



600 NE Grand Ave.  
Portland, OR 97232-2736

## Council work session agenda

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Tuesday, June 28, 2022

10:30 AM

<https://zoom.us/j/615079992> (Webinar ID:  
615079992) or 929-205-6099 (toll free)

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### Call to Order and Roll Call

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### Work Session Topics:

10:30 Willamette Cove Contingency Remedy [22-5737](#)

Presenter(s): Paul Slyman (he/him), Metro  
Marissa Madrigal (she/her), Metro  
Invited Testimony  
Jon Blasher

Attachments: [Staff Report](#)  
[Attachment 1](#)

11:30 Update on Regional Flexible Funds Allocation and Parks [22-5738](#)  
Bond Coordination

Presenter(s): Dan Kaempff (he/him) Metro  
Robert Spurlock (he/him) Metro

Attachments: [Staff Memo](#)

**12:00 Chief Operating Officer Communication**

**12:10 Councilor Communication**

**12:15 Adjourn**

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ការគោរពសិទ្ធិពលរដ្ឋរបស់ ១ សំរាប់ព័ត៌មានអំពីកម្មវិធីសិទ្ធិពលរដ្ឋរបស់ Metro ឬដើម្បីទទួលការបណ្តឹងរើសអើងសូមចូលទស្សនាគេហទំព័រ [www.oregonmetro.gov/civilrights](http://www.oregonmetro.gov/civilrights)។ បើលោកអ្នកត្រូវការអ្នកបកប្រែភាសានៅពេលអង្គប្រជុំសាធារណៈ សូមទូរស័ព្ទមកលេខ 503-797-1700 (ម៉ោង 8 ត្រីកសរម៉ោង 5 ព្រឹក ថ្ងៃធ្វើការ) ប្រាំពីរថ្ងៃ ថ្ងៃធ្វើការ មុនថ្ងៃប្រជុំដើម្បីអាចឲ្យគេសម្រួលតាមសំណើរបស់លោកអ្នក ។

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**Willamette Cove Contingency Remedy**

*Work Session Topics*

Metro Council Work Session  
Tuesday, June 28<sup>th</sup>, 2022

WILLAMETTE COVE RECORD OF DECISION CONTINGENCY REMEDY—STAFF  
DISCUSSION WITH COUNCIL

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Date: 6/13/2022  
Department: COO, Parks & Nature  
Meeting Date: 6/28/2022

Prepared by: Brian Moore/Paul Slyman,  
Presenter(s) (if applicable): Marissa  
Madrigal, Jon Blasher, Paul Slyman +  
Invited Testimony  
Length: 45 minutes

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**ISSUE STATEMENT**

Metro owns the 26-acre Willamette Cove and in partnership with the Port of Portland participates in a voluntary clean up agreement with Oregon Department of Environmental Quality for environmental remediation of the site’s uplands. After receiving information from a Remedial Investigation and a Feasibility Study, among other technical work conducted by Metro and the Port of Portland, DEQ issued a Record of Decision (ROD) in March 2021 identifying the selected remedy. In developing their Record of Decision, DEQ conducted a 6-month public comment period and accepted over 180 comments. DEQ directed Metro and the Port to remove the most contaminated soils from the site and maintain moderately contaminated soils in an onsite consolidation area. In response to significant public comment, DEQ provided Metro with a “contingency remedy” option to “eliminate or greatly reduce the volume of soil to be consolidated onsite and instead transport the soil offsite for disposal at a regulated waste facility.”

The ROD’s selected remedy and the contingency remedy both meet the clean-up requirements of state law, and implementation of either remedy will allow for full access of the upland site, on and off trails, in accordance with Metro’s intended future use. This includes any engineered cap areas, which will be designed to withstand normal human activity as well as storms and seismic events. In making their selection, DEQ determined that, “The selected remedial action for contaminated soil and sediment at the Willamette Cove Upland Site is protective, and reflects the best balance of tradeoffs considering effectiveness, long-term reliability, implementability, implementation risks, and reasonableness of cost. Long-term monitoring and maintenance will be required to ensure the remedy remains protective over time.”

Staff brought this topic to Council for consideration at their April 27, 2021 work session, and again at their December 2, 2021 work session. Council previously discussed values associated with the decision about permanent placement of the soils. While the financials and volumes associated with the remediation will change over time, the values established by Council at their December 2, 2021 work session have guided staff’s work on this project:

- Community impacts
- Environmental impacts
- Financial costs

- Timeliness

Given the evolution of goals for the site over the last 26 years, staff is looking to Council to establish clear direction for the permanent placement of the moderately contaminated soils.

**ACTION REQUESTED**

On April 27, 2021, Metro Council directed staff to seek an independent third-party analysis of the options available under the ROD contingency remedy. Staff hired a consultant, Maul Foster & Alongi (MFA), with expertise in evaluating management of contaminated sites, to collaborate with staff, Tribes, and community partners to evaluate the process. The report is complete and the results of the analysis are included herein. Staff requests that Council discuss questions and consider the implications of the report prior to making a decision about the remedy at a business meeting scheduled for July 28, 2022.

**Timeline:**

Date	Milestone
November 2000	Voluntary Cleanup Program Agreement with DEQ
March 2019	Feasibility Study Completed
March 2020	DEQ Staff Report and public comment period
March 2021	DEQ Record of Decision (ROD)
Dec 2021	Council directed third-party assessment of Contingency Remedy
July 2022	Contingency Remedy analysis submitted & Council decision sought
Fall 2022	Basis of Design Report for upland cleanup (set for first submittal this fall)
2023	Remedial Design commences
2024	Remedial Design final due to DEQ and Residual Risk Assessment Begins
Future	Site remediation begins when it can integrate with the comparable work for in-water, as upland remediation is inextricably linked with in-water remediation.

**IDENTIFIED POLICY OUTCOMES**

Previous input from Council is centered on the values discussion in December of 2022. This decision will reflect Council’s desired implementation of those values.

**POLICY QUESTION(S)**

Where would Council prefer to permanently place the moderately contaminated soil that will be excavated as part of the voluntary clean up action for the upland portion of the Willamette Cove site?

**POLICY OPTIONS FOR COUNCIL TO CONSIDER**

Staff recommends Council consider one of three scenarios:

- Selected Remedy—Onsite consolidation of moderately contaminated soils; OR
- Contingency Remedy—

- Offsite disposal of moderately contaminated soils by conveyance contemplated in MFA report
- Offsite disposal of moderately contaminated soils by conveyance contemplated in MFA report and possibly augmented by conveyance other than trucking, if feasible

All scenarios listed above require excavation and offsite disposal of all soil exceeding hot spot levels for human health and all soils exceeding non-dioxin/furan (e.g. metals including mercury) hot spot levels for ecological health. This is estimated to be approximately 4000 cubic yards of soil. Excavation and management of the moderately contaminated soil is in addition to that amount.

### **STAFF RECOMMENDATIONS**

Staff recommends Council discuss the information presented and identify any questions they would like to have answered prior to making a decision at their July 28, 2022 business meeting.

### **STRATEGIC CONTEXT & FRAMING COUNCIL DISCUSSION**

This report strives to address the framework of values Council established previously.

The values of community and environmental impacts are inextricably linked. With a broad sense of community in mind, staff worked with the Portland Harbor Community Coalition (PHCC) who shared the process with other local community organizations. Staff also sought and received input from the Five Tribes (Confederated Tribes of Grand Ronde, Confederated Tribes of Siletz Indians, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon and the Nez Perce Tribe), and the Yakama Nation (CTBYN).

***Input and comments from the Yakama Nation, Five Tribes and PHCC are included in the attached MFA report and described here.***

Community members have continually made their perspectives known through input to this process as well as comments to Metro Council during public testimony and other opportunities. Community members are already burdened by contaminated sites throughout Portland Harbor and would like more information about the historical contamination left behind by industrialization, restrictions that would be placed on Willamette Cove from a consolidation area, the risks associated with episodic events such as a Cascadia Subduction Zone earthquake, the residual risk of contaminants left at the site, and more. Some community members feel the short term impacts of transportation and greenhouse gas emissions are generally worth the tradeoff of reducing the absolute quantity of contaminants from the site.

Staff recognized the importance of consulting and engaging with Tribes as the Willamette River is of significant historic, cultural and ongoing importance to multiple Tribes in the region who have maintained strong ties to and relied upon the river, its resources and

lands for traditional and cultural practices, sustenance and subsistence, and trade and travel since time immemorial. On October 6, 2021, Metro invited consultation with the six Tribes involved in the Portland Harbor Superfund Site to inform Metro's near and long term activities for the Willamette Cove uplands, including evaluation of the contingency remedy option as well as future development of priorities for habitat restoration and passive recreation.

Shortly after Metro's invitation to consult, staff confirmed the Five Tribes (Confederated Tribes of Grand Ronde, Confederated Tribes of Siletz Indians, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon and the Nez Perce Tribe) would engage with Metro through their shared consultant Industrial Economics Incorporated, IEc. Metro also confirmed the Confederated Tribes and Bands of the Yakama Nation (CTBYN) would engage through the Superfund Section of the Yakama Nation Fisheries Program.

Initial meetings between Metro and the Five Tribes and CTBYN occurred in November and December, 2021 respectively. Since then, additional staff-to-staff meetings and communications have informed MFA's analysis. Additional discussion and meetings are anticipated as Metro works to understand tribal priorities and interests that should inform site conservation planning.

Input from the Five Tribes and CTBYN highlighted the importance of the Willamette River, past, present and future, especially regarding natural resources restoration and conservation for First Foods such as salmon. Tribal input and priorities shared with Metro have stated that treaty protected resources should be able to thrive at the site and highlighted the importance of exercising treaty protected rights; spanned the contingency remedy analysis including ground water, flooding and seismic risk and management considerations for a potential onsite containment cell and its design; discussed the impact that environmental contamination and pollution has had to Tribes and treaty protected resources; expressed desires for smart and balanced passive recreation at the site which supports habitat restoration and conservation; and also shared the importance of managing the site in a holistic manner to achieve integrated restoration and conservation of the river, critical habitat and natural and cultural resources.

Through IEc, the Five Tribes shared a desire to see the work done properly and for Metro to take into account habitat, aesthetics, and intended use thoughtfully and at the outset of the decision making process. More specifically IEc shared priorities, concerns and requests to Metro including better definition around vague terms used in the ROD and the report such as "full cleanup" or "full removal" or "consolidation cell, consolidation unit or containment cell" and recommended a refinement of terms. They requested clarification that removal of the moderately contaminated soil would provide additional ecological benefit to the site and requested citations where possible. They also recommended that a geotechnical evaluation be completed prior to making a decision about the feasibility and siting of an onsite consolidation area, and a more complete accounting of greenhouse gas emissions, among other things.

The Five Tribes also expressed an interest and desire for Metro to uphold its conservation mission and vision at the site so that opportunities for the Tribes to access the land can be explored with Metro in the future

Yakama Nation representatives introduced Metro staff to the over-arching sentiment and direction that Tribal Elders provided to the Yakama Nation Fisheries Department's work - *to make the way it was and the way it was intended*. This sentiment has continued throughout staff-to-staff engagement with CTBYN, including in questions about Metro's approach to habitat restoration as well as in specifics about site intended uses. The Tribe also highlighted our respective roles as governments, who for the benefit of our communities and neighbors, have the responsibility to do important work for future generations. Yakama Nation priorities, concerns and requests shared with Metro for the contingency remedy analysis also included:

- examining the short and long term costs for mitigation risks, long-term monitoring and maintenance of both alternatives;
- evaluating the long-term climate change impacts and resiliency of the site and river, and flooding and seismic risks and how these might affect an onsite containment cell;
- further assessing the trade-offs to the community in terms of a long-term asset and short-term disturbance; and
- shared the need for an integrated plan that allows habitat and community benefits to flow seamlessly from the upland to the riparian zone to the subtidal in-water zone, among others.

The Tribe also expressed that leaving material onsite is not as protective as removing it, that contaminated materials could still be encountered or released over time if left in place on the site, and that the comprehensive removal option should be very seriously considered.

The ecological differences between the two options depends heavily on perspective and values. For the purposes of this study, there was not sufficient information available to determine a functional difference between the options. The intended use of the site includes a trail and for habitat restoration and sufficient infrastructure to mitigate human impacts to the restored habitat and consider opportunities for passive recreation. There is currently no site design or concept which addresses those items. Therefore identifying locations to retain soil on-site that would not interfere with habitat restoration was infeasible. Retaining all soil on site from a habitat creation perspective is feasible but could modify the types of habitat created and their precise location. Conceptual plans for placement are necessary for an in-depth analysis of these ecological trade-offs.

One area of analysis that provided a distinct difference between the options is the financial cost analysis. Based on planning assumptions, there is a quantifiable evaluation of retaining the soil on-site as opposed to disposing of the soil off-site. The analysis resulted in a bottom line cost comparison as follows:



	Contingency Remedy	Selected Remedy
ROD Estimated Construction Cost (includes top soil cover)	\$11.8 million	\$8.1 million
2022 MFA Adjusted Estimated Construction Cost	\$17.5 million	\$9.5 million

It is important to note that these are planning level estimates only, and in every case will require additional data and estimation from upland sampling and a completed remedial design. Additional detail on these estimates is included in the MFA report. It is also important to note that the 2022 adjusted costs do not include estimates for alternative transportation modes such as barge or train, which are given preference in the DEQ ROD.

From a timeliness perspective, the presumption is that both options are functionally equivalent. Either option would be integrated into the Basis of Design Report and then into the Remedial Design. Implementation of the Remedial Design will commence in conjunction with the same work for the Willamette Cove in-water area.

The MFA report provides more detailed analysis than presented here and is attached for review and consideration.

- Explicit list of stakeholder groups and individuals who have been involved in data and policy development.
  - Six Tribes as described above
  - Oregon Department of Environmental Quality
  - Port of Portland
  - City of Portland
  - Residents in the neighborhood
  - Cathedral Park Neighborhood Association
  - Portland Harbor Community Coalition
  - Portland Harbor Community Advisory Group
- Legal Antecedents
  - ORS 465.314 and OAR 340-122-0090
  - Metro Council Resolution 20-5149
  - Council Budget Note adopted June 2021

**BACKGROUND and REMEDY DESCRIPTION**

The selected remedy or the contingency remedy both require excavation and offsite disposal of all soil exceeding hot spot levels for human health and all soils exceeding non-dioxin/furan (e.g. metals including mercury) hot spot levels for ecological health. This is estimated to be approximately 4000 cubic yards of soil.

The selected remedy allows for consolidation and placement in an engineered area (“consolidation area”) “moderately contaminated” soil which is defined as a)soil posing an

excess risk to humans but below hot spot levels; and b) soil with higher risk levels relative to plants and animals, including hot spots. Capping of the moderately contaminated consolidated soil will consist of a demarcation layer or woven fabric and a minimum of 3 feet of clean cover material. This engineered consolidation area must be engineered to meet long-term requirements for stability and tailored to accommodate Metro plans for a nature park.

The decision regarding the long-term resting place of the moderately contaminated soils holds significance for the upland remedial design. As described in this report and the accompanying MFA report, this decision also has great significance to the Tribes and community involved in the project. While all parties have different perspectives and thresholds for what is practical, most parties that have expressed a preference for the soil to be removed from the site.

Typically on this kind of project, due to the significant cost to return the site to a pre-colonial condition, the Parks and Nature department would identify an acceptable alternative that moves toward progress and minimizes costs and financial impacts to other projects or programs. In the case of the Willamette Cove, the alternative consisted of supporting implementation of the north Willamette greenway Trail, and returning the remaining portions of the site to a natural condition consistent with present topography and taking into account future climactic shifts. More recently, this expectation has shifted toward including sufficient improvements to improve the sustainability and management of natural habitat in an otherwise highly urbanized area.

## **SITE HISTORY**

Metro purchased the 26-acre Willamette Cove property in 1996 pursuant to the Open Spaces, Parks, and Streams Bond Measure 26-26 and has held the property for purposes of creating a green space and extension of the multi-use North Portland Greenway trail. Habitat restoration plans include a natural area to support aquatic, riparian, bird and native vegetation species. The trail is shown on the City of Portland's comprehensive plan and is part of the regional trail plan.

In November 2000, Metro and the Port of Portland entered into a Voluntary Agreement with Oregon Department of Environmental Quality to perform a remedial investigation/feasibility study (RI/FS) and implement any needed source control measure to prevent releases to Portland Harbor.

In December 2000, the US Environmental Protection Agency (USEPA) identified the Portland Harbor area of the lower Willamette River as a Superfund Site and placed it on the National Priorities List, primarily due to concerns of contamination in the river sediments and the potential risks to human health and the environment from consuming the fish.

Metro and the Port of Portland have made significant investments in environmental studies and testing to ensure the site is eventually cleaned up to support our region's desires for healthy, sustainable natural areas. In addition to the many studies and samples

taken at the site, Metro and the Port of Portland have ensured interim actions were taken to stabilize and secure the site.

In 2004, a petroleum sheen was observed on the water, in the innermost portion of the cove adjacent to the East Parcel. Later that year, approximately 20 tons of soil were excavated and placed offsite in a permitted landfill.

In 2008, approximately 987 tons of soil containing lead and other metals were removed from the site, including 356 tons of soil that was stabilized and 631 tons of soil that did not require stabilization, and placed offsite in a permitted landfill.

In 2015/16, approximately 5000 tons of soil containing dioxins/furans and other contaminants were excavated and disposed of offsite at a permitted landfill.

In February 2020, the Portland Harbor Community Coalition (PHCC), anticipating the DEQ Staff Report about to be released signaling a preference for remedy selection, sent a letter to Metro Council with requests regarding Willamette Cove.

Later in 2020, Council sent a letter to DEQ Director Richard Whitman to clarify Metro's interests in the site, as well as specify for DEQ Metro's understanding of the remedies that DEQ is evaluating for the upland soil. That letter, signed by the entire Metro Council, stated "...that the community expects us to remediate the site such that the safety of people and the environment are protected now and into the future, mature trees are protected, and a broad range of passive recreational activities, including beach access, walking, bicycling, wildlife viewing, picnicking, child play and education, swimming, fishing, non-motorized boating, and cultural interpretation may eventually be considered at the site."

A Council business meeting was conducted in December 10, 2020, which attracted nearly 30 written comments in advance. Nineteen people provided verbal testimony during the meeting. Council also received a letter from the Yakama Nation regarding their concerns of a proposed onsite containment cell at Willamette Cove. The testimony at both the July work session and December council meeting expressed a desire for a "complete cleanup" that did not involve consolidation cells or extensive capping of environmental contamination.

Council adopted Resolution 20-5149 as amended, and directed:

1. Metro Council authorizes and directs Metro Chief Operating Officer to include Willamette Cove as a Metro parks and nature destination listed in Exhibit E to Resolution No. 19-4988 eligible for 2019 Bond Measure funds; and
2. Metro Council affirms its support of and commitment to explore trail development, habitat restoration, and a broad range of passive recreational activities at Willamette Cove consistent with its use as a natural area, for example but not limited to, walking, hiking, bicycling, beach access, wildlife viewing, picnicking, and cultural interpretation; and

3. Metro Council shall convene a work session within 30 days of the issuance of the DEQ record of decision for Willamette Cove to discuss additional and voluntary actions that Metro could take at the site to further improve its environmental condition.
4. Metro staff shall prepare a plan for meaningful public engagement to identify community priorities for future passive recreational opportunities and trail development consistent with protection and restoration of natural resources at Willamette Cove, and submit this plan to Metro Council within four months of the date DEQ issues its record of decision on remedial action.

DEQ selected the preferred remedy from among 9 alternatives in March 2021. The criteria DEQ uses to evaluate the remedial action alternatives are defined in OAR 340-122-090, and establish a two-step approach to evaluate and select a remedial action. The first step evaluates whether a remedial action is *protective*; if not the alternative is unacceptable and the second step evaluation is not required. The remedial alternatives considered protective are evaluated and compared with each other using five balancing factors. The five balancing factors are 1) effectiveness in achieving protection, 2) long-term reliability, 3) implementability, 4) implementation risk, and 5) reasonableness of cost.

DEQ's analysis of these factors is included in the Record of Decision.

Metro and the Port of Portland under the direction of DEQ are about to commence Remedial Design sampling, which will allow for greater site certainty as we better understand the full extent of contamination. Following that work, the partners will submit a Basis of Design Report to DEQ and then begin the Remedial Design process this winter. The 95% Remedial Design is due to DEQ in spring 2024, to coincide with a similar document for the in-water portion of the site. Staff is happy to continue reporting to Council on the progress at the site.

## **ATTACHMENTS**

MFA Report including appendices

[For work session:]

- Is legislation required for Council action?  Yes  No
- If yes, is draft legislation attached?  Yes  No
- What other materials are you presenting today? We will be inviting testimony from involved Tribes and Portland Harbor Community Coalition

# CONTINGENCY REMEDY ANALYSIS FINAL REPORT

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WILLAMETTE COVE



*Prepared for*  
**METRO**  
*June 15, 2022*  
*Project No. M0075.12.001*

*Prepared by*  
*Maul Foster & Alongi, Inc.*  
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# CONTINGENCY REMEDY ANALYSIS FINAL REPORT

WILLAMETTE COVE

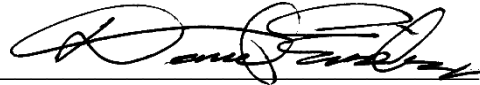
*The material and data in this report were prepared  
under the supervision and direction of the undersigned.*

MAUL FOSTER & ALONGI, INC.



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## ACRONYMS AND ABBREVIATIONS

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DDT	dichloro-diphenyl-trichloroethane
Act	Oregon Donation Land Claim Act of 1850
DEQ	Department of Environmental Quality (Oregon)
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
MFA	Maul Foster & Alongi, Inc.
O&M	operation and maintenance
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PHSS	Portland Harbor Superfund Site
Port	Port of Portland
River	Willamette River
VOC	volatile organic compound
Yakama Nation	The Confederated Tribes and Bands of the Yakama Nation



# 1 INTRODUCTION

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Willamette Cove is a property on the east bank of the Willamette River near the confluence with the Columbia River. In 1996, Metro acquired the Willamette Cove property for future greenspace and trail use. In 2000, Metro, the Port of Portland (Port), and the Oregon Department of Environmental Quality (DEQ) entered into a Voluntary Cleanup Agreement to remediate contamination from past industrial uses on the upland site. Community stakeholders and Tribal governments have also advocated for cleanup of Willamette Cove. In March 2021, DEQ issued its Record of Decision: Selected Remedial Action for Willamette Cove Upland Site, Portland, Oregon (ROD) for the Willamette Cove Upland Site (Site). The ROD requires that highly contaminated soils be removed and disposed of off-site. DEQ recommended that moderately contaminated soils be placed in perpetuity in an engineered on-site consolidation area. The ROD includes a contingency remedy that allows Metro to remove and dispose of all, some, or none of the moderately contaminated soils off-site.

This report first reviews context and history, the ROD, selected remedial action and contingency remedy options, proposed future use, Tribal government responses, and public comments. The report then presents an analysis of risks, costs, and benefits associated with the selected remedial action and contingency remedy options, including construction impacts and costs; human health and ecological trade-offs; and operation, maintenance, and risk over seven generations considering climate change, resiliency factors, and seismic risks.

# 2 BACKGROUND

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## 2.1 Portland Harbor Superfund Site Context

The Willamette River (River) drains a basin of approximately 11,400 square miles, generally flowing northward through Oregon 309 miles from its headwaters in the Cascade Range to its confluence with the Columbia River (NOAA 2017). The lower portion of the Willamette River flows through Portland and the most urbanized part of the watershed. The lower Willamette River includes the Portland Harbor Superfund Site (PHSS), which was declared by the U.S. Environmental Protection Agency (EPA) in December 2000 due to elevated concentrations of contaminants such as polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), dichlorodiphenyltrichloroethane (DDT) and other pesticides, and polychlorinated dibenzo-p-dioxins and furans (EPA 2017, NOAA 2017). The PHSS includes an in-water and upland portion of the lower Willamette River spanning approximately ten miles from the Broadway Bridge to Sauvie Island (EPA 2020). DEQ is the designated lead agency for the upland portion of the PHSS and EPA is the designated lead agency for the in-water portion of the PHSS (EPA et al. 2001). Cleanup of the Willamette Cove Upland Site is overseen by DEQ. Cleanup of the Willamette Cove riverbank, beach, and in-water contamination are conducted under the PHSS in-water actions overseen by EPA (DEQ 2021). The EPA PHSS

Community Involvement Plan notes the important role the Willamette River plays in the community “by providing and supporting ecosystem services such as air quality, energy, food, physical and mental well-being, plants, transportation, water, and wildlife” (EPA 2020).

Culturally and spiritually significant natural resources of the lower Willamette River are vital to Native peoples who have maintained strong ties to the River since time immemorial, including through fishing, hunting, gathering plants and raw materials, exchanging goods, and practicing ceremonial life (CTUIR n.d., CTWSRO n.d., Grand Ronde n.d., Nez Perce Tribe n.d., Siletz Tribe n.d., Yakama Nation Fisheries n.d., Yakama Tribal Council 2016). The lower Willamette River has, and continues to hold, great historical, natural, and cultural resource significance to Tribes (EPA 2020). Among the resources most frequently utilized by Tribes in the area are fish (EPA 2020). Culturally significant species include salmonids, lamprey, smelt, and sturgeon (EPA 2020). Tribal members consume fish and native freshwater mussels at rates that are higher than the consumption rates of non-tribal adults and are disproportionately impacted by fish contamination that restricts the safe consumption of fish and shellfish (EPA 2020). Important First Foods associated with the Willamette River also include native plants such as wapato and camas (CTUIR n.d., CTWSRO n.d., Grand Ronde n.d., Siletz Tribe n.d.).

The Willamette River serves as habitat and a migratory corridor for numerous wildlife species, such as Chinook salmon, coho salmon, steelhead, Pacific lamprey, white sturgeon, bald eagle; osprey; double-crested cormorant, great blue heron, belted kingfisher, mergansers, cliff swallow, spotted sandpiper, mink, river otter, northern red-legged frog, and Pacific tree frog (EPA 2020). The National Marine Fisheries Service has designated the lower Willamette River as critical habitat for Lower Columbia River Chinook salmon, Lower Columbia steelhead, Upper Willamette River Chinook salmon, and Upper Willamette River steelhead. The lower Willamette River is proposed critical habitat for Lower Columbia River Coho salmon (EPA 2020). Aquatic plants provide refuge, nesting, and breeding habitat for wildlife and food for herbivores (EPA 2020). EPA notes, however, that habitat constraints such as muddy water, overwater obstructions blocking sunlight, and extensive bank armoring limit the development of aquatic plant communities in the PHSS (EPA 2020).

## 2.2 Tribal and Neighborhood Context and History

The lower Willamette River area is located within the ancestral homelands of many Native peoples, including Cayuse, Chinook, Clackamas, Kalapuya, Klickitat, Molala, Nez Perce, Umatilla, Umpqua, Walla Walla, Warm Springs, Wasco, Yakama, and numerous other Tribes and Bands (EPA n.d.). Willamette Cove and the surrounding St. Johns neighborhood are located on the east bank of the Willamette River near its confluence with the Columbia River. The Site is bordered by the BNSF Railway to the east, Union Pacific Railroad to the north, and North Richmond Avenue to the northwest. Road access to the Site is provided by North Edgewater Street from North Willamette Boulevard or by North Richmond Avenue. Willamette Cove is adjacent to the Cathedral Park residential neighborhood, which is situated on the terrace above the vegetated slope to the north. The St. Johns neighborhood is north of Cathedral Park and the University Park neighborhood is east of the Union Pacific Railroad tracks.

