



# MASTER PLAN AND COMPREHENSIVE SCHEME OF HARBOR IMPROVEMENTS

DECEMBER 8, 2021



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## Abbreviations

ANSAC	American Natural Soda Ash Corporation	LSY	Longview Switching Yard
AACE	Association for the Advancement of Cost Engineering	LTGO	Limited Tax General Obligation
B.C.	British Columbia	MARSEC	Maritime Security
BCRTP	Business Continuity and Resumption of Trade Plan	MBF	Million Board Feet
BHP	Broken Hill Proprietary Company Ltd	ME	Middle East
BNSF	Burlington Northern Santa Fe Railroad company	MED	Mediterranean Region
BP	British Petroleum	MFA	Maintenance Facility Area
Btu/lb.	British thermal unit/pound	Mgmt.	Management
CIP	Capital Improvement Program	MN	Minnesota
CLT	Columbia Land Trust	MT	Million Metric Ton
CMMS	Computerized maintenance management system	MTCA	Modal Toxic Control Act
CN	Canadian National Railway	MWh	Megawatt hours
CP	Canadian Pacific Railway	NAP	North American Pipe
CPC	Calcined petroleum coke	NE	Northeast
CRD	Columbia River Datum	NIBTL	Net Income Before Tax Levy
DNR	Department of Natural Resources	NW	Northwest
DOSH	Department of Safety and Health	OI	Operating Income
DWT	Deadweight tons	OSHA	Occupational Safety and Health Administration
EAF	Electric Arc Furnace	PKS	Palm kernel shell
EGT	Export Grain Terminal	PMA	Pacific Coast Maritime Association
EIA	Economic Impacts Analysis	PMA	Port's Management Agreement
EMP	Environmental Management Program	PNW	Pacific Northwest
ERP	Emergency Response Plan	RCRA	Resource Conservation and Recovery Act
FAA	Federal Aviation Administration	RCW	Revised Code Washington
FIT	Feed-in-Tariffs	RO	Revenue Outturn
GFOA	Government Finance Officers Association	ROE	Return of Equity
GIS	Graphical Information System	RORO	Roll On / Roll Off
GMA	Growth Management Act	SaaS	Software as Service
HCM	Highway Capacity Manual	SWCAA	Southwest Clean Air Agency
HEA	Habitat Equivalent Analysis	SWOT	Strengths-Weaknesses-Opportunities-Threats
ICS	Incident Command System	TOP	Transportation Optimization Plan
ILWU	International Longshore and Warehouse Union	TPH	Total Petroleum Hydrocarbons
IPCo	International Paper Company	TWP	Treated Wood Products
IPG	Integrated Planning Grant	UPRR	Union Pacific Railroad
IRC	Industrial Rail Corridor	USEPA	US Environmental Protection Agency
IRCE	Industrial Rail Corridor Expansion	WSDOT	Washington State Department of Transportation
IRM	International Raw Materials		
ISC	Indian Subcontinent		
ISGP	Industrial Stormwater General Permit		
IWOW	Industrial Way/Oregon Way		
IWSP	Industrial Water System Plan		
KLS	Southwest Washington Regional Airport		
LIY	Longview Interchange Yard		
LOS	Level of Service		

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# ACKNOWLEDGEMENTS

The Port Commission would like to thank the many stakeholders and community members who helped develop this Master Plan update and Comprehensive Scheme of Harbor Improvements, including:

- Members of the public that engaged in Port Commission meetings
- Individuals, organizational representatives, labor, tenants, customers, and elected officials that were interviewed during this process
- Port of Longview staff members

This plan updates the 2015 Comprehensive Scheme of Harbor Improvements and the 2011 Master Plan and was developed alongside the Port's 2021 Strategic Business Plan. It incorporates relevant information from a variety of previous studies and analysis, including:

- 2021 Final Budget
- 2020 Transportation Optimization Plan Report
- 2019 The Local and Regional Economic Impacts of the Port of Longview
- 2016 Barlow Point Master Plan Phase I Feasibility Study
- 2016 Strategic Business Plan
- 2015 Comprehensive Scheme of Harbor Improvements
- 2011 Port Master Plan Report

# 1. EXECUTIVE SUMMARY

Operating since 1921, the Port of Longview has 8 marine terminals and waterfront industrial property spanning 835 acres on the deep-draft Columbia River, 66 miles from the Pacific Ocean in Southwest Washington state.

As one of the Northwest’s premier transportation hubs, the Port of Longview supports \$2.8 Billion in economic value in the region. The Port employs 11% of workers in Cowlitz County and supports another 19,203 jobs with related port activity<sup>1</sup>. The Port and its facilities are an essential element of the national maritime industry.

## 1.1 Planning Approach

The Port of Longview (Port) is updating and combining its Master Plan and Comprehensive Scheme of Harbor Improvements (together “Plan”) as an ongoing dedication to ensuring the Port is transparent and committed to informing its citizens of the Port’s long-term vision and capital improvements. This Plan is a working document and from time-to-time amendments or modifications may occur. Further, a Plan review is conducted every ten-years, and if needed, this Plan will be updated.

### Master Plan Update

The Port of Longview Master Plan was last comprehensively updated in 2011. In the ensuing 10 years, the Port has undergone a number of major physical changes; more importantly, the maritime industry that the Port serves has changed dramatically. The Port’s role as a steward of other public resources (e.g., recreation and environmental resources) has expanded beyond the scope envisioned by the 2011 Master Plan, and strategic challenges such as climate change and sustainability have come to the forefront. Accordingly, the 2011 Master Plan no longer adequately reflects its current planning priorities and does not provide a sound basis for addressing the challenges and opportunities of the future.

The purpose of this Master Plan update is to ensure that the Port’s master planning document 1) reflects the changes in the Port that have occurred since the 2011 Master Plan; and 2) allows the Port to proactively plan for, and respond to, future changes in maritime commerce, commercial opportunities, facilities development, land use, and environmental policy. This Master Plan Update will be implemented through the Port’s Strategic Business Plan.

### Comprehensive Scheme of Harbor Improvements

This document additionally updates the Port of Longview’s Comprehensive Scheme of Harbor Improvements (Comprehensive Scheme), dated June 9, 2015, and includes the two amendments to the plan, dated February 26, 2020 and March 24, 2021. Unlike Cities and Counties in the State of Washington that are required to have Comprehensive Plans, ports are required to adopt a Comprehensive Scheme of Harbor Improvements under RCW 53.20.010. Historically, the Port of Longview (Port) adopted individual resolutions for capital projects, which is acceptable under RCW 53.20.010, but limits transparency to the Port District’s constituents. In 2011, the Port adopted the current format to ensure its constituents can easily understand the direction of the Port. Therefore, this document builds on the 2011 Comprehensive Scheme; projects prior to December 2011 are in individual resolution form.

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1 THE LOCAL AND REGIONAL ECONOMIC IMPACTS OF THE PORT OF LONGVIEW, 2018

## 1.2 Planning Process

### 1.2.1 Community and Stakeholder Outreach

Due to a historical health pandemic beginning in 2020, the Port was challenged with developing an avenue in which to engage the public seeing that traditional forms of public engagement were no longer viable. To accommodate this new landscape, a virtual proactive and open approach was designed to involve the community in the planning process. Key to this effort was providing a range of comfortable and convenient opportunities for the community to get involved, provide input, and stay informed. These opportunities included on-line surveys, virtual one-on-one stakeholder interviews, virtual focus groups, and virtual Commission workshops. Additionally, the Port hosted a planning website that had links to past Port planning documents, a dedicated email for planning comments and questions, and outlined the Commission workshops and plan topics for the entire process so that stakeholders could engage in topics of their interest. Stakeholders were notified in advance of the upcoming workshops and were provided a link to view the upcoming discussion topics and presentations. Links to the workshops and the materials remained live for the entire length of the planning process.

The Port also utilized their social media accounts to promote key milestones in the planning process to solicit comments, ran newspaper advertisements, ran radio announcements on three local radio stations, and provided updates and website links in the Port's Port Talk newsletter that is distributed to the entire port district bi-annually and available on the Port's website.

### 1.2.2 Themes and Key Outcomes During Outreach and Engagement

The information obtained from outreach and engagement was organized into observations about strengths, weaknesses, opportunities and threats (SWOT) that will influence opportunities for development and redevelopment at the Port. Key outcomes and actions were identified focusing on local labor and jobs, expansion of rail access and fluidity, redevelopment of underutilized properties and facilities, continued community investment, making the Port more self-sustaining, and enhancing the Port's collaboration and communication with labor, the public, state and federal government partners, and community stakeholders.

### 1.2.3 Commission Priorities

The Port Commission reviewed its current position through an analysis of strengths, weaknesses, opportunities, and threats. Considering stakeholder and public input, the Commission identified potential opportunities to mitigate weaknesses, build on strengths, and harness opportunities. This exercise highlighted the following priorities:

#### **FOCUS ON RETAINING AND ADDING LOCAL JOBS AND INVEST IN INFRASTRUCTURE AND EQUIPMENT TO SUPPORT ECONOMIC GROWTH**

- Explore creative funding approaches and partnerships to implement Industrial Rail Corridor Expansion (IRCE)
- Evaluate elimination and/or improvements to at-grade rail crossings
- Redevelop Berth 4
- Develop Barlow Point
- Pursue opportunities to be more self-sustaining

- Purchase and develop upland properties

## INVEST TO INCREASE PORT AND COMMUNITY RESILIENCY

- Investigate opportunities and incorporate environmentally sustainable development, infrastructure, and energies where feasible
- Invest in marketing and collaborate with Labor to attract new business and tenants
- Work to enhance relationships at the state and national level
- Expand active public outreach programs to increase communication regarding benefits of the Port and improve communication with key partners during project development

These priorities were the foundation of the 2021 Strategic Business Plan which articulates goals and strategies for the Port's three primary programs: Lines of Business, Community Investment, and Internal Resources.

### 1.3 Port Financial Policies and Strength

The Port of Longview Board of Commissioners adopted financial policies for the Port in 2017. These policies are modeled after those recommended by the Government Finance Officers Association (GFOA). The policies are designed to guide the organization and its elected officials in fulfilling their duties to conduct the Port's business in a manner that promotes strong stewardship of public funds while providing stability and continuity in sound financial management. The Port's Finance Department and other designated departments have developed procedures that are used to implement these policies.

The next five years of financial data and list of capital projects for the Port demonstrate that the capital cost of projects outpace the available funds from projected revenues. The Port must implement measures to reconcile this difference, which could include a combination of taking on additional debt, obtaining outside funding sources, reducing investment, and adjusting taxation rates.

The Port is in good financial standing to take on additional debt if this measure is chosen, the Port's debt has decreased from \$49 million in 2013 to \$9 million by the end of 2020. All of this current debt will be retired by 2030.

One indicator of the Port's financial strength is Return of Equity (ROE), which measures the profitability and potential growth of the enterprise. Enterprises that boast a high ROE with little or no debt are able to grow cash reserves, allowing the owners of the enterprise to use the cash to make new investments in growth opportunities. The Port has increased its ROE from less than 1% in 2011 to more than 5% in each of the last four years.

The Port tracks several other factors to monitor and improve financial performance. Since 2011 these factors have shown steady or consistently improving financial strength and performance, including operating margins, net income, return on assets, and debt to asset ratio.

### 1.4 Factors Affecting Demand for Port Development

Port volumes on the Pacific West Coast are dependent on not only economic conditions, but also on government policies related to specific sectors in the United States and abroad. The Port must be prepared to adapt to external economic policy risks when developing master plans. Diversification with respect to the number of different commodities a port can process is a fundamental way to lessen this risk. The Port handles a broad range of commodity categories, the volumes of each category can be

highly volatile from year to year, however the overall volume of cargo handled by the Port has shown considerably less volatility due in part to the diversification of the Port.

### 1.4.1 Market Assessment

To understand the opportunities to maintain and increase the diversification of commodity shipping at the Port, a series of market assessments and tonnage forecasts were performed for commodities currently processed at the Port and for existing and prospective commodities transported by unit train.

Markets currently served by the Port including grains, logs, breakbulk, bulk chemical, wind power, green energy, and steel are poised for steady growth and remain critical for the diversification of the Port. Expansion of markets for soda ash, potash, and wood pellets all present opportunities for further growth and diversification. Capturing one or more of these opportunities that would utilize unit trains for transportation will allow the port to fully utilize all berths, and it will position the port for future growth.

### 1.4.2 Evaluation of the Port's Competitive Position

The Port conducted a competitiveness analysis to identify the Port's relative position in the unit train bulk commodity market share compared to other ports serving its existing and potential markets. The competitiveness analysis focused on other PNW ports, including Columbia River, British Columbia ports, Grays Harbor, Puget Sound, and Oregon Coast ports.

Review of terminals drybulk commodities throughout the Pacific Northwest indicated that main line rail connectivity and unit train handling efficiency at the Port can be competitive advantages in comparison to many terminals at Pacific Northwest ports. In comparison to other terminals handling soda ash and potash specifically, the Port can also offer deeper water alongside the berth and the ability to handle larger vessels.

## 1.5 Master Plan Alternative Analysis

The identification of the Port master plan alternatives is an initial starting point for the long-term decision-making process of the Port Leadership and Port Management Team. Development of the Port master plan alternatives involved evaluation of existing facilities and infrastructure, current and future operations analysis, capacity analysis, and physical land use plan alternatives. The alternatives fully integrate terminals, roadways, rail, and other infrastructure elements into a set of recommendations.

The approach to development of master plan alternatives focused on potential development of facilities and infrastructure that would create opportunities to welcome new customers without adversely impacting the efficiency or capacity of existing tenants, shippers and customers.

A total of four initial alternatives were developed and presented for discussion at multiple public meetings, generally the alternatives depicted progressively increasing levels of development and capacity enhancement, which could be implemented progressively based on customer, tenant or market demand. Alternatives were scored or ranked against a set of qualitative and quantitative factors to assess their potential to fulfill key outcomes identified through public outreach and Commission priorities.

While the planning work did not exclusively focus on redeveloping Berth 4 as a bulk export terminal, review of relative rankings against qualitative and quantitative factors, resulted in the determination that the fulfillment of key outcomes identified through public outreach and Commission priorities could be maximized by creating a bulk export terminal at Berth 4 including a new vessel berth and

upland facilities, and reconfiguring other terminals and infrastructure to support increased capacity and efficiency.

Phasing strategy and capital cost estimates were prepared for the Alternatives, outlining a sequence of implementation for major elements of the alternatives which would enhance the ability of the Port to accommodate growth of existing tenants, position the Port to capture emergent business opportunities, and align the scale of capital projects with growth of the Port's business, to the extent feasible.

## 1.6 Planning Elements

The planning elements establish a framework for future Port development and provide a Port-wide perspective on major functional or program areas. The Plan encompasses ten elements. Several planning elements relate to the need for improvements or projects that include infrastructure development or property investments that are typically driven by the market conditions for the commodities handled at each terminal or facility. In some cases, contribution by tenants or project partners toward capital funding for improvements associated with these elements may be necessary. Other elements are program, informational, and economic development based. These elements work toward expanding public benefit through access to recreation opportunities, a clean environment, job growth, education, managing assets, and worker safety.

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## 2. PLAN UPDATE AND STAKEHOLDER ENGAGEMENT

The Port of Longview (Port) is updating and combining its Comprehensive Scheme of Harbor Improvements (Comprehensive Scheme) and Master Plan (together “Plan”) as an ongoing dedication to ensuring the Port is transparent and committed to informing its citizens of the Port’s long-term vision and capital improvements. This Plan is a working document and from time-to-time amendments or modifications may occur. Further, a Plan review is conducted every ten-years, and if needed, this Plan will be updated.

However annually, the Port hosts several public budget workshops and publishes a budget that includes its anticipated capital improvement expenditures, as well as forecasts a five-year capital improvement program (CIP). This budget process and five-year CIP is open to public participation and outlines the intent of the Port’s expenditures and progress in implementation of this Plan’s vision and the Port’s Strategic Business Plan’s goals and objectives.

### 2.1 Master Plan Update

The Port of Longview Master Plan was last comprehensively updated in 2011. In the ensuing 10 years, the Port has undergone a number of major physical changes; more importantly, the maritime industry that the Port serves has changed dramatically. The Port’s role as a steward of other public resources (e.g., recreation and environmental resources) has expanded beyond the scope envisioned by the 2011 Master Plan, and strategic challenges such as climate change and sustainability have come to the forefront. Accordingly, the 2011 Master Plan no longer adequately reflects the Port’s planning priorities and does not provide a sound basis for addressing the challenges and opportunities of the future.

The purpose of this Master Plan update is to ensure that the Port’s master planning document 1) reflects the changes in the Port that have occurred since the 2011 Master Plan; and 2) allows the Port to proactively plan for, and respond to, future changes in maritime commerce, commercial opportunities, facilities development, and land use and environmental policy. This Master Plan Update will be implemented through the Port’s Strategic Business Plan. The Strategic Business Plan sets the Port’s priorities with a commitment to focus on retaining and adding local jobs, invest in infrastructure and equipment to support economic growth, and invest to increase port and community resiliency.

The Master Plan will be updated as needed as the port industry responds to forecasts of cargo demand, economic trends of global trade, changing cargo handling and logistics technologies, and environmental sustainability goals and requirements.

### 2.2 Comprehensive Scheme of Harbor Improvements Requirements

This document additionally updates the Port of Longview’s Comprehensive Scheme of Harbor Improvements (Comprehensive Scheme), dated June 9, 2015, and includes the two amendments to the plan, dated February 26, 2020 and March 24, 2021. Unlike Cities and Counties in the State of Washington that are required to have Comprehensive Plans, ports are required to adopt a Comprehensive Scheme of Harbor Improvements under RCW 53.20.010. Historically, the Port of Longview (Port) adopted individual resolutions for capital projects, which is acceptable under RCW 53.20.010, but limits transparency to the Port District’s constituents. In 2011, the Port adopted the current format to ensure its constituents can easily understand the direction of the Port. Therefore, this document builds on the 2011 Comprehensive

Scheme; projects prior to December 2011 are in individual resolution form.

A Comprehensive Scheme is neither a Comprehensive Plan nor a Master Plan as defined by Washington State’s Growth Management Act (GMA). A Comprehensive Scheme is a planning and forecasting document that builds upon other port plans, reports, analysis, and policies. The Comprehensive Scheme lays out opportunities for future investment, operations, and development that will provide benefit to the community.

RCW 53.20.010 requires that the Port implement a communication process that seeks community engagement in reviewing the Comprehensive Scheme, the character of proposed projects as described in this document, and future spending for capital improvement that aid in achieving the Port’s goals.

In addition to required notification, public presentation, and a formal public hearing, the Port may also solicit public engagement on scheme updates by utilizing additional public meetings, the Port’s website, email, personal contact, and other media venues to solicit and respond to public comments. The Port welcomes and values it’s constituents’ input.

## 2.3 Stakeholder Outreach and Engagement

### 2.3.1 Community and Stakeholder Outreach

Due to a historical health pandemic beginning in 2020, the Port was challenged with developing an avenue in which to engage the public seeing that traditional forms of public engagement were no longer viable. To accommodate this new landscape, a virtual proactive and open approach was designed to involve the community in the planning process. The Port wanted to ensure a cross-section of perspectives and reached out to citizens, tenants, neighbors, industry groups, union labor, tug operators, shipping lines, Stevedores, environmental groups, local regulatory agencies, tribal officials, and local and state government officials via a stakeholders list serve. In all, there were 236 individual stakeholders and stakeholder groups identified.

Key to this effort was providing a range of comfortable and convenient opportunities for the community to get involved, provide input, and stay informed. These opportunities included on-line surveys, virtual one-on-one stakeholder interviews, virtual focus groups, and virtual Commission workshops. Additionally, the Port hosted a planning website that had links to past Port planning documents, a dedicated email for planning comments and questions, and outlined the Commission workshops and plan topics for the entire process so that stakeholders could engage in topics of their interest. Further, stakeholders were notified in advance of the upcoming workshops and were provided a link to view the upcoming discussion topics and presentations. Links to the workshops and the materials remained live for the entire length of the planning process.

The Port also utilized their social media accounts to promote key milestones in the planning process to solicit comments, ran newspaper advertisements, ran radio announcements on three local radio stations, and provided updates and website links in the Port’s Port Talk newsletter that is distributed to the entire port district bi-annually and available on the Port’s website.

## 2.4 Themes and Key Outcomes During Outreach and Engagement

The information obtained from outreach and engagement was organized into observations about

strengths, weaknesses, opportunities and threats that will influence opportunities for development and redevelopment at the Port.

- **Strengths** identified through outreach included factors related to marine and railroad access, available land, expertise with diverse cargos, local partnerships and community support, customer service, commission accessibility and a skilled workforce.
- **Weaknesses** identified through outreach included factors related to infrastructure, storage, labor agreements, limited funding, revenue fluctuation, and communication and transparency in some situations.
- **Opportunities** identified through outreach included new or expanding markets, increased partnerships, state and federal funding, and increased communication.
- **Threats** identified through outreach included congestion, deterioration of infrastructure, increasing infrastructure and operating costs, competition, and external factors such as weather events, cyber security, pandemics, river siltation, dam removal and permitting.

A full listing of strengths, weaknesses, opportunities and threats identified through outreach is provided in Appendix F: Strengths, Weaknesses, Opportunities and Threats Analysis.

## Key Outcomes and Actions

Based on the strengths, weaknesses, opportunities and threats, key outcomes and actions were identified focusing on local labor and jobs, expansion of rail access and fluidity, redevelopment of underutilized properties and facilities, continued community investment, making the Port more self-sustaining, and enhancing the Port's collaboration and communication with labor, the public, state and federal government partners, and community stakeholders.

A full listing of Key Outcomes and Actions identified through outreach is provided in Appendix F: Strengths Weaknesses Opportunities and Threats Analysis.

## 2.5 Commission Priorities

The Port Commission reviewed its current position through an analysis of strengths, weaknesses, opportunities, and threats. Considering stakeholder and public input, the Commission identified potential opportunities to mitigate weaknesses, build on strengths, and harness opportunities. This exercise highlighted the following priorities:

### FOCUS ON RETAINING AND ADDING LOCAL JOBS AND INVEST IN INFRASTRUCTURE AND EQUIPMENT TO SUPPORT ECONOMIC GROWTH

- Explore creative funding approaches and partnerships to implement Industrial Rail Corridor Expansion (IRCE)
- Evaluate elimination and/or improvements to at-grade rail crossings
- Redevelop Berth 4
- Develop Barlow Point
- Pursue opportunities to be more self-sustaining
- Purchase and develop upland properties

## INVEST TO INCREASE PORT AND COMMUNITY RESILIENCY

- Investigate opportunities and incorporate environmentally sustainable development, infrastructure, and energies where feasible
- Invest in marketing and collaborate with Labor to attract new business and tenants
- Work to enhance relationships at the state and national level
- Expand active public outreach programs to increase communication regarding benefits of the Port and improve communication with key partners during project development

These priorities were the foundation of the 2021 Strategic Business Plan which articulates goals and strategies for the Port's three primary programs: Lines of Business, Community Investment, and Internal Resources.

## 3. INTRODUCTION AND OVERVIEW

### 3.1 Port of Longview Mission

To promote commerce and economic development through strategic public investments for the benefit of our communities.

### 3.2 Port of Longview Values

Our values define how we approach our work and what we value as trustees of a vital public resource. How we do our work is often as important as what we do. The Port's corporate and community values guide how we make decisions, execute our projects, and treat our community, customers, staff, and the environment. The Commissioners are trustees for a relatively short period of the nearly 100 years of Port history. These values are crucial to ensuring that port decisions and growth reflect the priorities of those we serve.

#### Partnerships

The Port is committed to developing valuable partnerships between our customers, tenants, and community to achieve Port wide goals and objectives.

#### Integrity

Port employees conduct themselves in all situations, both internally and externally, in an ethical, honest and professional manner.

#### Leadership

The Port promotes good leadership through teamwork, mentoring, and recognition to reach a common goal.

#### Fiscal Responsibility

The Port recognizes profitability as essential to ours and the community's economic success, and therefore pledges to provide prudent fiscal management while achieving and maintaining transparency by being a responsible steward of our publicly owned assets.

#### Environmental Stewardship

The Port endeavors to support operational choices that uphold environmental accountability, while continuing to expand economic and employment opportunities.

#### Forward-Thinking

The Port actively embraces innovative ideas in all aspects of the Port's business to further its vision and mission, while acknowledging and building on the successes of its past.

#### Respect

The Port strives to create an open and hospitable environment to foster collaborative, productive personal relationships which result in successful projects.

#### Professional Staff

The Port retains experienced professional staff and embraces a mutually supportive relationship between the Port Commission and Port staff to effectively carry out its programs and manage its facilities.

#### Safety

The Port collaborates with staff and its labor partners to maintain and improve a culture of safety and institute best practices around physical and cyber security.

### 3.3 Port of Longview History and Present Status

In the 1800's, private interests controlled the Washington waterfront areas of what was then called the Oregon Territory. The 1889 constitution of the newly created Washington State changed that, declaring that the beds of the state's navigable waters belonged to the people and authorizing the Legislature to designate which of those beds would become harbors for public use. In 1911, the Legislature passed the Port District Act, allowing communities the option through voter approval to form publicly controlled port districts. Over the last 100 years Washington public ports have been afforded additional authorities by the Legislature to promote trade and economic development for their communities and the state as a whole.

The Port of Longview was initially created in 1921 as the Port of Kelso within Cowlitz County. The first facilities were located on the Cowlitz River in an area that had a convenient boat landing.

In 1925, the Port of Kelso secured 40 acres from the Long-Bell Lumber Company adjacent to the Columbia River, and began construction of a 950-foot dock and warehouse for a marine cargo facility that was dedicated in 1926. The facility investment was a success, handling 72,000 tons of freight in the first nine months of operation and quickly reaching 246,000 tons per year, only to be slowed by the Great Depression. In 1929, by the vote of the people of Cowlitz County, the Port of Kelso changed its name to the Port of Longview.

Supporting the World War II effort revitalized the Port once again, as it exported materials bound for Russia and Great Britain, as did the Korean War, when the military used the Port extensively to ship supplies to the Pacific Front.

By 1970, the Port was handling over six million tons of cargo annually and became Washington's third largest port terminal. As the lumber export market began to decline, the Port hit dire times in the early 2000s. The Port Commission began investing in Port infrastructure to draw in a diversification of commodities to hopefully thwart future market impacts and was again successful. In 2012, the Export Grain Terminal was commissioned. Cargo movements increased from a low of 1.5 million tons in 2006 to more than 10 million in 2018.

In June of 2020, the Port moved its office to the newly renovated "White House". The White House was constructed in 1937 as the original headquarters to the Long-Bell Lumber Company founded by R.A. Long who planned and developed the City of Longview. In 2021, Port Commissioners approved a landscape plan that will be developed in the upcoming years to fully showcase the White House and its rich history.

### 3.4 State of Washington Port Districts

In 1911, Washington State lawmakers passed the Port District Act, which recognized the tremendous economic impacts waterways brought to the region and allowed communities to keep prime waterfront property in the hands of the citizens.

Unlike other local government agencies that are tasked with providing public programs and services, ports were established as limited-purpose municipal corporations of the State and designed to operate as the community's business agent. Empowered with building infrastructure and developing facilities that create jobs, ports are the only public agency dedicated to economic development.

Profits derived from operations are reinvested back into publicly owned assets to stimulate additional local economic benefits and jobs. That is the reason public ports exist.

The Port of Longview is one of three port districts located within Cowlitz County, along with the Port of Kalama and the Port of Woodland. According to the US Census Bureau, the estimated population of Cowlitz County as of 2019 is 110,593. The boundaries of the Port of Longview districts encompass the incorporated cities of Longview, Kelso, and Castle Rock, and portions of unincorporated Cowlitz County. Figure 1 depicts the location of the Port districts within the state and county.

### 3.5 Port Commission Districts

The Port is governed by a three-person elected Board of Commissioners that set policies to guide the development, growth and operation of the Port. Commission terms span six years and each of the three Commissioners represent a particular physical area within the port district. Commissioners are entrusted with representing the best interests of the citizens and making decisions that will benefit the local economy, while also maintaining stable revenue to keep Port facilities operating. The three-person board determines commission positions of President, Vice-President and Secretary.

Commissioner districts made up of approximately equal populations. Every 10 years (census driven) those districts are reviewed to ensure that each district continues to have an equal number of residents. The last review was completed in December 2011, and a review of districts is currently underway based on the results of the 2020 census. Only a registered voter who resides in a commissioner district may be a candidate for, or hold office as, a commissioner of the commissioner district. Further, only the voters of a commissioner district may vote at a primary to nominate candidates for a commissioner of the commissioner district. Voters of the entire port district may vote at a general election to elect a person as a commissioner of the commissioner district. The Commissioners as of 2021 are:

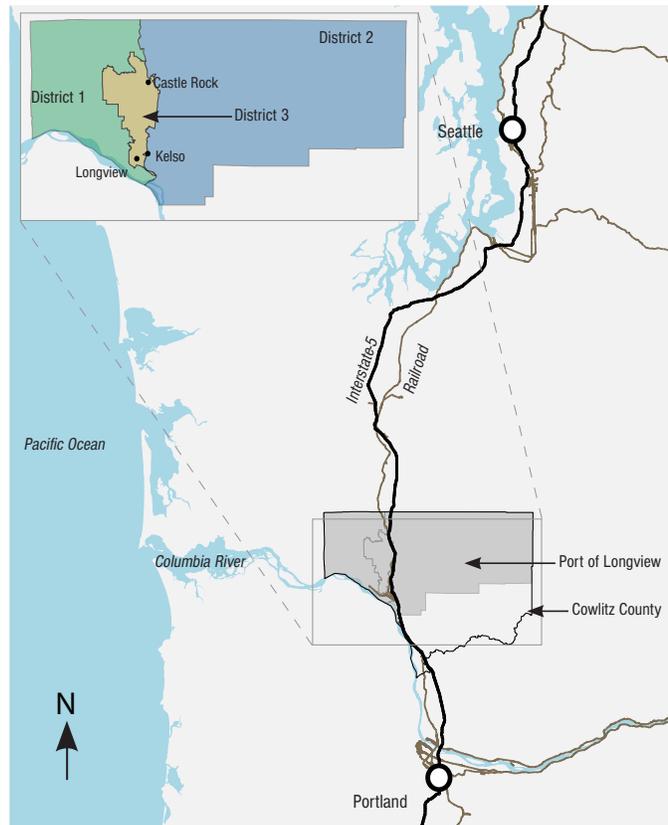


FIGURE 1. PORT OF LONGVIEW COMMISSION DISTRICTS



**Jeff Wilson**

Commission District: 1  
Term: 2022 - 2027



**Doug Averett**

Commission District: 2  
Term: 2018 - 2023



**Allan Erickson**

Commission District: 3  
Term: 2020 - 2025

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## 4. BACKGROUND

### 4.1 Port Location

The Port of Longview is the first full-service operating port on the deep-draft Columbia River shipping channel. Ideally situated in southwest Washington State, the Port and its customers are easily linked to maritime, railroad, and highway infrastructure, which support efficient movement of import, export, and domestic cargo.

