stormwater systems are studied and mapped, and baseline noise conditions are documented. These activities are not abstract exercises; they represent a comprehensive, defensible understanding of ProvPort's environmental footprint and infrastructure vulnerabilities.

Organizationally, the Port begins to function differently. A dedicated Master Plan Liaison and the ProvPort Community Advisory Board create predictable pathways for communication and accountability. Digital dashboards and notification systems begin to replace ad hoc reporting, giving the public and decision-makers clearer insight into port conditions and performance. Workforce and economic data are centralized, allowing ProvPort to better understand who works at the port today and what skills will be needed tomorrow.

Importantly, this phase also sends early market and vision signals. By initiating electrification feasibility studies, shore power planning, and AI-enabled energy and emissions management, ProvPort signals to tenants, utilities, and funding agencies that clean energy transition is no longer aspirational and is actively planned. Similarly, early land use and access planning begins to reshape how the port presents itself at its gateways and how truck traffic interacts with surrounding neighborhoods.

Together, these actions do not yet transform the port physically, but they fundamentally transform its readiness. The Immediate Phase is about ensuring that when ProvPort makes large-scale investment decisions, it does so with clarity and coordination.

Table 14. Immediate Action Phase Strategies (0-5 Years) [Please note, these tables will be formatted further in the final report version which may have additional graphics.]

Theme	Strategy (Key Action)	Entities to Lead the Implementation (*Chapter VII*)
Clean Energy/Environmental	AI-Based Port Energy & Emission Management System (Phase I): Web based platform showing environmental performance, sustainability data, progress on electrification/emissions, etc.	ProvPort, RIDEM
	Air Quality Response Plan (Phase I): Deploy air quality monitoring inside Port, and continuing monitoring plan, and methods for resolution of AQ issues if identified (2–3 fixed and 1 mobile station to collect PM2.5, NOx, VOC data.)	ProvPort, RIDEM
	Air Quality Response Plan (Phase II): Complete a detailed inventory of GHGs and air pollutants that at least includes emissions from within the boundary of the participant's footprint within the last 5 years. Inventory should include key GHGs: CO2, CH4, and N2O and criteria air pollutants, such as NOx, SOx, VOC, and PM.	
	Air Quality Response Plan (Phase III): Adopt a performance plan for air emissions resulting directly from the participant's activities. In the plan, define reduction measures and establish reduction targets for both GHG and air pollutants	
	Air Quality Response Plan (Phase III): Define corrective actions when exceedances are recorded	
	Audit Environmental Compliance: Comprehensive review of all existing tenant permits for (SPDES/NPDES, air quality, hazmat, stormwater, etc.)	
	Electric Yard Equipment & Vehicle Pilot Program (Phase I): Inventory all diesel equipment (yard trucks, forklifts, cranes, etc.) in a fleet assessment, to identify equipment that can be economically converted or replaced with electric-powered equipment.	ProvPort
	Solar (Phase I): Assess feasibility and recommend candidate buildings (existing and future) for installing solar panels on building rooftops to generate clean energy on-site	ProvPort

	Electrification Plan (Phase I): Complete Feasibility Study. Assess distributed energy generation potential (solar canopy + storage), microgrid needs and implementation, and for installation of electric charging depot for EVs + EV Trucks. Identify any grid upgrades needed.	ProvPort, Tenants, RI Energy
	Shorepower Development Plan (Phase I): Complete engineering design for shore power infrastructure at two high-priority berths as identified in the feasibility study. . Continue to pursue Federal Port Infrastructure Development grants in 2026–2027 to fund installation.	ProvPort
	Waste Management Plan (Phase I): Prepare and produce an inventory of all waste being generated during the participant's direct activities. Conduct this audit every 5 years.	ProvPort, RIDEM
	Green Marine: Develop and update a public facing module on the website to cover the Green Marine Program (link to the AI dashboard with emissions data AND community dashboard)	ProvPort
Community & Governance	Appoint a Master Plan Liaison: Establish a point person to address plan elements with South Providence and Washington Park residents (and to serve as a lead for the future plan update)	ProvPort
	Community Notification System: Work with PEMA to build on the newly established warning systems and protocols, and to share clear emergency response initiatives for port-related incidents (including spills, fires, or security events).	
	Develop Port Dashboard for Port management and community transparency. This is a combination of the jobs hub (from workforce), implementation and success of master plan strategies, and environmental metrics from Emissions and Waste plans (AI hub).	
	Establish a permanent ProvPort Community Advisory Board (PCAB). The PCAB may be structured with representatives as follows: - an appointment by the mayor - an appointment by the ward 11 councilperson - an appointment by the ward 10 councilperson - a representative of the Washington Park Neighborhood Association - a representative of the Southside Neighborhood Association - two (2) representatives of an environmental justice or advocacy organizations (i.e PPA, CLF)	ProvPort, CITY

	Ongoing commitment: Keep up with regular meetings and transparent reporting. The advisory board might rotate in new members to keep perspectives fresh.	
	Outreach: Hold at least one annual "State of the Port" public meeting to share updates on capital investments, environmental performance, and workforce programs, and to collect community feedback. Post key documents and meeting minutes to the website as a part of this "State of the Port" annual conversation.	ProvPort
	Benefit Fund: Per the Ordinance establishing the tax exemption for ProvPort, councilpersons and community members from wards 10 and 11 are to be consulted regarding Community Benefits and Sustainability Projects in their wards. ProvPort will support the City and the community to achieve this.	ProvPort, CITY
	Noise Reduction Policy: Work with the city and community to identify policies for noise reduction and dark sky lighting (downward facing), as part of the Equipment Noise program in Environmental Initiatives.	
	Partner with neighborhood organizations on port-related initiatives (e.g., job fairs, or educational tours).	ProvPort
Workforce Development & Education	Workforce Development & Job Creation/Training: Modernize ILA hiring system with focus on communicating job opportunities (and means for applying) to near-port community members	ProvPort, CITY
	Education: Launch a "Port Neighborhood Scholarship" program in 2026 (using community fund dollars as suggested by City Councilors). Provide up to ten $5,000 scholarships annually to youth from Wards 10 and 11 who pursue college or vocational training in fields related to maritime, engineering, or environmental science.	
	Workforce Development & Job Creation/Training: Launch jobs hub - online resource for workforce pathways and job opportunities. Utilize a system (could be third party) to link job openings from tenant postings.	ProvPort
Infrastructure & Resilience Theme	Berths 1, 2, and 3 Deepening and Deepened Navigation Channel (to 38 ft): Coordinate with USACE for expanded navigation and berth upgrades, including beneficial reuse opportunities	ProvPort, USACE

	Flood Mitigation (Phase 1): Conduct a Flood Vulnerability Assessment that serves as a stormwater master plan and identifies infrastructure (i.e., buildings, utilities, storage/laydown) that are vulnerable to flooding. Perform a separate assessment for each parcel.	ProvPort
	Hydrologic and Hydraulic (H&H) Study: model stormwater flow patterns, assess system capacity, and identify areas of concern under various storm scenarios. This study will inform the sizing and placement of future infrastructure improvements and help evaluate the effectiveness of proposed green infrastructure and treatment systems	
	Maintenance Dredging: Assess need to conduct major maintenance dredging (if needed) of berths to maintain current dredge depths. The last deepening was completed recently, so this phase may only require spot dredging and planning for the next full dredge in Phase 2.	ProvPort
	Laydown Area Study (Phase 1): Conduct a study for Rapid Impact Compaction (RIC), an engineered ground-improvement technique that densifies underlying soils and increases bearing capacity. (These improved surfaces are essential for mobile harbor crane operations, SPMTs, heavy-lift transporters, turbine components, and other high-and-heavy project cargo)	ProvPort, RIDEM, CITY
	Stormwater Infrastructure Audit: Identify drainage bottlenecks, outfalls, and treatment locations. Develop an inventory of existing drainage systems. Perform a condition assessment to evaluate the integrity and performance of the existing stormwater systems. Develop a GIS platform that will map impervious surfaces, topography, and flood-prone zones.	

	Stormwater Maintenance/Upgrades: Implement a structured maintenance program that includes regular catch basin cleaning, inspection and servicing of sediment traps, and maintenance of oil/water separators. These upgrades will reduce pollutant loads, prevent blockages, and extend the lifespan of existing systems. The program will be regularly updated to include new tenants and structures and delegate maintenance requirements amongst ProvPort and its tenants. Develop tenant stormwater management guidelines.	
	Stormwater Pollution Prevention Plans (SWPPPs): To ensure consistent environmental performance across all operations, the port will require tenants to prepare and maintain SWPPPs. These plans will outline site-specific practices for managing runoff, preventing spills, and maintaining stormwater infrastructure that align with the established guidelines above. Tenants will be expected to conduct regular inspections, train staff, and report on compliance as part of their lease agreements and environmental obligations. Tenants will be required to begin maintaining SWPPPs once ProvPort develops the tenant stormwater management guidelines and implemented within 2 years of the guidance being distributed to tenants	

	Stormwater Quality Monitoring Program: Establish a baseline monitoring program for tenants to track key pollutants (TSS, grease and oil, nutrients, hydrocarbons, metals).	ProvPort
	Waterside Infrastructure and Berth Expansion (Phase I): Condition Assessment and Feasibility Study: including conceptual engineering, regulatory considerations, pre-design investigations, and proposed implementation phasing. The assessment may include: - Baseline condition assessment (above and below-water dive inspections) of of waterside infrastructure (bulkhead, bollards, fendering). - Base plan development of berth areas (including topographic, bathymetric, and utility surveying, etc.) - Identify known upland bearing capacities and target locations for	ProvPort

	ground improvement programs - Pre-Design investigations (i.e., geotechnical investigations, bollard pull tests) - Recommend near-term repairs, maintenance practices, and rehabilitation/replacement measures to bulkhead, bollards, fendering. - Identify need and feasibility of installing high capacity storm bollards to provide flexibility in berthing opportunities. - Assess feasibility for elevating bulkhead incrementally over time (adaptable design), in line with raising port grades, to accommodate long range sea level rise/flood hazard risks [refer to flood vulnerability strategies]. - Assess feasibility of berth expansion opportunities (i.e., expansion between Berth 3 "knuckle" and Berth 1, extension south of Berth 6).	
	Flood Mitigation (Phase II): Elevate key electrical and pumping infrastructure	
Land Use & Access	Waterside Infrastructure (Phase II): Intermediate repairs to bulkhead and mooring/berthing systems that will extend the useful life of the structures up to implementation of reconstruction (Phases III and IV).	ProvPort, CITY
	"ProvPort Gateway" & Office Relocation (Phase I): Complete Feasibility Study and develop concept for a Port Center with public training and education components.	ProvPort, City, RIDOT
	Land Uses: Develop a truck traffic management plan in conjunction with RIDOT, exploring ideas like designated truck routes, and times of day restrictions if needed, to minimize residential disruptions.	ProvPort, City
Operational	Land Uses: Support efforts to open a public waterfront access point at the end of Public Street.	ProvPort
	Emergency Preparedness Plans: Establish internal (ProvPort) emergency communication and climate hazard response protocols (i.e., flood emergency response). Collaborate with tenant liaison on individual emergency management plans.	

Economic Development	Truck Route Best Management Practices (BMP) and Wayfinding: Install directional signage, coordinate with RIDOT for signal timing improvements, and launch truck driver education campaign	City, ProvPort, RI Commerce
	Growth Potential: Coordinate with neighbors and partners to identify additional parcels that can serve as cargo storage and increase bulk cargo capacity.	
	Growth Potential: ProvPort Expansion into vacant/underutilized areas of greater Port of Providence as possible.	ProvPort
	Submit a 5-Year Capital Improvement Plan to the City on a recurring basis, share summary information on tenant leases and sustainability projects, and make such information available to City Council and the public.	
Tenant Relations	Strengthen internal capacity for grant writing and implementation, potentially through a dedicated port development officer or staff liaison.	ProvPort, RIDEM
	Integrate Environmental Disclosure Clauses into Tenant Lease Renewal or new Leases: Require reporting of emissions, spills, and stormwater discharge conditions. Build on what tenants are already reporting.	ProvPort
	Evaluate tenant performance and determine highest and best use for existing ProvPort properties.	
	Coordinate with appropriate tenants/service providers to include hiring needs on the "jobs hub" that is hosted through ProvPort website.	

Immediate Phase Outcomes: What ProvPort Is Ready to Do Next

By the end of the Immediate Phase, ProvPort will have completed a fundamental shift from planning in concept to planning with evidence. Environmental conditions will be documented, operational risks understood, governance structures formalized, and digital systems in place to support transparency and accountability. While large capital projects may still be in design or feasibility stages, the port will be positioned to move decisively into implementation.

Just as importantly, this phase establishes trust and predictability. Tenants will understand future expectations, communities will see clearer communication and responsiveness, and funding agencies will see a port that is organized, data-driven, and ready to deploy capital effectively. All the immediate actions are designed to be achievable and take steps towards setting up information and knowledge that builds to larger action in the next phase. The Immediate Phase does not deliver the end state, it delivers the capacity to deliver, setting the stage for visible transformation in the Short and Medium-Term Phases.

Placeholder: Phase map / exhibit showing priority projects and locations for Immediate Action.

D. Short-Term (5-10 years) – From Baseline to Visible Change and Early Implementation

By the Short-Term Phase, ProvPort begins to look and feel different. This is the period when the systems, data, and policies established in the Immediate Phase are translated into early capital projects, pilot programs, and operational upgrades that are visible to tenants, workers, and the surrounding community. While the port continues to plan for longer-horizon investments, this phase is defined by action: early construction, new equipment, and tangible environmental and resilience improvements.

On the ground, stakeholders begin to see physical signals of modernization. Select port equipment and vehicles transition to electric or low-emission alternatives, quieter operations become more noticeable, and early electrification infrastructure starts to take shape. Environmental monitoring expands from baseline collection to active performance tracking, and remediation planning moves forward on underutilized or contaminated parcels. Flood mitigation and stormwater improvements begin to address the most vulnerable areas identified during earlier audits, reducing nuisance flooding and improving operational reliability.

Operationally, the port functions with greater coordination and predictability. Truck circulation and access improvements reduce conflicts at the port edge, and clear internal operating standards are reinforced through tenant coordination and lease administration. Workforce and community programs move from setup to delivery, with training partnerships, job pathways, and community engagement activities becoming part of regular port operations.

This phase also marks a shift in how ProvPort is perceived externally. With early projects underway and funding secured, the port demonstrates to regulators, funders, and industry partners how it will execute complex, multi-disciplinary initiatives. The Short-Term Phase builds momentum and confidence, showing that the Master Plan is not just a vision, but a living framework guiding real investment and change.