After European contact, Native people of what is now known as the Portland area were faced with a series of territorial and then federal policies designed to eliminate and later assimilate Native people (Portland Indian Leaders Roundtable, n.d.). In the late 18th and early 19th centuries, Indigenous populations in Oregon experienced disease, genocide, military conflicts, and forced relocation (Curry-Stevens et al. 2011). The federal Oregon Donation Land Claim Act of 1850 (Act) enshrined earlier land claims by white settlers and granted up to 640 acres of land in the Oregon Territory to white adult males and spouses (Coleman 2017, 2021; Notarianni 2020). The Act served as a racial exclusion law that promoted settler colonialism (Coleman 2021). The Act was introduced by Territorial Delegate Samuel Thurston, who also successfully lobbied Congress to first authorize appointment of a commission to negotiate treaties with Native peoples to extinguish their claims to lands west of the Cascade Mountains “and leave the whole of the most desirable portion open to white settlers” (Coleman 2017, 2021; Robbins 2022). By 1851, white settlers had claimed the entirety of land in the Willamette Valley (Notarianni 2020). Farming by white settlers destroyed many of Native peoples’ food sources and hunting by white settlers wiped out much of the wild game in the Willamette Valley (Notarianni 2020). From 1850 to 1855, upwards of 2.5 million acres of land were granted to white settlers and the European American population tripled, exceeding the population of Native peoples in the region (Coleman 2017, 2021; Notarianni 2020). In the 1850s Tribes began to relocate to reservations (Notarianni 2020). The removal of most Native peoples to reservations and the exclusion of all but white landownership embedded the vision of a white homeland in Oregon in public policy (Millner 2022). Over generations, the profits, power, and political influence from near exclusive white landownership led to a racially stratified society with profound marginalization of nonwhite populations (Millner 2022).

Early Oregon officials also enacted exclusionary and racist policies. The Provisional Government of Oregon, Oregon Territorial Government, and Constitution of Oregon enacted a series of Black exclusion laws that, though generally not enforced, established Oregon as a hostile destination for Blacks and deterred Black settlement (Millner 2022, Nokes 2022). In the 1860s the Oregon Legislature passed laws that would endure until 1951 that prohibited whites from marrying anyone who was Black, Chinese, native Hawai’ian, or Native American (Oregon History Project 2022). These early examples of race-based public policy that benefitted only the white population are critical to understanding later patterns of political, economic, and social inequality in Oregon (Millner, 2022).

Located on the east bank of the Willamette River near the confluence with the Columbia River, St. Johns is named for James John, who moved to the area from Linnton in 1844 and operated a river ferry (PdxHistory.com 2017, St. Johns Neighborhood Association 2021). Early white settlement in the St. Johns area benefited from relatively well drained terraces that sloped gradually up from the River (Abbott 2001). The plat for St. Johns was filed in 1865 and the first post office opened in 1873 (PdxHistory.com 2017). The town was incorporated in 1902, the same year it began to transform due to an extension of the Oregon Railway and Navigation Company from Portland to St. Johns (PdxHistory.com 2017, St. Johns Neighborhood Association 2021). By 1904, St. Johns had become home to mills, lumber companies, a shipbuilding company, and a dry dock (PdxHistory.com 2017). In 1915, St. Johns was annexed into the City of Portland (St. Johns Neighborhood Association 2021).

Continued industrial development attracted workers to Portland and St. Johns. In the early 20th century in Portland, Native Americans pursued work in industries that supported World War I yet

were prohibited from living within city limits until the 1920s (Curry-Stevens et al. 2011). During World War II, Native Americans joined the influx of workers to Portland attracted by shipbuilding industry jobs (Curry-Stevens et al. 2011, Welala Long 2021). In the post-World War II era, the federal government terminated more than 60 Tribes in Oregon, which meant revoking tribal sovereignty and federal trust responsibilities to Native peoples and led many Native families to move to Portland seeking employment opportunities and a new home (Curry-Stevens et al. 2011). Federal relocation policies also continued to contribute to the growth of Portland's Native population (Curry-Stevens et al. 2011). Today Portland has one of the largest Native populations in the United States (EPA n.d.).

In 1941, Henry Kaiser opened the Oregon Shipbuilding Company in St. Johns, soon followed by shipbuilding yards at Swan Island and in Vancouver. From 1940 to 1944, the Portland metropolitan population grew by approximately one-third as World War II employment in Portland peaked at 140,000 defense workers (Abbott 2001). During the same four years, the Black population of Portland grew from approximately 2,000 to 22,000 as shipyard workers were recruited from other states. At the end of the war, the Black population of Portland stabilized at about 12,000 residents as shipyard jobs disappeared (Millner 2022).

The surge in defense workers created demand for housing. Discriminatory housing practices, including redlining and restrictive covenants, also prevented people of color from purchasing property in many parts of the city (Geiling 2015, Millner 2022). Defense worker housing projects were built to accommodate the surge in housing demand, including many on the North Portland peninsula such as Columbia Villa, St. Johns Woods, Parkside Homes, Hudson Homes, and University Homes (LeBlanc 2009). The Vanport temporary housing project located between Portland and the Columbia River was Oregon's second largest city and housed more than 40,000 people at its peak, including a large population of Black, Indigenous, and People of Color (Abbott 2022). Many of the Native Elders in the Portland area today lived in Vanport when they were young (Curry-Stevens et al. 2011). In 1948, the Columbia River flooded Vanport, displacing its 18,500 residents (Abbott 2022). The displacement was compounded by the racism that limited housing opportunities available for relocating residents (Abbott 2022, Geiling 2015; Millner 2022).

The PHSS Community Involvement Plan provides neighborhood characteristics based on 2013–2017 American Community Survey data (EPA 2020):

- The population of the Cathedral Park neighborhood is 30 percent people of color; median household income is \$52,150, and 17 percent of households are below federal poverty level; housing is 45 percent owner-occupied and 55 percent renter-occupied.
- The population of the St. Johns neighborhood is 39.7 percent people of color; median household income is \$61,452, and 16.3 percent of households are below the federal poverty level; housing is 55.4 percent owner-occupied and 44.6 percent renter-occupied. EPA also notes that displacement and relocation have affected many people in St. Johns and that many of the low-income housing projects that have been built are not accessible to transit.

- The University Park neighborhood is 24 percent people of color; median household income is \$66,296, and 21 percent of households are below federal poverty level; housing is 64 percent owner-occupied and 36 percent renter-occupied.

The 2020 State of Housing in Portland report provides a neighborhood profile for the greater St. Johns area, including the St. Johns, and the nearby Cathedral Park, University Park, and Portsmouth neighborhoods. Whereas the report presents a citywide 2018 median income of \$65,740 and a poverty rate of 14.9 percent, the median income of the greater St. Johns area was \$59,815 and the poverty rate was 21.8 percent. As with the citywide data, the median income and poverty rate for the greater St. Johns area includes significant racial and ethnic disparities among white (\$67,615; 17.5%), Hawaiian-Pacific Islander (\$60,000; 54.8 percent), Asian (\$54,074; 45.4%), Hispanic-Latinx (46,807; 29.7 percent), Native American (\$40,000; 55.3% percent), and Black (\$32,617; 36.1%) populations. Racial and ethnic disparities in homeownership and housing affordability were even more pronounced. According to the report, the total homeownership rate in the greater St. Johns area was 55.1 percent in 2018, slightly exceeding the citywide homeownership rate of 53.1 percent. However, whereas the white homeownership rate in the greater St. Johns area was 62.3 percent, the homeownership rate was significantly lower for the Asian (46.8 percent), Native American (36.1 percent), Hispanic-Latinx (34.3 percent), Hawaiian-Pacific Islander (13.9 percent), and Black (13.1 percent) populations. The report also indicates that in the greater St. Johns area, on average, a Hawaiian-Pacific Islander, Asian, Latinx, Native American, or Black Portland household could not afford to purchase a home without becoming cost burdened and spending more than 30 percent of their monthly income on housing; moreover, on average, a Black Portland household could not afford a studio, one-bedroom, two-bedroom, or three-bedroom rental unit in the greater St. Johns area without becoming cost burdened (Portland Housing Bureau 2020).

## 2.3 Summary of Record of Decision

DEQ's March 2021 ROD summarizes the Site history, previous investigations, interim remedial actions, selected remedial action, remedial action alternatives, and institutional controls for the Site.

### 2.3.1 Willamette Cove Site History

Between the early 1900s and 1970s the Site was developed for various industrial uses including a cooperage, lumber mill, and dry dock-related activities. Several associated Site features may have contributed to metals, PAHs, PCBs, phenol, formaldehyde, petroleum hydrocarbons, volatile organic compounds (VOCs), and dioxins/furans contamination in Site soil, sediment, and groundwater.

The Port and Metro entered into a Voluntary Agreement with DEQ in 2000 to conduct a remedial investigation/feasibility study and complete necessary source control measures (Metro et al. 2000). A remedial investigation was subsequently conducted between 2001 and 2002 to evaluate the nature and extent of soil and groundwater contamination on the Site. Additional investigations were conducted between 2006 and 2017 to further delineate soil contamination throughout the Site and evaluate groundwater conditions. For the purposes of site investigations, three areas of the Site were designated: East Parcel, Central Parcel, and West Parcel. Selected figures from the ROD are included in Appendix A; the three on-site parcels are shown in Figure 3, the first figure of that appendix.

Between 2004 and 2016 three interim remedial actions were conducted at the Site. The first interim remedial action was performed in 2004 in response to a sheen observed in the water adjacent to the East Parcel. A pocket of non-aqueous phase liquid-impacted soil was identified as the source of the sheen and subsequently excavated and disposed of off-site. The second interim remedial action was performed in 2008 and involved removal of metals-impacted surface soil on the eastern portion of the Central Parcel. The third interim remedial action was performed between 2015 and 2016 in response to elevated concentrations of dioxins/furans in soil identified during sampling in 2014 and 2015. Removal activities were conducted in four areas across the Central Parcel and one area on the eastern portion of the West Parcel.

### 2.3.2 Proposed Remedial Actions

DEQ's Staff Report: Recommended Remedial Action for Willamette Cove Upland Site, Portland, Oregon (Staff Report) on recommended remedial action for the Site presented the basis for DEQ's proposed cleanup and was subsequently generally adopted in the ROD, with the addition of the contingency remedy option (DEQ 2022). The ROD identified remedial action alternatives to address soil from the top of the riverbank to the property boundary. Soils below the riverbank will be addressed as part of the PHSS in-water work. The ROD identified the following four general remedial action alternatives (DEQ 2021):

- Alternative 1: No action; included for comparison purposes only and is not considered protective by DEQ
- Alternative 2: In-place capping of soil
- Alternative 3: Excavation and off-site disposal and/or on-site consolidation and capping of soil
- Alternative 4: Hybrid of focused excavation and off-site disposal of hot spots, on-site consolidation, and/or capping of soil

Under each of the above general remedial action alternatives, two to four sub-alternatives were identified, for a total of ten remedial action alternatives. The selected remedial action detailed in the ROD was Alternative 4c. Under this alternative, the ROD outlined excavation and off-site disposal of soil hot spots exceeding human health risk levels and non-dioxin/furan (e.g., metals including mercury) hot spot concentrations for ecological health; excavation, consolidation, and capping of approximately 23,000 cubic yards of soil exceeding human health and ecological risk levels; and placement of cover soil over soil that exceeds dioxin/furan ecological risk levels (Figure 28 in Appendix A). Please note that Figure 28 presents an example consolidation area (covering approximately 116,000 square feet) for illustration purposes. The final location and dimensions (e.g., shape) of the consolidation area would be determined during remedial design, including stability considerations and accommodating future park plans to the extent possible.

To address public comments, the ROD incorporated a contingency option into the final remedy to perform additional excavation and off-site disposal to eliminate or greatly reduce the volume of soil to be consolidated and capped on site. Two alternatives in the ROD, Alternative 3a and Alternative

3b, involve removal of contaminated soil and off-site disposal of all excavated soil, with the exception of areas under Alternative 3b where native trees are present and will limit excavation. Based on a preference by Metro and many commenters to retain the native trees, the primary contingency remedy alternative evaluated in this analysis is Alternative 3b (alternative excavation and off-site disposal) (Figure 23 in Appendix A). See Section 4 for additional information.

### 2.3.3 Institutional Controls

For remedial alternatives where contamination would remain on site (i.e., using engineering controls such as capping), institutional controls will be required to ensure long-term protectiveness through the following mechanisms:

- Implementation of a contaminated media management plan
- Long-term monitoring and maintenance
- Deed restrictions that limit Site uses to passive recreation activities

Alternative 3b would not require institutional controls as soil that is above human health and ecological risk levels would be excavated and disposed of off-site.

## 2.4 Proposed Future Use

The Site is zoned by the City of Portland for Open Space and is subject to two Greenway overlay zones: River General and River Water Quality (BPS n.d.). The Open Space zone is “intended to preserve and enhance public and private open, natural, and improved park and recreational areas,” serving functions including the following (City of Portland 2021a):

- Providing opportunities for outdoor recreation
- Providing contrasts to the built environment
- Preserving scenic qualities
- Protecting sensitive or fragile environmental areas
- Enhancing and protecting the values and functions of trees and the urban forest
- Preserving the capacity and water quality of the stormwater drainage system
- Providing pedestrian and bicycle transportation connections

The River General overlay zone is intended to allow for uses consistent with the base Open Space zone “which allow for public use and enjoyment of the riverfront, and which enhance the river's natural and scenic qualities” (City of Portland 2021b). The purpose of the River Water Quality overlay zone is to “to protect the functional values of water quality resources by limiting or mitigating the impact of development in the setback” (City of Portland 2021b).

Following identification of Willamette Cove as a greenspace of regional significance in the 1992 Metropolitan Greenspaces Master Plan, Metro Council authorized purchase of the Site in 1996 with funding from the 1995 Open Spaces, Parks, and Streams Bond Measure (Metro Council 2020b). The purchase represented a commitment to restore the regionally significant natural area, extend the North

Portland Greenway, and work with the City of Portland on future master planning for possible recreation use (Metro Council, 2020a). Metro develops regional nature parks, which it describes as “Protected for their scenic, historic, or natural features, Regional Nature Parks are carefully developed and opened to the public as places to connect with nature...In these places, Metro promotes activities like hiking, and quiet enjoyment of nature and wildlife, sharing the story of some of the region’s most unique cultures, landscapes, and natural systems” (Metro 2022a). At the Willamette Cove Site, Metro Council has described its continued efforts to determine passive park uses that harmonize recreational visits with habitat restoration and ecological values (Metro Council 2020a). In 2020, Metro Council approved a resolution (Resolution No. 20-5149) authorizing and directing staff to include Willamette Cove as a parks and nature destination eligible for 2019 Parks and Nature Bond Measure funds (Metro Council 2020b).

Metro plans to initiate a Willamette Cove master planning process in fall 2022 (Metro 2022a). The purpose of the master planning project will be to “consider public access opportunities, address safety and management concerns, and provide natural resource protection,” and a goal will be to “evaluate recreation opportunities while enhancing water quality and fish and wildlife habitat; recreational uses that are compatible with the environmental objectives and values will be encouraged” (Metro 2022a). Metro elaborates (Metro 2022a):

In order to provide people with meaningful connections to nature and create site conservation and management plans that improve the long term health of the natural area, a master plan must be created to meet current and future generation’s needs. A long term vision for the natural area needs to be defined to guide future management of resources (natural and cultural), the visitor experience, and improvements. Specifically for the Willamette Cove Natural Area, this means considering potential site opportunities such as parking, creating a regional trail connection, viewpoints, beach access and making sure that the strategies for maintaining them are in line with interpretation, cultural, scenic, and recreation goals. Visitor experience opportunities shall align with natural resource management and restoration efforts.

The Metro master planning process will facilitate an extensive Tribal government-to-government and community and stakeholder engagement process (Metro 2022a). Metro anticipates the Willamette Cove master plan will be completed and approved in fall 2025 (Metro 2022a).

## 3 BASELINE EXPLANATION OF COMMUNITY POSITION

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### 3.1 Summary of Tribal Response and Position

The DEQ Staff Report on the recommended remedial action for the Site presented the basis for DEQ’s proposed cleanup and was subsequently generally adopted in the ROD, with the addition of the contingency remedy option (DEQ 2022). Six Tribal governments (including the Confederated



Tribes and Bands of the Yakama Nation [Yakama Nation], the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Nez Perce Tribe) provided comments to DEQ and Metro in development and review of the ROD.

In response to the DEQ Staff Report selection of Alternative 4c, the Yakama Nation sent a letter to DEQ and Metro Council stating that on-site consolidation and disposal of toxic soil is not appropriate for the Site and urged DEQ and Metro Council “to consider a more permanent and integrated solution to the remaining hazardous contamination that will maximize the upland cleanup’s protection of both the shoreline resources and community safety.” The letter states that the Site is too narrow to adequately set back the consolidation area from the riverfront, and cites related concerns based on risk of flooding, particularly in the context of climate changes, as well as seismic risk. The letter expresses concerns about groundwater-to-surface water contamination. The Yakama Nation recommends habitat mitigation as part of any remedial design (Confederated Tribes and Bands of the Yakama Nation 2020).

On behalf of the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Nez Perce Tribe (Five Tribes), consultants also provided a comment letter in 2020 to DEQ regarding the Staff Report. The comment letter built upon several prior memoranda submitted on behalf of the Five Tribes that reviewed the draft and revised Groundwater Source Control Evaluation and Alternatives Analysis, the Revised Feasibility Study and Source Control Evaluation, and the Port’s Response to Comments on the Revised Feasibility Study and Source Control Evaluation. The 2020 comment letter on the Staff Report states the Staff Report satisfactorily identifies Site flood risk as a design consideration, citing the section of the staff report that states that capped areas may require additional reinforcement to withstand future flooding. In addition, the comment letter recommends “including a more explicit statement that the consolidation facility will be designed to create an aesthetic fit with the site and its future use.” The letter also expresses the Five Tribes’ continued concern that the East Parcel may present a source of groundwater contamination and expectation that groundwater sampling will be included in pre-design investigation to adequately characterize potential groundwater contamination (IEc 2020).

### 3.2 Summary of Public Comments, Community Letters, and Public Testimony

Willamette Cove has been the subject of substantial public interest and community conversation. During the public comment period on the recommended cleanup plan, DEQ received more than 180 public comments, including a petition with more than 300 signatures requesting more removal of contaminated soil than proposed in the Staff Report. The comments documented in the ROD summarized the following themes:

- Call for more removal/off-site disposal compared to containing contamination beneath an engineered cap. Comments often refer to a preference for “full cleanup” or “full

removal” of contamination, referring to the physical removal of contaminated soils. In the ROD, DEQ refers to Alternative 3a and Alternative 3b as the “full removal” options. See Section 2.3.2 of this report for additional information.

- Questions about the long-term reliability of containing contamination beneath an engineered cap, and the long-term cost of, and adequacy associated with, ongoing monitoring and maintenance.
- Concern about tree preservation and disruption to the local ecology and community during cleanup activities, including noise, air emissions associated with material transport, and vegetation and habitat quality.
- Desire for public access to the Site when considering future uses, including suggestions for a range of types of park uses.
- Interest in the extent to which the houseless community’s exposure to Site contaminants is factored into the remediation action and how the houseless community’s exposure differs from exposure experienced by other community members.
- General support for the community benefits of remediation and request for rapid cleanup.
- Some support for integrating bioremediation into the cleanup plan, such as mycoremediation (fungi-based technology), provided the technology is proven to be effective. People who supported mycoremediation believed it would be less disruptive than other remediation methods.

Metro received both written and verbal feedback on Resolution No. 20-5149, which addressed whether Willamette Cove was to be included in the eligible areas for the 2019 Parks and Nature Bond Measure funding. The comments to Metro included messages like those received by DEQ about the Site, specifically the call for “full removal” of contaminated areas and concerns about the long-term reliability of capping and potential impacts to natural ecosystems in the area. The comments documented in Metro’s written and verbal testimony for Metro Resolution 20-5149 summarized the following additional themes:

- Desire for safe and public river and waterfront access, with some emphasis on areas for bird-watching as well as passive recreation.
- Call for transparency in Metro and Port agreements regarding past and future decisions for the Site, including requests for the release of communications and references to a confidential agreement between the two entities.
- Concern about contamination affecting human health, particularly groundwater contamination and the failure of an engineered cap due to natural or climate related disasters.
- Desire to accelerate the timeline of the project moving forward, citing the initial purchase purpose and prolonged timeline.

- Call for consideration of equity in input from communities living in or with cultural connections to the area, including Tribal leadership, low-income neighborhoods, those without access to green spaces, and other marginalized communities.

## 4 CONTINGENCY REMEDY ALTERNATIVE EVALUATION

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### 4.1 Proposed Alternatives

The DEQ-selected Alternative 4c includes placement of an estimated 23,000 cubic yards of moderately impacted soil in an on-site consolidation area. The following sections compare the DEQ-selected remedy to contingency remedy Alternative 3b that would include removal of contaminated soil and off-site disposal of all excavated soil, with the exception of areas where native trees are present and will limit excavation. A contingency remedy option for partial removal and off-site disposal of moderately contaminated soil was also considered. Definable metrics to determine the volume of a partial removal were evaluated but could not be identified; therefore, this alternative is not further considered.

#### 4.1.1 On-Site Consolidation

On-site consolidation represents the DEQ-selected alternative (Alternative 4c). The alternative includes excavation and off-site disposal of approximately 4,000 cubic yards of highly concentrated hot-spot soils and on-site consolidation and capping of approximately 23,000 cubic yards of moderately contaminated soil. Cover soil would be placed over the remainder of the Site to address remaining risk to plants and animals. Selected native trees would be retained with focused excavation around the roots. Soil placed in the consolidation area would have contaminant concentrations above human health and ecological risk levels; however, an engineered cap would prevent human contact.

Soils with lower-level risk to plants and animals would be covered in-place. Cover thickness would be determined based on the level of residual risk; however, a minimum 1-foot of clean topsoil would be placed. Remaining ecological hot spots, if any, would be capped by 3 feet of clean soil or alternative DEQ-approved material to reduce risk to plants and animals

##### 4.1.1.1 Construction Impacts

Articulated haul trucks would be used to transport soil on-site to the consolidation area. Standard trucks and trailers would be used to haul contaminated soil to the landfill, as well as to import clean topsoil. Truck routes would pass through residential and commercial areas in the community. Truck traffic during project construction will result in some amount of noise, dust, traffic, air contaminant emissions, potential odors, and greenhouse gas (GHG) emissions within the community. Increased

traffic in the area creates a risk for motor vehicle, pedestrian, and bicycle accidents. River navigation would not be impeded by the project, as work would be conducted in the upland portion of the Site.

Due to the proximity of the Site to the Willamette River, barges could possibly be used to transport materials from the Site, which would result in reduced noise, dust, traffic, and GHG emissions in community areas compared to truck hauling. A temporary loading dock would need to be constructed to facilitate loading to water-based vessels which would extend the duration of the project for permitting and implementation, increase construction cost, and add noise, dust, and GHG emissions. This option is not likely to be feasible, due to the small disposal volume compared to the cost and impacts of building the temporary loading dock.

#### 4.1.1.2 Greenhouse Gas Emissions

Based on Metro's efforts to reduce GHG emissions (Metro 2020), this analysis assumes that haul trucks for the project will run on renewable diesel. Renewable diesel results in lower emissions of particulate matter, carbon monoxide, total hydrocarbons, nitrogen oxide, and greenhouse gases than petroleum diesel. Renewable diesel can also have up to 85 percent lower life-cycle GHG emissions than petroleum diesel, depending on the materials used to make it (DEQ n.d.). GHG emissions from Alternative 4c would include the combustion of fuels in construction equipment, haul trucks, and/or barges. While emissions for barges are included in the calculations in Appendix B, for the purposes of comparing alternatives, hauling by truck was assumed. For comparison purposes, other smaller sources of construction GHG emissions are assumed to be equal between both alternatives.

Most of the GHG emissions from Alternative 4c result from excavating contaminated soil, moving soil to the on-site consolidation area, hauling the contaminated soil to a landfill, hauling import cap and cover materials, and placing imported materials.

GHG emissions were estimated using estimated travel distances, average haul-truck fuel efficiencies, and GHG emission factors. On-site consolidation using trucks would generate approximately 213 tons of carbon. GHG emission calculations are included in Appendix B.

#### 4.1.2 Off-Site Disposal

This option is assumed to correspond with Alternative 3b of the ROD. It involves complete removal of contaminated soil and off-site disposal of all excavated soil, except for areas where native trees are present that limit excavation. This alternative includes removal and off-site disposal of approximately 45,000 cubic yards of contaminated soil, and placement of one foot of topsoil over the excavation area for vegetation support. Designated native trees would be preserved in this alternative, and low-impact excavation in the dripline would remove the shallow contaminated soil without damaging the trees. Consistent with Alternative 4c, excavated areas would be covered with at least 1-foot clean soil and additional cover material maybe be necessary to effectively reduce risk to plants and animals.

#### 4.1.2.1 Construction Impacts

Standard trucks and trailers would be used to haul contaminated soil to the landfill, as well as to import clean topsoil. This alternative would result in a longer duration of temporary impacts along haul routes in residential and commercial areas compared to on-site consolidation due to additional volume of material to be transported to a landfill. River navigation would not be impeded by the project, as work would be conducted upland of the Willamette River.

As with the on-site consolidation alternative, barges could possibly be used to transport materials which would result in reduced noise, dust, traffic, and GHG emissions in community areas compared to truck hauling. Increased off-site soil disposal volume may increase the viability of barge transportation; however, the overall cost, in-water impact, and timeline of permitting and constructing the temporary loading dock would need to be considered during the project design.

#### 4.1.2.2 Greenhouse Gas Emissions

GHG emissions from Alternative 3b could include the combustion of fuels in construction equipment, haul trucks, and/or barges. For comparison purposes, other smaller sources of construction GHG emissions are assumed to be equal between both alternatives. Most of the GHG emissions from Alternative 3b result from excavating contaminated soil, hauling it to a landfill by truck or and/or barge, importing topsoil, and placing topsoil.

GHG emissions were estimated using assumed travel distances, average haul truck fuel efficiencies, and GHG emission factors. Off-site disposal of all contaminated soil using trucks would result in generation of approximately 386 tons of carbon. GHG emission calculations are included in Appendix B.

### 4.2 Construction Cost Comparison

For the purposes of this analysis, construction costs for Alternatives 3b and 4c were evaluated, updated as appropriate, and compared. Cost estimates outlined in the ROD account for 30 years of long-term operations including cap inspection and maintenance for Alternative 4c (see Section 4.3.1 for discussion on long-term costs). This analysis adjusted costs based on current (May 2022) cost assumptions for excavation and loading, off-site transportation, and off-site disposal. Related costs, including pre-construction, mobilization, construction contingency, and indirect construction costs were also adjusted accordingly. Construction cost estimates in this report were higher than those presented in the ROD. The increase is partially attributed to time since the previous estimates were prepared, however current economic conditions are also reflected in the adjusted costs.

The ROD and adjusted estimated costs are shown in the table below.

	<b>Alternative 3b</b>	<b>Alternative 4c</b>
ROD Estimated Construction Cost (includes topsoil cover)	\$11.8 million	\$8.1 million
2022 Adjusted Estimated Construction Cost	\$17.5 million	\$9.5 million
NOTE: ROD = record of decision		

Please note that the costs presented in the ROD were based on the feasibility study for the Site. When preparing a feasibility study, one of the balancing factors considered is reasonableness of cost. Cost estimates prepared for a feasibility study are planning-level costs that include a variety of assumptions. Those costs provide a basis for cost comparison between the remedial alternatives and, to the extent feasible, those cost estimates have been updated in this document. Project budgeting should rely on engineering estimates completed after the remedial design is prepared.

Adjusted cost calculations are included in Appendix C.

### 4.3 Long-Term Operation, Maintenance, and Risk

As described in Section 2.3.3, under remedial action alternatives that involve consolidation and capping and/or in-place capping of contaminated soil, institutional controls will be required to implement long-term operation, monitoring, and maintenance of cap integrity. The risk of future releases of capped residual soil contamination is increased by potential impacts from routine flooding, climate change-exacerbated flooding and sea-level rise, and seismic hazards, including landslides and earthquakes, as described in the sections below.

#### 4.3.1 Long-Term Operation and Maintenance

	<b>Alternative 3b</b>	<b>Alternative 4c</b>
ROD Estimated Long-Term O&M (net present value)	\$230,000	\$685,000
Adjusted Estimated Long-Term O&M (net present value)	\$230,000	\$985,000
NOTES: O&M = operation and maintenance. ROD = record of decision.		

