Appendix K – Supporting Plans & Studies

https://www.portofgraysharbor.com/pidpfy22

Appendix K: Supporting Planning Documents and Studies - website

- Port of Grays Harbor East T4 Cargo Yard Expansion Plan, 2021
- The 2013 Economic Impacts of the Port of Grays Harbor
- Highest and Best Use Industrial Study for WSDOT SR 520 Casting Basin Site, 2017
- Port of Grays Harbor Graving Dock Site Sand and Gravel Permit Site Management Plan, October, 2020

EAST TERMINAL 4 CARGO YARD EXPANSION PLAN

2021 FEASIBILITY STUDY FINDINGS

Prepared for
PORT OF GRAYS HARBOR
July 26, 2021
Project No. 1075.02.01

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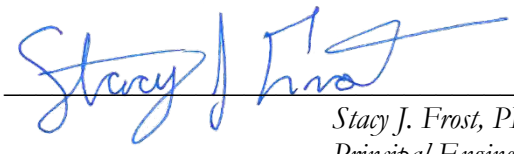

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ACRONYMS AND ABBREVIATIONS

AMC	Aberdeen Municipal Code
BFE	base flood elevation
CERB	Community Economic Revitalization Board
CWA	Clean Water Act
cy	cubic yard
Ecology	Washington State Department of Ecology
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
GO	general obligation
MFA	Maul Foster & Alongi, Inc.
NSL	north shore levee
OHW	ordinary high water
the Port	the Port of Grays Harbor
ro/ro	roll-on, roll-off
SFHA	special flood hazard area
sq ft	square feet
Stantec	Stantec Consulting Services, Inc.
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation

1 INTRODUCTION

1.1 Overview

In 2018, the Port of Grays Harbor (the Port) purchased an approximately 55-acre vacant waterfront industrial property in the City of Aberdeen. The property lies adjacent and directly east of the port's Terminal 4, a marine shipping terminal, and has potential access to an existing railway; these assets make the property ideal for redevelopment to increase the port's marine transportation and storage capabilities. The property was previously owned by the Washington State Department of Transportation (WSDOT) and was used to construct and export pontoons for the construction of the SR 520 Floating Bridge, connecting Bellevue and Seattle. The Port purchased the property once construction of the SR 520 bridge was complete.

To help with the implementation of this redevelopment vision for the site, the Port applied for and was awarded a Community Economic Revitalization Board (CERB) Planning Only Grant to help fund a Space Utilization Plan. The Port hired Maul Foster & Alongi, Inc. (MFA) to assist in developing this plan. This report outlines the plan's findings and includes phased development scenarios and associated construction activities with cost estimates, infrastructure requirements, and new/modified permit requirements, as well as identifying additional technical studies that may be necessary.

To gather this information, the MFA team worked with Shelli Hopsecger, from Coast Controls and Automation, who provided the market and feasibility analysis that is integrated in this report. A team of consultants who have extensive familiarity with this site through the SR 520 bridge work were also included on this project. The subconsultant team included:

- Kennedy Jenks, which assisted the Port in securing stormwater permits
- Stantec, which assisted with the contaminated soil cleanup and evaluation
- KPFF, which assisted with the design of the SR 520 Floating Bridge and pontoons

MFA gathered relevant information to inform a workshop hosted virtually on February 4, 2021. During this workshop, the MFA team facilitated a discussion around the evaluation scenarios, issues, and opportunities. Following the workshop, the MFA team completed research and analysis to refine the phased development alternatives, including permitting considerations and estimated infrastructure costs associated with each phase.

With the completion of this report, Port staff have the guidance and preplanning necessary to present the options to their Port Commission, which will determine next steps to take in the process to make incremental improvements to this vacant waterfront site and bring it back into use.

1.2 Methodology

In early 2021, the MFA team hosted an evaluation workshop attended by the Port project staff and our partner subconsultants (listed in Section 1.1). This workshop served as our information-gathering exercise to inform the redevelopment vision. Specifically, during the workshop the attendees discussed the existing conditions and identified issues that needed further review. From this discussion the MFA team developed a list of data needs, critical issues to address, technical studies to review, and potential permits to obtain dependent on redevelopment options. Following the existing conditions discussion, the attendees discussed the Port's objectives and targeted future uses of the site, helping the team brainstorm site facility infrastructure needs, timelines, phasing opportunities, and conceptual site plan alternatives. The last workshop discussion topic included pulling together all of the information discussed to identify a path forward.

Following the workshop, the MFA team gathered the information discussed during the workshop, conducted further research, coordinated with the Port staff on items needing further discussion, and developed this report outlining the desired path forward and requirements for following that path, including permitting, cost estimates, and key issues for consideration.

1.3 Project Goals and Outcomes

The overarching goal for this work is to get the port's Terminal 4 into a state that will attract users and get the terminal back into operation. To reach this goal, the Port will convert the existing facilities on the site from a concrete pontoon casting basin—which is a very specific use—into an expanded laydown area for Terminal 4, including filling the casting basin.

Additional goals for the site include understanding the specific step-by-step actions that must be taken to get the terminal into viable use, conceptual costs of those actions, additional studies that may be necessary in support of those actions, and permitting requirements for those actions. With this information, the Port will be able to make strategic improvements, through a phased approach, that is flexible enough to guide them in taking incremental steps to improve the property for potential future uses and tenants.

This incremental, phased approach also allows the Port to take advantage of innovative funding mechanisms such as grants, tenant investments, and direct federal and/or state appropriations, as opportunities arise.

This report details the step-by-step actions, costs, permits, and funding opportunities available to the Port as they work through this phased plan to convert Terminal 4.

2 MARKET AND FEASIBILITY ANALYSIS

2.1 Introduction

Despite serving a relatively small county (74,720 citizens), with a total assessed valuation of just over $8 billion (ranking 22nd in Washington State), the Port of Grays Harbor ranks as one of the top cargo volume ports in Washington State and among the top 50 export ports in the United States.

The limited resources of the rural, coastal community make the port reliant on net income from operations, debt financing, and grants to invest in the infrastructure required to compete with ports with greater internal financial resources.

The Port's business divisions of Marine Terminals, Pilotage, Ship Assist, and marine-dependent Industrial Properties comprise 79 percent of the Port's operating revenues, and historically have generated the net income to invest in and support many of the public purposes of the port, from providing public access to the waterfront to helping to offset the operating costs of other business divisions.

A goal of the Port's Commissioners is to maintain Grays Harbor's cargo handling ranking among public ports in Washington and nationally. The Commissioners have identified three measures of success when evaluating the port's performance—jobs created or retained, private investment in the community, and investment in public infrastructure. Annually, the Port staff, or designated consultant, assembles data collected by the U.S. Army Corps of Engineers (USACE) and the Pacific Maritime Association to track Grays Harbor's competitive position as it relates to cargo volumes, cargo value, and longshore hours worked. In addition, the assessed valuations and new construction assessments by the Grays Harbor County Assessor relative to impacts from the port are recorded and tracked.

Handling 3 million metric tons of cargo per year, valued at more than $2,167,000,000 (Source: Total Waterborne Trade by Port, Washington Department of Commerce), the port's marine terminals generate economic benefits through the creation of direct jobs, the purchasing of equipment and local services, and facilitation of private investment in upland facilities as well as by fostering public and private improvements to infrastructure. The port is Washington State's sixth-largest waterborne trade port by value of cargo shipped.

Figure 2-1: Maintaining the Port of Grays Harbor's Ranking among Public Ports

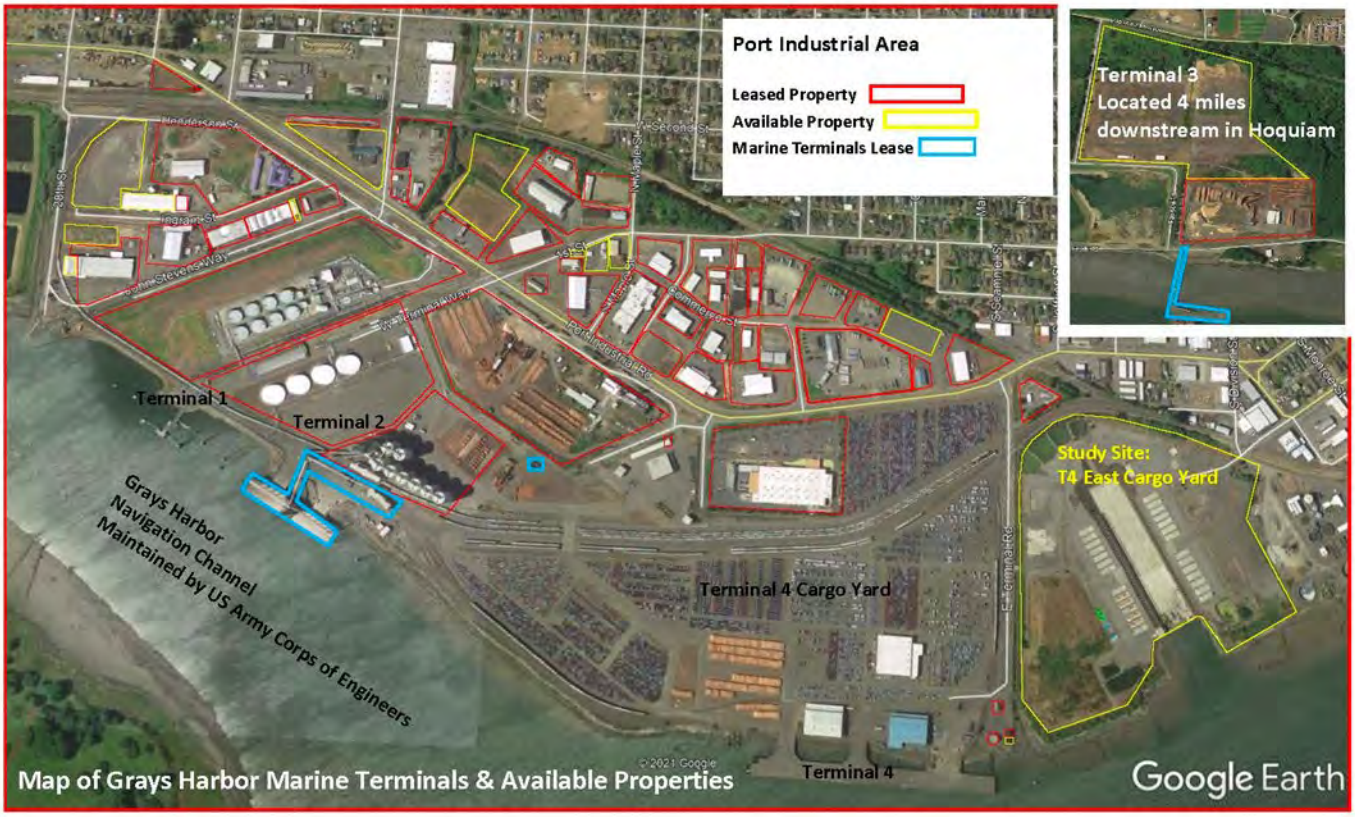
Source: Washington Public Ports Association, American Association of Port Authorities, and PMA reports.

2.1.1 Marine Terminal 4 East Cargo Yard Expansion

Marine Terminal 4, with two ship berths and paved upland cargo staging areas, has been a major employment generator for Grays Harbor as the port's primary general cargo terminal for handling diverse products and services including automobiles, forest products, breakbulk cargoes, military movements, and large overhigh/overwide project cargoes.

The Port's business model is to provide publicly owned infrastructure to attract private investment on upland property that generates cargo activity across the port's marine terminal. This model has resulted in more than $200 million in private investment and hundreds of regional jobs paying wages and benefits well above the local median wage. The Port intends to implement this successful business model of developing private partnership on the subject property. Figure 2-2, the map of Grays Harbor Marine Terminals and Available Properties, demonstrates the scarcity of unused properties near the shipping terminals.

Figure 2-2: Grays Harbor Marine Terminals and Available Properties



With the Port's purchase of this 50-acre site in 2018, the uplands available to support Terminal 4 shipments increased by 55 percent.

2.1.1.1 Expansion Creates Economies of Scale

Federal, state, and local investments in the Grays Harbor Navigation Channel and the port's shipping facilities, including dockside warehouses and rail systems, increase the incentive to utilize this national trade asset to its full capacity.

Prior to the COVID19 pandemic, the Terminal 4 cargo yard was fully utilized for automobile processing and shipments of overhigh and overwide project cargoes. These roll-on, roll-off (ro/ro) cargoes were a mix of imports, exports, and domestic retrofit projects. With the uncertainty created by the pandemic and a shift of cargoes as markets rebound, the Port is cautiously confident that ro/ro and breakbulk shipping activity will return to prepandemic levels.

A critical component of the East Terminal 4 Cargo Yard Expansion Plan Feasibility Study is the market analysis for the proposed uses of the site. With expertise in house, the Port conducted an internal market analysis of potential uses for the site, identified cargo and development trends,

compiled an economic profile, and established measurable targets for evaluating successful redevelopment of this site as an expansion of the port's marine terminal complex.

2.2 Methodology, Marketing Team and Capacity to Deliver Results

The Port's Market Analysis Team consisted of Port business development leads Executive Director Gary Nelson and Deputy Director Leonard Barnes, whose combined experience of more than 50 years of attracting business to the port demonstrates their expertise in the types of cargoes and customers that best fit with the port infrastructure and business model.

The Market Analysis Team was supported by Port Director of Engineering and Environmental Service Randy Lewis; Manager of Public Affairs Kayla Dunlap; and Port strategic planning consultant Shelli Hopsecger, CCAI. The team tracked inquiries from potential users, analyzed international shipping trends as they related to potential cargoes, assessed infrastructure requirements for each type of use, and developed a matrix of potential uses for the site.

With input from the Port's marketing partner, The Pasha Group, the Market Analysis Team assessed the viability of each cargo opportunity, categorizing the likelihood of recruiting that cargo to Grays Harbor and assessing the economic development measures associated with it. Meetings were held to discuss and vet the opportunities. Each meeting incorporated the latest information from the MFA Site Utilization Team in order to assess the financial feasibility of each potential target market.

2.3 Public Process and Assumptions

The Port set the redevelopment of the Terminal 4 East Cargo Yard as a top priority at their public strategic planning workshops: February 10, 2021 (focused on the Marine Shipping Divisions) and June 8, 2021 (focused on industrial properties).

To develop reasonable and feasible assumptions for the redevelopment of the site, the Port researched available information to supplement the in-depth analysis of potential future uses for the site, undertaken by Port staff before their purchase of the property. This analysis included the review of studies and documents related to the site while it served as WSDOT's SR 520 Floating Bridge pontoon construction site.

Based on prior research, port management experience, and early information from trusted engineers, the following assumptions were defined for the marketing strategy:

- Reuse of the existing gate and casting basin is neither environmentally nor operationally feasible (Nichols Marine Services, 2017)
- The site is available for lease, not for sale. (Reaffirmed by the Port of Grays Harbor Commission on June 8, 2021.)
- Construction of another marine terminal is not financially feasible. The site's close proximity to Terminal 4 and access to rail dictate that the highest and best use of the property is as upland laydown or cargo marshaling to increase deep-water shipping

activities through the federally maintained Grays Harbor Navigation Channel. Relevant marine-related uses may include on-site manufacturing, processing, or cargo storage that results in activity through the port's marine terminals or via the rail line adjacent to the property.

2.4 Analysis of Target Markets

Table 2-1: Target Uses: Feasibility and Development Action Required

Type of Activity	Description	Feasibility Rating S = Strong, A = Average N = Not Feasible	Minimum Property Redevelopment Required: E = Existing D = Gate Secured/Basin Filled F = Full Redevelopment
Processing (energy)	Green Energy	A	D
Manufacturing	Pulp	A	D
Shipping Terminal 4	Liquid Bulks: Processing on site with pipeline to Terminal 4	A	D
Shipping Terminal 4	Fertilizer: Dry bulk storage and Export	A	D
Shipping Terminal 4	Soda Ash: Dry bulk storage and Export	A	D
Fueling	Fuel bunkering	A	D
Manufacturing	Slops and ballast water processing	A	F
Shipping Terminal 4	Wind blades and support materials	A	E/D
Processing (chipping)	Forest products	S	D
Manufacturing / Energy	Wood pellets	S	D
Shipping Terminal 4 ro/ro	Shipping—Autos, OHOW	S	D
Shipping Terminal 4	Bulk cargo storage on site with conveyance to T4	S	F
Shipping Terminal 4	Breakbulk: Forest products, logs, etc.	S	E
Shipping Terminal 4	Military: Upland support for shipping activity	S	E
Processing (energy)	Green Energy: Water to Hydrogen demonstration project	S	D
Repair: Railcar	Yard for repairing railcars	S	E
Storage	Staging for construction projects in area	S	E

Type of Activity	Description	Feasibility Rating S = Strong, A = Average N = Not Feasible	Minimum Property Redevelopment Required: E = Existing D = Gate Secured/Basin Filled F = Full Redevelopment
The following uses were removed from consideration because of barriers to success.			
Manufacturing	Boat Building	N	--
Vessel Repair	Marine Vessel Repair	N	--
Casting	Concrete Casting	N	--
Casting	Concrete Casting	N	--
Vessel Repair	Derelict Vessel Decommissioning	N	--
NOTES: ro/ro = roll-on/roll-off.			

2.4.1 Consideration of Alternative Sites

This feasibility analysis focused on the expansion of Marine Terminal 4 and redevelopment of this 50-acre site. No comparable site has the access to the adjacent dual-berth, deep-water marine terminal with on-dock rail.

2.5 Marketing Strategy and Timeline

Existing Condition: Market existing 920,500 square feet on noncontinuous laydown storage area

Target Market: Breakbulk, ro/ro and project cargo shipments; construction laydown

Specific Actions and Timelines:

- 2Q21+ Market site on the Port's website www.portofgraysharbor.com.
- 2Q21+ Promote site to users of Terminal 4 (U.S. Army, The Pasha Group, local contractors, others inquiring about the site).

Development Actions Completed: Market 50-acre site for water-dependent activity:

- 2023 Issue Request for Proposals for use of full site upon completion of major development actions.

2.6 Economic Outcomes

Using historical data for cargo volumes, vessel traffic, and direct jobs created by cargo shipments through Grays Harbor, the following economic outcomes are expected once the full 50 acres is usable.

Table 2-2: Economic Projections: Vessels, Cargo, Jobs, and Financial

Type	Annually
Vessel calls	Increase of 25
Cargo volume	Increase of 500,000 metric tons
Direct jobs	Increase of 55 ILWU Jobs Increase of 82 Teamsters/Upland Processor Jobs Increase of15 Transportation jobs
Financial	Annual revenues to the Port upon completion of $2.8 million in development actions
NOTE: ILWU = International Longshore and Warehouse Union[International Longshoremen's and Warehousemen's Union].	

2.7 Measuring Success

The Port conducts quarterly financial reviews at the regularly scheduled Commission meetings to analyze performance of each line of business. Data are collected monthly by the Port accounting department and compiled in a management report for the executive leadership team.

The following project-specific data will be used to measure success:

- Ship traffic at Terminal 4
- International Longshore and Warehouse Union[International Longshoremen's and Warehousemen's Union] hours worked at Terminal 4
- Cargo volume shipped through Terminal 4
- Cargo volume stored/processed/shipped through the Terminal 4 East Cargo Yard

Based on development actions being taken by the Port, the chart below outlines the expected outcomes by vessel calls increased, jobs created, types of jobs, and median wages of the jobs created by this project. Port management will monitor these measures annually in order to assess the project goals. Adjustments to business and financial plans will be made accordingly.

Table 2-3: Terminal 4 East Cargo Yard Measures of Success: New Employment

REDEVELOPMENT ACTION STEPS	OUTCOMES		WAGES	TYPES OF JOBS AND WAGE RATE			
	JOBS FTE	VESSEL CALLS	ANNUAL DIRECT WAGES	CONSTRUCTION / PROJECT DEVELOPMENT	LONGSHORE	TRANSPORTATION (RAIL, TRUCK, PILOTS, WEIGHTED)	PROCESSOR
Port Target	150			5	55	15	80
Median Wage Rate	$37.87			$37.99	$67.47	$30.18	$18.96
4.2.1 No Action—Limited Acreage Cargo Storage	3	<1	$220,283		1	1	1

REDEVELOPMENT ACTION STEPS	OUTCOMES		WAGES	TYPES OF JOBS AND WAGE RATE			
	JOBS FTE	VESSEL CALLS	ANNUAL DIRECT WAGES	CONSTRUCTION / PROJECT DEVELOPMENT	LONGSHORE	TRANSPORTATION (RAIL, TRUCK, PILOTS, WEIGHTED)	PROCESSOR
4.2.4 Casting Basin Fill/Secure Gate 2024	15		$1,185,225	15			
Usage Agreement 2025–2027	35	12	$5,157,028		25	10	40
Shipping Customer/Tenant Attracted, Full Operation 2030	150	25	$10,590,547		55	15	80
NOTES: **INTERNATIONAL LONGSHORE AND WAREHOUSE UNION[INTERNATIONAL LONGSHOREMEN'S AND WAREHOUSEMEN'S UNION]** ANNUAL HOURS = 1,750, ALL OTHERS 2,080 HOURS PER YEAR. FTE = full-time employee.							

2.8 Economic Profile of Grays Harbor County

In 2018, median hourly wages in Grays Harbor County were 26 percent below the Washington State median hourly wage, and 12 percent below the state less King County. This chronic low-wage environment has created an economic burden on social services, education, and health care industries in the county. The Port of Grays Harbor has been a positive contributor to both employment numbers and higher-than-median wage rates.

Table 2-4: Private Sector Marine Hourly Wage

Port Marine Cargo Direct Jobs Wage Rate 2013	**$30.35**
Terminal 4 East Expansion Project Target	$37.87
Grays Harbor County*	$18.39
Washington State*	$24.94
State less King County*	$20.99
NOTES: Source: https://esd.wa.gov/labormarketinfo/county-profiles/grays-harbor, The 2013 Economic Impacts of the Port of Grays Harbor Martin Associates study. *2018 figures.	

Grays Harbor County consistently ranks among the top three State of Washington unemployment rates.

Table 2-5: Comparison of Unemployment Rates, Three Years

Location	2019	2020	2021
Grays Harbor County	7.1%	19.3%	7.6%
Washington State	4.4%	12.5%	5.3%
United States	3.6%	13.3%	5.8%
Source: https://esd.wa.gov/labormarketinfo/county-profiles/grays-harbor.			

Grays Harbor County population growth has lagged behind the state growth rate for the past ten years.

Table 2-6: Ten-Year Comparison of Population

Location	2010	2015	2020
Grays Harbor County	72,797	73,110	74,720
Washington State	6,724,540	7,061,410	7,656,200
Source: Washington State Office of Financial Management.			

Table 2-7: Jobs Created by the Port Compared to Grays Harbor County Labor Force and Employment Rates

Location	Labor Force	Employed	Unemployed
Grays Harbor County	27,457	25,362	2,095
Terminal 4 East Expansion 150 FTES as Percentage of Grays Harbor Totals	54%		7.2%
NOTES: FTE = full-time employee[position?]. Source: Washington State Employment Security Department Labor Market and Economic Analysis, June 22, 2021.			

One hundred fifty full-time employment positions created by this project represent 7.2 percent of the currently unemployed civilian labor force.

2.9 Financial Projections

State and Local Revenue—State and local revenue from this project would be generated in phases based on the redevelopment of the site and the usable land created following each development action.

The City of Aberdeen sales tax rate is 9.08 percent, of which 6.5 percent is the State of Washington share. Sales tax will be assessed on construction activities related to the redevelopment of this brownfield site. Sales tax collections will range from $2,065 for the least costly development action to more than $490,320 for the major development actions to secure the gate and fill the basin. It can be assumed that additional investment in the site will be in the millions of dollars, generating additional local and state tax revenue.

The port has estimated annual lease, pilotage, dockage, and wharfage revenues of $2.8 million. In addition, cargo-related handling fees will support a longshore worker payroll of $6.5 million at today's wage rates. Payroll taxes and fees will be applied and have not been projected for this purpose.

As a publicly owned property, this site will not generate real property taxes. Instead, the lease will include a charge of state leasehold tax in lieu of property taxes of 12.84 percent. Considering a lease at fair market value, annual state leasehold taxes generated by the site are estimated at $81,494.

Business and occupation taxes at the state and local levels may apply to activities that are conducted on the site. It is unknown at this time what those activities might generate, so no projection has been developed.

Utility taxes will apply to the use of electricity on site. Based on the estimated utility expenses, a new industry could expect to pay $1,200 annually in utility taxes (60,000 x 2 percent).

Private Investment Generated by Project—Private investment in property, plant, or equipment on site will be assessed a personal property tax of $12.836 per $1,000 of assessed value. It is unknown at this time what the private investment might comprise, so no projection has been developed. Over the last 20 years, Port investment in the marine terminals has averaged a 5 to 1 ratio. For every $1 of Port or public investment, there has been $5 of private investment.

3 EXISTING CONDITIONS AND BACKGROUND RESEARCH

3.1 Introduction

MFA engineers and environmental scientists, along with a Port representative, visited the property to better understand the existing site conditions, infrastructure, and potential issues for redevelopment. After the site visit, MFA followed up with the consultant team to glean any additional information they may have had on existing environmental and infrastructure conditions based on their working knowledge of the site. Additionally, MFA reviewed available documentation about the site from WSDOT's construction and use of the casting basin and from Port representatives who have become familiar with the site since the Port's purchase of the property.

3.2 Site Infrastructure

Although there is an abundance of reports and information about the site from WSDOT's tenure, very little could be found for detailed infrastructure design and as-built drawings. The only site feature information available in AutoCAD was limited survey surface feature identification that had been created for a different project by Berglund, Schmidt & Associates, Inc. Beginning with this AutoCAD file, MFA digitized the other surface features and underground infrastructure based on the available PDF as-built drawings, MFA's site visit, aerial photography, information gathered from the consultant

team, and available GIS data. No survey elevation data were available and only limited information of pipe materials and sizes could be found.

There are water lines on site that served a fire protection system and the concrete batch plant area, as well as a domestic service to the previous office in the northeast corner of the site. The water pipe sizes range from 2 to 10 inches in diameter. In addition, a sanitary lateral was connected to the office building, but no other sanitary sewer is extended on site.

The casting basin has sumps that drain stormwater from the area. The stormwater is conveyed by pumps from these sumps to the four northern stormwater ponds, where it is treated before being discharged to the ditch on the west side of the property. On the west side of the casting basin there is a biofiltration swale and ditch that discharge into a stormwater sediment treatment cell in the southwest corner of the site. This stormwater pond discharges to the Chehalis River. On the east side of the casting basin there are several biofiltration swales treating runoff from the parking area; these discharge to the ponds in the southeast corner of the site. There are also conveyance ditches east and west of the large parking area. The westernmost of these two ditches discharges to the same stormwater treatment wet pond that, in turn, discharges to the Chehalis River. The easternmost ditch discharges directly to the Chehalis River.

There is significant electrical infrastructure across the site, including 480-volt, three-phase power, and 15-kilovolt power.

3.3 Environmental Conditions

Environmental conditions at the property were reviewed to inform additional assessments that would inform redevelopment scenarios proposed at this time. MFA reviewed the following documents for information related to suspected or known environmental concerns on the property:

- CH2M HILL's Phase II environmental site assessment report (CH2M HILL, 2009).
- CH2M HILL's supplemental soil and groundwater investigation report, Anderson & Middleton Property, Aberdeen Log Yard Property (CH2M HILL, 2010a).
- CH2M HILL's hazardous materials technical memorandum, SR 520 pontoon construction project draft environmental impact statement (CH2M HILL, 2010b).
- Nichols Marine Services, LLC. Highest and best use industrial study for WSDOT SR 520 Casting Basin Site (Nichols Marine Services, 2017).
- Stantec Consulting Services, Inc.'s (Stantec) 2018 letter to the Port regarding document review and summary—State Route 520 pontoon casting site, Aberdeen, Washington (Stantec, 2018).

The status of environmental conditions at the property was also discussed at a site feasibility evaluation workshop on February 4, 2021. Additional information on the property was obtained through

discussions with Stantec and through review of Washington State Department of Ecology (Ecology) information and documents provided online[1] for the site (listed as Cleanup Site ID 12726).

Based on the available documentation, environmental contamination is known or suspected to be present in localized areas of the property. The following potential environmental concerns were identified for additional evaluation at this time to support upland-based redevelopment scenarios:

- Lateral and vertical extent of pentachlorophenol and/or heavy oil (diesel- and lube-oil-range hydrocarbons) concentrations in soil associated with the 27 light poles on the property.
- Potential presence of contaminants in stockpiled soil removed to allow building of the concrete pontoon basin. The limited information available is based on previous sampling, and the extent of this potential contamination is unknown. Further investigations will have to be completed to fully characterize the stockpile, but for the purposes of this report it is assumed that the contamination is minimal and the soil will be suitable for use as on-site fill.
- Presence of semivolatile organic compounds and metals concentrations in soils associated with ponds on the property to inform handling and disposal options.

3.4 Natural Resources

3.4.1 Floodplain Development

A significant portion of the site is currently mapped as below the base flood elevation (BFE) (in the 100-year floodplain) on the current Federal Emergency Management Agency (FEMA) map for the area. However, the floodplain extents do not appear to account for the significant modifications to the site during the 2010s (reconfiguration of the site from a log yard to the pontoon site). Much of the site (besides the casting basin) is now above the BFE.

Currently, any development in the mapped 100-year floodplain would be regulated under the City of Aberdeen Municipal Code (AMC) Chapter 15.55—Flood Hazard Protection. Portions of the site that are known to be above the BFE, or that will be above the BFE following development (i.e., if the casting basin were to be filled), can be removed from the mapped 100-year floodplain limits by the FEMA letter of map revision based on fill (known as a LOMR-F) process. Conversely, a floodplain development permit could be acquired from the City of Aberdeen to authorize work in the floodplain.

3.4.2 Work in Waters of the United States

The USACE requires that a permit be obtained for the discharge of dredged or fill materials in U.S. waterways and wetlands (Waters of the State), consistent with Section 404 of the Clean Water Act (CWA). The permit also requires that the state issue a water quality certification for the project under CWA Section 401. Discharges of dredged or fill materials are not permitted unless there is no

[1] https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=12726

practicable alternative that will have less adverse impact on the aquatic ecosystem. At the project site, Waters of the State include the Chehalis River and likely the west side ditch. A USACE-issued Jurisdictional Determination could be made to establish with certainty if the west side ditch would be regulated as a Water of the State.

3.4.3 Endangered Species Act Compliance

Projects that require a federal permit (i.e., USACE Section 404 permit) will require compliance with the Endangered Species Act (ESA). Grays Harbor and the Chehalis River are identified as critical habitat for ESA-listed green sturgeon and bull trout; projects in these areas would require consultation (informal or formal) with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service (USFWS). These consultations would require a biological opinion in which NOAA-Fisheries and the USFWS would document their opinions as to whether an in-water project or action is likely to jeopardize the existence of a species recorded on the ESA list, or would result in the destruction or improper modification of the habitat of that protected species. A biological evaluation or assessment, to evaluate whether adverse or negative impacts to endangered species and their critical habitats during or as a result of bank stabilization should be anticipated, would have to be submitted with any in-water work permit application.

Alternatively, the USACE may directly evaluate whether the proposed in-water project or action is likely to jeopardize the existence of a species recorded on the ESA list or to result in the destruction or improper modification of the habitat of that protected species. The USACE may then ask the NOAA-Fisheries and the USFWS for concurrence with their evaluation (an informal consultation).

3.4.4 North Shore Levee

The cities of Aberdeen and Hoquiam have partnered to design and build the north shore levee (NSL) to provide flood protection for low-lying parts of the cities between the Wishkah and Hoquiam rivers, north of the Chehalis River and Grays Harbor estuary. The project is currently in the design phase. The NSL will consist of a sheet pile wall with a top elevation of approximately 15.2 feet North American Vertical Datum of 1988 and is expected to be routed to the north of the existing railroad in the vicinity of the site. In addition, the NSL is expected to include retractable gates at road crossings. The eventual construction of the NSL will remove many properties from the special flood hazard area (SFHA), eliminating federal flood insurance requirements for mortgages.

The NSL is not expected to impact the use of the site as an expansion of Terminal 4. Vehicle access to the site is not expected to be compromised except during extreme tides and/or storm events that would require closure of the levee gates. The existing east access to the site (off West Heron Street) is expected to be preserved, as it is also used as the primary vehicle access to the City of Aberdeen's wastewater treatment plant (critical infrastructure).

The construction of the NSL is not expected to have any impact on the flood hazard rating for the site or the potential for portions of the site to be removed from the SFHA by the letter of map amendment based on fill (LOMA-F) process. While the site has been elevated by the placement of fill, much of the community to be protected by the NSL, while further inland, is at a lower elevation.

4 SITE DEVELOPMENT ACTIONS

4.1 Introduction

The site development actions identified in this report are a product of close collaboration with the Port and the project team. The process of identifying the site development actions began with an evaluation workshop in early 2021; this forum provided the project team with the information required to form an overall redevelopment vision for the site. Working backward from full buildout of this vision, the project team broke apart the overall development goal into discrete project actions that could be implemented individually or in combination. This approach allows the Port to implement actions based on their priorities while taking into consideration available funding, schedule and regulatory constraints, and other challenges related to project development, as identified below. A summary of the developable area that will be added with each action item may be found in Appendix A.