Located just 66 river miles from the Pacific Ocean, vessel navigation time from the Columbia River pilot station to the Port's marine terminal complex is approximately five hours. Along the Interstate 5 corridor, the Port is 120 driving miles to/from Seattle, Washington, and 40 driving miles to/from Portland, Oregon.

Direct connections to main-line rail service with the BNSF Railway and the Union Pacific Railroad are a key component of the Port's supply chain and logistics support capabilities. The Longview Switching Company regularly provides reciprocal rail switching services in and out of the Port's terminal.

### 4.2 Overview of Port Facilities

The Port's facilities include eight marine berths and an adjoining waterfront industrial terminal, all of which support a wide variety of cargo handling activities. From dry bulk commodities, such as mining minerals and agricultural products, to steel products, wind energy components, and heavy-lift cargo, the Port of Longview's skilled and responsive workforce is ready to perform routine or customized services.

Over 70 acres of secure and improved outdoor storage space is immediately adjacent to the Port's maritime facilities. Undercover storage is also easily accessible, with over 100,000 square feet of on-dock transit shed space available for use. In addition to various mobile equipment options for cargo handling, the Port's two Liebherr mobile harbor cranes are each capable of heavy lifting services of up to 100+ metric tons.

### 4.3 Competition Among Ports

The Port of Longview competes heavily with other ports to attract cargo. Aside from other Columbia River ports, the Port competes with facilities all along the United States west coast and Gulf of Mexico for business. As business development representatives travel both internationally and domestically to meet with prospects, available rail capacity continues to be among customer's top priorities when selecting a port. The Port's ability to attract new business to the local community is contingent on its ability to handle the cargo more efficiently and cost effectively than the competition.

### 4.4 Operational Conditions

#### 4.4.1 Lines of Business

The Port has four lines of business that group assets with similar operational, financial and management characteristics into a common portfolio.

## Non-Leased Marine Terminals

Non-leased marine terminals are directly operated by the Port and are the backbone of Washington's Working Port. They are designed to handle commodities on a spot-market basis. Assets in the portfolio include terminals 6, 7, and 8.

## Leased Marine Terminals

The marine facility assets in this portfolio are operated by private entities through leases and operating agreements. Assets in the portfolio include Bridgeview Terminal, Terminals 4, 5, and 9, and Barlow Point.

## Non-Marine Industrial Development / Leased Properties Portfolio

These upland facilities, lands, and buildings are in the Port's core operating area and in close geographic proximity to the marine terminals. They can support the terminals or function independently. Approximately 147 acres of non-marine properties are leased or available for lease to private businesses.

## District-wide Commercial and Industrial Development

As the Port solidifies its financial capacity to expand its holdings, consistent with its mission and values, it will consider real property industrial and commercial investments distinct from its traditional lines of business. Investments in this future portfolio will financially support the Port's core business activities and community programs.

### 4.4.2 Overview of Port Operations

There are 75 ports in the state of Washington, each operating differently than the next, catering to various cargo imports and exports and interacting with diverse modes of transportation. All differences aside, Washington's ports all work to achieve the same goal, which is to transfer cargo safely and efficiently for their customers while benefiting the economy of their respective communities.

The Port and neighboring lower Columbia River ports also work by different business models, with the most distinctive difference being how the Port executes cargo handling operations. While other ports on the Columbia River, such as Port of Kalama and Port of Vancouver, lease docks to private companies or contract with outside companies to manage cargo handling, the Port retains local control of its docks and cargo operations.

The Port's unique position as an operating port, opposed to a landlord/non-operating port, brings with it great responsibility. The Port's operations department is responsible for determining how to strategically load and unload vessels, including managing equipment and labor needs to meet customers' expectations and timelines.

To keep operations rolling, the Port directly owns hundreds of pieces of cargo handling equipment maintained on-site by steady crews of ILWU longshore labor.

### 4.4.3 Local Longshoreman Labor Agreement

The working agreement between the Port and International Longshore and Warehouse Union (ILWU) Local 21 establishes that all cargo handling and equipment maintenance performed on Port property will be by ILWU labor. The agreement identifies categories of labor, qualifications, duties, rates by category by shift and by experience, as well as the minimum manning requirements for each operation at the Port. This agreement identifies working rules, minimum guarantees, and what constitutes overtime. The warehouse complex is located within ILWU jurisdiction for cargo handling work. Any use of these

buildings for that work, either by the Port or a Port tenant, is subject to the Working Agreement between the Port and ILWU Local 21.

#### 4.4.4 Trades Unions

The Port of Longview has a Maintenance Agreement with the Longview-Kelso Building and Construction Trades Council. This Trades Council represents the interests of a multitude of building trade Unions, including but not limited to the Laborer’s International Union of North America-Local 335, International Union of Operating Engineers-Local 701, Pacific Northwest Regional Council of Carpenters, International Brotherhood of Electrical Workers-Local 48, Plumbers and Steamfitter of Western Washington-Local 26, Road Sprinklers Fitters-UA Local 669 and the International Union of Painters and Allied Trades-District Council 5. The Maintenance Agreement defines the jurisdiction and work to be completed by the Trades Council members. Work includes the maintenance and repair of all Port owned existing facilities and in some instances the construction of new Port owned facilities.

#### 4.4.5 Environmental, Safety, and Homeland Security Regulations

The Port operates under a myriad of Federal, State, and Local regulations to ensure environmental compliance, worker safety, and Homeland Security protections. These regulations are integrated into the Port’s daily operating practices, as well as any projects the Port undertakes. Capital and operational expenses to ensure compliance are an on-going line item in the Port’s budget process. These expenditures change from year-to-year depending on new regulations, new economic development opportunities, and asset management.

**Environmental Compliance:** The Port has three state permits that directs everyday operations as described below. Additionally, other Federal, State, and Local regulations may include, but are not limited to, compliance regarding air emissions, storm and wastewater discharge, endangered species, hazardous or dangerous waste and transportation of said wastes, environmental cleanup actions, hazardous chemicals, protection of critical areas, such as wetlands, floodplains, critical aquifers, and geotechnical hazards, and federal and state environmental project review.

**Air:** The Port has an air emissions permit through the Southwest Clean Air Agency (SWCAA) that covers cargo handling, which includes baghouses, conveyor transition points, warehouse operations, and equipment/vehicles. Bridgeview Terminal and EGT have their own air emission permits. All new commodities or inquiries that are posed to the Port must go through an internal environmental air emissions review and may have to seek approval through SWCAA. New commodities vetted with the Port may require upgrades or new equipment for cargo handling, which require permit modification.

**Stormwater:** The Port has an Industrial Stormwater General Permit (ISGP) through the Department of Ecology. The ISGP is updated every five years and may require additional capital investment in stormwater infrastructure depending on the permit’s requirements. The Port has invested significant capital improvements to treat stormwater through low impact development and pump and treat infrastructure. As with air emissions, new commodities are vetted through the Port in an internal environmental review process to ensure compliance and may require upgrades to the Port’s stormwater system and/or treatment prior to discharge.

**Wastewater:** The State Wastewater Discharged Permit is also issued by Department of Ecology. The Port is required to reapply every five years. The Port has one permitted outfall and one outfall permitted by Bridgeview Terminal. Significant capital investment has been conducted at the Port’s outfall, Berth 7 treatment facility, to handle additional cargos and to bring in additional areas

for pre-treatment processing. Additional improvements are slated at this facility to afford the ability to discharge to the local public wastewater authority at a higher volume of discharge. The same internal environmental vetting is required to ensure compliance of bulk cargos. The Berth 2 wastewater treatment facility is also poised for significant upgrades to ensure the growing demand of throughput from the tenant.

**Dredging:** The Port holds programmatic federal, local and state permits for maintenance dredging of the Port's Berths 1 through 9 and the boat basin and launch area at Willow Grove Park. The permits allow for dredging over a 10-year timeframe except for the Washington Department of Fish and Wildlife Hydraulic Project Approval that has a 5-year timeframe for renewal. Berths 1, 2, 4, 5, 8, and 9 are maintained to a depth of 43 feet CRD and Berths 1A, 6 and 7 are maintained to a depth of 40 feet CRD. The permits held by the Port also allow for up to 2 additional feet of overdredge for advance maintenance (i.e., -43 CRD and -40 CRD plus 2 feet of allowable overdredge depth). The permits also allow for replacement of untreated wood fender piles that may be damaged during dredging (at Berths 1, 2, 5, 6, and 7). Sediment removal (maintenance dredging) at the Port's berths occurs approximately once per year and the specific areas dredged vary depending on where sediment has accumulated since the last dredging event. Dredging at the Willow Grove Park boat basin and launch area occurs less frequently and on an as needed basis. Dredged sediments are placed in the Columbia River at pre-approved placement sites in Washington and Oregon.

**Safety Compliance:** The Port operates a safe worker environment also through Federal, State, and Pacific Coast Maritime regulations.

Washington State Department of Labor and Industries, Department of Occupational Safety and Health administers the Washington State's Industrial Safety and Health Act. The Port complies with these regulations through their Accident Prevention Plan, Emergency Response Plan, Business Continuity and Trade Plan, and their training programs. The Pacific Coast Maritime Association (PMA) publishes the PMA Safety Code regulations pertaining specifically to safety of Longshore Labor. Investments in the Port's programs have resulted in new equipment for fall protection, confined space entry, and rail safety. Additionally, investments have been made in the emergency mass notification system which can alert workers in all areas of the port in the event of a port wide emergency via loudspeakers and text alerts.

**Homeland Security:** Security of United States ports of entry was established after the 9/11 attacks in 2001. The Port has a robust system in place to administer its requirements.

The Port is overseen for Homeland Security by the US Coast Guard and must abide by the provisions of MARSEC (Maritime Security). The Coast Guard employs a three-tiered system of MARSEC Levels designed to easily communicate to the Coast Guard and maritime industry partners pre-planned scalable responses for credible threats. If the Secretary of Homeland Security issues an alert, the Commandant of the U.S. Coast Guard will adjust MARSEC Level, if appropriate, based on the commensurate risk, any maritime nexus, and/or Commandant consultation with the Secretary of Homeland Security.

MARSEC Levels are set to reflect the prevailing threat environment to the marine elements of the national transportation system, including ports, vessels, facilities, and critical assets and infrastructure located on or adjacent to waters subject to the jurisdiction of the U.S. MARSEC Levels apply to vessels, Coast Guard-regulated facilities inside the U.S., and to the Coast Guard.

The Port has a designated Facility Security Officer which administers the Port's Facility Security Plan. This plan is sensitive security information and is approved by the US Coast Guard. Additionally, the Port's Emergency Response Plan follows the National Incident Management

System framework which affords a streamlined approach to emergency response, including terrorist acts. The Port's emergency mass notification system and port wide camera system are designed so that the Port is ready for emergencies and MARSEC level compliance.

## 4.5 Transportation Links

### 4.5.1 Road

The Port has direct truck and vehicular access to local City of Longview and Cowlitz County industrial developed public transportation routes, Washington State Highway Routes (SR) Industrial Way (SR432) and Oregon Way (SR433), as well as within 3-miles of the Interstate-5 corridor. Additionally, the Port owns and maintains approximately six miles of its own private network of internal roadways.

The intersection of SR432 and SR433 is heavily congested and the Washington State Department of Transportation, along with local government agencies and the Port, is working on improving this intersection. This project, called the Industrial Way/Oregon Way intersection Project<sup>2</sup> (IWOW), is designed to eliminate traffic backups as a result of three rail lines crossing with traffic at the intersection of Industrial Way (SR432) and Oregon Way (SR 433) by grade separating the roadway. By elevating the intersection, IWOW will improve mobility for everyone who travels through this heavily congested corridor. It will also provide better access to the jobs and businesses located on the banks of the Columbia River, including the Port.

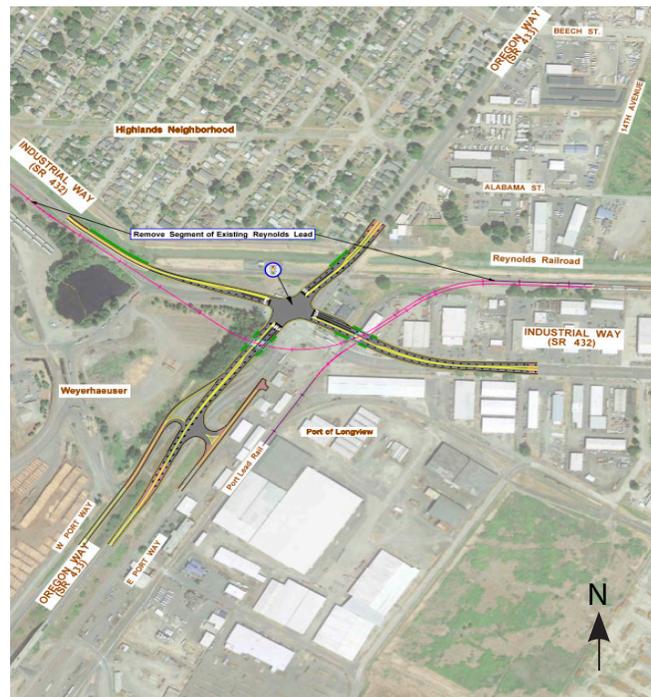


FIGURE 2. IWOW PROJECT

### 4.5.2 Rail

The Port of Longview developed a two-track corridor called the Industrial Rail Corridor (IRC) in 2004 to service their customers which allowed unit train delivery to the Port and eliminated several at-grade crossings. The Port is now in development of an industrial rail corridor expansion (IRCE), which will add a new six-track rail embankment, construct two of the six tracks at 8,500' in length and extend the corridor's existing two tracks by another 1,000'. The additional track lengths are intended to accommodate industry standard full length unit trains. The new rail embankment will extend from just east of the Longview Switching Yard, passing along the southern portion of an artificial log pond, and ending at the Fibre Way grade separated crossing. The IRC, and future IRCE, will continue to provide unimpeded unit train delivery to the EGT terminal, and neighboring industries that utilize IRC corridor.

The Port's internal rail system (west of the Fibre Way overpass) provides rail service to non-marine

industries along the rail system, including Port lease tenants and adjacent industries. The rail system also provides rail to Port terminals such as Bridgeview Terminal, Berth 5, Berth 6, and Berth 7. Berth 6 and 7 also have on-dock rail for offloading of cargos direct to rail. Rail to a future facility at Berth 4 is part of this plans alternatives analysis.

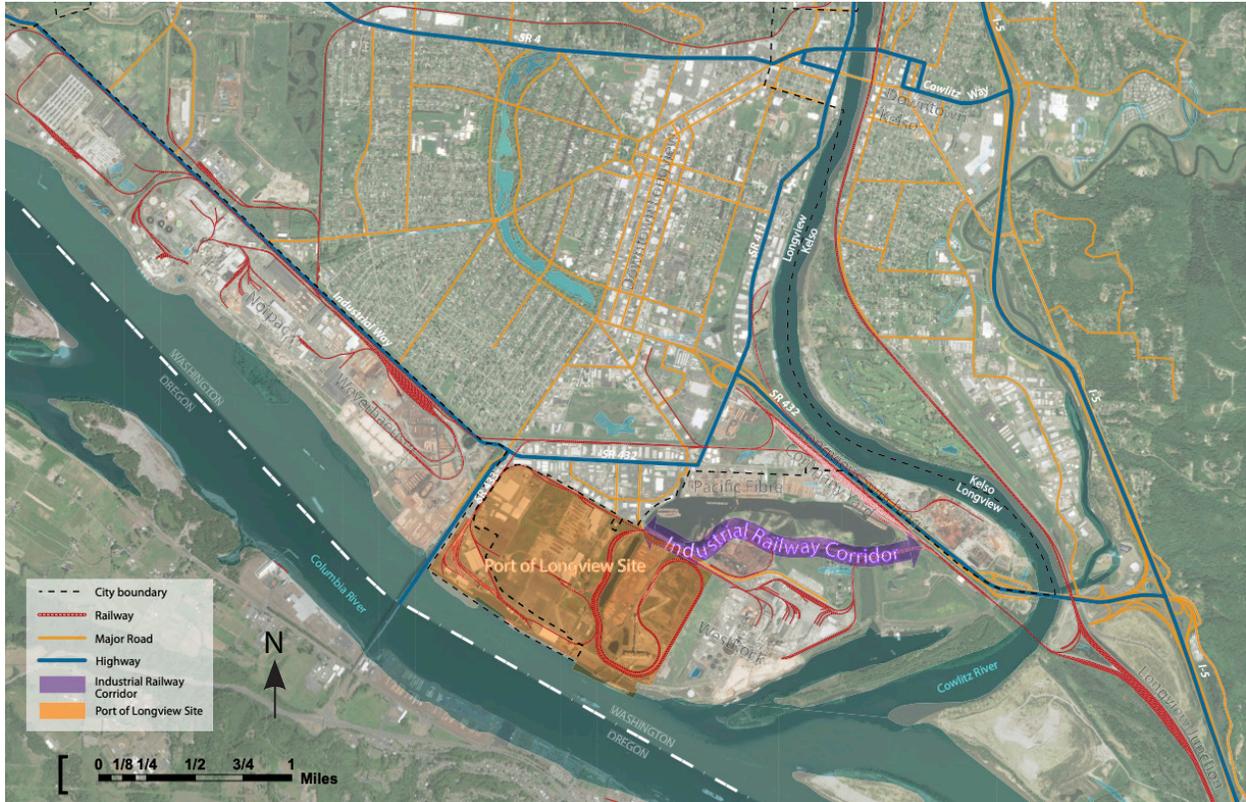


FIGURE 3. ROAD AND RAIL CONNECTIONS

Rail service to the Port is provided by two Class 1 railroads, BNSF Railway and Union Pacific Railroad (UPRR). Rail into the Port via the IRC diverges from the Longview Switching Company approximately 0.6 miles west of the Cowlitz River rail bridge and the Longview Junction. The Cowlitz River rail bridge is a single-track trestle which eventually will become a choke point for the Longview rail corridor system as a whole. However, to alleviate congestion until a second bridge or upgrade can be made to the current

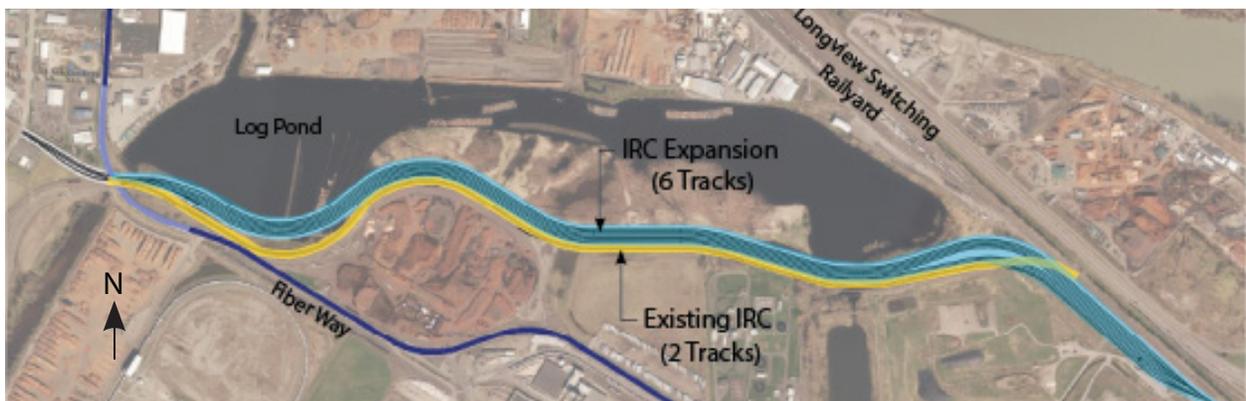


FIGURE 4. INDUSTRIAL RAIL CORRIDOR

structure, BNSF constructed interim improvements on the east and west side of the bridge to improve capacity between 2011-2014.

### 4.5.3 Air

The Southwest Washington Regional Airport (KLS) is located in the City of Kelso, within Cowlitz County in southwestern Washington. The airport lies along Parrott Way and Talley Way between the Coweeman and Cowlitz Rivers approximately two and a half miles northeast of the Port and one mile northwest of the Interstate 5/State Route 432 Interchange.

The City of Kelso is the owner (Sponsor) of the airport. An Airport Operating Board representing the City of Kelso, City of Longview, Cowlitz County, and Port of Longview oversees all operational aspects of the airport through an inter-local agreement between all four entities. Through the inter-local agreement, the airport operates as a stand-alone entity. However, as Sponsor, the City of Kelso is responsible for conforming to all applicable FAA regulations, design standards, and grant assurances. A full-time Airport Manager is staffed through the City of Kelso to oversee all airport operations. The Airport Manager is responsible for coordinating with the airport operating board on all airport related business.

The Southwest Washington Regional Airport started out as a grass landing strip on a dairy farm. In 1950, improvements were made, and the landing strip became a paved runway; in the 1960's material and labor were donated to build an administration building; and in 1983 there were major improvements on construction of a parallel taxi way and the reconstruction and realignment of the runway.

KLS accommodates a variety of aviation-related buildings including aircraft storage hangars, commercial hangars, and mixed-use hangars. An updated (2017) airport management count identified 67-based aircraft, including 55 single-engine aircraft, 3 ultralights, 6 multi-engine aircraft, 2 turbojets, and 1 helicopter<sup>3</sup>. The airport owns the land and provides ground leases for hangars and tie downs.

The continued operation of the Airport as a public airport is a benefit and service to the citizenry of the region and supports several public purposes including economic development and public safety, as well as improves opportunities for growth and alternatives for transportation.

### 4.5.4 Marine/Navigation

The Port of Longview is located on the deep-draft Columbia River at river mile 66; the Barlow Point property is located at river mile 62.

The Columbia River is 1,243 miles in length, with its final 647 miles in the state of Washington, and forms most of the boundary between the states of Washington and Oregon.

A strategic trade corridor for the nation and the region's link to world markets, the Columbia River trade route is the second-largest grain exporting river channel in the world and the point of embarkation for cargo originating from over 40 states.



FIGURE 5. COLUMBIA RIVER NAVIGATION CHANNEL

In 2010, the Columbia River Channel Improvements Project (CRCIP) was completed, resulting in a 103-mile 43-foot deep channel between Vancouver (RM 105.5) and the mouth of the Columbia River (RM 3). This additional 3 feet of depth enables ships to fully load at river ports. As one of the Non-Federal Sponsor Ports (along with Ports of Kalama, Woodland, Vancouver, and Port of Portland, OR.), the Port of Longview is in partnership with the United States Federal Government and the Portland District United States Army Corps of Engineers for the ongoing operations and maintenance dredging of the newly deepened channel. This includes partnership in development on the next 20-year dredge material management plan that is currently under way. As part of the partnership, the Sponsor Ports are obligated to share in the costs of securing upland disposal locations through long term easement agreements with public agencies or private entities, or purchase of property at key locations along the river.

Additionally, the Port works in partnership with the other Columbia River ports to aid in other navigation ways such as stern buoys and river gages. For example, in 2012, two anchor stern buoys were installed adjacent to the Port at river mile 67. These anchorages improve vessel safety on the river and allow vessels over 750-feet to securely anchor in the river as needed.

## 5. EXISTING CONDITIONS

### 5.1 Properties and Facilities

#### 5.1.1 Port Land Inventory

Since the inception of the Port of Kelso in 1921, the Port has continued to purchase, sell and exchange properties surrounding the 501.17-acre industrial marine facility. Properties purchased are strategic investments to ensure the Port can grow to provide the Port District with economic opportunities, recreational enjoyment, and be a steward to the environment. Properties are summarized below in Table 1. A detailed listing of Port land holdings is provided in Appendix A: Port Land Inventory. Maps identifying current Port holdings are located in Appendix B: Port Holdings Maps.

Port Property	Acreage
Industrial and Marine Properties	501.17
Barlow Point Property	301.00
Willow Grove Advance Wetland Mitigation Site	92.03
Willow Grove Park (in fee and PMA holdings)	95.09
Columbia River Navigation Project/Jointly Owned Property	892.57
<b>Total Port Property</b>	<b>989.29</b>
<b>Total Port Property w/Joint Ownership</b>	<b>1,881.86</b>

TABLE 1. PORT PROPERTY AREAS

#### 5.1.2 Port Marine Terminals

The Port has eight marine terminals, and one roll on-roll of dock (Ro-Ro). The berths and the Ro-Ro dock are equipped to handle, and store such commodities such as dry bulks, break bulks, forest products, wind energy parts, steel, and heavy lift project cargo.

Four of the eight berths are leased facilities and handle bulk export products, three berths are multi-cargo berths that provide for import and/or export of dry bulk, break bulk, and project cargos. One berth is primarily used as a layberth as the Port is preparing the upland area associated with the berth for future redevelopment. The Ro-Ro allows for import/export of barged cargos.

The Port has a continuous berth length (or harbor line) of 6,546 linear feet. Marine terminal logistics capabilities are summarized below in Table 2.

Location	Terminal Operator	Vessel Capacity	Overall Length	Berth Height	Draft	Rail/Truck Access	Covered Storage	Staging Open Storage	Wastewater Treatment
Berth 1 and Berth 2	Intl Raw Materials	Panamax	1,472'	30' CRD	-43' CRD	Yes	Transit Sheds 2 & 3	Staging	Yes - Berth 2 only
Berth 4	Port	Panamax	1,151'	30' CRD	-43' CRD	Yes	No	No	No
Berth 5	British Petroleum (BP)	Panamax	724'	20' CRD	-43' CRD	Yes	Silos	NA	Yes

Location	Terminal Operator	Vessel Capacity	Overall Length	Berth Height	Draft	Rail/Truck Access	Covered Storage	Staging Open Storage	Wastewater Treatment
Berth 6	Port	Panamax	1,404' (B6/7 continuous)	30' CRD	-40' CRD	Yes	Transit Shed 6	Yes - 70 acres	No
Berth 7	Port	Panamax	1,404' (B6/7 continuous)	30' CRD	-40' CRD	Yes	Transit Shed 6	Yes - 70 acres	Yes
Ro-Ro	Port	Barge	96'	22' CRD	-40' CRD	Truck	NA	Yes - 70 acres	No
Berth 8	Port	Panamax	617'	30' CRD	-43' CRD	Truck	No	5 acres	No
Berth 9	EGT	Panamax	1082'	22' CRD	43' CRD	Rail	Silos	NA	No

TABLE 2. MARINE TERMINAL LOGISTICS

Table 3 summarizes the loading capacity of the vessel berths at the Port:

Berth	Allowable Uniform Load (psf)	Allowable Wheel Load (k)
1	350	13.0
2	750	55.0
2 (Face/Track Area)	750	40.0
5	750	40.0
6	750	55.0
7	750	55.0
8	750	18.5
9	40	8

TABLE 3. BERTH LOADING CAPACITY

### 5.1.3 Terminal Storage and Warehouse Complex

The Port supports inbound and outbound domestic and foreign shipments with storage areas located close to the berths and within a warehouse complex. Situated within the secure perimeter of the Port is 367,616 square feet of indoor space available for storage bulk storage and transloading operations. Terminal storage is summarized below in Table 4.

Warehouse	Location	Area (SF)	Rail Access
Transit Shed 2	Berth 1	24,049	Yes
Transit Shed 3	Berth 2	41,052	Yes
Transit Shed 6	Berth 6	100,800	Yes
Warehouse 10	Storage	100,915	Yes
Warehouse 11	Storage	100,800	Yes

TABLE 4. TERMINAL STORAGE

The outer warehouse complex provides approximately 1,258,000 square feet of open storage and 372,930 square feet of covered storage, as summarized in Table 5.

Warehouse	Area (SF)	Rail Access
Warehouse 13	48,000	No
Warehouse 14	68,880	No
Warehouse 18	256,050	Yes

TABLE 5. WAREHOUSE COMPLEX COVERED STORAGE

The Port uses several warehouses for Port use only which includes, a millwright shop, utility shop, sandblasting shop, and designated waste storage. Characteristics of these warehouses are summarized in Table 6.

Warehouse	Area (SF)	Rail Access
Warehouse C, D, E	62,800	No
Warehouse 20A	20,735	No
Warehouse 21	19,560	No

TABLE 6. WAREHOUSE STORAGE - PORT USE ONLY

#### 5.1.4 Port Industrial Development: Leased/Development Opportunities

Along with active terminal operations, the Port has several industrial properties and berths which have been leased to companies that are complimentary to Port terminal activities. Several of the companies utilize the Port's terminals and rail system to facilitate their movement of goods. These uses are summarized in Table 7 and Table 8.

Company	Acres/Square Feet	Location	Facility
Brown Strauss	15 acres/40,000 sq. ft.	Panel Way	Steel Distributor
Skyline Steel	35 acres/156,000 sq. ft.	International Way	Steel Pipe Manufacturer
US Cellular	1 acre/6,520 sq. ft.	International Way	Business Office
US Customs	<1 acre / 2,775 sq. ft.	Port Way	Customs Office
TBD	20,000 sq. ft.	International Way	Cold Storage
PNW Metals	11,797 sq. ft.	Port Way	Business Office (Riverview Place)

TABLE 7. UPLAND INDUSTRIAL LEASED PROPERTY

Company	Acres	Location	Facility
International Raw Materials (Bridgeview Terminal – Berth 1 and 2)	20.26 acres	Port Way	Export Facility
British Petroleum (Berth 2)	2.96 acres	International Way	Export Facility
Export Grain Terminal (EGT)	48.95 acres	East Mill Road	Export Facility

TABLE 8. LEASED BERTHS AND ASSOCIATED UPLAND PROPERTY

Additionally, the Port has vacant industrial land either ready for development or in the process of planning for future development. These properties are listed in Table 9.

Acres	Location	Rail/Marine Access
7 acres	International Way	Nearby
49 acres	East Mill Road	Nearby
7 acres	Berth 4	Yes
35 acres	Warehouse Complex	Yes/Nearby
4.7 acres	Warehouse 8 Area	Yes
301 acres	Barlow Point	To be Developed

TABLE 9. EXISTING VACANT PROPERTY DEVELOPMENT OPPORTUNITIES

### 5.1.5 Port Properties: Community/Mitigation

#### Public Access/Recreational Property

The Port assumed ownership of the Willow Grove Park and Boat Launch property from Cowlitz County in 2016. Along with the ownership of park parcels, the County’s lease with the Washington State Department of Natural Resources (DNR) was transferred to the Port. In 2018, the Toppola Pit, a dredge material placement and borrow pit commonly associated with the Park (farthest downstream parcel) was deeded from the County to the Port in 2018. Since the assumption of ownership, the Port has incorporated the DNR state-owned properties into the Port’s Management Agreement.

#### Willow Grove Advance Wetland Mitigation Site

The Port purchased the Willow Grove property in four acquisitions: 1959, 1965, 1974, and 2018. The properties purchased between 1959 – 1974 were originally purchased for industrial development and included parcels within the wetland complex and uplands. However, since that time, local, state and federal environmental laws and regulations have made development exceedingly more difficult, and financially not feasible.