On-site consolidation would require the institutional controls described in Section 2.3.3, due to consolidating and retaining contaminated material on site. Some future Site land use would likely be restricted (e.g., residential development or deep excavation into consolidated soil), particularly in the soil consolidation area. The engineered cap over the consolidation area would be designed to allow full human access for the intended open space Site use. Long-term operation and maintenance (O&M)

would include annual cap inspection and general maintenance (e.g., vegetative maintenance and repair of erosion or settling/low spots). Maintenance for vegetation establishment, including plant replacement, would occur for the initial five years only.

Alternative 3b would not have long-term inspection and maintenance requirements as stated in the ROD. Long-term O&M under Alternative 4c would include annual consolidation area cap inspection and associated maintenance and indirect long-term costs for 140 years. Costs from the ROD were adjusted to account for the 140-year maintenance period and are shown in the table below.

Adjusted long-term O&M cost and net present value calculations are included in Appendix C.

### 4.3.2 Climate Change Risk

Climate change is expected to affect the timing, frequency, and duration of flood events (City of Portland and Multnomah County 2014). Models project this will manifest in earlier spring peak run-off, less summer run-off, and more snow-dominated basins transitioning to rain-dominated during the peak flows in winter (Melillo et al. 2014). Climate models show an increase in the number of extreme rain event days, and an increase in precipitation on those days, on the North American West Coast between the late 20th century and end of the 21st century (Warner et al. 2015). Models also show the potential for large increases in short-duration (e.g., hourly) rainfall intensity in Portland (Morgan et al. 2021). While observed and ongoing sea-level rise is expected to have minimal impacts on flooding along the lower Willamette River, coastal storm surge resulting from atmospheric river events, often associated with significant winter runoff, could exacerbate flooding impacts experienced from changes to runoff and peak flow patterns (Wherry et al. 2019). These expected effects could impact areas adjacent to the flood fringe, such as the proposed soil consolidation area in Alternative 4c.

## 4.4 Other Considerations

### 4.4.1 Ecological Benefits

Baseline ecological risk at the Site was evaluated in the Level II Screening Residual Ecological Risk Assessment (Formation Environmental 2014). The feasibility study established remedial action objectives to provide the framework for developing and evaluating remedial action alternatives (Apex Companies 2019). The stated remedial action objectives for ecological receptors were to prevent exposure of ecological receptors to soil containing contaminants of concern above the receptor-specific screening levels and remove or treat soil with contaminant-of-concern concentrations above the DEQ-defined hot-spot levels to the extent practicable.

Each of the remedial alternatives (except for the No Action alternative) presented in the feasibility study provide an equivalent level of protection to ecological receptors within the bounds of the DEQ process. Alternative 4c and Alternative 3b both meet the objectives of Metro's habitat restoration goals (Metro 2022b). Potential additional ecological benefits from off-site disposal of moderately contaminated soil cannot be quantified within the limits of this analysis.

## 4.4.2 Seismic Considerations

Willamette Cove has been classified as having very high liquefaction susceptibility and high landslide susceptibility in a seismic event (DOGAMI 2019). The Site is also less than a half mile from the nearest mapped active fault, aged to the middle or late Quaternary period (USGS n.d.). In the event of liquefaction, two axes of spreading could result, one due to the presence of the railroad embankment and one due to the slope of the riverbank. A consolidation area would need to be designed with setbacks from the riverbank, property lines, and railroad embankment to mitigate risk of contaminant release resulting from a significant seismic event. A site-specific geotechnical evaluation would need to be completed to fully understand physical characteristics of the Site for design of an on-site containment area.

# 5 SUMMARY OF CONTINGENCY ANALYSIS

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In March 2021, DEQ issued its ROD for the Site. The ROD requires that highly contaminated soils be removed and disposed of off-site. The DEQ-selected remedy specifies that moderately contaminated soils be placed in perpetuity in an on-site consolidation area (Alternative 4c).

The ROD includes a contingency remedy that allows Metro to remove and dispose of all, some, or none of the moderately contaminated soils off-site. This report presents a summary of the ROD, proposed future use, Tribal government responses, public comments, the DEQ-selected remedial action (Alternative 4c), and a contingency remedy option (Alternative 3b). The following table presents a summary of the information for Alternative 4c and Alternative 3b and a comparison of the two.



<b>Comparison Metric</b>	<b>Alternative 4c (Selected Remedy)</b>	<b>Alternative 3b (Contingency Remedy)</b>	<b>Comparison Result</b>
Future Use	No restrictions on access; Restricted land use (e.g., residential development) for consolidation area	No restrictions on access or Site use	Alternative 3b results in fewer land use restrictions; neither alternative results in future access restrictions.
Construction Impacts to the Community	Temporary increase in traffic, noise, air contaminant emissions, and potential odors (exhaust)	Temporary increase in traffic, noise, air contaminant emissions, and potential odors (exhaust)	Alternative 3b would increase the amount and duration of temporary off-site impacts compared to Alternative 4c due to increased truck traffic for larger off-site disposal volume; greenhouse gas emissions are summarized below.
Ecological Impacts and Benefits	Reduces area of contamination and consolidates excavated soils to a known, defined location on site. Excavated areas will be covered with one foot of clean soil and replanted with native species.	Removes all contaminated soil from the Site except around native tree roots that are inaccessible. Excavated areas will be covered with one foot of clean soil and replanted with native plant species.	Alternative 3b results in lower area of remaining potential ecological impact on the Site (around native tree roots only).
Truck Trips (to export contaminated soil, import clean materials)	Estimated 3,072 off-site truck trips	Estimated 5,420 off-site truck trips	Alternative 3b results in an estimated increase of 2,348 off-site truck trips.
Greenhouse Gas Emissions	Estimated greenhouse gas emissions of 213 tons of carbon	Estimated greenhouse gas emissions of 386 tons of carbon	Alternative 3b results in an estimated increase of 173 tons of carbon compared to Alternative 4c.
Project Construction Cost	\$9.5 million	\$17.5 million	Alternative 3b increases the construction cost by \$8.0 million.
Long-Term O&M Cost	\$985,000	\$230,000	Alternative 3b decreases the long-term cost by \$755,000.
<p>NOTES:  O&amp;M = operation and maintenance.  Site = Willamette Cove Upland Site.</p>			

The cost estimates in this document are planning-level costs that include a variety of assumptions. Those costs provide a basis for cost comparison between the remedial alternatives. Project budgeting should rely on engineering estimates completed after the remedial design is prepared.

## LIMITATIONS

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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.

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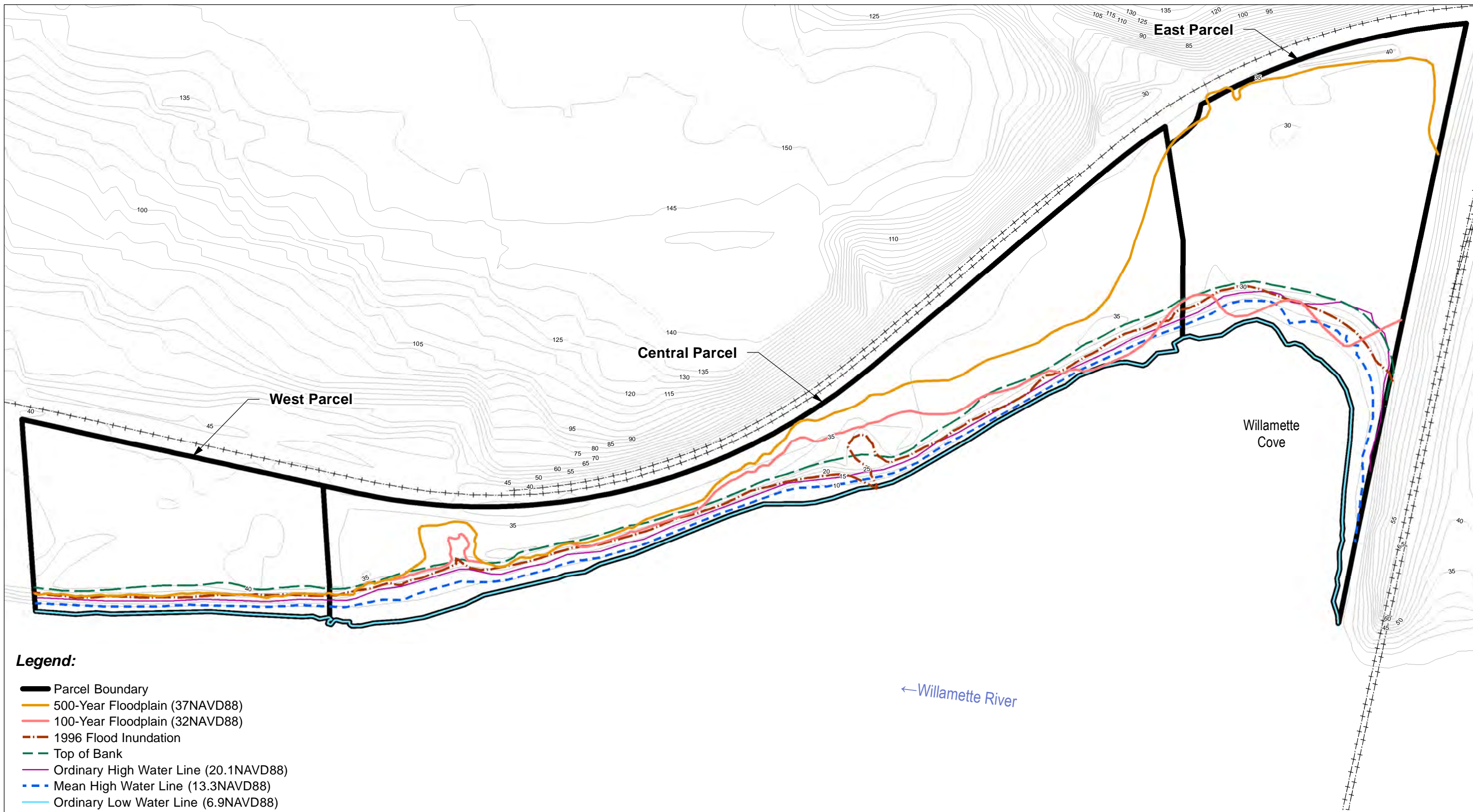
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# APPENDIX A

## FIGURES FROM FEASIBILITY STUDY



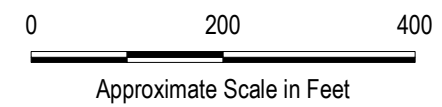





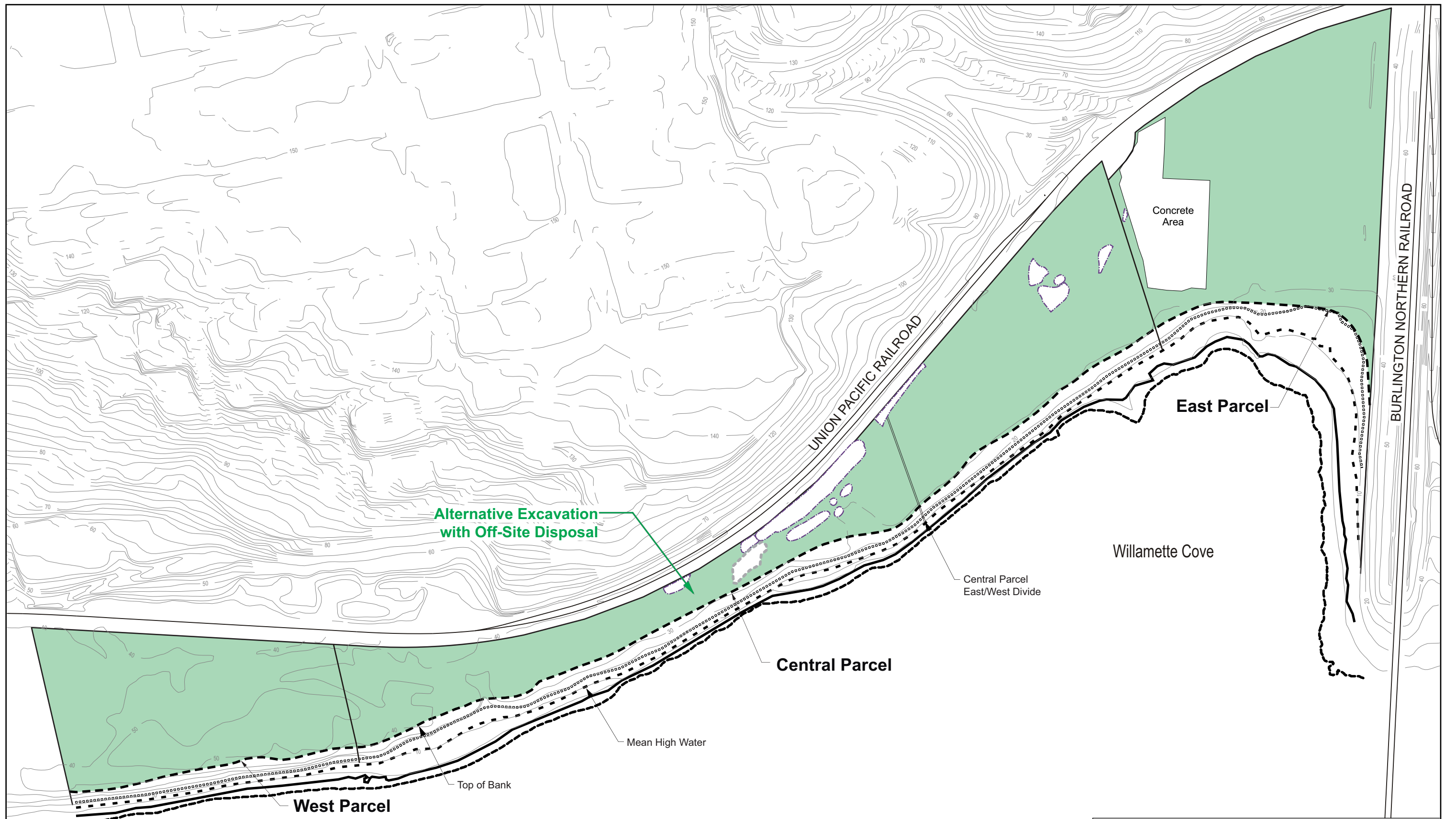
**Legend:**

- Parcel Boundary
- 500-Year Floodplain (37NAVD88)
- 100-Year Floodplain (32NAVD88)
- - - 1996 Flood Inundation
- - - Top of Bank
- Ordinary High Water Line (20.1NAVD88)
- - - Mean High Water Line (13.3NAVD88)
- Ordinary Low Water Line (6.9NAVD88)

Basemap prepared using spatial data from Metro (2010-2017), Apex, Formation Environmental, and Hart Crowser.  
 Coordinate System: NAD83 HARN StatePlane Oregon North FIPS 3601 (Intl Feet).








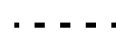


<b>Site Elevation and Floodplain Map</b>		
Willamette Cove Upland Portland, Oregon		
 Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1056-10
	March 2020	
		Figure <b>3</b>



Alternative Excavation  
with Off-Site Disposal

**Legend:**

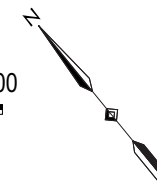
-  2015 Soil Removal Deep Excavation Area
  -  2015 Soil Removal Action Low Impact Excavation Areas Surrounding Designated Native Tree Species
  -  Alternative Excavation Area - All soil above human health and ecological risk levels will be excavated and taken off-site, except near native trees where only soil that can be removed without damaging trees will be excavated.
- Note:** Alternative excavation area is approximate. Actual area will be determined by confirmation sampling conducted during remedial action.

-  Upper Source Control Screening Boundary (Corresponds to Top of Bank Plus Areas of Potentially Erodible Soil)
-  Ordinary High Water Line (20.1NAVD88)
-  Mean High Water Line (13.3NAVD88)
-  Ordinary Low Water Line (6.9NAVD88)
-  Lower Source Control Screening Boundary

0 200 400

Approximate Scale in Feet

Source: Base map prepared from an electronic file provided by Hart Crowser.



**Alternative 3b: Alternative Excavation  
with Off-Site Disposal**  
Willamette Cove Upland  
Portland, Oregon

 Apex Companies, LLC  
3015 SW First Avenue  
Portland, Oregon 97201

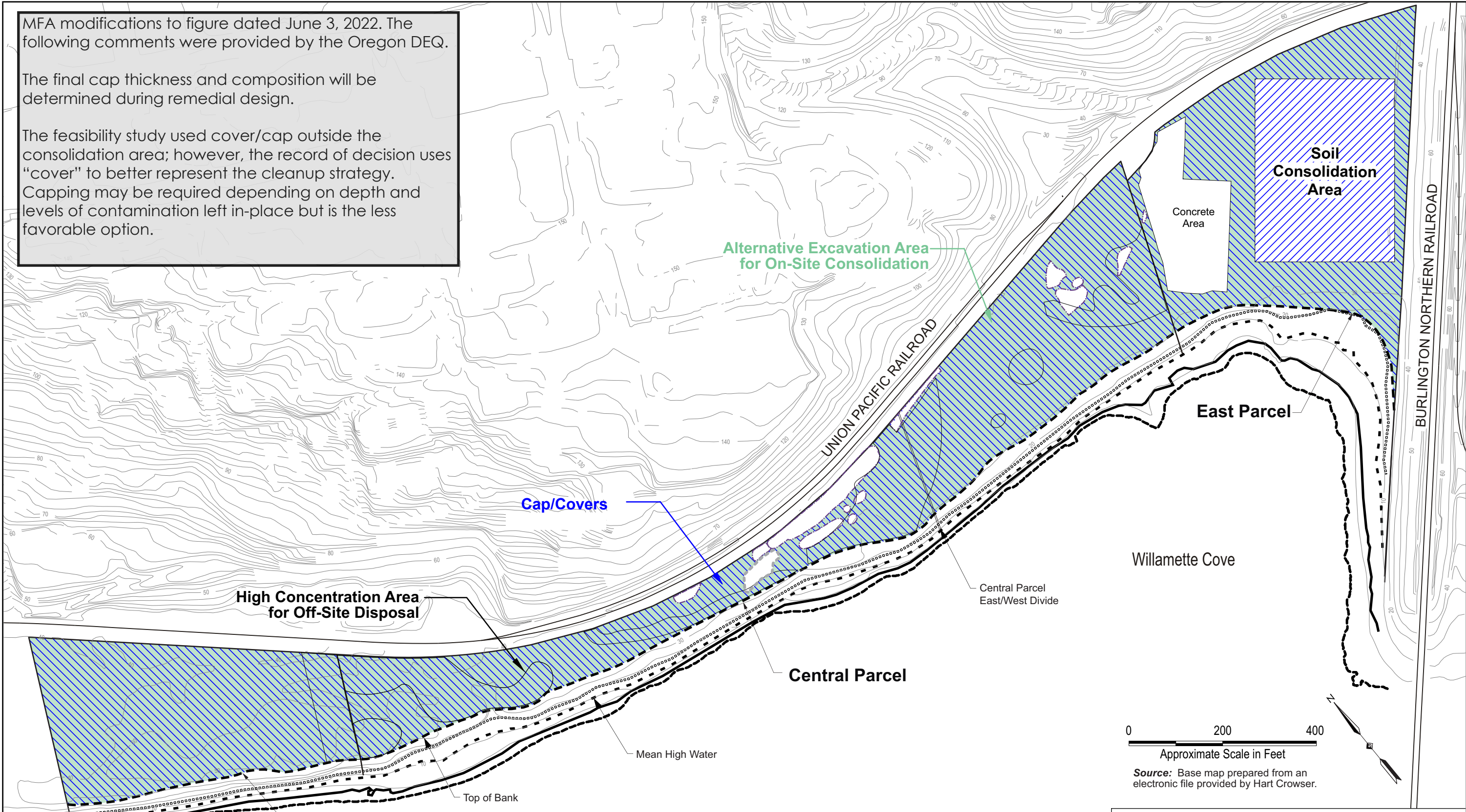
Project Number	1056-10
March 2020	

Figure  
**23**

MFA modifications to figure dated June 3, 2022. The following comments were provided by the Oregon DEQ.

The final cap thickness and composition will be determined during remedial design.

The feasibility study used cover/cap outside the consolidation area; however, the record of decision uses "cover" to better represent the cleanup strategy. Capping may be required depending on depth and levels of contamination left in-place but is the less favorable option.



**Legend:**

- 2015 Soil Removal Deep Excavation Area
- 2015 Soil Removal Action Low Impact Excavation Areas Surrounding Designated Native Tree Species
- Standard Cap Area - 2-Foot thick soil cap.
- Cover/Cap Area - One- to 3-foot thick soil cap over areas where soil concentrations exceed ecological risk levels.
- Alternative Excavation Area - All high concentration soil excavated and taken off-site, all soil above human health risk levels placed in soil consolidation area, except near native trees where only soil that can be removed without damaging trees will be excavated.
- Top of Bank
- Ordinary High Water Line (20.1NAVD88)
- Mean High Water Line (13.3NAVD88)
- Ordinary Low Water Line (6.9NAVD88)
- 2 Columbia River Datum; 3.2NAVD88

**Note:** High concentration, alternative excavation, standard cap, and soil consolidation areas are approximate. Actual areas will be determined by confirmation sampling conducted during remedial action.

**Alternative 4c: Focused Alternative Excavation with Off-Site Disposal/On-Site Consolidation and Cap**

Willamette Cove Upland Facility  
Portland, Oregon

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1056-10	Figure <b>28</b>
	March 2020		

# APPENDIX B

## GREENHOUSE GAS CALCULATIONS



**Table B-1**  
**Alternative 4c Greenhouse Gas Emission Calculations**  
**Willamette Cove Upland Site**  
**Portland, Oregon**



<b>Off-Site Disposal by Truck</b>		
Round-trip travel distance from site to Hillsboro WM Landfill	40 miles	(1)
Quantity of soil hauled to Hillsboro WM Landfill	4,600 LCY	(a)
Quantity of soil per truck load	15 LCY	(3)
Number of truck trips	307 trips	(b)
<b>CO<sub>2</sub> Emissions Estimate</b>	<b>44,226 lb CO<sub>2</sub>eq</b>	(c)
<b>CH<sub>4</sub> Emissions Estimate</b>	<b>6 lb CO<sub>2</sub>eq</b>	(d)
<b>N<sub>2</sub>O Emissions Estimate</b>	<b>334 lb CO<sub>2</sub>eq</b>	(e)
<b>Off-Site Disposal by Truck GHG Emissions Estimate</b>	<b>44,566 lb CO<sub>2</sub>eq</b>	(f)
<b>Off-Site Disposal by Truck GHG Emissions Estimate</b>	<b>22 tons CO<sub>2</sub>eq</b>	(g)
<b>Cap Material and Topsoil Import by Truck</b>		
Round-trip travel distance from soil source to site	38 miles	(1)
Quantity of soil imported to the site	41,469 LCY	(2)
Quantity of soil per truck load	15 LCY	(3)
Number of truck trips	2,765 trips	(b)
<b>CO<sub>2</sub> Emissions Estimate</b>	<b>378,407 lb CO<sub>2</sub>eq</b>	(c)
<b>CH<sub>4</sub> Emissions Estimate</b>	<b>53 lb CO<sub>2</sub>eq</b>	(d)
<b>N<sub>2</sub>O Emissions Estimate</b>	<b>2,856 lb CO<sub>2</sub>eq</b>	(e)
<b>Soil Import by Truck GHG Emissions Estimate</b>	<b>381,316 lb CO<sub>2</sub>eq</b>	(f)
<b>Soil Import by Truck GHG Emissions Estimate</b>	<b>191 tons CO<sub>2</sub>eq</b>	(g)
<b>Off-Site Disposal by Barge</b>		
Round-trip barge travel distance	188 miles	(1)
Quantity of soil hauled to landfill	6,987 tons	(2)
Quantity of soil per barge load	1,500 tons	(8)
Number of barge trips	5 trips	(b)
<b>Off-Site Disposal by Barge GHG Emissions Estimate</b>	<b>15,893 lb CO<sub>2</sub>eq</b>	(h)
Round-trip truck travel distance from barge off load to landfill	14 miles	(1)
Quantity of soil per truck load	15 CY	(3)
Number of truck trips	307 trips	(b)
<b>CO<sub>2</sub> Emissions Estimate</b>	<b>15,479 lb CO<sub>2</sub>eq</b>	(c)
<b>CH<sub>4</sub> Emissions Estimate</b>	<b>2 lb CO<sub>2</sub>eq</b>	(d)
<b>N<sub>2</sub>O Emissions Estimate</b>	<b>117 lb CO<sub>2</sub>eq</b>	(e)
<b>Off-Site Disposal by Truck GHG Emissions Estimate</b>	<b>15,598 lb CO<sub>2</sub>eq</b>	(f)
<b>Total Off-Site Disposal by Barge and Truck GHG Emissions Estimate</b>	<b>31,491 lb CO<sub>2</sub>eq</b>	(i)
<b>Total Off-Site Disposal by Barge and Truck GHG Emissions Estimate</b>	<b>16 tons CO<sub>2</sub>eq</b>	(g)
<b>On-Site Consolidation by Truck</b>		
Average on-site travel distance per load	0.60 miles	(1)
Quantity of soil hauled	22,656 LCY	(2)
Quantity of soil per truck load	32 LCY	(3)
Number of truck trips	708 trips	(b)
<b>CO<sub>2</sub> Emissions Estimate</b>	<b>1,530 lb CO<sub>2</sub>eq</b>	(c)
<b>CH<sub>4</sub> Emissions Estimate</b>	<b>0.21 lb CO<sub>2</sub>eq</b>	(d)
<b>N<sub>2</sub>O Emissions Estimate</b>	<b>12 lb CO<sub>2</sub>eq</b>	(e)
<b>Off-Site Disposal by Truck GHG Emissions Estimate</b>	<b>1,542 lb CO<sub>2</sub>eq</b>	(f)
<b>Off-Site Disposal by Truck GHG Emissions Estimate</b>	<b>0.77 tons CO<sub>2</sub>eq</b>	(g)

**Table B-1**  
**Alternative 4c Greenhouse Gas Emission Calculations**  
**Willamette Cove Upland Site**  
**Portland, Oregon**



NOTES:

CO<sub>2</sub> = carbon dioxide.

CH<sub>4</sub> = methane.

CY = cubic yards.

g = grams.

gal = gallon.

GHG = greenhouse gases.

kg = kilograms.

<sup>(1)</sup> Conservative estimate for round-trip distance.

<sup>(2)</sup> DEQ. 2021. *Record of Decision: Selected Remedial Action for Willamette Cove Upland Site, Portland, Oregon*. Oregon Department of Environmental Quality. Northwest Region Office. March.

<sup>(3)</sup> Conservative assumption for average haul truck load capacity. 15 CY for off-site hauling and 32 CY for on-site hauling.

<sup>(4)</sup> Conservative assumption for average barge load capacity.

<sup>(5)</sup> Conservative assumption for average haul truck fuel efficiency.

<sup>(6)</sup> No public data exist for renewable diesel GHG emission factors as it is a newer type of fuel. A study conducted by the National Renewable Energy Laboratory found that, on average, renewable diesel reduced CO<sub>2</sub> emissions by 4.2% compared to petroleum diesel. To be conservative, 4% of the EPA Emission Factors for Greenhouse Gas Inventories diesel emission factor for medium and heavy-duty vehicles 2007–2019 was used.

<sup>(7)</sup> Intergovernmental Panel on Climate Change AR5. Emission factor for Cargo Ship - Bulk Carrier - Average. Includes CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O.

<sup>(8)</sup> Engineer's estimate of the average barge capacity.

<sup>(9)</sup> Code of Federal Regulations, Title 40 Part 98 Subpart A, Table A-1, "Global Warming Potentials."

lb = pounds.

LCY = loose cubic yards.

mpg = miles per gallon.

N<sub>2</sub>O = nitrous oxide.

WM = Waste Management.