4.2 Potential Development Actions

The Port's goal for the property is to extend the operational footprint of the adjacent marine terminal complex (Terminal 4), providing a level area for cargo storage and shipping. The Port envisions a flexible site layout, designed for storage of multiple cargo types. Realization of this goal would require development to improve the site, making it viable for industrial use. To assist the Port, multiple potential development options have been identified and included as discrete actions, which can be implemented individually or in combination. Each action's regulatory framework has been identified to help determine what development could be initiated in the short or long term based on anticipated complexity, time, and cost required to secure authorization from applicable agencies and complete construction.

Port districts in Washington State have several financing options for funding capital improvements. Therefore, costs of development of one or more of these actions may, in part, be offset through use of financial mechanisms such as the Port's cash balance, conventional bonds and loans, grants, or tenant improvements. This is especially true for development actions that result in the establishment of particular land uses. For example, state and federal funding sources such as various U.S. transportation departments offer grants for land uses or actions that can demonstrate that they would result in significant job creation (among other considerations), or that would result in increased operational safety and infrastructure resiliency. Please see Section 6 for a detailed description of funding options.

Based on an assessment of the existing conditions, the individual actions discussed below are discrete actions for the expansion or use of the port's terminal at the property.

4.2.1 No Action

No Action—The Port could use the property as is with no expansion of Terminal 4's development footprint. Although not in an ideal continuous area configuration, there is approximately 920,500 square feet (sq ft) of laydown storage area available without any improvements being made. This area would be best suited for storage of smaller-footprint items such as vehicles, steel, dimensional lumber, or other raw materials. The storage area includes the approximately 167,500 sq ft of the casting basin, with the understanding that any items stored in this area would be subject to some degree of standing water when the storm pumps for this area are unable to keep up with heavy rainfall conditions.

Pros: The Port would gain a significant amount of area to expand the Terminal 4 operation with little to no cost or regulatory oversight.

Cons: The area gained by moving forward with this option is not optimized for operation; a portion of the available laydown area is subject to standing water (casting basin) and would therefore limit the type of material being stored.

Figure 4-1: No Action/Existing Site Plan

4.2.2 Remove Light Poles

Twenty-eight light poles remain from WSDOT's use of the property. Preliminary site investigations noted that the light poles may contain pentachlorophenol and heavy oils, which may have impacted the soil at the base of the poles. This action includes the removal of all light poles and targeted soil excavation to remove potential contaminants in the soil. Further analytical testing of the wood will be required to determine if it will be considered a dangerous waste for disposal. The cost estimates assume that the light poles will not fall under this categorization and can be disposed of at a Subtitle D landfill. This action marginally increases the usable area of the property and removes potential contaminants, preparing the site for future reuse.

Pros: marginal increase in the usable area of the site; removal of the light poles makes the site more functional. This action would also remove soils impacted with contaminants prior to potential future buildout.

Cons: relatively high cost to mobilize equipment to the site and complete the work if implemented as an independent project action.

Figure 4-2: Remove Light Poles

4.2.3 Concrete Pads: Fill or Remove

Throughout the site there are multiple elevated concrete flat-panel pads that WSDOT used for construction of the pontoons. Although the concrete pads are elevated from the adjacent surfaces by only 3 to 6 inches, it is enough of a difference to render these areas mostly useless for a laydown storage area. To create a continuous level surface that is usable for cargo storage, it would be necessary

either to place gravel between and around the concrete pads or to demolish the concrete pads with ancillary grading activities to recontour the ground surface.

4.2.3.1 Gravel Fill around Concrete Pads

For this action item, gravel would be placed and compacted between the concrete pads to create a continuous level surface. Gravel would also have to be placed and compacted around the outside edges of the concrete pad and graded to the existing surface elevation at a 5 percent slope or less. This would create approximately 133,700 sq ft of additional usable cargo storage area.

4.2.3.2 Demolish Concrete Pads

The concrete pads could be demolished and backfilled with gravel to create a surface completely level with the adjacent grades. This would result in the same additional usable space as filling around the concrete pads, 133,700 sq ft; however, it would require less grading around the outside edges of the concrete pad and would create a more level surface, needed if a flat grade is critical for proposed cargo.

Pros: sizable increase in storage area at the site. Increases overall functionality of the site through removal of obstacles.

Cons: relatively high cost associated with demolition of the concrete pads; however, demolition of the concrete pads would ensure that there no future maintenance associated with this action would be needed for it to remain effective.

Figure 4-3: Concrete Pads

4.2.4 Casting Basin, Crane Rail, Stockpile Areas, Stormwater Ponds

This action includes demolition of the existing crane rail that lies adjacent to the sides of the casting basin, fill of the existing casting basin, and fill of the northern stormwater ponds. Most of the fill for these action items could potentially be obtained from existing on-site stockpile areas. Because the previous operations of the crane rail, casting basin, and northern stormwater ponds were interconnected and dependent on one another, the individual action items for these site improvements would have to be conducted in the following order: filling the casting basin (dependent on the crane rail being demolished) and fill of the northern storm ponds (dependent on the casting basin being filled and stormwater treatment of the area no longer being required).

4.2.4.1 Demolish Crane Rail

Supports for the crane rail extend inside the casting basin, making it necessary to remove the crane rail before filling the casting basin. It is assumed that after steel is cut away from the crane rail it can be sold as scrap metal. This action would create approximately 52,300 sq ft of additional usable area.

4.2.4.2 Excavate Stockpile and Fill Casting Basin

While filling the casting basin would restore the largest area of the site to a more desirable condition for potential tenants, it would also require significant investment to complete this task, largely due to the original design of the existing gate. The existing gate was designed based on water loading from the outside (as opposed to soil loading from the inside) and was designed only for a ten-to-20-year lifespan in order to build it as inexpensively as possible for WSDOT operations. For this reason, the gate is made of extremely light and thin materials. During full operation of the site, a rigorous maintenance routine was in place to keep the gate in proper working order. This maintenance has not been performed since WSDOT ceased operations on the site. These considerations make it likely that the gate will have to be removed and replaced with a concrete wall.

Even if the casting basin is not filled, action likely will be necessary in the near future to repair or replace the gate to prevent water leaking through the gate because of the design and maintenance factors. The pumps that were originally used to empty the casting basin after it had been filled with water have since been repurposed and are no longer available. If significant amounts of water leak through the gate, removing the water would likely become a major, and expensive issue. Further analysis of the gate must be completed to determine if it is possible to leave it in place and/or add reinforcements, or if the only option is to replace it.

Another challenge surrounding filling the casting basin is impacts on the fill from groundwater. When filling in a subsurface concrete structure, it is standard practice to either break up or core holes through the floor of the structure. In this case, it is likely that the coring option would be more feasible. However, given the high groundwater level, further evaluation of the potential impact that coring the floor would have on the equalization of the groundwater level would have to be completed.

Material originally excavated from the casting basin was placed in the southwest corner of the site, although an unknown quantity was hauled off site for another use. It is estimated that approximately 217,000 cubic yards (cy) of material is required to fill the casting basin and there is approximately 200,800 cy of material available in the existing stockpile. Approximately 16,200 cy of material will have to be imported to complete filling of the casting basin. There is approximately 16,700 cy of material available near the port's Warehouse H 4 that could be used to finish filling the casting basin. Analytical testing on the stockpile material from Warehouse H would have to be completed to confirm the suitability of the material to be used as fill. During MFA's soil quantity evaluation, it was assumed that soil from the stockpile is uncontaminated and suitable for reuse as fill. A soil investigation will be needed to confirm this assumption. If material in the stockpile is found to be contaminated or otherwise unsuitable for use as fill on site, costs to dispose of contaminated soils and import clean material or to potentially cap the contaminated soils on site will increase significantly.

It should be noted that the proposed fill loading will exceed the design load of the piles below the casting basin floor and that the casting basin floor may settle over time. This may lead to differential settlement of the surface grade within the footprint of the casting basin. The potential settlement would likely be in the order of inches. However, given the nature of the undocumented fill and the likely high organic content of the on-site soils from the previous log yard operations, the entire site will be susceptible to differential settling and sunken grades over time with any loading. Additional

footing recommendations and foundation supports will have to be considered with any future structures built on the site.

Between leveling the existing stockpile in the southwest corner of the site and filling the casting basin, this action item would create 527,100 sq ft of additional developable or storage area.

4.2.4.3 Fill Northern Stormwater Ponds

The four stormwater ponds on the northern end of the site currently provide treatment for stormwater that is pumped from the casting basin floor to the ponds. If the casting basin is filled, these stormwater ponds could be decommissioned and filled to create an additional 56,600 sq ft of usable site area, but this would require importing approximately 8,100 cy of fill material. It would be possible to fill in these storm ponds before filling the casting basin, but it would be necessary to provide another method of stormwater treatment for the casting basin area. It is likely that a smaller-footprint treatment system could be provided to serve the casting basin until it is filled in, but further analysis would be necessary to determine the feasibility and cost of pursuing this option. Stormwater treatment systems can vary widely depending on the site use, so it may be beneficial to first understand what a potential tenant's stormwater treatment requirements would be and tie the casting basin into a system capable of treating the future site as well, if filling the northern stormwater ponds before filling the casting basin is desired.

Pros: significant increase in storage and operational area. Filling the casting basin would alleviate concerns regarding the long-term efficacy of the floodgate and eliminate further gate maintenance.

Cons: the cost of this action is high. There are potential regulatory obstacles that could result in a long review timeline prior to receiving approval to move forward with site development; however, this will be based on the final construction means and methods. Placement of fill or construction of new structures may result in differential settlement in the casting basin; however, this could be mitigated through placement of additional footings and supports.

Figure 4-4: Fill Casting Basin and North Storm Ponds

4.2.5 Fill Southern Stormwater Ponds

This action includes filling of the stormwater ponds along the southern property boundary. Stormwater treatment is currently not required for the site, since no operations are conducted. Depending on what future tenant occupies the site, treatment requirements could vary widely, from low-impact development (i.e., infiltration) methods, proprietary media and filters, to complicated systems requiring a variety of chemicals. An appropriate method for the user could be selected, designed, and constructed at the time of site occupation. In the interim, stormwater could be rerouted and discharged directly to the Chehalis River to allow filling of the southern stormwater ponds. In the future, when an appropriate treatment method is determined for a use then occupying the site, the treatment method could be connected to the stormwater conveyance system upstream of the discharge point.

Fill for the ponds would be obtained from the existing on-site stockpiles, depending on the timing of filling the casting basin and the suitability of the material, or it could be imported from off site. Approximately 8,000 cy of material would be required to fill all the southern stormwater ponds, but it would create 67,100 sq ft of additional developable or storage area.

Pros: medium increase in storage area. Construction could be completed quickly once site development authorization is granted.

Cons: this action would eliminate existing stormwater ponds that could potentially be reused for at the site in the future. The cost is high, given the relatively small amount of storage area gained.

Figure 4-5: Fill Southern Stormwater Ponds

4.2.6 Demolish Batch Plant and Raw Material Storage Areas

WSDOT used the northwest corner of the property as a concrete-mixing station and raw material storage area. The remaining walls and concrete structures inhibit the use of this area.

4.2.6.1 Demolish Concrete Batch Plant Footings

This action would remove the remaining footings and structures associated with the concrete batch plant and regrade this area to level the ground consistent with adjacent contours. This action would create approximately 21,800 sq ft of level, usable site area.

4.2.6.2 Demolish Material Storage Area

This action would remove the existing ecology block wall and grade the area level to adjacent grades with gravel. It would create approximately 10,900 sq ft of additional developable or storage area.

Pros: low cost to implement. The additional storage area that would be gained is conveniently located in proximity to the current direct connection to Terminal 4. Permits required to implement this action could be acquired quickly.

Cons: little gain in additional storage area compared to other options.

Figure 4-6: Demolish Batch Plant and Storage Area

4.2.7 West Side Ditch

A ditch along the western property line separates the site from the rest of Terminal 4. Access from Terminal 4 to the property is currently provided via one driveway that crosses the ditch near the center of the site. This action would consist of piping the full length of the ditch and backfilling to create a seamless land connection between the two properties. This would also create approximately 58,800 sq ft of usable space.

Pros: filling of the west side ditch would result in a significantly improved connection between the site and Terminal 4; this greatly increases functionality of an expanded Terminal 4. Decent gain in storage area.

Cons: significant regulatory constraints and mitigation requirements are associated with this action. This leads to long permitting review timelines and introduces uncertainty regarding the requirements and expectations of agencies with jurisdiction. Implementation also comes at a relatively high cost.

Figure 4-7: Install Pipe and Fill West Side Ditch

4.2.7.1 Regulatory Environment and Mitigation

The City of Aberdeen classifies the west side ditch as a stream conveyance channel. While online resources conflict with this designation, the west side ditch functions as a surface water conveyance and will likely be regulated as a stream or wetland/wet ditch with a direct connection to a Water of the State (Chehalis River). The significance of this waterbody's connection to the Chehalis River is that it will likely be classified as jurisdictional water either because it functions as a tributary (if classified as a stream) or because it has a direct hydrological surface water connection to the river (if classified as a wetland/wet ditch). These characteristics would subject the waterbody to federal and state regulation.

Regardless of the specific alternative proposed as part of this option, impacts will occur to either the resource or its buffer. While mitigation should be expected for any of the above-described alternatives in the west side ditch, the magnitude of mitigation required will fluctuate greatly depending on the specific action implemented.

Extensive mitigation is anticipated. While the conveyance channel would remain intact, channeling the resource through a pipe would remove most of the habitat function and value and all of the resource's buffer function. Expect to mitigate the loss of the newly piped area of the resource and potentially the resource's buffer.

4.2.8 Site Access

This action consists of improving the connection point in the southwest corner of the property, which connects to Terminal 4. If filling of the west side ditch is completed prior to this action, mitigation will not be required. However, if the ditch is not filled before this entrance is constructed, a culvert will have to be placed and mitigation will be required, although not as extensive as placing pipe and filling the entire ditch would require. Having two site accesses would greatly improve traffic circulation for the site, especially if it was being used by large trucks and if the existing soil stockpile was removed.

This action would also consider the improvement, including widening, of the existing site access near the center of the site. Minimal to no mitigation is anticipated. The existing ditch crossing is in adequate condition, but the site entrance just east of the crossing could be widened and improved some to increase circulation for large trucks. Improvements would remain within the footprint of the existing crossing; therefore, minor buffer impacts are anticipated.

Improvements to either of the western entrances would require improvements to fencing or the location of a guard shack to meet Homeland Security requirements. These considerations have not been accounted for in our cost estimates because of the large variations in requirements depending on final site development.

It was also assumed that the site's eastern entrance would remain as a secondary access point, and therefore no improvements were considered. As previously mentioned, the proposed NSL alignment is along the north side of the railroad tracks crossing the eastern entrance. A gate in the NSL will be constructed at the road entrance and will hinder access to the site only during extreme high tides. Should future site uses require this eastern access to be used as a primary entrance, additional Homeland Security measures may be required.

Pros: Improvements to the southern connection between the two properties would not result in additional usable land but would greatly increase operational functionality at a significantly lower cost than filling the ditch. Improvements to the southern connection point, rather than filling the entire ditch, will result in greatly reduced regulatory constraints, required mitigation, and cost.

Figure 4-8: Site Access

4.2.9 Site Rail Access

While the subject property is near rail access, it does not currently have direct access to any rail line. The nearest rail lies adjacent to the property's northern perimeter, with another spur along the east side of Terminal 4. This action includes extending rail to the site but, for it to be viable, it may potentially require filling in the northern storm ponds. A spur would be connected to the existing northern rail lines and extend south through the property near the western property line. Figure 4-9, showing this development action, approximates a radius that would meet Class I railroad design requirements, but a detailed design by a rail engineer must be completed to ensure the feasibility of this action. There is space available to push the rail closer to the western property boundary, if necessary. Extending the rail likely would require that the southern entrance to the site be constructed to prevent the site being cut off from traffic should a train be on the spur. The rail spur shown is approximately 2,430 feet long and could accommodate up to 43 standard 50-foot railcars.

Pros: significant increase in operational functionality.

Cons: significant cost associated with construction of a new rail spur. This action would require the completion of other site improvements before construction of the rail spur begins.

Figure 4-9: Site Rail Access

5 REGULATORY FRAMEWORK AND PERMITTING

5.1 Regulatory Overview

Most of the identified actions are regulated on the local level through site development permits (e.g., grading and demolition permits) from the City of Aberdeen. These types of permits are processed as administrative decisions, which have the shortest statutory review timelines and no public comment period. However, it is important to note that additional permits and approvals may be required based on where these actions are conducted and/or what natural resources are impacted, as well as the intensity of the action. For example, if an action were to result in 500 cy or more of grading, the project would require a State Environmental Policy Act (SEPA) threshold determination (AMC 17.56.060(D)); or, if the project were to disturb an acre or more of land and there is the potential that stormwater could run off the site to adjacent surface waters, a Construction Stormwater General Permit from Ecology would be required. The potential for additional or more complex permits and approvals increases when multiple actions are combined to form a preferred project as cumulative project impacts are taken into consideration.

Identifying permits and approvals based on the intensity of the action (quantitative assessment) can be a straightforward process; however, determining permit applicability based on factors such as where the actions would take place, and if and to what extent they would impact protected resources, can be more difficult and could require technical studies, surveys, and other supporting documentation. The property's proximity to the Chehalis River significantly increases the complexity of the applicable regulatory framework.

Portions of the site within 200 feet of the delineated ordinary high water (OHW) of the Chehalis River and the west side ditch lie in the City of Aberdeen's shoreline jurisdiction. Similarly, portions of the site within 150 feet of the OHW of the Chehalis River are in a Fish and Wildlife Habitat Conservation Area or its buffer; wetlands, if identified on the site, also contain buffers that prohibit or restrict most types of development. Actions conducted in these areas are regulated mostly at the local level; however, additional and more complex permits and reviews are required. For example, development within 200 feet of the Chehalis River or western ditch would require a shoreline permit meeting applicable criterion from the City of Aberdeen's Shoreline Master Program, as well as an administrative site plan review (AMC 17.80.020(C)). In addition, actions that impact fish and wildlife habitat conservation areas, wetlands, or their buffers require critical areas review (AMC Chapter 14.100) and potentially mitigation to offset loss of habitat function or value. These types of permits are still processed administratively; however, permit review timelines increase commensurate to project complexity, and additional supporting documentation and reports must be submitted with permit applications.

While upland development is regulated mostly on the local level with some involvement by the state, actions that require work below the OHW of Waters of the State elevate a project's regulatory framework to include federal agencies. Potentially applicable actions include filling in the casting basin

if the waterward side of the gate requires retrofitting, and filling of the west side ditch. The ditch likely qualifies as a Water of the State, given that it serves as a direct surface water connection to the Chehalis River. In-water development actions would require the above-described permits and approvals and potentially the full suite of in-water work permits, including but not limited to a Department of Army Permit from the USACE, Section 401 Water Quality Certification from Ecology, and a Hydraulic Project Approval from the Washington Department of Fish and Wildlife (WDFW). These permits require significant levels of supporting documentation and have review timelines that can extend multiple years. They also include public comment periods and Tribal and ESA consultation. Actions that affect a Tribe's usual and accustomed fishing areas or habitat supporting aquatic species can require mitigation and negotiation with interested or affected parties.

Please see Appendix B for a permit applicability matrix that identifies the anticipated required permits and approvals to authorize development of each discrete development action. Permit applicability was assessed at conceptual design; further adjustments or refinements in project design may change what permits or approvals are required for project implementation.

5.2 Permit Complexity Assessment

Table 5-1 assesses the anticipated relative complexity of obtaining all required permits and approvals for each development action. This table provides the anticipated rough order of magnitude of permitting complexity, which factors in the level of effort to prepare and submit permit applications, negotiate permit requirements with agencies with jurisdiction, and the potential project risk associated with public comment periods and mitigation requirements.

Table 5-1: Permit Complexity

Development Actions	Anticipated Complexity
No action	Low
Removal of light poles	Low
Concrete pads: removal or fill	Low
Stockpile, casting basin, gate, northern stormwater ponds	High
Fill southwest stormwater ponds	Medium
Demolish batch plant and material storage areas	Low
West side ditch	High
Site access	Medium
Site rail access	Medium
NOTES: Low = no, or minor, city permits or approvals required. Medium = city and state permits or approvals anticipated. High = city, state, and federal permits or approvals anticipated.	

5.3 Mitigation

Mitigation is required whenever project design includes an impact to regulated critical areas (natural resources) or their buffers. In the context of the subject site, this potentially includes wetlands and fish and wildlife habitat conservation areas (watercourses and riparian management and shoreline

areas). Mitigation requirements are unique to each agency with jurisdiction over a project. These can include but are not limited to federal (USACE) and state (WDFW) agencies and local jurisdictions. A project that is subject to regulation by multiple entities can be subject to multiple mitigation requirements. This scenario commonly occurs when a project impacts a Water of the State; the USACE, the WDFW, and the local jurisdiction each has authority to regulate these types of projects and will require their own mitigation standards and approaches.

Mitigation requirements are not standardized between agencies. This is primarily because each agency has its own mitigation objectives. The USACE seeks to protect federal ESA-listed species, the WDFW protects state-sensitive and federal and state ESA-listed species, and the local jurisdiction protects all the aforementioned species with additional requirements for greater protection of local natural environments and systems. Given this, it is common that the local jurisdiction has the strictest mitigation requirements of all agencies. Project mitigation approaches are therefore often modeled to satisfy local requirements and include federal and state consultation to refine the mitigation approach and reach consensus for mitigation approval.

Keeping within the project context, impacts to the west side ditch, shoreline buffers, or any on-site wetlands would have to meet City of Aberdeen mitigation requirements (AMC Chapter 14.100—Critical Area Protection). The amount of mitigation required is based on the City of Aberdeen's prescriptive mitigation ratios, which consider the extent and type of impacts, as well as the type of mitigation proposed. The breakdown of specific mitigation requirements varies widely based on the type of resource and type of mitigation. This is exemplified in Table 5-2 below, the City of Aberdeen's wetland mitigation ratio Table 14.100.260.

Table 5-2: Table 14.100.260 (Mitigation Ratios for Western Washington)

Wetland Category	Creation	Rehabilitation Only	Reestablishment or creation (R/C) and Rehabilitation (RH)	Reestablishment or creation (R/C) and Enhancement (E)	Enhancement Only
IV	1.5 : 1	3 : 1	1 : 1 R/C and 1 : 1 RH	1 : 1 R/C and 2 : 1 E	6 : 1
III	2 : 1	4 : 1	1 : 1 R/C and 2 : 1 RH	1 : 1 R/C and 4 : 1 E	8 : 1
II (Estuarine)	On a case-by-case basis	4 : 1	On a case-by-case basis	On a case-by-case basis	On a case-by-case basis
II (Interdunal)	2 : 1 Compensation has to be interdunal wetland	4 : 1 Compensation has to be interdunal wetland	1 : 1 R/C and 2 : 1 RH compensation has to be interdunal wetland	Not recommended	Not recommended
II	3 : 1	6 : 1	1 : 1 R/C and 4 : 1 RH	1 : 1 R/C and 8 : 1 E	12 : 1
I (Forested)	6 : 1	12 : 1	1 : 1 R/C and 10 : 1 RH	1 : 1 R/C and 20 : 1 E	16 : 1

Wetland Category	Creation	Rehabilitation Only	Reestablishment or creation (R/C) and Rehabilitation (RH)	Reestablishment or creation (R/C) and Enhancement (E)	Enhancement Only
I (Based on score of functions)	4 : 1	8 : 1	1 : 1 R/C and 6 : 1 RH	1 : 1 R/C and 12 : 1 E	16 : 1
I (Natural Heritage)	Not recommended	6 : 1 Restoration of a Natural Heritage site	R/C not recommended	R/C not recommended	On a case-by-case basis
I (Coastal Lagoon)	Not recommended	6 : 1 Rehabilitation of a coastal lagoon	R/C not recommended	R/C not recommended	On a case-by-case basis
I (Bog)	Not recommended	6 : 1 Rehabilitation of a bog	R/C not recommended	R/C not recommended	On a case-by-case basis
I (Estuarine)	On a case-by-case basis	6 : 1 Rehabilitation of an estuarine wetland	On a case-by-case basis	On a case-by-case basis	On a case-by-case basis

Given all factors that influence mitigation, a project's specific mitigation requirement cannot be accurately predicted until an assessment of the on-site natural resources has been completed, project impacts have been determined, and the regulatory requirements have been thoroughly assessed. Furthermore, the ultimate decision regarding mitigation requirements is left to the discretion of the agencies with jurisdiction. We recommend early assessment of critical areas and their impacts, as well as consultation with the agencies to determine the specific mitigation requirements and vetting of any proposed mitigation approach. While the mitigation requirements for future site development are currently unknown, the Port does have the advantage of owning multiple properties that may be suitable as mitigation sites. Other mitigation opportunities, such as removing the existing pile field adjacent to the project site, may also fulfill a project actions mitigation obligation. These factors reduce the potential risk and cost of mitigation for development at the site.

6 COST ESTIMATES

6.1 Overview

After each potential action item was determined, MFA used available information, as previously described, to lay out conceptual drawings and calculate associated quantities. Costs were assigned to each line item based on current construction costs; inflation was not accounted for because of the uncertainty concerning when improvements would be made. As each action item undergoes further design, the cost estimates will have to be updated to match the new level of effort and detailed design

information. A detailed preliminary opinion of probable construction costs has been included in Appendix C. In addition, a summary of costs associated with each action item can be found in Table 6-1 below as well as on each of the figures.

6.2 Assumptions and Exclusions

To complete the opinion of probable construction costs based on the conceptual-level layouts of each action item, several assumptions were made. These include:

- If no action is taken, the site could be used for laydown and storage around the existing on-site structures. The casting basin could be used for storage as well, as long the possibility that the material may rest in some standing water is acceptable.
- Crushed concrete from demolishing the concrete pads, foundations, etc., may be used for fill on site.
- On average, a 4-inch-deep layer of gravel will be required for filling in around the concrete pads.
- The metal portions of the crane rail can be sold as scrap metal. Since supports for the crane rail extend into the casting basin, it would have to be removed before the casting basin is filled.
- Soil from the existing stockpile in the southwest corner of the site is free of contamination and is suitable to use for fill. Further evaluation of the stockpile will have to be completed to confirm this assumption.
- The casting basin gate will have to be replaced with a concrete wall. Further investigations and designs must be completed to refine this estimate.
- Differential settling, likely in the magnitude of inches, will occur after filling of the casting basin.
- If the casting basin is filled, the northern stormwater ponds would no longer be required and could be filled in.
- On average, 1.5 feet of material will be needed to level the raw material storage area and 0.5 feet of gravel will be placed and compacted on top.
- Wetland mitigation will be required to fill in the west side ditch. Costs for mitigation are not included in the cost estimates.
- A 24-inch-diameter culvert will be required to improve the driveway access across the west side ditch in the southwest corner of the site. Further hydrological analysis will be needed to confirm this culvert size.
- Approximately 1.5 feet of fill will be required over a new culvert at the southwest access. In addition, a depth of 0.75 feet of aggregate and 0.65 feet of hot mix asphalt will be required.

- Construction of a rail spur on site would require that an access point be constructed at the southwest corner of the site to maintain site access if a train is blocking the existing access.

6.3 Summary Cost Estimates

A summary of all individual development action items is included below. While MFA tried to include all major work items with each action, due to the conceptual level of each proposed action item, additional work items could be required to complete each action item. These costs also include a 25 percent markup for contingency and a 15 percent markup for design and permitting costs. Sales tax is not included in any costs.

Table 6-1: Opinion of Probable Construction Costs Summary

Development Action Number	Action Item	Estimated Cost
1	No action	$0
2	Remove light poles	$68,040
3a	Gravel fill around concrete pads	$31,850
3b	Demolish concrete pads	$260,400
4a	Demolish crane rail	$147,00
4b	Excavate stockpile and fill casting basin	$9,464,000
4c	Fill northern stormwater ponds	$278,320
5	Fill southern stormwater ponds	$330,708
6a	Demolish concrete batch plant footings	$32,200
6b	Demolish material storage area	$37,135
7	Install pipe and fill west side ditch	$390,740
8	Improve site access	$129,675
9	Build another rail spur	$1,108,800

7 KEY ISSUES AND CONSIDERATIONS

7.1 Overview

This section draws attention to the key issues identified during preparation of this report that the Port should strongly consider when moving forward. Key issues have been identified during our research of the existing site conditions and from implications (regulatory and physical) that could arise from various actions (or taking no action at all). This section also identifies additional studies that would be needed to fill information gaps in order to make better informed decisions, as well as potential funding strategies that the Port should consider when moving forward with implementation of any of the identified development actions.

7.2 Sealing Casting Basin Gate

The existing gate was designed based on water loading from the outside (as opposed to soil loading from the inside) and was designed for only a ten-to-20-year lifespan. For this reason, the gate is made of extremely light and thin materials. Furthermore, during full operation of the site, there was a rigorous maintenance routine in place to keep the gate in proper working order. This maintenance has not been conducted since WSDOT ceased operations on the site. Based on these factors, it is likely that the gate will have to be removed and replaced with a concrete wall.

If the casting basin is not filled, action likely will be needed to repair or replace the gate in the near future to prevent water leaking through the gate because of the design and maintenance factors. The pumps that were originally used to empty the casting basin after it had been filled with water have since been repurposed and are no longer available. If significant amounts of water leak through the gate, removing the water would likely become a major, and expensive, issue. If the gate must be removed, or if work on the waterward face of the gate is needed, additional permitting implications and mitigation requirements would be triggered. This includes requiring the full suite of environmental/in-water work permits (the USACE, Ecology, the WDFW, City of Aberdeen, etc.) for conducting work below the OHW mark of the Chehalis River.

Recommendation: Further analysis of the gate must be completed to determine if it is possible to leave it in place and/ or add reinforcements, or if the only option is to replace it. Given the high groundwater level, further evaluation of the potential impact that coring the floor would have on the equalization of the groundwater level would have to be completed.

7.3 Stormwater

The northern stormwater ponds currently provide treatment for stormwater that is pumped from the casting basin floor to the ponds. If the casting basin is filled, these stormwater ponds could be decommissioned and filled to create additional usable site area; however, this would require importing approximately 8,100 cy of fill material to the site. In addition, while it would be possible to fill the storm ponds before filling the casting basin, it would be necessary to provide another method of stormwater treatment for the casting basin area. It is likely that a smaller-footprint treatment system could be provided to serve the casting basin until it is filled in, but further analysis would be necessary to determine the feasibility and cost.

Recommendation: Conduct further analysis regarding the feasibility and cost of alternate stormwater treatment systems that could be constructed to manage stormwater from the casting basin when the northern stormwater ponds are filled. Future site uses must be considered when determining new stormwater treatment approaches.

7.4 Mitigation Factors

Development actions that would be conducted in or near regulated natural resources will require mitigation. This is particularly true for actions conducted in proximity to the west side ditch and the Chehalis River or to on-site wetlands (if identified). While mitigation should be considered when

determining the viability of or preference for a development action, most of the actions identified in this report are unlikely to trigger significant mitigation requirements that could be characterized as a "fatal flaw." The potential exception to this is piping and filling of the west side ditch. While the Port would gain additional storage area and significantly increase accessibility between the site and the existing Terminal 4, significant mitigation of direct impacts to the ditch and its buffer likely would be required. The cost of mitigation is dependent on further studies conducted to assess and determine the resource classification of the west side ditch (wet ditch vs. stream) and the resource's function and value. Once determined by a qualified professional (biologist), a more accurate mitigation estimate could be provided.

Recommendation: Before considering piping and filling the west side ditch, contract a biologist to classify the ditch, determine its function and value, and generate an estimate regarding mitigation cost and type (e.g., credit purchase vs. on-site mitigation and monitoring). Given the west side ditch's location in an active industrial area, the ecological function of the resource may be limited to the point where implementation of the action greatly outweighs the cost of mitigation; however, this will have to be determined by a biologist.

7.5 Buildings/Structures

Subsurface soils on the site consist of unconsolidated fill and organic material; therefore, with any loading, the entire site is susceptible to differential settling and sunken grades over time. Any buildings or structures on site will require special seismic considerations (footing and foundation recommendations) that are not addressed by this report.

Recommendation: Once future land uses and the associated buildings/structures are known, conduct additional structural evaluations to ensure that appropriate seismic considerations are incorporated in the project design.

7.6 Additional Studies

Given the historical use and position of the property along the Chehalis River, the following additional studies are recommended to inform redevelopment:

- Environmental Assessment
  - Activities include characterization of stockpiled soil, soil adjacent to light poles, the light pole wood, and/or soil/sediment in lined ponds on the property for disposal or reuse. This assessment would reduce the likelihood of exposure of contaminated materials during construction and ensure appropriate management of contaminated material on the property.
- Critical Area/Habitat Assessment
  - Delineation of critical areas on the property (for example, wetlands, fish and wildlife habitat conservation areas, geologically hazardous areas) will inform redevelopment possibilities while ensuring protection of the public and environment.

- Cultural Resource Assessment
  - Preparation of a cultural resource assessment will support SEPA permitting efforts, as applicable during redevelopment. If state or federal grant funding is requested for the property, a cultural resource assessment will support the requirements of Executive Order 21-02 effective April 2021, and Section 106 of the National Historic Preservation Act.
- Structural Evaluations
  - The casting basin gate has nearly reached the end of its designed life and further structural analysis will be necessary if it is not taken out of service in the near future. If the gate is replaced, further evaluation of the casting basin near the gate will be required to design connections and structural tie-ins of a concrete wall.
  - Given the nature of the undocumented fill and likely high organic content of the on-site soils from the previous log yard operations, the entire site will be susceptible to differential settling and sunken grades over time with any loading. Additional footing recommendations and foundation supports must be considered with any future structures built on the site.
- Groundwater Analysis
  - A groundwater analysis will be required to determine the extent of coring the casting basin, or other appropriate method, needed to allow equalization of groundwater and prevent impacts to fill placed in the casting basin.
- Hydrology Study
  - Before designing and permitting the west side ditch fill, a hydrology and stormwater runoff basin analysis will have to be completed to determine the total flow to be conveyed. This will determine the appropriate pipe size and any outfall considerations.