Short-Term Phase Strategies (5-10 Years):

Theme	Strategy (Key Action)	Entities to Lead the Implementation (*Chapter VII*)
Clean Energy/Environmental	Phase I/II Site Investigations for Brownfields: Integrate tenant site remediation, Phase I and II requirements for new tenants to target legacy parcels for future redevelopment	ProvPort, RIDEM
	Electric Yard Equipment & Vehicle Pilot Program (Phase II): Start phased replacements of diesel equipment (yard trucks, forklifts, cranes, etc.) with electric models where feasible, according to the previous phase study.	ProvPort
	Electrification Plan (Phase II): Implement needs from Phase I. Grid updates as needed to support shore power expansion. Integrate renewable generation through on-port installation	ProvPort, RIDEM, RI Energy, RI OER
	Waste Management Plan (Phase II): Based on the results from the waste audits every 5 years, develop and implement a management and reduction plan that defines measurable waste reduction and sets strategies to achieve the reduction rates.	ProvPort, RIDEM
	AI-Based Port Energy & Emission Management System (Phase II): Integrate digital twin for port operations and climate adaptation tracking.	ProvPort, RIDEM, Tenants

	Equipment Noise: New equipment, when feasible, will be chosen for low noise output (electric motors are quieter than diesel, for example) and back-up alarms on vehicles will use modern broad-spectrum ("white noise") signals that are less annoying to communities.	ProvPort
Community & Governance	Benefit Fund: Support the City in a 5-year reviews of spending from the Benefit Funds to ensure that the Community Advisory Board and the public are aware of spending, and choose investments strategically.	ProvPort, CITY
	Community Benefit Fund: Continue and expand community benefit programs where possible. Document what the 1% community fund is contributing with increased port revenue.	
	Health Studies: Partner with and support research initiatives that conduct health studies and that run programs for mobile clinics in Wards 10 and 11.	ProvPort, Brown, RIDOH
Workforce Development & Education Theme	Workforce Development & Job Creation/Training: Establish Port Technology/Innovation Center. Co-locate training, incubator, and logistics R&D hub.	ProvPort, EDA
	Education: Partner with Providence public schools, nearby institutions such as the Juanita Sanchez Education Complex, WindWinRI, and local higher education and training providers to introduce maritime curriculum elements, guest lectures, port tours, and hands-on learning opportunities	ProvPort
	Workforce Development & Job Creation/Training: Focus on Job creating industries, manufacturing, over bulk chemical/petroleum storage	
Infrastructure & Resilience	Flood Mitigation (Phase IV): Relocation of bulk materials that are vulnerable to flooding, where feasible. Continue to evaluate new storage opportunities.	ProvPort
	Berth Expansion (Phase II): Implementation (design, permitting, construction) of Stage 1 of Berth 6 expansion (i.e., dolphins with intermediate gangways).	
	First-Flush Treatment Systems: High-risk areas such as bulk material handling zones, metal scraping operations, and fueling stations will be equipped with first-flush treatment systems. These systems are designed to capture and treat the initial runoff from storm events, which typically contain the highest concentration of pollutants.	

	Flood Mitigation (Phase III): Develop conceptual priority flood mitigation projects such as incremental raising of grade, raised berms, deployable flood walls, permanent flood walls. Coordinate raise in grade with adaptable bulkhead design.	ProvPort, CITY, DEM
	Flood Mitigation (Phase V): Design and install secondary containment for fixed and portable outdoor above ground storage tanks and containers (permanent and in transit) that are vulnerable to flooding.	ProvPort, RIDEM
	Improvements to Rail Infrastructure: Continue to work with G&W for upgrades and improvements to rail system based on customer needs.	ProvPort, G&W
	Upgrade port roadways and gates to improve traffic flow and reduce idling. This includes creating a new queuing area within the port and installing signage to direct drivers to highway routes (keeping them off local streets). Assess security improvements (i.e., new gate, improved lighting). Include repairs to internal roads, add curbing.	ProvPort, possible PIDP
	Laydown Area Study (Phase 2): If possible, implement Rapid Impact Compaction (RIC), to increase bearing capacity.	
	Waterside Infrastructure (Phase III): Design and Permitting of waterside infrastructure improvements (including bulkhead reconstruction, mooring and berthing system upgrades). Develop adaptable bulkhead design that will allow for future elevation in line with long-term port raise in grade.	
Land Use & Access	Parking: Develop a plan to consolidate parking and reduce parking requirements at individual tenants.	ProvPort, CITY
	“ProvPort Gateway” & Office Relocation (Phase II): Implement Office Relocation, which may include a Port Center that will provide space for public training and education components.	ProvPort, RIDEM
	Green Buffer and Public Access (Phase I): Perform a feasibility study that identifies conceptual options for implementing a landscaping/tree planting program(s), public access points, and associated improvements that would be necessary to implement. Identify potential funding sources. Include ways to implement flood-resilient buffers that contain educational and ecological	

	features. Develop phasing for implementing green buffers and in-port access points in segments, considering potential acquisition of underutilized parcels.	
	Public Access (Phase II): Complete a pilot access project: Reinforce and improve public access location (i.e., south of Berth 6). Identify and update next phasing of public access based on feasibility assessment.	ProvPort
	Regulatory: Adhere to and meet the goals and objectives that pertain to the port in the RI Climate Act 2050 and Resilient Rhody 2025 Plan.	ProvPort, CITY
	Regulatory: Work with the City to strengthen W-3 environmental and resilience performance standards.	
	Regulatory: Work with the State to support and advocate for Building Code requirements for flood hazard, sensitive industrial land uses.	ProvPort
Operational	Land Uses: Reduce footprint of NEPT containment berm to allow for more usable area.	ProvPort
	Rationalize transportation routes (more direct or shorter haul routes between dock and stockpiles). May include realignment of Shipyard St and connection to Fields Point Dr.	
	Improve Material Handling Practices and Equipment: Identify short-term retrofits to lower-emission diesel and pilot use of electric forklifts and yard tractors	ProvPort, Tenants, RI Commerce
	Oil Storage: Work with terminal operators of oil storage (some of whom are ProvPort tenants or adjacent) to repurpose underused tanks. For example, convert one of the liquid fuel terminals into a storage site for renewable fuels or a staging area for offshore wind cable spools (complementing the existing cable storage yard established in 2023.	ProvPort
Economic Development	Transit Shed & Covered Storage Feasibility: Evaluate location for enclosed storage of palletized goods (multi-tenant use). Evaluate as different tenants and goods are incorporated into the port operations.	ProvPort

	Development: Conduct an economic impact study to quantify the jobs, tax revenue, and other benefits generated so far by plan actions (blue incubator, job training, etc.), creating data to support continued investment	CITY, PROVPORT, RI COMMERCE
	Development: Support and participate in Redevelopment of Port of Providence area with City/State. ProvPort can advocate for a unified "Port Area Environmental Improvement Plan" or "Maritime Industrial Overlay District" that by 2050 brings all operators into compliance and reduces cumulative impacts.	ProvPort
	Regulatory: Continue to evaluate energy sector climate and react to market conditions.	
Tenant Relations	Regulatory: Periodic ten-year reviews will allow the Master Plan to be updated and adapted as conditions and opportunities evolve, with the community actively involved at each milestone.	ProvPort
	As leases come up for renewal, revise lease requirements or provide tenant incentives to use cleaner cargo handling equipment (replace equipment that meets EPA Tier 1 emissions standards with equivalent equipment that meets EPA Tier 4 standards).	ProvPort
	Invest in covered hoppers to minimize runoff and dust emissions while loading vessels. Incorporate terms into new/renewed lease requirements that will achieve this objective for tenants that do their own cargo handling.	
	Attract niche cargo markets, such as cold-chain seafood, oversized manufacturing, or construction material recycling, through flexible terminal configurations.	

Short-Term Phase Outcomes: What ProvPort Is Ready to Do Next

By the end of the Short-Term Phase, ProvPort will have moved decisively from preparation to demonstration. Cleaner and quieter equipment will be operating on site, early resilience projects will be reducing risk and disruption, and

governance and community engagement systems will be functioning as routine elements of port management. Workforce programs will be active, and underutilized parcels will be positioned for redevelopment rather than remaining constraints.

Most importantly, the port will have established a track record of delivery. With early projects completed and others in design or construction, ProvPort will be ready to scale up investment in the Medium-Term Phase—moving from pilots and targeted upgrades to broader transformation of infrastructure, land use, and industry mix. The Short-Term Phase thus serves as the bridge between planning and sustained implementation, reinforcing confidence that the long-term vision is achievable and already unfolding.

Placeholder: Phase map / exhibit showing priority projects and locations for Short Term.

E. Medium-Term Actions (10–20 Years): Transformation, Adaptation, and Strategic Repositioning

The Medium-Term Phase represents the point at which ProvPort may begin to look and function fundamentally differently than it does today. Unlike the Immediate and Short-Term phases, where actions are tightly defined and largely driven by known conditions, this phase is intentionally adaptive and opportunity driven. Decisions made during this period will respond to changing market forces, evolving energy systems, climate conditions, and regional infrastructure priorities.

By this phase, the port is no longer implementing pilots or targeted upgrades. Instead, ProvPort is actively repositioning itself, potentially transitioning land uses, reshaping its tenant mix, and deploying large-scale infrastructure investments that reflect lessons learned from earlier phases. Portions of the port may shift away from legacy uses, while other areas intensify or modernize to support new maritime, industrial, or clean energy functions.

Physically, stakeholders may see larger, coordinated capital projects underway: expanded electrification, significant resilience infrastructure, redevelopment of underutilized parcels, and reconfigured circulation patterns. Operationally, the port functions with a higher degree of automation, energy efficiency, and integration with regional transportation

and energy systems. Governance and community engagement mechanisms established earlier are now mature, enabling ProvPort to manage complex transitions transparently and collaboratively.

Importantly, the Medium-Term Phase is not a single prescribed outcome: it is a decision window. The groundwork laid in earlier phases allows ProvPort to respond strategically, whether that means scaling clean energy infrastructure, accommodating new cargo types, redeveloping waterfront parcels, or supporting emerging industries not yet fully defined today.

Medium-Term Phase Strategies (10-20 Years):

Theme	Strategy (Key Action)	Entities to Lead the Implementation (*Chapter VII*)
Clean Energy/ Environmental	Electric Yard Equipment & Vehicle Pilot Program (Phase III): Scale electric truck program once Charging Depot is available; add tenant incentives for equipment replacement	ProvPort, RIDEM, RI Energy
	Electrification Plan (Phase III): Achieve microgrid implementation and, if possible, Battery Energy Storage System (BESS: On-site storage for peak shaving and emergency operations).	ProvPort, RIDEM, RI Energy, RI OER
	EV/Truck Charging Depot: Install shared-use depot in area identified in the Electrification Feasibility Study and work with utilities to achieve any grid modifications.	ProvPort, Tenants, RI Energy
	Shore power Development Plan (Phase II): Assuming vessels are shorepower-ready, aim to begin construction of shore power connections in 2035, with one berth becoming shore-power operational by 2040.	ProvPort
	Solar (Phase II): Installation of solar panels on building rooftops based on feasibility assessment.	
	Establish Maritime Workforce Center: Permanent training center with University/CCRI partnership	ProvPort, City, URI/CCRI

Workforce Development & Education	Union Apprenticeships: With sustained construction (new berth, etc.), ensure robust apprenticeship utilization – e.g., aim for 15–20% of labor hours on port projects to be apprentices from local programs in this phase. This will churn out a new generation of journey workers who then work at the port or elsewhere.	ProvPort, CITY
Infrastructure & Resilience	Berth Expansion (Phase III): Implementation of Stage 2 of Berth 6 expansion (i.e., full berth expansion via wharf, connection to upland land). Begin design and permitting of Berth 1 to 3 expansion.	ProvPort
	Green Infrastructure Retrofits: pilot green infrastructure retrofits in non-cargo areas. These may include bioretention swales, rain gardens, and permeable pavement installations. These systems promote infiltration, filter pollutants, and provide co-benefits such as improved aesthetics and habitat value. By year 3, areas requiring improvement will be identified from the baseline assessment.	
	Low-Impact Development (LID): Expand LID features across newly redeveloped parcels as tenants change. These features—such as bioswales, vegetated buffers, permeable pavements, and green roofs—will be incorporated into site designs to reduce runoff volumes, improve water quality, and enhance site aesthetics. LID practices will be prioritized in areas with high impervious cover and where redevelopment offers opportunities for integrated stormwater solutions.	
	Stormwater Conveyance Upgrades: Upgrade large-scale stormwater conveyance and storage systems. This includes the construction or expansion of detention basins, underground vaults, and high-capacity conveyance pipes. These systems will be designed to accommodate future climate conditions, including more intense rainfall events and rising sea levels, while minimizing disruption to port operations.	
	Waterside Infrastructure (Phase IV): Complete bulkhead reconstruction, which will include upgrades to the mooring and berthing systems (and installation of high-capacity storm bollards, if deemed necessary).	
	Quay-side improvements: ground improvement/relieving platforms to increase bearing capacity.	

	Smart Stormwater Systems: utilize real-time monitoring, sensors, and automated controls. These technologies will enable dynamic management of stormwater flows, optimize system performance, and provide early warnings for flooding or system failures. Smart infrastructure such as automated gates, pumps, and telemetry systems will be deployed in critical areas to enhance operational efficiency and responsiveness.	
Land Use & Access	Green Buffer (Phase II): Complete a pilot green buffer project: Identify a stretch along Shipyard Street where landscaping and tree planting can be done on port-controlled land. Implement this as a small "pocket park" or green strip with funding from grants and port contributions. Identify and update next phasing of public access based on feasibility assessment.	ProvPort, CITY, RIDEM
	Land Uses: Support linking the Fields Point path northwards – possibly reaching near Public Street if industrial reconfiguration allows. The Save The Bay public pier should be well-utilized; consider partnering with Save The Bay to catalyze a small maritime museum or visitor kiosk there as part of port education efforts.	
	Green Buffer and Public Access (Phase III): Expand developed streetscapes (executed in phases, updated under Phase II) with additional trees and vegetated noise barriers. Implement additional public access points based on updates to feasibility assessment performed under Phase II.	ProvPort, CITY
Operational	Construct Enclosed Transit Shed: Climate-resilient, enclosed breakbulk storage with cranes or conveyors.	ProvPort
	Mobile Vessel Unloading: Evaluate client needs for investment in mobile vessel unloading equipment for dry bulk cargos that will allow for direct unloading of vessels	
Economic Development	Using the site of Undeveloped Allens Ave Parcel(s) (if still available) or reclaimed land, construct a modern multi-purpose dock capable of handling heavy lift cargo (for wind turbines, large project cargo) and possibly container barges. The design will incorporate electrified cranes and shore power from the start. Economic impact: more throughput and the ability to attract new shipping services.	ProvPort

	Growth Potential: Redevelopment Plan of J&W Shipyard Street/Harborside Blvd to facilities that enable and support manufacturing/fabrication/warehousing/maritime tech incubator.	
	Growth Potential: Redevelopment of Shipyard Street (Parcels: Morton Salt Pile Site and 30 Shipyard)	ProvPort, CITY
Tenant Relations	Develop a Tenant Sustainability Certification Program. Recognize and incentivize "Green Port" tenants via performance metrics.	ProvPort
	Leverage dual-tenant strategies, where port parcels support complementary uses (e.g., clean energy storage and logistics warehousing).	

Medium-Term Phase Outcomes: What the Port May Become

By the end of the Medium-Term Phase, ProvPort will have entered a period of true transformation. Portions of the port may look markedly different than they do today: cleaner, more resilient, more efficient, and more closely aligned with emerging economic and environmental priorities. Legacy constraints will have been addressed through redevelopment or adaptation, and new industries may be firmly established.

Just as importantly, ProvPort will retain strategic flexibility. Rather than locking into a single future, the port will be equipped with resilient infrastructure, adaptable governance, and a diversified tenant base that allows it to respond to uncertainty and opportunity alike. The Medium-Term Phase thus positions ProvPort not only to meet future challenges, but to shape its own trajectory as a modern, resilient port.

Placeholder: Phase map / exhibit showing priority projects and locations for Medium Term.

F. Long-Term Actions (20+ Years) – Scenario-Driven Transformation and Enduring Adaptation

The Long-Term Phase represents a horizon where ProvPort is no longer defined by incremental change, but by strategic reinvention and long-range adaptation. This phase is intentionally aspirational. Rather than prescribing a single future condition, the Master Plan anticipates that global trade patterns, energy systems, climate conditions, and urban land use priorities will continue to evolve in ways that cannot be fully predicted today. The value of this phase lies not in certainty, but in preparedness and flexibility. This phase is dominated by some infrastructure projects that require a long runway to completion and focuses on continuing previous programming while remaining flexible.

By this point, ProvPort may look and operate very differently than it does today. Portions of the port may be elevated, regraded, or reconfigured to address sea-level rise and chronic flooding. Waterfront edges may incorporate nature-based or hybrid infrastructure rather than conventional bulkheads alone. Large-scale berth expansions or reconfigured laydown areas may support entirely new cargo types or industrial functions. Some legacy uses may be phased out entirely, replaced by cleaner, quieter, and more technologically advanced operations.