CALCULATIONS:

<sup>(a)</sup> Loose Cubic Yards (LCY) = (bank cubic yards [BCY]) x (1.15 LCY/BCY)

Alternative 4c quantity of soil hauled off-site (BCY) = 4,000 <sup>(2)</sup>

Alternative 3b quantity of soil hauled off-site (BCY) = 45,457 <sup>(2)</sup>

<sup>(b)</sup> Number of trips = (quantity of soil hauled [units]) / (quantity of soil per load [units])

<sup>(c)</sup> CO<sub>2</sub> emissions estimate (lb CO<sub>2</sub>eq) = (travel distance [miles]) x (number of truck trips)

/ (typical haul truck fuel efficiency [mpg]) x (renewable diesel emission factor [kg CO<sub>2</sub>/gal]) x (1,000g/kg) / (453.592 g/lb)

Typical haul truck fuel efficiency (mpg) = 6 <sup>(5)</sup>

CO<sub>2</sub> emission factor (kg CO<sub>2</sub>/gal) = 9.80 <sup>(6)</sup>

<sup>(d)</sup> CH<sub>4</sub> emissions (lb CO<sub>2</sub>eq) = CH<sub>4</sub> emission factor (g/mile) x CH<sub>4</sub> global warming potential x travel distance (miles)

x number of trips / (453.592 g/lb)

CH<sub>4</sub> emission factor (g/mile) = 0.0091 <sup>(6)</sup>

CH<sub>4</sub> global warming potential = 25.0 <sup>(9)</sup>

<sup>(e)</sup> N<sub>2</sub>O emissions (lb CO<sub>2</sub>eq) = N<sub>2</sub>O emission factor (g/mile) x N<sub>2</sub>O global warming potential x travel distance (miles)

x number of trips / (453.592 g/lb)

N<sub>2</sub>O emission factor (g/mile) = 0.0414 <sup>(6)</sup>

N<sub>2</sub>O global warming potential = 298 <sup>(9)</sup>

<sup>(f)</sup> Total GHG emissions estimate (lb CO<sub>2</sub>eq) = CO<sub>2</sub> emissions estimate (lb CO<sub>2</sub>eq)

+ CH<sub>4</sub> emissions estimate (lb CO<sub>2</sub>eq) + N<sub>2</sub>O emissions estimate (lb CO<sub>2</sub>eq)

<sup>(g)</sup> GHG emissions estimate (tons CO<sub>2</sub>eq) = GHG emission estimate (lb CO<sub>2</sub>eq) / (2,000 lb/ton)

<sup>(h)</sup> Barge GHG emissions estimate (lb CO<sub>2</sub>eq) = (travel distance [miles]) x (1.609 km/mile) x (number of barge trips)

x (emission factor [kg CO<sub>2</sub>/tonne-km]) x (1,000g/kg) / (453.592 g/lb) / (1.10231 ton/tonne)

Emission factor (kg CO<sub>2</sub>eq/tonne-km) = 0.003503 <sup>(7)</sup>

<sup>(i)</sup> Total barge and truck GHG emissions estimate (lb CO<sub>2</sub>eq) = (off-site disposal by barge GHG emissions

estimate [lb CO<sub>2</sub>eq]) + (off-site disposal by truck GHG emissions estimate [lb CO<sub>2</sub>eq])

**Table B-2**  
**Alternative 3b Greenhouse Gas Emission Calculations**  
**Willamette Cove Upland Site**  
**Portland, Oregon**



<b>Off-Site Disposal by Truck</b>		
Round-trip travel distance from site to Hillsboro WM Landfill	40 miles	(1)
Quantity of soil hauled to Hillsboro WM Landfill	52,276 LCY	(a)
Quantity of soil per truck load	15 LCY	(3)
Number of truck trips	3,486 trips	(b)
<b>CO<sub>2</sub> Emissions Estimate</b>	<b>502,190 lb CO<sub>2</sub>eq</b>	(c)
<b>CH<sub>4</sub> Emissions Estimate</b>	<b>70 lb CO<sub>2</sub>eq</b>	(d)
<b>N<sub>2</sub>O Emissions Estimate</b>	<b>3,790 lb CO<sub>2</sub>eq</b>	(e)
<b>Off-Site Disposal by Truck GHG Emissions Estimate</b>	<b>506,050 lb CO<sub>2</sub>eq</b>	(f)
<b>Off-Site Disposal by Truck GHG Emissions Estimate</b>	<b>253 tons CO<sub>2</sub>eq</b>	(g)
<b>Topsoil Import by Truck</b>		
Round-trip travel distance from soil source to site	38 miles	(1)
Quantity of soil imported to the site	29,000 LCY	(2)
Quantity of soil per truck load	15 LCY	(3)
Number of truck trips	1,934 trips	(b)
<b>CO<sub>2</sub> Emissions Estimate</b>	<b>264,680 lb CO<sub>2</sub>eq</b>	(c)
<b>CH<sub>4</sub> Emissions Estimate</b>	<b>37 lb CO<sub>2</sub>eq</b>	(d)
<b>N<sub>2</sub>O Emissions Estimate</b>	<b>1,998 lb CO<sub>2</sub>eq</b>	(e)
<b>Soil Import by Truck GHG Emissions Estimate</b>	<b>266,714 lb CO<sub>2</sub>eq</b>	(f)
<b>Soil Import by Truck GHG Emissions Estimate</b>	<b>133 tons CO<sub>2</sub>eq</b>	(g)
<b>Off-Site Disposal by Barge</b>		
Round-trip barge travel distance	188 miles	(1)
Quantity of soil hauled to landfill	77,277 tons	(2)
Quantity of soil per barge load	1,500 tons	(8)
Number of barge trips	52 trips	(b)
<b>Off-Site Disposal by Barge GHG Emissions Estimate</b>	<b>165,291 lb CO<sub>2</sub>eq</b>	(h)
Round-trip truck travel distance from barge off load to landfill	14 miles	(1)
Quantity of soil per truck load	15 LCY	(3)
Number of truck trips	3,486 trips	(b)
<b>CO<sub>2</sub> Emissions Estimate</b>	<b>175,766 lb CO<sub>2</sub>eq</b>	(c)
<b>CH<sub>4</sub> Emissions Estimate</b>	<b>25 lb CO<sub>2</sub>eq</b>	(d)
<b>N<sub>2</sub>O Emissions Estimate</b>	<b>1,327 lb CO<sub>2</sub>eq</b>	(e)
<b>Off-Site Disposal by Truck GHG Emissions Estimate</b>	<b>177,118 lb CO<sub>2</sub>eq</b>	(f)
<b>Total Off-Site Disposal by Barge and Truck GHG Emissions Estimate</b>	<b>342,408 lb CO<sub>2</sub>eq</b>	(i)
<b>Soil Import by Truck GHG Emissions Estimate</b>	<b>171 tons CO<sub>2</sub>eq</b>	(g)
<p>NOTES:</p> <p>CO<sub>2</sub> = carbon dioxide.            CH<sub>4</sub> = methane.            CY = cubic yards.            g = grams.            gal = gallon.            GHG = greenhouse gases.            kg = kilograms.</p> <p>lb = pounds.            LCY = loose cubic yards.            mpg = miles per gallon.            N<sub>2</sub>O = nitrous oxide.            WM = Waste Management.</p> <p>(1) Conservative estimate for round-trip distance.            (2) DEQ. 2021. <i>Record of Decision: Selected Remedial Cction for Willamette Cove Upland Site, Portland, Oregon</i>. Oregon Department of Environmental Quality, Northwest Region Office. March.</p>		

**Table B-2**  
**Alternative 3b Greenhouse Gas Emission Calculations**  
**Willamette Cove Upland Site**  
**Portland, Oregon**



NOTES (con't):

- <sup>(3)</sup> Conservative assumption for average haul truck load capacity.
- <sup>(4)</sup> Conservative assumption for average barge load capacity.
- <sup>(5)</sup> Conservative assumption for average haul truck fuel efficiency.
- <sup>(6)</sup> No public data exist for renewable diesel GHG emission factors as it is a newer type of fuel. A study conducted by the National Renewable Energy Laboratory found that, on average, renewable diesel reduced CO<sub>2</sub> emissions by 4.2% compared to petroleum diesel. To be conservative, 4% of the EPA Emission Factors for Greenhouse Gas Inventories diesel emission factor for medium and heavy-duty vehicles 2007–2019 was used.
- <sup>(7)</sup> Intergovernmental Panel on Climate Change AR5. Emission factor for Cargo Ship - Bulk Carrier - Average. Includes CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O.
- <sup>(8)</sup> Engineers estimate of the average barge capacity.
- <sup>(9)</sup> Code of Federal Regulations, Title 40 Part 98 Subpart A, Table A-1, "Global Warming Potentials."

CALCULATIONS:

- <sup>(a)</sup> Loose Cubic Yards (LCY) = (bank cubic yards [BCY]) x (1.15 LCY/BCY)
 

Alternative 4c quantity of soil hauled off-site (BCY) =	4,000	<sup>(2)</sup>
Alternative 3b quantity of soil hauled off-site (BCY) =	45,457	<sup>(2)</sup>
- <sup>(b)</sup> Number of trips = (quantity of soil hauled [units]) / (quantity of soil per load [units])
- <sup>(c)</sup> CO<sub>2</sub> emissions estimate (lb CO<sub>2</sub>eq) = (travel distance [miles]) x (number of truck trips) / (typical haul truck fuel efficiency [mpg]) x (renewable diesel emission factor [kg CO<sub>2</sub>/gal]) x (1,000g/kg) / (453.592 g/lb)
 

Typical haul truck fuel efficiency (mpg) =	6	<sup>(5)</sup>
Renewable diesel emission factor (kg CO <sub>2</sub> eq/gal) =	9.80	<sup>(6)</sup>
- <sup>(d)</sup> CH<sub>4</sub> emissions (lb CO<sub>2</sub>eq) = CH<sub>4</sub> emission factor (g/mile) x CH<sub>4</sub> global warming potential x travel distance (miles) x number of trips / (453.592 g/lb)
 

CH <sub>4</sub> emission factor (g/mile) =	0.0091	<sup>(6)</sup>
CH <sub>4</sub> global warming potential =	25.0	<sup>(9)</sup>
- <sup>(e)</sup> N<sub>2</sub>O emissions (lb CO<sub>2</sub>eq) = N<sub>2</sub>O emission factor (g/mile) x N<sub>2</sub>O global warming potential x travel distance (miles) x number of trips / (453.592 g/lb)
 

N <sub>2</sub> O emission factor (g/mile) =	0.0414	<sup>(6)</sup>
N <sub>2</sub> O global warming potential =	298	<sup>(9)</sup>
- <sup>(f)</sup> Total GHG emissions estimate (lb CO<sub>2</sub>eq) = CO<sub>2</sub> emissions estimate (lb CO<sub>2</sub>eq) + CH<sub>4</sub> emissions estimate (lb CO<sub>2</sub>eq) + N<sub>2</sub>O emissions estimate (lb CO<sub>2</sub>eq)
- <sup>(g)</sup> GHG emissions estimate (tons CO<sub>2</sub>eq) = GHG emission estimate (lb CO<sub>2</sub>eq) / (2,000 lb/ton)
- <sup>(h)</sup> Barge GHG emissions estimate (lb CO<sub>2</sub>eq) = (travel distance [miles]) x (1.609 km/mile) x (number of barge trips) x (emission factor [kg CO<sub>2</sub>/tonne-km]) x (1,000g/kg) / (453.592 g/lb) / (1.10231 ton/tonne)
 

Emission factor (kg CO <sub>2</sub> eq/tonne-km) =	0.003503	<sup>(7)</sup>
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- <sup>(i)</sup> Total barge and truck GHG emissions estimate (lb CO<sub>2</sub>eq) = (off-site disposal by barge GHG emissions estimate [lb CO<sub>2</sub>eq]) + (off-site disposal by truck GHG emissions estimate [lb CO<sub>2</sub>eq])



# APPENDIX C

## ADJUSTED COST ESTIMATES



**Adjusted Estimated Cost - Alternative 4c**  
**Willamette Cove Upland Site**  
**Portland, Oregon**



Alternative Component	Quantity	Units	Unit Cost	Extension	Notes
<b>Capital</b>					
<b>Pre-Construction</b>					
Pre-Design Sampling, Surveying, Work Plan, Design, Permitting, Procurement/Contracting					
	15%		\$6,773,178	\$1,015,977	Assumes 15% of direct construction cost plus mobilization plus contingency.
	<b>Pre-Construction Subtotal</b>			<b>1,016,000</b>	
<b>Direct Construction</b>					
<b>Mobilization</b>	10%		\$4,736,488	\$473,649	Assumes 10% of direct construction cost.
<b>Site Prep</b>					
Utility Locating	8	hr	\$70	\$560	From ROD (DEQ 2021) <sup>(1)</sup>
Access Road Improvements	1,420	sy	\$24	\$33,597	From ROD (DEQ 2021) <sup>(1)</sup>
Erosion Control	4,500	lf	\$1.07	\$4,815	From ROD (DEQ 2021) <sup>(1)</sup>
Construction Entrance	1	LS	\$1,500	\$1,500	From ROD (DEQ 2021) <sup>(1)</sup>
Erosion Control Maintenance	4	month	\$632	\$2,528	From ROD (DEQ 2021) <sup>(1)</sup>
Dust Control	70	day	\$280	\$19,600	From ROD (DEQ 2021) <sup>(1)</sup>
Survey Control	22.4	acre	\$2,200	\$49,280	From ROD (DEQ 2021) <sup>(1)</sup>
Site Clearing (forested)	9.2	acre	\$9,700	\$89,240	From ROD (DEQ 2021) <sup>(1)</sup>
Site Clearing (unforested)	10.7	acre	\$950	\$10,165	From ROD (DEQ 2021) <sup>(1)</sup>
<b>Cap</b>					
Demarcation Layer	12,858	sy	\$2.05	\$26,359	From ROD (DEQ 2021) <sup>(1)</sup>
Purchase/Deliver Gravel	4,072	ton	\$22	\$89,584	From ROD (DEQ 2021) <sup>(1)</sup>
Purchase/Deliver Cobbles	12,215	ton	\$30	\$366,450	From ROD (DEQ 2021) <sup>(1)</sup>
Purchase/Deliver Topsoil	6,858	ton	\$23	\$157,734	From ROD (DEQ 2021) <sup>(1)</sup>
Place and Compact	12,858	cy	\$6.22	\$79,977	From ROD (DEQ 2021) <sup>(1)</sup>
<b>Cover/Topsoil</b>					
Purchase/Deliver Topsoil	45,777	ton	\$23	\$1,052,871	From ROD (DEQ 2021) <sup>(1)</sup>
Purchase/Deliver Activated Carbon	0	lb	\$1.00	\$0	From ROD (DEQ 2021) <sup>(1)</sup>
Apply Amendment	0	lb	\$0.25	\$0	From ROD (DEQ 2021) <sup>(1)</sup>
Place and Compact	28,611	cy	\$6.22	\$177,960	From ROD (DEQ 2021) <sup>(1)</sup>
<b>Excavation</b>					
Soil Excavation/Load (standard)	25,791	cy	\$35	\$902,685	Contractor quote for similar project.
Soil Excavation/Load (alternative)	922	cy	\$161	\$148,442	RSMeans: 312316160020
Chemical Analyses (TCLP metals)	46	each	\$150	\$6,900	From ROD (DEQ 2021) <sup>(1)</sup>
Waste Profiling Data Package	20	hr	\$125	\$2,500	From ROD (DEQ 2021) <sup>(1)</sup>
Transport Off-Site	6,897	ton	\$15	\$103,455	RSMeans: 312323201702/professional judgement
Transport/Place On-Site	22,656	cy	\$8.73	\$197,787	From ROD (DEQ 2021) <sup>(1)</sup>
Disposal	6,897	ton	\$40	\$275,880	Hillsboro Landfill
Confirmation Soil Sampling/Chemical Analyses	211	each	\$440	\$92,840	From ROD (DEQ 2021) <sup>(1)</sup>

**Adjusted Estimated Cost - Alternative 4c**  
**Willamette Cove Upland Site**  
**Portland, Oregon**



Alternative Component	Quantity	Units	Unit Cost	Extension	Notes
<b>Capital</b>					
<b>Site Restoration</b>					
Site Grading	19.9	acre	\$2,150	\$42,785	From ROD (DEQ 2021) <sup>(1)</sup>
Re-Vegetation (forested)	9.2	acre	\$43,500	\$400,200	From ROD (DEQ 2021) <sup>(1)</sup>
Re-Vegetation (unforested)	10.7	acre	\$20,000	\$214,000	From ROD (DEQ 2021) <sup>(1)</sup>
Temporary Irrigation System	19.9	acre	\$6,560	\$130,544	From ROD (DEQ 2021) <sup>(1)</sup>
First Year of Irrigation	9	month	\$6,250	\$56,250	From ROD (DEQ 2021) <sup>(1)</sup>
<b>Construction Contingency</b>	30	%	\$5,210,137	\$1,563,041	Percent of direct construction costs plus mobilization.
<b>Direct Construction Subtotal</b>				<b>\$4,736,488</b>	
<b>Direct Construction plus Mobilization Subtotal</b>				<b>\$5,210,137</b>	
<b>Direct Construction plus Mobilization plus Contingency Subtotal</b>				<b>\$6,773,178</b>	
<b>Indirect Construction Costs</b>					
Contractor/OH/Bonding/Insurance, Soil Management Plan/Institutional Controls, Construction Management, Engineering, Agency Oversight, Completion Reporting					
	25	%	\$6,773,178	\$1,693,295	Assumes 25% of direct construction, plus mobilization, plus contingency.
<b>Indirect Construction Subtotal</b>				<b>\$1,694,000</b>	
<b>Capital Cost Subtotal</b>				<b>\$9,484,000</b>	
<b>Long-Term Costs (Net Present Value)</b>					
Cap Annual Inspections	140	year	\$3,800	\$120,874	Adjusted NPV using 3.1% (over 140 years)
Cap Maintenance	140	year	\$7,201	\$229,056	Assume 1% of cap installation cost annually; adjusted NPV using 3.1% (over 140 years)
Plant Inspection and Replacement/Control	5	year	\$30,769	\$141,316	Assume 5% of plant installation cost annually; adjusted NPV using 2.9% (over 5 years)
Indirect Long-Term Costs (Project Management, Agency Oversight, Reporting)	140	year	\$8,354	\$265,731	Assume 20% of long-term costs annually; adjusted NPV using 3.1% (over 140 years)
Contingency	30	%	\$756,977	\$227,093	Percent of long-term costs; percentage same as construction.
<b>Long-Term Subtotal (Net Present Value)</b>				<b>\$985,000</b>	
<b>TOTAL</b>				<b>\$10,469,000</b>	
NOTES:					
Gray shaded cells are adjusted values.					
cy = cubic yard.			OH = overhead.		
hr = hour.			ROD = Record of Decision, Portland Harbor Superfund Site.		
lf = linear feet.			sy = square yards.		
LS = lump sum.			TCLP = Toxicity Characteristic Leaching Procedure.		
NPV = net present value.					
REFERENCES:					
<sup>(1)</sup> DEQ. 2021. Record of Decision: Selected Remedial Action for Willamette Cove Upland Site, Portland, Oregon. Oregon Department of Environmental Quality, Northwest Region Office. March.					
<sup>(2)</sup> The TCLP is described in the Code of Federal Regulations, Title 40, Part 261.					

**Adjusted Estimated Cost - Alternative 3b**  
**Willamette Cove Upland Site**  
**Portland, Oregon**



Alternative Component	Quantity	Units	Unit Cost	Extension	Notes
<b>Capital</b>					
<b>Pre-Construction</b>					
Pre-Design Sampling, Surveying, Work Plan, Design, Permitting, Procurement/Contracting					
	15	%	\$12,508,087	\$1,876,213	Assumes 15% of direct construction cost, plus mobilization, plus contingency.
	<b>Pre-Construction Subtotal</b>			<b>1,877,000</b>	
<b>Direct Construction</b>					
<b>Mobilization</b>	10	%	\$8,422,954	\$842,295	Assumes 10% of direct construction cost.
<b>Site Prep</b>					
Utility Locating	8	hr	\$70	\$560	From ROD (DEQ 2021) <sup>(1)</sup>
Access Road Improvements	1,420	sy	\$24	\$33,597	From ROD (DEQ 2021) <sup>(1)</sup>
Erosion Control	4,500	lf	\$1.07	\$4,815	From ROD (DEQ 2021) <sup>(1)</sup>
Construction Entrance	1	LS	\$1,500	\$1,500	From ROD (DEQ 2021) <sup>(1)</sup>
Erosion Control Maintenance	3	month	\$632	\$1,896	From ROD (DEQ 2021) <sup>(1)</sup>
Dust Control	50	day	\$280	\$14,000	From ROD (DEQ 2021) <sup>(1)</sup>
Survey Control	22.4	acre	\$2,200	\$49,280	From ROD (DEQ 2021) <sup>(1)</sup>
Site Clearing (forested)	9.2	acre	\$9,700	\$89,240	From ROD (DEQ 2021) <sup>(1)</sup>
Site Clearing (unforested)	10.7	acre	\$950	\$10,165	From ROD (DEQ 2021) <sup>(1)</sup>
<b>Cap</b>					
Demarcation Layer	0	sy	\$2.05	\$0	From ROD (DEQ 2021) <sup>(1)</sup>
Purchase/Deliver Gravel	0	ton	\$22	\$0	From ROD (DEQ 2021) <sup>(1)</sup>
Purchase/Deliver Cobbles	0	ton	\$30	\$0	From ROD (DEQ 2021) <sup>(1)</sup>
Purchase/Deliver Topsoil	0	ton	\$23	\$0	From ROD (DEQ 2021) <sup>(1)</sup>
Place and Compact	0	cy	\$6.22	\$0	From ROD (DEQ 2021) <sup>(1)</sup>
<b>Cover/Topsoil</b>					
Purchase/Deliver/Place/Compact Topsoil	1	LS	\$1,300,000	\$1,300,000	From ROD text (DEQ 2021) <sup>(1)</sup>
<b>Excavation</b>					
Soil Excavation/Load (standard)	44,535	cy	\$35	\$1,558,725	Contractor quote for similar project
Soil Excavation/Load (alternative)	922	cy	\$161	\$148,442	RSMeans: 312316160020
Chemical Analyses (TCCLP metals) <sup>(2)</sup>	78	each	\$150	\$11,700	From ROD (DEQ 2021) <sup>(1)</sup>
Waste Profiling Data Package	20	hr	\$125	\$2,500	From ROD (DEQ 2021) <sup>(1)</sup>
Transport Off-Site	77,277	ton	\$15	\$1,159,155	RSMeans: 312323201702/professional judgement
Transport/Place On-Site	0	cy	\$8.73	\$0	From ROD (DEQ 2021) <sup>(1)</sup>
Disposal	77,277	ton	\$40	\$3,091,080	Hillsboro Landfill
Confirmation Soil Sampling/Chemical Analyses	233	each	\$440	\$102,520	From ROD (DEQ 2021) <sup>(1)</sup>
<b>Site Restoration</b>					
Site Grading	19.9	acre	\$2,150	\$42,785	From ROD (DEQ 2021) <sup>(1)</sup>
Re-Vegetation (forested)	9.2	acre	\$43,500	\$400,200	From ROD (DEQ 2021) <sup>(1)</sup>

**Adjusted Estimated Cost - Alternative 3b  
Willamette Cove Upland Site  
Portland, Oregon**



Alternative Component	Quantity	Units	Unit Cost	Extension	Notes
<b>Capital</b>					
Re-Vegetation (unforested)	10.7	acre	\$20,000	\$214,000	From ROD (DEQ 2021) <sup>(1)</sup>
Temporary Irrigation System	19.9	acre	\$6,560	\$130,544	From ROD (DEQ 2021) <sup>(1)</sup>
First Year of Irrigation	9	month	\$6,250	\$56,250	From ROD (DEQ 2021) <sup>(1)</sup>
<b>Construction Contingency</b>	35	%	\$9,265,250	\$3,242,837	Percent of direct construction costs plus mobilization.
<b>Direct Construction Subtotal</b>				<b>\$8,422,954</b>	
<b>Direct Construction plus Mobilization Subtotal</b>				<b>\$9,265,250</b>	
<b>Direct Construction plus Mobilization plus Contingency Subtotal</b>				<b>\$12,508,087</b>	
<b>Indirect Construction Costs</b>					
Contractor/OH/Bonding/Insurance, Soil Management Plan/Institutional Controls, Construction Management, Engineering, Agency Oversight, Completion Reporting					
	25	%	\$12,508,087	\$3,127,022	Assumes 25% of direct construction plus mobilization plus contingency.
<b>Indirect Construction Subtotal</b>				<b>\$3,128,000</b>	
<b>Capital Cost Subtotal</b>				<b>\$17,514,000</b>	
<b>Long-Term Costs (Net Present Value)</b>					
Cap Annual Inspections	140	year	\$0	\$0	
Cap Maintenance	140	year	\$0	\$0	Assumes 1% of cap installation cost annually.
Plant Inspection and Replacement/Control	5	year	\$30,769	\$141,316	Assumes 5% of plant installation cost annually; adjusted NPV using 2.9% (over 5 years).
Indirect Long-Term Costs (Project Management, Agency Oversight, Reporting)	5	year	\$6,154	\$28,264	Assumes 20% of long-term costs annually; adjusted NPV using 2.9% (over 5 years).
Contingency	35	%	\$169,580	\$59,353	Percent of long-term costs; percentage same as construction.
<b>Long-Term Subtotal (Net Present Value)</b>				<b>\$229,000</b>	
<b>TOTAL</b>				<b>\$17,743,000</b>	

NOTES:  
 Gray shaded cells are adjusted values.  
 cy = cubic yard. OH = overhead.  
 hr = hour. ROD = Record of Decision, Portland Harbor Superfund Site.  
 lf = linear feet. sy = square yards.  
 LS = lump sum. TCLP = Toxicity Characteristic Leaching Procedure.  
 NPV = net present value.

REFERENCES:  
<sup>(1)</sup> DEQ. 2021. Record of Decision: Selected Remedial Action for Willamette Cove Upland Site, Portland, Oregon. Oregon Department of Environmental Quality. Northwest Region Office. March.  
<sup>(2)</sup> The TCLP is described in the Code of Federal Regulations, Title 40, Part 261.

# APPENDIX D

## SECOND REVIEW DRAFT COMMENTS



## REVIEW COMMENTS

PROJECT: Metro Willamette Cove Contingency Remedy      DATE: 6/1/2022  
 RESPONDER: Maul Foster & Alongi, Inc.      SHEET: 1 of 7  
 PROJECT NO.: M0075.12.001

Comments received from various stakeholders presented by MFA in matrix format. The matrix was prepared to support a meeting with Metro held on June 1, 2022. Text noted in blue represents responses from Metro (Brian Moore) provided during that meeting.

Comment No.	Review Comments	Author Response
1	<b>METRO:</b> Katie McDonald provided recommendations for restructuring sections of the document.	Added "Portland Harbor Superfund Site Context" section as Section 2.1 and incorporating suggested source material; moved "Tribal and Neighborhood Context and History" section from Section 3.1 to Section 2.2; renumbered other subsections in Section 2 and Section 3.
2	<b>METRO:</b> Paul Slyman request that we double-check this to better understand what Restricted use for consolidation area means.	Summary table updated to indicate no restrictions on access but some restrictions on land use (e.g., residential development).
3	<b>PHCC:</b> Section 3.1: This section should have some information about the environmental impacts associated with historical industrial activity along the lower Willamette. One of the reasons that community members in North Portland don't want a consolidation area at the site is that they already live with significant environmental impacts. This is really one of the main takeaways from community involvement so would help put the community perspectives into context.	"Portland Harbor Superfund Site Context" section added as Section 2.1 includes discussion of environmental impacts associated with Portland Harbor Superfund Site.
4	<b>PHCC:</b> Sections 4.1 and 4.1.1: Would like to see it noted here that the soil proposed to be placed in the consolidation area would have concentrations of contaminants over DEQ risk-based limits for human health.	Added a sentence noting soil placed in the consolidation area would have contaminant concentrations above human health and ecological risk levels; however, an engineered cap would prevent human contact
5	<b>PHCC:</b> Section 4.1.3.1: Is the consolidation area referred to in this section a temporary onsite consolidation area? I thought this option did not require an onsite consolidation area?	Consolidation area is not required. Text has been removed indicating on-site transportation to a consolidation facility.
6	<b>PHCC:</b> Section 4.2: Yikes. Would really like to see the cost calculations. Why did the cost for 4c go up by only 1.4 million while the cost for 3b went up by 5.7 million? Is that all because of transportation costs?	Transportation and excavation costs both increased significantly compared to the FS estimates, and disposal increased by 25%. Additional increases are realized in the percentage dependent costs (mobilization, contingency, etc.)