7.7 Funding Scenarios

Port districts in Washington State have available to them a host of financing approaches for funding capital improvements. These financing approaches generally fall into the following categorial sources:

- Port cash balance
- Conventional borrowing through bonds
- Grants (government loans)
- Tenant improvements

7.7.1 Port Cash Balance

Ports traditionally use cash balances in any given year for capital improvements based on their adopted Comprehensive Scheme of Harbor Improvements. However, cash projections would have to be included for the capital improvements considered in this document. Furthermore, as with most ports,

planned improvements tend to be allocated to address deferred maintenance rather than new maintenance.

7.7.2 Conventional Local Government Borrowing

There are four sources of conventional governmental borrowing available to the Port for capital projects of this nature.

General Obligation and Revenue Bonds

Limited Tax General Obligation Bonds, Commission Approved

General obligation (GO) bonds are secured by the full faith and credit of the Port through an unconditional pledge of its property tax revenues. RCW 53.36.030 defines the statutory limits on the amount of GO debt a port may issue. That limit for non-voted GO bond debt is one-fourth of 1 percent of the value of the taxable property within the port's district boundaries. This is non-voted debt that, subject to statutory limits, is within the authority of the Port's Board of Commissioners to issue.

Unlimited Tax General Obligation Bonds, Voter Approved

GO bonds can also be issued above the non-voted limitations through approval by three-fifths of the voters voting at a general or special port election. RCW 53.36.030 limits the total tax-funded debt for a port authority at three-fourths of 1 percent of the district's assessed property value.

Revenue Bonds

Port districts are authorized to issue revenue bonds (RCW 53.040.010) for carrying out all port district powers including acquisition, construction, reconstruction, maintenance, repair, additions, and operation of port properties and facilities, as well as the transactional costs. Repayment of revenue bonds must be made by earned port revenues and are traditionally linked to the revenues associated with the improvements financed by the bonds. Tax revenue may not be used to repay revenue bonds. Financed improvements can be pledged to secure the repayment of the debt.

There is no statutory limit to the maximum amount of revenue bond principal issued; however, the bond market limits the total through bond covenants. The issuance of debt through revenue bonds is limited by a port's debt coverage ratio and its overall financial rating as a measure of its solvency. Debt coverage ratios are based on the port's ability to have sufficient funds to make debt payments, plus additional coverage. Required revenue bond debt coverages typically range from 1.25 to 1.35. In some cases, a reserve fund may be required to ensure adequate cash flow resources to meet debt payments.

Ports are rated on their strength of financial planning, management experience, legal obligations, history and strength of leases, and other agreements. This rating determines a port's creditworthiness in an open bond market and impacts the interest rate imposed on the debt.

7.7.3 Grants and Government Loans

As local governments, Washington ports are eligible for a wide range of federal and state grants. In some cases, these grants also include a loan component. While grants vary widely, they typically impose several restrictions affecting their applicability, amount, and performance. These can include:

- Total amount of the grant
- Percentage of the project costs that are eligible for the grant leaving a local share
- Percentage of the grant that is outright grant versus a loan
- Anticipated and expected performance measures, (i.e., employment numbers)
- Specific use of the funds

Grants are available on either a cyclical or on ongoing basis. Table 7-1 describes current grants from federal or state agencies that are applicable to some or all of the improvements identified by the Port.

Table 7-1: Grant and Government Loan Program Summary

Program	Agency	Description	Frequency	Maximum Amount
State Sources				
Freight Mobility Strategic Investment Program	WA State Freight Mobility Strategic Investment Board (FMSIB)	The FMSIB provides grants through a competitive application process; these grants focus on roadway, railway, and marine freight mobility and reducing the negative impacts of freight. The funds can be used for a wide range of projects and can fund up to 80 percent of construction costs. The award size ranges from $100,000 to $11 million.	Biennially	Up to 80% of project costs
Committed Private Partner Construction Program	WA State CERB	This CERB program offers up to $2.25 million as a low-interest loan. The program funds projects in which a private partner has committed to significant job creation and capital investment. The hourly wages of the created jobs must exceed the county median wage.	Ongoing	$2.25 million loan
Prospective Development Construction Program	CERB	This CERB program offers up to $1.5 million as a low-interest loan. Through a feasibility study, projects must demonstrate economic feasibility and the likelihood of significant job creation and investments.	Ongoing	$1.5 million loan
Federal Sources				
Public Works and Economic Adjustment Assistance Program	Economic Development Administration (EDA)/ U.S. Department of Commerce	These programs provide both planning and construction of a wide range of projects that support economic development, foster job creation, and attract private investment. Additional funding for this program was released in 2020 as a result of the CARES Act. In addition to adding $1.5 billion to the funding available, the act widens the eligibility criteria to all communities impacted by the COVID-19 pandemic. The program supports the creation of a regional Comprehensive Economic	Ongoing	80 to 100% of project costs

Program	Agency	Description	Frequency	Maximum Amount
		Development Strategy (CEDS) and/or the implementation of projects identified in an existing CEDS. In some cases, this program can fund implementation of projects that demonstrate that they have a non-EDA CEDS-equivalent plan in place.		
Port Infrastructure Development Program	USDOT Maritime Administration	This program provides funds for ports to improve the safety, efficiency, and reliability of the movement of goods to and from the port. Eligible projects include road improvements, berth dredging, pier improvements, and landside improvements to support cargo operations. These funds can cover up to 80 percent of the project cost, with no maximum amount. The minimum award amount is $1 million.	Annually (May)	80% of project cost
BUILD Transportation Discretionary Grants	USDOT	This program replaces the TIGER grant program and funds port infrastructure projects that foster safety, maintain infrastructure in a state of good repair, benefit the economy, advance environmental sustainability, and foster improved quality of life. The maximum award amount is $25 million, with a minimum award of $5 million.	Annually (May)	$25 million
Infrastructure for Rebuilding America (INFRA) program	USDOT	The INFRA program funds can be used for surface transportation infrastructure projects necessary to facilitate intermodal interchange and access into or out of the port. The funds can be used for planning, design, and construction of projects. An INFRA grant cannot exceed 60 percent of the project cost. INFRA can be combined with other federal funds to bring the total federal cost share to a maximum of 80 percent of the project costs. Under this program, small projects can be awarded a minimum of $5 million.	Annually (Feb)	60% of project cost
Potential Upcoming Sources from COVID-19 Pandemic Relief				
America's Water Infrastructure Act of 2020	EPA	This bill was drafted by the Senate Committee on Environment and Public Works. The current draft includes a study of barriers to infrastructure and capital improvements faced by ports. It also would authorize EPA to spend $20 million for each fiscal year 2021 and 2022 to provide grants to ports to reduce emissions from docked vessels.	TBD	TBD
Heroes Act Pending	Multiple Federal Agencies	This bill was introduced by House Democrats and includes $3 trillion dollars in COVID-19 pandemic relief and economic stimulus funding. The 1,800-page bill was recently released and more detailed analysis of the funding implications is forthcoming.	TBD	TBD

7.7.4 Tenant Improvements

Throughout Washington State, port authorities' tenants are quite often required to make their own improvements as a condition of their lease. As a lease obligation, tenant improvements are subject to the economic negotiation between a port and a prospective tenant. Shifting improvements to tenants is more common in uptrending economies in which property availability is limited and demand is high.

To be successful in shifting site or facility improvements to a tenant, these conditions must be present:

- Longer-term lease
- Exclusive user
- Readily identifiable improvements
- Competitive market from the tenant perspective

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

REFERENCES

CH2M HILL. 2009. Phase II environmental site assessment report: Anderson & Middleton and Aberdeen log yard properties. Prepared for Washington State Department of Transportation by CH2M HILL. November.

CH2M HILL. 2010a. Supplemental soil and groundwater investigation report, Anderson & Middleton property, Aberdeen log yard property. Prepared for Washington State Department of Transportation and Federal Highway Administration by CH2M HILL. April.

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Nichols Marine Services. 2017. Highest and best use industrial study for WSDOT SR 520 casting basin site. Prepared for City of Aberdeen by Nichols Marine Services, LLC.

Stantec. 2018. Letter (re: document review and summary—State Route 520 pontoon casting site, Aberdeen, Washington) to R. Lewis, Port of Grays Harbor, Aberdeen, Washington, from Stantec Consulting Services, Inc. October 18.

DEVELOPMENT ACTION FIGURES

NO ACTION / EXISTING SITE PLAN				
OUTCOME	**PERMITS REQUIRED**	**STUDIES REQUIRED**	**PROJECT DURATION**	**COST**
920,500 SF OF AVAILABLE USABLE LAND	NONE	NONE	NONE	$0

NOTE:
SF = square feet.

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0 200' 400'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

Figure 4-1
DEVELOPMENT ACTION 1: NO ACTION / EXISTING SITE PLAN
Port of Grays Harbor | Aberdeen, WA

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REMOVE LIGHT POLES				
OUTCOME	**PERMITS REQUIRED**	**STUDIES REQUIRED**	**PROJECT DURATION**	**COST**
REMOVAL OF 28 LIGHT POLES AND POTENTIAL CONTAMINATION	SITE DEVELOPMENT PERMIT	ENVIRONMENTAL ASSESSMENT STUDY	2 - 3 MONTHS	$68,040

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Figure 4-2
DEVELOPMENT ACTION 2: REMOVE LIGHT POLES
Port of Grays Harbor | Aberdeen, WA

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	PERMITS REQUIRED	STUDIES REQUIRED	PROJECT DURATION	COST
GRAVEL FILL AROUND CONCRETE PADS				
133,700 SF ADDITIONAL STORAGE AREA	FLOODPLAIN DEVELOPMENT PERMIT, SITE DEVELOPMENT PERMIT, & SHORELINE EXEMPTION	MATERIAL CHARACTERIZATION PRIOR TO DISPOSAL	6 MONTHS	$31,850
DEMOLISH CONCRETE PADS				
133,700 SF ADDITIONAL STORAGE AREA WITHOUT ELEVATION CHANGE	FLOODPLAIN DEVELOPMENT PERMIT, SITE DEVELOPMENT PERMIT & SHORELINE EXEMPTION	MATERIAL CHARACTERIZATION PRIOR TO DISPOSAL	6 MONTHS	$260,400

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Figure 4-3
DEVELOPMENT ACTION 3: CONCRETE PADS
Port of Grays Harbor | Aberdeen, WA

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OUTCOME	PERMITS REQUIRED	STUDIES REQUIRED	PROJECT DURATION	COST
DEMOLISH CRANE RAIL				
52,300 SF ADDITIONAL DEVELOPABLE OR STORAGE AREA	DEMOLITION PERMIT, SHORELINE EXEMPTION	NONE	3 - 4 MONTHS	$147,000
EXCAVATE STOCKPILE & FILL CASTING BASIN				
527,100 SF ADDITIONAL DEVELOPABLE OR STORAGE AREA	FLOODPLAIN DEVELOPMENT PERMIT, SEPA, SHORELINE PERMIT, SITE DEVELOPMENT PERMIT, SITE PLAN REVIEW, CRITICAL AREAS REVIEW, CSWGP	ENVIRONMENTAL ASSESSMENT STUDY	9 - 12 MONTHS	$9,464,000
FILL NORTHERN STORMWATER PONDS				
56,600 SF ADDITIONAL DEVELOPABLE OR STORAGE AREA	SEPA, SHORELINE PERMIT, SITE DEVELOPMENT PERMIT, SITE PLAN REVIEW, CRITICAL AREAS REVIEW, CSWGP	ENVIRONMENTAL ASSESSMENT STUDY	9 - 12 MONTHS	$278,320

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Figure 4-4
DEVELOPMENT ACTION 4: FILL CASTING BASIN & NORTHERN STORM PONDS
Port of Grays Harbor | Aberdeen, WA

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FILL SOUTHERN STORMWATER PONDS				
OUTCOME	**PERMITS REQUIRED**	**STUDIES REQUIRED**	**PROJECT DURATION**	**COST**
ADDITIONAL 67,100 SF OF DEVELOPABLE LAND	SITE PLAN REVIEW, SEPA, SHORELINE PERMIT, FLOODPLAIN DEVELOPMENT PERMIT, SITE DEVELOPMENT PERMIT, CRITICAL AREAS REVIEW, CSWGP	STORM POND WATER SAMPLING & ANALYSIS	6 - 8 MONTHS	$330,708

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Figure 4-5
DEVELOPMENT ACTION 5: FILL SOUTHERN STORMWATER PONDS
Port of Grays Harbor | Aberdeen, WA

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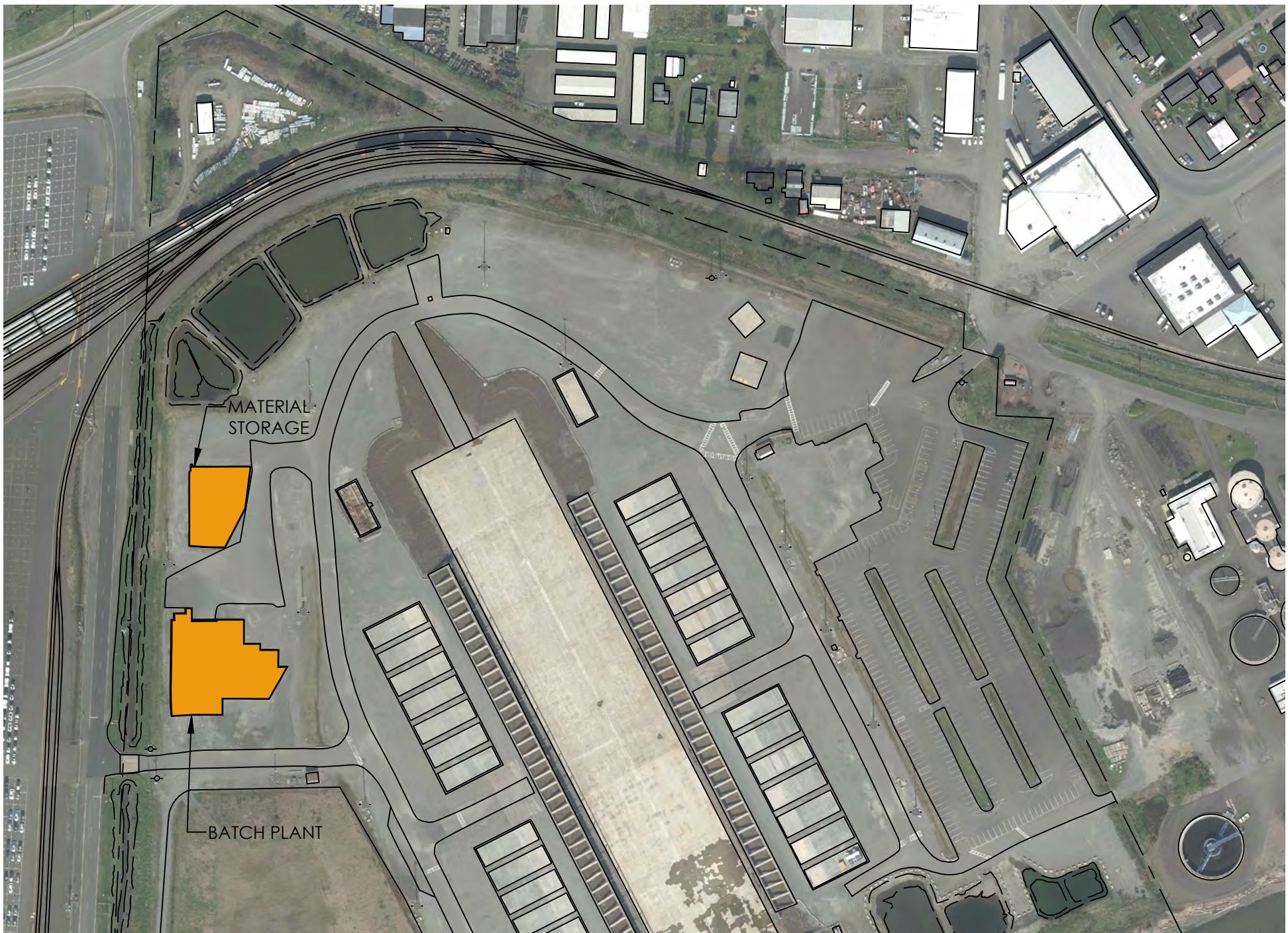

OUTCOME	PERMITS REQUIRED	STUDIES REQUIRED	PROJECT DURATION	COST
DEMOLISH CONCRETE BATCH PLANT FOOTINGS				
CREATE LEVEL 21,800 SF DEVELOPABLE OR STORAGE AREA	DEMOLITION PERMIT	MATERIAL CHARACTERIZATION PRIOR TO DISPOSAL	2 - 3 MONTHS	$32,200
DEMOLISH MATERIAL STORAGE AREA				
REMOVAL OF ECOLOGY BLOCK WALL TO CREATE LEVEL 10,900 SF AREA	N/A	MATERIAL CHARACTERIZATION PRIOR TO DISPOSAL	1 - 2 MONTHS	$37,135

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Figure 4-6
DEVELOPMENT ACTION 6: DEMOLISH BATCH PLANT AND STORAGE AREA
Port of Grays Harbor | Aberdeen, WA

INSTALL PIPE & FILL WEST SIDE DITCH				
OUTCOME	**PERMITS REQUIRED**	**STUDIES REQUIRED**	**PROJECT DURATION**	**COST**
SEAMLESS LAND CONNECTION TO TERMINAL 4 & ADDITIONAL 58,800-SF USABLE AREA	DA PERMIT, SECTION 401 WATER QUALITY CERTIFICATION, HPA, FLOODPLAIN DEVELOPMENT PERMIT, SEPA, SHORELINE PERMIT, SITE DEVELOPMENT PERMIT, SITE PLAN REVIEW, CRITICAL AREAS REVIEW, CSWGP	CRITICAL AREAS STUDY	1.5 - 2 YEARS	$390,740

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Figure 4-7
DEVELOPMENT ACTION 7: FILL WEST SIDE DITCH
Port of Grays Harbor | Aberdeen, WA

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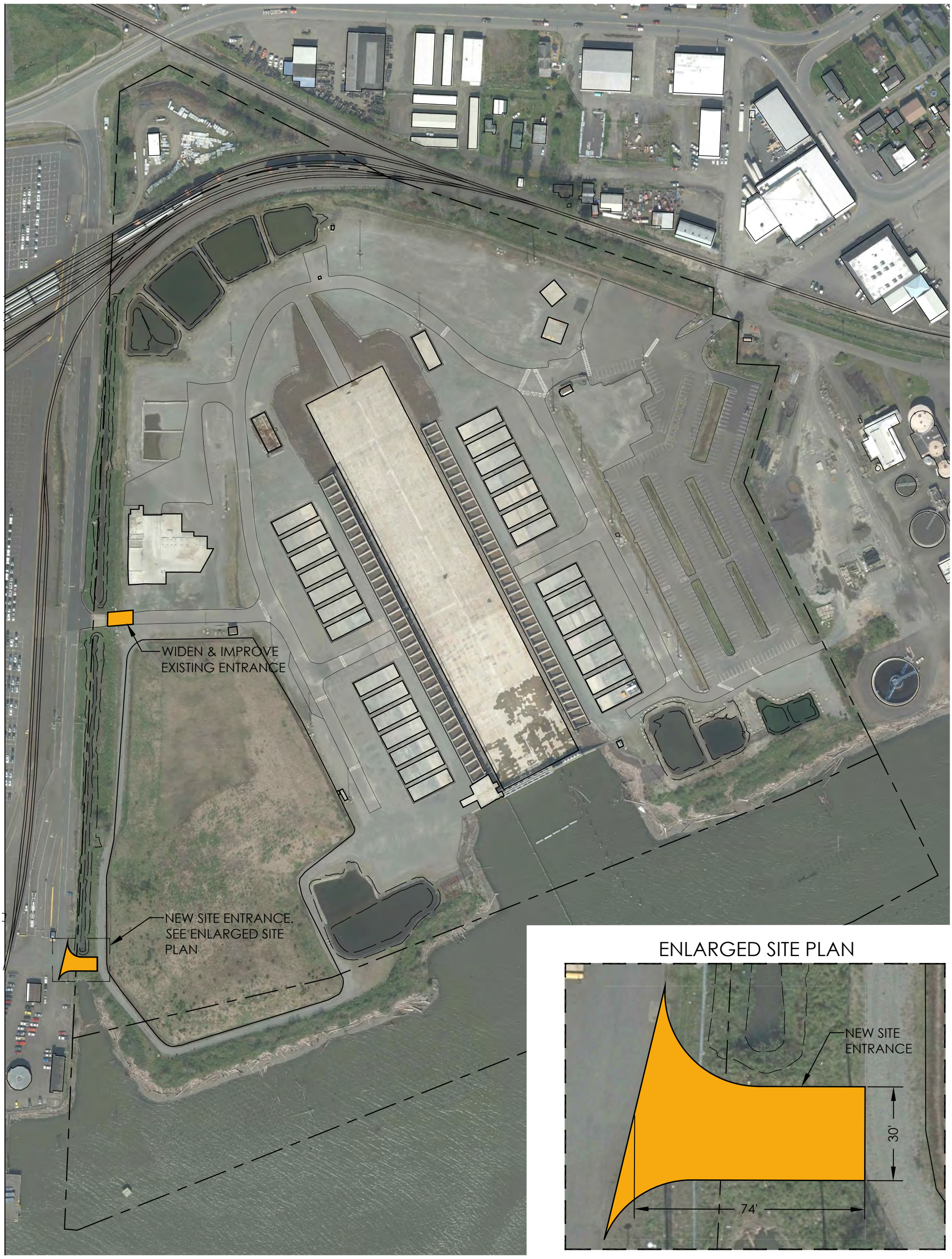

ENLARGED SITE PLAN

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IMPROVE SITE ACCESS				
OUTCOME	**PERMITS REQUIRED**	**STUDIES REQUIRED**	**PROJECT DURATION**	**COST**
ADDITIONAL ACCESS	FLOODPLAIN DEVELOPMENT PERMIT, SITE DEVELOPMENT PERMIT, SITE PLAN REVIEW, CRITICAL AREAS REVIEW, SECTION 401 WATER QUALITY CERTIFICATION, HPA, SEPA, SHORELINE PERMIT, DA PERMIT	CRITICAL AREAS STUDY	6 - 12 MONTHS	$129,675

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Figure 4-8
DEVELOPMENT ACTION 8: SITE ACCESS
Port of Grays Harbor | Aberdeen, WA

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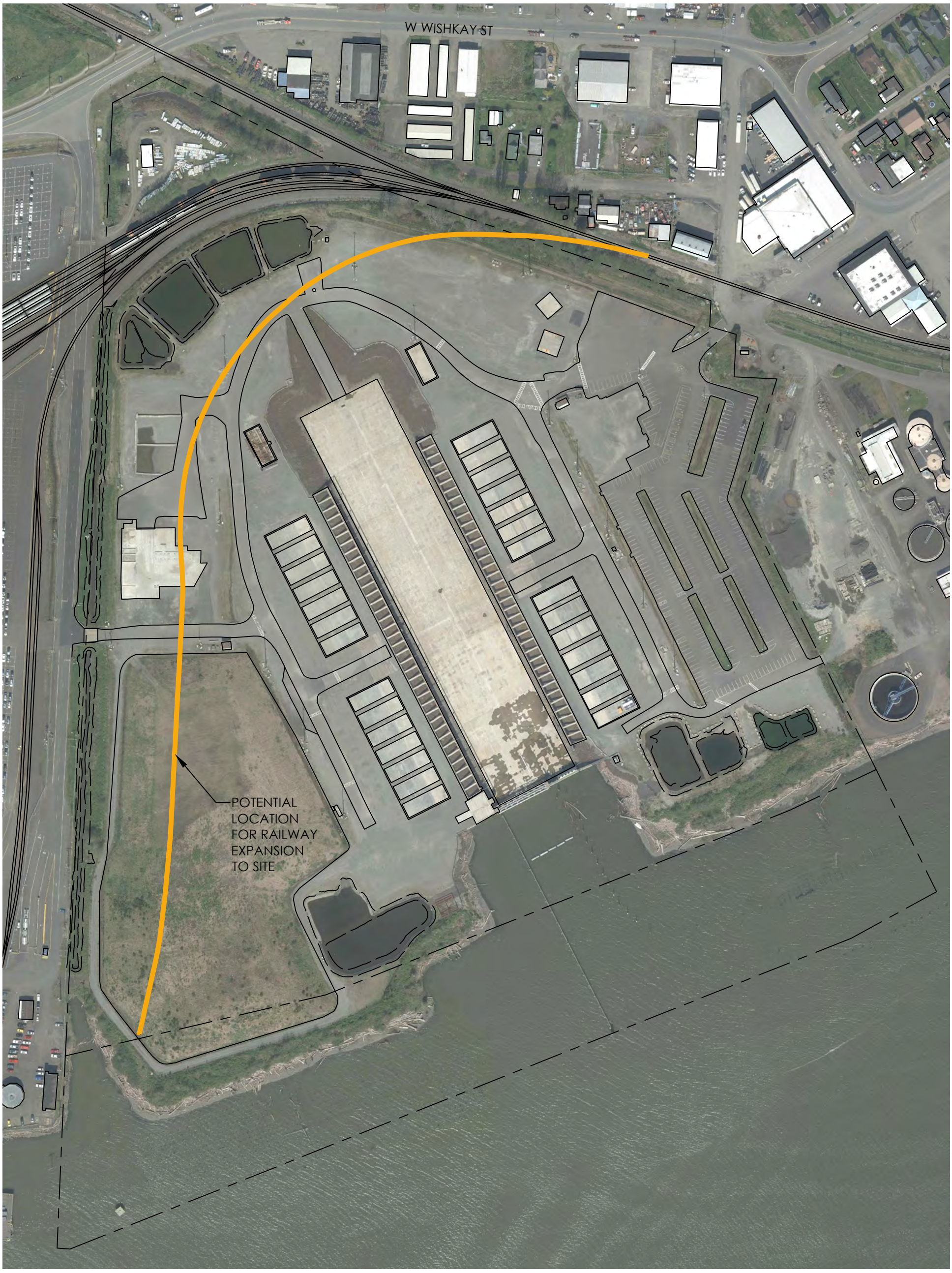

BUILD ADDITIONAL RAIL SPUR				
OUTCOME	**PERMITS REQUIRED**	**STUDIES REQUIRED**	**PROJECT DURATION**	**COST**
RAIL ACCESS TO THE SITE	SITE PLAN REVIEW, SEPA, SHORELINE PERMIT, FLOODPLAIN DEVELOPMENT PERMIT, SITE DEVELOPMENT PERMIT, CRITICAL AREAS REVIEW	GEOTECHNICAL STUDY	9 - 12 MONTHS	$1,108,800

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Figure 4-9
DEVELOPMENT ACTION 9: SITE RAIL ACCESS
Port of Grays Harbor | Aberdeen, WA

APPENDIX A

SUMMARY OF ADDED DEVELOPABLE AREA

Summary of Added Developable Area

Development Action Number	Action Item	Square Feet	Acres
1	No Action/Existing Site Plan	920,500	21.13
2	Remove Light Poles	0	0
3a	Gravel Fill around Concrete Pads	133,700	3.07
3b	Demolish Concrete Pads	133,700	3.07
4a	Demolish Crane Rail	52,300	1.20
4b	Excavate Stockpile and Fill Casting Basin	527,100	12.10
4c	Fill Northern Stormwater Ponds	56,600	1.30
5	Fill Southern Stormwater Ponds	67,100	1.54
6a	Demolish Concrete Batch Plant Footings	21,800	0.50
6b	Demolish Material Storage Area	10,900	0.25
7	Install Pipe and Fill West Side Ditch	58,800	1.35
8	Improve Site Access	0	0
9	Site Rail Access	0	0

APPENDIX B

PERMIT APPLICABILITY MATRIX

Port of Grays Harbor East Terminal 4 Feasibility Study—Permit and Approval Applicability Table

		PERMITS AND APPROVALS											
		SEPA Review	Site Plan Review	Shoreline Permit	Shoreline Exempt.	Site Dev. Permit (grading)	Flood. Permit	Demo Permit	Critical Areas Review	HPA	Water Quality Cert.	USACE Permit	Cons. Storm. General Permit
ACTIONS	No Action												
	Remove Light Poles					X							
	Concrete Pads (Fill or Removal)				X	X	X						
	Demolish Crane Rail				X			X					
	Excavate Stockpile and Fill Casting Basin (Assumes no In-Water Work)	X	X	X		X	X		X				X
	Fill Northern Stormwater Ponds	X	X	X		X			X				X
	Fill Southern Stormwater Ponds	X	X	X		X	X		X				X
	Demolish Concrete Batch Plant Footings							X					
	Demolish Material Storage Area (removal of ecology blocks)												
	Install Pipe and Fill West Side Ditch	X	X	X		X	X		X	X	X	X	X
	Improve Site Access	X	X	X		X	X		X	X	X	X	
	Build Additional Rail Spur	X	X	X		X	X		X				

NOTES:
Permits and approvals applicable to an action are noted with an **X**.
The permit matrix reflects design of key components for conceptual design, and consistent with design, the permitting approach outlined herein would need to advance in specificity or be adjusted as design advances or changes.
Except for the No Action and Demolition of Material Storage Area alternatives, documentation of SEPA exemption would be required for all alternatives that are not subject to formal SEPA review.

APPENDIX C

ENGINEER'S PRELIMINARY OPINION OF PROBABLE COSTS

ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST

Title:	**East Terminal 4 Development Actions**	
Project:	East Terminal 4 Site Feasibility Study	
Client:	Port of Grays Harbor	
Project #/Task:	1075.02.01	Initial
Prepared By:	K. Boon	
Checked By:	S. Frost	
Date:	6/30/2021	
Revision #.:	1	

MAUL FOSTER ALONGI
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Cost Estimate Summary - Feasibility Level

Development Action 2 - Remove Light Poles	Subtotal	$	48,600
	Contingency (25%)	$	12,150
	Design & Permitting (15%)	$	7,290
	Total	**$**	**68,040**
Development Action 3a - Gravel Fill Around Concrete Pads	Subtotal	$	22,750
	Contingency (25%)	$	5,688
	Design & Permitting (15%)	$	3,413
	Total	**$**	**31,850**
Development Action 3b - Demolish Concrete Pads	Subtotal	$	186,000
	Contingency (25%)	$	46,500
	Design & Permitting (15%)	$	27,900
	Total	**$**	**260,400**
Development Action 4a - Demolish Crane Rail	Subtotal	$	105,000
	Contingency (25%)	$	26,250
	Design & Permitting (15%)	$	15,750
	Total	**$**	**147,000**
Development Action 4b - Excavate Stockpile & Fill Casting Basin	Subtotal	$	6,760,000
	Contingency (25%)	$	1,690,000
	Design & Permitting (15%)	$	1,014,000
	Total	**$**	**9,464,000**
Development Action 4c - Fill North Stormwater Ponds	Subtotal	$	198,800
	Contingency (25%)	$	49,700
	Design & Permitting (15%)	$	29,820
	Total	**$**	**278,320**

ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST

Development Action 5 - Fill Southern Stormwater Ponds	Subtotal	$	236,220
	Contingency (25%)	$	59,055
	Design & Permitting (15%)	$	35,433
	Total	**$**	**330,708**
Development Action 6a - Demolish Concrete Batch Plant Footings		$	23,000
	Contingency (25%)	$	5,750
	Design & Permitting (15%)	$	3,450
	Total	**$**	**32,200**
Development Action 6b - Demolish Material Storage Areas	Subtotal	$	26,525
	Contingency (25%)	$	6,631
	Design & Permitting (15%)	$	3,979
	Total	**$**	**37,135**
Development Action 7 - Install Pipe & Fill West Side Ditch	Subtotal	$	279,100
	Contingency (25%)	$	69,775
	Design & Permitting (15%)	$	41,865
	Total	**$**	**390,740**
Development Action 8 - Improve Site Access	Subtotal	$	92,625
	Contingency (25%)	$	23,156
	Design & Permitting (15%)	$	13,894
	Total	**$**	**129,675**
Development Action 9 - Build Additional Rail Spur		$	792,000
	Contingency (25%)	$	198,000
	Design & Permitting (15%)	$	118,800
	Total	**$**	**1,108,800**

ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST

Assumptions:

1. If no action is taken, the site could be used for laydown and storage around the existing on-site structures. The casting basin could be used for storage as well, as long as it is acceptable for the material to potentially be in some standing water.
2. Crushed concrete from demolishing the concrete pads, foundations, etc. may be used for fill on-site.
3. On average, 4-inches of gravel will be required to fill in around the concrete pads.
4. The metal portions of the crane rail can be sold as scrap metal. Since supports for the crane rail extend into the casting basin, it would need to be removed prior to filling the casting basin.
5. Soil from the existing stockpile in the southwest corner of the site is free of contamination and is suitable to use for fill.
6. The casting basin gate will need to be replaced with a concrete wall. Further investigations and designs will need to be completed to refine this estimate.
7. Differential settling, likely in the magnitude of inches, will occur after filling the casting basin.
8. If the casting basin is filled, the northern stormwater ponds would no longer be required and could be filled in.
9. On average, 1.5 feet of material will be needed to level the raw material storage area and 0.5 feet of gravel will be placed on compacted on top.
10. Wetland mitigation will be required to fill in the west side ditch. Costs for mitigation are not included in the cost estimates.
11. A 24-inch culvert will be required under a new driveway access across the west side ditch. Further hydrological analysis needs to occur to confirm this culvert size.
12. Approximately 1.5 feet of fill will be required over a new culvert at the southwest access. In addition, a depth of 0.75 feet of aggregate and 0.65 feet of hot mix asphalt will be required.
13. Construction of a rail spur on-site would require an access point to be constructed at the southwest corner of the site to maintain site access if a train is blocking the existing access.
14. Crushed concrete from demolishing concrete pads, foundations, etc. may be used on-site.
15. The estimate for excavating stockpile and filling the casting basin does NOT include any costs for securing or repairing the existing gate.