Therefore, the Port reevaluated the use of the property and determined to sell the upland parcels but to retain the wetland acreage. The upland properties were sold to individual landowners. In 2008, the Port transferred 75 acres of wetland property to Columbia Land Trust (CLT). The property transferred was used for wetland mitigation in association with the construction of the Alternate Rail Corridor (a.k.a. Industrial Rail Corridor). Also, in 2008, the Port sold 237 acres to CLT retaining the option to allow the Port to utilize the property for future wetland impacts. During these transactions, the Port retained 77.59 acres for future wetland mitigation. Additionally, in 2018 the Port purchased 15.73 acres adjacent to the Port’s 77.59 acres and property sold to CLT property.

In 2014, the Port began developing an advanced wetland mitigation plan (Plan) in coordination with the Department of Ecology, the United States Army Corp of Engineers, Portland District, and CLT. In 2019, the Port signed an Agreed Order with the Department of Ecology to implement the Plan. This Plan provides the opportunity for the Port to mitigate wetland impacts associated with development on other Port property.

#### Legacy Contamination Site Cleanup

The Port has two legacy contamination cleanup sites, each with its own unique challenges. Both sites harken back to the beginning of the development of the City of Longview area and the waterfront as an industrial growth engine for the region. The sites are also located in key areas that the Port is planning

on future development, and therefore, careful selection of remediation options is necessary to ensure the Port District's assets are used to their highest and best use. The Port engaged in a lawsuit beginning in 2010 with its past insurance companies to ensure the Port had a financial pathway to move the cleanup of these sites forward as the Port plans for its future. The Port's success in that lawsuit leaves the Port in a good position to ensure that the contamination of these sites is remediated, the health and well being of its employees and constituents is protected, and the future growth of the Port and the use of its assets are not constrained. For additional information regarding these sites, refer to Legacy Contamination Site Cleanup, Section 10.6.3.

## 5.2 Rail Operations

Rail service to the Port is provided by both Class 1 railroads, BNSF Railway and Union Pacific Railroad. Rail into the Port via a two-track industrial rail corridor that diverges from the Longview Switching Company approximately 0.6 miles west of the Cowlitz River rail bridge and the Longview Junction. The Cowlitz River rail bridge is a single-track trestle which could eventually become a bottleneck for rail service on the IRC and throughout Longview. The Cowlitz River Bridge is owned and operated by BNSF and further evaluation of replacement or expansion of the bridge is under the auspices of BNSF; however, with the expanded rail siding, BNSF estimates the bridge can accommodate up to an additional four, round trip unit train movements daily. The rail network in the vicinity of the Port is depicted in Figure 3.

In general, freight rail movements into the Port pass through two yards, Longview Interchange Yard (LIY) and Longview Switching Yard (LSY), after leaving the mainline and before entering the Port. Connections are either via the IRC or by the Reynolds Lead. Two IRC tracks expand to seven and those seven are collectively referred to as the S tracks, and they provide access to the central Port complex and to EGT. The IRC also connects to a pair of tracks just after Fibre Way, and those tracks continue along the north side of the Port with siding connections to neighboring properties before turning south and continuing along the west side of the Port. Along the west side of the Port the tracks are interconnected through a series of switches and crossovers known as "Switch Alley". There is a connection at the south end of Switch Alley to two tracks that run along the north perimeter of Warehouses 10 and 11. The remaining tracks continue south before splitting into the storage and working tracks that serve Berths 1 and 2.

A total of seven relatively short storage tracks occupy the southwest corner of the Port near Berth 2. These tracks are stub-ended (thus limiting operations to push-and-shove) and blocked by the existing Berth 4 Silo Complex. Three tracks, north of the storage tracks, pass through the Berth 4 Silo Complex and join the two tracks that run north of Warehouses 10 and 11. These two tracks continue eastwards along Berth 5 and connect to the S tracks near Berth 8. Just east of Berth 5, one track connects to three on-dock stub-ended tracks on the waterside of Transit Shed 6 fronting Berths 6 and 7.

An additional track runs east to west along the north of the upland laydown area. The track connects just north of Warehouse 10 and splits into a wye as it crosses International Way where it connects to the S tracks.

Movements to and from the Port are performed by the Longview Switching Company (LSC). Typically LSC moves cuts of railcars into and out of the Port, but individual Port tenants have the capability to move smaller cuts of railcars within certain areas of the Port (loading/unloading individual cars for example). Generally, LSC moves railcars to and from Bridgeview Terminal and Berth 5 using tracks along the north and west sides of the Port, and moves railcars to and from Berths 6, 7 and 8 using the S-curve tracks. LSC typically moves railcars to and from the Port once daily, generally in the afternoon between 3 PM and 5 PM.

### 5.2.1 Industrial Rail Corridor and Expansion

The Port developed an Industrial Rail Corridor (IRC) in 2004 to service their current and future customers. The 1.5-mile IRC allows trains bound for the Port to arrive without long waits or interrupting vehicular traffic.

The IRC has been an integral part of Port planning and marketing efforts and an attraction for current and new business interests. Due to the current demand for unit train service versus manifest service, increased interest in Port redevelopment, as well as potential utilization of the corridor to access Barlow Point once the IWOW interchange (see Section 4.5.1) is raised, the Port will continue the planning and design of an expansion of the IRC. In its current status the IRC and internal tracks consist of approximately 20 miles of track. Port owned and tenant owned switch engines and car movers make railcar transloading, ship-to-rail and rail-to-ship options possible.

## 5.3 Transportation and Circulation

The Port has direct truck and vehicular access to local City of Longview and Cowlitz County industrial developed public transportation routes, Washington State Highway Routes (SR) Industrial Way (SR432) and Oregon Way (SR433), as well as within 3-miles of the Interstate-5 corridor. Additionally, the Port owns and maintains approximately six miles of its own private network of internal roadways.

Vehicular traffic to and from the Port has peaks in the morning and afternoon, and remains relatively high midday. Vehicle traffic can access the Port using International Way, North Tie Road, Terminal Way, and Panel Way.

Level of service analysis completed in 2020 showed that the five signalized study intersections near the Port currently operate at acceptable levels of service.

The intersection of SR432 and SR433 is heavily congested and the Washington State Department of Transportation, along with local government agencies and the Port, is working on improving this intersection. This project, called the Industrial Way/Oregon Way intersection Project (IWOW), is designed to eliminate traffic backups as a result of three rail lines crossing with traffic at the intersection of Industrial Way (SR432) and Oregon Way (SR 433) by grade separating the roadway. By elevating the intersection, IWOW will improve mobility for everyone who travels through this heavily congested corridor. It will also provide better access to the jobs and businesses located on the banks of the Columbia River, including the Port.

Regional transportation planning is led and administered by the Cowlitz-Wahkiakum Council of Governments (CWCOG). CWCOG develops the Transportation Improvement Program (TIP), assists in the allocation of federal Surface Transportation Program (STP) funds, and updates the Metropolitan Transportation Plan. CWCOG, as the designated Regional Transportation Organization, awards funding to agencies within the five-county area for the Transportation Alternatives (TA) Program.

### 5.3.1 High, Wide and Heavy Movements

The Port specializes in handling high, wide, and heavy, project cargo at berths 6, 7, 8, and the roll on roll off (RORO) dock. Therefore, the Port, along with several industry leaders, initiated the High Wide Heavy (HWH) Coalition<sup>4</sup>. This Coalition is committed to establishing a designated corridor through the Pacific Northwest that accommodates the movement of over dimensional cargo - like wind energy, transformers, and other project cargo. HWH members work alongside state and local government

<sup>4</sup> [HTTPS://HWHCORRIDOR.COM](https://hwhcorridor.com)

leaders and departments of transportation to identify constraints within transportation routes and find solutions that benefit both cargo and communities

Each year, the region loses significant business opportunities because infrastructure constraints like bridges, overpasses, and utilities prevent the movement of these loads. A safe and efficient corridor provides customers the certainty they need to reliably move cargo to markets and contributing to the Pacific Northwest's economy.

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## 6. PORT FINANCIAL POLICIES, STRENGTH, AND BUDGETING PROCESS

### 6.1 Financial Policies

The Port of Longview Board of Commissioners adopted financial policies for the Port in 2017. These policies are modeled after those recommended by the Government Finance Officers Association (GFOA) and are designed to guide the organization and its elected officials in fulfilling their duties to conduct the Port's business in a manner that promotes strong stewardship of public funds while providing stability and continuity in sound financial management. These policies are intended to:

1. Institutionalize good financial management practices.
2. Clarify strategic intent for financial management. Financial policies define a shared understanding of how the organization will develop its financial practices and manage its resources to provide the best value to the Port of Longview.
3. Define limits on the actions staff may take. The policy framework provides the boundaries within which staff can innovate in order to realize the Port's strategic intent.
4. Support good bond ratings and thereby reduce the cost of borrowing.
5. Promote long-term and strategic thinking.
6. Manage risks to financial condition.
7. Comply with established public management best practices.

The Finance Department and other designated departments of the Port have developed procedures that are used to implement these policies.

Sections of the financial policy cover the Port's operating and capital budget. Each year the Port staff presents a one-year detailed budget for all revenue and expenditures included in an operating budget and capital budget. Staff also provides information on a five-year forecast of revenue and expenditures along with a five-year cash flow forecast. This forecast along with a 5-year capital improvement program determines the upcoming affordability of projects. The capital projects are prioritized in order to determine funding levels for the upcoming budget year in the following order:

1. **Regulatory Requirements:** This category includes safety, security, and environmental requirements.
2. **Revenue Renewal:** Projects developed to renovate or replace obsolete or aging revenue-producing assets. These projects serve to extend existing revenue streams and may offer additional revenue if replacements enhance the efficiencies of operations or offer additional capabilities or value. The Port has designated Port-generated operating cash or revenue bonds to fund most of these projects and also may use capital leasing through equipment suppliers or financial institutions.
3. **Revenue-Generating:** Projects developed for a specific customer that will result in a new revenue stream. The Port has designated Port-generated operating cash and revenue bonds to fund most of these projects.
4. **Infrastructure:** Projects developed to enhance infrastructure, support multiple or future customers or to enhance public infrastructure. Funding comes from Port-generated operating cash, the property tax levy, and general obligation bonds or revenue bonds. They often are complex in nature, with multiple public agencies involved in the planning process and execution.

The next five years of financial data and list of capital projects for the Port demonstrate that the projects outpace the available funds from projected revenues, as shown in Figure 6. The Port must either take on additional debt, obtain outside funding sources, reduce investment, adjust taxation rates, or some combination.

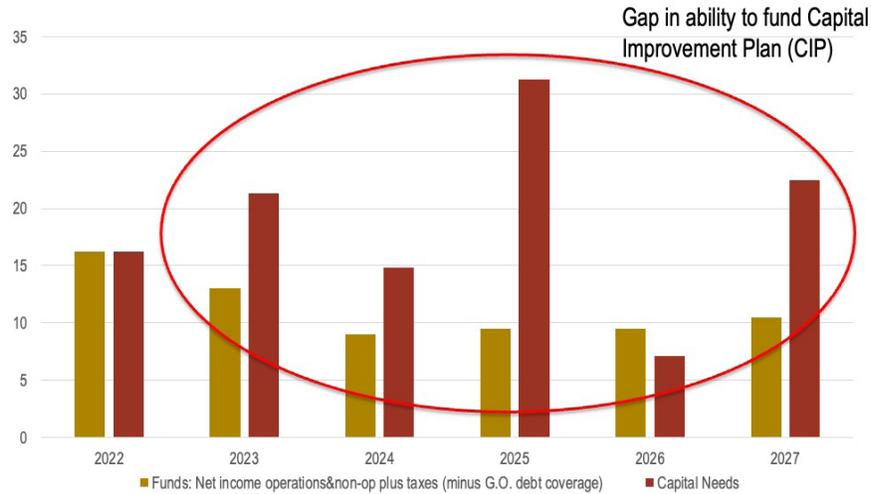


FIGURE 6. CAPITAL PLANNING - FUNDING

The good news is the Port is in good financial standing to take on debt if that route is decided. As shown in Figure 7, the Port’s revenues and net income from operations have increased since 2011. The Port heavily invested in capital starting in the early 2000’s. This resulted in the development of Berth 8 and Berth 9. Berth 9 became the Export Grain Terminal (EGT) and started operating in 2012. Net from operations increased from an average of \$2 million per year to \$8 million per year.

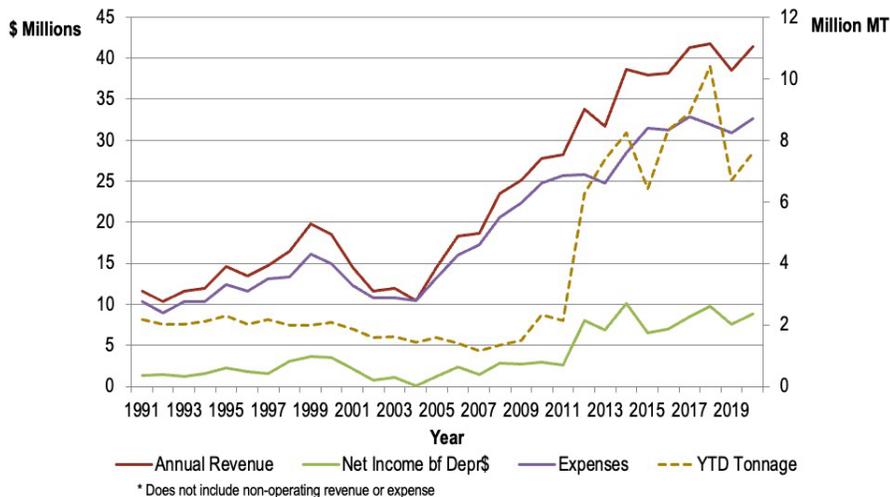


FIGURE 7. TONNAGE, REVENUE AND EXPENSE SUMMARY, 1991-2020

With this success, the Port has made strides in reducing debt. As shown in Figure 8, the Port’s debt has decreased from \$49 million in 2013 to \$9 million by the end of 2020. All of this current debt will be retired by 2030.

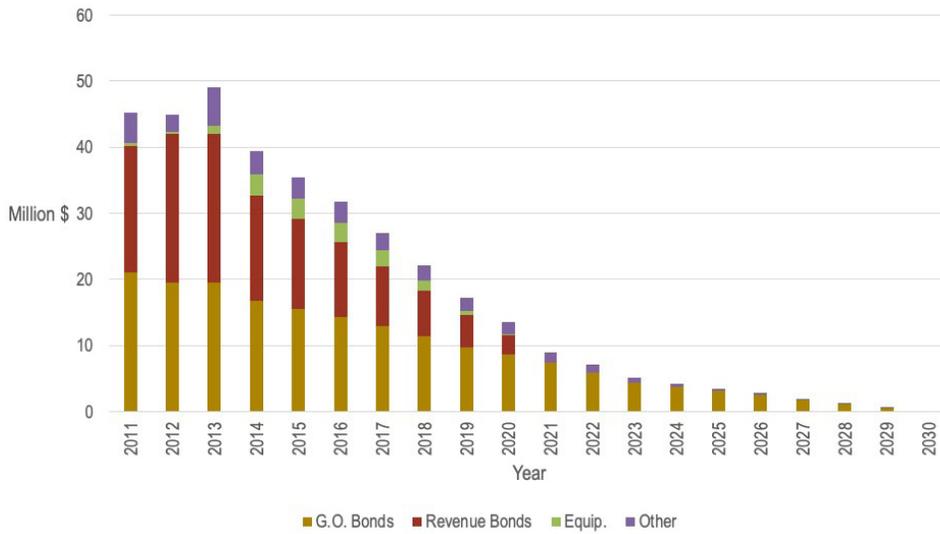


FIGURE 8. HISTORIC DEBT - DEBT SCHEDULE

## 6.2 Financial Strength

### 6.2.1 Return on Equity

Return of Equity (ROE) is one indicator of an enterprise’s profitability and potential growth. Privately owned or publicly owned enterprises that boast a high ROE with little or no debt are able to grow cash reserves, allowing the owners of the enterprise to use the cash to make new investments in growth opportunities. For the Port, ROE shows its ability to generate profit from its net assets (equity). The Port has increased its ROE from less than 1% in 2011 to more than 5% in each of the last four years. Increased revenue (and net profit margin) have been the main drivers to the improvements in ROE along with the reduction in the equity multiplier.

An examination of factors that contribute to the increase of ROE indicates the following points:

**Operating Revenue** has increased significantly from \$28.2 million in 2011 to \$41.4 million in 2020. Operating Revenue is the total revenue a port receives each year from the sales of goods and services. This includes only the operating portion of revenue and, as such, excludes non-operating revenue such as levied taxes and grants.

**Net Profit Margin** has increased from 2.5% in 2011 to more than 16% in each of the past four years. Net profit margin is after-tax profit a port generated for each dollar of revenue and is defined as the ratio of net income to revenue. Generally, higher profit margins are preferred but firms may make a conscious decision to lower profit margins in order to drive higher volumes.

**Total Assets** increased from \$112 million to \$148 million in 2020, demonstrating that the Port is utilizing its assets more effectively over time by generating more revenue per dollar of assets. Total assets are economic resources owned by ports and used for generating income. Net assets is the value of the ports assets after deducting all liabilities.

**Asset Turnover Rate** has increased from 25% in 2011 to 27% or more in each of the last 9 years. Asset turnover rate is the ratio of total revenue to total assets and represents how effectively a port converts its assets into sales.

**Equity multiplier** has decreased since 2011, from 1.49 to 1.27. This means that debt and liability compose less than ¼ of the total assets based at the Port.

Table 10 provides ROE of the Port over time, along with the financial indicators that contribute to ROE performance.

Financial Indicator	Year									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Revenue (\$million)	\$28.277	\$33.802	\$31.703	\$38.582	\$37.972	\$38.177	\$41.321	\$41.744	\$38.493	\$41.477
Revenue Growth	1.8%	19.5%	-6.2%	21.7%	-1.6%	0.5%	8.2%	1.0%	-7.8%	7.8%
Net Profit Margin	2.5%	15.2%	14.9%	23.3%	14.1%	11.7%	20.4%	20.9%	17.6%	16.1%
Asset Turnover Rate	25.3%	29.6%	27.3%	32.0%	30.0%	29.4%	30.9%	30.1%	27.1%	26.5%
Equity Multiplier	1.49	1.44	1.38	1.35	1.34	1.28	1.23	1.18	1.14	1.27
Return on Equity	0.9%	6.4%	5.6%	9.7%	5.6%	4.3%	7.6%	7.3%	5.4%	5.0%

TABLE 10. FACTORS CONTRIBUTING TO RETURN ON EQUITY

### 6.2.2 Financial Performance Measures

The Port tracks several other factors to monitor and improve financial performance. An examination of these factors indicates the following trends:

The Port’s **operating margin** has increased since 2011 with the increase in revenue from Berth 9, Bridgeview Terminal and steel operations. This has allowed for larger investment in capital projects; this can be seen in the large capital budgets in the past few years.

Operating margin is the ratio of operating income to revenue and is measured as a percentage. This measures management’s ability to maintain profitability. Profits enable the Port to reinvest in new capital projects.

The Port’s **net income** has increased significantly since 2011 from \$1 million to an average of \$8 million. Net income is defined as the difference between revenue (operating and non-operating) and expenses (operating and non-operating). Net income measures the ability of the Port to pay for its operations.

The Port’s **net income before tax levy (NITBL)** has varied over the years depending on how the commission votes on the tax levy and the amount of debt in that year. NITBL measures the Port’s ability to generate revenue sufficient to pay for all operating and non-operating expenses. And leaves the net tax levy (levy amount in excess of annual debt service) to pay for infrastructure improvements.

The Port’s **return on assets** has increased since 2011 showing that indeed the Port has used its assets (facilities and equipment) efficiently. Return on assets measures how much the Port earns on each dollar it has invested into its assets and therefore, measures the productivity of the Port’s assets.

The Port’s **debt to asset ratio** has decreased significantly since 2011. This is a result of the Port paying off its debt and its increase in assets. Debt to asset ratio is a financial ratio that indicates the percentage of an enterprise’s assets that are provided via debt. The lower the number the less assets funded by debt. The higher the ratio, the greater the risk is associated to the Port’s operations. A high debt to assets ratio may indicate low borrowing capacity, which in turn will lower the Port’s financial flexibility.

The Port’s **debt service coverage ratio** prior to refunding its revenue bonds in early 2020, had been maintained (had covenanted with bondholders to maintain) each year in an amount at least equal to 1.25 (125%) of annual revenue bond debt service. Debt service coverage ratio measures the ability to repay debt. The higher the ratio the less risk which may result in a higher bond rating and a lower interest rate. Port bond covenants required a coverage of 1.25 when the Port had revenue bonds. (The Port refinanced in 2020 and revenue bonds were refunded and “rolled in” LTGO debt.)

Table 11 below summarizes the Port’s performance relative to these indicators over the last ten years.

Financial Indicator	Year									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Operating Margin (OI/OR) %	0	15	12	19	9	9	13	16	12	11
Net Income (\$million)	\$1.015	\$5.136	\$5.286	\$9.216	\$6.015	\$7.141	\$8.421	\$9.179	\$6.836	\$7.684
Net Income Before Tax Levy (NIBTL) (\$million)	-\$2.689	\$2.988	\$2.713	\$5.364	\$1.589	\$0.889	\$5.388	\$6.246	\$4.334	\$4.388
Return on Assets %	0.9	4.4	4.5	7.4	4.7	5.4	6.2	6.5	4.8	4.5
Debt to Asset Ratio %	28.1	27.6	24.8	22.8	20.0	17.0	13.5	10.2	7.7	4.9
Debt Service Coverage Ratio %	1.41	3.04	3.34	4.96	3.73	4.04	5.42	5.20	4.59	— <sup>1</sup>

TABLE 11. INDICATORS OF FINANCIAL PERFORMANCE

Notes:

1. There is no Debt Service Coverage Ratio for 2020 because the Port re-financed its debt in 2020 and no longer has revenue bonds which require a Debt Service Coverage Ratio.

### 6.3 Budgeting Process

The Port’s budgeting process requires, on average, five months to develop and approve through the Board of Commissioners. Port budgets are required by state law to be submitted to their respective Counties by the first Tuesday in December.

The general budget fund reflects ongoing, non-capital expenses. This fund’s budget is developed on a yearly basis to meet the needs of the Port in that upcoming year. General funds support the analysis required for decision making and policy direction. The capital budget is a five-year plan that reflects the direction the Port’s Board of Commissioners sets through the Strategic Business Plan. Port budget documents are available on their website.

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## 7. RELATED STUDIES AND REPORTS

Since the 2011 Master Plan was completed, the Port has continued to develop plans and reports (Plans) for various aspects of port operations and future development. The Plans identified in this section and Section 10 were evaluated in respect to this overall planning effort. Therefore, these documents, or amendments to these Plans, are incorporated into this update by reference. Additionally, future development of plans and reports will be an outcome of this planning effort to further refine the alternatives proposed in Section 9 and/or facilitate potential development discussed in Section 10.

### 7.1 Strategic Business Plan

In 2012, and again in 2016, the Port's Board of Commissioners engaged in a strategic planning effort to set priorities and the direction for the Port of Longview. In 2016, the Board evaluated how the Port could be more efficient and effective in management of its resources and promote economic development. The Board chose to realign the Port's way of thinking strategically through three different program areas. This repositioning of the way the Port analyzes business provides a transparent path forward. The Strategic Business Plan set's the Ports goals and strategies within the timeframe of the document. However, the impacts reach far beyond the lifetime of the document. Therefore, the Strategic Business Plan is reviewed annually during the budgeting process, as well as updated every three to five years. The Strategic Business Plan is now being updated concurrently with the development of this Master Plan and Comprehensive Scheme of Harbor Improvements.

### 7.2 Master Plan Report

In 2011, the Port developed a master plan report which included analysis and recommendations on a several key areas including: market analysis/competitive position, current capacity and utilization of marine terminals, rail capacity from the BNSF mainline and Longview Switching, administration building relocation, alternate port entries, redevelopment of the Port's underutilized marine terminals and properties, and evaluation of industrial lands for long term development opportunities. Many of the findings in the Report have or are being implemented. Master Plans are typically reviewed every 10 years dependent on the progress of implementation or change in economic conditions. This study is meant to update the Master Plan to reflect the progress that has been made since 2011, and changes in the economic and business conditions that have evolved.

### 7.3 Berth 4 Redevelopment Strategy Report

Redevelopment of Berth 4 began with the 2011 Master Plan Report. Preliminary planning and engineering to redevelop the old Continental Grain Facility was designed in a phased approach. Phase I started in 2012 and included the removal of the existing Berth 4 dock and construction of a layberth. The layberth was designed to ensure future development could incorporate the base berth structure. The project included development of a mitigation strategy with State and Federal agencies to ensure the Port's efforts to remove the dilapidated dock structure would be accounted for as mitigation for future developments. Discussion on this strategy is provided in the Environmental Stewardship section. The Berth 4 structure was demolished between years 2014 - 2015. Construction of the layberth began in 2015 and was completed in 2016.

Phase II of the project began in 2017 and was focused on the demolition of the grain silo facility. Grant funding was awarded by the Department of Ecology in 2018 to help fund the Phase II work, with an expanded evaluation on redevelopment activities including rail concepts throughout the internal Port property. The rail concepts are discussed later in this document under the Rail and Roadway section. Phase II included preliminary redevelopment planning, analysis of recycle/reuse/salvage of materials, environmental investigations, engineering, cost estimates, bid documentation, and permitting. Final permitting for silo removal is expected in 2022.

## 7.4 Barlow Point Master Plan Phase 1 Feasibility Study and Subsequent Evaluations

The Port purchased the 275-acre Barlow Point property (refer to Appendix C) in October of 2010 additional purchases of 7.5 and 18.5 acres were completed in 2012 and 2021 respectively. This site was purchased for future industrial development; however, in the meantime, the Port reinstated its historical use of farming. Restoration of the site for farming activity took many years, beginning in 2011. The site is now fully farmed through a farming contract.

This property is the last vacant greenfield industrial site, with deep draft vessel capabilities, on the Columbia River. The property is located within the city limits of Longview and has a zoning and comprehensive plan designation of heavy industrial. The site is adjacent to State Route 432 and has access to BNSF right-of-way.

In 2014 and completed in 2016, the Port began a master planning feasibility analysis. Phase I of the analysis was to help determine the full potential of Barlow Point for one or more marine terminal facilities. The feasibility study was to determine potential future uses of the site, issues associated with potential development, and a rough order of magnitude of costs base on the site design. The study included a market analysis, conceptual layouts based on market demand, and technical studies based on the preferred conceptual plans. The technical studies included land use and zoning, surface transportation, rail infrastructure, civil utilities, stormwater, power, marine structures, dredging, geotechnical conditions, environmental impacts, and public access. Since the conclusion of the study, planning and engineering work have continued to prepare the site for future development.

## 7.5 Port's Management Agreement

Port Districts have been given the legal authority to manage certain aquatic lands owed by the state. These aquatic lands need to abut uplands that are owned, leased, or managed by the Port. The Port manages these lands through an agreement with the Washington State Department of Natural Resources called a Port's Management Agreement (PMA). The Port entered into a PMA with DNR in 1988 and amended that agreement in 2021 to include additional aquatic lands along its berths, Barlow Point waterfront, and certain areas at Willow Grove Park. The Port is responsible to manage these aquatic lands using the state's aquatic land management laws and regulations and takes on the role as the land manager for the people of the state of Washington. General land management goals of the state are to encourage direct public use, public access, water-dependent uses, ensure environmental protection and utilize renewable resources. Generating revenue is consistent with these goals and is considered a public benefit.

## 7.6 Transportation Optimization Plan

The Port conducted a rail and vehicle/truck analysis in 2020, branded TOPs (Transportation Optimization Plan), to better understand the interface between the Port's current rail and roadway infrastructure and proposed improvements. The analysis included an assessment of current rail infrastructure and operations, planned improvements currently undergoing design and engineering, as well as potential infrastructure improvements and rail traffic growth that could occur as a result of growth or addition of industrial activities and operations. The primary objective of the analysis was to determine how freight movement and efficiency could be sustained in a broad range of scenarios, while minimizing rail and vehicle/truck traffic conflicts internally and externally at the Port. This analysis illustrated the need for a future vehicle overpass into the Port at the point in which regular intact unit train service is established at the Port.

## 7.7 Industrial Water System Plan

The Port developed the Industrial Water System Plan (IWSP) in 2017 as a requirement of the Port's industrial water rights issued by the Department of Ecology, as well as asset management infrastructure planning. The Port holds both groundwater and surface water rights at the Port proper, Barlow Point and Willow Grove Park. The IWSP demonstrates development plans for the use of the water rights, as well as capital improvements needed to exercise those rights.

## 7.8 Comprehensive Park Plan

The Port assumed the Willow Grove Park from Cowlitz County in 2015. A year long, public planning process was conducted to determine the vision for the park. The Park Plan outlines short and long-term capital improvements based on the community's input. The Park Plan is updated as needed to be in line with the state of Washington's Recreation Conservation Office grant funding opportunities and to ensure the community's vision is still reflected.

## 7.9 The Local and Regional Economic Impacts of the Port of Longview

The Local and Regional Economic Impacts (EIA) analysis was conducted in 2018. The Port updates the EIA approximately every five years. This analysis provides a snapshot of the Port's contribution of employment and income of individuals, tax revenues to local and state governments, customs fees to the federal government, and revenue to businesses engaged in handling, shipping and receiving cargo via the port.

## 7.10 Other Plans

The Port has prepared and regularly updates several plans which guide operations, these plans are described in Planning Elements, Section 10.

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## 8. FACTORS AFFECTING DEMAND FOR PORT DEVELOPMENT

Port volumes on the Pacific West Coast are dependent on not only economic conditions, but also on government policies related to specific sectors in the United States and abroad. For example, domestic policies related to wind power generation has helped grow imports of wind energy components, and the possibility of a sawlog export ban imposed by the Russian government may cause buyers to seek other sources. However, other government policies may hinder trade – such as the law that prohibited the export of logs obtained from federal lands in the 1990s that pushed exports of unprocessed timber to historically low levels.

These are just a few examples of external economic policy risks that ports must be prepared for when developing master plans. Table 12 provides historical volumes of Port tonnage by major category. As can be seen, the Port handles a diverse group of commodities and cargos and there is a large degree of volatility within each commodity category; however, as certain commodity volumes have declined, others have increased, resulting in relatively less volatility in overall tonnage.