Operationally, the port functions as part of a larger regional system. Energy, stormwater, and resilience investments may operate at a district scale rather than parcel-by-parcel. Governance structures and community benefit programs are no longer experimental or newly established, they are mature, embedded, and generational in their impact. Workforce pathways extend beyond individual jobs, supporting long-term employment stability and career progression within port-related industries.

Crucially, the Long-Term Phase does not assume a single transformation pathway. Instead, it reflects a port that has preserved its ability to choose: to adapt land uses, tenant mixes, and infrastructure investments in response to future conditions, while remaining resilient, economically relevant, and integrated with the City of Providence.

Long-Term Phase Strategies (20+ Years):

Theme	Strategy (Key Action)	Entities to Lead the Implementation (*Chapter VII*)
Clean Energy/Environmental	Shore Power Development Plan (Phase III): Full Shore Power Deployment at Primary Berths: Design and install AMP-compatible infrastructure; coordinate with vessel operators	ProvPort, RIDEM, RI Energy
	Air Quality Response Plan (Phase IV): Work with shipping lines so that by 2050, vessels calling Providence are either running on clean fuels (ammonia, hydrogen, green methanol, etc.) or plug in such that their port stay is emission-free.	ProvPort
	Carbon Capture & Shore-Based Vessel Emission Control Pilots: Explore integration of capture systems or green ammonia bunkering	ProvPort, RIDEM, Tenants, RI OER
Community & Governance	Community Benefit and Sustainability Funds over 30 years could have invested upwards of $5 million each into local projects and potentially leveraged additional funding. Have a review of investments at major junctions to assess spending priorities.	ProvPort, CITY
	Long-term Community Employment: Surrounding communities are anticipated to see lower unemployment and higher incomes compared to 2026, attributable to port jobs. If500+ local residents have built careers through port-related work over the decades, that creates generational change.	ProvPort, CITY
Infrastructure & Resilience	Berth Rehabilitation and Channel Deepening: Deepening of all berths (to uniform 40ft) and channels to allow enhanced docking flexibility and greater capacity to handle larger vessels	ProvPort, USACE
	Port Expansion (Port of Providence Integration): Unify management and development vision for entire harbor district. Using the site of Undeveloped Allens Ave Parcel(s)(if still available) or reclaimed land, construct a modern multi-purpose dock capable of handling heavy lift cargo (for wind turbines, large project cargo) and possibly container barges.	ProvPort, CITY

	Regional Resilience Partnership with City & State: Joint defense and coastal flood management program extending along Providence River	ProvPort, CITY/PEMA, RIEMA
	Berth Expansion (Phase IV): Implementation of Berth 1 to 3 expansion (i.e., full berth expansion via wharf).	ProvPort
	Flood Mitigation (Phase VI): See Raise Seawall and Laydown Area Elevations Above	ProvPort, CITY
	Raise Seawall and Laydown Area Elevations: Raise in bulkhead elevation (i.e., adaptable design) aligned with projected 2100 flood scenarios. Align with port-wide raise in grade planning.	
	Adaptive Management Program: Establish a robust adaptive management program with formal review cycles every five years. This program will evaluate system performance, regulatory compliance, and environmental outcomes, allowing for timely adjustments to strategies and investments.	
	District Scale Stormwater Systems: Shared treatment wetlands and regional storage facilities will be developed to serve clusters of port operations, reducing the need for redundant infrastructure and enabling economies of scale. These systems will be designed to treat stormwater from diverse sources, including tenant operations, roadways, and bulk material areas, while also providing ecological benefits such as habitat creation and groundwater recharge.	
	Nature-Based Solutions: Explore nature-based wharfs and hybrid hard structures that incorporate ecological features into engineered docking infrastructure. These may include vegetated bulkheads, eco-concrete surfaces, and integrated stormwater filtration zones that provide some of the benefits of living shorelines—such as pollutant removal and habitat enhancement—while maintaining the structural integrity and functionality required for maritime operations.	
	Stormwater Reuse and Recycling: Expand the reuse and recycling of stormwater for non-potable industrial applications.	

Land Use & Access	Underutilized Parcels: Coordination with neighboring property owners for lease/acquisition of parking lot(s) and acquisition of other underutilized small parcels adjacent to ProvPort boundaries to allow for improved road & rail alignment, and consolidation of contiguous properties for improved cargo handling and storage, water supportive land uses	ProvPort, CITY
Economic Development	Development: Port Expansion (Port of Providence Integration): Unify management and development vision for entire harbor district, under City or State planning	ProvPort, CITY
Tenant Relations	Maintain flexibility of warehousing for emerging markets and ensure port facilities (like cold storage) can adapt if needed.	ProvPort

Long-Term Phase Outcomes: An Enduring, Adaptive Port

By the Long-Term Phase, ProvPort is positioned not simply as a port that has survived change, but as one that has evolved with intention. Infrastructure is resilient by design, land uses are adaptable rather than fixed, and governance and community benefit systems are durable enough to span generations. The port remains economically productive while better integrated with its city and environmental context. Most importantly, ProvPort retains strategic choice. Whether responding to climate realities, new energy systems, or shifts in global trade, the port enters the second half of the century with the physical, institutional, and social capacity to adapt, ensuring it remains a vital, resilient asset for Providence and the region well beyond the horizon of this Master Plan.

Placeholder: Phase map / exhibit showing priority projects and locations for Long Term.

7. Initiatives Playbook

This section answers the question: how do we deliver major programs? This section organizes strategies into implementable initiatives. Each initiative bundles multiple key strategies into an implementable program and sequences the enabling steps and capital projects across the Master Plan time horizons. Each initiative includes a concise statement of purpose, key dependencies, and a phased action table of the key strategies taken from the implementation framework. Lead entities, potential funding, and priority reflect the strategy matrix and should be refined during implementation.

A. Air Quality Monitoring and Response

Establish a defensible air quality baseline, maintain continuous monitoring, and implement a clear response protocol that links exceedances to corrective actions and longer-term emissions reductions.

Initiation approach:

Assign an air quality program lead; confirm monitoring objectives, locations, and QA/QC; stand up data management and reporting; and adopt an exceedance response protocol with pre-identified mitigation measures and an escalation chain.

Funding and capital approach:

Near-term costs are primarily monitoring equipment and data management (modest capital plus operating). Implement as a shared perimeter system with tenant cost-share, using ProvPort committed funds.

Phase	Action / project	Partners for Implementation	Starting Fiscal Source (responsibility)	Potential external funding
Immediate (0–5 years)	Install Baseline Air Quality Monitoring Stations: Deploy air quality monitoring inside Port, and continuing monitoring plan, and methods for resolution of AQ issues if identified (2–3 fixed and 1 mobile station to collect PM2.5, NOx, VOC data.).	ProvPort, ProvPort Tenants (potentially), and RIDEM	ProvPort	EPA Climate Pollution Reduction Act Grant, EPA Clean Ports Program, RIDEM Clean Air
Immediate (0–5 years)	Audit Environmental Compliance: Comprehensive review of all existing tenant permits for (air quality, etc.).	ProvPort, RIDEM	ProvPort	
Immediate (0–5 years) and Short-Term (5–10 years)	Air Quality Response Plan (3-step phased plan): Define corrective actions when exceedances are recorded.	ProvPort, RIDEM	ProvPort	

B. Environmental Compliance and Lease Standards

Create a consistent compliance backbone across tenants and facilities, reduce regulatory and reputational risk, and embed measurable expectations into leases and operating requirements.

Initiation approach:

Maintain a master permit register and compliance calendar; conduct periodic compliance audits; update lease templates to require environmental disclosure and reporting; and align redevelopment due diligence (Phase I/II) with tenant turnover and capital planning.

Funding and capital approach:

This is largely operating expense (program management, legal, consulting) with targeted investigation costs for legacy parcels. Where eligible, use brownfields assessment/cleanup programs to de-risk redevelopment and recover remaining costs through leasing and redevelopment value capture.

Phase	Action / project	Partners for Implementation	Starting Fiscal Source	Potential external funding
Immediate (0–5 years)	Audit Environmental Compliance: Comprehensive review of all existing tenant permits for (SPDES/NPDES, stormwater, etc.).	ProvPort, RIDEM	ProvPort	EPA Climate Pollution Reduction Act Grant, RIDEM Clean Air
Immediate (0–5 years)	Integrate Environmental Disclosure Clauses in Tenant Leases: Require reporting of emissions, spills, and stormwater discharge conditions.	ProvPort, RIDEM	ProvPort	
Short-Term (5–10 years)	Begin Phase I/II Site Investigations for Brownfields: Integrate tenant site remediation, Phase I and II requirements for new tenants to target legacy parcels for future redevelopment.	ProvPort, City of Providence, RIDEM	ProvPort	EPA Brownfields, RIDEM Targeted Brownfields Assessment (TBA) Program, RIDEM Brownfields Remediation and Economic Development Fund

C. Port Electrification and Clean Equipment Transition

Build the electrical and operational foundation for electrified port operations, including EV and truck charging, electric yard equipment, shore power, distributed generation, and long-term energy management.

Initiation approach:

Complete an electrification planning effort with utility coordination; identify near-term pilots (charging depot and electric yard equipment); define operating rules and cost recovery; and sequence enabling infrastructure (conduit, transformers, interconnection) ahead of major load additions.

Funding and capital approach:

Use a stack of clean ports and transportation electrification programs, utility make-ready, and revenue-backed delivery where services generate fees (charging and shore power). Consider third-party delivery models (charging-as-a-service and solar PPAs) to reduce up-front capital where appropriate.

Phase	Action / project	Partners for Implementation	Starting Fiscal Source	Potential external funding
Immediate (0–5 years)	Install 4,000 solar panels (1.7 MW) on port building rooftops by 2026 to generate clean energy on-site. This investment (private-funded via third party developer) brings immediate cost savings and training opportunities.	ProvPort, City of Providence, RIDEM	ProvPort	EPA Climate Pollution Reduction Act Grant, RIDEM Clean Air
Immediate (0–5 years)	Elevate key electrical and pumping infrastructure.	ProvPort	ProvPort	
Immediate (0–5 years)	Electric Yard Equipment & Vehicle Pilot Program: Diesel fleet assessment and replacement plan.	ProvPort	ProvPort	EPA Clean Ports Program, PIPD,
Immediate (0–5 years)	Apply for Port Infrastructure Development Program (PIPD) Grant for electrification plan, electric port crane, and berth area expansion.	ProvPort, City of Providence	ProvPort, potential City staff	PIPD
Immediate (0–5 years)	Develop Port Environmental Dashboard: Web based platform showing environmental performance (for public transparency).	ProvPort, potentially partner with RIDEM	ProvPort	RIDEM Clean Air

Short-Term (5–10 years)	Electric Yard Equipment & Vehicle Pilot Program: Begin conversion of forklifts, loaders, and yard trucks to battery electric.	ProvPort, Tenants, National Grid	ProvPort	EPA Clean Ports Program, PIPD,
Short-Term (5–10 years)	Install EV/Truck Charging Depot (Phase I): Shared-use depot on underutilized laydown area near Port entry.	ProvPort, Tenants, National Grid	ProvPort	DOE Grid Resilience, RIDEM
Short-Term (5–10 years)	Microgrid Feasibility Study: Assess distributed energy generation potential (solar canopy + storage).	ProvPort, Tenants, National Grid	ProvPort	
Short-Term (5–10 years)	Improve Material Handling Practices and Equipment: Identify short-term retrofits to lower-emission diesel and pilot use of electric forklifts and yard tractors.	ProvPort	ProvPort	RIDOT, EPA Climate Pollution Reduction Act
Medium-Term (10–20 years)	Full Shore Power Deployment at Primary Berths: Design and install AMP-compatible infrastructure; coordinate with vessel operators.	ProvPort, RIDEM, National Grid	ProvPort	DOE Infrastructure, RIDEM
Medium-Term (10–20 years)	Battery Energy Storage System (BESS): On-site storage for peak shaving and emergency operations.	ProvPort, RIDEM, National Grid	ProvPort	
Medium-Term (10–20 years)	Microgrid Implementation: Integrate renewable generation, BESS, and demand management across tenants.	ProvPort, RIDEM, National Grid	ProvPort	
Medium-Term (10–20 years)	Expansion of EV Depot & Fleet Conversion: Scale electric truck program; add tenant incentives for equipment replacement.	ProvPort, RIDEM, National Grid	ProvPort	RIDEM, EPA Clean Port Program
Long-Term (20+ years)	AI-Based Port Energy & Emission Management System: Integrate digital twin for port operations and climate adaptation tracking.	ProvPort, RIDEM, Tenants	ProvPort	DOE Carbon Capture

D. Community Partnership and Transparency

Institutionalize communication, transparency, and accountability between ProvPort, tenants, and surrounding neighborhoods to improve trust, reduce conflicts, and ensure issues are tracked and resolved.

Initiation approach:

Appoint a dedicated Port–Community Liaison; launch a public-facing community benefits and workforce database; establish recurring forums and a Community Advisory Committee; and integrate reporting with the environmental dashboard and compliance protocols.

Funding and capital approach:

Primarily operating cost supported through the port operating budget, philanthropic partnerships where available, and a modest, transparent tenant service fee to sustain the program over time.

Phase	Action / project	Partners for Implementation	Starting Fiscal Source	Potential external funding
Immediate (0–5 years)	Establish a ProvPort Community Advisory Board (PCAB) that meets regularly to discuss current issues and develops community reports.	ProvPort, Tenants, City of Providence	-	RI Commerce, Governor's Workforce Board
Immediate (0–5 years)	Appoint a Master Plan Liaison: Establish a point person to communicate with South Providence and Washington Park residents.	ProvPort	ProvPort	United Way/Philanthropic
Immediate (0–5 years)	Launch Port Dashboard for Port management and community transparency. This is a combination of the jobs hub (from workforce), implementation and success of master plan strategies, and environmental metrics from Emissions and Waste plans (AI hub).	ProvPort, City of Providence	ProvPort	EDA Build to Scale

E. Workforce Pathways and Training Infrastructure

Ensure local access to port careers and build long-term training capacity aligned with evolving port technology, logistics, and resilience needs.

Initiation approach:

Convene workforce partners (ILA, CCRI/URI, workforce boards) to define priority occupations and pipelines; modernize outreach and access to opportunities; and phase toward dedicated facilities only when demand and partner commitments justify a campus investment.

Funding and capital approach:

Blend workforce development funding, economic development programs, and partner cost-share. Prioritize program launch and placement outcomes before committing to long-term facility capital.

Phase	Action / project	Partners for Implementation	Starting Fiscal Source	Potential external funding
Immediate (0–5 years)	Launch Community Benefits and Workforce Database: Begin tracking tenant hiring, local spending, and environmental metrics.	ProvPort, City of Providence	ProvPort	EDA Build to Scale
Short-Term (5–10 years)	Modernize ILA hiring system with focus on communicating job opportunities to near port community members.	ProvPort, ILA, Tenants	-	PIPD, MARAD, USDOT BUILD, Apprenticeship Build America (ABA)
Medium-Term (10–20 years)	Establish Port Technology/Innovation Center: Co-locate training, incubator, and logistics R&D hub.	ProvPort, City of Providence DPD	-	EDA/ RI Commerce

Long-Term (20+ years)	Establish Maritime Workforce Campus: Permanent training center with University/CCRI partnership.	ProvPort, City, URI/CCRI	-	

F. Core Infrastructure Modernization

Modernize core infrastructure that supports throughput, safety, and competitiveness, including rail, roadways and gates, covered storage, dredging, and berth/channel improvements.

Initiation approach:

Advance feasibility and condition assessments (rail, transit shed, dredging cycles, berth/channel needs); package ready-to-fund scopes; and align with operational improvements that reduce idling and improve material handling efficiency.

Funding and capital approach:

Use freight and port infrastructure grants where available and structure larger works around anchor tenant commitments and revenue-backed financing supported by lease revenue and throughput.