ENGINEER'S PRELIMINARY COST ESTIMATE

Maul, Foster Alongi, Inc.

Development Action 2 - Remove Light Poles						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
2.1	Remove & Dispose of Light Poles	28	EA	$1,200.00	$	33,600.00
2.2	Excavate & Dispose of Contaminated Soil	150	CY	$100.00	$	15,000.00
				Subtotal Development Action 2:	**$**	**48,600**

Development Action 3a - Gravel Fill Around Concrete Pads						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
3a.1	Crushed Surfacing Base Course	650	TN	$35.00	$	22,750.00
				Subtotal Development Action 3a:	**$**	**22,750**

Development Action 3b - Demolish Concrete Pads						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
3b.1	Remove Cement Concrete Pavement	9,500	SY	$10.00	$	95,000.00
3b.2	Crushed Surfacing Base Course	2,600	TN	$35.00	$	91,000.00
				Subtotal Development Action 3b:	**$**	**186,000**

Development Action 4a - Demolish Crane Rail						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
4a.1	Remove Crane Rail	1	LS	$105,000.00	$	105,000.00
				Subtotal Development Action 4a:	**$**	**105,000**

Development Action 4b - Excavate Stockpile & Fill Casting Basin						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
4b.1	Excavation Inc. Haul	200,000	CY	$4.00	$	800,000.00
4b.2	Embankment Compaction	200,000	CY	$3.00	$	600,000.00
4b.3	Common Borrow	18,000	CY	$20.00	$	360,000.00
4b.4	Secure Gate	1	EA	$5,000,000.00	$	5,000,000.00
				Subtotal Development Action 4b:	**$**	**6,760,000**

Development Action 4c - Fill North Stormwater Ponds						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
4c.1	Drain Residual Water	1	LS	$10,000.00	$	10,000.00
4c.2	Cap Existing Storm Pipes	5	EA	$500.00	$	2,500.00
4c.3	Common Borrow	8,100	CY	$20.00	$	162,000.00
4c.4	Embankment Compaction	8,100	CY	$3.00	$	24,300.00
				Subtotal Development Action 4c:	**$**	**198,800**

Development Action 5 - Fill Southern Stormwater Ponds						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
5.1	Drain Residual Water	1	LS	$5,000.00	$	5,000.00
5.2	Cap Existing Storm Pipes	4	EA	$500.00	$	2,000.00
5.3	Common Borrow	8,000	CY	$20.00	$	160,000.00
5.4	Bioretention Facilities	22,230	SF	$1.50	$	33,345.00
5.5	18-inch Storm Pipe	175	LF	$45.00	$	7,875.00
5.6	Manhole	1	EA	$4,000.00	$	4,000.00
5.7	Embankment Compaction	8,000	CY	$3.00	$	24,000.00
				Subtotal Development Action 5:	**$**	**236,220**

ENGINEER'S PRELIMINARY COST ESTIMATE
Maul, Foster Alongi, Inc.

Development Action 6a - Demolish Concrete Batch Plant Footings						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
6a.1	Remove Cement Concrete Pavement	2,300	SY	$10.00	$	23,000.00
				Subtotal Development Action 6a:	**$**	**23,000**

Development Action 6b - Demolish Material Storage Areas						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
6b.1	Remove Ecology Blocks	365	LF	$30.00	$	10,950.00
6b.2	Common Borrow	350	CY	$20.00	$	7,000.00
6b.3	Embankment Compaction	350	CY	$3.00	$	1,050.00
6b.4	Crushed Surfacing Base Course	215	TN	$35.00	$	7,525.00
				Subtotal Development Action 6b:	**$**	**26,525**

Development Action 7 - Install Pipe & Fill West Side Ditch						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
7.1	Common Borrow	8,100	CY	$20.00	$	162,000.00
7.2	Embankment Compaction	8,100	CY	$3.00	$	24,300.00
7.3	24-inch CPE Culvert	1,450	LF	$60.00	$	87,000.00
7.4	Fence Removal	1,450	LF	$4.00	$	5,800.00
				Subtotal Development Action 7:	**$**	**279,100**

Development Action 8 - Improve Site Access						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
8.1	Excavation Inc. Haul	150	CY	$15.00	$	2,250.00
8.2	Common Borrow	300	CY	$20.00	$	6,000.00
8.3	Embankment Compaction	300	CY	$3.00	$	900.00
8.4	Gate & Fencing	100	LF	$50.00	$	5,000.00
8.5	24-inch CPE Culvert	60	LF	$60.00	$	3,600.00
8.6	Crushed Surfacing Base Course	225	TN	$35.00	$	7,875.00
8.7	Hot Mix Asphalt	220	TN	$100.00	$	22,000.00
8.8	Mitigation	1	LS	$45,000.00	$	45,000.00
				Subtotal Development Action 8:	**$**	**92,625**

Development Action 9 - Build Additional Rail Spur						
Description		*Quantity*	*Unit*	*Unit Cost*		*Total Cost*
9.1	Install Railroad Track	2,400	LF	$330.00	$	792,000.00
				Subtotal Development Action 9:	**$**	**792,000**

THE 2013 ECONOMIC IMPACT OF THE PORT OF GRAYS HARBOR

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October 14, 2014

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I. OVERVIEW OF THE ANALYSIS

The Port of Grays Harbor retained the services of Martin Associates to evaluate the economic impacts generated by waterborne activity at the Port of Grays Harbor marine facilities and the economic impacts generated by the Port's non-maritime real estate tenants.

The measurement of the economic impacts of the Port of Grays Harbor marine facilities consists of the measurement of the impacts of three distinct types of waterborne activity that occurs at the Port of Grays Harbor. These three types of waterborne activities are:

- *Marine cargo activity*, which includes waterborne cargo moving via the Port of Grays Harbor facilities (i.e., facilities owned and operated by the Port of Grays Harbor and facilities leased to private operators).

- *Fishing activity at the Port of Grays Harbor Westport Marina*, which includes the impacts generated by purchases of supplies, shipyard services, equipment and fishing gear, insurance and legal services by fishing vessels using the Port of Grays Harbor Westport Marina.

- *Marina activity*, which includes recreational boats that are moored at Westport Marina, as well as transient recreational boating activity and charter fishing activity operated at Westport Marina.

A major emphasis of the study is its defensibility and realistic assessment of the impacts generated by activity at the Port of Grays Harbor. The study is based on interviews with 139 firms providing services to the Port of Grays Harbor marine operations and real estate tenants. A greater than 95 percent coverage of the firms in the Port of Grays Harbor marine operations and real estate tenants has been achieved, underscoring the defensibility of the study. The impacts can be traced back to the company level of detail.[1] The data collected from the interviews were then used to develop operational models of the Port of Grays Harbor marine cargo, commercial fishing operations, recreational boating and charter excursions, and Port real estate tenant's impacts.

The results of the analysis include a snapshot of the economic impact of the Port of Grays Harbor marine operations and real estate tenants in 2013, as well as the development of impact models for each business unit operated by the Port of Grays Harbor. These models provide the Port of Grays Harbor with tools to update the economic impacts on an annual basis, as well as to evaluate the sensitivity of the resulting local and regional impacts to changes in underlying factors and to assess the economic impacts of specific Port of Grays Harbor capital development projects.

[1] Individual firm data is collected by Martin Associates to develop the overall economic impact models. Company specific data is held strictly by Martin Associates and not provided to the Port or any other entity under the confidentiality agreement between Martin Associates and the individual companies.

With respect to marine operations, the impacts of changes in such factors as tonnage levels (by commodity and trade route), vessel call levels, labor productivity, inland modal distribution (rail vs. truck), and inland markets for waterborne cargo can be evaluated. The marina model can be used to assess the impacts of changes in the composition of the boats moored at Westport Marina, the expenditures of moored boats, the number of moored boats and transient boats and the characteristics of spending patterns associated with the passengers of transient boats and charter operations. For fishing activity at Westport Marina, the impact model can test the sensitivity of the impacts to changes in the number of fishing boats using the Port's facilities and changes in expenditure profiles by type of boat.

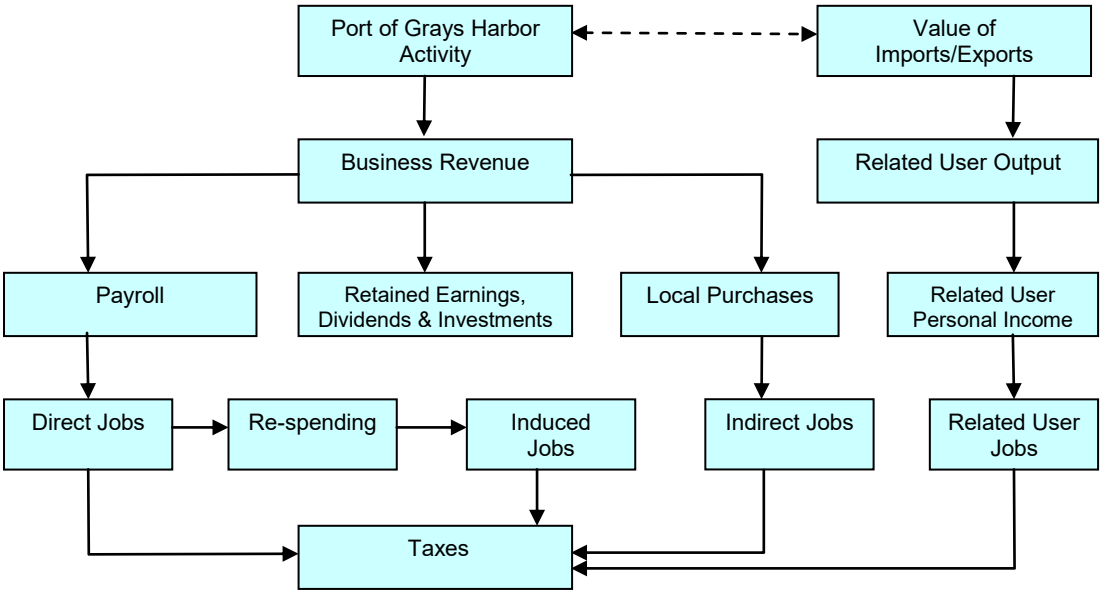
The real estate model can be used to assess the potential impacts of new tenants on the local and regional economy.

The remainder of this chapter presents an overview of the impact analysis and a summary of the results.

1. FLOW OF IMPACTS

Waterborne activity at a Port of Grays Harbor marine facilities and real estate activity contribute to the local and regional economy by generating business revenue to local and national firms providing services to these sectors. These firms, in turn, provide employment and income to individuals and pay taxes to state and local governments. Exhibit I-1, below, shows how waterborne activity at the Port of Grays Harbor marine facilities and real estate activity of the Port of Grays Harbor tenants generate impacts throughout the local, state and national economies. As this exhibit indicates, the impact of marine operations and real estate tenants, on a local, state or national economy cannot be reduced to a single number, but instead, they create several impacts. These are the revenue impact, employment impact, personal income impact and tax impact. ***These impacts are non-additive***. For example, the income impact is a part of the revenue impact, and adding these impacts together would result in double counting. Exhibit I-1 shows graphically how activity at the Port of Grays Harbor generates the four impacts.

Exhibit I-1
Flow of Economic Impacts Generated by
The Port of Grays Harbor Activity



1.1 Business Revenue Impact

At the outset, activity at the Port's marine facilities and real estate tenants generate business revenue for firms that provide services. This business revenue impact is dispersed throughout the economy in several ways. It is used to hire people to provide the services, to purchase goods and other services, to pay for the use of port facilities and to make federal, state and local tax payments. The remainder is used to pay stockholders, retire debt, make investments or is held as retained earnings. It is to be emphasized that the only portions of the revenue impact that can be definitely identified as remaining in the State of Washington are those portions paid out in salaries to Washington employees, for local purchases by individuals and businesses directly dependent on the marine operations, and in contributions to state and local taxes, as well as federal taxes. Terminal leases paid to the Port of Grays Harbor by terminal operators; wharfage and dockage fees paid by the steamship lines; and revenue from real estate leases, generate revenue to the Port of Grays Harbor.

1.2 Employment Impact

The employment impact of marine operations and real estate activity consists of four levels of job impacts.

- Direct employment impact - jobs directly generated by marine cargo, marina operations, commercial fishing activity and real estate tenants. Direct jobs generated by marine cargo include jobs with railroads and trucking companies moving cargo between inland origins and destinations and the marine terminals, longshoremen, steamship agents, stevedores, etc. Direct jobs generated by the fishing fleet using Port of Grays Harbor Westport Marina include crew, shipyard employees, local fishing gear suppliers, insurance brokers and marine attorneys, etc. Direct jobs supported by the marina activity include jobs directly involved with operating Westport Marina, jobs supported by the direct purchases by the boat owners including boat repair, equipment, nautical supplies, etc., as well as local hotels, restaurants, transportation firms and retail stores providing services to the anglers departing Westport Marina on recreational fishing charters. For transient boats calling the Port's marina, direct jobs are measured for the local restaurants and retail outlets. Finally, for the real estate tenants, the direct jobs include those individuals directly employed by the real estate tenants of the Port.

  It is to be emphasized that these are classified as directly generated in the sense that these jobs would experience near term dislocation if the Port of Grays Harbor marine facilities were to be closed to marine cargo, commercial fishing and marina activity and the Port of Grays Harbor real estate tenants were not able to relocate to non-port property, and as a result leave the area. These jobs are, for the most part, local jobs and are held by residents of Grays Harbor County.

- Induced employment impact - jobs created throughout the local economy because individuals directly employed due to port activity spend their wages locally on goods and services such as food, housing and clothing. These jobs are held by residents located throughout the region and state, since they are estimated based on local and regional statewide purchases.

- Indirect Jobs - jobs created in the State of Washington due to purchases of goods and services by firms, not individuals. These jobs are estimated directly from local purchases data supplied to Martin Associates by the 139 companies interviewed as part of this study, and include jobs with local office supply firms, maintenance and repair firms, parts and equipment suppliers, etc. It is to be emphasized that special care was taken to avoid double counting, since the current study counts certain jobs as direct, which are often classified as indirect by other approaches.

- Related user employment impact - jobs with firms using the cargo facilities to ship and receive cargo and with firms whose employees are regular users of the Port of Grays Harbor. These jobs are not entirely dependent upon the marine cargo operations, but reflect the importance of the Port of Grays Harbor to local and national firms. While the facilities and services provided by the Port of Grays Harbor are a crucial part of the infrastructure allowing these jobs to exist, they would not necessarily be immediately displaced if marine cargo activity were to cease. These include shippers of logs and chips forested in the region, agricultural products grown in the Midwest United States, as well as exporters of Midwest manufactured automobiles.

1.3 Personal Earnings Impact

The personal earnings impact is the measure of employee wages and salaries (excluding benefits) received by individuals directly employed due to marine activity and real estate tenants. Re-spending of these earnings throughout the State of Washington for purchases of goods and services is also estimated. This, in turn, generates additional jobs -- the induced employment impact. This re-spending throughout the state is estimated using a state personal earnings multiplier, which reflects the percentage of purchases by individuals that are made within a state. The re-spending effect varies by state: a larger re-spending effect occurs in states that produce a relatively large proportion of the goods and services consumed by residents, while lower re-spending effects are associated with states that import a relatively large share of consumer goods and services (since personal earnings "leak out" of the state for these out-of-state purchases). The direct earnings are a measure of the local impact since those directly employed by marine activity and real estate tenants receive the wages and salaries. The re-spending effect is regional.

1.4 Tax Impact

Federal, state and local tax impacts are tax payments to the state and local governments by firms and by individuals whose jobs are directly dependent upon and supported (induced and indirect jobs) by activity at the Port of Grays Harbor marine facilities and Port real estate tenants. The tax impacts include state and local taxes collected from all sources, both personal and business taxes. State and local taxes are based on income indices developed by the Tax Foundation and these indices are applied to the direct, induced and indirect personal income impacts.[2]

2. SUMMARY OF METHODOLOGY

The purpose of this section is to provide a summary of the methodological approach used to estimate the economic impacts of the Port of Grays Harbor. The methodological approach to this study is designed to provide highly defensible, as well as accurate results. In addition to the Port of

[2] The Tax Foundation publishes similar tax indices for state and local tax burdens for each state in the United States.

Grays Harbor, this same methodology has been used by Martin Associates in the last 28 years to assess the economic impacts of activity at more than 500 ports including:

Los Angeles
Long Beach
San Diego
Port of Hueneme
Oakland
Portland
Longview
Vancouver
Grays Harbor
Everett
Tacoma
Bellingham
Sacramento
San Francisco
Vancouver, BC
Houston
Corpus Christi
Freeport, TX
Texas City
Victoria, TX
Baton Rouge
New Orleans
Miami
Port Everglades
Palm Beach
Port Canaveral
Jacksonville
Tampa
Port Manatee
Wilmington/Morehead City, NC
Virginia Port Authority
Baltimore
Philadelphia
Wilmington, DE Brunswick, GA
Richmond, VA
Providence, RI
Boston
Montreal
Quebec City
Prince Rupert, BC
Halifax
Saint John, NB
36 U.S. and Canadian Great Lakes Ports

2.1 Data Collection

The cornerstone of the Martin Associates approach is the collection of detailed baseline impact data from firms providing services at the marine and real estate tenants. To ensure accuracy and defensibility, the baseline impact data was collected from personal and telephone interviews with 139 firms in the Port's customer and tenant community. These firms represent the universe of firms providing services at the Grays Harbor marine operations (including marine terminals and Westport Marina) and non-maritime tenants, as identified by the following sources:

- Pacific Northwest Ports Handbook, 2014;
- "The Journal of Commerce", Transportation Telephone Tickler;
- The Port of Grays Harbor Tenant and Customer Directory;

These 139 firms represent greater than 98 percent coverage of all firms identified in the maritime and real estate community. In some instances, multiple interviews were conducted with several persons in each firm.

2.2 Direct Jobs, Income and Revenue Impacts

The results of these interviews were then used to develop the baseline direct job, revenue and income impacts for the marine and real estate activity, and for the economic sectors and job categories associated with the maritime and real estate tenants.

This baseline survey data was also used to develop operational models that can be used to update the impacts of the Port of Grays Harbor marine cargo, marina activity, the Port's commercial fishing operations, and real estate tenants on an annual basis and to evaluate the impacts of changes in:

- Marine cargo tonnage, by commodity;
- Port labor productivity, and work rules;
- Modal distribution of marine cargo (what percent of the inland transportation of a commodity is truck versus rail), as well as the geographical distribution of each commodity;
- Vessel calls;
- Number of recreational boats, by type of boat, moored at Westport Marina, as well as transient calls at Westport Marina;
- Local purchases made by recreational boats moored at Westport Marina, as well as transient recreational boating activity at the marina;
- Number of fishing boats, by type of fishing fleet, using the Ports' facilities;
- Local purchases made by fishing boat operators based at Westport Marina; and
- New real estate tenants of the Port, by type of business activity (office versus warehouse and distribution versus manufacturing).

Also, the operational models can be used to evaluate alternative facilities expansion projects and new construction, such as a new or expanded marine cargo terminal or real estate development projects.

2.3 Induced Impacts

Induced impacts are those generated by the purchases of the individuals employed as a result of marine activity and real estate tenants. For example, a portion of the personal earnings received by those directly employed due to activity at the Port of Grays Harbor is used for purchases of goods and services, both in-state, as well as out-of-state. These purchases, in turn, create additional jobs in the State of Washington, which are classified as induced. To estimate these induced jobs, a personal earnings multiplier for the State of Washington was developed from data provided by the Bureau of Economic Analysis, Regional Input-Output Modeling System. This income multiplier is used to estimate the total personal earnings generated in the State of Washington, primarily defined as Grays Harbor County. A portion of this total personal earnings impact is next allocated to specific local purchases (as determined from consumption data for Seattle-Tacoma-Bremerton MSA, as developed from the U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 2011-2012). These purchases are next converted into retail and wholesale induced jobs in the regional economy.

Induced jobs are not estimated at lower levels of purchasing rounds (after the wholesale round) since it is not possible to trace with a sufficient degree of accuracy, geographically, where purchases at the remaining levels occur. However, about 80 percent of the consumption will likely

occur at the first two rounds of purchases, which are most likely local retail and wholesale purchases.

2.4 Indirect Jobs

Indirect jobs are generated in the local economy as the result of purchases by firms that are directly dependent upon activity at the Port of Grays Harbor marine cargo terminals, Westport Marina operations, and real estate tenants of the Port of Grays Harbor. These purchases are for goods such as office supplies and equipment, maintenance and repair services, raw materials, communications and utilities, transportation services and other professional services. To estimate the indirect economic impact, local purchases, by type of purchase, were collected from each of the 139 firms interviewed and the Port of Grays Harbor. These local purchases were then combined with employment to sales ratios in local supplying industries, developed from U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System for the State of Washington and Grays Harbor County. These jobs to sales ratios capture the numerous spending rounds associated with the supply of goods and services. Special care has been exercised to avoid double counting the indirect impacts, and to specifically include only the expenditures by the directly dependent firms that are, in fact, local.

2.5 Related Impacts

Related impacts measure the jobs with shippers and consignees moving cargo through the Port of Grays Harbor marine terminals. These jobs are classified as related jobs, since the firms using the facilities for the movement of marine cargo can and do use other ports. For example, grain being grown in the Midwestern United States is exported via numerous grain elevators located in Washington and Oregon. Should the Port of Grays Harbor grain elevator cease operations, the grain being grown in the Midwest and exported through the elevator would most likely be exported via another grain elevator located in the Pacific Northwest, hence these jobs are related to port activity and not directly dependent on the Port of Grays Harbor. Similar situations apply to export automobiles and forest products.

Related impacts for the Port of Grays Harbor were estimated by multiplying the value of the Washington state cargo moving via the marine terminals with jobs to sales ratios specific to the exporters and importers.[3]

[3] The value of cargo moving via the marine terminals was determined from U.S. Census, USA Trade On-Line, while the ratios of jobs to sales data for related Washington State and United States exporters and importers were developed from data supplied to Martin Associates by the Bureau of Economic Analysis, Regional Input-Output Modeling System.

2.6 Tax Impacts

The tax impacts include state and local taxes collected from all sources, both personal and business taxes. The state and local per capita income tax burdens (developed by the Tax Foundation for the State of Washington) are applied to the total direct, induced and indirect income impacts to estimate total state and local taxes created by marine cargo, marina, commercial fishing and real estate activity at the Port of Grays Harbor.

3. TOTAL IMPACT OF THE PORT OF GRAYS HARBOR

As Table I-1 indicates, the Port of Grays Harbor marine and non-maritime related real estate tenants generate the following economic impacts for the local and regional economy:

- 2,727 direct jobs are generated by Port of Grays Harbor-owned transportation facilities. As the result of local and regional purchases by those 2,727 individuals holding the direct jobs, an additional 1,608 induced jobs are supported in the region.

- 1,368 indirect jobs were supported by $136.2 million of local purchases by businesses supplying services at the Port-owned facilities.

- $118.9 million of direct wages and salaries were received by those 2,727 directly employed by the Port of Grays Harbor's transportation infrastructure and real estate tenants. As the result of re-spending this income, an additional $147.4 million of income and consumption expenditures are created in Washington State, primarily Grays Harbor County. The indirect jobs holders received $75.2 million of indirect wages and salaries.

- Businesses providing services at the Port-owned marine terminals, Westport Marina, as well as real estate tenants, received $564 million of revenue, excluding the value of cargo shipped through the marine cargo facilities, and the landed value of the seafood caught by the commercial fishing fleet using Westport Marina.

- $32.1 million of state and local taxes were generated by activity at the Port of Grays Harbor marine terminals, Westport Marina, and real estate tenants. In addition, the Port collected $545,000 of leasehold taxes from its tenants.

Table I-1
Summary of the Economic Impacts Generated by the Port of Grays Harbor Maritime and Real Estate Activity, 2013

PORT OF GRAYS HARBOR	MARINE CARGO	COMMERCIAL FISHING	RECREATIONAL BOATING	REAL ESTATE	TOTAL
Jobs					
Direct	574	1,067	137	950	2,727
Induced	645	442	81	440	1,608
Indirect	305	543	27	493	1,368
Total Jobs	1,524	2,052	245	1,882	5,704
Personal Income ($1,000)					
Direct	$36,239	$38,968	$3,693	$40,005	$118,906
Induced	$79,654	$27,894	$7,546	$32,256	$147,350
Indirect	$14,860	$27,730	$704	$31,866	$75,161
Total	$130,754	$94,592	$11,943	$104,127	$341,417
Business Revenue ($1,000)	$143,488	$203,537	$23,548	$193,440	$564,013
Local Purchases ($1,000)	$31,513	$45,522	$2,099	$57,060	$136,194
State and Local Taxes ($1,000)	$12,291	$8,892	$1,123	$9,788	$32,093

* Totals may not add due to rounding
**The re-spending/local consumption impact cannot be divided by induced jobs to estimate induced income, since the re-spending impact also includes local purchases. This would overstate the induced income impact.

II. THE ECONOMIC IMPACTS OF THE PORT OF GRAYS HARBOR MARINE FACILITIES

The impacts generated by the Grays Harbor maritime facilities consist of:

- Impacts generated by cargo and vessel activity at marine cargo facilities owned and operated by the Port of Grays Harbor, as well as facilities owned by the Port, but leased to private terminal operators.

- Impacts generated by the fishing fleet home-ported at the Westport Marina, transient fishing vessels using facilities at Westport Marina, as well as impacts generated by the purchases of supplies and services by the fishing fleet based at Westport Marina. Also included are impacts with fish processing and cold storage operations located in Westport. ***It is to be emphasized that the Washington based fishing fleet uses other non-Port of Grays Harbor terminals and moorings throughout the West Coast and Puget Sound areas. The impacts of these vessels are not included in this study.***

- Impacts of recreational boating at the Westport Marina, including boats moored and transient calls at Westport Marina. Charter fishing operations and the impacts associated with visiting charter fishing anglers are included in these impacts.

In the remainder of this chapter the impacts generated by the Grays Harbor maritime facilities are summarized. First, the impacts generated by all activity (marine cargo, commercial fishing, and recreational boating). Secondly, the impacts generated by type of activity are summarized.

1. THE ECONOMIC IMPACTS OF THE GRAYS HARBOR MARINE FACILITIES

Table II-1 summarizes the economic impacts generated by marine activity.

Table II-1
Economic Impacts of Port of Grays Harbor Maritime Activity

PORT OF GRAYS HARBOR SEAPORT	MARINE CARGO	COMMERCIAL FISHING	RECREATIONAL BOATING	TOTAL
Jobs				
Direct	574	1,067	137	1,777
Induced	645	442	81	1,168
Indirect	305	543	27	876
Total Jobs	1,524	2,052	245	3,821
Personal Income ($1,000)				
Direct	$36,239	$38,968	$3,693	$78,901
Induced	$79,654	$27,894	$7,546	$115,094
Indirect	$14,860	$27,730	$704	$43,295
Total	$130,754	$94,592	$11,943	$237,290
Business Revenue ($1,000)	$143,488	$203,537	$23,548	$370,572
Local Purchases ($1,000)	$31,513	$45,522	$2,099	$79,134
State and Local Taxes ($1,000)	$12,291	$8,892	$1,123	$22,305

Totals may not add due to rounding.

In 2013, marine cargo activity at the Port of Grays Harbor cargo terminals and the commercial fishing and recreational boating operations at Westport Marina generated:

- 1,777 direct jobs. As the result of purchases in the local and regional economy with the income received by those holding the direct jobs, an additional 1,168 induced jobs were generated in Washington State. As the result of $79.1 million of local purchases by the firms directly providing services at the Port of Grays Harbor maritime operations, 876 indirect jobs with local supplying firms were also supported in the regional economy.

- $78.9 million of personal income was received by those employed directly by activities at the Grays Harbor maritime operations. As the result of re-spending of this income for purchases of goods and services by those directly employed, an additional $115.1 million of

income and consumption expenditures are generated in the region. A portion of this re-spending impact is used to pay those holding the 1,168 induced jobs, while another portion is received by the firms providing the goods and services to the individuals directly employed due to port activity. In addition, those holding the 876 indirect jobs received $43.3 million of indirect wages and salaries. In total, $237.3 million of wages and salaries were created by cargo, commercial fishing, and recreational boating activity at Port of Grays Harbor facilities in 2013.

- The firms directly dependent upon supplying the services to support the marine activity (those firms employing the 1,777 direct jobs) received $370.6 million of business revenue.[4] Of this revenue, these firms made $79.1 million of local purchases for goods and services. It is these local purchases that supported 876 indirect jobs in the regional economy.

- A total of $22.3 million state and local taxes were generated by Port of Grays Harbor maritime activity.

- In addition to these direct, induced and indirect impacts, about 36,909 jobs in the United States are related to the marine cargo moving via the marine terminals in the Port of Grays Harbor. The majority of these jobs are created by grain and autos handled at the Port of Grays Harbor.

In the next section, the impacts generated by marine cargo at the Port of Grays Harbor marine cargo terminals are described. Section 3 describes the impacts of commercial fishing activity and section 4 details the impacts of recreational boating at Westport Marina. The impacts generated by the Port of Grays Harbor real estate tenants are discussed in section 5.

2. THE ECONOMIC IMPACTS OF MARINE CARGO ACTIVITY AT THE PORT OF GRAYS HARBOR

In 2013, a total of 2.38 million metric tons of cargo moved over marine facilities owned by the Port of Grays Harbor. Of the 2.38 million tons of cargo, soy meal & other bulk commodities accounted for 1.36 million tons via the Port's grain elevator. Autos accounted for another 177,529 tons, or 92,270 auto units. Each auto unit is approximately 1.9 tons. Forest product exports accounted for 412,122 metric tons in 2013, 94,732 tons of chips and 317,390 tons of log exports. The Ports' two liquid bulk terminals, Westway Terminals and Imperium Renewables handled 433,981 tons of liquid bulk.

[4] Business revenue is a measure of the value of the services provided by the firms. The value of the marine cargo shipped or received through the Port of Grays Harbor cargo terminals and the landed value of seafood caught by the fishing fleet based at Westport Marina is not included in this business revenue impact measure.

2.1 Overview of the Port Impact Structure

The movement of these 2.38 million metric tons of cargo through the Port of Grays Harbor cargo terminals generates economic activity in various business sectors of the state and local economy. Specifically, four distinct economic sectors are involved in providing services to move the cargo through the Port of Grays Harbor marine terminals. These are the:

- Surface Transportation Sector
- Maritime Service Sector
- Port of Grays Harbor
- Shippers/Consignees Using the Port of Grays Harbor

Jobs, income, revenue and tax impacts are estimated for each sector, as well as for specific job categories within each sector.

2.1.1 Economic Impact Sectors

Within each sector, various participants are involved. Separate impacts are estimated for each of the participants. A discussion of each of the four economic impact sectors is provided below, including a description of the major participants in each sector.

(1) The Surface Transportation Sector

The surface transportation sector consists of both the railroad and trucking industries. These sectors are responsible for moving the various cargoes between the marine terminals and their inland origins and destinations. Puget Sound and Pacific Railroad connects the Port's terminals with the Burlington Northern/Santa Fe and the Union Pacific railroads and inland origins and destinations. In general, the railroads play an integral part in the movement of grain and autos from Midwestern states to the Port of Grays Harbor for export.

Many local and national trucking firms serve the cargo facilities. Trucking firms are involved in delivering forest products from logging sites to the Port's marine terminals. Liquid Bulk commodities also use local trucks to deliver products within the regional economy. Finally, trucks play a major role in the delivering imported autos to auto auctions in California.

(2) The Maritime Service Sector

This sector consists of numerous firms and participants performing functions related to the following maritime services:

- Cargo Marine Transportation;
- Vessel Operations;
- Cargo Handling; and
- Federal, State, and Local Government Agencies.

A brief description of the major participants in each of these categories is provided below:

- Cargo Marine Transportation - Participants in this category are involved in arranging for overland and water transportation for export or import freight through the port. The freight forwarder/customhouse broker is the major participant in this category. The freight forwarder/customhouse broker arranges for the freight to be delivered between the Grays Harbor and inland destinations, as well as the ocean transportation. This function performed by freight forwarders is most prevalent for general cargo commodities. For bulk cargo, arrangements are often made by the shipper/receiver.

- Vessel Operations - This category consists of several participants. The steamship agents provide a number of services for the vessel as soon as it enters the Port of Grays Harbor; the agents arrange for pilot services and towing, for medical and dental care of the crew, and for ship supplies. The agents are also responsible for vessel documentation. In addition to the steamship agents arranging for vessel services, those providing the services include:

    - Pilots - assist vessels navigating to and from the Port of Grays Harbor terminals;

    - Chandlers - supply the vessels with ship supplies (food, clothing, nautical equipment, etc.);

    - Towing firms - provide tug assist service to vessels docking and undocking at a terminal;

    - Bunkering firms - provide fuel to the vessels;

    - Marine surveyors - inspect the vessels and the cargo; and

    - Shipyards/marine construction firms - provide repairs, either emergency or scheduled, as well as marine pier construction and dredging.