Commodity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020E
Dry Bulk Import/Export	191,981	146,445	38,082	43,089	36,097	48,737	57,953	105,291	46,988	28,462
Calcined Coke Import	45,177	30,783	15,256	56,932	60,917	83,452	50,059	60,444	55,263	65,707
Foreign Steel Import	5,218	17,222	25,301	80,574	89,224	157,371	137,831	245,138	239,912	192,762
Project Cargo	3,205	29,944	0	9,182	27,091	21,466	17,242	9,105	14,937	23,992
Logs	905,198	530,654	858,125	690,389	448,732	423,370	629,337	499,110	328,454	246,760
Soda Ash (Berth 2)	233,742	262,095	415,415	379,705	569,004	227,813	578,278	560,026	669,159	520,746
Calcined Coke Export (Berth 5)	736,104	543,048	846,265	687,744	734,598	717,585	807,694	742,275	767,732	713,805
Grains (EGT)	0	4,680,140	5,147,563	6,277,123	4,444,770	6,625,540	7,172,139	8,100,382	4,515,802	5,812,788
<b>Total (million tons)</b>	<b>2.12</b>	<b>6.24</b>	<b>7.35</b>	<b>8.22</b>	<b>6.41</b>	<b>8.31</b>	<b>9.45</b>	<b>10.32</b>	<b>6.64</b>	<b>7.61</b>

TABLE 12. HISTORICAL VOLUMES OF PORT TONNAGE BY MAJOR CATEGORY

Diversification with respect to the number of different commodities a port can process is a fundamental way to lessen the risk of volatility within individual commodity categories. The flexibility and adaptability of Port operations and facilities have been and will likely remain key advantages in the Port's ability to secure, maintain and grow diverse cargo shipping activity. The Port also has the marine berths, backland and transportation links required to compete for significant expansion of existing commodity trade or attraction of new commodity trade.

To understand the opportunities to maintain and increase the diversification of commodity shipping at the Port, a series of market assessments and tonnage forecasts were performed for commodities currently processed at the Port and for existing and prospective commodities that could be transported by unit train.

### 8.1 Wind Energy

Wind power development has historically been dependent on the availability of federal- and state-sponsored programs designed to encourage development. Future capacity increases (at least in the short

term) are dependent on the renewal of existing programs or the introduction of new ones. Uncertainty in this area results in unpredictable annual capacity increases as investors take advantage of programs that may expire.

Wind power development in the short-term (3-4 years) is expected to remain strong. Wind power development in the longer-term is quite indeterminate for a number of reasons:

- Uncertainty in the availability of federal or state incentives.
- Investment in transmission infrastructure is required to access remote wind resources.
- Offshore wind power, solar power, and other renewable energies are evolving and over time may disrupt the buildout of traditional land based domestic wind farms.
- Domestic production of wind components continues to increase. Assuming continued wind energy market growth, it can be expected that both domestic and foreign-based firms will take advantage of domestic manufacturing opportunities to reduce transportation costs.
- Tariffs on import wind components may drive additional domestic production limiting the need to import.
- Repowering aging wind farms will continue to drive limited amounts of business.

## 8.2 Steel and Metal Products

Steel manufacturing and remanufacturing occurs at numerous ports in the Pacific Northwest. The Port of Longview is currently home to three remanufacturers/distributors: Skyline/Nucor Steel, Cascadia Steel/North American Pipe (NAP), and Brown Strauss Steel.

### Imports

Import steel is subject to tariff action and quota restrictions. Market supply and demand drive domestic and international rates which influence import volumes. Domestic steel importers must balance demand with tariff and quota schemes to stay in compliance which can limit growth of import steel commodities.

**Forecast:** Long-term import steel volumes are expected to be flat based on commodity price fluctuation and quota caps.

### Exports

Scrap metal as an input into steel production is important, with approximately 40% of world steel production using the Electric Arc Furnace (EAF) process. The U.S. is the world leading exporter of scrap metal.

Many Pacific Northwest ports, such as Portland, Longview, and Tacoma also have steel scrap recycling export facilities. Schnitzer Steel exports out of the Port of Portland, Metro Metals exports out of the Port of Vancouver, and PNW Metals exports out of the Port of Longview.

PNW Metals has steadily grown their export volume through the Port of Longview. As of 2021, they are in the process of moving to a newly acquired site adjacent to the port warehouse complex. The new site will give PNW Metals the ability to see continued export growth through the Port.

**Forecast:** Steady growth for long-term scrap steel exports.

## 8.3 Raw Log Exports

PLS International, part of the Port Blakely Companies, closed their doors in 2020 and vacated its land due to poor sawlog markets throughout Europe and China. Several ex-PLS employees have started Northwest Forest Link which is currently queuing logs across the Columbia River at Teevin Terminal and then NW Forest Link trucks the logs across the bridge to the Port of Longview for export. NW Forest Link is a fledgling company, but they plan to grow upwards of 1 vessel per month. Log vessels requires significant labor for loading, greatly benefiting the ILWU work force.

Sawlog prices have been unstable from 2018 through 2021 based on a bark beetle infestation throughout Europe which has caused a glut of available wood that must be milled in a limited time frame before the logs become degraded and of no value. Russia has been a leading log exporter for decades, although this may come to an end in 2022 with the enactment of log export bans by the Russian government.

A proposed export ban will immediately impact global trade flows of logs and lumber. China, the world's largest sawlog importer, may be forced to explore new supply regions including the U.S. China will likely shift from predominately importing round logs to a greater emphasis on importing sawn lumber.

Sawlog markets have always been cyclical and tend to rise and fall with global economies. There are multiple export log competitors in the Pacific Northwest including Ports of Olympia, Grays Harbor, and Weyerhaeuser. However, the Port of Longview's location on the Columbia River and access to private timber supplies make the Port a desirable location for exporting logs.

**Forecast:** Long-term log exports are expected to continue to be cyclical in nature, but these exports are critical for the Port to keep a diversified portfolio.

## 8.4 Bulk Minerals

The Port continues to grow its export bulk minerals business through International Raw Materials (IRM) at Bridgeview Terminal. IRM handles most of the bulk minerals at the Port and has steadily grown their export tonnage from 500,000 metric tons in 2018, 2019, and 2020 to 800,000 metric tons in 2021 with a forecast of 1.5 million metric tons per year from 2022 through 2025.

The growth in tonnage is based on an average increase in market demand for soda ash of 3%, Solvay's plan to increase its soda ash production capacity by 600 kilotons at its trona-based Green River site in Wyoming, and Ciner's exit from ANSAC which will send additional capacity through IRM for export. Ciner is also building a new mine that should be completed between 2025 and 2027 which will bring on additional production capacity.

Soda ash exports will likely hover between 1 million metric tons and 1.5 million metric tons between 2022 and 2025. Once Ciner builds its west coast export facility, volumes through the Port may dip to 800,000 metric tons. However, IRM and the Port should still expect year over year growth of 3% as a long-range forecast.

Export bulk mineral competition on the Columbia River is challenging. The Port of Portland has major facilities to handle large quantities of potash and soda ash through its agreements with Canpotex and ANSAC. These two commodities make up the vast majority of bulk mineral shipments through Pacific West Coast ports.

Given the relative concentration of mining operations for potash (Saskatchewan) and soda ash (Wyoming) in western North America, along with demand growth in Asia (principally potash demand),

west coast ports are positioned well in terms of lowest cost transportation to principal markets.

There are plans for future potash mine site development and expansions. BHP Billiton is actively pursuing development of its proposed Jansen mine with a planned operating capacity of 4.35 million tons per year. In 2021, BHP dedicated \$7.5 billion in capital expenditures for the Jansen Mine project which is approximately 140 kilometers east of Saskatoon.

BHP signed a deal with Westshore Terminals in Delta, B.C., to handle the Jansen Mine potash that will be shipped to export markets.

**Forecast:** Potash will continue to export through major terminals in Portland, and Vancouver, BC, but the Port of Longview will also see unit trains of potash from time to time as the supply chain becomes congested.

## 8.5 Bulk Chemicals

Bulk chemicals are major commodity group handled at the Port, accounting for over 50% of total throughput. There has been stable growth of shipments of bulk chemicals at the Port over the last 20 years.

Calcined coke export is the largest bulk chemical shipped through the Port, continuously reaching over 800,000 tons per year. BP's Cherry Point refinery provides a large and steady export demand of calcined coke through the Port. BP also imports calcined coke to blend with Cherry Point coke for high grade export.

**Forecast:** The outlook of bulk chemicals at the Port indicates modest growth over the next 10 years; the growth rate is largely constrained by the production capacity at the Cherry Point refinery.

## 8.6 Empty Container Handling

During periods of high demand for containerized products, west coast ports are unable to process empty containers coming back to the west coast from the interior US. This provides the opportunity to handle limited amounts (<200) of empty shipping containers to relieve stress on the supply chain by helping to reposition the containers.

Handling empty containers will help the port to diversify its cargo portfolio.

**Forecast:** The short-term forecast, 3-5 years, is strong but would require capital infrastructure investments from a stevedore and beneficial cargo owner.

The long-term forecast would be cyclical based on the needs of the supply chain but setting up the infrastructure to handle the containers will be the key to long range success.

## 8.7 Green Energy

2022 has brought about several worldwide environmental initiatives that has consumers and producers alike rethinking their carbon footprint. Banks have started restricting access to capital unless companies have an environmental plan that includes major carbon reduction by 2030 to 2050.

Many customers are looking for heavy industrial zoned greenfield sites to build green energy parks. They are looking at small modular reactors, green hydrogen, ammonia, wind, and solar projects to reduce reliance on carbon for local markets and to offset the carbon footprint of manufacturing.

The port continues to work with potential customers on the highest and best use of Barlow Point to potentially accommodate a green energy park.

**Forecast:** Demand is increasing and will likely continue to increase during the next 10 years. These projects are generally large scale and require years of planning and are very site specific. For this reason, even with high demand it may take several inquiries over many years to get a project that can move forward to completion.

## 8.8 Break Bulk and Project Cargo

Project cargo is large over dimensional, heavy-duty, high value, or complex pieces of equipment. Project cargo requires attention to detail.

Project cargo is the one of most complex kinds of transportation in the logistics industry. Typical challenges include time constraints, tight delivery dates, and safety requirements, which is why such cargo requires the most detailed shipment plans. Project cargo shipments and oversized goods require multiple modes of transportation to get to their final destination and oftentimes include special accommodations like road surveys, rail surveys, or police escort.

The Port has 3 general purpose berths and a roll on roll off berth. These berths are used to import and export breakbulk and project cargo. These cargos include but are not limited to wind components, large industrial components, transformers, yachts, plywood, steel, pipe, batteries, products in super sacks, and many other large dimensional products.

Break bulk and project cargos require a highly skilled labor force, pre-planning, coordination, and communication to successfully handle the cargos. Oftentimes, there can be 4 to 6 different companies managing multiple aspects of the project. The port communicates with each company to coordinate every aspect of the cargo's movement.

Breakbulk and project cargo opportunities require a substantial amount of labor to manage the cargo. These opportunities generate jobs at the berth as well as jobs to handle receipt and delivery which is moving the product from the port's transit sheds, warehouses, or laydown area to rail or truck.

Many of these opportunities originate from the Pacific Rim. Which is why the port spends a significant amount of time developing a network of freight forwarders, producers, beneficial cargo owners, heavy haul companies, surveyors, and shipping lines to capture as many breakbulk and project opportunities as possible.

**Forecast:** Breakbulk and project cargos track the economy, so the port tends to get many inquiries during a robust economy and see these inquiries wane when there are disruptions in the market.

## 8.9 Market Assessment of Existing and Prospective Commodities Transported by Unit Train

### 8.9.1 Analysis of Commodities Markets

The Port conducted a market analysis to identify, analyze and forecast the export (or import) flows of dry bulk cargoes – excluding hydrocarbon-based commodities such as coal and petroleum coke – that are or could be transported in unit train quantities, on a regular basis, to or from ports within the Pacific Northwest (PNW) region, and in particular, to or from Longview. The market analysis report is included in

## Appendix G.

Table 13 below indicates the annual tonnages since 2010 of the highest-volume dry bulk cargoes moving through US West Coast ports.

Commodity	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020E	CAGR
Grains <sup>1</sup>	21.47	23.17	18.64	15.24	20.46	18.64	24.67	25.77	33.79	20.85	25.81	1.9%
Oil Seeds Etc. <sup>2</sup>	11.86	9.46	13.47	12.73	15.27	14.22	16.64	15.12	9.51	14.42	15.73	2.9%
Inorganic Chemicals	3.39	3.57	3.86	4.08	3.70	3.45	3.99	4.59	4.79	5.17	4.21	2.2%
Wood Products	5.84	7.95	6.79	8.34	8.19	6.11	6.43	6.46	5.90	4.51	3.87	-4.0%
Iron and Steel	5.58	6.58	5.35	4.85	3.99	3.53	2.89	3.53	4.18	3.39	3.12	-5.6%
Fertilizers	2.55	2.64	1.69	2.14	2.56	2.18	1.49	2.88	3.63	3.20	3.24	2.4%
<b>Total</b>	<b>50.70</b>	<b>53.38</b>	<b>49.81</b>	<b>47.38</b>	<b>54.16</b>	<b>48.12</b>	<b>56.11</b>	<b>58.34</b>	<b>61.79</b>	<b>51.53</b>	<b>55.98</b>	<b>1.0%</b>

TABLE 13. TOTAL DRY BULK EXPORTS BY MAJOR COMMODITY MOVING VIA US PACIFIC COAST PORTS - MT (MILLION)  
SOURCE: US CENSUS FOREIGN TRADE DATA

## Notes:

1. Primary Products Wheat and Corn
2. Primary Products: Soybeans, Flour and Meal of Oilseeds

Agricultural products, including grains and oil seeds, are estimated to have accounted for over 70% of the aggregate export tonnage through US Pacific Coast ports in 2020. Inorganic chemicals, consisting primarily of soda ash, is the next-highest commodity group.

After fertilizers, the next largest commodity group is salt/sulfur/cement, which collectively accounted for only 1 million tons. Even if all the tonnage in this group was generated by one commodity (either salt or sulfur or cement), the tonnage is not sufficient to support unit train movements several times per week.

Based on historic export and import volumes and the objective of identifying commodities that could be transported in unit train quantities, the market analysis for exports was focused on the six commodity groups in Table 13.

Regarding imports, there are no dry bulk commodities, other than cement, being imported via US Pacific Coast ports with annual tonnages of more than 1 million tons. Although annual cement imports total nearly 2.2 million tons, less than 45% moves through Pacific Northwest ports, the balance is moved through Northern California ports. The latter flows are generally used in local construction and are unlikely to be divertible to Pacific Northwest ports. Consequently, the market analysis was targeted exclusively on export commodities.

## 8.9.2 Grains

### Wheat

A significant portion of US winter wheat is harvested in Washington and Oregon and a significant portion of the spring wheat harvest in the US is produced in states along the US-Canadian border (Montana and North Dakota).

Ports in Washington and Oregon handled all the wheat that was exported from US Pacific Coast ports in 2019. This is due in part to the fact that a significant portion of winter wheat is harvested in these two states and a significant portion of the spring wheat harvest in the US is produced in states along the US-Canadian border (Montana and North Dakota).

Over 97% of the wheat exported from the USA to Asia moves through Pacific Northwest ports, consequently, opportunities for Pacific Northwest ports to capture wheat shipments to Asia away from California, Gulf Coast, or East Coast ports are minimal.

South America is the second largest market for US wheat exports. Geographic factors make it difficult for Pacific Northwest ports to capture more shipments of Midwest-origin wheat bound for South America because transportation through Pacific Northwest ports would incur higher transport costs and longer overall transit time when compared to a supply chain route consisting of a Mississippi River barge to loading on an ocean-going vessel on the Gulf Coast.

The third largest market for US wheat exports is Africa. Over 94% of US wheat exports to Africa are processed through Gulf Coast ports, there may be opportunities to divert a portion of these volumes for export through the Pacific Northwest, particularly those destined for eastern or southern Africa.

## Corn

Production of corn in the US is heavily concentrated in states with relatively easy access to the Mississippi-Missouri waterway system and barge services on that system.

Exports to Northeast Asia account for nearly 45% of all US corn exports. Pacific Northwest ports handle 55% of the exports to Northeast Asia, while the remaining 45% is handled by Gulf ports. Currently, more than 98% of corn exports through Pacific Northwest ports are destined for this market, primarily Japan, South Korea and Taiwan. Pacific Northwest ports have not captured a significant portion of the corn exports to any other region.

Combined exports to South America, Canada and Mexico represent 52% of the US export market. Pacific Northwest ports handle essentially no corn exports to these markets. Marine exports for these markets nearly all pass through Gulf Coast ports, a pattern that is heavily influenced by the ability for corn exporters to use lower cost barge service to deliver Midwest origin corn to several Gulf ports, along with shorter ocean shipping distances to major destination countries in South/Central America and Mexico. The comparative costs of the supply chain routes will make it difficult for Pacific Northwest ports to capture more volume to South/Central America and Mexico

Almost all the corn shipped from the US West Coast was moved through ports in Washington and Oregon, and roughly two-thirds of that volume was shipped through the terminals on the lower Columbia River. Through 2018, the ports in Washington handling this product experienced strong tonnage growth. For example, Vancouver and Longview were not handling corn exports to Japan as late as 2011, but by 2018 both handled over a 1.0 million MT. There may be opportunities for the Port of Longview to capture larger volumes of corn exports destined for Northeast Asia.

### 8.9.3 Oilseeds

Among oilseeds, soybeans comprise the bulk of US oilseed export volume. Similar to corn, production of soybeans in the US is heavily concentrated in states with relatively easy access to the Mississippi/Missouri waterway system and barge services on that system.

Northeast Asia represents 63% of the US soybean export market. While Gulf Coast ports handled 69% of the total Northeast Asia export market, Pacific Northwest ports handled 30% of the Northeast Asia exports and their volumes have strengthened in recent years. Ports in Washington and Oregon are natural gateways for soybeans grown in North Dakota and South Dakota and destined for export to Northeast Asia. There may be opportunities to divert soybean exports from certain states, such as Iowa, through the Port of Longview. However the supply chain costs of routing these shipments by rail would need to be competitive with the costs of barge shipping through the Gulf.

### 8.9.4 Inorganic Chemicals

The primary product in this commodity category is soda ash (HS-2836), which generated 95% of Inorganic Chemical shipments from US Pacific Coast ports in 2018. Portland is the primary export gateway for soda ash shipments, but Longview increased its volume from zero in 2010 to 616,000 MT in 2019.

US soda ash exports increased from 5.1 million MT in 2007 to 7.0 million MT in 2019, or about 37%. According to the USGS, US domestic soda ash production reached a record-high 12 million MT in 2017 and remained at that level through 2019, before dropping to 10 million MT in 2020<sup>5</sup>.

Global demand for soda ash is expected to grow at more than 2% per year, or by about 1 million tons annually, according to market analysts.

The US soda ash industry is comprised of four companies in Wyoming operating five plants and one company in California with one plant. The plants in Wyoming account for approximately 90% of US soda ash production and are located within 25 miles of one another in the southern part of the state, and all the tonnage destined for export through the Pacific Northwest is moved through ports served by the UPRR.

The Port is well positioned, in terms of inland transport costs and ocean shipping costs, to capture growing exports of soda ash to Asia in volumes that would be transported by unit train.

### 8.9.5 Fertilizers

More than 99% of the potash shipped out of Pacific Coast ports in 2018 moved through the Port of Portland. The majority of potash exported through Portland comes from mines in central Saskatchewan, Canada operated by Canpotex. Canpotex's subsidiary, Portland Bulk Terminals LLC, has a long-term lease to operate a dry bulk facility at the Port of Portland's Terminal 5. A recently completed expansion project increased capacity from 3.5 million MT to 7.5 million MT per annum.

Approximately one-quarter of the potash produced in the US is from Utah, with the remainder being produced in southeastern New Mexico. The potash produced in southeastern New Mexico is used exclusively for domestic purposes or for export to Mexico and is not exported through West Coast ports. Very little potash is exported from Utah through the Port of Portland or elsewhere on the lower Columbia River, but there could be opportunities to attract export flows of potash from Utah by leveraging the favorable rail access.

Demand for potash in the Indo-Pacific region is expected to exhibit strong growth in the years ahead, driven by the need to increase farming yield to meet the rise in food consumption due to population growth.

There are two potential opportunities to attract potash tonnage to the Port: Development of new potash mines in Saskatchewan by non-Canpotex producers which cannot be handled at dry bulk terminals in British Columbian ports; and growth in exports to Asia from potash mines in Utah.

### 8.9.6 Wood Pellets

#### Characteristics and Production

Wood pellets are primarily comprised of some combination of sawmill residues (sawdust and woodchips); low grade roundwood; forest thinnings; branches, tops, and bark and occasionally small

<sup>5</sup> USGS MINERAL INDUSTRY SURVEY, DECEMBER 2020

quantities of agricultural residues; end of life timber; short rotation forestry; and diseased wood. These materials are compressed into pellets of uniform size, but there are differences in both the heating value (British thermal unit/pound - Btu/lb) and ash production.

Wood pellets are typically not shipped by bulk carriers larger than 50,000 deadweight tons (DWT) because the propensity for wood pellets to sustain damage increases with both the falling distance during loading and the weight of the overburden. It is feasible for a terminal with a single dock that is capable of handling handymax vessels to be able to load 2 million MT per year (one vessel call per week). If the terminal is not co-located with the pellet manufacturing plant, and is served by rail, this would equate to around three 100-car unit trains per week.

Wood pellets are consumed in three major markets – home heating (pellet stoves), industrial power (small-scale boilers provide power for industrial operations), and large-scale thermoelectric power plants. Home heating and industrial consumers tend to consume the least expensive pellets available. Large-scale, coal/biomass co-fired thermoelectric power plants demand the highest-grade wood pellets.

Global production/consumption of wood pellets has more than doubled since 2012, growing from just over 18 million MT to more than 37 million MT. This equates to a compound annual growth rate of 12.9%.

Europe is both the largest producer as well as the largest consumer. In terms of production, North America is next in line, but whereas Europe consistently consumes significantly more wood pellets than it produces, North American wood pellet consumption is only a small fraction of pellet production. Wood pellet consumption in Asia is greater than production, and though the Asian consumption market is currently small relative to Europe, it is growing extremely fast.

## Asian Imports

Imports of wood pellets in Asia grew at an annual rate of 68% between 2012 and 2018, primarily in Japan and South Korea. Exports are dominated by Vietnam, which accounts for around 70% of all Asian exports. Malaysia accounts for half of the remaining exports. Korea and Japan account for almost all Asian wood pellet imports. South Korea sources nearly all its wood pellets from other countries in Asia (primarily Vietnam and Malaysia), by contrast, Japan sources around 60% of its wood pellets from North America (Canada) and only 40% from other Asian countries.

The rapid rates of growing demand have been associated with the relatively new phenomenon of supplementing or replacing coal as a fuel source in coal-fired thermoelectric power plants.

## Government Policies Promoting Biomass and Asia Wood Pellet Demand

In an effort to curb carbon emissions, many governments across the globe have in recent years designed and enacted policies that promote biomass and other forms of renewable fuel/energy for electricity production. Incentivizing power producers to switch from coal to wood pellets is accomplished through some combination of carrot (subsidies) and stick (penalties) incentives. Wood pellets are just one, albeit critically important, form of biomass used for electricity generation.

Japan imported nearly 650,000 MT of wood pellets from North America in 2018. These imports were sourced solely from Canada even though the US exports more than twice the tonnage of wood pellets. This reflects the fact that there are no wood pellet export facilities on the Pacific Coast. Wood pellets for industrial power use is a very recent market development, and the Canadians were simply the first to identify the opportunity for the Pacific Coast (North America). The lack of a facility on the US Pacific coast is not a reflection of a competitive disadvantage of any sort.

In addition to wood pellets, a significant quantity of biomass waste from the forestry and construction

industries is consumed in Japan, and both Japan and South Korea import significant quantities of palm kernel shell (PKS), which is a by-product of palm oil production. Only wood pellets and PKS have properties suitable for co-firing in coal plants, which has and will continue to drive imports of both.

Co-firing or substituting wood pellets in power plants initially designed to burn coal is wholly dependent on government policy because wood pellets are more expensive per MWh than coal.

Located within a few miles of Port of Longview there are at least four mills operated by various parties: Weyerhaeuser mill (adjacent property), SDS lumber and NW Hardwoods. A paper mill operated by WestRock is also located nearby. There are no pellet export terminals in the state, and ample local supplies exist for one or more large pellet plants. This presents an opportunity for Port of Longview.

### 8.9.7 Conclusions

Diversification with respect to the number of different commodities a port can process is a fundamental way to reduce risk. The Port has the land and facilities necessary to entertain opportunities for expansion of existing commodity trade or the advancement of new sources of revenue.

Markets currently served by the Port including grains, logs, breakbulk, bulk chemical, wind power, green energy and steel are poised for steady growth and remain critical for the diversification of the Port.

Expansion of markets for soda ash, potash, and wood pellets all present opportunities for further growth and diversification. Capturing one or more of these opportunities that would utilize unit trains for transportation will allow the port to fully utilize all berths, and it will position the port for future growth.

## 8.10 Evaluation of the Port's Competitive Position

The Port conducted a competitiveness analysis to identify the Port's relative position in the unit train bulk commodity market share compared to other ports serving its existing and potential markets. The competitiveness analysis focused on other PNW ports, including Columbia River, British Columbia ports, Grays Harbor, Puget Sound, and Oregon Coast ports. The purpose of the analysis was to determine markets for which the port has realistic and sustainable competitive advantages, and to identify how competitive advantages could be incorporated into development of potential Master Plan alternatives.

As discussed in the Market Analysis section, there are a discrete set of dry bulk commodities excluding hydrocarbons moving in sufficient quantities to and from Pacific Northwest ports to support unit train operations.

This group of commodities includes export grains and oil seeds, and export fertilizers/inorganic chemicals - particularly potash and soda ash. Neither wood pellets, other wood products, scrap steel, other steel products, nor cement/aggregates are moving in sufficient tonnages and/or for sufficient inland distances to support unit train operations.

The competitiveness analysis is focused on profiling and assessing the existing dry bulk terminals in the Pacific Northwest region that would compete with a prospective new bulk terminal at the Port of Longview. However, it must be noted that Prince Rupert's northerly location and the respective route network configurations of the CN, BNSF, and UPRR make it uncompetitive as a gateway for grain products originating in most areas of the United States, as well as for soda ash originating in Wyoming. Conversely, it is difficult for Puget Sound and Columbia River ports to compete with Vancouver, BC for grain products originating in Canada's Prairie Provinces.

Terminals in the few small ports along the Oregon Coast such as Coos Bay are excluded from this analysis because they lack the harbor, terminal, and rail infrastructure for efficiently handling long unit trains and/or Panamax ships.

### 8.10.1 Ports and Terminals Handling Grains and/or Oil Seeds

Terminals handling grains or oilseeds are located at seven Pacific Northwest ports. The most competitive terminals offer berth depths of 43 feet or more, rail service from two Class I railroads, efficient access to highways and on-site rail track for efficient receiving, processing and departure of units trains. Table 14 provides a summary of characteristics for these terminals.

Port	Terminal	Berth Water Depth (ft)	Rail Service	Qualitative Comparison to Potential Longview Terminal	
				Rail and Road Connectivity	Train Arrival/Unloading/Departure
Seattle	Dreyfus	43	BNSF	Far Inferior	Inferior
Tacoma	TEMCO	70	BNSF and UPRR	Inferior	Inferior
Grays Harbor	Ag Processing	40	Puget Sound and Pacific	Far Inferior	Comparable
Kalama	Kalama Export	40	BNSF and UPRR	Comparable	Comparable
	TEMCO	40	BNSF and UPRR	Comparable	Inferior
Vancouver WA	United Grain	43	BNSF	Inferior	Inferior
Portland	Columbia Grain	43	BNSF	Far Inferior	Inferior
	TEMCO	40	UPRR	Inferior	Far Inferior
	Dreyfus	40	UPRR	Inferior	Far Inferior
Vancouver BC	Vancouver Wharves	45	CP and CN	Far Inferior	Comparable
	Neptune	51	CP and CN	Far Inferior	Comparable
	G3	49	CP and CN	Far Inferior	Comparable
	Richardson	50	CP and CN	Far Inferior	Far Inferior
	Cargill	51	CP and CN	Far Inferior	Inferior
	Viterra-Cascadia	48	CP and CN	Comparable	Inferior
	Viterra-Pacific	44	CP and CN	Far Inferior	Far Inferior
	Alliance	45	CP	Far Inferior	Far Inferior
Fraser	38	CP, CN and BNSF	Inferior	Inferior	

TABLE 14. PORTS AND TERMINALS HANDLING GRAINS AND/OR OIL SEEDS

### 8.10.2 Ports and Terminals Handling Inorganic Chemicals and/or Fertilizers

Terminals handling grains or oilseeds are located at four Pacific Northwest ports. Similar to the terminals handling grains, the most competitive terminals offer berth depths of 43 feet or more, rail service from two Class I railroads, efficient access to highways and on-site rail track for efficient receiving, processing and departure of units trains. Table 15 provides a summary of characteristics for these terminals.

Port	Terminal	Berth Water Depth (ft)	Rail Service	Qualitative Comparison to Potential Longview Terminal	
				Rail and Road Connectivity	Train Arrival/Unloading/Departure
Portland	Canpotex - Terminal 5	40	UPRR	Inferior	Comparable
	Kinder Morgan - Terminal 4	40	UPRR	Inferior	Inferior
Prince Rupert BC	Ridley Terminals	65	CN	Inferior	Superior
North Vancouver, BC	Neptune	44 and 50	CP and CN	Comparable	Comparable
Port Moody, BC	Pacific Coast Terminals	42	CP and CN	Inferior	Inferior

TABLE 15. PORTS AND TERMINALS HANDLING INORGANIC CHEMICALS AND/OR FERTILIZERS

### 8.10.3 Summary of Competitive Strengths and Weaknesses

#### Grains and Oilseeds

Although one terminal in Washington (at Tacoma) and six in Vancouver, B.C. have greater water depths at their berths than the Port of Longview, the existing and potential future bulk terminals at Longview offer superior main line rail connectivity to six of those seven, and could offer superior unit train handling efficiency to four of those seven (with the exceptions being all in Vancouver, B.C.).

#### Soda Ash

Should the Port of Longview develop a new dry bulk terminal that is configured to receive, unload, and evacuate unit trains of soda ash from Wyoming (and potentially in the future from Utah), its primary competition will likely be the Kinder Morgan terminal in Portland.

Such a facility should have comparable main line connectivity with this Portland terminal, but be far more efficient in the arrival, unloading, and evacuation of unit trains. In addition, it should have deeper water alongside berth, enabling it to handle Panamax bulkers, versus handy-six bulkers at the Kinder Morgan facility.

#### Potash

Should the Port of Longview develop a new dry bulk terminal that is configured to receive, unload, and evacuate unit trains of potash from Saskatchewan, its primary competition will likely be the Canpotex terminal in Portland, and Ridley Terminals in Prince Rupert. The Neptune/Canpotex facility in Vancouver is already operating a very high level of capacity utilization.

In comparison to the Canpotex terminal in Portland, the Port of Longview facility should have comparable main line connectivity and comparable efficiency levels for handling unit trains relative to the Canpotex terminal. The primary advantage of the Port of Longview facility would be slightly deeper water, and lower ship access fees, but rail rates paid by the shippers might be slightly higher due to the incremental mileage of the route to Longview.

Relative to the Ridley Terminal, the Port of Longview would have slightly inferior main line connectivity (with a less congested main line around Prince Rupert) and unit train handling efficiency because the Ridley balloon track configuration will likely be much longer.