Phase	Action / project	Partners for Implementation	Starting Fiscal Source	Potential funding
Immediate (0–5 years)	Condition Assessment and Feasibility Study for Waterside Infrastructure and Berth Expansion			
Short-Term (5–10 years)	Conduct a major maintenance dredging (if needed) of the Providence River channel and berths to maintain the 40-foot depth. The last deepening was completed recently, so this phase may only require spot dredging and planning for the next full dredge in Phase 2.	ProvPort, RIDEM, CRMC	USACE	USCAE

Short-Term (5–10 years)	Improvements to Rail Infrastructure: Baseline inspection of tracks, spurs, and connections to the Providence & Worcester line.	ProvPort, G&W	ProvPort	USDOT BUILD
Short-Term (5–10 years)	Improve Material Handling Practices and Equipment: Identify short-term retrofits to lower-emission diesel and pilot use of electric forklifts and yard tractors.	ProvPort	ProvPort	RIDOT, EPA Climate Pollution Reduction Act
Short-Term (5–10 years)	Transit Shed & Covered Storage Feasibility: Evaluate location for enclosed storage of palletized goods (multi-tenant use).	ProvPort	ProvPort	USDOT BUILD/PIDP, RI Infrastructure Bank
Medium-Term (10–20 years)	Deepen Navigation Channel (Beyond 38 ft if feasible): Coordinate with USACE for expanded navigation and berth upgrades.	ProvPort, USACE	USACE	USACE Navigation, WRDA Appropriations of Congressionally Directed Spending
Medium-Term (10–20 years)	Full Shore Power Deployment at Primary Berths: Design and install AMP-compatible infrastructure; coordinate with vessel operators.	ProvPort, RIDEM, National Grid		DOE Infrastructure, RIDEM
Medium-Term (10–20 years)	Upgrade port roadways and gates to improve traffic flow and reduce idling. This includes creating a new queuing area within the port so trucks do not line up on Allens Avenue and installing signage to direct drivers to highway routes (keeping them off local streets).	ProvPort, RIDOT, City of Providence DPW	RIDOT	DOE Infrastructure, EPA Clean Port Program
Medium-Term (10–20 years)	Develop a plan to consolidate parking and reduce parking requirements for individual tenants.	ProvPort, RIDOT, City of Providence	ProvPort	DOE Infrastructure, RIDEM, EPA Clean Port Program
Medium-Term (10–20 years)	Construct Enclosed Transit Shed: Climate-resilient, enclosed breakbulk storage with cranes or conveyors.	ProvPort	ProvPort	USDOT BUILD/PIDP

Long-Term (20+ years)	Underutilized Parcels: Coordinate with ProvPort neighboring property owners for lease/acquisition of underutilized small parcels adjacent to ProvPort boundaries to allow for improved road & rail alignment, and consolidation of contiguous properties for improved cargo handling and storage, water supportive land uses.	ProvPort, City of Providence DPD	ProvPort	EDA Tech Hubs, USDOT MEGA, State Commerce
Long-Term (20+ years)	Berth Rehabilitation and Channel Deepening: Deepen all berths (to uniform 38 ft) and channels to allow enhanced docking flexibility and greater capacity to handle larger vessels.	ProvPort, USACE	USACE	USACE Navigation, WRDA Appropriations of Congressionally Directed Spending

G. Flood Resilience and District-Scale Protection

Reduce downtime and risk from coastal and inland flooding through staged protection of critical assets, long-term seawall and bulkhead upgrades, and shared stormwater and resilience systems.

Initiation approach:

Start with vulnerability screening and a prioritized flood mitigation study; protect or elevate critical electrical and pumping assets; initiate stormwater audits and BMP retrofits; and design seawall, bulkhead, and drainage system upgrades to align with sea-level projections.

Funding and capital approach:

Pursue hazard mitigation and resilience funding for planning and capital, where eligible, and use the capital improvement program for match. Implement district-scale systems (seawall, common drainage) as multi-phase capital projects with clear O&M responsibilities.

Phase	Action / project	Partners for Implementation	Starting Fiscal Source	Potential external funding
Immediate (0–5 years)	Flood mitigation and H&H studies to model vulnerability and assess placement of operations.	ProvPort	ProvPort	PIDP, Climate Smart Communities Initiative (CSCI), or other planning grants
Immediate (0–5 years)	Stormwater Infrastructure Audit: Identify drainage bottlenecks, outfalls, and treatment locations.	ProvPort	ProvPort	FEMA HMGP, EDA Public Works, SNEP Watershed Infrastructure Grant (SWIG)
Short-Term (5–10 years)	Conduct a study to explore series of priority flood mitigation projects: potentially including raised berms or sea walls at vulnerable waterfront sections and rain gardens/swales, detention systems or upgraded drainage to handle intense precipitation.	ProvPort, RIDEM	ProvPort	FEMA HMGP, CSCI
Short-Term (5–10 years)	Seawall/Bulkhead Assessment: Begin engineering studies to document integrity and elevation needs.	ProvPort	ProvPort	USDOT BUILD, RI Infrastructure Bank, DHS Port Security Grant Program (PSGP)
Short-Term (5–10 years)	Tenant Site Stormwater Permitting Reviews: Require BMP retrofits (oil/water separators, vegetated buffers).	PrvoPort, Tenants, RIDEM	ProvPort	EPA Brownfields, RIDEM CW/DB, RI Infrastructure Bank
Medium-Term (10–20 years)	Quick-Start BMPs: Add bioswale pilot along Shipyard Street or Allens Ave buffer.	ProvPort, City of Providence DPD, RIDOT	City	FEMA HMGP, EDA Public Works, CSCI, SWIG
Medium-Term (10–20 years)	Relocation/Hardening of At-Risk Storage Areas: Move hazardous and bulk materials out of flood-prone zones.	ProvPort	ProvPort	FEMA HMGP, EDA Public Works

Long-Term (20+ years)	Raise Seawall and Laydown Area Elevations: Phased construction aligned with projected 2050 flood scenarios (+2–3 ft elevation).	ProvPort, City of Providence	ProvPort	FEMA HMGP, USACE CSRM, RIDEM CW/DB, CSCI
Long-Term (20+ years)	Common Drainage & Stormwater Conveyance System: Shared detention and treatment facilities for tenants.	ProvPort	ProvPort	FEMA HMGP, USACE CSRM, RIDEM CW/DB
Long-Term (20+ years)	Complete Sea Wall and Bulkhead Reconstruction: Use adaptive design to accommodate sea-level rise to 2100 benchmarks.	ProvPort	ProvPort	USACE WRDA CSRM, USDOT PIDP/RAISEBUILD
Long-Term (20+ years)	Regional Resilience Partnership with City & State: Joint defense and coastal flood management program extending along Providence River.	ProvPort, City of Providence, RIEMA	-	RI Infrastructure Bank, CSCI, SWIG, NOAA Coastal Resilience

H. Land Use, Access, and Long-Horizon Transitions

Improve site readiness and compatibility through zoning and overlay coordination and access planning, while maintaining optionality for long-horizon parcel assembly, public edge opportunities, and transitions away from high-risk uses where feasible.

Initiation approach:

Coordinate with the City on zoning and waterfront overlay recommendations; plan the ProvPort Gateway and office relocation; implement parking consolidation; and establish a long-range framework for parcel assembly, public access where compatible, and phased transition of high-risk uses.

Funding and capital approach:

Most near-term work is planning and policy. Long-horizon actions rely on redevelopment, value capture, economic development tools, and resilience and greening grants for compatible edge projects.

Phase	Action / project	Partners for Implementation	Starting Fiscal Source	Potential external funding
Immediate (0–5 years)	Support efforts to increase waterfront access points, such as improvements to Public Street.	City of Providence DPD, ProvPort	City	NOAA Coastal Resilience, RI Infrastructure Bank, DOT BUILD
Short-Term (5–10 years)	Work with the City to strengthen W-3 environmental and resilience performance standards. Support the city in updating Zoning & Waterfront Overlay Recommendations.	City of Providence DPD, ProvPort	City	RI Infrastructure Bank, CSCI
Short-Term (5–10 years)	Plan "ProvPort Gateway" & Office Relocation Feasibility Study: Develop concept for a Port Center with public training and education components.	ProvPort, City of Providence DPD	ProvPort	EDA Tech Hubs, RI Commerce
Medium-Term (10–20 years)	Develop a plan to consolidate parking and reduce parking requirements for individual tenants.	ProvPort, RIDOT, Providence DPW + DPD	-	FHWA CFI, DOE Infrastructure, RIDEM, EPA Clean Port Program
Long-Term (20+ years)	Underutilized Parcels: Coordination with neighboring property owners for lease/acquisition of parking lot(s) and acquisition of other underutilized small parcels adjacent to ProvPort boundaries to allow for improved road & rail alignment, and consolidation of contiguous properties for improved cargo handling and storage, water supportive land uses.	ProvPort, City of Providence DPD	-	EDA Tech Hubs, USDOT MEGA, State Commerce
Long-Term (20+ years)	Implement Public Waterfront Greenway & Access Zones: Continuous flood-resilient buffer with educational and ecological features.	ProvPort, City of Providence DPD	City	NOAA Coastal Resilience, RI Infrastructure Bank

Long-Term (20+ years)	Decommission High-Risk Industrial Uses: Gradual phase-out of petroleum and heavy chemical tenants as market conditions dictate.	ProvPort, City of Providence DPD	-	EPA Climate Pollution Reduction Act

I. Tenant Relations and Operational Performance

Use lease standards, incentives, and performance expectations to drive operational modernization among existing tenants (stormwater, dust, equipment, safety), while supporting retention of high-performing uses and orderly transition of incompatible uses over time.

Initiation approach:

Update lease templates and renewal terms; create incentive and compliance pathways (including equipment standards and stormwater controls); align hiring and reporting expectations with the community benefits platform; and establish a tenant performance scorecard to guide renewals and transitions.

Funding and capital approach:

Primarily programmatic with targeted capital (covered hoppers, shared BMPs, equipment upgrades). Combine lease requirements, tenant cost-share, and targeted clean ports, logistics, and stormwater funding where eligible.

Phase	Action / project	Partners for Implementation	Starting Fiscal Source	Potential external funding
Immediate (0–5 years)	Transition out low-performing tenants as leases expire (when feasible) and prioritize higher-performing, compatible uses.	ProvPort	ProvPort	-
Immediate (0–5 years)	Integrate Environmental Disclosure Clauses into lease renewals/new leases: require reporting of emissions, spills, and stormwater discharge	ProvPort, Tenants	ProvPort	-

	conditions (building on what tenants already report).			
Immediate (0–5 years)	Coordinate with tenants/service providers to include hiring needs on the ProvPort "jobs hub" website.	ProvPort, Tenants	ProvPort	-
Short-Term (5–10 years)	As leases renew, revise requirements or provide incentives for cleaner cargo handling equipment (replace EPA Tier 1-equivalent with EPA Tier 4-equivalent or cleaner).	ProvPort, Tenants	ProvPort	Clean Ports / state incentives
Short-Term (5–10 years)	Invest in covered hoppers to minimize runoff and dust during vessel loading; incorporate requirements into leases where tenants handle cargo.	ProvPort, Tenants	ProvPort	USDOT / EPA / private
Short-Term (5–10 years)	Attract niche cargo markets (e.g., cold-chain seafood, oversized manufacturing, construction debris recycling) through flexible terminal configurations.	ProvPort	ProvPort	RI Commerce / EDA
Medium-Term (10–20 years)	Develop a Tenant Sustainability Certification Program: recognize and incentivize "Green Port" tenants via performance metrics.	ProvPort, Tenants	ProvPort	EPA Clean Ports / internal
Medium-Term (10–20 years)	Leverage dual-tenant strategies where parcels support complementary uses (e.g., clean energy storage and logistics warehousing).	ProvPort, Tenants	ProvPort	EDA / private
Long-Term (20+ years)	Maintain flexibility of warehousing for emerging markets; ensure port facilities (including cold storage) can adapt as markets change.	ProvPort	ProvPort	-

J. Economic Development and Port District Growth

Position ProvPort for durable growth by phasing parcel strategy, targeted redevelopment, and selective recruitment of port-dependent industries that improve compatibility, add jobs, and strengthen long-term financial capacity to fund infrastructure and resilience investments. *A section directly following (Economic Development Playbook) identifies a number of market-based economic development options that ProvPort can explore as opportunities arise to expand, fill vacant properties or replace for departing existing tenants.*

Initiation approach:

Coordinate with the City and State on a parcel strategy and redevelopment priorities; build internal capacity for grant writing and deal execution; and use periodic master plan refresh cycles to align investment, governance, and market conditions.

Funding and capital approach:

Blend operating resources (staff capacity) with targeted planning and capital grants. Use economic development programs, freight/port infrastructure funding, and redevelopment value capture to advance high-impact projects when market-ready.

Phase	Action / project	Partners for Implementation	Starting Fiscal Source	Potential external funding
Immediate (0–5 years)	Growth potential: Coordinate with neighbors and partners to identify additional parcels that can serve as cargo storage and increase bulk cargo capacity.	ProvPort, City of Providence DPD, Neighbors	ProvPort	-
Immediate (0–5 years)	Growth potential: ProvPort expansion into vacant/underutilized areas of the greater Port of Providence where feasible.	ProvPort, City of Providence DPD, Neighbors	ProvPort	-
Immediate (0–5 years)	Submit a 5-year Capital Improvement Plan to the City on a recurring basis; share information on tenant leases and sustainability projects; make such information available to Council and the public.	ProvPort, City of Providence DPD, Neighbors	ProvPort	-
Immediate (0–5 years)	Strengthen internal capacity for grant writing and implementation (e.g., dedicated port development officer or staff liaison) or use a third party.	ProvPort	ProvPort	-
Short-Term (5–10 years)	Regulatory: Continue to evaluate energy sector climate policy and react to market conditions.	ProvPort	ProvPort	-

Short-Term (5–10 years)	Regulatory: Conduct periodic 10-year reviews to update the Master Plan as conditions evolve, with the community actively involved at each milestone.	ProvPort, City of Providence DPD, Non-Profits, Grassroots	ProvPort	-
Short-Term (5–10 years)	Development: Conduct an economic impact study to quantify jobs, tax revenue, and other benefits generated by plan actions (training, incubator, etc.) to support continued investment.	ProvPort, City of Providence DPD	ProvPort	EDA / RI Commerce, RI Infrastructure Bank / City of Providence
Short-Term (5–10 years)	Development: Support redevelopment of the Port of Providence area with City/State; advance a unified "Port Area Environmental Improvement Plan" or "Maritime Industrial Overlay District" to bring operators into compliance and reduce cumulative impacts.	ProvPort, City of Providence DPD, State Planning	-	State planning / EDA
Medium-Term (10–20 years)	Growth potential: Redevelopment plan for Johnson & Wales Shipyard Street / Harborside Blvd area to enable manufacturing / fabrication / warehousing / maritime tech incubator (multiple vision scenarios).	City of Providence DPD and DPW, RI Commerce, ProvPort	City	EDA Tech Hubs / RI Commerce / City
Medium-Term (10–20 years)	Growth potential: Redevelopment of Shipyard Street parcels (e.g., Morton Salt pile site and 30 Shipyard).	ProvPort, City of Providence DPD and DPW, RI Commerce	ProvPort	
Medium-Term (10–20 years)	Construct a modern multi-purpose heavy-lift dock (where feasible) using the "undeveloped port project" site or reclaimed land; incorporate electrified cranes and shore power from the start.	ProvPort, CRMC, USACE	ProvPort	USDOT PIDP/RAISE; private
Long-Term (20+ years)	Development: Port expansion / Port of Providence integration: unify management and development vision for the harbor district under City or State planning.	ProvPort, City of Providence DPD, State Planning	-	State / EDA / USDOT

The following Chapter (VIII), Economic Development Strategy Playbook discusses applicable port "sectors" (or business options that use port land), specific strategies to growing uses on port land, and what the port should see in the market before advancing economic development options.

8. Economic Development Strategy Playbook

This playbook summarizes the land-use strategies and the market-based support needed to advance each economic development possibility. It is intended to complement the Economic Development initiatives by translating economic development direction into: (a) siting and performance strategies by land-use type, and (b) a simple readiness screen based on market certainty and policy risk.