- Cargo Handling - This category involves the physical handling of cargo at the Port of Grays Harbor between land and the vessel. Included in this category are the following participants:

  - Longshoremen - are members of the International Longshore and Warehouse Union, and are involved in the loading and unloading of cargo from the vessels, as well as handling the cargo prior to loading and after unloading;

  - Stevedoring firms - manage the longshoremen and cargo-handling activities;

  - Terminal operators - are often stevedoring firms who operate the maritime terminals where cargo is loaded and off-loaded;

- Government Agencies - This maritime service sector category involves federal, state and local government agencies that perform services related to cargo handling and vessel operations at the Port of Grays Harbor. U.S. Customs and Border Protection and U.S. Department of Agriculture are involved. In addition, both civilian and military personnel with the U.S. Coast Guard and the U.S. Army Corps of Engineers dedicated to marine cargo moved via Port of Grays Harbor marine terminals are included. Federal grain inspectors work the grain elevator.

(3) Port of Grays Harbor

This sector includes those individuals employed by the Port of Grays Harbor whose purpose is to oversee port activity. The Port of Grays Harbor leases terminal space to terminal operators and private companies and also leases equipment such as liquid bulk hoses and connections to the terminal operators.

(4) Shippers/Consignees Using the Port of Grays Harbor Marine Cargo Facilities

Shippers/Consignees included in this category are those shippers and consignees located throughout the State of Washington and United States, whose businesses use the marine cargo facilities for the export and import of cargo. These users also ship and/or receive materials via other ports such as Tacoma. It is to be emphasized that these shippers/consignees are not dependent upon the use of the Port of Grays Harbor, since they are users of other ports as well. Since these users are not dependent upon the Port of Grays Harbor, employment with these shippers/consignees is considered port-related and not port-generated.

2.1.2 Commodities Included in the Study

A major use of an economic impact analysis is to provide a tool for port development planning. As a port grows, available land and other resources for port facilities become scarce, and decisions must be made as to how to develop the land and utilize the resources in the most efficient manner. Various types of facility configurations are associated with different commodities. For example, grain requires silos for storage, while autos require paved lots for parking.

An understanding of the commodity's relative economic value in terms of employment and earnings to the local community, the utilization and cost of providing the facilities, and the relative demand for the different commodities is essential in making future port development decisions. Because of this need for understanding relative commodity impacts and the impacts associated with marine terminal investments, economic impacts are estimated for the following commodities handled via the Port of Grays Harbor marine terminals.

- Chips
- Grain
- Autos
- Logs
- Liquid Bulk

It should be emphasized that commodity-specific impacts are not estimated for each of the five economic sectors described in the last section. Specific impacts cannot be allocated to individual commodities with any degree of accuracy for the maritime services, marine construction and the government job categories.

The impacts, by commodity, are estimated on a per ton basis to determine the contribution of each commodity to the local economy on a throughput basis. The impacts per 1,000 ton ratio is a key input into port planning decisions regarding new facilities development and expansion.

The impacts generated by the Port of Grays Harbor marine terminals are estimated:

- By sector of the local and regional economy (e.g., maritime service sector, surface transportation sector, etc.);

- By commodity group, i.e., chips, grain, autos, logs, liquid bulk; and

- By the residency of individuals directly employed by the activity at the Port of Grays Harbor marine terminals.

2.2 Summary of the Economic Impacts Generated by Cargo Activity at Port of Grays Harbor Marine Terminals

The economic impacts generated by marine cargo handled at Port of Grays Harbor marine terminals are summarized in Table II-2.

Table II-2
Economic Impacts of Cargo
Activity at Port of Grays Harbor Marine Terminals

PORT OF GRAYS HARBOR	MARINE CARGO
Jobs	
Direct	574
Induced	645
Indirect	305
Total Jobs	1,524
Personal Income ($1,000)	
Direct	$36,239
Induced	$79,654
Indirect	$14,860
Total	$130,754
Business Revenue ($1,000)	$143,488
Local Purchases ($1,000)	$31,513
State and Local Taxes ($1,000)	$12,291

Note: Totals may not add due to rounding

As this table indicates, maritime activity (cargo and vessel activity) at the Port of Grays Harbor facilities created the following economic impacts:

- 574 direct jobs;

- 645 induced jobs were supported by the purchases of the 574 directly employed individuals;
- 305 indirect jobs were generated as a result of $31.5 million of local purchases by firms directly dependent upon activity at Port of Grays Harbor marine cargo facilities;
- The 574 direct employees earned $36.2 million of wages and salaries, for an average salary of $63,134 per year;
- Businesses providing services to the Port of Grays Harbor received $143.5 million of business revenue;
- A total of $12.3 million of state and local taxes were generated by port activity; and
- 36,909 jobs in the United States were related to the cargo moving via the Port of Grays Harbor marine terminals, the majority of which were related to grain and auto exports.

The next section details the employment impacts generated by the Grays Harbor marine cargo operations.

2.3 Employment Impacts of the Port of Grays Harbor Marine Terminals

This section details the direct, induced, indirect and related job impacts generated by marine cargo and vessel activity at the Port of Grays Harbor.

The direct employment impacts are first described.

2.3.1 Direct Employment Impacts

The distribution of the 574 direct job impacts by economic sector and job category is presented in Table II-3.

Table II-3
Direct Jobs by Detailed Category

PORT OF GRAYS HARBOR	DIRECT JOBS
Surface Transportation	
Rail	128
Truck	57
Maritime Services	
Terminal Employees	212
ILWU/Dockworkers	87
Towing	17
Pilots	3
Agents	5
Maritime Services	5
Government	12
Construction	15
Port of Grays Harbor	33
Totals	574

Note: Totals may not add due to rounding

As this table indicates, the largest direct job impact occurs with terminal employees, followed by jobs with railroads moving autos and grain to the Port's marine terminals. The 128 direct rail jobs include employment with the local short line, as well as crew dedicated to moving cargo to and from the Port of Grays Harbor marine terminals and the Midwestern United States. Cargo activity creates 12 jobs with federal, state and local government agencies, Coast Guard, Army Corps of Engineers, and USDA grain inspectors. The cargo activity also generates 87 full-time jobs with the International Longshore and Warehouse Union.

Employment Impacts by Commodity

Table II-4 presents the distribution of the direct job impacts by commodity/handling type. A total of 512 direct jobs are allocated to commodities moving over the Port of Grays Harbor marine cargo terminals[5]. The importance of autos is underscored by the fact that

[5] 62 jobs generated by cargo and vessel activity at marine terminals are not allocated to specific commodities. These direct jobs are with government agencies, maritime services, marine construction firms, and the Port of Grays Harbor.

202 direct jobs are supported by the loading and discharge of automobiles, and the processing jobs associated with autos moving via the Port of Grays Harbor auto terminal.

Table II-4
Direct Jobs by Commodity Group

COMMODITY	DIRECT JOBS	TONNAGE METRIC TONS	JOBS/ 1,000 TONS
Chips	22	94,732	0.236
Grain	105	1,360,611	0.077
Autos (units)	202	92,790	2.176
Logs	82	317,390	0.260
Liquid Bulk	101	433,981	0.232
Not Allocated	62		
Total	574		

Note: Totals may not add due to rounding
Note: Autos in units not tons

Table II-4 also shows the direct job impacts per 1,000 metric tons of cargo. This exhibit indicates that on a per 1,000 ton basis, autos generate the greatest impact, primarily due to the labor intensive processing associated with autos being exported via the Port of Grays Harbor auto facility. Because of the less labor intensive handling associated with bulk cargoes, the jobs per 1,000 tons generated by grain are relatively small. Chips, logs, and liquid bulk generate between .232 and .236 jobs per thousand tons.

Employment Impact by Place of Residency

The importance of the Port of Grays Harbor to the local and regional economy is underscored by the residency of those holding the 574 marine cargo-generated direct jobs. As Table II-5 indicates, about 94 percent of the 574 direct jobs generated by cargo activity are held by residents of Grays Harbor County, of which almost 50 percent are held by residents of Aberdeen.

Table II-5
Distribution of Direct Jobs by Place of Residence

RESIDENCY	PERCENTAGE	TOTAL
Aberdeen	46.73%	268
Cosmopolis	2.15%	12
Hoquiam	18.76%	108
Elma	5.51%	32
McCleary	0.55%	3
Montesano	12.22%	70
Oakville	1.75%	10
Ocean Shores	3.00%	17
Westport	3.18%	18
Other GH County	0.40%	2
Pacific Co.	0.06%	0
Mason Co.	0.01%	0
Thurston Co.	3.54%	20
Other WA	2.14%	12
Total	100%	574

Note: Totals may not add due to rounding

2.3.2 Induced Job Impact

The induced jobs are generated as the result of purchases of goods and services by those 574 directly employed as a result of marine cargo and vessel activity at Port of Grays Harbor marine cargo terminals. As the result of the local and regional purchases by these directly employed individuals, 645 induced jobs were supported in the State of Washington. The greatest number of induced jobs are supported in non-consumption driven sectors of the economy such as business services, state and local government agencies, social services and education services, followed by impacts with restaurants and housing.

2.3.3 Indirect Job Impact

Indirect jobs are generated in the local economy as the result of local purchases by the firms directly dependent upon the Port of Grays Harbor marine cargo activity. These purchases were identified from the surveys of directly dependent firms supplying services in support of the vessel and cargo activity at the Port of Grays Harbor marine terminals. Based on the surveys, a total of $31.5 million of local purchases were made in the local economy. Based on employment to purchase ratios in supplying firms, produced for the State of

Washington by the U.S. Bureau of Economic Analysis, Regional Input-Output modeling system, these local purchases supported 305 indirect jobs in the state.

2.3.4 Related Job Impact

In addition to the direct and induced jobs, an estimate of jobs in the United States related to cargo moving via the Port of Grays Harbor was developed. It is estimated that 36,909 jobs with U.S. grain farmers and auto manufacturers, as well as Washington State logging operations, are related to cargo moving via the Port of Grays Harbor marine cargo terminals. It is to be emphasized that these jobs are only related jobs, not jobs dependent upon the Port of Grays Harbor. These jobs are with shippers/consignees and manufacturers located throughout the United States and forest product firms who ship via the Port of Grays Harbor terminals, as well as via other ports on the West Coast. Therefore, jobs with these shippers and consignees cannot be classified as totally dependent upon the existence of the Port of Grays Harbor.

2.4 Business Revenue Impact of the Port of Grays Harbor Marine Terminals

The revenue impact is a measure of the ***total economic activity*** that is impacted by the cargo moving via the Port of Grays Harbor. In 2013, $7.9 billion of total economic activity in the United States was related to the cargo activity. Of the $7.9 billion, $143.5 million is the direct business revenue received by the firms directly dependent upon the Port and providing maritime services and inland transportation services to the cargo handled at the marine terminals and the vessels calling the port.[6] The remaining $7.8 billion represents the value of the output to the United States that is associated with the cargo moving via the Port of Grays Harbor marine terminals. This includes the value added at each stage of producing an export cargo. Of this $7.8 billion, $127.1 million represents the value of related output to the State from the export of forest products originating in-state.

The balance of the discussion focuses on the $143.5 million of direct business revenue generated from the provision of services to the cargo and vessels handled at the Port of Grays Harbor marine terminals.

2.4.1 Revenue Impacts by Sector

Table II-6 shows the distribution of this revenue impact by category and economic sector. As this exhibit indicates, railroads receive the greatest revenue impact, followed by Port of Grays Harbor, Terminal Services, and Trucking Firms. It is to be emphasized that this revenue impact should not be viewed totally as a local or state impact, but instead as a

[6] Of the $7.9 billion total economic output, $270.6 is the total value of the cargo operations at the Port to the State of Washington.

national, even international impact. For example, the revenue received by firms providing services is used to hire labor, to pay state, local and federal taxes, to pay stockholder dividends, invest, retire debt and to purchase goods and services. These uses of revenue suggest that only the payment of wages and salaries to employees residing in the state, the purchase of local goods and services, and the payment of state and local taxes can be identified as remaining in the State of Washington. The other portions of the revenue impact cannot be isolated geographically with the same degree of defensibility.

Table II-6
Revenue Impact by Category and Economic Sector

PORT OF GRAYS HARBOR	REVENUE ($1,000)
Surface Transportation	
Rail	$85,951
Truck	$9,331
Maritime Services	
Terminal Services	$19,628
Towing	$1,613
Pilots	$1,268
Agents	$444
Maritime Services	$625
Marine Construction	$3,560
Port of Grays Harbor	$21,068
Totals	$143,488

Note: Totals may not add due to rounding

2.4.2 Revenue Impacts by Commodity

About $118 million of the total $143 million revenue impact of the Port of Grays Harbor marine cargo terminals can be allocated to commodities/commodity types. The remaining $25 million of revenue cannot be allocated to specific commodities. Table II-7 shows the distribution of the direct revenue impact by commodity. Similar to the direct job impacts by commodity, the handling of autos generates the greatest revenue, followed by grain and liquid bulk.

Table II-7
Distribution of the Direct Revenue Impact
Generated by the Port of Grays Harbor Marine Cargo Terminals

COMMODITY	DIRECT REVENUE ($1,000)	TONNAGE METRIC TONS	REVENUE/ 1,000 TONS
Chips	$1,130	94,732	$11.93
Grain	$69,186	1,360,611	$50.85
Autos (units)	$32,513	92,790	$350.39
Logs	$5,165	317,390	$16.27
Liquid Bulk	$10,241	433,981	$23.60
Not Allocated	$25,253		
Total	$143,488		

Note: Totals may not add due to rounding
Note: Autos in units not tons

On a per ton/unit basis, autos generate the greatest revenue impact per unit, followed by grain. The higher revenue per ton of autos and grain reflects the more labor intensive handling and processing involved with autos as well as the surface transportation revenue generated from moving the autos and grain from the Midwest to the Port of Grays Harbor marine terminals. The majority of the revenue generated by autos and grain is in the surface transportation sector followed by terminal operations.

The following two sections summarize the personal earnings impact and the tax impact created by the Port of Grays Harbor marine terminals.

2.5 Employee Earnings Impact of the Port of Grays Harbor Marine Terminals

The 574 individuals directly employed as a result of activity at the Port of Grays Harbor marine terminals received $36.2 million in wages and salaries, for an average annual salary of $63,134. These individuals, in turn, use the earnings to purchase goods and services (both from in-state as well as out-of-state sources), to pay taxes, and for savings. The purchase of goods and services from local sources creates a local re-spending effect known as the personal earnings multiplier effect. This re-spending, or multiplier effect, was estimated using a personal earnings multiplier of 3.198, which indicates that for every $1 earned in the State, an additional $2.198 is created due to re-spending of the initial $1 throughout the state. Using the local personal earnings multiplier, an additional $79.7 million of income and local consumption are created in the local economy. In addition, the 305 indirectly employed workers receive indirect wages and salaries totaling $14.9 million. Combining the direct, induced and indirect income impacts, the maritime

activity at the Port of Grays Harbor marine cargo terminals created nearly $130.8 million of wages and salaries.

The 36,909 related port users earned $1.6 billion in wages and salaries.

2.6 State and Local Tax Impact

Total state and local tax impacts generated by activity at the Port of Grays Harbor marine cargo terminals is estimated at $12.3 million. Of the $12.3 million of state and local taxes generated annually by cargo activity, $7.5 million was generated at the state level and $4.8 million at the county and local level.

In addition, $162.8 million of state and local taxes were created in the related users sector throughout the United States. Of that, $1.3 million of related state and local taxes were supported in the State of Washington.

3. THE ECONOMIC IMPACT OF COMMERCIAL FISHING ACTIVITY AT WESTPORT MARINA

A second key component of the Port of Grays Harbor maritime operations is the fishing fleet based at the Port of Grays Harbor Westport Marina. ***It is to be emphasized that the Washington based fishing fleet uses other terminals and moorings throughout the West Coast and Puget Sound areas. The purpose of this impact analysis is to focus only on the impacts generated by the fleet using Westport Marina. As a result, the impacts of the fishing fleet measured in this report are only a subset of the total economic impacts generated by the fishing industry on the West Coast and the Puget Sound region.***

Westport Marina is owned and operated by the Port of Grays Harbor, and combines commercial fishing moorage and fish processing operations. In 2013, 159 fishing boats were moored at Westport Marina. While tied up at Westport Marina, these vessels make numerous purchases of goods and services from local firms. Such purchases include expenditures for shipyard repair services, painting, electronic equipment, engine and propulsion services, fishing gear, packaging material, fuel, insurance, legal services, and ship stores (food and supplies for the crew). These purchases by the fishing fleet in turn support local jobs with shipyards, ship chandlers, electronics retailers, marine engine specialists, local retail and grocery stores, ship brokers, insurance brokers and hardware stores.

In addition to the direct jobs supported by the purchases by the fishing fleet using the Port of Grays Harbor Westport Marina, crew working the fleet, landside processing and cold storage facilities, and transient vessels off-loading their catch are also included in this impact.

To estimate the economic impacts generated by the commercial fishing activity at Westport Marina the types of fishing vessels moored at the marina were profiled. It is necessary to estimate the economic impacts by type of vessels, since each type of fishing boat has a very different expenditure profile, which is a function of such factors as:

- The size of the boat;
- Designed purpose of the vessel -- a catcher boat which catches fish and delivers the catch to on-shore or off-shore processors, a tender -- which services the fishing fleet with supplies and ship stores, or a factory ship or processor -- which processes fish at sea;
- Type of fishing gear used, such as the use of longlines versus nets versus pots; and
- Where the fishing is done - in local or distant waters.

The fishing fleet based at the Port of Grays Harbor Westport Marina consists of the following types of vessels:

 Purse seine vessels, which typically fish for salmon, sardines and herring using a purse seine net;

 Trollers, which troll for salmon using lines;

 Crab boats, which include crab catchers using crab pots as well as crab processors which process the crab at sea; and

 Catcher trawlers, which catch fish by dragging a net.

To estimate the expenditures for each type of vessel, Martin Associates conducted interviews with the various trade associations representing the types of boats operating in the Pacific Northwest. Interviews were also conducted with individual boat operators identified by the trade associations, as well as interviews with fleet managers of processing companies. Furthermore, interviews were conducted with shipyards specializing in providing services to the Grays Harbor based fishing fleet, as well as with chandlers, brokers, hardware and electronics retailers, and engine and propulsion shops.

Interviews with the processors and vessel owners/operators located at Westport Marina were used to estimate the direct impacts of the home-porting activity as well as the shore-side activity that occurs to support these operations. For those directly employed as crew members on these vessels, efforts were made to identify what percent of the crew are full time residents of the region versus those who travel to the Grays Harbor-area for a specific fishery's season.

Exhibit II-1 presents the expenditures in Grays Harbor per vessel for the fleet based at Westport Marina in 2013. These expenditures were then combined with jobs to value of sales ratios in corresponding supplying industries to estimate the number of local direct jobs supported by the vessels based at the Port's marina. Added to these direct jobs are the number of crew employed by the fleet, ship brokers and insurance brokers providing services to the fishermen at the marina and employees with shore-side fish processing.

Exhibit II-1
Annual Expenditures in Grays Harbor by Fishing Vessels at Westport Marina

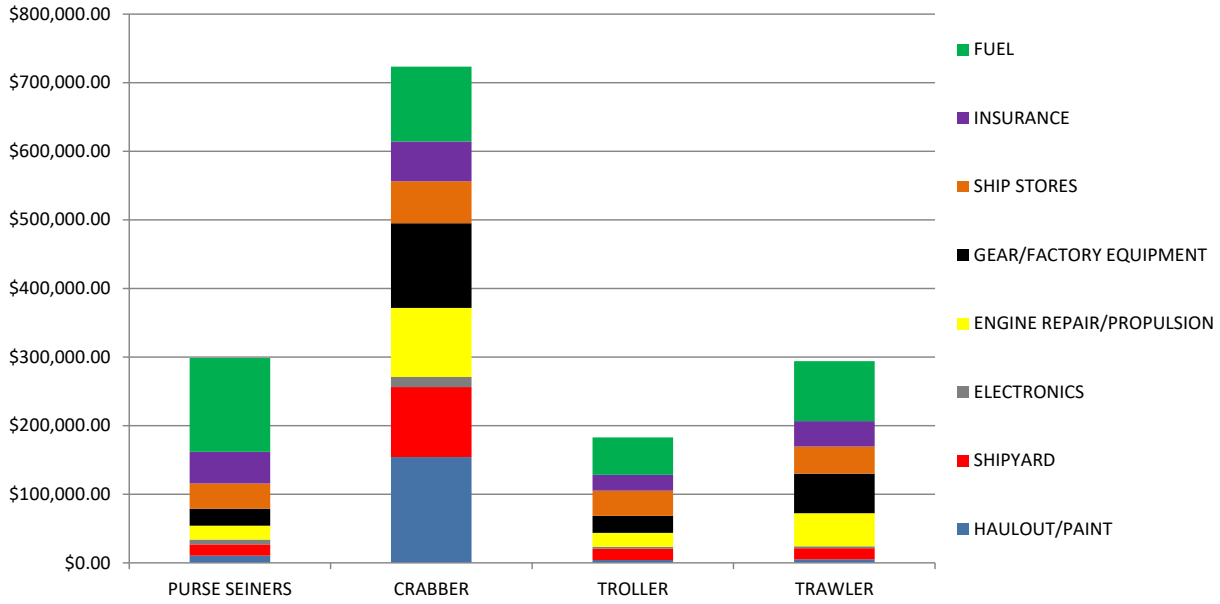


Table II-8 presents the economic impacts generated by the Port of Grays Harbor commercial fishing activity.

Table II-8
Economic Impacts of Port of Grays Harbor Commercial Fishing

PORT OF GRAYS HARBOR	COMMERCIAL FISHING
Jobs	
Direct	1,067
Induced	442
Indirect	543
Total Jobs	2,052
Personal Income ($1,000)	
Direct	$38,968
Induced	$27,894
Indirect	$27,730
Total	$94,592
Business Revenue ($1,000)	$203,537
Local Purchases ($1,000)	$45,522
State and Local Taxes ($1,000)	$8,892

Note: Totals may not add due to rounding
*Revenue excludes value of the catch

In 2013, commercial fishing activity at Westport Marina generated the following impacts:

- 1,067 direct jobs, including full-time equivalent jobs with the fishing crew based at the Westport Marina, jobs with local shipyards, chandlers, engine/propulsion repair shops, retail stores, suppliers of fishing gear, insurance brokers, public restaurants, retail stores, and fish processing and cold storage operations.

- As the result of purchases by these 1,067 directly generated jobs, an additional 442 induced jobs are created in the local economy.

- As the result of $45.5 million of local purchases by the firms located at Westport Marina, an additional 543 indirect jobs were created in the local economy.

- The 1,067 direct job holders earned almost $39 million in direct wages and salaries. As the result of re-spending of this income, an additional $27.9 million of personal income and consumption expenditures were generated.7 The 543 indirect jobs received $27.7 million in indirect wages and salaries.

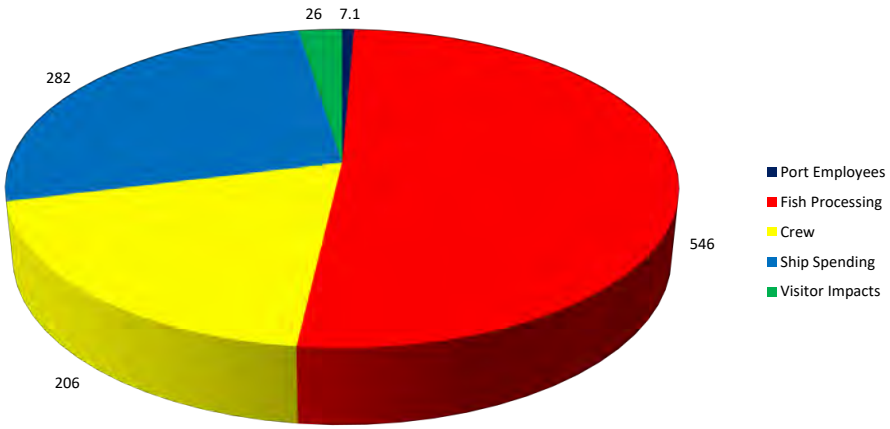
- Local businesses received $203.5 million of revenue from the purchases by the fishing fleet at Westport Marina, as well as from retail sales. This does not include the landed value of the fish catch.

- State and local governments received $8.9 million of tax revenue from the activity generated by the Port of Grays Harbor Westport Marina.

Because of the diversity of commercial fishing-associated activity at Westport the distribution of the direct job impacts created by type of activity is shown in Exhibit II-2. As this exhibit demonstrates, the majority of the 1,067 direct jobs are held by shore-side fish processing, followed by crew and support services including local firms supplying support services to the fleet based at Westport Marina, such as jobs with shipyards/engine propulsion companies, ship chandlers and equipment supply firms. The balance of the jobs are with the Port of Grays Harbor staff who oversee Westport Marina operations and visitor impacts generated by transient and visiting fishing vessels using Westport Marina moorage or offloading fish to the processors located in Westport.

[7] The re-spending/local consumption impact is based on the personal income multiplier for commercial fishing in the State of Washington, as developed by the U.S. Bureau of Economic Analysis, RIMS II.

Exhibit II-2
Distribution of the Direct Jobs Generated by Port of Grays Harbor Commercial Fishing



The importance of the Port of Grays Harbor to the local and regional economy is underscored by the residency of those holding the 1,067 commercial fishing generated direct jobs. Table II-9 shows the direct jobs by place of residency. As indicated the majority of the commercial fishing jobs are held by residents living in Grays Harbor County, the majority residing in Aberdeen, Hoquiam and Westport.

Table II-9
Distribution of Direct Jobs by Place of Residence

RESIDENCY	PERCENTAGE	TOTAL
Aberdeen	27%	289
Cosmopolis	3%	35
Hoquiam	18%	196
Elma	4%	40
McCleary	2%	26
Montesano	4%	40
Oakville	2%	26
Ocean Shores	7%	71
Westport	18%	187
Other GH Co.	8%	89
Pacific County	6%	69
Total		1,067

4. THE ECONOMIC IMPACT OF RECREATIONAL BOATING AT WESTPORT MARINA

The third component of the Port of Grays Harbor maritime facilities impact analysis is the economic impacts generated by recreational boating at the Port of Grays Harbor's Westport Marina. The impacts created by the recreational boating activity include the impacts generated by the vessels moored at Westport Marina, the impacts of transient boats that temporarily use the marina, as well as charter fishing operations based at Westport Marina and the associated impacts generated by visiting anglers. To estimate the impacts, Martin Associates developed a profile and inventory of recreational boats, by size and type, at Westport Marina. For example, there were 182 recreational boats that were moored at the Westport Marina, of which 176 were powerboats. In addition to the recreational boats that are moored at each of these facilities, there are a large number of transient boats that tie up at the marina and the passengers typically go ashore for eating, shopping and entertainment. Westport Marina received 1,000 transient visitors in 2013. The marina is also a hub of charter fishing activity in the Pacific Northwest. It is estimated by the Westport Charter Association that 30,000 anglers used charter operations based at Westport Marina in 2013. These impacts and the visitor impacts associated with anglers who spend the night, shop and dine in Westport prior to and/or after a charter trip are also included in the recreational boating impacts.[8]

To develop the impact data, Martin Associates conducted interviews with tenants at Westport Marina, including fishing charter associations and fish charter operators. The results of these surveys were used directly in estimating marina tenant impacts. Interviews with the charter operators identified the percentage of anglers spending a night in Westport as well as average expenditures per angler. Next, typical annual expenditures by type of moored boat and for transient boats were developed from published sources, including:

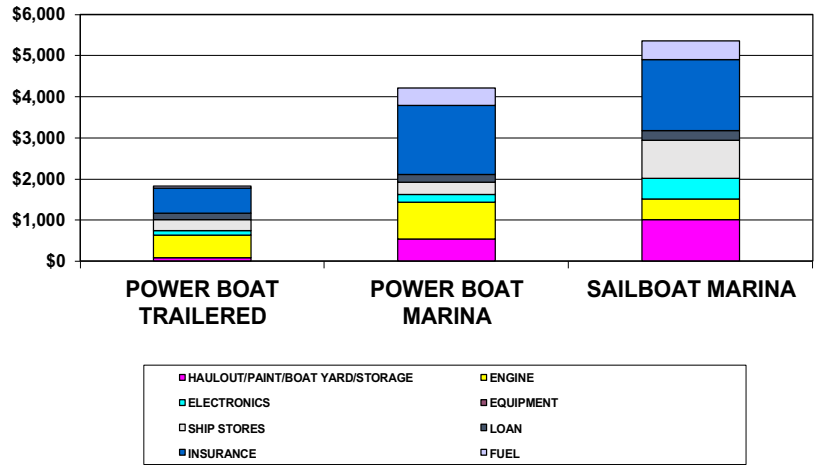
- Boating 2000: A Survey of Boater Spending In Maryland, University of Maryland Sea Grant Program;
- Interviews with Northwest Marine Trade Association;
- Marine Manufacturers Association;
- The Economic Impact of Michigan's Recreational Boating Industry, Michigan State University, Ed Mahoney;
- Marine Operators Association of America; and
- Clean Vessel Act, Michigan Boating Survey, 1994-1995.

Based on interviews with the Northwest Marine Trade Association and the University of Maryland Sea Grant authors, it was concluded that the use of expenditure data per type of boat

[8] The visitor profile of a "typical angler" was provided to Martin Associates from interviews with charter operators based at Westport Marina.

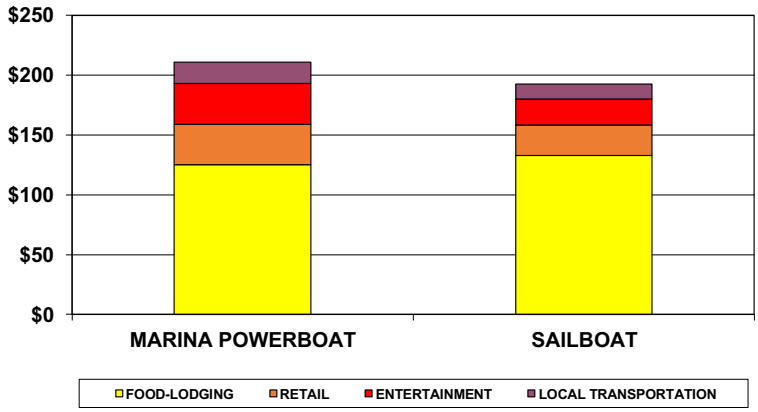
identified in Maryland would be representative of typical annual expenditures per boat in the Pacific Northwest. Exhibit II-3 shows the breakdown of annual purchases by type of boat as developed from the "Boating 2000: A Survey of Boater Spending in Maryland", Maryland Sea Grant Program, University of Maryland. Exhibit II-4 shows the breakdown for local spending by transient boat operations.

Exhibit II-3
Annual Operating Expenses by Type of Boat



Source: Boating 2000: A Survey of Boater Spending in Maryland, University of Maryland Sea Grant Program – adjusted for current dollars

Exhibit II-4
Local Spending per Trip for Transient Boats



Boating 2000: A Survey of Boater Spending in Maryland, University of Maryland Sea Grant Program – adjusted for current dollars.

These annual purchases per boat are adjusted for current dollars and then multiplied by the number of boats in each category at Westport Marina. The annual purchases by type of boat at Westport Marina are then converted into direct jobs using survey data from suppliers and marina support services firms interviewed by Martin Associates.

The local purchases per trip for transient calls at Westport marina are converted into jobs, income and revenue impacts using a visitor's industry model.

Indirect impacts are developed from local purchases data supplied by support services providers (from interviews).

Table II-10
Economic Impact of Recreational Boating at the Port of Grays Harbor Westport Marina

PORT OF GRAYS HARBOR	RECREATIONAL BOATING
JOBS	
DIRECT JOBS	137
INDUCED	81
INDIRECT	27
TOTAL	245
INCOME ($1000)	
DIRECT	$3,693
RE-SPENDING	$7,546
INDIRECT	$704
TOTAL	$11,943
REVENUE ($1000)	$23,548
LOCAL PURCHASES ($1000)	$2,099
STATE AND LOCAL TAXES ($1000)	$1,123

Note: Totals may not add due to rounding

In 2013, the recreational boating activity at Westport Marina generated the following economic impacts.

- 137 direct jobs were created by recreational boating activity at Westport Marina;
- As a result of purchases by these 137 direct jobs, 81 induced jobs were generated in the local economy;

- As the result of $2.1 million of local purchases by the firms dependent upon recreational boating activity at Westport Marina, 27 indirect jobs were supported in the local economy;

- The 137 direct jobs holders received nearly $3.7 million of direct wages and salaries. As the result of the re-spending impact, an additional $7.5 million of personal income and local consumption expenditures were generated. The indirect jobholders received $0.7 million of indirect wages and salaries;

- The recreational boating created $23.5 million of business revenue; and

- $1.1 million of state and local taxes were generated by Westport Marina recreational activity.

Table II -11 shows direct marina job residency by location. Only a small percentage of the direct job holders reside outside of Grays Harbor County.