Ridley Terminal also can handle much larger ships, although it is unclear whether exporters would choose to ship potash in "Cape-size" lots. Ridley also has the disadvantage of being served only by CN

however, the rail mileage from BHP'S new Jansen mine 140 km east of Saskatoon to Prince Rupert on the CN is relatively competitive with the mileage from that same source on the CP to the latter's interchange with UPRR at Eastport, Idaho and from there to Longview.

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## 9. ALTERNATIVE ANALYSIS

The Port master plan alternatives analysis was conducted to evaluate future Port marine and industrial development based the Port’s Mission Statement, the Board of Commissioner’s key priorities, on current and projected market factors, and consideration of the themes and key outcomes from stakeholder outreach.

Alternatives developed included a system wide approach that evaluated short and long term phasing to accommodate growth over time, while considering the optimization of Port economic development benefits and return on investment.

### 9.1 Master Plan as a Business Planning Tool

A goal of the Port master planning effort is to provide direction for the ability to increase the operational utilization, efficiency and capacity of the Port and the facilities and infrastructure within the Port.

The identification of the Port master plan alternatives is an initial starting point for the long-term decision-making process of the Port Leadership and Port Management Team. Development of the Port master plan alternatives involved evaluation of existing facilities and infrastructure, current and future operations analysis, capacity analysis, and physical land use plan alternatives. The alternatives fully integrate terminals, roadways, rail, and other infrastructure elements into a set of recommendations.

The following principles guided the master plan alternative preparation and development:

- Represent a future port development strategy that embodies flexible guidelines, not rigid port development doctrine. As market demands change, the Port will need to adapt to these changes. Thus, future adjustments to the alternative recommendations are inevitable and a natural expression of a well- balanced strategic port planning process.
- Outline a market driven “road map” for future facility development utilizing long-term business risk principles to create a sustainable and durable port development and operational solution.
- Ensure that the adopted development plan meets the needs of current customers and tenants. Only after current port customer needs are met should the Port pursue synergistic future development opportunities.
- Maximize the utilization of facilities and infrastructure and the capacity to handle cargo and create jobs. The Port should focus on alignment of facilities and infrastructure in a way that creates opportunities to welcome new customers without adversely impacting the efficiency or capacity of existing tenants, shippers and customers.

### 9.2 Recent Planning Studies

The Alternatives Analysis was informed by the findings and recommendations of recent planning studies completed for the Port, including the 2019 Berth 4 Redevelopment Strategy Report and the 2020 Transportation Optimization Plan, both described below, and the Market Assessment of Existing and Prospective Commodities Transported by Unit Train, described in Section 8.9.

### 9.2.1 Berth 4 Redevelopment Strategy Report

In 2019, the Port completed the Berth 4 Redevelopment Strategy Report to assess the need for renovation or replacement of Port infrastructure to meet the shipping and industrial needs into the next century. The existing silo complex at Berth 4 was identified as a priority for removal to allow for construction of a modern shipping facility at Berth 4, as described in previous Port plans and market studies which indicated that the preferred future use of the Berth 4 area is as a bulk cargo shipping facility.

Redeveloping Berth 4 will require demolishing the existing silo complex and rail upgrades to support cargo shipment. Detailed designs for cargo storage and handling equipment will be driven by both the future commodity type and volume and will be conducted to satisfy the requirements of a specific proposal. To position Berth 4 for redevelopment, the Port conducted a set of integrated multi-disciplinary studies that were synthesized in the IPG Redevelopment Strategy report.

#### Rail Improvements

A preferred rail improvement concept was identified by the IPG Redevelopment Strategy Study, the preferred rail concept includes the following elements:

- Reconstruct track curves in northwest corner of Port to meet industrial track curve standards
- Provide additional track in switch alley to support additional train traffic
- Construct a rail loop upland of Berth 4 to support unit trains
- Reconstruct tracks in southwest corner of Port and discharges from unloading pits to support movement of longer cuts of trains and manifest bypass at Bridgeview Terminals and Berth 5
- Reconfigure movement between unloading pits and Berths 1-6 to reduce crossing movements and conflicts
- Add tracks and switches along berths to reduce traffic conflicts between unloading pits.
- Construct northeast return rail track to improve internal track circulation and operational flexibility.
- Construct grade separated road crossing to connect to Fibre Way overpass and at key locations to ensure truck circulation and safety.

### 9.2.2 Modeling and Simulation of Arriving and Departing Trains

In 2019 and 2020, the Port completed the Transportation Optimization Plan (TOP). The Transportation Optimization Plan (TOP) provided the Port with understanding of, and recommendations for, the ability to move unit and manifest rail services through the Port's current and proposed rail and road infrastructure.

The analysis included an assessment of current rail infrastructure and operations, planned improvements currently undergoing design and engineering, as well as potential infrastructure improvements and rail traffic growth that could occur as a result of growth or addition of industrial activities and operations at the Port. The primary objective of the TOP analysis was to determine how freight movement and efficiency could be sustained in a broad range of scenarios, while minimizing rail and vehicle/truck traffic conflicts internally and externally at the Port.

The TOP project included analysis of rail and motor vehicle movement through the Port, accounting for forecast growth in rail traffic volume and planned rail improvements, and provided recommendations for

mitigation or limitation of impacts to customers, tenants, adjacent industrial properties, and local and state roadways.

Multiple scenarios were developed and analyzed to evaluate how a broad range of potential changes in rail operations, infrastructure and levels of rail traffic would affect rail and vehicular transportation at the Port. Scenarios were not based on the operating requirements of specific existing or potential Port tenants or users and the scenarios were not intended to identify a preferred outcome or scenario. Rather, the scenarios were developed to capture a range of potential but feasible outcomes.

In 2018 total rail traffic at the Port was 9.4 million tons. Planning scenarios evaluated in the TOP project included a range of potential growth that would increase total rail traffic by as much as 9.7 million tons, to a total of 19.1 million tons. Planning scenarios also evaluated multiple potential configurations for on-terminal rail infrastructure improvement, and multiple scenarios for train arrival and departure operations.

Demand for IRC tracks and timing of at-grade rail crossing blockages at International Way were assessed through creation of a 14-day dynamic simulation model for each of the planning scenarios. Each scenario incorporated a set of typical operating parameters derived from interviews with Longview Switching Company and Port of Longview staff, and historical train operations data.

Simulation results based on typical operating conditions showed that the peak demand for new IRC expansion tracks for the scenarios modeled varies from 5 to 6 tracks over the two week modeling analysis period. This peak demand assessment was based on accommodating optimal operating conditions for the scenarios evaluated, as well as occasional impacts to optimal operating conditions such as delays in train departures or arrivals, mechanical issues affecting railcars or locomotives, or track maintenance activities.

### 9.2.3 Modeling and Simulation of Traffic Impacts of Arriving and Departing Trains

Under future IRCE improvement scenarios, trains would block all the western access points to the Port site for long periods of time while waiting to be unloaded. This would functionally close these access points and require traffic to access the site only via International Way, which could also be blocked intermittently during train arrivals and departures. Detailed traffic analysis was performed in late 2019 to assess the potential effect of Industrial Rail Corridor Expansion (IRCE) improvements on vehicle and truck access to the Port, and determine if roadway improvements would also be needed.

For the purposes of traffic analysis, it was assumed that all of that traffic would be consolidated to the International Way access point. Train movements across International Way would delay vehicles and create queues, both of which would increase based on the length of the train and the volume of traffic. Several train operating scenarios were evaluated with potential blockage times at International Way ranging between 3 to 15 minutes.

Traffic operations analysis was also performed for intersections in the vicinity without accounting for downstream effects of the rail grade-crossing at International Way. This allows the effect of intersection operations to be separated from the effect of queue blockages that may be related to the train and that were considered in the sensitivity analysis.

Based the results of the analysis, a grade-separated access to the Port is recommended for any rail operating plan that would arrive and depart full unit trains several times weekly during daytime hours (about 6:00 A.M. to 7:00 P.M.). Until a grade-separated access is provided, full unit trains could be moved during overnight hours (between 7:00 PM and 6:00 AM), and half train cuts could be moved any time.

Three potential locations for a grade-separated crossing structure were identified, all options would facilitate access to SR 432 but at different locations.

- Option A: From North Tie Road to Columbia Blvd/H Street
- Option B: At International Way
- Option C: New T-Ramp structure connecting International Way to the existing Fibre Way Overpass

Level of service analysis for Options A and B was performed, and determined that either the SR 432/H Street or SR 432/International Way intersections could accommodate all Port of Longview traffic and no major changes would be required to lane configuration or signal operations. Both intersections would also accommodate growth in traffic through 2040 and continue to operate at acceptable levels of service.

## 9.3 Development of Alternatives

The approach to development of master plan alternatives focused on potential development of facilities and infrastructure that would create opportunities to welcome new customers without adversely impacting the efficiency or capacity of existing tenants, shippers and customers.

### 9.3.1 Framework for Identification of Alternatives

Initial concepts for alternatives were formulated based on review of data, conclusions and recommendations taken from several sources, including:

**Strengths, weaknesses, opportunities and threats analysis** performed concurrently with development of the strategic business plan, particularly the themes and key outcomes identified through outreach to the public and stakeholder groups, including:

- Continue to focus on retaining and adding local jobs
- Expand the IRC for unit train rail
- Redevelop Berth 4
- Improve at grade rail crossings
- Invest in equipment and infrastructure to support growth
- Incorporate green development, infrastructure and energies

**Recent planning studies** described in Section 9.2 as well as related reports including the 2011 Master Plan Report and the Barlow Point Master Plan Phase 1 Feasibility Study.

**Factors affecting demand for Port development** as outlined in market assessments and competitiveness analysis (refer to Section 8), particularly:

- Ability to support and accommodate continued growth of markets served by the Port including agricultural products, logs, breakbulk, bulk chemical, wind power, green energy and steel.
- Potential to capture a portion of the expanding markets for soda ash, potash and wood pellets.

### 9.3.2 Relative Scoring of Initial Alternatives

Initial alternatives were scored or ranked against a set of qualitative and quantitative factors to assess their potential to fulfill key outcomes identified through public outreach and Commission priorities, scoring results are included in Appendix I: Relative Scoring of Initial Alternatives. Factors used in scoring each alternative included:

- Total Cargo Capacity
- Create Jobs
- Unit Train Capacity
- Low Capital Cost (capex)
- Flexible Common Infrastructure
- Effective property use
- Minimal tenant impact

While the planning work did not exclusively focus on redeveloping Berth 4 as a bulk export terminal, review of alternatives and their relative advantages and disadvantages resulted in the determination that the fulfillment of key outcomes identified through public outreach and Commission priorities could be maximized by creating a bulk export terminal at Berth 4 including a new vessel berth and upland facilities, and reconfiguring other terminals and infrastructure to support increased capacity and efficiency.

Creation of a bulk export terminal at Berth 4 that can accommodate unloading of unit trains would require reconfiguration and addition of tracks for rail movements at Bridgeview Terminal and Berth 5.

### 9.3.3 Initial Alternatives

A total of four initial alternatives were developed and presented for discussion at multiple public meetings, generally the alternatives depicted progressively increasing levels of development and capacity enhancement, which could be implemented progressively based on customer, tenant or market demand:

- The **Base Case (Alternative 0)** alternative generally reflects the existing conditions at the Port, plus the implementation of near term track improvements identified in the IPG Redevelopment Strategy at the northwest corner of the Port and in the area between Bridgeview Terminal and Berth 5. This alternative also includes the completion of an east-west roadway across the Port linking International Way with North Tie Road.
- **Alternative 1** included the improvements identified in the Base Case alternative, plus the completion of the IRCE, construction of a single rail-road grade separation structure at one of three potential locations, a new bulk terminal at Berth 4, and the addition of a teardrop shaped double loop track primarily for movement of unit trains destined for Bridgeview Terminal and new bulk terminal at Berth 4. Based on discussion of this alternative during public meetings, it was determined that it did not adequately address the primary considerations for development of the alternatives due to the length of the rail loop tracks which would not accommodate typical unit train lengths (100 to 130 railcars), and conflicting rail movements for railcars serving Berth 5, a new Berth 4 terminal, and the Bridgeview Terminal.
- **Alternative 2** included the track improvements at the northwest corner of the Port and the east-west road identified in the Base Case alternative, plus the improvements included in Alternative 1,

however the double loop track depicted was larger to accommodate longer trains, and additional new tracks were included near Berth 5 and through the S-Curves to allow rail movements at Berths 5, 6, 7, and 8 to occur without interfering with rail movements at Bridgeview Terminal and Berth 4. Following the elimination of Alternative 1 as presented to the Commission, this alternative was renamed **Alternative 1**.

- **Alternative 3** included the track improvements at the northwest corner of the Port and the east-west road identified in the Base Case alternative, plus the improvements included in Alternative 2, however the double loop track is configured larger to accommodate trains in excess of 7,500 feet in length. Following the elimination of Alternative 1 as presented to the Commission, this alternative was renamed **Alternative 2**.

### 9.3.4 Base Case

Construction of near term track improvements in this alternative would increase efficiency of rail movements at Bridgeview Terminal and Berth 5 and increase the capacity for storing rail cars in Switch Alley. These improvements would not allow intact unit trains to be processed at Bridgeview Terminal, but the improvements in rail storage and movement efficiency would enhance the capacity and efficiency of the terminal. The addition of an east-west roadway would improve traffic circulation in the Port, particularly at times when rail cars are being arriving and departing Bridgeview Terminal and Berth 5 through Switch Alley and blocking at-grade road crossings at Panel Way and Terminal Way.

This alternative does enhance the Port's ability to retain and add local jobs by enhancing the operations at Bridgeview Terminal and Berth 5. Implementation of the alternative would have almost no impact on facilities or operations at Berths 6, 7, 8 and 9, including the General Cargo Laydown Area.

This alternative does not include expansion of the IRC, redevelopment of Berth 4 and does not include rail loop tracks on the Port capable of accommodating unit train movements. The improvements included in this alternative support and accommodate continued growth of markets served by the Port, and provide a limited ability to capture a portion of the expanding markets for soda ash, potash and wood pellets. For a plan of the Base Case alternative, refer to Appendix H: Alternative Exhibits.

### 9.3.5 Alternative 1

The cornerstone of Alternative 1 is a new bulk terminal at Berth 4, and double loop tracks that could support processing of intact unit trains at Bridgeview Terminal and Berth 4 on the west side of the Port. Expansion of the IRC would create tracks that could be used by additional train movements at Bridgeview Terminal, Berth 4 and other terminals, and a grade separation structure would allow intact unit train movements to occur without excessive impact to vehicle access at the Port.

Within the double loop tracks, area could be redeveloped for construction of Berth 4 material storage and processing systems. The double loop tracks would also encircle Warehouses 10 and 11 which are currently used for calcined coke material storage and processing for the Berth 5 tenant. To sustain this capability, a spur track would be added from Berth 5 over the north curves of the double loop, where a new dump pit and conveyor system would move materials between rail cars and Warehouses 10 and 11.

Addition of the loop tracks would require modification of material storage and conveyance infrastructure at Bridgeview Terminal, which could include new storage within the double loop tracks, as well as relocation or replacement of existing terminal receiving facilities, and acquisition of privately owned property.

On the east side of the Port, the creation of a looping track behind Berth 5 and the addition of tracks through the S-Curves would provide additional rail car storage for Berths 5, 6, 7, and 8 and allow those

facilities to be served by manifest trains without interference from unit train movements occurring on the west side of the Port.

A portion of the existing general cargo laydown area would be eliminated in this Alternative to allow construction of the loop tracks behind Berth 5, however the loss of this area could be offset by the demolition of Warehouse 8 and redevelopment of the surrounding area for use as general cargo laydown area.

In addition to the area surrounding Warehouse 8, this alternative identifies over 90 acres of backland area suitable for potential redevelopment, including the space within the EGT rail loops which could be suitable for an alternative energy facility or other project which would enhance the resiliency of the Port. For a plan of Alternative 1, refer to Appendix H: Alternative Exhibits.

This alternative enhances the Port's ability to retain and add local jobs by enhancing the operations and capacity at all berths and terminals, particularly in terms of the ability to move materials to and from each berth by road or rail. By implementing improvements that could accommodate intact unit trains at two terminals, the capacity of the Port would be substantially increased. The improvements included in this alternative support and accommodate continued growth of markets served by the Port, and provide a position the Port to capture a portion of the expanding markets for soda ash, potash and wood pellets.

### 9.3.6 Alternative 2

Similar to Alternative 1, the cornerstone of Alternative 2 is a new bulk terminal at Berth 4, and double loop tracks that could support processing of intact unit trains at Bridgeview Terminal and Berth 4 on the west side of the Port. Expansion of the IRC would create tracks that could be used by additional train movements at Bridgeview Terminal, Berth 4 and other terminals, and a grade separation structure would allow intact unit train movements to occur without excessive impact to vehicle access at the Port.

The primary difference between Alternatives 1 and 2 is the size of the double loop tracks, the double loop tracks in Alternative 1 could handle trains approximately 7,700 feet in length while the double loop tracks in Alternative 2 could handle trains more than 8,500 feet in length.

The longer loop tracks in Alternative 2 would require a larger area of privately owned property acquisition, and the configuration of the tracks would likely necessitate removal of Warehouses 10 and 11. Consequently, new material storage, processing and conveyance systems would be required to support the tenant at Berth 5. The configuration of the double loop tracks would also create additional opportunities for upland property redevelopment on the west side of the Port. For a plan of Alternative 2, refer to Appendix H: Alternative Exhibits.

Impacts and enhancements at Berths 6, 7 and 8, the General Cargo Laydown, and areas for potential redevelopment would be similar to those described for Alternative 1.

This alternative enhances the Port's ability to retain and add local jobs by enhancing the operations and capacity at all berths and terminals, particularly in terms of the ability to move materials to and from each berth by road or rail. By implementing improvements that could accommodate intact unit trains at two terminals, the capacity of the Port would be substantially increased. The improvements included in this alternative support and accommodate continued growth of markets served by the Port, and provide a position the Port to capture a portion of the expanding markets for soda ash, potash and wood pellets.

## 9.4 Conclusions and Recommendations

### 9.4.1 Evaluation of Alternatives

Evaluation of the alternatives against scoring criteria described in Section 9.3.2 indicated that Alternatives 1 and 2 offer greater potential to fulfill key outcomes identified through public outreach and Commission priorities (refer to Appendix I: Relative Scoring of Initial Alternatives).

In comparison to the Base Case (Alternative 0). Alternatives 1 and 2 significantly increase total cargo capacity, potential to create jobs, and unit train capacity. Alternatives 1 and 2 also enhance flexible common infrastructure that can be used to support multiple terminals and tenants, including the IRCE, looping tracks behind Berth 5, and the addition of tracks through the S-curves. These improvements would primarily enhance efficiency and capacity at Berths 5, 6, 7 and 8 and could be implemented without significant reduction in the size of the general cargo laydown area.

The primary advantages of the Base Case alternative were relatively low capex, minimal tenant impact, and effective property use. The low capex and minimal tenant impact of the Base Case is attributable to the limited scope of new infrastructure or improvements in this alternative. However, it should be noted that scoring of minimal tenant impact was based on tenant disruption required to implement the alternative, and did not consider the potential benefits created for the tenants due to the disruption. The Base Case ranks higher in terms of effective property use due to the fact that it is the only alternative that does not require property acquisition.

### 9.4.2 Phased Implementation of Alternatives

As mentioned in Section 9.3.3, the alternatives depict progressively increasing levels of development and capacity enhancement, which could be implemented progressively based on customer, tenant or market demand.

A high level phasing or sequencing strategy was developed for the Alternatives (refer to Appendix J: Potential Sequencing of Alternatives). The phasing strategy outlines a sequence of implementation for major elements of the alternatives which would:

- Enhance the ability of the Port to accommodate growth of existing tenants
- Position the Port to capture emergent business opportunities
- Align the scale of capital projects with growth of the Port's business, to the extent feasible

The phasing strategy includes:

- Prepare the Port to receive intact unit trains - To prepare a route for movement of unit trains at the Port, complete the Berth 4 silo demolition, raise the frontage road at Berth 4, and complete the IRC Expansion
- Add a grade separation - To create a primary vehicle route to and from the Port which is unaffected by movement of unit trains, construct a grade separated vehicle access
- Reconfigure Berth 5 - To reduce the movement of manifest trains through potential unit train facilities in the western portion of the Port, construct the east loop tracks and, potentially, new dump pit, reconfiguration of storage, processing and handling facilities at Berth 5
- Enhance Bridgeview Terminal - Dependent on tenant demand and growth of shipping volumes, enhance rail infrastructure, shiploading equipment, material storage, processing and handling facilities at Bridgeview Terminal

- Add a New High Volume Tenant at Berth 4 - Dependent on tenant demand, construct rail infrastructure, marine structures, shiploading equipment, material storage, processing and handling facilities for a new Terminal at Berth 4

### 9.4.3 Capital Cost of Alternatives

In accordance with AACE framework, a Class 5 estimate was prepared for the relative construction costs for terminal facilities and improvements shown in the Alternatives (refer to Appendix K: Capital Cost Estimates for Alternatives). All costs were calculated in terms costs of materials, labor and expenses in 2022:

The estimated construction cost range for the terminal facilities and improvements in the Base Case alternative is \$8.3 to \$14.3 million. This cost range does not include the East-West Road, the cost of which is estimated to be \$810,000 to \$1.16 million.

The estimated construction cost range for the terminal facilities and improvements in Alternative 1 is \$150.6 to \$226.4 million. Of this amount, \$111.8 to \$160.9 million would be dependent on tenant demand. Additionally, completion of this alternative would require construction of the East-West Road, IRC Expansion and a grade separation, the total cost of these additional improvements is estimated to be \$91.95 to \$104.55 million.

The estimated construction cost range for the terminal facilities and improvements in Alternative 2 is \$183.1 to \$272.3 million. Of this amount, \$129.8 to \$185.7 million would be dependent on tenant demand. Additionally, completion of this alternative would require construction of the East-West Road, IRC Expansion and a grade separation, the total cost of these additional improvements is estimated to be \$91.95 to \$104.55 million.

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## 10. PLANNING ELEMENTS

This section describes the numerous planning elements that were also considered as part of this planning effort. Section 10.1 through 10.3 describe potential projects or site improvements related to the Port's marine, transportation and industrial properties. Sections 10.4 describes the Port's approach to other district wide investment opportunities. Subsequent sections describe additional internal and external Port planning initiatives and programs.

General Fund and Capital project costs resulting from projects listed may include, but is not limited to, additional planning, engineering design, permitting and construction of the improvements. Time line for these activities will be set forth in future Port general and capital budgets.

### 10.1 Marine Terminals and Potential Improvements

#### 10.1.1 Bridgeview Terminals (Berth 1 and 2)

Bridgeview Terminals is currently operated by a lease tenant and exports 500,000 to 1.5 million metric tons annually of sodium carbonate, commonly referred to as soda ash. Natural soda ash is transported by rail in unit trains from the Green River Basin in Wyoming to the Port where it is exported to overseas markets.

The Bridgeview terminal has the potential to expand its operations into Berth 1 and increase its capacity to unload unit trains with the addition rail infrastructure. Potential future configurations for Bridgeview Terminals were evaluated in the Alternatives Analysis, Section 9. Accommodating unit trains delivering soda ash to Bridgeview Terminals would require the expansion of the Industrial Rail Corridor (IRCE).

Potential improvements to aid in maximizing this terminal's efficiencies and capacity are listed below. The need for these improvements would be driven by the market conditions for the commodities handled by the terminal, and tenant contribution toward capital funding for some improvements may be necessary.

- Removal of Transit Shed 1
- New or additional ship loader at Bridgeview Terminal (Berth 1 and/or 2)
- Additional bulk material storage in warehouses or silos
- Additional rail dump pit
- Fender pile system upgrades
- Frontage road in area of Warehouse 9 from Gate 11 to Terminal Way
- Wastewater system upgrades
- Baghouse upgrades
- Stormwater collection and treatment upgrades
- Unit train service and/or internal rail modifications
- Rail/vehicle grade separation

### 10.1.2 Terminal 4 Redevelopment

Currently, Terminal 4 is a former grain terminal complex developed between the early 1920s and mid-1950s. The complex was shuttered in the 1980s and the site is now derelict. As a first step to redevelopment, the Port removed the dilapidated dock and in 2015 constructed an environmentally friendly lay-berth pier structure to accommodate future development. Additionally, the Port secured mitigation credit for future in-water pier development (See Aquatic Habitat Mitigation Credits, Section 10.6.2). In 2018, the Port secured a planning grant from the Washington State Department of Ecology to evaluate potential environmental issues and brownfield redevelopment strategies. That grant allowed the Port to envision how this area would be redeveloped and integrated into the Port's rail network (see Berth 4 Redevelopment Strategy Report, Section 9.2.1). With that evaluation complete, the Port is now in the permitting process to remove the upland grain facility. The Port is actively marketing this terminal to foster private investment in developing a bulk export operation.

Terminal 4 has the potential to be a premiere export facility with the redevelopment of the site and addition of rail infrastructure to handle unit trains. Redevelopment of this site was a primary consideration in the Alternatives Analysis, Section 9. Accommodating unit trains delivering soda ash to Bridgeview Terminals would require the expansion of the Industrial Rail Corridor (IRCE).

Additional anticipated improvements to facilitate redevelopment of the site and operation of an export facility are listed below. The need for these improvements would be driven by the market conditions for the commodities handled by the terminal, and tenant contribution toward capital funding for some improvements may be necessary.

- Berth 4 silo demolition
- Raising of frontage road through Berth 4 area
- New vessel berth and trestle
- Tenant material storage, processing, handling, transport, and conveyance facilities
- New internal unit train rail system loop
- Industrial Rail Corridor Expansion Rail Storage
- Stormwater collection and treatment
- Wastewater collection and treatment
- Air emission systems
- Rail/vehicle grade separation

### 10.1.3 Terminal 5

Leased to BP, who has operated a facility at the Port for over 35 years to export calcined petroleum coke (CPC), a by-product captured from gasoline production and repurposed for the manufacturing of aluminum, steel and titanium. BP currently uses manifest trains to service Berth 5 and exports up to 800,000 metric tons per year. The company also intermittently imports CPC at Berth 7 and blends the import with domestic product for export through Berth 5.

The alternatives analysis considered how to best maximize the efficiencies of this facility both from an export perspective but also the imports coming through Berth 7. The Alternatives Analysis also identified reconfiguration of the Terminal 5 facility and support infrastructure that would be necessary to accommodate expansion and redevelopment of Bridgeview Terminals and Berth 4 (see Section 9.2),

this includes the creation of new rail storage capacity in the Industrial Rail Corridor to replace rail storage that would be eliminated with the expansion of Bridgeview Terminals. Potential improvements to Terminal 5 are listed below. The need for these improvements would be driven by the market conditions for the commodities handled by the terminal, and tenant contribution toward capital funding for some improvements may be necessary.

- New dump pit
- New loading spout
- New material storage, processing, and handling facilities
- New internal manifest rail system loop
- Industrial Rail Corridor Expansion Rail Storage
- New air emission upgrades
- Wastewater collection system upgrades
- Stormwater collection and treatment upgrades
- New dock infrastructure and fender pile system

#### 10.1.4 Terminals 6, 7 and 8

The berths at Terminals 6, 7 and 8 handle diverse cargo depending on Port customer needs and allow for over dimensional cargo that can utilize the availability of the adjacent 50-acre laydown space. Further, these types of cargoes bring significant union jobs to the local economy as they are labor intensive operations requiring many Longshore. Maintaining and enhancing the competitiveness, efficiency and capabilities of these terminals was a key element of the Alternatives Analysis. Berths 6 and 7 have on-dock rail service which is key to efficient project cargo delivery. Recent projects moving through these berths include imported wind energy components for U.S.-based projects, transformers for hydroelectric dam projects, distilling tanks, and American-made telephone poles bound for Ireland.

Potential improvements to Terminals 6, 7 and 8 are listed below. The need for these improvements would be driven by the market conditions for the commodities handled by the terminal, and tenant contribution toward capital funding for some improvements may be necessary.

##### Potential Improvements at Terminals 6 and 7

- Structural dock improvements Berth 6 / 7
- Berth deepening
- Removal of fixed crane
- Extension of tracks serving material hopper to Berth 6
- Improvements to Transit Shed 6
- Wastewater system upgrades at Berth 6
- On-dock rail load capacity upgrades Berth 6 /7

## Potential Improvements at Terminal 8

- New on-dock rail
- New mooring dolphin
- Deepening upstream
- New mobile ship loader
- Wastewater containment and conveyance
- Wastewater treatment plant upgrade
- Stormwater containment and conveyance upgrades

### 10.1.5 Roll On / Roll Off (RORO)

The roll on/roll off (RoRo) facility is located between Berth 7 and Berth 8. This facility is also referred to as the breakbulk barge terminal and is operated by the Port. The dimensions of the dock are 96 feet long, 22 feet high, with a deep draft of 43 feet. However, the RoRo is underutilized because the approach is too steep and most barge operations require a longer approach for over dimensional cargo. Due to this, the Port may conduct a reevaluation of its necessity based on market demands. Potential improvements to the RORO facility are listed below:

- Removal of RORO
- New continuous dock structure between Berth 7 and Berth 8
- Extended on-dock rail
- Additional cargo handling equipment
- Stormwater collection and conveyance
- Wastewater collection and conveyance

### 10.1.6 Terminal 9

The EGT grain terminal is located at Berth 9 and was commissioned in 2012 as the first grain export facility constructed in the United States in 25 years. It is also one of the largest grain export facilities in the world, exporting an annual average of 6.2 million metric tons between 2015 and 2020. Grain is delivered via unit trains and barge. EGT's rail infrastructure allows for two inbound unit trains, and four outbound unit trains to be landed and staged at the facility. Currently, an EGT train can be positioned, unloaded and dispatched in six to eight hours. The IRCE will continue to facilitate unit train movement into EGT but also provide more flexibility and efficiency for their operations while critically building additional capacity to allow for efficient unit train operations to the Port's other marine terminals.

The EGT facility infrastructure is primarily owned and operated by EGT. However, the Port owns the dock structure itself. Potential upgrades and improvements may be required as the facility ages.

### 10.1.7 Other Projects as Defined by Customer Opportunities

To remain competitive, the Port is responsive to tenant and customer demand and maintains flexibility to adapt to continuously changing conditions in commodities markets and economics of transportation logistics. The Port is receptive to advancing other projects in response to customer demand in cases where those projects will increase the jobs, shipping volumes, utilization, or productivity at the Port.

## 10.2 Rail and Vehicle Transportation Improvements

### 10.2.1 IRC Expansion (IRCE)

The Industrial Rail Corridor is currently comprised of a two track, 1.5 mile rail corridor connecting the Port with the BNSF main line near I-5. The Transportation Optimization Plan (TOP) completed in 2020 included an assessment of current rail infrastructure and operations, planned improvements currently undergoing design and engineering, as well as potential infrastructure improvements and rail traffic growth that could occur as a result of growth or addition of industrial activities and operations at the Port. The primary objective of the TOP analysis was to determine how freight movement and efficiency could be sustained in a broad range of scenarios, while minimizing rail and vehicle/truck traffic conflicts internally and externally at the Port.