Comment No.	Review Comments	Author Response
7	<b>PHCC:</b> Section 4.4.1: Even if the ecological benefit of doing the additional removal can't be quantified in this report, can you say anything about what the benefits might look like?	Added language at the direction of Metro indicating that "Both alternatives also meet the goals of Metro's habitat restoration goals."
8	<p><b>YN:</b> It appears that cost estimates have been updated, which makes the partial remedy appear much less expensive than the complete removal contingency. However, the cost analysis fails to incorporate several long-term maintenance issues. This short-sighted, near-term approach is incomplete and results in inaccurate predictions of future costs. For example:</p> <ul style="list-style-type: none"> <li>•The proximity of the contamination left behind is very close to the river. Long-term maintenance assumes that nothing will ever go wrong, that flooding, earthquakes or other impacts will not occur to require future repairs or removal. It ONLY considers the costs of future annual monitoring.</li> <li>•Climate change has been considered mainly in terms of carbon emissions from the remedy itself, but not in terms of climate resilience of the river system and shoreline communities long-term.</li> </ul>	Metro will address comment in a response letter.
		** Repairs are not included in long-term costs as there is no basis to define the magnitude of repair events. No change proposed to the document.
		Not in the scope of the CR study. Metro will address comment in a response letter.
9	<b>YN:</b> The final table should include evaluation and compliance with the land-use and zoning purposes highlighted in the attachment, as well as ease of integration with the riverbank and offshore cleanup.	Metro will address comment in a response letter.
10	<b>YN:</b> We can't stress enough the importance of optimizing habitat mitigation. It could also be that restoration of this area could offset habitat mitigation or restoration liabilities the City may have, which would further increase the value (financial and otherwise) of the complete removal remedy.	Not in the scope of the CR study. Metro will address comment in a response letter.
11	<b>YN:</b> There are clearly trade-offs to the community in terms of long-term assets vs. short-term disturbance (increase in truck traffic and emissions). This should be explored further with the neighborhoods impacted to evaluate their preferences regarding this trade-off.	Metro indicated that the public comments received to date are sufficient.
12	<b>YN:</b> comment #2b – Metro's purpose of the property purchase	Metro will address comment in a response letter.



Comment No.	Review Comments	Author Response
13	<p><b>YN:</b> comment #3 – Integration with riverbank and in river cleanup work</p> <p>An integrated plan needs to be developed that allows habitat and community benefits to flow seamlessly from the upstream riparian zone to the subtidal in-water zone. A key aspect of this cleanup/restoration should be removal of hardscape and debris from all three of these areas, in order to meet several of the criteria stated above</p>	<p>Metro will address comment in a response letter. To be included in the remedial design.</p>
14	<p><b>YN:</b> comment #4 – Flooding</p> <p>The cleanup should plan for flooding and more intensive rainfall, and actively contribute to increasing river and community capacity and resilience toward future climate events.</p>	<p>Metro will address comment in a response letter. To be included in the remedial design.</p>
15	<p><b>IEc:</b> Section 3.1 Consider moving the sentence beginning “The area is located within the ancestral homelands of many Native peoples...” to the first paragraph of the section. Native peoples’ presence in this place predates the urban geographic features (railroads, etc.) described in this paragraph.</p>	<p>This sentence has been moved to be the opening sentence of the section (now Section 2.2).</p>
16	<p><b>IEc:</b> Section 3.1 Consider separating the third paragraph into two paragraphs focused on (1) genocidal policies directed at Native peoples and (2) anti-Black and other subsequent racist legislation and policy.</p>	<p>This paragraph has been separated into two paragraphs.</p>
17	<p><b>IEc:</b> Section 3.1 Consider providing more detail about the effects of the Donation Land Act of 1850 on the displacement of Native peoples from the Willamette River valley.</p>	<p>Added information about the effects of the Act on the displacement of Native peoples from the Willamette River Valley.</p>
18	<p><b>IEc:</b> Section 3.2, we recommend including a sentence that explains that DEQ’s staff report was the foundation for the Record of Decision (ROD).</p>	<p>Added a sentence: “The DEQ Staff Report on recommended remedial action for the Site presented the basis for DEQ’s proposed cleanup and was subsequently generally adopted in the ROD, with the addition of the Contingency Remedy option” (DEQ 2022).</p>

Comment No.	Review Comments	Author Response
19	<p><b>IEc:</b> We suggest revising Section 3.2 to acknowledge comments submitted to DEQ on several earlier reports. The existing text could be supplemented with the following text in italics:</p> <p>“Consultants also provided a comment letter to DEQ regarding the staff report on behalf of the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Nez Perce Tribe (Five Tribes) (IEc 2020). The 2020 comment letter built upon several prior memoranda submitted on behalf of the Five Tribes that reviewed the draft and revised Groundwater Source Control Evaluation and Alternatives Analysis, the Revised Feasibility Study and Source Control Evaluation, and the Port’s Response to Comments on the Revised Feasibility Study and Source Control Evaluation. The 2020 comment letter on the staff report states the staff report satisfactorily identifies...”</p>	<p>Incorporated text substantially similar to the suggestion into the report.</p>
20	<p><b>IEc:</b> In the last paragraph of Section 3.2, we request Metro delete “for passive recreation.” Given that the final site design and plans for future use are in development, and not yet final, we recommend using more general language to summarize the Five Tribes’ comment regarding an appropriate design and aesthetic fit for any on-site consolidation unit.</p>	<p>Deleted “for passive recreation” as requested.</p>
21	<p><b>IEc:</b> Following review of the first draft report (MFA 2022b), the Five Tribes recommended Metro define what commenters meant by “full cleanup” in the report. Section 3.3 of the second draft report (MFA 2022a) was revised to state “Comments often refer to a preference for “full cleanup” or “full removal” of contamination, referring to the physical removal of contaminated soils.” We remain concerned that these terms are not adequately defined. We recommend the report further refine these terms as “referring to the removal of all contaminated soils, including moderately contaminated soils, for off-site disposal.”</p>	<p>Added language in Section 3.2 (previously Section 3.3) stating: “In the ROD, DEQ refers to Alternative 3a and Alternative 3b as the “full removal” options. See Section 2.3.2 of this report for additional information.”</p> <p>Added language in Section 2.3.2 stating: “Two alternatives in the ROD, Alternative 3a and Alternative 3b, involve complete removal of contaminated soil and off-site disposal of all excavated soil, with the exception of areas under Alternative 3b where native trees are present and will limit excavation. Based on a preference by Metro and many commenters to retain the native trees, the primary contingency alternative evaluated in this analysis is Alternative 3b (alternative excavation and off-site disposal) (Figure 23 in Appendix A).”</p>

Comment No.	Review Comments	Author Response
22	<p><b>IEc:</b> Section 4.4.1 states "Additional ecological benefit is derived from off-site disposal of the 23,000 cubic yards of moderately contaminated soil that is otherwise slated for placement in an on-site consolidation cell. This benefit cannot be quantified within the limits of this analysis and the timeline for the remedial design process." The assertion of greater ecological benefit from removing all moderately contaminated soil should be better justified. For instance, is this due to the risk of cap failure? Assuming no cap failure, would the ecological benefits of the two alternatives be equal? Citations to any appropriate references should be included.</p>	<p>Added language at the direction of Metro indicating that "Both alternatives also meet the goals of Metro's habitat restoration goals."</p>
23	<p><b>IEc:</b> Section 4.4.2, Seismic Considerations, states "A site-specific geotechnical evaluation would need to be completed to fully understand physical characteristics of the site for design of an on-site containment cell." Given the relative importance of the geotechnical characterization, we recommend this work be completed prior to making a decision about the feasibility and siting of an on-site consolidation unit.</p>	<p>Metro will address comment in a response letter. To be included in the remedial design.</p>
24	<p><b>IEc:</b> The greenhouse gas (GHG) emission calculations provided in Appendix B are for carbon dioxide (CO<sub>2</sub>) only. We recommend Metro consider including methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) in the calculations. The CH<sub>4</sub> and N<sub>2</sub>O emissions factors are available for barges and trucks (USEPA 2022). Incorporating these compounds would provide a more complete picture of GHG emissions.</p> <p>U.S. Environmental Protection Agency (USEPA). 2022. Emissions Factors for Greenhouse Gas Inventories. April 1. Accessed from: <a href="https://www.epa.gov/climateleadership/ghg-emission-factors-hub">https://www.epa.gov/climateleadership/ghg-emission-factors-hub</a>.</p>	<p>The previous emissions estimate included CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O shown as a CO<sub>2</sub>eq emission factor.</p> <p>The emissions calculations for trucks have been reworked to present CH<sub>4</sub> and N<sub>2</sub>O emission estimates broken out using the USEPA 2022 emission factors. The IPCC AR5 CO<sub>2</sub>eq emission factor (including CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O) for barge transportation will continue to be used because the USEPA does not have a CO<sub>2</sub> emission factor for barges.</p>
25	<p><b>IEc:</b> Metro uses emissions factors for CO<sub>2</sub> from the Intergovernmental Panel on Climate Change (IPCC 2014). We recommend Metro consider using more recently updated emissions factors (e.g., EPA's Emissions Factors for Greenhouse Gas Inventories [USEPA 2022]).</p>	<p>Same response as Comment 24.</p>
26	<p><b>IEc:</b> The second draft report (MFA 2022a) refers to the on-site consolidation area as a "consolidation unit," "consolidation cell," and a "containment unit." We recommend using standard terminology for consistency.</p>	<p>The ROD refers to a "consolidation area"; text has been revised to use this terminology.</p>
27	<p><b>DEQ:</b> Cleanup Description. There is slight confusion on the description of the selected remedy (including Sections 2.1.2, 4.1.1, 4.3). The Feasibility Study (Apex, 2019) helped inform the Staff Report that presented the basis for DEQ's proposed cleanup; however, DEQ incorporated moderate modifications/clarifications to the Alternative 4c presented in the FS. The Staff Report was generally adopted as the Record of Decision, with the addition of the contingency option in consideration of public comment and Metro feedback. We have the following clarifications on two elements of the selected remedy, regarding what contaminated soil at minimum needs to go offsite and cap versus covers.</p>	<p>Text has been revised in accordance with the DEQ comment.</p>

Comment No.	Review Comments	Author Response
	<p><u>Metal Ecological Risk Hot Spots.</u> Ecological hot spots for metals are also required to be disposed offsite, in addition to human health hot spots. As stated in the ROD (see Section 1.2: Scope and Role of the Selected Remedial Action):</p> <ol style="list-style-type: none"> <li>Excavation and offsite disposal of all soil exceeding hot spot levels for human health.</li> <li>Excavation and offsite disposal of soil exceeding non-dioxin/furan (e.g., metals including mercury) hot spot levels for ecological health.</li> </ol>	Text has been revised in accordance with the DEQ comment.
	<p><u>Cover versus Cap.</u> We recommend replacing "in-place capping" used in this analysis document with "cover" to be consistent with the ROD. For context, following soil removal/reconsolidation with a reinforced cap, the site would be "covered" with a minimum of 1-foot of clean topsoil. While the FS used the term cover/cap, the ROD uses "cover" to better represent that the majority of the site would be covered with clean soil without long-term requirements, and it is our preference to limit "cap" areas to the extent practical. Moderate levels of ecological risk, if present after excavation activities, may require placement of more than 1-foot soil. If excavation activities cannot reasonably remove ecological hot spots (e.g., for dioxin-furans), these focused areas would be capped with 3 feet of clean soil. Ecological hot spot areas (under 3-feet of clean soil) may require long-term management controls; however, that would be determined at a later date. [Note, the FS also proposed less cover/cap material, than specified in the ROD. The increased cover thickness allows for mixing to reduce risk. The exposure depth considered for ecological risk (to plants and animals) is 3 feet and accounts for burrowing animals]. As per the ROD (Section 1.2):</p> <ol style="list-style-type: none"> <li>Lower-level risk to plants and animals would be covered in-place. Cover thickness would be determined based on the level of residual risk; however, a minimum 1-foot of clean topsoil will be necessary. Remaining ecological hot spots, if any, will be capped by 3 feet of clean soil or alternative DEQ-approved material.</li> </ol>	Text has been revised in accordance with the DEQ comment.
28	<p><b>DEQ:</b> Construction Impacts. While truck trips were calculated in the FS and for comparison purposes amongst the remedial action alternatives, DEQ preference is barge or alternative method that provides the lowest degree of impact to communities.</p>	MFA and Metro recognize that a barge alternative may be possible but plan to continue to assume truck trips for remedy implementation.
29	<p><b>DEQ:</b> Summary of Contingency Analysis Table. For Alternative 4c, as noted above excavated areas will be covered with at least 1-foot clean soil and additional cover material maybe be necessary to effectively reduce risk to plants and animals.</p>	Text has been revised in accordance with the DEQ comment.

Comment No.	Review Comments	Author Response
30	<p><b>DEQ:</b> Construction Cost Comparison. The adjusted estimated cost of Alternative 3b is substantial, approximately a 50% increase versus less than 20% for Alternative 4c. In absence of the adjusted cost calculations (to be provided in the final document), it's unclear what drives the delta from FS estimates to present day. It may be helpful to provide a sentence describing what materials/tasks mostly contributed to the increase.</p>	See the response to Comment 6.
31	<p><b>DEQ:</b> Figure 28. This figure was taken from the Feasibility Study (and used for the Staff Report/ROD). Please note the following:</p> <ul style="list-style-type: none"> <li>• The consolidation area shown is an "example" and is not representative of the final location and shape. This would be determined in remedial design. While this figure has a footnote generally capturing this, it would have been helpful to emphasize "Example" Soil Consolidation Area in the figure.</li> <li>• The standard cap is not 2-foot soil, which was originally proposed in the FS. DEQ had concerns this would be insufficient and instead required a thicker reinforced cap for the consolidation area (to withstand extreme events). The ROD specifies: Capping of consolidated soil will consist of a demarcation layer and a minimum of 3 feet of clean cover material. The final cap thickness and composition will be determined during remedial design.</li> <li>• As noted above, the FS used cover/cap outside the consolidation area; however, the ROD uses "cover" to better represent the cleanup strategy. Capping may be required depending on depth and levels of contamination left in-place but is the less favorable option.</li> </ul>	<p>References to Figure 28 in the text now include the following caveat from the ROD:</p> <p>"An example consolidation area (covering approximately 116,000 square feet) is presented in Figure 28: Alternative 4c for illustration purposes. The final location and dimensions (e.g., shape) of the consolidation area would be determined during remedial design, including stability considerations and accommodating future park plans to the extent possible."</p> <p>Notes to Figure 28 have been added indicating that:</p> <p>"The final cap thickness and composition will be determined during remedial design."</p> <p>"The FS used cover/cap outside the consolidation area; however, the ROD uses "cover" to better represent the cleanup strategy. Capping may be required depending on depth and levels of contamination left in-place but is the less favorable option."</p>

## Mary Matyas

---

**From:** Brian Moore <Brian.Moore@oregonmetro.gov>  
**Sent:** Friday, May 20, 2022 12:16 PM  
**To:** Seth Otto; Michael Pickering  
**Cc:** M0075.12 Metro Willamette Cove  
**Subject:** Fw: Will Cove team meeting-- YOUR INPUT  
**Attachments:** DRAFT\_MFA 80percent draft review comments kmm 05172022 ps.docx

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

**Categories:** [Metro RFP]

### [External Sender - Confirm Sender and Beware of Links and Attachments]

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Seth and Michael,

Please find these initial comments regarding the 80% draft. See Paul's note below regarding restricted use. We would like to be more specific when we talk about restricted use so as to reduce the range of what that means in peoples imaginations. Then further below please find Katie's comments about some overall organization with respect to Tribal information. She has also provided a significant amount of text that can be added and word smithed into the voice of the document as necessary. The last set of comments is in the attached 80% draft review word document. These comments are combined comments from Katie and Paul.

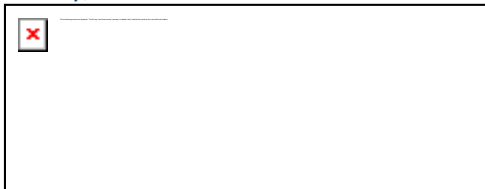
I hope that getting these piecemeal is not too disruptive. Most of this initial set of comments should be able to be adopted directly or close to directly.

If we need to discuss any of these, let me know. It might be better to incorporate what you can and then we can discuss all of the comments in a week or so after I send them. But I am flexible.

Cheers,  
Brian

**From:** Paul Slyman  
**Sent:** Thursday, May 19, 2022 12:46 PM  
**To:** Brian Moore <[Brian.Moore@oregonmetro.gov](mailto:Brian.Moore@oregonmetro.gov)>; Katie McDonald <[Katie.McDonald@oregonmetro.gov](mailto:Katie.McDonald@oregonmetro.gov)>  
**Subject:** RE: DRAFT 80% report email to Yakama DRAFT

Hi Brian—I think you addressed these and I appreciate it! Re: the last one:  
“Lastly, I think we should double-check this to better understand what Restricted use for consolidation area means.



Paul

Brian Moore  
Program Manager  
Metro, Parks & Nature  
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**From:** Paul Slyman  
**Sent:** Wednesday, May 18, 2022 6:14 PM  
**To:** Katie McDonald; Brian Moore  
**Subject:** RE: Will Cove team meeting-- YOUR INPUT

Hi Katie and Brian—  
I support this reordering and reorganizing. I think continuing to distinguish Tribal Histories, Tribal Impacts, etc is good and an important part of our Tribal engagement work. I have some observations and suggestions (and a few small edits) on the attached. Mostly, I believe it will benefit from a good MFA copy edit to ensure it flows logically.  
Hope this is helpful,  
Paul

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**From:** Katie McDonald  
**Sent:** Tuesday, May 17, 2022 7:12 PM  
**To:** Paul Slyman <[Paul.Slyman@oregonmetro.gov](mailto:Paul.Slyman@oregonmetro.gov)>  
**Subject:** FW: Will Cove team meeting-- YOUR INPUT

Hi Paul,

I'd appreciate your thoughts on all of this and hope these recommendations could be discussed Thursday morning with the team while I'm away to see if they can be included. Please let me know if you'd like to visit about this tomorrow before I'm OOO.

Thanks much,  
Katie

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**From:** Katie McDonald  
**Sent:** Tuesday, May 17, 2022 7:10 PM  
**To:** Brian Moore <[Brian.Moore@oregonmetro.gov](mailto:Brian.Moore@oregonmetro.gov)>; Paul Slyman <[Paul.Slyman@oregonmetro.gov](mailto:Paul.Slyman@oregonmetro.gov)>; Dan Moeller <[Dan.Moeller@oregonmetro.gov](mailto:Dan.Moeller@oregonmetro.gov)>; Katy Weil <[Katy.Weil@oregonmetro.gov](mailto:Katy.Weil@oregonmetro.gov)>; Gary Shepherd <[Gary.Shepherd@oregonmetro.gov](mailto:Gary.Shepherd@oregonmetro.gov)>  
**Cc:** Susanne Raymond <[Susanne.Raymond@oregonmetro.gov](mailto:Susanne.Raymond@oregonmetro.gov)>  
**Subject:** RE: Will Cove team meeting-- YOUR INPUT

Hi Brian,

Thanks for sharing this with us. I've done some early review of the 80% draft given I am out of the office later this week and have some initial recommendations for your consideration to: move some existing sections of the draft report around and add new sections of content regarding broader Portland Harbor context which would incorporate/discuss select existing information re: Tribes and PHSS in the document. These recommendations are informed by a recent comment/request from Yakama Nation in their comments on the 30% draft contingency remedy report on April 27, more specifically these sections of the following comment:

“5.Habitat. The report needs to include information on historic and existing conditions of habitat at and surrounding Willamette Cove and the importance of the area to ESA listed and tribally important aquatic species, and the upland area and terrestrial species. It is important to include this information, to set the stage, otherwise the report is solely slanted towards human use, human infrastructure and climate impacts related only to the human use and development of the area. A summary of habitat and the species that rely on the area would keep the potential for future restoration of the area in the front of the reader's mind and better inform future design and mitigation/restoration needs or opportunities.”

I understand from our recent discussions that there is limited ability if any to have MFA be respond to all of the CTBYN comments on how ecological trade-offs, specifically habitat and habitat restoration impacts, are considered in this c-remedy evaluation. My proposed recommendations are only a partial solution and response to Yakama's earlier comments and I believe can be accomplished by having MFA strategically pull in existing text about broader PHSS impacts to Tribes into the report (rather than producing new content or discussion) to help set the stage for Council's consideration of moving to exercise the contingency remedy option or not.

The attached document includes text I've skimmed quickly today from various PHSS publications/reports and copy + pasted into a high level outline of sorts to propose/populate the new section 2 of the report I'm asking everyone here to consider. Where copy + paste wasn't easy I have tried to paraphrase the text and include references so you and MFA can go find and read directly. There are only a handful of sentences in this mostly copy + pasted document that I've written on my own. If we move forward with these recommendations I would greatly appreciate your and MFA's thinking on how to include these PHSS resources/content directly or how to summarize and cite the approach in an appropriate manner. Content in pages 1 and 2 is duplicative of each other in some areas so I don't believe the full new section if we write/incorporate it will be as long as this attachment (was trying to include multiple potential resources to pull from). This is also by no means the full range of content that could be included in this new section so would appreciate the group's thoughts on this as well.

You will also see that I have recommended:

- New sections/moving sections around in the report to change Section 2 to start at introducing Willamette River and Portland Harbor to then progressively dial into the neighborhood context and then the Willamette Cove site specifically all in one section at the top of the report
- An additional paragraph or two of discussion/information from our parks team at the end of section 2 to help set the 'ecological stage or profile' of the upland portion of the site in the report's opening context and discussion



I will send additional comments from my review of the report next week when I am back in the office. If you want to chat through this tomorrow please let me know. Thanks all for your consideration of what I've proposed here and your thoughts on how we can consider including additional information to be responsive to Yakama's specific comments and other helpful content to share the Tribes' perspective/relationship to this assessment and decision generally as well.

Best,  
Katie

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**From:** Brian Moore  
**Sent:** Tuesday, May 17, 2022 11:34 AM  
**To:** Paul Slyman <[Paul.Slyman@oregonmetro.gov](mailto:Paul.Slyman@oregonmetro.gov)>; Dan Moeller <[Dan.Moeller@oregonmetro.gov](mailto:Dan.Moeller@oregonmetro.gov)>; Katie McDonald <[Katie.McDonald@oregonmetro.gov](mailto:Katie.McDonald@oregonmetro.gov)>; Katy Weil <[Katy.Weil@oregonmetro.gov](mailto:Katy.Weil@oregonmetro.gov)>  
**Cc:** Susanne Raymond <[Susanne.Raymond@oregonmetro.gov](mailto:Susanne.Raymond@oregonmetro.gov)>  
**Subject:** Re: Will Cove team meeting-- YOUR INPUT

80% draft document should be on the agenda.

Thanks Paul!

Brian

**Brian Moore**

Principal Planner  
Metro, Parks & Nature  
600 NE Grand Avenue  
Portland, OR 97232-2736  
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951-452-3002 (cell phone)  
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<https://www.linkedin.com/in/bmm81>

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**From:** Paul Slyman <[Paul.Slyman@oregonmetro.gov](mailto:Paul.Slyman@oregonmetro.gov)>  
**Sent:** Tuesday, May 17, 2022 11:09:08 AM  
**To:** Dan Moeller <[Dan.Moeller@oregonmetro.gov](mailto:Dan.Moeller@oregonmetro.gov)>; Brian Moore <[Brian.Moore@oregonmetro.gov](mailto:Brian.Moore@oregonmetro.gov)>; Katie McDonald <[Katie.McDonald@oregonmetro.gov](mailto:Katie.McDonald@oregonmetro.gov)>; Katy Weil <[Katy.Weil@oregonmetro.gov](mailto:Katy.Weil@oregonmetro.gov)>  
**Cc:** Susanne Raymond <[Susanne.Raymond@oregonmetro.gov](mailto:Susanne.Raymond@oregonmetro.gov)>  
**Subject:** Will Cove team meeting-- YOUR INPUT

Hi friends—

We have a Will Cove team meeting Thursday morning. Do you have specific items you'd like to see discussed? Would you please let us know by end of day today?

Thanks!

**Paul Slyman**

*he/him/his*

GM, Major Projects

Metro | [oregonmetro.gov](http://oregonmetro.gov)

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Portland, OR 97232-2736

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Draft preliminary feedback 80% MFA C-remedy evaluation draft  
current 05.17.2022

### 2.1.1 Portland Harbor Superfund Site Context (new recommended section to start section 2 of report)

The Willamette River lies entirely in Northwestern Oregon and is a major tributary of the Columbia River with its main portion stretching over 187 miles. The Willamette River and its tributaries form the largest watershed in the state (the Willamette Basin), covering more than 11,500 square miles. Portland is at the lower end of the drainage basin and is the most urbanized part of the watershed. The lower portion of the Willamette River, which includes the PHSS<sup>[PS1]</sup>, has remained in largely the same location and shape since it was first surveyed in the 1800s (1)5.

The Portland Harbor Superfund Site includes an in-river and upland portion of the lower Willamette River and spans approximately 10 miles between the City of Portland's Broadway Bridge and Sauvie Island. The lower portion of the Willamette River flows south to north through Portland, separating the east and west downtown portions of the city. The central portion of the Site encompasses numerous neighborhoods, as illustrated in Figure 2.<sup>[PS2]</sup> The Willamette River plays an important role in the community by providing and supporting ecosystem services such as air quality, energy, food, physical and mental well-being, plants, transportation, water, and wildlife (listed alphabetically). [EPA CIP, 2020]

Native people have been using the resources of the lower Willamette River since time immemorial. These people are now members of tribes that are still active in the perpetuation of their respective ways of life. Tribal members have used and continue to use Portland Harbor for the natural resources that it provides and for other reasons. Tribes have depended historically on a wide range of resources in the area for sustenance as well as for cultural and religious activities. Tribal culture is intricately linked to natural resources. Historically, people traveled to ~~Portland Harbor~~ the lower Willamette River from near and distant locations. Today, this tradition continues with tribal members coming to Portland Harbor and the lower Willamette River to harvest fish and eels (lamprey), even though many tribal members choose to avoid harvest of contaminated resources<sup>[PS3]</sup>. ~~In the past, people were drawn to the lower Willamette River due to the abundance of resources available. These resources supported people that inhabited the area year round as well as those traveling from other areas. Estimates based on Lewis and Clark's observations suggest that the seasonal population was nearly double the local population.~~

<sup>[PS4]</sup> [[https://www.fws.gov/portlandharbor/sites/portland/files/2018-12/201706\\_FINAL\\_PEIS.pdf](https://www.fws.gov/portlandharbor/sites/portland/files/2018-12/201706_FINAL_PEIS.pdf) Section 5.5]

For over a century, industries and public entities have released ~~dozens of~~ harmful contaminants into the river leading to present day contamination and pollution ~~impacts~~ to the river and resources. [PHSS factsheet] Releases of contaminants in and adjacent to the PHAA [PS5] have injured natural resources of tribal importance, resulting in the lost use of those resources. [Portland Harbor Final Supplemental Restoration Plan and Environmental Assessment, 2021  
[https://www.fws.gov/portlandharbor/sites/portland/files/resources/Final\\_PH\\_SRP\\_EA\\_v2-508\\_20210304.pdf](https://www.fws.gov/portlandharbor/sites/portland/files/resources/Final_PH_SRP_EA_v2-508_20210304.pdf)]

~~For thousands of years, since time immemorial, Native people have used the resources of the lower Willamette River for subsistence as well as cultural and religious activities. Native people living in this region have stewarded the Willamette River Valley for generations. [EPA CIP, 2020].~~ [PS6]

Many tribal and community members have an established history, have homes within the lower Willamette River area, or both. The river and surrounding natural areas provide a place of solitude, comfort, enjoyment and a place to commune with nature. The river is an important aspect of how the residents define themselves, influences how they have built their lives and is part of their vision for future generations. [EPA CIP, 2020]

Culturally- and spiritually-significant natural resources of the lower Willamette River are vital to Native peoples who have maintained strong ties to the River since time immemorial, including through fishing, hunting, gathering plants and raw materials, exchanging goods, and practicing ceremonial life (CTUIR, n.d.; CTWSRO, n.d.; Grand Ronde, n.d.; Nez Perce Tribe, n.d.; Siletz Tribe, n.d.; Yakama Nation Fisheries, n.d.; Yakama Tribal Council, 2016). [KM7] The lower Willamette River has and continues to hold great historical, natural and cultural resource significance to Tribes. [EPA CIP, 2020]

The Willamette River serves as habitat and a migratory corridor for many species of fish and wildlife such as: Chinook and Coho salmon; steelhead, Pacific lamprey; White sturgeon; Bald Eagle, Osprey; Double-crested ~~comorant~~ cormorant; Great blue heron; Belted Kingfisher; Mergansers; Mink; River otter; Northern red-legged frog; Pacific tree frog; and other species. [PS8] Both adult and juvenile salmonids are common in the lower Willamette River during various times in the year. Adults are present during their upriver spring migrations, whereas juvenile salmonids can be found in the lower Willamette River year-round.