Table II -11
Distribution of Direct Jobs by Place of Residence

RESIDENCY	PERCENTAGE	TOTAL
Aberdeen	27%	37
Cosmopolis	3%	4
Hoquiam	18%	25
Elma	4%	5
McCleary	2%	3
Montesano	4%	5
Oakville	2%	3
Ocean Shores	7%	9
Westport	18%	24
Other GH Co.	8%	11
Pacific County	6%	9
Total		137

III. ECONOMIC IMPACT OF THE PORT OF GRAYS HARBOR REAL ESTATE TENANTS

In addition to the marine cargo, commercial fishing, and recreational boating operations of the Port of Grays Harbor, the Port also leases land to non-maritime related tenants. The Port of Grays Harbor operates four real estate sites, the Port Industrial Area, Westport Marina, Satsop Industrial Park and Bowerman Field. Impacts in the real estate analysis include businesses in the Port Industrial Area not associated with marine cargo and businesses located at Westport Marina not associated commercial fishing or recreational boating activity. In the instance where a business is involved in several of the Port's lines of business a percentage related to that particular line of business was applied to corresponding impact analysis. Property at these four sites is leased for light manufacturing, warehousing and distribution, and retail, etc. Essentially these are tenants of the Port of Grays Harbor that are not included in the marine cargo, commercial fishing, or recreational boating analysis.

With respect to the real estate analysis, the impacts created with the real estate tenants of the Port of Grays Harbor are generated by the demand for the goods and services produced by the tenants, and not by activity specific to transportation services provided by the Port of Grays Harbor. In contrast, the capital investments made by the Port in the marine terminals are essential for the existence of cargo operations at the Port of Grays Harbor. As a result, the impacts generated by tenants of the Port's real estate holdings are not as directly dependent upon the Port of Grays Harbor and its investment as are the maritime impacts. Some of these companies are located on Port-owned property as a direct result of efforts by the Port of Grays Harbor to recruit them, and would likely not have located in Aberdeen, Hoquiam, Elma, or Westport otherwise. Other firms would likely have located in the area regardless of the Port's efforts and infrastructure investment.

The impact analysis of the real estate tenants are based on a survey of 80 tenants not included in other port operations. Martin Associates developed a separate real estate impact model to estimate the impacts of these tenants on the Grays Harbor area economy. In addition, the impact model can be used to assess the impacts of potential uses of Port-owned property, including, light manufacturing, warehousing and distribution, retail, etc.

Table III-1 summarizes the economic impacts of the real estate tenants of the Port of Grays Harbor.

Table III-1
Economic Impacts of the Port of Grays Harbor's Real Estate Tenants

PORT OF GRAYS HARBOR	REAL ESTATE
Jobs	
Direct	950
Induced	440
Indirect	493
Total Jobs	1,882
Personal Income ($1,000)	
Direct	$40,005
Induced	$32,256
Indirect	$31,866
Total	$104,127
Business Revenue ($1,000)	$193,440
Local Purchases ($1,000)	$57,060
State and Local Taxes ($1,000)	$9,788

Note: Totals may not add due to rounding

As summarized in Table III-1, the Port of Grays Harbor real estate tenants create the following economic impacts:

- 950 direct jobs are generated by these tenants, and as the result of local purchases by these direct employees, another 440 induced jobs are supported in the Grays Harbor area's economy. Due to $57.1 million of local purchases, 493 indirect jobs are supported. This indirect impact reflects the dependency on the local economy supply infrastructure for port tenants;

- The 950 directly employed workers received $40 million of wages and salaries. As the result of the local purchases by these employees, another $32.3 million of income and consumption expenditures were generated, resulting in the induced job impact.[9] The 493

[9] The re-spending and local consumption impacts are based on the average income multipliers for manufacturing, retail and warehouse and distribution in the State of Washington, as developed by the U.S. Bureau of Economic Analysis, RIMS II.

indirect jobholders received $31.9 million of indirect wages and salaries for a total personal income impact of $104 million;

- The Port tenants received $193.4 million of revenue, of which $57.1 million was used for local purchases, as identified from the surveys of these tenants. These local purchases supported the 493 local indirect jobs; and

- The Port of Grays Harbor real estate tenants generated $9.8 million of state and local taxes.

Exhibit III-1 shows the distribution of the 950 direct jobs by location. The Port Industrial Area generates the greatest number of jobs, followed by the Westport Marina and Satsop Industrial Park. Bowerman Field has the fewest number of businesses of all real estate locations and is reflected in the number of direct jobs.

Exhibit III-1
Distribution of Direct Jobs by Business Location

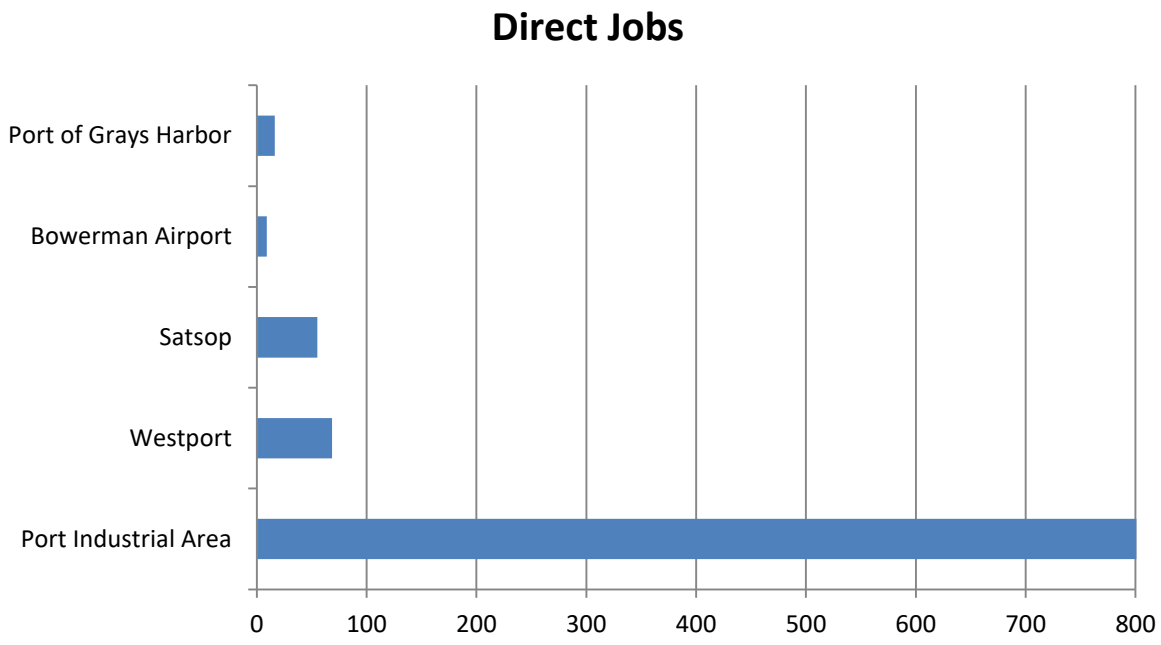


Table III-2 shows the distribution of the 950 direct jobs holders by place of residency. As shown in this table, nearly 85 percent of the direct jobs with the Port of Grays Harbor real estate tenants reside in Grays Harbor County. 33 percent of the direct jobs are held by residents of Aberdeen.

Table III-2
Distribution of Direct Jobs by Place of Residency

RESIDENCY	PERCENTAGE	TOTAL
Aberdeen	33.3%	317
Cosmopolis	2.6%	24
Hoquiam	20.2%	192
Elma	7.0%	66
McCleary	0.8%	8
Montesano	13.5%	128
Oakville	0.6%	6
Ocean Shores	2.3%	22
Westport	3.0%	28
Other GH Co.	1.6%	15
Pacific County	1.9%	18
Mason Co.	0.3%	3
Thurston Co.	9.6%	91
Other WA	3.1%	30
Other US	0.3%	3
Total		950

Note: Totals may not add due to rounding

Q1
2017

NICHOLS MARINE SERVICES, LLC

Highest and Best Use Industrial Study for WSDOT SR 520 Casting Basin Site

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Introduction and Project Description

Nichols Marine Services was hired by the City of Aberdeen to prepare the following Highest and Best Use Analysis for the Washington State Department of Transportation's (WSDOT) Casting Basin Site where the SR 520 floating bridge pontoons were recently constructed.

Nichols Marine Services has inspected the site firsthand, has had several conversations with individuals involved in the construction of the project, the sale of the site, and has been supplied hundreds of site related documents. The vast majority of the documents have been reviewed, considered and, where appropriate, used during the analysis process.

The 55+/- acre site was originally purchased as raw land from Weyerhaeuser in 2010. Approximately 5 acres of the site was sold to the Port of Grays Harbor. Kiewit-General was awarded the contract to modify the site into a casting basin and build the SR 520 pontoon sections. The only changes made to the site from how it was used during construction, were to meet the decommissioning requirements of the contract at the end of the project. Permits for construction on the site were issued in 2011, and in 2015 the site was decommissioned.

WSDOT is currently preparing to sell the site and is interested in the findings of this analysis, primarily for sale purposes. Other groups interested in this highest and best use analysis are; the City of Aberdeen, Greater Grays Harbor, the Port of Grays Harbor, the Department of Commerce and members of the public.

Site information

- Site address: 1301 W. Heron St. Aberdeen, WA 98250
- 50+/- acre site
- Located on Chehalis River east of the Port of Grays Harbor Terminal 4
- Located on Pacific Northwest Coastal Freight Corridor with access to marine, rail, road and communications networks

- Close proximity to Pacific Ocean
- Paved parking for approximately 381 vehicles
- Access gate located on northeast side of property

Casting basin particulars

- 933’ long by 185’ wide
- Casting basin floor made of approximately 10,000 yards of concrete, and supported by approximately 636 underground steel piles
- Three-piece, 50 ton each gate system, 110’ wide
- Storm water detention system
- Crane rails along basin sides

Executive Summary

This report was commissioned to establish the highest and best use for the 50 +/- acre WSDOT SR 520 Pontoon Casting Basin Site in Aberdeen, Washington. This site was decommissioned in 2015, and WSDOT desires to sell the site to the highest auction bidder. The City of Aberdeen, the Port of Grays Harbor, Greater Grays Harbor, and others, all have an interest in creating jobs, as well as increasing tax revenues generated through employment opportunities at this site.

After thoughtful consideration and research, the highest and best use industries identified for the site were all found to be in the marine industry and are listed by rank as follows:

1. Marine vessel, repair and modification;

2. Marine vessel, new construction; and

3. Marine vessel, decommissioning or ship breaking.

There are several modifications to the existing facility that will be required before any of the above industries can effectively use the site for business profitably, while meeting regulatory requirements. These modifications are expected to total approximately $12.5 million. It is also expected that from the time the land is purchased, to the time an industry would be ready to open for business would likely be about 16 months.

Unfortunately, because site modifications are necessary for any marine industry, the value of the site in its current configuration has been set at zero dollars. This valuation is based on research of what marine industries are generally willing to invest in comparative facilities with similar logistical challenges. Having to pay a positive value for this SR 520 pontoon casting basin site would likely render the site undesirable and cost prohibitive to potential buyers.

Background information for this conclusion can be found in the detailed report to follow.

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Highest and Best Industrial Use Recommendation

An in-depth analysis was undertaken looking at several different types of industries that could be located on this particular piece of property. Because the site was built for the construction of floating pontoons, the most logical industry to locate there is the marine industry. This industry emerges as the highest and best use option for the current configuration of the casting basin property. There are three marine industry categories that come to the surface as a best fit and are listed in order, beginning with the top industry:

1. Marine vessel, repair and modification;

2. Marine vessel, new construction; and

3. Marine vessel, decommissioning or ship breaking.

A fourth consideration would be a combination of the three industries listed above. Any business interested in executing a combination model would need to make a determination of what percentage of each of the three industries it wants to employ within its own business. It would be very challenging to consider how a fourth option would compare to the other three as standalone businesses. It is for this reason that a fourth consideration will not be analyzed further in this document.

The rationale used for choosing the marine industry and the top three specific industries is due in large part to the similarities between the casting basin and a typical marine graving dock. Unfortunately, while there are many similarities, there are also many differences. It is because of these differences that the existing casting basin is less than ideal for any “for-profit industry”, including the marine industry.

Among the other industries that were considered for potential site use were; concrete casting, fuel storage, land-based construction, chemical, energy, aerospace, metal manufacturing, equipment manufacturing and wood product based manufacturing.

Description of Site Current Status

Overall Condition

The site is clean and in good order. It has been decommissioned as was required by contract upon the completion of SR 520 bridge pontoon sections. WSDOT personnel are keeping up with site maintenance on either regularly scheduled intervals, or on an as-needed basis.

Property size

At some point in the property development, approximately 5 acres of the property (located in the northwest corner) was sold to the Port of Grays Harbor and an agreement was reached for an additional access point into the site through the west side gate during construction of the pontoons. This reduced the overall property size to 50+/- acres. Access through the west side gate has now been discontinued.

Electrical

All electrical services that were initially installed for the construction of the pontoons remains installed, as decommissioning did not require the removal of electrical services. There is a shed on the west side of the property that appears to be an electrical powerhouse measuring approximately 10' x 20'. About 30 feet west of this power shed is a green power distribution station installed by the local power company during site construction.

According to the WSDOT as-built documents, there are two 2500kVA, 3 phase, 12.47 kV-277/480 volt transformers on-site. This should be ample power for any of the three identified industries. Local power distribution would be required to be reconfigured for the specific needs of the occupant planning to use the facility.

Water

All water coming to the property is potable. There is water piping and distribution in place around the site, which appears to be turned off. At the northeast entry point of the site is a water supply valve attached to an 8" water main. The City of Aberdeen would need to be contacted when re-establishing the water supply. As with electrical, any new industry would

likely require some rerouting of the water distribution system to meet specific needs, but there appears to be ample supply of potable water for any of the proposed industries.

There is also a 48" industrial water supply line (that is not part of the site) adjacent to the property. The industrial water supply is also maintained by the City of Aberdeen and has approximately 96+/- million gallons of nonpotable water available on a daily basis.

Site job support

The site effectively supported approximately 200 to 300 people during the construction of the pontoon sections. The site should be able to support upwards of 400 to 500 people for future industrial uses.

Facility challenges

Each of the three categories within the marine industry that were identified on page 6, will have facility issues that will need to be addressed and could possibly even have some use restrictions.

Depth issues

The depth of the water inside the basin during a flooded state at high tide is shallower than most shipyards would prefer for a graving dock application. Relatively common, high tides yield about 19' to 20' of water depth above the casting basin floor. While this is adequate for many smaller vessels and barges, it is inadequate for many larger vessels. There is always support blocking and clearance depth required at the time of docking and launching, beyond vessel draft. A vessel drawing 15' of water would likely be about the maximum "comfortable" draft you would want for any vessel docked at this facility in its current configuration.

Unfortunately, there is no easy site modification to address this issue. It would require the surface level of the basin to be multiple feet lower than it currently is. The cost for making this modification is likely prohibitive for any future industry, as it would require the removal of the concrete basin floor. Modifications would also require at a minimum, existing piling

modification, or at a maximum, additional pilings that would need to be driven in and around the existing pilings. This kind of substantial modification is likely to cost in excess of $5 million, making it an extremely undesirable option.

Load-bearing issues

The casting basin floor is substantially built. It measures 933' x 185', with a concrete thickness of at least 18". There are 636 underground steel pilings measuring 18" in diameter with a 3/8" wall thickness. A total of 53 rows of pilings were installed with 12 pilings in each row.

There is an allowable safe working load of 1150 PSF over the entire surface area of the casting basin floor. This would cover the support of many vessels, but some of the heavier, focused point load vessels would likely be too heavy for this rating. It would be a reasonable expectation to assume that any marine industry would need to hire a geological engineering company to determine what weight per lineal foot could be supported above a row of pilings that run along the length of the casting basin and what could be done to increase that number if desired.

Vessels are traditionally supported, when docked, by their keel. Most of the load on the casting basin floor would run along the centerline of the vessel under the keel. Other heavy concentrated loads can sometimes be spread out effectively through other means such as a heavy steel plate, or other support structures.

This load-bearing issue may prove problematic and costly for future marine uses; therefore it is recommended that it also be analyzed. This could be done at the same time the depth issue is analyzed. It is estimated that this load-bearing issue would add an additional $1-2 million in modification costs.

Dredging issues

During site construction, the area south of the wall and gate system was modified to suit the launch and handling of the pontoons. A portion of the riverbed was dredged to a depth of 13 feet below MLLW. Also during the construction of the pontoons, the area from outside of the

gate system to the regularly dredged river (about 120' wide by 500' long), had to be dredged an additional five times (out of the six times) when the pontoons were launched (approximately at six month intervals), back to the initial depth of 13 feet below MLLW. The additional dredging was necessary in order to have proper clearance under the pontoons and tugboats.

This is a substantial cost and a scheduling challenge for any future marine industry looking to locate at this site. Depending on how often the incoming industry would need to remove the gate system for docking or launches, dredging costs should also be factored into future budgets. Site records indicate that several of the pontoon launch cycles interfered with the Quinault Nation's ability to fish during those periods. The affected parties sued WSDOT and were awarded money on multiple launches because of the interference. Incoming industry would also need to plan for this possibility.

Gate system and flooding issues

The casting basin flooding process and gate system in its current configuration, add additional challenges that any of the 3 identified marine industry users would need to overcome. Traditional marine graving docks are equipped with flooding and gate systems much different from what is currently installed at the site. At a typical graving dock, flooding takes place either through a substantial pumping system or through powered gateways. This allows for quick flooding, usually taking just a few hours. The existing pumps and flooding gateways are smaller than most graving dock systems and take a considerably longer period of time to flood the basin before the large gate sections can be removed.

In a typical graving dock application, the gates themselves are normally powered to open and close without cranes or other assistance, which makes for fast actuation of the gates, allowing the entire process of bringing in and launching a vessel (preferably both) to happen quickly. Quick gate actuation is very helpful when working with varying tidal depths.

The existing casting basin and gate system is made up of three sections measuring approximately 8' tall by 14'-9" wide by 110' long, weighing approximately 50 tons each. The

weight and location of the gates requires a substantial crane system that can hoist them in and out during flooding and launching. According to WSDOT's as-built drawings, during construction of the pontoons a Demag AC 1600 650 ton crane was kept on-site for use in removing and replacing the gate sections. Future marine industry users will need to determine the size of crane necessary to meet their individual requirements, but the crane would more than likely be similar in size to what was used. This is at the very least, a large and costly crane. Though it may have other uses on the property, it may be more than the future industry would need. This is a decision that would need to be factored into future budgets.

Because of the challenges associated with the gate system and the required dredging that is needed when docking and launching vessels, long-term projects would be most desirable. Keeping the interval between these events as far apart as possible would be preferred because the longer the time between projects; the less often the gate and dredging system issues would need to be addressed. Often times, longer-term projects tend to be for larger vessels, but larger vessels often require deeper draft facilities in order for the vessels to be hauled out and landed. There is an obvious predicament around these circumstances. This issue lends itself to ask the question on whether to build new vessels or repair vessels. New vessel construction facilities would typically have longer intervals between launches than a normal repair and maintenance facility would have. As is normal with repair and maintenance facilities, multiple haul outs and launches are often performed on a monthly basis. Future industry will need to address these concerns.

Fish issues

A fish fencing and containment system was developed at the north end of the casting basin as part of the construction. This system was necessary in order to safely gather any fish that entered the basin area during flooding and launching cycles and safely return them to the adjacent Chehalis River. After the launch cycle was complete and the basin cleared; the gate system was replaced and the basin was pumped down to a depth of approximately 3'. The fish fence system, which spanned the full width of the basin (185'), was then pushed manually by several individuals from the north to the south end of the basin. The fish screening system,

which included seine nets (or similar netting) allowed water to pass easily through, while preventing the fish from doing so. The fish were corralled into a screened fish box and then relocated to a floating pier and piling system that was located outside of the basin gate system. There were a group of four or five biologists hired to catch each fish with hand nets and record the species, size, condition and other data, before releasing them back into the river. This process would not only be time-consuming for any future marine industry desiring to bring water in and out of the basin, it would be expensive. This item would need to be addressed in future budgets and will be a long term expense.

It is my belief that, any marine industry, desiring to bring structures into the casting basin area will encounter a new problem that was encountered during the construction of the pontoons. As currently designed, the fish fence system would interfere with the structure and its ability to roll from one end of the casting basin to the other. A new system would need to be devised to work around and under structures such as vessels and blocking systems, which are typically used to land vessels on. A fish corralling process is likely to become a significantly more complex and expensive process.

Sheet pile wall issues

During my last site visit, I noted a leak in the sheet pile wall to the east of the gate system. River water was intruding at a rate of somewhere between 5 and 10 gallons per minute. This issue was scheduled to be addressed by the original contractor, Kiewit-General. Though this particular issue will be addressed, it brings attention to the fact that this may be an ongoing problem that would require some level of maintenance or repair solution for stopping water from working its way through the wall and/or gate systems.

Slope retention area issues

Riprap rock was put in place from approximately 4 feet above the casting basin floor, where the stem wall terminates. The rock slopes away from the casting basin floor at a rise rate of roughly 22° and runs to the original ground level surrounding the casting basin, which is approximately 23 vertical feet above the riprap start point. It is noted that this option was chosen in order to

save on facility construction costs during the build process of the site. Original site specifications called for a sealed and hard surface, such as concrete, in the areas where the riprap has been installed.

In the future, depending on the industry and type of work, regulatory agencies such as the EPA may force a sealed surface to be put in place over, or in way of, the riprap rock system. Regulatory agencies permitted the riprap system during the construction of the SR 520 pontoons, but this may change (when a new permit is applied for) if a new industrial use exposes the surfaces to such things as sandblasting generated debris, etc.

Graving dock common space issue

All 3 industries identified on page 6 will have a challenge with this graving dock system as designed, in that the entire space must be flooded at once. Other graving docks of similar size face this same challenge. The difference is that similar sized graving docks are designed for deeper draft accommodation, and therefore larger vessels. Commonly, businesses that own graving docks want multiple projects taking place at the same time, as the graving docks are the primary source of income generation. The graving facility must be utilized to its maximum potential for maximum profits. Challenges will come from trying to not only coordinate flood times that work well for all projects, but that also work well for tribal fisheries. This endeavor will prove to be extremely difficult as every project is different in nature. Some projects require considerably more hours than others, and therefore considerably more time would be required in the graving dock in order to have the work executed.

The existing design of the casting basin/graving dock area is large enough to have several vessels being worked on at a time. As previously mentioned, marine industries are only likely to be profitable if they are coordinating multiple projects in the graving dock at once. Any future industry that establishes a business at the site, in its current configuration, will have an ongoing challenge with coordinating the timing of multiple projects. This is due in large part because the entire graving dock will need to be flooded at the same time, which will cause unwanted delays, or undesirable project acceleration, such as overtime or seven days a week operation.

On site mound issues

During the construction of the casting basin, approximately 250,000 yd.^{3} of material was excavated from the casting basin cavity. A portion of the material was used to help the City of Hoquiam fill a decommissioned sewage lagoon and the remainder was mounded on site in the southwest corner.

The mound of material on site measures about 20 feet tall and takes up an area of about 4 acres. There are no known contaminants associated with this mound of material. The material takes up a significant amount of area on the site that may be desired for use by a future owner. If an industry desires this area, all material could be hauled off to another location. This would come at a substantial cost for equipment operation, trucking and possible dump fees.

Impervious surfaces

The parking areas and the casting basin are impervious; however, most of the remaining land is covered with gravel. Regulatory requirements typically enforce that impervious surfaces exist in all areas where industrial work is taking place. Impervious surfaces are typically not required in areas of material storage. This may be an additional improvement cost that would need to be addressed.

Existing concrete pads

At ground level on both sides of the basin, are concrete pads that run along the length of the casting basin. These pads were used for the fabrication of pontoon panel structures, which were lowered into the basin when complete. These will not likely be beneficial for future industrial use. Many of the pads are flat; however they sit approximately 4” above ground level. More research will need to be done to determine whether or not any steel reinforcement was used in the construction of the pads and what type of load they could handle. Most likely these pads would need to be removed and replaced with new impervious surfaces.

There is also a concrete mixing station on the east side of the property. Future owners will need to determine whether or not a mixing station is warranted or if the additional space is needed.

Crane ways

At ground level on both sides of the basin, are crane ways that run along the length of the casting basin. The crane ways are substantially built and will more than likely be adequate for any future crane use (WSDOT has the allowable load ratings in the as-built drawings). Future industries that may require extremely heavy lifting from the crane ways may need to provide additional reinforcement to the existing structures. There are no ground-level surfaces between the crane way support structures. The industries, identified on page 6, will more than likely want to have ground-level surfaces in these areas, up to the furthest inboard crane way structural support. The best option to gain additional access to this area (because the ground is sloping away), would be with concrete panels that would be placed in between the openings of the crane way support structures. The concrete panels could be supported by the crane way support structures. Another option would be to bring the ground-level up to the inboard crane way support structures, which would require additional concrete and reinforcement materials. The concrete panel option would be the less expensive alternative, and therefore likely most desirable.

Lack of Structures

Outside of the one small power shed on the east side of the property, there are no other structures on site. Any additional industrial requirements such as warehouses, construction buildings, offices, etc. will need to be added to the site.

Detention ponds

There are a total of 4 detention ponds located around the perimeter of the property. Each of the ponds is made up of 2 to 4 cells and each one has a designated/intended use. WSDOT's as-built drawings define which ponds are intended for which water source, e.g. groundwater, casting basin water, impervious surface water, emergency overflow, etc. The ponds appear to be in good working order; however, there is no water treatment or monitoring system in place. A Kaizen water treatment and monitoring system was stationed on the property during the construction of the pontoons, but was removed during the decommissioning of the site. A new Kaizen system or equal will need to be factored into the redevelopment costs of the site.

Site access

There are 8 gates and chain-link fencing that run along the perimeter on three sides of the property. The northeast gate is the only gate available for all site traffic, whether bringing materials and equipment to and from the site, or for general employee site access. The northeast gate system measures 32' wide and has an asphalt entry as wide or wider. During construction of the pontoons, the west gate was made available for use through an agreement made with the Port of Grays Harbor. This access was closed during site decommissioning. Any future industries wanting to reestablish this access would need to negotiate, if possible, a separate agreement with the Port of Grays Harbor for access.

Site location

The site is close to the Pacific Ocean and has access to railways in neighboring facilities. The site is about an hour off of the I-5 corridor, which is the highest traffic thoroughfare in Washington State. Future users will likely have some cost impacts for delivery of goods to and from the site, as well as a general inconvenience of location from major cities such as Seattle or Portland.

Other Considerations

WSDOT stance on site

WSDOT has confirmed that they will not be investing any additional money into site improvements before the sale of the property. WSDOT has also confirmed that they will not maintain ownership of the site nor will they lease it to other parties.

Environmental

Prior to construction of the casting basin, a site analysis outlining the condition of the property was performed. Core samples were taken and analyzed and the property was found to be free of contaminants and pollutants. During construction of the pontoons, the ground and casting basin waters were monitored before being released into the Chehalis River. No contaminants were found during this time and there is no reason to believe the property has any contaminants or pollutants now.

Noise ordinance

The City of Aberdeen does not have a noise ordinance.

Zoning

The site is zoned Industrial. No change in zoning would be required for any of the 3 industries identified on page 6.

Shift availability

Future occupants of the property would be allowed to work any shifts desired to complete their booked work at hand.

Emergency generator

There is an emergency generator located at the southeast side of the casting basin. It is a backup generator which ensures that critical pump functions on the site are able to remain active in the case of power loss. The generator may be capable of being used for more than just backup, but that would need to be analyzed separately.

Casting basin ramp

An asphalt ramp is located at the north end of the casting basin. The ramp measures approximately 240' long by 35' wide, and provides access to rolling stock equipment from the ground level to the casting basin level. The vertical height from the casting basin floor to the surrounding ground level is approximately 27'. The ramp appears to be adequate for all foreseeable future uses.

Piling row to river

There is a row of steel pilings that appear to be about 400 feet in length and run from the gate system to the Chehalis River. The piling may prove helpful as a staging area to land vessels alongside that are about to be docked, or have just been launched. Future industries may benefit from having a floating pier located on the west side of the pilings. Deep draft vessels would not be able to stay stationed at the pilings for long, as tidal movement might cause the

vessels to ground. Shallow draft vessels, such as barges, may be able to stay stationed there through tidal shifts. This could generate some viable topside vessel repair business.

Personnel

There is a lack of qualified shipyard trade experience in the Aberdeen area. This will likely prove to be a substantial challenge initially. Westport Shipyard, located approximately 20 miles away, has a number of shipyard trained personnel. While it is not desirable to have companies battling over the same personnel, it may be possible to establish a training agreement where existing and future industries could benefit from training additional personnel. Westport Shipyard is a new construction, fiberglass vessel shipyard and the casting basin facility would likely be a metal vessel fabrication and/or repair yard. While there is some trade overlap, there are also some differences to be considered.

Possible Future Industry Improvements for Consideration

The following are the preferred site modifications necessary for future marine industrial uses. Some of the suggested solutions may be regulatory requirements. These requirements can only be determined once a use is selected and the necessary changes identified. Any improvements to the site will need to be made by the future owner.

Alternate casting basin floor modification

Companies that may want to dock and launch vessels with a deeper draft could remove a narrow swath of concrete (say 20'wide) along with the tops of pilings down the center of the casting basin and rebuild that section at a deeper depth. This alternative would be less expensive than trying to change the depth of the entire casting basin floor and would help in being able to dock some additional deeper draft vessels. This alternative modification to the casting basin floor would be much less expensive than modifying the depth of the entire floor.

Gate system modifications

Companies that may want to modify the existing gate system, so that it can be opened under its own power, could do so. Modification to the existing gate system would allow for a much faster

operation and would take away the need for an on-site crane to assist in the process. Modifications to the existing gate system would also aid significantly in reducing the challenges of docking and launching vessels with the changing tidal heights.

Flooding and dewatering system modifications

Shipyards that operate graving docks typically require, at a minimum a rate of about 4 to 6 hours (each way, faster is preferred) when flooding and dewatering occurs. This would likely be a modification that anyone wanting to flood the casting basin on a regular basis would want.

Dredging requirements

Future industries will need to give consideration on how dredging requirements could be reduced from the gate system to the Chehalis River (which is regularly dredged). A screen system of some sort, if permittable, should be explored. The screen system should be located close to the area that is regularly dredged. This should prevent silt from passing beyond and into the stretch of channel that runs from the gate to the river. A new screen system would reduce silt buildup dramatically and in turn would reduce dredging needs. This option should be given more consideration by future industries and would need to be installed in accordance with regulatory requirements.

Projected economic benefit analysis

This economic development analysis is an attempt to forecast marine industries that could utilize the casting basin site. Projections include the number of FTEs likely to be employed, gross revenues and profits and induced and indirect jobs associated with the 3 identified industries from which potential tax implications can be derived.

Each of the 3 highest and best use industries that were identified, are similar in nature. This analysis is based on a series of assumptions that were used and are defined below. There are several ways these assumptions could go based on the needs of future users. Where possible and/or likely, I have attempted to parallel the assumptions made between the 3 identified industries, in order to project a comparative analysis between them.

In the Facilities Challenges section, I have identified many areas as having potential issues for the identified industrial users. In general, these assumptions were made when putting the list of challenges together. The challenges, as described below, must be addressed in order for any future industry to be productive, profitable and meet regulatory requirements. Any industry planning to use this site in the future may choose to approach their business plan differently than what is recommended in this analysis; however, a basic "best guess" approach was used to establish a baseline. Future users of the site will find this report valuable when outlining specific site needs.

Pinning down the costs of the various improvements each industry may or may not use was, to say the least, a very difficult task and proved to be challenging. Assumptions were made using several different variables. Until a specific industry is identified, it will be difficult to know the full extent of changes that will be required by regulatory agencies and those changes that the industry will need to make the casting basin work.

In an attempt to equalize a baseline between the 3 identified industries, a common number of employees (250 FTE's) were used. It is recognized that depending on the actual industry and their business model, the number of FTE's may increase or decrease based on a desired business model and on booked work at hand.

Baseline assumptions

1. **Graving dock flooding's.** The baseline assumption is that the graving dock will be flooded by each of the 3 identified industries multiple times each year.

   Repair and modification – 8/yr.
   New construction – 3/yr.
   Ship breaking – 4/yr.

2. **Depth issues.** The baseline assumption is that the limited depth in the basin will not be addressed. It should be noted that the need for a deeper graving dock facility, which would most certainly be desired by any one of the identified industries, will require

significant modifications to the existing depth of the basin. This would require both a substantial financial and regulatory undertaking.

It should also be noted that because of the limited depth in the existing basin, any future marine industry would be forced to bring in smaller vessels, which typically means less profitable work of shorter duration. Though the number of jobs would increase, the overall profitability would suffer as a result.

It is my professional opinion that the costs to deepen the basin would far outweigh the benefits. It is for those reasons it has been ruled out from the set of assumptions.

3. **Load issues.** The baseline assumption is that the higher loads in the basin will not be addressed. It should be noted that the need for higher loads would certainly be desired by any of the 3 industries, but any modifications to the basin floor would be a substantial financial and regulatory undertaking. It should also be noted that although limited load allowances will likely increase the number of vessels each industry takes on annually, it will require the avoidance of the larger and longer duration type of vessels, which typically bring in more revenue.

   It is my professional opinion that the costs to address the height loads far outweigh the benefits. It is for those reasons it has been ruled out from the set of assumptions.

4. **Dredging issues.** The baseline assumption is that dredging will be an ongoing cost that any of the 3 identified industries will need to incorporate into their business plan as operational costs. It should be noted that the frequency of dredging activities will depend on the industry. Further details are outlined in the Facility Challenges section under Dredging Issues.