Simulations performed for the TOP indicate that 5 or 6 additional IRC tracks would be required in order to accommodate forecast growth in rail traffic at the Port, as well as occasional impacts to typical operating conditions such as delays in train departures or arrivals, mechanical issues affecting railcars or locomotives, or track maintenance activities. For a more detailed description of the TOP analysis, refer to Modeling and Simulation of Arriving and Departing Trains, Section 9.2.2.

The IRCE project involves expanding the existing IRC by constructing a six-track railroad embankment adjacent to the existing two-track rail corridor, and two new 8,500-foot long railroad tracks.

The IRCE project will generally occur within a 156-foot-wide, 11,000-foot-long expanded rail corridor located along the same alignment as the existing IRC, with some minor differences from that alignment at the eastern and western ends of the project corridor. Construction of the embankment that will support the expanded rail system will require placement of approximately 475,000 cubic yards of fill material between 5 and 25 feet thick into portions of the human-made Log Pond and the adjacent Category 4 wetlands along most of the length of the proposed rail corridor.

Typical construction activities required for the project include demolition of existing buildings and other structures; grading and placement of fill for the construction of the railbed embankment; construction of railroad tracks and associated infrastructure including switches, gravel access roads between tracks, and crew change areas; stormwater collection, conveyance and treatment systems; improvement of existing electrical utilities; relocation of existing utilities; and contamination management within a former landfill that extends under the proposed alignment. The switches that currently direct rail traffic into the IRC will also be removed and replaced with a single switch further east and just west of the Cowlitz River rail bridge. This will allow the corridor's current rail tracks to be extended an additional 1,000 feet, which is necessary to accommodate 8,500-foot clear lengths needed to support unit trains.

Because much of the embankment will be located on soft soils that are either in or adjacent to the Log Pond, construction in those areas will require preloading to consolidate the underlying soils prior to reaching final embankment grades and installing the corridor tracks.

In addition to construction work, the IRCE project also includes compensatory mitigation to offset project impacts on jurisdictional waters, including wetlands.

### 10.2.2 Rail and Vehicle Grade Separation

Rail and vehicle transportation simulations performed for the TOP indicate that forecast growth at the Port would lead to an increase in the number and frequency of train arrivals and departures. Full length, intact unit trains would block all the western access points to the Port for long periods of time while waiting to be unloaded. This would functionally close these access points and require traffic to enter and exit the Port area via International Way.

International Way would also be blocked intermittently during intact unit train arrivals and departures. Full length, intact unit trains would block this crossing for 15 minutes. Vehicular traffic to and from the Port has peaks in the morning and afternoon, and remains relatively high midday. If all traffic has to use International Way, one full length unit train crossing International Way during the peak morning arrival period would cause traffic arriving to the Port to queue back onto SR 432, and likely result in intolerable delays for vehicular traffic.

Based on the results of the analysis, a grade-separated access to the Port is recommended for any rail operating plan that would arrive and depart full length, intact unit trains several times weekly during daytime hours (about 6:00 A.M. to 7:00 P.M.). Until a grade-separated access is provided, full length, intact unit trains could be moved during overnight hours (between 7:00 PM and 6:00 AM), and half train cuts could be moved any time. For a more detailed description of the analysis of rail and vehicle movements and the alternative locations for a grade separation structure, refer to Section 9.2.

The Rail and Vehicle Grade Separation involves constructing a grade separation structure that will maintain vehicle access into and out of the Port and surrounding industrial properties if train storage and movement activity has reached a level that causes unsustainable vehicle delays. The grade separation could be constructed in multiple locations and will generally include demolition of existing buildings, surface features and utilities; earthwork; foundation, abutment and bridge structures; roadway improvements; utilities and lighting; stormwater collection, conveyance and treatment systems; and mitigation of private property impacts such as driveway modifications or reconfigurations.

In addition to construction work, the rail and vehicle grade separation project may also include property acquisition and transfer of public rights of way.

### 10.2.3 “S” Curves

Situated east of International Way and directly west of and parallel to EGT’s rail lies Track 400. Track 400 is also known as the ‘S’ Curve because within the length of track are two large horizontal curves that cause the track to look like a large ‘S’. This track provides direct rail service to the east side of the Port, specifically to Transit Shed 6, Berth 6, Berth 7 and to Port neighbor North American Pipe and Steel.

To accommodate a Manifest Rail Loop mentioned below, the ‘S’ Curve would need to be expanded. The geometry of the ‘S’ Curve and the available land west of the Track 400 would allow three additional parallel tracks. The Port currently owns all the land needed to construct the ‘S’ Curves expansion. The ‘S’ Curve expansion tracks would be used for rail storage as well as service access.

### 10.2.4 Manifest Rail Loop

A key element of the Alternatives Analysis is creation of infrastructure that allows for the separation of manifest train movements from unit train movements within the Port. The scale and schedule of unit train movements typically requires dedicated track infrastructure to maintain efficient operations. Currently, most of the track within the Port is used for manifest train movements. Creating separate unit train infrastructure at the Port will require new or reconfigured track in some areas of the Port to serve manifest train movements efficiently without utilizing tracks that would be dedicated for unit train operations, such as rail loop tracks at Bridgeview Terminals and Berth 4.

Based on the Alternatives Analysis, creation of a manifest train loop within the eastern portion of the Port would improve the efficiency of manifest train movements for Berths 5, 6, 7 and 8 and create the desired separation of these movements from potential unit train movements that could serve Bridgeview Terminals and Berth 4.

The Manifest Rail Loop involves constructing 1 to 4 parallel tracks in a curved, half circle configuration from near Berth 5 northward, creating a continuous track loop that serves Berths 5, 6, 7 and 8 and connects to the S-Curves and wye east of International Way.

## 10.3 Industrial Properties

The Port has identified a number of potential projects or improvements on its current industrial properties. These potential improvements are described in the following section. As part of the Alternatives Analysis, a number of potential property acquisitions were identified (see Section 9 for further details).

### 10.3.1 Barlow Point

Originally purchased by the Port in 2010, the Barlow Point property has grown to a 301-acre greenfield site located approximately 4 miles downstream of the main Port operating property. The property has access to rail and the adjacent SR-432 and includes nearly 4,000 linear feet of Columbia River front access. The Port completed a Master Plan Phase 1 Feasibility in 2016 which outlines possible development options and the steps to develop the property into a marine terminal.

### 10.3.2 Reconfiguration of General Cargo Laydown Area

Within the Port approximately 50 acres of land on the landside of Berths 5, 6, 7 and 8 are used for staging and laydown of General Cargo. Preservation and enhancement of this area and its function is a primary consideration of the Alternative Analysis. Other projects identified in the Alternatives Analysis could impact portions of the General Cargo Laydown Area. Reconfiguration of the General Cargo Laydown Area would allow the necessary functionality and capacity of the area to be preserved or enhanced through expansion or changes in layout and usage.

### 10.3.3 Removal and Relocation of Maintenance and Mechanics Facilities

As described in Alternative Analysis, Section 9, implementation of some alternatives would include removal and relocation of the existing Maintenance Shop, Maintenance Yard, and Mechanics shops near Terminal Way. Relocation would occur on property identified for potential redevelopment within the Port. Additionally, the mechanic shop may be relocated prior to an alternative being developed, due to a cleanup action within the site.

Relocation of the Maintenance Shop, Maintenance Yard and Mechanics shops is expected to include demolition of the existing buildings, including installation of stormwater collection, conveyance and treatment systems.

### 10.3.4 Relocation of Terminal Receiving

Terminal Receiving facilities may be replaced or relocated to facilitate construction of terminal expansions and associated infrastructure as described in the Alternatives Analysis, Section 9.

### 10.3.5 Redevelopment of Warehouses

The warehouse complex at the northwest corner of the Port encompasses an area of approximately 29.9 acres. Based on the Alternative Analysis, this area was identified as a potential site that could be redeveloped to enhance utilization and productivity of the Port. Redevelopment of the warehouse

complex property could include demolition of Warehouses 21 and 22, or other warehouses, and construction of new facilities, buildings, and infrastructure in response to customer or tenant demand. Redevelopment could also include construction of new or relocated facilities for the Port Maintenance Shop, Maintenance Yard and Mechanic Shops.

Demolition of Warehouse 8 and redevelopment of the surrounding area may be undertaken to facilitate reconfiguration or expansion of the general cargo laydown area as described in the Alternatives Analysis, Section 9. Typical construction activities required for the project may include demolition; earthwork; pavement; utilities and lighting; and stormwater systems.

### 10.3.6 Redevelopment of Property North of the White House

The Port currently owns vacant parcels of land on the east side of International Way north of the White House, with a total area of approximately 4.7 acres. Based on the Alternative Analysis, these parcels were identified as a potential site that could be developed for Port or tenant use.

### 10.3.7 Redevelopment of Property within the EGT Loop Tracks

Within the Berth 9/EGT rail loop, the Port owns vacant land with a total area of approximately 43.5 acres. Based on the Alternative Analysis, this land was identified as a potential site that could be developed for industrial uses, or other Port uses that would enhance the resiliency of the Port and the community.

## 10.4 District Wide Commercial and Industrial Investments

The Port’s Business Development Department continuously evaluates potential commercial and industrial property investments that could enhance efficiency, increase capacity, or support growth at the Port. The Department’s evaluation includes review of industrial and commercial property acquisition potential, monitoring of fair market values, and current property sales and leased properties. These evaluations include properties near the Port and in the broader community.

Typically every three to five years, the Department conducts a market analysis of commodities, cargos and potential industrial markets. Recent analysis has included:

- 2012 - As an element of the 2011 Master Plan, assessments of existing and prospective commodities markets, current and future industrial markets, and the Port’s competitive position were conducted.
- 2014 - The 2012 market assessment was updated.
- 2016 - Barlow Point Master Plan and Feasibility study looked at industrial, commodity and cargo opportunities that set the baseline for the development of that site.
- 2021 - As an element of the 2021 Master Plan Update and Comprehensive Scheme of Harbor Improvements, international and domestic cargo markets, current and future industrial markets, and new industrial opportunities were evaluated; and the Port’s competitive position relative to other ports was assessed.

## 10.5 Public Access and Recreation

The Public Access and Recreation Element reflects the Port’s commitment to providing public access and recreational opportunities for the benefit of the Port community. As part of this commitment, the

Port strives to preserve and enhance access to designated public areas and facilities for fishing, viewing, and to expand public recreation opportunities on the Columbia River. The Port supports the Port District in facilitating public access and recreation to its rivers typically through a grant funding match or direct contributions to local jurisdictions.

Since the completion of the 2011 Master Plan, the Port has acquired the Willow Grove Park property. In 2016, the Port created the Comprehensive Park Plan<sup>6</sup>. Creation of the Plan included a year long public outreach process to ensure the vision of the community was captured. The Port intends to work towards Park improvements outlined in the Park Plan through capital and operational expenditures, as well as seeking additional grant funding opportunities.

## 10.6 Environmental Stewardship

### 10.6.1 Willow Grove Advance Wetland Mitigation Plan

The Willow Grove Advance Wetland Mitigation Plan was completed in 2018 and final planting of Phase D was completed in 2021. The Plan encompasses approximately 216 acres of Columbia Land Trust Property and approximately 92 acres of Port owned property at the Willow Grove wetland complex, refer to Appendix D for a map of the site. The Plan defines a mitigation planting strategy and long-term maintenance for the preservation and enhancement of the wetland complex. To ensure the Plan meets the enhancement targets defined within the document, on-gong capital funding is required. The Plan is similar to a wetland bank where the Port can draw from the release of wetland credits as needed for Port specific development. The Plan, however, is only for Port projects and the credits accrued through time cannot be sold to outside parties.



FIGURE 9. WILLOW GROVE ADVANCE WETLAND MITIGATION SITE

### 10.6.2 Aquatic Habitat Mitigation Credits

In 2012 the Port, in coordination with state and federal agencies, developed an advanced aquatic habitat mitigation methodology specific to the Port's project that would allow for future aquatic habitat credit accrual from the removal of the 1920's dilapidated Terminal 4 dock structure in the Columbia River - the first use of this methodology in Washington state. This methodology allows the state and federal agencies a common aquatic mitigation currency that can be utilized as a "line of habitat credit" for future in-water Port projects. The basis of this model is the Habitat Equivalency Analysis, or HEA, that allows

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[HTTPS://WWW.PORTOFLONGVIEW.COM/DOCUMENTCENTER/VIEW/421](https://www.portoflongview.com/documentcenter/view/421)

accumulation of credit over a 30-year period. The Port entered into a Memorandum of Agreement with the Washington State Department of Fish and Wildlife under the provision specified in RCW 90.74 to formalize this agreement.

### 10.6.3 Legacy Contamination Site Cleanup

The Port has two legacy contamination cleanup sites, each with its own unique challenges. Both sites harken back to the beginning of the development of the City of Longview area and the waterfront as an industrial growth engine for the region. The sites are also located in key areas that the Port is planning on future development, and therefore, careful selection of remediation options is considered to ensure the Port District's assets are used to their highest and best use. The Port engaged in a lawsuit beginning in 2010 with its past insurance companies to ensure the Port had a financial pathway to move the cleanup of these sites forward as the Port plans for its future. The Port's success in that lawsuit leaves the Port in a good position to ensure that the contamination of these sites is remediated, the health and well being of its employees and constituents is protected, and the future growth of the Port and the use of its assets are not constrained.

#### International Paper Company Treated Wood Products and Maintenance Facility Area Site (TWP/MFA)

International Paper Company (IPCo) purchased the Long Bell Lumber Company in 1956 and continued to operate the mill site until closure in 1982. Under application to the U.S. Environmental Protection Agency (USEPA) and as part of the Federal Resource Conservation and Recovery Act (RCRA) closure permit, IPCo began post closure corrective action and closure activities. Through the intervening years, the Port purchased several acres from IPCo and as part of one larger transaction, also acquired the area of the historic creosote-wood treatment plant. Ecology required additional measures for clean up through the Modal Toxic Control Act (MTCA) and groundwater and soil cleanup efforts were implemented. During the implementation of cleanup activities around the treated wood product (TWP) facility, additional contamination was discovered leading off site onto Port property in the vicinity of the Port's mechanic shop, known as the maintenance facility area (MFA). The Port has actively participated in the development of the remedial action to ensure this legacy contamination is protective of the health and wellbeing of the environment, its employees, and the Port District's assets. The location of this cleanup site provides future challenges for Port development and master planning efforts accommodate the remedial actions. Final implementation of the MFA cleanup action is proposed within the next five years.

#### Petroleum Facilities Remediation – Total Petroleum Hydrocarbons (TPH)

The Port and other private entities (and their predecessors) operated several petroleum pipelines, above and below ground storage tanks, and a fuel loading rack facility. These facilities were constructed and decommissioned at varying times between 1926 and 1986. The facilities were used to transport a variety of petroleum products from ships berthed on the Columbia River inland to an above ground storage tank, and a tank farm that is adjacent to the Port. The Port and the other parties began investigation on the TPH site in the early 1990's which included many studies regarding contamination impacts to soil and groundwater. Interim cleanup actions to soil contaminants have occurred since the 1990's as well as yearly groundwater monitoring. The Port engaged the other parties and the Department of Ecology in 2015 to begin the regulatory process through the Modal Toxic Control Act (MTCA) and an Agreed Order was signed in 2019. The Port and the other parties are working through the remedial investigation and feasibility study process

to determine the preferred soil and groundwater alternatives for remediation. The site is located within the main rail line servicing all the Port's waterfront, and therefore careful considerations need to occur to ensure the environment is protected, business is not disrupted, and future development of Port assets is not substantially restricted. Implementation of the remediation is estimated to occur within 5-7 years.

#### 10.6.4 Stormwater Management Plan

Due to the changing and challenging stormwater regulations in the state of Washington, the Port developed a holistic approach to stormwater management. The Stormwater Management Plan, first developed in 2014 and updated in 2021, outlines the Port's current stormwater subbasins, hydraulic analysis, existing infrastructure, and potential or proposed capital stormwater infrastructure needs. This Plan provides a short and long-term view of the Ports entire stormwater infrastructure planning. The Plan is updated approximately every ten years to include constructed infrastructure improvements, changed conditions, and future proposed or potential new stormwater capital improvements.

#### 10.6.5 Environmental Management Program

The Port meets and/or exceeds regulatory compliance as a standard practice. However, as the regulatory environment is continually evolving the need to demonstrate a coordinated effort amongst all aspects of the Port is needed. The developing environmental management plan (EMP) will encompass three areas: 1) on-going operations (e.g., cargo handling, vehicle and equipment management, maintenance, construction, and purchasing); 2) Port's environmental footprint on impacted communities (e.g., air, water, cleanup sites); and 3) stewardship and education. The EMP will require both operating and capital investments as the program develops. This EMP will be evaluated annually with short and long-term measurable targets.

### 10.7 Regional Economic and Community Development

#### 10.7.1 IWOW

The Washington State Department of Transportation is leading planning and design for the IWOW<sup>7</sup> project (refer to Section 4.5.1) while working closely with the Port of Longview, Cowlitz County, the City of Longview, the Federal Highway Administration, other regulatory agencies, and the public.

IWOW is designed to eliminate traffic backups as a result of three rail lines crossing with traffic at the intersection of Industrial Way (State Route 432) and Oregon Way (State Route 433) by grade separating the roadway. Grade separating means that vehicular traffic will be able to travel through the new intersection above ground level, independent of the rail lines below.

By elevating the intersection, IWOW will improve mobility for everyone who travels through this heavily congested corridor. It will also provide better access to the Port and other jobs and businesses located on the banks of the Columbia River.

#### 10.7.2 Spirit Lake, Toutle/Cowlitz River Collaborative

The Port of Longview is a member of the Spirit Lake, Toutle/Cowlitz River Collaborative (SLTCRC), along with local, state, and federal agencies, Tribal governments, and private parties. The SLTCRC was inspired

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by the [2018 National Academies of Science, Engineering and Medicine \(NASEM\) report](#) recommendation to create “a system-level entity or consortium of agencies to lead a collaborative multi-agency, multi-jurisdictional effort that can plan, program, create incentives, [and identify funding needs, and as appropriate, advance or seek funding to support those needs] to implement management solutions focused on the entire Spirit Lake and Toutle River system.

The NASEM report was commissioned by the U.S. Forest Service after the Washington State U.S. Congressional delegation directed the USFS, USGS, and US Army Corps of Engineers to generate long-term management solutions regarding the level of Spirit Lake and sediment delivery from the Toutle River basin. The purpose of SLTCRC is to bring agencies together to share information, to help build consensus regarding needs relating to the entire Toutle River system, and to promote actions to address these needs through the normal processes of the responsible agencies.

The SLTCRC is in Southwestern Washington and geographically consists of Mount St. Helens and the Spirit Lake and Toutle and Cowlitz River Drainages. The system is complex, with multiple local, state, Tribal, and federal entities managing different parts of the system with different, but often overlapping goals and mandates.

## 10.8 Education and Outreach

The Port maintains a community education program designed to inform stakeholders of Port operations and the economic benefits it brings to the community. Information is distributed through a variety of channels, including public tours, newsletters, social media, advertising and presentations to service clubs and schools.

## 10.9 Asset Management

In 2018, the Port embarked on an ambitious journey with a goal of providing adequate analytical tools to support management decision making regarding asset repair, maintenance and replacement. The Port lacked an integrated set of tools to manage, maintain and replace the Port’s assets in an optimal way. Maintenance was done on each asset based on immediate needs and allowable budget. Preventative maintenance lists existed in hard copy format with no ability to track and utilize an information system. No Graphical Information System (GIS) system was in place to track assets. The Port had done a high-level inventory of its assets and completed a preliminary overall condition assessment in the form of a grade; essentially categorizing assets from the facility/engineering’s staff knowledge (in their heads).

In 2018 the Port implemented a Software as Service (SaaS); i.e. cloud base, solution for the Port’s asset management system including preventative maintenance type software as well as GIS software. Initial configuration of the software was completed with a handful of assets mostly dock structures. In 2019 the Port continued with the configuration of assets, work order design, testing and training. Port staff completed testing and went live with the software to complete inspections on a limited number of assets in July of 2019. In 2020, Port staff continued with Phase II and focused on additional geospatial identification of assets, GIS data conversion, additional inspection forms and training. For example, the Port maintenance crew is using this system to conduct sprinkler and valve house inspections. Collection of data for rail easements & leases; work related to under dock inspections; and geospatial capture of the Ports electrical system have also been completed. Most of the work on the configuration has been done with Port staff with some assistance for GIS data publication and system software workflow development as well as custom reporting. This has been a gradual increase in data and functionality giving the Port more time to adapt and adopt. The Port has been able to categorize about 40% of its assets into GIS and have begun to track inspection information that will lead to knowledge on the assets

location and condition based on maintenance history. This will allow Port staff to make better decisions on future asset repair and replacement.

Future work will include the use of inspections with additional maintenance personnel as well as starting work with the environmental department on creating environment inspections on wastewater treatment facility assets. Integration with the Port’s financial system has been pushed out and will be considered at a future date. For a complete computerized maintenance management system (CMMS) and to obtain true basic to advanced asset management, this last step will be needed along with full adoption by the facilities/engineering department.

Benefits of a CMMS include the following:

- **Increased Vision:** Know cost of maintaining an asset; better decision making regarding asset replacement
- **Decreased Repair Costs:** Preventative and predictive maintenance processes ensure assets which are much less prone to breakdown.
- **Less Downtime:** Less frequent breakdown means less downtime.
- **Fewer Purchases:** Well-maintained assets last longer
- **Efficient management – Reactive vs proactive work –** how much time does maintenance/mechanics spend on reactive work; proactive is best
- **Improved Safety:** Regularly checked and maintained equipment is more likely to reach and stay at required safety level

The Port is still on a journey toward strategic asset management. The Port currently is at a pre-asset management level to basic asset management. Figure 10 below depicts the levels of asset management, and the Port’s goal is to at least be at the top of basic asset management with future goals of striving higher.

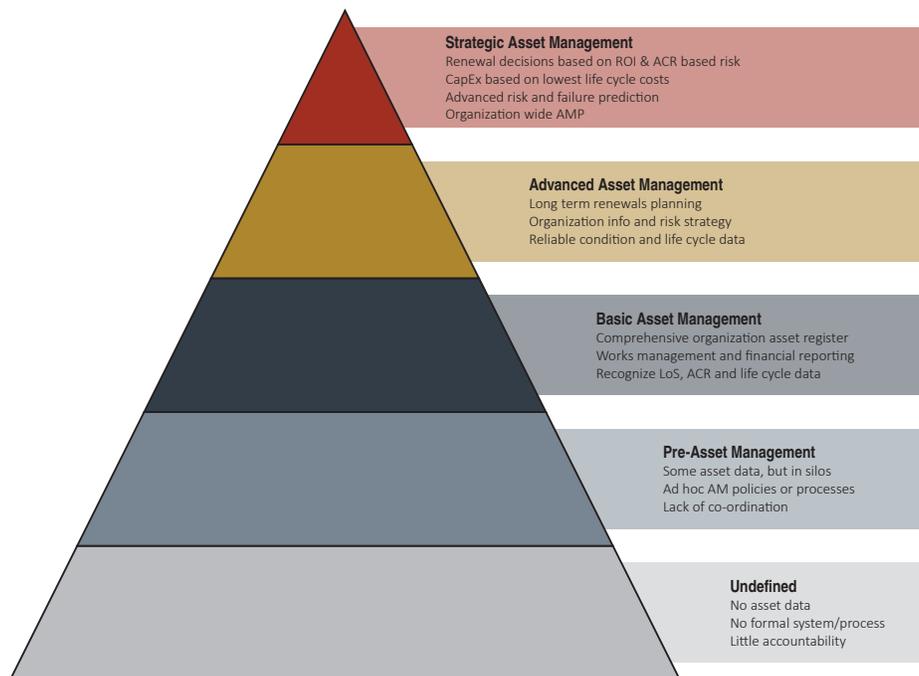


FIGURE 10. LEVELS OF ASSET MANAGEMENT

## 10.10 Safety

### 10.10.1 Safety Program

The Port's safety department is responsible for administration and implementation of the Accident Prevention Program (APP). The APP covers a wide range of standards provided by OSHA (Occupational Safety and Health Administration) and WISHA (Washington Industrial Safety and Health Act) that includes fall protection, confined space, arc flash, and blood borne pathogens, to name a few. The APP and safety programs are re-evaluated and updated on a yearly basis if needed, and the Port strives for continuous improvement throughout the year. Additionally, the APP covers many different types of labor, for example, the Port's administration staff, facility maintenance and construction labor, and cargo handling and equipment maintenance labor. Employee training on the relevant standards to each position is essential. The safety department utilizes a mix of inhouse and outside safety training professionals to complete this task. Safety standards training by outside safety professionals consisting of railroad safety, arc flash, and first aid/CPR are prime examples of the Port's commitment to provide the best training possible. As the Port grows and expands its labor force, along with increasing collaboration and coordination with outside public and private entities on safety training and emergency response efforts, a dedicated training and emergency command center may be required.

### 10.10.2 Emergency Response Plan

The Port developed a comprehensive emergency response plan (ERP) in 2019. The ERP utilizes the National Incident Command System (ICS) which integrates a coordinated emergency response used by local, state and federal emergency response agencies. The ERP is also in compliance with the Occupational Safety and Health Administration (OSHA), and the State of Washington's Department of Safety & Health (DOSH) emergency response requirements. The ERP is exercised and reviewed internally every year. Additionally, the Port engages with local, state, and bi-state emergency responders in large scale tabletop exercises. A core component of the ERP utilizes the Port's Mass Notification System that can alert anyone on Port property of an emergency situation. As this ERP is exercised, additional operating and capital expenditures will be needed for continual improvements.

### 10.10.3 Business Continuity and Resumption of Trade Plan

The Business Continuity and Resumption of Trade Plan (BCRTP) was developed concurrently with the Emergency Response Plan. The BCRTP serves as a guide on maintaining operations during and after an emergency. The BCRTP has a chain of command structure similar to the ICS where Port employees have specific responsibilities during and after an emergency event. The BCRTP is exercised along with the ERP annually and is an evolving document that will require operational and capital investments as self-sustaining resiliency from disasters is a key priority within the plan.

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# 12. APPENDICES

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## 12.1 Appendix A: Port Land Inventory

Since the inception of the Port of Kelso in 1921, the Port has continued to purchase, sell and exchange properties surrounding the 500-acre industrial marine facility. Properties purchased are strategic investments to ensure the Port can grow to provide the Port District with economic opportunities, recreational enjoyment, and be a steward to the environment. Maps identifying current Port holdings are located in Appendix B.