In addition, the lower Willamette River has been designated by the National Marine Fisheries Service (NMFS) as critical habitat for Lower Columbia River Chinook salmon, Lower Columbia steelhead, Upper Willamette River Chinook salmon, and Upper Willamette River steelhead. The lower River is proposed critical habitat for Lower Columbia River Coho salmon. The NMFS critical habitat designations indicate freshwater

rearing sites and migration corridors are essential to the conservation of the listed salmonid species. [EPA CIP, 2020]

Fish are among the resources most frequently utilized by the Tribes in the Portland Basin and Willamette Valley and provide sustenance and subsistence<sup>[PS9]</sup> to tribal communities. Culturally significant species include salmonids, lamprey (eels), eulachon (smelt), sturgeon, resident fish species and native freshwater mussels. [EPA CIP, 2020]

Environmental pollution in the Portland Harbor Superfund Site has disproportionate impacts to Tribes and tribal communities including negative impacts to the availability and quality of critical habitat to support culturally important species and also through bioaccumulation of contaminants in culturally important species and First Foods that subsequently require consumption advisories to restrict consumption to levels safe for human health. In 2004, a fish consumption advisory was issued to ~~warm-warn~~ children and women of childbearing age not to eat resident fish from Portland Harbor due to contamination concerns and risks to human health. [PHSS factsheet]

Pacific lamprey at Willamette Falls are a sole-source fishery for tribal members due to plummeting lamprey populations at other sites where tribal members also traditionally collected these fish. As part of their life cycle, lamprey migrate up the lower Willamette River en route to Willamette Falls approximately 15 miles upstream from Portland Harbor and are exposed to contamination during that journey. Due to this exposure, lamprey harvested at Willamette Falls do not provide the full suite of services they would provide absent the contamination. [Portland Harbor Final Supplemental Restoration Plan and Environmental Assessment, 2021]

<sup>[PS10]</sup> [https://www.fws.gov/portlandharbor/sites/portland/files/resources/Final\\_PH\\_SRP\\_EA\\_v2-508\\_20210304.pdf](https://www.fws.gov/portlandharbor/sites/portland/files/resources/Final_PH_SRP_EA_v2-508_20210304.pdf) Juvenile lamprey also migrate through the lower Willamette River en route to the Pacific Ocean. During their outward migration juvenile lamprey burrow in sediments and filter feed at the sediment/water interface thus potentially experiencing substantial and prolonged exposure to contaminated sediments. [Portland Harbor Final Supplemental Restoration Plan and Environmental Assessment, 2021 [https://www.fws.gov/portlandharbor/sites/portland/files/resources/Final\\_PH\\_SRP\\_EA\\_v2-508\\_20210304.pdf](https://www.fws.gov/portlandharbor/sites/portland/files/resources/Final_PH_SRP_EA_v2-508_20210304.pdf)]

For populations that rely on these resources, the status of the resources provided by the lower Willamette River becomes an environmental justice issue, because many who rely on these resources are from ethnic minority groups. [Portland Harbor Final Supplemental Restoration Plan and Environmental Assessment, 2021

[https://www.fws.gov/portlandharbor/sites/portland/files/resources/Final\\_PH\\_SRP\\_EA\\_v2-508\\_20210304.pdf](https://www.fws.gov/portlandharbor/sites/portland/files/resources/Final_PH_SRP_EA_v2-508_20210304.pdf)] Tribal-specific losses from contamination in Portland Harbor Superfund Site include the lost use of resources for recreation, subsistence and ceremonial purposes. [[https://www.fws.gov/portlandharbor/sites/portland/files/2018-12/201706\\_FINAL\\_PEIS.pdf](https://www.fws.gov/portlandharbor/sites/portland/files/2018-12/201706_FINAL_PEIS.pdf)] The Tribes have identified that restoring resources in the

Willamette River is critical to their wellbeing, cultural survival and role as environmental stewards [PHSS tribal factsheets].

2.1.2 Neighborhood Context and History (recommend move current section 3.1 Tribal and Neighborhood Context and History content to this new sub-section in 2, and then Section 3 becomes strictly a section summarizing respective comments/input from Tribes and Community members)<sup>[PS11]</sup>

2.1.3 Willamette Cove Site History (rename current section 2.1.1 in 80% draft report from MFA to WC site history)<sup>[PS12]</sup>

Recommend adding statement/paragraph from Metro PN staff about species with historic or present use in Willamette Cove upland confirmed by Metro monitoring/surveys and include specific mention and discussion of any threatened or listed species, presence of critical habitat types or culturally important species and First Foods identified in proposed Section 2.1.1 above AND include brief discussion of how upland terrestrial environment at site influences in water habitat/ecosystem function/species/etc.]

## Mary Matyas

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**From:** Brian Moore <Brian.Moore@oregonmetro.gov>  
**Sent:** Friday, May 27, 2022 11:21 AM  
**To:** Michael Pickering; M0075.12 Metro Willamette Cove  
**Cc:** Seth Otto  
**Subject:** FW: [External sender]Re: 80% Draft Willamette Cove Contingency Remedy Analysis

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

### [External Sender - Confirm Sender and Beware of Links and Attachments]

Michael,

Please find the comments from Alex Lopez of PHCC below. This round of comments appears to be quite succinct, based on the comments received from YN and PHCC. However, as you know, we have not been able to fully address all comments to date. I am looking forward to reviewing these along with the others with you next week so we can determine the best way to address them.

Please let me know some times that work for you.

Thank you,

Brian Moore  
Program Manager  
Metro, Parks & Nature  
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Portland, OR 97232-2736  
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<https://www.linkedin.com/in/bmm81>

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**From:** Alex Lopez [mailto:alex@phccoalition.org]  
**Sent:** Thursday, May 26, 2022 9:46 PM  
**To:** Brian Moore <Brian.Moore@oregonmetro.gov>  
**Cc:** Paul Slyman <Paul.Slyman@oregonmetro.gov>; Cassie Cohen <cassie@phccoalition.org>  
**Subject:** [External sender]Re: 80% Draft Willamette Cove Contingency Remedy Analysis

**CAUTION:** This email originated from an **External source**. Do not open links or attachments unless you know the content is safe.

Hi Brian,

Apologies for not getting these comments to you sooner.

Section 3.1: This section should have some information about the environmental impacts associated with historical industrial activity along the lower Willamette. One of the reasons that community members in North Portland don't want a consolidation area at the site is that they already live with significant environmental impacts. This is really one of the main takeaways from community involvement so would help put the community perspectives into context.

Sections 4.1 and 4.1.1: Would like to see it noted here that the soil proposed to be placed in the consolidation area would have concentrations of contaminants over DEQ risk-based limits for human health.

Section 4.1.3.1: Is the consolidation area referred to in this section a temporary onsite consolidation area? I thought this option did not require an onsite consolidation area?

Section 4.2: Yikes. Would really like to see the cost calculations. Why did the cost for 4c go up by only 1.4 million while the cost for 3b went up by 5.7 million? Is that all because of transportation costs?

Section 4.4.1: Even if the ecological benefit of doing the additional removal can't be quantified in this report, can you say anything about what the benefits might look like?

Please let me know if I can provide any additional information or assistance.

Thank you,

Alex Lopez (he/him), RG, MSW  
cell: 503.964.9762

On May 19, 2022, at 11:17 AM, Brian Moore <[Brian.Moore@oregonmetro.gov](mailto:Brian.Moore@oregonmetro.gov)> wrote:

Alex,

Thanks again for sticking with us through the Willamette Cove Contingency Remedy Analysis. Please find the 80% draft document attached. This is the final draft for review. Once you provide comment here, we will incorporate them and note areas where we are not able to incorporate the input as an appendix to the final report. We will then circulate the final report to everyone, but will no longer make changes to the document. If you have comments on the final document, I will incorporate those into a staff report that will accompany this document when it is presented to the Metro Council.

We have incorporated many of your previous comments into the 80% draft. For comments that I feel we have not been able to fully incorporate, I have replied to you directly in a separate email. That said, this is an additional opportunity for you to flag items that you believe need more attention. If you are aware of sources not currently in use that support items that you would like addressed in greater detail, we would very much appreciate information pointing us to those sources.

Thank you for reviewing this document. We would like to have comments back for incorporation into the final draft by Friday May 27.

Thank you,

Brian Moore  
Principle Planner  
Metro, Parks & Nature  
600 NE Grand Avenue



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<https://www.linkedin.com/in/bmm81>

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**From:** Alex Lopez [<mailto:alex@phccoalition.org>]  
**Sent:** Monday, April 25, 2022 9:01 PM  
**To:** Cassie Cohen <[cassie@phccoalition.org](mailto:cassie@phccoalition.org)>  
**Cc:** Brian Moore <[Brian.Moore@oregonmetro.gov](mailto:Brian.Moore@oregonmetro.gov)>; Paul Slyman <[Paul.Slyman@oregonmetro.gov](mailto:Paul.Slyman@oregonmetro.gov)>  
**Subject:** [External sender]Re: 30% Draft Willamette Cove Contingency Remedy Analysis

**CAUTION:** This email originated from an **External source**. Do not open links or attachments unless you know the content is safe.

Hi Everyone,

Here are my comments on the Contingency Remedy Analysis First Review Draft Report:

In the introduction it should state that the “moderately contaminated soils” that would be left in the onsite containment cell under the ROD would still contain contamination above human health risk-based concentrations.

Section 2.1.2 - first paragraph of page 3, third sentence - Is the term “hot spot” here referring to areas of high contaminant concentrations generally or soils that actually meet the regulatory definition of a “hot spot”? Also in the same paragraph, it would be helpful to know the estimated volumes of soil that would be removed under the proposed remedy (not just the 23,000 cu yards left behind).

Second paragraph of page 3 - the contingency remedy gives the responsible parties the option of performing additional off-site soil disposal...

Section 2.1.3 - It would be good to discuss the impact of the institutional controls on the members of the community. It does say that deed restrictions would limit site uses, but what does that actually mean? Would they be able to use the space or would they have to stay on a built trail? Could people enter the water? etc.

Section 2.2 - Can anything more be said about where Metro is in the process of deciding what future use of the property will be?

Section 3.1 - The paragraph about the historical Native American presence on the land doesn't follow through to the present. Add more about the current Urban Native American population and importance of the river to Native communities, even those not near the site.

Also later in the same section, it would be good to present the demographic information relative to Portland in general to show how the surrounding neighborhoods differ from the rest of the city.

Also in this section, information on Black exclusion laws, Vanport, displacement, and redlining are all widely available in many online resources.

In sections 4.1, 4.1.1, 4.1.2, 4.1.3 - there should be information here about the risks to receptors for the different soils (some are hot spots, some are contaminated over limits, some are

contaminated but under risk limits, etc.). The ROD proposes leaving soil that still contains contaminant concentrations over human health risk-based limits. These sections in general need to be fleshed out.

Section 4.2 - include information about greenhouse gas emissions for potential removal by barge.

Section 4.4.1 - doesn't really say much about long-term O&M. Provide information about what that work would entail, potential needs with respect to possible cap failures. Maybe say something about devaluation of the property due to institutional controls and remaining contamination (particularly with ROD remedy).

Section 4.4.3 - This needs a lot more information. What about a CSZ earthquake? Are costs in the ROD reflective of the design needed to withstand a CSZ event? Is it even possible to design a cap that would be resilient in that scenario?

Please let me know if I can provide any additional information.

Thank you,

Alex Lopez (he/him), RG, MSW  
Portland Harbor Community Coalition  
cell: 503.964.9762  
[phccoalition.org](http://phccoalition.org)

<image001.jpg>

On Apr 19, 2022, at 2:33 PM, Cassie Cohen <[cassie@phccoalition.org](mailto:cassie@phccoalition.org)> wrote:

Thank you Brian.

On Tue, Apr 19, 2022 at 12:44 PM Brian Moore <[Brian.Moore@oregonmetro.gov](mailto:Brian.Moore@oregonmetro.gov)> wrote:

Good afternoon Alex and Cassie,

Thank you for your continued interest and willingness to contribute your thoughts and expertise to the development of a report analyzing the Willamette Cove Contingency Remedy. We have previously circulated a scope of work and an outline for this report. Attached is the first draft for your review and comments.

This is expanded from the outline and modified as a result of conversations and thinking this through with the consultant. I believe that your input is reflected to date (in those areas where we have completed). If we have missed the mark or misinterpreted input from you please flag those areas. We are still open to more input. There are a few areas where your input, specifically, would be very meaningful to us. Those locations are called out with indications of additional information needed and from whom.

We would like to get comments back by Monday of next week. That is Monday April 25th, end of the day. The document is not long or difficult to follow at this point, so it is my hope that the rough nature of the draft at this time makes it easier for you to provide the input you would like to see, particularly in the areas where we may be referencing a perspective that is yours. If you have any questions or concerns, I am available to discuss. Feel free to call me or email.

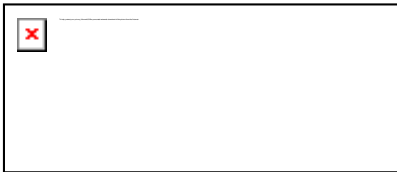
Thank you again and I look forward to receiving your input next week.

Sincerely,

Brian Moore  
Program Manager  
Metro, Parks & Nature  
[600 NE Grand Avenue](#)  
[Portland, OR 97232-2736](#)  
503-797-1761 (office)  
951-452-3002 (cell phone)  
(he/him/his)  
[www.oregonmetro.gov](http://www.oregonmetro.gov)  
<https://www.linkedin.com/in/bmm81>

--

Cassie Cohen, Executive Director  
Portland Harbor Community Coalition  
She/Her/Hers  
[www.phccoalition.org](http://www.phccoalition.org)  
cell: 503-816-4342



We are on stolen land--the traditional village sites of the Multnomah, Kathlemet, and Clackamas bands of Chinook, Tualatin Kalapuya, Molalla and many other tribes who made their homes along the Columbia and Willamette Rivers.

<Rd\_Willamette Cove CRA - Second Draft.pdf>



Confederated Tribes and Bands  
of the Yakama Nation

Established by the  
Treaty of June 9, 1855

---

May 25, 2022

Brian Moore  
Program Manager  
Metro, Parks & Nature  
600 NE Grand Avenue Portland, OR 97232-2736 [Brian.Moore@oregonmetro.gov](mailto:Brian.Moore@oregonmetro.gov)

Re: Portland Harbor – Yakama Nation comments on the Willamette Cove (Upland)  
Contingency Remedy Analysis Second Review Draft Report

Dear Brian.

Our consultant, Avocet Consulting, did a brief review and comparison to Yakama Nation comments of the updated May 16, 2022 Contingency Remedy Analysis Second Review Draft Report for Willamette Cove, prepared by MFA for Metro.

It appears that cost estimates have been updated, which makes the partial remedy appear much less expensive than the complete removal contingency. However, the cost analysis fails to incorporate several long-term maintenance issues. This short-sighted, near-term approach is incomplete and results in inaccurate predictions of future costs. For example:

- The proximity of the contamination left behind is very close to the river. Long-term maintenance assumes that nothing will ever go wrong, that flooding, earthquakes or other impacts will not occur to require future repairs or removal. It ONLY considers the costs of future annual monitoring.
- Climate change has been considered mainly in terms of carbon emissions from the remedy itself, but not in terms of climate resilience of the river system and shoreline communities long-term.

The final table should include evaluation and compliance with the land-use and zoning purposes highlighted in the attachment, as well as ease of integration with the riverbank and offshore cleanup.

We can't stress enough the importance of optimizing habitat mitigation. It could also be that restoration of this area could offset habitat mitigation or restoration liabilities the City may have, which would further increase the value (financial and otherwise) of the complete removal remedy.

There are clearly trade-offs to the community in terms of long-term assets vs. short-term disturbance (increase in truck traffic and emissions). This should be explored further with the neighborhoods impacted to evaluate their preferences regarding this trade-off.

Although several Yakama Nation concerns were not addressed, the most critical issues in our previous comments that do not appear to be addressed yet are highlighted in the attached April 27, 2022.

- comment #2b - Metro's purpose of the property purchase
- comment #3 - Integration with riverbank and inriver cleanup work
- comment #4 - Flooding

Please do not hesitate to contact me with questions. I can be reached at 509.985.3561 or [shil@yakamafish-nsn.gov](mailto:shil@yakamafish-nsn.gov).

Sincerely,

Laura Klasner Shira, P.E.

Environmental Engineer

Attachment: 4/27/2022 YN comments



Confederated Tribes and Bands  
of the Yakama Nation

Established by the  
Treaty of June 9, 1855

---

April 27, 2022

Brian Moore  
Program Manager  
Metro, Parks & Nature  
600 NE Grand Avenue  
Portland, OR 97232-2736  
[Brian.Moore@oregonmetro.gov](mailto:Brian.Moore@oregonmetro.gov)

Re: Portland Harbor – Yakama Nation comments on the Willamette Cove (Upland) Contingency Remedy Report

Dear Mr. Moore,

The Yakama Nation submits the following comments on the April 2022, Willamette Cove (Upland) Contingency Remedy Report, prepared by MFA on behalf of the Metro Council. These comments were prepared in collaboration with Dr. Teresa Michelsen of Avocet Consulting and Sherrie Duncan of Sky Environmental.

1. Cost Differential. The cost differential between the two alternatives to be unexpectedly low given the mitigation of risks, reduction in long-term monitoring and maintenance costs, and public use and habitat benefits provided by the more complete removal alternative. This indicates that the more comprehensive removal option should be very seriously considered, as short term additional costs may be significantly offset by reduced long-term costs, increased safety, and increased community and ecological benefits.

2. Purpose of Property Purchase. In analyzing these two alternatives, the Yakama Nation strongly suggests that this report take each of the bullet points and purposes listed below and evaluate how well each alternative meets these goals. When a property is purchased for a specific purpose and has special zoning, any cleanup should be consistent with those previous expenditures of funds and zoning concepts.

- a. The paragraph at the top of page 4, in particular, states the reasons this property was originally purchased by the Metro Council and the source and purpose of the funds that were used: “The purchase represented a commitment to restore the regionally significant natural area, extend the North Portland Greenway, and work with the city of Portland on future master planning for possible

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recreation use (Metro Council, 2020a). Metro Council has also noted its continued efforts to determine passive park uses that harmonize recreational visits with habitat restoration and ecological values (Metro Council, 2020a)."

- b. This commitment is further strengthened by the Open Space zoning for this area, with the following intents: "River General (g) and River Water Quality (q). The OS zone is "intended to preserve and enhance public and private open, natural, and improved park and recreational areas," serving functions including (City of Portland, 2021a):
- Providing opportunities for outdoor recreation
  - Providing contrasts to the built environment
  - Preserving scenic qualities
  - Protecting sensitive or fragile environmental areas
  - Enhancing and protecting the values and functions of trees and the urban forest
  - Preserving the capacity and water quality of the stormwater drainage system
  - Providing pedestrian and bicycle transportation connections
- c. The River General overlay zone is intended to allow for uses consistent with the base OS zone "which allow for public use and enjoyment of the riverfront, and which enhance the river's natural and scenic qualities" (City of Portland, 2021b). The purpose of the River Water Quality zone is to "to protect the functional values of water quality resources by limiting or mitigating the impact of development in the setback" (City of Portland, 2021b).

3. Integration of Upland Cleanup with Riverbank and Inwater Work. The upland, riverbank, and cove cleanup should be integrated with respect to these purposes and zoning concepts. An integrated plan needs to be developed that allows habitat and community benefits to flow seamlessly from the upstream riparian zone to the subtidal in-water zone. A key aspect of this cleanup/restoration should be removal of hardscape and debris from all three of these areas, in order to meet several of the criteria stated above – REGARDLESS of whether it is required by Superfund. If complete removal is considered along with the riverbank and cove cleanups, this provides a golden opportunity to reshape the landscape to a more natural configuration and softscape structural components.

4. Flooding. The cleanup should plan for flooding and more intensive rainfall, and actively contribute to increasing river and community capacity and resilience toward future climate events.

5. Removal of Mature Existing, Habitat. The report should go into greater detail about the trade-offs between maintaining existing habitat in some areas vs. removal, reconfiguration, and restoration. This could indicate a hybrid of the two alternatives that preserves critical habitat in areas that are already consistent with an integrated future land use vision for the property. The report should consider whether replacing one foot of soil realistically provides adequate support for restoration plantings, particularly toward the goal of replacing mature riparian habitat as quickly as possible.

5. Habitat. The report needs to include information on historic and existing conditions of habitat at and surrounding Willamette Cove and the importance of the area to ESA listed and tribally important aquatic species, and the upland area and terrestrial species. It is important to include this information, to set the stage, otherwise the report is solely slanted towards human use, human infrastructure and climate impacts related only to the human use and development of the area. A summary of habitat and the species that rely on the area would keep the potential for future restoration of the area in the front of the reader's mind and better inform future design and mitigation/restoration needs or opportunities. Ultimately, it would be beneficial for

the report to provide a summary on how the proposed alternatives and selected alternative will or will not meet conservation strategies for the area briefly outlined in Metro's Tribal Summit Binder: "Metro has traditionally integrated national priorities established by federal agencies and conservation organizations through the Endangered Species Act, species recovery plans, working groups and other measures of national priority setting with state and regional priorities established by the Oregon Department of Fish and Wildlife in the Oregon Conservation Strategy and the Portland-Vancouver Area Intertwine Alliance in the Regional Conservation Strategy for the Greater Portland-Vancouver Region; as well as local priorities identified by local jurisdictions, Watershed Councils and other organizations". This list should also include the NRDA Restoration Plan.

6. Tribes. The report should also include information on historic and current use/services this area of the Willamette provides to Tribes. This would complement the draft outline for the report has a fairly robust draft section discussing the neighborhood context and history of the area.

7. Visioning. Lastly, we suggest that the parties consider a community event where everyone is invited to draw, write, or otherwise express their vision for the area following cleanup, either in terms of individual components or overall concept. Such events have provided unexpected inspiration to all involved at other cleanup sites owned by public entities and have provided lasting on-the-ground benefits that go well beyond a strictly engineered cleanup. If certain components would be desirable but cannot be integrated into the initial activity, the overall design can be developed to allow for them as future funds and opportunities become available.

Please do not hesitate to contact me with questions. I can be reached at 509.985.3561 or [shil@yakamafishnsn.gov](mailto:shil@yakamafishnsn.gov).

Sincerely,



Laura Klasner Shira, P.E.  
Environmental Engineer





MEMORANDUM | May 27, 2022

**TO** Brian Moore, Metro

**FROM** Jennifer Hart, Adam Stack, Hanna Bliska, and Gail Fricano, Industrial Economics, Inc. (IEc); Peter Shanahan, HydroAnalysis LLC (HALLC);

**SUBJECT** Five Tribe review of “Contingency Remedy Analysis, Second Review Draft Report, Willamette Cove” dated May 16, 2022

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This memorandum, submitted on behalf of the Five Tribes,<sup>1</sup> reviews the *Contingency Remedy Analysis, Second Review Draft Report, Willamette Cove* (second draft report) prepared by Maul Foster & Alongi, Inc. on behalf of Metro (MFA 2022a). The Five Tribes previously reviewed the first draft report (MFA 2022b) and provided informal feedback to Metro by email on April 25, 2022.

**SPECIFIC COMMENTS**

1. Section 3.1 of the second draft report (MFA 2022a) was expanded to include a significantly more detailed narrative on Tribal history. We provide the following editorial suggestions for consideration:
  - i. Consider moving the sentence beginning “The area is located within the ancestral homelands of many Native peoples...” to the first paragraph of the section. Native peoples’ presence in this place predates the urban geographic features (railroads, etc.) described in this paragraph.
  - ii. Consider separating the third paragraph into two paragraphs focused on (1) genocidal policies directed at Native peoples and (2) anti-Black and other subsequent racist legislation and policy.
  - iii. Consider providing more detail about the effects of the Donation Land Act of 1850 on the displacement of Native peoples from the Willamette River valley.
2. In Section 3.2, we recommend including a sentence that explains that DEQ’s staff report was the foundation for the Record of Decision (ROD).
3. Section 3.2 of the first draft report (MFA 2022b) noted that the Five Tribes provided comments to DEQ on the staff report, citing IEc (2020). The second draft report (MFA 2022a) includes a summary of those comments. We find the summary as drafted to be accurate; however, IEc (2020) cited and summarized comments submitted to DEQ on several earlier reports for Willamette Cove

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<sup>1</sup> The five tribes are the Confederated Tribes of the Grand Ronde Community of Oregon, the Nez Perce Tribe, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon.

source control. We suggest revising Section 3.2 to acknowledge these previous comments. The existing text could be supplemented with the following text in italics:

*“Consultants also provided a comment letter to DEQ regarding the staff report on behalf of the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Nez Perce Tribe (Five Tribes) (IEc 2020). The 2020 comment letter built upon several prior memoranda submitted on behalf of the Five Tribes that reviewed the draft and revised Groundwater Source Control Evaluation and Alternatives Analysis, the Revised Feasibility Study and Source Control Evaluation, and the Port’s Response to Comments on the Revised Feasibility Study and Source Control Evaluation. The 2020 comment letter on the staff report states the staff report satisfactorily identifies...”*

4. In the last paragraph of Section 3.2, we request Metro delete “for passive recreation.” Given that the final site design and plans for future use are in development, and not yet final, we recommend using more general language to summarize the Five Tribes’ comment regarding an appropriate design and aesthetic fit for any on-site consolidation unit.
5. Following review of the first draft report (MFA 2022b), the Five Tribes recommended Metro define what commenters meant by “full cleanup” in the report. Section 3.3 of the second draft report (MFA 2022a) was revised to state “Comments often refer to a preference for “full cleanup” or “full removal” of contamination, referring to the physical removal of contaminated soils.” We remain concerned that these terms are not adequately defined. We recommend the report further refine these terms as “referring to the removal of all contaminated soils, including moderately contaminated soils, for off-site disposal.”
6. Section 4.4.1 states “Additional ecological benefit is derived from off-site disposal of the 23,000 cubic yards of moderately contaminated soil that is otherwise slated for placement in an on-site consolidation cell. This benefit cannot be quantified within the limits of this analysis and the timeline for the remedial design process.” The assertion of greater ecological benefit from removing all moderately contaminated soil should be better justified. For instance, is this due to the risk of cap failure? Assuming no cap failure, would the ecological benefits of the two alternatives be equal? Citations to any appropriate references should be included.
7. Section 4.4.2, Seismic Considerations, states “A site-specific geotechnical evaluation would need to be completed to fully understand physical characteristics of the site for design of an on-site containment cell.” Given the relative importance of the geotechnical characterization, we recommend this

work be completed prior to making a decision about the feasibility and siting of an on-site consolidation unit.

8. The greenhouse gas (GHG) emission calculations provided in Appendix B are for carbon dioxide (CO<sub>2</sub>) only. We recommend Metro consider including methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) in the calculations. The CH<sub>4</sub> and N<sub>2</sub>O emissions factors are available for barges and trucks (USEPA 2022). Incorporating these compounds would provide a more complete picture of GHG emissions.
9. Metro uses emissions factors for CO<sub>2</sub> from the Intergovernmental Panel on Climate Change (IPCC 2014). We recommend Metro consider using more recently updated emissions factors (e.g., EPA’s Emissions Factors for Greenhouse Gas Inventories [USEPA 2022]).
10. The second draft report (MFA 2022a) refers to the on-site consolidation area as a “consolidation unit,” “consolidation cell,” and a “containment unit.” We recommend using standard terminology for consistency.