5. **Gate and flooding issues.** The baseline assumption is that the gate and flooding systems will need to be modified for any of the 3 identified industries. It should be noted that the cost for this improvement is estimated to be approximately $2 million.

Further details are outlined in the Facility Challenges section under Gate system and flooding issues.

6. **Fish issue.** The baseline assumption is that fish issues will be an ongoing cost that any of the 3 identified industries will need to incorporate into their business plan as operational costs. It should be noted that a new method for fish gathering needs to be devised. Each identified industry would spend approximately $300,000 on designing and acquiring the necessary equipment to gather the fish. It should also be noted that costs for recording/documenting the fish should be equal each time the graving dock is flooded, so budgets can be built around one number. Further details are outlined in the Facility Challenges section under Fish issues.

7. **Sheet pile wall.** The baseline assumption is that there will be ongoing upkeep and maintenance costs for all 3 identified industries. It should be noted that these costs are estimated to be the same for all identified industries and are covered in the maintenance portion of the calculations. Further details are outlined in the Facility Challenges section under Sheet pile wall.

8. **Slope retention area.** The baseline assumption is that regulatory agency requirements will force the sealing of the riprap rock slope, which would be required for all 3 industries. It should be noted that this requirement will need to be addressed prior to any use of the site and it is estimated that each industry will need to invest approximately $1.5 million for this modification. Further details are outlined in the Facility Challenges section under Slope retention area.

9. **Graving dock common space issue.** The baseline assumption is that this issue will need to be dealt with on an individual industry basis. It should be noted that “modification and repair” industry is likely to be most impacted by this issue. The “new construction” industry will also be significantly impacted, but because flooding is expected to be done

less often, it will be somewhat less impacted. "Ship breaking" is expected to be the least impacted, as there will be less product to be concerned about upon flooding.

It should also be noted that all 3 industries will have similar environmental impact concerns at time of basin flooding. There are no initial investment concerns regarding this issue. Ongoing costs and inconveniences of scheduling synchronization would need to be addressed individually.

10. **Material Removal.** The baseline assumption is that this issue will need to be addressed by the individual industry. It should be noted that removal of any material that occupies the space in the southwest corner of the property is not considered in this evaluation. All 3 of the identified industries would need to, at some point, address this issue and evaluate whether or not gaining space would outweigh the cost of removing the material.

11. **Impervious surfaces.** The baseline assumption is that all 3 of the industries would need to make a similar investment to develop impervious surfaces to meet regulatory requirements. It should be noted that each industry would benefit from the additional workspace gained through the increase of the new, reinforced concrete surfaces but that the cost for this improvement is estimated to be approximately $2 million.

12. **Existing concrete pads.** The baseline assumption is that the existing concrete structures will need to be removed and replaced. It should be noted that this is outlined in the Facility Challenges section under Existing concrete pads, and the cost is covered in the Impervious surfaces line item.

13. **Crane ways.** The baseline assumption is that none of the 3 industries would initially need to make this improvement, but may want to incorporate it into future site improvement plans. It should be noted that the crane ways appear to be substantially built and could work for all the identified industries. It should also be noted that while it

would be very convenient to close in all the openings between the crane way structures, it would not likely be necessary to begin use of the facility.

14. **Building related.** The baseline assumption is that prior to starting operations, a lack of basic building structures will need to be addressed. This would be the same for each identified industry and is estimated to cost approximately $1 million. It should be noted that the only structure on the site is a power shed. Long-term, it is likely that additional structures would need to be added and that each industry would need to evaluate building needs in their long range plans.

15. **Detention ponds.** The baseline assumption is that approximately $400,000 would need to be invested into this system prior to starting operations. It should be noted that the detention ponds all appear to be in good working order; however, there is no water treatment system in place. A Kaizen treatment system is suggested for monitoring. Renting a system may make sense for short-term use; however for this application it is assumed that a new system would be purchased.

16. **Site access related.** The baseline assumption is that the site currently has only one usable access point. It should be noted that this major access point should be adequate for the initial startup stages. Any future industry may want to pursue an agreement with the Port of Grays Harbor for a second access through the west gate.

17. **Site location related.** The baseline assumption is that this item is not addressed. This site location has pros and cons. The biggest challenge is the distance that this site is located off of the I-5 corridor and major metropolitan locations. It should be noted that any future industries considering this site will need to evaluate the possible impact of operating at this location.

18. **Piling row to river.** A baseline assumption is that no floating pier was included. There may be some advantages for an industry to invest in a floating pier system (west side of the piling row that runs from the gate to the river). This could allow for some viable

topside repair on shallow draft vessels. It should be noted that an industry could add this at a later date when finances allowed for it.

19. **Qualified personnel in the surrounding area.** The baseline assumption is that finding qualified personnel will be a substantial challenge. It should be noted that adding a training facility may be necessary in order to give local personnel the training they need to work in the marine trades industry and would come at a cost of approximately $300,000. It should also be noted that an estimated $200,000 for initial employee training costs, including consumable materials training, would be in addition to the $300,000. Continued training will be part of an ongoing organizational cost and has been figured into the operational cost for this analysis.

20. **Utilities work.** The baseline assumption is that current electrical power and water supplies are adequate for startup and long term needs for the 3 identified industries; however, prior to startup some power and water distribution requirements may be needed. It should be noted that the estimated cost for distribution requirements is estimated to be $200,000. It should also be noted that an industrial water supply is available adjacent to the site.

21. **Other startup costs.** The baseline assumption is that multiple cranes, forklifts, trade equipment, etc. will need to be purchased prior to the start of operations. It should be noted that the estimated startup cost would likely run in the range of $4 million. It should also be noted that over time, this cost will increase further; however the equipment more than likely would be purchased further down the road at a time when the industry can afford it.

22. **Miscellaneous.** The baseline assumption is that there are a myriad of additional items that must be accounted for in the startup of any business. These items would include things like; business license, insurances, regulatory adherence, etc. It should be noted that this cost is estimated to run approximately $500,000.

23. **Land purchase value.** The baseline assumption is that the land does not have a positive market value. It should be noted that all of the above listed improvements will most likely be required before an industry can even consider going into business.

    It is my professional opinion, that because required site improvements are so expensive, this land does not have a positive market value.

Tables 1, 2 and 3 list the project outcomes based on the assumptions above.

Table 1. Initial Investments for Industry Startup Cost Comparison

Initial Investments for Industry Startup Cost Comparison			
Description of Initial investments	**Repair and Modification**	**New Construction**	**Ship Breaking**
1. Land purchase price	$0	$0	$0
2. Depth issues	$0	$0	$0
3. Load issues	$0	$0	$0
4. Dredging issues	$0	$0	$0
5. Gate and flooding issues	$2,000,000	$2,000,000	$2,000,000
6. Fish issue	$300,000	$300,000	$300,000
7. Sheet pile wall	$0	$0	$0
8. Slope retention area	$1,500,000	$1,500,000	$1,500,000
9. Graving dock common space issue	$0	$0	$0
10. Space impact	$0	$0	$0
11. Impervious surfaces	$2,000,000	$2,000,000	$2,000,000
12. Existing concrete structure	$0	$0	$0
13. Crane ways	$0	$0	$0
14. Building related	$1,000,000	$1,000,000	$1,000,000
15. Detention ponds	$400,000	$400,000	$400,000
16. Site access related	$0	$0	$0
17. Site location related	$0	$0	$0
18. Piling row to river	$0	$0	$0
19. Qualified personnel in the surrounding area	$500,000	$500,000	$500,000
20. Utilities work	$300,000	$300,000	$300,000
21. Other startup costs	$4,000,000	$4,000,000	$4,000,000
22. Miscellaneous	$500,000	$500,000	$500,000
Totals	$12,500,000	$12,500,000	$12,500,000

Summary Annual Profit and Loss Projection

Table 2. Simplified Annual Industry P&L Cost Comparison

Simplified Annual Industry P&L Cost Comparison (250 FTEs)			
	Repair and Modification	**New Construction**	**Ship Breaking**
Income			
Gross sales revenues	$27,000,000	$42,000,000	$18,000,000
Total Income	$27,000,000	$42,000,000	$18,000,000
Expenses			
Material costs	$2,700,000	$16,800,000	$0
Waste disposal fees	$0	$0	$1,000,000
Operating costs	$2,200,000	$2,000,000	$1,250,000
Direct labor	$10,980,000	$11,600,000	$9,050,000
Labor overhead	$5,490,000	$5,800,000	$4,525,000
Insurance	$1,000,000	$1,000,000	$1,000,000
Utilities	$60,000	$60,000	$60,000
Maintenance cost	$500,000	$500,000	$300,000
Equipment investment	$500,000	$500,000	$300,000
Facility upgrade	$500,000	$500,000	$100,000
SG&A	$800,000	$1,040,000	$350,000
Total Expenses	$24,730,000	$39,800,000	$17,935,000
Profit / (Loss)	$2,270,000	$2,200,000	$65,000

Gross Revenues, Wages, Benefits

Based on a 250 FTE company size the average expected gross sales revenues for the 3 highest and best use industries is $29,000,000. Table 2 breaks down the revenues and expenses of each individual “identified” industry while Table 3 breaks down the gross sales and hourly wage rates.

Table 3. Projected Gross Revenues and Mean Wages

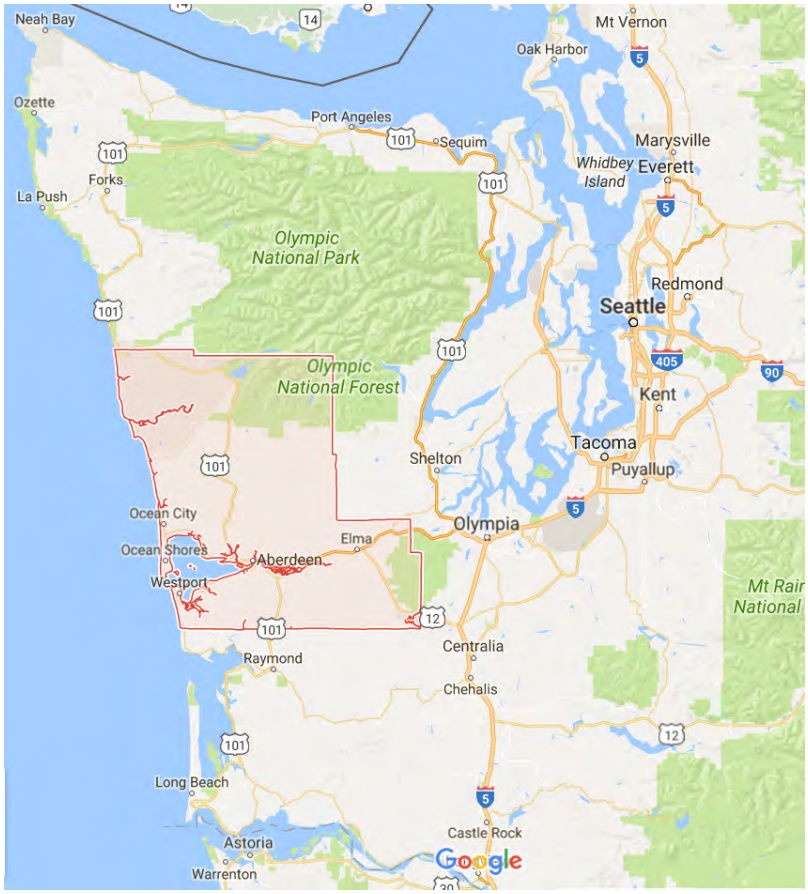
Projected Gross Revenues and Mean Wages			
	Repair and Modification	**New Construction**	**Ship Breaking**
Gross sales revenues	$27,000,000	$42,000,000	$18,000,000
Average hourly wage	$21.96	$23.20	$18.10

After a 90 day probation period, employees receive a basic benefits package, which is typical for marine trade based employees. The basic benefit package normally includes: 1 week paid vacation, 8 days paid holiday and basic medical and dental insurance for the employee. Vacation benefits typically grow over a period of years to as much as 4 weeks per year. Employees are typically not eligible for 401(k) and profit sharing programs, if offered, until after the first year of employment.

Other State and Grays Harbor County Information for Consideration

Grays Harbor County was established in 1854 and is bounded to its west by the Pacific Ocean. The County is approximately 1,902.3 square miles in size with roughly 38.3 persons living per square mile. The County is ranked 15th in size in Washington State. See Map 1 for the location of Grays Harbor County as it relates to western Washington.

Map 1. Grays County area map



Employment Forecast

The outlook remains guarded heading into 2017. Non-farm job growth has been modest and the manufacturing sector in the county continues to struggle to find positive footing, as employment numbers in that sector continue to lag the pre-2008 levels.

Unemployment Data

The average annual unemployment rate in the County has dropped considerably from the 13.9% rate posted in 2010. Unfortunately, the current rate is still above the 2006 rate of 6.9%. The 2015 annual average unemployment rate was 8.9% down from the 10.1% in 2014. The 2016 rate was also 8.9% through the first nine months of the year.

Table 4. 2014-2016 Unemployment Data

2014-2016 Unemployment Data		
	Grays Harbor County	**Washington State**
2014	10.1%	6.1%
2015	8.9%	5.7%
2016	8.8%	5.6%

The labor force in the County continues to remain over 47,400 below the 2008 level. That fact has become fairly common in many of the more rural counties in the state, as residents have been moving to denser population zones with more employment opportunities.

The near term unemployment rate will rise as the year closes with double digit unemployment anticipated into early spring of 2017. Winter jumps in unemployment are the norm in Grays Harbor County.

Employment Data

Industry growth in Grays Harbor County has been weak at best. In 2015 non-farm employment totaled 21,860. This figure was just 60 employees above the 2014 total and 180 employees above the 2013 total of 21,680 employees.

The Government continues to represent the largest employer in the County, at 6,360 jobs in 2015. During 2015 the trade, transportation and utilities sector accounted for 3,740 jobs, while education and health services contributed 2,940 jobs to the total.

While non-farm growth has been in the negative since 2008, the 2014 and 2015 numbers have shown a slight over-the-year gain of less than 1%.

Wage Data

In 2015, there were approximately 21,779 workers covered by unemployment insurance in the County. The total payroll for those jobs was over $823 million. This total was above the $801 million payroll posted in 2014.

In 2015, the average annual wage was $37,801 in the county, lagging the statewide average of $56,650. The median hourly wage was $18.81 in the county compared to the state average of $23.15.

Personal income includes earned income, investment income and government payments such as Social Security and Veterans Benefits. Investment income includes income inputted from pension funds and from owning a home. Per capita personal income equals the total personal income, divided by the resident population.

In 2014 the county's per capita personal income was $34,326, a total that lags both the state ($49,610) and the U.S. ($46,049) averages.

The median household income in Grays Harbor County was $46,130. This total also lags behind both the statewide average of $61,817 and the national average of $56,709.

The poverty rate in the county dipped in 2015. The 2014 rate of 18.6% fell to 14%. That figure is above the statewide average of 12.2%, but below the 14.7% experienced at the national level. The state and national rates are not directly comparable to the county rate because they each use different date sources.

Population Data

Grays Harbor County's population was forecast to be 71,122 in 2015, down from the 2010 Census count of 72,797.

Of the 2015 population total, 39.1% were counted as living in unincorporated areas of the county. The largest city in Grays Harbor County is Aberdeen. The 2010 Census count lists Aberdeen with a population of 16,896, followed by Hoquiam at 8,405 and Ocean Shores at 5,699. The fourth largest city in the county is Montesano with a population of 4,070. Montesano is also the County Seat.

Table 5. Population & Demographics Facts (Source: U.S. Census Bureau Quick Facts)

	Grays Harbor County	Washington State
Population 2015	71,122	7,170,351
Population 2010	72,797	6,724,543
Percent Change, 2010 to 2015	-2.3%	6.6%
Population by Age, 2015		
Under 5 years of age	5.6%	6.2%
Under 18 year of age	20.9%	22.5%
65 years and older	19.6%	14.4%
Females, 2015	48.7%	50%
Race/Ethnicity, 2015		
White	87.7%	80.3%
Black	1.4%	4.1%
American Indian, Alaskan Native	5.5%	1.9%
Asian, Native Hawaiian, Other Pacific Islander	1.8%	9.1%
Hispanic or Latino, any race	10.1%	12.4%

Economic Impact

This economic impact analysis assumes a flat job creation of 250 direct jobs.

At the outset, activity at the casting basin site will generate business revenue for firms that provide services. The business revenue impact is dispersed throughout the economy in several ways. It is used to hire people to provide the services, to purchase goods and other services, to pay for the use of the facility and to make federal, state and local tax payments. The remainder is used to pay stockholders, retire debt, make investments or is held in retained earnings.

If there is an increase in final demand for a particular product, we can assume that there will be an increase in the output of that product, as producers react to meet the increased demand; this is the direct effect/impact. As these producers increase their output, there will also be an

increase in demand on their suppliers and so on down the supply chain; this is the indirect effect/impact. As a result of the direct and indirect effects the level of household income throughout the economy will increase as a result of increased employment. A proportion of this increased income will be re-spent on final goods and services; this is the induced effect/impact. The ability to quantify these multiplier effects is important as it allows economic impact analyses to be carried out in the Grays Harbor economy.

A multiplier summarizes the total impact that can be expected from a change in a given economic activity. For example, a new manufacturing facility or an increase in exports by a local firm, are economic changes which can spur ripple effects or spin-off activities. Multipliers measure the economic impact of these new exports, including the resulting spin-off activities.

Change may be measured in several ways. Some community leaders may be primarily concerned with employment or income while others may want to estimate the total value added to the local economy. Four multipliers are commonly used to assess impacts of an initial increase in production resulting from an increase in sales, usually called final demand in multiplier analysis. The four are: (1) Output, (2) Employment, (3) Income; and (4) Value Added Multipliers.

Direct employment impact

Jobs directly generated by the marine industry typically include the following: ship designers, ship fitters, materials engineers, riggers, metal fabricators, diesel engineer specialists, electronics installers, boat mechanics, welders, upholsterers, boilermakers, plumbers, pipefitters and others.

It should be emphasized that these jobs are classified as directly generated in the sense that these jobs would experience near term dislocation if the business were to leave the area. These jobs are, for the most part, local jobs and are held by residents of Grays Harbor County.

Direct effects take place only in the industry immediately affected: If a marine industry lays-off 5 employees, the marine industry loses 5 employees.

Induced employment impact

Jobs would be created throughout the local economy. Individuals employed directly by the marine industry would spend their wages locally on goods and services such as food, housing and clothing. These jobs are typically held by residents located throughout the region and state, since they are based on local and regional statewide purchases.

Induced impacts are those generated by the purchases of the individuals employed as a result of marine activity. For example, a portion of the personal earnings received by those directly employed in this industry are used for purchases of goods and services, both in-state, as well as out-of-state. These purchases, in turn, create additional jobs in the State of Washington, which are classified as induced.

Induced effects measure the effects of the changes in household income: laid-off employees of a marine industry and its suppliers may reduce what they spend in restaurants and shops since they would no longer be employed. These changes affect the related industries.

Indirect jobs

Jobs would be created in the State of Washington through purchases of goods and services by firms, not individuals. These jobs would be generated directly from local purchases, and include jobs with local office supply firms, maintenance and repair firms, parts and equipment suppliers, etc.

Indirect effects concern inter-industry transactions: if the marine industry closes it will no longer need locally produced materials or services. This will affect all of their suppliers, possibly resulting in further loss of jobs.

Personal Earnings Impact

The personal earnings impact is the measure of employee wages and salaries (excluding benefits) received by individuals directly employed by the marine industry. Re-spending of these earnings throughout the State of Washington for purchases of goods and services is also estimated. This, in turn, generates additional jobs – the induced employment impact. This re-

spending throughout the state is estimated using a state personal earnings multiplier, which reflects the percentage of purchases by individuals that are made within the state. The re-spending effect varies by state: A larger re-spending effect occurs in states that produce a relatively large proportion of the goods and services consumed by residents, while lower re-spending effects are associated with states that import a relatively large share of consumer goods and services (since personal earnings "leak out" of the state for these out-of-state purchases). The direct earnings are a measure of the local impact, since those directly employed by marine activity receive the wages and salaries. The re-spending effect is regional.

Tax Impact

Federal, state and local tax impacts are tax payments to the state and local governments by firms and by individuals whose jobs are directly dependent upon and supported (induced and indirect jobs) by activity at the marine facility. The tax impacts include state and local taxes collected from all sources, both personal and business taxes.

Total Estimated Impacts of the Three Identified Marine Industries

Throughout the document, 250 direct jobs have been used as a baseline assumption. Therefore, the estimates below factor in 250 direct jobs that would be generated by the three identified marine industries.

It should be noted that unlike many other sectors, workers in the marine industries can typically work their way up from an entry-level position to management in the same company in many cases. Because some workers have traditionally stayed with a single company or job function for generations, retention and maintenance of existing workforce is crucial. Recruiting and maintaining talent is difficult for many sectors in the marine industry. Maritime leaders perceive a need to improve knowledge of the industry among the general public and the economic opportunities which exist in Maritime.

According to the Washington State Maritime Cluster Economic Impact Study (2013), the maritime industry supported a jobs multiplier of 2.6 jobs. This multiplier includes jobs created

directly, indirectly and induced. Based on that job multiplier we could expect approximately 650 jobs, through direct, indirect and induced means (2.6 x 250 = 650). For every one Maritime job in Washington, an additional 1.6 jobs are supported by marine activities (250 x 1.6=400). For every million dollars of output generated, an additional 5.6 jobs were supported throughout the economy. Outside of payroll, an estimated average of expenses for the three identified industries is $27,488,333. Based on the additional jobs that would be created for every million spent, the marine industry would generate another 151 jobs. For each dollar of output generated by marine industry firms, an additional $0.95 in output is supported elsewhere.

It is estimated that between all three identified industries (using an average of the three outlined in Table 3) approximately $10,920,000 of direct wages and salaries would be received by those 250 employed marine industry personnel. This figure is based upon an average hourly wage of the three industries (approximately $21.00 per hour), multiplied by 250 FTE's working an average of 2080 hours annually. Using an industry income multiplier of 2.0, the resulting increase in income is estimated to be approximately $21,840,000 ($10,920,000 x 2.0). For every $100 in wages the marine industry pays, an additional $100 in wages will be added.

In 2016 Grays Harbor County's labor force had roughly 26,690 people counted, of which approximately 24,284 people were working, and approximately 2,406 people were considered unemployed. It is estimated that if a marine industry were to locate at this site, that between the jobs created (250), the induced jobs (147) and the indirect jobs (125) that 522 jobs would both be created and retained in Grays Harbor, which accounts for 1.9% of the County's labor force and 21.7% of the County's unemployed workers.

Property tax estimates for the existing property and improvements, as is with no additional improvements, would run approximately $0.25 per square foot per year. Based on a 50 acre site, including improvements a private property owner could expect to pay approximately $544,500 in property taxes annually (2,178,000 square feet x $0.25). The sales tax rate is 8.93%. Based on total expenses, it is estimated that the new industry could expect to pay approximately $947,771 in sales taxes annually ($10,613,333 x 8.93%). This figure does not

include any of the direct labor, labor overhead, insurance or utility costs estimated in Table 2. The utility tax rate is 2%. Based on the estimated utility expenses a new industry could expect to pay $1,200 annually in utility taxes (60,000 x 2%). The B & O tax rate is 0.375% for services. Based on the total expenses (using the same figures used for the sales tax rate), it is estimated that the new industry could expect to pay approximately $39,800 in business and occupation taxes annually ($10,613,333 x 0.357%). The total estimated tax impacts, not including employment taxes, are estimated to be $1,533,271 annually.

Other Vacant Land for Consideration

No other land was considered for this project. This site is completely unique because of the specific nature of improvements that have been made. No land within 75 miles was found to have these types of improvements.

Timeline for New Industry at Site

The timeline for getting any of the 3 identified industries operational will depend on what site modifications (as outlined above) are deemed necessary by the industry. Some permitting issues will take longer than others. When the industry makes a decision on future needs it is recommended that the company sit down with the City of Aberdeen and determine what permits would be required. Once that is done, realistic timelines can be set. The following is a general approximation of steps and time required to prepare for new business.

1. Marketing time for lead up to auction: 6 months.
2. From auction date to ownership of property: 2 months.
3. Site modification and enhancements required to open business: 14 months.
4. Total approximate time required to open business: 22 months.

The permit application(s) can more than likely take place at some point during step 2.

Restoration of Site to Original Condition

The original request for proposal (RFP) that was generated by the City of Aberdeen asked for "Two or three possible industries" which could utilize the existing facility (restoration of the site should be included as a default alternative).

The Shoreline Substantial Permit with Variance that was issued to the Washington State Department of Transportation, identified two points in time when a decision about the future use of the casting basin facility could potentially be made: 1) when the SR 520 Pontoon Construction project is completed, and 2) if and when the decision is made to use the facility to build pontoons for the proposed SR 520, I-5 to Medina: Bridge Replacement and HOV project.

At the time of permit issuance, because of the unknown future of the site and the potential for other pontoon projects though un-permitted, it was unwise for the City to require complete restoration of the site at the completion of this first phase. The City agreed to work with WSDOT to either continue use of the site for pontoon construction, sell the site and improvements, or decommission and restore the site to as close to its condition prior to site development.

The City is partnering with WSDOT to explore options for the sale of the site. It is recommended that until this option is explored thoroughly and deemed unviable, that a complete restoration of the site not be initiated. However, because restoration expenses were required as part of this feasibility study, it is estimated that a complete restoration of the site would cost between $15 and $20 million. A full restoration assumes that all concrete, pilings, paved surfaces, rock, piping, electrical services and any other improvements are removed and the casting basin cavity and detention ponds are filled back in. Unfortunately a large quantity of fill that was removed from the site and hauled to Hoquiam (which was used to fill in a decommissioned sewage lagoon) will need to be brought in from another location. This will more than likely raise the estimated $15 to $20 million dollar price for restoration.

The value of the site, after complete restoration, would be worth the current raw land value, which in today's market is estimated at $5-$6 million (County's current assessment of the raw land is $4,356,000). Complete site restoration is estimated to cost between $15 and $20 million. This figure does not include any additional fill that would need to be brought in. Currently with a raw land value priced at $5 to $6 million, a full site restoration would not make logical sense. Further investigation of a highest and best use after restoration was not carried further than this exercise.

Conclusions

It is my professional opinion that the SR 520 casting basin site will not likely be attractive for any future industrial use in its current state, at any price. The amount of money that will likely need to be invested in the site in order to make it a functional facility and satisfy all regulatory requirements makes this site a cost prohibitive investment. On the other hand, if the land is able to be acquired for free or at an extremely low cost, there may be an interest for both the number one and number two industries identified. As can be seen by the projected profit and loss summary statement, both repair and maintenance, and new construction, have a similar forecasted profitability. Unfortunately for the third ranked industry, ship breaking, profits are close to zero on the profit and loss summary statement. This particular industry is not likely to be of interest to any party. The strict regulatory requirements on ship breaking are so stringent, that many have argued whether any business on the west coast of United States could ever be profitable.

Before considering a complete site restoration, WSDOT may want to consider the possibility of transferring ownership of the site to another government agency, such as the City of Aberdeen or the Port of Grays Harbor. This would provide more flexibility at a local level in finding a long-term tenant that may be interested in leasing the land at little to no cost, which would help to alleviate some of the cost requirements of a complete site restoration. This option would still generate desirable tax revenues and provide much needed jobs in the County.

Appendix 1. Pictures

Picture 1. Labeled aerial view of casting basin site

Picture 2. Main Gate (NE corner)

Picture 3. Raised concrete flat-panel slabs

Picture 4. Gate and sheet pile wall, with river on far (south) side

Picture 5. Standing on sheet pile wall walkway, looking west to gate system

Picture 6. Crane way along east casting wall

Picture 7. Crane way along east casting wall, riprap rock below

Picture 8. Crane way structure, and riprap rock

Picture 9. Casting basin looking north

Picture 10. Removable gate system from top

Picture 11. Emergency generator

Picture 12. Casting basin cavity waste mound

Picture 13. Power shed and power transformers

Picture 14. Concrete mixing station

Picture 15. Typical detention pond protected by ecology blocks

Picture 16. Fish catching and transport box

Picture 17. Fish fence system

Picture 18. North ramp looking south into basin

Picture 19. Sump pump area in southeast corner of casting basin

Picture 20. Sump pump area in southeast corner of casting basin

Picture 21. Remote-controlled water flooding gates in southeast corner of casting basin

Picture 22. Casting basin water depth gauge

Picture 23. Leak under sheet pile wall in southeast corner of casting basin

Picture 24. View from northeast corner of property looking south. Parking lot and lighting poles to left, uneven concrete flat-panel slabs in middle, and crane ways and casting basin to right.

Port of Grays Harbor

2305 Industrial Road
Aberdeen, WA 98520

Port of Grays Harbor
Graving Dock Site
Sand and Gravel Permit
Site Management Plan

29 October 2020

Prepared by

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KJ Project No. 1396035*07

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Section 1: S1 Permit Coverage & S5 Site Management Plan

1.1 S1: Permit Coverage

Stormwater discharges from the Port of Grays Harbor (Port) Graving Dock Site (Site) are covered by the Washington State Department of Ecology (Ecology) Sand and Gravel General Permit (Permit) number WAG501544. The Permit Coverage Page issued by Ecology to the Port is included in Appendix A, identifying North American Industrial Classification System (NAICS) codes 212321 (Construction Sand and Gravel Mining) and 327320 (Read-Mix Concrete Manufacturing) to be representative of Site activities.

This Site was formerly owned by the Washington State Department of Transportation (WSDOT) and utilized by Kiewit Construction to manufacture pontoons for the replaced 520 floating bridge across Lake Washington. The Port purchased the Site following bridge construction completion and Ecology transferred Permit coverage to the Port on 15 January 2019. The Port does not conduct the NAICS activities identified above and the Permit Coverage Page list the Site as Inactive.

This Stormwater Management Plan (SMP) has been developed to follow the format of the Permit effective 01 April 2018 as it pertains to Inactive sites. The SMP is intended to be a living document and is required to be updated regularly. Some of the statements and requirements provided within have been summarized and/or paraphrased. It is the responsibility of the Port to read and understand the requirements of the Permit and for adherence and implementation of this SMP. While every effort has been made to facilitate the completeness of this SMP in line with the requirements of the Permit, deficiencies may exist. In the event of a deficiency or conflict between the SMP and the Permit, the Permit requirements take precedence.

1.2 S5: Site Management Plan

The Permit requires the SMP to include the following:

- Site Map (Figure 1)
- Appropriate Best Management Practices (BMPs) (Appendix B)
- Erosion and Sediment Control Plan (ESCP, Section 5 of Plan, S6 of Permit)
- Monitoring Plan (MP, Section 6 of Plan, S7 of Permit)
- Stormwater Pollution Prevention Plan (SWPPP, Section 7 of Plan, S8 of Permit)
- Spill Control Plan (SCP, Section 8 of Plan, S9 of Permit).

Permit condition **S5.B.2** requires the Port to review the SMP at least once a year, noting the review date and the name of the Plan reviewer.

Permit condition **S5.B.4** requires the SMP and its modifications to be signed by a responsible party in accordance with Permit general condition **G1.** A Certification Form is included in Appendix A.

Section 2: S2 Effluent Limits

The effluent limits defined in Permit section **S2** are applicable to Site discharges; however, monitoring is not required for inactive sites if no discharges of process water, no discharges of mine dewatering water and no raw material or finished product handling occurs (Permit condition **S4.C**).

Section 3: S3 Additional Discharge Limits

S3.A. Best Management Practices (BMPs)

BMPs from Ecology's July 2019 Stormwater Management Manual for Western Washington (SWMMM), required in Permit section **S3.A**, and considered to be appropriate given Site uses and conditions, are listed in Appendix B.

Permit condition **S3.B** specifies that Site discharges must not Cause or Contribute to a Violation of Water Quality Standards.

Permit condition **S3.C** regarding maintenance shop discharge is not applicable for the Site as no maintenance shop is present.

Permit condition **S3.D** requires the Port to control unauthorized access.

S3.E. Water Management

Permit condition **S3.E.1.** requires all stormwater conveyance and BMPs to be designed, constructed, and maintained to contain all flows. As depicted on the Figure 2 Site Map, the Site consists of gravel and impervious surfaces graded to infiltrate or drain into wet ponds and/or biofiltration swales for water quality treatment. Appropriately sized conveyance elements such as inlets, pipes, ditches, and outfalls have been constructed to discharge treated runoff. Outfalls to the perimeter ditches and Grays Harbor have been equipped with tide-flex valves or flap gates and outfall rock protection.

Biofiltration swales have been distributed to drain parking lots allowing surface runoff to flow unconcentrated into the biofiltration swales for treatment. Four of the parking lot biofiltration swales drain to inlets and a conveyance system that discharges to outfall POC-7. One biofiltration swale drains from the northern end of the parking lot into the eastern ditch through an inlet and conveyance system, which is discharged to the existing outfall to the eastern perimeter ditch. An additional biofiltration swale provides basic water quality for the entrance driveway and the shipping and receiving areas located north of the parking lot, and discharges to the ditch north of the Site.

Four wet ponds remain at the Site. As a final step during construction, previously used sediment traps were re-excavated and permanent wet ponds constructed. Three wet ponds (ponds 2, 3, and 4) are located on either side of the former pontoon launch channel adjacent to Grays Harbor at the southern end of the Site. A third, segmented wet pond (pond 1) remains in the northern portion of the Site. Both closed and open conveyance systems are located throughout the property to carry runoff to Site outfalls identified on the Site Map. Permanent erosion control measures (e.g., splash pads at the outfalls) have been provided at concentrated points of discharge to ditches and surface waters.