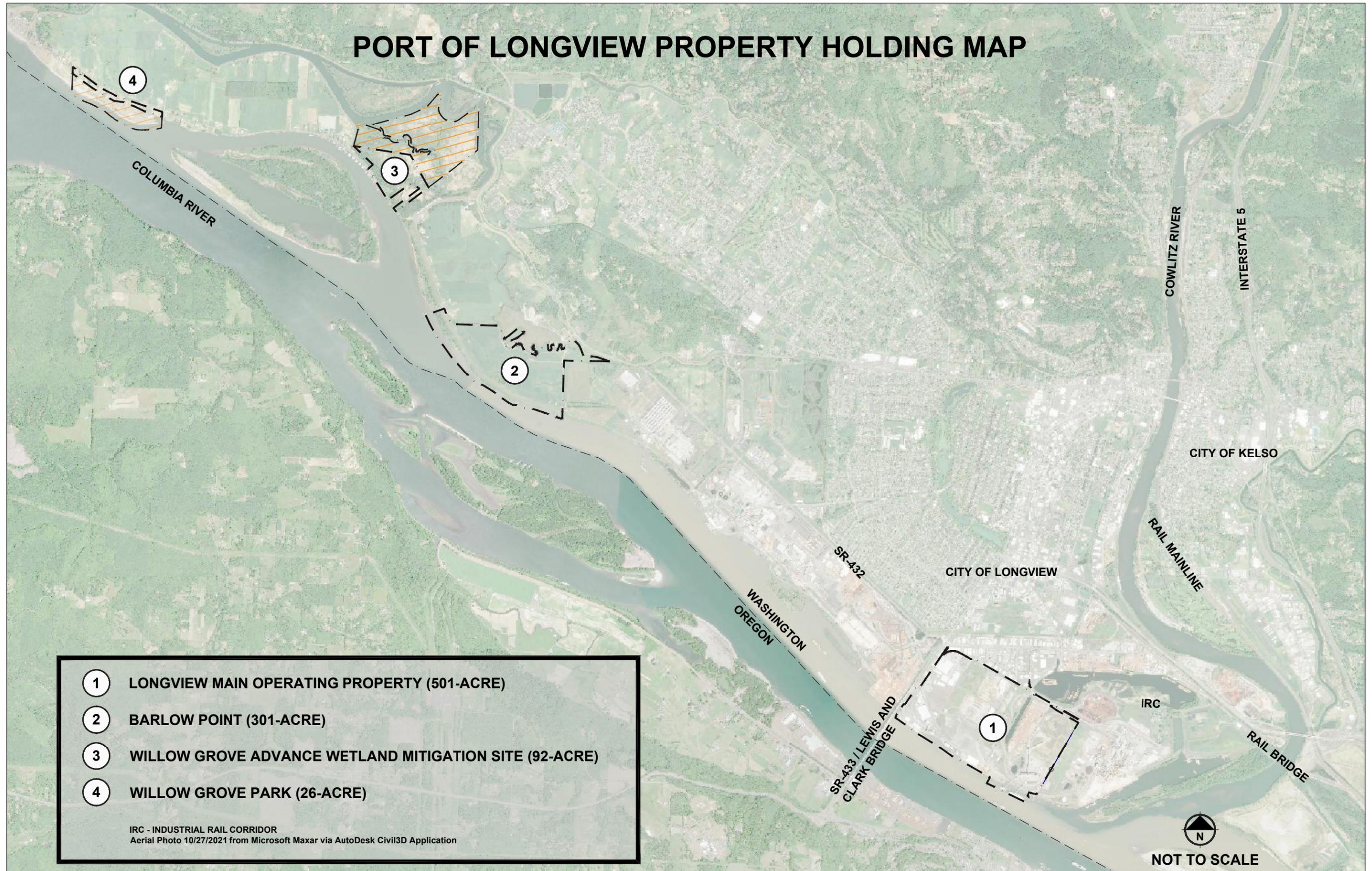
Property	Year	Acreage	Transaction
Port Industrial and Marine Properties	1929-1993	185.29	Purchase/Exchange/Sale
	1996	119.78	Condemnation
	1998	74.41	Purchase
	1999	158	Purchase
	2000	2.06	Purchase
	2000	7.24	Purchase/Exchange
	2000-2002	22.54	Purchase
	2003	7.26	Sale
	2005	35.02	Sale
	2006	35.04	Sale
	2008	40.22	Sale
	2009	41.15	Purchase
	2018	6.04	Purchase
	2020	2.2	Purchase/Exchange
		618.71	Total Purchased
	-117.54	Total Sold	
	501.17	Total Property Acreage	
Barlow Point Property	2010	275	Purchase
	2012	7.5	Purchase
	2021	18.5	Purchase
		301.00	Total Property Acreage
Willow Grove Wetlands	1959-1974	380.3	Purchase
	2008	-229	Sale
	2008	-75	Transfer
	2018	15.73	Purchase
		396.03	Total Purchased
		304	Total Sold/Transfer
	92.03	Total Property Acreage	
Willow Grove Park	2015	24.41	Purchase
	2018	2.04	Purchase
		68.64	DNR Leased/PMA
		95.09	Total Property Acreage
<b>Columbia River Navigation Project / Jointly Owned Property</b>	<b>2004-2013</b>	<b>892.57</b>	
<b>Total Port Property</b>		<b>989.29</b>	
<b>Total Port Property (w/joint ownership)</b>		<b>1,881.86</b>	

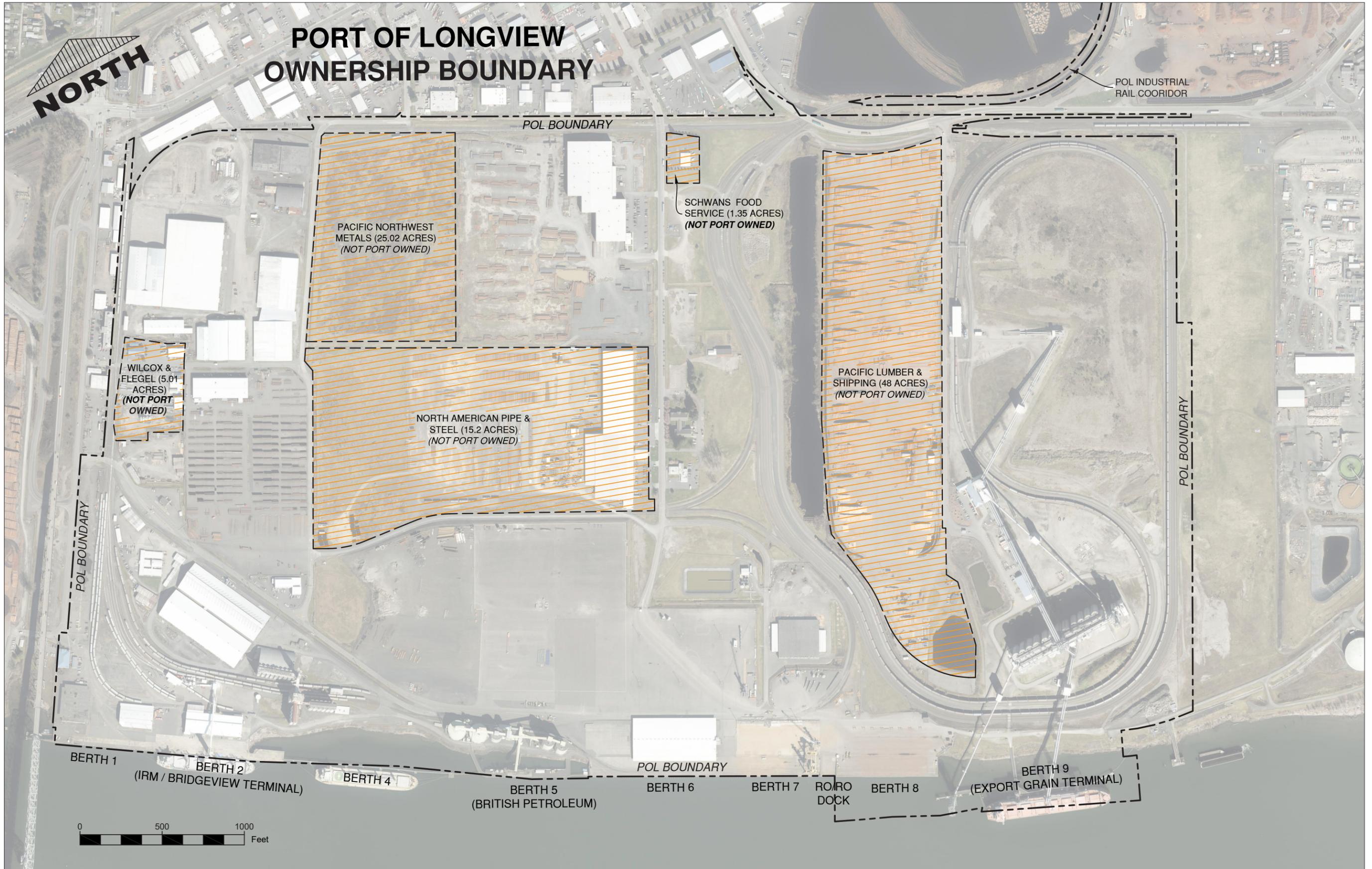
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## 12.2 Appendix B: Port Holdings Maps

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# PORT OF LONGVIEW PROPERTY HOLDING MAP





## 12.3 Appendix C: Barlow Point

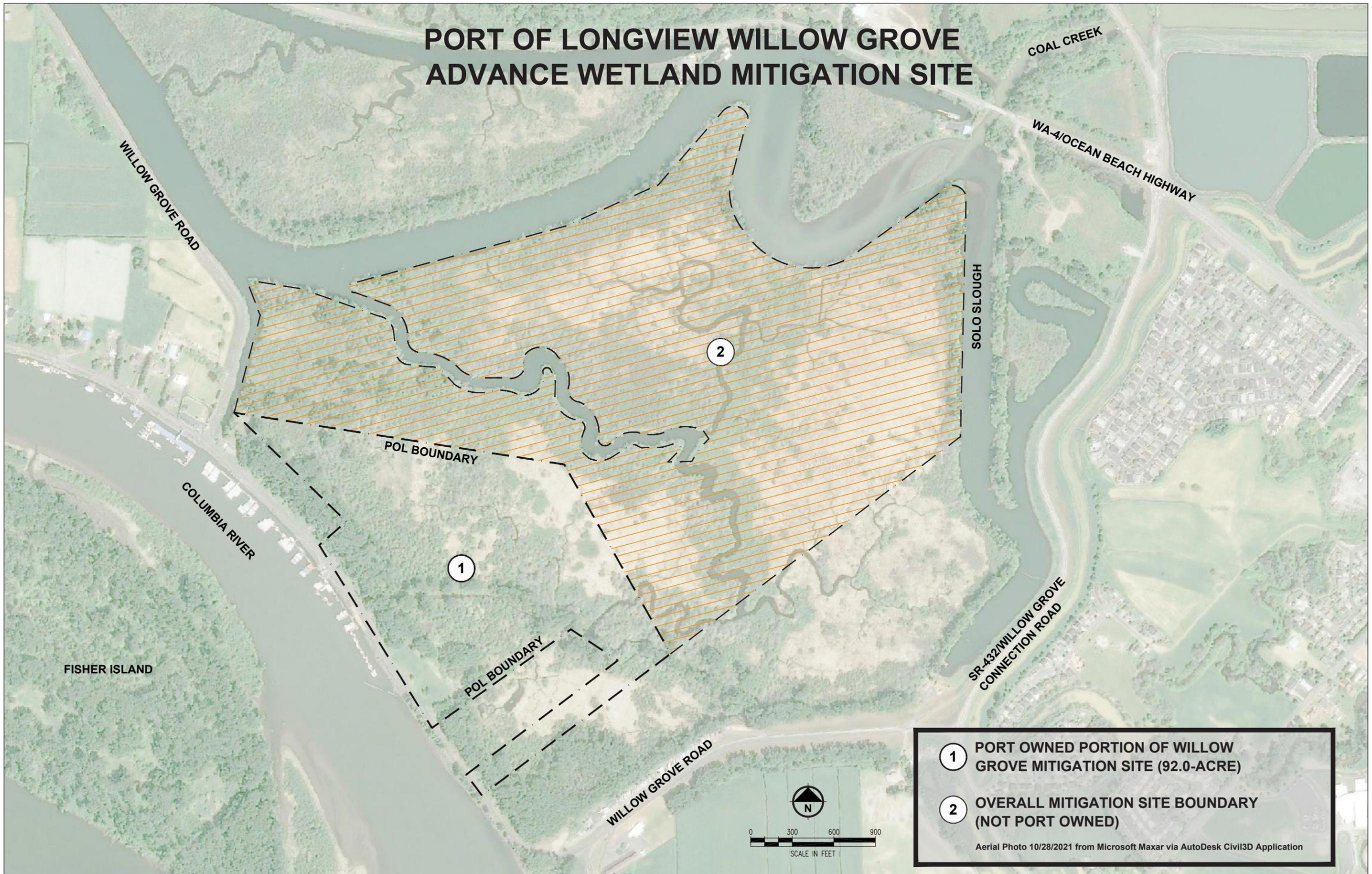
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## 12.4 Appendix D: Willow Grove Advance Wetland Mitigation Site

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## 12.5 Appendix E: Willow Grove Park

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## 12.6 Appendix F: Strengths Weaknesses Opportunities and Threats Analysis

## SWOT ANALYSIS - MAIN TAKE-AWAYS



### STRENGTHS (INTERNAL)



- First full-service port on Columbia River
- Deep draft, dual-railroad-served, appropriately zoned property
- Existing tenants and industrial businesses
- Diverse cargos
- Undeveloped land
- Expertise in bulk and breakbulk cargos
- Willow Grove Park and Boat Launch
- Strong local and state partnerships
- Customer service and communication
- Accessible Commission
- Financial foundation
- Active, supportive community
- Economic driver for community
- Skilled workforce and staff

## WEAKNESSES

(INTERNAL)



- At-grade rail crossings
- Rail to Barlow Point
- Lack of storage
- Restrictive labor agreements
- Limited flexibility in rail delivery times
- Aging infrastructure
- Limited tax revenue
- Limited bonding or grant funding
- Focused investment primarily on maritime activities
- Dependence on limited secure revenue sources
- Slower response times/ bureaucracy
- Limited acknowledgement of accomplishments
- Internal/external communication
- Transparency of project development with labor partners

## OPPORTUNITIES

(EXTERNAL)



- Growing Asian market
- Expanding commodities (e.g., dry bulk)
- Innovative new or evolving products
- Barge and short sea shipping
- Overflow business from other PNW ports
- Overflow due to increased regulations and taxes in other states
- Purchase of upland industrial land
- Increasing partnerships (with tenants, community college, trade organizations, etc.)
- Opportunities for acquiring state and federal funding
- Increasing communication and investments around green initiatives
- Increase Roll on/Roll off business

## THREATS (EXTERNAL)



- Increasing rail and road congestion
- Deteriorating Infrastructure outside of Port
- Longer unit train requirements
- Increasing infrastructure costs
- Competition from other ports and intermodal facilities
- Economic downturn (market changes, tariffs, etc.)
- Increased frequency and severity of weather events
- Future pandemics
- Physical and cyber security
- Silting river
- Potential dam removal
- Permitting uncertainty
- Diminishing available or skilled workforce
- Increasing cost and restrictive labor contracts
- 3rd party lawsuits

## KEY OUTCOMES AND ACTIONS PART 1



- Continue to focus on retaining and adding local jobs
- Expand the IRCE for unit train rail
- Improve at grade rail crossings
- Explore creative approaches to fund IRCE
- Redevelop Berth 4
- Investigate barge traffic opportunities
- Purchase and develop upland properties
- Development of Barlow Point
- Invest in labor force
- Invest in equipment and infrastructure to support growth

# KEY OUTCOMES AND ACTIONS

## PART 2



- Continue community investments
- Incorporate green development, infrastructure and energies
- Pursue opportunities to be more self-sustaining
- Invest in marketing, including collaboration with Labor
- Increase public communication regarding benefits of the Port
- Develop greater relationships at the state and national level / maintain and enhance lobbying efforts
- Improve communication with key partners during project development
- Continue/expand active public outreach programs

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## 12.7 Appendix G: Market Analysis

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# Market Analysis for Comprehensive Scheme of Harbor Improvements/Master Plan

For Port of Longview



**mercator**  
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**kpff**

November 1, 2021

**FINAL**



## Market Analysis for Port of Longview's Comprehensive Scheme of Harbor Improvements/Master Plan Project overview and methodology

- Mercator's assignment was to identify, analyze, and forecast the flows of dry bulk cargoes - excluding hydrocarbon-based commodities - that are or could be transported in unit train quantities, on a regular basis, to or from the Port of Longview (POL).**
- Mercator accomplished this by studying the US Census Foreign Trade database since 2010 to identify the highest-volume dry bulk commodities exported from US West Coast ports. We then delved deeper into the data on cereals and oil seeds to determine the main US ports used to export each of the sub-commodities (wheat, corn, and soybeans), destination regions, and US growing regions and concluded with our assessment of the prospects for ports in the Pacific Northwest (PNW) including POL to handle increased volumes. Next, we explored the current US port gateways and mining or production regions for soda ash, potash, and wood pellets and opined on potential opportunities for POL to capture volumes of these commodities from incumbent ports.
- The table below indicates the annual tonnages since 2010 of the highest-volume dry bulk cargoes moving through US West Coast ports.

Total dry bulk exports by major commodity moving via US Pacific Coast ports – metric tons (MT) (million) (mil)

Commodity (2D HS)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020E	CAGR
Cereals	21.47	23.17	18.64	15.24	20.46	18.64	24.67	25.77	33.79	20.85	24.76	1.4%
Oil Seeds Etc.	11.86	9.46	13.47	12.73	15.27	14.22	16.64	15.12	9.51	14.42	10.71	-1.0%
Inorganic Chemicals	3.39	3.57	3.86	4.08	3.70	3.45	3.99	4.59	4.79	5.17	4.48	2.8%
Wood Products	5.84	7.95	6.79	8.34	8.19	6.11	6.43	6.46	5.90	4.51	3.88	-4.0%
Iron And Steel	5.58	6.58	5.35	4.85	3.99	3.53	2.89	3.53	4.18	3.39	3.13	-5.6%
Fertilizers	2.55	2.64	1.69	2.14	2.56	2.18	1.49	2.88	3.63	3.20	3.30	2.6%
<b>Total</b>	<b>50.70</b>	<b>53.38</b>	<b>49.81</b>	<b>47.38</b>	<b>54.16</b>	<b>48.12</b>	<b>56.11</b>	<b>58.34</b>	<b>61.79</b>	<b>51.53</b>	<b>50.27</b>	<b>-0.1%</b>

Source: US Census Foreign Trade Data

- Agricultural products (**cereals and oil seeds**) accounted for over 70% of the aggregate export tonnage through US Pacific Coast ports in 2020.
- Inorganic chemicals – consisting primarily of **soda ash** – were the next-highest commodity group.
- After **fertilizers**, the next largest commodity group was salt/sulfur/cement, which collectively accounted for only 1 million tons.
- Consequently, Mercator's market analysis of exports focuses on the six commodity groups in the table above. We did not study wood products beside wood pellets, or salt/sulfur/cement, or iron and steel because salt/sulfur/cement and wood products are typically exported from the port nearest to the mining/harvesting/production location because of the cost of transporting this heavy-weight cargo over land. Iron and steel don't move in unit train quantities.



## Opportunities for New Volumes Wheat

- Over 95% of the wheat exported from the US to Northeast and Southeast Asia moves through PNW ports.
  - Thus, opportunities for PNW ports to capture additional wheat shipments to Asia away from California, Gulf Coast, or East Coast ports are minimal.
- However, in 2019, Africa (another major market for US wheat), received 83% of its US imports through Gulf ports.
- Mercator assessed opportunities for PNW ports to divert volumes from Gulf Coast ports to destinations in eastern and southern Africa and reported our conclusions in the *Market Analysis in Support of the Port of Longview's Master Plan*.
- Geographic factors make it difficult for PNW ports to capture more shipments of Midwest-origin wheat to South America because shipments would incur higher transport costs and longer overall transit time to travel the extra distance to the PNW via truck or train plus the additional mileage once the cargo is loaded on the vessel when compared to a supply chain route of barge from the growing region to a Gulf Coast port and then direct to destination in an ocean-going vessel.

US dry bulk exports of Wheat by US load port and offshore region for 2019 - MT (000)

US Port	Africa	SE Asia	NE Asia	S.AMR	MED	ME	ISC	N.EURO	Other	Total
Kalama, WA	653	1,858	2,551	166	0	230	220	0	0	5,678
Houston, TX	3,085	0	0	753	73	30	15	0	0	3,955
New Orleans, LA	2,047	174	0	906	0	65	0	0	0	3,191
Vancouver, WA	189	1,842	791	91	0	40	0	0	0	2,953
Portland, OR	53	917	1,174	47	0	94	0	0	0	2,284
Longview, WA	240	803	813	0	0	20	66	0	0	1,943
Duluth, MN	116	0	0	0	650	0	0	103	0	869
Corpus Christi, TX	558	0	0	88	98	0	0	0	19	762
Gramercy, LA	93	123	32	259	0	0	0	0	0	506
Galveston, TX	197	0	0	143	0	0	0	0	0	340
Beaumont, TX	62	0	0	12	0	79	0	0	0	153
Other	29	30	0	20	0	0	0	0	14	94
<b>Total</b>	<b>7,320</b>	<b>5,747</b>	<b>5,361</b>	<b>2,484</b>	<b>821</b>	<b>558</b>	<b>302</b>	<b>103</b>	<b>66</b>	<b>22,729</b>

Source: US Census



## Opportunities for New Volumes

### Corn

- Only about 55% of the corn exported from the US to Northeast Asia moves through PNW ports.
  - *The balance (nearly 12 million tons in 2019) is shipped through Gulf Coast ports to Asia.*
- Mercator assessed opportunities for PNW ports to divert Asia-bound volumes from those Texas and Louisiana ports.
  - *A challenge for such diversions is the proximity of the largest Midwest corn-growing areas to the Mississippi River system and barge transport economics compared with truck and rail transport.*
- Geographic factors make it difficult for PNW ports to capture a larger share of shipments of Midwest-origin corn to South America and Mexico because of the longer overall transit times and higher combined land and ocean transport costs compared to using Gulf Coast gateways.

US dry bulk exports of Corn by US load port and offshore region for 2019 - MT (000)

US Port	NEAsia	S-AMR	CDA/MEX	ME	SEAsia	MED	OCEANIA	AFR	ISC	N.EURO	Total
New Orleans, LA	5,179	14,729	6,502	719	0	152	126	0	0	0	27,406
Gramercy, LA	6,674	6,041	2,546	526	0	18	0	62	0	0	15,867
Kalama, WA	4,973	0	0	0	110	0	0	0	0	0	5,083
Baton Rouge, LA	233	1,816	1,109	0	0	0	0	0	0	0	3,158
Tacoma, WA	2,461	0	0	0	0	0	0	0	0	0	2,461
Longview, WA	2,283	0	0	0	144	0	0	0	0	0	2,427
Seattle, WA	2,392	0	0	0	0	0	0	0	0	0	2,392
Vancouver, WA	1,783	0	0	0	0	0	0	0	0	0	1,783
Beaumont, TX	0	129	683	0	0	0	0	0	0	0	812
Houston, TX	0	193	151	0	0	0	0	0	0	0	344
Portland, OR	332	0	0	0	0	0	0	0	0	0	332
Norfolk, VA	0	206	0	0	0	0	0	0	0	0	207
Lake Charles, LA	0	0	126	0	0	0	0	0	0	0	126
Ogdensburg, NY	0	0	23	0	0	0	0	0	0	0	23
Other	4	1	0	0	1	0	0	0	0	0	6
<b>Total</b>	<b>26,314</b>	<b>23,115</b>	<b>11,141</b>	<b>1,246</b>	<b>254</b>	<b>170</b>	<b>126</b>	<b>62</b>	<b>0</b>	<b>0</b>	<b>62,428</b>

Source: US Census



Confidential - Final



## Opportunities for New Volumes Soybeans

- Nearly 60% of the soybeans exported from the US to Northeast Asia and over 85% to Southeast Asia moved through Gulf Coast ports in 2019.
  - The balance of nearly 12 million tons in 2019 was shipped through Gulf Coast ports to Asia.
- Mercator assessed opportunities for PNW ports to capture diverted volumes destined to Asia, African and the Indian Subcontinent from those Texas and Louisiana ports. Similar to corn production, the growing region for soybeans is squarely in the Midwest, as shown in the map on the next page, which makes barge transport via the Mississippi River system to Gulf Coast ports the most transit-time efficient and economical routing.
- Geographic factors make it difficult for PNW ports to capture additional shipments of Midwest-origin corn to South America and Mexico since overall transit times and transportation costs would be higher than using Gulf Coast ports.

US dry bulk exports of Soybeans by US load port and offshore region for 2019 - MT (000)

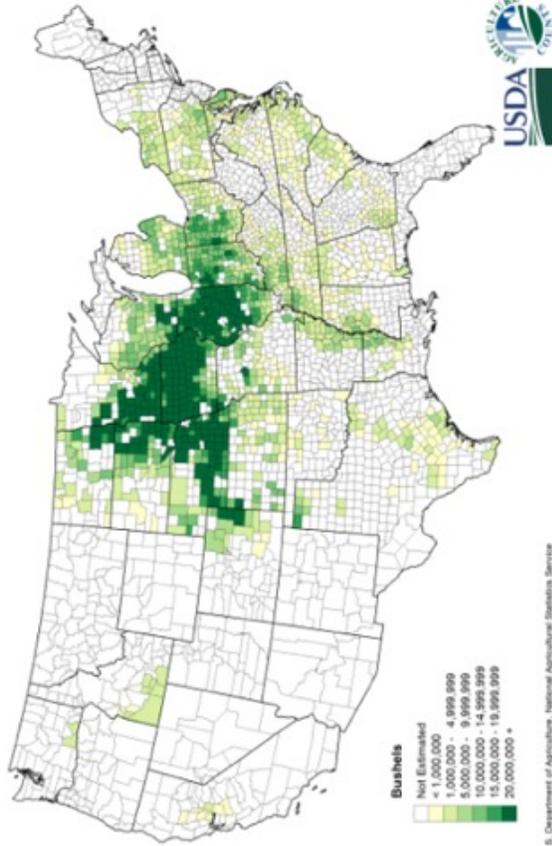
US Port	NE Asia	AFR	ISC	N.EURO	S.AMR	CDA/MEX	SE Asia	MED	ME	OCEANIA	Total
Gramercy, LA	15,580	1,110	1,201	1,249	1,100	494	2,255	385	49	0	23,422
New Orleans, LA	13,304	1,283	1,325	2,255	1,699	1,085	439	1,541	395	0	23,325
Kalama, WA	9,270	0	116	0	0	0	180	0	0	0	9,566
Baton Rouge, LA	2,224	189	1,094	44	543	1,490	0	0	175	0	5,759
Seattle, WA	4,260	0	124	0	0	0	0	0	0	0	4,383
Vancouver, WA	3,577	0	0	0	0	0	122	0	0	0	3,699
Tacoma, WA	2,836	0	471	0	0	0	1	0	0	0	3,307
Longview, WA	2,300	0	0	0	0	0	92	0	0	0	2,392
Norfolk, VA	613	328	0	0	96	0	4	260	0	0	1,302
Mobile, AL	0	82	107	0	0	200	0	0	0	0	388
Toledo-Sandusky, OH	0	29	0	59	28	50	0	21	0	0	187
Portland, OR	126	0	0	0	0	0	0	0	0	0	126
Other	5	40	0	60	0	114	8	66	0	0	293
<b>Total</b>	<b>54,094</b>	<b>3,060</b>	<b>4,437</b>	<b>3,667</b>	<b>3,467</b>	<b>3,432</b>	<b>3,101</b>	<b>2,273</b>	<b>619</b>	<b>0</b>	<b>78,150</b>

Review of Key Commodities  
Corn and soybeans

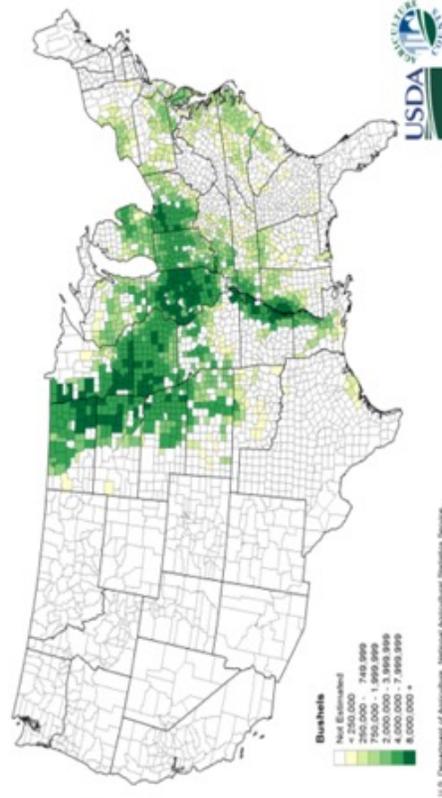


- These maps illustrate the heavy concentration of corn and soybean production in Iowa, Wisconsin, Illinois, and Missouri.
- PNW ports are not as competitive for routing corn or soybean shipments compared with Gulf Coast ports, but it is conceivable that PNW ports could capture some volume moving in unit trains from certain states such as Iowa.

US Corn production by US county for 2018



US Soybean production by US county for 2018



## Opportunities for New Volumes

### Soda Ash



- About 90% of soda ash in the US is mined and processed in southwest Wyoming, with the balance produced in California.
- Four companies dominate soda ash production in Wyoming – Solvay Chemicals, Ciner, Tata Chemicals, and Genesis Alkali.
- The latter three companies operate commercially through a joint venture – ANSAC – for sales, marketing, and logistics.
- About 5.6 million tons of this product were exported from US ports in 2019, of which over 80% moved through PNW ports, mainly Portland.
- There is a relatively small opportunity to divert some of the nearly 475,000 tons shipped through Texas ports to South America and Africa, as well as some of the nearly 1.3 million tons moved by rail to Mexico because export via PNW ports is an incumbent routing.
- However, the larger opportunity for POL would be if one of the ANSAC members were to separate from the joint venture to launch its own export operation through its own terminal.
- Global demand for soda ash is projected to grow by 2% per year, and Wyoming is well-positioned to share in that growth. That means that PNW export volumes should increase accordingly.

US exports of Soda Ash by US port and offshore region in 2019 – MT (000s)

US Port	Asia	S AMR	Oceania	Africa	C AMR & CARIB	N AMR	Europe	Total
Portland, OR	2,702	1,000	279	0	67	0	0	4,048
Longview, WA	521	86	0	0	9	0	0	616
Port Arthur, TX	0	269	0	166	0	0	10	445
Long Beach, CA	123	117	0	0	0	4	0	244
Galveston, TX	0	155	0	0	0	72	0	227
Other	4	5	0	0	0	5	0	15
<b>Total</b>	<b>3,350</b>	<b>1,631</b>	<b>279</b>	<b>166</b>	<b>77</b>	<b>81</b>	<b>10</b>	<b>5,595</b>

Source: US Census Foreign Trade Data

## Opportunities for New Volumes

### Potash



- More than 99% of the potash shipped out of Pacific Coast ports in 2018 moved through the Port of Portland.
  - *The majority of this potash comes from mines in central Saskatchewan.*
- Canpotex, which is owned by Nutrien, formed in 2018 through the merger of Potash Corp and Agrium Inc., controls the Canadian potash shipments being exported via Portland.
  - *Canpotex's subsidiary, Portland Bulk Terminals LLC, has a long-term lease for a dry bulk facility at the Port of Portland's Terminal 5. A recently completed expansion project increased capacity from 3.5 million MT to 7.5 million MT per annum.*
- Demand for potash in the Indo-Pacific region is expected to exhibit strong growth in the years ahead because more farmers will seek to improve their yield per acre through fertilization.
- Two potential opportunities for additional potash tonnage moving through PNW ports, and not necessarily through the Canpotex terminal in Portland, are outlined below.
  - *Development of new potash mines in Saskatchewan by non-Canpotex producers (such as BHP) and which cannot be handled at dry bulk terminals in British Columbian ports*
  - *Growth in exports to Asia from potash mines in Utah*

Portland's bulk Potash exports to the Indo-Pacific – MT (000)

Import Country	2010	2011	2012	2013	2014	2015	2016	2017	2018
China	87	359	62	236	329	179	74	249	899
Korea, South	345	361	245	401	441	299	188	396	438
Australia and Oceania	235	201	166	206	282	263	238	337	388
Japan	407	381	382	337	411	254	290	375	318
Thailand	0	41	0	31	52	0	0	65	244
Taiwan	121	66	131	131	199	162	137	167	199
Other	301	57	40	0	29	0	55	18	56
<b>Total</b>	<b>1,497</b>	<b>1,467</b>	<b>1,026</b>	<b>1,342</b>	<b>1,744</b>	<b>1,157</b>	<b>982</b>	<b>1,608</b>	<b>2,541</b>

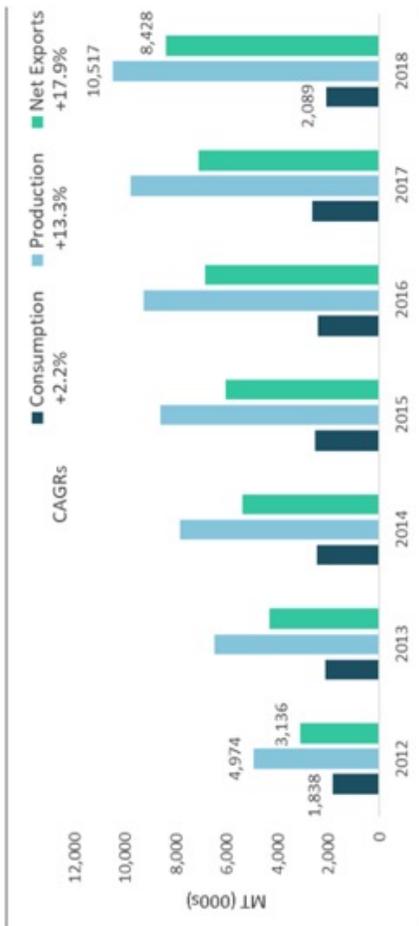
Source: US Census Foreign Trade Data

## Opportunities for New Volumes Wood pellets



- Global production and consumption of wood pellets has more than doubled since 2012.
- Europe is both the largest producer and the largest consumer.
- Wood pellet consumption in Asia is greater than production and is growing extremely fast.
- Most of Canadian wood pellet exports and virtually all of US wood pellet exports are presently destined for Europe.
- US exports of wood pellets since 2012 have more than tripled, at a compound rate of 21% per year.
- A growth opportunity for US PNW ports is to develop a specialized export marine terminal for wood pellets to supply the rapidly growing demand for this product in Asia – especially in Korea and Japan.
- Key competitors for this market are and will be Vietnam and British Columbia.
- Mercator explains its assessment of this opportunity next.