#### REFERENCES

- Industrial Economics, Inc. (IEc). 2020. Letter to E. McDonnell and D. Lacey, Oregon Department of Environmental Quality, from P. Shanahan, HydroAnalysis, Inc. (HAI), and J. Hart and G. Fricano, Industrial Economics, Inc. (IEc). July 22.
- Intergovernmental Panel on Climate Change (IPCC). 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. Geneva, Switzerland, 151 pp.
- Maul Foster & Alongi (MFA). 2022a. Contingency Remedy Analysis, Second Review Draft Report, Willamette Cove. May 16.
- Maul Foster & Alongi (MFA). 2022b. Contingency Remedy Analysis, First Review Draft Report, Willamette Cove. April 18.
- U.S. Environmental Protection Agency (USEPA). 2022. Emissions Factors for Greenhouse Gas Inventories. April 1. Accessed from: <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>.

## Mary Matyas

---

**From:** Brian Moore <Brian.Moore@oregonmetro.gov>  
**Sent:** Tuesday, May 31, 2022 9:34 PM  
**To:** Michael Pickering; Seth Otto; Daniel Eisenbeis; M0075.12 Metro Willamette Cove  
**Subject:** Fwd: Metro: Willamette Cove Upland Contingency Remedy Analysis

### [External Sender - Confirm Sender and Beware of Links and Attachments]

Please find the comments from DEQ below.

These ought to be quite helpful.

---

**From:** MCDONNELL Erin K \* DEQ <Erin.K.MCDONNELL@deq.oregon.gov>  
**Sent:** Tuesday, May 31, 2022, 17:58  
**To:** Brian Moore <Brian.Moore@oregonmetro.gov>  
**Cc:** Paul Slyman <Paul.Slyman@oregonmetro.gov>  
**Subject:** [External sender]RE: Metro: Willamette Cove Upland Contingency Remedy Analysis

**CAUTION:** This email originated from an **External source**. Do not open links or attachments unless you know the content is safe.

Hi Brian,

DEQ has reviewed the *draft* Willamette Cove Upland Contingency Remedy Analysis prepared by Maul Foster Alongi for Metro and dated May 16, 2022. We have the following comments regarding technical accuracy for your consideration.

**Cleanup Description.** There is slight confusion on the description of the selected remedy (including Sections 2.1.2, 4.1.1, 4.3). The Feasibility Study (Apex, 2019) helped inform the Staff Report that presented the basis for DEQ's proposed cleanup; however, DEQ incorporated moderate modifications/clarifications to the Alternative 4c presented in the FS. The Staff Report was generally adopted as the Record of Decision, with the addition of the contingency option in consideration of public comment and Metro feedback. We have the following clarifications on two elements of the selected remedy, regarding what contaminated soil at minimum needs to go offsite and cap versus covers.

- Metal Ecological Risk Hot Spots. Ecological hot spots for metals are also required to be disposed offsite, in addition to human health hot spots. As stated in the ROD (see Section 1.2: Scope and Role of the Selected Remedial Action):
  1. *Excavation and offsite disposal of all soil exceeding hot spot levels for human health.*
  2. *Excavation and offsite disposal of soil exceeding non-dioxin/furan (e.g., metals including mercury) hot spot levels for ecological health.*
- Cover versus Cap. We recommend replacing "in-place capping" used in this analysis document with "cover" to be consistent with the ROD. For context, following soil removal/reconsolidation with a reinforced cap, the site would be "covered" with a minimum of 1-foot of clean topsoil. While the FS used the term cover/cap, the ROD uses "cover" to better represent that the majority of the site would be covered with clean soil without long-term requirements, and it is our preference to limit "cap" areas to the extent practical. Moderate levels of ecological risk, if present after excavation activities, may require placement of more than 1-foot soil. If excavation activities cannot reasonably remove ecological hot spots (e.g., for dioxin-furans), these focused areas would be capped with 3 feet of clean soil. Ecological hot spot areas (under 3-feet of clean soil) may require long-term management controls; however, that would be determined at a later date. [Note, the FS also proposed less cover/cap material, than specified in the ROD. The increased cover thickness allows for mixing to reduce risk. The exposure

depth considered for ecological risk (to plants and animals) is 3 feet and accounts for burrowing animals]. As per the ROD (Section 1.2):

*5. Lower-level risk to plants and animals would be covered in-place. Cover thickness would be determined based on the level of residual risk; however, a minimum 1-foot of clean topsoil will be necessary. Remaining ecological hot spots, if any, will be capped by 3 feet of clean soil or alternative DEQ-approved material.*

- Figure 28. See clarifications to Figure 28 below. While this figure was used to generally illustrate Alternative 4c, the ROD text presents the specifics including minor modifications/clarifications.

**Construction Impacts.** While truck trips were calculated in the FS and for comparison purposes amongst the remedial action alternatives, DEQ preference is barge or alternative method that provides the lowest degree of impact to communities.

**Summary of Contingency Analysis Table.** For Alternative 4c, as noted above excavated areas will be covered with *at least* 1-foot clean soil and additional cover material maybe be necessary to effectively reduce risk to plants and animals.

**Construction Cost Comparison.** The adjusted estimated cost of Alternative 3b is substantial, approximately a 50% increase versus less than 20% for Alternative 4c. In absence of the adjusted cost calculations (to be provided in the final document), it's unclear what drives the delta from FS estimates to present day. It may be helpful to provide a sentence describing what materials/tasks mostly contributed to the increase.

**Figure 28.** This figure was taken from the Feasibility Study (and used for the Staff Report/ROD). Please note the following:

- The consolidation area shown is an “example” and is not representative of the final location and shape. This would be determined in remedial design. While this figure has a footnote generally capturing this, it would have been helpful to emphasize “Example” Soil Consolidation Area in the figure.
- The standard cap is not 2-foot soil, which was originally proposed in the FS. DEQ had concerns this would be insufficient and instead required a thicker reinforced cap for the consolidation area (to withstand extreme events). The ROD specifies: *Capping of consolidated soil will consist of a demarcation layer and a minimum of 3 feet of clean cover material. The final cap thickness and composition will be determined during remedial design.*
- As noted above, the FS used cover/cap outside the consolidation area; however, the ROD uses “cover” to better represent the cleanup strategy. Capping may be required depending on depth and levels of contamination left in-place, but is the less favorable option.

Thank you,  
Erin



Erin McDonnell, P.E.  
Project Manager/Engineer  
Oregon Department of Environmental Quality  
Northwest Region Cleanup Program  
503.229.6900

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**From:** Brian Moore <Brian.Moore@oregonmetro.gov>  
**Sent:** Thursday, May 19, 2022 11:49 AM  
**To:** MCDONNELL Erin K \* DEQ <Erin.K.MCDONNELL@deq.oregon.gov>  
**Cc:** Paul Slyman <Paul.Slyman@oregonmetro.gov>  
**Subject:** RE: Metro: Willamette Cove Upland Contingency Remedy Analysis

Hello Erin,

Please find the 80% draft of our Contingency Remedy Analysis attached. We are sharing this because the Record of Decision indicates that we will go through this process in consultation with DEQ. We request that you take some time to review this final draft and provide comments. We are particularly interested in technical accuracy and proper reflection of the voluntary cleanup program process. Once you provide comment here, we will incorporate them into a final draft. If we are not able to incorporate comments you provide into the document, we will include them in an appendix to the final report. Once complete, we will then circulate the final report to everyone, but will no longer make changes to the document. If you have comments on the final document, I will incorporate those into a staff report that will accompany this document when it is presented to the Metro Council.

Thank you so much for taking a look at this.

Sincerely,

Brian Moore  
Program Manager  
Metro, Parks & Nature  
600 NE Grand Avenue  
Portland, OR 97232-2736  
503-797-1761  
(he/him/his)  
[www.oregonmetro.gov](http://www.oregonmetro.gov)  
<https://www.linkedin.com/in/bmm81>

---

**From:** MCDONNELL Erin K \* DEQ [<mailto:Erin.K.MCDONNELL@deq.oregon.gov>]  
**Sent:** Wednesday, March 30, 2022 1:42 PM  
**To:** Brian Moore <[Brian.Moore@oregonmetro.gov](mailto:Brian.Moore@oregonmetro.gov)>  
**Cc:** Paul Slyman <[Paul.Slyman@oregonmetro.gov](mailto:Paul.Slyman@oregonmetro.gov)>  
**Subject:** [External sender]RE: Metro: Willamette Cove Upland Contingency Remedy Analysis

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Hi Brian,  
Thanks for engaging DEQ. I reviewed the outline and do not have any comments.

Much appreciated,  
Erin

Erin McDonnell, P.E.  
Cleanup Project Manager/Engineer  
Oregon DEQ, NWR  
503.229.6900

*Note that DEQ has changed email addresses to the xxx@deq.oregon.gov format and [erin.k.mcdonnell@deq.oregon.gov](mailto:erin.k.mcdonnell@deq.oregon.gov) is my current email.*



---

**From:** Brian Moore <[Brian.Moore@oregonmetro.gov](mailto:Brian.Moore@oregonmetro.gov)>  
**Sent:** Monday, March 28, 2022 4:36 PM  
**To:** MCDONNELL Erin K \* DEQ <[Erin.K.MCDONNELL@deq.oregon.gov](mailto:Erin.K.MCDONNELL@deq.oregon.gov)>  
**Cc:** Paul Slyman <[Paul.Slyman@oregonmetro.gov](mailto:Paul.Slyman@oregonmetro.gov)>  
**Subject:** Fw: Metro: Willamette Cove Upland Contingency Remedy Analysis

Hello Erin,

We are working to develop a short outline of our contingency remedy analysis. Our report that will help the Metro Council decide if they wish to follow the DEQ staff recommended remedy or pursue the contingency remedy. This is a 15 minute review kind of opportunity, we are not looking for a deep dive.

If you want to provide comments, feel free to do so by Wednesday and we will work them into the report. Thank you so much for considering this.

Thank you,

Brian Moore  
Principle Planner  
Metro, Parks & Nature  
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Portland, OR 97232-2736  
503-797-1761  
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**Update on Regional Flexible Funds Allocation and Parks Bond  
Coordination**

*Work Session Topics*

Metro Council Work Session  
Tuesday, June 28<sup>th</sup>, 2022



# Memo



**Date:** June 9, 2022

**To:** Metro Council

**From:** Dan Kaempff, Principal Transportation Planner  
Robert Spurlock, Senior Regional Planner

**Subject:** Regional Flexible Funds/Trails Bond Funding Decisions

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## Introduction

Metro Council will be requested to take action later this year on two funding allocations. One is the 2025-2027 Regional Flexible Funds Allocation (RFFA) to a package of transportation projects. The other is a package of trails projects to be funded through the Metro Parks and Nature bond measure, approved by voters in 2019.

A combination of policy direction, technical information and public input is used in developing a recommendation of these packages for funding. Current policy direction and program process provides some latitude in how these inputs can be used in shaping funding investments that best serve the region's needs. Staff is seeking input from Council on outcomes you wish to see brought forward in the funding packages on which you will take action.

## Process and timeline

Identifying projects funded through the RFFA follows a previously established process. Metro Council and the Joint Policy Advisory Committee on Transportation (JPACT) serve jointly as the Metropolitan Planning Organization (MPO) board and are responsible for investment of the region's federal transportation funding. The Transportation Policy Alternatives Committee (TPAC) develops a funding recommendation for JPACT's consideration and approval. Metro Council then takes action to either adopt the JPACT-approved investment list or refers it back to JPACT.

The project selection process for the Parks and Nature bond trail grant program is similar but not identical to the RFFA process. The two funding programs share the same outcomes evaluation, risk assessment and public comment processes. Additionally, the Coordinating Committees' lists of priorities will also inform both funding decisions.

The primary difference between the two selection processes is that while JPACT approves the recommended RFFA project list, the final bond project list is entirely a Metro Council decision. While Council will consider input from JPACT on the bond project list, it is Metro COO Marissa Madrigal who will recommend the final bond project list to Council.

For the Parks Bond allocation, Metro staff proposes to compile a menu of draft project list scenarios in June, drawing from the outcomes evaluation and risk assessment, input from the July and August TPAC and JPACT meetings, the public comment report, and the Coordinating Committees' priority

lists will inform subsequent draft funding scenarios, culminating in a final staff recommendation in September. Metro Council is scheduled to consider and take action on the recommended project list on October 13, 2022.

TPAC and JPACT will discuss and consider different RFFA funding approaches through July and August, with action to approve a funding list scheduled for September. Metro Council is scheduled to consider and take action on JPACT's approved list on October 13, 2022.

### **Sources of input to inform funding decisions**

Reaching a final decision on which projects receive funding is a process of gathering and reviewing multiple sources of information on the projects themselves, combined with considering regional and federal policy directives specific to this process. All the projects under consideration have been identified previously in the RTP or through regional trails system plan and 2019 Parks and Nature bond processes. As such, they are all important to the creation of the region's envisioned transportation and trails systems.

**Outcomes Evaluation** – The Outcomes Evaluation is a technical report of the candidate projects' ability to achieve the region's investment priorities. Metro Council adopted these priorities through the 2018 Regional Transportation Plan (RTP) and in referring to the ballot the Parks and Nature Bond Measure, which voters approved in 2019. Subsequently, a work group comprised of TPAC representatives, agency staff and community organization representatives provided input to the development of performance measures and assisted in creation of the Outcomes Evaluation report.

There are five primary criteria areas in the Outcomes Evaluation, based on the policy priorities noted above. The **Equity, Safety, Climate and Congestion Relief** criteria are based on the 2018 RTP Investment Priorities<sup>1</sup>. The **Trails** criteria are identified in the Bond Measure language<sup>2</sup>. The Equity, Safety and Climate areas were used in rating all the projects. The Congestion Relief criteria was used only for RFFA projects, and the Trails criteria was only used for Trails Bond projects. Each criteria area was weighted equally for the purposes of the Outcomes Evaluation.

The Outcomes Evaluation report illustrates how projects performed in each of the relevant criteria areas, as well as an overall rating. Project ratings follow a GOOD | BETTER | BEST structure. Structuring the report in this manner provides decision makers with information to better understand how well projects advance specific regional priorities. The projects are rated in comparison to the other projects within their specific category. Projects requesting consideration for either funding source are shown in the relevant category for both funding types.

**Risk Assessment** – Following practice established for the 2022-2024 RFFA, Metro is working with Kittelson and Associates to conduct a risk assessment of the project proposals. This evaluation measures the thoroughness of projects' scoping, timeline and budget, and identifies any associated risks to the project being completed as indicated in the proposal. The risk assessment also includes a preliminary cultural resources assessment that identifies the probability of resources with a project area and estimates the level of effort required to address the presence of resources. The risk assessment is intended to

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<sup>1</sup> 2018 Regional Transportation Plan, Chapter 6

<sup>2</sup> Metro Council Resolution 19-4988, Exhibit F

help ensure that the regional funding awarded to a project can be obligated and proceed as described in the applications. The initial risk assessment findings have been shared with applicants. They have the opportunity to amend their proposal following the initial risk assessment report to address any findings. The final risk assessment report will be presented to TPAC and JPACT in July.

**Public Comment** – A 30-day public comment period concludes on June 21. This provides the opportunity for members of the general public, community organizations and local jurisdictions to provide insights and information beyond that included in the project application materials and to demonstrate support for specific projects and staff have worked to publicize this opportunity as broadly as possible.

**Coordinating Committee Prioritization** – Gathering input from local jurisdictions via their county coordinating committees is the final source of information used in helping shape the funding decision. Coordinating committees may indicate which of the projects submitted from their represented jurisdictions are their priorities to be considered for funding and articulate additional project benefits they believe were not adequately captured by the Outcomes Evaluation. The deadline for coordinating committees to submit communication to Metro on their priorities is July 22.

**RFFA Objectives** – Included in the 2025-2027 RFFA Program Direction are ten objectives that define how the RFFA process should be conducted and what outcomes should be achieved through the overall allocation process. Two of these objectives in particular influence how a final selection of projects is determined. One objective directs projects should be selected for funding from throughout the region without a predetermined suballocation or formula. Another objective is to recognize the needs of projects at various stages of planning, development and construction. Part of the TPAC and JPACT deliberation will be to ensure the funding allocation they approve is consistent with all the RFFA objectives.<sup>3</sup>

These information sources of project performance, stakeholder input and regional objectives are used together to arrive at a final package of projects for Council consideration.

### **Next steps and schedule**

Staff is preparing for upcoming discussions with TPAC and JPACT in July, August and September. To help inform the discussion of which projects are to be awarded funding, staff intend to develop two or more draft funding proposals for TPAC and JPACT discussion and consideration. These proposals are intended to illustrate different approaches to awarding funds.

Potential options for these proposals include looking at funding projects based on the project's overall ratings, looking at the results of funding the top performing projects across all criteria areas. Other proposals could consider funding projects that rate highly in one or two specific criteria areas, regardless of their overall ratings. Using this approach gives decision makers the opportunity to compare different approaches to achieving regionally identified outcomes. Initial proposals could also be adjusted to incorporate other allocation process inputs such as public support, Coordinating Committee priorities, providing for an adequate distribution of project benefits across the region, or a desired balance of project development and project construction investment. Finally, staff will

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<sup>3</sup> See Appendix B following this memo, or the [2025-2027 RFFA Program Direction](#) for a full listing of the RFFA Objectives

perform a technical screen of proposed packages to ensure technical criteria are met such as having an adequate number of projects that eligible for the component federal funding sources that make up the RFFA process.

In the TPAC and JPACT discussions, members will consider and refine these proposals to reach an agreement for the list of RFFA projects to be sent to Metro Council for their consideration. Their input will also be used to inform the staff recommendation to Council for projects to be funded through the Bond funding.

**Table 1**  
**RFFA Step 2 project selection schedule**

July	8 – TPAC 14 – TPAC workshop 21 – JPACT	Present final risk assessment report, public comment report, discuss initial draft staff proposals  Coordinating committees identify priority projects (due July 22)	
August	5 – TPAC 18 – JPACT	<b>RFFA</b> Refined draft staff recommendation, w/CCC priorities.  Draft Council legislation	<b>Bond</b> Metro staff refine funding proposal, incorporating input from JPACT.
September	2 – TPAC <b>ACTION</b> 15 – JPACT <b>ACTION</b>	Recommendation to JPACT  Approved project list to Council	Metro COO recommends Bond Trails Grant project list to Council
October	13 – Council <b>ACTION</b>	Final adoption of 25-27 RFFA funding allocations	Council approves and adopts Bond Trails Grants project list

**Questions for Council discussion**

What input does Council wish to provide to staff to indicate what they want to see reflected in these draft discussion proposals? As a means to present the project ratings, the table in Appendix A is sorted by project's Overall ratings. The Overall rating method weights each of the criteria equally. However, the RFFA program direction was for the outcomes evaluation to not weight the priority investment categories relative to each other but rather to provide decision makers with the opportunity to utilize the performance ratings for each category as they found most helpful during the project selection process. Are there other approaches to using the five criteria areas to illustrate different policy outcomes from proposed funding packages that you wish TPAC and JPACT to consider?

Does Council have specific outcomes they want to accomplish through this funding allocation process?

Is there specific information you wish to communicate to TPAC and JPACT to help inform their discussions?

**Appendix A – RFFA/Trails Bond Project Outcomes Ratings**

In this example, projects are sorted by their Overall rating within each funding category.

25-27 RFFA/Trails Bond project ratings				Legend:						
				BEST	BETTER	GOOD				
Project	Applicant	Fund Source	Requested amount	Equity	Safety	Climate	Con. Rel.	Trails	Overall	
<b>Trails Bond Planning/PD projects</b>										
Tigard-LO Trail	Tigard	Either	\$ 245,000	67%	71%	56%	N/A	82%	69%	
Westside Trail Bridge	THPRD	Bond	\$ 1,907,500	89%	71%	33%	N/A	76%	67%	
Scott Creek Trail	Happy Valley	Bond	\$ 89,562	78%	79%	44%	N/A	47%	62%	
Brookwood Ped Overpass	Hillsboro	Either	\$ 4,500,000	44%	71%	33%	N/A	71%	55%	
Emerald Necklace Trail	Forest Grove	Either	\$ 200,000	56%	63%	33%	N/A	53%	51%	
Westside Trail: Seg 1	King City	Bond	\$ 210,000	44%	50%	22%	N/A	56%	43%	
<b>Trails Bond Construction projects</b>										
Council Ck Trail	Washington Co	Either	\$ 5,511,000	67%	92%	67%	N/A	82%	77%	
Trolley Trail	NCPRD	Bond	\$ 624,250	67%	71%	56%	N/A	88%	70%	
NP Greenway (Col to Cath)	PPR	Either	\$ 2,647,950	78%	83%	44%	N/A	71%	69%	
Gresh-Fairview Trail	Gresham	Bond	\$ 4,167,723	67%	79%	56%	N/A	65%	67%	
Marine Dr Trail	PPR	Either	\$ 2,161,124	56%	71%	56%	N/A	59%	60%	
NP Greenway (Kelley to Slough)	PPR	Either	\$ 3,483,699	56%	58%	44%	N/A	56%	54%	
Cornfoot Rd	PBOT	Either	\$ 5,225,500	56%	46%	44%	N/A	59%	51%	
Sandy River Greenway	Troutdale	Bond	\$ 1,945,800	22%	67%	44%	N/A	47%	45%	
Clackamas River Trail	Happy Valley	Bond	\$ 666,175	33%	42%	11%	N/A	29%	29%	
<b>RFFA Planning/PD projects</b>										
I-205 MUP	Clackamas Co	RFFA	\$ 935,884	78%	71%	56%	71%	N/A	69%	
Tigard-LO Trail	Tigard	Either	\$ 245,000	67%	71%	56%	79%	N/A	68%	
Allen Blvd	Beaverton	RFFA	\$ 723,670	67%	50%	67%	79%	N/A	66%	
Fanno Ck Trail	Tigard	RFFA	\$ 1,606,705	67%	50%	56%	54%	N/A	57%	
Brookwood Ped Overpass	Hillsboro	Either	\$ 4,500,000	44%	71%	33%	67%	N/A	54%	
Troutdale Rd	Multnomah Co	RFFA	\$ 1,720,000	56%	58%	44%	50%	N/A	52%	
Emerald Necklace Trail	Forest Grove	Either	\$ 200,000	56%	63%	33%	54%	N/A	51%	
Lakeview Blvd	Lake Oswego	RFFA	\$ 450,036	67%	13%	56%	13%	N/A	37%	
<b>RFFA Construction projects</b>										
162nd Ave	Gresham	RFFA	\$ 7,316,080	100%	83%	67%	79%	N/A	82%	
MLK Blvd	PBOT	RFFA	\$ 5,532,955	78%	63%	78%	88%	N/A	76%	
Council Ck Trail	Washington Co	Either	\$ 5,511,000	67%	92%	67%	79%	N/A	76%	
NP Greenway (Col to Cath)	PPR	Either	\$ 2,745,541	78%	83%	44%	79%	N/A	71%	
Beaverton Creek Trail	THPRD	RFFA	\$ 1,774,575	78%	71%	56%	79%	N/A	71%	
7th Ave	PBOT	RFFA	\$ 10,692,227	56%	71%	67%	79%	N/A	68%	
148th Ave	PBOT	RFFA	\$ 7,100,335	89%	63%	67%	54%	N/A	68%	
57th Ave-Cully Blvd	PBOT	RFFA	\$ 7,643,201	67%	63%	67%	71%	N/A	67%	
Marine Dr Trail	PPR	Either	\$ 2,770,252	56%	71%	56%	79%	N/A	65%	
Sandy Blvd	Multnomah Co	RFFA	\$ 20,660,000	44%	63%	67%	79%	N/A	63%	
Taylor's Fy Rd	PBOT	RFFA	\$ 10,124,236	56%	58%	56%	67%	N/A	59%	
Cornfoot Rd	PBOT	Either	\$ 6,698,345	56%	46%	44%	83%	N/A	57%	
NP Greenway (Kelley to Slough)	PPR	Either	\$ 4,465,605	56%	58%	44%	54%	N/A	53%	
Willamette Falls Dr	West Linn	RFFA	\$ 3,497,580	33%	63%	56%	54%	N/A	51%	

**Appendix B – RFFA funding objectives**

1. Select projects from throughout the region; however, consistent with federal rules, there is no sub-allocation formula or commitment to a particular distribution of funds to any sub-area of the region.
2. Honor previous funding commitments made by JPACT and the Metro Council.
3. Address air quality requirements by ensuring State Implementation Plan for air quality requirements are met and that an adequate pool of CMAQ-eligible projects is available for funding.
4. Achieve multiple transportation policy objectives.
5. Allow use of funding for project development and local match of large-scale projects (greater than \$10 million) that compete well in addressing policy objectives when there is a strong potential to leverage other sources of discretionary funding.
6. Encourage the application of projects that efficiently and cost-effectively make use of federal funds.
7. Recognize the difference in transportation infrastructure investment needs relative to an areas stage of development (developed, developing, undeveloped) consistent with RTP Table 2.2.
8. Identify project delivery performance issues that may impact ability to complete a project on time and on budget.
9. Ensure agencies have qualifications for leading federal aid transportation projects.
10. Identify opportunities for leveraging, coordinating, and collaboration.

Materials following this page were distributed at the meeting.