How to use: (1) apply the Land Use strategies below (derived from Chapters 4 and 7) to guide decisions on siting and lease terms; (2) use the Market-Based Support Summary to determine whether and when an option is ready to advance; and (3) treat higher-risk options as cautious recommendations, preserving optionality until conditions justify investment.

A. Economic Development Land-Use Options: Theme/Initiative Crosswalk

Table 15. Economic Development Land-Use Options

Economic Development Option	Land Use Strategies	Market-Based Summary Statement
Construction Materials Gateway (Bulk / Breakbulk / Project Cargo)	• Support and modernize core gateway functions (cement, aggregates, salt, project cargo) as the lowest-risk foundation for ProvPort. • Require modernization through leases: enclosed or covered storage where feasible; dust and stormwater controls; gate and	Stable demand tied to regional infrastructure and public works cycles. Strong market certainty with low policy risk; prioritize near-term execution and standards-driven reinvestment.

	circulation upgrades; and safety protocols.
	• Phase upgrades:
	  • near-term efficiency and circulation improvements
	  • mid-term enclosure and electrification
	  • long-term berth, apron, and campus optimization.
	• Use shared infrastructure (berths, hardstand, cranes, conveyance) to support multiple commodities and project cargo.	

Renewable Energy + Port Microgrid and Electrification Hub (including Transitional Fuels Conversion)	• Treat the energy hub as critical port infrastructure first (reliability, resilience, cost control), with incremental market-facing services only where capacity allows. • Advance modular phasing: utility coordination and initial Battery Energy Storage (BESS)/controls; pilot heavy-duty charging and yard electrification; then shore power at priority berths; scale	High alignment with grant and resilience funding; market support is strongest where it improves port uptime and enables electrified tenants. Interconnection and utility timelines are the primary gating items.

	microgrid islanding and renewables over time. • Where appropriate, adapt existing fuel assets for Renewable Fuels (e.g., renewable diesel, bio-diesel and SAF) as a bridge, with clear decline pathways as electrification scales. • Embed safety and public transparency requirements as eligibility thresholds for any energy or fuel conversion project.	
Port-Dependent High-Value / High-Tech Manufacturing (excluding offshore wind)	• Advance only where manufacturing is genuinely port-dependent (oversized/heavy inputs/outputs, marine interface needs, controlled logistics). • Pre-screen tenant opportunities and reserve suitable parcels with heavy-lift capability and sufficient electric capacity; avoid speculative shells without anchor commitments. • Integrate with microgrid planning for power quality and redundancy; target shared	Strong upside but tenant-specific. Market support requires anchor tenants and confirmed logistics needs; best pursued through targeted business development and flexible building envelopes.

	apron/heavy-lift upgrades that benefit multiple users. • Site to avoid displacing core bulk berths; use secondary waterfronts or edge-of-port parcels with controlled perimeter options.	
Circular Economy / Metals and C&D Beneficiation Cluster	• Transition from legacy open-air stockpiling to enclosed, best-in-class processing and storage with paved, drained yards and advanced stormwater treatment. • Require enclosure, dust control, and fence-line monitoring as baseline standards; implement third-party EHS audits and corrective-action tracking. • Phase improvements: near-term enclosure/stormwater/compliance upgrades; mid-term higher-value beneficiation and export optimization; long-term integrated campus infrastructure. • Use lease standards to drive material separation, fire risk	Growing demand tied to construction cycles and recycling markets, but viability hinges on superior environmental performance and community compatibility. Advance with performance-based leases and monitoring.

	controls, and lithium-battery management protocols.	
Offshore Wind (O&M and Support Logistics	• Treat offshore wind as a modular, expandable function anchored by existing operations (O&M, parts, and shared project cargo). • Prioritize dual-use investments (berth rehabilitation, heavy-load pads, flexible utilities) that also serve non-wind project cargo and other industrial markets. • Do not assume large, dedicated marshalling footprints or irreversible quay modifications without multi-use value.	Market support is strongest for O&M logistics and shared project cargo; major wind-dedicated capex should be contingent on firm contracts and regulatory stability.
Blue Economy Maritime Industrial Tech and Coastal Resilience (Test-to-Deployment Hub)	• Frame as a port-embedded deployment platform (prove and scale) rather than a generic incubator; tie early pilots to ProvPort modernization needs (power, sensors, resilience). • Focus on 2-3 verticals (e.g., port decarbonization tech, coastal resilience systems, OT/cybersecurity) that have real procurement markets.	Medium-term monetization. Market support depends on partnerships (URI/Newport/SENEDIA ecosystem) and funded pilot programs with real buyers (ports, utilities, agencies), not speculative real estate demand.

	• Phase: near-term pilot testbed program; mid-term dedicated integration campus; long-term anchor as a regional maritime industrial innovation node. • Design for secure, segmented networks and controlled access zones while maintaining operational compatibility with active terminal areas.	
Port-Dependent Logistics and Intermodal Distribution	• Apply a strict port-dependence test: logistics must directly support ProvPort cargo flows and/or enable rail/water mode shift; avoid generic highway warehousing. • Prioritize rail-enabled transload and bulk/breakbulk support logistics that reduce berth dwell time and truck queuing. • Implement truck management standards (appointments, defined routes, on-site queuing) and coordinate with electrification/charging where feasible.	Conditional. Market support is strongest where rail capacity and committed cargo flows exist; weak where demand is primarily focused on distribution of consumer products rather than in-process manufacturing products. Advance only with identified users and measurable mode-shift benefits.

	• Site in interior or rail-served parcels to preserve berth frontage for water-dependent functions.	
Short-sea / Coastal Shipping and Waterborne Freight Relief	• Pursue selective, commodity-led barge lanes (construction materials and project cargo), not speculative container strategies. • Start with pilot lanes using shared berths and portable handling; formalize service windows, and named shipper/receiver commitments. • Scale only after demonstrated repeatability and Vehicle Miles Traveled (VMT) reductions; add covered storage and enclosed transfer points as volume justifies. • Coordinate scheduling to avoid conflicts with vessel calls and gate peaks; integrate shore power and cleaner drayage where applicable.	Works when anchored by committed shippers/receivers and repeatable volumes that avoid trucking pain points. Opportunities may include heavy bulk and high/heavy break bulk products that are difficult to transport over public roadways. Market support should be documented through MOUs/term sheets before capital commitments.
Water-Dependent Cold Storage (niche, energy-intensive)	• Advance only if clearly water-dependent (maritime cargo flow requires berth-adjacent	Niche opportunity. Market support depends on specific maritime cold-chain users and energy solutions; do not treat as

	temperature-controlled handling) and anchored by committed users. • Integrate with microgrid/BESS planning to address high electric loads and resilience; require demand-managed operations and strong refrigerant management protocols. • Site on secondary or specialized berths and avoid displacing core bulk and project cargo frontage. • Phase: feasibility and tenant commitments first; then build with energy reliability and truck management embedded; optimize and expand only if maritime flows persist.	a primary growth engine absent firm cargo commitments.

B. Recommended Industrial Tenant Best Practices and Modernization Program

This initiative translates proven state-of-the-art operating practices into a practical program for existing tenants. It focuses on reducing emissions and stormwater impacts, improving safety and operational efficiency, and embedding performance expectations into leases and operating standards.

FIGURE PLACEHOLDER: Scrap terminal state-of-the-art concept diagram (yard pad → drainage → treatment → transfer system)

Core Best Practices

Materials storage and yard design

- Use paved or stabilized pads for active storage areas to reduce dust, rutting, and contact with stormwater.
- Cover or enclose high-dust or fine materials where feasible; implement windbreaks and perimeter controls.
- Design yards for efficient circulation and one-touch handling to minimize re-handling and internal shuttling.
- Maintain designated, signed storage zones with clear separation from drainage inlets and sensitive edges.

Stormwater and industrial water controls

- Maintain current Stormwater Pollution Prevention Plan (SWPPP) and implement structural and operational BMPs, with clear inspection and corrective action procedures.
- Collect and treat runoff from active industrial areas using engineered systems (e.g., trench drains to sumps, oil-water separation, filtration).
- Adopt strong housekeeping: dry cleanup, covered dumpsters, sweeping/vacuuming, rapid response to spills.
- Where feasible, separate clean and dirty drainage areas to minimize treatment needs.

Cargo-handling efficiency and low-emission logistics

- Reduce internal diesel moves by adopting conveyors/stackers, hoppers, ship loaders, and direct transfer systems where feasible.

- Use electric or low-emission yard tractors for necessary internal moves; coordinate gate operations to reduce queueing.
- Plan for shore power and idle-reduction protocols consistent with vessel and terminal capabilities.

Safety, emergency readiness, and incident management

- Maintain tenant-specific emergency response plans aligned with port-wide protocols; conduct regular drills.
- Implement clear traffic management plans (pedestrian separation, speed management, signage, lighting).
- Use consistent incident reporting and corrective action tracking across tenants.

Tenant-Specific State-of-the-Art Upgrades

Scrap and recyclables terminals

- Shift from open-air, uncovered handling to managed pads with perimeter drainage controls and on-site treatment.
- Minimize diesel shuttling by using conveyors/stackers or electric terminal tractors and staging for direct vessel loading.
- Implement dust and runoff controls at transfer points (mist systems where appropriate; covered hoppers).

Dry bulk (salt, aggregates, cementitious materials)

- Use covered storage (domes/sheds) or covered conveyors to reduce contact with stormwater and windblown losses where feasible.
- Install spillage controls, berms, and engineered drainage at loadout points; prioritize one-touch material flow.

Liquid bulk and chemicals

- Maintain secondary containment, overfill protection, and inspection programs; integrate spill response with port-wide incident command.
- Use modern vapor recovery and emissions controls where applicable; maintain strong operator training and auditing.
- Regular equipment inspections and equipment upgrades/preventive maintenance where needed

How the Program Gets Implemented

- Embed baseline environmental and operating standards in leases by using the feasibility study in the immediate phase of implementation framework (performance expectations, maintenance requirements, reporting).
- Establish an audit schedule (e.g., annual compliance and BMP audits; targeted audits after incidents or complaints).
- Create a capital partnership pathway (e.g., matching funds) for improvements that deliver port-wide benefits (e.g., shared stormwater controls, electrified equipment).
- Track progress through the public-facing dashboard aligned with the Master Plan metrics (air, stormwater, safety, workforce).

C. Sustainability and Emissions in Long Range Planning Initiatives

Sustainability and emissions reduction emerge as a core organizing theme across the Phased Implementation Plan. Rather than being addressed through a single policy or project, these priorities are embedded across planning, operational, infrastructure, and governance strategies over multiple phases, allowing ProvPort to advance modernization while maintaining flexibility in response to changing conditions.

In the near term, strategies focus on establishing the technical and institutional foundation needed to manage emissions and environmental performance. These actions include phased air quality monitoring and response

planning, environmental compliance audits, waste stream inventories, and deployment of data and dashboard tools to track energy use and emissions. Short- and medium-term strategies advance from planning to implementation and scaling. Electrification efforts move from feasibility analysis to pilot programs and broader deployment of electric equipment and vehicles where feasible. Shore power planning progresses in phases, from engineering and grant pursuit to construction and expansion at priority berths. In the long term, the strategies emphasize adaptation and full-scale deployment, including expanded electrification, comprehensive shore power coverage, district-scale stormwater systems, and nature-based or hybrid infrastructure solutions.

Across all phases, the strategies highlight a clear opportunity for coordinated action between the City and ProvPort, particularly where outcomes depend on utilities and financing. Phased electrification and shore power require alignment with electric utility planning and grid upgrades; stormwater and district-scale systems benefit from coordination with municipal drainage and resilience investments.

By coordinating utilities planning, capital timing, and funding mechanisms, the City and ProvPort can accelerate delivery of sustainable infrastructure projects already identified in the matrix, improve cost effectiveness, and ensure that investments deliver shared benefits - supporting port operations while advancing broader municipal goals for environmental performance and resilience.

City and state contribution pathways

Climate Justice and Environmental Justice: Reduce local diesel-related burdens through electrification, idling reduction, dust/runoff controls, buffers, monitoring, and transparent reporting, with benefits targeted at impacted neighborhoods.

Resilience and critical infrastructure continuity: Protect jobs and essential supply chains by hardening waterfront and yard infrastructure against flooding and climate hazards, and by strengthening emergency preparedness and recovery protocols.

Sustainable economic development and workforce: Support a competitive industrial waterfront while building pathways for quality jobs (training, certification, local hiring partnerships) and raising tenant performance expectations over time.

Freight efficiency and safety: Improve circulation, gate/queuing management, designated routes, and yard operations to reduce congestion, improve safety, and increase freight reliability.

Notable Policies for Sustainability and Emissions

The crosswalk below provides language and example metrics for consistency findings and grant narratives.

Table 16. Rhode Island Policy Crosswalk

Plan goal or policy direction	How the ProvPort Master Plan delivers	Example measurable outcomes
Providence Climate Justice Plan (2019)	Port electrification and shore power readiness; truck/yard efficiency; energy management; transparent public reporting; targeted mitigation and buffers.	GHG and diesel emissions estimates; equipment electrification percent; truck idling/turn-time reduction; public dashboard cadence.
Providence Comprehensive Plan (2024)	Modernize a key industrial district while improving environmental performance, safety, and compatibility with surrounding neighborhoods; coordinate transportation and land use outcomes.	Route compliance; safety incidents; state-of-good-repair metrics; documented reductions in dust/runoff exceedances; complaint response time.
Rhode Island Act on Climate (2021 mandates)	Sequence freight-sector decarbonization actions	Electric load served by cleaner sources where applicable; avoided

	(electrification, energy optimization, efficiency retrofits) to support the state's mandated emissions trajectory toward net-zero by 2050.	fuel use; progress against phase milestones.
RI Statewide Freight & Goods Movement Plan (2022)	Improve freight reliability and coordination through access/circulation upgrades, operational improvements, safety protocols, and selective multimodal enhancements where feasible.	Freight reliability proxies (travel time/dwell time); annual throughput within managed limits; safety compliance indicators.
Resilient Rhody / Statewide Coastal Resilience planning (2018–present)	Identify priority assets and phase resilience investments (flood protection, drainage/pumps, continuity planning) to reduce downtime and protect critical facilities.	Reduced expected downtime; completion of priority resilience projects; emergency preparedness exercise cadence.
Ocean State Accelerates (CEDS, 2023)	Support competitive sectors and workforce pipelines through tenant performance improvements, targeted attraction/retention, and training and certification partnerships.	Jobs supported; trainees certified; private investment leveraged; tenant commitments aligned to performance standards.

Source documents (for footnotes): *Providence Climate Justice Plan; Providence Comprehensive Plan Ordinance; RI Act on Climate; RI Statewide Freight & Goods Movement Plan; Resilient Rhody / Statewide Coastal Resilience planning; Ocean State Accelerates (CEDS).*

9. Funding Strategy and Capital Improvement

This chapter describes ProvPort's capital planning approach and clarifies potential funding mechanisms into a readable chapter. The following sections link initiatives to a hypothetical, multi-phase capital improvement program (CIP), names best-fit funding tools and summarizes order-of-magnitude (OOM) costs by timeline. It is intended to be used as the master plan's "capital strategy" reference for Board decision-making, grant applications, and annual budget/CIP updates.

A. Annual CAPEX Commitment and Capital Governance

ProvPort currently operates within a limited Capital Improvement Plan (CIP) regime, without a dedicated capital reserve structure capable of supporting the proposed modernization in this Master Plan. The current CIP is iterative and managed by terminal operators reporting to the Board. Major infrastructure investments should not be reactive, grant-dependent, or driven by immediate operational needs, but rather, guided by the long-term financial strategy outlined in this Master Plan. Given the age of waterfront infrastructure, increasing climate risk, and the need to remain competitive for federal and state infrastructure funding, this Master Plan recommends the establishment of a formal capital planning and governance framework.