North America consumption, production, and net exports of Wood Pellets (MT – 000s)



Top wood pellet importing countries in Asia (MT – 000s)

Asia	2012	2013	2014	2015	2016	2017	2018	CAGR 2012-'18
Importers								
S. Korea	122	485	1,850	1,471	1,717	2,431	3,445	74%
Japan	72	84	97	232	347	506	1,060	57%
Other	7	1	16	29	96	61	43	35%
<b>Total Imports</b>	<b>202</b>	<b>570</b>	<b>1,963</b>	<b>1,732</b>	<b>2,159</b>	<b>2,999</b>	<b>4,548</b>	<b>68%</b>

## Opportunities for New Volumes

### Characteristics of wood pellets



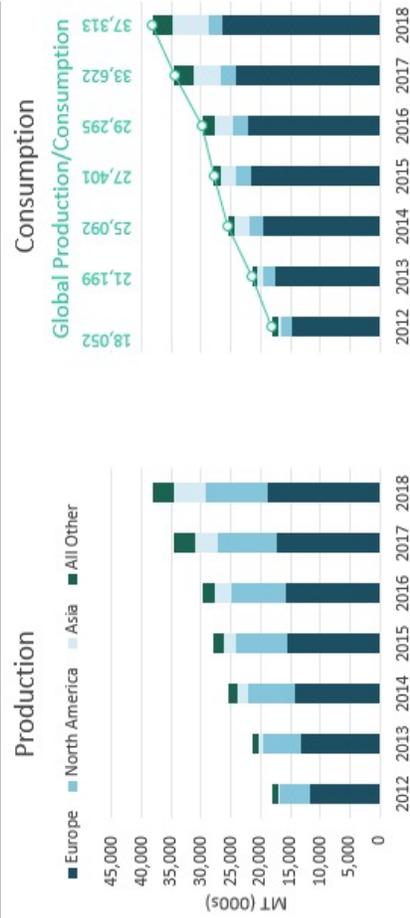
- Wood pellets are primarily comprised of some combination of sawmill residues (sawdust and woodchips); low grade roundwood; forest thinnings; branches, tops, and bark and occasionally small quantities of agricultural residues; end of life timber; short rotation forestry; and diseased wood. These materials are compressed into pellets of uniform size, but there are differences in both the heating value (British thermal unit/pound - Btu/lb) and ash production.
- Wood pellets are sensitive to moisture, are more easily damaged, and they present both fire and suffocation hazards. These hazards and sensitivities require careful and gentle handling, and covered storage. Most terminals have concrete dome storage facilities which range in size from 14,000 MT to 71,000 MT, though some terminals store pellets in warehouses or silos.
- Wood pellets are typically not shipped by bulk carriers larger than 50,000 deadweight tons (DWT) because the propensity for wood pellets to sustain damage increases with both the falling distance during loading and the weight of the overburden. It is feasible for a terminal with a single dock that is capable of handling Handymax vessels to be able to load 2 million MT per year (one vessel call per week). If the terminal is not co-located with the pellet manufacturing plant, and is served by rail, this would equate to around three 100-car unit trains per week.
- Wood pellets are consumed in three major markets – home heating (pellet stoves), industrial power (small-scale boilers provide power for industrial operations), and large-scale thermoelectric power plants. Home heating and industrial consumers are not limited by ash production, and they tend to consume the least expensive pellets available. Large-scale, coal/biomass co-fired thermoelectric power plants demand the highest-grade wood pellets.

## Opportunities for New Volumes Characteristics and production

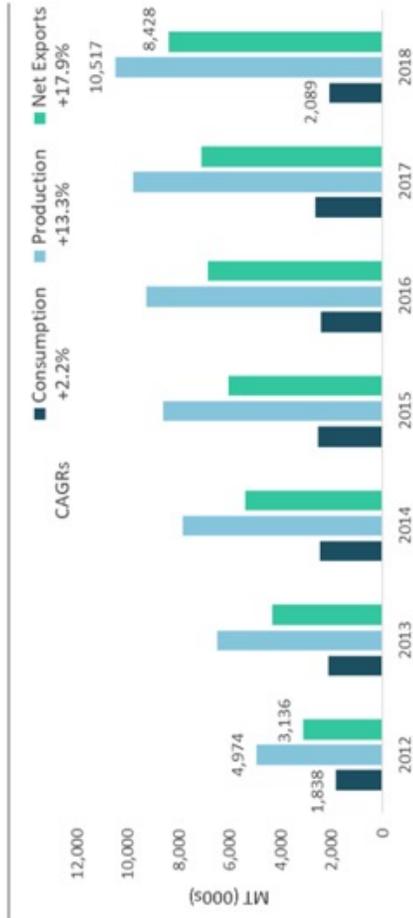


- Global production/consumption of wood pellets has more than doubled since 2012, growing from just over 18 million MT to more than 37 million MT. This equates to a compound annual growth rate of 12.9%.
- Europe is both the largest producer as well as the largest consumer. In terms of production, North America is next in line, but, whereas Europe consistently consumes significantly more wood pellets than it produces, North American wood pellet consumption is only a small fraction of pellet production. Wood pellet consumption in Asia is greater than production, and though the Asian consumption market is currently small relative to Europe, it is growing extremely fast.
- Although Europe is a net importer of a significant volume of wood pellets, North America is a net exporter, and it is not by coincidence that North American net exports are of nearly the same size as European imports. Most of Canadian wood pellet exports and virtually all of US wood pellet exports are destined for Europe. Recently, several export agreements between Canada and Asia have emerged.

Global wood pellet production and consumption by region (MT – 000s)



North America consumption, production, and net exports of wood pellets (MT – 000s)



- The US exported 1.9 million MT of wood pellets, which is 1.4 times higher than the 1.4 million MT exported from Canada in that same year. Over the next six years, US exports more than tripled, rising to over 6.0 million MT at a compound rate of 21% per year. In 2018, US exports were 2.3 times higher than Canadian exports.



## Opportunities for New Volumes Asia consumption and production



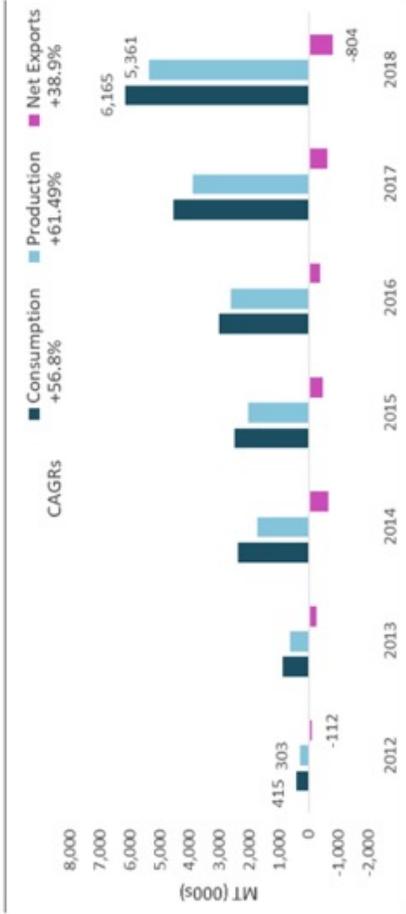
- Asian growth rates eclipse even the fastest growing European and North American markets. The table at top right shows that Asian consumption grew at an annual rate of 57%, while production and imports grew at compound annual rates of 61% and 39%, respectively. Consumption was 15 times higher in 2018 than it was in 2012, and imports were more than seven times higher in 2018 than in 2012 even though production was 17 times higher.

- Historically, China has led Asia in growth rates of resource consumption, but this is not the case with wood pellets despite production and consumption growing by 44%. China represents comparatively low volume and is totally self-sufficient. China neither imports nor exports any meaningful volume of wood chips, and it is expected that its domestic production will continue to target the relatively small (though fast-growing) domestic market.

- As demonstrated in the table at bottom right, imports are dominated by South Korea and Japan, which together accounted for all but 500,000 MT of the 4.55 million MT of wood pellets imported in 2018.

- Exports are dominated by Vietnam, which accounts for around 70% of all Asian exports. Malaysia accounts for half of the remaining exports. The "Other" category includes China, which is typically able to supply all wood pellet needs through domestic production. When China's volumes are removed from the category, the volumes are small and show slow growth.

Asian consumption, production, and net exports of wood pellets (MT – 000s)



Top wood pellet importing and exporting countries in Asia (MT – 000s)

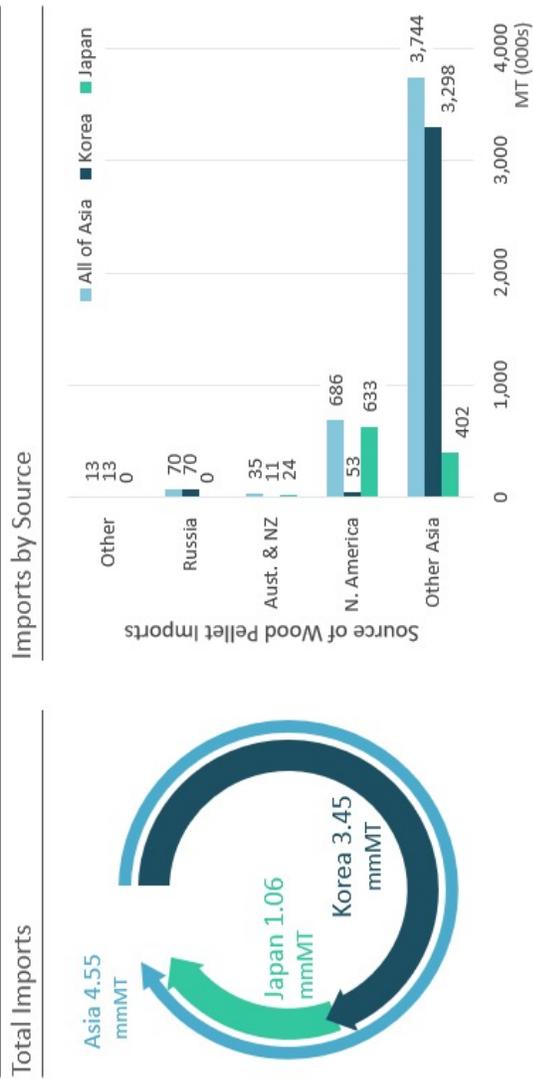
Asia	2012	2013	2014	2015	2016	2017	2018	CAGR 2012-'18
<b>Importers</b>								
S. Korea	122	485	1,850	1,471	1,717	2,431	3,445	74%
Japan	72	84	97	232	347	506	1,060	57%
Other	7	1	16	29	96	61	43	35%
<b>Total Imports</b>	<b>202</b>	<b>570</b>	<b>1,963</b>	<b>1,732</b>	<b>2,159</b>	<b>2,999</b>	<b>4,548</b>	<b>68%</b>
<b>Exporters</b>								
Vietnam	34	160	779	975	1,354	1,579	2,460	104%
Malaysia	37	81	169	149	296	527	703	63%
Other	18	63	354	141	129	271	409	68%
<b>Total Exports</b>	<b>90</b>	<b>305</b>	<b>1,301</b>	<b>1,265</b>	<b>1,779</b>	<b>2,378</b>	<b>3,572</b>	<b>85%</b>

## Opportunities for New Volumes Asian imports



- Korea and Japan account for almost all Asian wood pellet imports (the graphic accords with 2018 imports in the table on the previous page). In addition to total imports, imports by source are shown on the right. Korea sources nearly all its wood pellets from other countries in Asia (primarily Vietnam and Malaysia). By contrast, Japan sources around 60% of its wood pellets from North America (Canada) and only 40% from other Asian countries.
- Asian-sourced pellets are cost competitive, but Japan has strict criteria for both sustainability and quality, and the Feed-in-Tariffs (FIT) eliminate the need to use lowest cost pellets. The FIT system with sustainability requirements also encourages Japanese buyers to engage long-term offtake agreements. While Russia is a major wood pellet exporter, 95% of Russian exports are destined for Europe.
- As stated earlier, the rapid rates of growing demand have been associated with the relatively new phenomenon of supplementing or replacing coal as a fuel source in coal-fired thermoelectric power plants.
- In an effort to curb carbon emissions, many governments across the globe have in recent years designed and enacted policies that promote biomass and other forms of renewable fuel/energy for electricity production. Incentivizing power producers to switch from coal to wood pellets is accomplished through some combination of carrot (subsidies) and stick (penalties) incentives.

Wood pellet imports to Japan and Korea by source, 2018 (MT – 000s)





## Opportunities for New Volumes

### Government policies promoting biomass and Asia wood pellet demand

- Lately, to curb carbon emissions, many governments have designed and enacted policies that promote biomass and other forms of renewable fuel/energy for electricity production. Incentivizing power producers to switch from coal to wood pellets is accomplished through some combination of subsidy and penalty incentives.
- Wood pellets are just one, albeit critically important, form of biomass used for electricity generation. In formulating the outlook for Asia wood pellet demand, consideration was made for other forms and sources of biomass energy. Currently, Japan and South Korea are the two main wood pellet importing countries, and both secure the great majority of wood pellet imports from elsewhere in Asia (primarily Vietnam and Malaysia).
- Japan imported nearly 650,000 MT of wood pellets from North America in 2018. These imports were sourced solely from Canada even though the US exports more than twice the tonnage of wood pellets. This reflects the fact that there are no wood pellet export facilities on the Pacific Coast. Wood pellets for industrial power use is a very recent market development, and the Canadians were simply the first to identify the opportunity for the North America Pacific Coast. The lack of a facility on the US Pacific Coast is not a reflection of a competitive disadvantage of any sort.
- In addition to wood pellets, a significant quantity of biomass waste from the forestry and construction industries is consumed in Japan, and both Japan and South Korea import significant quantities of palm kernel shell (PKS), which is a byproduct of palm oil production. Only wood pellets and PKS have properties suitable for co-firing in coal plants, which has and will continue to drive imports of both.
- Co-firing or substituting wood pellets in power plants initially designed to burn coal is wholly dependent on government policy because wood pellets are more expensive per MWh than coal.
- Washington state is responsible for 13.3% of all US wood products, pulp, and paper exports. More than 40,000 Washington residents are employed in the forestry sector. Wood pellets sourced from the US are made from sawmill residues, low grade roundwood, thinnings, and some branches and bark. Located within a few miles of POL there are at least four mills operated by various parties: Weyerhaeuser mill (adjacent property), SDS lumber, NW Hardwoods, and the Pacific Lumber and Shipping Company. There is also the Kapstone paper mill. There are no pellet export terminals in the state, and ample local supplies exist for one or more large pellet plants. This presents an opportunity for POL to develop a wood pellet export terminal.



**mercator**

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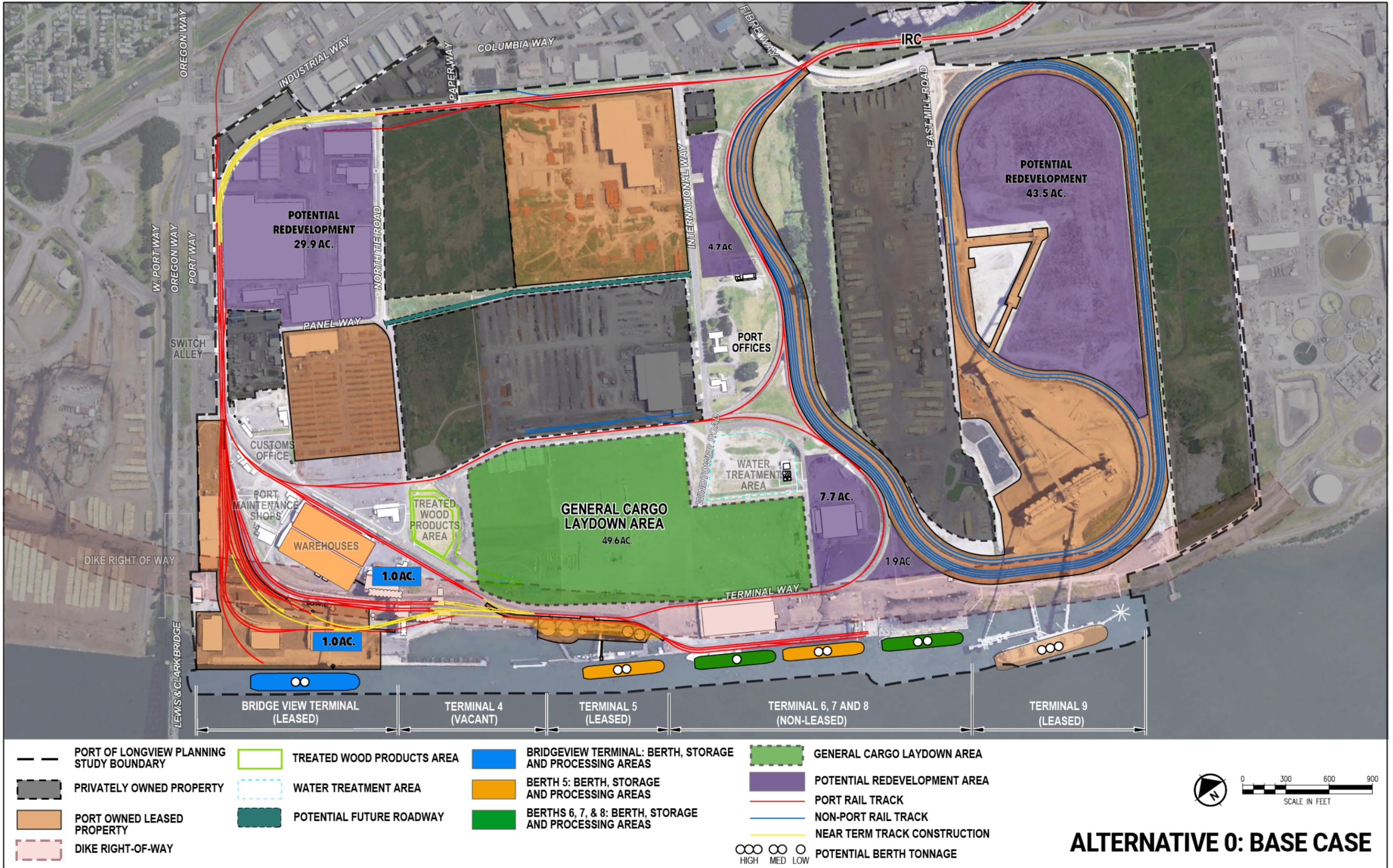
**United States**

Headquarters  
4040 Lake Washington Blvd.  
Suite 310  
Kirkland WA 98033  
Phone: 425.803.9876  
[mercatorintl.com](http://mercatorintl.com)

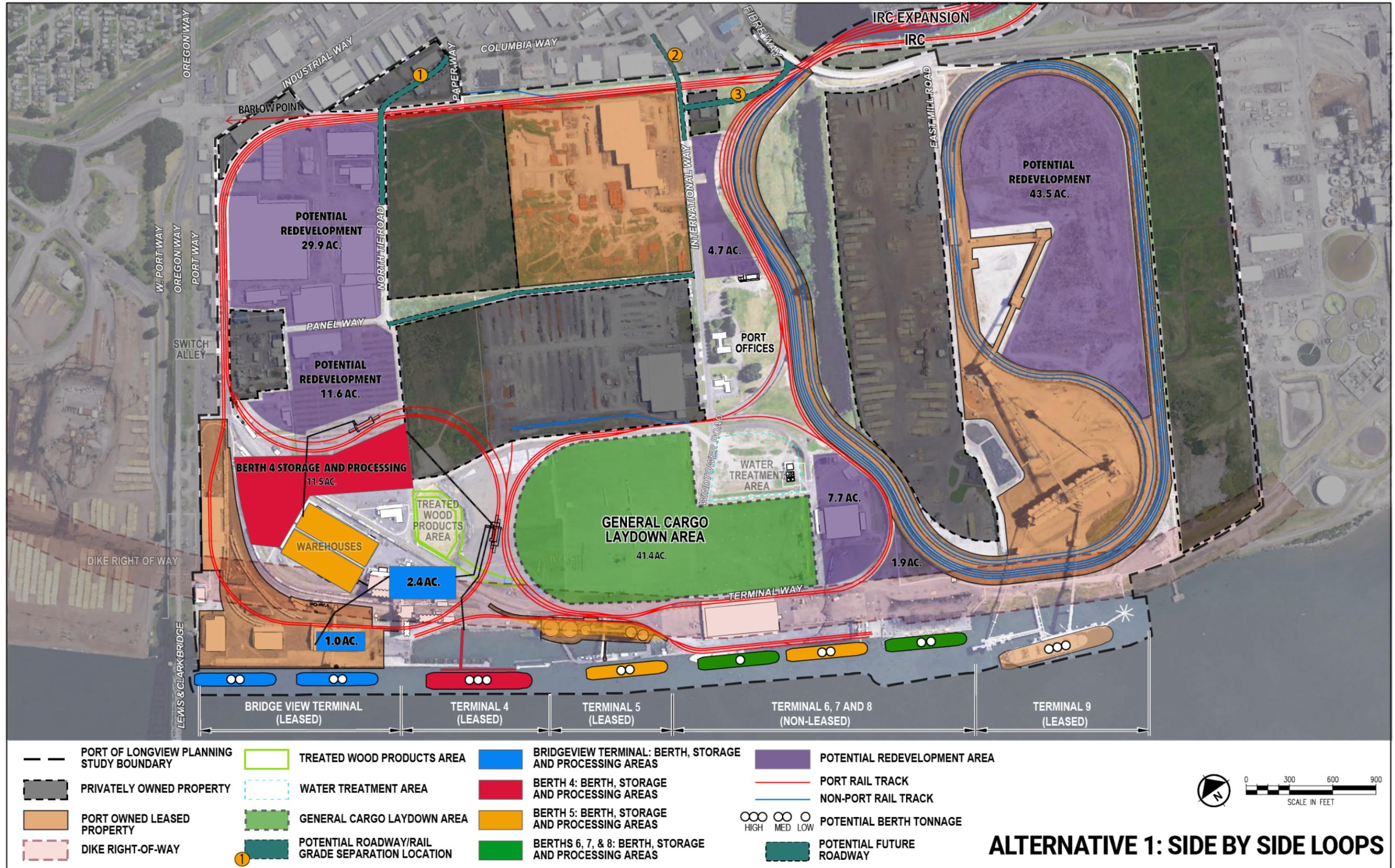
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## 12.8 Appendix H: Alternative Exhibits

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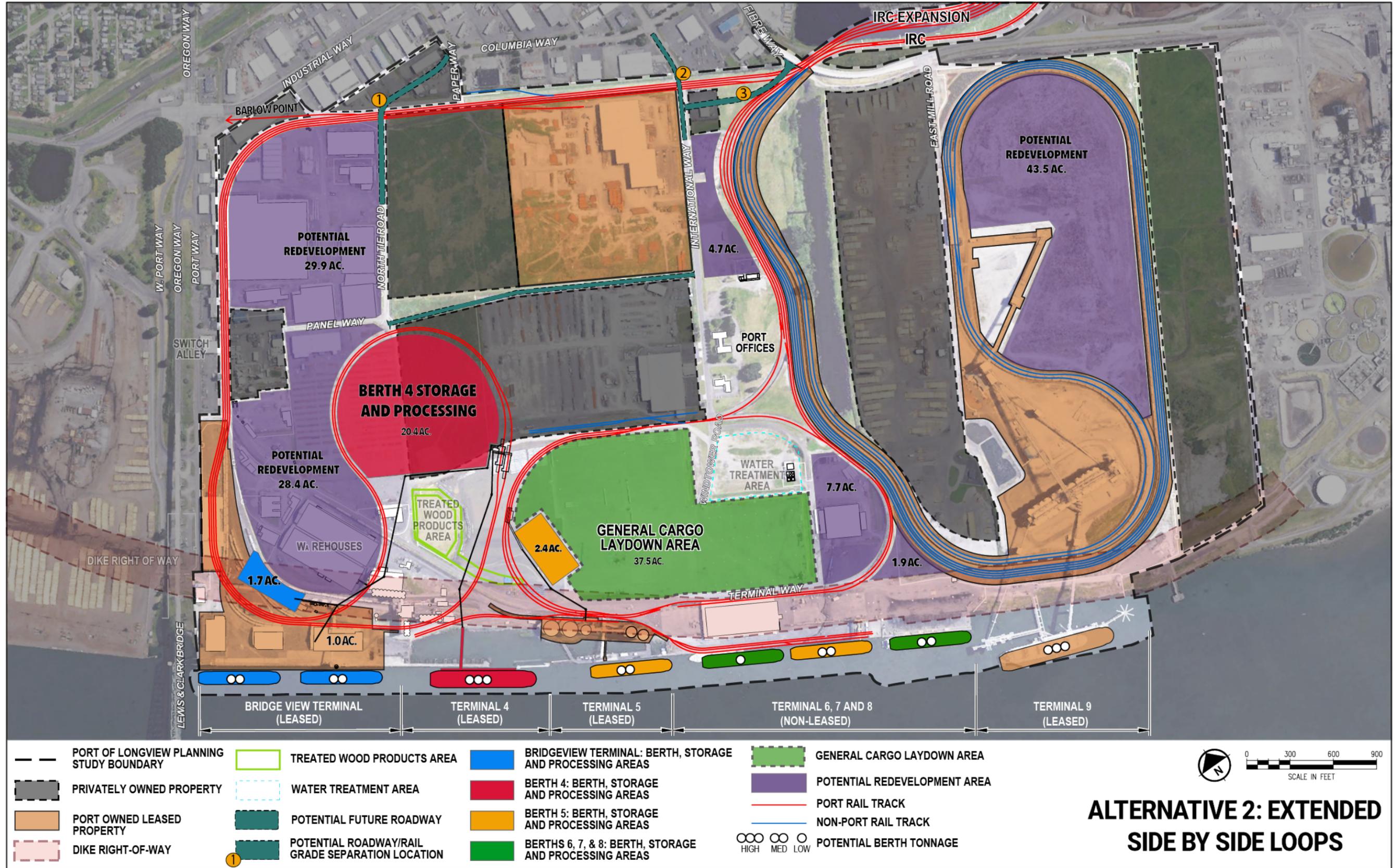


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**ALTERNATIVE 1: SIDE BY SIDE LOOPS**

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**ALTERNATIVE 2: EXTENDED SIDE BY SIDE LOOPS**

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## 12.9 Appendix I: Relative Scoring of Initial Alternatives

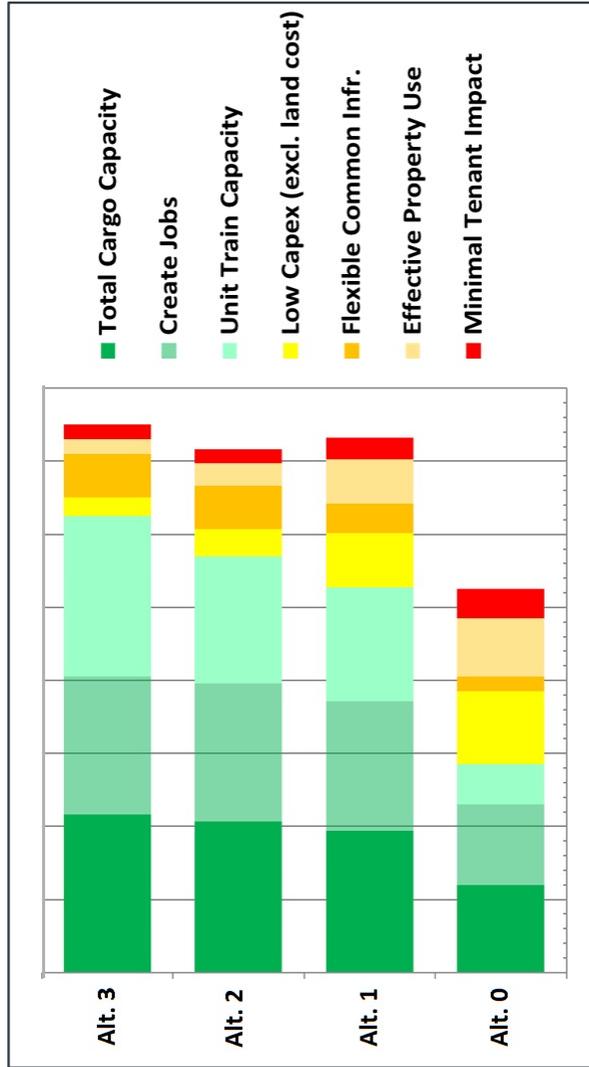
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# SCORING OF ALTERNATIVES

WE USED WEIGHTED CRITERIA AND THEN SCORED EACH ALTERNATIVE TO OBTAIN THE CHART BELOW

Criterion	Factor Weighting
Total Cargo Capacity	Dark Green
Create Jobs	Light Green
Unit Train Capacity	Very Light Green
Low Capex (excl. land cost)	Yellow
Flexible Common Infr.	Orange
Effective Property Use	Light Orange
Minimal Tenant Impact*	Red

Note: Alternative numbers shown are based on initial alternatives, which were subsequently renumbered as described in Section 9.3.3



\* "Minimal Tenant Impact" measures disruption, but does not consider benefits of added capacity for the disrupted tenant.

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## 12.10 Appendix J: Potential Sequencing of Alternatives

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# PHASING AND SEQUENCING: MAJOR ELEMENTS OF ALTERNATIVE 2 OR 3

1. Prepare for Unit Trains	2. Reconfigure Berth 5		3. Enhance Bridge View Terminal	4. Add a New High Volume Tenant at Berth 4
Berth 4 Silo Demolition and Raising Frontage Road at Berth 4	IRC Expansion	East Loop Tracks (Berth 5) - moves Berth 5 rail movements out of Switch Alley and makes more space available for Bridge View Terminal rail storage and operations	New Dump Pit at Berth 5 and reconfiguration of storage, processing and handling	Triggered by tenant demand, may include marine structures, rail loop, material storage, processing and handling facilities
Add a Grade Separation for Primary Port Access				

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## 12.11 Appendix K: Capital Cost Estimates for Alternatives

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# ESTIMATED CONSTRUCTION COST RANGE (2022\$)

	Alt 0: Base Case	Alt 1: Side by Side Loops	Alt 2: Extended Side by Side Loops
Reconfigure Berth 5	East Loop Tracks	\$4.4M to \$4.9M	\$3.3M to \$3.7M
	New Dump Pit, Reconfiguration of Storage, Processing and Handling	\$5.3M to \$8.0M	\$21.1M to \$31.0M
Grade Separation		\$13.6M to \$24.3M	\$13.6M to \$24.3M
	Site Preparation, Demolition and Site Development	\$4.1M to \$8.9M	\$3.9M to \$8.5M
Bridgeview Terminal	Rail Loop	\$6.9M to \$7.6M	\$8.4M to \$9.3M
	Marine Structures	-	-
	Tenant Material Storage, Processing and Handling Facilities	\$28.2M to \$44.3M	\$23.8M to \$37.3M
Berth 4 Terminal	Site Preparation, Demolition and Site Development	\$11.4M to \$19.4M	\$11.3M to \$19.1M
	Rail Loop	\$6.9M to \$7.6M	\$7.8M to \$8.7M
	Marine Structures	\$36.0M to \$42.1M	\$36.0M to \$42.1M
	Tenant Material Storage, Processing and Handling Facilities	\$33.8M to \$59.3M	\$53.9M to \$88.3M
<b>Total Estimated Construction Cost Range (2022\$)</b>		<b>\$150.6M to \$226.4M</b>	<b>\$183.1M to \$272.3M</b>

PORT OF LONGVIEW PLANS

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[portoflongview.com](http://portoflongview.com)

T. 360-425-3305  
F. 360-425-8650

10 PORT WAY  
LONGVIEW, WASHINGTON 98632