# Metro's Willamette Cove

## Contingency Remedy Discussion

June 28, 2022



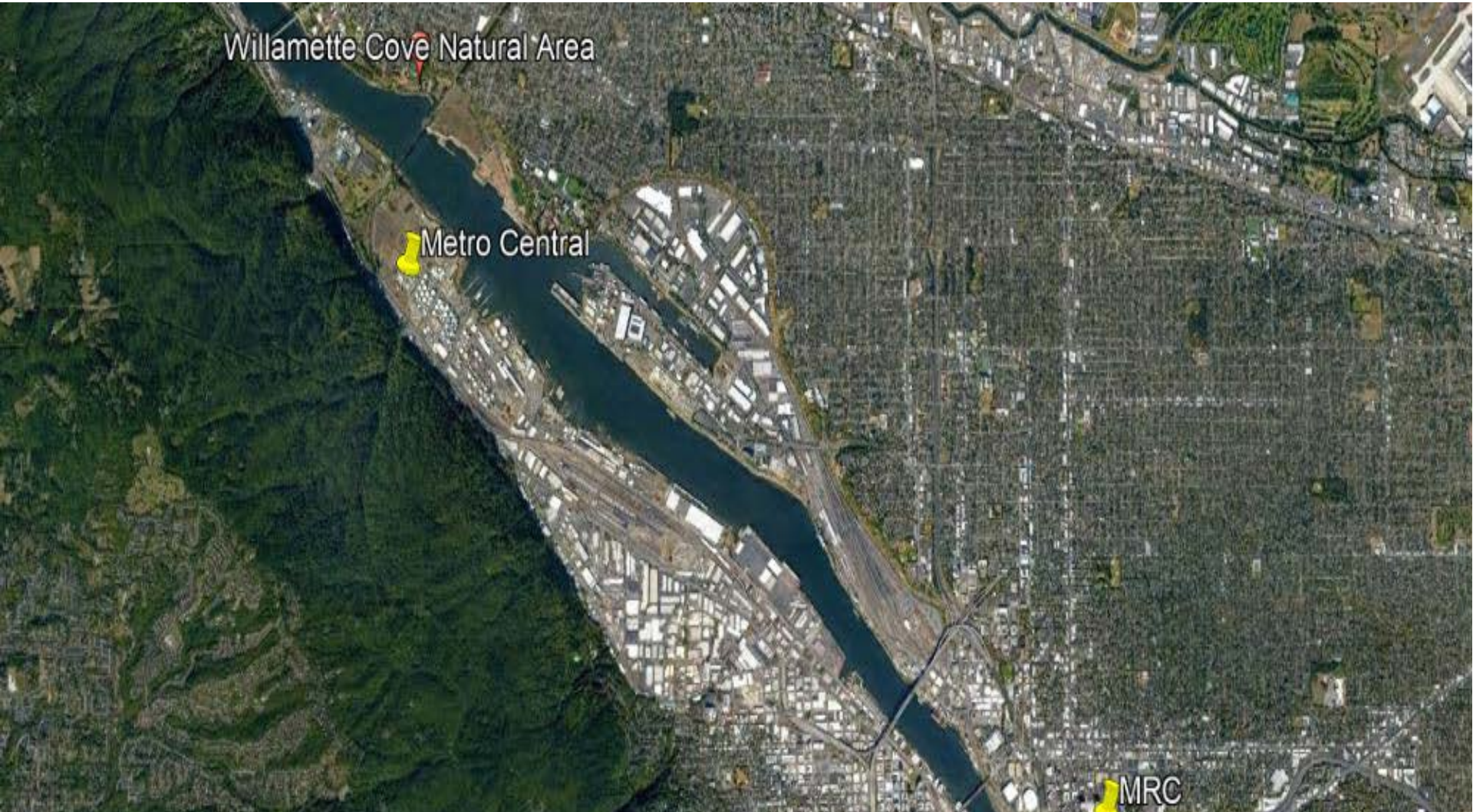
Metro



# Previous Council Direction



# Where is Willamette Cove?



# Brief look through history

- Extensive industrial activity at the site
- Metro purchased in 1996
- Been working with partners on safety issues since that time



# Willamette Cove Today





**CAUTION**  
**HAZARDS EXIST**

**PRECAUCIÓN**  
EXISTEN PELIGROS

**CẢNH GIÁC**  
CÓ NHIỀU VẬT NGUY HẠI -  
HÃY TRÁNH XA

**ВНИМАНИЕ!**  
ОПАСНАЯ ЗОНА



**AREA**  
**CLOSED**

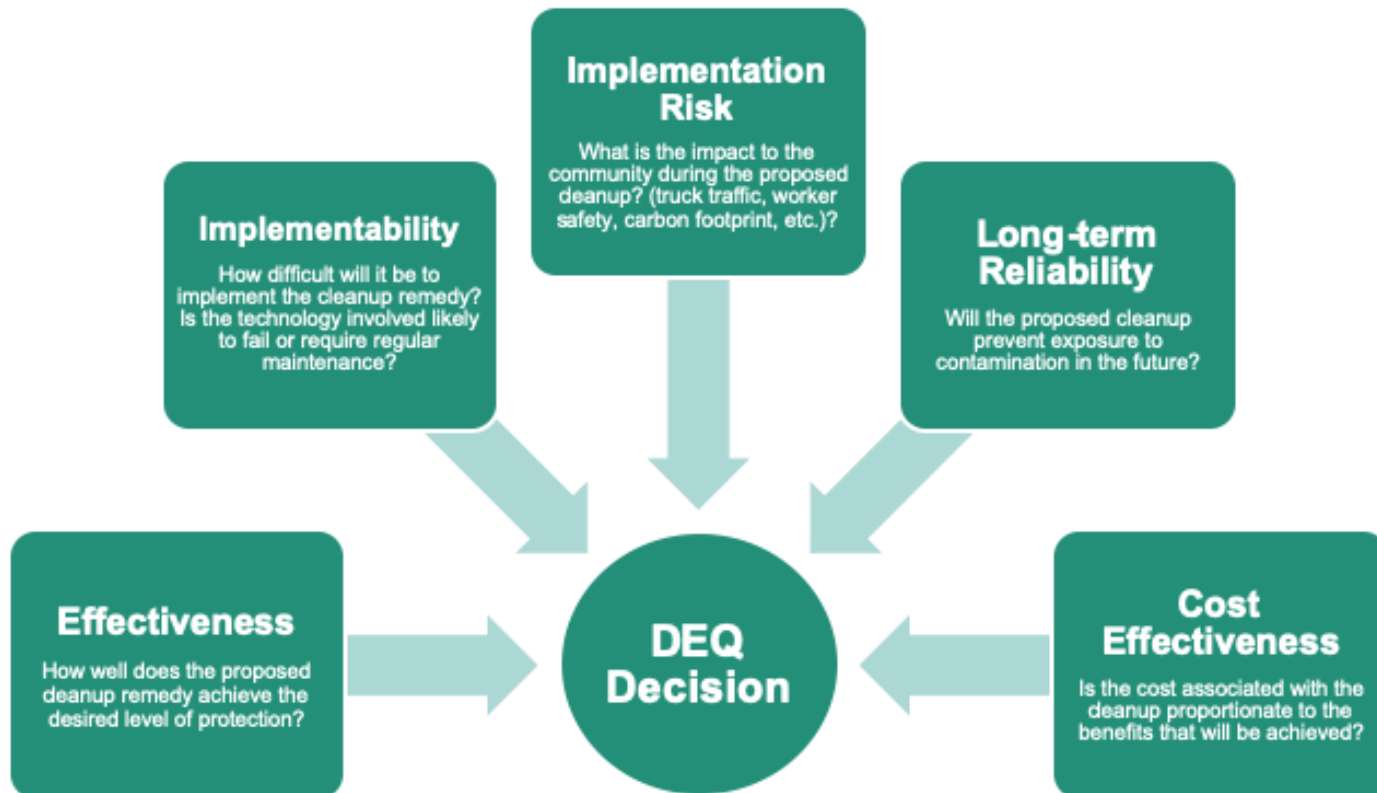
# Objectives for the site

- Prevent exposure to humans
- Prevent exposure to animals
- Remove or treat hot spots
- Prevent further migration of contamination to the river

# How a remedy is selected

## Regulatory Considerations for Selecting a Cleanup

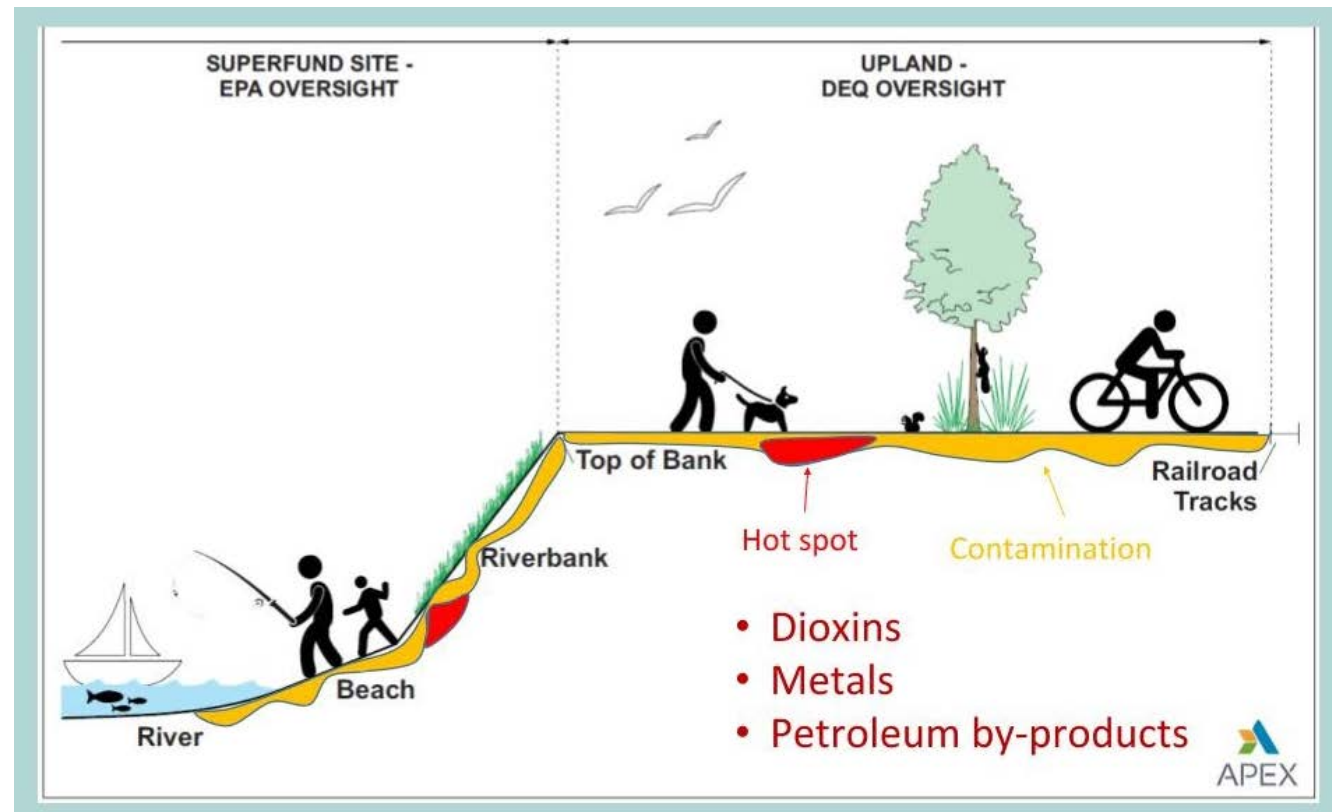
Proposed cleanups that are protective are evaluated against the following factors:





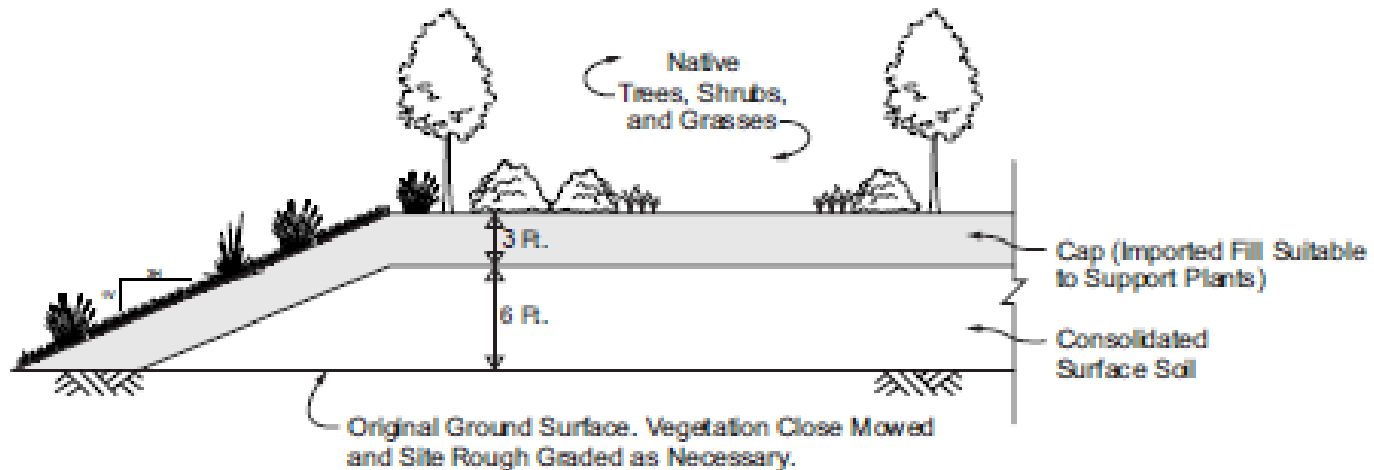
# What's going on now?

Risk levels are assessed for types of exposure in both humans and animals



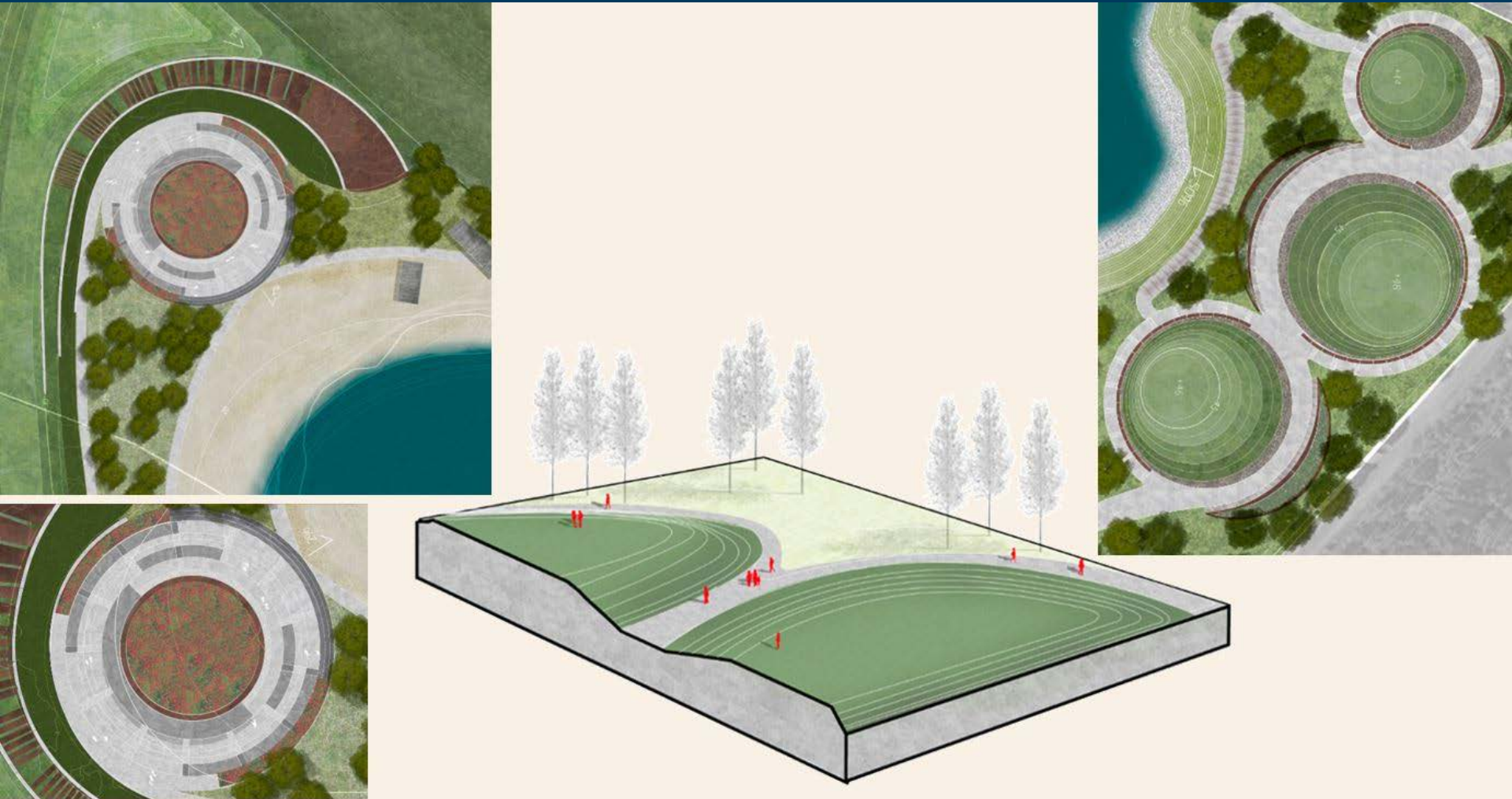


# Consolidation area example



E Soil Consolidation Area Detail  
Not To Scale

# Sample design



Landscape architecture graduate student **conceptual example**, courtesy of Rebecca Cruze

# Optional contingency remedy



# Preparing for Review

- Touring Willamette Cove
- Visiting other consolidation areas and containment cells
- Research existing community input
- Engagement with Tribes and key stakeholders

# Touring the Harbor



# Council Values for Contingency Remedy Review

- Community impacts
- Environmental impacts
- Financial costs
- Timeliness



# Building the Review Team

- Participatory Procurement
- Six Tribes and PHCC
- Articulating Values

# “Reviewing the Review”

- Report Outline and Approach
- 30% Report
- 80% Report
- Comments included

Comparison Metric	Alternative 4c (Selected Remedy)	Alternative 3b (Contingency Remedy)	Comparison Result
Future Use	No restrictions on access; Restricted land use (e.g., residential development) for consolidation area	No restrictions on access or Site use	Alternative 3b results in fewer land use restrictions; neither alternative results in future access restrictions.
Construction Impacts to the Community	Temporary increase in traffic, noise, air contaminant emissions, and potential odors (exhaust)	Temporary increase in traffic, noise, air contaminant emissions, and potential odors (exhaust)	Alternative 3b would increase the amount and duration of temporary off-site impacts compared to Alternative 4c due to increased truck traffic for larger off-site disposal volume; greenhouse gas emissions are summarized below.
Ecological Impacts and Benefits	Reduces area of contamination and consolidates excavated soils to a known, defined location on site. Excavated areas will be covered with one foot of clean soil and replanted with native species.	Removes all contaminated soil from the Site except around native tree roots that are inaccessible. Excavated areas will be covered with one foot of clean soil and replanted with native plant species.	Alternative 3b results in lower area of remaining potential ecological impact on the Site (around native tree roots only).
Truck Trips (to export contaminated soil, import clean materials)	Estimated 3,072 off-site truck trips	Estimated 5,420 off-site truck trips	Alternative 3b results in an estimated increase of 2,348 off-site truck trips.
Greenhouse Gas Emissions	Estimated greenhouse gas emissions of 213 tons of carbon	Estimated greenhouse gas emissions of 386 tons of carbon	Alternative 3b results in an estimated increase of 173 tons of carbon compared to Alternative 4c.
Project Construction Cost	\$9.5 million	\$17.5 million	Alternative 3b increases the construction cost by \$8.0 million.
Long-Term O&M Cost	\$985,000	\$230,000	Alternative 3b decreases the long-term cost by \$755,000.
NOTES: O&M= operation and maintenance. Site = Willamette Cove Upland Site.			

# Future Use

Metric	Selected Remedy	Contingency Remedy	Comparison Result
Future Use	No Restrictions on access; Restricted land use (e.g. residential development for consolidation area)	No restrictions on access or Site use	Contingency remedy results in fewer land use restrictions; neither alternative results in future access restrictions.

# Construction Impacts on Community

Metric	Selected Remedy	Contingency Remedy	Comparison Result
Construction Impacts to the Community	Temporary increase in traffic, noise, air contaminant emissions, and potential odors (exhaust)	Temporary increase in traffic, noise, air contaminant emissions, and potential odors (exhaust)	Contingency remedy would increase the amount and duration of temporary and off-site impacts compared to Selected remedy due to increased truck traffic for larger off-site disposal volume

# Ecological Impacts and Benefits

Metric	Selected Remedy	Contingency Remedy	Comparison Result
Ecological Impacts and Benefits	Reduces area of contamination and consolidates excavated soils to a known defined location. Excavated areas will be covered with one foot of clean soil and replanted with native species	Removes contaminated soil from the site except around native tree roots that are inaccessible. Excavated areas will be covered with one foot of clean soil and replanted with native plant species	Contingency remedy results in lower area of remaining potential ecological impact on the site (around native tree roots only)

# Truck Trips

Metric	Selected Remedy	Contingency Remedy	Comparison Result
Truck Trips	Estimated 3072 off-site truck trips	Estimated 5,420 off-site truck trips	Contingency remedy results in estimated increase of 2,348 off-site truck trips

# Greenhouse Gas Emissions

Metric	Selected Remedy	Contingency Remedy	Comparison Result
Greenhouse Gas Emissions	Estimated Greenhouse Gas emissions of 213 tons of carbon	Estimated Greenhouse Gas emissions of 386 tons of carbon	Contingency remedy results in an estimated increase of 173 tons of carbon compared to Selected remedy



# Project Construction Costs

Metric	Selected Remedy	Contingency Remedy	Comparison Result
Project Construction Cost	\$9.5 million	\$17.5 million	Contingency remedy increases the construction cost by \$8 million

# Long-Term O&M Cost

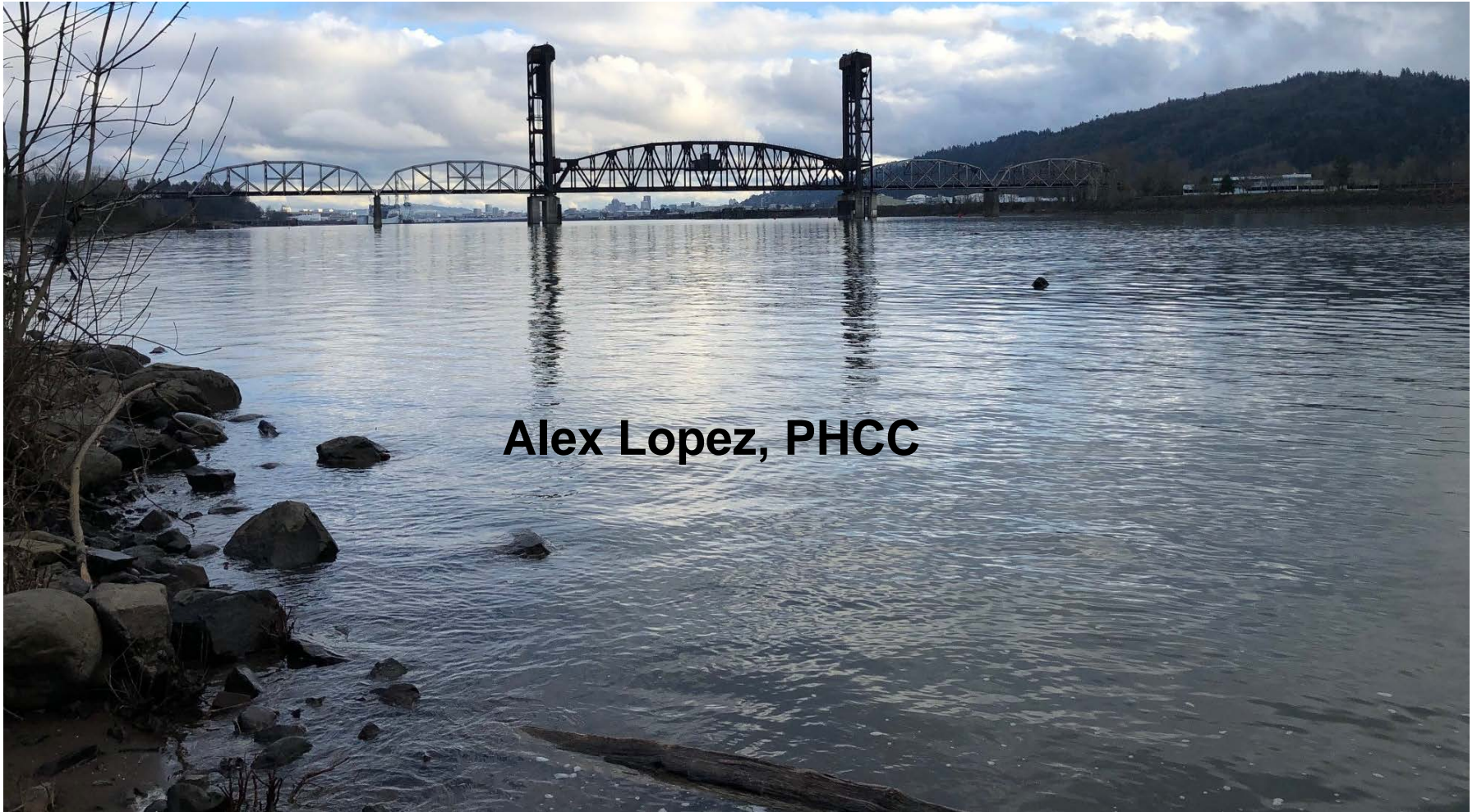
Metric	Selected Remedy	Contingency Remedy	Comparison Result
Long-Term O&M Cost	\$985,000	\$230,000	Contingency Remedy decreases the long-term cost by \$755,000

# Comments and input from Tribes

Tribes stressed the Importance of:

- Historical and ongoing relationships and uses of the Willamette River and natural resources such as First Foods;
- Recognition of the Willamette River as usual and accustomed place and traditional gathering area;
- Restoring and protecting the environment, natural resources and treaty protected resources;
- Climate change, flooding, seismic risk and ground water concerns.
- Five Tribes (Confederated Tribes of Grand Ronde, Confederated Tribes of Siletz Indians, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon and the Nez Perce Tribe) were represented by IEc (Industrial Economics Inc).
- Confederated Tribes and Bands of the Yakama Nation worked with us directly

# Invited Testimony



**Alex Lopez, PHCC**

# Scenarios

- Selected Remedy—Onsite consolidation of moderately contaminated soils; OR
- Contingency Remedy—
  - Offsite disposal of moderately contaminated soils by conveyance contemplated in MFA report
  - Offsite disposal of moderately contaminated soils by conveyance contemplated in MFA report and possibly augmented by conveyance other than trucking, if feasible

# Questions for Council

Does Council have questions or requests for additional information or data prior to your July 28, 2022 business meeting?

# Moving Forward

- July 28 Council Business Meeting
- Upland Pre-Remedial Design Sampling
- Basis of Design Report
- Preliminary design (30%)
- Intermediate design (60%)
- Final design (95%)

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# 2025-2027 Regional Funding: RFFA + Trails Bond

Presentation to Metro Council

June 28, 2022

# Two funding sources = \$67.3 million

RFFA:  
\$47.3 million  
(federal)

Trails bond:  
\$20 million  
(local)

# 29 applications received

Funding category	Number of applications	Amount requested
RFFA	14	\$79.6 million
Trails Bond	7	\$9.6 million
Either	8	\$26.5 million
Total	29	\$115.8 million*

# Applications by subregion

Subregion	Number of applications	Amount requested
Clackamas	6	\$6.1 million
Multnomah	5	\$35.8 million
Portland	9	\$57.2 million
Washington	9	\$16.7 million

# Process for selecting projects

**RFFA:**



**Bond:**



# Available information

- Outcomes Evaluation
- Risk Assessment
- Public Comment
- Coord. Comm. Prioritization
- RFFA process objectives
- Previous RFFA award
- Additional considerations

# Outcomes Evaluation criteria focused on regional investment priorities

## RFFA

Equity

Safety

Climate

Congestion Relief

## Parks & Nature Bond

Racial Equity

Climate Resilience

Community Engagement

# How criteria areas were used

**All projects**

- Equity/Safety/Climate

**RFFA only**

- Congestion

**Trails only**

- Trails



# Four Evaluation categories: funding source + project phase

## RFFA

- Planning/Project Development
- Construction

## Trails Bond

- Planning/Project Development
- Construction

# Outcomes Evaluation results

DRAFT 25-27 Project Ratings				Legend:			BEST	BETTER	GOOD			
Project	Applicant	Fund Source	Requested amt	Equity	Safety	Climate	Con. Rel.	Trails	Overall			
<b>Trails Bond Planning/PD projects</b>												
Tigard-LO Trail	Tigard	Either	\$ 245,000	67%	71%	56%	N/A	82%	69%			
Westside Trail Bridge	THPRD	Bond	\$ 1,907,500	89%	71%	33%	N/A	76%	67%			
Scott Creek Trail	Happy Valley	Bond	\$ 89,562	78%	79%	44%	N/A	47%	62%			
Brookwood Ped Overpass	Hillsboro	Either	\$ 4,500,000	44%	71%	33%	N/A	71%	55%			
Emerald Necklace Trail	Forest Grove	Either	\$ 200,000	56%	63%	33%	N/A	53%	51%			
Westside Trail: Seg 1	King City	Bond	\$ 210,000	44%	50%	22%	N/A	56%	43%			
			avg	63%	68%	37%		64%	58%			
			max	89%	79%	56%		82%	69%			
			min	44%	50%	22%		47%	43%			
			diff	44%	29%	33%		35%	26%			

# Risk Assessment Overview

- Evaluation based on:
  - Risks associated with inadequate scope, schedule, budget, or collaboration
  - Risks associated with inherent project complexities
- Evaluation considers:
  - Different funding types (RFFA vs Trails Bond)
  - Project development phases: completed vs requesting funding
- Seeks to improve project delivery, ensure projects are built as they are specified in application

# Public comment

- Online, multi-lingual survey: May 20 – June 21
- Over 1,550 responses, plus letters, email, etc.
- Used to help decision-makers understand level of public support and additional project benefits

# Next steps

- Coordinating Committee priorities: due July 22
- TPAC, JPACT discussions: July, August
- Staff recommendations: August
- TPAC recommendation, JPACT approval: September
- Council adoption: October

# Discussion

1. Are there questions about the funding processes overall?
2. Does Council have specific input on approaches to using the criteria areas?
3. Does Council have specific outcomes they want to accomplish through this funding allocation process?
4. Is there specific information you wish to communicate to TPAC and JPACT to help inform their discussions?



Metro

# Discussion

**[oregonmetro.gov/RFFA](https://oregonmetro.gov/RFFA)**

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