ProvPort should adopt an annualized base CAPEX commitment that functions as both match and enabling investment. A practical target is to dedicate 3 to 5 percent of annual operating revenues[11] (or an equivalent replacement-value policy) to a capital reserve and rolling 10-year CIP.

[11] A CAPEX reserve is intended as match/seed capital, not as the sole funding source.

A Capital Improvement Plan (CIP) is a multi-year financial planning document that identifies, prioritizes, and schedules long-term infrastructure investments. These investments, referred to as capital expenditures (CAPEX), include major improvements to physical assets such as piers, bulkheads, upland paving, utilities, drainage systems, cranes, flood protection measures, and electrification upgrades. Unlike operating expenses (OPEX), which fund routine staffing, maintenance, and administrative costs, CAPEX investments extend asset life, expand capacity, improve environmental performance, or enhance long-term revenue generation.

Ports that lack structured capital planning can face deferred maintenance, escalating lifecycle costs, and diminished competitiveness for discretionary grant programs. Federal and state infrastructure funding increasingly requires clear demonstration of financial readiness, matching capacity, and long-term asset management. Establishing a Master Plan-oriented CIP and an updated capital reserve policy positions ProvPort to transition to meet the expectations of this plan and to consistently win competitive grants.

Recommended governance practices for the CIP and CAPEX:

- Maintain a rolling 10-year Capital Improvement Program (CIP) updated annually, with a 30-year outlook tied to the master plan.
- Keep a grant-ready pipeline for priority projects (scope, cost, readiness, match).
- Use lease standards to implement cost recovery: connection fees for new electrical loads, stormwater service charges, and defined tariffs for shore power and charging services.
- Advance long-horizon investments only when triggers are met (tenant commitments, utility upgrade clarity, grant share, and design readiness).

B. What it means to “Stack Funds”

ProvPort’s implementation actions range from low-cost program steps (planning, monitoring, governance) to large civil and electrical projects (berths, shore power, seawalls, shared drainage). The most financeable approach is to organize investments into program bundles and then stack sources of funds so that no single source carries the full

burden. This is essentially a way of starting with CAPEX and blending other methods of financing to anticipate and be ready for the costs of upgrading and modernization.

A funding stack combines multiple sources that each fit a different part of the capital need. In general: grants are best for early design and emissions-reduction equipment; infrastructure bank or SRF-style loans are well suited to long-lived public infrastructure such as stormwater systems; utility participation can reduce make-ready costs for new electrical loads; and private capital is most effective when a service can generate predictable revenue (for example, charging-as-a-service).

Typical stack components include:

1) ProvPort base CAPEX reserve and project match (board-approved commitment).
2) Federal and state grants for emissions reduction, freight efficiency, port infrastructure, and resilience.
3) Low-cost lending through infrastructure banks and SRF-style clean water financing for eligible stormwater and water-quality projects.
4) Revenue bonds or tax-increment financing for revenue-generating infrastructure;
5) Lease-based cost recovery and tenant contribution agreements.
6) Utility make-ready and interconnection cost participation for large electrical loads where available.
7) Private capital for service-based assets (charging depots, solar PPAs, energy-as-a-service) when revenue and risk allocation are clear.

To illustrate: based on current annual operating revenues of approximately $14 million, a 5 percent annual CAPEX commitment would generate roughly $700,000 per year, or approximately $3.5 million over the five-year Phase 1 period. This amount alone would not cover Phase 1 capital needs (estimated at $10M–$60M across all program bundles), but it is not intended to. The CAPEX reserve functions as match and seed capital within a blended funding stack. A representative Phase 1 project—for example, a $12 million electrification corridor and EV charging pilot—might be funded as follows: ProvPort CAPEX reserve providing $1.5M–$2.0M (12–17%) as local match; federal and state grants (EPA Clean Ports Program, MARAD PIDP, or state emissions reduction funds) covering $5M–$7M (40–60%); Rhode Island Infrastructure Bank or SRF-style lending supplying $2M–$3M (17–25%); and utility make-ready participation and/or private capital (charging-as-a-service) contributing $1M–$2M

(8–17%). Without the CAPEX reserve, ProvPort would lack the required local match for competitive federal grants and would be unable to fund enabling work (planning, design, permitting) that must precede grant-funded construction. The reserve therefore has an outsized leverage effect: each dollar of CAPEX reserve can unlock $4–$8 in external funding when projects are well-positioned and grant-ready.

C. External Funding by Master Plan Theme

The funding opportunities below are organized by theme and provide a current snapshot of the funding landscape. Programs and application windows may change over time; this list should be refreshed annually as part of the CIP update cycle. **Many of these opportunities would require public-private partnerships as the applicant, or a working partnership between ProvPort and community organizations for an application (such as the community-based grants). In each application, the lead applicant and the roles would need to be identified based on what is best for the grant.** This list is not exhaustive and is subject to change due to availability of funds the political climate.

Emissions/Clean Energy/Sustainability
Federal and state funding is available to reduce stormwater runoff, including the following: 1. ***Southeast New England Program (SNEP) Network's Watershed Implementation Grants (SWIG)*** are funded by the Environmental Protection Agency (EPA). These grants support efforts to improve water quality, sustainability, and resilience in Southeast New England. 2. The Rhode Island Department of Environmental Management's (RIDEM) ***Nonpoint Source (NPS) Implementation Grants*** are funded by EPA's Section 319 Grant Program. These grants support efforts to reduce nonpoint source pollution, including stormwater runoff. 3. RIDEM's ***Narragansett Bay and Water Restoration Fund (BWRF) Grants*** support projects that improve stormwater management, and implement Best Management Practices (BMPs) that have been identified in approved stormwater management or water quality restoration plans. 4. The **Rhode Island Commerce Renewable Energy Fund (REF)** is a state-run program that provides grants and rebates to promote, develop, and install clean energy technologies, particularly solar, across Rhode Island. It has a program up to $75,000 for commercial and community grants.
Environmental

The ***EPA Brownfield Program*** offers grants to support site assessments, remediation, and job training. RIDEM periodically opens Requests for Proposals (RFPs) for the ***Brownfields Remediation and Economic Development Fund***. The program last opened for applications in early 2025. The Rhode Island Infrastructure Bank's (RIIB) ***Brownfield Revolving Loan Fund*** provides low-interest financing for site remediation.
Community and Governance
The ***Climate Smart Communities Initiative (CSCI)*** funds climate adaptation projects that are led by a team that includes a Community-Based Organization, government entity, and an adaptation professional.
Workforce Development and Education
The following foundations and community organizations may serve as strategic partners in supporting workforce and economic development efforts in Rhode Island, contributing subject-matter expertise, trusted community relationships, and outreach capabilities: 1. ***The Washington Trust Charitable Foundation*** provides grants for business and economic development; 2. ***Eastern Bank Foundation's Impact Grants*** support economic mobility and inclusion through workforce and economic development and innovation, among other activities; 3. ***Ferguson Cares*** supports workforce development for skilled trades, as well as neighborhood revitalization initiatives; and 4. ***Santander Bank's Charitable Giving Program*** supports small business development, job creation and training, workforce development, and neighborhood revitalization.
Infrastructure
RIIB's ***Commercial Property Assessed Clean Energy (C-PACE)*** financing program provides low-interest loans to support renewable energy or alternative fuel infrastructure, building upgrades that improve energy efficiency, water conservation efforts, or projects that improve environmental health and safety. The U.S. Department of Transportation's (USDOT) ***Better Utilizing Investments to Leverage Development (BUILD)*** Grant Program supports surface transportation projects with significant local or regional impacts. The program aims to support, among other priorities, multi-modal projects that are more difficult to fund with other grant programs. The **Port Infrastructure Development Program (PIDP)** is a federal discretionary grant program administered by the U.S. Department of Transportation (DOT) Maritime Administration (MARAD) that funds projects to improve the safety,

efficiency, and reliability of moving goods through coastal, inland, and Great Lakes ports. It supports port capacity, modernization, and sustainability, with significant funding from the Bipartisan Infrastructure Law.

The **U.S. Marine Highway Program (USMHP)**, administered by the Maritime Administration, is a Department of Transportation initiative that provides discretionary grants to expand the use of navigable waterways. It aims to reduce landside congestion on road and rail, lower emissions, and strengthen supply chains by moving cargo via water.

The Federal Emergency Management Association's (FEMA) ***Port Security Grant Program (PSGP)*** provides funding to protect port infrastructure from terrorism, support recovery, and improve resilience.

Resilience

Federal funding opportunities to support resilience improvement projects, include:

1. The National Fish and Wildlife Foundation's (NFWF) ***National Coastal Resilience Fund***, which supports nature-based solutions and habitat enhancement projects that improve coastal resilience. Projects with regional impact are more competitive.
2. FEMA's ***Hazard Mitigation Grant Program (HMGP)*** is made available after a disaster declaration for projects that implement measures to reduce risks to lives and properties from natural hazards.
3. FEMA's ***Flood Mitigation Assistance (FMA)*** grant program supports projects that mitigate hazards at properties that are insured by the National Flood Insurance Program (NFIP) and have experienced repetitive loss events.

Land Use and Access

The following state and private foundation grants support projects related to green space and public access:

1. The ***Island Foundation*** supports efforts in Maine, Massachusetts, and Rhode Island to assist communities who are vulnerable to the impacts of climate change, strengthen working landscapes, and connect community health and quality of life with environmental conservation.
2. Athletic Brewing Company's ***Two for the Trails*** program funds projects that expand outdoor access while improving the environment.

3. RIDEM's ***Green Space Grant Programs*** support land conservation, acquisition and development, and recreational trail development. RIDEM has two grant programs to support tree planting and management efforts: 1. The ***Urban and Community Forestry Grant Program*** is funded by the U.S. Department of Agriculture (USDA), and provides matching funds to support projects that improve management of urban and community forests, and promote public understanding of the benefits of tree cover. 2. ***The Tree Equity RI Grant Program*** focuses on tree planting efforts in communities that are more vulnerable to extreme heat and other environmental hazards.
Operational
The following federal and state grants may be able to support operational improvements at the port: 1. The U.S. Maritime Administration's (MARAD) *Port Infrastructure Development Program (PIDP)* supports projects that improve the efficiency, safety, or reliability of moving goods within, around, in, or out of a port. **2.** The Rhode Island Emergency Management Agency's (RIEMA) *Non Disaster Grants* include programs that support emergency management, hazardous materials emergency preparedness, and cybersecurity initiatives.
Economic Development
The ***Cox Communications Charitable Giving Program*** supports efforts in Rhode Island to improve environmental sustainability, and strengthen social, economic, and educational infrastructure.

D. Order-of-Magnitude Costs by 5-year Phases

The costs below are intended to communicate scale for a general audience. They are not project estimates. They assume typical U.S. port conditions and include major drivers such as trenching, utility relocation, in-water work constraints, and dredged material management where applicable.

Please note: The cost ranges span up to 5x (e.g., Phase 5: 300M–1.5B). NOTE: *These ranges reflect Class 5/conceptual estimates (per AACE International standards) with expected accuracy of –50% to +100%. All costs are expressed in*

approximate 2026 constant dollars. Actual nominal expenditures will be higher due to construction cost escalation (historically 3–5% annually for marine/heavy civil work), which should be incorporated into annual CIP updates. Ranges will narrow as feasibility studies and 30% design milestones are completed for individual program bundles.

5-year Phase	Typical portfolio cost scale (order-of-magnitude)	Primary drivers
Phase 1 (2025-2030)	$10M-$60M (can exceed $100M if major berth work begins early)	Planning and enabling corridors; critical asset hardening; early equipment pilots; gate/road immediate implementation projects
Phase 2 (2030-2035)	$40M-$200M	Utility upgrades; first charging depot; rail spot improvements; seawall/bulkhead assessment and design; maintenance dredging if triggered
Phase 3 (2035-2040)	$150M-$600M	Shore power at priority berths; BESS/microgrid build; major roadway/drainage packages; transit shed construction; storage relocation/hardening
Phase 4 (2040-2045)	$150M-$500M	Completion and scaling of shore power and energy systems; continued drainage and resilience corridor upgrades
Phase 5 (2045-2050)	$300M-$1.5B	Transformative seawall and elevation works; shared stormwater backbone; berth rehabilitation and channel programs
Phase 6 (2050-2055)	$150M-$800M	Completion of remaining coastal protection, drainage backbone, and berth/channel lifecycle reset

E. Hypothetical CAPEX Funding Stack Matrix

The following exhibit summarizes the recommended CIP roadmap by program bundle and 5-year phase. Each cell shows an order-of-magnitude cost band, the recommended best-fit funding tools, and the recommended primary cost recovery mechanism. Note: OOM costs represent portfolio-scale ranges within each phase and are not project-level estimates.

Program Bundle	Phase 1 (2025–2030)	Phase 2 (2030–2035)	Phase 3 (2035–2040)	Phase 4 (2040–2045)	Phase 5–6 (2045–2055)	Est. ProvPort Match Requirement (~10 of total)	Key Dependencies & Prerequisites
Clean Port Electrification (Corridors & Make-Ready)	$5M–$25M Funding: Base CAPEX reserve; EPA emissions grants; utility make-ready participation Cost Recovery: Electrical connection fees; demand charges; lease amendments	$20M–$80M Funding: Federal decarbonization grants; Infrastructure Bank lending; utility participation Cost Recovery: Tariff structure for high-load tenants	$50M–$150M Funding: Federal infrastructure grants; bond financing if needed Cost Recovery: Long-term utility tariffs; anchor tenant agreements	$40M–$120M Funding: Combination grants + revenue-backed debt Cost Recovery: Shore power and electrified equipment service fees	Lifecycle upgrades $50M–$200M Funding: CAPEX reserve + revenue bonds Cost Recovery: Embedded in tenant utility tariffs	**$17M–$58M (over 30 years)**	Prerequisite for Shore Power, EV Charging, and BESS. Requires utility capacity confirmation and demand commitments before Phase 2 scale-up.
EV / Truck Charging Depots (Shared-Use)	$2M–$15M (pilot scale) Funding: EPA/DOE grants; private capital (charging-as-a-service) Cost Recovery: User fees; per-kWh pricing	$15M–$60M (first full depot) Funding: Public-private partnership; C-PACE; grants Cost Recovery: Charging tariffs; lease premiums	$40M–$120M (scaling) Funding: Private capital majority; infrastructure lending Cost Recovery: Contracted fleet charging agreements	$25M–$75M (expansion) Funding: Revenue-backed financing Cost Recovery: Long-term fleet contracts	$25M–$100M (fleet transition completion) Funding: Private capital + CAPEX Cost Recovery: Mature fee-for-service model	**$11M–$37M (lower if P3/CaaS)**	Depends on Electrification Corridors. Fleet conversion timeline drives demand; pilot requires anchor tenant LOI.
Microgrid + Battery Energy Storage (BESS)	Planning & design <$5M Funding: Planning grants; CAPEX reserve Cost Recovery: N/A (pre-development)	$20M–$80M (initial build) Funding: DOE grants; infrastructure lending; private energy partner Cost Recovery: Peak shaving; resilience contracts; energy-as-a-service	$50M–$200M (full buildout) Funding: Blended grant + private capital Cost Recovery: Grid services; tenant resilience premiums	Optimization & expansion $20M–$100M Funding: Revenue-backed financing Cost Recovery: Utility arbitrage; resilience fees	Lifecycle reset $30M–$150M Funding: CAPEX + retained earnings Cost Recovery: Integrated in energy tariff	**$15M–$54M (partially offset by energy savings)**	Depends on Electrification Corridors (backbone capacity). Interconnection agreement with utility required before Phase 2 build.
Shore Power (By Priority Berth)	Feasibility & pilot $5M–$20M Funding: MARAD PIDP; emissions grants Cost Recovery: Shore power tariffs	$30M–$150M (initial berths) Funding: Federal grants; match via CAPEX reserve Cost Recovery: Vessel connection fees	$75M–$300M (expansion) Funding: Federal + revenue bonds Cost Recovery: Mandatory shore power tariff agreements	Completion $50M–$200M Funding: Revenue-backed financing Cost Recovery: Contractual berth electrification fees	Upgrades $50M–$150M Funding: CAPEX reserve Cost Recovery: Embedded in berth rate structure	**$21M–$82M**	Depends on Electrification Corridors AND Berth Modernization. Vessel compatibility studies needed in Phase 1.
Waterside & Berth Modernization	Condition assessment <$5M Funding: CAPEX reserve Cost Recovery: N/A	$40M–$200M (first rehab) Funding: MARAD PIDP; BUILD; bond financing Cost Recovery: Wharfage; long-term lease agreements	$100M–$500M Funding: Federal cost-share; revenue bonds Cost Recovery: Cargo throughput growth	$100M–$400M Funding: Revenue-backed bonds Cost Recovery: Berth rate adjustments	Lifecycle reinvestment $150M–$600M Funding: CAPEX + debt Cost Recovery: Multi-decade lease renewals	**$39M–$171M**	Independent, but coordinate with Shore Power and Dredging for efficiency. Condition assessment gates all subsequent phases.
Dredging / Channel & Berth Deepening	Studies <$5M Funding: CAPEX reserve; USACE coordination Cost Recovery: N/A	$25M–$150M (maintenance cycle) Funding: USACE cost share; state bond Cost Recovery: Wharfage rates	$100M–$400M (deepening if triggered) Funding: Federal navigation cost-share Cost Recovery: Throughput increase	Maintenance cycle $25M–$150M Funding: CAPEX + federal share Cost Recovery: Embedded in tariff	Long-term channel program $100M–$500M Funding: Federal/state cost-share Cost Recovery: Increased vessel class access	**$26M–$121M (USACE shares reduce local burden)**	USACE participation required. Coordinate with Berth Modernization. Sediment characterization gates deepening scope.