The stockpile located in the multi-use area in the southwestern corner of the Site has been stabilized in accordance with WSDOT-approved BMPs. Stockpile stabilization measures included creating self-sustaining plant communities that require no fertilizer and little to no weed control. A portion of the runoff from the stockpile drains into wet pond 2 (sized to accommodate the additional runoff). The remaining stockpile runoff drains into swales for conveyance to the existing outfall into the western ditch.

Pumps were used formerly to pump combined flows of process water and stormwater out of the casting basin to pond 1. The pump system was sized to keep the floor of the casting basin sufficiently free of standing water to allow for pontoon fabrication; this pump system continues to automatically pump stormwater to pond 1.

Groundwater is collected from underdrains below the launch channel and side slopes and pumped to pond 4, from which it is re-infiltrated into the ground using an infiltration bed parallel to the eastern side of the property. This re-infiltration of groundwater is critical to maintain the groundwater elevation at the perimeter of the property, and to minimize the potential for settlement and impact to adjacent, off-property structures. In addition to infiltration via the infiltration bed, any remaining dewatering groundwater is discharged into the eastern perimeter ditch, which ultimately discharges to Grays Harbor from the southeastern corner of the Site property.

The Site does not discharge process water from Concrete Batch Plants or Asphalt Batch Plants, so line impoundment requirements described in Permit sections **S3E.2** through **S3.E.4** are not required. No mined pit ponds or discharges of Type 3 stormwater are present at the Site; therefore, Permit sections **S3.E.5** and **S3.E.6** are not applicable.

Chemical treatment products are not used; thus, Permit section **S3.F** does not apply.

Permit section **S3.G.1** specifies that discharges must not cause a visible increase in turbidity or objectionable color; or cause oil sheen in the receiving water. This Site does not have a TMDL wasteload allocation or discharge to a 303(d) waterbody so the remaining sections of section **S3.G** are not applicable.

Permit section **S3.H** authorizes discharges to groundwater subject to State groundwater quality standards and must not exhibit visible sheen.

The Site does not discharge to sanitary sewer so Permit section **S3.I** is not applicable.

This Site qualifies as inactive and Permittee will have appropriate BMPs in place and inspect the Site in accordance with Permit section **S3.J**. BMPs are provided in Appendix B.

Section 4: S4 Monitoring Requirements

The Site is inactive discharging only Type 1 stormwater and uncontaminated pumped groundwater. Therefore, the monitoring requirements defined in Permit sections **S4.A** through **S4.E** are not applicable.

The Permittee performs monthly visual inspections in accordance with Permit section **S4.F.1**. Inspection forms are included in Appendix C.

If the Port operates equipment onsite, Permit section **S4.F.2** is applicable. These BMPs are included in Appendix B.

Wet Season inspections are performed in accordance with Permit section **S4.F.3**. See inspection forms in Appendix C.

Dry Season inspections and erosion and sediment control inspections are not required for inactive sites; therefore, Permit sections **S4.F.3.b** and **S4.F.4** are not applicable. Erosion and sediment control BMPs have, however, been included in Appendix B: BMPs.

Inspection Reports conform to report requirements defined in Permit section **S4.G** of the Permit.

The Port has not requested monitoring exemptions allowed in Permit section **S4.H**.

Section 5: S6 Erosion and Sediment Control Plan

The Site has been stabilized meeting the requirements of Permit section **S6.**

Runoff conveyance and treatment BMPs required by Permit section **S6.B** are listed in Appendix A. Refer to the Site Map for BMP locations.

Section 6: S7 Monitoring Plan

Per section **S7** of the Permit, a monitoring plan is required at active sites and inactive sites where monitoring is required per S4.C.1 and/or S4.C.2; thus, this plan is not required for this Site.

Per section **S4.F.1**, however, monthly visual inspections are filed in this section of the Site Management Plan. Other applicable inspections are also included in this section of the SMP.

Section 7: S8 Stormwater Pollution Prevention Plan

No process water or mine dewatering water is present at the Site; therefore, Permit section **S8.A** is not applicable.

Refer to Appendix B: BMPs for applicable BMPs required in Permit sections **S8.B** and **S8. E.**

No innovative BMPs are considered to be necessary at the Site and Permit section **S8.C** is not considered to be applicable.

S8.D Inventory of Materials

Permit section S8.D *requires potential pollutants and pollutant sources be listed. The inventory of materials must include a list of all types of materials handled at the site exposed to precipitation or run-off (e.g. raw materials, cement admixtures, petroleum products, etc.). The Port must manage the following materials to prevent stormwater contamination if they are present in the future:*

PCP-treated light poles at the Site are known to be surrounded by contaminated soils. A Phase 2 study conducted by WSDOT determined based on sampling results that PCP-treated light poles onsite have leached lube oil-range hydrocarbons and PCP into the immediately surrounding soil. Should soils be disturbed, the Port will manage the soils in accordance with applicable regulations.

1. ***Toxic materials or chemicals***
2. ***Petroleum contaminated soils (PCS) that fail to meet the most protective Model Toxics Control Act Method 'A' treatment levels (WAC 173-340-740(2))***
3. ***Cement***
4. ***Admixtures***
5. ***Fuels, lubricants, tar and other petroleum products***
6. ***Any material that contains petroleum contamination or has the potential to cause aquatic toxicity.***

Concrete Recycling is not performed onsite; therefore, Permit section **S8.F** is not applicable.

Section 8: S9 Spill Control Plan

This Spill Control Plan must be maintained and reviewed annually in accordance with Permit sections **S9.A and S9.B.**

Refer to Appendix D: Emergency Spill Cleanup Plan for a description of the reporting system used to alert responsible managers, required by Permit section **S9.B.1**.

In accordance with Permit section **S9.B.2**, the list of equipment and materials onsite that have the potential to leak or spill are listed here. Per **S9.B.3** preventive measure to prevent, contain, or treat spills of these materials are also provided:

- Transformer oils from the generator onsite are present. The generator is a self-contained unit that has the capacity to hold generator fluids.
- A spill kit is installed on the inside of the West Site Access Gate from Terminal 4.

Drainage patterns for the Site required by **S9.B.3** of the Permit are shown on Figure 1 Site Map.

Refer to Appendix B for appropriate BMPs used for Site handling procedures and storage requirements required by Permit section **S9.B.4**.

Permit section **S9.C** requires the following**:** *The Permittee must have the necessary cleanup materials available and respond to all spills in a timely fashion, preventing their discharge to waters of the state. All employees must receive appropriate training to assure all spills are reported and responded to appropriately. The Permittee must immediately clean up all spills, leaks, and contaminated soil to prevent the discharge of pollutants to groundwater or surface waters.*

Section 9: S6 through S12

The plans required in Permit sections **S6 – ESCP, S7 - MP, S8 - SWPPP, and S9 SCP** are included in the Appendices.

The Site is inactive, and the submittal of Discharge Monitoring Reports defined in Permit Section **S.10.A** is not required.

The Port is, however, required by Permit section **S10.B** to submit by 30 January of each year their production of asphalt and/or concrete using Ecology's Water Quality Permitting Portal.

Monitoring is not required for inactive sites with no discharges of process water and/or mine dewatering water; therefore, Permit condition **S10.C** is not applicable.

The Port is required to fulfill the record retention and reporting requirements defined in Permit sections **S10.D, S10.E,** and **S10.F**.

Solid Waste Disposal, if applicable, will be performed in accordance with Permit section **S11**. Permit Coverage, transfer, and termination will be performed in accordance with Permit section **S12**.

Figure

Site Plan

Appendix A

Site Management Plan Coverage and Updates

Sand & Gravel General Permit Coverage Page

DEPARTMENT OF
ECOLOGY
State of Washington

Permit No: WAG501544
Permit Issuance Date: April 1, 2016
Coverage Effective Date: January 15, 2019
Expiration Date: May 31, 2021

General Permit expires 03/31/21
TYPO?

SAND & GRAVEL GENERAL PERMIT
COVERAGE PAGE – NON-PORTABLE OPERATIONS

Name and Mailing Address

Gary Nelson
Port of Grays Harbor
PO Box 660
Aberdeen, WA 98520

Facility/Site Name and Location

Port of Grays Harbor
1301 West Heron Street
Aberdeen, WA 98520

Site Contact

Randy Lewis

Site Contact Phone Number

360-533-9513

NAICS/SIC Codes Representing Activities

212321, 327320

Facility Site Status

Inactive

Monitoring Point (MP) Information

Outfall Type:	Surface	NAICS Code(s)	327320
MP ID:	POC1	MP Latitude:	46.9621
MP Name:	West Ditch to Grays Harbor	MP Longitude:	-123.836
MP Type:	Storm to Surface		
Outfall Type:	Surface	NAICS Code(s)	327320
MP ID:	POC2	MP Latitude:	46.9652
MP Name:	West Ditch	MP Longitude:	-123.836
MP Type:	Process to Surface		

Outfall Type:	Surface	NAICS Code(s)	212321, 327320
MP ID: MP Name: MP Type:	POC3 North Bioswale Storm to Surface	MP Latitude: MP Longitude:	46.9665 -123.832
Outfall Type:	Surface	NAICS Code(s)	327320
MP ID: MP Name: MP Type:	POC4 Parking Lot Bioswale Storm to Surface	MP Latitude: MP Longitude:	46.9659 -123.831
Outfall Type:	Surface	NAICS Code(s)	327320
MP ID: MP Name: MP Type:	POC5 East Ditch Process to Surface	MP Latitude: MP Longitude:	46.964 -123.83
Outfall Type:	Surface	NAICS Code(s)	327320
MP ID: MP Name: MP Type:	POC6 Grays Harbor Process to Surface	MP Latitude: MP Longitude:	46.9635 -123.832
Outfall Type:	Surface	NAICS Code(s)	327320
MP ID: MP Name: MP Type:	POC7 Grays Harbor Storm to Surface	MP Latitude: MP Longitude:	46.9634 -123.832
Outfall Type:	Surface	NAICS Code(s)	327320
MP ID: MP Name: MP Type:	POC8 Grays Harbor Process to Surface	MP Latitude: MP Longitude:	46.963 -123.833
Outfall Type:	Surface	NAICS Code(s)	327320
MP ID: MP Name: MP Type:	P10 Float-Out Events Process to Surface	MP Latitude: MP Longitude:	46.9657 -123.834
Outfall Type:	Surface	NAICS Code(s)	327320
MP ID: MP Name: MP Type:	P11 Float-Out Events Process to Surface	MP Latitude: MP Longitude:	46.9657 -123.834

Outfall Type:	Ground	NAICS Code(s)	212321
MP ID:	P5g	MP Latitude:	46.9662
MP Name:	Infiltration Trench	MP Longitude:	-123.863
MP Type:	Storm to Ground		

Richard Doenges
Southwest Regional Manager
Water Quality Program

Amendments and Certification Forms

Site Management Plan
Amendment Page

Facility Name: Port of Grays Harbor – Graving Dock Site
SWPPP Location Contract Administrator and Facility Security Officer's Office

Date Amended	Individual Making Changes	Reason for Plan Change/Summary	SWPPP Certification Form Completed and Included
October 2020	Kennedy Jenks	General Permit and Facility updates	✓

SMP CERTIFICATION FORM

The Facility shall use this form to sign and certify that the Site Management Plan (SMP) is complete, accurate and in compliance with the Sand and Gravel Permit (Permit).

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Operator's Printed Name*	Title
Operator's Signature*	Date

*Federal regulations require this document to be signed as follows in accordance with Condition G1 of the Sand and Gravel Permit.

Appendix B

Best Management Practices

Erosion and Sediment Control BMPs

e. Outdoor processing areas.

f. Loading and unloading of dry bulk materials or liquids.

g. On-site waste treatment, storage, or disposal areas.

h. Underground storage areas of materials or products.

S6. SMP SECTION 1: EROSION AND SEDIMENT CONTROL PLAN (ESCP)

The Permittee must prepare an ESCP prior to any earth moving activities. The ESCP must identify and describe the erosion and sediment control BMPs that the Permittee will implement at the facility and a schedule for BMP implementation.

A. Stabilization BMPs

The Permittee must initiate stabilization BMPs as soon as practicable on portions of the site where mining or reclamation activities have temporarily or permanently ceased. The Permittee must:

1. Stabilize and protect all soils from erosion by the timely application of effective BMPs.
2. Preserve existing vegetation where feasible. Permanently mark areas that are not to be disturbed; these include setbacks, sensitive/critical areas and their buffers, trees, and drainage courses.
3. Design and construct cut slopes and fill slopes in a manner that will minimize erosion.
4. Provide stabilization at the outlets of all conveyance systems to prevent erosion.

B. Runoff Conveyance and Treatment BMPs

The ESCP must include a description of runoff conveyance and *treatment BMPs* used to prevent erosion and *sedimentation*. The plan must satisfy the following requirements. The Permittee must:

1. Protect properties adjacent to the project site from erosion and sedimentation related to the facility.
2. Construct sediment ponds and traps, perimeter dikes, sediment barriers, and other BMPs intended to trap sediment on site as a first step. These BMPs must be functional before land is disturbed. Stabilize slopes of earthen structures used for sediment control such as dams, dikes, and diversions immediately after construction.
3. Design any BMP constructed at an active site to maintain separation of Type 2 stormwater from Type 3 stormwater and Type 1 stormwater during the peak flow from the design storm. If any commingling of Type 1, Type 2, or Type 3 stormwater occurs, the Permittee must meet the most restrictive permit requirements.

Stormwater Pollution Prevention Plan BMPs

B. Runoff Conveyance and Treatment BMPs

~~The SWPPP must include runoff conveyance and treatment BMPs as necessary to control pollutants and comply with the stormwater discharge limits in S2 and S3. (Refer to the Stormwater Management Manuals for additional information.)~~

Runoff conveyance BMPs include, but are not limited to:

1. Interceptor dikes
2. Swales
3. Channel lining
4. Pipe slope drains
5. Outlet protection

Treatment BMPs may include, but are not limited to:

1. Oil/water separators
2. Biofiltration swales
3. Infiltration or detention basins
4. Sediment traps
5. Chemical treatment systems
6. *Constructed wetlands*

C. Innovative BMPs

Innovative treatment, source control, reduction or recycling, or operational management practices beyond those identified in Ecology's SWMMs are encouraged if they help achieve compliance with this general permit.

~~**D. Inventory of Materials and Pollutant Sources**~~

~~This inventory must list potential pollutants and pollutant sources. The inventory of materials must include a list of all types of materials handled at the site exposed to precipitation or run-off (e.g. raw materials, cement admixtures, petroleum products, etc.).~~

~~The Permittee must manage the following materials to prevent stormwater contamination:~~

~~1. Toxic materials or chemicals~~
~~2. Petroleum contaminated soils (PCS) that fail to meet the most protective Model Toxics Control Act Method 'A' treatment levels (WAC 173-340-740(2))~~
~~3. Cement~~
~~4. Admixtures~~
~~5. Fuels, lubricants, tar and other petroleum products~~
~~6. Any material that contains petroleum contamination or has the potential to cause aquatic toxicity~~

E. Source Control BMPs

~~The SWPPP must include the following source control BMPs in order to achieve AKART and compliance with the stormwater discharge limits in S2 and S3. The Permittee may omit individual BMPs if site conditions render the BMP unnecessary, infeasible, or if the Permittee provides alternative and equally effective BMPs. The Permittee must note the rationale for omission or substitution in the SWPPP. The Permittee must~~:

1. Store all **chemical liquids, fluids, and petroleum products** (except bitumen), in double-walled tanks or in secondary containment. Secondary containment includes an impervious surface surrounded with a containment berm or dike that is capable of containing 10% of the total enclosed tank volume or 110% of the volume contained in the largest tank, whichever is greater.
    a. To prevent precipitation from accumulating in secondary containment provide a roof or equivalent structure.
    b. If cover is not practicable, the SWPPP must include a description of how accumulated water will be managed and disposed of.
2. Label **containers** (e.g., “Used Oil,” “Spent Solvents,” “Fertilizers and Pesticides”).
3. Fully drain and cap **empty containers**. Minimize the number of empty containers on site.
4. Fit all **dumpsters** containing leachable materials with a lid that must remain closed when not in use, or alternatively keep the dumpster under cover.
5. Locate **spill kits** at all stationary fueling stations, fuel transfer stations, mobile fueling units, and used oil storage/transfer stations.
6. Use drip pans or equivalent containment measures during all **petroleum transfer operations**.
7. Conduct all **vehicle and equipment cleaning operations** per the following:
    a. Permittees may use low pressure (under 100 psi) cold water to rinse mud off of vehicles and equipment provided no soap is used. Route rinse water to an on-site sediment treatment structure (e.g. sediment trap, catch basin with gravity separator, or treatment pond).
    b. Conduct all other vehicle and equipment cleaning operations under cover or in a bermed area to prevent commingling of wash water and stormwater.
        i. This wash water must drain to a proper collection system (i.e., not the stormwater drainage system).
        ii. Do not discharge any wastewater from concrete truck wash-out areas or from concrete trucks directly to surface water or groundwater. Treat this wastewater in a lined impoundment.
8. Store **unhardened concrete**, any type of concrete solids (does not include fully cured or recycled concrete), returned asphalt, and cold mix asphalt on a bermed impervious surface. This includes comeback concrete, ecology blocks, septic tanks,

jersey barriers, and other cast concrete products. Treat all stormwater that contacts these materials in a lined impoundment. Discharge of this water is subject to the effluent limitations in S2 and must not cause a violation of water quality standards.

9. Store **lead acid batteries** under cover.
10. Take **leaking equipment** out of service and prevent it from leaking on the ground until repaired. Repair all leaks before putting equipment back into service on the site.
11. Manage **paving equipment** to prevent stormwater contamination.
12. Manage **sediment track out** to paved off-site roads to prevent the tracked sediment from delivering to surface water or storm drain systems. Discharges to surface waters, public storm drain systems, or both are subject to permit limits for turbidity and must be included in the Permittee's Monitoring Plan whenever track out onto an off-site roadway is evident. Measures recommended to control or prevent track out include:
    a. Limit vehicle access and exit to one route, if possible.
    b. Stabilize access points with a pad of quarry spalls, crushed rock, or other equivalent BMP, as necessary to minimize the tracking of sediment onto off-site roads.
    c. Locate a closed loop wheel wash or tire baths (or equivalent BMP) on site, if the stabilized construction entrance is not effective in preventing sediment from being tracked onto off-site roads. Wheel wash and tire bath wastewater is process water and is subject to the effluent limitations and monitoring requirements in Special Condition S2, Table 2, and S4 and must not cause a violation of water quality standards.
    d. Clean off-site roads thoroughly at the end of each day or more frequently during wet weather if sediment is tracked off site. Clean sediment from roads by shoveling or pickup sweeping and transport to a controlled sediment disposal area.
    e. Only wash streets after sediment is removed in accordance with condition d above. Street wash wastewater must be controlled by pumping back on site or otherwise be prevented from discharging into systems tributary to waters of the state.
13. The Permittee must use **source control BMPs** in the following areas and during the following activities as necessary to control pollutants:
    a. Fueling at Dedicated Stations
    b. Mobile Fueling
    c. Loading and Unloading Areas
    d. Storage of Liquid in Permanent Above-ground Tanks
    e. Dust Control

f. High Use Parking Areas

g. Storage or Transfer of Solid Raw Materials, By-Products or Finished Products

(See Volume IV in the SWMMWW/Chapter 8 in the SWMMEW for specific BMPs)

F. ~~Concrete Recycling BMPs~~

~~Permittees that conduct *concrete recycling* (ECY002) must include the following BMPs within their SWPPP and implement them on-site. Permittees may omit individual BMPs below if site conditions render the BMP unnecessary or if the Permittee provides alternative and equally effective BMPs. The Permittee must note the rationale for omission or substitution in the SWPPP.~~

~~1. Permittees that receive permit coverage for their site for the first time on or after April 1, 2016 must not place new concrete recycling stockpile(s) in the following locations:~~

~~a. Within 100 feet or less (horizontal distance) from the ordinary high water mark of surface water bodies (including streams, lakes, rivers, saltwater bodies, wetlands, etc.).~~

~~b. Within 100 feet or less (horizontal distance) from drinking water and irrigation well(s) unless:~~

~~i. The Permittee samples groundwater quality from monitoring wells in accordance with an Ecology-approved groundwater monitoring program based on Ecology Publication 96-02 (Implementation Guidance for the Groundwater Quality Standards).~~

~~(a) The Permittee must submit and have Ecology approve their groundwater monitoring program prior to placing new concrete recycling stockpile(s) in this location.~~

~~(b) The permittee must include documentation of their groundwater monitoring program within their SMP.~~

~~c. Within a Wellhead Protection Area unless:~~

~~i. The Permittee samples groundwater quality from monitoring wells in accordance with an Ecology-approved groundwater monitoring program based on Ecology Publication 96-02 (Implementation Guidance for the Groundwater Quality Standards).~~

~~(a) The Permittee must submit and have Ecology approval of their groundwater monitoring program prior to placing new concrete recycling stockpile(s) in this location.~~

~~(b) The permittee must include documentation of their groundwater monitoring program within their SMP.~~

~~d. Where there is a discharge to ground associated with the concrete recycling stockpile and there is not a minimum of 10 feet of separation between the bottom of the recycled concrete stockpile(s) and groundwater.~~

Equipment BMPs

E. Laboratory Accreditation

The Permittee must ensure that all monitoring data required by Ecology is prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. Flow, temperature, turbidity, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement. The Permittee or laboratory must obtain accreditation for conductivity, turbidity, and pH if accreditation or registration is required for other parameters (eg. TSS or TDS).

F. Inspections

BMPs below applicable only when equipment operates on the site.

2. When equipment operates:

   a. The Permittee must inspect oil/water separators once per month during the wet season (October 1 – April 30) and during and immediately after a large storm event of greater than or equal to 1 inch per 24 hours. The accumulated oil must be removed when it reaches a thickness of 1 inch. The bottom sludge must be removed when it reaches a thickness of 6 inches. Oil absorbent pads must be replaced as necessary to maintain effectiveness.

   b. The Permittee must inspect all operationally related equipment and vehicles weekly for leaking fluids such as oil, hydraulic fluid, antifreeze, etc.

   c. Permittees must conduct daily visual monitoring for oil sheen at all surface water and *groundwater discharge* points (or representative locations where water collects prior to discharge) when runoff occurs.

   d. If oil sheen is present, the Permittee must clean up the source and report the event on the inspection form identifying the probable cause of the oil sheen and describing the actions taken to prevent further contamination (See Condition S2, Tables 2 and 3, footnote 3).

   e. The presence of a visible sheen on site is not a violation if there is no discharge of sheen or petroleum products to water of the state and if the Permittee corrects the problem in a timely manner. (See Condition S2, Tables 2 and 3, footnote 3, and conditions S5.C, S9.C and S10.E).

3. The Permittee must conduct at least two stormwater inspections each year at all *active sites* covered under this permit. The Permittee must conduct at least one inspection during the wet season (October 1 – April 30) and at least one inspection during the dry season (May 1 – September 30).

   a. Wet Season Inspection

      The wet season inspection must be conducted by personnel named in the SWPPP and must include observations for the presence of floating materials,

Relevant SWMMM BMPs

Appropriate BMPs for the Site are highlighted below and can be found in the 2019 Stormwater Management Manual for Western Washington.

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O&M covered in BMP T9.10

Appendix C

Inspection Forms

Port of Grays Harbor Graving Dock Site Monthly/Annual Inspection Report

This form is intended to satisfy the inspection requirements for inactive sites defined in sections S3.J.3.b, S4.F.3.a, and S4.G of Ecology's April 01, 2018 – March 31, 2021 Sand and Gravel Permit (Permit).

Completed by personnel listed in the Permit Stormwater Pollution Prevention Plan (SWPPP)

Name: _____ Title: _____ Date:_____
Time:_____

Observe discharge points and carefully consider the pollutant sources and action steps needed to control the pollutants.

Date	Discharge ID	List visible changes in turbidity or color in the receiving water. Include observations of presence of floating materials, suspended solids, oil and grease, discoloration, turbidity, odor, etc. in the stormwater discharge(s).	Corrective Action or Maintenance Recommended? (If yes, describe in the Corrective Action & Maintenance Task section.)
	POC 1		
	POC 2		
	POC 3		
	POC 4		
	POC 5		
	POC 6		
	POC 7		
	POC 8		

Summary of Inspection:

_____

_____

_____

Were any observations made that prompt updates to the Site Management Plan are required? Yes ___ No ____

If yes, describe:

_____

Per section S4.G.3 of the Permit, Permittee has investigated stormwater discharge for the presence of non-stormwater.

Was non-stormwater discharged observed? Yes ____ No ____

If yes, describe in corrective actions and maintenance section.

Correction Actions and Maintenance

Are any corrective actions or maintenance tasks needed? Yes ____ No ____

If yes, describe:

_____

_____

If noted, were corrective actions / maintenance tasks noted from previous inspection completed?

Port of Grays Harbor Graving Dock Site Monthly/Annual Inspection Report

Yes___ No___ NA ____

Follow-up Comments:

_____

_____

_____

Annual Wet Season Inspection Only: Was this inspection conducted during a rainfall event adequate to address the questions below?

Yes____ **No**____ **N/A (not wet weather inspection)** ____

- Is the description of potential pollutant sources as defined in S8.D of the Permit and described in the SWPPP accurate? **Yes**____ **No**____
- Has the Permit Site Map been updated as needed to reflect current conditions? **Yes**____ **No**____
- Is the Permittee is implementing controls which are adequate to reduce pollutants in the stormwater discharges associated with industrial activities identified in the Permit Stormwater Pollution Prevention Plan? **Yes**____ **No**____
- Per S4.3.J.b of the Permit, I certify that this facility complies with the Permit: **Yes**____ **No**____

Certification by Corporate Officer or Duly Authorized Representative: ***"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."***

Name_____ Title_____

Signature_____ Date Signed_____

Appendix D

Emergency Spill Cleanup Plan

Appendix D

Port of Grays Harbor – Graving Dock Site, Aberdeen, Washington
Emergency Spill Cleanup Plan

This Emergency Spill Cleanup Plan (ESCP) is intended to define Spill Response, Cleanup, and Notification Procedures that should be followed and should be considered an integral part of the Port of Grays Harbor (Permittee) – Graving Dock (Site) Sand and Gravel Permit (Permit) Site Management Plan (SMP).

Chemicals and liquids are not stored onsite, and if chemicals and liquids are observed onsite, they should be reported immediately to the responsible managers listed below. However, standard spill response procedures below are provided to keep employees aware of response requirements should an issue arise.

Spilled chemicals should be effectively and quickly contained and cleaned up. Employees should clean up spills themselves ***only if properly trained and protected.*** Employees who are not trained in spill cleanup procedures should report the spill to the Responsible Person(s) listed below, warn other employees, and leave the area as necessary.

The following general guidelines should be followed for evacuation, spill control, notification of proper authorities, and general emergency procedures in the event of a chemical incident in which there is potential for a significant release of hazardous materials.

1. Evacuation

Persons in the vicinity of a spill should immediately evacuate the area (except for employees with training in spill response in circumstances described below). If the spill is of "medium" or "large" size, or if the spill seems hazardous, immediately notify emergency response personnel.

2. Spill Control Techniques

Once a spill has occurred, the employee needs to decide whether the spill is small enough to handle without outside assistance. Only employees with training in spill response should attempt to contain or clean up a spill.

NOTE: If you are cleaning up a spill yourself, make sure you are aware of the hazards associated with the materials spilled, have adequate ventilation, and proper personal protective equipment. Handle all residual chemical and cleanup materials as if it is hazardous waste until it can be properly tested.

3. Spill Response and Cleanup

Chemical spills are often divided into three categories: Small, Medium, and Large. Response and cleanup procedures may vary depending on the size of the spill.

- **Small Spills:** Any spill where the major dimension is less than 18 inches in diameter. Small spills are generally handled by internal personnel and usually do not require an emergency response by police or fire department HAZMAT teams.

- Quickly control the spill by stopping or securing the spill source. This could be as simple as up righting a container and using floor-dry or absorbent pads to soak up spilled material. Wear gloves and protective clothing, if necessary.
- Put spilled material and absorbents in secure containers.
- Consult with the Terminal **Responsible Person** and the material safety data sheet (MSDS) for spill and waste disposal procedures.
- In some instances, the area of the spill should **not** be washed with water. Use dry cleanup methods and **never** wash spills down the drain, onto a storm drain, or onto the driveway or parking lot.
- Both the spilled material and the absorbent may be considered hazardous waste and must be handled and disposed of in compliance with state and federal environmental regulations.

- **Medium Spills:** Spills where the major dimension exceeds 18 inches, but is less than 6 feet. Outside emergency response personnel (response contractor, police, and fire department HAZMAT teams) **may** be called for medium spills. Common sense, however, will dictate when it is necessary to call them.
  - Immediately try to help contain the spill at its source by simple measures only. This means quickly up righting a container, plugging a line, or putting a lid on a container, if possible. Do not use absorbents unless they are immediately available. Once you have made a quick attempt to contain the spill, or once you have quickly determined you cannot take any brief containment measures, leave the area and alert Emergency Responders at 911. Closing doors behind you while leaving helps contain fumes from spills. Give Emergency Responders accurate information as to the location, chemical, and estimated amount of the spill.
  - Evaluate the area outside the spill. Engines and electrical equipment near the spill area must be turned off. This eliminates various sources of ignition in the area. Advise Emergency Responders on how to turn off engines or electrical sources. Do not go back into the spill area once you have left.
  - After Emergency Responders have contained the spill, be prepared to assist them with any other information that may be necessary, such as MSDSs and questions about the facility. Emergency Responders or trained personnel with proper personal protective equipment will then clean up the spill residue. Do not re-enter the area until the responder in charge gives the all clear. Be prepared to assist these persons from outside the spill area with MSDSs, absorbents, and containers.
  - Both the spilled material and the absorbent may be considered hazardous waste and must be handled and disposed of in compliance with state and federal environmental regulations.
  - Reports must be filed with proper authorities. It is the responsibility of the spiller to inform both his/her supervisor and the Emergency Responders as to what caused the spill.

- **Large Spills:** Any spill involving flammable liquids, such as gasoline, where the major dimension exceeds 6 feet in diameter and any "running" spill where the source of the spill has not been contained or flow has not been stopped. The response for large spills is similar to the procedures for medium spills, except that the exposure danger is greater. **Note: Larger spills involving combustible liquids, such as diesel fuel or hydraulic fluid that are most likely to occur at the Terminal, would typically be treated as a medium spill if safe to do so and common sense would dictate.**

  Larger Spills Involving Flammable Liquids or Hazardous Materials:

  - Leave the area and notify Emergency Responders (911). Give the operator the spill location, chemical spilled, and approximate amount.
  - From a safe area, attempt to get MSDS information for the spilled chemical for the Emergency Responders to use. Also, be prepared to advise Emergency Responders as to any ignition sources, engines, electrical power, or other spark producing systems that may need to be shut off. Advise Emergency Responders of any absorbents, containers, or spill control equipment that may be available. This may need to be done from a remote area, because an evacuation that would place the individual far from the scene may be needed. Use radio or phone to assist from a distance, if necessary.
  - Only emergency response personnel, in accordance with their own established procedures, should handle spills greater than 6 feet in any dimension for **hazardous materials or flammable liquids.** Remember, once the Emergency Responders or HAZMAT team is on the job cleaning up spills or putting out fires, the area is under their control, and no one may re-enter the area until the responder in charge gives the all clear.
  - Both the spilled material and the absorbent may be considered hazardous waste and must be handled and disposed of in compliance with state and federal environmental regulations.
  - Provide information for reports to supervisors and responders, just as in medium spills.

Reporting Spills

All chemical spills, regardless of size, should be reported as soon as possible to the facility responsible managers, identified below. The responsible managers will determine whether the spill has the potential to affect the environment outside of the facility. Examples of spills that could affect the outside environment include spills that are accompanied by fire or explosion and spills that could reach nearby water bodies. Depending on the type and quantity of spill, the facility responsible managers will make the determination if the spill must be reported to one or all local, state, or federal agencies listed below:

Appendix D

Port of Grays Harbor – Graving Dock Site, Aberdeen, Washington
Emergency Spill Cleanup Plan

Primary Emergency Contact Numbers:

Emergency Contact: Leonard Barnes **Title:** Deputy Executive Director	**Work #:** (360) 533-9515 **24-Hour #:** (360) 580-0130
Emergency Contact: Seth Taylor **Title:** Marine Terminals Manager	**Work #:** (360) 533-9516 **24-Hour #:** (253) 581-8676
Secondary Contact: Mike Johnson **Title: Contract Administrator and Facility Security Officer**	**Work #:** (360) 533-9518 **24-Hour #:** (360) 580-0134
Emergency Response Contractor: **Cowlitz Clean Sweep** **Primary Contact**: Joe German **Secondary Contact:** John Stevens	**Emergency #:** (360) 532-4309 (24-hour) (888) 423-6316 (24-hour alternate) **Cell:** (360) 581-1135 **Cell:** (360) 532-4318

Emergency Contact Numbers (as necessary):

- U.S. Coast Guard National Response Center: (800) 424-8802
- Washington Emergency Management Division: (800) 258-5990
- Washington State Department of Ecology Southwest Region
  - General Information: (360) 407-6300
  - Jim Sachet (Spills): (360) 407-6328
- Regional Environmental Protection Agency (EPA) Office: (206) 553-1200
- Port of Grays Harbor County Emergency Management: (360) 249-3911
- Grays Harbor Community Hospital: (360) 532-8330
- Poison Control Center: (800) 222-1222
- OSHA area office: (800) 321-OSHA (6742)