Flood Resilience / Seawalls / Elevation	Pilot hardening $10M–$40M Funding: FEMA BRIC/HMGP; NFWF Cost Recovery: Risk reduction; insurance savings	$50M–$250M (corridor upgrades) Funding: FEMA; resilience grants; bonds Cost Recovery: Asset protection; lease stability	$150M–$600M (major elevation works) Funding: Federal cost-share; bond financing Cost Recovery: Preserved asset value	$150M–$500M Funding: Blended public finance Cost Recovery: Long-term avoided loss	$300M–$1B+ (transformative protection) Funding: Federal/state partnership Cost Recovery: System-wide risk mitigation	**$66M–$239M+**	Independent, but integrates with Stormwater backbone and Berth Modernization. Updated FEMA flood maps gate elevation targets.
Stormwater & Shared Drainage Backbone	Compliance upgrades $5M–$25M Funding: SRF / Infrastructure Bank Cost Recovery: Stormwater service charge	$25M–$100M (shared conveyance) Funding: SRF lending; grant match Cost Recovery: Tenant allocation formula	$75M–$300M (backbone build) Funding: SRF; bonds Cost Recovery: Rate-based stormwater fees	$50M–$200M Funding: Infrastructure lending Cost Recovery: Dedicated stormwater utility model	Lifecycle reset $50M–$150M Funding: CAPEX + fee revenue Cost Recovery: Mature utility-style charge	**$21M–$78M (SRF lending reduces grant need)**	Integrates with Flood Resilience. SRF eligibility requires regulatory compliance baseline (Phase 1).
Internal Roads, Gates & Mobility	Immediate implementation projects $5M–$20M Funding: CAPEX reserve Cost Recovery: Operational savings	$20M–$75M Funding: BUILD; state bond Cost Recovery: Throughput efficiency	$50M–$200M Funding: Federal freight programs Cost Recovery: Gate fees; improved lease terms	$25M–$100M Funding: Revenue bonds Cost Recovery: Throughput growth	Lifecycle reset $50M–$150M Funding: CAPEX Cost Recovery: Embedded in operating budget	**$15M–$55M**	Largely independent. Coordinate with Electrification Corridors for shared trenching/ductbank work.
PHASE PORTFOLIO TOTAL (sum of low–high bands)	**$47M–$185M**	**$245M–$1.1B**	**$690M–$2.9B**	**$485M–$1.8B**	**$805M–$3.0B**	**$231M–$895M+ (est. 10–20% of cumulative total)**	Cumulative 30-year range: ~$2.3B–$8.0B+. At 3–5% annual escalation, nominal costs for Phase 5–6 could be 50–100% higher than 2026 dollars.
ProvPort Annual CAPEX Capacity (at 5% of ~$14M revenue = ~$700K/yr)	~$3.5M (5 yrs × $700K)	~$3.5M	~$3.5M	~$3.5M	~$7.0M (10 yrs)	~$21M cumulative (assumes flat revenue)	Gap between CAPEX reserve ($21M) and match need ($231M–$895M) must be closed by revenue growth, dedicated capital campaigns, or phased scope reduction. Each $1 of match unlocks ~$4–$8 in grants/lending.
Implied Grant + Lending Leverage Required	~13:1–53:1	~70:1–327:1	~197:1–820:1	~139:1–527:1	~115:1–428:1		These ratios underscore that ProvPort cannot fund the full portfolio from its own reserves. Scope prioritization, phased delivery, and sustained external funding are essential.

Notes and Limitations:

1. All costs are Class 5/conceptual estimates (AACE International) with expected accuracy of –50% to +100%. Ranges reflect portfolio-scale uncertainty, not project-level precision.

2. Costs are in approximate 2026 constant dollars. Nominal expenditures will be higher due to construction cost escalation (historically 3–5%/yr for marine/heavy civil), which should be incorporated into annual CIP updates.

3. Phase totals assume all bundles proceed; actual spend will depend on scope prioritization, tenant demand, grant success, and Board-approved triggers.

4. Match estimates assume 10–20% local share; actual match ratios vary by program (PIDP typically 20%; EPA Clean Ports 20–40%; FEMA HMGP 25%; SRF lending may require no grant match).

5. ProvPort CAPEX capacity assumes flat $14M revenue and 5% set-aside. Revenue growth, lease restructuring, or dedicated capital levies would increase capacity.

6. Interdependencies: Electrification Corridors are a prerequisite for Shore Power, EV Charging, and BESS. Berth Modernization and Dredging should be coordinated. Stormwater integrates with Flood Resilience.

Program Bundle Dependency and Sequencing Map

Program Bundle	Prerequisites	Enables / Feeds Into	Critical Phase 1 Gate
Clean Port Electrification	Utility capacity study; Demand commitments (LOIs)	Shore Power; EV Charging Depots; BESS/Microgrid	Utility scope & schedule confirmed; Board-approved tariff policy
EV / Truck Charging Depots	Electrification Corridors; Anchor fleet LOI	Tenant attraction; Emissions reduction metrics	Pilot site selected; CaaS partner identified
Microgrid + BESS	Electrification Corridors; Utility interconnection agreement	Peak demand management; Resilience for all bundles	Feasibility study complete; Revenue stack modeled
Shore Power	Electrification Corridors; Berth Modernization; Vessel compatibility studies	Emissions compliance; Berth rate premium	Vessel survey complete; PIDP application submitted
Waterside & Berth Modernization	Condition assessment (Phase 1)	Shore Power installation; Dredging coordination; Cargo throughput growth	Condition assessment complete; Rehab priority list established
Dredging / Channel Deepening	Sediment characterization; USACE coordination	Vessel class access; Throughput capacity	USACE engagement initiated; Sediment study complete
Flood Resilience / Seawalls	Updated FEMA flood maps; Target elevation decision	Asset protection for all bundles; Insurance cost reduction	Pilot hardening projects identified; FEMA BRIC application submitted
Stormwater & Drainage	Regulatory compliance baseline; SRF eligibility confirmed	Flood Resilience integration; Tenant cost allocation	Compliance assessment complete; SRF application submitted
Internal Roads, Gates & Mobility	None (largely independent, but some review of leases may be needed)	Throughput efficiency; Shared trenching with Electrification	Immediate implementation projects scoped and funded

F. A Note on the Basis of Costs by Program

This sidebar summarizes the primary drivers that explain why cost ranges are used at the master plan stage. Each program has distinct variables that affect scope, schedule, and construction pricing.

Program Bundle	Primary Cost Drivers (why costs vary)
Clean Port Electrification (corridors, make-ready)	Utility capacity and upgrade scope; trenching/duct bank lengths; transformer and switchgear needs; metering and controls; ability to leverage utility make-ready; construction phasing and site access.
EV/Truck Charging Depots (shared-use)	Number and type of stalls; charger power levels; service upgrades; paving, drainage and safety upgrades; queuing/traffic control; operating model (port-owned vs service provider).
Microgrid + Battery Storage (BESS)	Storage size (MW/MWh) and duration; interconnection requirements; site constraints and fire/life safety; controls and islanding capability; revenue stack (peak shaving, resilience) and permitting timelines.
Shore Power (per berth)	Berth selection and vessel compatibility; distance to supply; trenching/canalization and routing; substation needs; cable management; utility upgrades; utilization commitments and tariff design.
Waterside & Berth Modernization	Structural condition; apron reconstruction scope; heavy-lift design loads; in-water constructability; permitting windows;

	phasing to maintain operations; integration with dredging and navigation improvements.
Dredging / Channel & Berth Deepening	Sediment volume and characterization; placement/disposal method; mobilization; environmental windows; monitoring and permitting; USACE participation and cost-share structure.
Flood Resilience / Seawalls / Laydown Elevation	Target elevation (e.g., 2050+); linear feet; utility relocations; geotechnical conditions; constructability in a working port; integration with drainage/pumping; adaptive design allowances.
Stormwater Compliance and Shared Conveyance	Regulatory targets; land available for detention/treatment; number of outfalls; pump stations; contaminated runoff handling; ability to finance via SRF/infrastructure bank; allocation of costs across tenants.
Internal Roads, Gates, Lighting & Mobility	Extent of pavement reconstruction; subsurface conditions; drainage tie-ins; technology integration; security requirements; construction phasing and disruption management.
Digital Systems / Dashboards / Reporting	Tenant data governance; platform choice (SaaS vs custom); integration with metering/operations; cybersecurity; ongoing staffing and O&M.

G. A Business Case for Port Electrification (Costs, Benefits, and Decision Triggers)

Port electrification can be financially positive for ProvPort if it is implemented as a phased service business with cost recovery and committed users. It becomes a financial risk when large electrical upgrades are built ahead of demand or fleet capability, creating stranded capacity and high demand-charge exposure. The business case below summarizes the balance of costs and benefits and the decision triggers that should gate major investments.

Key benefits when structured correctly:

1. New revenue lines from charging services (kWh pricing, access fees, subscriptions) and connection fees for new loads.
2. Improved grant competitiveness and reduced net capital cost through external leverage.
3. Operational reliability improvements and reduced downtime risk when paired with storage and controls.
4. Lease value uplift for electrification-ready parcels and attraction of higher-performing, lower-impact industrial users.

Key financial risks to manage:

5. Stranded distribution upgrades if tenant conversion does not occur as scheduled.
6. Transient vessels calling at ProvPort are not capable of plugging in (for shore power investment).
7. High utility demand charges without load management or storage.
8. Complexity of billing, metering, and fair cost allocation across tenants.
9. Long utility upgrade timelines that delay service availability.
10. Recommended decision triggers before advancing to the next electrification phase:
11. Anchor demand commitments (leases, MOUs, or usage guarantees) that justify capacity.
12. Board-approved tariff and connection-fee policy to recover costs.
13. Confirmed utility scope, schedule, and cost responsibility for make-ready upgrades.
14. External funding share sufficient to keep ProvPort net exposure within the base CAPEX reserve and planned match.
15. Design readiness (at least 30 percent) and an O&M plan for the assets being built.

16. All costs are in 2026 constant dollars. Nominal expenditures will be higher due to escalation

Table 17. Port Electrification Business Case (Planning-Grade)

Order-of-magnitude CAPEX by phase (2026 dollars; hard and soft; excludes most tenant vertical development)

Program Element	2025-30	2030-35	2035-40	2040-45	2045-50	2050-55
Planning + permitting (master planning, utility studies, 30% design)	$0.5M-2.5M	$0.5M-3M	$0.5M-3M	$0.5M-3M	$0.5M-3M	$0.5M-3M
Electrical backbone & make-ready (ductbanks, switchgear, transformers, distribution corridors)	$1M-10M	$5M-50M	$10M-80M	$10M-60M	$5M-25M	$5M-25M
Charging + fleet enablement (shared depot(s), yard charging, initial ZE equipment services)	$0-6M	$3M-25M	$5M-60M	$5M-50M	$2M-20M	$2M-20M
Shore power (optional; per berth) + peak management (optional BESS/microgrid)	$0-3M (studies)	$5M-20M (enable)	$10M-40M/berth + $20M-160M	$10M-40M/berth + $10M-100M	$10M-30M + $10M-80M	$10M-30M + $10M-80M

ProvPort Master Plan 2025-2055 | CIP roadmap: OOM costs by phase, funding stack, cost recovery, and go/no-go triggers
Key takeaway: Electrification is financially beneficial when ProvPort phases backbone upgrades to committed demand, uses grants/utility make-ready to reduce net CAPEX, and applies tariffs/connection fees to recover O&M and debt service. It becomes a financial hindrance when large upgrades occur before utilization is locked in (stranded capacity risk).

Best-fit funding stack (typical)

Funding Source	Scope / Application	Key Assumptions & Limitations
Federal/state grants	Planning/design, zero-emission infrastructure, early deployment, air/noise monitoring	Typical match: 20–40% local share. Programs include EPA Clean Ports, MARAD PIDP, DOE, FEMA BRIC. Competitive; not guaranteed. Application cycles are annual or biennial.
Utility make-ready + interconnection participation	Service upgrades, transformers, some distribution work	Availability depends on Rhode Island Energy tariff structure and PUC rulings. Utility may cover only up to the meter; ProvPort likely responsible for all on-site distribution. Timeline for utility upgrades can be 2–5 years.
Infrastructure bank / low-cost loans	Eligible backbone and match-bridging for qualified assets	RI Infrastructure Bank and SRF lending typically offer below-market rates for public infrastructure. Requires creditworthiness demonstration. Best suited for stormwater and long-lived civil assets.
Private capital / P3	Charging-as-a-Service for depots; Energy-as-a-Service/ESCO for controls and performance	Requires predictable revenue stream and clear risk allocation. P3 partners will expect minimum utilization guarantees or take-or-pay provisions. Reduces ProvPort upfront capital but creates long-term contractual obligations.
ProvPort Base CAPEX reserve	Match + enabling corridors + project development to keep packages shovel-ready	At 5% of ~$14M revenue = ~$700K/yr. Functions as seed/match capital, not primary funding. Leverage ratio of $1 match to $4–$8 external. Insufficient alone for any major capital project.

Cost recovery + go/no-go triggers

Cost recovery levers (make it financeable):

Recovery Lever	Mechanism	Key Assumptions & Limitations
Charging tariff	kWh rate + session fees/subscriptions (tenants/fleets)	Assumes sufficient fleet conversion to generate meaningful revenue. Early years may have low utilization; tariff must cover fixed costs even at partial load. Rate must be competitive with diesel-equivalent cost to drive adoption. No RI port charging tariff precedent exists — will need Board policy development.
Connection fees	For new loads tied into ProvPort corridors	Assumes ProvPort owns and operates distribution corridors (not utility-owned). Fee structure must balance cost recovery with tenant willingness-to-pay. Legal review needed to confirm authority under City lease/ordinance. New tenants vs. existing tenants may require different fee structures.
Lease pass-throughs	For shared backbone O&M and debt service	Requires lease amendments or new lease standards. Existing leases may not permit mid-term cost pass-throughs without renegotiation. Tenant resistance is likely if costs are perceived as unilateral. Allocation formula (by acreage, load, or usage) must be transparent and defensible.
Demand management (BESS/controls)	Reduce peak charges and stabilize delivered cost	Assumes ProvPort's demand profile has sufficient peak-to-average ratio to make storage economically viable. Battery degradation (typically 2–3%/yr) and replacement cycles (8–15 yrs) must be factored into lifecycle costs. Revenue from grid services depends on utility program availability and PUC approval.

Decision triggers (protect against stranded capacity):

Trigger	Requirement	Key Assumptions & Limitations
Anchor demand commitments	LOIs/leases for minimum kWh or fleet conversion schedule	LOIs are non-binding and may not hold in economic downturns. Minimum kWh commitments require metering infrastructure not yet in place. Fleet conversion timelines depend on OEM vehicle availability and total cost of ownership reaching parity — both outside ProvPort's control.
Board-approved tariff + fee policy	Connection fee and tariff schedule adopted	Requires Board governance action and potentially public process. No existing RI port tariff framework to benchmark against. Must be set before infrastructure investment, but rate-setting without load data creates chicken-and-egg problem. Consider provisional rates with scheduled true-up.
External funding share	Covers target share of backbone CAPEX (e.g., 30–60%)	Assumes continued federal commitment to port decarbonization and clean freight programs. Political climate shifts could reduce available programs or funding levels. Grant timelines (12–24 months from application to award) may not align with construction readiness. 30–60% target is aspirational — actual share may be lower for later phases as early-adopter incentives diminish.
Utility scope/cost confirmed	Utility scope, cost responsibility, and schedule confirmed	Rhode Island Energy's capacity planning and upgrade timelines are not within ProvPort's control. Distribution-level upgrades may require 3–5 year lead times. Cost responsibility for system upgrades vs. customer-side upgrades is subject to PUC tariff interpretation. ProvPort should engage utility early but cannot guarantee outcome or timeline.
30%+ design complete	Before major construction procurement	30% design is standard for grant applications and cost estimation refinement (narrows accuracy to ±30%). Requires $0.5M–$3M in pre-development spending per project, funded from CAPEX reserve or planning grants. Design work itself takes 6–18 months — must be sequenced ahead of grant application deadlines.

Note: Bands communicate scale for CIP planning and grant packaging. Actual costs depend on load growth, utility requirements, distance to supply, site constraints, and phasing while maintaining active operations.

Key Assumptions and Limitations Underlying the Electrification Business Case

These assumptions should be validated through feasibility studies in Phase 1 and revisited at each 5-year CIP update.

Financial & Revenue Assumptions

Assumption	Basis / Value Used	Limitations & Risks
ProvPort operating revenue	~$14M annually (2024 basis)	Revenue has been relatively stable but is concentrated among a small number of tenants. Loss of a major tenant could significantly reduce CAPEX reserve capacity. No revenue growth assumption is built into the CAPEX commitment model.
CAPEX reserve rate	5% of annual operating revenues (~$700K/yr)	This is a policy recommendation, not a current practice. Board adoption is required. At current revenue, this generates ~$3.5M per 5-year phase — sufficient for match and pre-development but not for direct capital spending at scale.
Construction cost escalation	3–5% per year (marine/heavy civil)	Based on historical ENR Construction Cost Index trends. Actual escalation is volatile; recent years have seen spikes above 5%. All OOM costs are in approximate 2026 constant dollars — nominal Phase 5–6 costs could be 50–100% higher.
Grant match ratios	10–20% local share (varies by program)	PIDP typically requires 20% match; EPA Clean Ports 20–40%; FEMA HMGP 25%; SRF lending may require no grant match but does require creditworthiness. Match ratios could increase as programs become more competitive.
Discount / interest rates	Not explicitly modeled	OOM costs do not include present-value discounting or financing costs. Actual debt service on bonds or infrastructure bank loans will increase total cost of ownership. A full financial model should be developed during Phase 1 feasibility studies.
Utility rate structure	Current Rhode Island Energy commercial/industrial tariff	Demand charges, time-of-use rates, and interconnection policies may change over the 30-year horizon. PUC decisions on EV charging rates, demand response programs, and distributed generation compensation will materially affect the business case.

Market & Demand Assumptions		
Assumption	**Basis / Value Used**	**Limitations & Risks**
Tenant fleet electrification timeline	Gradual conversion beginning Phase 1, scaling through Phase 3–4	Actual pace depends on OEM heavy-duty EV availability, total cost of ownership parity with diesel, and federal/state mandates (e.g., EPA heavy-duty vehicle rules). ProvPort does not control tenant procurement decisions.
Shore power vessel demand	Assumes vessel compatibility studies will confirm viable demand	Shore power utilization depends on vessel electrical standards (IEC/IEEE 80005), vessel call frequency, and duration. Not all vessel types currently support shore power. Mandatory shore power requirements (as in California) do not yet exist in Rhode Island.
Anchor tenant commitments	Assumes at least one anchor tenant per major electrification phase	LOIs and MOUs are typically non-binding. Tenant financial health, market conditions, and alternative port options all affect commitment reliability. ProvPort should not build capacity ahead of firm commitments.
Load growth trajectory	Incremental: pilot → partial → full	If load growth is slower than projected, fixed costs (demand charges, debt service) will not be offset by usage revenue. Conversely, faster-than-expected growth could overwhelm Phase 1 infrastructure, requiring acceleration of backbone upgrades.
Infrastructure & Technical Assumptions		
Assumption	**Basis / Value Used**	**Limitations & Risks**
Utility grid capacity	Assumes Rhode Island Energy can deliver required capacity upgrades	Utility-side upgrades (substation, feeders) may require 3–5 year lead times and are outside ProvPort's control. Transmission-level constraints in the Providence area are not assessed in this plan. Early engagement with utility is critical.
Site constructability	Assumes phased construction within a working port environment	All cost ranges include premiums for working around active operations, but actual disruption costs are highly variable. Environmental remediation of existing contamination (identified in Existing Conditions) could add 10–30% to site preparation costs for some parcels.
Technology maturity	Assumes current-generation equipment for Phase 1–2; next-gen for Phase 3+	Battery storage costs have declined ~80% over the past decade but future trajectory is uncertain. Shore power equipment, EV charging standards, and microgrid controls are evolving. Technology lock-in risk exists for early investments.
Permitting and regulatory	Assumes standard permitting timelines (6–18 months for major projects)	Environmental review (NEPA), coastal zone management, wetlands permits, and air quality permits could extend timelines. Regulatory changes (e.g., new emissions standards, flood zone remapping) could alter scope requirements mid-project.

Political & Programmatic Assumptions		
Assumption	**Basis / Value Used**	**Limitations & Risks**
Federal funding continuity	Assumes continuation of current clean energy and infrastructure programs	Programs like EPA Clean Ports, PIDP, and DOE grants are subject to appropriations cycles and Administration priorities. Funding levels, eligibility criteria, and match requirements may change. The 30–60% external funding target is aspirational and not guaranteed.
State policy environment	Assumes continued RI commitment to climate and clean energy goals	RI Act on Climate and related policies support port decarbonization, but legislative priorities can shift. State bond capacity for infrastructure is finite and competes with other priorities.
ProvPort governance capacity	Assumes Board adoption of CIP, tariff policy, and capital reserve	ProvPort currently lacks formal capital planning infrastructure. Building internal capacity for grant management, financial modeling, and project delivery is a prerequisite that requires staffing and systems investment not included in the OOM cost bands.

10. Economic Impact of Potential Sectors

This is a placeholder for potentially discussing the supplemental report from Camoin (that used potential market sectors and hypothetical square footage to estimate the value of business growth).

We need to determine whether that information is approved to share publicly (in which case, whether it will be a chapter or an appendix) or whether WTS wants to keep it proprietary (just share with Waterson with the delivery of this plan).

11. Conclusion: Accountability and Reporting

A. A Plan Off the Shelf

The Master Plan establishes a structured cadence of annual, five-year, and ten-year activities that create recurring decision points, stakeholder engagement, and capital recalibration. Together, these cycles transform the plan from a static document into an ongoing management framework.

Annual Cycle (Every Fiscal Year)

The purpose of the annual cycle is to ensure community accountability, advance early-stage projects that build technical readiness, and maintain strong positioning for competitive funding opportunities. These annual activities create recurring points of coordination between ProvPort, tenants, utilities, regulators, and the surrounding community. Each year, ProvPort will:

- Convene community stakeholders through annual engagement mechanisms, including Port Day events, public reporting, and review of Community Benefit and Sustainability Fund allocations.
- Coordinate with the City and neighborhood representatives on implementation of Community & Governance actions identified in the Immediate (0–5 year) phase.
- Advance Immediate Action studies and enabling analyses identified in the phased implementation plan, such as:
    - Electrification feasibility and corridor planning
    - Shore power and berth compatibility studies
    - Stormwater and shared drainage assessments
    - Berth and seawall condition evaluations
    - Dredging coordination and sediment characterization
- Maintain and refresh a grant-ready project pipeline, updating scope, cost bands, match strategy, and design readiness for priority projects.

- Evaluate lease standards and cost recovery tools (e.g., connection fees, stormwater allocation, shore power tariffs) in light of infrastructure upgrades and tenant needs.

Five-Year Cycle (Lease-Aligned Capital Recalibration)

The purpose of the five-year cycle is to prioritize capital investments, reassess the funding stack and financial capacity, and formally evaluate appropriateness and timing before advancing major infrastructure commitments. This five-year check-in ensures that large-scale capital commitments are advanced deliberately and only when market, financial, and regulatory conditions support them. Every five years, aligned with the City lease framework and the Phase 1 (0–5 year) and Phase 2 (5–10 year) capital increments, the Port will:

- Reassess the rolling 10-year Capital Improvement Program (as recommended in Chapter X).
- Evaluate whether infrastructure upgrades can begin, including:
    - Tenant commitment levels
    - Utility upgrade feasibility and cost clarity
    - Secured grant participation
    - Design and permitting readiness
- Revisit funding stacks and debt capacity based on updated revenue performance.
- Recalibrate costs and phasing assumptions for major investments such as:
    - Electrification corridors
    - EV/truck charging depots
    - Shore power installation
    - Waterside and berth modernization
    - Stormwater backbone construction
    - Flood resilience and elevation strategies

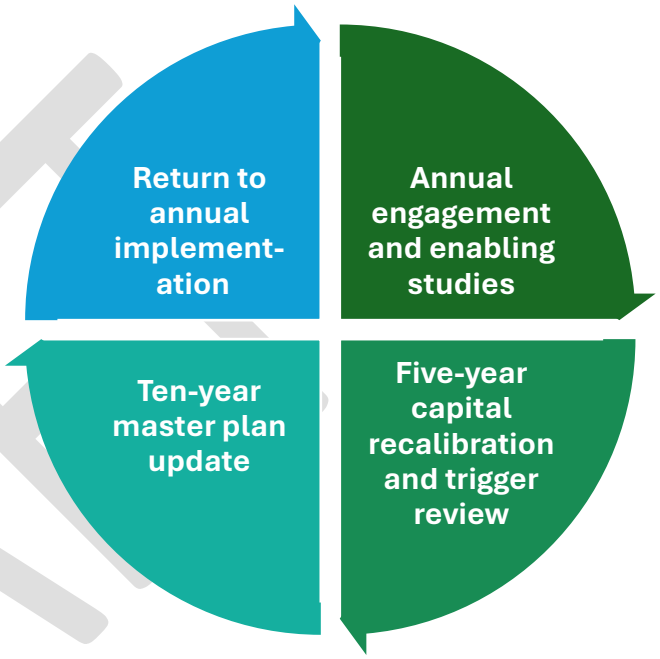
Ten-Year Cycle (Master Plan Recalibration)

The purpose of the ten-year cycle is to provide a strategic reset that adapts the Master Plan to evolving market conditions, regulatory requirements, climate projections, and funding landscapes. The Medium-Term (10–20 year) and Long-Term (20+ year) phases are intentionally aspirational and require this decennial recalibration to translate vision into refined capital programming. Every ten years, the Port will undertake a structured Master Plan review and update to:

- Reassess cargo markets, tenant mix, and economic development strategy.
- Incorporate updated climate projections, FEMA flood mapping, and regulatory requirements.
- Evaluate progress toward emissions reduction and electrification.
- Update resilience design elevations and long-term seawall strategy.
- Refresh cost assumptions and funding landscape analysis.

The Continuous Loop

The cadence can be understood as a reinforcing cycle: Annual engagement and enabling studies → Five-year capital recalibration and trigger review → Ten-year master plan update → Return to annual implementation.



Because the Immediate Action phase requires studies, stakeholder convenings, and early infrastructure preparation, and because each subsequent phase is contingent on defined steps and funding readiness, implementation becomes an ongoing governance process rather than a one-time adoption event. In this way, the Master Plan functions not as a static blueprint, but as a structured decision-making framework that requires ProvPort to convene, evaluate, report, and reinvest on a predictable schedule.

B. Monitoring economic and social impacts

Throughout the phased implementation, ProvPort and the City will monitor air quality, modernization, and social impacts to ensure the plan delivers on its promises. Key performance indicators (KPIs) will be tracked, such as: number of jobs created (with a goal to maximize local hires), total cargo tonnage and new trade routes added, emissions reduced (tons of CO2, particulate matter), dollars invested in infrastructure, funds spent on community projects. Regular reporting on these KPIs to the PCAB and public dashboards will allow adjustments and celebrate successes.

By approximately 2030, short-term actions are expected to generate hundreds of jobs and roughly $200+ million in investment, largely from the wind industry hub and infrastructure upgrades, while cutting port-related emissions by

perhaps 20–30%. By 2040, the medium-term expansion could double ProvPort's 2025[12] economic output and significantly increase the city's revenue share, all while achieving a 70% reduction in greenhouse emissions (on track for net-zero) and demonstrably cleaner air in the neighborhood (aiming for asthma hospitalization rates down by half). Finally, by 2055, ProvPort's economic contribution should be supporting thousands of jobs in a diversified, green economy, yet doing so with net-zero emissions and strong community relationships. The community benefit funds will have invested several million dollars into local improvements, effectively recycling some port profits back into the neighborhoods.

Regular opportunities to assess economic impact at the 5-year increments (e.g. in 2035, 2045, 2055) will quantify these benefits and guide reinvestment. If any aspect of the plan under-delivers (for example, if a projected industry growth doesn't materialize), the port and stakeholders will pivot and fill the gap with new strategies, thanks to the adaptive governance built in.

C. Looking to the Future

This 30-year Master Plan charts a bold but attainable course for ProvPort's future. It balances growth and innovation with sustainability and equity, aligning with Rhode Island's climate goals and Providence's commitment to its residents' quality of life. By phasing actions over short, medium, and long-term, the plan ensures early momentum and long-range vision.

ProvPort can become a stronger gateway to opportunity – importing and exporting the goods and materials of a thriving region, while also bringing opportunity into the community in the form of jobs, education, and environmental restoration. The port will lead in the new green economy, from building wind turbines, supporting industries that power and build Rhode Island, to deploying electric trucks, demonstrating that economic development and environmental stewardship go hand in hand. Residents of Washington Park and South Providence will no longer bear

[12] ProvPort Economic Impact, Camoin 2025

disproportionate burdens; instead, they will share in the port's prosperity and help shape its direction through ongoing involvement and oversight.

Implementing this plan will require collaboration, significant investment, and steadfast commitment. Yet the benefits – a net-zero port powering a robust economy and healthy community – are well worth the effort. As we move forward, each stakeholder has a role: port leadership and businesses must fulfill sustainability pledges, government partners must provide leadership and enforce standards, and the community must continue to engage constructively. Through transparent governance and adaptive management, ProvPort will remain accountable to its goals and stakeholders.

In 2055, Providence can look out at its waterfront and see cranes lifting new clean-energy components, ships quietly docked on electric power, local workers guiding high-tech operations, and perhaps families strolling along a bayside greenway. The air will be cleaner, the bay water protected, and the neighborhood thriving – a far cry from the "toxic corridor" reputation of the past. This Master Plan lays the groundwork for that future. By following its roadmap, ProvPort will not only expand its capacity and markets, but also truly become "the sustainable port for the next generation", anchoring Rhode Island's economy in harmony with its people and environment.

12. Appendices

The appendices are currently in development and are referenced throughout the document. They will be available shortly.